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EXPLORATION LICENCE 2/70 MACKINTOSH

TASMANIA

TECHNICAL PROGRESS REPORT

FOR THE PERIOD

DECEMBER 1985 TO FEBRUARY 1988

VOLUME 1

TEXT AND APPENDICES 1-5

89-3006
VOL 1/5

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PLATES (Volumes 4 and 5)

Number	Scale	Title
HEL 103 Pb	1:1000	10900N Core Grind Geochemistry
HEL 103 Zn	1:1000	10900N Core Grind Geochemistry
HEL 103 As	1:1000	10900N Core Grind Geochemistry
HEL 103 Hg	1:1000	10900N Core Grind Geochemistry
HEL 103 Ba	1:1000	10900N Core Grind Geochemistry
HEL 108A	1:2500	Hellyer Seismic Interp. Line 10600N - West
HEL 108B	1:2500	Hellyer Seismic Interp. Line 10600N - East
HEL 109	1:2500	Hellyer Seismic Interp. Line 10800N
HEL 110	N/S	Original Data - Final Stack Hellyer Seismic 10600N
HEL 111	N/S	Original Data - Final Stack Hellyer Seismic 11800N
MAC 89FF	1:2500	Outcrop Geology
MAC 89GG	1:2500	Outcrop Geology
MAC 89WW	1:2500	Outcrop Geology
MAC 97A	1:10000	Mackintosh/Hatfield - Interpretive Cross Sections
MAC 97B	1:10000	Mackintosh/Hatfield - Interpretive Cross Sections
MAC 97C	1:10000	Mackintosh/Hatfield - Interpretive Cross Sections
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MAC 111B	1:10000	Interpretive Geology
MAC 111C	1:10000	Interpretive Geology
MAC 110D	1:10000	Outcrop Geology
MAC 111B/E	1:10000	Stacked ground magnetic profiles
MAC 111C/E	1:10000	Stacked ground magnetic profiles
MAC 113B	1:10000	UTEM and EM-37 coverage
MAC 113C	1:10000	UTEM and EM-37 coverage
MAC 114	N/S	Surface geological mapping legend
MAC 115	N/S	Legend for 1:1000 Cross Sections
MAC 134	1:1000	DDH MAC-5 - Cross section 9200N, Mine grid E-W
MAC 134A	1:1000	DDH MAC-5 - Core grind geochemistry
MAC 148DD	1:2500	Outcrop Geology
MAC 148EE	1:2500	Outcrop Geology
MAC 148 4	1:2500	Outcrop Geology
MAC 155	1:1000	Image processed Ground Magnetics
MAC 165	1:1000	MAC-11 - Cross section 10400N
MAC 165A1	1:1000	DDH MAC-11 Core grind geochemistry
MAC 165A2	1:1000	DDH MAC-11 Core grind geochemistry
MAC 168 f	1:10000	Image processed Soil geochemistry - Cu
MAC 168 e	1:10000	Image processed Soil geochemistry - Pb
MAC 168 c	1:10000	Image processed Soil geochemistry - Zn
MAC 168 a	1:10000	Image processed Soil geochemistry - Ba
MAC 168 b	1:10000	Image processed Soil geochemistry - As
MAC 168 d	1:10000	Image processed Soil geochemistry - Cr
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MAC 249 C	1:10000	EL 2/70 Mackintosh Exploration Activity 1986-88
MAC 250	1:10000	Stacked ground magnetic profiles - Barite Creek

MAC 260AA	1:2500	Soil Geochemistry - Sample Locations
MAC 260DD	1:2500	Soil Geochemistry - Sample Locations
MAC 260EE	1:2500	Soil Geochemistry - Sample Locations
MAC 260FF	1:2500	Soil Geochemistry - Sample Locations
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6. Hellyer facilities - Storage Dam, interpretative geology

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4. Soil Geochemistry - Check and Comparative assays.
5. Soil Geochemistry - lithological indicator elements - assay results.
6. Hellyer Alteration Study - assay results.
7. Seismic Reflection surveys, Mackintosh EL and ML, Western Tasmania.
8. UTEM Surveys - EL 2/70 Mackintosh December 1985 - February 1988.
9. DDH MAC-5, detailed log and petrology report.
10. DDH MAC-5, core grind geochemistry.
11. DHEM Surveys - EL 2/70 Mackintosh December 1985 - February 1988.
12. Diamond drill core magnetic susceptibility. Mackintosh Area, Tasmania.
13. DDH BDP-10 - detailed log, petrology report and Core grind geochemistry.
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17. Hellyer facilities - DDH MAC-11 - Core grind geochemistry.
18. Hellyer facilities - petrology reports.
19. Hellyer facilities - Rock chip geochemistry - Sample locations and assay results.
20. Southwell prospect - petrology reports.
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23. Southwell prospect - Wacka sampling - assay results and sample locations.
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1. SUMMARY

Areas of exploration activity on the Mackintosh licence for the period December 1985 to February 1988 are shown on plates MAC 249B and C. Work completed includes:

i) A detailed study of the petrology and geochemistry of the hangingwall volcaniclastic (HVS) and Switchback volcaniclastic (SWB) was completed, while the eastern extension of the SWB into the Southwell valley was tested by soil geochemistry, UTEM, ground magnetics and mapping. No base metal targets were defined but, a Au target at the intersection of the Que-Cripps and Henty fault warrants follow-up.

ii) In the Barite Creek area, mapping has located the basal part of the Que-Hellyer volcanics (QHV) separated from a sequence of dominantly felsic volcanics by the Henty fault zone. This latter sequence includes weakly mineralised basic lavas the significance of which is not understood. Soil sampling failed to generate any base-metal targets and the major potential of this area appears to be for Au in the Henty fault zone.

iii) A base metal poor pyritic pod in fuchsite altered Tyndall Group volcaniclastics, the Murrays Rd prospect, was surveyed by UTEM. No drill targets were generated.

iv) Two areas, to be affected by Construction of facilities for the Hellyer development Mill Site and Storage Dam, were explored by mapping, reviewing previous exploration data, rock chip sampling and diamond drilling (839m). No targets were generated that would preclude construction in these areas.

v) Investigation into the use of lithogeochemical discriminators, Cr vs. Zr/Ti in rock chips and Cr and Cu in soils, was completed and applied on a licence wide scale. A study of the primary and alteration geochemistry and mineralogy of the sequence hosting the Hellyer deposit was also completed and has outlined a characteristic alteration plume hangingwall to the ore body.

2. INTRODUCTION

Exploration Licence 2/70 (Mackintosh River) is divided into two parts Mackintosh (90 km^2) and Mackintosh East (35 km^2) (Figure 1).

Mackintosh East was subject to a joint venture with Cyprus Minerals Australia and Geopeko Ltd. from which Cyprus withdrew in February 1987. This portion of the licence was subsequently relinquished on 4 May 1987. Results of exploration on this area have been reported separately by the joint venture partners.

The Mackintosh area encloses CML 68M/84 surrounding the Que River Mine, and six 1 km^2 Mineral Lease Applications covering the Hellyer deposit and environs. The six Mineral Leases were granted on 1 April 1986 and consolidated to form Consolidated Mineral Lease 20M/86. Subsequently a further 13 MLA's (50-62M/86) were pegged on 3 September 1986 (Figure 2). Of these 50-55M/86, 59M and 60M/6 were granted as part of the Hellyer Mine Agreement Ratification Act 1987, and consolidated with CML 20M/86, to form CML 103M/87 on 1 February 1988.

EL 2/70 and the enclosed CML's were subject to the Mackintosh Joint Venture between Aberfoyle (90%) and Paringa Mining and Exploration Co. P.L.C. (10%) that was terminated on 16 December 1986 by Aberfoyle's purchase of the minor interest. Aberfoyle Resources is now the sole owner of these areas.

The Mackintosh Licence was due to expire on 30 December 1987 but tenure was extended and combined with EL 15/73 to form EL 106/87 (Lake Mackintosh) on 5 February 1988 as part of the Hellyer Mine Agreement Ratification Act 1987.

This report records exploration completed on the Mackintosh Licence, including the Hellyer MLA's, for the period December 1985 to February 1988. Much data derived from earlier work and exploration on the adjacent EL 15/73 (Hatfield) is also included as part of regional programmes, aimed at a better understanding of the geology and mineralising systems of the Que-Hellyer volcanics (QHV) and how best to explore this rock-package.

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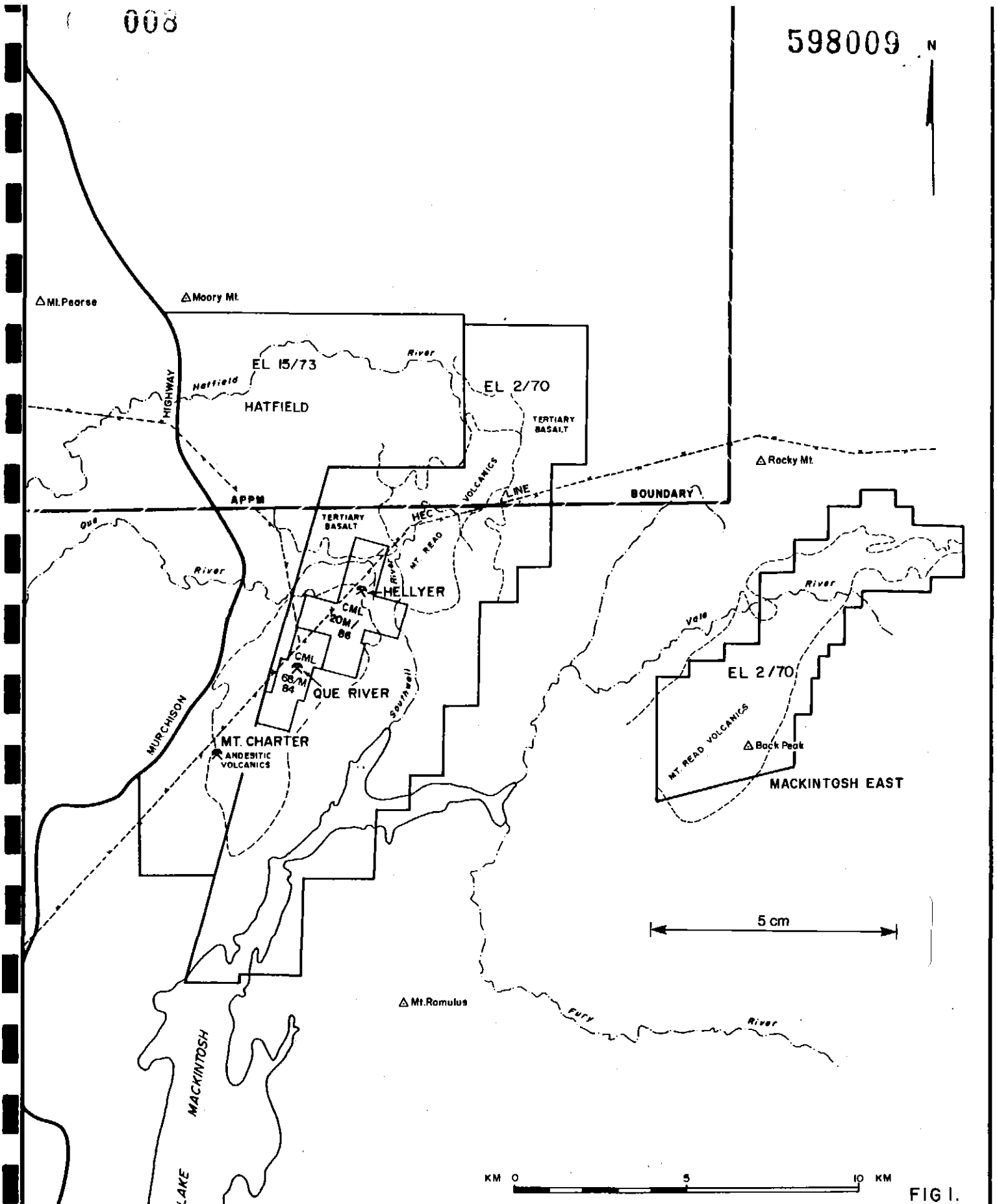


FIG I.

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Init.	Date	Init.	Date
KERD	19-3-85		
KERD	7-86		
KERD	2-87		

NORTH WEST TASMANIA

HATFIELD – MACKINTOSH

Tenure Summary

Location Code : K55/6/44

Scale: 1:100,000

Date: September, 1984

Compiled: KERD

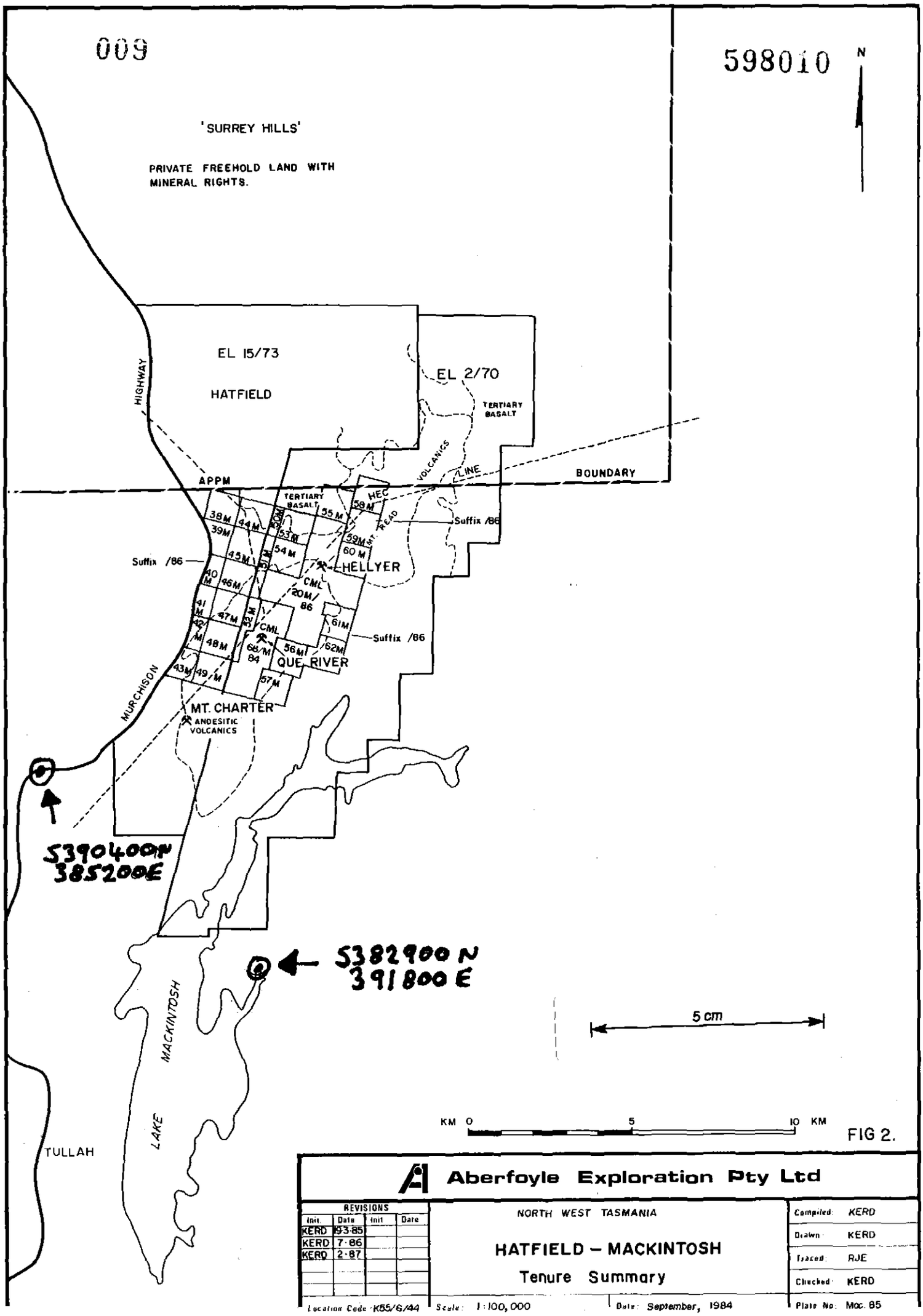
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Checked: KERD

Plate No: Mac 85/8

RMO 856



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REVISIONS			
Init.	Date	Init	Date
KERD	3-85		
KERD	7-86		
KERD	2-87		

NORTH WEST TASMANIA

HATFIELD – MACKINTOSH

Tenure Summary

Compiled:	KERD
Drawn:	KERD
Traced:	RJE
Checked:	KERD
Plate No:	Mac. 85

Location Code: K55/6/44 Scale: 1:100,000 Date: September, 1984

3. GEOLOGY

3.1 The Hangingwall Volcaniclastic Sequence

Following 1:2500 scale mapping and the drilling of DDH MAC-1 it was recognised that the Switchback volcaniclastic (SWB) correlated with the Hangingwall Volcaniclastic Sequence (HVS) (Hespe 1986). A programme to characterise the HVS in the vicinity of Hellyer, with the ultimate aim of defining the source of sulfide fragments in this horizon, was commenced. Initial results, from DDH MAC-1 were reported in Hespe (1986) and an expanded study involving DDH's MAC 1-5 and HL 15 and 48 was completed during this reporting period. A report is included as Appendix 1. Major conclusions are :

i) The HVS (andesitic-basaltic, less polymictic with a more uniform clast size with no Pb-Zn rich base metal sulfide fragments) in holes HL 15 and 48 differs considerably from the SWB (highly polymict, with variable clast size and common BMS fragments) in DDH's MAC-1, 2, 3 and 5 while DDH MAC-4, midway between Hellyer and the Switchback, has characteristics of both types.

ii) The SWB has been altered in-situ.

iii) The common pink fragments in the SWB are not dacitic but form a distinct group between andesite and dacite. The source of these fragments is not obvious.

iv) Classification of both fresh and altered rock types using Cr vs Zr/Ti has been confirmed (see also section 4.2).

v) The source of the sulfide fragments is still unknown.

3.2 Regional Cross Sections and Mapping

3.2.1 Regional Mapping

A programme of 1:10,000 scale regional mapping was continued to complete coverage of EL's 2/70 and 15/73. During the reporting period mapping was completed both North of Hellyer and on the southern part of EL 2/70. Outcrop and interpreted geology are summarised on plates MAC 111B and C and MAC 110D, while petrographic descriptions and rock chip geochemistry are included in Appendix 2. Major results were :

i) The Henty fault zone was located on the shore of Lake Mackintosh and its position as mapped by Corbett and McNeill (1986) confirmed. The fault zone contains farrell slate equivalents and mica sandstone (similar to

the Animal Creek Greywacke) with feldspar-phyric andesitic-dacitic lava, of the Central Volcanic Complex, to the west and Owen conglomerate and regionally fuchsite-pyrite altered quartzite of the Eldon Group, to the east.

Rock chip sampling of haematitic and quartz veined lithologies for gold (max.17 ppb) was disappointing as were base metal values in this area.

ii) Mapping east of the South Charter track located basalt and erratically distributed feldspar-phyric andesite intruded by rhyolitic-dacitic bodies, which conformably overly correlates of the Animal Creek Greywacke. These lithologies occur in an apparent syncline that is cut by the NW trending Charter fault.

iii) In the northern part of the Hatfield EL, south of Romney Moor a window in Tertiary basalt exposes interbedded mica sandstone and felsic lava. The stratigraphic position of these rocks, i.e. above or below the QHV, has not been determined.

iv) Mapping on the Cradle Mt. link road and forestry tracks N.E. of Hellyer, located a zone of fuchsite alteration (Section 8) in a sequence of red-brown fine to coarse volcaniclastics that are probable correlates of the Tyndall Group. These are underlain by a sequence of shale, sandstone, grit, conglomerate and fine to medium lapilli volcaniclastic with bodies of probable shallow intrusive rhyolite. The Henty fault zone was not located in the position mapped by Komyshan (1986).

3.2.2 Regional Cross Sections

Cross sections at 1:10,000 scale have been updated using recent diamond drilling and surface mapping, at both 1:10,000 and 1:2,500, to produce plates MAC 97A, B, C and D (see plate MAC 111C for legend). Major features incorporated into these sections include :

i) Some thickness control on the QHV has been provided by DDH MC-15 (470m), HAT-5 (280m) and MAC-10 (350m) that indicate the volcanics are thinner than was originally thought, although there are indications that the sequence thickens to the east.

ii) A mappable lower basalt unit, conformably underlain by micaceous sandstone with some basalt lenses, has been defined.

iii) The Central Volcanic complex conformably underlies the Animal Creek Greywacke.

iv) A large dolerite body has been recognised north of 11000N and it would appear this and other dolerites in the Mackintosh district are sills in the QRS and Upper Rhyolitic Sequence.

v) Clarification of fold structures on line 7500N with the old mill site syncline to the west and the tight to isoclinal Que River Synclinorium to the east.

vi) Recognition of the Charter fault and western extension of the Que fault.

vii) The presence of andesite, rather than basalt, below the QRS near Mt. Charter and the large rhyolitic-dacitic intrusive east of Mt. Charter.

viii) The Henty fault has been located from Lake Mackintosh to the Southwell River (although a more recent interpretation suggests it is truncated by the Que-Cripps fault system north of the Sharks fin track (section 10.2)).

ix) Steep dips east of Hellyer are indicated by DDH MAC-11 while a major fault immediately east of the Hellyer anticline (8700-9600N) has been intersected by DDH MAC-2 and 3.

4. GEOCHEMISTRY

4.1 Mercury

Studies of the Que River deposit by Carr et al (1986) indicate that high contrast "C" horizon soil Hg anomalies occur over the ore body. A programme to determine if Hg geochemistry could detect blind mineralisation in the QHV and whether Hg is more effective than pathfinders currently in use, was initiated. Sampling covered mineralised and altered systems on both the Mackintosh and Hatfield exploration licences and the Hellyer and Que River Mining Leases.

Results are included as Appendix 3. Major conclusions are as follows :

i) Anomalous Hg occurs over all altered and mineralised systems but generally accompanied by other pathfinder elements e.g. As and Ag.

ii) The presence of Hg and other elements in weakly anomalous abundances above Hellyer indicates Hg is not travelling as a vapour but is being dispersed by the same mechanism as other elements. There would appear therefore to be no advantage in sampling for Hg.

Further Hg sampling was not recommended.

4.2 Lithological Indicator Elements

Initial studies of techniques for discriminating basalt, andesite and dacite by trace element geochemistry have been completed on samples from the immediate vicinity of Hellyer and the Switchback area (Hespe 1986). Follow-up work during this reporting period involved the selection of 120 drill core assays from holes in the vicinity of the Que River and Hellyer deposits, where stratigraphy is well understood, and for which reliable assay data was available (Table 1). These results were then plotted on a Cr vs Zr/Ti diagram (Figure 3) and fields for basalt, andesite and dacite defined. These fields show good separation and are consistent with petrographic descriptions.

All basalt samples in this study were from the hangingwall basalt at Hellyer and have Cr >300 ppm and Zr/Ti ratios from .013 to .041. Two trends are obvious on Figure 3b and these represent the upper and lower lavas identified in the Hellyer alteration study (Section 4.4 and Hespe 1986).

LOCATION	R	Cr	Ni	Zr	Ti	Zr/Ti	T	ANALYST	
HL14/234.1	A	86	43	150	4000	.370000E-01	CG	ANDEL	↓
HL14/235.3	A	175	1600	120	4150	.290000E-01	CG		
HL14/250.0	A	94	436	110	3700	.300000E-01	CG		
HL14/275.0	A	120	41	115	3800	.300000E-01	CG		
HL14/284.0	A	88	34	115	3550	.320000E-01	CG		
HL14/304.5	A	140	76	96	2700	.350000E-01	CG		
HL14/306.0	A	76	40	115	3000	.380000E-01	CG		
HL14/314.1	A	94	22	130	3700	.350000E-01	CG		
HL30/291.6	A	10	3	155	3300	.470000E-01	SC	TASUNI	↓
HL30/302.1	A	7	3	162	3400	.480000E-01	SC		
HL30/319.5	A	3	2	167	3800	.440000E-01	SC		
HL30/370.4	A	126	33	114	3850	.300000E-01	SC		
HL30/410.7	A	105	27	97	3200	.300000E-01	SC		
HL30/446.1	A	88	25	112	3350	.336000E-01	SC		
HL30/469.2	A	97	26	134	3900	.340000E-01	SC		
HL30/483.7	A	73	22	113	3250	.350000E-01	SC		
HL17/152.8	A	1	1	150	3000	.500000E-01	SC	CSIRO	↓
HL17/158.5	A	155	45	185	5240	.350000E-01	SC		
HL17/165.0	A	80	30	130	3720	.350000E-01	SC		
QR32/314.65	A	161	0	109	4020	.270000E-01	SC		
QR46/x120x	A	54	0	170	4090	.440000E-01	SC		
QR46/x120x	A	107	0	140	3600	.390000E-01	SC		
QR46/x120x	A	92	0	125	3540	.350000E-01	SC		
QR46/x120x	A	88	0	114	3120	.370000E-01	SC		
QR46/x120x	A	97	0	110	3360	.350000E-01	SC		
QR46/x120x	A	64	0	162	3700	.430000E-01	SC		
QR46/x120x	A	120	0	133	3360	.400000E-01	SC		
QR46/x120x	A	58	0	150	3420	.440000E-01	SC		
QR46/x120x	A	57	0	149	3360	.440000E-01	SC		
QR46/x120x	A	73	0	151	3240	.470000E-01	SC		
QR46/x120x	A	73	0	123	2800	.430000E-01	SC		
QR110/193.9	A	132	0	90	2940	.310000E-01	SC		
QR110/211.6	A	133	0	143	4140	.350000E-01	SC		
QR110/238.1	A	119	0	140	4140	.290000E-01	SC		
QR110/245.1	A	91	0	138	4320	.320000E-01	SC		
QR110/282.7	A	90	0	125	3900	.320000E-01	SC		
QR110/309.4	A	67	0	123	3537	.350000E-01	SC		
QR110/341.4	A	407	0	104	3660	.280000E-01	SC		
HL55/73.3	B	467	77	109	2900	.380000E-01	SC	TASUNI	↓
HL55/83.0	B	588	93	143	3550	.400000E-01	SC		
HL55/89.3	B	571	91	135	3600	.370000E-01	SC		
HL55/91.85	B	527	89	128	3500	.360000E-01	SC		
HL55/99.85	B	505	93	134	3400	.390000E-01	SC		
HL55/100.85	B	545	98	135	3500	.390000E-01	SC		
HL55/101.6	B	445	67	114	3000	.380000E-01	SC		
HL55/102.7	B	453	86	114	3100	.370000E-01	SC		
HL55/111.85	B	589	77	153	4100	.370000E-01	SC		
HL55/116.2	B	510	84	147	3900	.380000E-01	SC		
HL55/116.6	B	486	51	119	3200	.370000E-01	SC		
HL55/123.3	B	460	69	131	3500	.370000E-01	SC		
HL55/124.85	B	615	110	181	4700	.390000E-01	SC		
HL55/129.0	B	371	71	109	2650	.410000E-01	SC		
HL[illegible]29.45	B	495	78	131	3400	.390000E-01	SC	TASUNI	↓
HL55/133.5	B	592	112	173	4550	.380000E-01	SC		
HL55/141.1	B	654	113	171	4450	.380000E-01	SC		
HL55/151.5	B	476	103	150	3850	.390000E-01	SC		
HL55/154.0	B	757	193	54	2300	.230000E-01	SC		
HL55/157.65	B	761	187	51	1850	.280000E-01	SC		
HL55/165.3	B	771	232	55	2400	.230000E-01	SC		
HL55/166.9	B	759	192	53	2100	.250000E-01	SC		
HL55/175.8	B	1417	298	85	4000	.210000E-01	SC		
HL55/183.3	B	845	230	57	2450	.230000E-01	SC		
HL55/189.6	B	965	311	60	2950	.230000E-01	SC		
HL55/191.0	B	1363	388	80	3350	.240000E-01	SC		
HL55A/193.3	B	922	306	64	2800	.230000E-01	SC		
HL55A/198.2	B	1261	276	86	3900	.230000E-01	SC		
HL55A/202.85	B	830	120	56	2300	.240000E-01	SC		
HL55A/207.75	B	967	247	61	2950	.210000E-01	SC		
HL55A/218.35	B	880	193	56	2400	.230000E-01	SC		
HL55A/223.15	B	954	289	73	3000	.240000E-01	SC		
HL55A/232.8	B	1387	280	85	3550	.240000E-01	SC		
HL55A/239.2	B	837	289	60	2650	.220000E-01	SC		
HL55A/246.8	B	721	221	59	2700	.220000E-01	SC		
HL55A/257.35	B	770	227	56	2450	.230000E-01	SC		↓
HL14/89.6	B	930	290	60	2200	.270000E-01	CG	ANDEL	↓
HL14/92.0	B	940	296	56	2100	.270000E-01	CG		
HL14/112.0	B	640	186	135	4500	.300000E-01	CG		
HL14/118.0	B	630	211	135	4250	.320000E-01	CG		
HL14/121.0	B	560	171	130	3800	.340000E-01	CG		
HL14/144.0	B	570	151	150	4200	.360000E-01	CG		
HL14/187.0	B	570	138	140	4150	.340000E-01	CG		
HL14/189.0	B	540	130	160	4500	.360000E-01	CG		
HL14/199.0	B	230	183	115	2950	.390000E-01	CG		
HL14/201.0	B	990	297	58	2950	.200000E-01	CG		
HL14/213.0	B	860	290	54	2750	.200000E-01	CG		
HL14/223.0	B	840	259	70	3200	.220000E-01	CG		↓
HL17/81.3	D	700	210	55	2500	.210000E-01	SC	CSIRO	↓
HL17/92.0	B	680	215	60	2700	.220000E-01	SC		
HL17/106.6	B	595	195	55	2520	.220000E-01	SC		
HL17/110.6	B	585	195	55	2460	.220000E-01	SC		
HL18/178.5	B	425	200	40	1620	.250000E-01	SC		
HL18/181.7	B	595	250	55	2520	.220000E-01	SC		
HL18/190.0	B	645	280	55	2460	.220000E-01	SC		
HL18/208.2	B	800	245	75	3600	.210000E-01	SC		
HL18/222.0	B	680	265	45	3300	.140000E-01	SC		
HL18/224.5	B	620	225	35	2640	.130000E-01	SC		
HL18/238.6	B	525	195	65	2700	.250000E-01	SC		
HL18/245.9	B	610	240	45	2760	.160000E-01	SC		
HL18/251.5	B	570	240	50	2820	.180000E-01	SC		
QR58/120.35	D	52	0	156	2160	.720000E-01	SC		
QR58/84.7	D	29	0	154	2100	.730000E-01	SC		
QR58/109.8	D	48	0	168	2150	.780000E-01	SC		
QR58/130.2	D	47	1	171	2280	.750000E-01	SC		
QR58/119.85	D	46	0	164	2160	.760000E-01	SC		
QR58/144.85	D	45	0	159	2400	.660000E-01	SC		
QR58/56.7	D	53	0	168	2340	.720000E-01	SC		
QR58/78.8	D	37	0	163	2280	.720000E-01	SC		
[illegible]38/58.9	D	44	0	164	2340	.700000E-01	SC	CSIRO	↓
QR58/67.8	D	48	0	167	2400	.700000E-01	SC		
QR14/149.1	D	21	0	196	2160	.910000E-01	SC		
QR14/156.2	D	14	0	137	1560	.880000E-01	SC		
QR29/242.2	D	78	0	105	1680	.630000E-01	SC		
QR29/252.9	D	61	0	109	1740	.630000E-01	SC		
QR478/53.6	D	33	0	177	1730	.100000	SC		
QR478/70.1	D	49	0	163	2090	.780000E-01	SC		
QR478/78.6	D	24	0	151	1500	.100000	SC		
QR478/96.7	D	33	0	162	1910	.840000E-01	SC		
QR478/174.8	D	20	0	181	1800	.101000	SC		↓

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R = ROCK TYPE

T = SAMPLE TYPE

A = ANDESITE

B = BASALT

D = DACITE

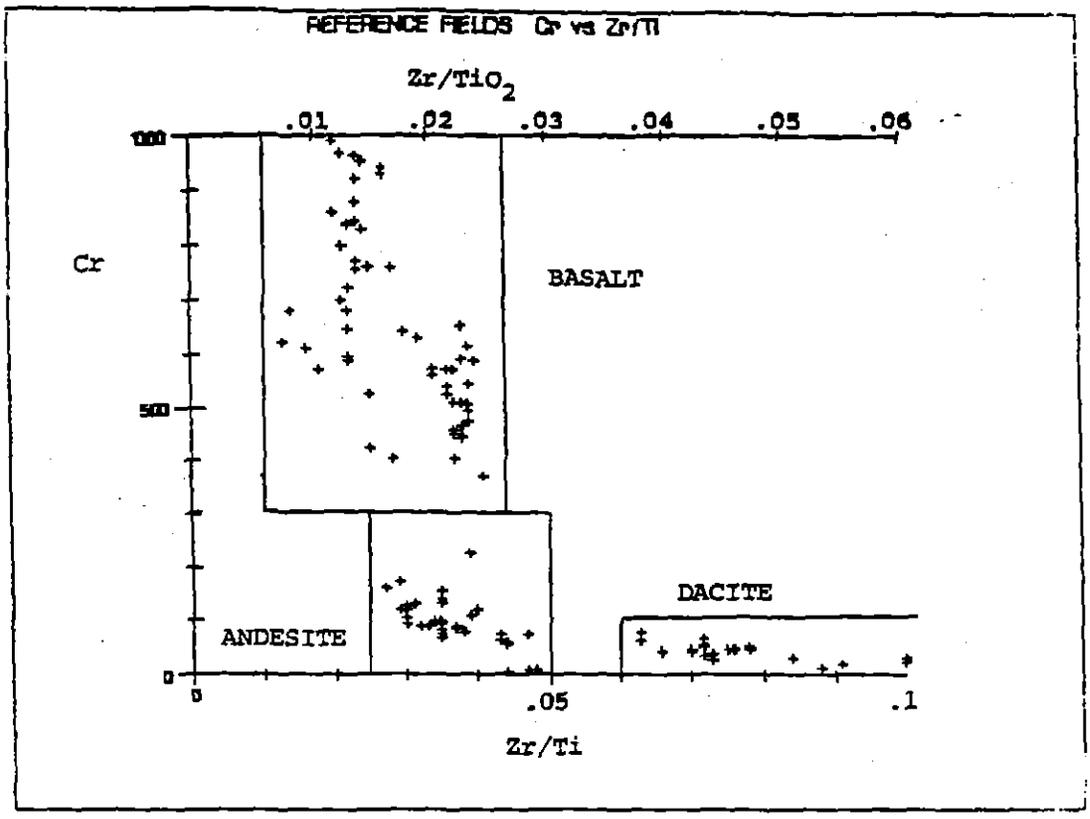
CG = CORE GRIND

SC = SPLIT CORE

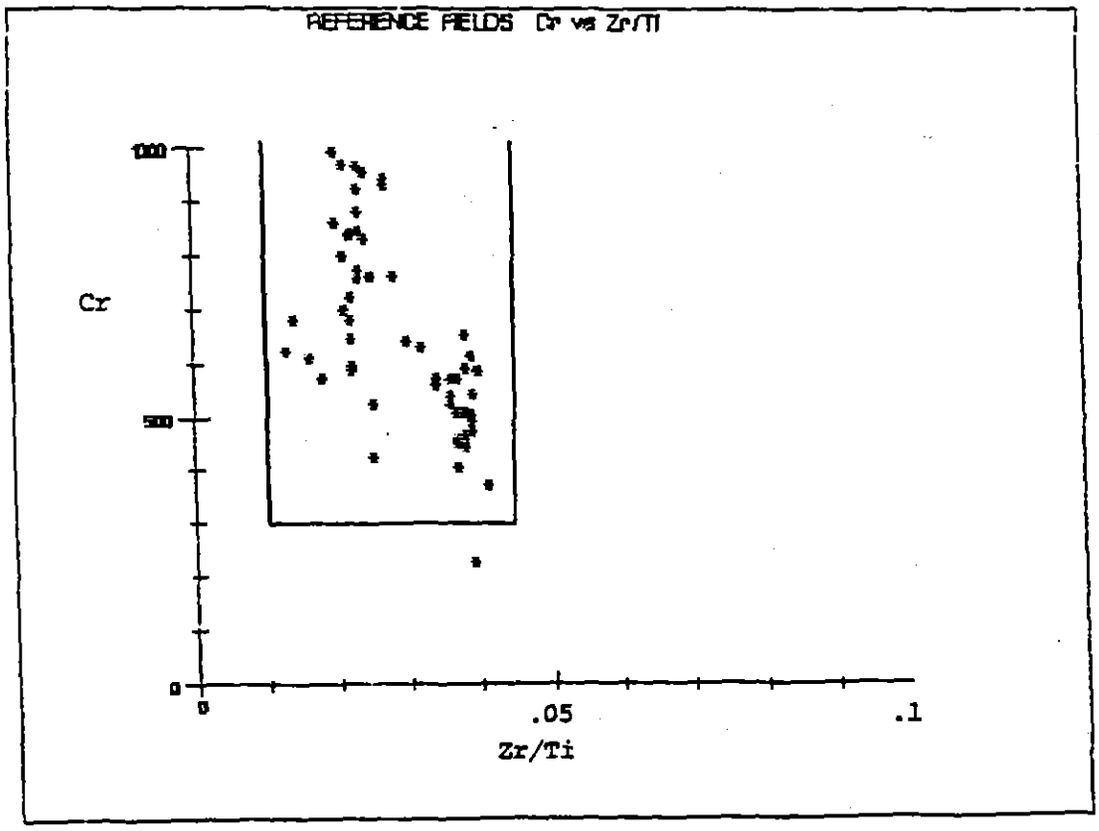
Table I. Selected Drill Core Assays

598015

Figure 3. Cr vs Zr/Ti plots - Selected Samples

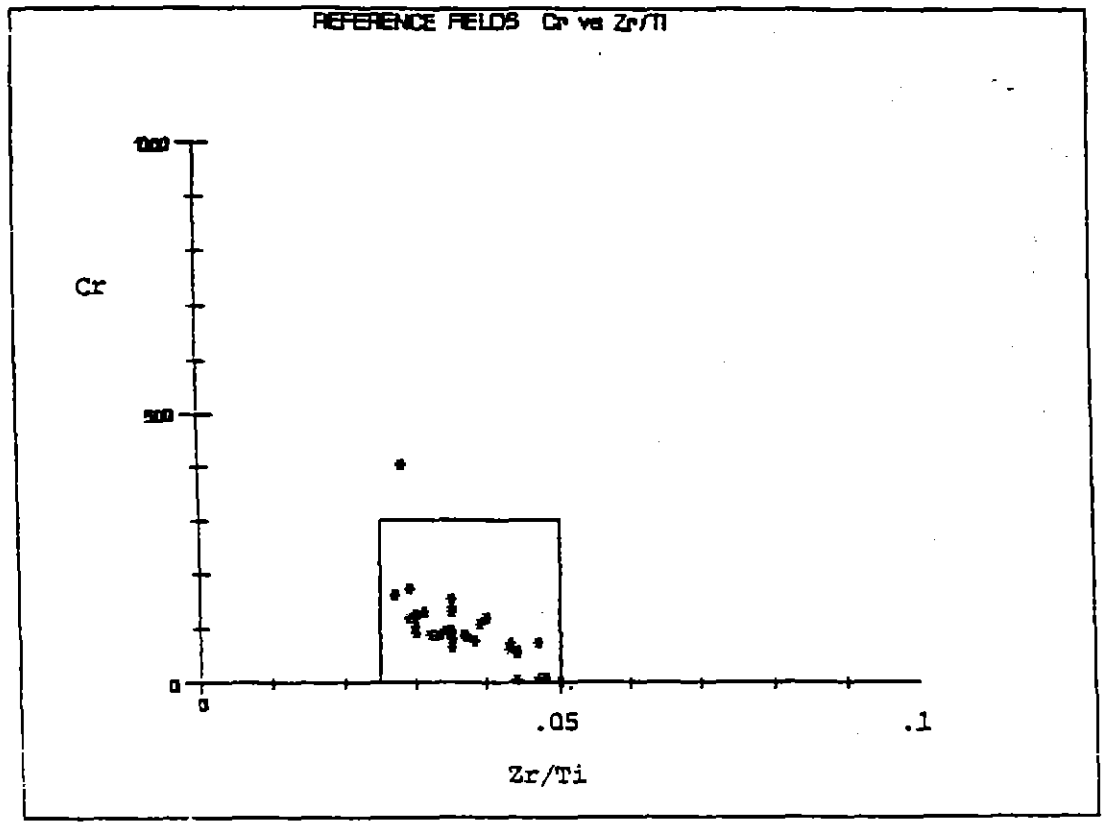


a. ALL ROCK TYPES

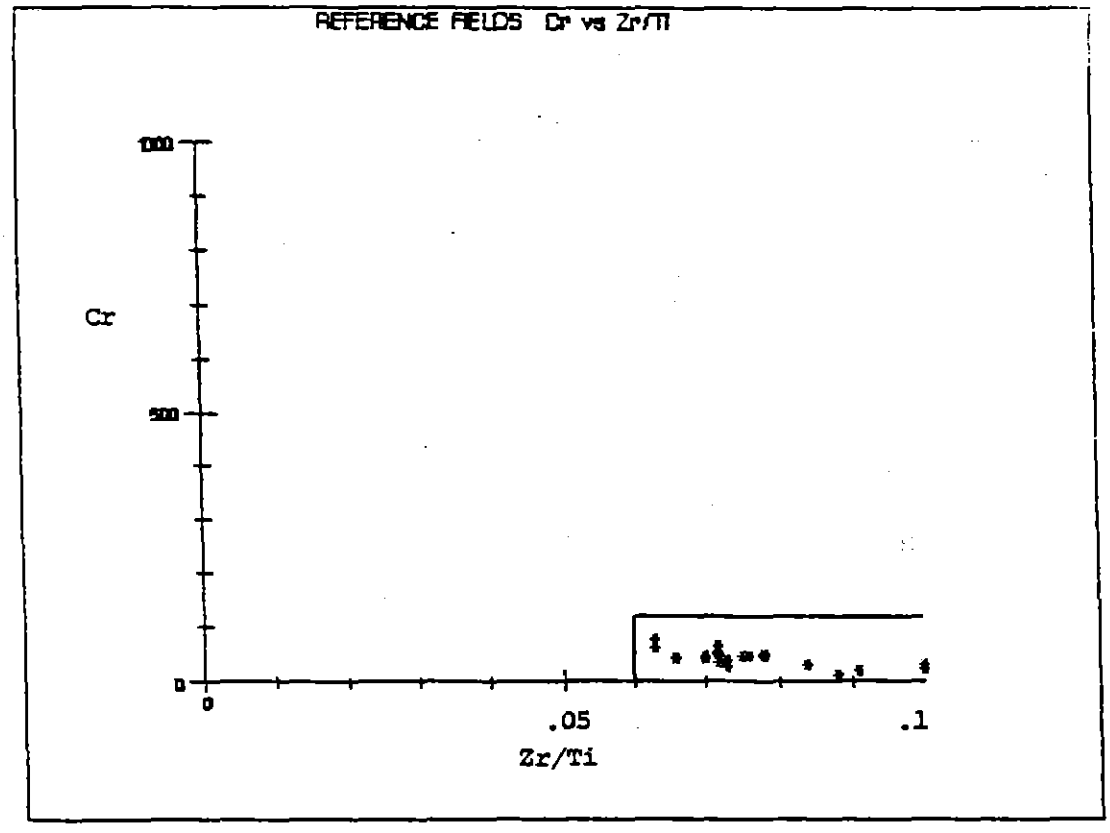


b. BASALT

Figure 3. Cr vs Zr/Ti plots - Selected Samples



c. ANDESITE



d. DACITE

Andesites, from both Que River and Hellyer, have Cr <300 ppm and Zr/Ti of .027 - .05 while dacites, from the central and western dacites at Que River, have a maximum of 67 ppm Cr and Zr/Ti of .063 to .101.

A database of core-grind analyses, for which Cr, Zr and Ti values were available, and corresponding logged lithologies was then compiled (a total of 948 records) from diamond drill holes on the Mackintosh and Hatfield EL's and selected holes from the Que River Mining Lease. Data for basalt and feldspar-phyric andesite (202 and 230 samples respectively) were plotted on Cr vs Zr/Ti diagrams (Figure 4). The andesite field is quite tightly constrained with respect to Cr but there appears to be a high Zr/Ti grouping separate from the main grouping. These may correspond to the leuco-andesites described in section 3.1. The range of both Cr and Zr/Ti for basalt (means of 346 and .047 respectively) is much greater than in the initial data set and may represent the effects of alteration, weathering and/or mis-classification of samples.

The Ti and Zr data for basalt was further reviewed to delineate areas of low Zr/Ti (<.021) similar to the lower basalt immediately above the Hellyer ore body (Section 4.4 and Hespe 1986). No major intersections have been recorded although low Zr/Ti values occur in :

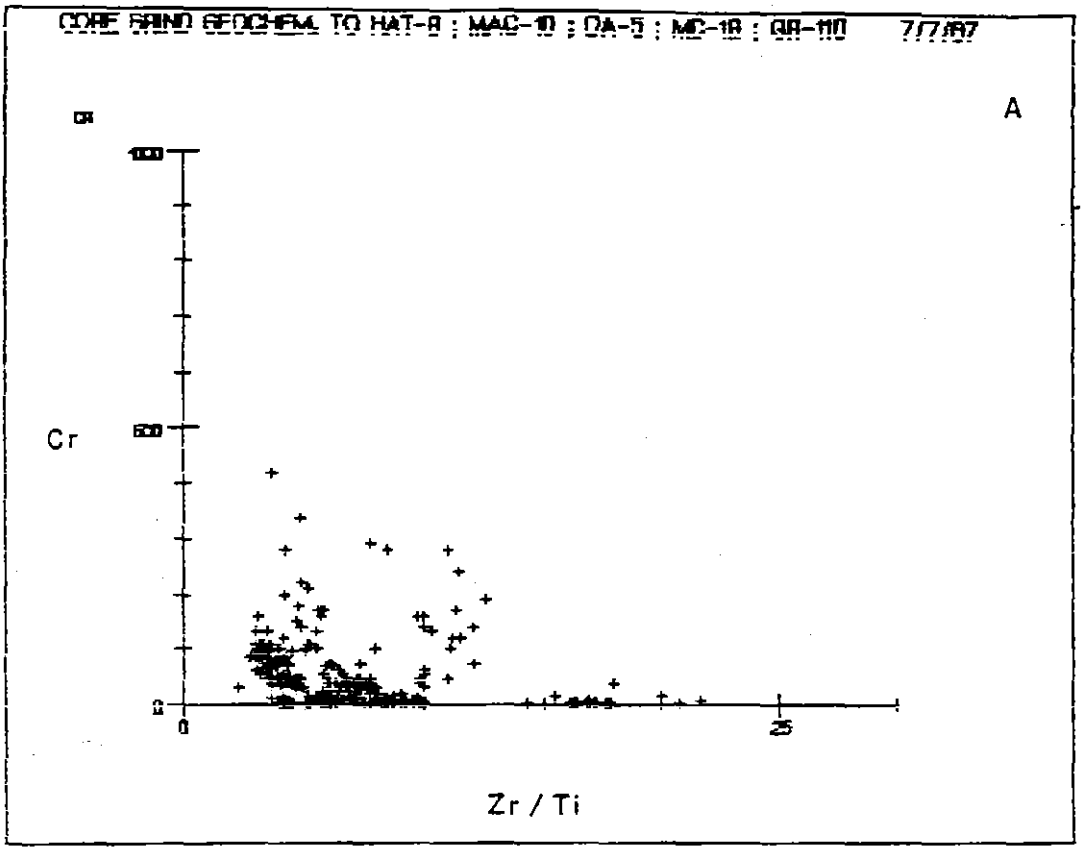
i) DDH DA5 (Que River Mining lease) - 10m (223.7-233.7) of Zr/Ti = .021 in fuchsite altered basalt.

ii) DDH HAT-6 (McNeill 1989) - 10m of Zr/Ti = .018 (170.8-180.8m).

iii) DDH HAT-5 (Hespe 1986a) - although core grind data for the interval 170.2-181.5m was high, a split core sample from the interval had Zr/Ti = .018.

Values approaching that in the lower lava were also recorded from DDH HAT-8, MC-15, MAC-4 and MAC-5 and occur near the base of basalt lava units in these holes.

As the more primitive lower lava is thought to be sourced by sutures that may have also concentrated hydrothermal fluids it is recommended that firstly, exploration should be focussed on the area of the low Zr/Ti intervals described above and secondly, that all previous drill holes should be analysed for Zr and Ti, especially DDH HAT-1 and MC-13 which would extend a possible 'prospective' corridor extending from DDH DA5 to DDH HAT-6 and 8. The single high value in DDH HAT-5 should also be followed-up.



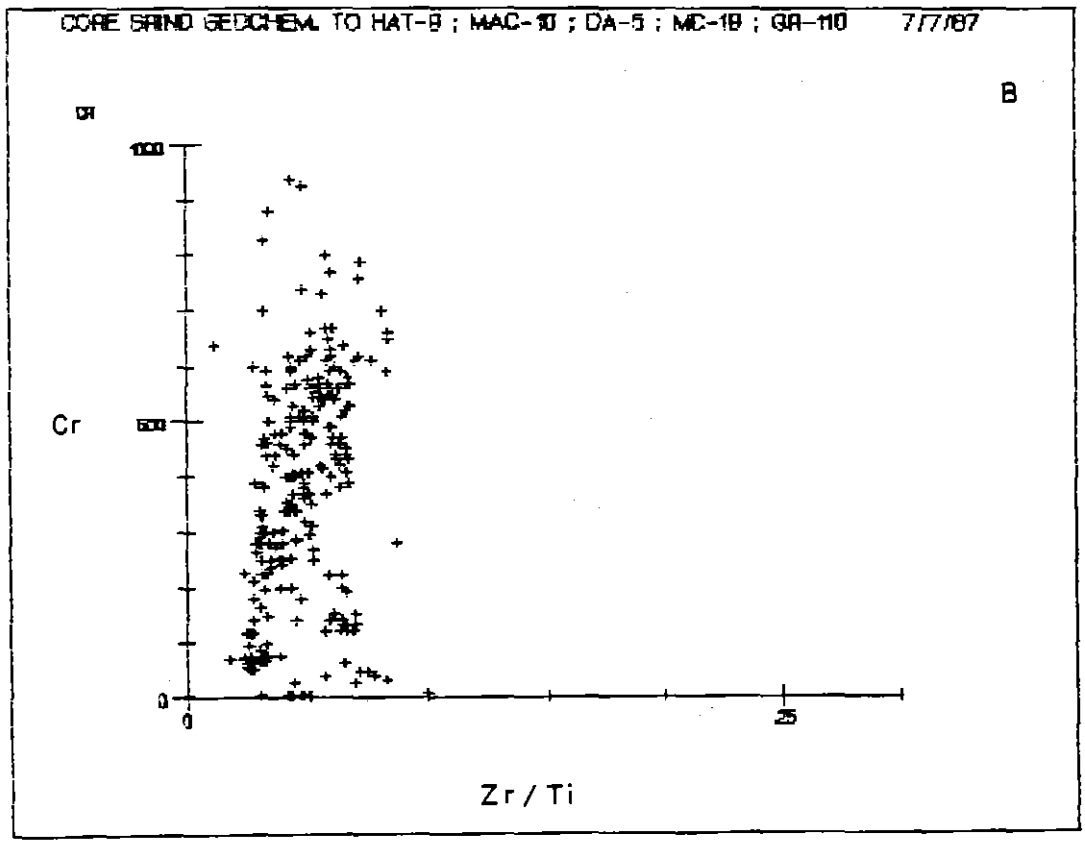


Figure 4. Cr vs Zr / Ti plots - Core grind data base

A Andesite

B Basalt

4.3 Soil Geochemistry

4.3.1 Quality Control of Sampling and Analytical Results

As the Barite Creek grid was sampled by contractors a programme to check the consistency of this sampling was initiated. A total of 21 duplicate samples were collected (results in appendix 4) by Aberfoyle personnel. Correlation between the two sample sets is good, with correlation coefficients varying from 0.76 for As to 0.95 for Zr. Allowing for analytical variance these results are satisfactory.

Discrepancies between Zn values from different sampling programmes, over the same area, were tested at 10 sites by sampling both "B" and "C" horizons and by preparing samples both by sieving to -80# and pulverising. Results and sample locations are included in Appendix 4. There appears to be no major bias between "B" and "C" horizon samples or differing preparation techniques. The original discrepancy must then be due to contamination during sample preparation or sampling from "A" horizon, known to be depleted in Zn.

Due to the large number of soil samples collected and analysed on the Mackintosh and Hatfield licence during the reporting period (a total of 2250 new samples and 1050 re-assays), a soil standard was prepared and at least one standard submitted with each batch for analysis. Problems became apparent with the repeatability and values obtained for Ti, Ni, As and Ba. Many of these analyses were repeated and the newer values are included with the initial results in appendices 4 and 22. A comparison of results for the standard from several laboratories and the University of Tasmania suggested that Analabs produced mean values closer to the University of Tasmania results and with a lower range of values. This laboratory was therefore used for the Barite Creek programme.

4.3.2 Lithological Indicator Elements

Following the development of geochemical discrimination of basalt, andesite and dacite using Cr, Ti and Zr, for core and rock-chip samples, it was decided to analyse for these elements in soil sampling programmes as an aid to mapping in areas of poor outcrop. The majority of sampling programmes during this reporting period, on both EL 2/70 and 15/73, included these elements and a programme of re-assaying old sample pulps (from lines 1800N-5600N) was completed (assay results in appendix 3 and sample locations on plate MAC 260AA to KK). The image processed Cr data defines the basal mica sandstone and basalt units. Further re-assaying for Cr was deferred as it appears that Cu also mapped the basalt units, although a combination of Cr and Cu could be used to differentiate mica sandstone and basalt, using the low Cu content of sandstone. However, problems may arise with the use of Cu in areas of alteration or mineralisation.

4.3.3 Image Processing

Data collected from both EL 2/70 and 15/73 during this reporting period were entered into files in the Mackintosh soil geochemical database, combined with previous data and transferred to the apollo network for image processing. Below detection limit results, recorded as negative values in the initial files were modified to values of half the detection limit. Data was then reduced to binary format prior to gridding.

A random gridding technique, cell size of 25m, which uses a radial search, maximum distance 210m (c.f. line spacing), and gradient estimation was applied to the logs of the element values. Conversion to logs inhibits interpolation of values less than zero and prevents calculation of extreme gradients in area with results of large range. The antilogs of this grid file were then transferred to image file format for image processing. Grid data values were interactively mapped to a value of 0-255 to determine the best colour distribution. A synthetic rainbow 255 colour scheme with diagnostic notches, or steps, was used with colours ranging from black-blue-green-red-white for lowest to highest values. Images were then remapped to an appropriate cell size for printing at 1:10,000 and the clip limits selected above applied to the printer 125 colour table to produce a printed image similar to the on screen enhancement.

The results of this processing are included as plates MAC168 a-f and will be discussed in the relevant sections.

4.4 Hellyer Alteration Study

During the reporting period this study was completed and compilation of results, for an MSc thesis (Jack 1989) was commenced.

Sampling was completed on drill holes from 10900N and around the Hellyer ore body, covering as wide a range of lithological types as possible. A total of 140 continuous core grind samples were analysed for whole rock geochemistry. 208 split core samples, dominantly from analysed core-grind intervals were petrographically described and analysed for whole rock geochemistry. Of these, 19 samples were selected for rare earth element analysis; 59 for sulfur isotopes and 21 for oxygen and carbon isotope determination. This data is included in Appendix 6.

The major conclusions of this study are :

i) A basalt flow, immediately above the Hellyer ore body has higher Ti/Zr (~53), MgO, Ni, Cr, and lower SiO_2, Y, P_2O_5,

La and Nb than surrounding hangingwall basalt. This "lower" basalt is considered to be a more primitive and undifferentiated type, sourced possibly from the same structure that controlled the Hellyer mineralising fluids.

ii) A green hangingwall alteration plume comprises pervasive fuchsite (Cr_2O_3 to 0.49%) - calcite, and accessory Fe chlorite, alteration and is associated with increased interpillow pyrite and albite alteration on its margins. Chemically this alteration has resulted in the addition of S (2-4xbackground) CaO (2xbackground) K_2O, Al_2O_3, Ba, As, Rb and Mn and depletion in Fe and Mg. Rare earth elements, Ti, Zr, Y and Nb appear to be immobile in this type of alteration. The Cr in fuchsite is thought to have been leached from Augite and not from the resistate chromites.

Three sulfur isotope signatures are characteristic of this alteration style; ^{34}S of 0-3 per mil in the carbonate-fuchsite zone, 8-9 per mil in the peripheral albite alteration and ~14 per mil in interpillow areas.

iii) The footwall stringer zone, comprising a quartz-barite core grading out to a quartz-sericite then a chlorite zone, including massive Mg chlorite schist, is wider than the ore body and is surrounded by a distinctive sericite-pyrite envelope zone. Chemically the stringer system is marked by a major Na_2O low with more widespread CaO and Sr depletion.

5. GEOPHYSICS

5.1 Seismic Reflection

Two experimental seismic reflection lines, 10800N and 10950N, were completed over the Hellyer deposit, in collaboration with the University of Tasmania (profiles and brief comments in Appendix 7). These profiles did not define the ore body but the base of the Hellyer basalt and seismically quiet stringer zone were evident (this "quiet" zone is now interpreted to be the result of reflection by the ore body). Two further traverses were completed on lines 10600N, from the Murchison Highway to the southern end of Hellyer, and 11800N, 600m north of Hellyer in an area underlain by Tertiary Basalt, as a further test to determine this technique's usefulness as a prospecting tool.

Results and interpretation of these two lines are included as Appendix 7. Major points are :

i) Ground roll and air blast effects significantly downgrade the data. These could be avoided by drilling shot holes to bedrock and using a seismic booster as a source.

ii) The Hellyer ore body would not have been located from the seismic data alone.

iii) Several major stratigraphic features, i.e. the presence of faults active during volcanism, thickening of the volcanic succession and the thickness of Tertiary basalt cover were resolved.

It is considered therefore, that the seismic reflection technique has uses in resolving stratigraphic problems, especially if some drill hole control is present, but is not applicable to the direct location of massive sulfide accumulations.

5.2 Ground Magnetics

A programme of ground magnetics was initiated in an attempt to provide a reasonably quick and low cost aid to mapping of the QHV. Old surveys on both EL 15/73 and 2/70 were tied in by a total of 56.2 line km of traverses. Data was collected at station spacings of 10-25m on 50-200m spaced lines using an OMNI EDA4 proton precession magnetometer. This data was then dumped to a porta pak computer and combined with data from second OMNI magnetometer used in base station mode, to produce the stacked profiles on plates MAC111 B/E and C/E. This data was then combined with recent surveys from both the Mackintosh

(section 10.4 and 11.4) and Hatfield (McNeill 1989) EL's and image processed using techniques similar to those outlined in section 4.3.3. Problems were encountered with levelling of old surveys and more recent data but, a 1:10,000 image was produced (plate MAC155). Work in progress includes reprocessing to remove the regional magnetic gradient and interpretation of this image.

5.3 UTEM - Hellyer Portal

A single loop survey, with readings collected in the Hellyer adit, was completed, with the aim of extending the depth extent of UTEM coverage in this area. Any target would probably be on the same horizon and much deeper than Hellyer, due to the steep dips in this area, and thus would appear to be laterally "close" to the Hellyer ore body. Such a conductor would be difficult to separate from the Hellyer response.

No obvious conductors were detected and a report is included in appendix 8.

6. DIAMOND DRILLING

6.1 DDH MAC-5

Geology

MAC-5 was drilled southeast of Hellyer (See plate MAC249B for collar location) both as a stratigraphic hole, in an area of complex geology i.e. the hinge zone of a synform associated with faulting and thickening of the Hellyer Basalt, and to test the Hellyer ore position (HOP) at depth, in the vicinity of the poorly understood DHEM responses in MAC-2 and MAC-3.

A detailed log and petrological report are included as Appendix 9 while a section of the hole is included as plate MAC 134 (for legend refer to MAC 115).

A summary log is as follows :

0-57.3m	Black shale (Que River Shale) and rhyolitic intrusive?, conformable contact to:
57.3-160m	Pillowed Basalt lava. Fuchsite altered (107.3-155.8m).
160-174.6m	Dacite breccia overlying black shale.
174.6-177.8m	Pillowed basalt lava.
177.8-260.25m	Basaltic lava and polymict, basaltic or andesitic, ash - breccia volcaniclastic. Massive pyrite fragment at 239m.
260.25-280.4m	Basalt lava.
280.4-300.55m	Polymict breccia and ash volcaniclastic. 3cm BMS fragment.
300.55-348.0m	Dacitic lava and andesitic-dacitic volcaniclastic.
348.0-366.2m	Grey highly silica-chlorite altered rock.
366.2-417.0m	Andesitic lava.
417.0-424.6m	Polymict lapilli volcaniclastic.

A major feature of this hole is the great thickness of polymict rocks and dacite mixed with the lower part of the Hellyer Basalt (160-300.55m) and presence of dacite, rather than Andesite directly below the interpreted HOP, in this respect it is similar to MAC-1 (Hespe 1985).

Due to the complexities of this sequence two intervals have been correlated with the HVS:

a) 235.5-260.25m on the basis of lithological affinities with the HVS in MAC-1 (P. Harris (Appendix 1)).

b) 280.4-300.55m based on the presence of base metal sulfide fragments, stratigraphic position between basalt and andesite and lithological similarities with the Switchback epiclastic.

The latter correlation is preferred based on other criteria, i.e. it represents the base of hangingwall style fuchsite alteration, and geochemistry as discussed below.

The significance of fuchsite alteration, mostly notably in the Basalt, but throughout the section above the interpreted HOP and the strong chlorite-silica alteration below the HOP is being evaluated as part of the Hellyer alteration study (section 4.4).

Geochemistry

The complete length of MAC-5 was core ground and samples analysed for Cu, Pb, Zn, As, Ag, Au, Ba, Cr, Zr, Ti and Ni. Results are shown on plate MAC 134B and in Appendix 10.

In general there is a good correlation between Cr content and intervals logged as basalt, however, low Cr from 69-98m corresponds to highly peperitic basalt with up to 50% shale, while the interval 260.2-280.4 also has low Cr values probably related to pervasive silica-carbonate alteration, as described in the CMS petrographic report (Appendix 9).

A copper peak of 2600 ppm between 222 and 228m appears to correspond to disseminated chalcopyrite and pyrite in that interval while elevated Au (max. 0.025 ppm) and zinc between 25.6 and 57.8m may be the result of trace pyrite disseminated in shale and rhyolite.

Elevated base metals (max. 315 ppm Zn) arsenic and gold values occur in the interpreted HVS while immediately above this unit a Ba high (3500 ppm) is interpreted to be the result of typical hangingwall style alteration.

Geophysics

Downhole EM was completed on MAC-5. Results are included as Appendix 11. No off-hole conductors were seen and the weak anomaly at the top of the hole was initially interpreted to be related to a moderately conductive basalt unit.

A more recent interpretation of these results suggest the anomaly is a result of self response from the SIROTEM probe and thus an artefact (E.T. Eadie pers comm. 1988).

Magnetic susceptibility readings were collected on nominal 1 metre spacings as part of a study encompassing the Mackintosh and Hatfield licences (Appendix 12). No anomalous zones were detected in this hole.

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6.2 DDH BDP-10

Geology

BDP-10 was drilled in the north eastern corner of the licence (39627mE, 5463019mN A.M.G.) by the Department of Mines as part of the Mount Read volcanics project sub basalt drilling programme. Drilling on an approximately 4 km grid was designed to provide information on thickness and geophysical characteristics of the Tertiary Basalt and sub-basalt geology. A full report on this hole is in preparation by the D.O.M. but has not been released to date.

A detailed log, from 123m, and petrological report are included as Appendix 13. A summary log is as follows :

0-209.6m	Massive to brecciated Tertiary basalt and predominantly unconsolidated interflow sediments.
209.6-239.0m	Tertiary weathering zone - very poor core recovery.
239.0-321.1m	Coarse polymict felsic lapilli volcaniclastic.

The Tertiary basalts are massive feldspar-phyric to vesicular and olivine-pyroxene-phyric, in contrast to the feldspar-pyroxene-phyric basalts of the QHV, and are intercalated with sediments composed chiefly of lignite, quartzite gravels, ?quench fragments of basalt and pale grey clayey micaceous sand.

The underlying Cambrian lithologies are dominantly mass flow volcaniclastics with an ash to micaceous shale/siltstone matrix. A textural similarity with footwall andesites at Hellyer has been noted (Appendix 13). These volcaniclastics were considered to be correlates of the Tyndall Group, by comparison with the sequence on the Cradle Mt. Link Road, north of Hellyer, as described by Komyshan (1986).

Geochemistry

DDH BDP-10 was core ground on nominal 10m intervals from 123.2 to 204.3m and 249-321.1m and samples analysed for Cu, Pb, Zn, Ba, As, Ag, Au, Ni, Cr, Ti and Zr. Results are included in Appendix 13.

The interval 123-204m covers the Tertiary basalt and highlights differences with the Hellyer basalt. Cr (270-280 vs >300 ppm) and Ba (180-400 ppm vs >500 ppm) are lower than, whilst Ni values are similar to, unaltered Hellyer basalt. Ti contents of the Tertiary rocks are 2 to 3 times those of the Hellyer basalt while Zr values are comparable but lower than the "older" basalt directly above Hellyer (Hespe 1985), consequently Zr/Ti values show some overlap.

Base and precious metal values in the volcaniclastics are low (max 260 ppm Zn), while Zr/Ti values indicate these lithologies are rhyolitic.

7. ACCESS

Line cutting and gridding completed during this reporting period are shown on plates (MAC249B and C). In addition a programme of 4WD track construction was undertaken to facilitate access and create exposure for geological mapping. The following tracks were completed and surveyed:

i) Barite Creek: from the DDH MC-4 collar to the 6000E baseline, (a total of 2.8 km).

ii) Sharks fin track: from the Que River portal to approximately 6600N, 6600E (1.5 km).

iii) Southwell link track: from the Sharks fin track to Baker Street (1.2 km).

iv) Baker Street: from 7920N, 6710E to 8400N 7200E (0.75 km).

These tracks are highlighted on plate, MAC249B and C.

8. MURRAYS ROAD PROSPECT

8.1 Introduction

The 1:10,000 scale regional mapping programme (section 3.2) resulted in the location of a zone of fuchsite alteration in Tyndall Group volcaniclastics approximately 3 km N.E. of Hellyer on the trend of the Jack fault. This alteration was followed up by 1:2,500 scale mapping (plate MAC 148/4), costeaning and a small UTEM survey.

8.2 Geology

Intense fuchsite and manganese alteration, associated with a white clay identified as Halloysite (Appendix 14), in a red quartz-phyric volcaniclastic and adjacent to highly deformed micaceous greywacke are exposed in a road cutting on the Cradle Mt. Link Road. Costeaning, (4 trenches), indicates that the volcaniclastic overlies the greywackes which have an east facing, in the southern two trenches, while an intervening quartz-phyric rhyolitic intrusive crops out to the north on the Cradle Mt. Link Road. Tight folding appears to be associated with a NE trending fault structure with bedding striking 160-180° magnetic to the east and 130-160° to the west of this structure.

A 10x10x7cm pyritic pod was exposed in costean 2 (sample 271221) and is hosted by the fuchsite-manganese altered volcaniclastic. This pod is considered to be significant as it is associated with alteration and a structural feature that may be related to a mineralising event.

8.3 Geochemistry

8.3.1 Rock Chip

Channel samples were collected from all 4 costeans and the pyritic pod. Results and locations are included in Appendix 14. The massive pyrite sample assayed 130 ppm Cu, 145 ppm Pb, 45 ppm Zn, 13 ppm Ag and 40 ppb Au. Ag and Cu are much higher than in the enclosing volcaniclastics but Pb and Zn are similar to, and in the case of Zn less than, the maximum value in the host rocks.

The Zn number for the pyrite pod (100xZn/(Zn+Pb) = 23) indicates affinities to Cambrian vein style mineralisation (Houston and Large 1987) however, only one value (vs the minimum of 15 recommended) was used and the low base metal values make the correlation tenuous.

8.3.2 Pb Isotopes

One sample of the pyritic pod (sample 271221) was submitted for Pb isotope characterisation. A report is included as appendix 15. Results are consistent with a Cambrian origin but fall outside the Hellyer-Que River elipse. However, some uncertainty exists due to the low Pb content of this sample.

8.4 Geophysics

A one loop, 5 line km, UTEM survey covered the pyrite pod and the area to the north. The survey was not extended to the south as the presence of powerlines would have rendered EM techniques ineffective. Results of this survey are included in Appendix 8. No responses attributable to a VMS accumulation were detected.

8.5 Summary and Recommendations

A zone of fuchsite and manganese alteration in possible Tyndall Group volcaniclastics hosts a small base metal poor pyritic pod with Cambrian Pb isotope characteristics. A UTEM survey failed to locate any conductors of massive sulfide type in this area. No further work is recommended at this stage.

9. HELLYER FACILITIES

9.1 Introduction

Construction of a concentrator plant and a water storage dam, on the Southwell River, as part of the Hellyer development will lead to the sterilisation of these areas for exploration. The prospectivity of these two sites was assessed by reviewing previous exploration data, mapping, rock-chip sampling and diamond drilling.

9.2 Mill Site

9.2.1 Geology

The area of the proposed mill site was mapped at 1:2500 (plate MAC 89WW), utilizing trenches dug for site investigations and a 1:10,000 interpretative plan produced (Figure 5). The proposed site overlies the eastern limb of the Hellyer anticline and is underlain dominantly by a rhyolitic sill that occupies the contact between Que River Shale and Upper Rhyolitic Sequence, although the sill jumps stratigraphy to the south where it intrudes the shale. Previous drilling (DDH HL-2 and 80) and mapping, indicate the HOP dips shallowly to the east under the southern part of the mill site while a zone of intense sericite-fuchsite-carbonate alteration crops out in the hangingwall basalt around 10200N, 6100E and was intersected by both DDH HL-2 and 80. This alteration is considered to form part of a hangingwall plume, as seen above Hellyer, with its source to the east.

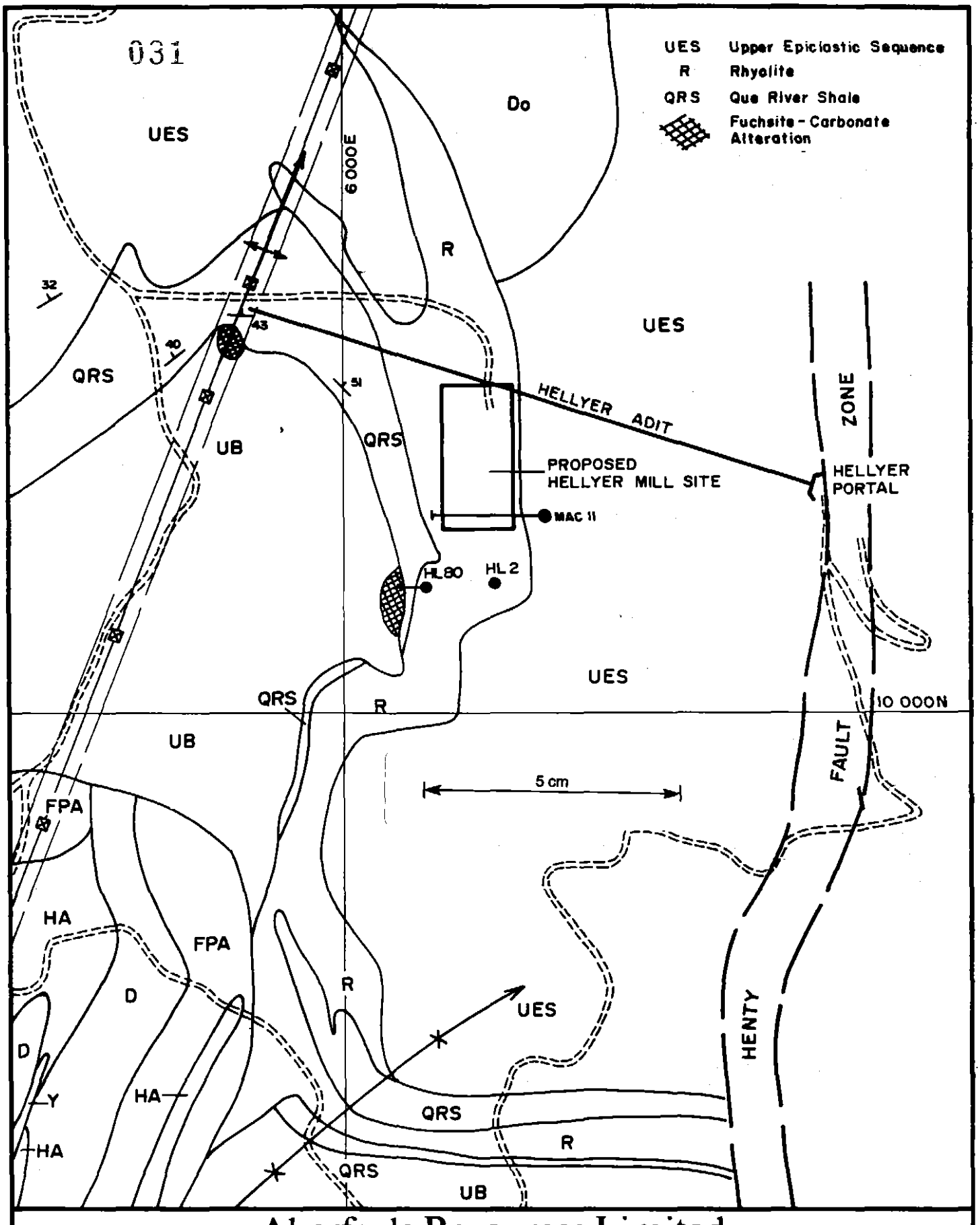
9.2.2 Geochemistry

Previous data was reviewed. Sporadic and patchy "C" horizon soil Pb anomalies (up to 1700 ppm) have been reported (Sise 1981) and are considered to be related to mineralisation on the margins of the rhyolitic sill.

9.2.3 Geophysics

Previous EM data was reviewed. In loop UTEM coverage indicated no anomalies in this area as did data from the Hellyer adit (5.3) and DHEM in HL-80 (Hespe 1986). It can therefore be inferred that no Hellyer size ore body occurs within a considerable distance of the surface.

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Aberfoyle Resources Limited

EXPLORATION DIVISION

FIG 5

REVISIONS			
Init.	Date	Init.	Date
AMHrje	31-8-87		

HELLYER FACILITIES EXPLORATION

PROPOSED HELLYER MILL SITE

GEOLOGY

FOR LEGEND SEE FIG. 2

Compiled :	AMH
Drawn :	AMH
Traced :	GLC
Checked :	
Plate No. :	HEL 91

Location Code : K55/6/44 | Scale : 1:10,000 | Date : July, 1987

9.2.4 Diamond Drilling

DDH MAC-11 - Geology

MAC-11 was designed as a condemnation test of the HOP at depth, below UTEM penetration, in the vicinity of the Hellyer Mill Site (See Figure 4 for location).

Encouragement for drilling in this area was provided by the presence of hangingwall alteration, both at surface and in DDH HL-2 and HL-80.

It was initially proposed to continue drilling to mica sandstone basement, thus providing a complete section of the QHV, however due to the thick sequence and steep dips this aim was not achieved.

A detailed log and petrological descriptions are provided in Appendix 16 and a section of the hole included as plate MAC-165 (refer to plate MAC 115 for legend). A summary log is as follows:

0-9m	Tricone.
9.0-9.5m	Weathered rhyolitic volcaniclastic.
9.5-18.5m	Laminated black shale.
18.5-182.9m	Rhyolitic intrusive. Major fault zone from 128.7-134.0m.
182.9-233.1m	Rhyolitic volcaniclastic with shale fragments and shale bearing volcaniclastic sandstone.
233.1-258.3m	Black shale. Peperitic contact to:
258.3-333.5m	Basalt pillow lava. Intensely fuchsite-carbonate-pyrite altered.
333.5-339.8m	Black carbonaceous shale (Que River Shale equivalent).
339.8-344.6m	Volcaniclastic sandstone.
344.6-594.0m	Basalt pillow lava. Sericite-carbonate-pyrite altered. Decreasing alteration intensity downhole. Weak fuchsite alteration.
594.0-724.8m	Basalt lava. From 721.2-722.2m is an ash to fine lapilli volcaniclastic with 10-20% pyrite fragments.
724.8-748.5m	Andesitic lava breccia.
748.5-776.8m	Dominantly basaltic-andesitic polymict ash to fine lapilli volcaniclastic with minor andesitic and basaltic lava. Minor pyritic fragments.
776.8-839.9m	Andesitic feldspar-phyric lava breccia.

The depth at which the HVS was intersected (724.5-777.0m) was much greater than anticipated and indicates a steepening of dips and thickening of the Hellyer basalt in this area. No mineralisation was intersected at the HOP although pyritic fragments were logged in the HVS. The HVS intersection in this hole is significantly thicker and coarser than in HL-80 but is still lithologically more similar to the HVS above Hellyer than the Switchback volcaniclastic. The thin sedimentary unit within the Hellyer basalt (333.5-344.6m) is a potential ore horizon, by comparison with HL-69A in which ore grade mineralisation was intersected, but no mineralisation was encountered.

The intense fuchsite alteration seen at surface was intersected from 258.3-502.5m.

Geochemistry

The complete length of DDH MAC-11 was core-ground and samples analysed for Cu, Pb, Zn, Ba, As, Ag, Au, Cr, Ni, Ti and Zr. Results are presented as plates MAC 165A1 and 165A2 and in appendix 17.

Cr values confirm the logged andesitic and basaltic intervals although Zr/Ti ratios are quite high for some basalts (notably 515-535m). Zr/Ti values confirm the andesitic nature of the HVS.

High base metals (1500 ppm Zn, 1200 ppm Pb) occur in laminated shale adjacent to the rhyolitic intrusive which also has high Zn (330 ppm) on its margin. The Que River shale yielded weakly anomalous base metal and silver values while the basalt and HVS have low base and precious metal values (maximum 830 ppm Zn in basalt).

The major chemical expression of the fuchsite alteration above 502m appears to be spotty high As (to 82 ppm vs 11 ppm average for basalt).

Geophysics

DDH MAC-11 was read with DHEM. No off hole anomalies were detected. A report is included in Appendix 11.

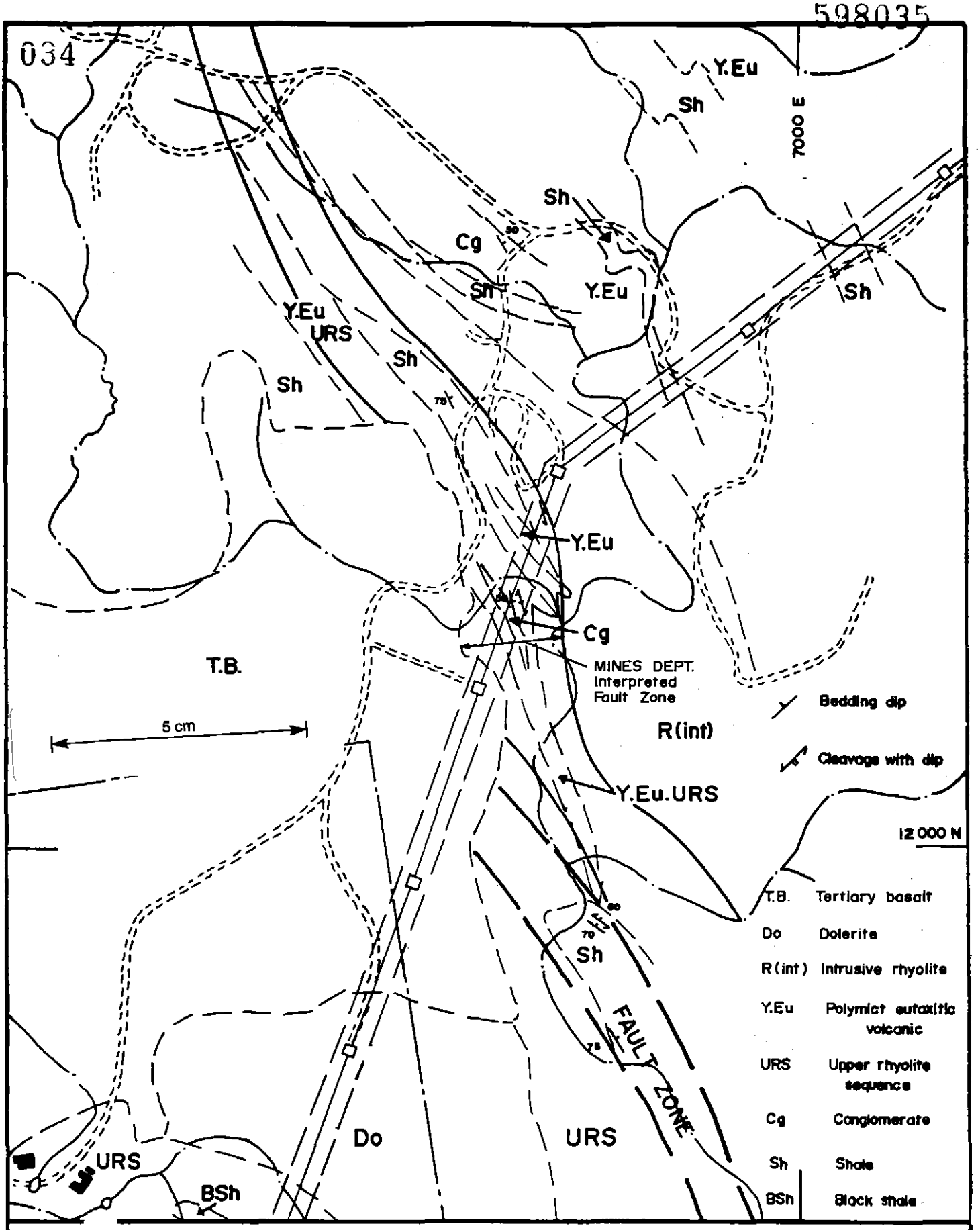
9.3 Storage Dam

9.3.1 Geology

The proposed storage dam on the Southwell River is located adjacent to the northern extension of the Henty Fault Zone (HFZ) as shown by Komyshan (1986). 1:2500 scale mapping completed in this area is recorded on plate MAC 148/4 and a 1:10,000 interpretation on Figure 6 while petrographic descriptions of selected samples are included in Appendix 18.

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Aberfoyle Resources Limited

EXPLORATION DIVISION

FIG 6

REVISIONS			
Init.	Date	Init.	Date
DJJ rje	8/87		

HELLYER FACILITIES EXPLORATION

STORAGE DAM SITE GEOLOGY

Compiled: DJJ

Drawn:

Traced: R de B

Checked:

Location Code:

Scale: 1:10 000

Date: JULY 87

Plate No. HEL 88

A combination of mapping and interpretation of landsat data suggests the HFZ intersects a major NW trending structure and disappears under Tertiary basalt cover west of the position indicated by Komyshan (1986), although zones of shearing, possibly related to deformation on the margins of a massive rhyolite sill, occur N.E. of the Aberfoyle interpreted fault position.

The occurrence of conglomerate, characteristic of rocks N.E. of the HFZ, within the area interpreted as the fault by Komyshan (1986), also suggests the fault is located further to the west.

North east of the fault conglomerate is interbedded with shale, mica sandstone and polymict eutaxitic volcaniclastic which are intruded by a rhyolitic sill, lithologically similar to the Mill site rhyolite. Southwest, and within, the fault zone are characteristic polymict quartz-feldspar-phyric black vitric volcaniclastic interbedded with shale.

9.3.2 Geochemistry

The HFZ hosts two gold prospects south of Tullah (RGC's Henty prospect and Billiton/E.Z.'s Lakeside prospect) and as such must be considered prospective for gold. A programme of reconnaissance rock-chip sampling was undertaken to define gold rich zones. A total of 26 samples were assayed and results and sample locations are presented in Appendix 19. Gold and base metal values are low with a maximum of 67 ppb gold from a micaceous sandstone on the interpreted eastern margin of the fault zone.

9.4 Summary and Recommendations

In the mill site area DDH MAC-11 intersected the HOP at considerble depth and although strong hangingwall style alteration provides encouragement for further exploration, any target would be further to the east and deeper than the alteration in MAC-11 and thus will not affect mill operations. The potential ore horizon in the hangingwall basalt is considered to have been tested by UTEM and DHEM up-dip of DDH MAC-11 and if any mineralisation exists down dip it would be deep enough not to affect the mill area.

Reconnaissance rock-chip sampling of the HFZ on the Southwell River failed to locate any significant gold mineralisation. However, as the storage dam will affect only a small area further exploration may be warranted.

10. SOUTHWELL PROSPECT

10.1 Introduction

Following mapping in the Switchback area (Hespe 1986), it was interpreted that the mixed sequence of basaltic and dacitic lava and polymict volcaniclastic, that host BMS clasts, is a stratigraphic equivalent of the Hellyer host sequence and trends east into the Southwell River Valley. A programme of gridding, mapping, costeaning, ground magnetics, UTEM and soil sampling was completed to test the potential of this area.

This programme was extended to include deep geochemical sampling with the aim of locating the probable eastern termination of this sequence against the Que-Cripps fault system.

10.2 Geology

Mapping at 1:2,500 scale is shown on plate MAC 89FF and GG (see plate MAC114 for legend and appendix 27 for geological abbreviations) while a 1:10,000 interpretive plan (MAC 111B) is also included. Petrographic descriptions of selected samples are included in appendix 20.

Mapping on the sharks fin track indicates that andesitic to basaltic lava and volcaniclastic (lower basalt) conformably overly mica sandstone, the contact being exposed in a trench at 7020N 6220E. A 50m wide zone of intense shearing, ?chlorite alteration and quartz veining in the sandstone, around 6560E 6670N, is considered to be the northern extension of the Henty fault zone and separates QHV type lithologies from sheared dacitic lava unconformably overlain by Owen Conglomerate (c.f. Section 11.2) to the east. Mica sandstone is exposed on the Southwell link track where it is intensely sheared in patches, with consistent steep west dipping bedding. The volcanic component in this sequence, including basalt lava, volcaniclastic and a magnetic feldspar-phyric andesitic ?intrusive (355160), increases to the north and at 7180N, 6760E passes through an un-seen contact into weakly silicified andesitic lava (e.g. 355167). This contact is considered to be the eastern extension of the Que fault. Andesitic lava and volcaniclastic, weakly silica-sericite-pyrite altered in part, crop out north to 8530N where it passes into probable upper basalt.

Outcrop and Cr soil geochemistry indicate that the footwall andesites have thinned dramatically and are of the order of 100m thick where the Cripps fault is intersected, with probable lower basalt to the west and upper basalt outcropping to the east on Baker Street. The Que fault is again intersected on Baker Street where basalt is faulted against dacitic ash volcaniclastic at 8200N, 6870E.

The "Upper" basalt is interbedded with dacitic lava/intrusive and polymict volcaniclastic, the eastern continuation of the Switchback sequence. The volcaniclastic appears to lens out west of 8700N, 6800E where a costean exposes andesitic and basaltic lava overlying dacitic lava or intrusive. Further to the north the basalt is overlain by Que River Shale, west of approximately 6800E, and by dolomitic shale and volcaniclastic of the upper rhyolitic sequence to the east. The outcrop pattern appears to define a tight anticlinal closure (9100N, 7000E) with westerly dips on its eastern limb, suggesting bedding is overturned. It was initially suggested that this was the result of deformation against the Henty fault zone (HFZ) however, it is now considered that the HFZ is terminated by the Que-Cripps fault system as:

i) lithologies trend across the mapped HFZ in the Southwell grid and on the portal road.

ii) Intense shearing normally associated with the HFZ was not noted in the Southwell area and to the north on the Cradle Mt. link road.

iii) No major lithological changes, as seen to the south, occur across the interpreted fault location in this area.

No major areas of mineralisation or alteration were located although patchy fuchsite alteration in the upper basalt and weak sericite-silica-pyrite alteration of andesite were noted.

10.3 Geochemistry

10.3.1 Rock Chip

Sample locations and assay results for rock chip and channel samples are included in appendix 21. Twenty metre spaced sampling, for lithogeochemical indicator elements, of weathered bedrock on the Sharks Fin track, from 6990N, 5720E to the Southwell link track, indicates that the area is underlain by dominantly basaltic, with minor andesitic lithologies, (high Cr and low Zr/Ti ratio) and confirms the geology as interpreted from soil sampling (10.3.2).

The Southwell link track was sampled from 7700N, 6775E north to its junction with the Southwell track. Both rock chip and soil samples were collected. The highest base metal values occur around the contact of andesite and upper basalt with up to 390 ppm Zn and 120 ppm Pb while a maximum of 135 ppm Cu occurs in an apparently unaltered andesitic lava around 8050N. Chrome values confirm the mapped succession from mica sandstone to andesite and upper basalt, north of 8550N, although spotty high values, up to 270 ppm, occur in the andesites.

10m channel samples from the Southwell east costean, starting at 8620N, 6840E, indicate that lithologies are dominantly andesitic, not basaltic as mapped with only 20m of high Cr basalt at the northern end of the costean.

10.3.2 Soil Sampling

"C" horizon soil samples were collected by hand auger, from depths up to 1m, on a 12.5m spacing. This sample interval was designed to allow for rapid detailing of anomalous zones generated by assaying of 25m spaced samples. A total of 784 samples (including standards) were dried and sieved to -80# prior to analysis for Cu, Pb, Zn, Ba, As, Ag, Cr, Ni, Ti and Zr. Results are included in appendix 22 and sample locations shown on plates MAC 260FF, GG and AA. Data was incorporated into the Mackintosh database and image processed, using the techniques outlined in section 4.3.3 to produce the 1:10000 scale plates MAC168 a-f.

No major base metal anomalies were defined although several moderate intensity multi-element anomalies were located, these are summarised below :

i) Approximately 8550N, 6550E, coincident Pb (to 180 ppm) and Zn (to 195 ppm) in the upper basalt.

ii) Approximately 8000N, 6200E; coincident Pb (to 280 ppm), Zn (470 ppm), Ba (580 ppm) and As (90 ppm) at the contact of lower basalt and andesitic lava.

iii) Around 7100N, 6000E; a large area of moderately anomalous Zn (310 ppm), Ba (610 ppm) and As (20 ppm) in the lower basalt.

iv) 7600N, 6800E; coincident Ba (380 ppm) and As (36 ppm) adjacent to the interpreted intersection of the Henty and Que-Cripps faults and associated with a large ground magnetic anomaly.

Spotty high Pb occurs around 8450N, 6000E and 7600N, 5800E while patchy anomalous Ba and As occur over Owen Conglomerate and quaternary glacials to the east. The source of these anomalies is unknown as follow-up work has not been completed.

Chrome defines the east-west trending upper basalt, to the north, and the lower basalt and mica-sandstone, with lower and apparently more variable Cr values, to the south. The contact of basalt and dacitic volcaniclastic, interpreted to be the Que-Cripps fault is also well defined. High Cr values also occur in the Owen Conglomerate around 7800N, 7000E, however their significance is not understood.

Cu values are also elevated in the upper and lower basalt and, as would be expected, low in the mica sandstone. However, the andesite appears to produce moderately high Cu values, which detract from this elements usefulness as a lithological dscriminator in this area.

10.3.3 Wacka Sampling

A four line km programme of deep geochemical sampling over an area covered by quaternary glacials 8400 to 9000N from 7000-8000Ewas initiated to determine the eastern extent of the QHV and to locate the Que-Cripps fault. This programme was not completed as only 57 out of a planned 160 samples were collected, due to the much thicker glacial cover than expected, average of 18m and up to 29.2m. Sample locations, descriptions and assay results are included as appendix 23.

Cu and Pb values are generally low, although a spot high of 270 ppm Pb occurs over a felsic volcanic, while Zn is strongly elevated, up to 925 ppm, between 8800N, 7325-7350E. This anomalous zone is associated with high Ba (6000 ppm max.) and As (210 ppm max.) and appears to overly the Que-Cripps fault. Although no mineralisation was logged from these samples many holes may have failed to reach bedrock in this area.

High Cr values indicate basalt of the QHV occurs on line 8600 and 8800N from 7000-7100E and possibly on 9000N from 7350E to 7675E while logging of samples and their Zr:Ti ratios indicate that the basalt is overlain not by the Que River Shale but by rhyolitic-dacitic lithologies of the Upper Rhyolitic Sequence. The presence of grey, probably Ordovician limestone at 8800N, 7475E suggest that the Que-Cripps fault intersects this northing somewhere between 7400 and 7475E.

10.4 Geophysics

10.4.1 UTEM

A total of 22 line km of UTEM was read from four loops on east-west lines. A report on results from this survey are included in appendix 8. No targets worthy of follow-up were detected. A fifth loop was read on north south lines to firstly investigate a feature located by the 1983 survey and secondly as a better test of the generally E-W trending geology in this area. No anomalies resulted and a report is included in Appendix 8.

10.4.2 Ground Magnetics

A total of 21 line km of 10m spaced data was collected and processed as outlined in section 5.2. Stacked profiles are included as plate MAC111B/E and 111C/E and image processed results on plate MAC155.

A large aeromagnetic anomaly was repeated on the eastern side of the grid. Further interpretation requires re-processing of the image processed data.

10.5 Summary and Recommendations

Mapping and soil geochemistry indicate that the Switchback volcaniclastic unit lenses out around 6800E while the enclosing basalt, and overlying rhyolitic sequence, are terminated by the Que-Cripps fault system under glacial cover to the east. This fault system also truncates the Henty Fault Zone north of the Sharks Fin where it superposes basal mica sandstone and andesitic lava and volcaniclastic, which thin dramatically adjacent to the fault.

Several moderately multielement soil anomalies were located, however, the lack of a UTEM response attributable to sulfides has down-graded the prospectivity of this area. A coincident Ba, As soil anomaly and major magnetic high apparently overly the intersection of the Que-Cripps fault and the HFZ and represent a possible Au target that should be followed-up. Further mapping is also recommended to produce a clearer interpretation of the complex structure and stratigraphy in this area.

11. BARITE CREEK PROSPECT

11.1 Introduction

The Barite Creek prospect extends from the Sharks fin, east of the Que River Mine, to south of Barite Creek itself. Exploration of this area, prior to 1987, had been limited to cutting of access grid lines (3 line km), an IP survey on lines 5100N and 4900N, soil sampling and mapping (Young 1978). Most encouraging result of this work was the location of sheared and altered rhyolites with pyrite-barite mineralisation. A more recent geological interpretation suggests that the Henty fault zone traverses this area and as this major structure was considered to have been active in the Cambrian, it may have localized ore forming fluids, by analogy with the Jack fault at Hellyer. A programme of grid reconnaissance involving construction of an access track, line cutting (18 line km, plate MAC249C) mapping, soil sampling and ground magnetics was completed in this area.

11.2 Geology

Mapping at 1:2500 scale is presented on plates MAC-148 DD and EE (see plate MAC-114 for legend and appendix 27 for map sheet locations and geological abbreviations) while a 1:10,000 interpretative plan, MAC-111C, is also included. A petrographic report is included as Appendix 24. The upper part of the Barite Creek access track, from 4500E-5000E, is underlain by basalt and rhyolitic/dacitic intrusives. It was initially suggested that this basalt was a correlate of the Hellyer basalt and separated from the lower basalt, around 6000E, by polymict volcaniclastics (equivalent to the HVS) and andesitic lava. However image processing of "C" horizon Cu and Cr soil geochemistry (section 4.3) suggest that the basalt is continuous north of the access track and is most probably the lower basalt, overlain by the polymict unit and then andesitic, with minor dacitic lava (plate MAC111C).

The lower basalt, a pyroxene phyric, massive to vesicular lithology, is weakly epidote-prehnite altered and has been intruded by quartz-feldspar-phyric rhyolites around 5500N-6000E, while to the south it is interbedded with andesitic lava. The basalt is underlain, on an irregular contact, by mica sandstones that may correlate with the Animal Creek Greywacke and which crop-out dominantly within the interpreted Henty fault zone.

East of the fault zone a large body of rhyolite, north of 5100N, is interbedded with Sheared phyllite and mica sandstone both of which are unconformably overlain by mudstones and conglomerate of the Owen Conglomerate.

A window in this flat lying cover, around 4800N 6800E, has exposed float of pyritic, with minor sphalerite, two pyroxene basalt similar in appearance to the lower basalt but east of the interpreted Henty fault position.

Alteration in this area generally appears to be of a low-grade regional metamorphic type although weak sericite and manganese veining occurs in andesites and basalt on the access track, while sericite-pyrite-fuchsite alteration around 4450E is probably related to the Mt. Charter alteration system. Mineralisation is restricted to the pyritic basalts described above while the barite reported in Young (1978) was not located.

The poor outcrop in this area has hindered structural interpretation however, the Henty fault zone has been located due to the associated intense shearing, generally W-NW striking and steeply east or west dipping.

11.3 Geochemistry

11.3.1 Rock Chip

A total of 51 rock chip samples were collected and assayed (Appendix 25 for assay results and sample locations) from the barite creek grid and access track.

High Zn (510 ppm) and Cu (190 ppm) occur in the basalt east of the Henty fault, although Cr and Zr/Ti values suggest this lithology is an andesite. Elsewhere on the grid Zn values are low, i.e. <200 ppm, while a maximum of 17 ppb Au occurs in an apparently unaltered andesite-basalt. Basalt lavas in the southern part of the grid have low Cr (<60 ppm) and Zr/Ti values, suggesting these are low Cr basalts, possibly interbedded with andesites. In the northern part of the grid, basalts with up to 750 ppm Cr, are associated with low Cr basalts and a similar interbedded andesite-basalt sequence may exist. No samples of the mica sandstone were analysed.

On the access track low Cr values and high Zr/Ti confirm the general andesitic-dacitic character of the rocks, with low base metals and spotty weakly elevated Au (to 25 ppb).

11.3.2 Soil Sampling

"C" horizon soil samples were collected by hand auger at a 12.5m spacing on lines 3400N-5800N. Of these 323 25m spaced samples were sieved to -80# and analysed for Cu, Pb, Zn, Ba, As, Ag, Cr, Ni, Ti and Zr. Analytical results are included as Appendix 26 and sample locations on plate MAC 260 EE and FF. These results have been image processed and included on plates MAC 168 a to f.

Pb values are generally low throughout this area while weakly elevated Zn (145 ppm max.) is associated with high (85 ppm) Cu from 4200-4400N around 6100E. Moderate Ba and As anomalies occur around 5000N, 6050E (max. 56 ppm As, 610 ppm Ba) and 5000-5400N around 7700-8000E. Within this latter area is a point Pb, Zn high (100 and 205 ppm respectively) associated with moderate high Cr values that suggest the anomaly may overly the extension of the weakly mineralised basalt mapped at 4800N, 6800E, although this area has low Cr values. The source of these anomalies has not been determined.

High Cr and Cu values in the NW part of the grid appear to overly the basalt and mica sandstone while to the south Cr highs appear to be related to the mica sandstone within the Henty fault zone, rather than basalt and as Cu values are generally low this area is probably underlain by dominantly andesitic lithologies. A marked Cr and base metal low north of 5400N, overlies the rhyolitic lava and associated sediments, as would be expected.

11.4 Geophysics

11.4.1 Ground Magnetics

A total of 10.7 line km of 10m spaced data was collected and processed as outlined in section 5.2. Stacked profiles are shown on plate (MAC250) and the image processed results on plate MAC 155.

The Henty fault zone appears to have no definite magnetic character, at this scale, although there is a possible low associated with its western margin. Two anomalies were located, the first, around 5800N, appears to be associated with a rhyolitic intrusive while the second is the edge of what appears to be a quite large anomaly in the NW corner of the grid. There is no obvious source for this anomaly.

11.5 Summary and Recommendations

The Barite creek grid is underlain by basaltic and andesitic volcanics (the lower basalt) that conformably overly mica sandstone and are separated from Owen Conglomerate, to the east, by the Henty fault zone. The Owen Conglomerate unconformably overlies rhyolitic lava, mica sandstone, shale and an area of weakly mineralised andesite/basalt lava. Soil Cr and Cu data indicate that the lower basalt is truncated by the Henty fault zone around 4800N while weak base metal and Ba, As anomlies in the QHV require follow-up although the lack of mineralisation and alteration is discouraging. The

significance of the weakly mineralised andesite east of the Henty fault should also be investigated.

The major potential of this area is considered to be for Au in the Henty fault zone, by comparison with RGC's Henty prospect, and a programme of stream sediment sampling is recommended to initiate exploration of this structure.

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APPENDIX 1

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THE HANGINGWALL VOLCANICLASTIC SEQUENCE HELLYER, N.W. TASMANIA

Distribution

P E Harris 1
Hawthorn 1
Burnie [redacted] 1

Prepared by: P E Harris

March 1986

Endorsed by: J R Sise
Regional Mgr

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INTRODUCTION

This report documents the results of a study of seven diamond drill hole intersections of the Hangingwall Volcaniclastic Sequence (HVS) from the Hellyer area, N.W. Tasmania. The intersections examined are from D.D.H's MAC-1, MAC-2, MAC-3, MAC-4, MAC-5, HL-15 and HL-48. The aim of the study was to develop a basis for detailed logging of the HVS and its equivalent units.

Following a preliminary examination of the core, fifty samples were selected and dispatched for thin sectioning and petrological examination by H.W. Fander (Central Mineralogical Services). Upon receipt of these descriptions, the intersections were logged in detail. Thirty samples were then assayed for Cu, Pb, Zn, Ag, Ni, Cr, Ti, As, Ba and Zr, to confirm the petrological analyses.

Core logs, petrological descriptions and assay results are presented in this report (see appendices), with a detailed photographic and written description of the matrix and fragment types present in the HVS.

It is hoped that the photographs and descriptions will prove a valuable aid in future logging of HVS intersections.

SUMMARY

The Hangingwall Volcaniclastic Sequence (HVS) in the Hellyer region of N.W. Tasmania is a coarse polymict lapilli-tuff/breccia, ranging from 0 to 40 metres in thickness. Its lower contact is generally conformable with a thick sequence of feldspar phyric andesites, and its upper contact is usually with a pillow lava sequence.

Grey blue sericitic impure chert is the most common matrix type, and fragments range from basaltic to andesitic to leucoandesitic in composition, and up to a half a metre in size. The basalts and andesites have readily identifiable source rocks, but the origin of the leucoandesites has yet to be positively identified.

Petrologically, the HVS consists of altered subaqueous volcaniclastic rocks, with minor reworked volcanically derived sediments. The entire sequence is pervasively quartz sericite carbonate chlorite altered, with alteration being imposed after deposition.

The different lithologies contained as fragments within the sequence can be identified by their Cr or Ni content, and by their Zr/Ti ratio.

1. THE HANGINGWALL VOLCANICLASTIC SEQUENCE (HVS)

1.1 Brief Description

The HVS, as its name implies, lies conformably on the hangingwall of the Hellyer orebody. An equivalent unit has been recognised approximately 1800 metres to the south, on the Hellyer portal access road at the "switchback" (8800N, 6300E). Its surface outcrop is shown on figure 1.

The major lithology in the unit is a polymict lapilli-tuff/breccia; minor ash tuff and shale are also present. The polymict unit contains angular fragments up to thirty centimetres in size ranging in composition from basaltic to andesitic to ?dacitic. The dominant fragment type is a pink to buff coloured leucoandesite of uncertain origin - it has never been seen in-situ at Hellyer.

The HVS ranges in thickness from zero to forty metres. The thickest accumulations seem to coincide with topographic lows in the ancient seabed, whilst the absence of the unit may indicate topographic highs or areas of steep slopes.

1.2 Stratigraphic Position

In the Hellyer area, the HVS is found in a clearly defined stratigraphic position. It underlies a pillow lava sequence which ranges in thickness from 35 to 250 metres. The lithologies represented in this sequence include pillowed vesicular basalt, non-pillowed non-vesicular basalt, quench tuff and breccia, shale, siltstone and polymict lapilli tuff.

Below the HVS is found the Hellyer Mineralised Sequence, consisting of up to seventy metres of Base Metal Sulphides. Where this is not present, the polymict unit rests directly on a sequence of feldspar phyric andesite lava and autobreccia which may be up to 170 metres thick.

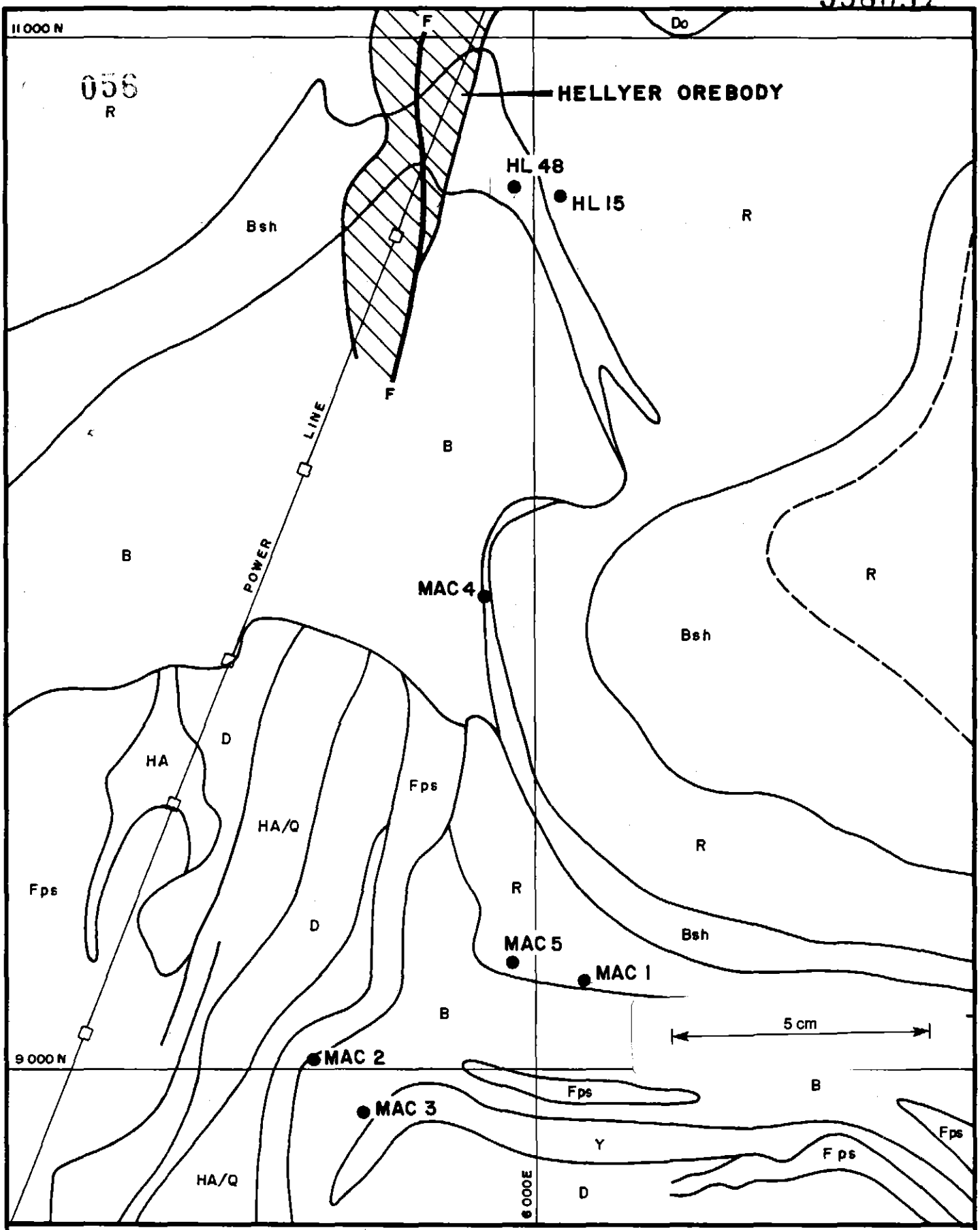
The base of the HVS is termed the "inferred Hellyer ore position".

Figure 2 summarises the stratigraphy in the Hellyer region.

Sequence	Lithologies	Max. Thickness (m)
Upper Epiclastic Sequence	Rhyolite lava and epiclastic, shale, siltstone, polymict breccia.	110+
Que River Shale	Shale, siltstone.	140
Pillow Lava Sequence	Basalts, shale, siltstone, polymict lapilli tuff.	250
Hangingwall Volcaniclastic Sequence	Polymict lapilli tuff/ breccia, ash tuff, shale.	40
Hellyer Mineralised Sequence	B.M.S., barite, etc.	70
Feldspar Phyric Sequence	Andesite lava and autobreccia.	170+
Lower Epiclastic Sequence	Polymict epiclastic.	35
Lower Andesite Tuff Sequence	Andesite lava, lapilli tuff/breccia.	65+

FIGURE 2 - Stratigraphic Summary - Hellyer Region.

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Aberfoyle Resources Limited

EXPLORATION DIVISION

REVISIONS			
Init.	Date	Init.	Date

Location Code :

NORTH WEST TASMANIA

MACKINTOSH E.L. 2/70

HELLYER AREA

GEOLOGY AND DRILLHOLE LOCATION PLAN

Scale : 1 : 10 000

Date :

Compiled : PEH/AMcN

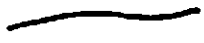
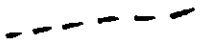
Drawn :

Traced : JMS

Plate No. MAC 272

Figure : 1.

Figure 1 - Legend

T.B.	Tertiary Basalt
Do	Dolerite
R	Upper Rhyolitic Sequence
Bsh	Que River Shale
B	Basalt
Y	Hangingwall Volcaniclastic Sequence
Fp.S	Feldspar Phyric Sequence
D	Dacite
HA/Q	Highly altered rock/Quellite
	Roads
	HEC line
	Lithological Boundary
	Approximate lithological Boundary
F F	Fault
	DDH location

1.3 Contacts

The upper contact of the HVS is generally with a basalt, and it may be conformable or faulted. The lower contact is generally conformable, with feldspar phyric andesite.

Figure 3 summarises the contact relationships observed in the seven intersections studied.

D.D.H	UPPER CONTACT	LOWER CONTACT
MAC-1	202.3m, with vesicular basalt, conformable.	249.0m, with andesite/ dacite, gradational.
MAC-2	78.0m, faulted.	99.3m, with andesitic volcaniclastic, conformable.
MAC-3	108.4m, with altered volcanic, faulted.	161.4m, with altered volcaniclastic, faulted.
MAC-4	138.1m, with basalt, faulted?	172.2m, with feldspar phyric andesite breccia, conformable.
MAC-5	235.5m, with andesitic lapilli volcaniclastic, conformable.	260.25m, with andesite lava, conformable.
HL-15	254.4m, with leuco-andesitic lapilli tuff, gradational.	263.3m, with feldspar phyric andesite, gradational.
HL-48	244.5m, with basalt, conformable.	258.4m, with andesitic lapilli tuff, conformable.

FIGURE 3 - HVS Contact Relationships

2. DESCRIPTION OF MATRIX AND FRAGMENT TYPES

2.1 Introduction

The HVS is a distinctly polymict unit, containing a number of matrix and fragment types. Each is described below, with reference to photographs where possible. For scale purposes, the label on each photograph is 85mm in length. The numbers on the labels refer to petrology or assay samples (see appendices 2,3).

2.2 Matrix Types

By far the most common matrix present in the HVS is blue grey sericitic impure chert. Rare grey white chert is present, especially in MAC-1. This matrix type is particularly evident in MAC-1, MAC-4 and MAC-5. Figures 4, 5 and 6 are examples.

A yellow green sericite cryptocrystalline quartz matrix is seen in Figure 7. This variety is common in the HVS in holes HL-15 and HL-48.

Other matrix types are essentially variations on the above two varieties, with minor chlorite or carbonate (which may be sideritic) changing the appearance, particularly the colour of the matrix.

The HVS in MAC-2, being a sediment, has a slightly different matrix, or in this case cement. It is mostly sericite and carbonate, but it includes small disseminated clastic fragments, particularly quartz.

2.3 Fragment Types

2.3.1 Basalts

The basalt fragments found in the HVS are vesicular to amygdaloidal, and grey to green in colour. The amygdales are up to one centimetre in size, and are filled with quartz or carbonate. The average fragment size is three to four centimetres, with fifty centimetres as a maximum.

Figures 8 to 12 are typical examples of basalt fragments from the HVS.

Figure 8 is from a twenty-five centimetre fragment, heavily carbonate sericite altered and mildly sheared. Figure 9 is similar, but contains conspicuous clots of green fuchsite.

The basalt in figure 10 occurs in fragments up to fifty centimetres in size. It contains sparse rounded quartz carbonate amygdales, and is heavily carbonate sericite chlorite altered.

Basalt of the type shown in figure 11 is confined to MAC-5. It occurs as coarsely amygdaloidal fragments up to twenty centimetres in size, and is chlorite sericite carbonate altered.

Figure 12 clearly shows the polymict character of the HVS. A fuchsite spotted, zoned basalt fragment is located in the lower left portion of the photograph.

2.3.2 Andesites

Andesite is by far the dominant fragment type found in the HVS, and it occurs in many different forms. Figure 7 and Figures 12 to 22 show typical examples.

Figures 7, 13 and 14 show the typically andesitic nature of the HVS in holes HL-15 and HL-48. The andesite fragments are of two types; (1) grey to dark grey green, sub rounded and chlorite spotted, and (2) greenish yellow, highly sericitized, sub rounded and often elongate. Both have five centimetres as a maximum size.

Feldspar phyric andesite fragments are common. Figure 12 and Figures 15 to 18 show examples. These fragments are generally sub angular, and up to twenty centimetres in size with white or pinkish feldspar phenocrysts. Figures 12 and 16 show pink albite alteration rimming the andesite clasts.

As a comparison, Figure 19 is an example of footwall feldspar phyric andesite.

Figures 20 to 23 are "andesitic" tuffs or reworked "andesitic" sediments. In these photographs the andesite fragments are generally yellow green to brown in colour and finely porphyritic. Relatively yellow clasts have been "bleached" by sericite.

A type of andesite not shown in the photographs is described in petrology sample 355940. Labelled an "andesitic breccia", it is dark green in colour, and colour banded on the mesoscale. Fragments are generally three to five centimetres in size, with a maximum of forty centimetres, and generally finely porphyritic. Good examples are seen in MAC-4 from 149.0 to 155.1 metres, and in MAC-5 from 235.6 to 260.25 metres.

2.3.3 Leucoandesites

One of the most distinctive features of the HVS is the presence of very large pink/buff coloured occasionally strikingly banded fragments. Petrologically they are andesitic to leucoandesitic in character, trending towards dacitic. However, they have a distinct geochemical signature, with a higher Zr/Ti ratio then andesite and a lower ratio than dacite. Accordingly, they have been termed leucoandesities.

The fragments are usually angular, and in MAC-1 where they are best seen, average six to seven centimetres in size with fifty centimetres as a maximum.

Two distinct varieties are found. The most common is the massive, porphyritic variety (figures 4, 24 and 25). Less common is the banded, but still often vaguely porphyritic type (Figure 26).

A characteristic feature of both varieties is a thin dark coloured alteration rim surrounding the fragment. Examples are seen in Figures 24 and 25.

A thirty centimetre "dacitic tuff" layer caps the HVS in HL-48. Here, the leucoandesitic/dacitic fragments are much

smaller and more diffuse, averaging half to one centimetre in size (Figure 27).

Figure 28 shows angular fragments of various felsic intermediate lithologies including trachyte, dacite, felsite and minor andesite. These fragments are rare and confined to this sample.

2.3.4 Other Fragment types

A number of minor fragment types are also found in the HVS.

The commonest is wispy, irregular masses of highly illite fuchsite altered material. The fragments are greenish yellow in colour, with bright green fuchsite clots which are often oriented parallel to the long axis of the fragment (Figures 4, 5). Good examples are contained in the HVS in MAC-1, MAC-3, MAC-4 and MAC-5.

Small amounts of pyrite are common. It occurs as small disseminated grains or as irregular masses up to four centimetres in size (Figure 6). Base metal sulphide fragments are much rarer. A good example occurs in MAC-4 at 159.1 metres. The fragment is rounded and five centimetres in size, and consists of dominantly pyrite and galena. In MAC-5, pyrite and chalcopyrite are associated with small quartz carbonate veinlets between 222.6 and 228.3 metres.

Figures 29 and 30 show examples of banded "felsite" from MAC-5. They are obviously flow banded, and dacitic in character. They are similar to the andesitic breccia described in section 2.3.2.

Very rare fragments of rounded black pelite up to three centimetres in diameter are found in HL-15 and HL-48.

2.4 Fragment Sources

2.4.1 Basalts

As there are no significant basalts stratigraphically lower than the HVS in the Hellyer region, the most likely source for the basalt fragments seen in the HVS is the hangingwall pillow lava sequence.

Small basaltic eruptions may have covered limited areas with lava, which was later explosively fractured and incorporated with the other lithologies in the HVS.

The fragments are similarly vesicular to amygdaloidal, and high in Cr and Ni compared to the hangingwall sequence, suggesting a common origin.

2.4.2 Andesites

The footwall feldspar phyric sequence is the obvious source for the very abundant andesite fragments. The feldspar

phyric fragments in the HVS are identical with rocks seen in the footwall, particularly in holes HL-15 and HL-48.

Non feldspar phyric andesite fragments may merely be more highly altered footwall rocks, with chlorite, quartz, sericite and carbonate pseudomorphing the original feldspar phenocrysts.

2.4.3. Leucoandesites

The origin of these fragments is still a matter of some debate. There are two possible alternatives;

(i) the fragments are ?flow banded dacites, or
(ii) they represent highly altered footwall andesite.

Figures 31 and 32 are examples of felsic intrusives or lavas from the footwall of holes MAC-4 and MAC-5. Clearly, they bear little resemblance to the leucoandesite fragments seen in figures 4, 24, 25 and 26 in terms of colour and texture. The rocks in Figures 31 and 32 also have a higher Zr/Ti ratio than does, for example, the leucoandesite in Figure 26.

Figure 33 is an altered andesite from the footwall of MAC-1. It seems to be a much better source rock for the leucoandesite fragment, as it is banded and porphyritic, much like many of the fragments (for example, Figure 26).

Figure 17 is an interesting photograph. Is the pink material merely albite alteration as seen in Figure 16, or is it footwall andesite altered to leucoandesite?

The angular nature and large size of the leucoandesite fragments in the HVS suggests that the source rock was very close. No rocks have been found in-situ in the Hellyer area that clearly resembles the leucoandesite fragments. The amount of these fragments present in the HVS also suggests that the source rock was quite voluminous. The only rock known at Hellyer that fulfills these requirements is the footwall andesite.

However, there is still a problem. If the andesites are the source rocks, why does the HVS contain almost unaltered feldspar phyric andesite and highly altered leucoandesite, supposedly from the same source? In MAC-1 from 236.5 to 243.5 metres, for example, leucoandesite fragments are found together with large numbers of relatively unaltered grey green andesite fragments.

Despite this seeming contradiction, the footwall feldspar phyric sequence seems the most likely source of the leucoandesite fragments in the HVS.

2.4.4 Other Fragment types

As the base of the HVS is interpreted as the "inferred Hellyer ore position", it is to be expected that sulphide fragments will be found within the HVS. It is known, from isotopic studies, that these sulphide fragments have the same signature as the Que River and Hellyer ores. It is not known, however, from which of these two systems the fragments originated, or whether they are from a third unknown source.

Between periods of volcanism, black shales accumulated in places on the sea bed. These pelites may have been explosively shattered and mildly reworked to become incorporated within the HVS. Examples are to be found in HL-15 and HL-48.

3. PETROLOGY

3.1 Brief descriptions of HVS intersections

The seven HVS intersections examined comprise altered volcanic rocks, with the exception of MAC-2 which is made up of volcanically derived sediments. The volcanic fragments within the HVS are dominantly basaltic to andesitic in composition, with relatively minor dacitic types.

The HVS in MAC-1 is an impure chert matrixed subaqueous polymict breccia, containing clasts of altered basalt, leucoandesite and andesite. The andesitic component increases downhole, until a gradational contact is reached with an andesitic/dacitic lava.

The HVS in MAC-5 is somewhat difficult to positively delineate. A 25 metre section starting at 235.5 metres shows close affinities with the intersection in MAC-1; it contains altered basalt, leuco andesite and andesite fragments in a sericitic cherty matrix. However, units further up-hole are also polymict in character and may also belong to the HVS (eg. 176.7 - 189.3 metres). The presence of obviously andesitic lavas and volcaniclastics above and possibly interbedded with the HVS complicates the situation in this hole.

MAC-3 contains finer grained material than the above two holes, and is largely andesitic in character. Large leucoandesite fragments towards the base of the HVS in this hole illustrates its affinities with MAC-1 and MAC-5.

The HVS in MAC-4 is a subaqueous polymict breccia with a matrix of sericitic ashy chert containing clasts of andesite with minor altered basalt. It is similar to MAC-1, but more andesitic in composition.

The HVS in HL-15 and HL-48 is represented by lapilli grade lithic tuffs, distinctly andesitic in composition. These two holes are situated very close to the Hellyer orebody, and some distance away from the other holes examined (see Fig.1). Petrologically, they

are similar to each other but distinctly different to the other five intersections. They are much finer grained, far more uniform in composition, and distinctly andesitic in character.

The intersection in MAC-2 stands alone, as it is a volcanomict lithoclastic sediment showing some signs of intraformational slumping. It contains rounded andesitic and ?leucoandestic clasts, in a silicified sericitic matrix/cement, suggesting that it may represent reworked HVS material.

Further more detailed petrological descriptions are contained in appendix B.

3.2 Alteration in the HVS

The HVS as a whole exhibits marked and pervasive alteration, obscuring most primary textural detail, particularly in the chert matrixed lithic fragmental rocks. Primary mineralogy persists only as leucoxenised opaques, chromiferous spinel and minor relics of albitised plagioclase. Acid and intermediate rocks may also contain relict quartz phenocrysts.

The alteration assemblage developed consists of quartz, sericite, carbonate, chlorite and minor albite. The carbonate varies from iron rich calcite to siderite, and is present as either clots or thin films. The sericitic component includes minor apple-green fuchsite.

Carbonate, quartz and albite are considered to be associated with the low grade greenschist facies metamorphism noted at Hellyer. Fuchsite alteration appears to be spatially related to base metal sulphides. The strongest fuchsite alteration seen is in MAC-1, surrounding 1.5 metres of base metal sulphide mineralization.

The intersection in MAC-1 is characterized by silica, sideritic carbonate, fuchsite and sericite alteration. The fuchsite occurs both as clots in the matrix and as phenocryst pseudomorphs within individual fragments. MAC-5 and MAC-4 have similar assemblages, but with less fuchsite and more chlorite.

The HVS in HL-15 and HL-48 has a sericitized siliceous matrix, with minor chlorite and calcite. Fuchsite is not present.

Sericite, carbonate and quartz is the assemblage seen in the reworked sediment in MAC-2 and in the andesitic breccia in MAC-3. Minor fuchsite is recorded as matrix clots in MAC-3.

3.3 Evidence for in-situ alteration

The question of whether the fragments in the HVS were altered prior to or after deposition is an important one.

Good evidence is found in MAC-4 that alteration has been imposed on the HVS in-situ. From 172.2 to 178.8 metres, large green porphyritic andesite clasts are seen rimmed by pink silica-albite alteration (Fig. 17). The fact that every clast in this interval

has the same alteration rim indicates that they were altered in-situ. If alteration had occurred prior to deposition, the explosive shattering and subsequent deposition of the material would destroy the regular pattern observed.

Another point in favour of in-situ alteration is the fact that the matrix and clasts in the HVS are similarly altered. Pre-depositional alteration would favour the clasts being altered in a different manner or to a different degree than the matrix.

It is possible, however, that some of the fragments may have been altered prior to deposition, and then been subject to further post-depositional alteration.

4. GEOCHEMISTRY

4.1 Introduction

Appendix C shows the results of assays carried out on various samples taken from the HVS. Often, the sampled rocks have also been examined petrologically. Outstanding geochemical characteristics are discussed below.

4.2 Chromium

Figure 34 shows Cr plotted against Zr/Ti for all but one of the samples assayed. This sample (355892) was omitted for convenience due to its exceptionally high Cr content.

The graph shows excellent separation between basalts, andesites, leucoandesites and dacites. The basalts and andesites show a similar Zr/Ti ratio, but the basalts have a much higher Cr content. The leucoandesites and dacites both have low Cr, but the dacites have a higher Zr/Ti ratio.

The andesitic nature of the HVS in holes HL-15 and HL-48 is clearly seen. All samples taken from these holes plot in the same area of the graph, along with andesite fragments from other intersections, and with footwall andesites.

Two anomalous andesites are shown (355985, 355989), both higher than normal in Cr. The petrology descriptions report both of these fragments to have visible traces of chromite.

This graph shows that Cr is an ideal element for use in separating unweathered samples of basalt and andesite in the Hellyer area.

4.3 Nickel

Figure 35 shows Ni plotted against Zr/Ti. This graph is very similar to that for Cr vs. Zr/Ti (Fig. 34), indicating that Ni is also a good element for distinguishing between basalt and andesite at Hellyer.

All four lithologies have almost identical positions on the Ni plot compared to the Cr plot. All samples from HL-15 and HL-48 again

cluster together in the andesite field. The two anomalous high Cr andesite samples are similarly high in Ni.

Ni appears to behave geochemically identically to Cr.

4.4 Copper

Figure 36 is a plot of Cu against Zr/Ti for all samples except 355986 and 355989, which were omitted for convenience due to their high Cu assays.

On this graph, leucoandesite and dacite occupy similar positions compared to the Cr and Ni plots. Copper, however, does not separate the basalts from the andesites as well as Cr and Ni. Some separation is achieved, with the majority of the andesites plotting in the same area, but there is a great degree of overlap. Low Cu basalts and high Cu andesites confuse the picture somewhat.

4.5 Barium

The samples assayed from holes HL-15 and HL-48 have a comparably high Ba content - an average of 2280ppm against an average of 475ppm for all other holes. This is most likely due to the proximity of HL-15 and HL-48 to the Hellyer orebody, with its barite capping.

CONCLUSIONS

The Hangingwall Volcaniclastic Sequence is a lapilli tuff/breccia which varies from distinctly polymict to distinctly andesitic in character. It always has a siliceous matrix, varying from white or grey blue chert to green yellow cryptocrystalline quartz.

Although initially there appears to be a great variety of fragment types, there are only three major classes. The most common is andesite, which varies from feldspar phyric to highly altered varieties. Its source is the footwall feldspar phyric sequence. Next most common are the large pink/buff angular leucoandesites, which may be massive or strongly banded. Their origin is debatable, but again the footwall andesite seems to be the most likely. The third class is the basalts, which show clear affinities to the hangingwall pillow lava sequence.

Both matrix and fragments show a similar alteration assemblage of quartz, sericite (including fuchsite), carbonate and chlorite, suggesting that the HVS was altered in-situ.

The different types of fragments show distinct geochemical differences, particularly with respect to Cr, Ni and to a lesser extent Cu. In most cases, the geochemistry agrees with microscopic petrological description.

REFERENCES

McARTHUR G J 1985 — Current Understanding of Hellyer Geology and Geostatistics. Unpublished Report Aberfoyle Resources.



FIGURE 4 - Polymict Breccia with impure chert matrix and conspicuous leucoandesite clasts.

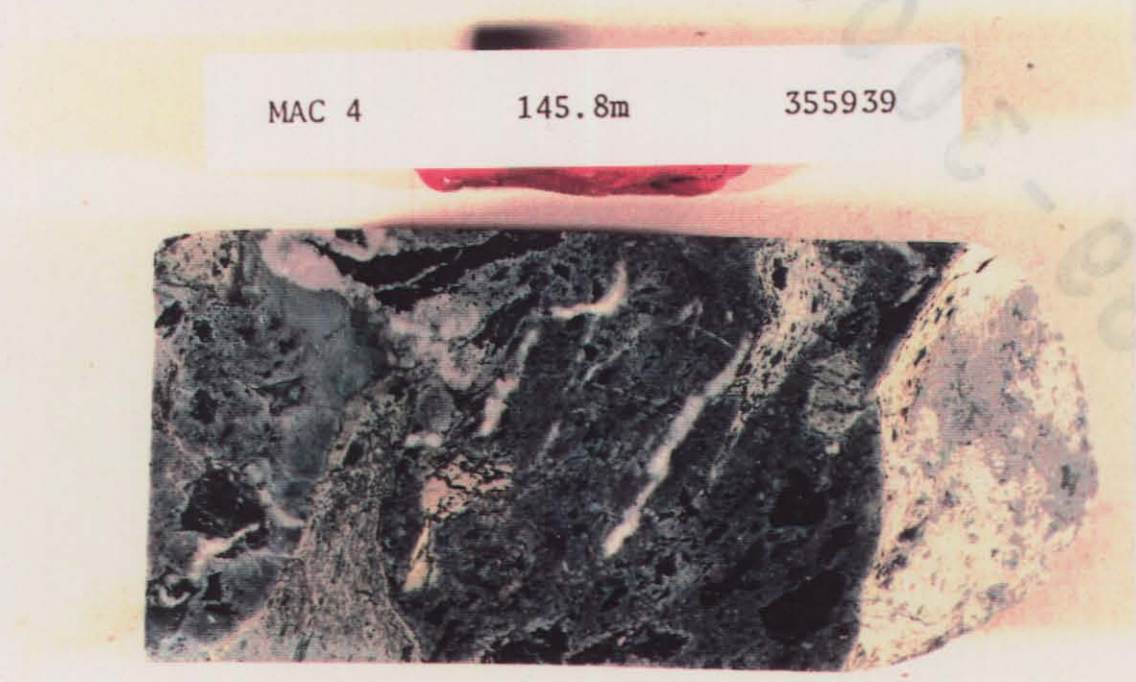


FIGURE 5 - Polymict breccia with impure sericitic chert matrix. Note the irregular illite fuchsite altered fragments.

MAC 5 238.0m 355964



FIGURE 6 - Polymict breccia with impure chert matrix.
Note patches of grey white chert.

HL 48 248.7m 355932



FIGURE 7 - Andesitic tuff with sericite cryptocrystalline quartz matrix.



FIGURE 8 - Altered basalt fragment.

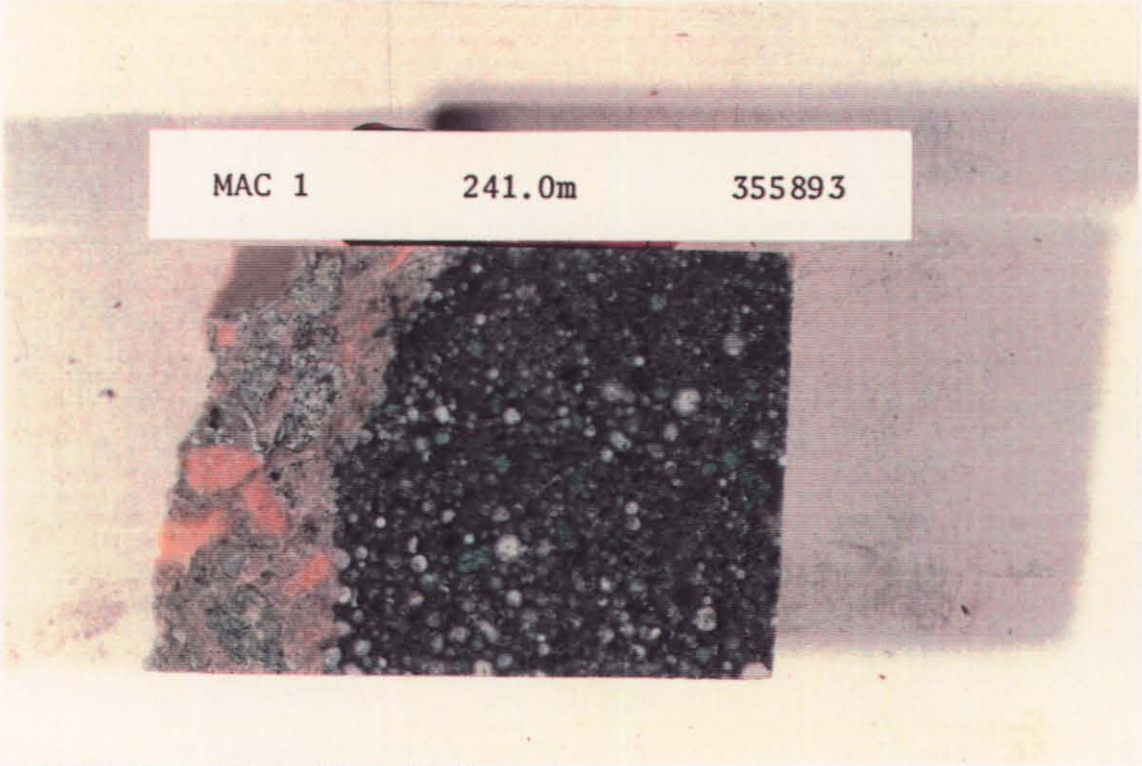


FIGURE 9 - Altered basalt fragment.



FIGURE 1Ø - Altered basalt fragment.

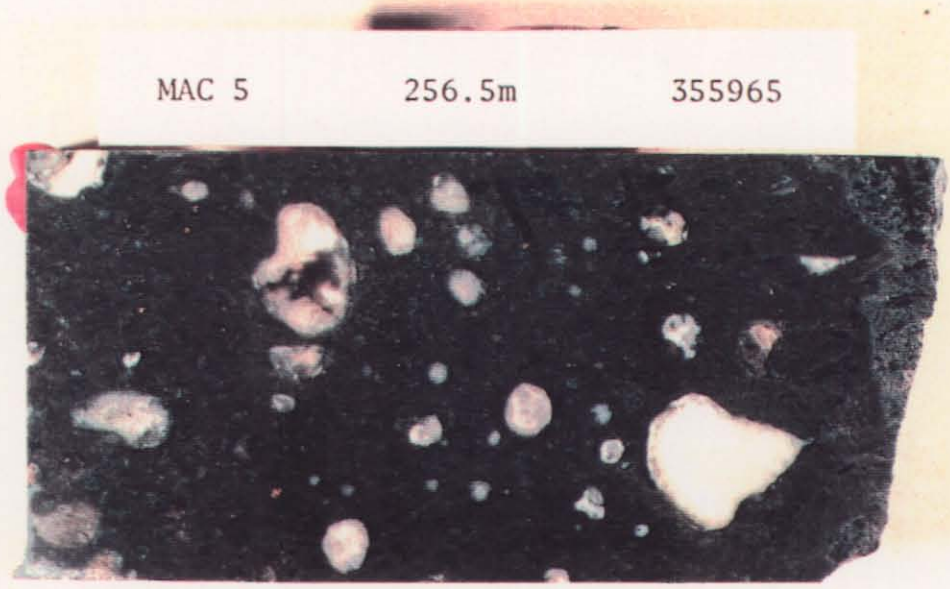


FIGURE 11 - Coarsely amygdaloidal basalt fragment.

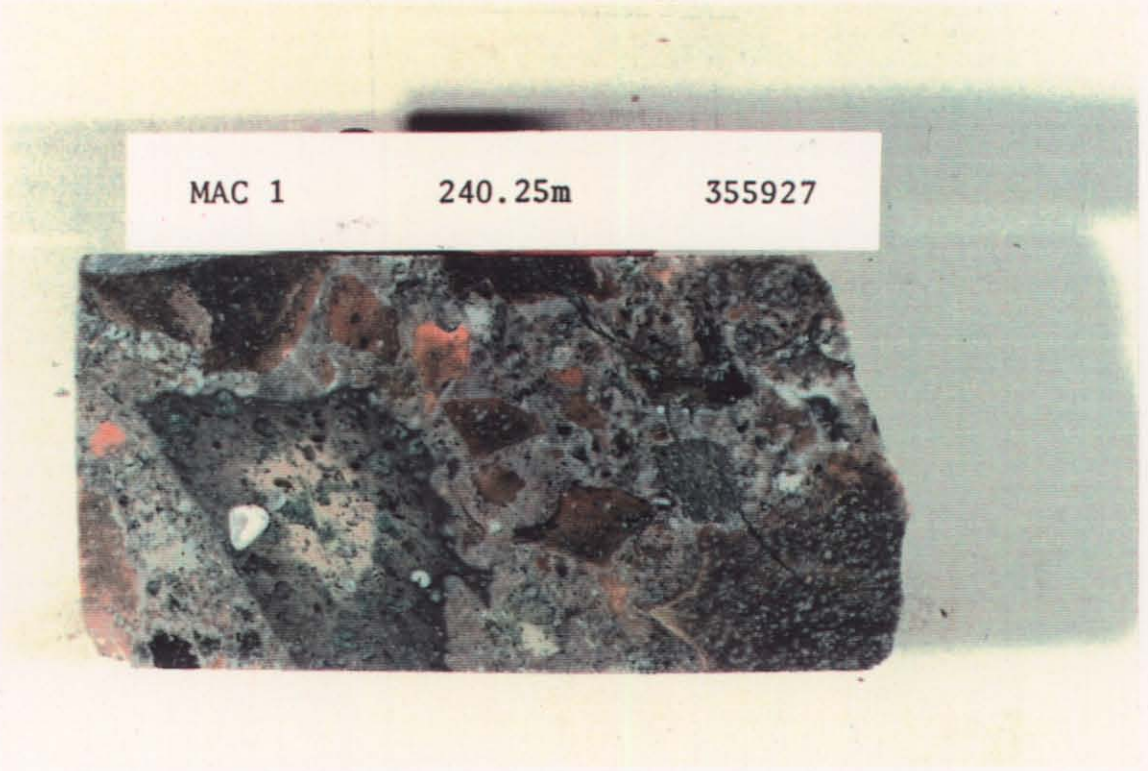


FIGURE 12 - Polymict breccia.



FIGURE 13 - Andesitic breccia.

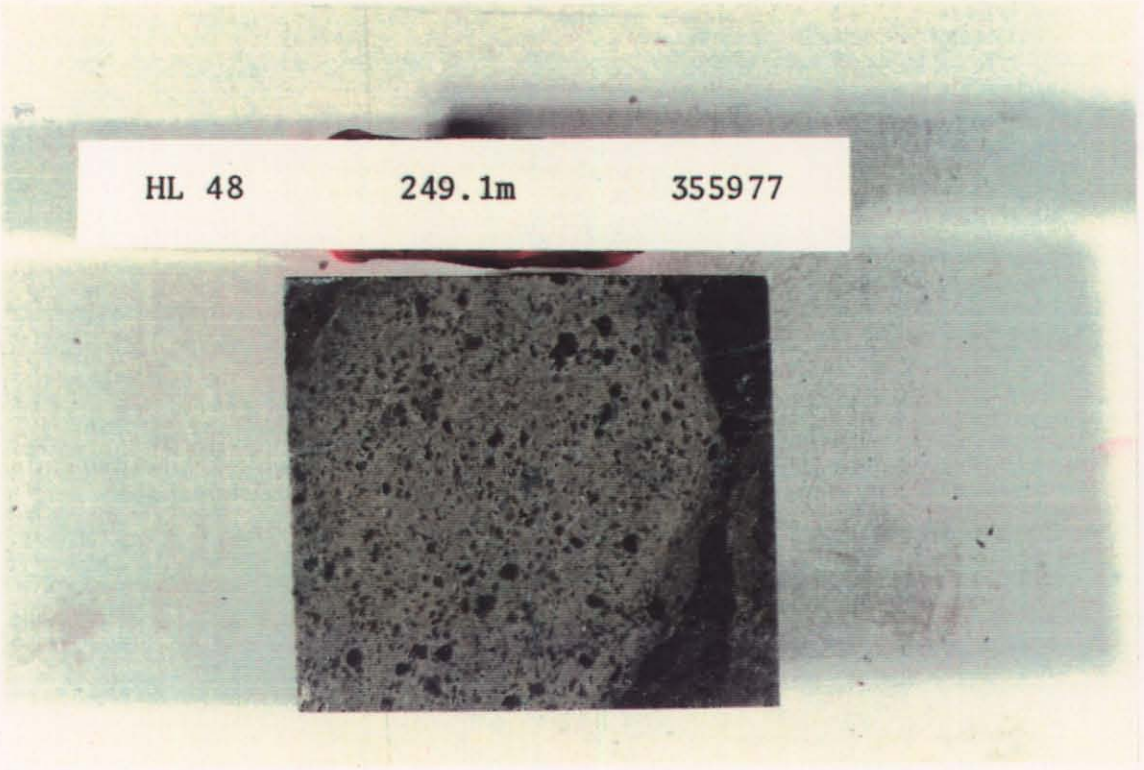


FIGURE 14 - Sericitised andesite fragment.



FIGURE 15 - Andesitic tuff with conspicuous feldspar phyric andesite clasts.

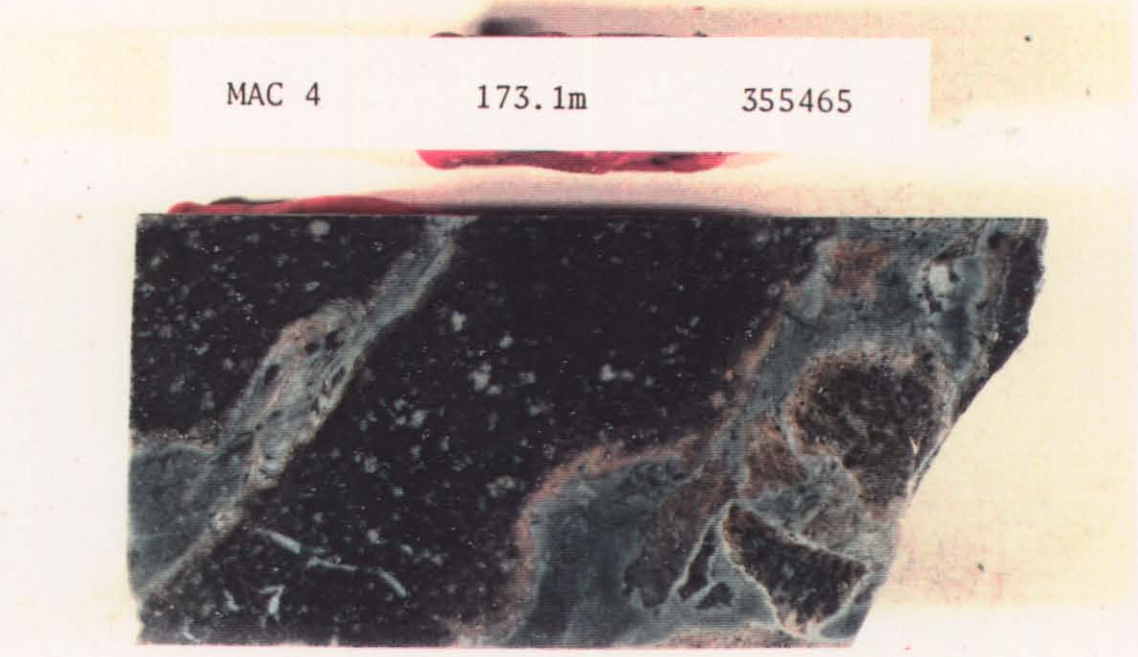


FIGURE 16 - Albite rimmed feldspar phyric andesite clasts in an impure chert matrix.

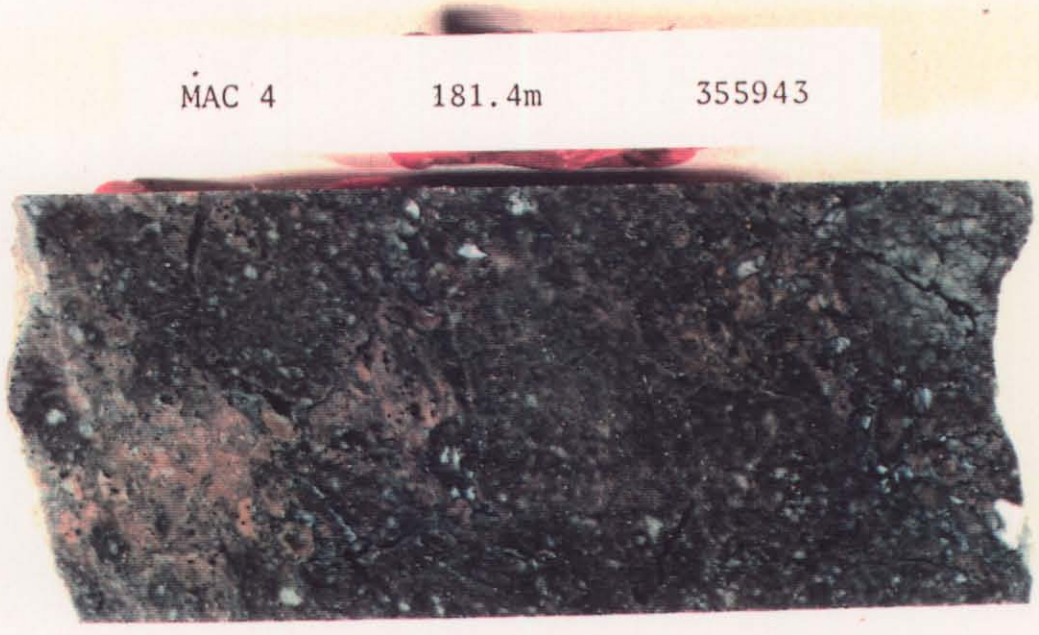


FIGURE 17 - Feldspar phyric andesitic breccia.

598077

HL 15 260.7m 355937

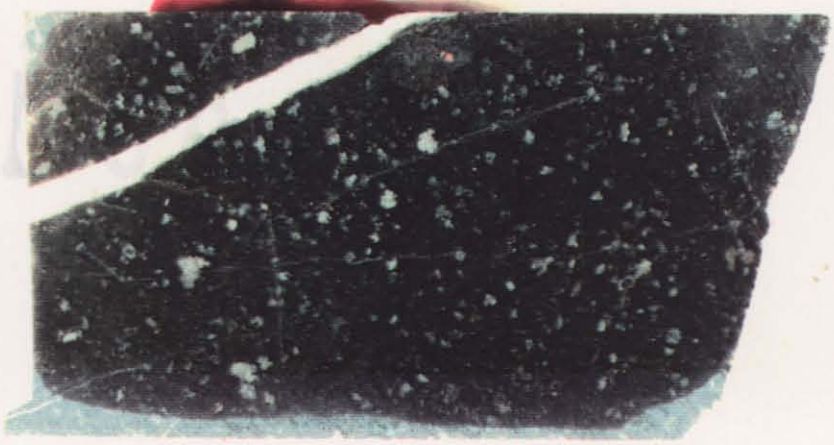


FIGURE 18 - Feldspar phyric andesite lava clast.

HL 48 259.4m 355935



Fig 19. FOOTWALL FELDSPAR PHYRIC ANDESITE

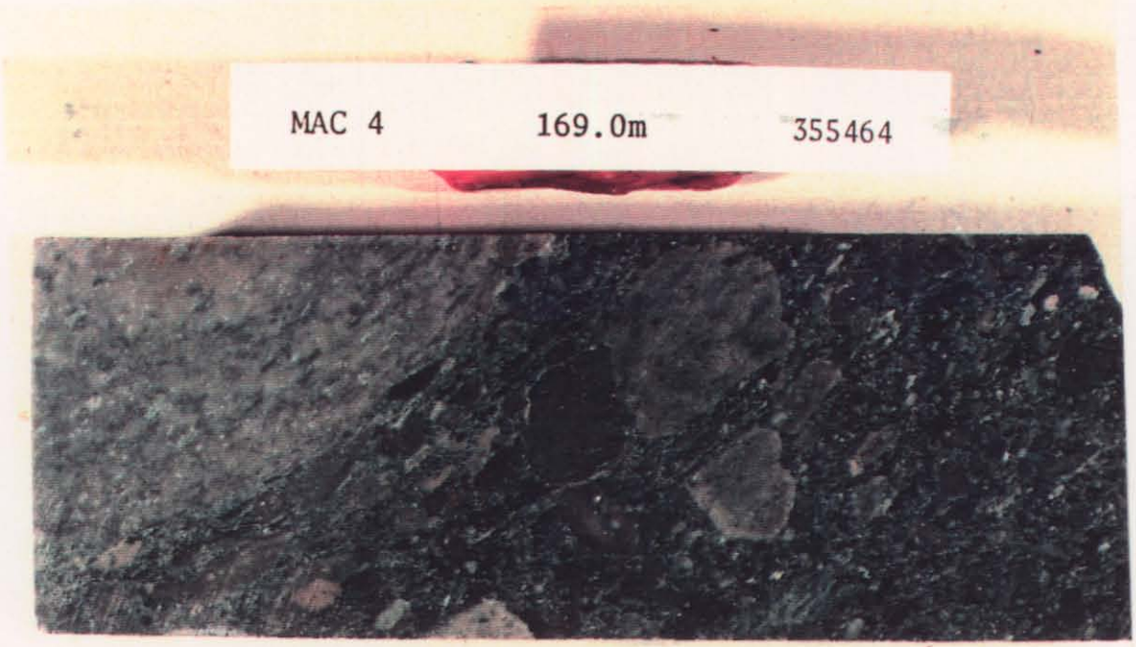


FIGURE 20 - Andesitic tuff.

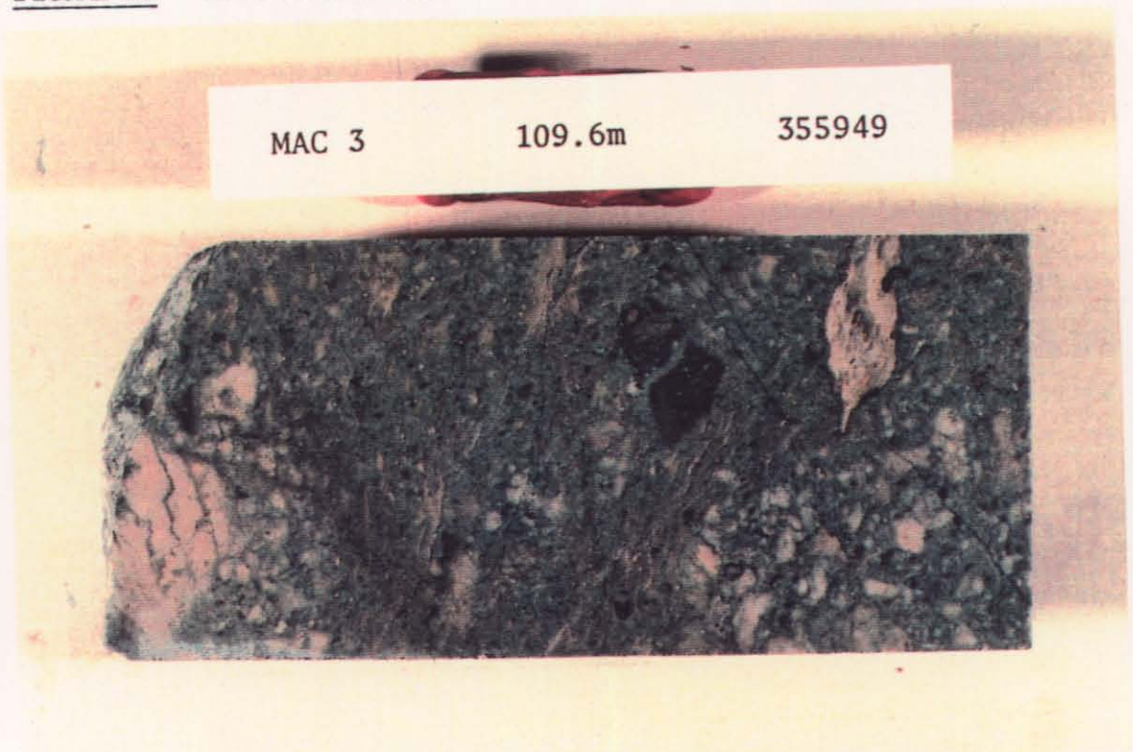


FIGURE 21 - Andesitic tuff with yellowish "bleached" clasts.



FIGURE 22 - Volcanomict grit, containing reworked andesite clasts.

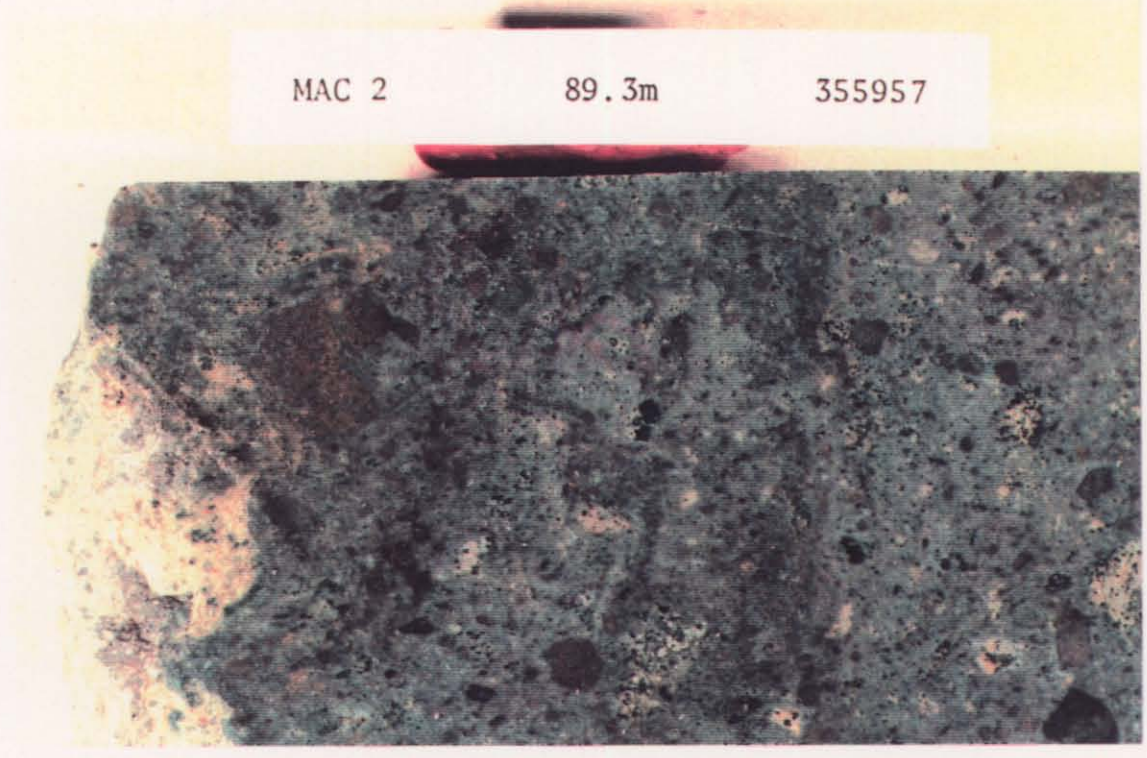


FIGURE 23 - Lapilli tuff containing reworked andesite fragments.



FIGURE 24 - Leucoandesitic tuff. Note dark coloured alteration rims on massive porphyritic fragments.



FIGURE 25 - Leucoandesitic tuff.

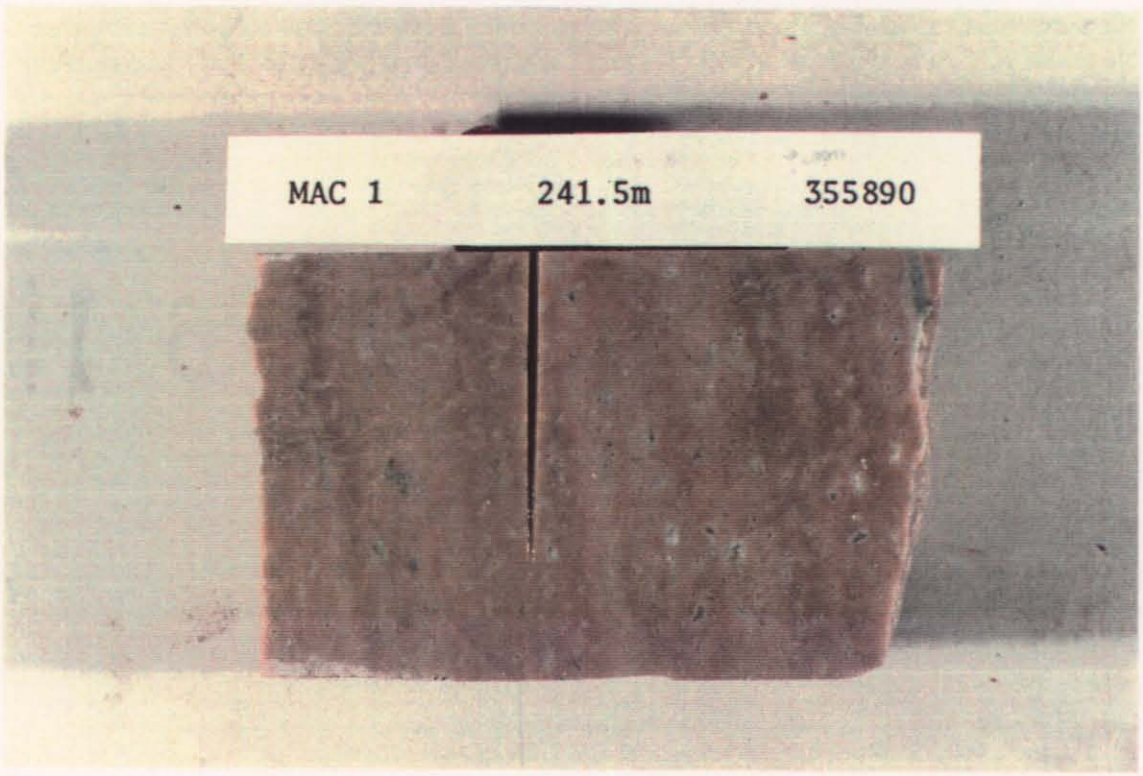


FIGURE 26 - Banded leucoandesite fragment.



FIGURE 27 - "Dacitic" tuff



FIGURE 28 - Felsic - intermediate lapilli tuff.



FIGURE 29 - Altered felsite megaclast.

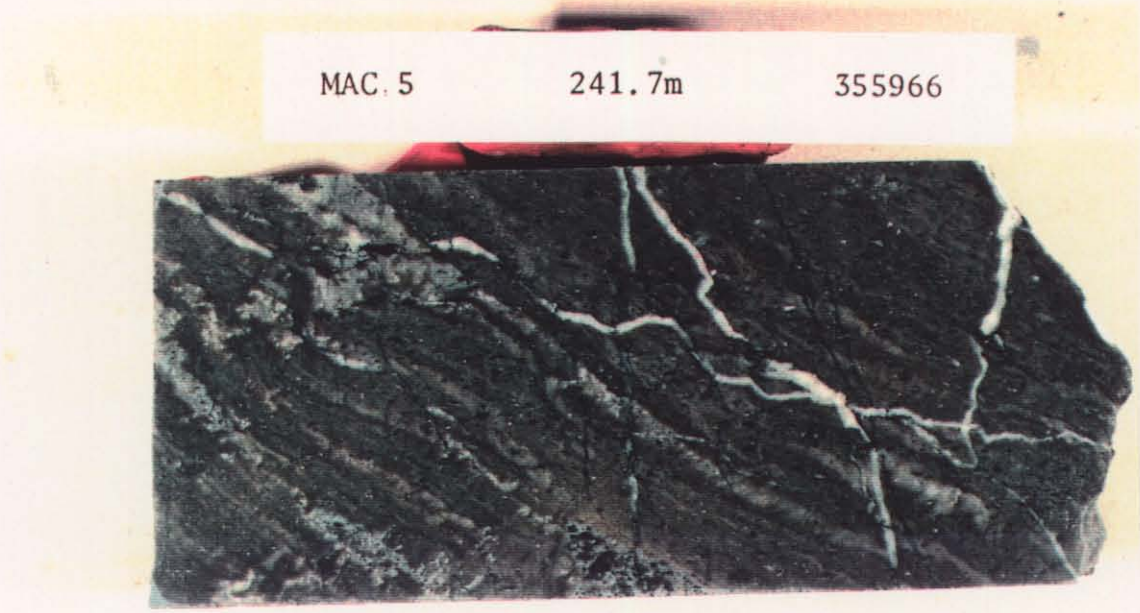


FIGURE 30 - Banded Felsite

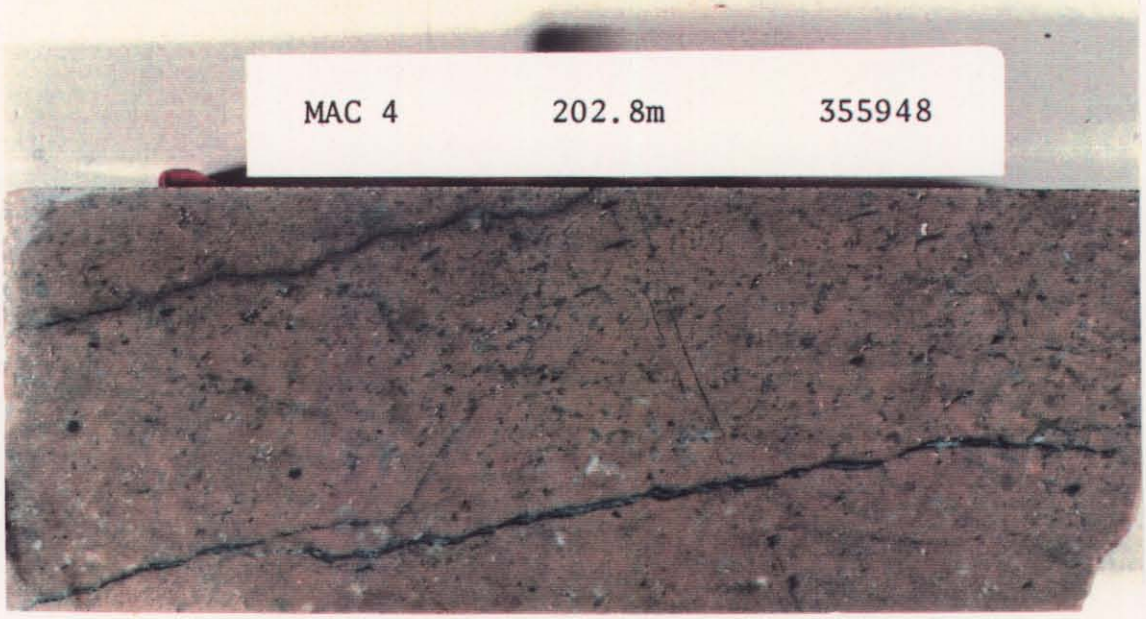


FIGURE 31 - Dacite lava.



FIGURE 32 - Amygdaloidal Felsite.

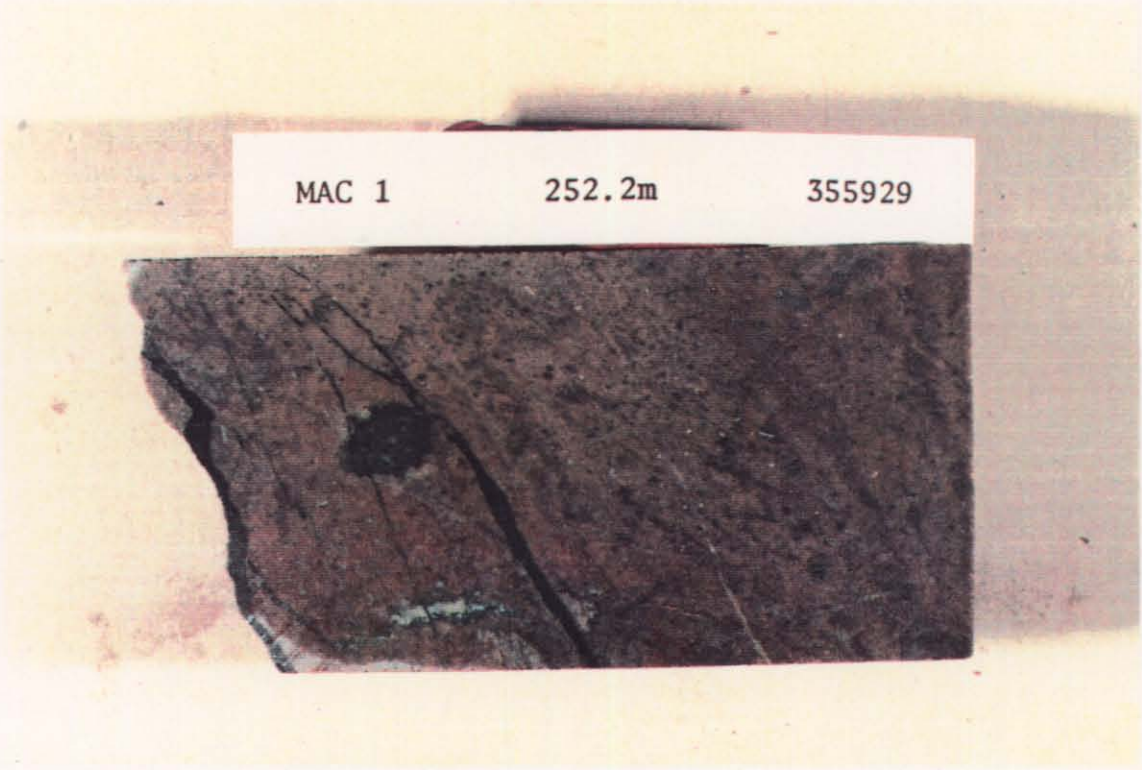


FIGURE 33 - Andesite from below the HVS.

ORMA PH PA CHRIST 1 N.Z. C102X 1 x 28 n

084

Figure 34.

Cr vs. Zr/Ti

355888 - 355896 D.Q.H. Mac-1
355977 - 355981 D.Q.H. HL-48
355982 - 355983 D.Q.H. HL-15
355984 - 355987 D.Q.H. Mac-4
355988 - 355992 D.Q.H. Mac-5
355993 - 355995 D.Q.H. Mac-3
355996 - 355997 D.Q.H. Mac-2

Note: Sample number 355892 is not included on this plot due to its very large Cr value of 960 ppm.

Cr ppm

400
300
200
100
0

0·02 0·04 0·06 0·08 0·10

Zr/Ti

355893 355983 355988 355986 355989 355984 355985 355981 355977 355994 355980 355982 355997 355978 355991 355996 355995 355993 355983 355979 355894 355890 355990 355889 355891 355887 355888 355995 355896

Basalts

Anomalous Andesite

Anomalous Banded Andesite

All HL-48 and HL-15

Andesites

Suspect due to sampling

Leucoandesites

"Dacites" below HVS.

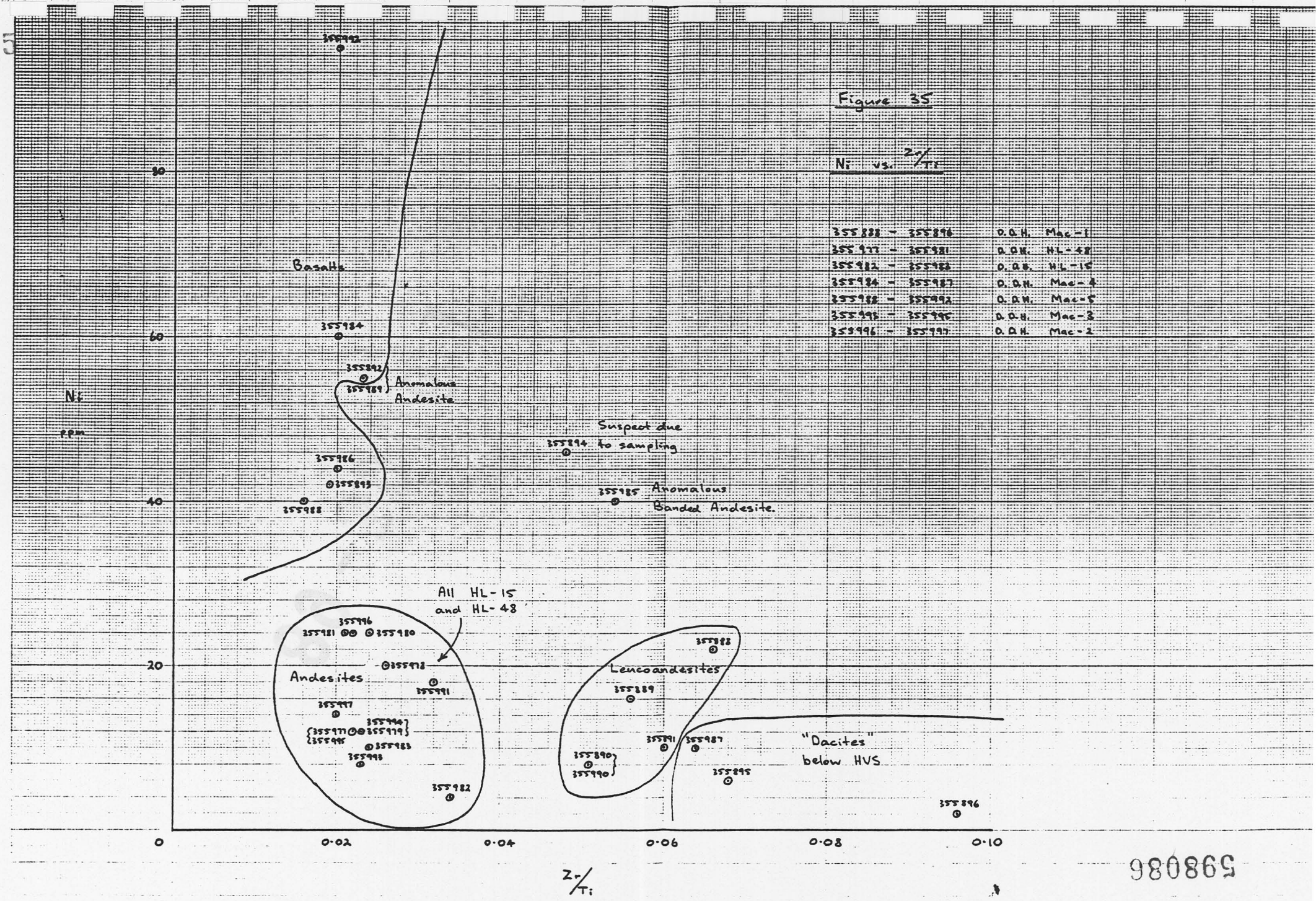
598085

085

Figure 35

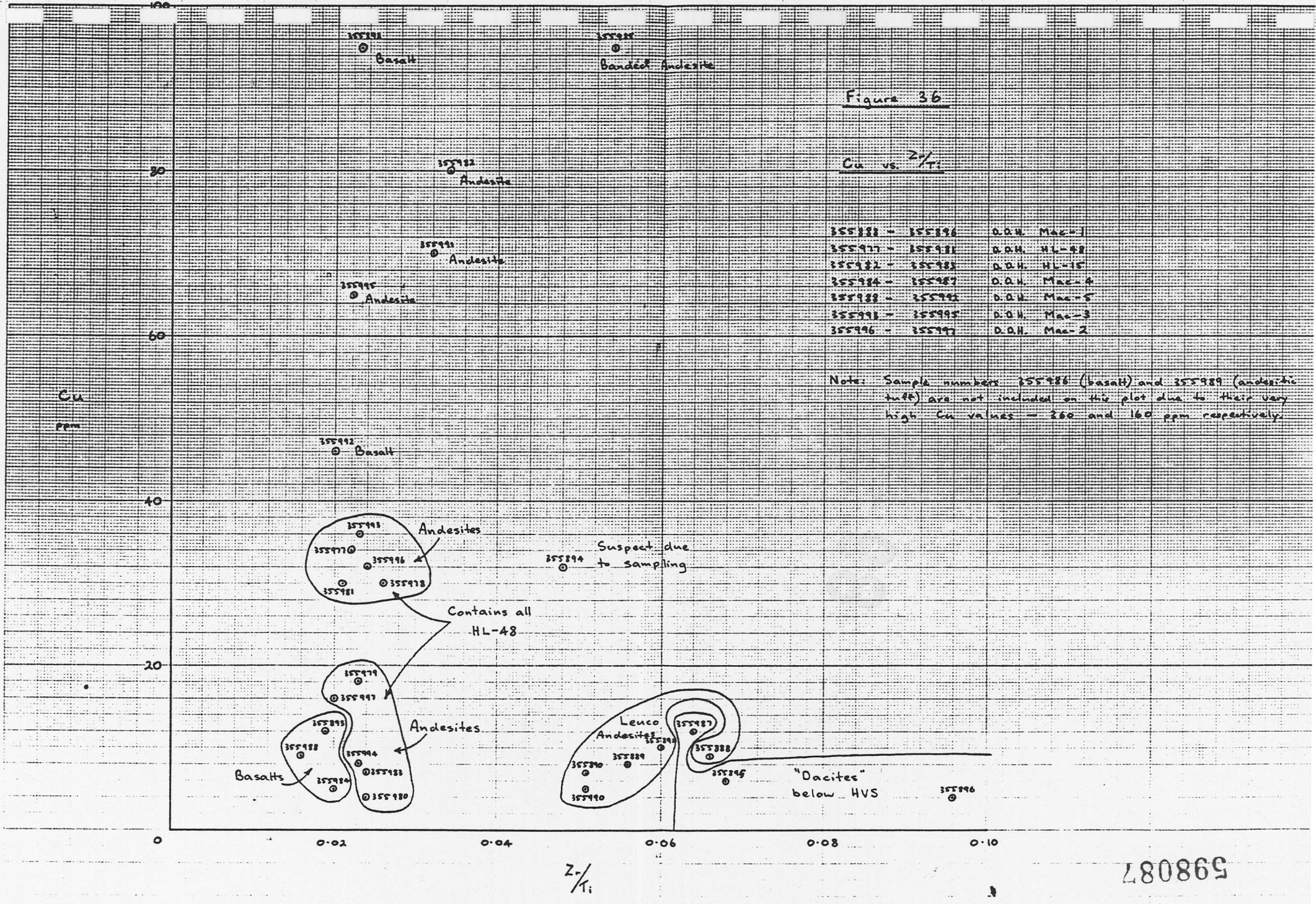
Ni vs. Zr/Ti

355888	355896	D.D.H.	Mac-1
355977	355981	D.D.H.	HL-48
355982	355988	D.D.H.	HL-15
355984	355987	D.D.H.	Mac-4
355988	355992	D.D.H.	Mac-5
355993	355995	D.D.H.	Mac-3
355996	355997	D.D.H.	Mac-2



598086

086


Figure 36
Cu vs. Zr/Ti
Cu ppm
Zr/Ti
355988 Basalt
355985 Bandeed Andesite
355982 Andesite
355991 Andesite
355995 Andesite
355992 Basalt
355993
355977
355996
355981
355978
Andesites
Contains all HL-48
355894 Suspect due to sampling
355979
355997
355995
355988
355994
355983
355984
355980
Andesites
Basalts
Leuco Andesites
355987
355994
355888
355889
355990
355995
355996
"Dacites" below HVS
355881 - 355896 D.D.H. Mac-1
355977 - 355981 D.D.H. HL-48
355982 - 355983 D.D.H. HL-15
355984 - 355987 D.D.H. Mac-4
355988 - 355995 D.D.H. Mac-5
355998 - 355995 D.D.H. Mac-3
355996 - 355997 D.D.H. Mac-2
Note: Sample numbers 355986 (basalt) and 355989 (andesitic tuff) are not included on this plot due to their very high Cu values — 260 and 160 ppm respectively.
0
20
40
60
80
100
0·02
0·04
0·06
0·08
0·10

598087

598088

APPENDIX A

088

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598089

PROJECT : HVS

PROSPECT: Hellyer, Tas.

HOLE NO: Mac-1

PAGE: 1 of 3

LOGGED: P.E.H.

DATE: Feb 86

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
200			Vesicular Basalt Lava B.1.	Dark green, fine grained massive basalt lava with sparse quartz/carbonate filled oval vesicles.		Sparse quartz/carbonate veining.		202.1 m. Rug and broken core → fault.				
202			202.3									
			202.3 Shale	Grey indurated shale		Strong quartz veining		white altered lower contact.				
204			Quartz Porphyry Intrusive	Pink banded rhyolitic intrusive. 1 mm rounded quartz phenocrysts	Quartz sidorite sericite altered.			Upper & lower contacts show white altered effects on pelite → intrusive.			Petrology 355080 205.2m 355085 205.7m	
			205.7									
206			206.2 Shale	Grey indurated shale								
208			Polymict Volcaniclastic Breccia (H.V.S) Y.bv	Matrix : clasts = 60:40 Massive unit of polymict breccia. Matrix is thoroughly sericitised chert and pelitic ash, blue grey in colour. Fragments: ① Large altered lavas andesite ("dacite"). Grey to buff, 1 mm to 50 cm, av 6-7 cm. 2 types - massive porphyritic, and banded. Angular with sharp outlines, some with dark micro dilation rims. ② Wispy heavily illitic (sericite) altered clasts, original composition unknown. Apple green to yellow. eg 212.1, 218.0. ③ Altered basalt. Up to 25 cm in size, av 3-5 cm. Cream with quartz/CO_3 amygdales. eg 219.1, 223.6 ④ Minor light grey to dark grey green porphyritic andesite. Angular, up to 5 cm. Chloritic. eg 212.0, 216.1.	Pervasive fracture, sericite, carbonate.		Rare pyrite av. 3-5 mm, sub rounded, increasing in abundance towards base of interval. eg 212.0, 216.1 Chromite in basalt clasts.	Sharp, conformable contacts.			Petrology 355081 213.5m 355926 219.1m Assay 355888 213.9m 355891 224.5m 355892 219.0m	
210												
212												
214												
216												
218												
220												

C 089

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598090

PROJECT : HVS

PROSPECT : Hellyer, Tas.

HOLE NO : Mac - 1

PAGE : 2 of 3

LOGGED : PEH

DATE : Feb 86

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS
225·2			B.M.S.	Massive sericitized sulfides. Contains inclusions of siliceous fragments.	Sericitized.			Sharp, wavy contacts.			Pb > Zn > Cu
226·6			Polymict Volcaniclastic Breccia (H.V.S.) Y. bv	Similar to above. Matrix same. Fragments as above, except - altered basalt now rare - sulfides more common. Same M:C ratio	As above.						
231·0				Same matrix. No fragments >2 cm. M:C = 90:10 Fragments are lavas andesite and minor, white Cookeite.	Intense fuchsite spotting in matrix.			Upper contact marked by diffuse ½ cm patch grey chert. Not at lower contact, however.			
232·45				Large fragments re-occur, as for 226·6 - 231·0. Matrix continuous - blue grey chert and pelitic ash. M:C = 60:40			Rare sulfide fragments - pyritic.		Fe stain		
235·0				Similar to 231·0 - 232·45. M:C = 80:20				Both contacts marked by ½ cm patch of grey chert.			
236·5				M:C = 60:40 Matrix continuous. Fragments: - altered lavas andesite, some vesicular. Angular, upto 20 cm - greatly increased amount of dark grey green andesite, av 2 cm, Max 7 cm. - amygdaloidal basalt, av 2-3 cm, max 8 cm. 2 mm vesicles, quartz/ Ca. Filled.	As above, but less fuchsite now.		Rare pyritic fragments 2 notable ones, 4-5 cm at 239·8, 241·95				Petrology 355927 240·25 m Assay 355889 238·8 m 355890 241·5 m 355893 241·0 m 355894 240·0 m

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598091

PROJECT : HVS
090
PROSPECT: Hellyer Tas.

HOLE NO: Mac-1
PAGE: 3 of 3
LOGGED: PEH
DATE: Feb 86

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
242				242.0 Dacite. Mainly pelitic ash. Clasts and andesite and lavas andesite. 242.3 M:C 70:30. Matrix as above, sericitic silica. Fragments lavas andesite as above, grey green andesite, rare basalt, chlorite fragments. 245.3 Circulational contact zone with "andesite" below. Banded and unbanded lavas andesite fragments in pinkish sericitized quartz feldspathic matrix.	Silicified.					Petrology 355428 242.2m	
244												
246												
248												
250			244.0 "Andesite"	Grey to pink glassy semi banded porphyritic lava. Previously interpreted as dacite							Petrology 355429 252.2m Assay 355895 251.0m 355896 250.0m Petrologically an andesite, geochemically trending towards dacite. Visually dacitic.	

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598092

PROJECT : HVS

PROSPECT: Hellyer, Tas.

091

HOLE NO: Mac-2
PAGE: 1 of 2
LOGGED: PEH
DATE: Feb '86

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
76				Fault Zone - core totally broken up with much gouge.								
78			78.0 Volcanomict lithoclastic Sediment reworked and altered HVS ? "epiclastic" Y.lv	M:C = 40:60 Dirty brown cement of sericite and siderite carbonate. Most conspicuous fragments are 5-10 cm streaky to aphanitic lava clasts, schistose and sericitic. Probably andesitic. Yellow green in colour, often coarsely porphyritic and chlorite spotted. 2 types based on colour - light and dark. May have darkened rims. Rare rounded grey phyric andesite, 1mm - 2 cm. Many small polymict fragments, mostly andesitic, < 1mm to 5 mm in size, well rounded.	Highly quartz sericite Fe carbonate altered.		Very fine disseminated pyrite.				Interpreted as a reworked lithoclastic sediment. Petrology 355954 79.5m 355955 84.0m 355956 87.8m 355957 89.3m 355958 94.2m Assay 355996 80.8m 355997 94.8m	
80												
82												
84												
86												
88												
90												
92												
94												
96												

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598093

PROJECT : Hvs

PROSPECT: Hellyer, Tas

092

HOLE NO: Mac-2

PAGE: 2 of 2

LOGGED: PEH

DATE: Feb '86

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
98				97-6 Mic = 80:19 Similar to above but lighter in colour. Altered lamp andesite to 6 cm, sub rounded, porphyritic now a contact.							Petrology 500676 98-9m	
			99-3 Andesitic Volcaniclastic A.lv	Massive andesitic fragmental with fragments to 5 cm.	Sericite carbonate.			Clear contact			Petrology 355959 100-1 355960 132-4	
100												
102												

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598094

PROJECT : HVS

PROSPECT: Hellyer, Tas.

093

HOLE NO: Mac-3

PAGE: 1 of 3

LOGGED: PEH

DATE: Feb '86

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
104			Altered Volcanic	Vague fragmental texture with clasts to 3 cm. Grey green in colour.	Sericite chlorite.							
106												
108												
108-4			Polymict Volcaniclastic Breccia HVS Y. Lv	M:C = 70:30. Matrix is bluish grey (greenish tinge) sericitic quartz. Fragments: ① Small yellow sericitic. andesite lava, 2mm – 3 cm. Creamy yellow to white, angular. ② Rare dark grey to black ?andesite, 1mm – 2 cm. Sub rounded, vague porphyritic texture. ③ Pink lava andesite, sub rounded to angular, 1cm max., thin dark altered rims, porphyritic.	Colour due to sericite "bleaching".	Carbonate chlorite vein on contact very regular a healed fault, ~30° to C.A.		Faulted contact – broken core, pug, Fe oxide staining. Vague eutaxitic texture. Fabric defined by p.o. of clasts.			Petrology 355999 109·6m Assay 355993 111·6m 355995 110·4m	
110												
112												
114												
116												
116·9												
118				M:C = 60:40 Matrix continuous from above. Slight colour changes throughout interval, but bluish grey overall. Fragments: ① yellow andesite lava as above, but not as common. Up to 2 cm, ragged to angular and blocky in shape. ② rare black ?andesite as above. ③ wispy sericitic illite fine grained altered ?pumice. 1mm – 5mm.	Minor fine brittle clots in matrix. Overall a dirty yellow-green colour.			p.o. of clasts still present. Vaguely eutaxitic.			Petrology 500885 123·8m 355950 120·1m	
120												
122												
124												

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598095

PROJECT : HVS

PROSPECT: Hellyer, Tas

094

HOLE NO: Mac-3
PAGE: 2 of 3
LOGGED: PEH
DATE: Feb '86

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
126				⊕ pink lavas andesite now more abundant and larger, up to 8 cm. obviously porphyritic with chlorite ± fuchsite phenocrysts up to 2mm. Banded in places. Generally sub rounded with clear outlines. Some have dark rims.								
128												
130												
132												
134												
136												
138												
140												
142				142-0 M:C = 50:50 Matrix continuous from above. Generally, fragments as above, but marked increase in size and number of pink lavas andesite clasts. Av. 2-3 cm							Petrology 500826 147.0m 355951 146.6m	
144												

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598096

PROJECT : HVS

PROSPECT: Hellyer, Tas.

095

HOLE NO: Mac-3
PAGE: 3 of 3
LOGGED: PeH
DATE: Feb '86

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
146				range ½ – 10 cm. Most are porphyritic, with dark rims. Sub rounded to sub angular, some elongate.								
148				148-0							Petrology 355952 150-2m	
150				Very similar to above, but matrix now more blue grey in colour. Fragments similar – lenco andesite to 11 cm, sericitic andesite to 5 cm.							Assay 355954 151-2m	
152				151-65							Petrology 355953 154-5m	
154				Matrix as for 142 – 148. Fragments also similar, but lenco andesite now rare. Sericitised andesite more common. Below 153-8 fragment size decreases, av 1-2 cm.								
156												
158												
160								Lower contact a major fault – 4m of broken core, pug core lost.				
162				161-4								
164			Altered Polymict Volcaniclastic	Green, cream, purple polymict volcaniclastic with fragments to 10 cm.	Chlorite, sericite. Purple is ? hematite.							
166												

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598097

PROJECT : HVS

PROSPECT: Hellyer, Tas.

0 096

HOLE NO: Mac-4
PAGE: 1 of 3
LOGGED: PEH
DATE: Feb 86

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
136			Basalt Lava B.1	Light to dark green highly altered lava.	Sericite, fuchsite clots.	Intense quartz carbonate veining, generally irregular.					Assay.. 355984 134-8m	
138			138-1 Polymict Volcaniclastic Breccia Y.bv	Matrix: clasts = 60:40. Matrix is blue grey sericitic chert, sim. Mac-1, but here darker and more bluish. Fragments: ① Dark grey green porphyritic andesite, av 2-4cm, irregular and angular. White or green 4-5mm phenocrysts. ② Dark green andesite breccia, macroscopically banded, sericite chlorite altered. Ragged, often elongate, 2-3cm. See PET 355940 ③ Wispy light green fuchsite spotted fragments. Phenocrysts up to 3 mm often aligned // to long axis of fragment	Pervasive sericite, chlorite, carbonate. Illite fuchsite decreases downhole.	Quartz carbonate veining in patches, irregular in nature.	Rare disseminated Pyrite.	Alignment of clasts and phenocrysts at ~30° to C.A. noticeable over parts of interval. eg 146-2→ Alteration in situ under directed stress ?			Petrology 355939 145-8m	
150			149-6 M:C = 70:30 Matrix continuous from above. Fragments: ① clasts green andesite breccia, banded, up to 40 cm, finely porphyritic. ② green amygdaloidal basalt av 10cm max 50cm. See PET 355941		Illite fuchsite now confined to rare wispy fragments, not as large as before.		Rare pyrite, in <½ cm fragments eg 152-35, 154-5, or disseminated eg 150-6	Fragment and phenocryst alignment still present			Note increase in fragment size from top of HVS Petrology 355940 151-5m 355941 154-0m Assay 355985 151-6m 355986 154-2m	
154			155-1 M:C = 75:25 Matrix continuous from above. Fragments:				Pyrite as fragments <1 cm, eg 155-5, 160-6 160-2	Vague alignment of clasts still noticeable.			Note increasing M:C ratio	
156												

0 097

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598098

PROJECT : HVS

PROSPECT: Hellyer Tas.

HOLE NO: Mac-4

PAGE: 2 of 3

LOGGED: PEH

DATE: Feb 86

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
158				① Dark green porphyritic andesite, not as common as above.							Petrology 355463 165.0	
160				② Dark green banded andesite breccia, rarer and smaller than above.								
				③ Green ?vesicular basalt, av. 6 cm.								
				④ Fuchsite spotted light green ?altered basalt.								
162				⑤ Rare lavas andesite fragments. Some show altered dark clearly andesitic rims and very pink interiors eg 162.1 m.								
164				⑥ Very dark green coarsely feldspar phyric andesite. Angular, up to 20 cm, av 5 cm, may be banded.								
166				166.3								
				No matrix. Totally porphyritic basalt, rounded phenocrysts up to 4 mm. Dark green with some lighter patches.	Sericite, chlorite.	Sparse quartz - carbonate veining					Petrology 355462 167.8	
168				168.3							Petrology 355464 169.2	
				M:C = 50:50 Lithic fragmental, moderately rounded. Matrix is quartz, sericite, + mass of small polymict fragments. Clasts - dark green andesite, 5-15 cm with altered rims, with minor tuffaceous sediment. All small clasts submammillated.								
170												
172				172.2							Petrology 355465 173.2	
			Feldspar phyric Andesitic Breccia A. fp. 1b	M:C = 40:60 Matrix is pelitic ash to impure ashy chert - bluish grey in colour. Clasts are large green porphyritic andesite, white or green phenocrysts. Angular, av. 4 cm, max 10 cm. Conspicuous feature is pink/buff lava andesite alteration rim around each clast. Amount of alteration decreases downhole.	Wispy white fuchsite alteration in the matrix increases downhole.							
174												
176												

098

ABERFOYLE EXPLORATION

PROJECT : HVS

PROSPECT: Hellyer Tas.

DIAMOND DRILL LOG

598099

HOLE NO: Mac - 4
PAGE: 3 of 3
LOGGED: PEH
DATE: Feb 86

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
178				Fragment size decreases towards base of interval.								
				178-8 Matrix continues, but slightly browner than above. Clasts are feldsporphyric andesite, without altered pink rims. Outline more diffuse than above, clasts blocky, av. 4 cm, max 8 cm.	Lower contact obscured by 1m of dirty yellow sericite alteration with minor fuchsite.			Weak alignment of fragments ~40° to C.A.			Petrology 355943 181-4	
182												
			Andesitic Lapilli Volcaniclastic A. lv.	M:C = 40:60 Matrix is sericitic, siliceous, containing many small volcanic fragments. Fragments mostly grey green andesite, finely porphyritic and difficult to distinguish from matrix. At 185-2, 7 cm very diffuse lower andesite, illite fuchsite altered. Fuchsite span to 6mm	Contact obscured to ~184-25. Intense, pervasive illite fuchsite sericite.	Quartz carbonate veining.					Petrology 355944 185-9m 355945 187-1m	
188												
				189-0								
190			Altered Breccia H A	M:C = 30:70 Matrix is impure chert and pelitic ash. Clasts are ?lower andesite, up to 10 cm, porphyritic.	Pervasive illite fuchsite carbonate. Spots of fuchsite up to 1 cm.	Quartz carbonate veining.					Petrology 355946 191-3m 355947 195-7m	
192												
194												
196				196-3								
			"Dacite" D. l	Khaki greenish massive weakly porphyritic lava. Previously interpreted as dacite.	Quartz sericite carbonate. Minor fuchsite.						Petrology 355948 202-2 Assay 355987 201-9 Petrologically andesitic/dacitic, geochemically dacitic.	
198												

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ABERFOYLE EXPLORATION

PROJECT : HVS

PROSPECT: Hellyer, Tas.

DIAMOND DRILL LOG

598100

HOLE NO: Mac-5

PAGE: 1 of 7

LOGGED: PEH

DATE: Feb '86

DEPTH	DRILL RUNS	CORE LOSS	ROCK NAME	DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
170			"Dacite" Breccia D.1.b	Light brown/tan massive unit.		Heavily quartz carbonate veined.						
172			172·6									
			Black Shale Sh	Massive black indurated shale, crumbly in parts. Sub rounded "dacite" fragments in top 10cm of unit. Pepperitic.	Minor chlorite on cleavage.							
174			174·6									
			Basalt Lava B.1	Dark green massive unit with 1-2 mm Pelletoidal filled vesicles.		Minor irregular quartz carbonate veining.						
176			176·9									
			Polymict Volcaniclastic Y.lv/bv	M:C ≈ 60:40. Matrix of blue grey silica. Lapilli sized clasts: ① angular dark pink/buff lavas andesite, vaguely porphyritic. ② grey angular andesites. ③ yellow diffuse fg spotted fragments ④ dark grey green andesite.	3-4 mm clots of Fuchsite in matrix.			Upper contact obscured by broken core. Faults 176·5 – 178·3 179·5 – 180·2				
180			180·2									
				M:C ≈ 80:20 Matrix as above. Fragment lithologies as above, av. size 2-4 mm, max 1 cm. 20 cm coarse interval 181·1 – 181·5. Contorted silica matrix, illite Fuchsite altered. Angular lavas and acute fragments with dark rims, and dark green andesite. Fragments angular.	Fuchsite still evident, but not in large clots.			Upper contact obscured. Lower contact is diffuse band of grey chert, sim Mac-1.				
182			183·5									
184				M:C ≈ 70:30 Matrix continuous from above. Fragments: ① pale lavas andesite to 10cm. Angular max have dark altered rims. ② pale yellow green sericitised andesite. Rogger, elongate. ③ Grey green angular andesite.	Minor Fuchsite spots.			Type ① fragments have phenocrysts aligned parallel to long axes of clasts.			Petrology 355961 184·9 m	
186			187·2									
				Matrix blue white quartz silica 187·9 are lav com lavas andesite, with M:C ≈ 80:20 Matrix blue grey silica. Lavas andesite to 20 cm, sericitic yellowish andesite, brownish green andesite.	Extreme Fuchsite veining. Patchy Fuchsite.			Top contact sharp, lower gradational.				
188			189·3									
			Andesitic Lapilli	M:C ≈ 60:40 Matrix is sericitic blue silica with slight greenish tinge.							Petrology 355962 192·0 m	
190												

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ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598101

PROJECT : HVS

PROSPECT: Hellyer, Tas.

HOLE NO: Mac-5

PAGE: 2 of 7

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DATE: Feb '86

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
192			Volcaniclastic A.lv	Fragments are dark grey green feldsporphyric andesite, rounded to ragged and elongate. Av 1cm, max 4. 192.5 – 193.0, as for 187.2 – 187.9' Matrix continuous similar								
193.7			193.7 Ash Volc as before									
196			Lapilli Volcaniclastic Y.lv	M:C = 80:20 Looks like a basalt – has sporadic white infilled vesicles. Minor volcaniclastic input, and occasional dark green andesite fragment.							Assay 355988 196.6m	
198.5			198.5 m As for 196.7 – 197.9									
200			Polymict Volcaniclastic Y.bv	M:C = 80:20 Basaltic overall. Matrix is dark grey brown conch. to silica. Fragments of dark grey green andesite up to 7 cm, and lesser andesite to 6 cm, with dark outlines.							Petrology 271985 200.9m	
201.6												
202			Feldsporphyric lapilli volcaniclastic A.fp.lv	M:C = 60:40 Matrix is dark white grey silica. Dominant fragment is feldsporphyric grey green andesite av 1-5cm. Also small (up to 2 cm) rare, pale pink lavas andesite. Blocky, banded.								
205.8												
206			Andesitic lapilli volcaniclastic A:lv	M:C = 60:40 Matrix is sericite chlorite stained granular. Andesite fragments in above unit abundant here, av. 5 mm, max 4cm. A few altered lavas andesite fragments, sub rounded to blocky, diffuse outline, no altered rim, 3-8 cm, white phenocrysts up to 4 mm.								Petrology 355963 221.2m Assay 355989 219.8m	
208												
210												

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PROJECT : HVS

PROSPECT: Hellyer, Tas.

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598102

HOLE NO: Mac-5

PAGE: 3 of 7

LOGGED: PGH

DATE: Feb '86

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
212				Overall, a very homogeneous andesitic unit.								
214												
216												
218												
220												
222												
			222-6					Clear wavy contact.				
224			Feldsparphyric andesite lava A.fp.1	Massive lava, green at top changing to brown at base. No visible clasts.			Pyrite and chalcopyrite associated with small quartz/carbonate veinlets.					
226												
			228-3									
230			Andesitic lapilli volcaniclastic A.lv	Similar to 205-2 - 222-6, but a little darker in colour. Abundant dark green feldsparphyric andesite fragments. Massive almost featureless unit								
232												

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ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598103

PROJECT : HVS

PROSPECT: Hellyer Tas.

HOLE NO: Mac-5

PAGE: 4 of 7

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DATE: Feb '86

DEPTH	DRILL RUNS	CORE LOSS	ROCK NAME	DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
234												
			235-5 cbx	As for earlier unit intervals.								
236			235-6 Polymict Volcaniclastic Breccia H.V.S. Y: bv	M:C = 60:40 Matrix is sericite and carbonate stained cherty quartz, similar but darker in colour to Mac-1. White grey chert also found. Fragments: ① Lenco andesite up to 30 cm, av. 5 cm. Mostly massive and porphyritic, some banded. Sharp outlines, sometimes with altered chert rims. ② Rare wispy illite - fuchsite. ③ Banded dark green andesite breccia as seen in Mac-4, up to 30 cm. "Banded Felsite" ④ Amygdaloidal basalt (see 355967) near base of interval. Round 3-4 mm quartz / CO_3 filled vesicles. Up to 20 cm. ⑤ Dark grey green porphyritic andesite, up to 1 cm. Sometimes fuchsite spotted.			Pyrite localised between 238-6 – 240-9 as fragments up to 5 cm, average ½ cm. Sub rounded to very irregular. Some minor BMS, mostly sphalerite.	Both contacts clear, sharp and conformable.			Petrology 355964 238-0m 355965 256-5m 355966 241-9m 355967 248-6m 355968 251-5m 355969 257-1m Assay 355990 237-2m This unit contains many of the fragment types seen in Mac-1 and Mac-4 and appears to be the HVS unit in this hole.	
238												
240												
242												
244												
246												
248												
250												
252												

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PROJECT : HVS

PROSPECT: Hellyer Tas.

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598104

HOLE NO: Mac-5

PAGE: 5 of 7

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DATE: Feb 86

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS
260			260.25 Andesite Lava A.1	Massive lava, amygdaloidal in patches.							Petrology 271986 261.2m

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ABERFOYLE EXPLORATION

PROJECT : HVS

PROSPECT: Hellyer, Tas.

DIAMOND DRILL LOG

598105

HOLE NO: Mac-5
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DATE: Feb '86

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
276												
278												
280				280-5								
282			Silicified Breccia A. bv 282-2	Micro 50:50 Broadly andesitic. Quartz carbonate matrix. Generally a chaotic mass of small andesite fragments, minor lavas andesite.	Carbonate chlorite quartz sericite.		Rare pyrite.				Petrology 355970 281-0m Assay 355991 280-8m	
			"Dacite" D. l 284-0	Brown massive sometimes porphyritic lava. Origin uncertain. Intrusive? Lava?								
284			Silicified Breccia B. bv	Vaguely similar to 280-5m 282-2, especially w.r.t. alteration. Matrix is sericitic chloritic quartz. Fragments are lavas andesite up to 6 cm. porphyritic. Sometimes intensely fuchsite spotted, and contain white phenocrysts up to 5 mm.			Minor pyrite, max 1 cm, with minor Sms.				Petrology 355971 286·6m 355972 289·2m Assay 355992 288·5m	
286												
288												
290				290·0								
			Ash Volcaniclastic A. av 292·6	Recrystd andesitic tuff.	Fuchsite, chlorite.						Petrology 271987 290·8m	
292			Polymict Volcaniclastic Y. lv	? Basaltic. Matrix is impure chert. Conspicuous chloritic basaltic fragments.	Intense fuchsite alteration in places.		Common pyrite fragments to 2 cm.				Petrology 355973 295·9m 355974 299·4m	
296												

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ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598106

PROJECT : HVS

PROSPECT: Hellyer, Tas

HOLE NO: Mac-5

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DATE: Feb '86

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
296				Rare lavic andesite and grey green andesite.								
298												
300												
			300-5									
302			"Felsite" R.1	Brown massive porphyritic - amygdaloidal quartz "porphyry". Conceivably an intrusive.							Petrology 355975 300-5	
304												

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598107

PROJECT : HVS

PROSPECT: Hellyer, Tas

HOLE NO: HL-15

PAGE: 1 of 1

LOGGED: PEH

DATE: Feb '86

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
250			?Basaltic Breccia B.lv	Dark green ? basaltic breccia.		Intense quartz veining.						
252												
253·3			Lenco Andesitic Lapilli Tuff 254·9	Pink feldsparphyric lapilli tuff. Lenco andesite fragments up to 20 cm in a sericitic silica matrix.	Intense quartz – feldspathic alteration.							
254			Polymict Volcaniclastic Breccia H.V.S. Y.lv	M:C = 60:40. Matrix is fine sericite, quartz. Yellowish green and brown at top, darkening downhole. Olive green from 257·1. Fragments: ① Yellowish green sericitic andesite, clast. HL-48. Up to 3 cm, vaguely autoclastic. Subrounded. ② Dark green porphyritic andesite, angular up to 5 cm. ③ Rare rounded black pelite. ④ Porphyritic lenco andesite, clast 258·3 – 259·5. Up to 15 cm, generally massive, occasionally banded.	Pervasive quartz sericite chlorite.		Rare pyrite up to 2 cm, eg 254·8.	Upper contact gradational over ~ 20 cm. Gradational lower contact.			Petrology 270877 258·7m 355936 255·3m 355937 260·7m 355938 255·9m Assay 355982 258·2m 355983 261·3m	
263·3			Andesitic Lapilli Tuff A.lv	Feldsparphyric andesitic fragmental / lava.							Note presence of fragments in this unit also found in HVS – eg feldsparphyric lenco andesite.	
264												
266												

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ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598108

PROJECT : HVS

PROSPECT: Hellyer, Tas.

HOLE NO: HL-48
PAGE: 1 of 2
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DATE: Feb '86

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
234			Basalt Lava B.1	Dark green massive lava with bimodal population of vesicles - equid to round, 2-3 mm, chlorite filled - round to elongate, up to 2 mm, quartz carbonate filled.	Pervasive quartz, K feldspar, chlorite.							
236												
237.1			Polymict Volcaniclastic Breccia 238.6 Y.bv	Fragments up to 25 cm of lavas andesite and grey green andesite in sericitic silica matrix.	Silica, K feldspar, chlorite, sericite.			Clear wavy upper contact. Lower contact obscured.				
238												
240			Basalt/ Basaltic Tuff B.1/lv	Grey green, clearly basaltic. Massive in places, elsewhere basaltic fragments to 2 cm.	Patches of intense quartz feldspathic alteration.							
242												
244.5				Matrix of altered shards. Fragments yellow to pink lavas and/or dacite, max 1 cm, angular								
244.8			Rhyolite Tuff	autoclastic	Extensively sericitised			Sharp wavy contact.			Petrology 355980 244.8 m	
246			Polymict Lapilli Tuff Y. lv H.V.S.	M:C = 50:50 Matrix is sericitised quartz or sericitised plagioclase ash, green. Fragments: ① grey to dark green chlorite spotted andesite, sub rounded, 3 cm max. ② greenish yellow andesite, sub rounded, ovoid to elongate. ③ rare black rounded pellite 4 3 cm. ④ possible basalt fragment at 249.2 Coarsely vesicular. 4 to 25 cm	From 245.8 - 245.95, a highly sheared, chloritised and sericitised tuff. Red phenocrysts to 3 mm.						Petrology 355981 246.2 m 355982 248.7 m Assay 355977 249.1 m 355978 248.3 m 355979 251.4 m 355980 252.0 m	
248												
250												
251.8				M:C = 50:50. Matrix as above, but less green. Fragments: ① lavas andesite, angular, max 20 cm Banded or massive, altered rims.	Pervasive sericite						Petrology 355983 254.7 m 355984 253.4 m Increase in fragment size.	
252												
254												

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ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598109

PROJECT : HVS

PROSPECT: Hellyer, Tas.

HOLE NO: HL-48
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DATE: Feb '86

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
256				② rare black rounded pebbles. ③ dark green porphyritic andesite, angular, max 6 cm. Phenocrysts white, green, reddish to 2 mm. ④ greenish yellow andesite as above. ⑤ wispy coarsely porphyritic andesite. Greenish yellow with pinkish phenocrysts to 2 mm.								
258			258-4					Conformable contact.				
260			Andesitic Lapilli Tuff A.lv	Dark grey green feldspar phyric andesite. Note presence of small (to 3 cm) lensoid andesite fragments, clearly feldsparphyric, some with dark altered rims.							Petrology 355935 259.4m Assay 355981 265.5m Contains many fragment types seen above in HVS.	
262												
264												

598110

APPENDIX B
(PART 1)

598111

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Aberfoyle Exploration Pty Ltd

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(Incorporated in Victoria)
144 Camberwell Road, Hawthorn East, Victoria 3123 Australia
Telephone: (03) 82 2226 Telex: AA38646

Philip Harris

Aberfoyle Resources Ltd
Exploration Division.
39 River Rd., Wivenhoe
(P.O. Box 952, Burnie)
Tasmania 7320.

14 - 2 - 86.

Mr. H.W. Fander
Central Mineralogical Services
39 Beulah Rd.,
Norwood S.A. 5067.

Dear Sir,

Enclosed are 50 half-core samples for petrological examination, numbered 355926 to 355975.

Could you please thin section and describe them using the attached notes as a guide. The samples are from drill holes in the Hellyer area, and mostly represent the hangingwall Volcaniclastic Sequence.

Yours Sincerely,

P. R. Harris

P. E. Harris

598112

ote No: Mac - 1

Sample No: 355926
Depth: 219.0
Remarks: Altered fragment within volcaniclastic. What is its composition?

Sample No: 355927
Depth: 240.2
Represents: 236.5 - 242.0
Remarks: Polymict volcaniclastic breccia. What is composition of all fragments, and matrix?

Sample No: 355928
Depth: 242.3
Represents: 242.05 - 242.7
Remarks: Quartz - K feldspar altered fragments.

Sample No. 355929
Depth 252.2
Represents 249.0 →
Remarks Dacite lava / lava breccia. Describe texture and composition.

ole No: HL - 48

Sample No: 355930
Depth 244.8
Represents 244.5 - 251.8
Remarks Altered lapilli tuff. What is the composition of the fragments and the matrix?

598113

Sample No: [redacted] 355931
Depth 246.25
Represents 244.5 – 251.8
Remarks Polymict lapilli tuff. Composition of all fragments. Similarities to [redacted] 355930?

Sample No. [redacted] 355932
Depth 248.8
Represents 248.1 – 251.8
Remarks Polymict lapilli tuff. Similar to [redacted] 355931.

Sample No. [redacted] 355933
Depth 254.8
Remarks Porphyritic fragment. What is its composition – andesitic?

Sample No. [redacted] 355934
Depth 253.4
Remarks Yellow-green fragment. How has it been altered? Original composition?

Sample No. [redacted] 355935
Depth 259.4
Represents 258.8 →
Remarks Feldsparphyric tuff. Confirm andesitic in composition.

598114

Hole No: HL-15

Sample No [redacted] 355936
Depth 255-3
Represents 254-5 - 257-1
Remarks Lapilli tuff. Describe fragments, matrix, alteration.

Sample No [redacted] 355937
Depth 260-7
Represents
Remarks Porphyritic fragment.

Sample No [redacted] 355938
Depth 255-8
Remarks Describe black porphyritic fragment. Rest of sample is similar to [redacted] 355936

Hole No: Mac-4

Sample No [redacted] 355939
Depth 145-85
Represents 138-1 - 149-0
Remarks Altered fragmental. Identify all fragments, matrix, alteration. Basaltic in composition?

Sample No [redacted] 355940
Depth 151-6
Remarks ? Basalt fragment. Is this sample flow-banded?

598115

Sample No. [redacted] 355941
Depth 154-0
Remarks Is this an altered basalt?

Sample No [redacted] 355942
Depth 167-8
Represents 166-3 – 168-3
Remarks Another altered basalt? Compare [redacted] 355941

Sample No. [redacted] 355943
Depth 180-7
Represents 178-8 – 182-4
Remarks Feldsparphyric andesite lava breccia. Identify fragments and matrix. Confirm andesitic.

Sample No. [redacted] 355944
Depth 186-0
Represents 185-7 – 186-6
Remarks Altered volcanic. Describe fragments, matrix, alteration.

Sample No. [redacted] 355945
Depth 187-1
Represents 182-4 – 189-0
Remarks Similar to [redacted] 355943?

Sample No [redacted] 355946
Depth 191-4
Represents 189-0 – 196-3
Remarks Similar to [redacted] 355944

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598116

Sample No [redacted] 355947
Depth 195-9
Represents 189.0 – 196.3
Remarks Altered volcanic. Describe fragments, matrix, alteration.

Sample No [redacted] 355948
Depth 202.9
Represents 196.3 →
Remarks Dacite lava

Hole No: Mac – 3

Sample No. [redacted] 355949
Depth 109.2
Represents 108.4 – 116.9
Remarks What are the yellowish fragments? Describe all fragments and matrix.

Sample No [redacted] 355950
Depth 120.0
Represents 116.9 – 142.0
Remarks polymict tuff. Compare to [redacted] 355949

Sample No [redacted] 355951
Depth 146.6
Remarks Highly altered fragment. Describe alteration, original composition?

598117

Sample No [redacted] 355952
Depth 149.9
Represents 148.0 – 151.65
Remarks Dacitic tuff. Describe all fragments and matrix.

Sample No. [redacted] 355953
Depth 154.5
Represents 151.65 – 161.4
Remarks Polymict lapilli tuff.

Hole No: Mac – 2

Sample No [redacted] 355954
Depth 79.5
Represents 78.0 – 97.6
Remarks lapilli volcaniclastic. Describe fragments, matrix and texture.

Sample No [redacted] 355955
Depth 84.0
Represents 78.0 – 97.6
Remarks Similar to [redacted] 355954

Sample No [redacted] 355956
Depth 87.8
Represents 78.0 – 97.6
Remarks Similar to [redacted] 355954, 355955

598118

Sample No [redacted] 355957
Depth 89·3
Represents 78·0 – 97·6
Remarks Lapilli tuff. Similar to [redacted], 355954 – 355956.

Sample No [redacted] 355958
Depth 94·2
Represents 78·0 – 97·6
Remarks lapilli tuff. Describe all fragments + matrix.

Sample No. [redacted] 355959
Depth 100·1
Represents 99·3 →
Remarks ?Andesitic tuff.

Sample No [redacted] 355960
Depth 132·4
Represents 126·6 – 136·4
Remarks what is the matrix? Describe all fragments

Hole No: Mac – 5

Sample No [redacted] 355961
Depth 184·9
Represents 183·8 – 187·2
Remarks Lapilli tuff. Describe all fragments + matrix

598119

Sample No [redacted] 355962
Depth 192.0
Represents 189.3 - 193.7
Remarks lapilli tuff. Andesitic?

Sample No. [redacted] 355963
Depth 221.2
Represents 205.8 - 222.6
Remarks Andesitic lapilli tuff

Sample No. [redacted] 355964
Depth 238.0
Represents 235.6 - 260.25
Remarks Pyritic polymict volcaniclastic, with cherty matrix.
Describe all fragments and matrix.

Sample No [redacted] 355965
Depth 256.5
Represents 235.6 - 260.25
Remarks Amygdaloidal basalt fragment within a polymict breccia. Describe composition and texture.

Sample No [redacted] 355966
Depth 241.7
Represents 235.6 - 260.25
Remarks What is the banded (flow banded?) greenish fragment?

Sample No [redacted] 355967
Depth 248.6
Represents 235.6 - 260.25

598120

Remarks: Andesitic volcaniclastic. Compare to [redacted], [redacted] 355964, 355968

Sample No [redacted] 355968
Depth 253.3
Represents 235.6 – 260.25
Remarks: What is the large pinkish fragment? Compare matrix to [redacted] 355967

Sample No [redacted] 355969
Depth 257.1
Remarks: Altered porphyritic fragment. Composition?

Sample No [redacted] 355970
Depth 281.0
Represents 280.5 – 282.2
Remarks: ? Andesitic volcaniclastic. Describe fragments, matrix.

Sample No. [redacted] 355971
Depth 286.6
Represents 284.0 – 290.0
Remarks: ? Andesitic volcaniclastic. Compare [redacted] 355970

Sample No [redacted] 355972
Depth 289.2
Remarks: Describe all fragments. Andesitic?

Sample No [redacted] 355973
Depth 295.9

598121

Represents 292.6 – 300.5

Remarks ? Andesitic. Compare [redacted] 355972. Identify large greenish fragment.

Sample No [redacted] 355974

Depth 299.4

Remarks Similar to [redacted] 355973

Sample No [redacted] 355975

Depth 304.6

Represents 300.5 →

Remarks Dacite lava. Compare to [redacted] 355948

APPENDIX B
(PART 2)

122 598123

Central Mineralogical Services

39 Beulah Road
Norwood, S.A. 5067
Telephone 42 5659

Mr. P.E. Harris
Geologist
Aberfoyle Resources Ltd.
Exploration Division
P.O. Box 952
BURNIE / TAS. 7320

4th March, 1986

REPORT CMS 86/2/17

YOUR REFERENCE:	Letter dated 14.2.1986
DATE RECEIVED:	21st February, 1986
SAMPLE NOS.:	355926 - 355975
SUBMITTED BY:	P.E. Harris
WORK REQUESTED:	Petrology

H.W. Fander, M. Sc.

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REPORT CMS 86/2/17

A suite of fifty half-core samples, numbered 355926 - 355975 inclusive, from DDHs Mac 1, HL 48, HL 15, Mac 4, Mac 3, Mac 2 and Mac 5, was received for petrological examination. Representative thin-sections were prepared and examined together with the respective offcuts, with miscellaneous carbonate and feldspar stain tests performed as warranted.

Attached tabulated descriptions summarise the microscopic data, include interpretative comments, and supplement recently forwarded descriptions of twenty-eight of these samples (355926 - 355953 incl.). As previously noted, specific queries are referred to where applicable, and descriptions should thus be read in conjunction with P.E. Harris's notes accompanying the submission.

Summary

This suite comprises entirely altered volcanic and relatively minor volcanically derived, altered sedimentary rocks.

Volcanics are dominated by basic to intermediate (basaltic, andesitic) varieties, with relatively quite minor acid types. These rocks exhibit a variety of textures, reflecting a complex sequence of lavas, lava breccias and strictly pyroclastic rocks, predominantly psammite- to lapilli-grade lithic tuffs. Sediments are typically volcanomict gritty clastic types, including apparent intraformational (slump) breccia facies.

The suite as a whole exhibits marked and pervasive alteration with development of more or less ubiquitous quartz-sericite-carbonate-chlorite assemblages. Primary (igneous) mineralogy persists only in the form of leucoxenised opaques, relict primary chromiferous spinel and localised relics of (albitised) plagioclase. Ferromagnesian silicates are typically represented by pseudomorphous aggregates of quartz. Relatively acid volcanics typically carry relict phenocrystal quartz grains, and these also appear as an accessory in intermediate volcanics and rarely in relatively basic types.

As a consequence of the pervasive alteration, individual rocks can only be classified on the basis of relict features, notably the relative abundance of altered phenocrysts (feldspar, ferromags) and, to a certain degree, accessory components and microtextural features. On this basis, the distinction between basaltic and andesitic rocks is often tentative at best. Further, intermediate-acid rocks, defined partly on their relative sparse altered ferromags, may include leuco-andesitic and strictly dacitic facies.

Alteration, complexed by weak but more or less penetrative shearing effects, similarly obscures the primary textural detail. This relates particularly to lithic fragmental facies, notably chert-matrixed types with a partly interclast cavity-filling and partly corrosive (replacive) matrix, where the distinction between lava breccias and lithic pyroclastics is tenuous. Within these rather imposing limits, there is a general agreement between field identification and

microscopy-based textural data, and the occasional contrasts may be more apparent than real in that thin-sectional sampled areas may not be entirely representative,

Sericitic components include minor green-pleochroic "fuchsitic" mica. Chlorite, where present, is colour-variable, but typically mid to dark green. The more or less ubiquitous carbonate is compositionally variable from high R.I. (ferroan) calcite to siderite. Whilst variable to a certain degree between individual rocks, the sericite-quartz-carbonate-chlorite assemblage is both pervasive and rather uniform, considering this suite as a whole.

D. Cowan, B. Sc.

Samp	Classification - Composition	Clastic	Accessories	Comments
Mac 1 355926 (T.S. 55529) 219.1	"Basalt". Fine to microcrystalline sideritic carbonate, colourless to incipiently green, semi- to sericitic muscovite; minor quartz. Sparse carbonate-quartz amygdales.	Megaclast of strongly porphyritic, weakly amygdaloidal lava. Impure chert-matrixed, psammitic, tuffaceous matrix.	Leucoxenic stainings, disseminated chromite, minor traces of pyrite.	Clast exhibits thoroughly altered (carbonated-sericitised) basic characteristics, vague relict basaltic-textured groundmass, conspicuous chromite, mild shearing effects.
355927 240.25	Polymict Breccia. Sericite and crypto- to microcrystalline quartz with varying proportions of cloudy sideritic carbonate, minor chlorite. Minor discontinuous carbonate veinlets, vugs.	Impure chert-matrixed, poorly sorted (psammite to lapilli grade), angular, mildly sheared breccia.	Fine to ultrafine pyrite, leucoxenised opaques, traces of chromite, rare quartz crystals.	Finer detail obscured, but clasts include massive to scoriaceous lava ranging from basaltic through andesitic to (minor) dacitic. Impure chert-matrixed subaqueous breccia.
355928 242.2	Andesitic Breccia. Sericite and micro- to cryptocrystalline quartz in varying proportions with relatively minor cloudy sideritic carbonate, thinly disseminated to locally conspicuous fine pyrite.	Analogous to 355927, relatively homogeneous ("andesitic") clasts, vaguely vitroclastic matrix.	Leucoxenised opaques.	Similarities with 355926, 355927, but with a homogeneous, poorly sorted framework of andesitic lava clasts; devitrified/silicified pelitic ashy matrix.
355929 252.2	Andesite. Disseminated sericite-siderite-pseudomorphed feldspar, minor silicified pyroxene phenocrysts in a sericitised quartzofeldspathic groundmass. Sporadic sericitic quartz-carbonate veinlets.	Variably porphyritic, massive to banded, felsitic, weakly perlitic. Minor late microfractures.	Leucoxenised opaques, traces of pyrite, minor traces of chromite. Minor chlorite in late fractures.	Primarily a semi-banded porphyritic glassy lava. Interpreted as andesitic trend leuco-andesitic. No primary fragmental features.
HL 48 355930 244.8	"Dacitic" Tuff. Sericite and cryptocrystalline quartz with disseminated albitised/extensively sericitised feldspar, minor quartz crystals/fragments; minor sericitised lithic clasts. Minor films, clots of calcite.	Psammite-grade fragmental with a sheared/semi-brecciated shardy matrix.	Conspicuous leucoxenised opaques, traces of fine to ultrafine pyrite, minor traces of apatite.	Leuco-andesitic/dacitic lithic-vitric crystal tuff. Fabric confused by shear-induced deformation; vague "ignimbritic" relict features.
355931 246.2	Polymict Breccia. Sericite with varying proportions of crypto- to microcrystalline quartz, relatively minor albitised plagioclase, silicified ferromags, clots, films of calcite. Disseminated pyrite, pyritic quartz veinlets.	Randomly sorted, psammitic, angular-subangular lava clast framework; sericitic, pyritic quartz-veined matrix.	Leucoxenised opaques, minor traces of chlorite, rare chromite.	Framework comprises andesitic, subordinate dacitic, minor basaltic lava clasts. The matrix consists of sericitised psammopelitic ash. No close affinities with 355930.
355932 248.7	Andesitic Tuff. Framework of sericitic/weakly chlorite-stained, weakly/variably silicified lava clasts, subordinate albitised/silicified crystals/fragments. Sericite-cryptocrystalline quartz matrix.	Weakly flow-structured, poorly sorted lithic fragmental; andesitic clasts, ?shardy matrix. Mildly sheared.	Leucoxenised opaques, semi-pervasive fine to ultrafine pyrite, traces of apatite.	Textural affinities with 355931, but coarser-grained and distinctly andesitic rather than polymict.
355933 254.7	Andesitic Breccia. Sericite and cryptocrystalline quartz with disseminated albitised plagioclase, subordinate silicified ferromag phenocrysts; minor chlorite.	Moulded lithic fragmental; andesitic-textured clasts, megaclasts. Mildly sheared.	Leucoxenised opaques, fine to ultrafine pyrite, minor traces of apatite.	Andesitic flow (?marginal) breccia characteristics with generally moulded/locally sericite-chlorite-matrixed clasts, megaclasts.

Sample No.	Classification - Composition	Fabric	Accessories	Comments
HL 48 cont. 355934 253.4	Andesitic Breccia. Sericite and fine to cryptocrystalline quartz with conspicuous albitised plagioclase, relatively minor silicified ferromag phenocrysts. Sporadic quartz veinlets, minor late films of calcite.	Analogous to 355933, with a minor patchy quartz matrix. Similarly mildly sheared.	Leucoxenised opaques, minor chlorite, sparse quartz microphenocrysts. Disseminated fine pyrite.	Close affinities with 355933; relatively siliceous alteration. The coars yellowish clasts are relatively strongly sericitised and relatively weakly pyritic.
355935 259.4	Andesitic Breccia. Chlorite, sericite and microcrystalline quartz with sericitic, albitised plagioclase, subordinate chloritised ferromag phenocrysts, semi-pervasive clots, veinlets of calcite.	Moulded to locally carbonate-quartz- matrixed, poorly sorted lithic fragmental. Andesitic-textured clasts.	Leucoxenised opaques, minor fine to ultra-fine pyrite.	Incipiently flow-structured. Lithic ("lapilli") tuff or, alternately, a lava breccia. Relatively chloritic alteration pattern. Distinctly andesitic.
HL 15 355936 255.3	Andesitic Breccia. Chlorite, sericite and microcrystalline quartz in varying proportions with variably sericitic/albitised plagioclase, subordinate chloritised ferromag phenocrysts, patchy cloudy calcite.	Poorly sorted, moulded lithic fragmental, andesitic clasts, patchy secondary quartz-healed brecciation.	Leucoxenised opaques, minor fine to ultra-fine pyrite.	Flow-brecciated andesitic characteristics. Clasts include quartz-amygdaloidal and intraclastic (tuff lava) types. Irregularly distributed chloritic and sericitic zones.
355937 260.7	Leuco-Andesite. Albitised/weakly sericite-chlorite-stained plagioclase phenocrysts/ clusters in a chloritic albite-microlitic gtoundmass. Sporadic chloritic fractures, late calcite veinlets.	Porphyritic/trend glomeroporphyritic, incipiently flow-structed.	Leucoxenised opaques, rare to sparsely disseminated pyrite. Rare quartz, silicified pyroxene phenocrysts.	Massive to locally microfractured, semi-granulated ferromag-deficient (leuco-)andesitic lava. Relatively silicified where fractured, chloritic elsewhere.
355938 255.9	Andesitic Tuff. Clasts of sericitic to selectively chloritised/chlorite-amygdaloidal subvitric lava in a matrix of extensively sericitised/weakly calcite-chlorite-stained crystal tuff.	Random millimetric to centimetric, andesitic-textured clasts, moderately sorted psammitic matrix.	Leucoxenised opaques, traces of pyrite, minor traces of "crystal" and secondary quartz.	Altered andesitic lithic-crystal tuff Dark clasts are relatively glassy, amygdaloidal, selectively chloritised
Mac 4 355939 145.8	?Andesitic Tuff. Sericitic/variably chloritic carbonate-stained lava clasts, sericitised feldspar crystal fragments and shard fragments with a matrix and sporadic intraclasts of sericitic chert. Irregular siderite-quartz ve	Psammitic to lapilli-grade, crudely flow-structured fragmental to soft pebble- nlets. conglomeratic.	Leucoxenised opaques, minor pyrite, minor traces chalcopyrite. Rare quartz crystal fragments.	Relatively altered, but with relict andesitic/leuco-andesitic features. Reflects intraformational secondary brecciation ("slumping"). Primarily a chert-matrixed lithic-vitric-crysta tuff
355940 151.5	Andesitic Breccia. Sericite-carbonate-pseudomorphed feldspar and sericite-chlorite-pseudomorphed ferromag phenocrysts; sericite-chlorite-altered groundmass, intraclasts of carbonate-stained impure chert.	"Andesitic", with a marked phyllitic over-print. Composite (chert-matrixed tuff) intraclasts.	Leucoxenised opaques, traces of chromite, sparse quartz pheno-crysts, minor traces pyrite, chalcopyrite.	Compositional affinities with 355938 and 355939, with accessory phenocrystal quartz. Apparently a xenolithic lava. Primary detail oblit-erated by shearing effects, but apparently unbanded.
355941 154.0	Amygdaloidal ?Basalt. Carbonate-stained, sericitised feldspar, quartz-sericite-carbonate-chlorite-pseudomorphed ferromag phenocrysts, quartz-carbonate amygdales; carbonate-quartz-sericite-altered groundmass.	Amygdaloidal-porphyritic, relatively sheared/ phyllitic. Vaguely relict basaltic-textured groundmass.	Minor carbonate (Fe-calcite)-quartz veinlets, traces pyrite, minor traces chromite, chalcopyrite.	Relatively altered and sheared amygdaloidal lava with vague relict basaltic characteristics. Relatively basic in comparison with 355940.

Sample No.	Classification / Composition	[illegible]ic	[illegible]ccessories	Comments
Mac 4 cont. 355942 167·8	Basalt. Albitised/variably sericite-pseudomorphed feldspar and chlorite (± quartz)-pseudomorphed pyroxene phenocrysts/clusters in a chlorite-mesostasised sericitic feldspar-microlathic groundmass.	Strongly porphyritic/trend glomeroporphyritic, "basaltic".	Leucoxenised opaques, traces of chromite, pyrite, cloudy carbonate. Minor discontinuous and relatively weakly carbonated. chloritic quartz veinlets.	Close affinities with 355941 in terms of relict fabric and alteration pattern, although non-amygdaloidal
355943 181·4	Andesitic Breccia. Sericite and microcrystalline quartz with subordinate cloudy carbonate, minor chlorite. Sporadic interclast clots and films of sericite and carbonate (calcite).	Moulded to sericite-carbonate-matrixed, felsitic (devitrified) "andesitic" clasts. Incipiently sheared.	Leucoxenised opaques, minor traces of chromite, pyrite; rare phenocrystal quartz.	Massive (moulded) to locally sericite-carbonate-matrixed lava breccia with andesitic characteristics. Quartz-sericite-carbonate-chlorite-altered, mildly sheared.
355944 185·9	Andesitic Breccia. Clasts of sericite-quartz-altered/variably carbonate-stained felsitic lava (similar to 355943), with a sparse sericite-siderite matrix. sporadic sericite and crosscutting siderite(-quartz) veinlets.	Analogous to 355943; coarser-grained, slightly relatively sheared.	Leucoxenised opaques, minor films, clots of chlorite, traces of chromite, pyrite, rare quartz phenocrysts.	Close affinities with 355943, coarser-grained (agglomerate breccia) similarly altered, slightly relatively sheared.
355945 187·1	Andesitic Breccia. Sericite and microcrystalline quartz with more or less pervasive chlorite, patchy cloudy carbonate. Minor matrix of sericite and carbonate; sparse irregular silicified fractures.	Very similar to 355944 (and 355943).	Leucoxenised opaques, traces of chromite, minor traces of pyrite rare phenocrystal quartz.	Close affinities with 355943 and 355944, similarly altered (relatively chloritic), mildly sheared, relatively weakly flow-brecciated.
355946 191·3	Andesitic Breccia. Sericite and fine to microcrystalline quartz with subordinate to minor cloudy carbonate, minor chlorite. Matrix, minor clasts of sericitic impure chert/pelitic ash. Sporadic networks of siderite-healed fractures.	Analogous to 355943, but tuffaceous chert-matrixed. Detail confused by late sideritic fractures.	Leucoxenised opaques, minor traces chromite, pyrite, rare quartz microphenocrysts.	Subaqueous chert- and tuffaceous chert-matrixed flow-marginal breccia characteristics; variant of 355943 etc., with secondary carbonate-healed brecciation.
355947 195·7	"Breccia". Thoroughly sericitised/variably carbonate-stained lava clasts, feldspar crystals/fragments and sericitised ?shards in a matrix of impure (sericitic) chert. Semi-pervasive network of sideritic carbonate veinlets.	Randomly sorted (sub- to millimetric), semi-orientated clasts, weakly banded matrix, displacive veinlets.	Leucoxenised opaques, minor chlorite, minor traces of pyrite, rare chromite, phenocrystal quartz.	Essentially an impure chert-matrixed lithic(-vitric?)-crystal tuff. Similarities (?transitional) with the matrix in 355946. "Andesitic" characteristics.
355948 202·8	"Dacite". Sericite-stained and relict felsitic quartz with semi-pervasive films of sericite, disseminated sericitised/carbonated feldspar phenocrysts, minor silicified phenocrystal ferromags.	Weakly porphyritic, felsitic, with a mild phyllitic overprint.	Leucoxenised opaques, traces very fine chromite, minor clots of fuchsite, carbonate-sericite-chlorite veinlets.	Devitrified quartz-sericite (-carbonate)-altered, mildly sheared leuco-andesitic/dacitic lava ("pitchstone").
Mac 3 355949 109·6	Andesitic Tuff. Clasts of pervasively sericite-quartz ± carbonate altered scoriaceous lava, pumice, sericitised feldspar, carbonated ferromag crystal fragments, ill-defined sericitised shards, sericite-quartz matrix.	Confused by shearing effects. Poorly sorted (psammite to lapilli grade) fragmental; vaguely eutaxite-like.	Leucoxenised opaques, traces of pyrite, minor late films of chlorite, rare quartz crystal fragments.	Thoroughly altered lithic(-vitric?)-crystal tuff; andesitic characteristics, conceivably ignimbritic. Yellowish clasts are relatively sericitic ("bleached"); non-pyritic.

Sample No.	Classification - Composition	Fabric	Accessories	Comments
Mac 3 cont. 355950 120-1	Andesitic "Breccia". Sericite/microcrystalline quartz, altered/variably siderite-impregnated porphyritic lava and scoria (pumice) clasts. Sparse sericitic matrix with interspersed vugs of sideritic carbonate, minor quartz.	Moulded psammite to lapilli grade lava, "flattened" pumice clasts; sparse interclast cavity-filling matrix.	Leucoxenised opaques, rare pyrite, chromite, traces of phenocrystal quartz, traces of chlorite.	Relict features consistent with a scoriaceous lava breccia; alternately a "sintered" lithic (lapilli) tuff. Relatively homogeneous in comparison with 355949, similarly andesitic.
355951 146-6	"Andesite". Frequent sericitic/albitised plagioclase and sericite (± carbonate, minor chlorite)-pseudomorphed ferromag phenocrysts in a thoroughly sericitised groundmass with interspersed clots of sideritic carbonate.	Relatively sheared/phyllitic; relict "andesitic", but with a featureless altered groundmass.	Leucoxenised opaques, rare ultrafine pyrite, rare chromite. Minor traces of secondary quartz.	Thoroughly sericite(-siderite-chlorite-quartz)-altered and relatively sheared porphyritic lava. Interpreted as andesitic, but conceivably basaltic.
355952 150-2	Andesitic Breccia. Sericitised to semi-selectively silicified and variably sideritic carbonate-impregnated porphyritic lava, subordinate "flattened" pumice clasts. Sparse interclastic siderite matrix.	Analogous to 355950; relatively poorly sorted, relatively sheared. Locally psammitic tuff-matrixed.	Leucoxenised opaques, traces of chlorite, rare chromite, phenocrystal quartz.	Close affinities with 355950. Relatively siliceous alteration with zones of chert-cemented psammitic tuffaceous matrix. Subaqueous ?lava breccia;andesitic characteristics.
355953 (T.S. 55556) 154-5	Andesitic Tuff. Sericite and microcrystalline quartz with semi-pervasive clots of cloudy sideritic carbonate, minor chlorite. Corroded relics of pumiceous and porphyritic lava clasts.	Poorly sorted, psammite-grade, weakly lineated fragmental. Corrosive sericitic cherty matrix. Mildly sheared.	Leucoxenised opaques, minor traces of pyrite, carbonaceous matter.	Essentially a psammitic variant of the chert-matrixed tuffaceous matrix zones in 355952; similarly altered, but with a relatively corrosive siliceous "cement".
Mac 2 355954 79-5	Volcanomict Grit. Framework of silicified-sericitic/variably carbonate-stained lava clasts, minor clasts of (sericitised) pumice, thinly dispersed quartz grains. Sericitic matrix with semi-pervasive sideritic carbonate.	Poorly sorted (medium sand to grit range), angular-subangular framework, weakly sheared/phyllitic matrix.	Leucoxenised opaques, semi-pervasive fine to ultrafine pyrite, traces of chlorite.	Sericite-carbonate-cemented volcanomict lithoclastic sediment. Clasts are andesite/leuco-andesite-derived; pervasively quartz-sericite-carbonate-altered.
355955 84-0	Volcanomict Grit. Framework of variously silicified lava and sericite-carbonate-altered (vitric-crystal) tuff clasts, minor quartz grains. Sericite-siderite matrix/cement with varying proportions of cherty quartz.	Similar to 355954, relatively poorly sorted/"megaclastic". Mildly sheared.	Leucoxenised opaques, semi-pervasively/thinly disseminated pyrite, minor chlorite.	Affinities with 355954. In comparison this rock is distinctly mildly reworked-tuffaceous (rather than lava-derived) and relatively carbonated.
355956 87-8	"Lapilli Tuff". Fine to microcrystalline quartz, sericite and cloudy sideritic carbonate in varying proportions with thinly disseminated clastic quartz grains.	Closely analogous to 355954; similarly mildly sheared.	Leucoxenised opaques, disseminated pyrite, traces of chlorite.	Close affinities with 355955; similarly altered/mildly sheared. Finer detail largely obscured. Interpreted as mildly reworked tuffaceous ("volcanomict grit").
355957 89-3	"Lapilli Tuff". Fine to microcrystalline quartz, sericite and cloudy sideritic carbonate in varying proportions with thinly disseminated clastic quartz grains.	Poorly sorted, psammite to lapilli grade fragmental; locally psammitic tuff-matrixed. Mildly sheared.	Leucoxenised opaques, thinly/semi-pervasively disseminated pyrite, minor chlorite.	Close similarities with 355955and 355956, similarly thoroughly altered leuco-andesitic/dacitic. Relatively homogeneous (?slumped) framework, structures.

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Mac 2 cont. 355958 94·2	"Lapilli Tuff". Sericite, microcrystalline quartz and cloudy sideritic carbonate-altered lithic (lava) clasts with an ill-defined matrix of sericite and carbonate.	Poorly sorted, angular psammitic to lapilli grade fragmental; mildly sheared/ phyllitic.	Leucoxenised opaques, fine to ultrafine pyrite, minor chlorite.	Similarities with 355955 etc., but with relatively distinctive lithic-tuffaceous characteristics and apparently andesitic rather than leuco-andesitic/dacitic.
355959 100·1	Scoriaceous Breccia. Sericite and micro-crystalline quartz with semi-pervasive cloudy carbonate (Fe-calcite), subordinate pale chlorite, minor clots of dark chlorite.	Flow-structured, moulded, scoriaceous fragmental with sporad pelitic lava clasts. Incipiently sheared.	Leucoxenic stainings, rare ultrafine pyrite. c	Scoriaceous flow-breccia character-istics; devitrified, pervasively altered and compositionally poorly diagnostic, although basic to intermediate.
355960 132·4	Polymict Breccia. Framework (50-70 %) of sericite-carbonate(-quartz-chlorite)-altered lava clasts, silt- to medium-sand-sized quartz, minor altered feldspar, ferromag grains. Sericite-kaolin/cryptocrystalline quartz matrix. megaclasts.	Massive (unbanded), poorly sorted, pelite-matrixed, psammitic, with (altered) lava	Clastic muscovite flakes, pelite (shale, quartzose siltstone), chert clasts. Traces of carbonaceous matter.	Pelite-matrixed polymict sediment-ary (?slump) breccia. Quartzose psammopelite-supported lava clasts are of (altered) andesitic character
Mac 5 355961 184·9	Andesitic "Breccia". Pervasively sericitic, variably silicified/carbonated porphyritic lava and scoria (pumiceous lava, pumice) clasts. Sparse sericite-cherty quartz-carbonate matrix. Minor intraclasts of impure chert.	Psammite to lapilli grade, semi-moulded lithic fragmental. Relatively sheared.	Leucoxenised opaques, minor chlorite, traces of chromite, pyrite.	Primary detail obscured by alteration shearing, patchy secondary brecciation effects. Lithic tuff or flow breccia composite of sub- to vitric "andesitic" components.
355962 192·0	Scoriaceous Breccia. Sericite, microgranular quartz and sideritic carbonate in varying proportions with subordinate to minor chlorite. Sparse interclast vugs, films of siderite, minor quartz.	Flow-structured, semi- to moulded, psammite to lapilli grade scoriaceous fragmental Moderately sheared.	Leucoxenic stainings, minor traces of chromite, pyrite. Minor altered, porphyritic/ perlitic lava clasts.	Affinities with 355961; distinctive scoriaceous flow breccia character-istics in comparison, similarly altered, but relatively chloritic. "Andesitic".
355963 221·2	Lapilli Tuff. Framework of chlorite-sericite-carbonate-quartz-altered, porphyritic-amygdaloidal to scoriaceous (pumiceous) lava clasts. Matrix/cement of microcrystalline sericite-chlorite-stained quartz.	Random, psammite to lapilli grade angular framework; corrosive matrix-cement.	Leucoxenised opaques, minor traces of chromite. Minor displacive fractures.	Altered andesitic lithic (lapilli) tuff with an interclast cavity-fillir and replacive sliceous matrix, partly fracture-controlled, partly ash-replacive.
355964 238·0	Lapilli Tuff. Framework of sericite-carbonate-quartz-chlorite-altered porphyritic/variably amygdaloidal to scoriaceous lava clasts. Crypto- to microcrystalline sericitic/ carbonate-stained cherty quartz matrix/cement.	Similar to 355963; relatively sheared, with sporadic late displacive sericitic microfractures.	Leucoxenised opaques, relatively conspicuous partly recrystallized/ pressure-shadowed pyrite, rare chromite.	Affinities with 355963; exhibits a higher proportion of (primarily) glassy (perlitic, scoriaceous) clasts and a fine-grained, weakly corrosive chert cement.
355965 256·5	Amygdaloidal Basalt. Carbonate-sericite-chlorite-pseudomorphed feldspar and quartz-carbonate-pseudomorphed pyroxene phenocrysts; carbonate-chlorite(-quartz-pyrite) amygdales in a chloritic, sericitic, carbonate-stained groundmass.	Amygdaloidal-porphyrit "basaltic" (felted, glass-mesostasised, microlathic). Incipiently sheared.	c, Leucoxenised opaques chromite, traces of chalcopyrite.	Primary compositional detail obscured, but basaltic in terms of relict features, compositional and textural. Chalcopyrite, pyrite in relatively siliceous amygdales.

Sam[illegible] 1129	[illegible]	[illegible]	[illegible]	[illegible]
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Mac 5 cont. 355966 241·7	Banded Felsite. Variably kaolin-sericite-stained quartz with varying proportions of cloudy carbonate, minor carbonate-pseudomorphed ferromag phenocrysts. Sporadic irregular cherty quartz and crosscutting siderite veinlets.	Planar to contorted, banded, felsitic; semi-concordant chert veinlets. Incipiently sheared.	Leucoxenised opaques, minor clots of chorite, sparse siderite-chlorite amygdales.	Devitrified, altered, flow-banded pitchstone. Greenish colouration reflects the minor chlorite component.
355967 248·6	Lapilli Tuff. Clasts of pervasively sericite-chlorite-carbonate (± quartz)-altered porphyritic/ variably amygdaloidal to scoriaceous lava with a corrosive cement of sericite-carbonate-stained chert.	Psammitic tuff-matrixed, flow-structured, lapilli-grade lithic fragmental. Incipiently sheared.	Leucoxenised opaques, traces of pyrite, rare galena, chromite, l. traces of phenocrystal quartz.	Psammitic tuff-matrixed "andesitic" lithic (lapilli) tuff; affinities with 355964 and particularly 355963; relatively chloritic alteration pattern.
355968 253·3	"Agglomerate Tuff". Megaclast of sericite-quartz(-carbonate)-altered, weakly porphyritic felsite (sim. 355966) in a sericite-carbonate-altered/replacive impure chert-cemented lithic tuff.	Similar to 355967; modally finer-grained, but megaclastic. Mildly sheared.	Leucoxenised opaques, minor chlorite, trace to minor pyrite, rare chromite.	Cherty silica-cemented /extensively replaced "andesitic" lithic tuff with close affinities to 355967; altered felsite megaclast analogous to 355966.
355969 257·1	"Agglomerate Tuff". Megaclast of albitised plagioclase-sideritised-silicified ferromag-, weakly quartz-porphyritic pitchstone, silicified-aericitised felsite in a sericite-chlorite-carbonate-quartz-altered lithic tuff.	Analogous to 355968. The porphyritic megaclast is perlitic-devitrified, finely flow-banded.	Leucoxenised opaques, minor pyrite.	Close affinities with 355968. Megaclasts are similarly quartz-andesitic trend dacitic in character, semi-selectively silicified.
355970 281·0	Silicified Breccia. Clasts of chloritic/ sericite-stained, extensively carbonated, subvitric lava; cemented, locally veined with fine-grained to marginally microcrystalline quartz.	Random submillimetric to centimetric, angular subtrachytic to perlitic clasts, marginally corrosive matrix.	Leucoxenised opaques, traces of pyrite. Sporadic vugs of carbonate (Fe-calcite) In matrix.	Interpreted as a ("crackle")-brecciated/quartz-carbonate-cemented/ matrixed lava, broadly andesitic, initially chlorite-sericite-altered.
355971 286·6	"Lapilli Tuff". Framework of chlorite-carbonate (-quartz-sericite)-altered, variably scoriaceous lava clasts. Matrix, minor intraclasts of weakly sericitic-chloritic microcrystalline quartz.	Variable, but essentially moulded to chert-matrixed random psammite to lapilli grade lithic fragmental.	Leucoxenised opaques, relatively conspicuous chromite, sporadic clots of pyrite.	Detail obscured by marked alteration of clasts and partly replacive nature of the matrix. Possibly strictly a tuffaceous (mildly reworked, ?slumped) breccia. Basaltic?
355972 289·2	Scoriaceous Breccia. Clasts of silicified/ variably sericitic chlorite, coarsely quartz-carbonate- sericite-chlorite-amygdaloidal, variably silicified pyroxene-porphyritic lava. Sparse interclast carbonate-quartz cement.	Moulded to locally quartz-carbonate-cemented centimetric-scale clasts.	Leucoxenised opaques, relatively conspicuous chromite, traces of pyrite.	"Basaltic" flow-marginal breccia-type characteristics with compositional detail obscured by intense alteration Sericite is fuchsitic in part.
355973 295·9	Lapilli Tuff. Pervasively carbonate-sericite (-quartz-chlorite)-altered pumiceous, subordinate (altered) porphyritic lava clasts. Impure (sericitic) chert cement with sporadic clots of sericite, chlorite.	Moderately sheared, psammite to lapilli grade lithic fragmental. Mildly corrosive matrix.	Leucoxenised opaques, traces of pyrite, l. chromite.	Impure chert-cemented lithic tuff, dominated by scoriaceous (pumiceous) lava clasts. The greenish chloritic megaclasts are altered porphyritic "basaltic".

Sample No.	Classification	Fabric	Accessories	Comments
Mac 5 cont. 355974 299-4	Lapilli Tuff. Clasts of pervasively sericite-carbonate(-quartz-chlorite)-altered scoriaceous and subordinate similarly altered porphyritic lava clasts. Matrix-cement of impure (sericitic) chert.	Analogous to 355971; relatively corrosive (replacive) matrix. Mildly sheared.	Leucoxenised opaques, traces of pyrite, chromite.	Exhibits close affinities with 355971 but appears devoid of chert intraclasts and thus interpreted as a "primary" pyroclastic (lithic tuff). Basaltic?
355975 (T.S. 55578) 300-5	Amygdaloidal Felsite. Disseminated quartz, phenocrysts and quartz-carbonate amygdales in a groundmass of spherulitic to felsitic quartz and sericitised feldspar. Minor chloritic microfractures.	Porphyritic-amygdaloidal; coarsely felsitic-spherulitic. Mildly stressed to locally granulated.	Leucoxenised opaques, rare ultrafine ?galena, pyrite.	Devitrified quartz-carbonate-sericite altered felsic "porphyry". Interpreted as rhyolitic on the basis of conspicuous phenocrystal quartz. Conceivably a minor intrusive.

598133

APPENDIX B
(PART 3)

Sample No	Classification – Composition	Fabric	Accessories	Comments
355-080	Quartz Porphyry. Disseminated corroded quartz minor sericitic albite phenocrysts in a groundmass of sericitic microgranular quartz, sericitised feldspar, semi-pervasive clots of sideritic carbonate.	Banded, felsitic (primarily glassy in part).	Thinly disseminated leucoxenised opaques; minor traces of pyrite.	Thoroughly quartz-sericite-siderite-altered quartz(-feldspar) porphyry; banded, semi-chilled minor intrusive characteristics.
355-081	Breccia. Clasts of pervasively sericitised leuco-andesitic, similarly altered basaltic lava, sericitic impure chert and pelitic ash. Sericite matrix with interspersed films, clots of sideritic carbonate, minor clots fuchsite.	Phyllitic, sericite-matrixed breccia with randomly sized angular clasts.	Traces of chromite in altered basalt clasts. Conspicuous leucoxene stainings. Rare fine pyrite.	Composite (altered andesite, basalt, cherty, pelitic ash) tectonic breccia characteristics. Sericite-matrixed; sheared/phyllitic.
355-085 (T.S. 53262)	Quartz Porphyry/Altered Psammopelite. Altered quartz porphyry (sim. 355080, sericite- and siderite-veined) in contact with sericitised/siderite-stained arkosic fine sandstone. Interzone of thoroughly sericitised chilled-marginal porphyry.	Porphyry analogous to 355080. Phyllitic-displacive sheared contact. Stressed veinlets.	Carbonaceous matter, syngenetic pyrite in altered sandstone. Minor pyrite in sericitic chilled margin.	Minor intrusive "rhyolitic" porphyry with a narrow, thoroughly sericitised chilled marginal contact zone. Sericite- and subsequently siderite-veined; mildly sheared.

HL-15

270 877	Lapilli Tuff. Large and small fragments, mainly of weakly porphyritic argillised trachytes, dacites, felsite, minor chloritised andesite; crystals/fragments of oligoclase, quartz.	Closely-packed, unsorted fragments with various fabrics. Thin breccia zones and fractures.	Quartz-carbonate veins. Scattered pyrite. Chlorite patches.	Most component fragments seem to be felsic intermediate rather than andesitic. Matrix is fine quartz, sericite, chlorite.

Mac-4

355463 165.0	Andesitic Tuff. "Megaclasts" of chloritised/sericite-carbonate-stained andesitic lava in a matrix of sericitic-chloritic, impure chert-cemented andesitic lithic-crystal tuff. Disseminated leucoxenised opaques.	Essentially a chert-cemented poorly sorted psammitic tuff with sporadic lapilli. Moderately sheared.	Ill-defined devitrified/altered (sericitised) shards in matrix. Minor pyrite, minor traces chalcopyrite.	Subaqueous, ashy chert-cemented andesitic lithic-vitric-crystal tuff characteristics. Includes albitised plagioclase phenocrysts/crystal fragments; otherwise chlorite-sericite-carbonate-altered.
355464 169.2	"Andesitic" Tuff. Chlorite, semi- to sericitic white mica with varying proportions of microcrystalline quartz, cloudy ankeritic carbonate, disseminated leucoxenised opaques.	Poorly sorted (psammite to lapilli grade) lithic fragmental. Relatively sheared/phyllitic.	Rare chromite. Locally conspicuous fine to ultrafine pyrite.	Detail obscured by alteration, relatively marked shearing. Includes some scoriaceous basaltic and tuffaceous sediment (siltstone) clasts. Mildly reworked.
355465 173.2	Andesitic Breccia. Clasts, "rafts" of albitised plagioclase-porphyritic, chlorite-sericite-carbonate-stained lava. Matrix of sericite-stained, crypto- to microcrystalline impure (pelitic ashy) chert.	Irregular, lapilli to agglomerate grade perlitic-devitrified clasts; vaguely vitroclastic matrix.	Leucoxenised opaques. Minor traces ultrafine pyrite in clasts, matrix.	Pelitic ash/impure (ashy) chert-matrixed subaqueous flow breccia characteristics. Strictly leuco-andesitic (i.e. trend dacitic). Brownish zones are relatively sericitic/carbonate-stained.

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Sc No	Classification - composition	Fabric	Accessories	Comments
200.9m 271985	"Scoriaceous Breccia". Microcrystalline quartz, sericite, fine to microcrystalline sideritic carbonate and chlorite in varying proportions with semi-pervasively disseminated ultrafine pyrite.	Poorly sorted, psammite to lapilli grade scoriaceous lithic fragmental. Partly moulded clasts. Mildly sheared.	Leucoxenised opaques, disseminated chromite. Rare xenoliths of sericitic/silicified felsite.	Thoroughly altered "basaltic" scoriaceous lithic tuff. Alteration assemblage similar to 146.1 m, but relatively sericitic-chloritic and pyritic.
261.2m 271986	Amygdaloidal "Andesite". Sporadic chlorite-ankerite amygdales, minor albitised plagioclase phenocrysts in a groundmass of albitised plagioclase microlaths with a chlorite-stained glassy mesostasis. Frequent clots of carbonate.	Weakly amygdaloidal-porphyritic, weakly flow-structured (subtrachytic).	Disseminated pyrite, traces of chalcopyrite. Leucoxenised opaques. Sporadic stressed calcite veinlets.	Pervasively chlorite-albite-carbonate altered lava. Primary compositional detail obscure, but leuco-andesitic on the basis of relict features.
290.3m 271987	"Andesitic" Tuff. Fine to microcrystalline quartz, sericite, cloudy Fe-carbonate and subordinate chlorite. Disseminated sericite-quartz-pseudomorphed feldspar, quartz-pseudomorphed pyroxene grains.	Poorly to moderately sorted psammite-grade lithic-crystal tuffaceous. Weakly banded; incipiently sheared.	Leucoxenised opaques, traces of chromite, pyrite. Sporadic carbonate veinlets.	Includes sporadic "flattened" pumice clasts, minor xenoliths of sericitic impure chert. Vague unwelded ignimbritic features in part, but apparently reworked.
		Mac - 3		
500885 123.8m	"Dacitic" Tuff. Semi-sericitic white mica and microcrystalline quartz with interspersed clots of ankeritic carbonate, thinly disseminated quartz crystal fragments, minor fine to ultrafine pyrite.	Phyllitic/relict eutaxite-matrixed lithic fragmental with interspersed fiamme.	Leucoxenised opaques.	Ignimbritic lithic-vitric tuff with accessory crystal components. Relatively sericitic alteration with enhanced shearing effects.
500886 147.0m	Dacitic Tuff. Semi-sericitic white mica with varying proportions of microcrystalline quartz, interspersed clots of ankeritic carbonate, thinly disseminated albitised plagioclase phenocrysts/crystal fragments.	Phyllitic/relict eutaxite-matrixed lithic fragmental with "megaclastic" lava clasts, sporadic fiamme.	Leucoxenised opaques, rare quartz phenocrysts/crystal fragments.	Close affinities with 500885. Main contrast is the presence of centimetric-scale lava clasts ("megaclasts").
		Mac - 2		
500-676 78.9m	"Dacitic" Tuff. Fine to microcrystalline quartz, semi- to sericitic white mica and ankeritic carbonate in varying proportions with disseminated leucoxenised opaques, minor quartz crystal fragments.	Lapilli-grade lithic fragmental with partly "moulded" clasts; weak phyllitic overprint.	Traces of pyrite, minor traces of chalcopyrite.	Lithic tuff with an accessory quartz crystal component; dacitic characteristics, variably amygdaloidal clasts. Alteration, shearing effects analogous to 500675.

598135

APPENDIX C

Assay Samples

355888	Mac-1	213.9m	Porphyritic leucoandesite fragment
89	"	238.8m	" " "
355890	"	241.5m	Banded leucoandesite fragment.
91	"	224.5m	" " "
92	"	219.0m	Basalt fragment
93	"	241.0m	" "
94	"	240.0m	Dark green feldsparphyric andesite fragments.
95	"	253.0m	"Dacite" from below HVS
96	"	250.0m	" " " "
355977	HL-48	249.1m	Sericitized andesite fragment
78	"	248.3m	Andesitic breccia (fragments and matrix)
79	"	251.4m	" " " " "
80	"	258.0m	Feldsparphyric andesite from below HVS
81	"	265.5m	" " " " "
82	HL-15	258.2m	Leucoandesite fragment
83	"	261.3m	Altered andesite
84	Mac-4	134.8m	Basalt from above HVS
85	"	151.6m	Banded andesite
86	"	154.2m	Basalt fragment.
87	"	201.9m	"Dacite" from below HVS
88	Mac-5	196.6m	Basalt
89	"	219.8m	Andesitic tuff
355990	"	237.2m	Altered banded leucoandesite fragment
91	"	280.8m	Andesite breccia
92	"	288.5m	Basaltic tuff
93	Mac-3	111.6m	Sericitic andesite
94	"	151.2m	Altered andesite
95	"	110.4m	Sericitic andesite
96	Mac-2	80.8m	Reworked andesitic sediment.
97	"	94.8m	" " "

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COMPUTERISED ANALYTICAL LABORATORIES

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305 South Road,
Mile End South,
Sth. Aust. 5031.
Tel: (08) 43 5722
Telex: AA89323

NATA REGISTERED No. 1526

OUR REF.: COM860318

YOUR REF.: 230

17 MAR REC'D

Mr. A. M. Hespe
Aberfoyle Exploration Pty. Ltd.
39 River Road
WIVENHOE

TAS 7320

March 14, 1986

Dear Sir

RE: JOB COM860318

Enclosed are the assays for the samples delivered to our laboratory on March 12, 1986

Yours Sincerely,
COMLABS PTY LTD

per

c.c.: Vic - Aberfoyle No. of copies : 1

Report Length 4 pages

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598139

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ANALYTICAL REPORT

JOB COM860318
O/N : 230

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti
355888	9	8	30	<1	22	16	3000
355889	8	4	44	<1	16	8	3300
355890	7	8	20	<1	8	30	2050
355891	10	12	30	<1	10	4	1750
355892	95	55	260	<1	55	960	3850
355893	12	40	140	<1	42	420	2100
355894	32	16	220	<1	46	55	3100
355895	6	16	16	<1	6	10	2350
355896	4	18	115	<1	<4	22	1400
355977	32	32	150	<1	12	65	7600
355978	30	34	190	<1	20	42	6100
355979	18	60	1100	<1	12	18	6850
355980	4	38	310	<1	24	60	7450
355981	30	<4	100	<1	24	80	5250
355982	80	4	6	<1	4	55	4850
355983	7	6	250	<1	10	28	6700
355984	5	4	110	<1	60	125	5200
355985	95	<4	330	<1	40	135	4950
355986	360	<4	210	<1	44	185	5800
355987	12	4	6	<1	10	8	2650
355988	9	<4	55	<1	40	240	4000
355989	160	4	175	<1	55	160	4150
355990	5	4	36	<1	8	20	2350
355991	70	10	150	1	18	36	3950
355992	46	28	190	1	95	410	4300
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	AAS1B

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ANALYTICAL REPORT

JOB COM860318
O/N : 230

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti
355993	36	6	42	<1	8	26	3900
355994	8	4	12	<1	12	60	4350
355995	65	4	36	<1	12	32	5050
355996	34	10	44	<1	24	38	4450
355997	16	<4	44	<1	14	46	6550
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	AAS1B

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ANALYTICAL REPORT

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SAMPLE	As	Ba	Zr
355888	22	590	200
355889	12	650	185
355890	8	300	105
355891	12	420	105
355892	9	490	90
355893	7	290	40
355894	7	540	150
355895	12	330	160
355896	7	460	135
355977	10	3600	170
355978	42	2550	160
355979	14	2350	160
355980	7	2200	180
355981	12	890	110
355982	12	3900	165
355983	4	460	160
355984	3	460	105
355985	7	690	270
355986	2	490	115
355987	4	650	170
355988	3	430	65
355989	9	460	95
355990	8	280	120
355991	40	400	125
355992	14	580	85
UNITS	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1

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ANALYTICAL REPORT

JOB COM860318
O/N : 230

SAMPLE	As	Ba	Zr
355993	4	480	90
355994	9	270	100
355995	8	470	110
355996	28	600	100
355997	8	600	130
UNITS	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1

538143

APPENDIX 2.

598144

Lake Mackintosh

No.	Description	N	E
379701(P)	Fp.R.vlc.Ss	2000S	5480E
379702(P)	gn lava? rare vesicles? (Que-Hell volcs?)	1180S	5800E
379703(P)	wh.R	1100S	5998E
379704(P)	dark grey poorly sorted volcanic Ss	1020S	5800E
379727(P)	bedded sheared gy.shale	310N	6700E
379728(G)	q vn + gossan	310N	6700E
379729(G)	q vn + gossan	310N	6700E
379730(G)	haematite-limonite in sheared Bsh-MicSs	310N	6700E
379731(G)	haematite-limonite in sheared Bsh	310N	6700E
379732(P)	spotted sheared (glacial??)	310N	6700E
379733(G)	Qtz with specular haematite + Sp?	4100N	7525E
379734(P)	Qtz	4100N	7525E
379735(P)	Quartz veined Quartzite	4100N	7525E
379736(G)	split of 379737	2830N	6850E
379737(P)	sheared maroon volcanic	2830N	6850E
379738(G)	haematite? altered volcanic	2830N	6850E
379739(P)	light green sericite altered vlc	2830N	6850E
379740(P)	red and green Quartzite	2830N	6850E
379741(G)	sheared-haematitic	2830N	6850E
379742(G)	split of 379743(P)	2400N	6660E
379743(P)	green volcanic	2400N	6660E
379744(G)	split of 379745(P)	2400N	6660E
379745(P)	bedded and sheared shale + siltstone. Mn + haem. alt.	2400N	6660E
379746(P)	pk + gn Quartzite with some Py (reXt)	10S	7200E
379747(P)	Qtz with Fu and bk mineral	10S	7200E
379748(G)	split of 379746(P)	10S	7200E
379749(P)	shd Mica Ss (same as 379704(P))	2570N	6580E
379750(P)	R?	1780S	6570E

Romny Moor

379752(P)	vesicular lava - occurs with 379753, 54(P)	
53(P)	bedded chert	Romny Moor 1
54(P)	R	
379755(P)	Mica Ss	Romny Moor 2
379756(P)	Green R? volcanic	Romny Moor 3
379757(G)	split of 379752(P)	

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598145

Central Mineralogical Services

39 Beulah Road
Norwood, S.A. 5067
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FAX. 08-363 1820

Mr. D.J. Jack
Project Geologist
Aberfoyle Resources Ltd.
Exploration Division
P.O. Box 952
BURNIE / TAS. 7320

22nd July, 1987

REPORT CMS 87/6/22

YOUR REFERENCE:	Letter dated 18.6.1987
DATE RECEIVED:	19th June, 1987
SAMPLE NOS.:	22 Samples
SUBMITTED BY:	D.J. Jack
WORK REQUESTED:	Petrology

H.W. Fander, M.Sc.

Copy to:
Mr. H. Skey
Exploration Manager
Aberfoyle Resources Ltd.
Exploration Division
123, Camberwell Road
HAWTHORN EAST / VIC. 3123

598146

REPORT CMS 87/6/22

Twenty-two rock chip samples from the Lake Mackintosh (17 samples) and Romny Moor (5 samples) were received for routine petrological examination. Representative thin-sections were prepared, examined in transmitted light and, together with respective offcuts, in oblique incident light, with feldspar and carbonate stain tests performed as warranted.

Attached tabulated descriptions summarise the microscopic data and include interpretative comments.

Summary

The Lake Mackintosh suite is dominated by incipiently regionally metamorphosed pelitic and psammopelitic sedimentary rocks. These reflect sub- to low-greenschist facies metamorphic effects with weakly directed sericitic white mica, quartz and chloritic assemblages. Sandstones are volcanomict in part, but in general these rocks are devoid of tuffaceous components. This group, however, includes a psammopelitic ash (sample 379702) and an altered andesitic volcanic (379701), which could be considered as distal equivalents of the Que/Hellyer volcanic sequence and may warrant trace element analysis in confirmation.

A group of devitrified and sericite-altered, dacitic to rhyolitic acid volcanics is represented by samples 379737, 739, 740, 743 and 750. These rocks appear to represent minor intrusives in part, although this group includes one rhyolitic tuff (379743).

Partly recrystallized/weakly directed sedimentary quartzites comprise a distinctive minor group of rocks, represented by samples 379735, 746 and 747. These rocks are incipiently volcanomict and carry minor detrital chromite with related development of secondary fuchsitic mica in these variously quartz-veined and restressed rocks. Individual examples carry traces of pyrite, concentrated in pelitic lithic clasts, and/or secondary films of pyrite-derived jarosite.

The Romny Moor suite is similarly dominated by psammopelitic rocks. These include two tuffaceous siltstones or distal impure pelitic ashes and a quartz-mica sandstone with affinities to those in the Que River Shale, and representing breaks in the Que/Hellyer volcanic sequence.

D. Cowan, B. Sc.

Sample No. 145	Classification - Composition	Fabric	Accessories	Comments
379701 (T.S. 58176)	Amygdaloidal Andesite. Albitised/sericite-stained plagioclase-, minor chloritised ferromagnesian phenocrysts, sporadic quartz amygdales in a sericite-chlorite-stained albitised plagioclase-microlathic groundmass.	Semi-glomeroporphyritic, flow-structured, "andesitic".	Magnetite, minor leucoxenised opaques. Minor veinlets of quartz and ferruginised carbonate, chlorite.	Sericite-chlorite(-albite-quartz)-altered andesitic/trend leuco-andesitic lava or, conceivably, a minor intrusive.
379702	Psammopelitic Ash. Splintery to subangular quartz and albite grains, sericitic shards/shard fragments, minor muscovite flakes in a weakly dolomitic sericitic-chloritic microcrystalline quartz matrix.	Poorly sorted, silty to fine sandy clastic; pelite-matrixed, incipiently banded.	Conspicuous fine silt-sized clastic leuoxenic semi-opaques. Sporadic dolomite and carbonaceous pelite clasts.	Strictly a tuffaceous sandy silty pelite/impure ash. Pyroclastic components are broadly dacitic. Fe-staining reflects weathering of carbonate.
379703	"Leuco-Andesite". Sericitic/partly weathered plagioclase phenocrysts, minor corroded quartz microphenocrysts in a matrix of semi-sericitic white mica. sericitic microcrystalline quartz.	Mildly resheared/phyllitic. Porphyritic lava-like, but vaguely relict eutaxitic.	Conspicuous leucoxenised opaques. Varying proportions degraded/ferruginised fine carbonate.	Detail obscured by alteration, shearing and weathering effects. Leuco-andesitic/trend dacitic characteristics; possibly welded-tuffaceous.
379704	Volcanomict Sandstone. Framework of angular-subangular quartz, subordinate albite grains, sporadic chloritised andesitic lava clasts, minor muscovite flakes, limestone clasts. Chloritic, sericitic quartzose matrix.	Poorly sorted, vaguely slumped, pelite-matrixed, silty fine to coarse sandy clastic.	Carbonaceous pelite and minor low-grade metapelite clasts, detrital leucoxene, rare chromite, tourmaline.	Includes devitrified shard fragments, minor traces of pyrite. Affinities with the polymict/reworked tuffaceous psammites at Que/Hellyer.
379727	Sericitic Slate. Semi- to sericitic white mica with minor fine silt-sized relict detrital quartz and muscovite flakes, minor carbonaceous matter. Sporadic quartzose-silty interbeds.	Banded on a sub- to fine millimetric scale concordantly mildly sheared.	Minor degraded sericitic clastic feldspar and degraded/ferruginised carbonate in silty units.	Weakly carbonaceous quartzose-micaceous silty shale with variably (degraded) dolomitic argillaceous siltstone partings. Rare oxidised, weakly pressure-shadowed pyrite.
379732	Lithic Sandstone. Relict framework of sericitic pelite, carbonaceous shale and sericitic to (degraded) dolomitic impure chert/cherty argillite clasts, minor quartz grains. Semi sericitic white mica matrix.	Well-sorted, medium to coarse sandy clastic, with a phyllitic overprint.	Degraded/ferruginised biotite flakes, minor feldspar grains, sericitic lava clasts, leucoxene, chromite grains.	Primarily a coarse-grained lithic sandstone, pelite/chert-derived, with minor felsic intermediate-acid volcanic-, and granite-derived components. Non-tuffaceous; mildly metamorphosed.
379734	Quartz-Mica Phyllite. Subpolygonal/directed quartz and subordinate fine-grained muscovite with thinly disseminated magnetite and silt- to fine sand-sized, well-rounded relict detrital zircons.	Strictly a fine-grained banded schist. Disharmonically resheared and crenulated.	Semi-pervasive sericitic to locally hematitic microfractures.	Primarily an impure (sericitic) orthoquartzite. Reflects relatively advanced greenschist facies regional metamorphism and reshearing effects.
379735	"Metaquartzite". Relict framework of subangular to rounded overgrown quartz grains with disseminated relict detrital magnetite, films of chlorite and fuchsitic mica. Irregular quartz veins.	Well-sorted, weakly bedded fine sandy clastic; partly recrystallized. Mildly stressed veins.	Detrital zircon, schorl, chromite, leucoxene. Traces of carbonaceous matter.	Similarities with 379734, but representing a relatively pure orthoquartzite. Mildly regionally metamorphosed; irregularly quartz-veined; mildly restressed.

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Sample No.	Classification - Composition	Fabric	Accessories	Comments
379737	Altered Felsite. Aggregates of sericite and variably sericitic fine-grained quartz with thinly disseminated sericitised feldspar phenocrysts. Minor clots, films of chlorite. Irregular hematitic fractures.	Weakly banded, felsitic. Irregularly fractured to semi-brecciated. Incipiently sheared.	Leucoxenised opaques. Rare sericitised biotite phenocrysts.	Devitrified, sericitised/mildly silicified-chloritised felsic pitchstone; broadly dacitic. Hematitic fracture pattern similar to that in 379734, relatively marked.
379739	Altered Felsite. Aggregates of sericite and weakly sericitised fine anhedral quartz; thinly disseminated sericitised feldspar phenocrysts. Semi-pervasive limonitic Fe-stainings.	Similar to 379737; slightly relatively banded, similarly incipiently sheared.	Relatively abundant leucoxenised opaques, rare sericitised biotite. Minor fine oxidised pyrite.	Close affinities with 379737; slightly relatively siliceous. Pyrite in microscale siliceous-sericitic stringers; partly recrystallized/pressure-shadowed.
379740	Altered Felsite. Sericite and variably sericite-stained quartz, with minor sericitised feldspar phenocrysts, thinly disseminated corroded quartz microphenocrysts.	Weakly quartz-amygdaloidal, felsitic/ semi-perlitic. Weakly sericite-veined. Incipiently sheared.	Leucoxenised opaques, minor clots of chlorite. Minor limonitic microfractures.	Affinities with 379737 and 379739, with similar devitrified/sericitised dacitic characteristics. Limonitic microfractures, apparently degraded hematitic.
379743	Rhyolitic Tuff. Quartz and subordinate sericitic albite crystals/crystal fragments, minor sericitised/poorly determinate lithic clasts in a matrix of Fe-stained sericite and microcrystalline quartz.	Poorly sorted, psammite-grade fragmental with a vaguely relict shardy micro-textured matrix.	Conspicuous leucoxenised opaques. Minor but pervasive fine degraded carbonate. Traces oxidised pyrite.	Extensively sericitised rhyolitic vitric-crystal tuff with accessory lithic clasts. Finer detail obscured by alteration and partial weathering. Incipiently sheared.
379745	Sericitic Slate. Semi-sericitic white mica with varying proportions of fine silt-sized relict detrital quartz (partly recrystallized), subordinate clastic muscovite; semi-pervasive carbonaceous matter.	Banded/fine siltstone-parted on sub- to fine millimetric scale; microcrenulated concordant slaty cleavage.	Degraded/ferruginised carbonate in silty partings. Minor traces oxidised pyrite.	Similarities with 379727, with relatively fine-grained, well-sorted dolomitic siltstone partings; Fe-staining largely reflects degradation of carbonate.
379746	"Metaquartzite". Relict framework of overgrown subangular quartz grains, minor sericitic pelite and impure chert clasts, minor sericitic shaly partings. Sporadic quartz veinlets.	Analogous to 379735; slightly coarser-grained. Similarly stressed irregular veinlets.	Detrital magnetite, leucoxene, tourmaline, zircon, muscovite. Traces of pyrite, secondary films of jarosite.	Close affinities with 379735, similarly partly recrystallized/weakly directed, veined and mildly restressed Pyrite concentrated in lithic clasts.
379747	"Metaquartzite". Relict framework of overgrown subangular quartz grains, relatively minor sericitic pelite, impure chert clasts. Minor clots, films of fuchsitic sericite fringing discontinuous quartz veinlets.	Analogous to 379735 and particularly 379746. Relatively unstressed.	Detrital leucoxene, albite, magnetite, chromite, schorl, zircon, apatite. Minor films of degraded jarosite.	Close affinities with 379735 and particularly 379746. Main contrast is the presence of accessory detrital feldspar grains.
379749	Sericitic Slate. Orientated semi- to sericitic white mica with pervasively disseminated relict detrital silt- to fine sand-sized quartz, minor albite grains, muscovite flakes, carbonaceous pelite clasts.	Massive to faintly banded silty fine sandy pelite; concordantly cleaved.	Detrital leucoxene, minor low-grade metapelite, metaquartzite clasts. Minor quartz veinlets.	Primarily an essentially massive silty fine sandy shale. Weakly volcanomict, but non-tuffaceous. Locally weakly dolomitic (degraded, ferruginised).

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mple o.	Classification - Composition	Fabric	Accessories	Comments
79750	Rhyodacite. Phenocrysts of sanidine, sericitised plagioclase and leucoxenic sericite-pseudomorphed amphibole in a groundmass of microcrystalline quartz and sericitised feldspar.	Strongly porphyritic, weakly quartz-micro-amygdaloidal, weakly flow-structured, mildly sheared.	Leucoxenised opaques; minor corroded quartz microphenocrysts, sericitised biotite flakes.	Extensively sericite-altered, mildly sheared rhyodacitic porphyry. Exhibits minor intrusive characteristics, but interpretation dependent on field relationships.
79752	Tuffaceous Siltstone. Sericite and microcrystalline quartz with pervasively disseminated silt-sized quartz grains, muscovite and degraded biotite flakes, minor albite grains.	Massive to incipiently banded silty clastic, vaguely relict vitroclastic. Incipiently sheared.	Leucoxenic semi-opaques, traces of carbonaceous matter, rare zircons, tourmaline. Minor clots of limonite.	Quartzose-micaceous silty pelite with vague reworked vitric ashy characteristics. Sparse cavities appear to represent degraded/leached clots of carbonate.
79753	Sericite-Quartz Slate. Fine to semi-sericitic white mica and microcrystalline quartz with pervasive fine silt-sized relict detrital muscovite flakes, minor quartz grains, carbonaceous matter.	Banded, silty clastic, with minor ripple and scour/fill structures. Weakly concordantly sheared.	Degraded/ferruginised carbonate in relatively silty units. Fine silt-sized clastic leucoxene.	Quartzose-micaceous silty shale/fine siltstone; devoid of tangible tuffaceous features in contrast to 379752. Primarily weakly dolomitic.
79754	Tuffaceous Siltstone. Semi- to sericitic white mica with disseminated silt-sized relict detrital muscovite flakes, subordinate quartz grains, minor degraded biotite flakes.	Analogous to 379752; relatively distinctly vitroclastic. Incipiently sheared.	Minor carbonaceous matter, silt-sized carbonaceous pelite clasts, leucoxenic semi-opaques.	Close affinities with 379752; distinctly sericitised vitroclastic in comparison and strictly an impure distal pelitic ash.
79755	Quartz-Mica Sandstone. Framework of subangular to subround, weakly overgrown quartz grains, subordinate muscovite flakes, sericitic shale/carbonaceous shale clasts. Sericite-quartz cement.	Poorly sorted (silty fine to medium), essentially massive (unbedded), sandy clastic. Weakly recrystallized.	Clasts of impure chert, low-grade metapelite, leucoxene, tourmaline, zircon, rare chromite.	Similarities with the Que/Hellyer micaceous quartz sandstones. Recrystallization effects consistent with incipient hornfelsing.
79756 (T.S. 58197)	?Rhyodacite. Sericite/degraded-ferruginised chlorite-pseudomorphed feldspar, subordinate similarly altered ferromagnesian phenocrysts in a groundmass of sericitic quartz with included altered ?amphibole microlaths.	Strongly porphyritic, weakly (quartz-degraded chlorite) amygdaloidal, weakly flow-structured, felsitic.	Conspicuous leucoxenised opaques.	Affinities with 379750, with similar minor intrusive characteristics. Compositional detail obscured by alteration and weathering effects. Possibly strictly dacitic.

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ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.
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ANALYTICAL REPORT No. 23.3.08.04567

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

Aberfolye Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

ORDER No.	PROJECT
1801	

DATE RECEIVED	RESULTS REQUIRED
19/06/87	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	06/07/87	1	12

REFER BELOW	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	Various	RC	Prep: 012,013,016						Au/309		
	379733	RC	Prep: 012,013,016						Cu,Pb,Zn,Ag/101		
	379733	RC							Au/309		
	379736,379738,379742,379757	RC	Prep: 012,013,016						Cu,Pb,Zn,Ag,Ni/101,As/114		
	379736,379738,379742,379757	RC							Ba,Cr,Zr,Ti/401		

RESULTS TO

R. de Bomford
Aberfoyle Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

RESULTS TO

REMARKS

Jake Mackenzie
Rock Chips

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04567	06/07/87	1801	1 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	379728	–	–	–	–	–	–	–	–	–
2	379729	–	–	–	–	–	–	–	–	–
3	379730	–	–	–	–	–	–	–	–	–
4	379731	–	–	–	–	–	–	–	–	–
5	379741	–	–	–	–	–	–	–	–	–
6	379744	–	–	–	–	–	–	–	–	–
7	379748	–	–	–	–	–	–	–	–	–
8	379733	5	<5	10	<0.5	–	–	–	–	–
9	379736	15	20	50	<0.5	15	6	1700	<5	200
10	379738	10	20	40	<0.5	20	6	1800	25	200
11	379742	10	50	95	<0.5	75	7	210	7	210
12	379757	5	15	15	<0.5	20	5	200	15	210
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	5	1	10	5	5
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	101	101	101	114	401	401	401

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04567	06/07/87	1801	2 OF 2

TUBE No.	SAMPLE No.	Ti	Au
1	379728	-	0.017
2	379729	-	<0.008
3	379730	-	<0.008
4	379731	-	<0.008
5	379741	-	<0.008
6	379744	-	<0.008
7	379748	-	<0.008
8	379733	-	<0.008
9	379736	2450	-
10	379738	2400	-
11	379742	990	-
12	379757	1100	-
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23	DETECTION	50	0.008
24	UNITS	PPM	PPM
25	METHOD	401	309

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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APPENDIX 3.

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ASSESSMENT OF THE USE OF MERCURY GEOCHEMISTRY IN THE MACKINTOSH DISTRICT, TASMANIA

INTERNAL TECHNICAL REPORT

ABERFOYLE RESOURCES, EXPLORATION DIVISION

DISTRIBUTION

HAWTHORN (1)
BURNIE (1)

A. M. HESPE
PROJECT GEOLOGIST

JANUARY 1988

ENDORSED
David Wallace

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2. GEOCHEMISTRY OF MERCURY

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4. FORMATION OF A MERCURY ANOMALY OVER A BLIND DEPOSIT

5. RESULTS

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HEL 103 (Pb) Hellyer 10900N Core grinds DDH's HL24, HL55, HL31
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HEL 103 (As) Hellyer 10900N Core grinds DDH's HL24, HL55, HL31
HEL 103 (Ba) Hellyer 10900N Core grinds DDH's HL24, HL55, HL31
HEL 103 (Sb) Hellyer 10900N Core grinds DDH's HL24, HL55, HL31
HEL 103 (Hg) Hellyer 10900N Core grinds DDH's HL24, HL55, HL31

TABLES

Table 1 Comparison of content of various elements in Que River Shale remote from mineralisation and Que River Shale above Hellyer.

Table 2 C-Horizon geochemical traverses.

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1. INTRODUCTION

This report presents results of a sampling programme designed to determine the effectiveness of Mercury geochemistry for detecting blind Que-Hellyer type deposits on Aberfoyle's Mackintosh district properties. Funding was included in WP8/87. All samples were collected by Aberfoyle personnel at the locations shown on Figure 1.

2. GEOCHEMISTRY OF MERCURY

The special geochemical properties of Mercury are that it exerts a measurable vapour pressure at ambient temperature and pressure; and that its redox properties allow it to exist in the elemental state under a wide range of natural conditions. These properties suggest that on release from sulphide deposit by weathering, Mercury might travel through permeable rock to the surface as an elemental vapour to form an anomaly. This transport mechanism is not available to other ore or pathfinder elements, and is the rationale for the concept that Mercury might produce an anomaly over a blind or buried deposit.

Initially it was thought that such Mercury anomalies might be detected in the vapour phase, either in soil gas or in the atmosphere. However as discussed by Carr et al (1986), most Mercury in soils and weathered rocks is contained in solid phases. It can be strongly bound to organic materials (by processes which

are poorly understood); it can be absorbed onto clays and Fe-Mg oxides or it can occur as inclusions or in solid solution in unweathered sulphide minerals. Claims to have detected vapour phase anomalies over blind or buried deposits are often unsubstantiated. Mercury vapour is also highly soluble in water, which further decreases the possibility of a vapour phase persisting.

Mercury contents of most hydrothermal base and precious metal deposits are highly anomalous.

Mercury in Australian Base metal deposits ranges from 1300 to 53000 ppb (Carr et al 1986). The abundance of Mercury in mafic igneous rocks is about 10 ppb and in shales about 20-400 ppb. (Rose et al 1979). Carr et al (1986) studied the abundance of Mercury in the Que River deposit where values of 3000-6000 ppb were recorded. There has been no systematic study of Mercury content of the Hellyer deposit but because of its similarity to Que River there is no reason to expect significant differences. Limited sampling of metallurgical composites for Mercury gave a maximum value of 180000 ppb (HL-18/274.9-284.4) with an average value of 3200 ppb (30 samples, 7 DDH's).

3. PREVIOUS WORK

In 1986 Carr and others published a comprehensive report titled "Evaluation of Mercury pathfinder techniques : base metal and Uranium deposits". The Que River deposit was included as a case study in this project. Conclusions of the study relevant to the climate and style of mineralisation in the Mackintosh District were :

a) Hg contents of Que River ores averaged from 3000 - 6000 ppb, where it is associated with sphalerite and to a lesser extent, pyrite.

b) Background levels in soils on adjacent unmineralised rocks ranged from 80-200 ppb (A-horizon) and from 30-140 ppb (C-horizon). The slightly higher background in A-horizon samples is attributed to absorption on organic matter.

c) Narrow, high contrast (peak:background = 9:1) Hg anomalies to +1000 ppb occur in C-horizon samples over sub-outcropping ore. Hg is probably residual due to the oxidation of sulphides in the soil, rather than transported as a vapour. A-horizon anomalies are broader and have less contrast.

d) Hg has a very low mobility in this surface environment.

e) Hg can be displaced by strong groundwater flow in till and spurious anomalies can be generated by inclusions of sulphide particles in till.

f) Hg in soils at Que River occurs in organic material and adsorbed onto clays and Fe-oxides.

g) At Que River, other target and pathfinder elements would give results comparable with those for Hg.

4. FORMATION OF A MERCURY ANOMALY OVER A BLIND DEPOSIT

The Hellyer deposit is completely blind, being 75m below surface at its shallowest point. Further discoveries in the Mackintosh district are also expected to be blind because of the grossly flat lying stratigraphy of the Que-Hellyer volcanics. This study was designed to determine whether Mercury geochemistry could detect such deposits, and detect them more effectively than other target or pathfinder elements. The classification of base metal soil anomalies by their Mercury content was also considered.

The proposed mechanism for formation of a Mercury anomaly over a blind deposit is release of Mercury by deep weathering (oxidation) which then travels through cover rocks to the surface as a vapour,

where it is fixed in clays, Fe-oxides and organic material. Since the Hellyer deposit itself is not oxidising and other blind targets in the district would not be expected to be oxidising either, the following alternative mechanisms for formation of Mercury anomaly are proposed:

a) Remobilisation of sulphides containing Mercury into the hangingwall during the last stages of Cambrian hydrothermal activity. Current weathering of the hangingwall sulphides with release transport and concentration at the surface of Mercury in a broad haloe.

b) Remobilisation of sulphides containing Mercury into the Jack Fault during the last stages of Cambrian hydrothermal activity or during Devonian regional metamorphism. Penetration of ground water down the fault, oxidation of sulphides and release of Mercury which travels by the fault to form a restricted anomaly around the fault.

These mechanisms are suggested by the observation of mineralisation and alteration in hanginwall rocks and in the Jack fault.

5. RESULTS

5.1 Background Hg Levels in Que River Shale

Shales have background Hg levels ranging from 20–400 ppb. (Rose, Hawkes and Webb, 1979). 49 core grind samples from various unmineralised drill holes were re-submitted to determine background levels in the Que River Shale. Much of the prospective Que-Hellyer Volcanics are overlain by shale and a high background Hg content would complicate interpretation.

Results of these analyses are shown in the histogram of figure 2. The values are approximately normally distributed with mean = 59 ppb, median = 55 ppb and mode in the 45-60 ppb class interval. Background values in Que River Shale can be defined as ranging from limit of detection (5 ppb) to 120 ppb (x + 25D) with an average of 59 ppb.

5.2 Background Values in other Rock Types

Background values in other rock types were not specifically investigated. Carr et al (1986) propose background values in andesites around the Que River deposit of 80–200 ppb (A-horizon) and 30-140 ppb (C-horizon). Inspection of profiles of C-horizon sampling in various areas (Figs 9 to 14) suggest background levels of <100 ppb in Que-Hellyer volcanics. Background Hg values in basalt in HL-31 above Hellyer average 47 ppb.

5.3 Hg and other Element Distribution, Hellyer Deposit Hangingwall Drill Holes

Results of core grind analyses from three drill holes on 10900N in the Hellyer hangingwall are shown in Plates HEL 103. The holes were sampled to determine the dispersion of Hg in the hangingwall rocks.

Significant features are :

a) All elements show enrichment in a zone around the Jack Fault and subsidiary faults. This area was identified in the Hellyer Alteration Study as a zone of stringer type alteration. Hg values are moderately anomalous, in the range 100-285 ppb.

b) All elements except Ba show some depletion in basalt in HL-55. This hole intersects the plume zone identified in the Hellyer Alteration Study, where ore elements show significant depletion, and other elements such as Ba and Ca are enriched. Hg is depleted and averages 25 ppb in basalt.

c) Values in HL-31 probably represent background outside the plume.

Note that all elements except Barium behave sympathetically with Hg which suggest a similar transport mechanism and not dispersal of Hg in the vapour phase.

An unexplained feature of these results is the slightly high values for Pb, Zn, As and Hg in the Que River shale. This observation prompted the examination of background levels in Que River shale discussed in section 5.1. Mean values in unmineralised QRS compared with results from these holes are shown in Table 2. The possibility that QRS is enriched in base metals above Hellyer is beyond the scope of this study but should be investigated.

TABLE 1

Comparison of content of various elements in Que River Shale remote from mineralisation and from Que River shale above Hellyer.

	Unmineralised QRS mean (120 values)	QRS above Hellyer 10900N mean (5 values)
Cu	73	91
Pb	68	191
Zn	263	583
Ag	0.6	0.5
As	18	41
Ba	NA	904
Sb	NA	5
Hg	58	163

(Hg ppb, other elements ppm)

5.4 Hellyer and Hellyer West Traverses

Locations of three C-horizon traverses over the Hellyer deposit are shown in Figure 1 and Figure 3. Profiles of analyses are shown in figures 4, 5 and 6. Because of extensive soil disturbance over Hellyer, traverses were sited along tracks and costeans. Samples were collected over approximately one square metre where definite weathered bedrock could be identified and were biased towards areas where features possibly related to mineralisation occur (e.g. quartz veining, faulting, ferruginous zones, bleaching in shales).

Traverse 1 is located entirely within fuchsite/carbonate altered basalt, in the vicinity of the surface projection of the Jack fault and approximately 175 m above the Hellyer deposit. Sb and As can be considered anomalous. Values of 125 and 200 ppb for Hg are weakly anomalous. Pb and Zn are noteably deficient. The traverse probably samples the hangingwall plume with some contribution from mineralisation associated with the Jack fault.

Traverse 2 samples Upper Rhyolitic Sequence and Que River Shale in the nose of the Hellyer anticline where it is bleached and quartz veined. The surface projection of the Jack fault plane occurs here although faulting is not obvious

at surface. Shale at surface is 230m above the Hellyer deposit. All elements, except for zinc, are weakly anomalous adjacent to the zone of bleaching and quartz veining in the shale and vertically above the projection of the Hellyer deposit.

Traverse 3 is entirely within Upper Rhyolitic Sequence. Depth to the Hellyer Ore Position on this traverse is 300m. Hg is not anomalous. A vague haloe in As might be interpreted. Anomalies in Cu and Zn occur in a dolomitic shale unit within the URS and are attributed to a high background in that unit.

C and A horizon traverses were completed at Hellyer West (Figure 1) (Figure 7) where drilling had intersected faulting and alteration interpreted to be a second stringer zone west of the main Hellyer zone. The traverses were over Que River shale which is virtually unweathered and forms a very poor C-horizon below about 1m of peat. A single anomalous C-horizon sample running 135 Cu, 1200Pb, 2450 Zn,3.5 Ag, 450 As and 200 ppb Hg was detected. This is probably due to direct sampling of a vein within shale. A trench in this area failed to locate the vein. Background Hg values for C-horizon samples were 20-75 ppb. The anomalous value was not repeated in the A-horizon sample. Figure 8 shows that there is no relationships between Hg values for A and C-horizon samples.

These traverses show that some subtle base metal anomalies occur in hangingwall rocks up to 230m above Hellyer. Their extent should be determined by a systematic geochemical survey over the Hellyer grid. It is likely that anomalies are due to late hydrothermal activity on the Jack fault. The fact that Hg anomalies are always associated with anomalies in other metals indicates that Hg is not travelling as a vapour and that the weathering phases of the models proposed in section 4 are not relevant. Hg is not likely to develop a haloe over a blind deposit where other metals would not. The mechanism for geochemical detection of a blind massive sulphide relies on the persistent activity of the hydrothermal cell after deposition of the main mass of sulphides aided by permeability provided by a conduit such as the Jack fault. This situation is quite likely to occur elsewhere in the Mackintosh district.

5.5 Soil Anomaly Characterisation

94 C-horizon soil samples were collected from traverses over six major soil anomalies to determine if they could be classified by their Mercury content. Samples were analysed for Cu, Pb, Zn, Ag, As, Sb, Hg. Locations of the traverses are shown in figure 1; profiles are shown in figures 9 to 14 and results presented in table 2.

TABLE 2 C-HORIZON SOIL GEOCHEMICAL TRAVERSES

Line	Geology/Mineralisation	Geochemistry
3900N	Basalt Lava. Soil anomaly due to disseminated galena and sphalerite associated with quartz calcite veins. Pb-isotopes indicate Cambrian age for this mineralisation.	Anomaly characterised by lack of Ag, As, Sb. Hg values low but anomalous. High background in basalt contributing to Cu anomaly. Broad anomalies due to disseminated mineralisation.
4600N	Traverse (from W to E) through andesite, Mt. Charter barite horizon and footwall QTZ/SE/PY alteration zone. Anomaly predominantly in alteration zone. Pb-isotopes indicate Cambrian age for this mineralisation.	Highly anomalous As, Sb, weakly anomalous Ag mass Hg over Mt. Charter barite and footwall alteration zone. Anomalous Ba and As occur in similar alteration at the Amoeba Zone (UTEM Zone E). This suite of elements with associated low Cu/Pb/Zn may be an indication of footwall QTL/SER/PY alteration. Should be followed-up by analyses of Hellyer stringer.
5400N	Mineralisation style similar to 3900N, but occurring in feldsparphyric andesite lava. Mt. Charter alteration zone terminates in dacite 50-100m south of 5400N. Pb isotopes indicate Cambrian age for this mineralisation.	Mineralisation is of style of 3900N, 6700N yet As and Sb are anomalous. Could be some contribution from continued activity of nearby Mt. Charter alteration zone.
6700N	Lithology/mineralisation as for 3900N except that basalt is a different stratigraphic unit.	As for 3900N.
7800N	Anomaly occurs over polymict volcaniclastic unit in the PQ-lens position on the eastern side of the mine dacite. Likely to contain sulphide fragments shed from a massive sulphide body.	Anomalous in all units. The signature of high grade mineralisation, either as suboutcropping massive sulphides (PQ lens 7400N) or as massive sulphide fragments shed into an epiclastic unit.
8800N	Anomaly coincides with interpreted fault which was intersected in MAC-9; sulphide fragments occur in fault in MAC-9. Structure of area difficult to interpret.	Anomalous in all elements. Related to sulphides in fault, but significance of this mineralisation not understood.

598168

Conclusions from this exercise are :

a) All anomalies have anomalous levels of Hg, anomalies cannot be classified on the basis of Hg alone.

b) Anomalies sourced directly to massive BMS or BMS fragments will have high levels of all elements analysed for.

c) Anomalies due to disseminated sulphides of the N.W./S.W. Mt. Charter and Old Mill Site types will have low levels of Ag and As.

d) Anomalies associated with the outer QTZ/SE/PY sections of footwall alteration zones are likely to be different in Cu, Pb and Zn and anomalous in Ag, As, Sb and Hg.

6. CONCLUSIONS

6.1 Hg is highly immobile in the surface environment of the Mackintosh District and forms narrow high contrast anomalies which accurately locate anomalous zones. However As and Ag are equally immobile and there is no advantage in analysing for Hg for this purpose.

6.2 In A and C horizon traverses over blind mineralisation at Hellyer and a possible blind hydrothermal system at Hellyer West, weak Hg anomalies occur but are always accompanied by anomalous values in other elements. This implies that Hg is not travelling as a vapour but by the same mechanism (hydrothermal solution) as is transporting the other elements. No advantage is gained by analysing for Hg. The traverses do show the possibility of subtle base metal anomalies due to hydrothermal remobilisation into the hangingwall.

6.3 Hg occurs in anomalous concentrations in association with the four types of mineralisation recognised in the Mackintosh District.

i.e.
* Massive sulphides, or units containing fragments of massive sulphides.
* Footwall alteration zones
* Disseminated Pb/Zn/Cu sulphides associated with quartz calcite veining in andesite and basalt lavas.
* Mineralisation remobilized into the hangingwall at Hellyer.

Hg geochemistry cannot distinguish these types whereas combinations of the elements Cu, Pb, Zn, Ag, As may be able to.

7. RECOMMENDATIONS

7.1 Further Hg sampling is not recommended.

7.2 All soil anomalies in the Que-Hellyer volcanics should be classified by their element association. If analyses for some elements are not available, selected lines should be re-sampled.

7.3 The surface extent of leakage anomalies into the hangingwall over Hellyer should be investigated with full C-horizon coverage.

8. SAMPLE COLLECTION, PREPARATION, ANALYSIS, DATA STORAGE

A-horizon samples were collected by hand from the top 10cm of organic material.

C-horizon samples were collected by hand auger (<1m), or over Hellyer, by hand from exposures in costeans and on tracks.

Drill hole samples were core ground.

A and C horizon samples were dried at 40°C for 24 to 72 hours, broken up with a wooden mallet and seived to minus 80 mesh.

As, Hg analyses were by RDG method 122 - vapour generation/AAS.

Cu, Pb, Zn, Ag analyses were by RDG method 101 - perchloric acid digest/AAS.

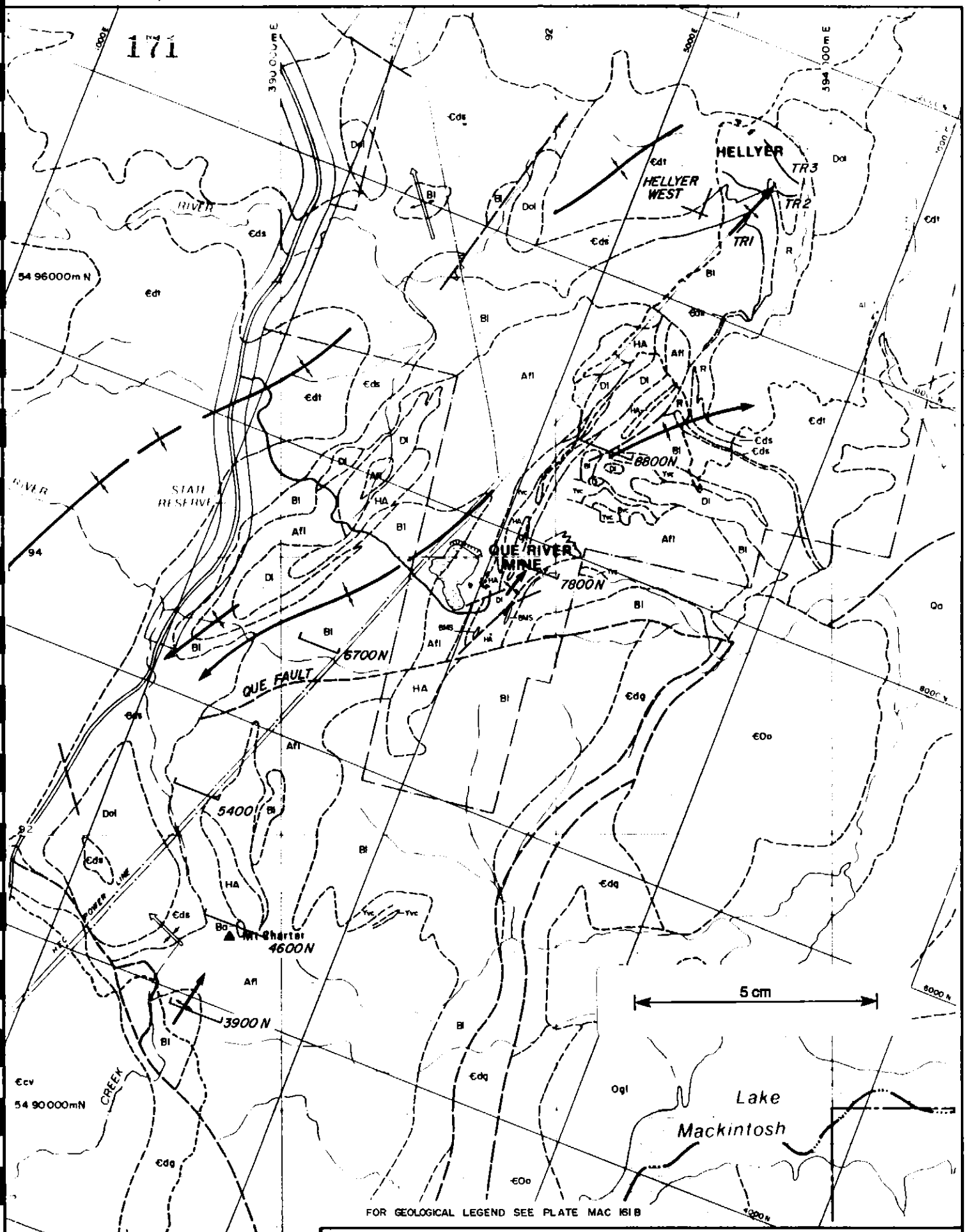
Ba, Sb analyses were by RDG method 401 - XRF.

Data is stored in HP-1000 file !HELHG:MH:30

9. REFERENCES

Carr G.R. Wilmshurst J.R. Ryan W.R. "Evaluation of Mercury pathfinder techniques: Base Metal and Uranium Deposit". Journal of Geochemical Exploration Vol. 26 No. 1 1986.

Rose A.W. Hawkes H.E. Webb J.S. "Geochemistry in Mineral Exploration". Academic Press, 1979.



Aberfoyle Resources Limited 598173
EXPLORATION DIVISION

REVISIONS			
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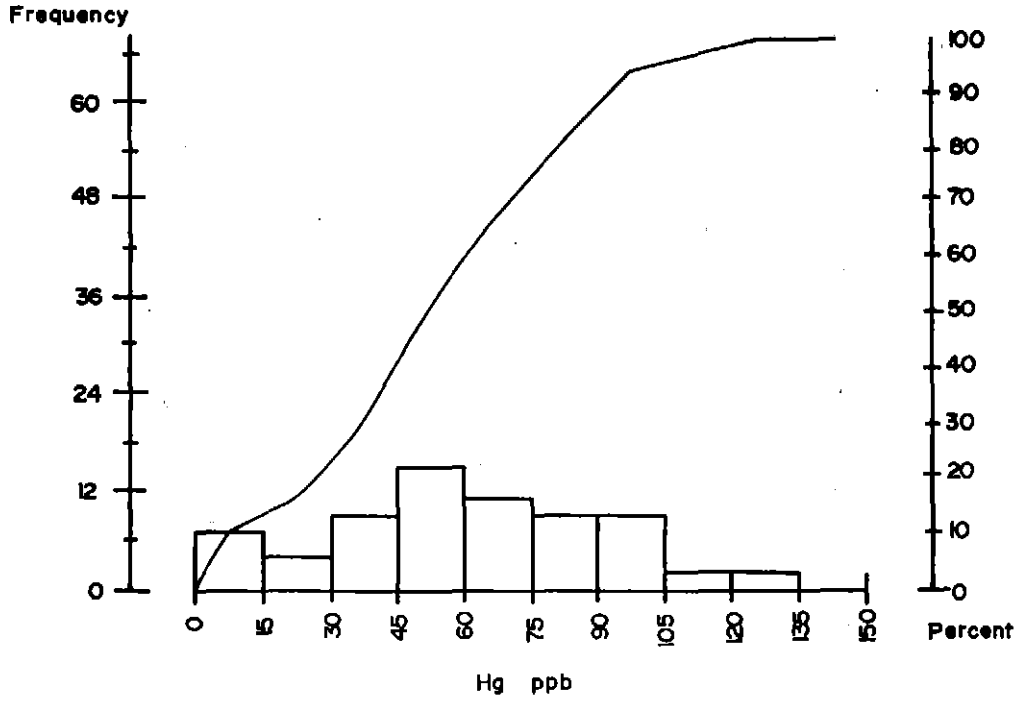
NORTH WEST TASMANIA
MACKINTOSH DISTRICT
MERCURY GEOCHEMISTRY
SAMPLE LOCATIONS

Location Code : K55/6/41
Scale : 1 25,000
Date : DEC 1987

Compiled : AMH
Drawn : RJE
Traced : RJE
Checked :
Plate No MAC 201b

172

HISTOGRAM OF Hg VALUES FROM
NON MINERALIZED SHALE



Aberfoyle Resources Limited

598174

EXPLORATION DIVISION

REVISIONS			
Init.	Date	Init.	Date
Location Code : —			

NORTH WEST TASMANIA
MACKINTOSH DISTRICT
MERCURY GEOCHEMISTRY

Mercury Distribution in Core Grinds from Que River Shale remote from mineralization.

Scale : —

Date : January, 1988

Compiled :	AMH
Drawn :	AMH
Traced :	RJE
Checked :	
Plate No. :	MAC 201c

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EXPLORATION DIVISION

NORTH WEST TASMANIA
MACKINTOSH DISTRICT
MERCURY GEOCHEMISTRY
LOCATION OF C-HORIZON TRAVERSES
OVER THE HELLYER DEPOSIT

REVISIONS			
Init.	Date	Init.	Date

Location Code :

Scale : 1: 2500

Date : January, 1988

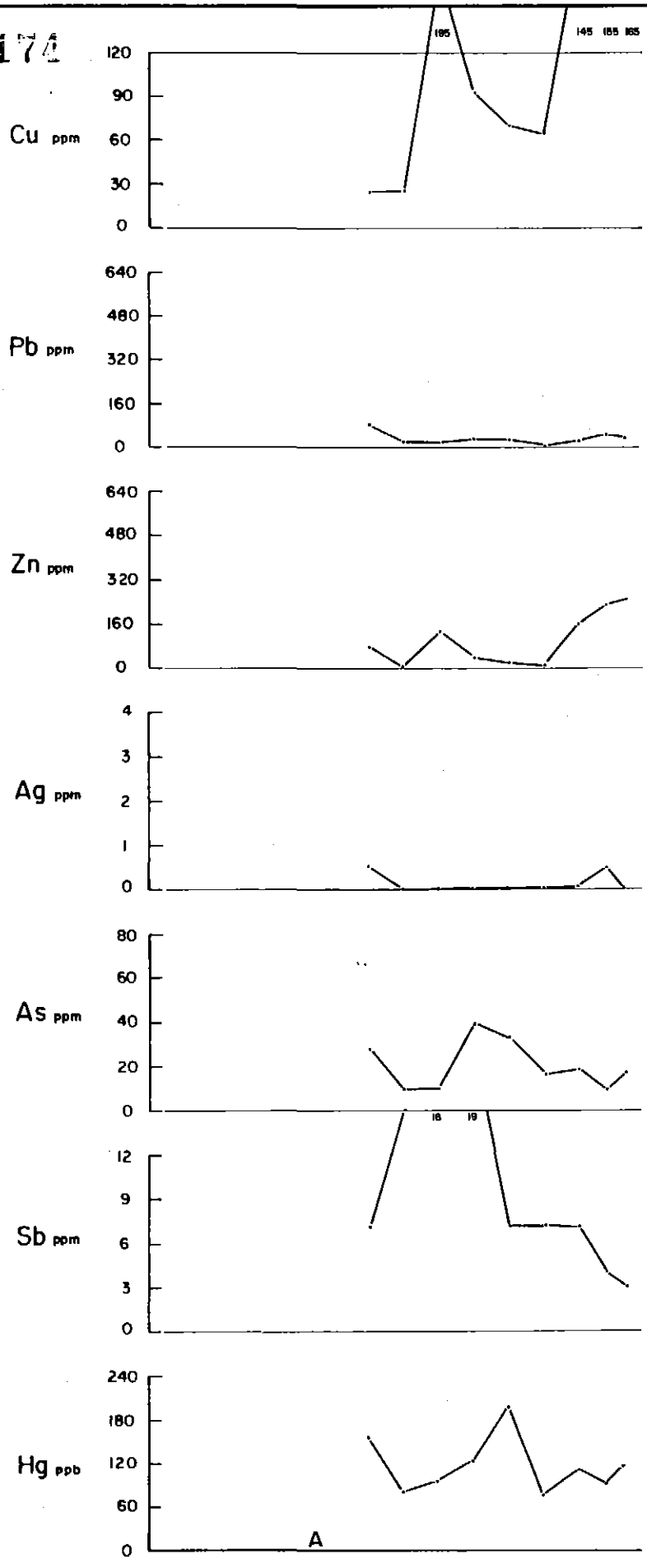
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Traced : RJE
Checked :
Plate No. : MAC 201d

For Geological Legend see Plate MAC 114

598175

174

598176



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REVISIONS			
Init.	Date	Init.	Date

NORTH WEST TASMANIA
MACKINTOSH DISTRICT
MERCURY GEOCHEMISTRY
HELLYER C-HORIZON TRAVERSE I

Compiled	AMH
Drawn	AMH
Traced	RJE
Checked	AMH

Location Code

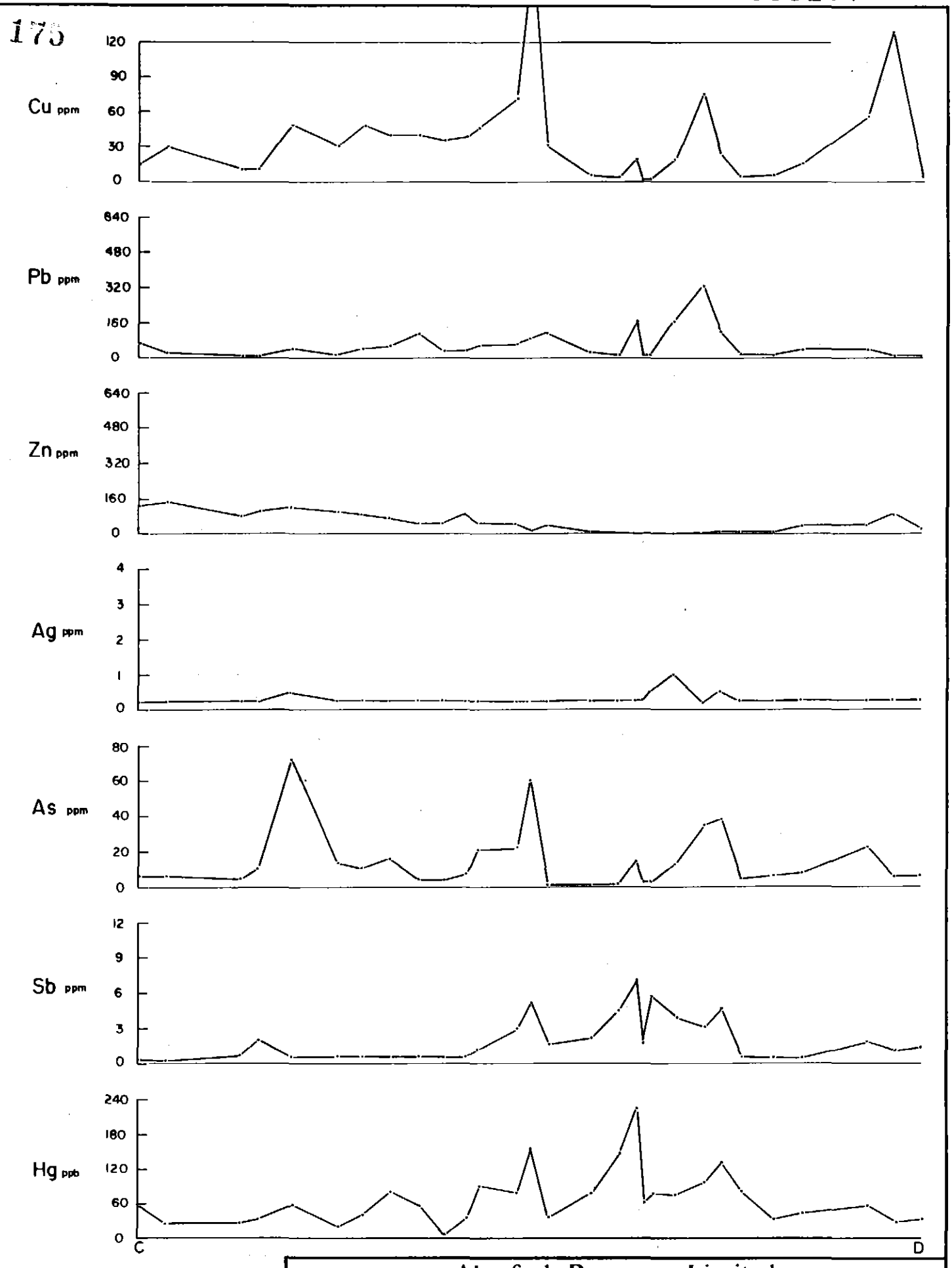
Scale 1 2500

Date January, 1988

Plate No MAC 201e

598177

175



5 cm

Aberfoyle Resources Limited

EXPLORATION DIVISION

REVISIONS			
Init.	Date	Init.	Date

NORTH WEST TASMANIA
MACKINTOSH DISTRICT
MERCURY GEOCHEMISTRY
HELLYER C-HORIZON TRAVERSE 2

Compiled :	AMH
Drawn :	AMH
Traced :	RJE
Checked :	AMH
Plate No	MAC 2011

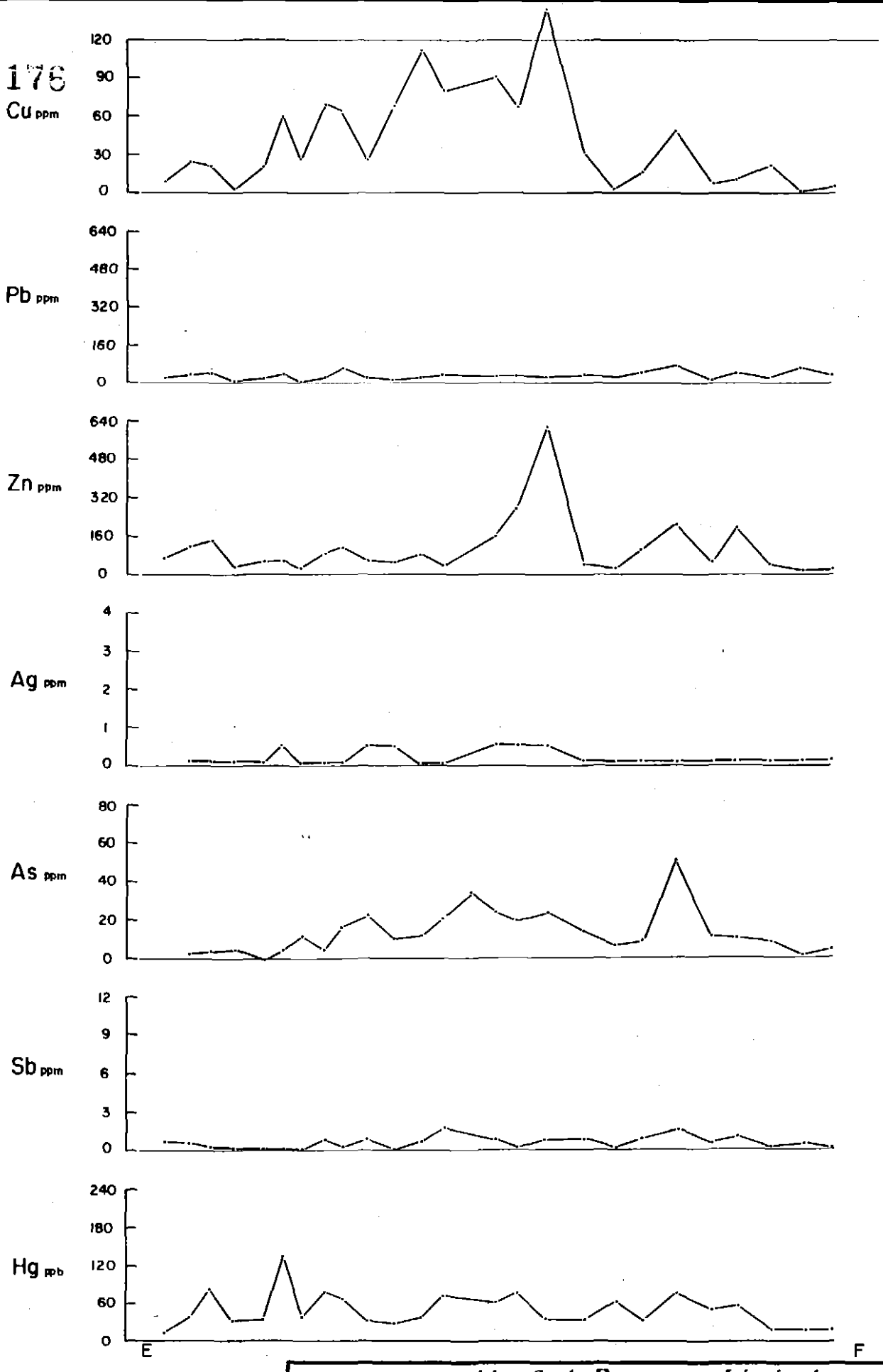
a Location Code :

Scale : 1 2500

Date : January, 1988

598178

176



5 cm

Aberfoyle Resources Limited

EXPLORATION DIVISION

REVISIONS			
Init.	Date	Init.	Date

Location Code :

NORTH WEST TASMANIA

MACKINTOSH DISTRICT

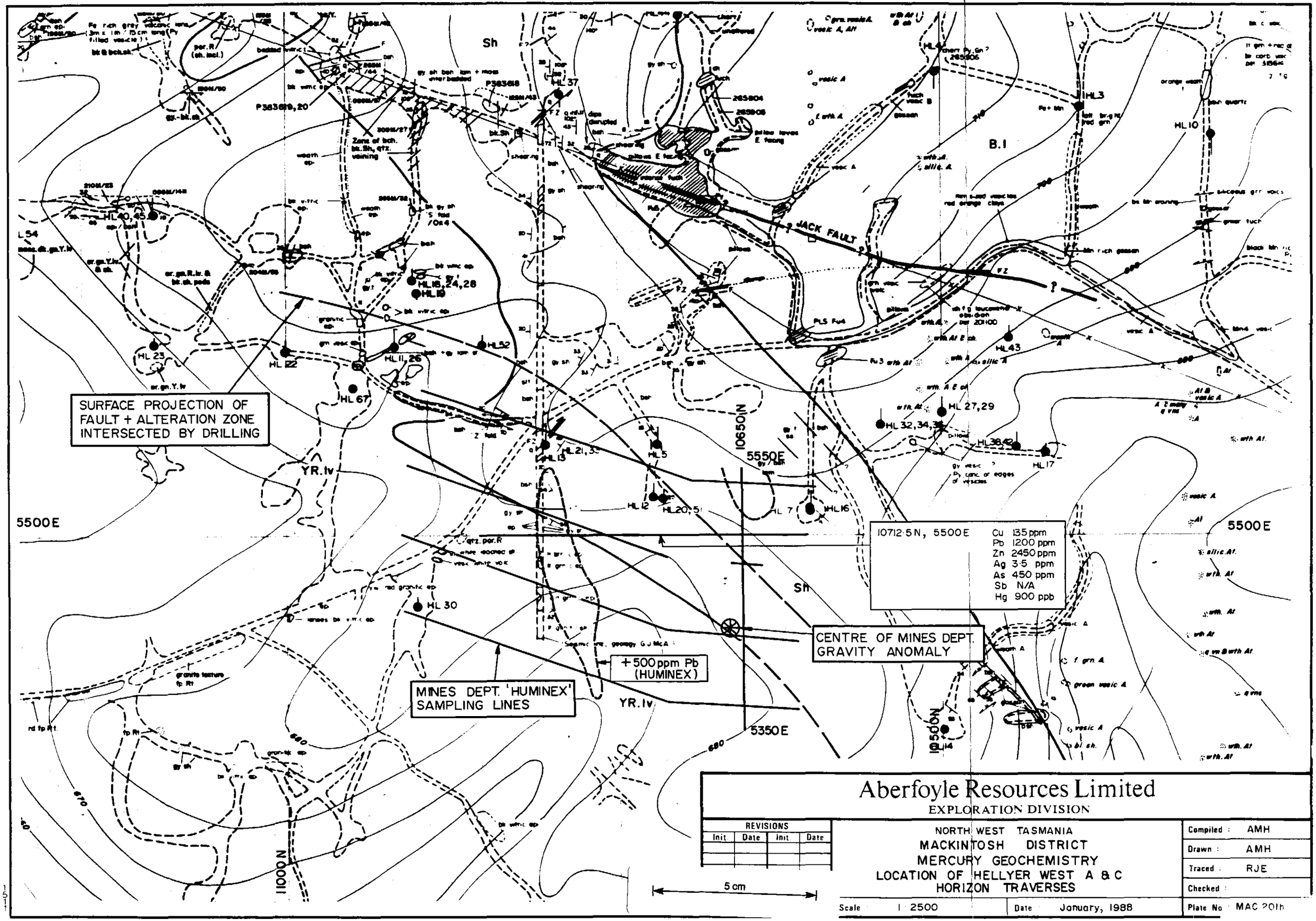
MERCURY GEOCHEMISTRY

HELLYER C-HORIZON TRAVERSE 3

Scale : 1 2500

Date : January, 1988

Compiled	AMH
Drawn	AMH
Traced	RJE
Checked	AMH
Plate No	MAC 201g



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EXPLORATION DIVISION

REVISIONS			
Init	Date	Init	Date

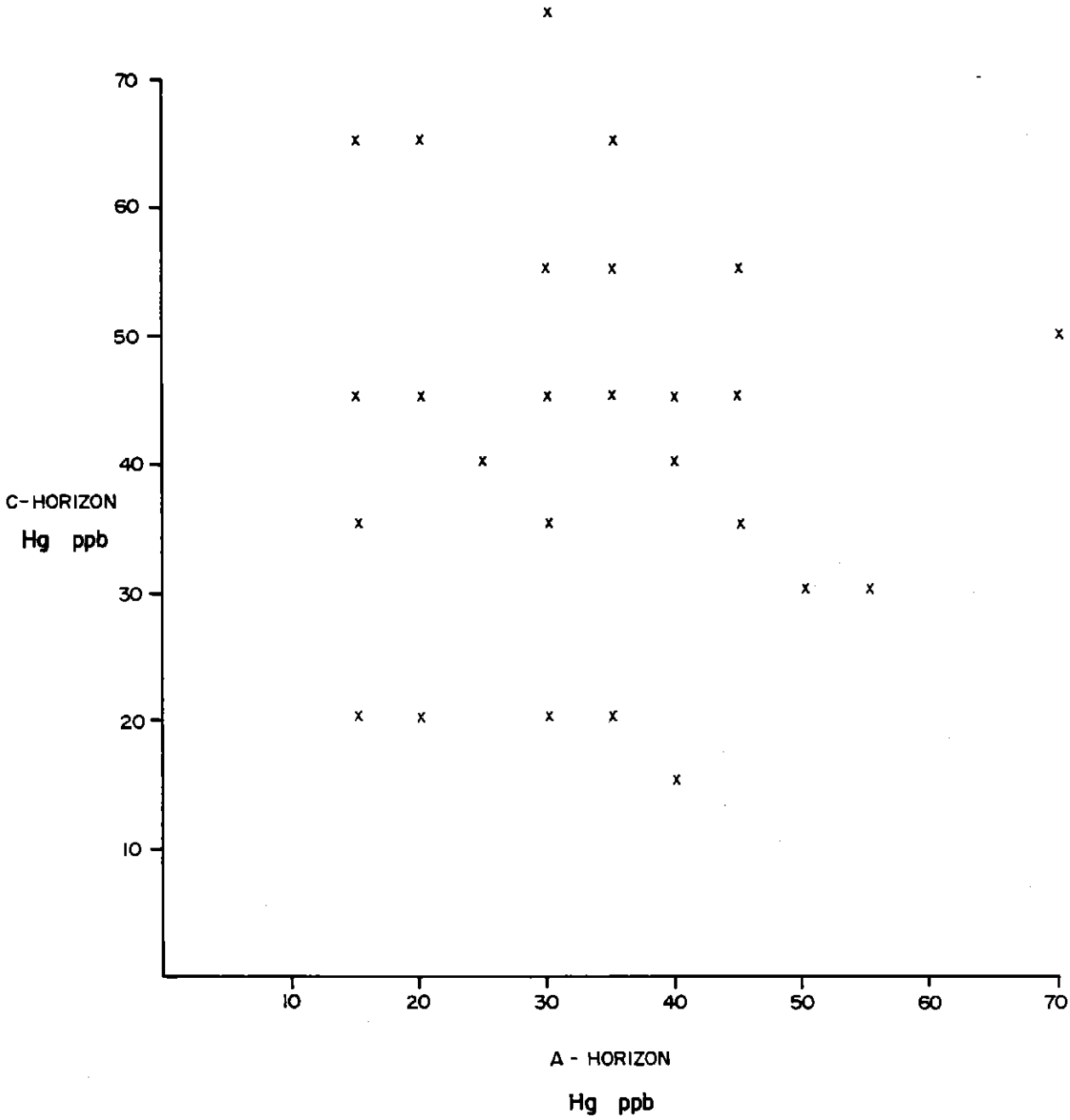
NORTH WEST TASMANIA
MACKINTOSH DISTRICT
MERCURY GEOCHEMISTRY
LOCATION OF HELLYER WEST A & C HORIZON TRAVERSES

Scale 1:2500 | Date January, 1988

Compiled :	AMH
Drawn :	AMH
Traced :	RJE
Checked :	
Plate No :	MAC 201h

178

598130



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EXPLORATION DIVISION

REVISIONS			
Init.	Date	Init.	Date

NORTH WEST TASMANIA

MACKINTOSH DISTRICT

MERCURY GEOCHEMISTRY

HELLYER WEST - Hg values for coincident C-Horizon and A-Horizon samples

Compiled :	AMH
Drawn :	AMH
Traced :	RJE
Checked :	
Plate No. :	MAC 201i

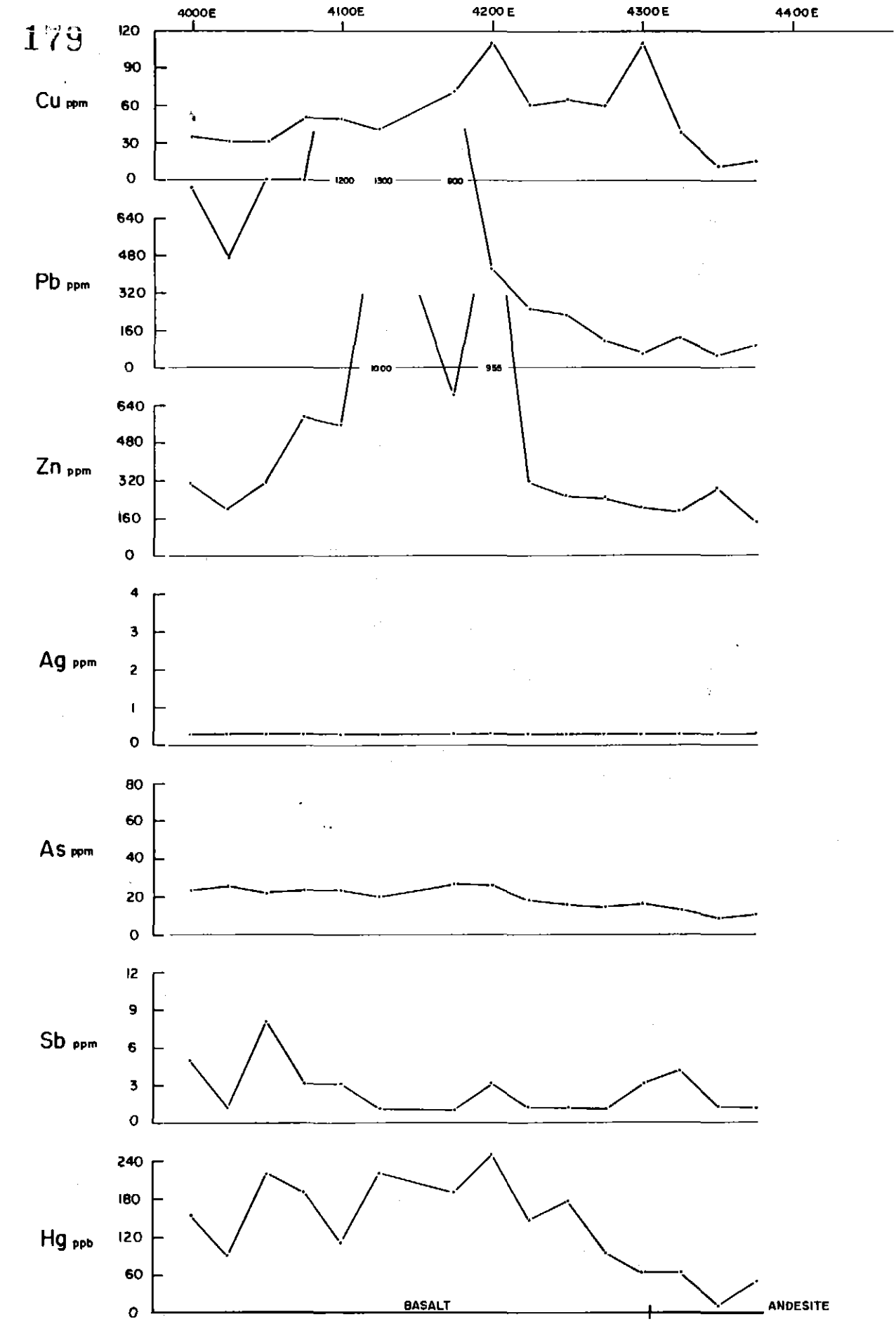
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Scale : -

Date : January, 1988

1511

179



5 cm

Aberfoyle Resources Limited
EXPLORATION DIVISION

598131

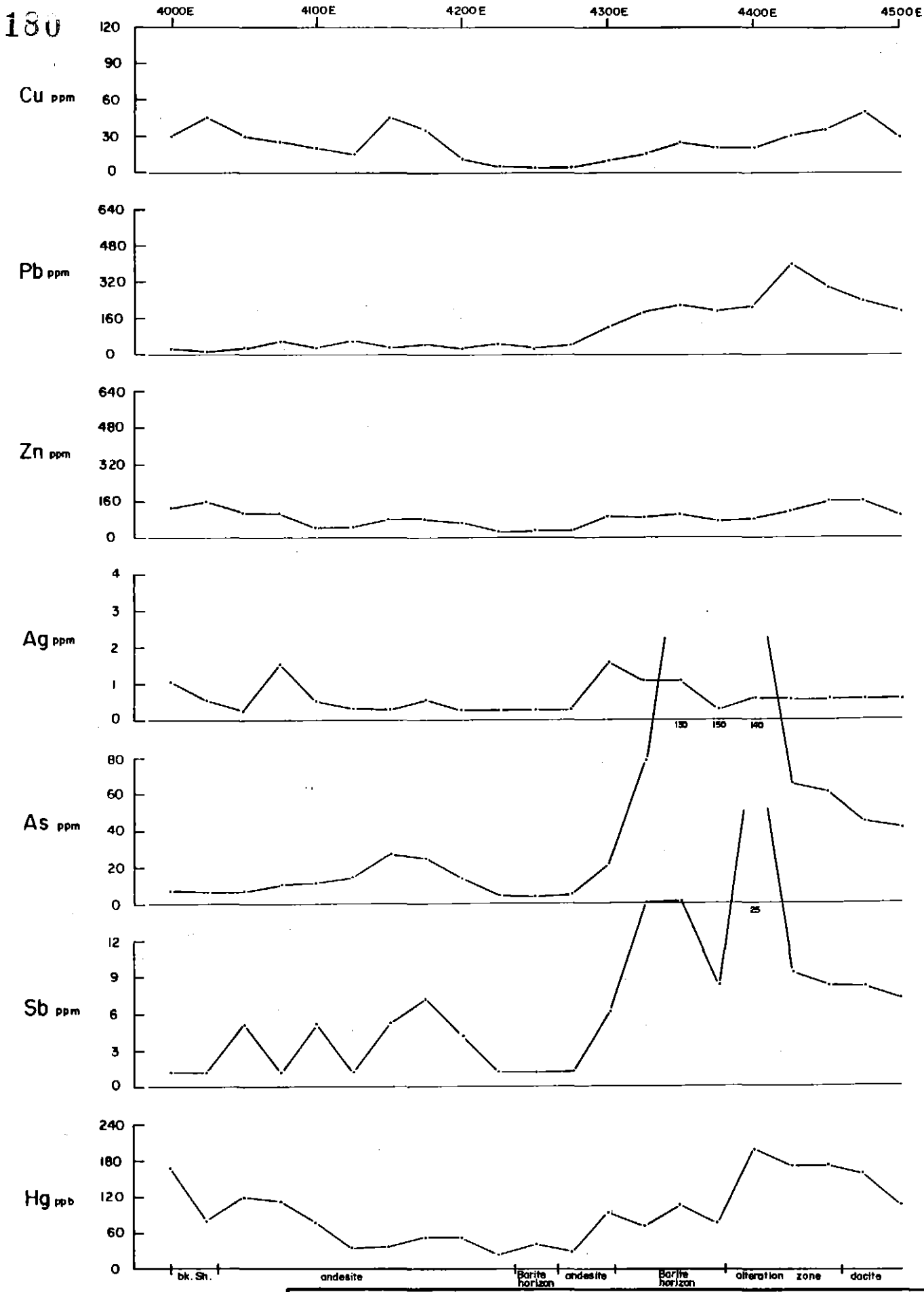
REVISIONS			
Init	Date	Init.	Date
Location Code :			

NORTH WEST TASMANIA
MACKINTOSH DISTRICT
MERCURY GEOCHEMISTRY
C-HORIZON TRAVERSE 3900N (S.W. MT. Charter)

Scale : 1 2500
Date : January, 1988

Compiled :	AMH
Drawn :	RdeB
Traced :	RJE
Checked :	AMH
Plate No :	MAC 201j

180



5 cm

Aberfoyle Resources Limited 598182
EXPLORATION DIVISION

REVISIONS			
Init.	Date	Init.	Date

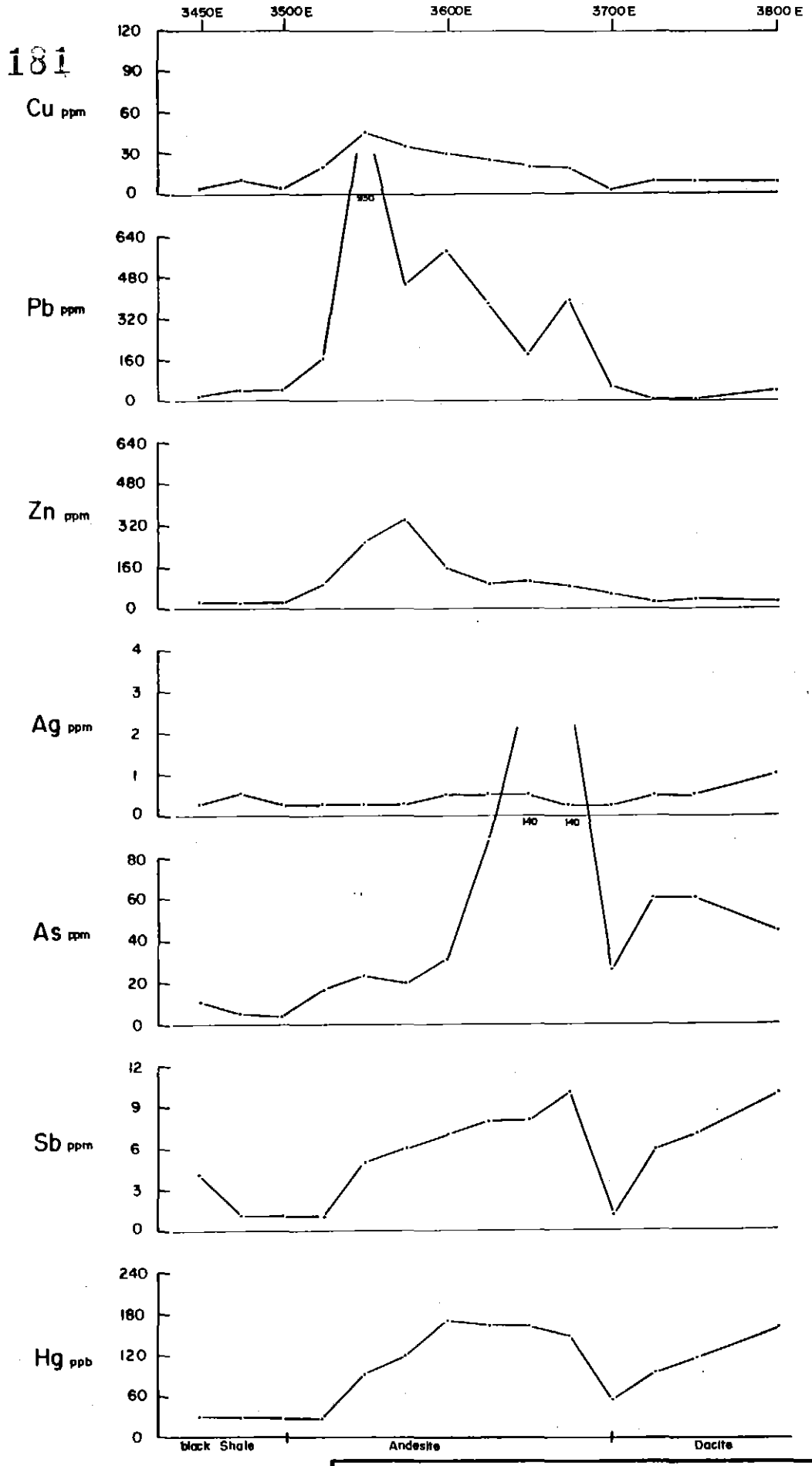
Location Code :

NORTH WEST TASMANIA
MACKINTOSH DISTRICT
MERCURY GEOCHEMISTRY
C-HORIZON TRAVERSE 4600N (MT. Charter)

Scale : 1 2500 | Date : January, 1988

Compiled :	AMH
Drawn :	RdeB
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Checked :	AMH
Plate No :	MAC 201k

181



5 cm

Aberfoyle Resources Limited 598183
EXPLORATION DIVISION

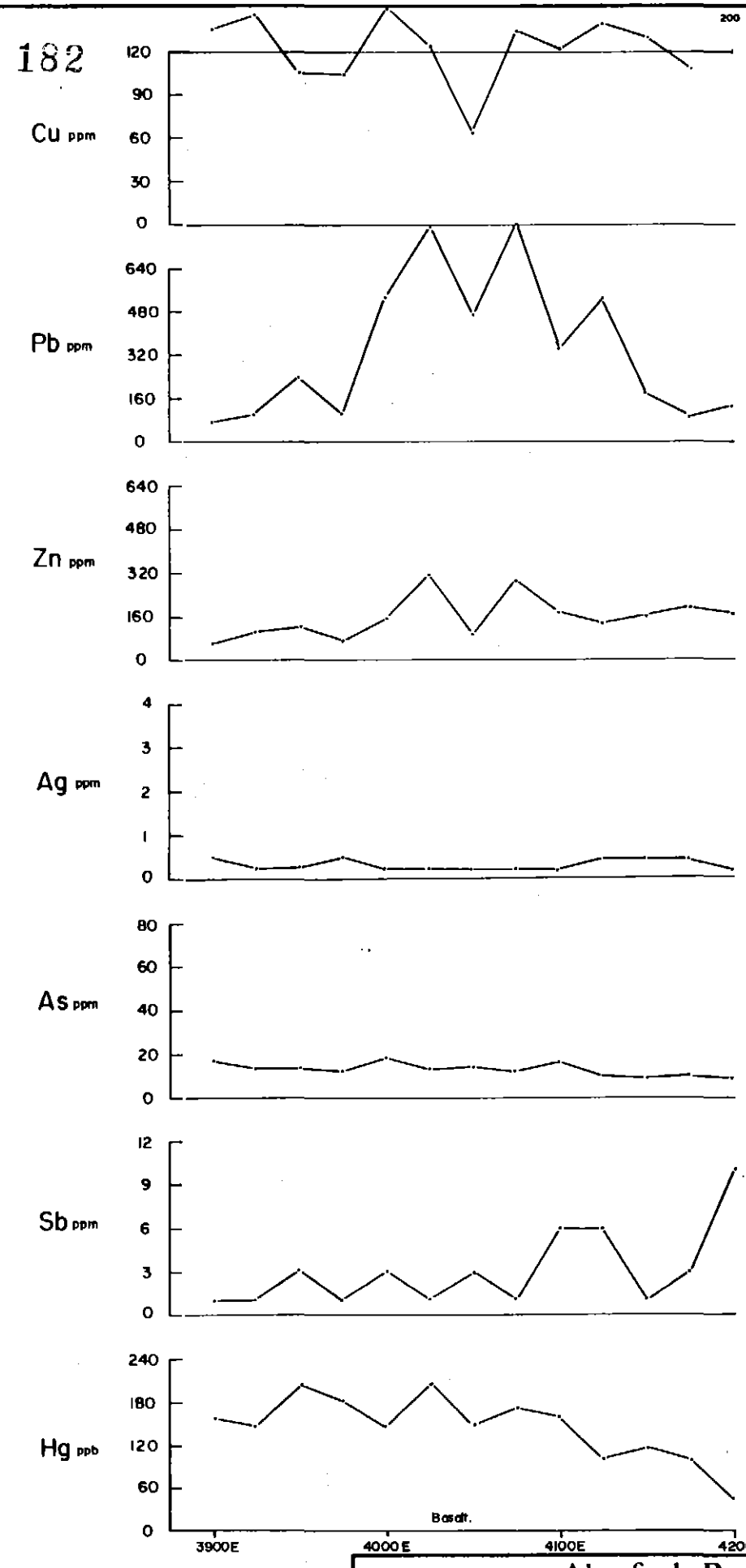
REVISIONS			
Init	Date	Init.	Date

NORTH WEST TASMANIA
MACKINTOSH DISTRICT
MERCURY GEOCHEMISTRY
C-HORIZON TRAVERSE 5400N (NW MT. Charter)

Location Code | Scale 1 2500 | Date January, 1988

Compiled	AMH
Drawn	Rde B
Traced	RJE
Checked	AMH
Plate No	MAC 201 i

182



5 cm

Aberfoyle Resources Limited 598184

EXPLORATION DIVISION

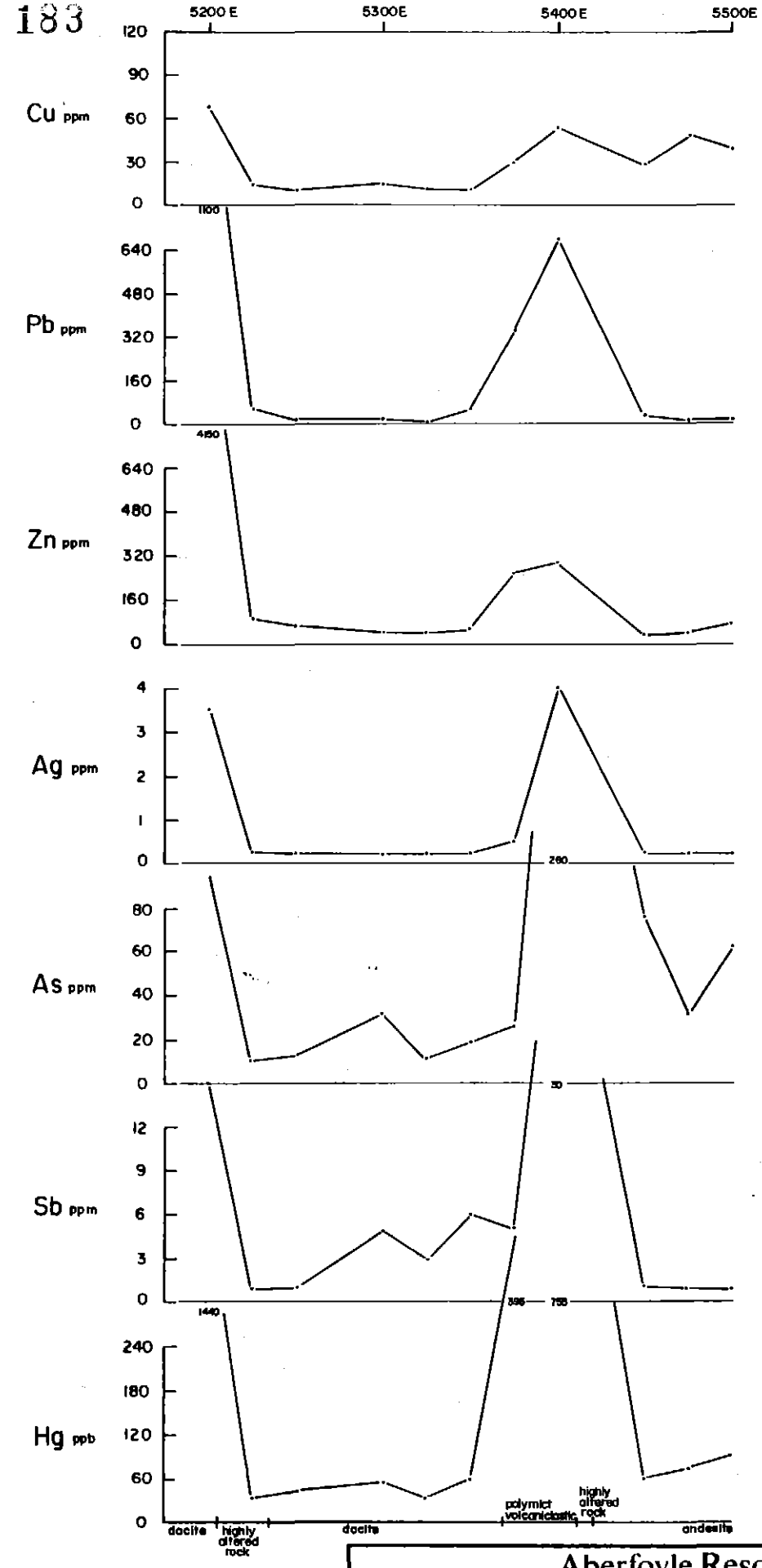
REVISIONS			
Init.	Date	Init.	Date

NORTH WEST TASMANIA
MACKINTOSH DISTRICT
MERCURY GEOCHEMISTRY
C-HORIZON TRAVERSE 6700N (Old Mill Site)

Compiled	AMH
Drawn	Rde B
Traced	RJE
Checked	AMH

Location Code :
Scale : 1 2500
Date : January, 1988
Plate No : MAC 201m

183



5 cm

Aberfoyle Resources Limited 598135

EXPLORATION DIVISION

REVISIONS			
Init.	Date	Init.	Date

Location Code :

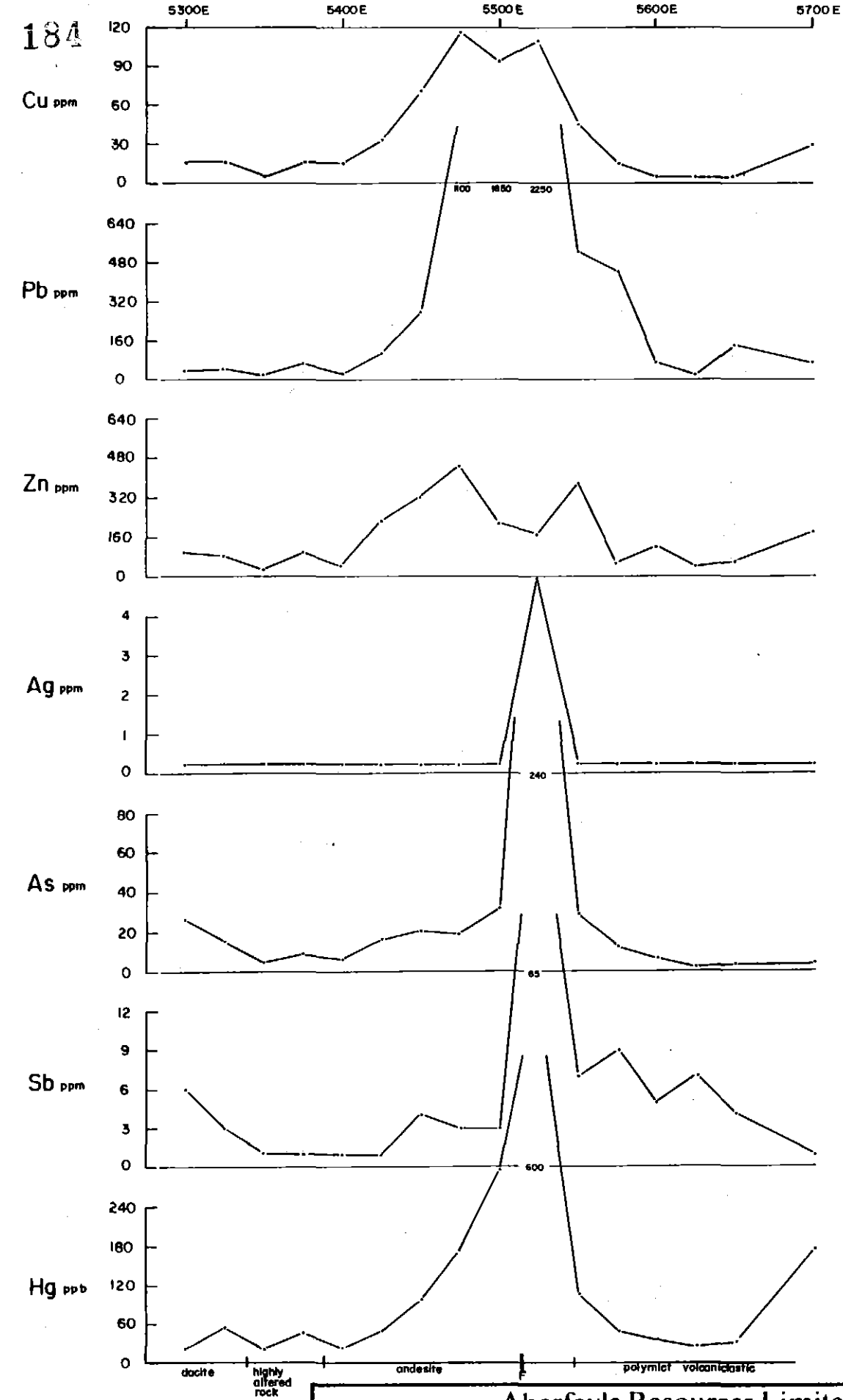
NORTH WEST TASMANIA
MACKINTOSH DISTRICT
MERCURY GEOCHEMISTRY
C-HORIZON TRAVERSE 7800N (PQ Position)

Scale : 1 2500

Date : January, 1988

Compiled : AMH
Drawn : RdeB
Traced : RJE
Checked : AMH
Plate No : MAC 20In

184



5 cm

Aberfoyle Resources Limited 598186
EXPLORATION DIVISION

REVISIONS			
Init.	Date	Init.	Date

Location Code

NORTH WEST TASMANIA
MACKINTOSH DISTRICT
MERCURY GEOCHEMISTRY
C-HORIZON TRAVERSE 8800N (Kimber Trench)

Scale 1:2500 | Date January, 1988

Compiled	AMH
Drawn	Rde B
Traced	RJE
Checked	AMH
Plate No	MAC 20Lo

598137

APPENDIX 4.

Project Barite Creek Check Sample Analyses For 598188 (9)

Ordinate	Sample No.	Depth	Colour
3600N			
6100E	378359	✓	
6650E	✓ 60	n/s	
6800E	✓ 61	n/s	
3800N			
6025E	378362	✓	
6450E	✓ 63	✓	
6575E	✓ 64	✓	
4000N			
6025E	378365	✓	
6275E	✓ 66	✓	
6375E	✓ 67	✓	
4400N			
6100E	378368	✓	
6125E	✓ 69	✓	
6250E	✓ 70	✓	
4600N			
6025E	378371	✓	
6225E	✓ 72	✓	
6350E	✓ 73	✓	
4800N			
6200E	378374	~~n/s~~ ✓	
6500E	✓ 75	~~n/s~~ ✓	
6825E	✓ 76	n/s	
5000N			
6200E	378377	~~n/s~~ ✓	

Ordinate	Sample No.	Depth	Colour
6500E	378378	~~n/s~~ ✓	
6825E	✓ 79	~~n/s~~ ✓	
5400N			
6525E	378380	✓	
6825E	✓ 81	✓	
5600N			
6275E	378382	✓	
6875E	✓ 83	n/s	
7000E	✓ 84	n/s.	

598139

187

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(9) 11DEC RECD

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TLX: AA 59224

ANALYTICAL REPORT No. 23.3.08.04017

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

Aberfoiye Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

ORDER No.	PROJECT
1460	

DATE RECEIVED	RESULTS REQUIRED
27/11/86	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
4	10/12/86	1	26

REFER BELOW	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	378359/378384	SC Prep: 017,013							Cu,Pb,Zn,Ag,Ni/101,As/114		
	378359/378384	SC							Ba,Cr,Ir,Ti/401		

RESULTS TO

R. de Bomford
Aberfoyle Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

RESULTS TO

MACK. REMARKS

Burnie Ck.

check samples. (SOILS)

(Contractor values in ink)

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

AUTHORISED OFFICER

Q. 188

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04017	10/12/86	1460	1 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	378359	40 <5	5 5	80 10	<0.5 <0.5	20 5	7 2	230 230	45 160	170 140
2	378360	5	45	10	<0.5	10	3	300	110	230
3	378361	40	15	145	<0.5	20	5	360	30	190
4	378362	25 20	15 30	55 75	<0.5 <0.5	20 15	4 7	75 100	85 110	230 250
5	378363	25 15	5 10	35 30	<0.5 <0.5	60 40	3 5	120 110	410 330	160 170
6	378364	5 5	<5 5	5 10	<0.5 <0.5	20 5	<1 2	45 120	220 170	160 170
7	378365	10 5	10 20	25 40	<0.5 <0.5	10 10	3 5	120 220	65 50	190 210
8	378366	20 15	5 5	40 40	<0.5 <0.5	20 15	1 5	310 330	140 120	160 180
9	378367	5 <5	<5 5	5 10	<0.5 <0.5	25 <5	1 2	20 20	120 170	160 160
10	378368	70 55	25 25	100 105	<0.5 0.5	45 35	4 5	230 300	110 80	120 140
11	378369	50 45	35 35	100 100	<0.5 <0.5	35 30	3 9	340 380	75 70	150 160
12	378370	45 35	30 30	80 70	<0.5 <0.5	70 55	20 17	240 310	330 330	190 180
13	378371	25 15	5 5	45 20	<0.5 <0.5	45 25	3 2	450 350	95 150	120 100
14	378372	35 15	5 5	55 40	<0.5 <0.5	75 35	3 2	200 480	290 85	160 130
15	378373	60 35	5 5	45 50	<0.5 <0.5	65 55	6 2	380 260	210 130	120 170
16	378374	40 35	<5 15	40 40	<0.5 <0.5	60 50	1 3	95 140	530 450	130 140
17	378375	5 10	10 50	30 40	<0.5 <0.5	15 10	7 9	380 390	65 55	290 320
18	378376	5	10	20	<0.5	10	4	170	55	340
19	378377	75 80	5 10	45 45	<0.5 <0.5	55 45	7 5	25 25	890 830	150 130
20	378378	5 5	35 30	30 25	0.5 <0.5	15 5	4 4	320 290	50 40	430 400
21	378379	15 10	55 50	40 40	0.5 <0.5	15 10	5 5	430 400	50 50	300 320
22	378380	10 5	5 5	25 15	0.5 <0.5	15 10	7 5	260 280	20 15	180 170
23	378381	25 20	30 25	55 50	0.5 0.5	35 25	10 7	370 330	200 140	250 210
24	378382	5 5	<5 5	20 15	0.5 <0.5	10 5	2 3	170 180	<5 15	260 260
25	378383	<5	5	15	0.5	15	1	20	250	240

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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598191

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04017	10/12/86	1460	2 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	576384	<5	5	20	<0.5	<5	3	140	240	230
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	5	1	10	5	5
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	101	101	101	114	401	401	401

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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598192

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04017	10/12/86	1460	3 OF 4

TUBE No.	SAMPLE No.	Ti									
1	378359	3250 7350									
2	378360	3400									
3	378361	7100									
4	378362	4950 9750									
5	378363	6250 5700									
6	378364	3450 3850									
7	378365	3850 5400									
8	378366	3250 3950									
9	378367	1200 1450									
10	378368	5350 5500									
11	378369	4800 4600									
12	378370	5250 5100									
13	378371	4650 5400									
14	378372	5250 5400									
15	378373	3300 4750									
16	378374	6000 5700									
17	378375	2850 3000									
18	378376	4200									
19	378377	5800 6050									
20	378378	3150 3150									
21	378379	2900 3100									
22	378380	1700 1900									
23	378381	3600 3650									
24	378382	2650 2850									
25	378383	1850									

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

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598193

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04017	10/12/86	1460	4 OF 4

TUBE No.	SAMPLE No.	Ti								
1	078384	2650								
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	50								
24	UNITS	PPM								
25	METHOD	401								

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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598194 (3)

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.
52 Murray Road, Welshpool, W.A. 6106
Phone (09) 458 7999
Telex AA92560

ANALYTICAL REPORT No. 23.3 08 3613

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

Abertoyle Resources Ltd.
Exploration Division
P.O. Box 952
Burnie Tas 7320

ORDER No.	PROJECT
237	

DATE RECEIVED	RESULTS REQUIRED
20.3.86	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
		3	40

STATE OF SAMPLES		PRE-TREATMENT							ANALYSIS		
REFER BELOW	SAMPLE NUMBERS	DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD
SO	383001-20 383001P-20P							1	Zn		102

RESULTS TO: As Above
Attn: R. de Bomford

RESULTS TO:

REMARKS

SOIL CHECKS COMPARISON FOR -80 # & PULV. C & B HORIZONS.
(P prefix to sample No. indicates pulverised)

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3 08 3613	21.3.86	237	1 OF 3

TUBE No.	SAMPLE No.	HORIZON	Zn	LOCATION		DATA BASE VALUE
1	383001	B	46	9300N	4500E	
2	383002	C	24	"		65
3	383003	B	13	"	4550E	
4	383004	C	10	"		25
5	383005	B	71	"	4600E	
6	383006	C	54	"		50
7	383007	B	37	"	4650E	
8	383008	C	57	"		75
9	383009	B	34	"	4700E	
10	383010	C	101	"		120
11	383011	B	48	9400N	4500E	
12	383012	C	66	"		33
13	383013	B	21	"	4550E	
14	383014	C	38	"		N/S
15	383015	B	16	"	4600E	
16	383016	C	10	"		14
17	383017	B	35	"	4650E	
18	383018	C	30	"		N/S
19	383019	B	25	"	4700E	
20	383020	C	26	"		17
21	P 383001	B	45	9300N	4500E	
22	P 383002	C	23	"		
23	P 383003	B	15	"	4550E	
24	P 383004	C	9	"		
25	P 383005	B	68	"	4600E	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3 08 3613	21.3.86	237	2 OF 3

TUBE No.	SAMPLE No.		Zn							
1	P 383006	C	34		9300N		4600E			
2	P 383007	B	39		"		4650E			
3	P 383008	C	52		"					
4	P 383009	B	36		"		4700E			
5	P 383010	C	95		"					
6	P 383011	B	49		9400N		4500E			
7	P 383012	C	66		"					
8	P 383013	B	20		"		4550E			
9	P 383014	C	39		"					
10	P 383015	B	16		"		4600E			
11	P 383016	C	10		"					
12	P 383017	B	33		"		4650E			
13	P 383018	C	29		"					
14	P 383019	B	26		"		4700E			
15	P 383020	C	26		"					
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

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ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3 08 3613	21.3.86	237	3 OF 3

TUBE No.	SAMPLE No.		Zn							
1	STD 3036		205							
2	RPT 383001		47							
3	383020		26							
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION		1							
24	DIGESTION									
25	METHOD		102							

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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598198

1986 Aberfoyle Soil Standard — Summary of Results — 8th May 1987, P.R.

From information supplied by Doug Jack, April 1987.

mean ppm (range)

Lab.	Cu	Pb	Zn	As	Ag
Comlabs (1)	25 (20-34)	150 (125-180)	124 (90-165)	79 (48-90)	<1
" (2)	-	168 (160-175)	-	82 (75-90)	-
" (3)	-	-	-	80 (75-85)	-
Analabs	35 (20-40)	164 (140-180)	160 (120-175)	75 (60-95)	(<0.5-1.0)
Amdel	30	180	160	90	9
" (repeat)	-	-	-	-	0.5
Uni. Tas.	30, 31	162, 163	162, 164	73, 73	<2

Lab.	Ni	Cr	Ti (%)	Ba	Zr
Comlabs (1)	18 (4-34)	32 (22-55)	0.31 (0.15-0.46)	385 (210-490)	193 (110-230)
" (2)	-	-	0.37 (0.36-0.38)	539 (530-550)	214 (210-220)
" (3)	15 (8-26)	-	0.37 (0.35-0.40)	442 (320-520)	189 (180-200)
Analabs	24 (10-45)	20 (10-35)	0.34 (0.32-0.36)	634 (540-680)	236 (220-280)
Amdel	20	60	0.86	500	210
" (repeat)	-	40	0.32	-	-
Uni. Tas	13, 13	29, 30	0.34, 0.34	602, 593	230, 236

Comlabs (1) 37 analyses of soil standard hidden in seven sample batches from Mackintosh / Hatfield exploration licences. (File SSSTD30, 9/3/87). A.A.S. except XRF for As, Ba, Zr

Comlabs (2) 50 splits of standard analysed at the same time (11/10/86), XRF.

Comlabs (3) Repeats, 25 Ni, Ti samples, 17 As, 33 Ba, 10 Zr samples. Macfile26

Analabs 22 analyses of standard hidden in 5 sample batches (SSSTD30 file)
Ca, Pb, Zn, Ag, Ni by AAS/$HClO_4$; Cr, Ti, Ba, Zr by XRF;
As by AAS/vapour generation. (Codes 101, 401 and 114)

Amdel One "quality?" analysis and repeats of Ag, Cr, Ti.
Code Z, special service ($455)

Uni. Tas 2 splits of standard by XRF

Note There may be more data (repeats etc.) on the standard which we have not seen.

Conclusion

Comlabs, Analabs and Amdel seem to give a wide range of results though the mean values are in the right order. Analabs' mean values look better than Comlabs and Amdel.

Uni. Tas is good quality XRF (naturally!) with international standards run at the same time. They were done carefully with constant supervision.

It is essential to send hidden standards and duplicate samples to commercial labs. who have large numbers of analyses to perform too quickly. Phil. Robinson

APPENDIX 5.

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598200 (14)

COMLABS Pty. Ltd.

COMPUTERISED ANALYTICAL LABORATORIES

MACK

Head Office and Central Laboratory
305 South Road,
Mile End South,
Sth. Aust. 5031.
Tel: (08) 43 5722
Telex: AA89323

NATA REGISTERED No. 1526

N.B. SEE REPEATS ATTACHED

OUR REF.: COM852330

YOUR REF.: 9666

03 FEB RÉC'D

Unless otherwise stated repeat values have superseded values in this report.

Mr. A. M. Hespe
Aberfoyle Exploration Pty. Ltd.
39 River Road
WIVENHOE

TAS 7320

January 31, 1986

Dear Sir

RE: JOB COM852330

Enclosed are the assays for the samples delivered to our laboratory on December 23, 1985

Yours Sincerely,
COMLABS PTY LTD

per :

Data entered 6/8/86

c.c.: Hawthorn No. of copies : 1

Report Length 41 pages

P Soil samples from 1800N - 5000N only, Mackintosh Lease Re-analysed.

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ANALYTICAL REPORT

JOB COM852330
O/N :- 9666

SAMPLE	Ni	Cr	Ti	Zr
270001	200	330	6600	130
270002	70	350	6000	170
270003	50	420	3900	130
270004	60	410	4750	145
270005	65	340	4650	130
270006	115	470	3250	95
270007	125	530	3850	105
270008	85	540	3400	110
270009	95	610	3100	95
270010	145	690	3450	110
270011	160	580	3750	90
270012	165	1700	7400	270
270013	65	450	4150	95
270014	60	440	3300	85
270015	60	330	3400	90
270016	65	310	3950	95
270017	155	360	5950	110
270018	48	240	5000	95
270019	95	290	4250	90
270020	105	310	4200	105
270021	44	290	5500	90
270022	60	280	3950	75
270023	55	340	2600	30
270024	55	350	2150	60
270025	80	350	2950	95
UNITS	ppm	ppm	ppm	ppm
SCHEME	AAS1B	AAS1B	AAS1B	XRF1

5800N ↓ 5120E (20m int.)

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr		
270026	85	360	2850	120		
270027	80	390	4000	155		
270028	46	350	3300	140		
270033	60	360	3450	125		
270034	80	440	2800	90		
270035	150	430	4500	100		
270036	110	360	3050	105		
270037	34	330	1850	155		
270038	85	340	1750	135		
270039	28	230	3650	230		
270040	40	410	4550	140		
270041	34	330	2350	130		
270042	34	280	2600	125		
270043	26	210	2650	200		
270044	24	220	2350	95		
270045	LNR	LNR	LNR	LNR		
270046	16	280	1700	185		
270047	34	300	1350	90		
270048	40	340	2000	160	↑	
270049	40	300	1300	130	5800N	6000E
270054	18	280	1950	165	5600N	5960E (20m int.)
270055	26	230	1550	160	↓	
270056	32	240	1750	130		
270057	22	220	2050	200		
270058	LNR	LNR	LNR	LNR		
UNITS	ppm	ppm	ppm	ppm		
SCHEME	AAS1B	AAS1B	AAS1B	XRF1		

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598203

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr
270059	LNR	LNR	LNR	LNR
270060	LNR	LNR	LNR	LNR
270061	<4	32	105	<4
270062	30	380	3200	140
270063	20	180	5250	230
270064	LNR	LNR	LNR	LNR
270065	32	135	2350	185
270066	85	540	4400	105
270067	70	370	2650	80
270068	110	360	3400	65
270069	46	310	3450	100
270070	48	260	3000	120
270071	80	350	2850	110
270072	90	360	2350	85
270073	65	390	2400	55
270074	75	430	2450	50
270075	80	390	2050	55
270076	100	460	2050	48
270077	65	380	2500	60
270078	90	370	3150	80
270079	85	370	3200	55
270080	95	330	3000	85
270081	100	340	2650	50
270082	120	460	3150	75
270083	70	350	3300	65
UNITS	ppm	ppm	ppm	ppm
SCHEME	AAS1B	AAS1B	AAS1B	XRF1

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr		
270084	75	390	2450	80		
270088	80	540	3450	125		
270089	65	330	2250	75		
270090	55	230	2900	85		
270091	38	310	3550	90		
270092	10	270	3050	140		
270093	120	560	3400	95	↑	
270094	34	350	3800	110	5600N	5160E
270234	4	14	560	100	5000N ↓	4900E (20m INT.)
270235	18	65	2500	100		
270236	12	60	2650	90		
270237	10	50	1850	110		
270238	<4	28	1050	105		
270239	<4	28	1350	105		
270240	4	48	2100	110		
270241	22	44	1700	120		
270242	<4	42	2000	110		
270243	<4	44	2050	115		
270244	4	42	1600	125		
270245	4	65	2250	110		
270246	20	38	2250	115		
270247	4	50	1750	125		
270248	<4	24	2100	135		
270249	4	65	1650	130		
270250	16	38	1450	115		
UNITS	ppm	ppm	ppm	ppm		
SCHEME	AAS1B	AAS1B	AAS1B	XRF1		

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr
270251	6	65	1850	85
270252	4	50	3400	120
270253	6	30	2350	125
270254	14	42	2550	125
270255	4	55	2850	120
270256	8	60	3550	120
270257	6	40	1900	115
270258	4	65	1900	115
270259	26	34	2100	120
270260	6	65	3500	105
270261	18	46	3650	115
270262	4	38	2700	130
270263	<4	46	4100	130
270264	4	38	4250	135
270265	<4	60	5650	125
270266	4	70	4450	110
270267	4	50	4500	140
270268	12	36	3550	135
270269	6	80	3400	115
270270	14	60	2850	110
270271	<4	40	3300	140
270272	<4	65	4450	150
270273	<4	50	3400	140
270274	6	60	2900	105
270275	4	34	2800	140
UNITS	ppm	ppm	ppm	ppm
SCHEME	AAS1B	AAS1B	AAS1B	XRF1

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr		
270276	<4	26	1550	145		
270277	4	50	2600	120		
270278	4	40	3050	145		
270279	4	46	3250	140		
270280	4	36	3550	135		
270281	6	46	3950	140		
270282	<4	36	2250	125		
270283	<4	24	2700	105		
270284	<4	32	3000	160		
270285	4	55	3500	85		
270286	<4	48	3900	105		
270287	20	240	2100	85		
270288	10	140	2350	85	↑	
270289	30	250	2500	90	5000N	6000E
270290	60	380	2650	80	5200N	6040E (2m INT.)
270291	75	430	2900	85	↓	
270292	38	230	1500	32		
270293	46	310	2100	75		
270294	36	230	2200	75		
270295	44	260	2600	100		
270296	36	260	2350	80		
270297	46	280	3000	110		
270298	16	75	1500	105		
270299	26	125	1800	110		
270300	40	220	1900	110		
UNITS	ppm	ppm	ppm	ppm		
SCHEME	AAS1B	AAS1B	AAS1B	XRF1		

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr
270301	10	100	5600	155
270302	10	80	5600	165
270303	4	70	3300	100
270304	4	44	4700	140
270305	6	50	5000	140
270306	6	42	5300	145
270307	<4	48	5600	130
270308	<4	46	4000	95
270309	<4	38	3200	120
270310	<4	48	4500	125
270311	4	34	4600	140
270312	4	46	4600	130
270313	10	55	2400	135
270314	<4	32	4100	110
270315	8	42	1700	115
270316	<4	40	5300	105
270317	4	55	6000	130
270318	6	44	3200	105
270319	4	70	2500	105
270321	<4	55	2600	80
270323	6	55	2600	115
270324	4	55	3800	140
270325	48	210	2200	120
270326	10	95	1400	100
270327	75	660	4600	150
UNITS	ppm	ppm	ppm	ppm
SCHEME	AAS1B	AAS1B	AAS1B	XRF1

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr		
270328	44	510	4000	110		
270329	70	620	7000	145		
270330	55	830	6000	125		
270331	44	530	4600	95		
270332	30	210	1600	135		
270333	46	300	2400	100		
270334	40	290	2500	100		
270335	46	310	2300	105		
270336	48	220	2500	120	↑	
270338	4	44	2300	115	5200N	5000E
270339	<4	42	2500	105	4800N	4920E (20m int)
270340	<4	38	2500	135	↓	
270341	<4	44	3000	135		
270342	<4	12	2300	135		
270343	<4	55	3500	115		
270344	<4	60	3500	125		
270345	<4	32	3200	120		
270346	4	50	3000	135		
270349	4	28	2700	155		
270351	4	65	3600	120		
270352	4	28	3500	175		
270353	<4	28	3000	170		
270354	4	42	3000	155		
270355	4	75	3500	160		
270356	6	55	3200	150		
UNITS	ppm	ppm	ppm	ppm		
SCHEME	AAS1B	AAS1B	AAS1B	XRF1		

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr
270357	<4	50	4200	155
270358	6	44	4100	135
270359	<4	46	5000	140
270360	4	36	3600	160
270361	<4	34	4200	140
270362	<4	32	3500	160
270363	<4	40	2900	150
270364	4	24	5000	175
270365	4	55	4600	130
270366	<4	30	4500	155
270367	<4	44	2300	135
270368	<4	34	2400	105
270369	4	28	3100	140
270371	<4	46	4000	155
270372	<4	40	3700	150
270373	<4	40	4300	145
270374	4	32	4300	145
270375	<4	30	3700	120
270376	<4	24	4400	150
270377	<4	50	2300	100
270378	6	50	2700	85
270379	<4	42	3400	155
270380	<4	34	4100	150
270381	10	115	3000	60
270382	<4	38	4000	145
UNITS	ppm	ppm	ppm	ppm
SCHEME	AAS1B	AAS1B	AAS1B	XRF1

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr		
270384	<4	42	5500	110		
270385	<4	48	6300	170		
270386	<4	44	7100	100		
270387	<4	32	3300	105		
270389	4	48	5000	110		
270390	4	55	5300	150		
270391	<4	50	4800	145		
270392	4	70	6000	120		
270393	4	65	6000	140	↑	
270394	8	85	5300	130	4800N	6000E
270395	18	55	5200	95	4600N	5980E (20m INT.)
270396	14	50	3900	70	↓	
270397	12	75	5800	95		
270398	10	65	5200	100		
270399	4	75	4900	115		
270400	8	48	3900	125		
270401	10	40	3600	155		
270402	6	40	3200	155		
270403	4	36	2100	140		
270404	<4	20	2300	155		
270405	36	280	2500	130		
270406	4	28	3300	135		
270407	4	28	4900	130		
270408	8	30	4400	150		
270409	4	14	3600	130		
UNITS	ppm	ppm	ppm	ppm		
SCHEME	AAS1B	AAS1B	AAS1B	XRF1		

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ANALYTICAL REPORT

JOB COM852330
O/N :- 9666

SAMPLE	Ni	Cr	Ti	Zr		
270410	6	32	3600	145		
270411	6	32	3900	135		
270412	8	55	3700	125		
270413	4	34	4200	135		
270414	<4	22	4000	110		
270415	4	28	3400	140		
270416	<4	30	3700	130		
270417	<4	20	3600	120		
270418	4	26	3500	130		
270419	<4	26	3100	95		
270420	<4	28	3800	155		
270421	<4	22	4600	145		
270422	4	22	3200	130		
270423	<4	20	2600	80		
270424	6	32	3100	150		
270425	6	38	2600	145		
270426	8	85	4600	180		
270427	<4	75	3600	135		
270428	4	22	2700	115		
270429	6	18	3800	180		
270430	<4	48	3600	125		
270431	<4	38	3800	150		
270432	<4	38	1500	125	↑	
270433	<4	42	2300	120	4600N	5320E
270437	4	40	4100	160	4700N ↓	5360E (20m INT.)
UNITS	ppm	ppm	ppm	ppm		
SCHEME	AAS1B	AAS1B	AAS1B	XRF1		

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JOB COM852330
O/N : 9666

ANALYTICAL REPORT

SAMPLE	Ni	Cr	Ti	Zr
270439	<4	22	3300	150
270440	4	38	2300	135
270441	4	30	3200	150
270442	4	42	3100	145
270443	<4	38	2400	95
270444	4	48	3100	125
270445	4	40	4100	110
270446	6	50	3300	110
270447	6	70	4300	145
270448	4	46	4200	140
270449	6	60	4500	130
270450	4	55	3600	115
270451	4	44	3400	115
270452	<4	55	2000	120
270453	4	55	2000	100
270454	4	65	5300	155
270455	4	60	5100	170
270456	<4	48	5400	150
270457	<4	110	5500	135
270458	4	75	5000	125
270459	10	60	5300	150
270460	4	55	5400	165
270462	10	125	7500	160
270463	6	65	4000	80
270464	10	110	5000	150
UNITS	ppm	ppm	ppm	ppm
SCHEME	AAS1B	AAS1B	AAS1B	XRF1

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr		
270465	8	65	5400	150		
270466	22	110	5600	165		
270467	8	48	2500	135	↑	
270468	14	85	4400	140	4200N	5980E
270469	<4	80	9000	220	4000N	5940E (20m INT.)
270470	4	70	9000	175	↓	
270471	4	48	1.10%	210		
270472	4	65	4800	125		
270473	4	55	6300	195		
270474	<4	65	5300	175		
270476	6	95	6100	140		
270477	6	140	5700	105		
270479	8	150	5000	140		
270481	6	38	4500	125		
270482	4	34	3400	135		
270484	10	20	2300	180	NOT IN ROKSIN	
270485	4	24	2800	105		
270486	<4	28	4500	160		
270487	12	65	3900	135		
270488	<4	46	4700	105		
270489	<4	44	5200	95	↑	
270490	<4	80	3800	125	4000N	5620E
314455	8	50	5100	210	3200N	4900E (25m INT.)
314456	20	14	3900	200	↓	
314457	24	6	2300	165		
UNITS	ppm	ppm	ppm	ppm		
SCHEME	AAS1B	AAS1B	AAS1B	XRF1		

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr
314458	20	<4	4000	155
314459	8	14	2200	160
314460	16	16	3400	195
314461	6	18	2600	165
314462	6	18	3700	185
314463	6	10	3200	165
314464	4	18	3500	200
314465	<4	10	4700	180
314466	<4	22	3700	175
314467	4	12	3600	210
314468	6	4	1500	195
314469	4	4	3600	175
314470	8	18	2500	210
314471	4	8	5800	230
314472	8	36	4900	195
314473	8	30	4300	180
314474	26	10	5300	130
314475	4	20	4000	190
314476	14	6	2600	210
314477	8	4	2600	230
314478	8	38	5000	140
314480	8	10	4600	90
314481	4	8	4600	175
314482	8	14	5600	125
314483	<4	20	4300	125
UNITS	ppm	ppm	ppm	ppm
SCHEME	AAS1B	AAS1B	AAS1B	XRF1

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr
314484	6	18	5500	170
314485	4	6	900	90
314486	6	65	2200	48
314487	10	90	3200	140
314488	4	34	4000	140
314489	6	42	3500	150
314490	4	24	4200	170
314491	8	32	5300	185
314492	8	46	6200	185
314493	10	36	2500	165
314494	20	70	2300	135
314495	12	50	3800	110
314496	22	16	3000	230
314497	22	14	4600	160
314498	14	40	4800	105
314499	16	70	3400	110
314500	28	95	3200	120
314501	18	100	3200	145
314502	20	105	2200	125
314503	28	140	2500	130
314504	18	80	4300	200
314505	20	80	3200	170
314506	14	55	2600	195
314507	16	40	3000	210
314508	20	70	3800	240
UNITS	ppm	ppm	ppm	ppm
SCHEME	AAS1B	AAS1B	AAS1B	XRF1

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COMPUTERISED ANALYTICAL LABORATORIES

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr		
314509	65	300	4700	135		
314510	65	500	4000	120		
314511	24	210	4200	135		
314512	30	400	5700	220		
314513	20	450	6800	175		
314514	28	430	5700	185	↑	
314515	55	390	3300	165	3200N	6400E
not done → 314516	14	28	2000	195	2800N	3900E (25m int.)
314556	24	75	3200	145	↓	
314557	55	80	2500	155		
314558	55	160	2600	170		
314559	28	95	2000	180		
314560	14	16	4200	165		
314561	12	16	3600	195		
314562	24	44	2900	155		
314563	12	55	2100	185		
314564	16	20	2800	160		
314565	6	18	3300	155		
314566	20	22	3600	150		
314567	16	50	4100	240		
314568	20	18	5500	155		
314569	14	42	6000	175		
314570	6	36	6100	200		
314571	6	36	4100	165		
314572	10	22	2700	100		
UNITS	ppm	ppm	ppm	ppm		
SCHEME	AAS1B	AAS1B	AAS1B	XRF1		

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr
314573	12	36	7000	170
314574	6	20	4000	160
314575	10	18	3500	180
314576	30	10	2500	130
314577	14	22	3300	160
314578	32	16	5000	145
314579	6	10	3500	180
314580	4	18	3800	175
314581	<4	14	2200	125
314582	22	12	2400	150
314583	24	14	3600	160
314584	6	14	2600	115
314585	22	8	2500	125
314586	24	10	2600	105
314587	30	16	1600	75
314588	20	20	3200	160
314589	12	14	4400	200
314590	6	12	5300	130
314591	14	20	4500	170
314592	18	32	4100	170
314593	20	38	4000	120
314594	16	20	4800	90
314595	18	44	4200	48
314596	12	50	4800	115
314597	60	95	5300	110
UNITS	ppm	ppm	ppm	ppm
SCHEME	AAS1B	AAS1B	AAS1B	XRF1

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ANALYTICAL REPORT

JOB COM852330
O/N :- 9666

SAMPLE	Ni	Cr	Ti	Zr		
314598	18	50	5100	140		
314599	24	90	4700	75		
314600	30	135	8000	150		
314601	26	110	5300	115		
314602	32	155	5200	120		
314603	28	115	4400	100		
314604	22	135	4200	150		
314605	20	155	2300	115		
314606	24	195	4900	125		
314607	30	240	5600	200		
314608	20	175	6200	210		
314609	16	130	5200	230		
314610	4	38	5300	240		
314611	<4	26	3200	320	↑	
314612	<4	10	2600	260	2800N	6300E
314613	6	40	5500	190	2600N	5300E (25m INT.)
314614	6	32	5300	180	↓	
314615	6	32	4100	180		
314616	4	28	3500	180		
314617	<4	24	3600	150		
314618	<4	22	4800	195		
314619	34	12	1700	150		
314620	<4	10	3200	165		
314621	16	6	2800	150		
314622	12	6	2500	175		
UNITS	ppm	ppm	ppm	ppm		
SCHEME	AAS1B	AAS1B	AAS1B	XRF1		

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr
314623	<4	8	3400	175
314624	<4	4	1600	165
314625	<4	18	1200	135
314626	8	22	1100	115
314627	6	22	2700	185
314628	<4	22	3000	180
314629	6	26	3100	175
314630	6	34	3400	210
314631	6	34	4600	210
314632	8	36	4600	230
314633	6	30	5000	220
314634	6	28	4800	210
314635	<4	24	6500	240
314636	6	16	4500	180
314637	<4	14	4900	185
314638	<4	18	3600	170
314639	<4	16	4800	150
314640	4	22	4900	190
314641	6	24	6000	230
314642	6	24	4700	180
314643	4	16	4800	175
314644	6	22	6200	220
314645	4	20	5300	200
314646	6	26	3600	185
314647	<4	26	3700	175
UNITS	ppm	ppm	ppm	ppm
SCHEME	AAS1B	AAS1B	AAS1B	XRF1

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr		
314648	<4	16	4100	175		
314649	<4	4	900	170		
314650	<4	6	1300	300		
314651	4	10	1500	300		
314652	4	16	3500	280	↑	
314653	4	<4	2600	280	2600N	6300E
314654	8	18	4500	150	2400N	5300E (25m INT.)
314655	18	60	4100	150	↓	
314656	18	36	4000	250		
314657	4	18	4000	105		
314658	10	26	3600	185		
314659	10	18	3700	105		
314660	6	28	3800	135		
314661	6	10	2500	140		
314662	10	28	2400	115		
314663	10	26	2500	135		
314664	6	18	2700	125		
314665	6	22	2300	155		
314666	8	34	2600	125		
314667	8	26	1700	55		
314668	10	38	3000	120		
314669	10	36	3100	110		
314670	10	32	4000	165		
314671	10	32	3400	220		
314672	14	38	2800	175		
UNITS	ppm	ppm	ppm	ppm		
SCHEME	AAS1B	AAS1B	AAS1B	XRF1		

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr		
314673	10	28	3800	210		
314674	10	32	3200	200		
314675	8	70	4600	200		
314676	22	155	4800	240		
314677	14	85	3800	195		
314678	12	100	4000	210		
314679	12	115	4300	190		
314680	16	95	3900	200		
314681	14	80	3500	220		
314682	6	48	3600	250		
314683	8	95	4450	220		
314684	16	65	3150	240		
314685	<4	32	4000	270		
314686	<4	30	3400	210		
314687	<4	20	2900	340		
314688	4	18	3850	200		
314689	4	12	2300	300		
314690	4	26	3150	300		
314691	<4	22	3950	300		
314692	4	14	4850	155		
314693	<4	36	2650	270	↑	
314694	4	105	2800	270	2400N	6300E
314695	6	42	7600	350	2200N	5300E (25m int.)
314696	16	110	4200	270	↓	
314697	4	24	2950	250		
UNITS	ppm	ppm	ppm	ppm		
SCHEME	AAS1B	AAS1B	AAS1B	XRF1		

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr
314698	40	85	3150	145
314699	10	34	4850	120
314700	4	32	5250	160
314701	4	24	3050	135
314702	8	26	2850	125
314703	18	34	3300	170
314704	8	46	3750	140
314705	12	50	3450	90
314706	14	55	1900	32
314707	14	55	1550	30
314708	LNR	LNR	LNR	95
314709	24	165	2700	180
314710	50	240	3400	155
314711	28	170	4100	175
314712	20	100	4050	135
314713	36	110	4000	150
314714	26	100	4150	135
314715	16	85	3700	145
314716	12	70	3300	115
314717	24	95	4000	175
314718	12	75	3550	145
314719	26	135	4250	150
314720	4	38	2350	130
314721	14	75	2100	105
314722	14	110	1850	130
UNITS	ppm	ppm	ppm	ppm
SCHEME	AAS1B	AAS1B	AAS1B	XRF1

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr		
314723	6	60	3550	125		
314724	4	42	4250	200		
314725	8	55	3150	180		
314726	<4	20	3050	300		
314727	4	16	3050	300		
314728	6	26	3750	230		
314729	4	30	4100	270		
314730	<4	36	3450	310		
314731	28	150	2600	185		
314732	12	140	4100	165		
314733	10	90	3100	150		
314734	28	85	2200	175	↑	
314735	18	90	2450	165	2200N	6300E
314736	10	70	3500	230	2000N	5300E (25m INT.)
314737	16	85	2500	210	↓	
314738	18	105	2500	165		
314739	24	145	3050	250		
314740	14	80	3950	240		
314741	40	190	3150	250		
314742	34	170	3200	130		
314743	65	250	2950	115		
314744	90	290	4050	130		
314745	48	210	2600	140		
314746	34	155	3150	130		
314747	6	85	3350	200		
UNITS	ppm	ppm	ppm	ppm		
SCHEME	AAS1B	AAS1B	AAS1B	XRF1		

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr
314748	6	220	3350	220
314749	70	400	2250	170
314750	6	90	2250	120
314751	28	8	2100	175
314752	30	6	2100	170
314753	12	16	2300	190
314754	8	80	3050	160
314755	4	55	4000	80
314756	12	55	4100	115
314757	14	70	5750	140
314758	6	90	5450	170
314759	8	95	6000	175
314760	6	60	3650	180
314761	<4	20	3450	180
314762	<4	44	3100	230
314763	<4	22	5200	200
314764	<4	<4	690	<4
314765	<4	26	4200	190
314766	4	100	6000	220
314767	4	155	6400	145
314768	6	320	6550	115
314769	8	180	6900	95
314770	75	310	3800	125
314771	4	22	5550	160
314772	6	125	4450	250
UNITS	ppm	ppm	ppm	ppm
SCHEME	AAS1B	AAS1B	AAS1B	XRF1

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr		
314773	<4	24	3050	240		
314774	<4	24	2950	270		
314775	<4	26	4450	250	↑	
314776	<4	42	4950	250	2000N	6300E
314777	10	22	2950	170	1800N	4300E (25m INT.)
314821	10	60	3100	65	↓	
314822	16	150	3650	95		
314823	36	165	3950	80		
314824	14	110	3900	90		
314825	46	170	3400	85		
314826	30	150	4450	80		
314827	30	160	1950	100		
314828	28	230	2250	165		
314829	18	165	2400	160		
314830	48	195	2250	130		
314831	28	90	1500	50		
314832	10	75	3550	110		
314833	12	95	3450	110		
314834	10	75	3150	160		
314835	14	80	2800	135		
314836	8	80	3500	145		
314837	26	150	4500	170		
314838	14	100	4650	130		
314839	18	90	3750	75		
314840	6	60	4200	70		
UNITS	ppm	ppm	ppm	ppm		
SCHEME	AAS1B	AAS1B	AAS1B	XRF1		

not used ? ↕

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr		
314841	<4	6	1100	18		
314842	<4	30	4500	300		
314843	4	44	4050	180		
314844	<4	8	1900	48		
314845	<4	16	8650	200		
314846	<4	10	4100	220		
314847	<4	10	4150	210		
314848	<4	44	2750	260		
314849	<4	85	2200	280		
314850	6	<4	310	<4		
314851	12	170	5200	145		
314852	65	380	3750	50		
314853	50	460	3550	90		
314854	6	38	2650	185		
314855	4	32	3650	280		
314856	<4	24	3750	250		
314857	<4	18	4100	230		
314858	<4	14	5000	175		
314859	<4	28	3250	195	↑	
314860	4	30	2450	220	1800N	6300E
314861	4	16	7000	195	3000N	4900E (25m INT.)
314862	8	18	4200	185	↓	
314863	6	22	4600	195		
314864	4	24	4500	200		
314865	16	90	3900	185		
UNITS	ppm	ppm	ppm	ppm		
SCHEME	AAS1B	AAS1B	AAS1B	XRF1		

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr
314866	6	16	3850	155
314867	4	16	3750	200
314868	10	14	3900	210
314869	6	18	3800	175
314870	6	24	3700	190
314871	4	16	3000	220
314872	4	10	2600	210
314873	<4	10	3250	140
314874	6	10	3250	170
314875	6	22	4100	155
314876	<4	12	4300	180
314877	<4	4	340	6
314878	6	18	1950	190
314879	4	8	3000	230
314880	6	26	2900	150
314881	24	125	2150	190
314882	<4	12	2800	130
314883	4	10	3650	160
314884	<4	14	4150	190
314885	<4	8	2500	270
314886	<4	8	3000	125
314887	<4	10	4600	240
314888	<4	6	9800	175
314889	4	6	4800	125
314890	4	12	5850	140
UNITS	ppm	ppm	ppm	ppm
SCHEME	AAS1B	AAS1B	AAS1B	XRF1

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr
314891	4	8	5300	130
314892	6	6	2250	150
314893	<4	12	3200	140
314894	<4	12	2200	115
314895	<4	16	3350	130
314896	<4	10	2800	120
314897	6	26	3200	165
314898	4	20	3350	175
314899	12	90	5000	155
314900	<4	26	4800	155
314901	<4	38	6100	180
314902	<4	65	5700	90
314903	<4	22	5450	220
314904	4	80	8000	165
314905	60	85	4550	105
314906	40	60	4650	105
314907	75	120	4900	95
314908	90	200	4100	100
314909	32	135	4950	120
314910	20	120	5300	165
314911	18	100	5200	145
314912	16	90	6150	155
314913	8	75	9750	210
314914	10	80	4900	195
314915	12	150	7700	180
UNITS	ppm	ppm	ppm	ppm
SCHEME	AAS1B	AAS1B	AAS1B	XRF1

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr		
314916	95	670	4050	165		
314917	75	380	2900	110		
314918	90	390	3450	140		
314919	28	140	4000	130		
314920	4	18	3050	280	↑	
314921	<4	16	2800	350	3000N	6400E
314922	4	20	4250	200	3400N	4900E (25m INT.)
314923	10	46	3900	180	↓	
314924	14	60	2550	135		
314925	<4	10	4500	180		
314926	<4	10	3750	180		
314927	4	12	4150	170		
314928	<4	12	6700	110		
314929	10	16	3600	200		
314930	16	18	3050	210		
314931	4	12	2650	165		
314932	4	32	3150	200		
314933	<4	6	690	<4		
314934	<4	8	5850	145		
314935	6	12	3700	195		
314936	4	8	4150	120		
314937	<4	6	3000	170		
314938	<4	6	3000	170		
314939	6	14	2500	220		
314940	<4	6	2650	210		
UNITS	ppm	ppm	ppm	ppm		
SCHEME	AAS1B	AAS1B	AAS1B	XRF1		

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr
314941	4	34	4800	240
314942	4	20	4450	185
314943	<4	18	4800	170
314944	4	24	3900	175
314945	8	55	4150	125
314946	14	50	3200	170
314947	4	22	4650	80
314948	4	10	3950	75
314949	16	22	2150	170
314950	<4	16	3400	175
314951	<4	24	4800	160
314952	4	12	6500	120
314953	8	65	4300	165
314954	4	24	5500	165
314955	4	14	3000	60
314956	4	14	3750	90
314957	4	18	3400	160
314958	8	20	3150	135
314959	10	26	1200	42
314960	6	16	4400	100
314961	4	16	4450	150
314962	6	12	5150	130
314963	6	30	7800	200
314964	8	28	8400	185
314965	6	26	6500	175
UNITS	ppm	ppm	ppm	ppm
SCHEME	AAS1B	AAS1B	AAS1B	XRF1

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr		
314966	8	28	8350	200		
314967	<4	28	6350	175		
314968	6	75	6150	200		
314969	6	42	4800	230		
314970	8	65	4100	250		
314971	8	50	6300	220		
314972	6	50	4850	240		
314973	6	75	5100	260		
314974	8	65	5600	185		
314975	10	60	5700	165		
314976	4	36	8450	170		
314977	6	38	7450	135		
314978	10	70	1.10%	195		
314979	20	210	8350	180		
314980	10	160	6450	155		
314981	14	240	4500	195	↑	
314982	10	220	4900	290	3400N	6400E
314983	4	20	3950	220	3600N	4900E (25m INT.)
314984	<4	20	3750	190	↓	
314985	4	18	2900	210		
314986	<4	22	2950	195		
314987	<4	14	4200	210		
314988	4	16	4550	210		
314989	<4	4	2800	155		
314990	<4	4	3100	230		
UNITS	ppm	ppm	ppm	ppm		
SCHEME	AAS1B	AAS1B	AAS1B	XRF1		

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr
314991	<4	6	2950	175
314992	<4	6	4050	195
314993	<4	10	2900	210
314994	<4	10	3800	195
314995	6	14	3000	210
314996	<4	12	3250	195
314997	6	16	3650	200
314998	4	18	2600	195
314999	<4	8	3700	180
315000	<4	10	3050	185
315001	6	18	3400	210
315002	<4	8	2300	240
315003	<4	6	1650	220
315004	<4	18	3250	195
315005	10	75	3100	150
315006	6	60	4450	210
315007	4	60	4550	200
315008	6	50	3300	230
315009	<4	38	3700	260
315010	6	42	3100	290
315011	8	22	3600	120
315012	<4	4	4200	155
315013	4	16	3900	200
315014	<4	4	3150	165
315015	<4	12	3800	145
UNITS	ppm	ppm	ppm	ppm
SCHEME	AAS1B	AAS1B	AAS1B	XRF1

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr
315016	<4	16	4300	130
315017	<4	12	3400	160
315018	<4	12	3800	140
315019	4	20	3100	90
315020	4	14	4750	165
315021	<4	8	2000	105
315022	4	16	3300	160
315023	<4	10	3350	160
315024	<4	12	2800	140
315025	<4	20	6050	170
315026	<4	18	5650	150
315027	<4	14	7150	155
315028	<4	12	5950	110
315029	4	16	5150	125
315030	4	32	5500	160
315031	8	70	6300	135
315032	4	34	7900	155
315033	6	50	6650	155
315034	4	70	5900	145
315035	8	75	7350	175
315036	24	310	6400	175
315037	8	160	7250	175
315038	16	390	7200	200
315039	18	400	8150	230
315040	48	450	5400	170
UNITS	ppm	ppm	ppm	ppm
SCHEME	AAS1B	AAS1B	AAS1B	XRF1

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ANALYTICAL REPORT

JOB COM852330
O/N : 9666

SAMPLE	Ni	Cr	Ti	Zr
315041	34	390	4200	105
315042	65	420	4150	115
315043	10	195	5050	175
315044	6	24	3900	185
UNITS	ppm	ppm	ppm	ppm
SCHEME	AAS1B	AAS1B	AAS1B	XRF1

↑ 3600N 6400E

232 REPEATS

(14)

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
270001	145	0.64	46
270002	185	0.58	34
270003	145	0.49	50
270004	155	0.67	55
270005	145	0.67	46
270006	110	0.38	100
270007	120	0.41	120
270008	125	0.37	100
270009	120	0.36	100
270010	130	0.40	140
270011	110	0.57	95
270012	320	0.62	160
270013	120	0.52	65
270014	115	0.36	60
270015	110	0.42	55
270016	125	0.55	55
270017	125	0.50	65
270018	105	0.51	55
270019	125	0.48	46
270020	115	0.57	48
270021	105	0.70	46
270022	80	0.55	55
270023	50	0.44	55
270024	70	0.33	65
270025	115	0.45	55

Where insufficient sample old Ni values have been used but new values for Zr + Ti have been calculated.

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
270026	130	0.45	80
270027	165	0.57	50
270028	160	0.54	60
270033	155	0.52	60
270034	100	0.48	90
270035	110	0.36	80
270036	115	0.51	110
270037	185	0.31	28
270038	170	0.33	90
270039	270	0.49	42
270040	165	0.42	42
270041	170	0.36	38
270042	185	0.39	36
270043	230	0.38	36
270044	145	0.22	22
270046	220	0.35	22
270047	140	0.31	40
270048	195	0.38	50
270049	155	0.34	55
270054	200	0.32	34
270055	195	0.36	38
270056	210	0.36	36
270057	250	0.41	34
270061	4	<0.01	10
270062	160	0.40	30

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
270063	250	0.42	24
270065	210	0.43	42
270066	120	0.47	90
270067	115	0.48	80
270068	105	0.54	120
270069	135	0.55	55
270070	135	0.53	60
270071	125	0.46	90
270072	95	0.45	95
270073	75	0.40	75
270074	65	0.38	75
270075	60	0.38	85
270076	55	0.35	100
270077	70	0.46	65
270078	105	0.60	110
270079	85	0.48	100
270080	115	0.54	100
270081	85	0.38	110
270082	115	0.51	130
270083	100	0.51	80
270084	105	0.56	90
270088	145	0.43	90
270089	95	0.47	75
270090	95	0.50	65
270091	135	0.58	44

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
270092	160	0.39	10
270093	110	0.38	130
270094	120	0.48	120
270234	115	0.04	10
270235	110	0.37	18
270236	120	0.32	18
270237	125	0.28	16
270238	120	0.12	<4
270239	130	0.17	6
270240	135	0.23	8
270241	145	0.24	8
270242	130	0.26	8
270243	140	0.25	6
270244	145	0.24	<4
270245	135	0.21	10
270246	140	0.18	8
270247	145	0.17	8
270248	160	0.25	6
270249	165	0.19	6
270250	140	0.18	8
270251	130	0.21	10
270252	135	0.31	12
270253	145	0.24	<4
270254	145	0.31	8
270255	135	0.37	4

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
270256	135	0.43	8
270257	130	0.25	8
270258	145	0.26	8
270259	145	0.21	8
270260	125	0.25	12
270261	155	0.26	8
270262	125	0.11	10
270263	150	0.47	16
270264	160	0.44	12
270265	140	0.52	8
270266	125	0.38	16
270267	170	0.50	4
270268	170	0.43	8
270269	150	0.30	14
270270	170	0.39	12
270271	160	0.37	8
270272	170	0.54	6
270273	155	0.46	10
270274	145	0.38	8
270275	160	0.44	<4
270276	165	0.24	<4
270277	135	0.29	<4
270278	160	0.39	<4
270279	165	0.40	<4
270280	165	0.48	<4

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
270281	165	0.45	6
270282	145	0.22	<4
270283	135	0.36	<4
270284	185	0.34	<4
270285	125	0.37	4
270286	125	0.34	6
270287	105	0.36	22
270288	120	0.44	14
270289	110	0.45	36
270290	95	0.36	55
270291	95	0.35	80
270292	46	0.24	42
270293	90	0.43	48
270294	95	0.42	38
270295	110	0.53	50
270296	85	0.48	42
270297	125	0.52	55
270298	120	0.29	22
270299	125	0.34	28
270300	125	0.42	40
270301	180	0.40	10
270302	195	0.42	14
270303	125	0.22	6
270304	170	0.35	6
270305	165	0.45	<4

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
270306	160	0.45	<4
270307	150	0.39	<4
270308	110	0.26	4
270309	135	0.25	<4
270310	150	0.34	<4
270311	155	0.40	<4
270312	150	0.38	6
270313	160	0.26	6
270314	120	0.29	8
270315	130	0.15	8
270316	140	0.35	<4
270317	155	0.36	<4
270318	120	0.15	6
270319	115	0.24	8
270321	95	0.28	6
270323	150	0.26	10
270324	165	0.31	8
270325	130	0.26	28
270326	120	0.17	14
270327	175	0.36	75
270328	140	0.50	42
270329	175	0.47	65
270330	155	0.44	50
270331	150	0.42	46
270332	155	0.33	36

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
270333	120	0.31	50
270334	135	0.36	38
270335	125	0.39	48
270336	150	0.35	50
270338	140	0.23	4
270339	135	0.23	6
270340	150	0.22	<4
270341	155	0.24	<4
270342	155	0.26	6
270343	145	0.32	6
270344	140	0.26	<4
270345	145	0.22	4
270346	150	0.27	<4
270349	180	0.25	<4
270351	155	0.34	<4
270352	190	0.35	6
270353	190	0.32	<4
270354	170	0.26	<4
270355	185	0.29	6
270356	200	0.34	6
270357	210	0.32	<4
270358	170	0.35	6
270359	175	0.35	<4
270360	190	0.29	8
270361	160	0.38	<4

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
270362	185	0.35	<4
270363	185	0.33	4
270364	210	0.42	6
270365	145	0.45	<4
270366	175	0.47	6
270367	155	0.46	4
270368	140	0.41	<4
270369	170	0.48	6
270371	185	0.55	4
270372	170	0.46	8
270373	170	0.53	8
270374	170	0.55	6
270375	150	0.41	6
270376	165	0.44	<4
270377	120	0.20	8
270378	105	0.32	12
270379	185	0.33	8
270380	185	0.43	<4
270381	120	0.24	16
270382	170	0.35	4
270384	190	0.52	8
270385	190	0.59	10
270386	170	0.59	8
270387	125	0.35	6
270389	145	0.48	10

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
270390	160	0.54	6
270391	175	0.53	6
270392	155	0.54	8
270393	165	0.55	10
270394	160	0.54	12
270395	110	0.63	24
270396	80	0.49	18
270397	120	0.57	16
270398	115	0.52	14
270399	145	0.47	10
270400	145	0.33	8
270401	170	0.35	14
270402	155	0.35	12
270403	160	0.23	8
270404	165	0.24	8
270405	150	0.34	36
270406	165	0.37	8
270407	150	0.60	6
270408	170	0.60	6
270409	155	0.53	8
270410	165	0.46	10
270411	160	0.50	8
270412	140	0.36	12
270413	170	0.42	4
270414	130	0.41	10

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
270415	165	0.47	6
270416	150	0.39	12
270417	160	0.50	8
270418	130	0.37	6
270419	140	0.42	4
270420	180	0.52	4
270421	175	0.55	<4
270422	145	0.44	<4
270423	135	0.37	<4
270424	160	0.46	<4
270425	170	0.42	6
270426	195	0.55	6
270427	185	0.32	<4
270428	155	0.34	<4
270429	220	0.37	6
270430	140	0.37	10
270431	160	0.39	12
270432	155	0.33	8
270433	160	0.26	6
270437	185	0.50	4
270439	160	0.33	<4
270440	150	0.26	<4
270441	170	0.45	6
270442	165	0.42	6
270443	115	0.26	12

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
270444	155	0.44	8
270445	145	0.44	4
270446	145	0.44	16
270447	165	0.46	6
270448	175	0.45	6
270449	155	0.46	8
270450	135	0.36	12
270451	145	0.36	8
270452	150	0.40	8
270453	140	0.27	<4
270454	210	0.61	8
270455	195	0.60	<4
270456	170	0.63	10
270457	155	0.55	8
270458	165	0.59	12
270459	170	0.53	12
270460	170	0.57	6
270462	180	0.78	14
270463	100	0.55	12
270464	160	0.63	20
270465	170	0.57	14
270466	190	0.68	24
270467	160	0.31	12
270468	160	0.54	22
270469	240	0.91	12

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
270470	210	0.87	12
270471	230	0.92	8
270472	150	0.52	14
270473	230	0.65	12
270474	200	0.53	12
270476	185	0.56	16
270477	190	0.58	16
270479	155	0.65	16
270481	185	0.56	10
270482	165	0.50	6
270484	220	0.36	12
270485	160	0.38	6
270486	175	0.51	6
270487	190	0.46	18
270488	175	0.53	12
270489	135	0.53	10
270490	155	0.54	14
314455	240	0.56	16
314456	220	0.46	39
314457	200	0.44	30
314458	170	0.41	27
314459	210	0.28	8
314460	220	0.39	18
314461	230	0.33	8
314462	230	0.32	8

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
314463	200	0.40	6
314464	230	0.42	4
314465	210	0.56	8
314466	220	0.46	<4
314467	230	0.36	4
314468	230	0.21	8
314469	200	0.35	8
314470	240	0.41	10
314471	250	0.59	10
314472	240	0.53	8
314473	230	0.55	12
314474	165	0.57	37
314475	230	0.58	6
314476	250	0.21	28
314477	270	0.23	14
314478	180	0.48	18
314480	145	0.48	14
314481	200	0.37	8
314482	145	0.51	12
314483	140	0.45	8
314484	195	0.48	14
314485	115	0.06	10
314486	130	0.33	12
314487	165	0.42	12
314488	175	0.49	8

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
314489	180	0.48	8
314490	195	0.60	6
314491	200	0.44	10
314492	210	0.58	8
314493	195	0.45	18
314494	155	0.40	22
314495	170	0.54	10
314496	260	0.32	28
314497	210	0.59	22
314498	150	0.74	14
314499	125	0.61	10
314500	145	0.41	26
314501	170	0.51	14
314502	145	0.57	14
314503	145	0.40	26
314504	230	0.56	16
314505	190	0.47	16
314506	170	0.29	18
314507	240	0.38	16
314508	270	0.48	22
314509	155	0.56	58
314510	140	0.64	70
314511	150	0.58	24
314512	260	0.59	25
314513	200	0.66	18

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
314514	200	0.75	24
314515	195	0.55	49
314516	200	0.34	10
314556	160	0.45	20
314557	185	0.36	44
314558	190	0.35	47
314559	200	0.33	26
314560	210	0.52	8
314561	230	0.38	6
314562	180	0.34	14
314563	210	0.31	14
314564	180	0.44	25
314565	190	0.40	4
314566	200	0.37	20
314567	290	0.44	18
314568	210	0.63	22
314569	210	0.69	14
314570	230	0.68	12
314571	195	0.55	10
314572	140	0.41	10
314573	195	0.81	18
314574	185	0.51	8
314575	200	0.61	12
314576	150	0.53	36
314577	175	0.56	20

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
314578	165	0.59	29
314579	210	0.40	4
314580	220	0.53	10
314581	150	0.31	8
314582	175	0.27	28
314583	185	0.36	30
314584	140	0.31	12
314585	150	0.23	30
314586	145	0.27	39
314587	170	0.37	42
314588	200	0.47	29
314589	230	0.61	14
314590	230	0.59	12
314591	210	0.50	10
314592	185	0.52	18
314593	180	0.76	26
314594	120	0.65	12
314595	105	0.44	20
314596	125	0.53	8
314597	130	0.43	58
314598	155	0.69	18
314599	160	0.65	26
314600	175	0.79	30
314601	130	0.64	28
314602	145	0.63	30

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
314603	115	0.48	28
314604	170	0.61	20
314605	160	0.63	26
314606	175	0.67	25
314607	230	0.78	26
314608	240	0.69	20
314609	260	0.56	12
314610	280	0.40	8
314611	370	0.26	4
314612	320	0.23	6
314613	230	0.63	8
314614	210	0.55	6
314615	210	0.56	4
314616	220	0.71	6
314617	190	0.53	8
314618	220	0.73	16
314619	185	0.12	38
314620	200	0.34	4
314621	180	0.25	20
314622	210	0.19	14
314623	220	0.39	8
314624	180	0.29	12
314625	155	0.26	10
314626	130	0.16	8
314627	220	0.40	6

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
314628	210	0.42	6
314629	210	0.43	<4
314630	230	0.51	8
314631	250	0.57	6
314632	270	0.62	10
314633	250	0.54	8
314634	230	0.56	6
314635	280	0.66	6
314636	210	0.48	6
314637	210	0.50	4
314638	210	0.47	6
314639	195	0.47	6
314640	230	0.54	<4
314641	260	0.65	6
314642	250	0.61	8
314643	230	0.57	8
314644	240	0.61	8
314645	220	0.55	8
314646	210	0.47	8
314647	200	0.46	8
314648	210	0.48	10
314649	230	0.18	14
314650	340	0.26	10
314651	350	0.11	12
314652	320	0.33	12

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
314653	350	0.28	14
314654	180	0.63	8
314655	170	0.69	16
314656	270	0.46	14
314657	180	0.66	12
314658	200	0.58	6
314659	185	0.52	6
314660	195	0.65	8
314661	185	0.48	6
314662	200	0.43	4
314663	190	0.41	10
314664	195	0.44	6
314665	175	0.38	4
314666	195	0.44	6
314667	105	0.27	8
314668	195	0.46	6
314669	220	0.44	8
314670	210	0.45	10
314671	240	0.52	10
314672	200	0.40	12
314673	260	0.60	10
314674	230	0.57	8
314675	270	0.71	14
314676	280	0.76	16
314677	220	0.63	12

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
314678	260	0.68	14
314679	260	0.70	12
314680	260	0.67	12
314681	260	0.58	8
314682	270	0.54	10
314683	250	0.58	10
314684	280	0.35	16
314685	310	0.40	6
314686	250	0.51	8
314687	370	0.29	8
314688	230	0.53	6
314689	340	0.35	12
314690	360	0.34	14
314691	340	0.38	8
314692	175	0.46	12
314693	340	0.34	10
314694	330	0.33	14
314695	420	0.82	8
314696	300	0.50	20
314697	290	0.31	6
314698	170	0.35	47
314699	145	0.67	4
314700	180	0.61	12
314701	155	0.34	8
314702	175	0.38	8

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
314703	185	0.41	12
314704	165	0.56	12
314705	135	0.53	8
314706	70	0.27	12
314707	125	0.50	25
314708	65	0.24	6
314709	210	0.50	20
314710	190	0.55	51
314711	220	0.61	26
314712	185	0.57	22
314713	165	0.49	34
314714	170	0.54	28
314715	175	0.54	14
314716	155	0.49	12
314717	195	0.56	22
314718	195	0.59	18
314719	185	0.61	22
314720	155	0.31	12
314721	165	0.30	10
314722	160	0.22	18
314723	200	0.51	12
314724	240	0.54	8
314725	220	0.42	16
314726	400	0.27	10
314727	400	0.26	18

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JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
314728	310	0.27	8
314729	330	0.29	<4
314730	360	0.28	6
314731	230	0.32	14
314732	200	0.47	<4
314733	200	0.38	4
314734	200	0.29	22
314735	200	0.33	8
314736	260	0.36	6
314737	190	0.29	8
314738	230	0.33	16
314739	290	0.42	12
314740	280	0.39	10
314741	280	0.41	45
314742	145	0.43	40
314743	135	0.44	70
314744	145	0.39	85
314745	195	0.37	50
314746	200	0.45	28
314747	280	0.41	6
314748	290	0.39	30
314749	195	0.29	70
314750	145	0.30	14
314751	195	0.23	22
314752	195	0.20	25

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

	SAMPLE	Zr	%Ti	Ni
	314753	230	0.25	12
	314754	175	0.41	8
	314755	150	0.46	4
	314756	170	0.46	6
	314757	185	0.45	10
	314758	195	0.47	18
	314759	230	0.52	14
	314760	220	0.34	16
	314761	260	0.30	10
	314762	280	0.32	18
	314763	240	0.50	8
	314764	6	0.01	6
45	314765	230	0.49	8
20	314766	240	0.45	16
25	314767	170	0.50	12
20	314768	135	0.63	14
65	314769	160	0.60	12
60	314770	185	0.32	75
45	314771	200	0.51	8
30	314772	280	0.30	8
0	314773	240	0.22	8
20	314774	290	0.22	12
20	314775	270	0.36	12
30	314776	280	0.38	14
50	314777	220	0.38	16

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

	SAMPLE	Zr	%Ti	Ni
10	314821	75	0.30	14
10	314822	105	0.49	12
	314823	107 I.S.	0.46 I.S.	36 I.S.
	314824	117 I.S.	0.45 I.S.	14 I.S.
	314825	112 I.S.	0.40 I.S.	46 I.S.
	314826	107 I.S.	0.52 I.S.	30 I.S.
	314827	128 I.S.	0.23 I.S.	30 I.S.
	314828	195 I.S.	0.26 I.S.	28 I.S.
	314829	190 I.S.	0.28 I.S.	18 I.S.
	314830	159 I.S.	0.26 I.S.	48 I.S.
20	314831	70	0.14	24
	314832	138 I.S.	0.41 I.S.	10 I.S.
	314833	138 I.S.	0.40 I.S.	12 I.S.
	314834	190 I.S.	0.37 I.S.	10 I.S.
	314835	164 I.S.	0.33 I.S.	14 I.S.
	314836	174 I.S.	0.41 I.S.	8 I.S.
	314837	200 I.S.	0.52 I.S.	26 I.S.
	314838	159 I.S.	0.54 I.S.	14 I.S.
	314839	102 I.S.	0.44 I.S.	18 I.S.
	314840	96 I.S.	0.49 I.S.	6 I.S.
10	314841	28	0.07	6
30	314842	330	0.41	10
	314843	210 I.S.	0.47 I.S.	4 I.S.
VP	314844	95	0.15	10
60	314845	260	0.65	8

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

	SAMPLE	Zr	%Ti	Ni
20	314846	240	0.47	6
35	314847	240	0.37	6
	314848	294 I.S.	0.32 I.S.	<4 I.S.
	314849	314 I.S.	0.26 I.S.	<4 I.S.
5	314850	6	0.01	4
30	314851	175	0.54	14
	314852	76 I.S.	0.44 I.S.	65 I.S.
	314853	117 I.S.	0.41 I.S.	50 I.S.
15	314854	200	0.23	8
35	314855	310	0.38	10
20	314856	270	0.35	6
30	314857	260	0.41	12
	314858	205 I.S.	0.58 I.S.	<4 I.S.
55	314859	250	0.32	6
50	314860	270	0.29	12
25	314861	220	0.51	6
	314862	216 I.S.	0.49 I.S.	8 I.S.
	314863	226 I.S.	0.54 I.S.	6 I.S.
	314864	231 I.S.	0.52 I.S.	4 I.S.
	314865	216 I.S.	0.45 I.S.	16 I.S.
	314866	185 I.S.	0.45 I.S.	6 I.S.
	314867	231 I.S.	0.44 I.S.	4 I.S.
	314868	242 I.S.	0.45 I.S.	10 I.S.
	314869	205 I.S.	0.44 I.S.	6 I.S.
	314870	221 I.S.	0.43 I.S.	6 I.S.

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
	252	0.35	4
314871	I.S.	I.S.	I.S.
	242	0.30	4
314872	I.S.	I.S.	I.S.
	169	0.38	<4
314873	I.S.	I.S.	I.S.
	200	0.38	6
314874	I.S.	I.S.	I.S.
	185	0.48	6
314875	I.S.	I.S.	I.S.
	211	0.50	<4
314876	I.S.	I.S.	I.S.
	30	0.04	<4
314877	I.S.	I.S.	I.S.
	221	0.23	6
314878	I.S.	I.S.	I.S.
45 314879	270	0.24	6
	179	0.34	6
314880	I.S.	I.S.	I.S.
	221	0.25	24
314881	I.S.	I.S.	I.S.
20 314882	150	0.35	8
	190	0.43	4
314883	I.S.	I.S.	I.S.
30 314884	220	0.56	<4
	304	0.29	<4
314885	I.S.	I.S.	I.S.
	154	0.25	<4
314886	I.S.	I.S.	I.S.
	273	0.54	<4
314887	I.S.	I.S.	I.S.
	205	1.14	<4
314888	I.S.	I.S.	I.S.
	154	0.56	4
314889	I.S.	I.S.	I.S.
	169	0.68	4
314890	I.S.	I.S.	I.S.
	159	0.62	4
314891	I.S.	I.S.	I.S.
	179	0.26	6
314892	I.S.	I.S.	I.S.
	169	0.37	<4
314893	I.S.	I.S.	I.S.
	143	0.26	<4
314894	I.S.	I.S.	I.S.
	159	0.39	<4
314895	I.S.	I.S.	I.S.

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

	SAMPLE	Zr	%Ti	Ni
		148	0.33	<4
	314896	I.S.	I.S.	I.S.
		195	0.37	6
	314897	I.S.	I.S.	I.S.
		205	0.39	4
	314898	I.S.	I.S.	I.S.
		185	0.58	12
	314899	I.S.	I.S.	I.S.
75	314900	230	0.57	6
		211	0.71	<4
	314901	I.S.	I.S.	I.S.
		117	0.66	<4
	314902	I.S.	I.S.	I.S.
		252	0.63	<4
	314903	I.S.	I.S.	I.S.
85	314904	250	0.98	8
		133	0.53	60
	314905	I.S.	I.S.	I.S.
		133	0.54	40
	314906	I.S.	I.S.	I.S.
		122	0.57	75
	314907	I.S.	I.S.	I.S.
		128	0.48	90
	314908	I.S.	I.S.	I.S.
		148	0.58	32
	314909	I.S.	I.S.	I.S.
		195	0.62	20
	314910	I.S.	I.S.	I.S.
		174	0.61	18
	314911	I.S.	I.S.	I.S.
		185	0.72	16
	314912	I.S.	I.S.	I.S.
		242	1.14	8
	314913	I.S.	I.S.	I.S.
45	314914	240	0.91	12
40	314915	220	0.70	16
		195	0.47	95
	314916	I.S.	I.S.	I.S.
		138	0.34	75
	314917	I.S.	I.S.	I.S.
		169	0.40	90
	314918	I.S.	I.S.	I.S.
30	314919	165	0.35	36
		314	0.36	4
	314920	I.S.	I.S.	I.S.

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

	SAMPLE	Zr	%Ti	Ni
		389	033	<4
	314921	I.S.	I.S.	I.S.
10	314922	210	0.43	6
		211	0.45	10
	314923	I.S.	I.S.	I.S.
		164	030	14
	314924	I.S.	I.S.	I.S.
		211	0.52	<4
	314925	I.S.	I.S.	I.S.
		211	0.44	<4
	314926	I.S.	I.S.	I.S.
		200	0.48	4
	314927	I.S.	I.S.	I.S.
05	314928	150	0.57	<4
		231	0.42	10
	314929	I.S.	I.S.	I.S.
		242	0.36	16
	314930	I.S.	I.S.	I.S.
05	314931	210	0.30	6
10	314932	260	0.31	6
10	314933	10	0.01	4
20	314934	165	0.58	8
		226	0.43	6
	314935	I.S.	I.S.	I.S.
35	314936	155	0.34	16
		200	0.35	<4
	314937	I.S.	I.S.	I.S.
		200	0.35	<4
	314938	I.S.	I.S.	I.S.
		252	0.29	6
	314939	I.S.	I.S.	I.S.
50	314940	260	0.20	8
		273	0.56	4
	314941	I.S.	I.S.	I.S.
		216	0.52	4
	314942	I.S.	I.S.	I.S.
		200	056	<4
	314943	I.S.	I.S.	I.S.
		205	045	4
	314944	I.S.	I.S.	I.S.
		154	0.48	8
	314945	I.S.	I.S.	I.S.

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
314946	200 I.S.	0.37 I.S.	14 I.S.
314947	107 I.S.	054 I.S.	4 I.S.
314948	102 I.S.	046 I.S.	4 I.S.
314949	200 I.S.	0.25 I.S.	16 I.S.
314950	205 I.S.	0.46 I.S.	<4 I.S.
25 314951	185	0.54	8
25 314952	145	0.67	<4
35 314953	200	0.37	6
20 314954	185	0.57	<4
314955	125	0.34	6
314956	145	0.36	<4
314957	180	0.38	6
314958	164 I.S.	0.37 I.S.	10
314959	165	0.34	6
314960	135	0.38	8
314961	175	0.54	6
314962	150	0.45	8
314963	230	0.71	6
314964	220	0.73	6
314965	200	0.67	10
314966	230	0.69	6
314967	210	0.62	8
314968	220	0.84	8
314969	280	0.62	8
314970	280	0.45	8

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
314971	250	0.60	6
314972	270	0.51	8
314973	290	0.42	16
314974	250	0.46	12
314975	195	0.64	8
314976	190	0.74	4
314977	164 I.S.	0.87 I.S.	6 I.S.
314978	220	0.86	12
314979	220	0.70	20
314980	185	0.87	10
314981	220	0.50	12
314982	330	0.60	16
314983	240	0.45	<4
314984	230	0.46	<4
314985	240	0.31	<4
314986	220	0.42	12
314987	240	0.46	<4
314988	240	0.53	4
314989	195	0.31	<4
314990	250	0.29	<4
314991	210	0.29	<4
314992	220	0.39	<4
314993	240	0.32	<4
314994	230	0.33	<4
314995	250	0.34	<4

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
314971	250	0.60	6
314972	270	0.51	8
314973	290	0.42	16
314974	250	0.46	12
314975	195	0.64	8
314976	190	0.74	4
314977	164 I.S.	0.87 I.S.	6 I.S.
314978	220	0.86	12
314979	220	0.70	20
314980	185	0.87	10
314981	220	0.50	12
314982	330	0.60	16
314983	240	0.45	<4
314984	230	0.46	<4
314985	240	0.31	<4
314986	220	0.42	12
314987	240	0.46	<4
314988	240	0.53	4
314989	195	0.31	<4
314990	250	0.29	<4
314991	210	0.29	<4
314992	220	0.39	<4
314993	240	0.32	<4
314994	230	0.33	<4
314995	250	0.34	<4

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
314996	230	0.39	<4
314997	240	0.30	<4
314998	230	0.37	4
314999	220	0.34	<4
315000	220	0.33	4
315001	240	0.35	<4
315002	280	0.22	<4
315003	260	0.14	<4
315004	240	0.38	8
315005	165	0.31	14
315006	230	0.45	10
315007	230	0.49	6
315008	280	0.39	8
315009	280	0.33	6
315010	300	0.34	<4
315011	170	0.45	6
315012	170	0.36	<4
315013	220	0.38	4
315014	185	0.42	<4
315015	170	0.46	<4
315016	165	0.48	6
315017	185	0.44	<4
315018	175	0.45	<4
315019	115	0.34	<4
315020	190	0.35	<4

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ANALYTICAL REPORT

JOB COMA852330

O/N : Repeat Assays

Results in ppm

SAMPLE	Zr	%Ti	Ni
315021	140	0.24	4
315022	190	0.35	<4
315023	200	0.36	<4
315024	195	0.32	<4
315025	190	0.85	4
315026	180	0.85	<4
315027	200	0.93	<4
315028	140	0.80	<4
315029	150	0.68	<4
315030	180	0.73	4
315031	190	0.73	4
315032	180	0.80	<4
315033	195	0.77	4
315034	165	0.71	<4
315035	210	0.79	4
315036	190	0.55	30
315037	200	0.89	6
315038	220	0.67	14
315039	250	0.75	22
315040	190	0.64	60
315041	125	0.50	40
315042	145	0.51	80
315043	230	0.36	4
315044	220	0.38	4

Method of Analysis : Zr Ti : XRF1
Ni : AAS1

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JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	As
270234	6
270236	24
270238	22
270240	9
270242	7
270244	20
270246	20
270248	48
270250	10
270252	6
270254	14
270256	7
270258	90
270260	85
270262	16
270264	10
270266	6
270268	10
270270	12
270272	9
270274	28
270276	24
270278	28
270280	16
270282	14

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ANALYTICAL REPORT

JOB COMA852330

O/N : Repeat Assays

Results in ppm

SAMPLE	As
270284	18
270286	55
270288	55
270290	12
270292	8
270294	14
270296	12
270298	10
270300	10
270302	10
270304	24
270306	32
270308	18
270310	26
270312	55
270314	26
270316	34
270318	16
270324	42
270326	90
270328	115
270330	290
270332	46
270334	28
270336	12

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JOB COMA852330

O/N : Repeat Assays

Results in ppm

SAMPLE	As
314456	5
314458	6
314460	14
314462	8
314464	6
314466	14
314468	7
314470	6
314472	8
314474	9
314476	14
314478	10
314480	8
314482	7
314484	5
314486	9
314488	9
314490	6
314492	8
314494	14
314496	3
314498	8
314500	14
314502	16
314504	10

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	As
314506	12
314508	8
314510	18
314512	14
314514	12
314516	70
314556	12
314558	12
314560	7
314562	5
314564	9
314566	9
314568	5
314570	10
314572	8
314574	8
314576	9
314578	7
314580	10
314582	6
314584	5
314586	6
314588	6
314590	6
314592	8

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	As
314594	14
314596	10
314598	10
314600	12
314602	12
314604	9
314606	14
314608	9
314610	9
314612	5
314736	8
314738	12
314740	6
314742	10
314744	14
314746	12
314748	14
314750	9
314752	22
314754	14
314756	14
314758	14
314760	6
314762	9
314764	5

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ANALYTICAL REPORT

JOB COMA852330 O/N : Repeat Assays

Results in ppm

SAMPLE	As
314766	7
314768	7
314770	10
314772	4
314774	5
314776	5

Method of Analysis : As : XRF1

89-3006

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TECHNICAL PROGRESS REPORT

FOR THE PERIOD

DECEMBER 1985 TO FEBRUARY 1988

VOLUME 2

APPENDICES 6-13

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APPENDIX 6.

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TABLE 9 SULPHUR ISOTOPE DATA

QUE RIVER SHALE

Sample No.	Hole	Depth	Rock Description	Sample Description	Location	S^{34} p rmil
2	HL28	73.45m	Pyritic bedded black shale	Pyrite	Hangingwall	+15.7

BASALT LAVA-CLOSE TO JACK FAULT (excluding interpillow samples)

Sample No.	Hole	Depth	Rock Description	Sample Description	Location	S^{34} permil
3	HL28	146.44m	Basalt. Carbonate veined. Adjacent to strongly albitized rock.	Pyrite-coarse recrystallised.	Hangingwall	+16.1
CSIRO 1	1983 surface sample 10700N.		Basalt.	Pyrite	Hangingwall	+9.1

INTER-PILLOW BASALT

Sample No.	Hole	Depth	Rock Description	Sample Description	Location	S^{34} p rmil
12	HL31	242.7	Basalt. Pyrite with interpillow chert.	Pyrite	Hangingwall east of plume.	-14.6
29	HL5	153.7m	Basalt. Pyritized cherty interpillow area with cross cutting brown sphalerite-carbonate veinlet.	Pyrite	Hangingwall west of Jack fault.	-14.5
30	HL5	153.7m	Basalt. Pyritized cherty interpillow area with cross cutting brown sphalerite-carbonate veinlet.	Coarse brown sphalerite veinlet.	Hangingwall west of Jack fault.	-13.2
24	HL3	149.0m	Basalt. K feldspar altered brecciated area.	Pyrite	Hangingwall west of Jack fault.	-14.0
HELL1 333994	Adit 851 Metres from portal		Basalt. Highly pyritic interpillow area major K feldspar alteration.	Pyrite	Hangingwall east of Hellyer	-13.5

INTER-PILLOW BASALT IN HANGINGWALL PLUME

Sample No.	Hole	Depth	Rock Description	Sample Description	Location	S^{34} permil
4	HL28	171.3m	Basalt. Inter-pillow pyritized chert. Carbonate veining.	Pyrite	Hangingwall close to Jack fault. Core lava.	-13.8
5	HL28	232.5	Inter-pillow basalt, intensely fuchsite calcite altered. K feldspar alteration.	Pyrite	Hangingwall. Core lava.	-9.6
7	HL50	293.1	Inter-pillow Basalt. Abundant calcite but only minor fuchsite.	Pyrite	Hangingwall close to Jack fault.	-12.4
55 334029	HL55		Basalt. Cherty inter-pillow area.	Pyrite	Hangingwall. Core lava.	-16.2, -16.4
57 334034	HL55		Basalt - vesicular. Cherty area is possible inter-pillow area.	Pyrite	Hangingwall. Core lava.	-15.5

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HANGINGWALL PLUME BASALT

Sample No.	Hole	Depth	Rock Description	Sample Description	Location	S^{34} permil
53 334020	HL55		Basalt. Pyrite in intensely chlorite altered inter-fragment area. (vein?).	Pyrite	Hangingwall. Core lava.	+8.8
54 334022	HL55		Basalt. Albite-quartz alteration.	Pyrite	Hangingwall. Core lava.	+9.8
56 334031	HL55		Basalt. Extreme calcite veining - alteration.	Pyrite	Hangingwall. Core lava.	-0.3
58 334040	HL55		Basalt. Extreme calcite alteration.	Pyrite	Hangingwall. Core lava.	+3.0
59 334044	HL55		Basalt. Extreme calcite fuchsite alteration.	Pyrite	Hangingwall. Core lava.	+0.3
6	HL28	239.45m	Basalt - intense fuchsite and carbonate veining.	Pyrite	Hangingwall. Core lava.	-1.8
26	Surface 10700N 5750E.		Massive white barite	Barite	Hangingwall. Core lava.	+28.8

BASALT - QUE RIVER SHALE CONTACT

Sample No.	Hole	Depth	Rock Description	Sample Description	Location	S^{34} permil
1	HL5	88.9M	Basalt.	Pyrite	Hangingwall. West of Hellyer.	-7.9

HANGINGWALL BASALT

9	HL31	143.95m	Basalt. Intensely chlorite altered fragments in carbonate rich matrix. Pyrite rims chloritized lava fragments.	Pyrite	Hangingwall. East of Hellyer.	+1.4
75 HELL 2A 333995	ADIT	823m from portal	Basalt. Centre of pillow.	Pyrite	Hangingwall. East of Hellyer.	+4.9
76 HELL 5 333998	ADIT	790m from portal	Basalt. Pyrite, carbonate altered.	Pyrite	Hangingwall. East of Hellyer.	+1.2

BARREN ORE POSITION. HANGINGWALL VOLCANICLASTIC

8	HL50	299.95m	Polymict poorly sorted breccia.	Pyrite	Above VMS close to Jack Fault.	+31.3
13	HL31	342.25m	Polymict poorly sorted breccia.	Pyrite	East of Hellyer.	+6.3

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VOLCANOGENIC MASSIVE SULPHIDE

Sample No.	Hole	Depth	Rock Description	Sample Description	Location	S^{34} permil
27 325755	HL75	250.1	Grey massive barite	Barite	Barite zone ore body hangingwall.	+42.1
	HL29	195.0	Grey massive barite	Barite	Barite zone ore body hangingwall.	+42.9
	HL29	195.0	Sphalerite with barite	Sphalerite	Barite zone ore body hangingwall.	+7.1
	HL29	214.0	Barite	Barite	Barite in massive VMS West of Jack Fault south of ore body 10500N.	+40.4
	HL29	214.0	Pyrite with barite	Pyrite	Barite zone in massive VMS West of Jack fault south of ore body 10500N.	+8.0
28	HL55a	268.9	Banded sphalerite galena pyrite.	Pyrite	Hangingwall enriched zone.	+7.1
31	HL55a	268.9	Banded sphalerite galena pyrite.	Brown sphalerite	Hangingwall enriched zone.	+6.3
23	HL75	262.9	Banded sphalerite galena pyrite	Pyrite	Hangingwall enriched zone.	+7.5
32 325773	HL75	267.9	Massive fine-grained VMS.	Fine-grained pyrite	Central Ore body	+7.2
33 326773	HL75	267.9	Recrystallized brown sphalerite.	Sphalerite	Central orebody.	+7.0

VOLCANOGENIC MASSIVE SULPHIDE BASE AND UPPER STRINGER ZONE

Sample No.	Hole	Depth	Rock Description	Sample Description	Location	S^{34} permil
15	HL39	241.1	Coarse recrystallized "grainy" pyrite.	Pyrite	Base of orebody	+8.6
22	HL55A	315.9	"Grainy" pyrite in massive VMS.	Pyrite	Base of orebody	+10.6
34	HL55A	319.9	"Grainy" recrystallized pyrite in chalcopyrite rich VMS.	Pyrite (some chalcopyrite?)	Base of orebody	+7.8
68	HL29	282.5	Chalcopyrite, pyrite rock	Pyrite	Hellyer upper stringer zone - chalcopyrite, pyrite zone.	+7.8
69	HL29	282.5	Chalcopyrite, pyrite rock	Chalcopyrite	Hellyer upper stringer zone - chalcopyrite, pyrite zone.	+7.9
21 258007	HL6	399.3	Chalcopyrite, pyrite rock	Pyrite	Hellyer upper stringer zone - chalcopyrite, pyrite zone.	+7.7
25	Footwall Development		Massive grey barite	Barite	Hellyer upper stringer zone.	+40.5
14	HL39	246.65	Envelope zone. Silica sericite pyrite altered lava.	Pyrite	Hellyer upper stringer zone.	+8.3

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MIDDLE STRINGER ZONE

17	HL15	427.2	Carbonate - chlorite vein with coarse brown sphalerite and coarse recrystallized pyrite.	Pyrite	Hellyer middle stringer zone.	+11.4
18	HL15	438.9	Pyrite in chlorite rich stringer.	Pyrite in cross cutting "grainy" pyrite vein.	Hellyer middle stringer zone	+8.9
19	HL15	462.7	Chlorite rich stringer with fine pyrite.	Pyrite	Hellyer middle stringer zone.	+12.2
16	HL15	427.2	Carbonate - chlorite vein with coarse brown sphalerite and coarse recrystallized pyrite.	Sphalerite	Hellyer middle stringer zone.	+13.2

LOWER AND OUTER STRINGER ZONE

Sample No.	Hole	Depth	Rock Description	Sample Description	Location	S^{34} permil
65 333988	HL14	522.5	Envelope zone. Silica sericite pyrite altered lava.	Pyrite	Hellyer lower stringer zone.	+12.7
66 333990	HL14	555.82	Stringer	Pyrite	Hellyer lower stringer zone.	+9.1
67 333991	HL14	581.6	Stringer	Pyrite	Hellyr lower stringer zone.	+14.6
10	HL31	490.0	Chlorite schist with Fine-grained pyrite.	Pyrite	Hellyer lower stringer zone.	+12.1
11	HL31	494.6	Sericite pyrite schist	Pyrite	Hellyer lower stringer zone.	+16.9, +16.6
20	HL15	520.8	Chlorite carbonate pyrite rich stringer.	Pyrite	Hellyer lower stringer zone.	+32.2

FOOTWALL LAVAS OUTSIDE STRINGER ZONE

Sample No.	Hole	Depth	Rock Description	Sample Description	Location	S^{34} permil
60 333980	HL14	282.49	Albite porphyritic andesite	Pyrite	200 metres S.W. of Hellyer.	+24.3
61 333981	HL14	313.85	Albite porphyritic andesite	Pyrite	200 metres S.W. of Hellyer.	+23.0
62 333983	HL14	367.43	Non porphyritic andesite?	Pyrite	200 metres S.W. of & below Hellyer.	+27.0
63 333985	HL14	430.0	Fawn brown basalt dyke	Pyrite	200 metres S.W. of & below Hellyer.	+32.0* *two replicate analyses of 32.06 and 31.98.
64 333986	HL14	454.0	Lava. Basalt dyke?	Pyrite	200 metres S.W. of & below Hellyer.	+19.45

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TABLE 3

CARBON AND OXYGEN ISOTOPES

Data provided by Geoff Green Tas. Mines Dept from DJJ Samples.

Hole No.	Depth	Sample No.	$\delta^{13}C_{PDB}$	$\delta^{18}O_{SMOW}$	T°C assuming $\delta^{18}O$=0‰ (seawater value)	$\delta^{13}C$ Fluid Back calcul. using the temperature obtained from the oxygen isotopes. $\delta^{13}C$ seawater = 0.	Rock Descr.
14	106.97	333971	-1.54	+14.67	125	-1.1	Basalt
14	139.27	333973	-2.23	+13.41	140	0.3	Basalt
14	198.66	333975	-1.58	+13.98	133	-0.7	Basalt
14	282.49	333980	+0.65	+15.28	118	-2.3	Feldspar phyric lava.
14	282.49 (repeat)	333980	+0.67	+14.98			
14	430.0	333985	+0.89	+11.57	165	0	Fawn brown pyrite fractured lava-dacite?
14	454.0	333986	-2.58	+9.81	195	2.6	Lava
14	483.5	333987	-2.49	+9.05	216	3.2	Lava
14	483.5 (repeat)	333987	-2.60	+8.73			Lava
55	73.5 vein	334011	-1.12	12.84	147	-0.49	Basalt
55	73.5 vesicle	334011	-2.44	+16.17	109	-1.08	Basalt
55	89.5	334013	-2.10	+14.57	126	-0.5	Basalt
55	100.7	334016	-3.73	+13.47	139	-1.77	I.P. area-Basalt
55	101.8	334017	-2.92	+15.06	120	0.04	I.P. area albite altered basalt.

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TABLE 3 (cont.d)

Hole No.	Depth	Sample No.	$\delta^{13}C_{PDB}$	$\delta^{18}O_{SMOW}$	T°C	$\delta^{13}C$ Fluid	Rock Descr.
55	116.5	334020	-3.99	+15.44	116	0.9	I.P. area Py-Cl alteration.
55	125.05	334023	-1.12	+11.78	162	0.1	Basalt
55	125.05 repeat	334023	-1.06	+11.57	165	0.2	Basalt
55	165.5 vein	334032	-2.94	+11.43	167	2.1	Basalt - vesicular
55	165.5 vesicle	334032	-0.82	+9.00	210	1.3	Basalt - vesicular
35A	223.3		-0.65	+11.76	162	-0.4	Basalt
31	316.15		-0.99	+12.02	159	-0.2	Basalt - albite altered.
31	316.15 repeat		-0.98	+12.00	159	-0.2	Basalt - albite altered.
31	341.95		-1.27	+11.43	170	0.7	Hangingwall tuff.

All calculations for calcite as the carbonate.

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Table 3

RARE EARTH ELEMENT ANALYSES

Sample No.	Description			La	Ce	Pr	Nd	Sm	Eu	Gd	Dy	Er	Yb
334001	Surrounding Basalt			62.5	136	15.23	63.0	11.13	2.76	8.71	5.86	2.96	2.48
334002	Surrounding Basalt			69.5	146.8	16.77	66.6	11.35	2.54	8.68	5.65	2.99	2.23
334003	Surrounding Basalt			52.5	110.6	12.85	49.63	8.65	2.00	6.78	4.47	2.27	2.12
334004	Core Basalt			38.3	74.95	8.49	31.63	5.56	1.32	4.60	3.47	1.82	1.55
334005	Core Basalt	Hangingwall basalt lava continuous core grinds		36.7	69.6	7.85	29.05	4.77	0.98	3.85	3.05	1.53	1.31
334006	Core Basalt			36.8	72.1	7.52	30.36	5.14	1.19	4.10	3.24	1.64	1.55
334007	Core Basalt			35.8	69.2	7.34	29.04	4.91	1.21	3.81	2.92	1.50	1.17
334008	Core Basalt			35.6	72.4	8.03	32.01	5.68	1.55	4.82	3.79	2.17	2.05
334009	Core Basalt			30.04	60.06	6.56	25.51	4.32	1.17	3.61	2.85	1.54	1.40
334010	Core Basalt			27.74	56.7	6.89	24.37	4.39	1.10	3.31	2.70	1.56	1.38
334028	Surrounding Basalt			54	110	13.1	51.8	9.11	2.24	6.9	5.02	2.28	1.91
334038	Core Basalt		Hangingwall	35	62.1	7.33	26.4	4.43	0.89	3.54	3.10	1.60	1.70
334045	Core Basalt extreme calcite fuchsite alteration			36	81.4	8.14	31.2	5.09	0.97	4.10	3.93	2.23	2.18
334171	Core Basalt extreme calcite fuchsite alteration			36.1	78.8	9.24	33.7	5.85	1.65	4.76	3.85	2.11	2.03
334063	Chlorite Schist	Chlorite Quartz Stringer		30.0	67.9	8.08	29.7	5.69	0.41	5.26	5.49	3.98	3.85
334064	Quartz Rocks	Chlorite Quartz Stringer		21.1	44.7	4.91	17.3	3.02	<0.22	2.79	2.99	2.17	1.90
334227	Sericite Rock	Sericite quartz pyrite Zone	Stringer Zone	39.6	86.2	9.75	37.3	7.04	1.11	6.63	7.54	5.47	5.06
334087	Chlorite-dolomite schist			33.5	74.0	8.60	33.1	6.29	0.56	5.42	4.71	2.80	2.55
334091	Silicified envelope zone			14.2	30.5	3.30	12.8	2.47	0.36	2.28	2.58	1.57	1.46

Analyses by P. Robinson Geology Dept. Univ. Tas. by XRF - ion exchange according to the method by P. Robinson et al., (1986)

Normalising factors used on spidergrams : La 0.315, Ce 0.813, Pr 0.115, Nd 0.597, Sm - 0.192, Eu 0.0722, Gd 0.259, Tb 0.047, Dy 0.323, Er 0.2125, Yb 0.208 - 'Leedy/1.2' from Masuda A. et al. (1973). Ba 6.9, Rb 0.35, K 0.01445, Nb 0.35, P 0.0154, Zr 6.84, Ti 0.10342, from R. N. Thompson (1982) Scott. J. Geol.

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Analyses : Key to Abbreviations

Group Name Abbreviations

URS	Upper Rhyolite Sequence
QRS	Que River Shale
B	Basalt
B.Fu	Calcite fuchsite altered basalt
HVS	Hangingwall Volcaniclastic Sequence
FPS	Feldspar phyric sequence - albite porphyritic andesite
Y+L	Polymict units and lava
STZ	Stringer Zone

SL Column Abbreviations

S	=	sample type	G continuous core grind S split core sample R rock grab sample
L	=	Laboratory/Method	A AMDEL ICP, AAS, XRF T University of Tasmania Geology Dept. XRF M Tasmanian Mines Department, Launceston. XRF

Ratios

$$ALT1 = \log \frac{K_2O + MgO}{K_2O + Na_2O + CaO + MgO} \times 100$$ after Ishikawa et al (1976)

$$ALT2 = \log \frac{CaO + K_2 + Al_2O}{MgO + K_2O + Na_2O + CaO + Al_2O_3} \times 100$$

$$ZnNo = \text{Zinc Ratio} = \frac{Zn.100}{Zn + Pb}$$

MR Al/3K = Molecular ratio Al/3K = K-feldspar indicator.

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Rock Type Key

Y = polymict, R = felsic, BSH = black shale, SS = sandstone/siltstone, sed = sediment, B = basalt, IP = interpillow, Si = silica, Co = carbonate, fu = fuchsite, vn = vein, A = andesite, L = Lava, FPA = albite porphyritic andesite, D = dacite, STZ = stringer zone, Q = stringer envelope zone, gls = glass, cl = chlorite, mx = matrix, ab = albite, se = sericite.

Group 0 1 (QRS)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Cu	Pb	Zn	Sr	Y	Zr	Nb	Cr	Ba	Sc	La	Ce	Ag	Rb	V	Mo	S	HOLE	DEPTH	ROCK TYPE	SL
334100	60.73	.56	14.36	6.51	.20	2.30	1.75	2.07	2.73	.11	5.44	99.56		45	32	102	92	34	175	44	50	582	15	36	14	1	169	92	12	.62	HL30	25.6-37.7	V.B.SH.1	TG
334101	60.01	.47	14.70	6.46	.15	2.16	1.32	.71	5.63	.10	5.79	99.67		75	50	150	49	30	159	45	55	777	14	52	25	1	140	89	16	.46	HL30	37.9-52.0	V.B.SH.1	TG
334102	76.56	.19	15.71	2.00	.03	1.19	.26	.46	3.26	.04	4.65	99.94		6	13	42	42	30	150	6	7	336	5	23	5	0	124	15	19	.15	HL30	55.0-64.5	V.B.SH.1	TG
333993	77.61	.10	12.19	1.07	.01	.76	2.00	3.40	1.52	.00	3.52	99.74		9	20	43	200	24	125	1	37	740	1	10	10	1	92	27	12	.26	ADIT	67.2	V.B.SH.1	MR
334103	74.91	.24	15.16	1.79	.04	.85	1.47	2.27	2.96	.05	4.19	99.70		19	26	50	171	34	147	8	16	963	5	65	8	1	112	22	16	.35	HL30	64.9-70.9	V.B.SH.1	TG
334104	63.50	.45	19.26	5.33	.11	2.42	3.05	.40	4.77	.17	9.12	108.29		55	44	342	95	43	189	30	72	1182	14	64	20	1	173	102	15	1.45	HL30	70.9-83.0	V.B.SH.1	TG
334256	69.64	.62	15.61	6.91	.16	1.90	.75	.55	3.92	.16	5.25	100.48		90	52	130	39	46	155	72	110	360	1	85	15	1	120	150	14	.52	HL24	3.0-24.0	BSH.SS.1	AG
334257	75.00	.22	14.14	1.00	.00	.04	2.12	2.12	3.22	.07	3.06	99.70		25	60	260	74	30	125	16	50	330	1	110	11	1	94	40	14	.10	HL24	24.0-51.4	V.B.1	AG
334258	76.27	.20	7.35	3.02	.26	1.75	4.63	.40	2.16	.26	5.05	98.10		3860	74	1340	120	32	60	950	125	250	5	55	30	1	52	85	6	.54	HL24	53.0-56.5	BSH.V.B.1	AG
334125	70.90	.52	16.22	5.46	.10	1.55	.70	.47	3.65	.12	5.24	99.81		109	45	185	54	50	163	65	61	675	15	57	16	1	130	110	12	.50	HL31	7.0-20.0	BSH.1	IG
334126	65.96	.39	17.72	4.75	.10	2.30	3.27	.41	4.66	.16	7.01	99.85		50	21	74	164	40	212	27	50	900	12	72	13	1	171	67	18	.39	HL31	20.0-26.0	BSH.SS.1	IG
334127	74.43	.22	16.37	1.66	.02	.75	.50	1.20	3.95	.06	4.80	99.46		90	52	124	65	34	149	15	9	934	5	79	8	1	143	21	10	.11	HL31	26.0-31.0	V.B.1	IG
334128	73.10	.28	17.36	1.73	.03	1.05	.96	1.10	3.86	.03	4.56	99.47		105	43	127	44	27	160	10	7	894	4	73	4	1	147	16	10	.25	HL31	31.0-34.0	V.B.1	IG
334129	71.19	.25	18.54	2.22	.06	.97	.65	.39	4.95	.05	4.90	99.52		179	30	204	38	41	164	27	11	1120	5	96	7	1	177	10	19	.11	HL31	34.0-35.0	BSH.1	SG
334130	69.43	.20	20.39	1.02	.02	.00	.62	1.02	5.05	.03	4.55	99.57		256	20	243	53	45	190	36	12	1671	5	73	0	1	193	20	24	.13	HL31	35.0-41.5	V.B.1	SG
334131	71.00	.23	17.46	2.66	.05	1.15	.96	1.19	4.35	.06	5.39	100.04		104	42	316	135	39	172	21	14	901	5	72	9	1	147	21	10	.36	HL31	41.5-51.5	V.B.1	IG
334179	70.05	.14	12.95	1.45	.05	1.04	2.09	.15	3.32	.03	4.44	99.34		6	19	32	109	24	110	1	43	500	1	74	1	1	135	15	11	.09	ADIT	595.0	SS.1	MR
334180	70.36	.13	12.34	1.42	.05	.96	2.46	.23	3.10	.02	4.49	99.19		4	24	20	79	22	98	1	38	620	1	75	1	1	120	9	11	.07	ADIT	560.0	R.1	MR
334181	74.50	.42	15.13	3.05	.05	1.02	1.48	.17	3.83	.06	4.31	99.77		23	20	34	49	10	155	14	61	660	11	47	10	1	140	69	8	.35	ADIT	454.0	V.B.SH.1	MR
334182	75.80	.26	12.91	3.10	.09	1.10	3.22	1.32	2.65	.07	5.21	99.93		6	22	26	70	26	150	4	63	575	1	24	1	1	109	32	6	.02	ADIT	430.0	R.SH.1	MR
334183	70.80	.09	12.34	2.40	.09	.66	2.77	1.56	2.61	.06	4.60	100.62		5	15	20	30	26	130	1	64	250	1	73	16	1	91	4	9	.02	ADIT	392.0	R.1	MR
334184	77.03	.10	12.23	2.02	.05	.51	1.31	3.79	1.61	.02	2.66	100.26		4	5	23	52	34	130	1	79	210	1	75	17	1	65	3	10	.02	ADIT	310.0	R.1	MR
334185	72.65	.21	13.90	3.21	.11	.90	4.26	2.56	2.59	.07	6.06	100.67		5	6	23	55	18	140	1	55	200	1	26	11	1	87	20	6	.02	ADIT	237.0	R.1	MR
334186	72.69	.30	15.10	2.56	.09	.95	2.67	1.16	3.49	.06	5.24	99.10		9	410	2200	33	20	150	1	45	1100	10	30	14	1	130	34	6	.11	ADIT	206.0	SS.1	MR
334187	67.11	.44	11.90	7.14	.29	2.02	7.44	.30	2.77	.12	10.90	99.64		145	1830	7400	70	24	125	46	86	305	12	24	72	7	100	97	7	.50	ADIT	205.5	BSH.1	MR
334188	77.50	.10	12.67	2.20	.00	1.29	2.20	.22	3.31	.04	5.03	99.90		8	37	72	34	20	140	5	30	625	1	49	1	1	125	22	9	.07	ADIT	67.0	sed.1	MR

Group 0 2 (QRS)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Cu	Pb	Zn	Sr	Y	Zr	Nb	Cr	Ba	Sc	La	Ce	Ag	Rb	V	Mo	S	HOLE	DEPTH	ROCK TYPE	SL
333994	70.34	.40	12.59	6.29	.11	2.75	2.32	.72	2.90	.17	6.25	98.90		100	30	154	64	22	120	106	155	596	1	35	23	2	105	161	0	1.43	HL14	4.6-50.0	BSH.2	AG
333915	70.46	.45	12.57	6.23	.10	2.61	2.72	.30	3.24	.14	6.15	99.30		73	130	152	50	20	130	100	160	630	1	20	27	1	110	200	0	1.27	HL14	50.0-85.0	BSH.2	AG
335969	71.39	.66	12.87	5.31	.07	2.00	2.02	.61	2.74	.17	7.65	100.77		71	19	115	55	25	125	65	140	705	15	22	17	1	130	210	11	.95	HL14	49.0	BSH.2	MC
333970	70.41	.30	10.73	4.04	.06	2.21	1.67	.31	2.39	.12	6.14	100.35		39	25	53	66	24	120	40	80	745	10	41	21	1	10	170	10	.50	HL14	75.01	BSH.2	MC
334105	71.12	.50	13.34	5.92	.07	2.32	3.15	.03	3.20	.12	8.75	99.95		65	60	176	75	27	140	32	129	730	17	29	29	1	126	140	12	1.64	HL30	83.0-100.0	BSH.2	IG
333992	71.72	.61	14.40	5.93	.07	2.99	1.51	.61	3.02	.11	7.05	101.11		9	20	63	200	24	125	1	39	740	1	90	10	1	92	27	12	1.14	HL30	120.5	BSH.2	IC
334106	69.20	.60	13.55	5.96	.06	2.62	4.61	.02	2.96	.13	9.19	99.74		75	46	276	64	33	137	76	142	744	10	26	24	1	119	204	12	1.52	HL30	100.0-150.0	BSH.2	IG
334107	68.47	.62	12.97	6.93	.06	2.74	4.75	.06	2.69	.15	8.96	99.43		65	40	153	97	30	133	72	135	754	10	20	21	1	110	179	12	1.70	HL30	150.0-166.9	BSH.2	IG
334066	72.62	.73	13.22	6.67	.03	3.02	.23	.61	2.91	.13	5.24	99.60		56	35	114	24	44	244	70	141	823	20	22	10	1	100	210	19	1.49	HL30	120.5	BSH.2	IC
334239	60.30	.20	15.77	2.30	.12	1.00	8.09	.03	4.16	.07	6.70	98.50		86	86	420	135	30	140	30	86	470	1	85	36	0	115	65	12	.00	HL24	34.5-57.1	BSH.2	AG
334240	69.03	.55	13.05	5.45	.07	2.50	2.73	.42	3.51	.14	6.40	97.50		80	215	890	60	34	135	70	135	460	1	59	30	2	105	100	10	1.91	HL24	57.1-100.0	BSH.2	AG
334241	68.84	.60	12.71	5.92	.15	2.86	3.09	.35	3.10	.12	6.20	97.80		94	52	210	50	32	120	90	145	500	1	65	31	1	96	100	10	1.66	HL24	100.0-150.0	BSH.2	AG
334242	70.10	.63	12.44	5.90	.09	2.61	3.10	.10	3.21	.11	5.90	98.30		110	105	1140	40	23	125	80	140	490	1	85	40	1	96	100	10	.02	HL24	150.0-176.4	BSH.2	AG
334132	72.17	.55	13.45	6.50	.00	1.77	.00	.36	3.24	.14	6.90	99.60		104	114	661	37	31	143	75	122	703	17	36	32	1	127	167	11	1.65	HL31	51.5-80.0	BSH.2	TG
334133	69.80	.61	13.45	6.02	.07	2.33	2.90	.32	3.47	.10	9.62	100.21		145	127	330	51	30	130	86	141	1030	10	32	40	1	123	177	11	2.30	HL31	80.0-132.0	BSH.2	TG
334170	77.03	.53	13.06	5.21	.12	1.40	.94	.11	3.41	.10	8.45	101.94		28	70	135	29	21	135	70	145	530	12	22	21	1	135	190	0	1.92	ADIT	657.0	BSH.2	MR
334224	75.74	.23	11.70	5.23	.07	2.90	.52	.00	2.56	.09	4.92	99.60		60	60	155	17	20	115	60	125	690	1	45	26	1	82	220	10	1.00	HL29	136.2	BSH.2	AC
334264	70.24	.29	9.39	3.10	.12	1.70	0.79	.16	3.10	.04	8.25	97.50		550	32	220	110	26	105	150	135	760	1	85	23	2	72	75	0	1.21	HL29	181.0-183.0	BSH in 02	AG

5982286

Group 0 3 (0.55 Gnd)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Co	Pb	Zn	Sr	Y	Zr	Ni	Cr	Ba	Sc	La	As	Ag	Sb	V	Mo	S	HOLE	DEPTH	ROCK TYPE	SL
334001	46.40	.07	16.21	11.70	.25	5.67	15.35	.10	3.26	.45	15.05	99.39		76	41	103	251	27	175	95	733	2396	52	42	27	1	90	317	11	2.77	NISS	64.0-91.2	B.S	IG
334002	47.80	.94	15.05	16.50	.19	9.73	12.40	2.14	0.91	.41	13.81	100.39		39	27	146	313	27	166	134	791	2764	50	57	9	1	30	336	13	3.54	NISS	91.2-145.0	B.S	IG
334003	51.92	.74	14.56	9.56	.16	8.71	8.63	2.51	2.10	.28	5.41	99.32		103	37	121	427	24	152	110	569	2158	43	53	52	1	50	272	11	4.37	NISS	145.0-152.6	B.S	IG
334004	42.81	.58	14.71	8.51	.22	7.73	20.43	3.16	1.84	.19	16.30	100.84		56	34	153	371	21	78	243	1101	1377	44	38	25	1	10	265	4	3.50	NISS	152.0-179.5	B.S	IG
334005	45.10	.48	14.12	8.32	.23	8.55	19.42	2.40	1.69	.18	13.37	99.77		71	12	82	379	18	63	267	1302	1966	42	37	6	1	23	242	3	2.98	NISS	179.5-210.3	B.S	IG
334006	39.42	.51	15.99	6.71	.22	3.38	27.66	2.71	2.63	.35	20.50	99.62		69	12	73	327	19	68	225	829	1743	41	37	11	1	60	250	3	4.25	NISS	210.3-225.0	B.S	IG
334007	37.24	.46	15.25	9.42	.29	2.50	30.42	1.83	3.07	.28	25.36	100.14		73	43	137	223	13	59	210	948	1067	30	36	43	1	75	227	5	3.77	NISS	225.0-233.0	B.S	IG
334008	47.24	.54	16.17	8.40	.18	6.93	15.77	2.37	1.69	.33	15.76	99.90		85	27	121	307	20	67	219	949	2158	51	35	10	1	47	203	5	3.43	NISS	233.0-241.0	B.S	IG
334009	48.23	.58	14.88	8.75	.18	10.22	14.17	1.63	1.65	.20	12.36	100.27		88	30	126	323	16	59	210	887	3112	46	30	6	1	29	257	3	2.35	NISS	241.0-250.0	B.S	IG
334010	52.11	.49	15.63	9.69	.16	5.69	13.20	1.63	1.77	.20	12.69	100.00		61	18	102	206	14	62	200	854	1334	46	29	42	1	57	263	4	2.98	NISS	250.95-259.1	B.S	IG

Group 0 4 (0.55 Bpe)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Co	Pb	Zn	Sr	Y	Zr	Ni	Cr	Ba	Sc	La	As	Ag	Sb	V	Mo	S	HOLE	DEPTH	ROCK TYPE	SL
334011	48.30	.59	11.40	9.99	.18	5.94	21.20	.10	1.60	.32	19.18	99.76		59	17	57	291	18	109	77	467	775	38	46	15	1	43	194	7	1.36	NISS	73.5	B.S	IC
334012	50.50	.67	13.37	8.62	.16	5.56	18.78	.10	2.56	.27	11.97	99.86		68	11	73	195	21	143	93	588	1521	43	60	8	1	77	262	9	2.26	NISS	81.3	B.SP.ch.3	IC
334013	48.15	.78	13.79	9.51	.17	6.10	15.65	3.50	1.12	.41	15.22	99.63		77	12	72	363	21	138	91	571	1633	40	53	1	1	10	241	9	3.99	NISS	89.5	B.S	IC
334014	48.67	.67	14.33	8.98	.16	7.49	14.29	2.76	2.12	.42	13.81	99.16		72	0	69	369	23	128	89	527	4734	38	51	5	1	28	201	8	4.21	NISS	92.0	B.S	IC
334015	52.43	.63	12.85	6.56	.17	7.84	14.88	4.25	.97	.33	10.92	100.17		77	5	71	437	21	134	93	585	1882	33	43	4	1	13	217	10	4.86	NISS	100.05	B.S	IC
334016	50.47	.65	12.87	9.76	.18	8.71	9.75	1.75	2.37	.28	11.61	99.84		57	18	54	249	20	135	98	545	4753	37	51	8	1	35	249	9	3.65	NISS	100.7	B.SP.3	IC
334017	40.20	.56	11.82	3.20	.18	1.20	15.56	5.27	1.30	.32	11.96	99.82		83	32	50	355	24	114	67	445	1290	34	40	15	1	16	111	8	5.86	NISS	101.0	B.SP.ca.3	IC
334018	62.13	.56	11.24	6.05	.13	5.76	6.67	.10	4.67	.16	0.14	98.91		64	12	76	273	15	114	86	453	7162	35	38	11	1	73	105	7	4.29	NISS	102.7	B.ca.3	IC
334019	58.20	.76	15.70	7.09	.13	4.60	11.21	5.66	1.70	.42	10.07	100.29		65	44	61	431	24	153	77	509	2281	42	60	13	1	26	230	10	6.85	NISS	112.0	B.ch.3	IC
334020	46.30	.79	14.46	15.96	.17	9.53	10.06	1.21	2.26	.29	12.76	99.39		86	26	119	291	21	147	84	519	2681	38	54	25	1	32	297	10	3.55	NISS	116.45	B.SP.ch.3	IC
334021	50.94	.58	13.58	5.27	.16	2.58	11.41	4.25	2.74	.34	9.86	99.72		86	16	106	440	21	119	51	406	3341	33	53	10	1	39	149	9	6.30	NISS	116.7	B.ss.3	IC
334022	57.07	.44	12.04	10.54	.16	3.44	6.48	2.02	3.44	.31	10.59	100.09		65	70	102	255	10	131	69	466	1056	30	46	24	1	53	190	9	5.25	NISS	123.5	B.SPsed.3	IC
334023	52.53	.85	16.07	8.12	.12	8.95	6.97	4.15	1.31	.49	0.40	99.59		108	0	115	427	29	181	110	615	2153	47	70	0	1	19	315	12	5.00	NISS	125.05	B.3	IC
334024	46.91	.51	13.05	6.77	.17	5.80	22.03	3.39	.00	.31	14.49	99.81		44	9	35	402	19	169	71	371	755	25	46	3	1	16	224	7	3.59	NISS	129.2	B.3	IC
334025	47.80	.66	13.25	7.03	.17	6.37	18.22	3.27	1.62	.38	14.91	99.69		76	10	49	467	22	131	78	495	697	35	52	7	1	19	219	9	4.08	NISS	129.65	B.3	IC
334026	45.05	.84	14.62	11.35	.22	12.57	10.02	.85	2.99	.38	9.73	99.74		82	6	110	270	26	175	112	592	5492	42	60	1	1	45	299	12	3.47	NISS	133.7	B.3	IC
334027	46.14	.84	15.24	9.43	.19	9.00	14.05	3.10	1.65	.55	12.70	100.31		90	9	121	563	20	171	113	654	1334	43	65	5	1	23	297	11	4.22	NISS	141.2	B.3	IC
334028	52.46	.66	12.01	9.58	.16	10.07	9.02	2.64	1.73	.32	3.40	99.50		115	1	55	655	25	150	103	476	1813	34	57	1	1	20	230	11	4.23	NISS	151.7	B.3	IC
334029	63.84	.30	14.06	7.96	.04	1.75	1.83	2.76	6.00	.07	4.01	98.74		27	40	26	235	21	147	101	97	4444	10	50	84	1	94	151	9	0.34	NISS	153.6	B.SP.ch.3	IC
334030	46.95	.47	12.94	5.92	.26	5.51	20.56	4.22	.05	.26	19.61	99.64		49	4	39	426	16	54	193	757	929	25	20	7	1	10	170	3	4.40	NISS	154.2	B.S	IC
334031	41.64	.38	12.21	6.74	.21	3.05	33.00	1.67	.07	.10	19.91	99.20		83	0	64	180	16	51	107	761	117	23	33	12	1	2	172	3	1.40	NISS	157.05	B.ca.ph.4	IC
334032	44.05	.46	13.40	8.07	.20	9.62	20.10	2.04	.09	.17	13.55	99.06		51	1	63	369	14	55	232	771	1655	31	31	1	1	20	202	4	2.54	NISS	165.5	B.S	IC
334033	52.62	.40	12.67	5.80	.16	9.84	20.55	3.68	.64	.19	14.62	100.00		50	4	40	342	15	53	192	759	597	29	26	9	1	10	160	5	3.70	NISS	167.1	B.S	IC
334034	51.92	.72	19.63	9.66	.08	5.26	3.46	3.51	5.17	.19	7.40	99.63		65	41	130	314	16	85	290	1417	2327	64	30	53	1	94	353	7	0.64	NISS	176.0	B.S	IC
334035	47.70	.46	13.62	7.63	.10	8.02	18.50	1.91	1.26	.10	10.51	99.53		39	1	50	420	15	57	230	840	1247	34	32	1	1	25	190	4	2.76	NISS	183.55	B.S	IC
334036	50.31	.52	14.61	9.37	.19	12.63	10.10	1.17	1.11	.10	6.06	100.22		71	1	72	334	17	60	311	965	1262	41	42	1	1	29	250	5	2.15	NISS	189.6	B.S	IC
334037	44.60	.66	17.46	5.64	.23	3.99	19.30	4.10	2.90	.23	16.24	99.45		32	8	53	424	19	80	300	1363	2504	53	37	19	1	71	361	9	6.00	NISS	191.15	B.S	IC
334038	50.94	.49	13.35	9.25	.17	12.94	10.47	.76	1.02	.14	9.76	99.54		74	3	72	299	14	64	306	922	1250	37	30	1	1	21	226	4	1.71	NISS	193.5	B.S	IC
334039	48.72	.71	20.83	5.25	.14	2.72	12.06	2.90	5.49	.30	11.76	99.24		84	9	52	290	22	86	276	1241	5052	54	32	10	1	130	309	6	7.40	NISS	120.4	B.S	IC
334040	48.30	.45	14.99	4.41	.17	.57	22.50	7.39	.39	.21	16.25	99.52		56	6	13	341	14	56	120	830	359	31	30	10	1	9	103	4	6.52	NISS	203.0	B.ss.4	IC
334041	41.25	.58	17.72	7.57	.23	7.16	20.33	3.12	.92	.23	15.55	99.67		60	1	79	533	14	61	247	967	1133	35	26	8	1	24	261	4	3.42	NISS	207.65	B.S	IC
334042	42.30	.49	15.74	6.15	.17	4.56	23.87	3.33	1.80	.50	10.37	99.53		56	7	64	384	17	56	193	606	1154	30	34	4	1	57	235	3	4.26	NISS	210.5	B.S	IC
334043	44.67	.59	18.56	7.10	.15	2.39	18.15	2.35	3.66	.40	16.24	99.47		61	11	56	252	17	71	267	757	2010	51	37	12	1	101	287	6	5.64	NISS	221.35	B.SP.4	IC
334044	35.31	.32	11.72	11.10	.22	1.07	35.37	2.57	1.66	.20	20.99	100.32		18	17	19	383	11	41	160	522	1312	22	23	11	1	50	149	2	0.31	NISS	227.9	B.ca.fos4	IC
334045	36.70	.74	22.27	2.46	.43	1.64	20.36	.41	5.89	.26	21.01	99.29		81	72	604	150	19	85	200	1307	2853	5	34	142	1	135	325	6	4.90	NISS	232.2	B.fo.4	IC

598287

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Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Co	Pb	Zn	Sr	Y	Zr	Ni	Cr	Ba	Sc	La	As	Ag	Sb	V	Mo	S	HOLE	DEPTH	ROCK TYPE	SL
334046	48.95	.50	16.85	6.19	.11	9.35	15.52	3.91	1.75	.47	14.16	98.86	41	32	95	353	21	60	239	037	6023	46	34	14	1	42	255	3	4.05	HL55	239.4	B.A	IC
334047	49.55	.49	15.43	8.43	.14	11.11	11.71	2.33	.80	.37	7.59	99.75	31	1	63	297	16	59	221	721	1780	44	29	3	1	21	250	4	2.40	HL55	247.0	B.A	IC
334048	52.84	.46	16.92	8.73	.14	7.45	10.71	.57	1.64	.19	11.19	100.17	102	1	159	154	15	56	227	778	2507	44	33	4	1	54	243	3	2.85	HL55	257.5	B.A	IC

Group 1 S 19.5128572(1)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Co	Pb	Zn	Sr	Y	Zr	Ni	Cr	Ba	Sc	La	As	Ag	Sb	V	Mo	S	HOLE	DEPTH	ROCK TYPE	SL
334091	45.21	.58	15.44	6.27	.16	8.88	21.23	.68	2.14	.19	17.30	101.69	84	4	88	288	28	58	188	883	1163	1	45	18	1	52	268	2	.02	HL58	245.63	B.A	AC
334092	42.76	.48	16.18	9.58	.12	11.19	17.48	2.14	.99	.20	15.58	101.88	58	2	78	175	28	54	288	738	768	1	78	4	1	83	228	4	.02	HL58	262.32	B.A	AC
334093	48.36	.58	17.18	6.39	.14	7.92	14.27	5.64	.13	.19	11.88	100.78	475	5	53	388	22	54	175	888	688	1	58	11	1	1	248	4	.02	HL58	282.9	B.A	AC
334094	37.26	.46	15.78	6.83	.23	3.56	31.85	.32	3.35	.34	20.98	100.58	62	16	62	245	22	44	155	728	3928	1	45	288	1	78	288	4	.14	HL58	298.89	B.fo.A	AC
334095	45.59	.38	13.42	8.22	.21	9.55	19.47	1.63	1.19	.19	17.38	99.98	78	8	54	385	18	48	248	1128	358	1	55	18	1	28	188	2	2.29	HL28	137.6	B.A	AC
334096	55.58	.74	15.93	8.23	.12	8.73	6.86	3.31	.74	.31	9.18	101.48	29	32	748	155	32	155	74	358	358	1	75	17	1	11	188	8	1.87	HL28	145.5	B.A	AC
334097	58.79	.47	15.19	7.98	.15	14.88	8.81	2.82	.17	.34	18.38	108.58	115	2	78	248	28	145	188	578	248	1	75	1	1	1	218	8	.02	HL28	157.16	B.A	AC
334098	58.66	.58	13.31	11.99	.11	3.53	4.87	1.91	1.45	.88	9.28	108.68	78	38	62	178	18	64	275	818	1928	1	45	76	1	31	238	2	4.16	HL28	169.68	B.A	AC
334099	51.95	.63	17.68	8.58	.14	18.76	5.76	4.99	.88	.28	8.85	108.78	88	2	88	395	21	76	288	1888	238	1	65	1	1	1	268	4	.86	HL28	178.32	B.A	AC
334288	49.85	.87	14.18	6.69	.22	7.53	19.36	2.16	.31	.19	16.58	108.98	48	22	54	388	22	58	178	828	278	1	25	11	1	1	288	6	.16	HL28	173.32	B.A	AC
334281	48.88	.45	13.31	7.58	.28	11.81	28.38	2.68	1.88	.18	13.88	101.68	76	18	82	428	22	58	288	936	4688	1	65	1	1	18	228	4	.82	HL28	187.96	B.A	AC
334282	51.42	.48	13.47	8.32	.14	8.57	8.12	1.52	.58	.45	11.88	108.78	88	2	62	195	18	52	238	818	1388	1	56	1	1	5	228	4	.82	HL28	288.27	B.A	AC
334283	51.35	.46	14.33	7.75	.13	13.16	18.82	1.39	1.86	.18	6.68	106.98	18	4	58	318	22	58	198	788	918	1	65	1	1	19	238	4	.82	HL28	228.87	B.A	AC
334284	48.97	.68	22.88	4.62	.26	2.91	22.73	.63	5.47	.48	17.98	108.88	68	2	36	158	22	78	225	1188	2368	1	78	22	1	118	298	2	.82	HL28	234.63	B.A	AC
334285	48.62	.43	18.19	7.39	.14	9.16	18.45	.38	1.95	.16	15.68	108.88	86	2	48	188	28	42	175	668	1588	1	55	6	1	38	229	2	.82	HL28	249.14	B.A	AC
334286	37.18	.78	23.36	6.78	.36	3.37	22.61	.12	5.92	.34	18.46	108.84	135	128	225	288	22	76	156	1548	6888	1	98	225	1	168	318	4	.21	HL28	265.76	B.fo.A	AC
334287	56.86	.51	18.84	8.51	.14	15.92	3.84	.76	.91	.86	9.65	108.98	62	18	98	185	22	68	225	838	1828	1	68	18	1	18	228	4	.82	HL57	222.53	B.A	AC
334288	51.48	.49	13.82	8.53	.14	18.98	12.93	1.41	.94	.19	18.48	108.88	78	2	68	215	22	56	235	828	1448	1	65	48	1	7	218	4	.82	HL57	229.19	B.A	AC
334289	54.48	.58	15.67	7.81	.11	3.84	9.47	4.55	.62	.25	11.38	99.68	84	1188	295	165	6	74	315	1128	693	1	45	135	4	37	264	6	5.36	HL57	245.43	B.A	AC
334218	52.25	.43	14.35	8.65	.15	12.48	9.96	1.16	1.22	.17	8.88	108.98	84	2	66	175	22	58	185	668	1768	1	78	5	1	24	248	4	.85	HL57	271.3	B.A	AC
334211	48.62	.44	14.26	7.58	.15	9.58	16.68	3.21	.73	.17	12.58	104.98	88	28	68	478	22	44	175	718	2548	1	85	2	1	3	218	2	.15	HL57	286.82	B.A	AC
334212	58.84	.44	14.57	8.28	.13	18.85	12.78	1.66	1.84	.17	18.28	101.84	92	2	62	178	24	46	175	648	1848	1	65	2	1	21	228	2	.82	HL57	296.5	B.A	AC
334213	47.39	.45	15.11	8.58	.15	14.15	11.19	1.51	.84	.18	8.68	99.88	185	8	84	485	28	52	185	748	3388	1	78	18	1	6	218	6	.82	HL57	385.18	B.A	AC
334214	51.34	.43	14.26	7.82	.18	18.16	12.92	3.68	.61	.17	11.18	108.98	39	2	68	68	18	2	135	38	1388	1	35	2	1	1	158	2	.82	HL57	312.88	B.A	AC
334215	48.37	.47	15.48	7.78	.28	9.96	13.63	6.47	.38	.18	11.88	108.98	94	24	215	458	22	52	198	728	1888	1	65	52	1	1	238	2	.82	HL57	317.68	B.A	AC
334216	88.97	.82	1.43	.61	.87	.58	7.87	.18	.28	.83	6.25	108.88	138	32	12	468	28	46	8	678	2668	1	58	28	1	1	18	2	.86	HL57	322.25	B.A	AC
334217	48.93	.58	18.58	6.15	.23	4.52	19.28	3.49	2.48	.38	14.98	108.98	158	2	49	538	22	48	198	848	2988	1	68	13	1	1	268	6	.82	HL57	217.48	B.A	AC
334218	48.11	.52	16.77	8.33	.25	18.11	11.77	1.42	.38	.28	18.18	108.98	19	6	155	218	22	62	288	968	1338	1	55	1	1	56	248	4	.82	HL24	232.62	B.A	AC
334219	48.31	.49	16.36	7.14	.16	13.65	9.42	2.73	.29	.19	11.58	108.88	185	14	98	288	22	56	288	768	578	1	68	1	1	1	238	2	.82	HL24	246.1	B.A	AC
334228	52.99	.52	17.88	7.45	.14	7.88	9.27	4.57	.17	.15	9.45	108.28	17	92	138	255	28	62	215	838	558	1	35	96	1	1	288	2	.41	HL24	249.31	B.A	AC
334221	81.58	.58	19.96	8.69	.15	18.51	18.88	3.26	1.43	.21	15.88	108.98	288	8	148	228	22	61	235	878	1228	1	58	388	1	18	278	2	.82	HL24	252.8	B.A	AC
334263	45.82	.67	14.32	11.31	.17	7.84	14.89	.84	1.62	.22	14.58	95.48	758	14	738	155	28	125	235	448	788	1	68	28	8	38	218	8	3.58	HL24	176.4-181.8	B.gap.A	AG
334265	45.84	.49	11.84	14.18	.16	6.55	12.21	.83	.87	.26	7.75	98.88	475	338	2848	145	22	98	188	485	278		88	54	2	7	164	6	6.78	HL24	183.8-187.9	B.gap.A	AG
334266	48.91	.57	15.87	8.55	.28	8.81	16.83	.81	1.88	.16	15.48	97.58	38	128	748	225	22	66	225	888	548	1	65	58	1	11	248	4	1.88	HL24	187.9-199.5	B.A	AG
334267	44.29	.48	14.93	8.19	.28	4.66	21.68	.88	3.85	.19	17.38	98.28	94	1	76	225	16	38	218	778	788	1	75	24	1	42	258	4	.35	HL24	199.5-283.9	B.A	AG
334268	45.81	.47	14.68	7.42	.19	9.32	18.48	2.22	.88	.87	15.68	98.78	138	6	82	275	22	38	178	728	1148	1	65	1	2	5	228	4	.14	HL24	283.9-211.2	B.A	AG
334269	48.68	.49	15.58	6.78	.26	6.77	25.58	2.13	2.18	.18	18.88	98.28	88	1	72	238	28	38	288	688	1188	1	58	17	1	43	248	8	.25	HL24	211.2-223.8	B.A	AG
334278	48.37	.47	18.51	7.62	.21	8.34	19.58	3.41	.42	.22	15.88	98.28	92	42	165	358	16	36	195	698	1268	1	68	25	1	1	228	4	.18	HL24	228.8-251.6	B.A	AG
334279	37.58	.38	11.86	9.57	.19	6.88	18.88	1.88	1.58	.16	9.38	87.18	18281	8588	8 sat	268	2	56	168	748	2548	1	48	588	18	48	188	6	5.95	HL24	251.6-253.9	B.A	AG

Group 8 S 18.14 Gnd)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Co	Pb	Zn	Sr	Y	Zr	Ni	Cr	Ba	Sc	La	As	Ag	Sb	V	Mo	S	HOLE	DEPTH	ROCK TYPE	SL
333916	91.88	.45	12.97	8.28	.18	2.69	13.48	2.76	2.87	.62	7.95	96.38	69	38	154	248	6	93	171	678	778	1	18	82	2	94	188	4	4.58	HL18	85.8-89.6	B.S	AG

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Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Cu	Pb	Zn	Sr	Y	Zr	Ni	Cr	Ba	Sc	La	As	Ag	Rb	V	Nb	S	HOLE	DEPTH	ROCK TYPE	SL
333917	42.12	.41	14.59	10.83	.18	7.02	9.69	.42	2.69	.10	9.85	96.00	92	16	93	220	4	68	290	930	870	1	10	36	2	80	210	2	0.05	HL14	89.6-92.3	B.S	AG
333918	47.94	.33	12.32	12.51	.16	7.77	10.76	1.16	1.76	.10	7.45	95.10	124	8	101	246	2	56	296	940	570	1	33	23	1	56	213	2	0.45	HL14	92.6-112.0	B.S	AG
333919	49.22	.35	14.73	9.16	.16	7.72	11.39	.41	1.91	.37	12.50	98.90	165	4	136	255	14	135	186	540	570	1	35	13	1	54	260	0	.27	HL14	112.0-118.3	B.S	AG
333920	51.70	.78	14.31	13.16	.41	11.23	4.30	.33	1.46	.22	9.05	98.40	224	6	230	62	16	135	211	630	510	1	30	10	1	52	245	4	.66	HL14	118.0-121.8	B.S	AG
333921	48.86	.69	12.76	16.17	.17	7.86	11.41	2.43	1.17	.24	9.46	98.16	173	26	142	245	12	136	171	564	1320	1	35	7	1	42	243	4	.61	HL14	121.0-144.8	B.S	AG
333922	47.79	.77	13.35	11.59	.24	10.84	10.72	1.75	1.43	.35	9.25	98.38	144	140	274	246	12	150	154	570	1940	1	55	52	2	45	242	4	1.13	HL14	144.8-147.5	B.S	AG
333923	48.33	.77	14.45	10.68	.16	11.16	9.89	.52	2.03	.27	10.20	98.00	164	20	111	205	14	140	130	570	2640	1	50	36	2	50	240	6	.10	HL14	147.0-149.8	B.S	AG
333924	46.58	.83	13.31	9.67	.18	10.33	13.89	2.09	1.32	.41	10.80	99.50	154	14	119	270	16	160	130	540	2320	1	65	40	1	33	255	8	.15	HL14	149.8-157.0	B.S	AG
333925	53.47	.53	14.67	15.21	.03	2.36	5.80	2.25	3.65	.16	7.85	98.20	156	44	105	130	10	115	103	230	1280	1	20	215	1	120	170	6	9.15	HL14	199.0-201.8	B.S	AG
333926	47.11	.55	15.74	8.49	.12	7.01	14.25	4.22	1.12	.20	12.20	98.90	84	2	111	240	10	50	297	990	523	1	10	43	2	30	222	2	.94	HL14	201.4-213.6	B.S	AG
333927	45.85	.51	14.53	8.22	.10	9.52	16.11	4.01	.42	.10	11.20	99.60	82	2	97	395	20	54	290	860	820	1	25	34	1	16	217	2	.05	HL14	213.0-223.6	B.S	AG
333928	52.71	.57	17.21	8.55	.10	5.09	7.52	4.04	1.71	.11	7.55	99.20	108	44	201	320	8	70	259	840	990	1	30	37	2	50	266	2	.08	HL14	223.0-225.4	B.S	AG

Group 8 7 (D.ANIRA20)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Cu	Pb	Zn	Sr	Y	Zr	Ni	Cr	Ba	Sc	La	As	Ag	Rb	V	Nb	S	HOLE	DEPTH	ROCK TYPE	SL
334162	55.60	.27	10.61	11.30	.23	4.60	3.00	4.12	1.93	.57	3.99	100.00	50	33	224	595	382	107	17	5	3447	31	47	24	1	46	237	11	.02	HL6	200.4	B.S	IC

Group 8 8 (D.Licence)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Cu	Pb	Zn	Sr	Y	Zr	Ni	Cr	Ba	Sc	La	As	Ag	Rb	V	Nb	S	HOLE	DEPTH	ROCK TYPE	SL
334164	52.57	.49	13.78	9.72	.16	10.16	9.51	2.63	.55	.22	11.11	99.87	76	1	90	220	24	135	151	544	280	32	50	1	1	13	182	9	.02	HAIS	410.0	B.L.A	IC
334165	63.24	.35	12.72	5.86	.12	5.26	6.92	4.22	.72	.17	7.41	99.63	27	15	86	225	22	112	140	519	337	25	37	3	1	15	130	8	.31	HAIS	385.1	B.L.A	IC
334166	49.43	.57	13.87	9.70	.15	11.84	10.90	1.11	1.12	.68	6.74	99.49	85	9	74	536	31	100	223	961	2406	30	105	1	1	26	247	7	.22	HAIS	87.0	B.U.A	IC
334167	53.34	.57	16.02	9.90	.10	5.64	8.02	4.05	.92	.30	9.12	99.73	91	3	85	310	10	64	68	200	452	44	43	1	1	30	340	3	.02	HAIS	173.3	B.U.A	IC
334168	44.10	.65	15.61	13.25	.27	13.89	9.55	.84	.86	.20	12.35	97.86	6	7	176	125	33	192	235	754	293	41	72	1	1	21	191	13	.02	HAIS	345.0	B.L.A	IC
334169	59.80	.47	12.99	6.81	.22	6.87	8.76	5.40	.11	.19	4.90	100.14	43	516	382	474	20	124	119	494	445	20	45	8	1	2	177	8	.02	HAC4	97.5	B.U.A	IC
334170	60.46	.90	12.86	7.41	.15	6.67	7.48	2.90	.80	.17	8.72	99.66	17	70	441	210	19	122	111	515	154	30	46	4	1	25	224	2	.02	HAC4	113.6	B.U.A	IC

Group 8 9 (D.Fe HLS)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Cu	Pb	Zn	Sr	Y	Zr	Ni	Cr	Ba	Sc	La	As	Ag	Rb	V	Nb	S	HOLE	DEPTH	ROCK TYPE	SL
334171	37.67	.65	22.74	9.90	.34	1.04	20.37	.10	6.52	.35	21.51	99.62	98	5	45	210	10	73	203	1870	9865	59	34	222	1	136	365	4	.16	HL9	204.5	B.Fe.A	IC

Group 8 10 (D.Mix)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Cu	Pb	Zn	Sr	Y	Zr	Ni	Cr	Ba	Sc	La	As	Ag	Rb	V	Nb	S	HOLE	DEPTH	ROCK TYPE	SL
334172	51.44	.78	14.58	8.34	.11	5.63	13.35	.10	2.06	.34	13.64	99.68	25	10	87	147	24	141	47	371	550	39	31	5	1	49	237	0	1.39	ADIT	697.0	B.T	MB
334174	51.07	.78	14.62	9.87	.11	6.75	11.73	.10	1.57	.28	13.20	99.75	27	9	84	190	25	149	47	339	417	37	49	5	1	43	230	9	1.07	ADIT	717.0	B.pc.T	MB
334177	56.22	.40	14.98	6.50	.12	5.17	12.33	.44	2.35	.29	12.82	99.23	30	10	40	225	20	100	34	425	590	33	42	1	2	39	245	0	1.10	ADIT	719.0	B.T	MB
334175	52.10	.74	15.76	11.00	.11	7.70	10.57	.10	1.45	.30	12.47	100.00	31	5	90	140	26	157	55	399	490	42	49	5	1	36	257	10	.90	ADIT	737.0	B.T	MB
334176	49.65	.73	15.69	8.30	.17	7.39	11.55	2.06	.26	.39	12.73	98.82	37	7	97	415	19	145	45	615	470	37	39	1	6	34	265	0	.51	ADIT	755.0	B.T	MB
333999	48.74	.77	15.26	8.48	.19	8.67	13.24	3.39	.55	.39	11.20	99.33	42	5	83	605	16	140	57	435	720	35	42	1	1	25	265	0	.74	ADIT	782.0	B.T	MB
333998	30.60	.41	6.32	31.47	.22	4.36	23.41	1.00	.35	.35	20.09	105.27	50	94	135	275	6	60	41	390	275	28	25	41	0	43	165	5	14.30	ADIT	790.0	B.T	MB
333997	58.80	.46	12.23	5.64	.15	3.73	10.15	1.73	2.79	.25	6.45	96.04	64	7	65	265	13	625	67	475	3053	26	45	1	1	82	195	4	.57	ADIT	805.0	B.qp.T	MB
333996	55.77	.63	15.15	9.55	.17	6.73	8.86	1.13	3.34	.31	11.07	101.64	90	18	91	230	15	160	66	590	2650	31	72	1	5	110	255	0	.15	ADIT	805.0	B.qp.T	MB
333995	52.54	.56	13.47	6.64	.16	5.35	12.33	2.19	1.70	.53	12.56	98.01	64	11	89	365	17	130	80	430	1134	32	42	1	7	53	245	6	.77	ADIT	823.0	B.pc.T	MB

538289

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Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Co	Pb	Zn	Br	Y	Zr	Nb	Cr	Ba	Sc	La	As	Ag	Rb	V	Mo	S	HOLE	DEPTH	ROCK TYPE	SL
333994	49.96	.74	21.83	13.65	.04	1.37	2.55	.34	10.01	0.14	10.21	101.44	110	32	87	241	33	170	23	111	0458	39	94	87	1	265	480	6	7.38	A01E	857.0	B.bfd.fy.?	HR

Group 0 11 (Picrite)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Co	Pb	Zn	Br	Y	Zr	Nb	Cr	Ba	Sc	La	As	Ag	Rb	V	Mo	S	HOLE	DEPTH	ROCK TYPE	SL
272044	56.00	.36	12.62	7.75	.14	9.49	11.34	1.36	1.40	.04	12.20	99.84	55	3	70	245	14	55	239	1077	5300	40	24	3	1	25	224	2	1.46	HL7	66.4	B.porich.S	HC

Group 0 12 (B.HL31 Spt)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Co	Pb	Zn	Br	Y	Zr	Nb	Cr	Ba	Sc	La	As	Ag	Rb	V	Mo	S	HOLE	DEPTH	ROCK TYPE	SL
334049	51.32	.55	15.17	4.26	.21	6.94	10.16	7.05	.37	.47	12.76	99.78	105	560	327	466	24	120	17	11	450	22	59	10	1	10	190	9	.14	HL31	310.15	B.ab.B	HC

Group 0 13 (B.HL30 Spt)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Co	Pb	Zn	Br	Y	Zr	Nb	Cr	Ba	Sc	La	As	Ag	Rb	V	Mo	S	HOLE	DEPTH	ROCK TYPE	SL
334067	52.35	.60	16.96	11.66	.11	5.72	8.20	3.39	1.22	.39	11.12	100.22	44	16	82	239	22	149	74	629	531	46	54	17	1	41	292	10	2.66	HL30	180.0	B.S	HC
334068	48.07	.50	13.64	8.09	.18	7.69	17.20	2.06	.74	.30	15.38	100.17	88	1	66	357	17	114	120	581	450	72	46	6	1	23	245	6	.01	HL30	204.4	B.S	HC
334069	52.72	.49	13.10	8.26	.17	7.63	13.59	2.13	.50	.20	13.35	99.53	61	6	113	374	10	113	129	554	470	73	41	5	1	16	231	7	.13	HL30	210.1	B.S	HC
334070	50.21	.50	12.31	7.26	.18	6.60	20.70	.56	1.51	.34	17.17	100.39	90	1	57	243	15	112	93	516	749	39	42	4	1	48	235	5	.33	HL30	243.8	B.S	HC
334071	53.62	.60	13.02	9.03	.14	9.29	9.71	1.26	1.03	.05	9.27	99.77	90	15	71	290	21	140	82	409	1030	45	40	4	1	32	266	9	.63	HL30	260.5	B.S	HC
334072	71.35	.31	15.13	3.50	.04	1.94	2.90	.71	3.92	.05	5.37	99.97	17	13	29	47	33	221	19	32	1233	9	65	22	1	150	51	14	.37	HL30	274.5	B.pop.HOPS	HC

Group 0 14 (B.HL30 Cnd)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Co	Pb	Zn	Br	Y	Zr	Nb	Cr	Ba	Sc	La	As	Ag	Rb	V	Mo	S	HOLE	DEPTH	ROCK TYPE	SL
334100	48.17	.55	14.50	10.25	.15	6.10	15.93	1.51	1.43	.32	10.60	99.61	65	40	153	353	21	125	102	572	804	39	45	21	0	49	249	7	2.55	HL30	186.7-200.6	B.S	TC
334101	50.69	.55	13.88	9.02	.17	8.27	15.45	1.16	.87	.32	15.15	100.43	102	11	102	320	19	121	127	603	601	48	47	4	1	27	250	7	.25	HL30	240.0-265.0	B.S	TC
334102	52.37	.58	13.36	9.39	.17	7.37	12.94	1.72	.98	.37	13.02	100.24	115	15	96	299	21	142	85	420	776	42	53	11	1	.36	261	8	1.20	HL30	263.0-272.4	B.S	TC

Group 0 15 (B.HL31 2nd)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Co	Pb	Zn	Br	Y	Zr	Nb	Cr	Ba	Sc	La	As	Ag	Rb	V	Mo	S	HOLE	DEPTH	ROCK TYPE	SL
334134	47.18	1.01	20.16	9.22	.12	2.92	12.20	.57	5.64	.56	15.23	99.35	245	43	341	196	33	211	92	820	2839	63	68	37	1	129	359	13	3.32	HL31	102.0-105.0	B.B	TC
334135	45.76	.73	14.01	10.41	.14	8.84	15.74	1.42	1.71	.37	16.44	99.37	87	45	99	260	24	147	96	601	1277	43	61	18	1	68	308	11	1.07	HL31	105.0-126.0	B.B	TC
334136	46.89	.97	16.45	10.08	.12	9.48	11.36	1.68	2.25	.48	10.43	99.94	80	91	243	249	29	260	126	877	1544	55	66	7	1	60	308	13	.84	HL31	126.0-142.0	B.B	TC
334137	46.95	.70	15.16	9.51	.16	8.24	14.67	1.16	2.48	.39	14.93	99.55	79	84	350	274	24	164	104	652	1532	42	54	9	1	42	290	10	.70	HL31	142.0-172.5	B.B	TC
334138	48.96	.90	16.12	10.23	.13	8.70	10.30	1.70	2.13	.42	11.93	99.80	96	10	127	264	28	194	108	645	1657	50	60	5	1	45	349	12	.22	HL31	172.5-180.0	B.B	TC
334139	52.67	.60	13.31	9.27	.11	9.71	10.40	1.53	1.74	.33	7.65	130.82	96	7	67	460	25	152	89	473	1497	40	59	1	1	37	254	9	.04	HL31	180.0-195.0	B.B	TC
334140	47.99	.74	14.60	9.15	.15	9.32	12.80	1.95	2.06	.37	12.21	99.96	96	11	657	419	25	150	100	707	1929	42	56	3	1	36	280	9	.34	HL31	195.0-205.0	B.B	TC
334141	49.25	.64	12.61	8.29	.10	8.60	15.67	2.30	0.92	.35	11.72	100.47	92	49	154	493	25	135	91	493	0769	37	52	7	1	33	247	7	.30	HL31	205.0-220.9	B.B	TC
334142	51.09	.61	13.05	9.16	.23	10.05	12.16	1.91	.43	.17	10.20	100.12	114	87	296	301	19	92	173	674	1430	36	39	10	1	27	226	6	.40	HL31	220.9-284.4	B.B	TC
334143	51.11	.43	13.45	9.32	.21	10.64	12.26	1.79	.43	.18	13.13	99.97	102	57	203	294	16	56	244	852	376	42	31	33	1	13	235	3	.02	HL31	284.0-288.4	B.B	TC
334144	46.50	.50	14.75	8.17	.22	6.89	10.10	4.13	.73	.27	14.37	100.33	123	93	467	370	17	75	205	734	1107	36	39	22	1	19	242	4	.30	HL31	288.4-310.6	B.B	TC
334145	50.72	.60	19.17	8.76	.22	9.11	11.25	4.34	1.74	.31	7.83	100.02	140	24	387	410	29	160	44	11	1516	31	77	13	1	58	300	8	.26	HL31	308.4-324.2	B.B	TC

598230

Group 0 16 (0.HL14 Spc)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Cu	Pb	Zn	Br	Y	Zr	Ni	Cr	Ba	Sc	La	As	Ag	Rb	V	Mo	B	HOLE	DEPTH	ROCK TYPE	SL
333971	52.17	.30	11.96	9.37	.27	6.44	20.66	2.20	.38	.35	13.65	130.46	na	1	43	545	11	25	140	760	235	29	17	6	1	20	165	1	.26	HL14	106.07	B.S	MC
333973	53.15	.62	12.19	7.67	.16	6.77	11.69	1.75	1.11	.30	7.55	98.79	101	1	70	565	17	50	115	525	5150	37	30	1	1	41	260	6	.60	HL14	139.27	B.S	MC
333974	54.33	.60	12.10	5.25	.10	6.46	14.96	1.95	.22	.32	8.64	98.51	149	1	47	385	19	144	115	595	435	38	49	23	1	7	210	6	.07	HL14	177.36	B.S	MC
333975	51.60	.69	13.46	7.06	.20	7.10	16.40	2.04	.02	.49	13.62	99.14	87	1	70	295	19	140	90	500	1050	29	39	18	1	23	225	5	.02	HL14	190.66	B.S	MC
333976	54.23	.76	17.37	9.02	.16	4.41	9.60	2.21	2.79	.13	8.37	99.02	72	7	157	270	11	105	240	1460	1405	69	21	34	1	145	525	5	.40	HL14	224.5	B.S	MC

Group 0 17 (0.HL29)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Cu	Pb	Zn	Br	Y	Zr	Ni	Cr	Ba	Sc	La	As	Ag	Rb	V	Mo	B	HOLE	DEPTH	ROCK TYPE	SL
334097	63.51	.30	12.42	3.27	.08	1.55	13.67	3.06	.57	.10	9.83	99.20	131	10	34	160	10	47	130	531	234	20	10	12	1	10	223	4	.77	HL29	379.1	Bfeqlslt6	IC

Group 0 18 (INV8)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Cu	Pb	Zn	Br	Y	Zr	Ni	Cr	Ba	Sc	La	As	Ag	Rb	V	Mo	B	HOLE	DEPTH	ROCK TYPE	SL
333977	52.31	.77	21.91	8.66	.17	4.50	3.40	.31	4.71	.33	7.79	99.55	104	20	257	51	24	105	59	230	2525	40	114	1	1	220	355	11	.82	HL14	226.5	T.bd.B	MC
333978	61.51	.63	18.85	7.33	.10	3.93	1.40	3.20	2.43	.22	4.93	99.80	13	9	140	340	25	170	10	52	1355	24	80	15	0	140	140	9	.72	HL14	231.0	L.b.B	MC
333979	58.16	.63	18.98	7.50	.08	5.15	3.28	2.37	4.22	.29	9.75	100.79	113	26	201	100	22	160	55	150	1660	1	100	21	1	160	104	10	.35	HL14	225.4-230.07	T.bd.B	AC
333980	59.65	.59	18.42	7.54	.05	3.74	2.20	5.57	2.24	.16	3.96	100.20	167	42	243	365	20	170	50	53	840	1	45	20	1	90	82	0	.79	HL14	230.07-234.1	L.b.B	AC
334222	44.76	.49	16.60	8.40	.20	9.22	17.30	1.72	1.17	.20	15.60	100.70	90	1	170	210	22	54	105	760	1340	1	50	155	1	21	250	4	.42	HL57	325.53	B.4	BC
334223	60.40	.65	22.17	3.76	.03	2.12	2.56	.37	5.30	.07	6.90	97.40	27	40	46	50	30	225	0	20	6150	1	110	60	1	190	40	14	0.91	HL57	326.62	L.b.B	AC
334072	71.35	.31	15.13	3.50	.04	1.94	2.90	.71	3.92	.05	5.37	99.97	17	13	79	47	33	221	69	32	1233	9	65	22	1	151	51	14	.77	HL30	274.4	B.B	IC
334073	75.97	.41	10.20	4.72	.05	2.43	2.92	.01	2.32	.05	4.99	99.13	23	21	83	26	23	92	30	79	582	12	29	17	1	99	109	10	.67	HL30	274.5	BSH.B	IC
334074	72.73	.30	15.77	3.10	.02	1.92	.57	.66	4.22	.05	3.65	99.37	12	10	50	31	33	236	63	20	1377	7	61	15	1	169	42	16	.52	HL30	275.3	BSH.B.B	IC
334079	49.10	.65	21.37	5.75	.24	2.70	11.02	3.06	4.72	.55	11.64	100.10	85	14	145	130	32	87	126	1030	1520	50	35	75	1	164	346	5	.80	HL30	278.7	BSH.B.Fe.B	IC
334111	60.05	.37	17.21	3.99	.04	2.45	2.50	.13	4.35	.07	5.60	99.57	70	17	114	43	40	260	27	47	1503	10	51	22	1	107	61	17	.91	HL30	272.4-278.3	LSH.B	IG
334112	55.61	.72	21.25	8.42	.06	2.64	4.04	1.36	5.53	.13	0.44	99.80	104	26	201	65	30	122	134	880	1074	50	72	115	1	213	363	10	3.54	HL30	278.3-278.8	A.b.B	IG
334113	56.06	.71	21.95	6.57	.04	1.55	4.00	2.09	4.63	.20	7.46	99.71	43	35	90	220	45	230	16	20	2072	25	62	50	1	197	119	10	3.35	HL30	278.8-283.4	A.b.B	IG
334070	56.90	.77	24.06	4.99	.04	2.72	.76	3.41	5.59	.30	4.04	99.70	44	16	206	226	44	224	5	22	2669	20	61	7	1	243	135	13	.26	HL31	325.5	A.B	IC
334051	60.16	.57	16.25	8.02	.12	4.27	3.04	.57	3.60	.27	6.30	99.55	82	66	962	111	27	135	61	279	1452	30	77	46	1	143	232	10	.73	HL31	330.0	T.bd.ch.B	IC
334052	56.26	0.01	25.64	2.65	.06	0.91	.74	1.99	6.95	.20	5.96	99.55	3	12	320	127	39	247	13	46	3129	40	64	12	1	250	103	05	.24	HL31	341.95	L.b.B	IC

Group 0 19 (FP8 HL14)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Cu	Pb	Zn	Sr	Y	Zr	Ni	Cr	Ba	Sc	La	As	Ag	Rb	V	Mo	B	HOLE	DEPTH	ROCK TYPE	SL
333979	50.65	.65	19.89	7.63	.10	4.10	1.91	6.14	.22	.10	5.90	98.24	66	4	140	200	23	135	31	120	290	41	10	43	1	26	320	9	1.02	HL14	270.42	FPA.10	MC
333980	57.35	.60	18.22	11.54	.17	3.73	3.34	3.73	1.97	.16	9.17	100.50	47	24	156	320	22	115	25	110	345	36	26	29	1	115	310	5	3.14	HL14	282.19	FPA.10	MC
333981	66.01	.30	17.65	5.69	.07	.90	1.79	3.54	3.24	.13	6.29	110.01	34	17	71	330	12	61	26	100	765	30	8	74	1	160	240	4	3.45	HL14	313.65	FPA.10	MC
333931	57.34	.70	20.12	7.44	.04	2.99	1.99	5.65	3.03	.12	4.60	99.70	75	94	400	290	22	150	43	65	1300	1	75	41	1	160	203	6	3.35	HL14	234.1-235.3	FPA.10	AG
333932	53.00	.71	17.42	8.41	.09	4.32	3.50	7.93	41	.09	2.94	78.30	7203	44	5311	345	10	120	1440	175	500	1	30	62	1	17	247	0	1.01	HL14	235.3-250.3	FPA.10	AG
333933	55.56	.65	17.22	8.40	.11	5.30	3.82	7.19	.20	.11	1.76	99.43	2165	66	1709	340	14	110	436	99	1620	1	13	40	1	24	236	0	.73	HL14	250.3-275.3	FPA.10	AG
333934	56.30	.65	18.75	7.92	.09	3.87	3.27	6.00	1.01	.13	3.52	100.20	407	62	560	305	10	115	41	120	410	1	45	39	2	46	252	6	1.01	HL14	275.0-284.0	FPA.10	AG
333935	56.53	.61	18.29	7.11	.07	2.22	4.96	5.50	3.39	.10	3.72	98.50	80	94	221	215	10	115	30	30	630	1	16	50	3	130	255	6	3.70	HL14	284.0-304.5	FPA.10	AG
333936	50.59	.50	16.75	21.16	.02	.84	1.37	4.01	3.37	.11	11.60	97.60	312	130	284	190	0	96	75	141	851	1	10	250	4	140	212	1	13.90	HL14	304.5-316.0	FPA.10	AG
333937	57.12	.52	17.25	8.36	.05	3.12	4.27	5.09	3.26	.07	4.80	97.20	89	115	244	220	14	115	40	76	810	1	10	120	3	140	196	6	5.20	HL14	306.0-310.1	FPA.10	AG

598291

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Group 0 20 (FP8 HL38cg)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Co	Pb	Zn	Sr	Y	Zr	Ni	Cr	Ba	Sc	La	As	Ag	Rb	V	Mo	S	HOLE	DEPTH	ROCK TYPE	SL
334014	61.50	.83	18.91	6.37	.05	1.73	2.70	5.00	2.53	.20	5.06	100.83		62	20	77	444	45	216	13	1	1197	21	55	10	1	112	91	16	1.96	HL30	288.4-288.2	FPA.10	IG
334015	66.94	.55	15.02	5.31	.04	1.46	2.67	4.61	2.49	.14	6.42	99.60		90	35	154	478	33	171	17	8	4322	17	45	10	1	60	72	13	2.03	HL30	230.2-314.3	FPA.10	IG
334016	65.19	.67	16.71	5.00	.07	1.63	1.30	7.56	.44	.15	2.69	99.64		344	739	2458	374	30	603	58	2	289	17	53	12	1	22	84	66	.36	HL30	314.3-326.2	FPA.10	IG
334017	50.86	.65	15.50	7.04	.13	4.39	6.37	4.75	1.47	.13	5.03	100.12		171	117	460	254	29	120	50	55	1256	20	34	21	1	43	181	11	.30	HL30	326.2-382.6	FPA.10	IG
334018	57.90	.60	15.87	8.51	.12	4.99	7.26	3.44	1.50	.12	4.10	100.37		187	20	214	236	27	115	52	117	940	32	31	9	1	47	216	9	.10	HL30	382.6-450.2	FPA.10	IG
334019	63.31	.16	14.57	6.82	.10	4.88	5.21	3.95	.80	.10	5.98	99.43		340	20	453	117	23	97	106	71	393	27	29	5	1	33	170	7	.56	HL30	450.2-454.3	FPA.10	IG
334020	61.43	.55	16.88	6.84	.11	3.65	5.96	2.65	1.67	.11	4.11	100.89		326	37	390	173	25	103	81	81	1827	29	30	6	1	53	205	8	.44	HL30	451.3-460.1	FPA.10	IG
334021	66.70	.59	16.07	6.57	.12	3.60	3.77	6.69	1.59	.15	5.99	99.92		239	163	666	192	23	125	75	82	353	11	27	6	1	53	243	9	.48	HL30	460.1-463.0	FPA.10	IG
334022	61.91	.51	16.43	6.36	.12	3.23	5.44	3.10	2.15	.13	3.95	99.43		220	32	269	220	26	110	66	76	1334	20	20	6	1	65	180	8	.33	HL30	463.0-465.4	FPA.10	IG
334023	58.96	.61	18.70	6.56	.07	3.03	3.27	6.94	1.66	.12	4.71	100.02		246	59	326	255	26	122	66	81	1196	33	35	1	1	42	237	8	.73	HL30	467.4-470.6	FPA.10	IG
334024	61.63	.59	17.43	7.22	.11	2.86	3.23	6.55	.82	.10	3.97	100.26		372	55	462	243	26	110	100	34	665	30	30	7	1	26	200	9	1.13	HL30	470.6-480.4	FPA.10	IG

Group 0 21 (FP8 HL38sc)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Co	Pb	Zn	Sr	Y	Zr	Ni	Cr	Ba	Sc	La	As	Ag	Rb	V	Mo	S	HOLE	DEPTH	ROCK TYPE	SL
334025	55.44	1.05	24.32	6.16	.02	1.70	1.62	3.61	5.62	.22	5.24	99.99		32	38	86	200	49	264	5	10	2533	26	58	45	2	242	617	20	3.12	HL30	280.0	FPA.10	IC
334026	70.30	.57	13.94	3.87	.03	.20	4.03	5.63	1.51	.15	4.15	99.56		10	11	10	544	33	155	3	14	1749	16	22	19	1	48	62	11	1.77	HL30	291.0	FPA.10	IC
334027	70.23	.57	13.54	5.76	.04	.17	1.43	3.78	3.19	.15	3.51	99.23		22	27	114	584	30	162	3	7	5691	17	38	59	1	97	60	12	3.56	HL30	302.2	FPA.10	IC
334028	70.13	.64	15.17	3.97	.05	1.39	.70	6.90	.71	.15	1.25	99.07		16	462	284	329	29	167	2	3	257	17	31	13	1	38	75	13	.32	HL30	317.7	FPA.10	IC
334029	58.71	.55	19.51	3.45	.11	4.51	6.15	3.69	1.89	.15	3.81	99.87		61	11	60	160	25	119	33	126	1513	31	36	25	1	54	190	9	.76	HL30	320.6	FPA.Sf.10	IC
334030	62.15	.55	16.23	7.25	.12	3.99	7.25	1.76	1.61	.12	4.93	100.23		36	3	61	205	22	97	27	165	730	27	25	6	1	56	167	7	.04	HL30	410.0	FPA.10	IC
334031	61.82	.75	15.33	6.26	.13	3.21	6.76	3.49	1.99	.13	5.71	99.25		49	9	64	323	35	142	25	66	1051	26	25	12	1	58	187	8	.11	HL30	446.25	FPA.10	IC
334032	59.03	.63	17.28	5.73	.10	3.16	5.33	5.37	1.67	.13	6.95	99.73		22	13	56	247	31	131	26	77	1673	31	42	11	1	35	179	10	1.12	HL30	467.4	FPA.10	IC
334033	64.86	.25	16.86	5.87	.08	3.33	1.84	8.88	.56	.11	2.62	99.68		44	15	112	321	25	111	22	13	72	.7	32	11	1	2	179	7	.77	HL30	488.9	FPA.10	IC

Group 0 22 (FP8 HL31)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Co	Pb	Zn	Sr	Y	Zr	Ni	Cr	Ba	Sc	La	As	Ag	Rb	V	Mo	S	HOLE	DEPTH	ROCK TYPE	SL
334053	64.56	.61	16.09	5.77	.11	3.89	2.41	6.38	.51	.13	3.95	99.63		5	9	84	257	22	125	29	84	323	26	35	16	1	16	151	9	.22	HL31	347.7	FPA.11	IC
334054	65.85	.66	17.09	2.99	.07	1.08	3.55	9.40	.11	.16	3.07	100.20		67	5	45	326	35	170	4	12	211	19	37	9	1	9	77	13	.10	HL31	355.15	FPA.Dfr.11	IC
334055	65.30	.62	16.71	4.86	.12	3.56	3.09	6.56	.85	.13	4.64	99.94		10	0	35	236	29	138	15	58	1149	25	36	9	1	24	128	11	.08	HL31	357.3	FPA.mts.11	IC
334056	72.26	.51	12.80	3.10	.08	1.20	3.91	4.20	1.43	.12	4.47	99.81		20	11	51	214	29	138	3	9	774	16	42	6	1	57	50	10	.21	HL31	383.75	T.FPA.11	IC
334146	59.02	.76	19.97	6.08	.09	2.48	4.03	2.59	4.53	.21	7.30	100.21		172	142	404	285	30	101	56	72	1940	31	57	30	1	164	167	12	1.39	HL31	324.2-346.2	T.FPA.11	IC
334147	63.46	.67	16.73	6.27	.08	2.76	2.90	5.63	1.46	.17	6.74	99.70		144	32	236	242	34	173	43	31	934	23	45	7	1	97	128	11	.02	HL31	346.2-401.8	T.FPA.11	IC

Group 0 23 (FP8 ADIT)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Co	Pb	Zn	Sr	Y	Zr	Ni	Cr	Ba	Sc	La	As	Ag	Rb	V	Mo	S	HOLE	DEPTH	ROCK TYPE	SL
334254	70.58	.54	14.68	1.17	.04	.60	3.54	6.52	.32	.10	1.92	98.18		16	290	250	388	30	133	16	56	150	1	45	14	1	8	55	10	.11	ADIT		FPA.Dfr.11	AC
334255	63.37	.61	15.59	5.53	.21	3.40	2.09	5.33	.63	.10	2.49	99.10		11	790	690	435	32	175	8	31	510	1	55	4	1	8	90	12	.10	ADIT		FPA.mts.11	AC

5982202

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Group 0 20 (Y% HL14)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Cu	Pb	Zn	Sr	Y	Zr	Ni	Cr	Ba	Sc	La	As	Ag	Rb	V	Mo	B	HOLE	DEPTH	ROCK TYPE	SL
333902	67.00	.67	16.62	6.31	.29	2.21	1.22	1.00	3.35	.15	5.13	99.74	100	;	115	60	12	96	14	61	830	26	13	50	1	199	310	5	1.54	HL14	340.99	1.12	MC
333938	50.07	.65	19.72	8.02	.10	2.03	1.80	3.44	4.15	.09	4.70	99.80	50	10	157	100	15	130	22	94	710	1	10	90	2	160	219	6	2.45	HL14	314.1-315.6	L.fm.12	AG
333939	66.66	.70	15.67	6.47	.17	1.30	2.71	1.14	4.51	.16	4.20	99.60	72	46	131	90	29	165	10	26	790	1	30	86	3	160	76	10	2.05	HL14	333.6-336.4	T.b.Bt.12	AG
333940	60.69	.81	19.30	7.36	.12	1.60	1.62	2.71	5.61	.04	5.50	.14	126	30	95	80	29	115	40	46	861	1	40	255	4	210	257	6	3.05	HL14	336.4-345.0	T.lt.12	AG
333941	57.19	.67	17.27	8.47	.30	5.01	3.56	2.92	3.20	.10	5.00	98.60	159	81	179	135	12	74	110	275	770	1	10	60	2	115	282	1	1.40	HL14	345.0-363.4	T.lt.12	AG
333903	60.53	.84	18.07	5.55	.21	2.01	2.45	4.30	3.56	.26	4.97	98.83	20	10	59	230	23	160	24	46	1460	25	42	24	1	125	206	6	1.50	HL14	367.33	L.12	MC
333942	59.60	.64	16.27	7.30	.19	3.90	3.52	2.92	4.02	.12	4.14	99.10	264	34	241	145	20	94	113	105	1310	1	33	60	3	145	253	1	2.45	HL14	360.6-363.0	T.Bt.1.12	AG
333901	69.67	.52	13.20	4.43	.10	1.60	1.50	1.34	6.69	.25	3.55	99.48	17	19	45	10	17	145		26	3200	10	50	17	1	105	125	6	.69	HL14	390.93	L.12	MC
333943	57.49	.80	18.11	8.06	.12	2.55	3.03	4.41	4.79	.10	1.50	99.70	91	41	104	190	10	145	41	41	1340	1	35	49	1	145	234	8	3.90	HL14	363.0-368.0	L.B.12	AG
333944	50.78	.74	17.42	8.34	.20	4.29	2.44	2.92	4.79	.16	4.16	100.20	90	88	239	145	14	130	38	88	1260	1	45	31	1	125	230	6	1.01	HL14	368.0-385.0	L.12	AG
333945	64.14	.65	14.02	6.22	.09	2.04	2.49	3.60	4.05	.23	2.06	99.49	101	56	230	145	29	160	27	18	2000	1	25	30	1	115	130	10	1.31	HL14	385.0-391.3	L.gls.12	AG
333946	63.02	.74	16.32	6.69	.10	2.07	2.14	2.65	6.76	.23	5.22	100.10	40	30	109	110	22	175	6	10	2040	1	85	27	1	190	137	10	1.35	HL14	391.3-398.4	L.12	AG
333947	63.17	.63	14.73	7.52	.25	2.41	2.14	2.93	5.46	.20	2.96	99.50	212	34	233	120	22	175	24		2240	1	55	20	1	135	110	13	1.44	HL14	398.0-405.3	L.12	AG
333905	65.59	.63	15.40	6.10	.12	1.74	1.86	2.13	7.09	.25	5.10	100.22	35	210	240	155	14	120	23	145	2915	27	29	20	1	210	290	6	2.07	HL14	410.0	B.tBt.12	MC
333948	62.41	.73	15.86	6.11	.09	2.50	3.69	3.17	4.03	.23	3.54	99.60	35	54	114	125	26	190	1	12	1580	1	60	50	1	165	125	10	1.04	HL14	405.3-417.5	L.12	AG
333949	66.50	.72	18.12	7.12	.12	3.03	1.14	2.04	5.76	.13	4.50	100.50	22	26	76	70	12	105	9	30	1380	1	35	47	1	205	243	8	2.60	HL14	419.5-421.4	T.12	AG
333906	55.07	.69	18.72	7.92	.27	7.12	4.13	3.79	1.97	.10	0.37	99.06	48	63	160	270	14	70	77	520	1090	52	15	27	1	91	360	3	1.74	HL14	454.0	L.lt.12	MC
333950	60.56	.67	16.10	6.20	.11	2.05	2.45	2.82	7.53	.10	3.70	90.90	224	80	405	160	16	110	90	90	2940	1	45	64	1	100	234	4	3.45	HL14	421.0-435.4	B.tBt.12	AG
333907	55.72	.49	15.70	7.12	.29	7.63	7.64	1.75	2.74	.19	9.06	99.31	83	11	120	170	12	62	65	425	1620	42	7	22	1	87	290	1	1.00	HL14	483.5	L.lt.12	MC
333951	56.15	.56	16.40	7.61	.27	4.05	7.24	3.55	4.07	.07	6.20	100.80	100	66	107	105	10	60	60	130	1560	1	10	26	1	100	247	2	1.60	HL14	435.4-450.0	L.12	AG
333952	52.90	.46	15.44	8.75	.32	7.69	7.14	3.45	2.27	.05	6.70	96.21	83	170	232	100	8	50	97	300	1200	1	25	36	1	56	230	2	1.97	HL14	450.0-475.0	L.12	AG
333953	52.50	.46	15.50	8.61	.20	7.79	8.26	2.90	2.41	.05	8.05	99.40	119	220	516	155	6	44	85	270	1430	1	10	36	1	50	220	2	1.43	HL14	475.0-500.0	L.12	AG
333908	50.26	.40	16.70	8.41	.45	10.95	.42	.10	4.62	.10	7.47	99.93	159	90	470	66	9	61	41	290	2230	44	10	62	1	120	320	2	1.27	HL14	522.5	L.Q.12	MC
333954	51.40	.55	17.31	9.40	.27	6.31	5.52	2.82	4.03	.05	5.70	97.40	97	300	400	130	10	60	47	140	1430	1	10	25	2	105	250	2	2.05	HL14	500.0-519.5	L.12	AG
333955	60.00	.46	15.05	8.24	.37	6.25	1.29	.40	3.12	.04	7.20	99.10	112	100	221	64	8	40	74	105	660	1	10	110	3	110	224	4	4.60	HL14	519.5-521.0	L.fm.gs.12	AG
333956	53.50	.42	14.73	8.24	.32	7.05	7.25	.07	3.10	.05	8.20	97.36	106	165	252	140	2	40	52	195	1200	1	10	66	<2	72	215	2	1.46	HL14	521.3-526.1	L.12	AG
333957	52.99	.46	15.94	8.10	.25	8.77	4.26	.31	5.07	.05	6.95	97.10	145	40	156	90	6	40	65	200	1840	1	10	125	4	130	217	4	3.55	HL14	526.0-530.5	L.fm.gs.12	AG
333909	50.51	.20	15.74	9.20	.27	10.43	.50	.01	.34	.13	8.43	99.67	107	13	114	41	10	65	74	325	425	43	19	46	1	31	305	2	.32	HL14	549.0	BIZ.Q.clI3	MC
333958	52.80	.47	16.37	9.05	.32	13.77	2.60	.36	1.51	.15	7.60	97.70	87	40	142	92	8	50	55	235	560	1	10	80	2	42	222	2	1.03	HL14	530.5-537.0	BIZ.C.13	AG
333910	25.76	.41	11.32	7.07	.06	1.66	.29	.19	3.24	.17	7.70	101.60	515	3630	7270	22	9	91	37	260	870	26	13	85	7	150	200	3	4.37	HL14	555.82	BIZQglsI3	MC
333959	53.61	.53	15.90	9.90	.23	15.11	1.53	.36	1.19	.14	7.90	90.40	113	26	135	50	10	60	106	285	310	1	10	165	3	31	245	2	1.24	HL14	537.0-549.0	BIZ.C.13	AG
333960	56.93	.35	9.65	7.10	.07	2.59	.99	.37	2.81	.11	6.75	81.10	3796	#<1	25300	10	26	300	110	610	1500	1	10	50	13	295	121	2	8.05	HL14	549.0-560.2	BIZ.Qglsl3	AG
333761	55.16	.47	12.49	10.00	.15	2.76	.30	.29	3.21	.20	10.50	94.00	23401	3000	3	22	10	26	130	69	110	1220	1	30	400	35	145	137	2	11.60	HL14	560.2-561.5	BIZ.cl.13	AG
333962	70.69	.50	14.07	7.03	.03	1.16	.41	.29	0.69	.14	6.20	99.00	384	3660	4052	20	26	90	44	225	2020	1	40	100	.8	165	150	2	5.65	HL14	561.5-569.1	BIZ.gls.13	AG
333963	27.95	.52	14.22	45.92	.36	3.91	.36	.31	2.70	.19	19.20	96.60	512	2500	9200	10	24	100	29	61	1000	1	10	600	11	125	149	4	25.10	HL14	569.3-570.4	BIZ.cl.13	AG
333911	71.20	.50	11.40	11.40	.10	1.10	.01	.13	3.10	.14	7.24	100.66	253	3440	3040	34	9	99	21	125	2430	32	6	107	0	160	265	4	5.04	HL10	587.6	BIZ.13	MC
333964	63.31	.55	13.69	10.90	.14	2.06	.72	2.50	3.37	.16	6.40	90.40	702	7000	5050	30	26	81	172	275	3700	1	10	94	24	135	176	2	4.90	HL14	570.4-572.2	BIZFm.13	AG
333965	67.69	.57	12.69	10.97	.10	2.47	.62	.30	3.14	.10	7.00	90.00	339	1160	2029	90	26	50	100	12011000	1	30	155	4	120	163	4	6.15	HL14	572.2-578.0	BIZ.Q.13	AG
333966	63.97	.64	14.22	11.36	.20	1.07	1.03	.31	6.15	.21	6.45	90.00	740	0000	5902	90	24	120	41	140	3200	1	25	210	15	160	166	4	5.70	HL14	578.0-599.1	BIZ.13	AG
333967	53.57	.50	17.23	10.03	.20	10.42	2.90	.37	2.70	.13	0.20	90.20	59	42	141	60	19	50	135	400	850	1	10	72	2	70	243	2	3.30	HL14	599.3-600.0	Jack?13.13	AG
333968	50.54	.40	13.53	10.93	.19	3.16	2.10	2.27	4.04	.06	7.35	76.30	59	06	155	320	30	30	46	22032767	1	50	150	2	125	167	2	7.30	HL14	600.0-601.6	BIZ.13	AG

Group 0 25 (BIZ %L57)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Cu	Pb	Zn	Sr	Y	Zr	Ni	Cr	Ba	Sc	La	As	Ag	Rb	V	Mo	B	HOLE	DEPTH	ROCK TYPE	SL
334225	62.37	.61	20.97	5.31	.32	1.60	1.07	.14	5.56	.15	7.35	90.10	34	155	470	56	36	105	2	6	7700	1	140	210	2	195	80	12	4.00	HL57	336.1	BIZ.14	AC
334226	32.82	.24	21.26	15.22	.31	1.33	.11	.15	5.54	.10	13.90	76.40	7750	2157	6363	10	26	205	20	320	2340	1	120	1250	122	360	100	0	10.20	HL57	338.4	BIZ.14	AC
334227	57.35	.80	23.10	8.17	.02	1.00	.27	.20	6.15	.00	0.10	90.10	150	1120	790	37	36	150	40	155	1960	1	95	455	2	200	250	0	5.20	HL57	342.95	BIZ.14	AC
334228	51.67	.82	22.40	12.37	.04	1.77	1.00	1.72	5.56	.35	10.40	50.20	70	130	205	90	34	135	52	250	2640	1	60	150	1	190	260	0	9.65	HL57	348.69	BIZ.14	AC

598293

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Cu	Pb	Zn	Sr	Y	Zr	Nb	Cr	Ba	Sc	La	As	Ag	Rb	V	Mo	S	HOLE	DEPTH	ROCK TYPE	SL
334229	55.39	.81	22.02	9.03	.04	1.99	1.28	3.46	4.02	.09	6.35	98.11		80	60	70	190	32	140	40	170	2500	1	25	37	1	155	260	12	5.45	HL57	355.90	SIZ.14	AC

Group 0 26 (SIZ PL61)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Cu	Pb	Zn	Sr	Y	Zr	Nb	Cr	Ba	Sc	La	As	Ag	Rb	V	Mo	S	HOLE	DEPTH	ROCK TYPE	SL
334230	66.95	.23	14.35	5.01	.13	1.34	4.00	.10	4.52	.09	7.40	98.50		36	62	37	62	26	64	8	22	1600	1	45	190	3	155	210	4	3.93	HL61	395.00	SIZ.Q.14	AC
334231	39.52	1.31	29.93	16.52	.01	9.23	1.60	.31	0.53	.09	13.10	97.20		54	113	36	165	40	230	23	56	1520	1	120	5400	2	210	260	10	12.40	HL61	404.65	SIZ.3.14	AC
334232	52.44	.75	21.30	9.62	.21	7.31	3.21	.12	4.45	.04	11.10	99.66		135	58	115	58	26	92	14	44	980	1	35	200	2	145	250	6	6.20	HL61	408.57	SIZ.Q.14	AC
334233	62.20	.69	14.96	11.69	.06	.04	3.19	.25	3.59	.11	9.63	97.80		66	26	43	52	19	105	20	40	750	1	70	120	1	100	140	8	9.10	HL61	409.64	SIZ.Q.14	AC
334234	56.26	.77	17.06	11.05	.12	2.50	4.36	1.09	3.66	.17	10.20	97.80		54	36	70	80	32	135	25	50	850	1	70	105	1	110	180	10	7.40	HL61	421.2	SIZ.Q.14	AC
334235	68.32	.33	9.25	7.01	.10	0.95	0.41	2.50	.61	.03	9.05	99.40		60	16	41	100	21	30	8	26	170	1	45	130	1	7	100	1	4.10	HL61	426.07	SIZ.Q.14	AC
334236	67.36	.30	17.19	6.71	.02	.01	1.39	.70	4.03	.04	6.85	98.90		110	21	37	64	26	74	8	60	760	1	40	60	1	120	220	4	0.94	HL61	436.56	SIZ.Q.14	AC
334237	74.23	.50	13.06	5.40	.06	1.51	.21	.06	3.51	.05	1.30	98.70		29	380	105	11	36	70	46	265	1300	1	53	130	1	70	190	6	2.62	HL15	453.0	SIZ.15	AC
334238	58.83	.30	7.29	10.16	.21	2.94	.77	.02	1.30	.10	5.00	82.50	11530	[illegible]	9%14	60	10	26	270	16	240	570	1	70	50	105	150	75	1	6.00	HL15	456.6	SIZ.sa.15	AC
334239	65.41	.20	6.65	13.91	.27	2.80	.04	.01	0.05	.02	0.05	99.30	10	40	25	40	25	20	10	10	26	110	2	52	520	1	35	200	10	50	50	2	10.00	HL15	464.5	SIZ.15	AC
334240	70.96	.51	12.33	7.76	.14	4.55	.10	.34	2.53	.11	5.15	99.70		11	325	620	14	14	66	14	56	540	1	50	180	1	72	180	4	2.61	HL15	480.6	SIZ.gls.15	AC
334241	30.43	.40	11.67	35.27	.11	2.03	.60	.13	4.19	.04	17.40	99.80		21	850	340	44	9	62	12	54	1200	1	35	500	3	126	95	4	23.40	HL15	491.72	SIZ.sa.15	AC
334242	46.92	.46	14.87	27.09	.40	7.60	.46	.02	1.40	.09	9.15	97.30		17	130	250	22	12	82	12	70	1350	1	40	330	4	30	120	6	6.65	HL15	493.27	SIZ.15	AC
334243	74.69	.37	11.27	5.74	.13	2.00	.56	.03	3.47	.02	5.00	98.30		14	130	56	33	16	60	16	70	1300	1	25	170	2	110	120	4	3.32	HL15	501.2	SIZ.gls.15	AC
334244	70.16	.30	12.47	5.65	.02	1.65	.21	.07	3.02	.04	5.25	96.50		15	80	47	25	20	80	10	66	2040	1	55	205	3	125	150	4	4.36	HL15	508.2	SIZ.gls.15	AC
334245	57.42	.50	17.66	8.10	.14	4.60	4.57	1.71	2.03	.08	7.55	97.90		76	30	54	80	26	90	16	54	590	1	50	50	1	82	210	6	2.14	HL15	513.2	SIZ.gls.15	AC
334246	57.20	.59	17.80	8.46	.11	4.02	4.02	2.26	2.73	.09	6.90	96.20		60	10	54	90	20	92	10	44	640	1	45	23	1	82	230	8	1.67	HL15	518.2	SIZ.gls.15	AC
334247	61.40	.57	17.43	6.25	.10	4.42	4.04	2.00	2.50	.10	6.45	98.90		72	16	43	82	26	82	14	54	450	1	50	30	1	66	220	6	1.20	HL15	525.6	SIZ.gls.15	AC

Group 0 27 (SIZ HL50)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Cu	Pb	Zn	Sr	Y	Zr	Nb	Cr	Ba	Sc	La	As	Ag	Rb	V	Mo	S	HOLE	DEPTH	ROCK TYPE	SL
334248	69.23	.61	13.51	5.91	.07	1.77	2.19	.16	3.76	.05	6.80	97.30		74	96	80	28	20	110	14	22	1320	1	70	220	2	125	170	8	4.62	HL50	362.5	SIZ.14	AC
334249	61.82	.77	17.53	8.49	.07	2.36	2.43	.09	4.97	.14	9.55	97.96		66	50	135	31	30	135	20	40	1400	1	70	155	1	165	220	8	6.10	HL50	365.3	SIZ.8.14	AC

Group 0 28 (SIZ HL35A)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Cu	Pb	Zn	Sr	Y	Zr	Nb	Cr	Ba	Sc	La	As	Ag	Rb	V	Mo	S	HOLE	DEPTH	ROCK TYPE	SL
334084	24.20	.40	13.10	52.16	.16	3.23	.71	.01	0.86	.12	24.95	99.95		350	027900	9000	15	26	117	21	71	5050	32	3	970	41	152	102	5	30.30	HL35	394.0	SIZ.top.86	IC
334085	70.60	.45	10.66	10.26	.23	5.60	.26	.01	1.27	.09	5.26	99.50		11	305	299	11	16	84	15	60	1051	10	9	112	3	46	129	7	2.22	HL35	396.2	SIZ.cl.16	IC
334086	25.91	.80	19.75	27.05	.54	13.12	.90	.00	2.12	.20	13.67	99.31		3900	[illegible]	[illegible]	12	26	260	33	150	3223	42	2	531	50	110	332	9	12.40	HL35	397.7	SIZ.cl.16	IC
334087	25.41	.75	10.49	13.41	1.51	25.91	14.50	.01	.60	.20	23.84	100.80		3	32	250	114	20	117	21	90	600	27	31	29	1	20	100	0	1.10	HL35	400.2	SIZ.clcol4	IC
334088	66.50	.40	11.75	9.67	.51	6.01	2.73	.01	1.70	.09	8.54	100.41		17	213	606	37	22	66	16	71	926	24	21	37	2	46	177	6	2.02	HL35	413.65	SIZ.gls.16	IC
334089	26.17	.79	20.35	30.10	1.34	10.43	1.91	.01	.17	.17	15.95	99.59		31	575	559	21	24	131	30	112	175	24	31	205	5	0	269	11	0.42	HL35	417.2	SIZ.clcol6	IC
334090	36.23	.61	23.47	13.07	1.06	12.06	7.10	.01	5.21	.15	17.34	130.11		23	67	204	60	35	145	29	101	2791	36	34	107	3	165	247	10	4.67	HL35	417.4	SIZ.clcol6	IC
334091	29.80	.30	8.04	6.55	.02	.71	.24	.01	2.72	.07	4.01	99.44		15	350	90	37	15	59	14	51	6192	20	11	161	1	102	111	5	4.65	HL35	425.6	SIZ.Qgls16	IC
334092	60.57	.51	15.19	8.23	.23	3.21	.24	.01	3.70	.10	5.51	100.05		20	109	166	23	22	190	10	73	2135	27	24	80	1	131	107	7	3.31	HL35	430.6	SIZ.mic.16	IC
334093	72.34	.46	13.29	6.14	.03	.86	.20	.01	3.94	.10	5.80	99.41		14	41	24	26	21	93	16	60	1711	20	20	450	1	134	162	7	5.45	HL35	435.8	SIZ.8.16	IC

59824

Group 6 29 (SIZ HL39)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Cu	Pb	Zn	Sr	Y	Zr	Nb	Cr	Ba	Sc	La	As	Ag	Rb	V	Mo	S	HOLE	DEPTH	ROCK TYPE	GL
334094	64.67	.10	6.05	20.63	.01	.31	.65	.40	1.13	.03	13.55	99.31		74	2602	1964	5	26	46	6	61	1467	5	9	937	0	37	21	3	19.31	HL39	239.4	SIZ.qlo.16	IC
334095	59.50	.10	3.30	30.12	.02	.05	.05	.01	.21	.04	13.04	94.50		145	12000	[illegible]	1	26	60	17	21	1852	6	6	703	27	45	22	1	20.04	HL39	245.7	SIZ.16	IC
334096	5.46	.05	3.52	44.04	.00	.22	.62	5.61	.91	.01	24.12	88.56		10003	[illegible]	[illegible]	12	26	83	36	53	6440	3	2	1138	06	61	20	1	30.12	HL39	251.7	SIZ.ab.16	IC
334097	81.76	.15	2.72	12.56	.03	.35	.33	.31	.83	.03	6.70	99.95		40	2865	5100	17	26	39	5	13	5677	5	3	227	0	34	30	2	0.92	HL39	254.0	SIZ.qlo.16	IC
334098	75.78	.46	11.56	7.24	.01	.75	.30	.01	3.36	.16	5.65	99.59		24	525	10	16	15	90	14	52	5515	19	12	270	1	116	123	0	4.74	HL39	293.7	SIZ.qlo.16	IC

Group 6 30 (SIZ HL31cg)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Cu	Pb	Zn	Sr	Y	Zr	Nb	Cr	Ba	Sc	La	As	Ag	Rb	V	Mo	S	HOLE	DEPTH	ROCK TYPE	GL
334140	63.02	.74	19.29	6.62	.05	2.56	2.26	4.52	2.29	.20	5.12	100.50		120	41	246	247	37	195	33	16	1786	22	51	7	1	92	94	14	1.01	HL31	441.0-411.5	FPAlSIZ.11	IC
334141	61.66	.78	18.46	6.92	.05	3.15	2.69	3.61	2.35	.18	5.94	99.82		154	17	227	234	35	173	42	31	1787	24	46	15	1	99	116	11	1.16	HL31	411.5-431.15	FPAlSIZ.11	IC
334150	60.31	.62	17.00	7.89	.08	3.71	4.74	3.00	1.82	.19	7.54	100.30		235	13	207	233	30	138	67	86	1310	31	31	14	1	60	194	0	.17	HL31	431.15-444.4	FPAlSIZ.11	IC
334151	56.52	.47	13.15	6.87	.27	7.15	14.73	.71	2.15	.13	16.97	99.40		269	16	250	161	20	92	64	58	312	22	20	44	1	65	136	6	1.47	HL31	444.4-447.5	SIZ.0.17	IC
334152	62.62	.59	15.33	6.24	.12	4.12	5.77	.59	3.99	.14	10.36	99.56		467	01	521	92	24	123	111	73	1124	26	37	58	1	123	161	0	3.67	HL31	447.5-450.0	SIZ.Y.17	IC
334153	52.03	.71	10.10	9.15	.27	14.14	2.66	.01	2.39	.15	12.00	99.96		259	397	951	49	30	110	65	70	807	35	43	194	1	73	205	16	4.30	HL31	450.0-462.0	SIZ.17	IC
334154	57.43	.51	15.05	8.29	.27	10.02	1.12	3.15	2.23	.13	1.23	99.86		493	2766	3617	31	23	143	59	75	1436	31	26	120	4	62	200	9	3.00	HL31	462.0-470.2	SIZ.17	IC
334155	42.57	.70	21.29	11.62	.51	21.05	.44	.01	1.23	.13	11.22	99.78		143	25	320	36	20	132	58	93	1004	36	27	80	1	34	265	0	2.43	HL31	470.2-483.0	SIZ.c1.17	IC
334156	59.17	.56	17.23	10.41	.30	6.94	1.17	.01	3.74	.10	0.94	99.67		169	57	258	59	25	105	61	72	3700	32	25	126	1	112	215	2	4.98	HL31	483.0-489.0	SIZ.17	IC
334157	38.07	.90	22.37	25.05	.90	15.79	1.06	.01	1.74	.17	14.07	99.69		72	953	977	40	20	119	93	57	1472	36	27	152	5	56	349	9	7.03	HL31	489.0-493.0	SIZ.c1.17	IC
334158	48.84	.70	17.10	20.99	.40	6.20	4.59	.01	3.54	.12	11.72	99.58		166	371	565	45	10	82	57	43	1034	30	31	329	4	110	284	5	9.43	HL31	493.0-502.5	SIZ.17	IC

Group 6 31 (SIZ HL31sc)

Samp.No	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	ME	Sum	Cu	Pb	Zn	Sr	Y	Zr	Nb	Cr	Ba	Sc	La	As	Ag	Rb	V	Mo	S	HOLE	DEPTH	ROCK TYPE	GL
334137	62.40	.74	17.41	6.55	.06	2.62	3.06	4.37	2.23	.15	5.49	99.70		10	37	121	239	35	103	3	10	1173	21	56	16	1	81	82	13	1.25	HL31	449.3	FPAlSIZ.11	IG
334138	61.02	.80	18.44	7.00	.06	4.30	1.64	3.40	2.22	.21	6.52	99.92		22	0	151	210	30	192	10	27	1310	23	32	0	1	84	115	15	.17	HL31	415.45	FPAlSIZ.11	IG
334139	64.22	.61	15.32	6.07	.09	5.30	3.36	1.73	1.93	.13	0.02	99.30		32	9	100	72	25	122	17	71	955	26	35	30	1	50	161	9	.94	HL31	445.5	FPAlSIZ11	IG
334160	36.01	.36	10.91	5.53	.50	12.73	30.91	.60	1.69	.11	20.21	100.23		20	16	65	244	13	64	9	45	503	12	17	31	1	42	96	4	1.29	HL31	446.4	SIZ.0c0.17	IG
334161	66.75	.72	17.77	5.32	.05	2.65	1.46	.43	4.49	.23	7.31	99.60		40	16	39	56	32	147	20	04	1335	20	40	63	1	140	174	11	3.67	HL31	456.3	SIZ.Y.0.17	IG
334162	60.32	.55	15.02	5.07	.20	7.40	.31	.01	2.79	.09	5.52	99.06		7	40	74	23	23	94	17	67	1321	31	25	39	1	80	207	7	1.32	HL31	475.15	SIZ.ms.17	IG
334163	32.54	.01	24.00	12.30	.62	20.09	.30	.01	.12	.14	12.54	99.71		2	5	174	127	14	150	42	105	531	40	23	29	1	3	272	11	1.54	HL31	482.6	SIZ.clcs17	IG
334164	75.22	.14	12.21	5.67	.10	2.13	.30	.31	3.11	.06	0.60	99.66		0	16	42	26	23	02	16	55	2634	23	19	66	1	107	132	6	3.34	HL31	488.0	SIZ.s1.17	IG
334165	47.00	.92	21.35	21.52	.04	1.50	.34	.01	6.61	.17	12.62	99.58		54	240	51	41	23	106	41	47	2035	41	17	434	5	213	515	0	14.26	HL31	497.15	SIZ.ss.17	IG

Major elements in wt. % recalculated to 100 % . Trace elements in p.p.m.

5382295

Group 0 1 (UNS)

Samp.No	HOLE	DEPTH	ROCK TYPE	SL	In No.	ALT1	ALT2	Ti/Zr	NORTH	EAST	RL	MR Al/3K
334180	HL30	23.0-37.9	T.B.SH.1	IG	76.1199	.577981	.812928	19.1835	14909.2	5458.2	646.3	1.56084
334181	HL30	37.9-55.0	V.B.SH.1	IG	72.1154	.744469	.882953	17.7206	14901.0	5464.4	636.1	1.41375
334182	HL30	55.0-64.5	V.B.SH.1	IG	76.3636	.828678	.912239	7.59346	14912.0	5467.8	621.2	1.46088
333993	ADIT	67.2	T.B.SH.1	MA	69.5634	.293723	.787508	8.63257	14902.1	6858.9	382.7	2.46447
334183	HL30	64.5-70.9	T.B.SH.1	IG	69.8476	.584636	.862646	9.78749	14902.4	5473.2	607.9	1.57387
334184	HL30	70.9-83.0	T.B.SH.1	IG	80.6810	.628497	.908143	14.2731	14902.5	5475.0	603.3	1.21888
334256	HL24	3.0-20.0	BSH.SS.1	AG	78.4286	.819446	.889984	23.9794	14903.2	5702.7	663.6	1.22171
334257	HL24	24.0-53.4	T.B.1	AG	81.2500	.449157	.868093	10.5589	14905.7	5711.0	635.7	1.34945
334258	HL24	53.4-54.5	BSH.T.B.1	AG	97.0325	.427270	.859197	27.9759	14905.7	5712.2	634.7	1.47403
334125	HL31	7.0-20.0	BSH.1	IG	80.2612	.886262	.918875	19.6216	14898.0	6048.1	666.2	1.36557
334126	HL31	20.0-26.0	BSH.SS.1	IG	77.0947	.656716	.961899	11.9282	14898.4	6038.2	661.4	1.16853
334127	HL31	26.0-31.0	T.B.1	IG	70.1541	.720859	.912083	8.05144	14897.9	6036.4	656.7	1.28910
334128	HL31	31.0-34.0	V.B.1	IG	74.7859	.784448	.941632	7.49355	14897.5	6035.3	653.8	1.38285
334129	HL31	34.0-35.0	BSH.1	IG	90.4459	.826816	.947882	9.13348	14897.4	6035.0	653.0	1.15098
334130	HL31	35.0-41.5	V.B.1	IG	92.3954	.783355	.932946	8.47755	14896.7	6032.7	647.8	1.24876
334131	HL31	41.5-51.5	T.B.1	IG	88.2682	.718954	.906810	8.71341	14895.4	6029.2	637.7	1.21344
334179	ADIT	595.0	SS.1	MA	62.7451	.668646	.939138	7.62988	14644.1	6355.3	388.1	1.19866
334180	ADIT	540.0	B.1	MA	65.4545	.696849	.937924	7.95234	14623.7	6407.8	387.6	1.19240
334181	ADIT	434.0	T.B.bx.1	MA	54.0387	.746154	.944984	16.2441	14597.9	6489.8	386.7	1.21396
334182	ADIT	430.0	B.bx.1	MA	54.1667	.457587	.882519	10.3911	14590.7	6512.7	386.4	1.49787
334183	ADIT	392.0	B.1	MA	57.1429	.430263	.880666	9.15027	14579.3	6549.0	386.0	1.45290
334184	ADIT	310.0	B.1	MA	82.1429	.295676	.780726	8.61141	14554.0	6627.2	385.2	2.33435
334185	ADIT	237.0	B.1	MA	79.3103	.341648	.854737	8.99226	14532.9	6696.9	384.4	1.65871
334186	ADIT	201.0	SS.1	MA	84.2912	.536888	.918021	11.9897	14523.7	6726.5	384.1	1.33662
334187	ADIT	205.5	BSH.1	MA	88.1734	.382282	.905345	20.1818	14523.5	6726.9	384.1	1.32984
334188	ADIT	67.0	sed.1	MA	66.8351	.647887	.923622	7.70765	14482.1	6859.1	382.7	1.17628

Group 0 2 (UNS .)

Samp.No	HOLE	DEPTH	ROCK TYPE	SL	In No.	ALT1	ALT2	Ti/Zr	NORTH	EAST	RL	MR Al/3K
333914	HL14	4.6-50.0	BSH.2	AG	80.2883	.653364	.837547	33.9788	14508.8	5382.5	648.7	1.29829
333915	HL14	50.0-85.0	BSH.2	AG	53.9887	.655555	.859464	29.9742	14504.2	5405.0	621.9	1.19221
333969	HL14	49.0	BSH.2	MC	85.8249	.681212	.834754	31.6528	14504.8	5381.7	649.4	1.44144
333970	HL14	75.01	BSH.2	MC	67.9107	.699080	.854419	10.9837	14500.4	5399.2	629.0	1.37564
334185	HL30	83.0-100.3	BSH.2	IG	74.5763	.637813	.893761	23.1230	14902.0	5401.1	598.3	1.24981
333992	HL30	120.5	BSH.2	IC	60.5634	.739237	.848778	29.2548	14903.0	5408.0	569.3	1.47341
334186	HL30	100.0-150.0	BSH.2	IG	85.7143	.546529	.808809	26.2510	14903.1	5499.0	541.9	1.48673
334187	HL30	150.0-186.9	BSH.2	IG	79.2746	.534273	.879362	27.9457	14903.0	5511.2	507.6	1.48167
334066	HL30	120.5	BSH.2	IC	76.5101	.961102	.843734	21.4521	14903.0	5408.0	569.3	1.39405
334259	HL24	50.5-57.1	BSH.2	AG	83.0040	.547794	.901313	11.9897	14905.9	5713.0	632.2	1.16493
334260	HL24	57.1-100.0	BSH.2	AG	80.5438	.656114	.860520	24.4234	14908.9	5726.0	591.4	1.14253
334261	HL24	100.0-150.0	BSH.2	AG	80.1527	.637131	.855340	29.9742	14910.3	5740.4	543.6	1.22623
334262	HL24	150.0-176.4	BSH.2	AG	86.0377	.645233	.873710	30.2140	14910.3	5747.9	518.3	1.19091
334132	HL31	51.5-80.0	BSH.2	IG	85.2903	.811994	.891437	23.0571	14892.6	6010.9	611.3	1.27567
334133	HL31	80.0-102.0	BSH.2	IG	72.2101	.637363	.882483	26.4987	14898.1	6009.6	591.1	1.19112
334178	ADIT	657.0	BSH.2	MA	63.3803	.823232	.916316	23.5353	14650.7	6296.2	388.0	1.47673
334224	HL28	136.2	BSH.2	AC	72.8933	.900998	.832963	30.2340	14901.9	5750.5	565.8	1.41464
334264	HL24	181.8-183.0	BSH in B2	AG	74.2029	.355426	.922428	16.5572	14910.2	5749.9	512.8	.990297

5982296

Group 0 3 (0.55 Cut)

Samp.No	HOLE	DEPTH	ROCK TYPE	SL	Zn No.	ALTI	ALT2	TI/Zr	NORTH	EAST	EL	MR AI/3K
334001	MISS	64.0-71.2	0.3	IG	81.6764	.366803	.857429	29.0029	10096.8	5895.1	603.0	1.52002
334002	MISS	81.2-145.0	0.3	IG	84.3931	.449614	.712161	30.2965	10093.9	5876.6	552.5	2.42139
334003	MISS	145.0-152.0	0.3	IG	76.5623	.492103	.693526	29.1854	10093.6	5874.0	545.6	2.14525
334004	MISS	152.0 179.5	0.4	IG	81.0102	.266001	.771551	44.5770	10093.6	5865.2	519.9	4.31652
334005	MISS	179.5-210.3	0.4	IG	87.2340	.305096	.759446	45.6750	10092.7	5854.6	491.0	4.21270
334006	MISS	210.3-225.0	0.4	IG	85.0624	.165261	.803712	50.9561	10092.8	5847.4	477.3	1.86834
334007	MISS	225.0-233.0	0.4	IG	71.3333	.150667	.916398	46.7394	10092.8	5846.3	469.0	1.52649
334008	MISS	233.0-241.0	0.4	IG	81.7500	.322121	.704072	46.9161	10092.9	5841.7	462.3	2.99401
334009	MISS	241.0-250.0	0.4	IG	80.7692	.411765	.710995	50.0037	10093.1	5837.6	445.5	4.33147
334010	MISS	250.95-259.1	0.4	IG	91.0714	.334679	.806762	46.9117	10093.8	5837.2	445.4	2.71361

Group 0 4 (0.55 Spl)

Samp.No	HOLE	DEPTH	ROCK TYPE	SL	Zn No.	ALSI	ALT2	TI/Zr	NORTH	EAST	EL	MR AI/3K
339010	MISS	73.5	0.3	IG	77.0270	.262759	.858495	32.4491	10096.0	5901.3	619.5	2.10525
334012	MISS	83.1	0.IP.ch.3	IG	84.9048	.427360	.825147	28.0877	10096.3	5897.9	610.3	1.68492
334013	MISS	88.5	0.3	IG	85.7143	.270919	.741811	30.9086	10096.0	5815.7	604.5	3.03851
334014	MISS	92.0	0.3	IG	89.6104	.363093	.747932	31.3792	10095.9	5894.0	602.2	2.07717
334015	MISS	100.05	0.3	IG	93.4211	.295136	.717679	28.1847	10095.6	5892.0	594.7	0.87893
334016	MISS	100.7	0.IP.3	IG	84.3750	.470780	.704937	28.0648	10095.5	5891.8	594.1	1.66876
334017	MISS	101.0	0.IP.ch.3	IG	62.7907	.113240	.814500	29.4483	10095.5	5891.4	593.8	2.63209
334018	MISS	102.9	0.ch.3	IG	96.3636	.618920	.791372	29.4483	10095.4	5891.0	592.8	.765947
334019	MISS	112.0	0.ch.3	IG	90.0952	.200725	.745916	29.7783	10095.0	5887.9	583.5	2.72427
334020	MISS	116.45	0.IP.cl.3	IG	82.4690	.475475	.718797	30.1781	10094.9	5886.4	579.3	1.91179
334021	MISS	116.7	0.cl.3	IG	92.0792	.253575	.801914	29.2186	10094.9	5886.3	579.1	1.51407
334022	MISS	123.5	0.IPsed.3	IG	70.0000	.364455	.795291	29.2878	10094.6	5883.9	572.7	1.29389
334023	MISS	125.45	0.3	IG	93.4959	.479080	.650200	28.1526	10094.5	5883.4	571.2	3.76978
334024	MISS	129.2	0.3	IG	89.7436	.206120	.796095	28.0493	10094.4	5882.0	567.3	5.01283
334025	MISS	129.65	0.3	IG	83.0500	.251532	.762139	30.2838	10094.4	5881.8	566.9	3.99189
334026	MISS	133.7	0.3	IG	94.8274	.500725	.673082	29.1879	10094.2	5880.5	563.1	1.50258
334027	MISS	141.2	0.3	IG	93.8769	.381994	.717532	29.4483	10094.1	5877.9	556.1	2.03833
334028	MISS	151.7	0.3	IG	93.2141	.502984	.649573	26.3773	10093.7	5874.4	546.2	2.27544
334029	MISS	153.6	0.IP.ch.3	IG	39.3939	.622039	.829167	15.4969	10093.6	5873.7	544.4	.729166
334030	MISS	154.2	0.4	IG	93.6977	.156436	.816494	52.1771	10093.6	5871.5	543.8	4.67619
334031	MISS	157.05	0.ca.va.4	IG	80.0889	.025615E-01	.905660	41.6674	10093.5	5872.3	540.4	53.6419
334032	MISS	165.5	0.4	IG	90.4375	.321899	.706797	50.1307	10091.1	5867.8	513.2	4.62671
334033	MISS	167.1	0.4	IG	90.9091	.161802	.814334	45.2441	10093.3	5859.3	511.7	6.48353
334034	MISS	176.0	0.4	IG	76.8234	.600115	.763057	50.7790	10093.0	5866.3	520.3	1.16679
334035	MISS	183.55	0.4	IG	90.3051	.310333	.770020	48.3794	10092.9	5863.9	516.1	3.48765
334036	MISS	189.6	0.4	IG	90.9247	.545180	.651691	45.0429	10092.7	5861.9	510.0	4.04473
334037	MISS	191.15	0.4	IG	86.0053	.226510	.829614	49.4574	10092.7	5861.4	508.0	1.88149
334038	MISS	193.5	0.4	IG	96.0000	.553479	.645287	45.6933	10092.8	5860.4	506.0	4.02503
334039	MISS	198.0	0.4	IG	85.2457	.342501	.822273	49.4923	10092.8	5858.0	502.2	0.12117
334040	MISS	203.0	0.ab.4	IG	60.4211	.318370E-01	.826655	48.1728	10092.6	5857.2	497.7	11.0114
334041	MISS	207.05	0.4	IG	90.7500	.256264	.791269	57.0601	10092.7	5855.5	493.3	5.91887
334042	MISS	219.5	0.4	IG	90.1440	.191439	.818863	52.4540	10092.8	5851.7	483.3	2.60151
334043	MISS	223.35	0.IP.4	IG	83.5021	.235189	.807893	48.4514	10092.8	5850.0	478.8	1.55333
334044	MISS	227.9	0.ca.fzva4	IG	58.0000	.721446E-01	.930812	46.7894	10092.8	5848.4	474.6	1.91572
334045	MISS	232.2	0.fe.4	IG	86.7016	.207430	.964999	52.1504	10092.8	5846.9	470.5	1.66170

5382097

Samp.No	HOLE	DEPTH	ROCK TYPE	SL	Zn No.	AL11	AL12	Ti/Zr	NORTH	EAST	EL	MR Al/3K
334046	HL55	231.4	B.A	TC	74.8831	.344858	.861362	59.9551	10892.9	5844.3	463.8	2.96662
334047	HL55	247.8	B.A	TC	90.4375	.467776	.683464	49.7877	10893.0	5841.6	456.7	5.92705
334048	HL55	259.5	B.A	TC	99.3750	.487495	.723481	49.2453	10893.1	5837.8	446.9	2.76280

Group 8 S (0.502E5724)

Samp.No	HOLE	DEPTH	ROCK TYPE	SL	Zn No.	AL11	AL12	Ti/Zr	NORTH	EAST	EL	MR Al/3K
334191	HL50	243.83	B.A	AC	95.2381	.318883	.815858	59.9484	10743.8	5775.1	494.9	2.21716
334192	HL50	262.22	B.A	AC	97.5806	.381268	.723513	53.2875	10742.4	5765.4	479.3	5.82234
334193	HL50	282.9	B.A	AC	90.6250	.287911	.699660	55.5878	10741.7	5751.5	461.8	48.4218
334194	HL50	299.89	B.Fe.A	AC	99.4872	.180512	.928230	62.6733	10741.1	5745.9	448.8	1.44752
334195	HL29	139.6	B.A	AC	87.8960	.337312	.752783	47.4592	10981.6	5760.0	562.8	3.46552
334196	HL28	145.5	B.A	AC	95.8549	.402179	.661513	28.6245	10981.2	5762.6	557.5	6.61526
334197	HL28	157.96	B.A	AC	97.2232	.525480	.614655	27.7883	10980.2	5768.1	546.6	27.3678
334198	HL28	167.81	B.A	AC	67.3913	.625315	.643321	46.8347	10979.3	5773.3	536.8	2.82080
334199	HL28	170.32	B.A	AC	97.5616	.582884	.578112	49.6941	10979.2	5773.6	535.3	67.6868
334200	HL28	173.32	B.A	AC	71.8526	.267030	.777036	56.3515	10979.0	5774.7	532.6	13.9772
334201	HL28	187.96	B.A	AC	82.6000	.362792	.713786	53.9536	10977.7	5781.5	519.6	4.89016
334202	HL28	200.27	B.A	AC	96.8750	.468741	.797325	58.7256	10975.9	5790.3	501.4	7.66543
334203	HL28	220.87	B.A	AC	92.5726	.533784	.644775	55.1525	10974.2	5799.6	483.1	4.15435
334204	HL28	234.61	B.A	AC	99.2340	.266915	.933606	58.2356	10893.7	5802.2	470.0	1.23599
334205	HL28	249.14	B.A	AC	96.0000	.371945	.765466	61.3757	10692.4	5810.0	465.1	2.23620
334206	HL28	265.76	B.Fe.A	AC	65.2174	.289958	.937604	55.2156	10891.1	5816.5	458.5	1.21257
334207	HL57	222.58	B.A	AC	98.0000	.785348	.529743	58.9561	10746.2	5752.4	530.8	4.74120
334208	HL57	229.19	B.A	AC	97.1429	.453922	.690868	52.4548	10746.2	5747.7	531.1	4.51796
334209	HL57	245.43	B.A	AC	26.0000	.287814	.772414	47.7967	10746.2	5736.3	522.6	7.76676
334210	HL57	271.3	B.A	AC	97.0588	.551774	.651774	51.5556	10745.7	5718.1	504.2	3.61455
334211	HL57	286.22	B.A	AC	75.6000	.348237	.708178	59.0484	10745.3	5707.3	493.1	5.70647
334212	HL57	296.5	B.A	AC	96.8750	.451893	.662664	57.3419	10745.0	5700.5	486.2	4.22393
334213	HL57	305.19	B.A	AC	91.3044	.544906	.631360	51.8784	10744.8	5694.4	480.0	5.42412
334214	HL57	312.68	B.A	AC	97.1429	.395497	.667547	1280.89	10744.6	5689.8	474.5	7.10377
334215	HL57	317.68	B.A	AC	89.9582	.373634	.672655	54.1841	10744.5	5685.6	470.1	15.2747
334216	HL57	322.25	SL.A	AC	27.2727	.9545986-01	.936120	2.68645	10744.4	5682.1	467.7	1.56943
334217	HL57	217.43	B.A	AC	96.8784	.235452	.834176	57.9501	10744.3	5665.0	471.3	2.30227
334218	HL24	232.62	B.A	AC	96.2735	.393178	.665593	58.2793	10989.3	5764.3	464.5	13.5616
334219	HL24	246.1	B.A	AC	87.5000	.534304	.614834	52.4510	10989.1	5768.3	451.6	17.3360
334220	HL24	249.31	B.A	AC	58.5506	.368037	.679691	50.2793	10988.9	5769.2	448.6	38.7360
334221	HL24	252.8	B.A	AC	94.5946	.391919	.722714	54.3232	10988.8	5770.3	445.2	5.42886
334263	HL24	176.4-181.8	B.pep.A	AG	98.1183	.481617	.792137	32.1323	10918.2	5749.5	515.1	2.71638
334265	HL24	183.2-187.9	B.pep.A	AG	89.2899	.376841	.785077	32.6386	10918.1	5751.3	507.3	3.89953
334266	HL24	187.9-199.5	B.A	AG	86.3636	.348519	.787572	51.7736	10989.9	5754.7	496.2	4.81537
334267	HL24	199.5-203.9	B.A	AG	98.7813	.262334	.893051	75.7243	10989.8	5755.9	492.0	1.58426
334268	HL24	203.9-211.2	B.A	AG	93.1818	.329213	.745479	74.1467	10989.7	5758.1	485.0	5.60823
334269	HL24	211.2-220.0	B.A	AG	98.6301	.284983	.862228	77.3419	10989.5	5760.6	476.8	2.18197
334270	HL24	220.0-251.6	B.A	AG	77.7181	.276079	.745569	70.2660	10988.9	5769.9	446.4	10.6311
334271	HL24	251.6-253.9	B.A	AG	65.[illegible]	.275786	.828488	48.6773	10988.8	5770.6	444.2	2.42972

Group 8 S 10,14 Gnd)

Samp.No	HOLE	DEPTH	ROCK TYPE	SL	Zn No.	AL11	AL12	Ti/Zr	NORTH	EAST	EL	MR Al/3K
339916	HL14	85.0-89.6	B.S	AG	88.6956	.262774	.838063	27.5273	10588.[illegible]	5448.8	618.3	1.38874

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Samp.No	HOLE	DEPTH	ROCK TYPE	SL	Zn No.	ALTI	ALT2	Ti/Zr	NORTH	EAST	RL	MR Al/3K
333917	HL14	89.6-92.0	B.S	AG	35.3211	.089969	.703701	40.9647	10500.0	5489.5	616.5	1.66673
333918	HL14	92.0-112.0	B.S	AG	92.6606	.443145	.739398	40.6793	10499.4	5422.8	560.7	2.33748
333919	HL14	112.0-118.0	B.S	AG	97.8649	.488844	.735923	37.7453	10499.2	5425.8	596.2	2.33723
333920	HL14	118.0-121.6	B.S	AG	97.5418	.731471	.637049	34.6368	10499.0	5427.6	593.9	2.74841
333921	HL14	121.0-144.0	B.S	AG	84.5238	.443846	.675126	31.8188	10478.8	5492.6	575.4	3.10374
333922	HL14	144.0-187.0	B.S	AG	64.1836	.475145	.685516	30.7225	10495.0	5469.5	543.0	2.86883
333923	HL14	187.0-189.0	B.S	AG	84.7328	.578589	.663125	32.9716	10495.6	5470.8	541.5	2.12639
333924	HL14	189.0-199.0	B.S	AG	89.4797	.465778	.683585	31.3982	10495.1	5477.2	533.0	3.10559
333925	HL14	199.0-201.0	B.S	AG	88.7868	.423863	.815347	27.6284	10494.9	5479.0	531.6	1.23589
333926	HL14	201.0-213.0	B.S	AG	98.2381	.385639	.734766	36.8476	10494.3	5486.2	523.1	4.31866
333927	HL14	213.0-223.0	B.S	AG	97.2798	.334716	.696582	36.6179	10493.7	5492.7	515.5	10.5307
333928	HL14	223.0-225.4	B.S	AG	81.3765	.388762	.711249	40.8151	10493.5	5494.2	513.7	3.89697

Group 8 7 (D.AREA20)

Samp.No	HOLE	DEPTH	ROCK TYPE	SL	Zn No.	ALTI	ALT2	Ti/Zr	NORTH	EAST	RL	MR Al/3K
334162	HL6	200.4	B.S	IC	87.1575	.475681	.738281	24.6046	10498.4	5930.1	563.9	2.26154

Group 8 8 (D.Licence)

Samp.No	HOLE	DEPTH	ROCK TYPE	SL	Zn No.	ALTI	ALT2	Ti/Zr	NORTH	EAST	RL	MR Al/3K
334160	HA15	410.0	B.L.6	IC	90.7011	.468686	.650650	21.3150	9324.50	2992.2	176.1	7.69926
334165	HA15	385.1	B.L.6	IC	85.1485	.349229	.602386	18.7339	9520.40	2985.5	308.7	5.42897
334166	HA11	87.0	B.U.6	IC	89.1566	.317365	.667286	18.1750	6194.10	3504.5	617.5	3.00550
334167	HA15	173.3	B.U.6	IC	96.5789	.352128	.726657	53.3915	9316.40	2977.6	448.2	5.61825
334168	HA15	385.0	B.L.6	IC	56.1749	.536335	.638245	20.2950	9320.40	2995.9	298.0	5.55524
334169	HAC4	97.5	B.U.6	IC	42.5394	.302644	.653361	22.7224	9085.80	5862.6	633.1	36.4379
334170	HAC4	113.6	B.U.6	IC	64.9711	.375199	.680361	23.5863	9085.40	5855.2	618.0	49.3905

Group 8 9 (D.Fe HLS)

Samp.No	HOLE	DEPTH	ROCK TYPE	SL	Zn No.	ALTI	ALT2	Ti/Zr	NORTH	EAST	RL	MR Al/3K
334171	HL9	204.5	B.Fe.4	IC	98.0000	.209025	.980602	53.3707	10707.1	5746.9	446.0	1.07170

Group 8 10 (D.Adit)

Samp.No	HOLE	DEPTH	ROCK TYPE	SL	Zn No.	ALTI	ALT2	Ti/Zr	NORTH	EAST	RL	MR Al/3K
334172	ADIT	677.0	B.?	MR	89.6987	.363765	.839586	29.7616	10678.7	6258.0	389.2	2.17477
334174	ADIT	717.0	B.pc.?	MR	91.3844	.412983	.892991	28.1637	10676.6	6238.9	389.4	2.85161
334177	ADIT	719.0	B.?	MR	82.7586	.370626	.840941	29.1178	10677.2	6237.0	389.4	1.95887
334175	ADIT	737.0	B.?	MR	95.1456	.467035	.774411	29.0196	10682.6	6219.8	389.6	3.34985
334176	ADIT	775.0	B.?	MR	93.2692	.326355	.744078	33.1889	10688.1	6202.7	389.8	8.66989
333999	ADIT	782.0	B.?	MR	94.3102	.356473	.706641	32.9716	10696.1	6176.9	390.1	8.52410
333998	ADIT	790.5	B.?	MR	58.7520	.140866	.845536	40.9647	10650.5	6169.3	390.1	7.36496
333997	ADIT	805.0	B.gy.?	MR	87.8373	.354340	.821743	22.1610	10703.0	6155.8	390.3	1.34715
333996	ADIT	805.0	B.gn.?	MR	93.2913	.524479	.776387	23.6847	10703.0	6155.8	390.3	1.46350
333995	ADIT	823.0	B.pc.?	MR	89.0000	.286935	.801708	25.8239	10708.1	6137.8	390.5	2.43450

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Samp.No	HOLE	DEPTH	ROCK TYPE	SL	Zn No.	ALTI	ALT2	TI/Zr	NORTH	EAST	RL	MR AI/3K
333990	A0IE	052.4	D.Lfd.Py.7	HR	73.1693	.007822	.936498	26.0952	10710.6	5405.3	370.0	.445606

Group 0 11 (Picrite)

Samp.No	HOLE	DEPTH	ROCK TYPE	SL	Zn No.	ALTI	ALT2	TI/Zr	NORTH	EAST	RL	MR AI/3K
272044	HL7	46.4	D.perich.S	IC	93.0904	.437004	.720250	30.2390	10600.3	5367.0	642.3	2.77009

Group 0 12 (D.HL31 Spl)

Samp.No	HOLE	DEPTH	ROCK TYPE	SL	Zn No.	ALTI	ALT2	TI/Zr	NORTH	EAST	RL	MR AI/3K
334049	HL31	316.15	D.ab.0	IC	36.0650	.026055E-01	.299152	25.7591	10970.4	5923.1	316.3	12.3993

Group 0 13 (D.HL30 Spl)

Samp.No	HOLE	DEPTH	ROCK TYPE	SL	Zn No.	ALTI	ALT2	TI/Zr	NORTH	EAST	RL	MR AI/3K
334067	HL30	180.0	D.S	IC	83.6735	.372910	.743085	27.3590	10902.9	5513.6	506.5	4.27197
334068	HL30	201.4	D.S	IC	90.5075	.302560	.744322	26.2932	10902.8	5519.4	491.2	5.90796
334069	HL30	210.1	D.S	IC	94.9500	.340881	.735859	25.9953	10902.7	5524.3	478.4	8.05126
334070	HL30	241.0	D.S	IC	90.2759	.277345	.826960	26.7627	10902.4	5533.2	455.2	2.50521
334071	HL30	260.5	D.S	IC	82.5501	.401853	.491772	24.3034	10901.8	5542.5	431.4	4.62319
334072	HL30	274.5	D.pep.HOPS	IC	85.0676	.613611	.892626	0.46965	10901.7	5544.7	425.6	1.10648

Group 0 14 (D.HL30 Gnd)

Samp.No	HOLE	DEPTH	ROCK TYPE	SL	Zn No.	ALTI	ALT2	TI/Zr	NORTH	EAST	RL	MR AI/3K
334100	HL30	186.9-200.0	D.S	IG	79.2746	.389854	.803987	26.3773	10902.8	5517.9	495.3	3.20194
334109	HL30	200.0-263.0	D.S	IG	87.9310	.350951	.762049	27.2493	10902.6	5540.5	436.5	4.90267
334110	HL30	263.0-272.4	D.S	IG	86.4065	.376136	.743377	24.4060	10901.7	5543.9	427.8	4.34618

Group 0 15 (D.HL31 Gnd)

Samp.No	HOLE	DEPTH	ROCK TYPE	SL	Zn No.	ALTI	ALT2	TI/Zr	NORTH	EAST	RL	MR AI/3K
334130	HL31	102.0-105.0	D.0	IG	80.0021	.302500	.917650	29.0321	10889.0	6009.5	580.3	1.21724
334135	HL31	105.0-126.0	D.0	IG	86.0421	.366753	.774440	29.7783	10887.0	6001.2	568.3	2.39270
334136	HL31	126.0-142.0	D.0	IG	72.7545	.472065	.731802	29.0750	10886.2	5995.4	554.3	2.27402
334137	HL31	142.0-172.5	D.0	IG	80.6452	.403764	.774634	28.5120	10883.1	5983.5	526.4	1.07856
334138	HL31	172.5-180.0	D.0	IG	92.7007	.474703	.729816	27.0111	10881.4	5977.3	512.2	2.32567
334139	HL31	180.0-195.0	D.0	IG	92.5532	.494063	.695310	26.0190	10680.7	5974.5	505.7	2.03033
334140	HL31	195.0-205.0	D.0	IG	90.3533	.446848	.713907	28.0359	10879.6	5971.4	496.8	2.10989
334141	HL31	205.0-220.9	D.0	IG	75.0621	.366423	.736205	28.4290	10877.9	5963.0	482.5	2.01026
334142	HL31	220.9-284.0	D.0	IG	77.2046	.436072	.681443	28.0194	10872.2	5932.2	425.5	9.09792
334143	HL31	284.0-288.4	D.0	IG	78.6769	.440605	.677391	46.8310	10871.7	5935.4	421.5	9.75495
334144	HL31	288.4-300.6	D.0	IG	83.3929	.255276	.752915	39.9656	10870.8	5926.0	403.3	6.24914
334145	HL31	300.6-320.2	D.0	IG	80.4574	.271634	.706508	25.4781	10870.6	5920.1	389.2	3.26529

588300

Group 0 86 (0.ML14 Spt)

Samp.No	HOLE	DEPTH	ROCK TYPE	RL	Zn No.	ML11	ML12	Ti/Zr	NORTH	EAST	RL	MR Al/3K
333971	ML14	106.97	B.S	MC	97.7273	.234783	.706909	27.176o	10499.6	5418.7	604.0	9.57166
333973	ML14	139.27	B.S	MC	98.5916	.443817	.712725	24.7787	10498.2	5439.1	579.7	1.99965
333974	ML14	177.38	B.S	MC	97.9167	.261839	.724384	25.6922	10496.3	5463.3	550.0	17.0632
333975	ML14	190.66	B.S	MC	98.7342	.302572	.760722	29.5458	10495.1	5477.0	534.1	5.04422
333976	ML14	224.3	B.S	MC	94.6429	.571704	.756769	43.3912	10493.6	5493.6	514.4	2.13318

Group 0 87 (0.ML79)

Samp.No	HOLE	DEPTH	ROCK TYPE	RL	Zn No.	ML11	ML12	Ti/Zr	NORTH	EAST	RL	MR Al/3K
334009	ML79	379.1	Mfeqtz16	IC	65.3846	.107000	.031307	36.7031	11048.8	5971.4	313.3	6.69590

Group 0 88 (UV8)

Samp.No	HOLE	DEPTH	ROCK TYPE	RL	Zn No.	ML11	ML12	Ti/Zr	NORTH	EAST	RL	MR Al/3K
333977	ML14	226.5	T.bd.9	MC	92.7798	.739216	.814035	29.9515	10493.4	5495.8	512.9	1.42346
333978	ML14	234.8	L.b.9	MC	93.9597	.571942	.759426	22.2162	10493.6	5499.9	507.2	2.38379
333979	ML14	225.4-230.87	T.bd.9	AC	88.5462	.623035	.770823	23.6847	10493.2	5497.0	509.6	1.38212
333980	ML14	230.87-234.8	L.b.9	AC	85.2632	.433989	.710698	20.8056	10493.6	5499.9	507.1	2.52699
334222	ML57	323.53	D.9	AC	99.4152	.349832	.759810	54.3976	10744.4	5681.5	467.8	4.33499
334223	ML57	326.62	L.b.9	AC	98.9362	.719888	.723628	11.9897	10744.4	5679.3	464.8	1.25633
334072	ML30	274.4	D.9	IC	85.8696	.643613	.892628	8.48585	10981.7	5544.7	425.9	1.18688
334072	ML30	274.5	BSH.9	IC	79.2793	.618498	.863535	28.8134	10981.7	5544.7	425.8	1.35165
334073	ML30	275.3	BSH.D.9	IC	85.2941	.833197	.888545	7.62856	10981.6	5545.0	425.1	1.14837
334074	ML30	278.7	BSH.D.Fe.9	IC	91.1758	.335121	.866514	44.7894	10981.5	5546.2	421.9	1.37131
334111	ML30	272.4-278.3	BSH.9	IC	87.2100	.708102	.916857	8.53112	10981.5	5546.1	422.3	1.22139
334112	ML30	278.3-278.8	A.b.9	IC	88.5462	.602663	.885123	35.3794	10981.5	5546.3	421.8	1.18085
334113	ML30	278.8-283.4	A.b.9	IC	72.8000	.469962	.873584	23.7187	10981.4	5548.8	417.6	1.45685
334050	ML31	325.5	A.9	IC	92.7920	.671136	.827700	28.6873	10869.9	5919.6	380.8	1.32265
334051	ML31	330.0	T.bd.ch.9	IC	93.5790	.639857	.858473	25.3116	10869.2	5916.2	376.8	1.38712
334052	ML31	341.95	L.b.9	IC	96.4706	.764452	.895246	27.9823	10869.0	5912.5	373.2	1.13369

Group 0 89 (FPB ML14)

Samp.No	HOLE	DEPTH	ROCK TYPE	RL	Zn No.	ML11	ML12	Ti/Zr	NORTH	EAST	RL	MR Al/3K
333979	ML14	270.42	FPA.10	MC	97.2222	.353414	.672796	20.8640	10490.5	5529.0	480.1	26.6453
333980	ML14	282.49	FPA.10	MC	86.6667	.446357	.759277	31.2774	10489.6	5532.1	471.2	2.84213
333981	ML14	313.85	FPA.10	AC	80.6618	.441655	.835637	35.6836	10487.8	5553.3	448.2	1.69104
333931	ML14	234.1-235.3	FPA.10	AG	83.8468	.492563	.761398	27.9757	10492.9	5508.7	506.2	1.61433
333932	ML14	235.3-250.0	FPA.10	AG	99.1783	.318619	.624849	35.4675	10491.9	5510.4	495.2	13.0565
333933	ML14	250.0-275.1	FPA.10	AG	95.0420	.5a1216	.638076	35.4241	10490.1	5527.1	476.7	5.37779
333934	ML14	275.0-284.8	FPA.10	AG	99.1587	.386678	.65637o	33.0839	10489.5	5538.1	470.1	5.78103
333935	ML14	284.8-304.5	FPA.10	AG	98.1537	.336715	.773341	31.7787	10487.8	5547.6	455.6	1.81694
333936	ML14	304.5-306.9	FPA.10	AG	98.5798	.440378	.791253	31.2231	10487.6	5548.5	453.4	1.51837
333937	ML14	306.8-314.1	FPA.10	AG	97.9656	.323679	.850257	27.1071	10487.8	5553.5	448.0	1.57766

598301

Group 0 21 (FPS HL30cg)

Samp.No	HOLE	DEPTH	ROCK TYPE	RL	Zn No.	AL11	AL12	T1/Zr	NORTH	EAST	RL	MR AL/3R
334014	HL30	283.4-288.2	FPA.10	IG	77.6898	.353021	.777986	25.8357	10901.2	5549.0	413.1	2.29285
334015	HL30	288.2-314.3	FPA.10	IG	81.4015	.327189	.707402	22.7874	10900.2	5559.6	387.3	1.95214
334016	HL30	314.3-326.2	FPA.10	IG	76.8266	.182841	.669920	21.9403	10859.8	5584.2	378.8	11.5734
334017	HL30	326.2-382.6	FPA.10	IG	77.7227	.345519	.719039	30.4425	10897.2	5536.1	326.1	3.24024
334018	HL30	382.6-450.2	FPA.10	IG	91.4530	.377545	.745867	31.2774	10891.8	5613.5	264.6	3.35123
334019	HL30	450.2-454.3	FPA.10	IG	95.7717	.340074	.722630	28.4291	10871.3	5615.3	260.9	5.08791
334020	HL30	454.3-460.1	FPA.10	IG	91.3349	.376594	.790398	30.5293	10890.6	5617.8	255.7	3.10612
334021	HL30	460.1-463.8	FPA.10	IG	88.3370	.379765	.738733	28.2956	10890.1	5619.4	252.4	3.51859
334022	HL30	463.8-467.4	FPA.10	IG	87.3688	.306490	.791433	27.7943	10889.3	5621.8	247.4	2.34034
334023	HL30	467.4-470.6	FPA.10	IG	88.4930	.314143	.703450	29.9742	10889.1	5622.3	246.4	3.46175
334024	HL30	470.6-484.4	FPA.10	IG	87.9650	.273463	.692681	29.9742	10886.7	5628.4	234.2	6.44833

Group 0 21 (FPS HL30sc)

Samp.No	HOLE	DEPTH	ROCK TYPE	RL	Zn No.	AL11	AL12	T1/Zr	NORTH	EAST	RL	MR AL/3R
334075	HL30	280.0	FPA.10	IC	67.7966	.209804	.656757	23.8431	10901.5	5546.7	420.7	1.28411
334076	HL30	291.0	FPA.10	IC	56.8668	.150396	.769656	22.8455	10901.1	5551.1	409.8	2.03693
334077	HL30	302.2	FPA.10	IC	80.0581	.303124	.814015	21.8331	10900.7	5555.1	400.2	1.33397
334078	HL30	319.7	FPA.10	IC	62.9848	.216495	.666734	22.9742	10700.0	5561.7	384.0	6.57449
334079	HL30	370.6	FPA.tr.10	IC	81.6811	.374089	.735057	34.1811	10897.9	5581.4	337.1	2.39174
334080	HL30	410.0	FPA.10	IC	95.3125	.362929	.800734	35.7914	10895.4	5597.3	300.2	2.77131
334081	HL30	446.25	FPA.10	IC	87.6712	.355481	.812790	30.8447	10892.3	5611.9	268.1	2.44450
334082	HL30	467.1	FPA.10	IC	87.5000	.311156	.693834	30.4216	10889.3	5621.8	247.4	3.73777
334163	HL30	483.9	FPA.10	IC	87.1795	.198374	.644033	27.1704	10886.8	5628.2	234.6	86.3513

Group 0 22 (FPS HL31)

Samp.No	HOLE	DEPTH	ROCK TYPE	RL	Zn No.	AL11	AL12	T1/Zr	NORTH	EAST	RL	MR AL/3R
334053	HL31	307.7	FPA.11	IC	90.3226	.285366	.669602	29.3020	10868.7	5910.1	368.1	9.69581
334054	HL31	335.15	FPA.Dir.11	IC	90.6888	.0415814E-01	.664425	25.2741	10868.2	5916.7	361.4	47.2412
334055	HL31	357.3	FPA.str.11	IC	92.2330	.365672	.696675	26.9333	10868.1	5915.8	359.4	5.31818
334056	HL31	383.75	Y.FPA.11	IC	82.2581	.243868	.767991	22.4548	10866.8	5894.1	335.2	2.75866
334146	HL31	324.2-346.2	Y.FPA.11	IC	73.9927	.499644	.850882	25.1717	10868.8	5910.6	369.4	1.35170
334147	HL31	346.2-401.8	Y.FPA.11	IC	80.8597	.342255	.720493	23.9101	10866.3	5906.3	320.4	3.52132

Group 0 23 (FPS AB11)

Samp.No	HOLE	DEPTH	ROCK TYPE	RL	Zn No.	AL11	AL12	T1/Zr	NORTH	EAST	RL	MR AL/3R
334254	AB11		FPA.Dir.11	AC	44.2340	.0378878-01	.722525	22.2031	10704.0	5940.0	393.0	14.0974
334255	AB11		FPA.str.11	AC	46.6216	.328980	.698864	21.9240	10706.1	5940.6	393.0	7.79957

598302

Group 0 24 (Y4L HL14)

Samp.No	HOLE	DEPTH	ROCK TYPE	SL	Zn No.	AL11	AL12	TI/Zr	NORTH	EAST	EL	MR AI/3R
333902	HL14	340.99	f.12	MC	99.1379	.646819	.846873	31.8398	10484.7	5571.0	420.5	1.52457
333938	HL14	304.1-315.6	L.fm.12	AG	89.7143	.270261	.803191	29.9712	10486.1	5554.5	447.0	1.16823
333939	HL14	315.6-336.4	Y.b.ls.12	AG	74.8813	.504723	.900826	25.4327	10485.8	5548.7	431.8	1.16771
333940	HL14	336.4-345.8	Y.ls.12	AG	71.4286	.427367	.858387	42.2245	10484.3	5575.1	425.0	1.06158
333941	HL14	345.8-360.6	Y.ls.12	AG	68.8660	.561866	.749532	54.2774	10483.2	5535.2	414.2	1.65846
333903	HL14	367.33	L.12	MC	76.6234	.470220	.773195	31.4727	10482.7	5507.8	409.3	1.55981
333942	HL14	360.6-363.8	Y.bd.ls.12	AG	84.5611	.525190	.783010	40.0159	10483.0	5566.8	412.5	1.03730
333904	HL14	370.93	L.12	MC	70.3125	.744034	.877310	21.4907	10480.8	5605.9	372.2	.607710
333943	HL14	363.8-368.8	L.Q.12	AG	70.2703	.496617	.780366	34.7207	10482.6	5590.3	400.9	1.16184
333944	HL14	368.8-385.8	L.12	AG	73.8607	.628869	.774697	34.1245	10481.3	5601.9	376.5	1.11757
333945	HL14	385.8-391.3	L.qls.12	AG	84.4196	.525565	.794835	24.3548	10480.5	5606.2	372.6	.939867
333946	HL14	391.3-398.8	L.12	AG	78.4173	.607779	.848316	25.3496	10480.3	5613.8	387.1	.741884
333947	HL14	398.8-405.3	L.12	AG	67.2859	.609405	.807807	22.2665	10479.6	5615.8	381.9	.829835
333905	HL14	410.1	0.(D).12	MC	53.3333	.735833	.858759	31.4729	10477.4	5632.0	364.1	.667478
333948	HL14	405.3-419.5	L.12	AG	67.0571	.516561	.811314	23.0358	10478.1	5625.6	371.6	1.00986
333949	HL14	419.5-421.8	Y.12	AG	74.5898	.600312	.819974	41.1075	10478.2	5626.6	370.5	.765715
333906	HL14	451.0	L.ls.12	MC	65.8436	.534192	.694653	46.1142	10475.0	5649.3	346.0	2.02013
333950	HL14	421.8-435.4	B.(D).12	AG	85.3407	.642522	.841019	36.3140	10476.9	5636.5	360.2	.657843
333907	HL14	483.5	L.ls.12	MC	91.8519	.524798	.735476	47.3786	10472.2	5669.6	325.6	1.76101
333951	HL14	435.4-458.8	L.12	AG	73.9130	.452562	.767377	55.9510	10475.4	5644.5	349.7	1.23026
333952	HL14	458.8-475.8	L.12	AG	57.7114	.469173	.699629	55.1525	10473.8	5663.7	331.7	2.04957
333953	HL14	475.8-508.8	L.12	AG	71.2794	.469481	.711415	62.6733	10470.7	5681.8	313.8	1.98661
333908	HL14	522.5	L.Q.12	MC	82.9861	.766436	.656726	47.1725	10468.9	5696.6	297.7	1.27459
333954	HL14	508.8-519.5	L.12	AG	58.2171	.553533	.746310	48.4077	10469.1	5694.6	299.8	1.31794
333955	HL14	519.5-521.8	L.fm.ps.12	AG	68.8474	.847197	.752060	57.4585	10468.9	5696.2	298.2	1.56112
333956	HL14	521.8-526.8	L.12	AG	66.4317	.648393	.715809	62.9458	10468.6	5699.1	295.2	1.42349
333957	HL14	526.8-538.5	L.fm.ps.12	AG	76.4706	.762103	.741679	68.9407	10468.2	5702.3	292.0	.834474
333909	HL14	549.8	SIZ.Q.c113	MC	89.7638	.973548	.473444	46.1142	10466.8	5715.1	278.7	14.2262
333958	HL14	538.5-537.8	SIZ.L.13	AG	78.8228	.825854	.595813	56.3515	10467.5	5708.7	285.3	3.33146
333999	HL14	555.82	SIZLqls13	MC	78.5325	.918781	.389223	27.8497	10466.2	5717.8	273.9	1.67365
333959	HL14	537.8-549.8	SIZ.Q.13	AG	83.8589	.897883	.547584	52.9544	10466.7	5715.6	278.2	4.12668
333960	HL14	549.8-560.2	SIZ.Qqls13	AG	78.4737	.718817	.819622	6.99398	10465.9	5722.9	270.7	1.85532
333961	HL14	560.2-561.5	SIZ.cl.13	AG	71.4646	.899806	.844565	21.6737	10465.7	5723.0	269.0	1.19569
333962	HL14	561.5-569.3	SIZ.qls.13	AG	57.6819	.893136	.929680	30.5059	10465.1	5729.2	264.3	.721988
333963	HL14	569.3-570.1	SIZ.cl.13	AG	62.6967	.908479	.884985	31.1732	10465.0	5729.9	263.5	1.59102
333991	HL14	587.6	SIZ.13	MC	46.9136	.822642	.921744	38.2778	10465.6	5742.8	251.2	1.80551
333964	HL14	570.4-572.2	SIZfm.13	AG	61.5473	.653725	.765719	39.2519	10464.7	5731.2	262.2	1.24835
333965	HL14	572.2-578.8	SIZ.Q.13	AG	78.9200	.859112	.855079	60.3112	10464.3	5735.0	257.5	1.24152
333966	HL14	578.8-599.3	SIZ.13	AG	42.4543	.817935	.898980	31.9725	10462.5	5750.1	243.8	1.05277
333967	HL14	599.3-600.8	SizA/ls.13	AG	77.8432	.884480	.679960	64.7441	10462.4	5751.2	241.9	1.96183
333968	HL14	600.8-601.6	SIZ.13	AG	44.3154	.622299	.763665	95.9174	10462.3	5751.8	241.3	1.02915

Group 0 25 (SIZ HL57)

Samp.No	HOLE	DEPTH	ROCK TYPE	SL	Zn No.	AL11	AL12	TI/Zr	NORTH	EAST	EL	MR AI/3R
334225	HL57	336.:	SIZ.14	AC	75.2000	.356385	.938037	19.7668	10744.4	5672.6	458.1	1.15901
334226	HL57	338.4	SIZ.14	AC	67.[illegible]	.761933	.957992	16.7413	10744.4	5671.0	456.4	1.07923
334227	HL57	342.85	SIZ.14	AC	48.5e13	.944180	.936548	35.5694	10744.5	5667.3	453.2	1.15425
334228	HL57	348.69	SIZ.14	AC	61.1940	.681448	.869949	36.4131	10744.6	5663.8	449.1	1.24246

598303

0 301

Samp.No	HOLE	DEPTH	ROCK TYPE	SL	Zn No.	ALTI	ALT2	TI/Zr	NORTH	EAST	EL	NB AI/3K
334229	HL57	155.40	SIZ.14	AC	53.4247	.562208	.835269	34.6844	10744.8	5459.8	444.3	1.60327

Group 0 26 (SIZ HL61)

Samp.No	HOLE	DEPTH	ROCK TYPE	SL	Zn No.	ALTI	ALT2	TI/Zr	NORTH	EAST	EL	NB AI/3K
334230	HL61	395.00	SIZ.B.14	AC	33.6139	.540590	.943947	49.6448	10756.8	5735.1	359.3	1.08960
334231	HL61	406.65	SIZ.Q.14	AC	24.6575	.705897	.961194	34.1445	10751.0	5730.1	358.8	1.40650
334232	HL61	418.57	SIZ.Z.14	AC	66.6748	.779324	.796271	48.8710	10751.2	5728.3	348.5	1.47642
334233	HL61	419.61	SIZ.Q.14	AC	61.0849	.542220	.937915	36.5468	10751.6	5722.4	339.2	1.20656
334231	HL61	421.2	SIZ.Z.14	AC	71.1206	.533333	.877933	34.1928	10751.6	5721.6	337.9	1.49756
334235	HL61	426.87	SIZ.Q.14	AC	71.9270	.198852	.884103	52.0604	10751.8	5710.5	333.1	4.65706
334236	HL61	436.56	SIZ.B.14	AC	64.9123	.694405	.935344	48.6068	10752.2	5713.3	325.4	1.31879
334237	HL15	453.0	SIZ.15	AC	21.6495	.940760	.910441	30.4285	10728.3	5706.9	326.4	1.14340
334238	HL15	456.6	SIZ.so.15	AC	// - 8/79	.842942	.769111	6.66093	10728.7	5704.7	323.6	1.34144
334239	HL15	464.5	SIZ.15	AC	58.1992	.822176	.735590	15.2596	10729.7	5779.7	317.5	1.79999
334240	HL15	480.6	SIZ.gls.15	AC	65.6885	.938355	.769609	46.3233	10731.5	5769.7	305.1	1.49763
334241	HL15	491.72	SIZ.so.15	AC	29.0598	.905844	.888989	38.6764	10732.8	5762.7	296.5	.719987
334242	HL15	493.27	SIZ.15	AC	65.7895	.949367	.687864	29.2431	10733.0	5761.7	295.3	3.26397
334243	HL15	501.2	SIZ.gls.15	AC	30.1875	.902640	.883862	32.6190	10733.9	5756.0	289.2	.998861
334244	HL15	508.2	SIZ.gls.15	AC	37.8879	.945631	.936436	28.4755	10734.7	5752.4	283.8	1.00315
334245	HL15	513.2	SIZ.gls.15	AC	64.2857	.544598	.796828	36.6334	10735.3	5749.2	280.0	1.91764
334246	HL15	518.2	SIZ.gls.15	AC	75.8888	.488869	.884955	38.4152	10735.9	5746.8	276.1	2.61265
334247	HL15	525.6	SIZLgls.15	AC	72.8813	.533951	.788746	41.6715	10736.8	5741.4	270.5	2.14258

Group 0 27 (SIZ HL58)

Samp.No	HOLE	DEPTH	ROCK TYPE	SL	Zn No.	ALTI	ALT2	TI/Zr	NORTH	EAST	EL	NB AI/3K
334248	HL58	362.5	SIZ.14	AC	47.8261	.701777	.949897	33.2431	10739.2	5712.5	394.2	1.10666
334249	HL58	365.3	SIZ.Q.14	AC	78.9738	.744162	.918519	34.1928	10739.1	5711.1	391.8	1.08398

Group 0 28 (SIZ HL35A)

Samp.No	HOLE	DEPTH	ROCK TYPE	SL	Zn No.	ALTI	ALT2	TI/Zr	NORTH	EAST	EL	NB AI/3K
334004	HL35	394.0	SIZ.sap.16	IC	24.3902	.879195	.936214	28.4952	10916.0	5825.0	361.0	1.03382
334005	HL35	396.2	SIZ.cl.16	IC	43.7134	.959497	.684122	32.1152	10916.1	5824.9	360.7	2.56107
334006	HL35	397.7	SIZ.cl.16	IC	39.0977	.891228	.889484	18.6762	10916.2	5823.9	359.5	2.71707
334007	HL35	410.2	SIZ.clcol6	IC	80.9655	.648858	.564158	37.7826	10916.9	5817.2	351.5	0.35585
334008	HL35	413.45	SIZ.gls.16	IC	73.9927	.758164	.704586	33.4596	10917.3	5813.7	347.4	2.62453
334009	HL35	417.2	SIZ.clcol6	IC	49.8248	.946433	.546813	36.1521	10917.6	5811.4	344.7	36.7856
334010	HL35	417.4	SIZ.clcol6	IC	74.7253	.786851	.748174	33.3884	10917.6	5811.3	344.5	1.30432
334011	HL35	425.6	SIZ.Qglsl6	IC	28.8893	.952619	.918239	34.5465	10918.3	5805.9	338.3	.998725
334012	HL35	430.8	SIZ.sto.16	IC	46.7606	.965184	.655920	30.5737	10918.7	5802.7	334.6	1.26157
334013	HL35	435.0	SIZ.Q.16	IC	36.9231	.958084	.952459	29.6519	10919.2	5797.3	330.7	1.85655

598304

Group 0 29 (STZ ML39)

Samp.No	HOLE	DEPTH	ROCK TYPE	SL	Zn No.	ALT1	ALT2	Ti/Zr	NORTH	EAST	RL	mR Al/3t
334094	ML39	239.0	Stz.glv.16	IC	42.2729	.761905	.880471	23.4581	10884.6	5797.0	484.7	1.01130
334095	ML39	245.9	Stz.16	IC	[illegible]	.901176	.986164	9.99140	10885.3	5795.5	478.7	1.14140
334096	ML39	251.0	Stz.ao.16	IC	[illegible]	.107163	.401151	3.61135	10885.9	5793.6	473.4	1.12011
334097	ML39	256.0	Stz.glv.16	IC	64.6504	.771812	.910367	23.6571	10886.1	5792.3	471.6	1.12165
334098	ML39	293.7	Stz.glv.16	IC	5.24781	.329664	.952440	20.1359	10810.1	5773.7	436.9	1.05726

Group 0 30 (STZ ML31cg)

Samp.No	HOLE	DEPTH	ROCK TYPE	SL	Zn No.	ALT1	ALT2	Ti/Zr	NORTH	EAST	RL	mR Al/3t
334148	ML31	401.0-411.5	FPAtSTZ.11	IC	85.2143	.416021	.763360	22.7494	10866.0	5831.5	311.0	2.45837
334149	ML31	411.5-431.15	FPAcSTZ.11	IC	93.6320	.466554	.756677	24.2566	10865.7	5872.3	293.7	2.40371
334150	ML31	431.15-444.4	FPAtSTZ.11	IC	55.6667	.410542	.700360	20.5900	10865.4	5866.9	282.0	2.30387
334151	ML31	444.4-447.5	STZ.Q.17	IC	91.9858	.375989	.792537	30.6256	10865.0	5864.5	279.3	1.87951
334152	ML31	447.5-450.8	STZ.Y.17	IC	86.5440	.566354	.841962	26.7557	10865.2	5859.4	270.1	1.10868
334153	ML31	450.8-462.8	STZ.17	IC	70.4444	.093636	.623174	30.1868	10865.1	5857.4	266.7	2.57497
334154	ML31	462.8-470.2	STZ.17	IC	56.6661	.753829	.578662	29.6012	10861.8	5847.4	252.6	2.13417
334155	ML31	470.2-483.8	STZ.cl.17	IC	92.7536	.779886	.523422	31.7908	10864.7	5846.9	240.5	5.30655
334156	ML31	483.8-489.4	STZ.17	IC	81.4532	.900586	.761886	31.9725	10864.6	5843.9	245.3	1.31572
334157	ML31	489.8-493.3	STZ.cl.17	IC	58.6218	.903600	.621733	45.3391	10864.6	5841.8	239.9	3.75875
334158	ML31	493.8-502.5	STZ.17	IC	53.2265	.858987	.781492	47.6462	10864.5	5835.9	231.7	1.48268

Group 0 31 (STZ ML31sc)

Samp.No	HOLE	DEPTH	ROCK TYPE	SL	Zn No.	ALT1	ALT2	Ti/Zr	NORTH	EAST	RL	mR Al/3t
334057	ML31	409.8	FPAtSTZ.11	IG	76.5823	.394951	.764480	24.2414	10866.1	5882.5	313.8	2.38777
334058	ML31	415.45	FPAtSTZ.11	IG	94.7686	.264014	.743333	24.9735	10865.9	5879.7	307.5	2.55253
334059	ML31	445.5	FPAmSTZ11	IG	92.3077	.586051	.742068	29.9742	10865.4	5865.5	281.1	2.39153
334060	ML31	446.4	STZ.Qcp.17	IG	80.2169	.313918	.764489	33.7233	10865.4	5865.0	280.3	1.98745
334061	ML31	456.3	STZ.Y.Q.17	IG	45.0823	.790678	.885075	29.3625	10865.2	5860.2	271.6	1.21628
334062	ML31	475.15	STZ.mx.17	IG	64.9123	.969783	.707536	35.0762	10864.9	5850.9	255.2	1.65435
334063	ML31	482.8	STZ.clcx17	IG	97.2067	.909427	.457909	33.5711	10864.7	5847.5	249.3	61.4600
334064	ML31	488.0	STZ.sl.17	IG	72.1138	.930577	.881760	32.1674	10864.7	5844.4	244.2	1.10033
334065	ML31	497.15	STZ.sx.17	IG	17.5258	.958629	.949346	52.9307	10864.6	5839.7	236.3	.992565

598305

APPENDIX 7.

304 **ABERFOYLE** 598307 MEMORANDUM

Date	27 August 1987	Ref	JS;jlp
To	D B Wallace	From	Jovan Silic
At	Burnie	At	Hawthorn
Copies to	G McArthur, [redacted]	Keep	Mack/Hatfield Geophysics

Subject REFLECTION SEISEMIC DATA FROM HELLYER MINE 10950N

The line 10950N reflection data is included for your information.

You will note on the detonator automatic statics section (used for the discussion because of it's convenient vertical scale - Booster section will be eventually plotted on the same scale) that;

(i) there is a clear termination of easterly dipping reflectors at about 5660E. This presumably represents the volcanic stratigraphy to the west of the western fault, and confirms the existence of a similar structure on 10800N.

(ii) Jack fault is once again marked by the sudden change across the fault in

(a) in the dips of the reflectors

(b) the appearance of a late time "quiet zone" on the eastern side of the fault

It is interpreted that both (a) and (b) are due to the strong reflections from the Hellyer orebody, which is almost entirely to the east of the Jack fault and where it "dips" steeply to the east.

The late time quiet zone is now interpreted as the "Hellyer body shadow effect", in other words most of the seismic energy has been reflected by the body.

(iii) the existence of easterly dipping reflectors, indicating the steepening of the stratigraphy towards the Henty fault.

CONCLUSION

Useful information is obtainable from the seismic reflection data, in particular on the structure to the west of Hellyer while the "quiet zone" below Hellyer have been once again identified.

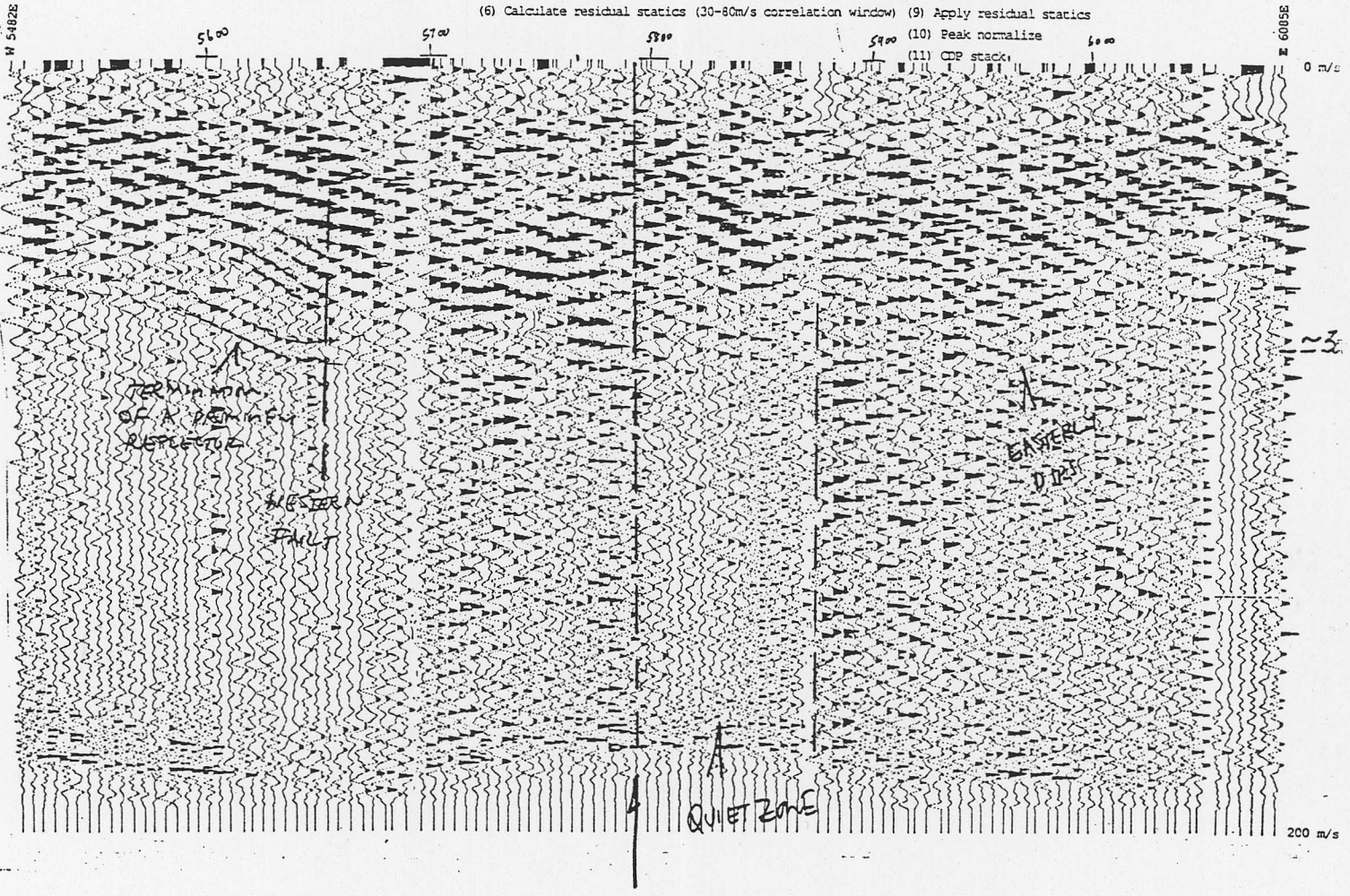
However, it is interpreted that the quiet zone below Hellyer is most likely due to most of the seismic energy being reflected by the orebody.

for
JOVAN SILIC

598308

DETONATOR SECTION AUTOMATIC STATICS

(1) Frequency Filter 90-300 Hz. dB=0.01
(2) Velocity Filter 3600m/s
(3) Blank Noisy Traces
(4) Merge and Gather
(5) Static and NMO correct gather (TEST.VEL3)
(6) Calculate residual statics (30-80m/s correlation window)
(7) Apply AGC window = 10, thresh = 0, attack = 1.0001, vage = 0.0
(8) Frequency Filter 90-300 Hz. dB=0.001
(9) Apply residual statics
(10) Peak normalize
(11) CDP stack



(NOTE THE SUDDEN CHANGE IN THE REFLECTOR'S DIPS ACROSS THE JACK FAULT)

Figure 1.

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598309

ABERFOYLE RESOURCES LIMITED

Technical Report

SEISMIC REFLECTION SURVEYS, MACKINTOSH EL, ML

WESTERN TASMANIA

Prepared by:

J J Read
Geophysicist

Distribution

Aberfoyle Resources Limited, Hawthorn
Aberfoyle Resources Limited, Burnie

Endorsed by:

J Silic
Chief Geophysicist

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Part One - Final Interpretation, Hellyer Seismic Line 10600N

1. SUMMARY
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3. HELLYER TO MAC 10 SECTION
4. MAC 10 TO WESTERN END OF SECTION
5. CONCLUSIONS

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2. SEISMIC STRATIGRAPHY
3. FEATURES OF EXPLORATION INTEREST
4. CONCLUSIONS

APPENDICES

Appendix 1 - Hellyer Seismic Data, memo to Jovan Silic
Appendix 2 - University of Tasmania, 10800N, 10950N Hellyer Seismic Sections

FIGURES

Plate HEL 108A Hellyer Seismic Interpretation - Line 10600N, West Sheet
HEL 108B Hellyer Seismic Interpretation - Line 10600N, East Sheet
HEL 109 Hellyer Seismic Interpretation - Line 11800
HEL 110 Final Stack Hellyer Seismic Line 10600N
HEL 111 Final Stack Hellyer Seismic Line 11800N

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PART ONE

Final Interpretation, Hellyer Seismic Line 10600N

1. SUMMARY

The interpretation of the Hellyer seismic section, 10600N, was a difficult process, as not all the features illustrated by the seismic section where immediately reconcilable with the known geology. In its present form the seismic interpretation (see plates HEL 108A&B) is as close a fit as possible with current geological thinking. Only further drilling on 10600N could improve the interpretation by providing further geological data for correlation of the seismic reflectors.

In comparison with the two earlier seismic surveys completed by the University of Tasmania, the data quality of the 10600N line is improved, although reflector resolution is slightly poorer. This is due to the larger explosive charges used during data collection and poor energy coupling with bedrock. Data quality has been degraded east of peg 275 by static correction and CDP stacking problem. Over-processing of the data may have caused a decrease in reflector continuity in this problem area.

Throughout the interpretation process conventional seismic interpretation techniques could not be applied. The data had to be severely overinterpreted, especially for the eastern half of the line. This overinterpretation was necessary as many of the processing techniques used assume a horizontal layered stratigraphy to calculate various travel time and normal moveout correction factors. For the application of seismic reflection at Hellyer, this assumption is not valid. The problem is compounded by the high velocities of the rocks involved, producing large lateral variations in normal moveout corrections. The end

effect of which, is a severe decrease in reflector continuity. No confidence can be placed in the reflector geometry at times longer than 0.2 s. Very little real data was recorded in this region and alignment of reflectors is mainly due to correlation during automatic static corrections.

Overinterpretation can be dangerous if, as in this case, little drill hole control is available. Consequently the Hellyer seismic interpretation must be viewed with a degree of scepticism. Good drill hole control exists at the Hellyer orebody, producing a moderately well constrained interpretation. Exploration holes Mac 15 and Mac 10 are the only geological controls available for the western three quarters of the line. Mac 10, situated close to the seismic line provides accurate reflector to lithology correlations, while Mac 15, 175m north of the seismic line, gives little reflector control.

2. HELLYER OREBODY SECTION

The characteristic features of the Hellyer orebody, that were shown on both University of Tasmania seismic lines (10800N, 10950N), are not evident on the 10600N section. Specifically there is not a seismically quiet zone beneath the orebody, no large positive reflections off the orebodies upper surface, nor large negative reflections from the base of the orebody. Importantly, detection of the orebody, would not have been possible without first knowing its position, as reflections off the orebody are weak and indistinguishable from the numerous other discontinuous reflectors present.

The most important feature for locating the Hellyer orebody on the University of Tasmania sections, was the seismically quiet zone beneath the orebody. This zone had two possible causes:

1. The Hellyer orebody reflected most of the seismic energy, producing a "shadow zone" beneath the orebody.

2. Stringer alteration had homogenized the footwall rocks, hence no reflections occurred from lithological interfaces.

Of the earlier seismic lines, the orebody was most evident on 10800N. On this section the orebody displays up to 80m vertical thickness, whereas on line 10600N the orebody is only 20-30m thick. A strong orebody reflection occurs on 10800N as the orebody thickness is comparable to the seismic wavelength of approximately 100 m. On 10600N, with the orebody thickness being much less than the seismic wavelength, the orebody produces a diffraction, not a reflection. As diffractions are attenuated by CDP stacking an obvious orebody signature is not produced.

The result from line 10600N shows that the seismically quiet zone below the orebody, shown on previous lines, was due to the reflection of most of the seismic energy off the top of the orebody, not due to "homogenization" of the stinger rocks. Two important features arise from this:

1. To positively detect the hellyer orebody, the seismic wavelength must be comparable to, or less than, the orebody thickness.

2. During data collection seismic wavelengths must be kept as short as possible.

3. HELLYER TO MAC 10 SECTION

The most important feature of this part of the 10600N section is the interpreted increase in thickness of the Que-Hellyer volcanics (QHV) between 4900E and 5300E.

The thickening of the volcanics was interpreted from a long wavelength feature evident in the data from peg 316 to peg 368. This feature comprises a series of discontinuous reflector segments, whose overall attitude, produce a semi-coherent downwards trend in the reflector geometry. As this feature has a long wavelength, with consistent characteristics over a substantial horizontal distance, it can be confidently interpreted as representing a real geological feature.

The interpreted thickening of the QHV may be due to the volcanics filling a basinal feature to the west of the Hellyer orebody. Alternatively, the volcanics have been folded into a synform that exhibits considerable hinge thickening. This synformal feature is not reflected in the overlying Que River Shale (QRS) and Upper Rhyolite Sequence (URS). If the interpreted thickening of the volcanics represents a sub-basin within the main QHV basin, it is a feature that should be considered for further attention, as a hydrothermal conduit may occur in this area.

Only a low degree of confidence can be placed in the interpretation of a major fault at 5430E. At this location a significant break occurs in the early and mid time reflectors. A detectable character change, from long wavelength, poorly continuous reflections to moderate wavelength, moderately continuous reflections, occurs west to east across the interpreted fault. This change could be produced by the automatic static correction procedure becoming more effective east of peg 375. Consequently no significant importance should be attached to the position of this interpreted fault.

In this middle section of the line, the QRS is overlain by the URS. A strong reflection is generated from this boundary, except at its eastern and western extremities. Consequently the attitude of the URS/QRS contact is not well known in these areas.

A dolerite mass occurring in the centre of the line produces unexpectedly weak reflections. This dolerite is probably a sill included within the QRS. The weak reflections suggest either its acoustic impedance is similar to that of the QRS, or that the boundary between the two units is not sharp. These hypotheses appear unlikely and the absence of reflections from the dolerite is due to difficulties in extracting the data at early travel times. A problem such as this would also explain the poor reflections from the eastern and western sections of the URS/QRS contact.

A major break in the QRS double reflector occurs at peg 275. This early time break is accompanied by a significant reflector character change in the 0.1 - 0.2s time window. West of peg 275 this time window contains short wavelength low amplitude reflections, while to the east long wavelength, moderate amplitude reflections occur. At approximately this location the raw shot records show an increase in air blast and ground roll that swamp the higher frequency data. This is due to an increase in the amount and thickness of low velocity overburden. It is possible that the observed character change is entirely due to a change in overburden conditions and not due to a change in geological structure. A significant geological change may still occur in the vicinity of peg 275 as differences occur in the character of data to the west and east of the low data quality zone (pegs 275-310). Unfortunately this possibility can not be interpreted with confidence.

4. MAC 10 TO WESTERN END OF SECTION

The segment of the line from Mac 10 to its western end displays the greatest degree of reflector continuity. The strongest reflector is the base of the QRS, while the basement is also more obvious. The cause of the strong double reflection at the base of the QRS is due to a double pulse wavelet produced by reverberation in the overburden.

West of the projection onto 10600N of Mac 15, a major fault occurs, exhibiting west block up displacement. This fault can be interpreted with a moderate degree of confidence, as an obvious disruption occurs in the QRS reflector at peg 143. Termination of high frequency reflectors within the Bp1 sequence also occurs at this location. This fault at 3120E is interpreted as a major basin bounding fault, marking the edge of the basin in which the QHV formed. The thickness of QHV decreases significantly across the fault. This indicates that the fault was active during QHV formation, with a small amount of volcanics overflowing the basin edge.

Diamond drill hole Mac 15 exhibited only 40 m of volcanics before reaching sandstone basement. From the seismic section it was expected that a significantly greater thickness of volcanics should have been intersected in Mac 15. Consequently the basin bounding fault must strike NNE between the seismic line and Mac 15.

5. CONCLUSIONS

The 10600N seismic line shows that folding and faulting was actively occurring throughout the formation of the Que-Hellyer Volcanics. The end of Que-Hellyer volcanism also marked the end of the first period of tectonic activity. Reactivation of the first generation of faults occurred post QRS deposition, forming the major faults shown on the section. It is probable the Jack Fault is a reactivated, first generation, growth fault.

The middle of the volcanic basin is probably centred around 5100E. The Hellyer orebody occurs to the east of the basin centre.

In summary the 10600N Hellyer seismic line has both been a success and a failure. It was not possible to locate the

Hellyer orebody from the seismic data alone (a failure). As the seismic reflection section did successfully map several lithological reflectors, data was obtained about the shape and tectonic history of the basin in which the Que-Hellyer volcanics formed (a success). The quality of the information obtained varies from poor to moderate, depending upon which feature is being considered.

Seismic reflection techniques have no further use during the development of the Hellyer orebody. Unfortunately the use of seismic to locate stringer systems and alteration zones, has been shown to be an exploration technique with a low probability of success if problems due to low velocity overburden cannot be eliminated. Seismic reflection could still be utilized during exploration, although with more conventional goals, ie. determining the depth of cover where EM techniques are not applicable, mapping lithological contacts between drill holes, the mapping of faults and providing general structural information. It should be considered that some drill hole information must be available before lithological contacts can be confidently mapped.

The use of seismic reflection as a method for the direct detection of base metal sulphides has little applicability to routine exploration programs.

PART TWO

Final Interpretation, Hellyer Seismic Line 11800N

1. INTRODUCTION

Many of the tectonic features evident on line 10600N also occur on line 11800N and shall not be discussed in detail here. Features relevant to future exploration will be considered fully.

2. SEISMIC STRATIGRAPHY

The interpretation presented in plate HEL 109 is entirely uncontrolled by drill hole information. Individual stratigraphic units have been identified by recognition of similarities in the seismic character exhibited on section 10600N and section 11800N. Consequently the stratigraphic boundaries shown on plate HEL 109 must be considered as very tenuous. This especially applies to the Que-Hellyer Volcanics / basement interface.

Along section 11800N the stratigraphy prospective for base metal mineralization is covered by a blanket of Tertiary Basalt (TB), 100 to 130m thick. A small thickness increase of the basalt occurs at the eastern end of the line.

Underlying the basalt are the URS and QRS units respectively. These units vary from flat lying to moderately dipping. As the seismic data has not been migrated the dips, as shown on the interpretation, are

apparent dips, less than the true dips (this also applies to the interpretation discussed in part one). The relationship between true and apparent dips is as follows:

$$d(\tan\phi - \tan\sigma) + \Delta d\tan\phi = 0$$

where d = unmigrated reflector depth

$d + \Delta d$ = migrated reflector depth

ϕ = apparent dip

σ = true dip

Differentiation of the QHV into individual units, was not possible on 11800N due to the lack of drill hole control. The volcanics have their greatest thickness in the centre of the line with thickness decreasing both to the east and west. The Hellyer anticline is a prominent feature at the eastern end of the section. A faulted syncline occurs immediately west of peg 200. The northern extension of the interpreted sub-basin on 10600N may occur between 5170E-5700E, although this is a low confidence interpretation.

3. FEATURES OF EXPLORATION INTERESTS

Major basement faults extend into the QHV, but do not transect the overlying QRS. Three major, steeply east dipping, faults are interpreted to occur in the centre of the section. These faults may be related to mineralization as the Jack Fault is at Hellyer and therefore represent exploration targets. The possibility exists that one of these faults may be the continuation of the Jack Fault. Unfortunately it is not possible to tell which, if any, of these faults is the Jack Fault. The confidence able to be placed in the interpretation of these faults is limited due to poor CDP stacking and the lack of real data at late times.

An area of possible alteration may occur at the base of the QHV sequence, between 5800E and 5850E, and slightly east of a major fault. The depth extent of this possible alteration is 380-550 m. The identification of this alteration is very tenuous.

If true stringer alteration does occur where interpreted, then the north westerly trend of the known stringer alteration north of the orebody must swing back in a northerly direction north of 11250N. There is no evidence, on the seismic data, of stringer type alteration occurring at a position corresponding to the NW projection of the known stringer mineralization.

A moderate degree of confidence can be placed in the determined reflector position for the QHV/QRS interface. Depending upon the accuracy of velocity estimates, the top of the QHV occurs at 150-200m depth. Consequently, the degree of northerly plunge of the QHV must decrease considerably between 11000N and 11800N. This suggests that if a further sulphide system occurs to the north of the Hellyer orebody its depth would not be as great as initially thought. The interpreted decrease in depth of the QHV has major implications for future exploration of the area north of Hellyer.

4. CONCLUSIONS

The 11800N seismic line identified several major faults, which have the potential to be related to a sulphide system. A tenuous identification of stringer type alteration has been made, with the proposed alteration occurring east of the known trend of stringer alteration north of Hellyer.

This area of major faulting and possible stringer alteration (5750E-5890E) should be considered for drill hole target generation.

Importantly the seismic section has revealed the prospective QHV and Hellyer time horizon are not as deep as previously thought, and a decrease in the northerly plunge of these units must occur north of 11000N.

Detection of seismically quiet zones, possibly indicative of stringer alteration, was made extremely difficult by the presence of ground roll and air blast noise within the time window of most interest. This noise was present, even after CDP stacking, and hence would obliterate any seismically quiet zones. Greater line preparation to decrease the effects of the low velocity overburden would have produced more diagnostic results.

Appendix 1

320 ABERFOYLE 598323 MEMORANDUM

Date	26 October 1988	Ref	JJR:AJW
To	Jovan Silic	From	Jeremy Read
At	Hawthorn	At	Hawthorn
Copies to	AMcN	Keep	Mackintosh/ Geophysics

Subject Hellyer Seismic Data

1. Introduction

Following discussions with Barry Long of Velseis Pty Ltd, held in Brisbane on Friday 21 October, a greater degree of understanding of the Hellyer seismic data has been achieved. This has allowed the seismic sections to be interpreted with greater confidence. The nature of the information illustrated by the seismic sections has also been better defined.

2. Fundamental Problems

The two major problems degrading the quality of the raw seismic data are:

(1) Air Blast
(2) Ground Roll

Both these problems relate directly to the physical conditions under which the survey was conducted. The poorly consolidated, variable thickness, overburden layer allowed most shots to blow out into the air creating large amounts of air blast. High amplitude ground roll waves were also generated in the overburden (see figures 1 and 2). The noise envelope generated by the ground roll occupies a time sector within which the real events, of which we are interested, were expected to be recorded. Due to its high amplitude, the data recording amplifiers were saturated with noise during the arrival of the ground roll, and little, if any, real data was recorded. The time interval in which relatively noise free data was recorded was restricted to between 0.1 and 0.2 s, hence the required depth penetration was not achieved.

The degradation of the data due to ground roll and air blast is illustrated in figures 1(a) to 1(f). Little data was recorded at frequencies less than 30 Hz, as the geophones used had a resonant frequency of 30 Hz. Ground roll and air blast dominate the 40-80 Hz range with a high frequency real event, corresponding to a reflection occurring on the sections. Some reflections were recorded from within the QHV, but none at late times where reflections from the basement

would be expected (see figure 1(e)). Due to the limited bandwidth of the reflections, deconvolution of the section was not very successful, as in order to properly collapse the incident wavelet a 3-4 octave range for the reflections is needed.

Data quality seriously decreases east of the Que River (compare figure 2(a) to figure 1(a)). The first breaks become variable, with considerable smaller amplitude in comparison with the ground roll, which has significantly increased in amplitude. Few coherent reflections are present. A greater bandwidth is occupied by the noise than for data recorded west of the Que River. High frequency real events were recorded, but not consistently at all spread positions. The decrease in data quality is directly attributable to the increase thickness and decreased coherence of the overburden layer.

3. Effect of noise problems on the final sections

The most obvious reflection on the 10600N section is the QRS-QHV interface, for the west segment of the line. Some high frequency real events are also recorded from within the QHV. These events probably correspond to reflections off individual, discontinuous, basalt flows. For the eastern half of the line the QRS-QHV contact is still interpretable although its position varies greatly as the data quality varies. Throughout most of the sections reflectors are broken into discontinuous segments as the effectiveness of CDP stacking has varied with data quality. No emphasis should be placed on the geometry of reflectors at times longer than 0.2 s as these apparent reflectors are incidental line-ups, produced by the automatic statics corrections. Consequently the interpreted position of the basement must be considered as highly suspect.

At times earlier than 0.2 s, the general trends of discontinuous reflectors and long wavelength features are representative of geological structure. Thus, the interpreted thickening of the QHV west of Hellyer is probably a real feature.

The interpreted discontinuous low amplitude character of the QHV, is not a real feature, but due to the applied AGC function. This function scales the trace amplitudes over a 100 ms time window. Consequently when the high amplitude QRS-QHV reflection is within this window, the amplitude of other reflections later in time are decreased. When the QRS-QHV reflection drops out of the time window, reflection amplitudes are more evenly scaled within the 100 ms AGC window.

4. Follow up actions

(a) A proposal should be constructed for the drilling of the interpreted thickening of the QHV, west of Hellyer.

(b) If the above hole is approved, velocity and density logs should be recorded so that a synthetic seismogram can be produced. This will increase our understanding of the seismic character of the Hellyer stratigraphic section. (BPB has been recommended for such a logging job).

(c) Barry Long at Velseis is going to review the raw seismic data and evaluate if reprocessing using the Velseis processing system could improve the signal to noise ratio. After the initial tests Aberfoyle will have to advise Velseis if complete reprocessing is required.

5. For future surveys

(a) Shot holes should be drilled into bedrock and a seismic booster, not dynamite, used as a source.

(b) Seismic velocity and density logs should be recorded in a hole close to the survey line, so that a synthetic seismogram can be produced to aid interpretation.

(c) Field techniques should be instigated that significantly decrease the amount of ground roll and air blast, as it is possible to record high quality, high frequency data, if ground roll is reduced.

(d) Consideration should be given to the use of helicopters to support surveys in Western Tasmania. No bulldozing of lines would then be necessary and Velseis quote at least a 50% increase in production.

Jeremy Read

Record S·P· 200

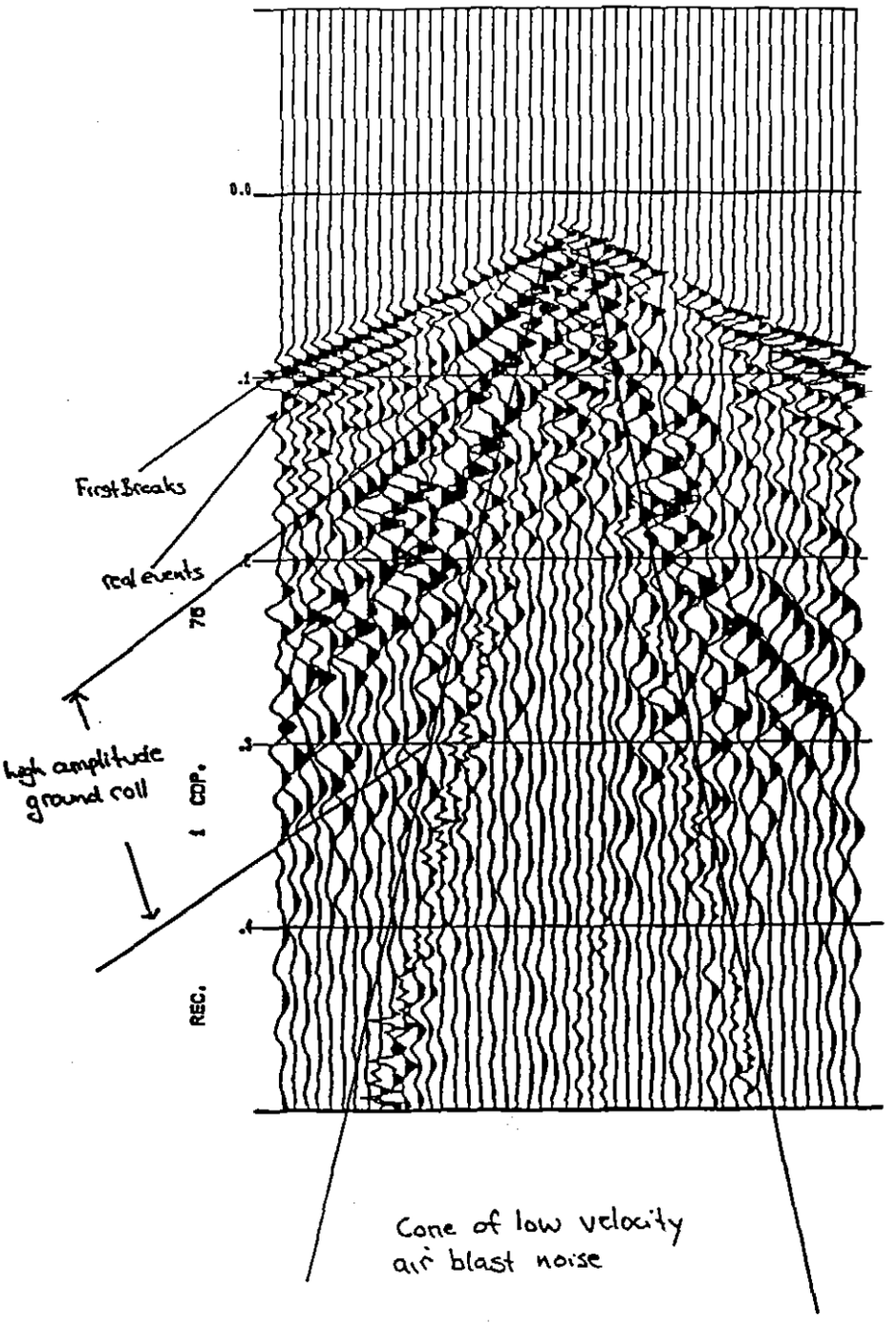


figure 1 (a)

Record S·P 200

frequency filtered 20-30 Hz

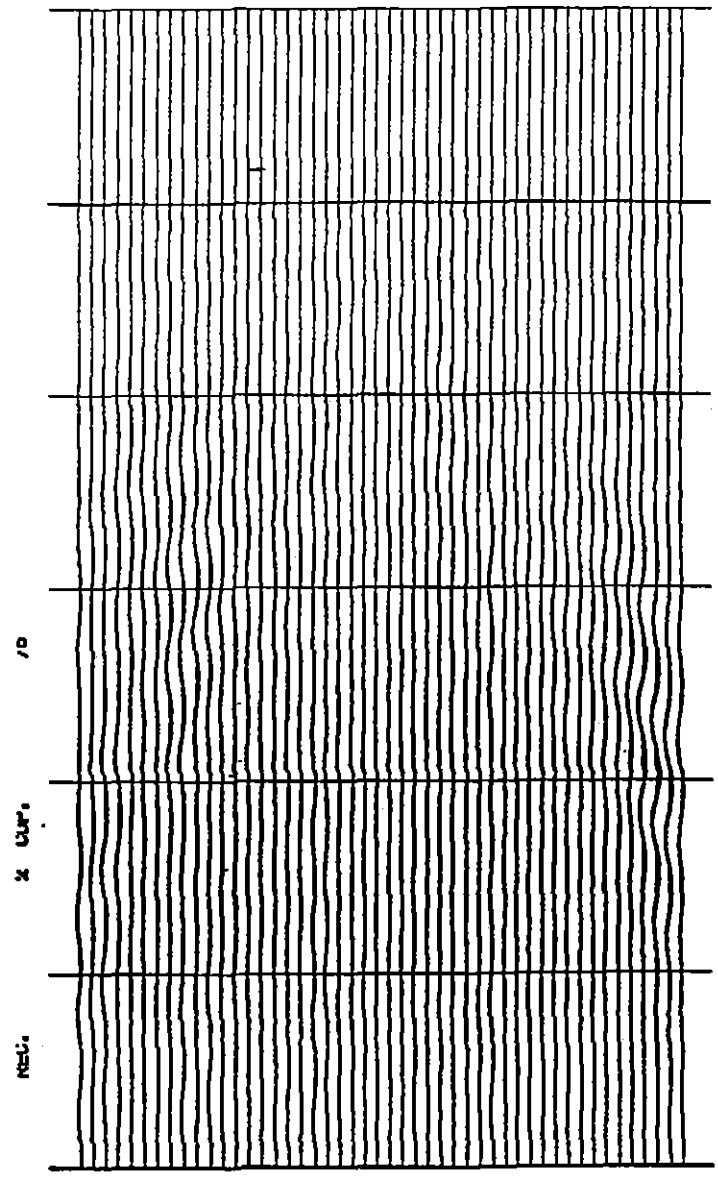


figure 1(b)

Record S.P. 200
frequency filtered 40-50 Hz

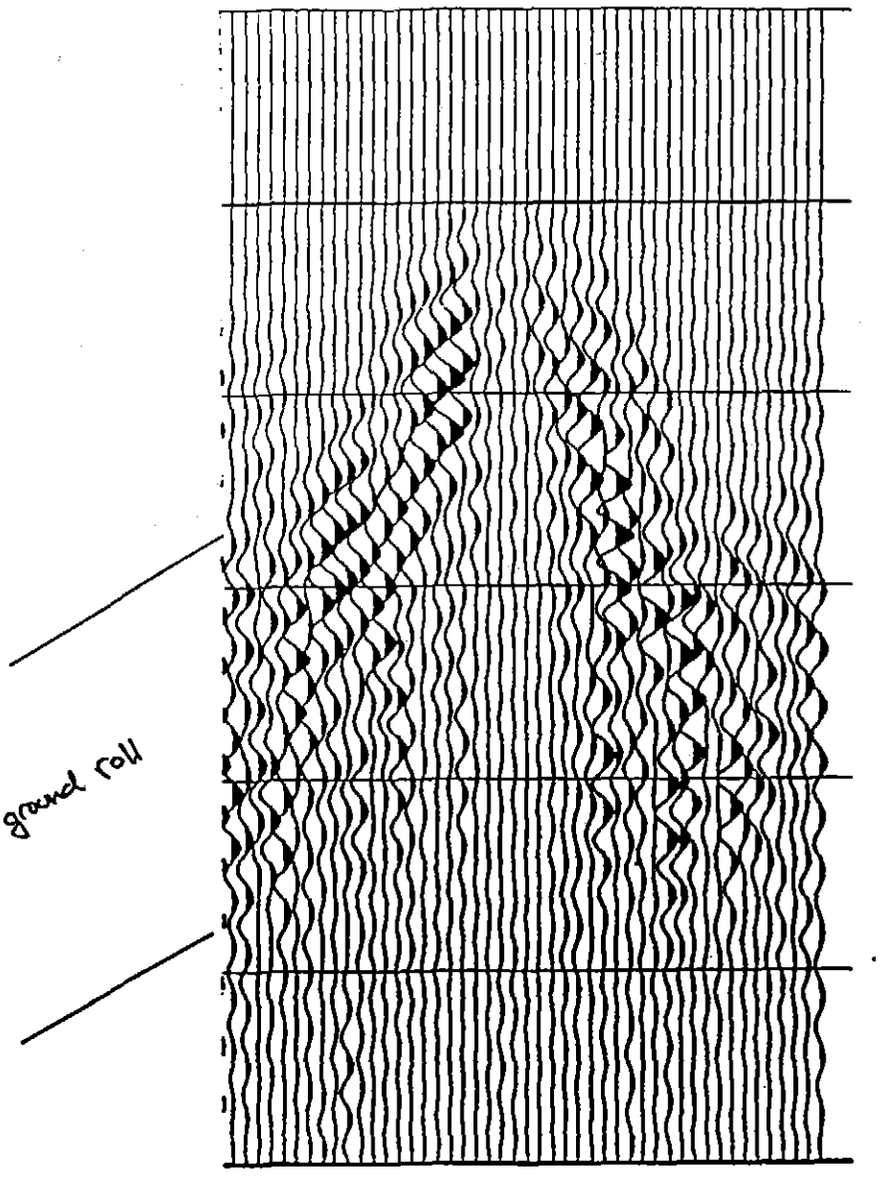


figure 1(c)

Record S.P. 200
frequency filtered 50-60 Hz.

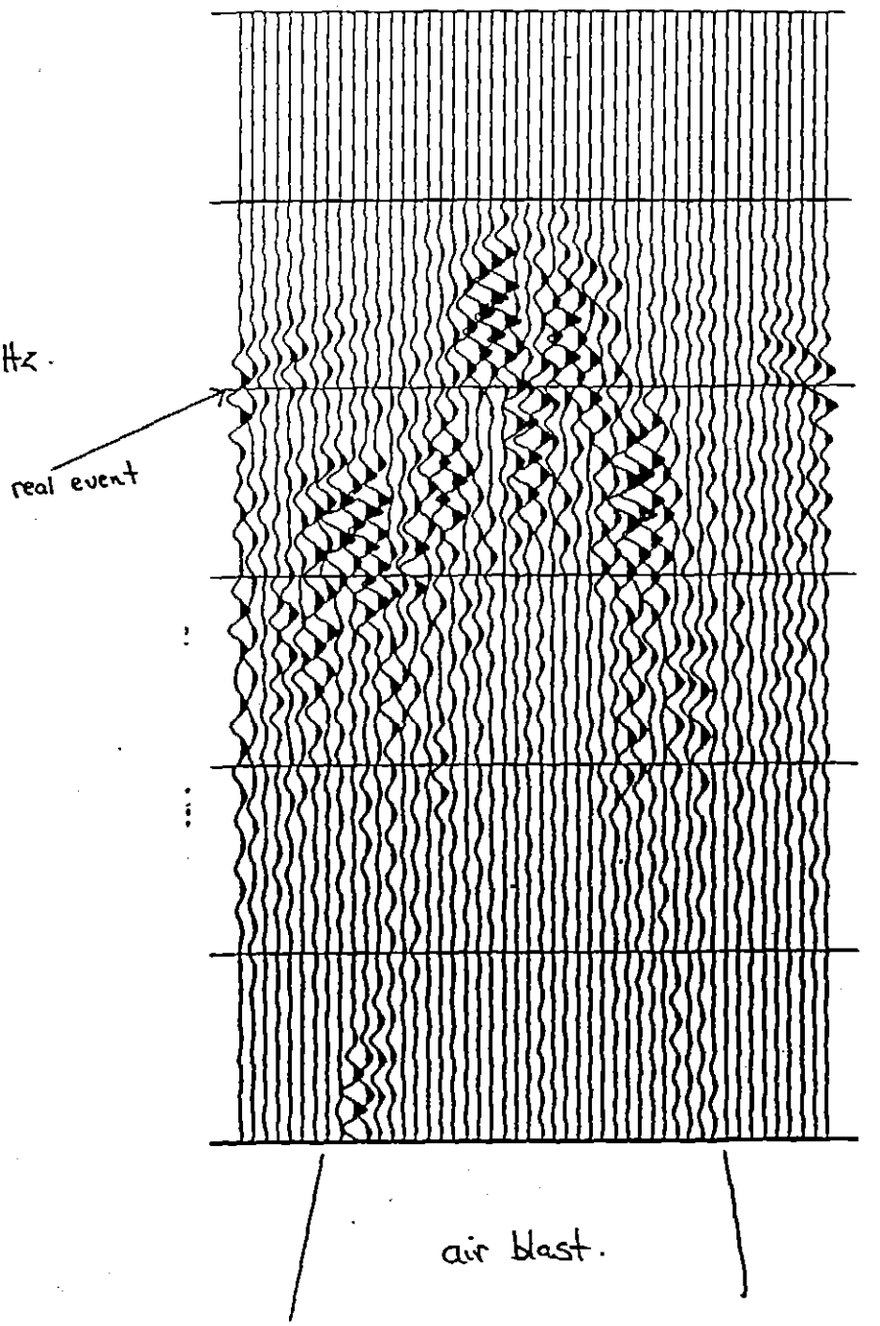


figure 1(d)

Record S·P 200
frequency filtered 80-100 Hz

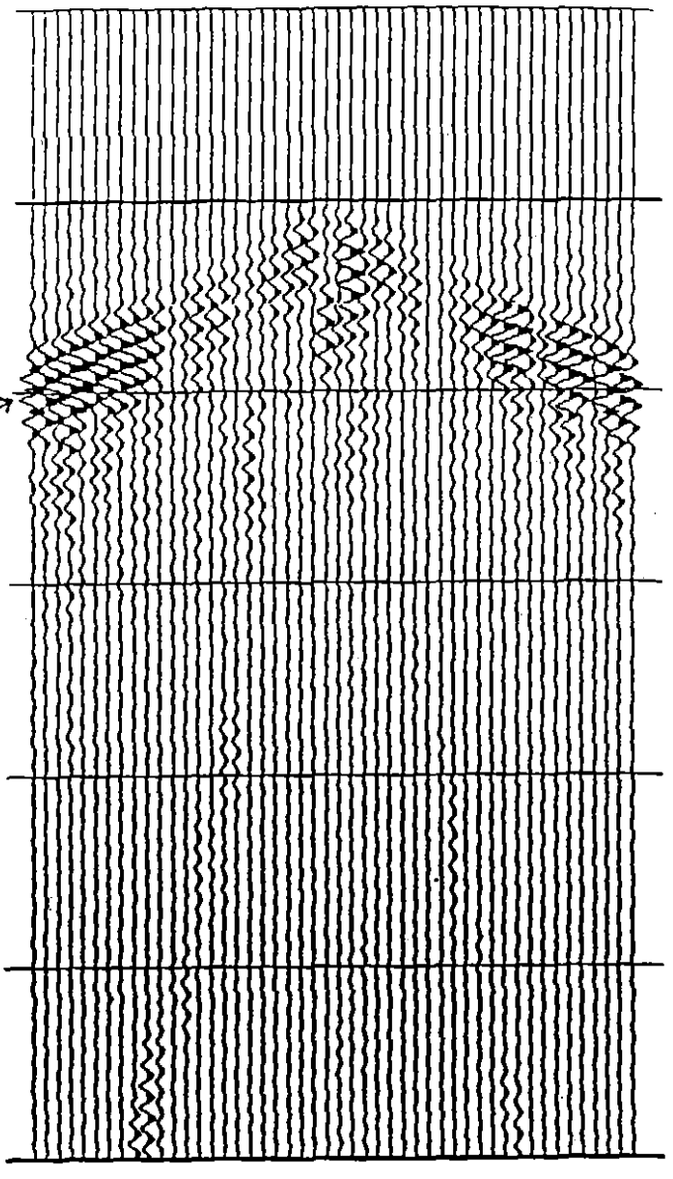


figure 1(e)

Record S.P. 200
frequency filtered 100-120 Hz.

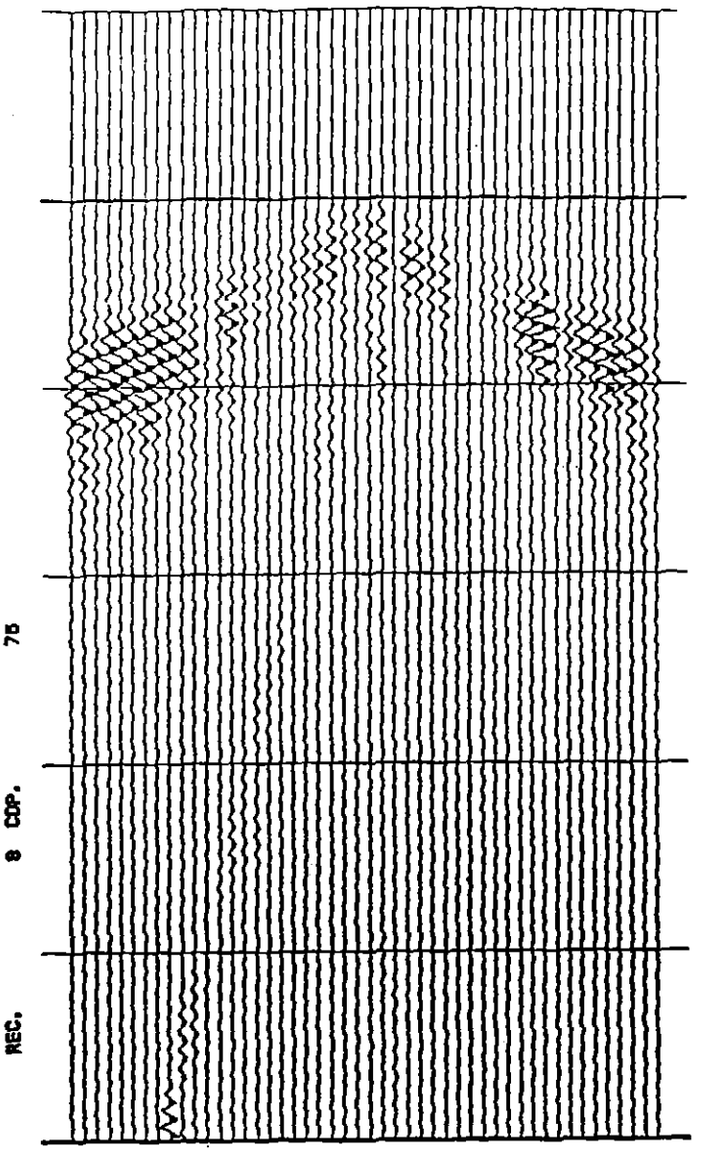


figure 1(f)

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Record S·P 350

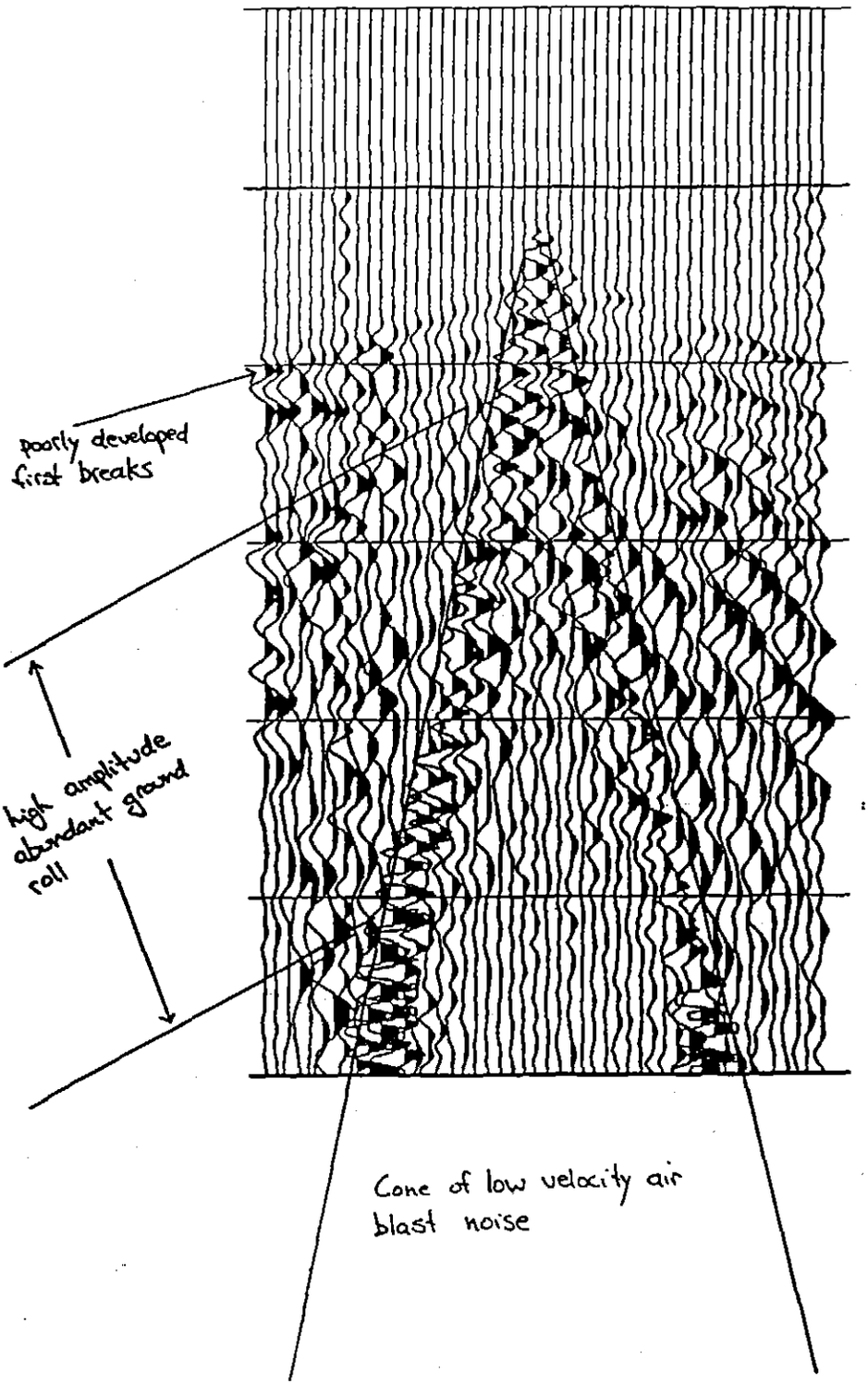
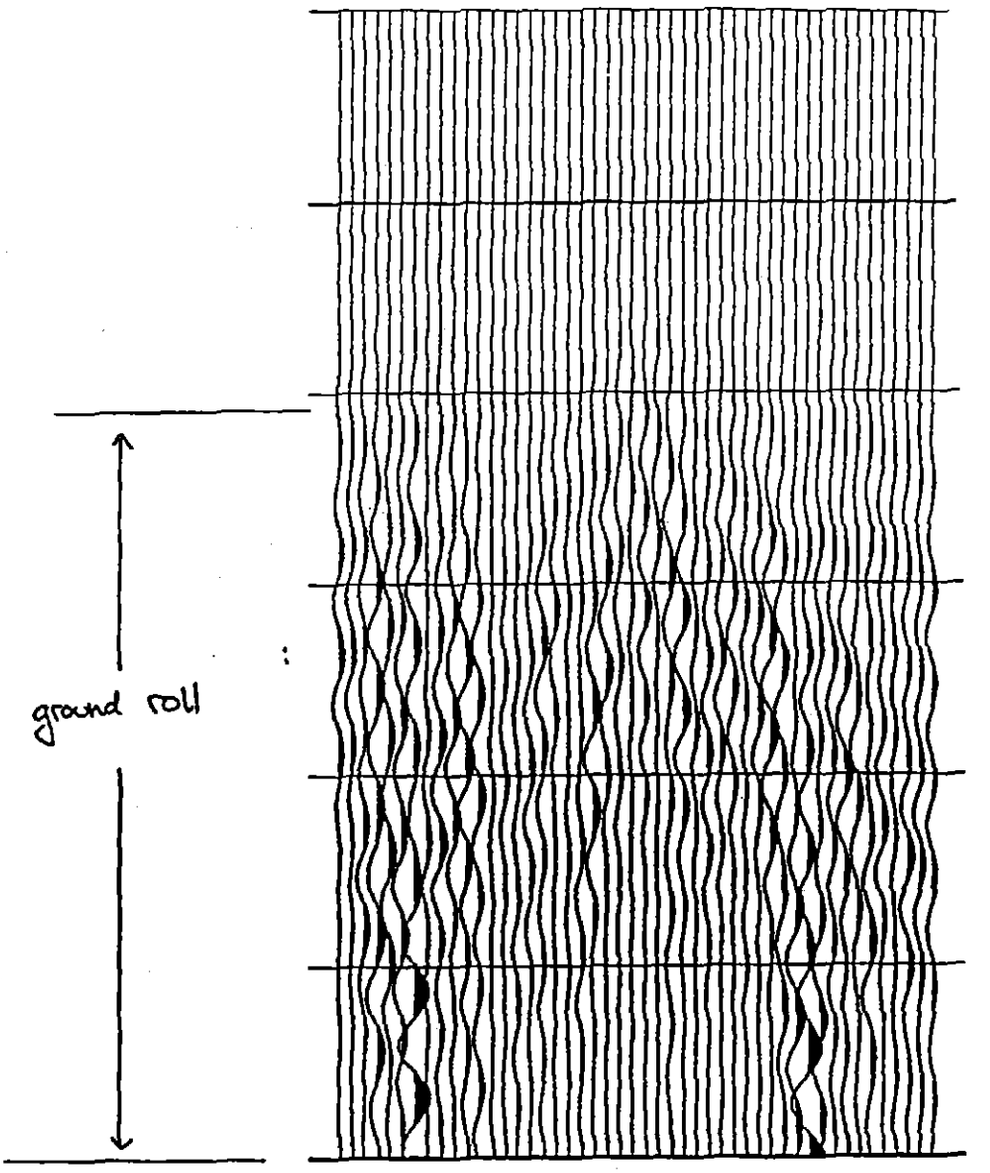


figure 2(a)

330

598333

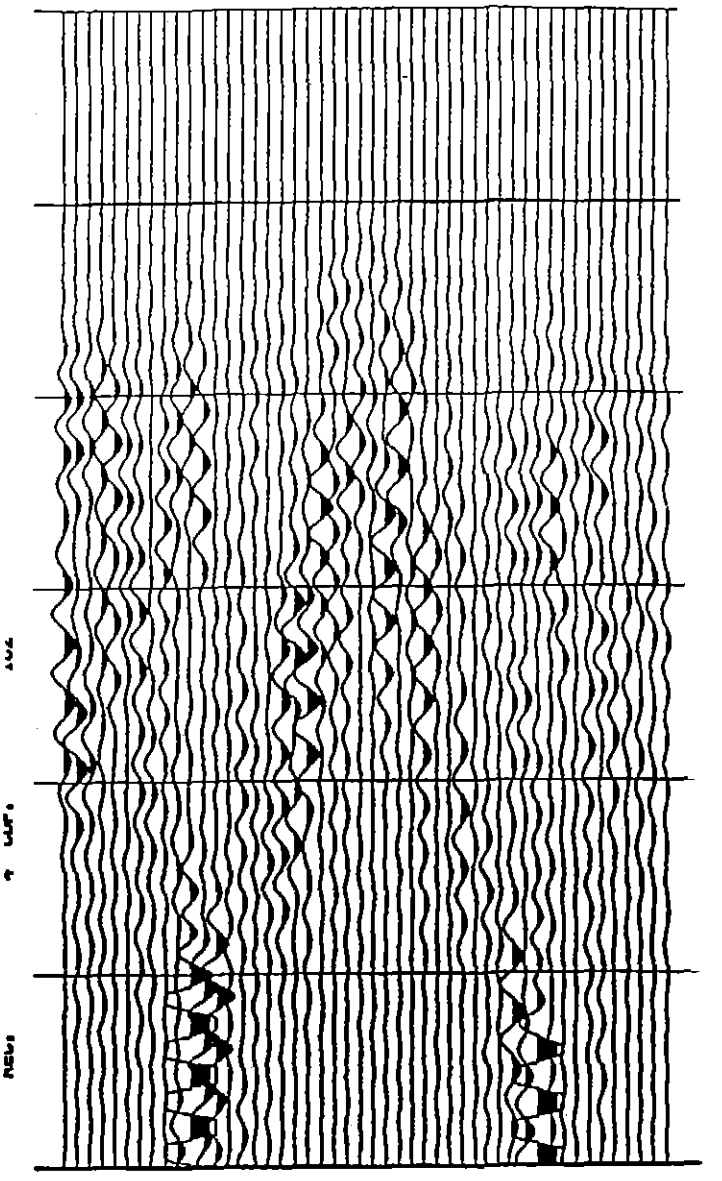
Record S·P 350
frequency filtered 20-30 Hz



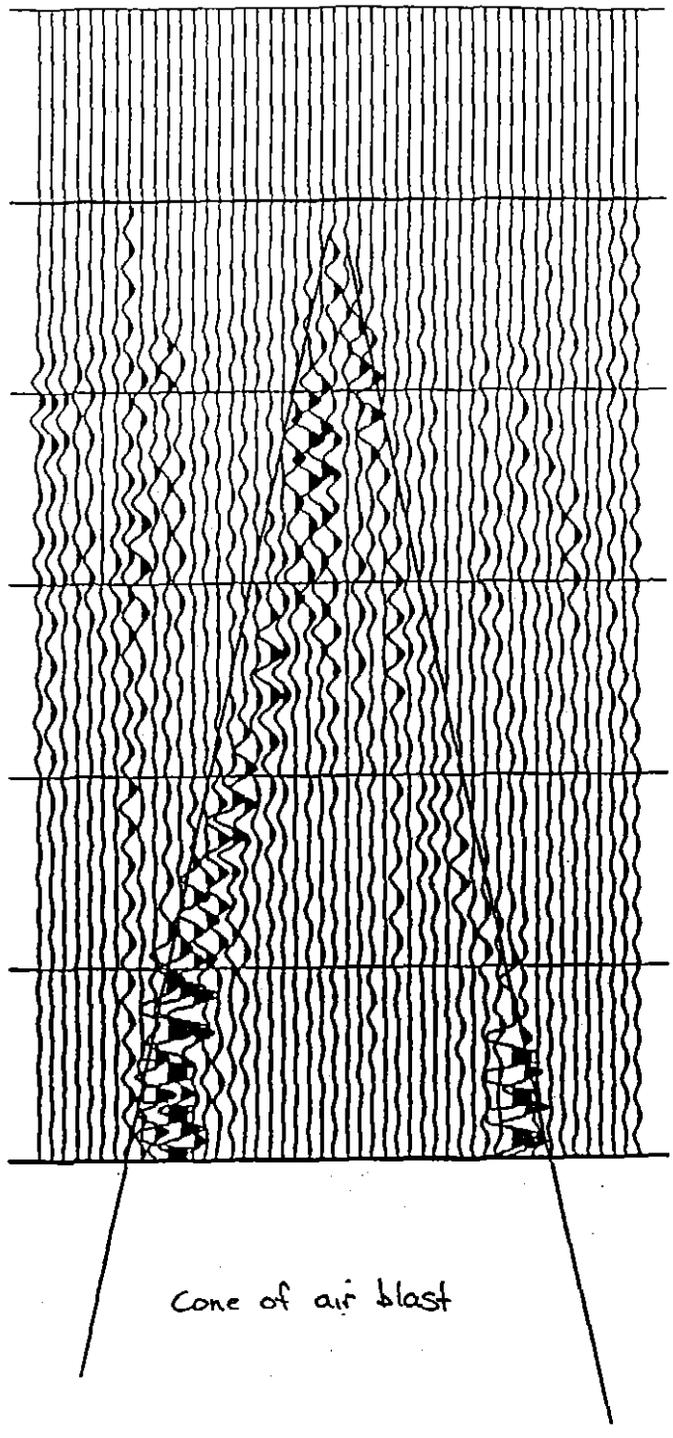
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S.P. 350
frequency filtered 40-50 Hz.

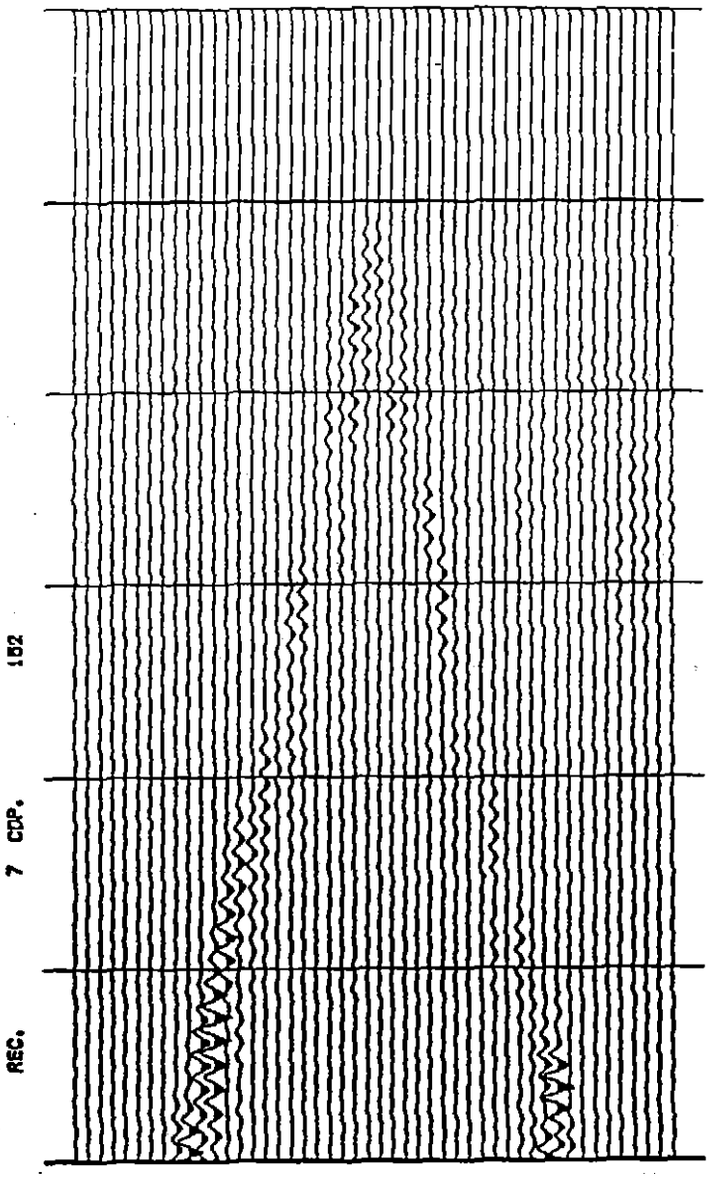


Record S.P. 350
frequency filtered 50-60 Hz.

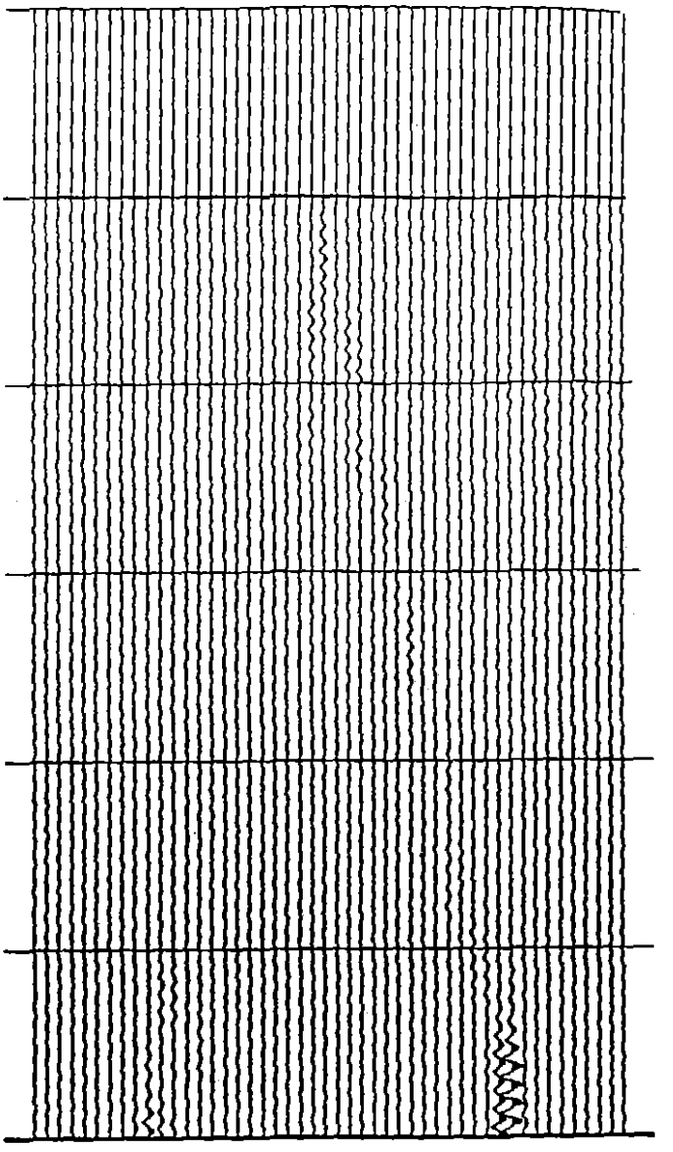


598336

S·P 350
frequency filtered 80-100Hz.



Record S.P. 350
frequency filtered 100-120 Hz.



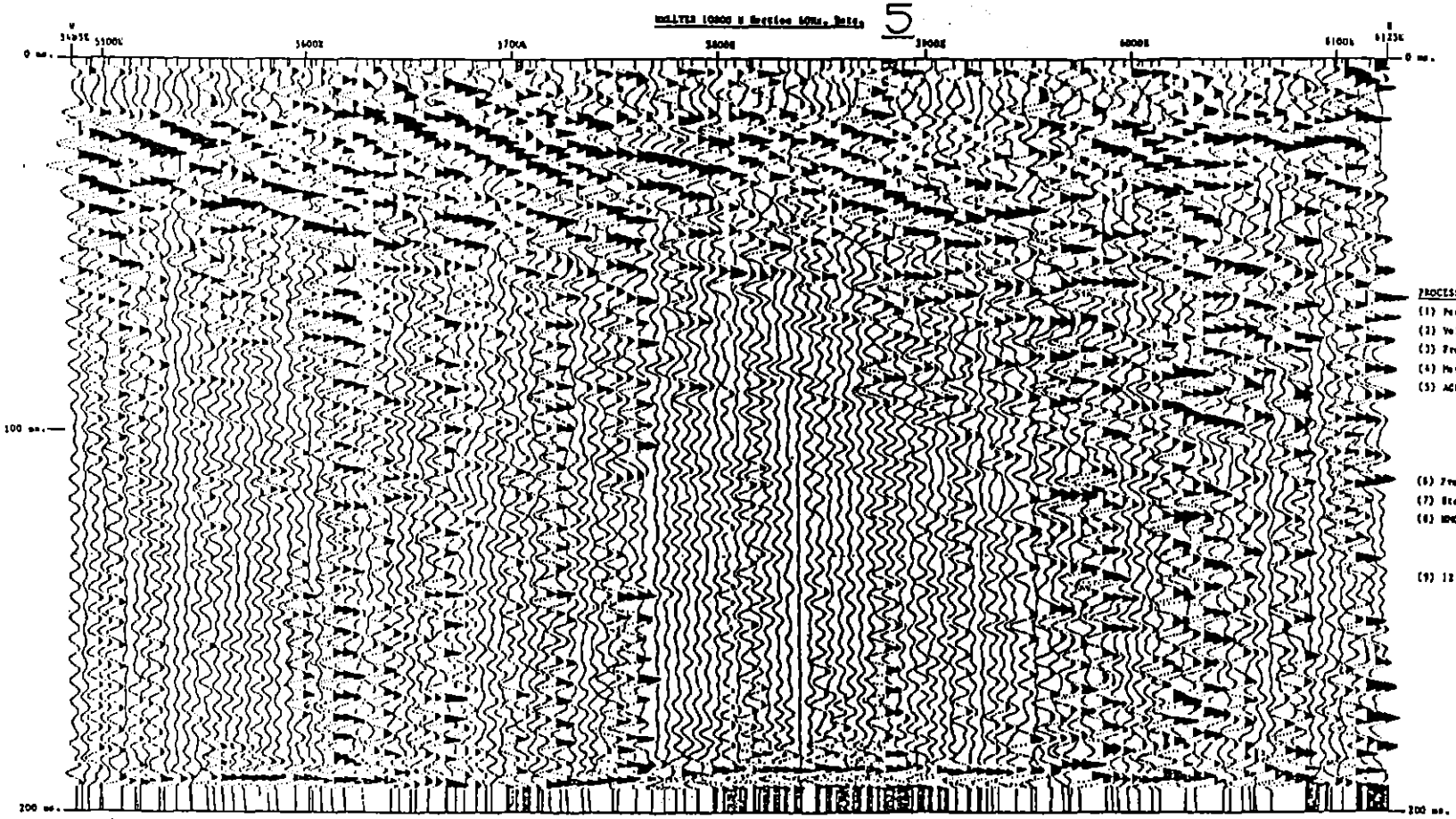
598338

Appendix 2

University of Tasmania Hellyer Seismic Sections

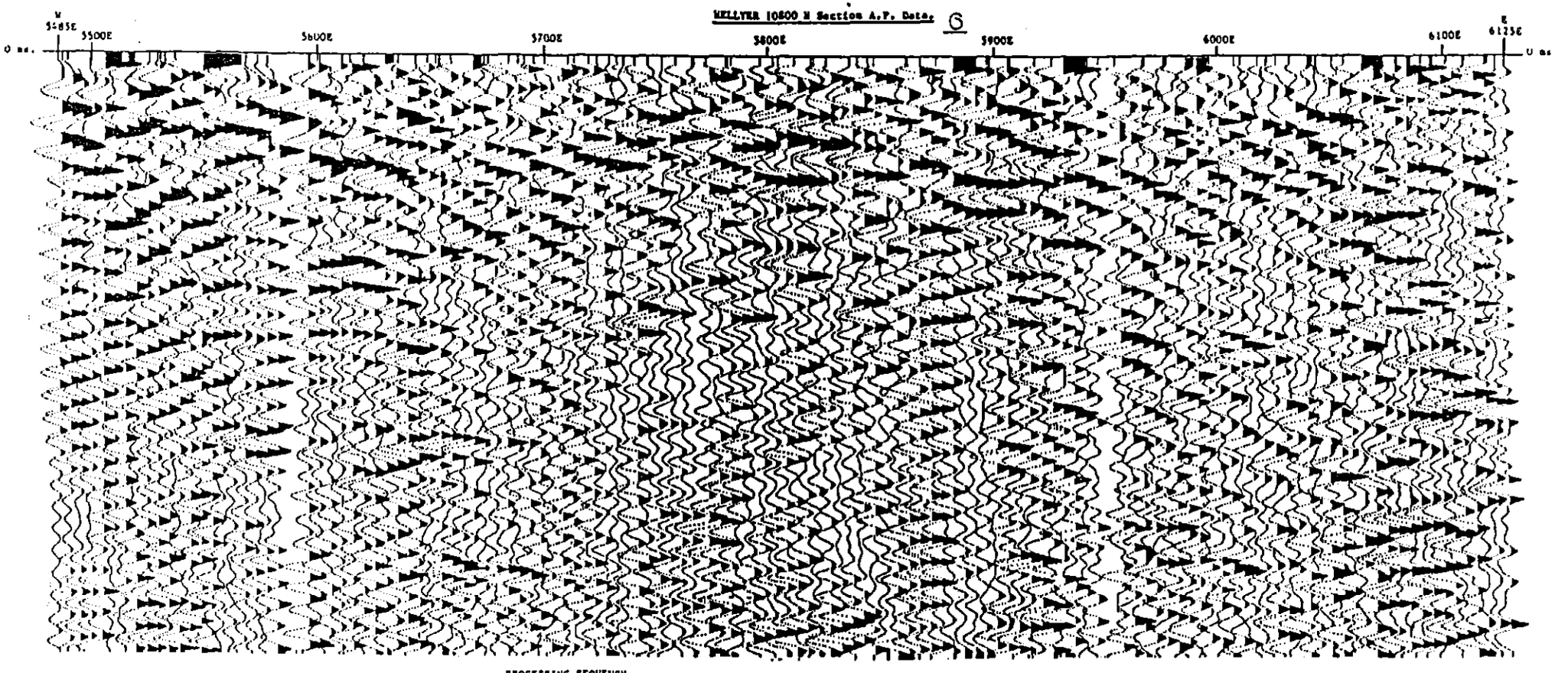
Lines 10800N
10950N

598339


W
5495E
5100E
5600E
5700A
5800E
5900E
6000E
6100E
E
6125E
0 ms.
100 ms.
200 ms.
PROCESSING SEQUENCE
(1) Peak Normalization
(2) Velocity Filter 4100 m/s
(3) Frequency Filter 20-120 Hz. dB=0.00I (SEISAN)
(4) Merge and Gather
(5) AGC window = 10
thresh = 0.0
attack = 1.003
rage = 0.0
(6) Frequency Filter 70-120 Hz. dB=0.00I
(7) Static Corrections (statics.60.51.gathered)
(8) NMO Corrections 6115-5800E velocity model 7)
5800-5700E velocity model 10
5700-5485E velocity model 3)
(9) 12 fold CDP stack

(330

598340



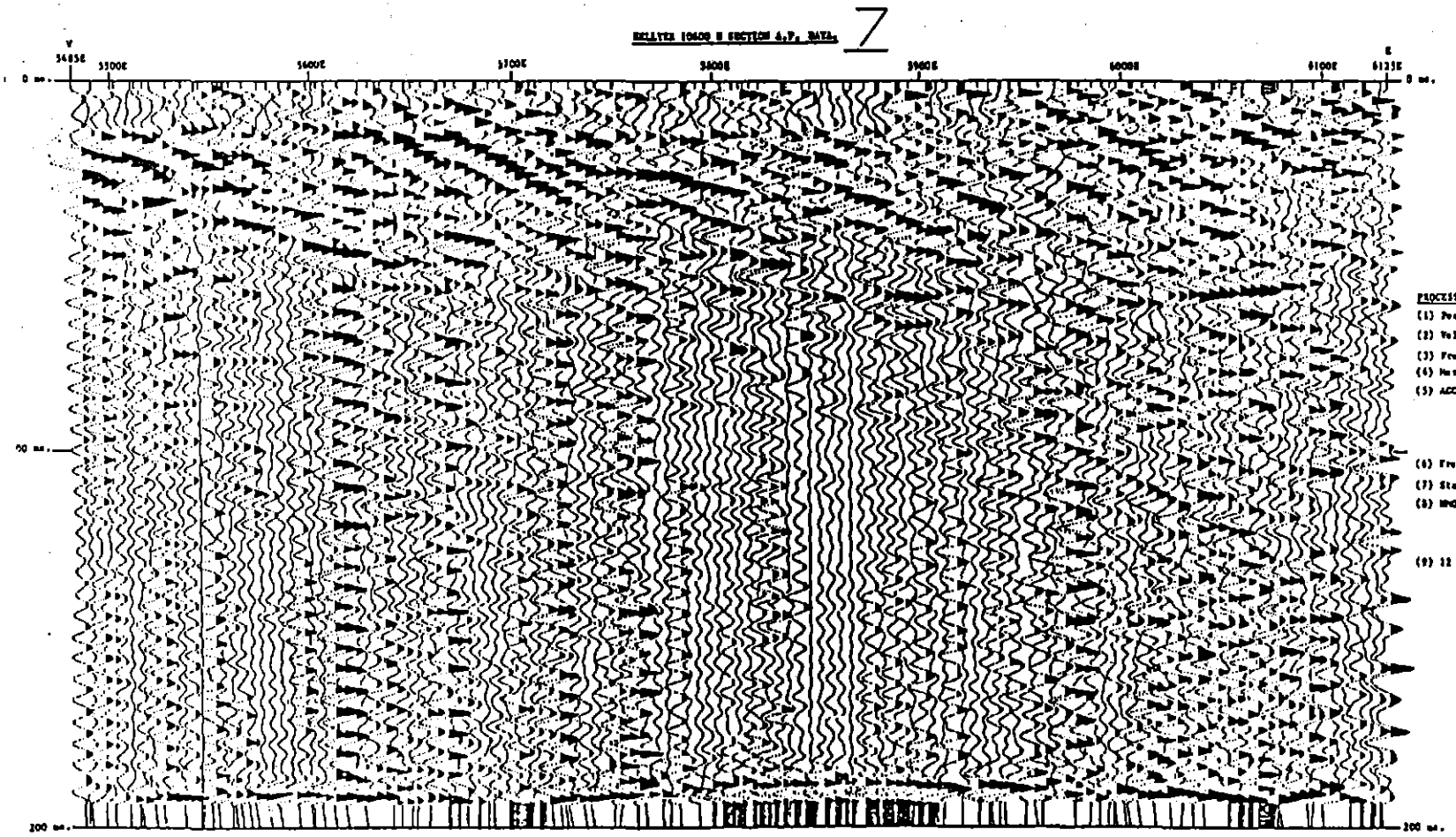
PROCESSING SEQUENCY

(1) Peak Normalisation
(2) Velocity Filter 4200 m/s
(3) Frequency Filter 70-130 Hz. dB-0.001 (SEIS867)
(4) Merge and Gather
(5) AGC window = 150
thresh = 0.0
attack = 1.0015
vage = 0.0
(6) Frequency Filter 70-120 Hz. dB-0.002
(7) Static Corrections (statics.AP.gathered.nov)
(8) NMO Corrections Velocity Model 10, 3600-5750 velocity model 22
(9) 12 Fold CDP stack

200 ms. 200

C 337

598341


BELLYEX 10600 N SECTION 4.P. DATA
7
W
5485E
5500E
5600E
5700E
5800E
5900E
6000E
6100E
E
6125E
0 ms.
50 ms.
200 ms.
PROCESSING SEQUENCE
(1) Peak Normalization
(2) Velocity filter 4300 m/s
(3) Frequency Filter 70-150 Hz. dB=0.001 (SE15
(4) Merge and Gather
(5) AGC window = 10
thresh = 0.0
attack = 1.005
vage = 0.0
(6) Frequency Filter 70-120 Hz. dB=0.002 (SE15
(7) Static Corrections (statics.AP.51.gathered
(8) NMO Corrections 6125-5800E velocity model
5800-5700E velocity model
5700-5485E velocity model
(9) 12 fold CDP stack

338

598342

HELLYER 1095ON SEISMIC LINE

DETAILED PROCESSING

(1) Frequency Filter 90-300 Hz. dB=0.01

(2) Velocity Filter 3600m/s

(3) Mute Noisy Traces

(4) Merge and Gather

(5) Static and NMO correct gather (TEST.VEL3)

(6) Apply AGC window = 1

thresh = 0

attack = 1.0

vagc = 0.0

(7) Frequency Filter 90-300 Hz. dB=0.001

(8) Peak normalize

(9) CDP stack

W 5482E

E 6085E

0 m/s

200 m/s

330

598343

HELLYER 10950N SEISMIC LINE

BOOSTER SECTION: AUTOMATIC STATICS

PROCESSING SEQUENCE

(1) Frequency Filter 90-300 Hz. dB=0.01

(2) Velocity Filter 3600m/s

(3) Blank Noisy Traces

(4) Merge and Gather

(5) Static and NMO correct gather (TEST.VEL3)

(6) Calculate residual statics (30-120m/s correlation window)

(7) Apply AGC window = 10
thresh = 0
attack = 1.003
vagc = 0.0

(8) Frequency Filter 90-300 Hz. dB=0.001

(9) Apply residual statics

(10) Peak normalize

(11) CDP stack

W 5482E

E 6085E

0 m/s

340

HELLYER 1095ON SEISMIC [illegible]

DETRENTOR SECTION [illegible]

598344

(1) Frequency Filter [illegible] dB [illegible]

(2) Velocity Filter 3600m/s

(3) Blank Noisy Traces

(4) Merge and Gather

(5) Static and NMO correct gather (TEST.VEL3)

(6) Calculate residual statics (30-80m/s correlation window)

[illegible] window = 10

thresh = 0

attack = 1.0001

vagc = 0.0

(8) Frequency Filter 90-300 Hz. dB=0.001

(9) Apply residual statics

(10) Peak normalize

(11) CDP stack

W 5482E

E 6085E

0 m/s

200 m/s

341

HELAYER 10950N SEISMIC LINE

BOOSTER SECTION

(1) Frequency Filter [illegible]

(2) Velocity Filter 3600m/s

(3) Blank Noisy Traces

(4) Merge and Gather

(5) Static and NMO correct gather (TEST.VEL3)

(6) Apply AGC window = 10
thresh = 0
attack = 1.0001
vagc = 0.0

(7) Frequency Filter 90-300 Hz. dB=0.001

(8) Peak normalize

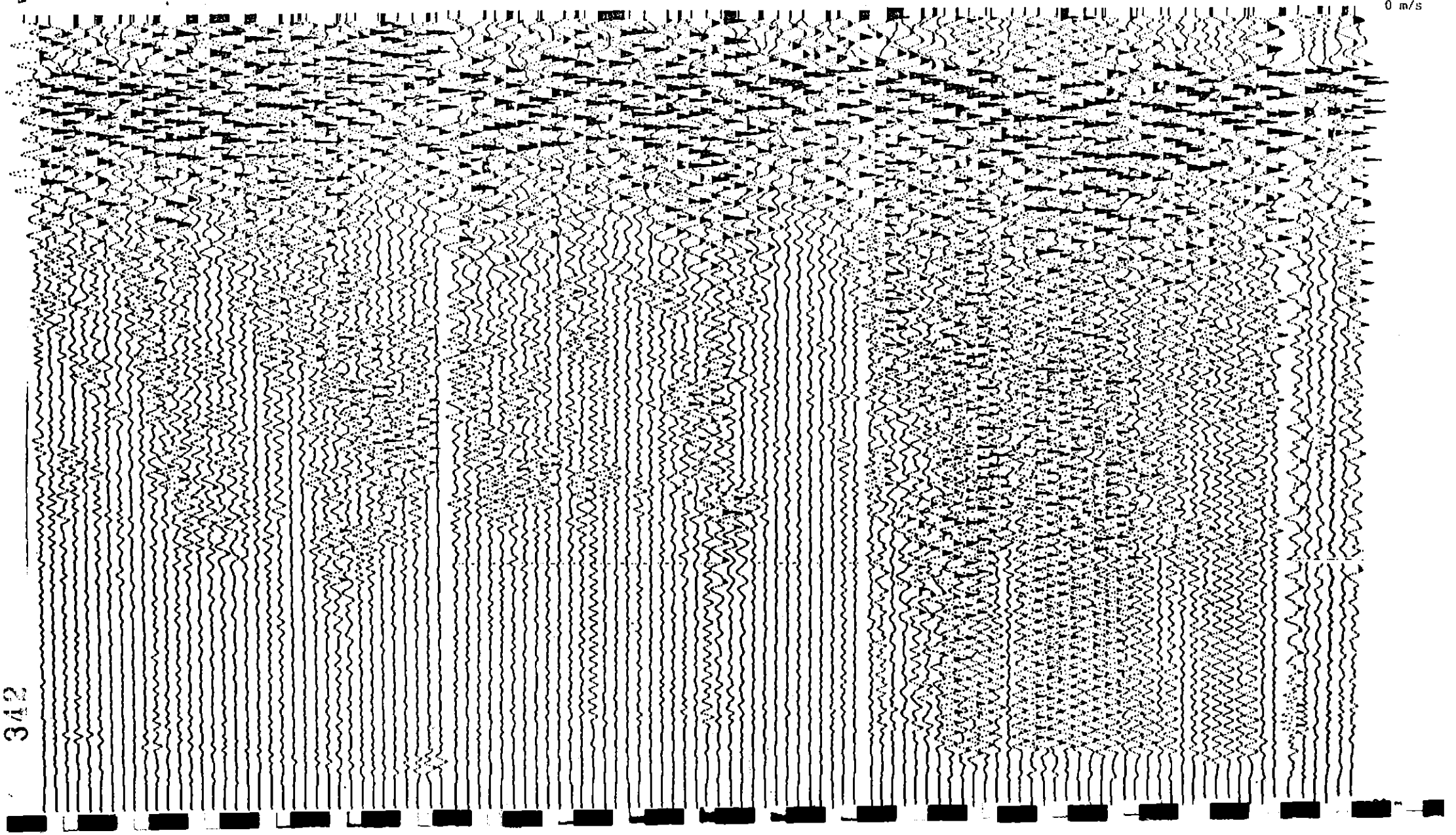
(9) CDP stack

598345

W 5482E

E 60855

0 m/s



342

HELLYER 1095CN SEISMIC LINE

ROSTER SECTION ACOUSTIC IMPEDANCE

(3) Velocity filter (TEST.VEL3)

(4) Mute and Taper

(5) Statics and NMO correct gather (TEST.VEL3)

(6) Calculate residual statics (30-120m/s correlation window)

(8) Frequency filter (TEST.VEL3)

(9) Apply residual statics

(10) Trace normalize

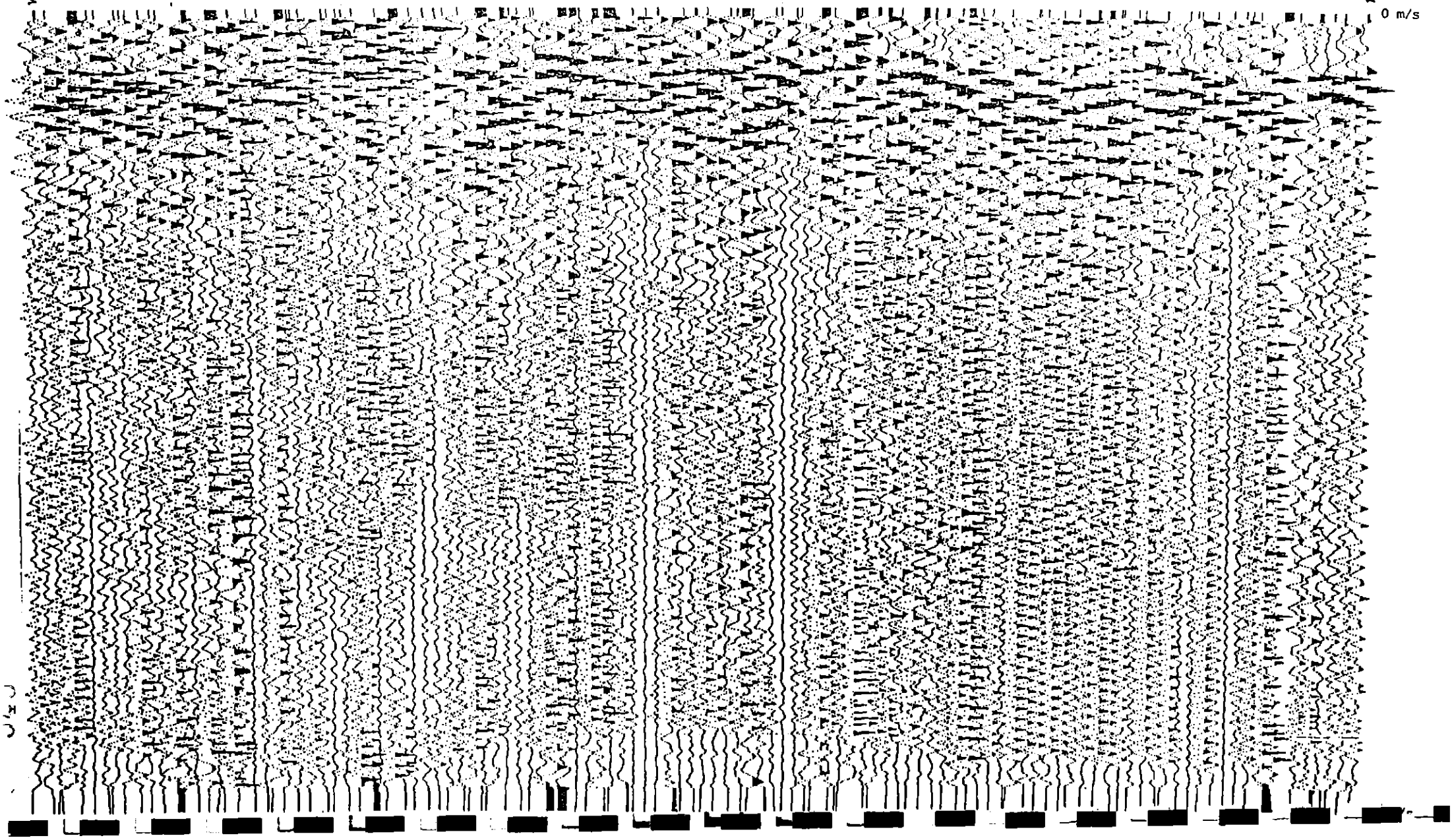
(11) CDP stack

598346

W 5482E

E 6085E

0 m/s



HELIXER 1095ON SEISMIC LINE

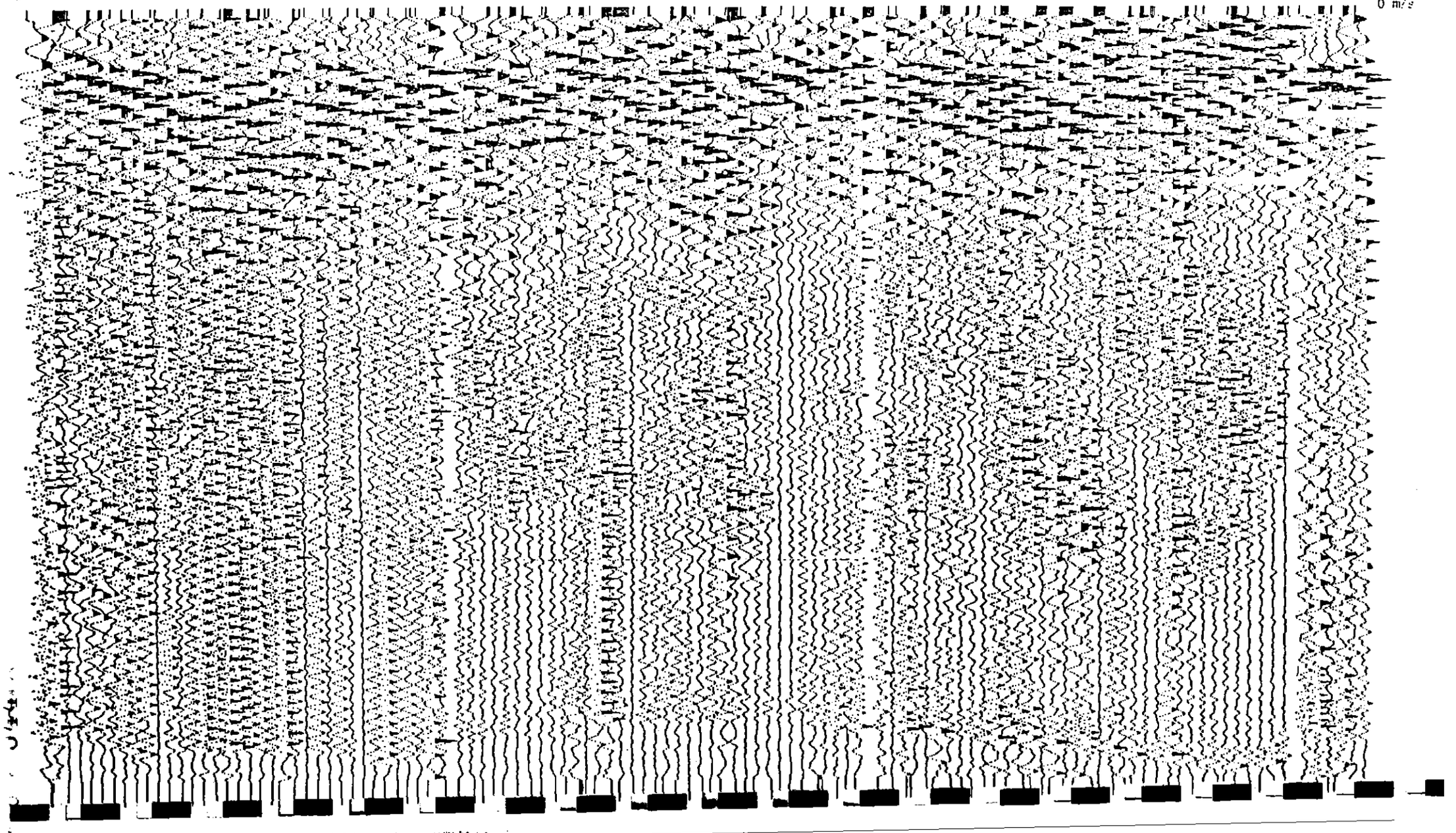
(1) Frequency Filter
(2) Velocity Filter
(3) Blank Noisy Traces
(4) Binge and Soften
(5) Static and NMO correct gather (TEST.VEL)
(6) Apply AGC window = 0
thresh = 0
attack = 1.000
vagc = 0.0
(7) Frequency Filter 90-300 Hz. dB=0.001
(8) Peak normalize
(9) CDP stack

598347

W 5482E

E 6085E

0 m/s



598348

APPENDIX 8.

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INTERPRETATION REPORT

UTEM SURVEY

MURRAYS ROAD GRID

MACKINTOSH EL 2/70

Prepared By:

J. Silic

Issued By:

J. Silic

Distribution

Hawthorn (1)

Burnie (1)

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598350

INTRODUCTION

SURVEY SPECIFICATIONS

DISCUSSION OF RESULTS

CONCLUSION

REFERENCES

PLATE
UTEM and EM-37 COVERAGE - MAC 113B

APPENDIX 1
UTEM DATA SECTIONS

INTRODUCTION

Electromagnetic techniques have played important roles in the discoveries of the Que River and Hellyer deposits (Webster and Skey, 1979; Silic et al, 1985; Eadie et al, 1985). Since the Hellyer discovery Aberfoyle Resources has further refined the use of these techniques in the search for Hellyer and Que River type targets (Silic, 1989).

The purpose of this report is to discuss the results of a UTEM (West et al, 1984) survey over the Murrays Road grid on the Mackintosh licence. (Plate 1)

SURVEY SPECIFICATIONS

A one loop, 5 line, five kilometre UTEM survey covered the prospective geology on the Murray Road grid.

Vertical component data (Hz) was collected at 50 metre station spacing.

DISCUSSION OF THE RESULTS

Although, some of the late time data has been affected by the power line noise in the southern part of the grid, the quality of the data does not preclude the identification of significant conductive sulphides at depth. In this survey, however, no such responses have been identified. Only, some formational conductors are present on the grid and are easily identified through the second derivative technique from Silic, 1989.

CONCLUSION

No targets worthy of follow up have been identified by the survey.

598352

REFERENCES

Eadie, E. T., Silic J. and Jack, D. J. (1985), 'The application of geophysics to the discovery of the Hellyer ore deposit, Tasmania', Explor. Geophys. 16, 207-209.

Silic J. (1989), 'Interpretation of TDEM data using spatial derivatives and decay analysis', Explor. Geophys. 20

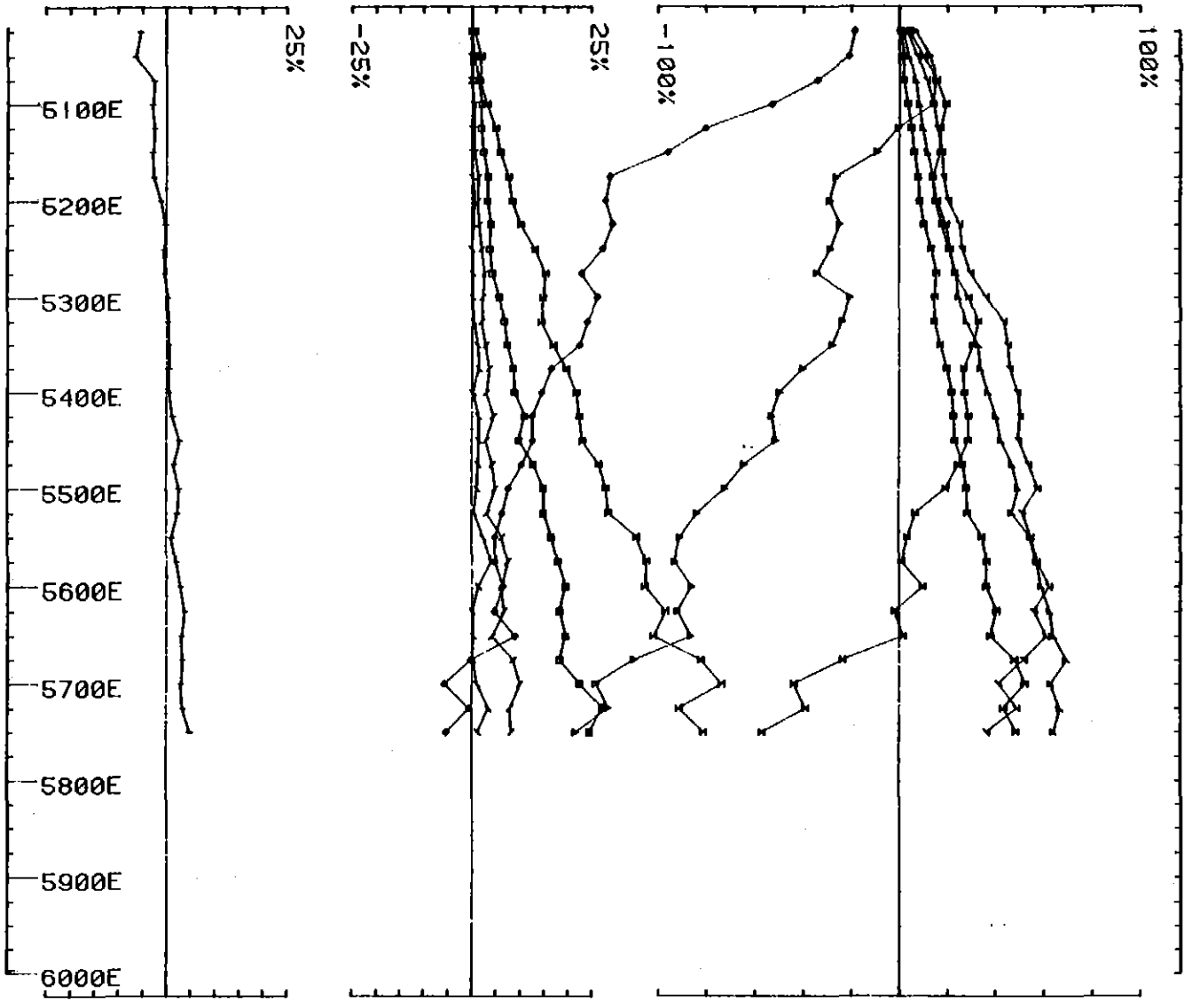
Silic J., Eadie, E. T., and Jack, D. J. (1985), 'Application of time domain electromagnetic methods in the discovery of the Hellyer ore deposit, Tasmania, Australia', in volume of Extended Abstracts of the 55th SEG meeting, Washington, DC.

Webster, S. S. and Skey, E. H. (1979), 'Geophysical and geochemical case history of the Que River deposit, Tasmania', in Geophysics and Geochemistry in the Search for Metallic Ores; Peter J. Hood, editor, Geological Survey of Canada, Economic Geology Report 31, 697-720.

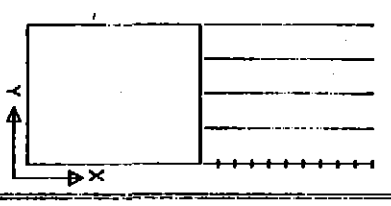
West, G. F., MacNae J. C. and Lamontagne Y. (1984), 'A time domain EM system measuring the step response of the ground', Geophys., 49, 1010-1026.

APPENDIX 1

598354



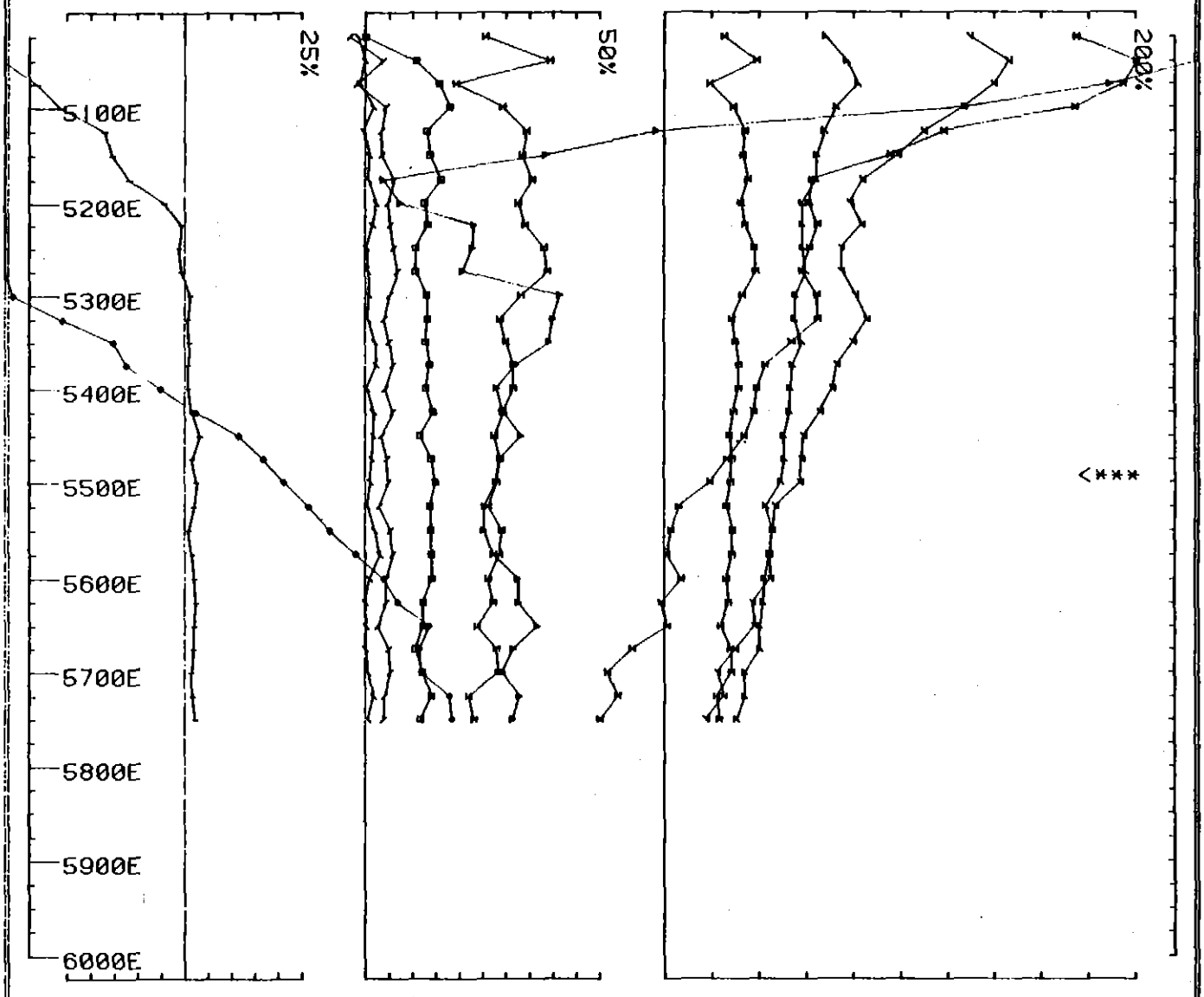
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8651
AREA :- MURRAY
CLIENT :- ABERFOYLE EXPLORATION CREW :- PMM HU
Line 5000N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION



MURRAY
LOOP 8038
LINE 5000
Hz

352

598355



LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8651

AREA :- MURRAY

CLIENT :- ABERFOYLE EXPLORATION CREW :- PMM HU

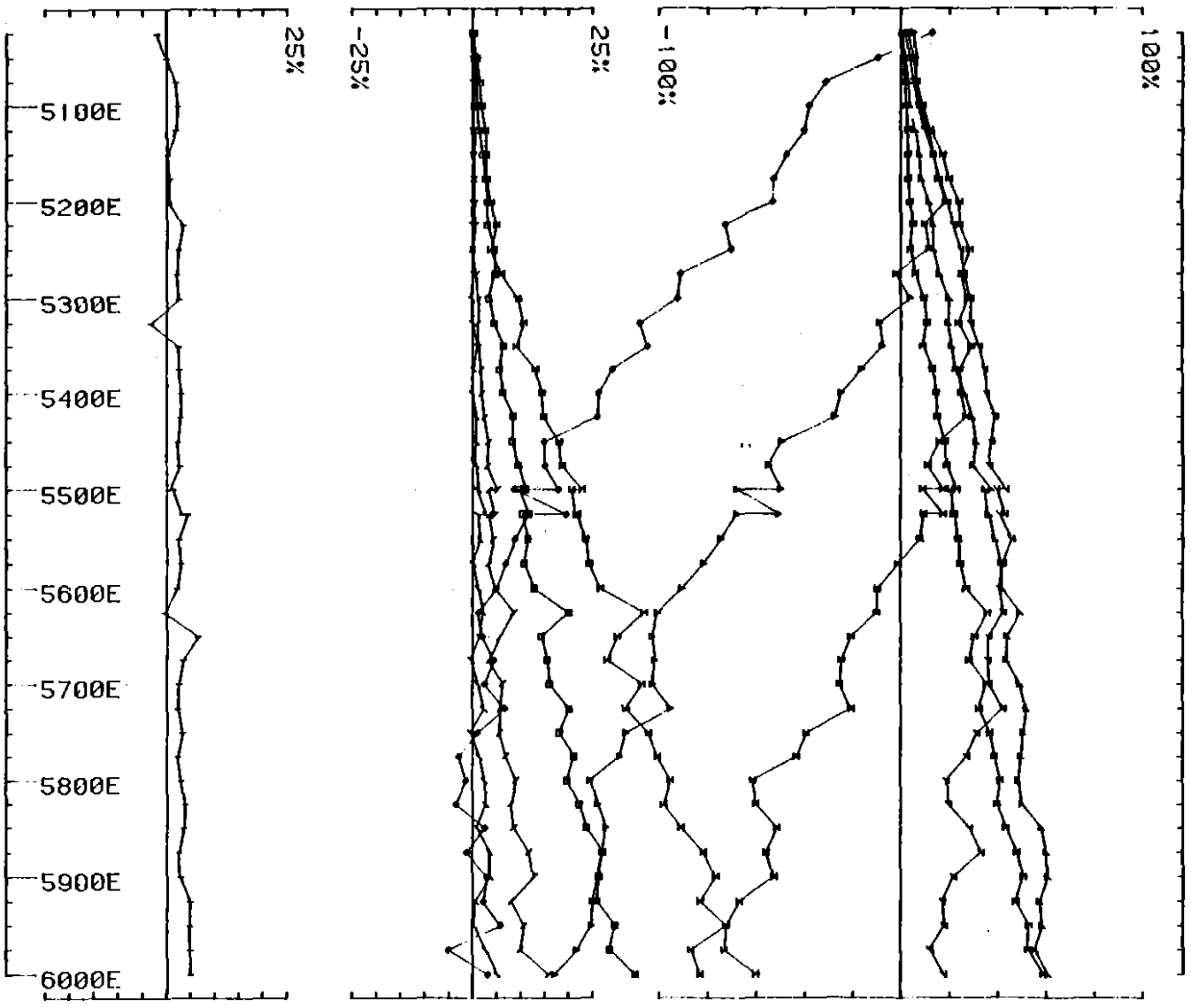
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SECONDARY FIELD POINT Ch 1 NORMALIZATION

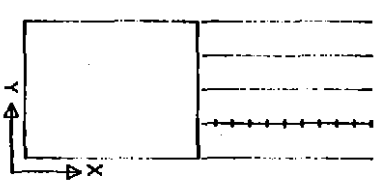
MURRAY
LOOP 8038
LINE 5000
Hz

353

598356



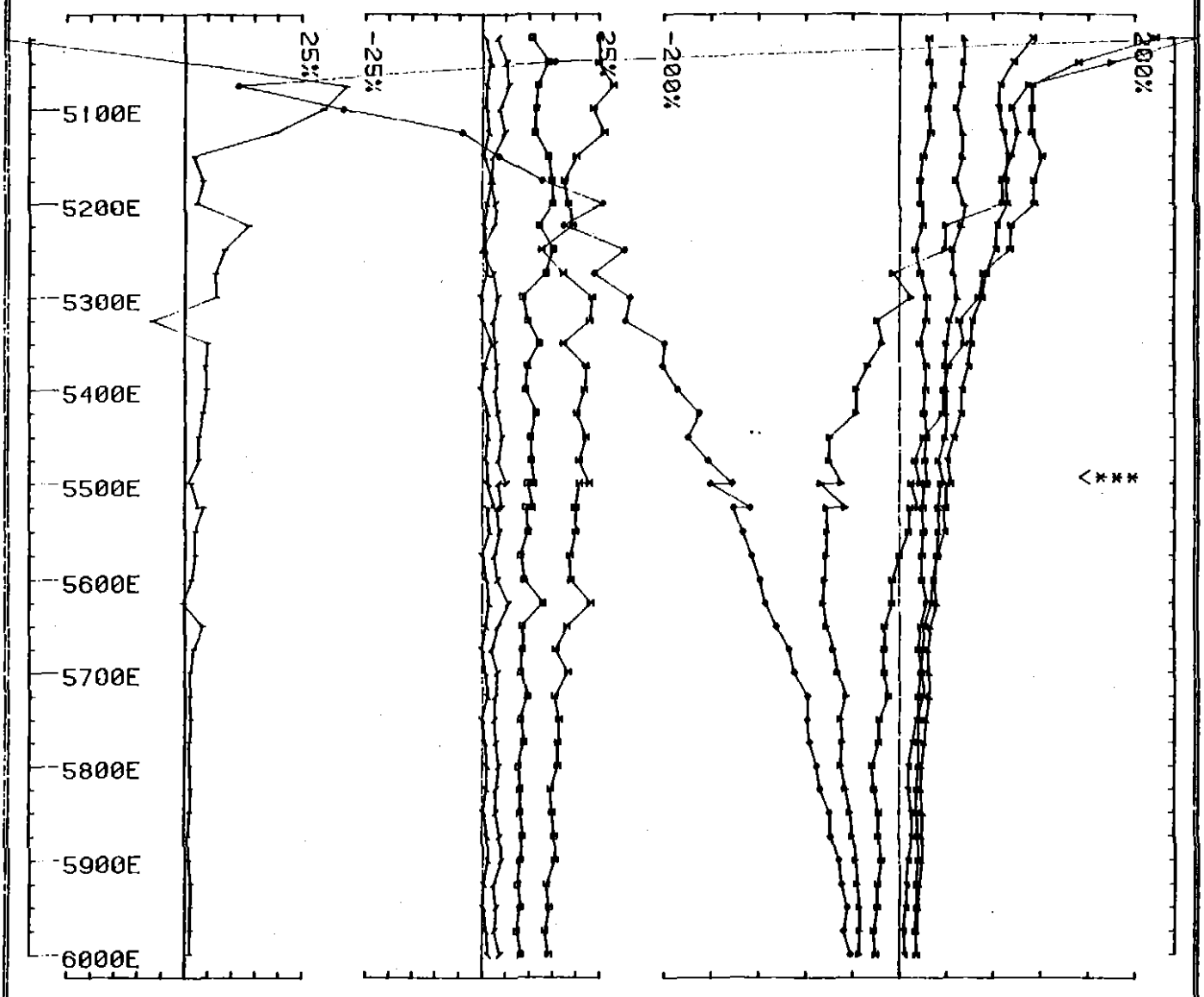
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AREA :- MURRAY
CLIENT :- ABERFOYLE EXPLORATION CREW :- PMM HU
Line 5200N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION



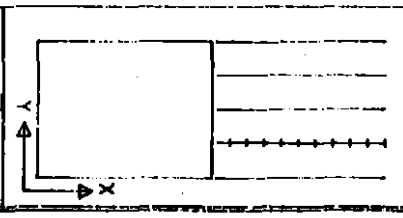
MURRAY
LOOP 8038
LINE 5200
Hz

354

598357



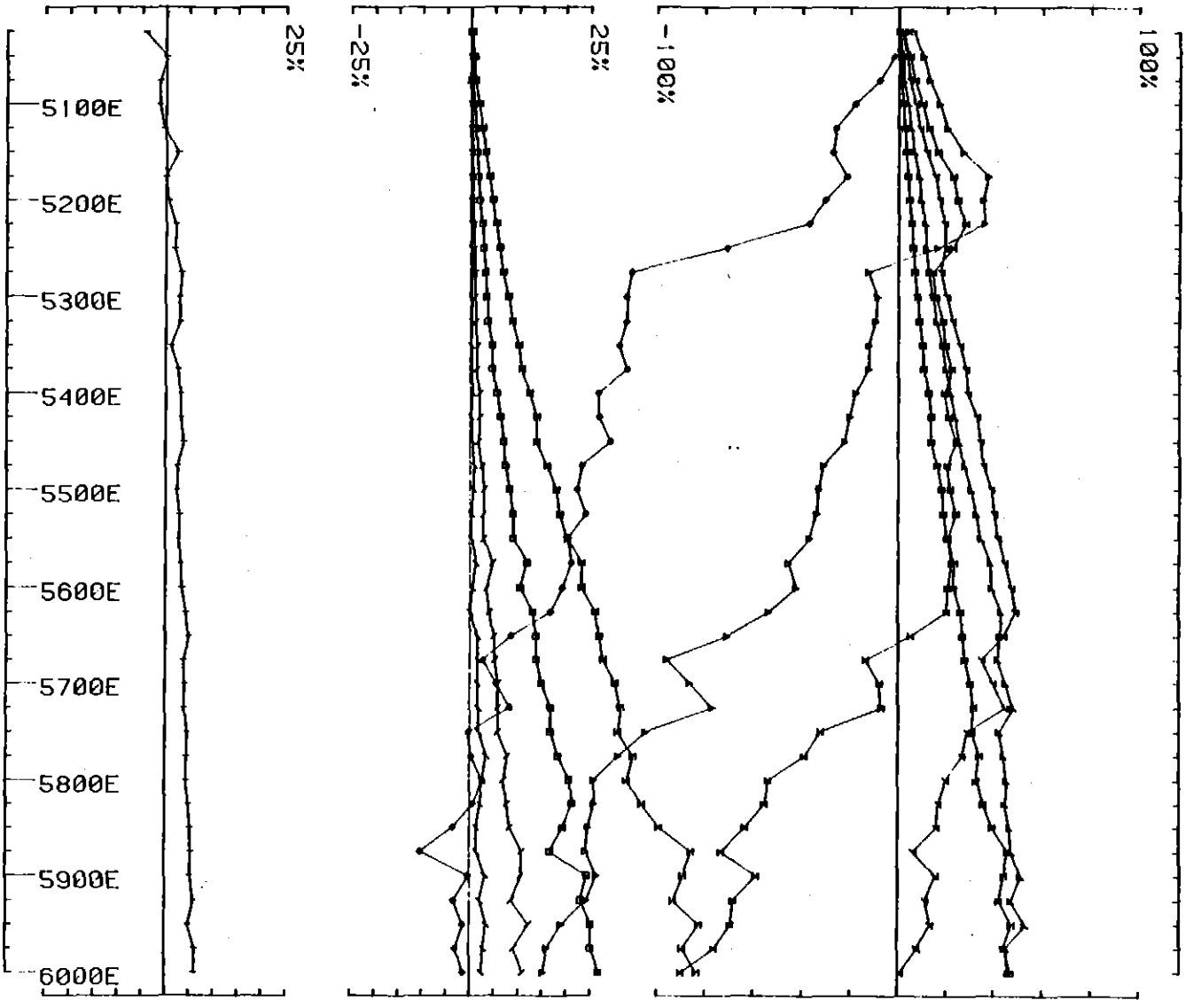
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CLIENT :- ABERFOYLE EXPLORATION CREW :- PMM HU
Line 5200N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION



MURRAY
LOOP 8038
LINE 5200
Hz

355

598358



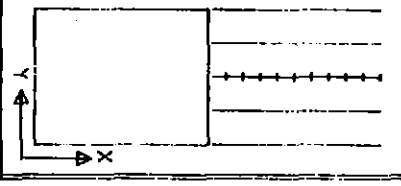
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CLIENT :- ABERFOYLE EXPLORATION CREW :- PMM HU

Line 5400N Hz COMPONENT BASE FREQ :- 26.230HERTZ

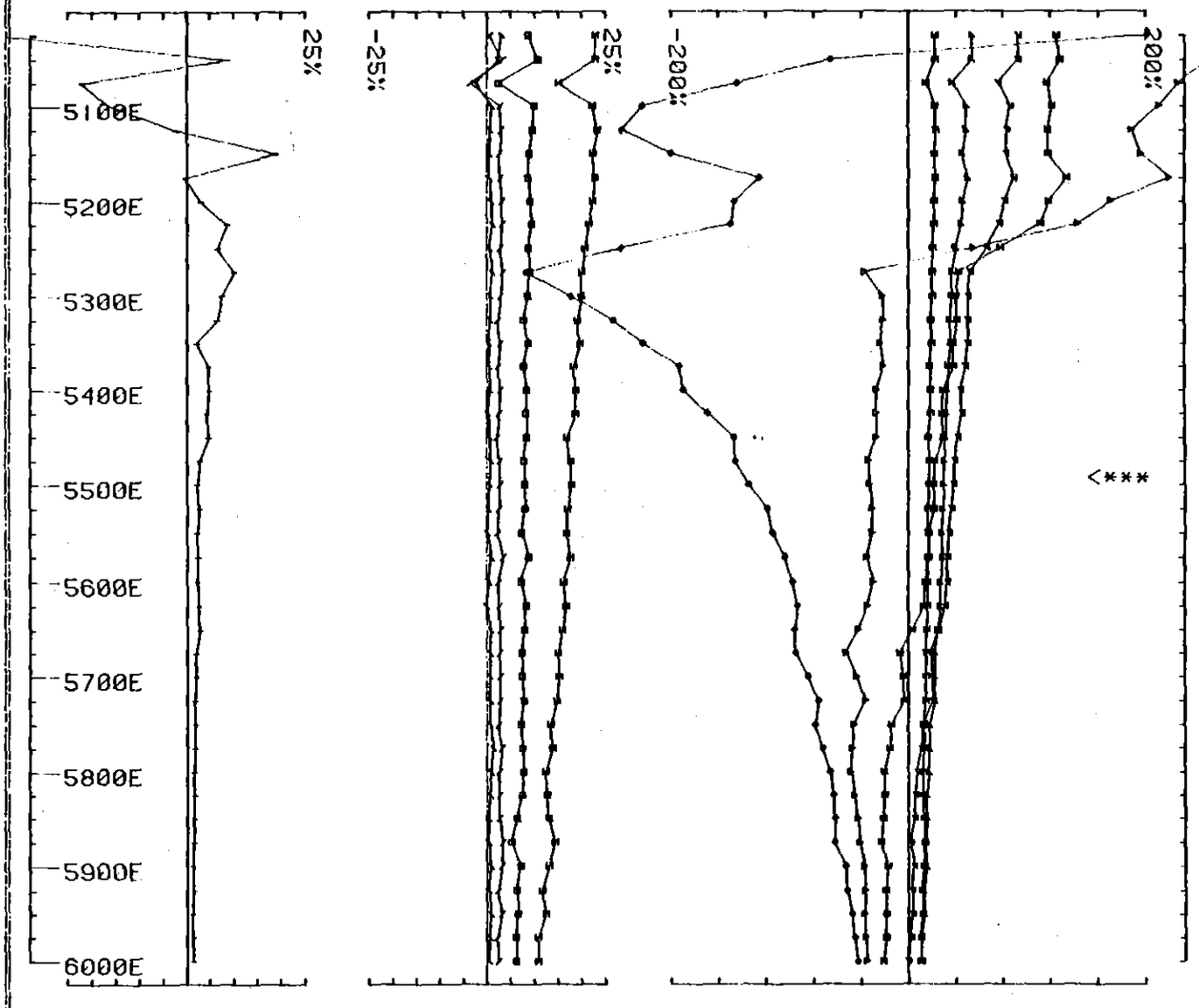
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION



MURRAY
LOOP 8038
LINE 5400
Hz

356

598359



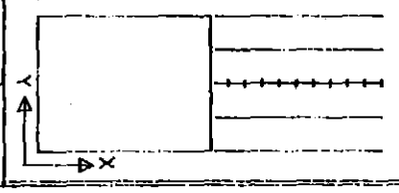
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AREA :- MURRAY

CLIENT :- ABERFOYLE EXPLORATION CREW :- PMM HU

L'ine 5400N Hz COMPONENT BASE FREQ :- 26.230HERTZ

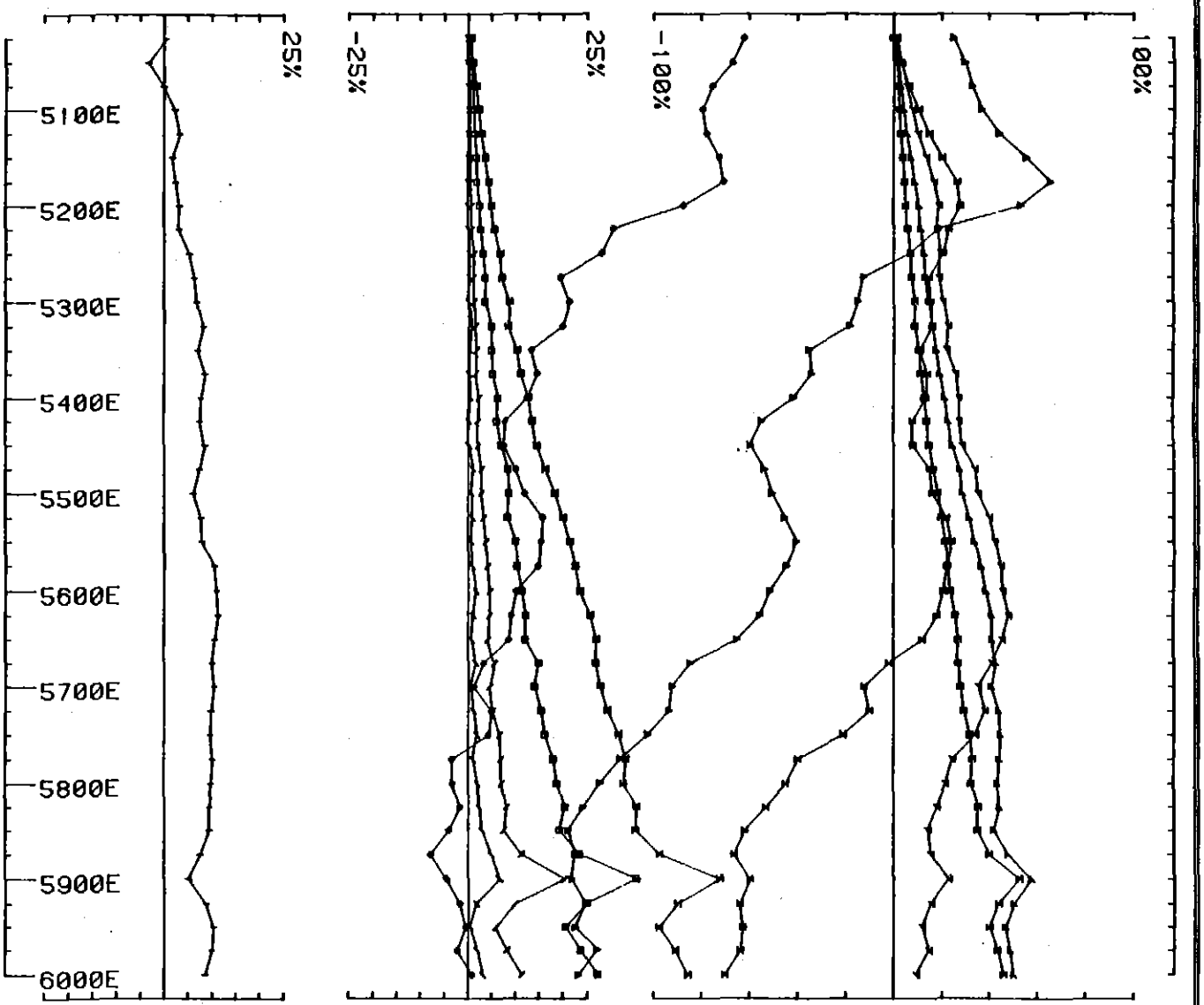
SECONDARY FIELD POINT Ch 1 NORMALIZATION



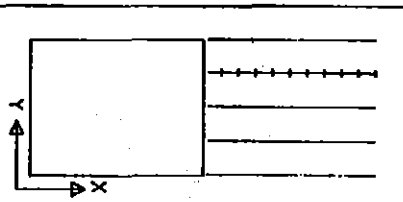
MURRAY
LOOP 8038
LINE 5400
Hz

357

598360



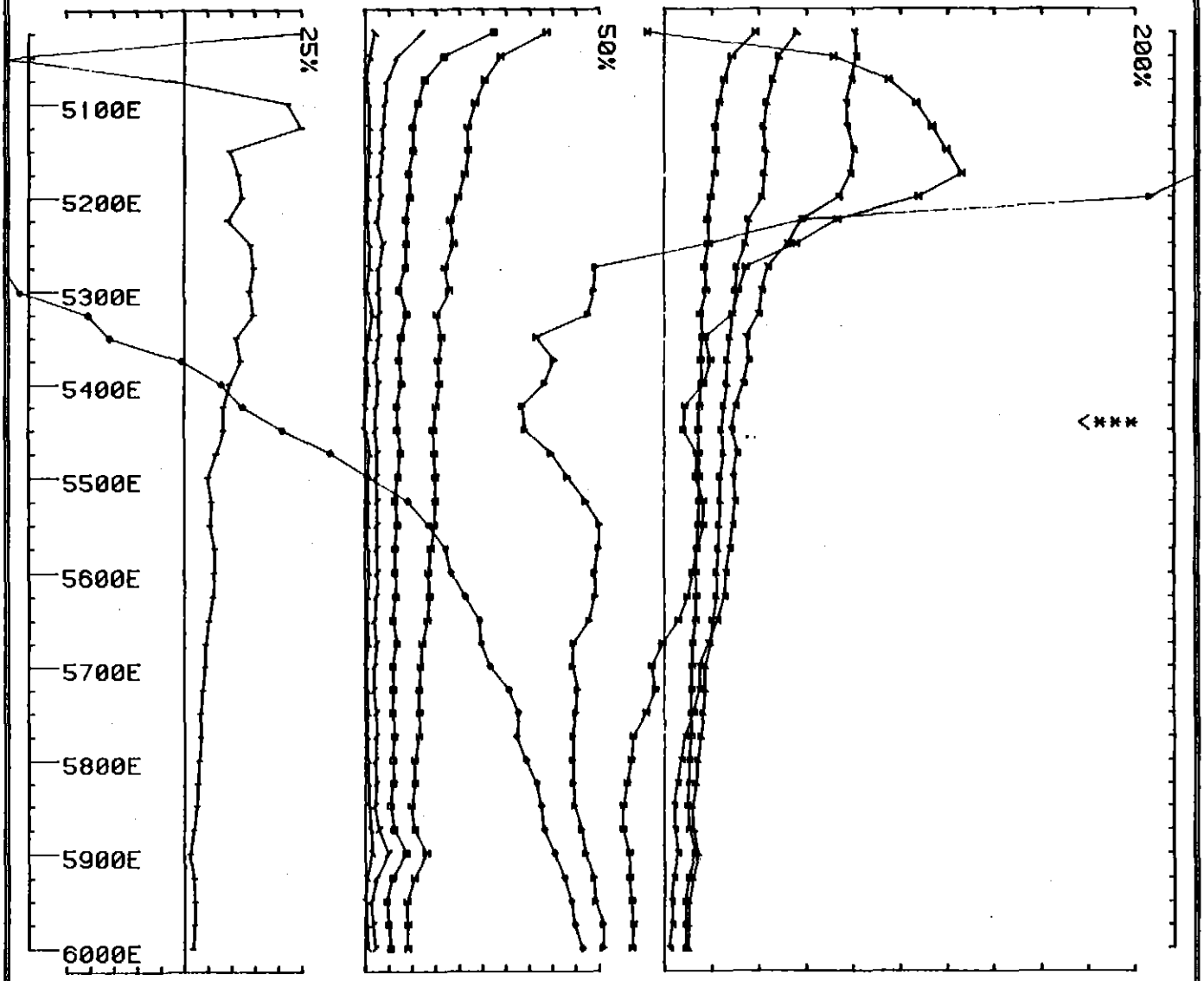
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8651
AREA :- MURRAY
CLIENT :- ABERFOYLE EXPLORATION CREW :- PMM HU
Line 5600N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION



MURRAY
LOOP 0038
LINE 5600
Hz

358

598361



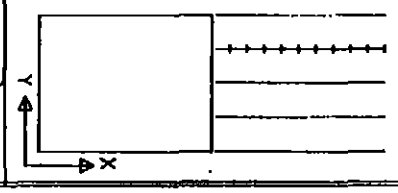
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CLIENT :- ABERFOYLE EXPLORATION CREW :- PMM HU

Line 5600N Hz COMPONENT BASE FREQ :- 26.230HERTZ

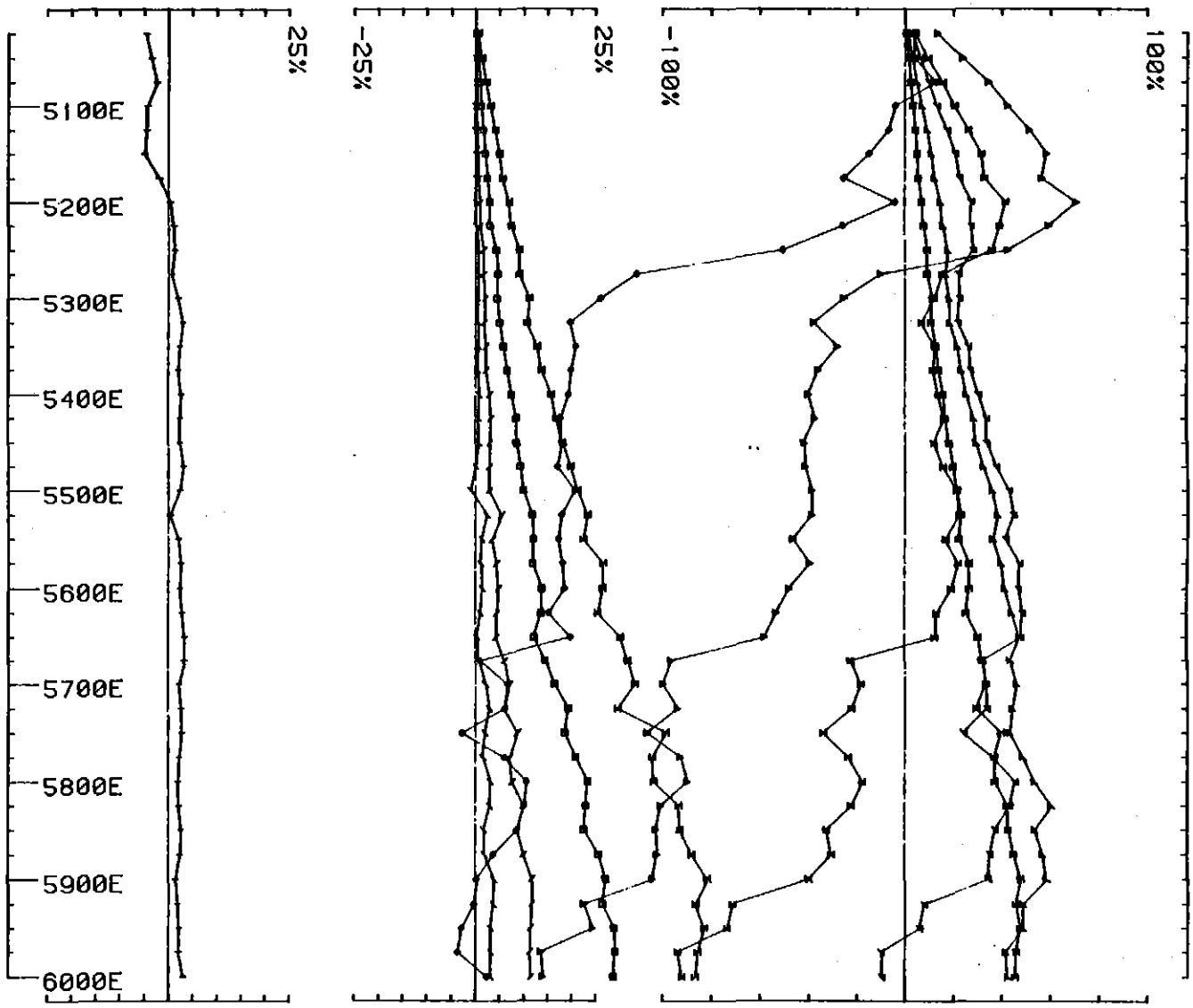
SECONDARY FIELD POINT Ch 1 NORMALIZATION



MURRAY
LOOP 8038
LINE 5600
Hz

359

598362



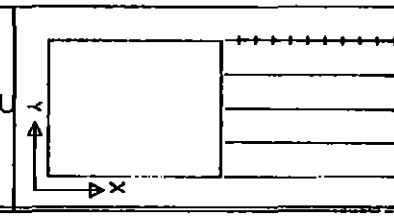
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Line 5800N Hz COMPONENT BASE FREQ :- 26.230HERTZ

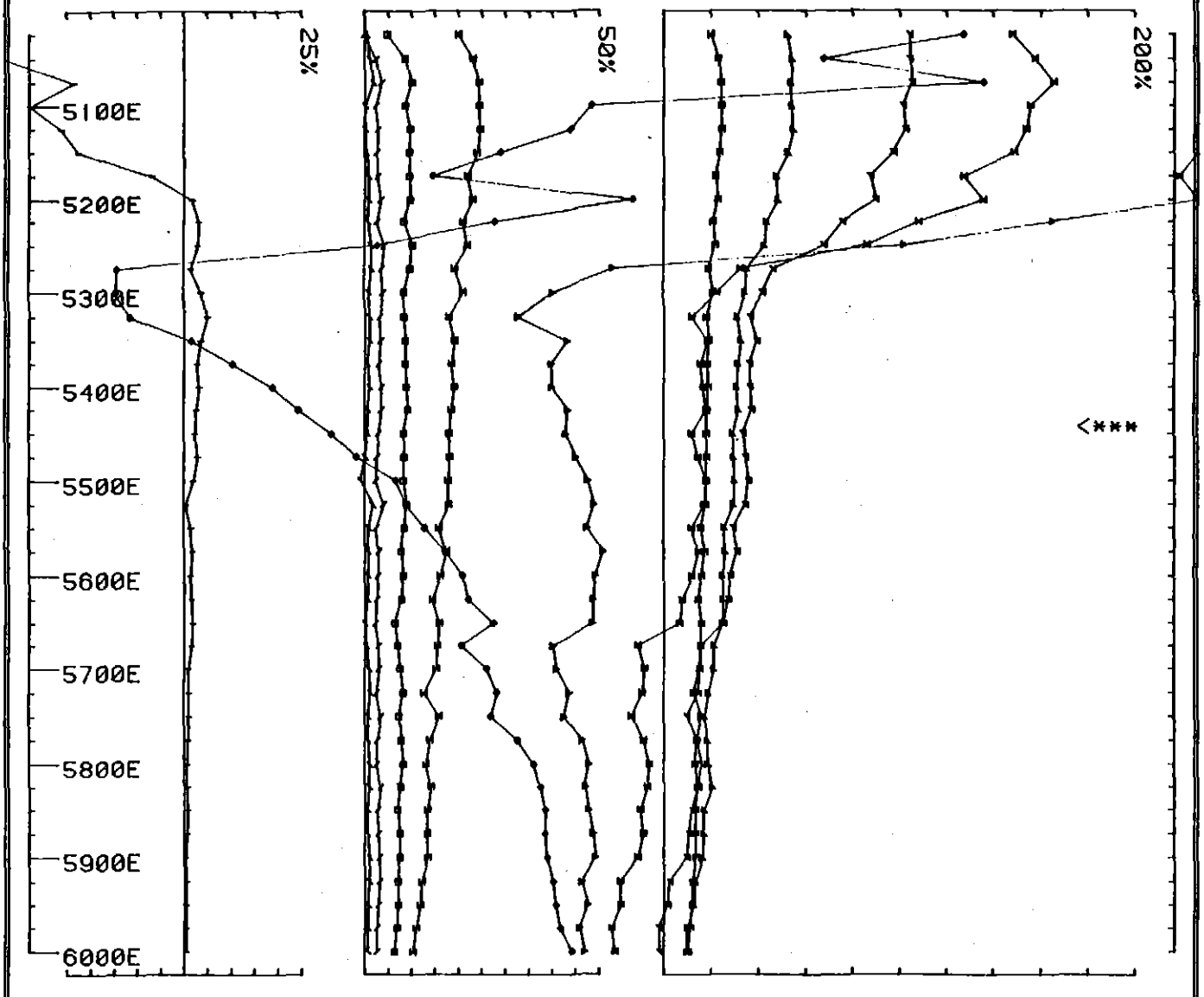
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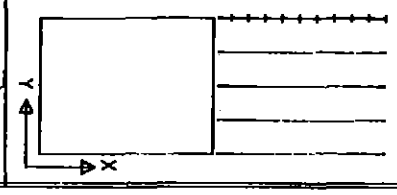
MURRAY
LOOP 8038
LINE 5800
Hz

360

598363



LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8651
AREA :- MURRAY
CLIENT :- ABERFOYLE EXPLORATION CREW :- PMM HU
Line 5800N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION



MURRAY
LOOP 8038
LINE 5800
Hz

361

598364

ABERFOYLE RESOURCES LTD

Exploration Report

INTERPRETATION REPORT

UTEM SURVEY

HELLYER ADIT

MACKINTOSH EL 2/70

Prepared by:

J SILIC

Distribution

Hawthorn (1)

Burnie (1)

Issued by:

J SILIC

Chief Geophysicist

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598365

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Discussion of Results

Conclusion

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UTEM Data Sections

Introduction

Electromagnetic techniques have played important roles in the discoveries of the Que River and Hellyer deposits (Webster and Sky, 1979; Silic et al, 1985; Eadie et al, 1985). Since the Hellyer discovery Aberfoyle Resources has further refined the use of these techniques in the search for Hellyer and Que River type targets (Silic, 1989).

The purpose of this report is to discuss the results of a UTEM (West et al, 1984) survey in the Hellyer adit (portal) on the Mackintosh licence.

Survey Specifications

A two loop UTEM survey was executed along the 1 km long Hellyer adit in order to search for potential targets east of the Hellyer deposit which may have been missed by the surface surveys. The Hellyer adit is approximately 300 metres below the average elevation for the area, and as such targets which may not have been detected by the surface surveys, could be evident in the data collected in the adit. The response from the Hellyer ore deposit however was obviously going to overprint any response from targets which are deeper and laterally close to the Hellyer deposit.

Because of metallic pipes along the Hellyer adit, no vertical component (Hz) data was to be collected, as the response from these pipes and the electromagnetic noise that they generate would render the interpretation and collection of the Hz impossible. Measuring the magnetic field component parallel to the adit (Hx) and the pipes however makes this problem insignificant. As such only Hx was collected. Attempts to collect Hz data were unsuccessful.

Discussion of Results

Data from two 1 km x 1 km loops sharing a common boundary at 6000E was collected so that both the vertical and horizontal

sulphide accumulations to the east of Hellyer deposit would be detected. It is for this reason that the polarity of the responses are reversed for the two loops, as the adit lies on complimentary sides of the two loops (Fig 1 and 2).

From Fig 1 and 2 it is evident that the obvious responses in the data, are the late time anomalies from the Hellyer deposit at the end of the adit, and a minor current gathering response at about 700 metres along the adit which is due to the Que River shales. Apart from these two features, nothing else is obvious in the data that could be attributed to significant sulphide accumulation to the east of the Hellyer deposit. From these two data sets it is also recognised that the Hellyer response is detectable about 600 metres away from the end of the adit and is defined by the progressive increase in secondary magnetic field as the deposit is approached from the east.

Because of a significant overprinting of the Hellyer response in these data sets, it follows that without accurately removing the response from the Hellyer deposit (this being impossible, as no geophysical modelling technique will do this), it is not possible to suggest accurately what size targets below the adit (at various depths) may exist and still not be detectable in these data sets. However, the rules established previously on the detection limits (eg. 2 mt target at depth of 150 metres) should be considered as an overestimate.

Conclusions

No targets worthy of follow up are recommended.

The survey unambiguously detected the Hellyer deposit, with the Hellyer response being evident up to 600 metres away from the end of the adit.

598368

References

Eadie, E. T., Silic, J. and Jack, D. J. (1985), 'The application of geophysics to the discovery of the Hellyer ore deposit, Tasmania', Explor. Geophys. 16, 207-209.

Silic, J. (1989), 'Interpretation of TDEM data using spatial derivatives and decay analysis', Explor. Geophys. 20

Silic, J., Eadie, E. T., and Jack, D. J. (1985), 'Application of time domain electromagnetic methods in the discovery of the Hellyer ore deposit, Tasmania, Australia', in volume of Extended Abstracts of the 55th SEG meeting, Washington, DC.

Webster, S. S. and Skey, E. H. (1979), 'Geophysical and geochemical case history of the Que River deposit, Tasmania', in Geophysics and Geochemistry in the Search for Metallic Ores; Peter J. Hood, editor, Geological Survey of Canada, Economic Geology Report 31, 697-720.

West, G. F., MacNae J. C. and Lamontagne Y. (1984), 'A time domain EM system measuring the step response of the ground', Geophys., 49, 1010-1026.

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APPENDIX I

598370

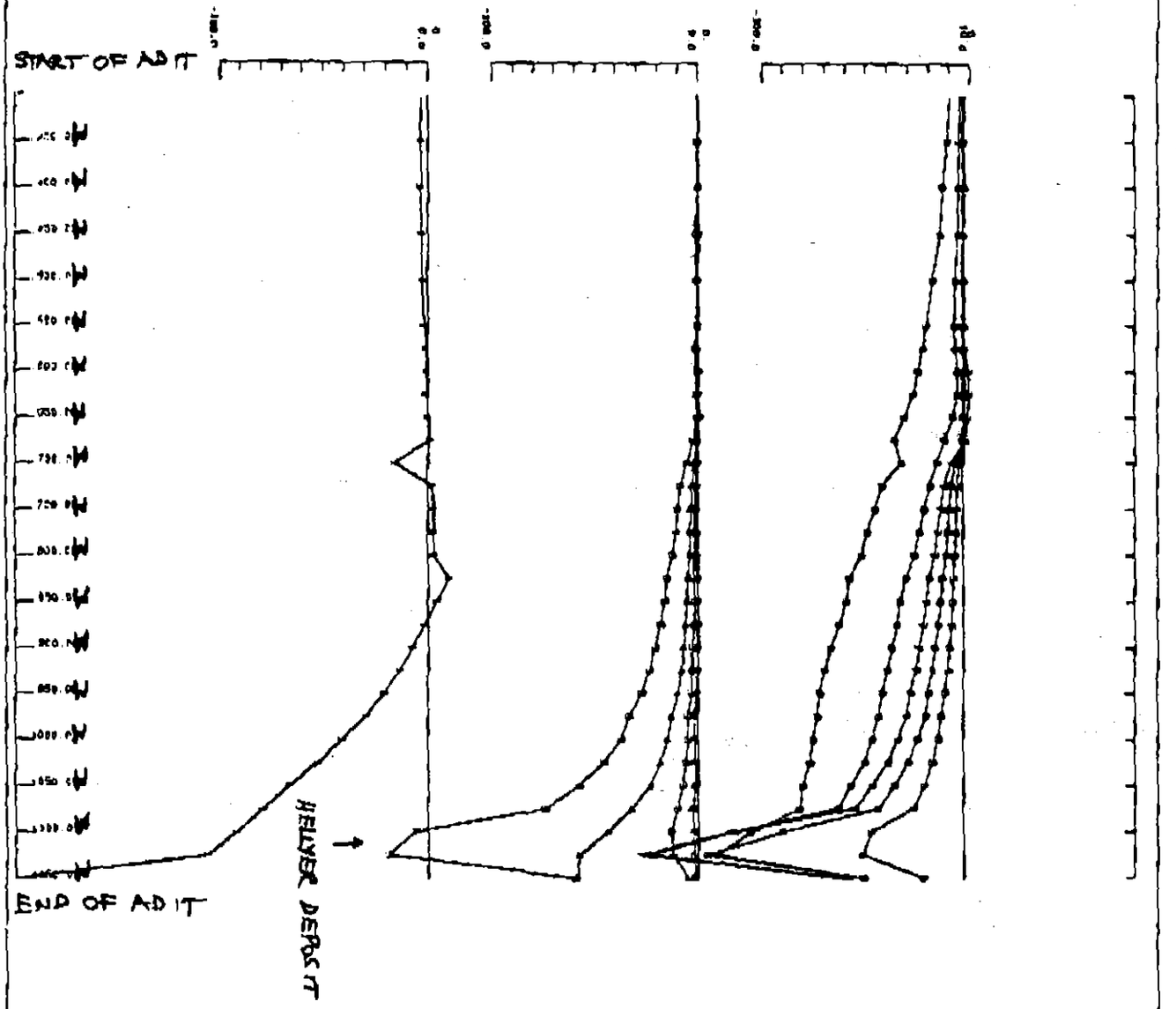


Fig 1

HELIKER ADIT VTEM
LOOP 27_ 3 crosscut EAST OF PORTAL
CN1 REDUCED. POINT WORK AT 750 METERS ALONG THE ADIT
COMPONENT: HZ - SECONDARY MAGNETIC FIELD
BASE FREQUENCY: AT 220 HZ
Aerifelds Resources Limited August 1989
Plotted 8/9/89 JT
Plot Date 00/00/00 Metric scale 1: 5000.0Plot number 9

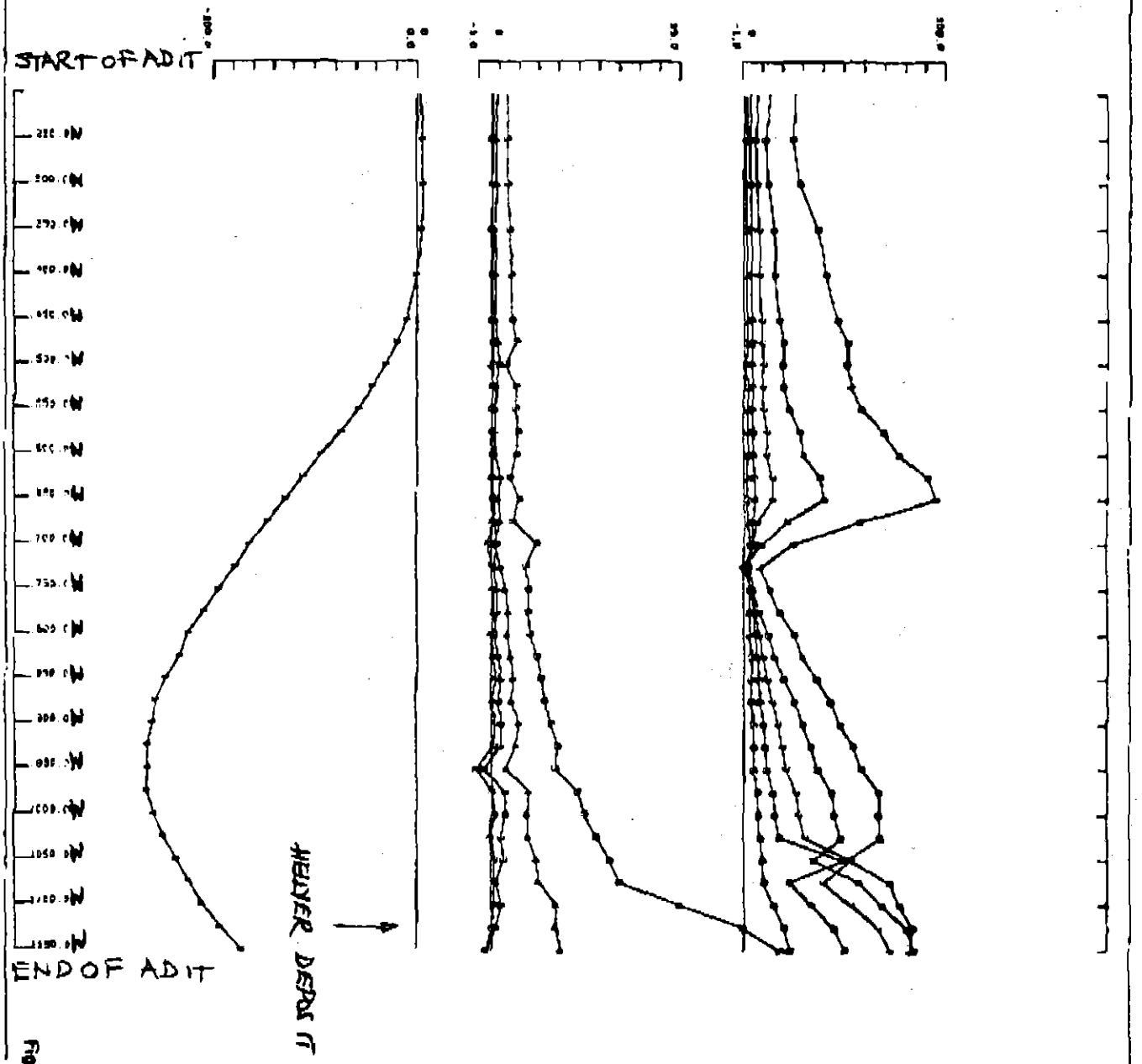


Fig 2

HELLYER ADIT WEST
LOOP 56_ 1 KILOMETRE WEST OF 6000E
CMS REDUCED. POINT NORM AT 700 METERS ALONG THE ADIT
COMPONENT: HE = SECONDARY MAGNETIC FIELD
BASE FREQUENCY: 45.250 Hz
Aberfoyle Resources Limited August 1989
Plotted: 8/8/89 JE
Plot Date: 08/08/89 Horiz Scale 1: 5000 Plot number 6

INTERPRETATION REPORT

UTEM SURVEY

SOUTHWELL GRID

MACKINTOSH EL 2/70

Prepared By:

J. Silic

Issued By:

J. Silic

Distribution

Hawthorn (1)

[illegible] (1)

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CONCLUSION

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UTEM and EM-37 COVERAGE - MAC 113C

APPENDIX 1

UTEM DATA SECTIONS

INTRODUCTION

Electromagnetic techniques have played important roles in the discoveries of the Que River and Hellyer deposits (Webster and Skey, 1979; Silic et al, 1985; Eadie et al, 1985). Since the Hellyer discovery Aberfoyle Resources has further refined the use of these techniques in the search for Hellyer and Que River type targets (Silic, 1989).

The purpose of this report is to discuss the results of a UTEM (West et al, 1984) survey over the Southwell grid on the Mackintosh licence. (Plate 1)

SURVEY SPECIFICATIONS

A four loop, 22km UTEM survey, covering lines 7800N to 8600N from 6000E to 76000E, lines 6000N to 7400N from 5500E to 6400E and lines 6000N to 7000N from 4700E to 5500E, was conducted over the Southwell grid.

Vertical component(H_z) data was collected at 25-50 meter station spacing.

DISCUSSION OF THE RESULTS

A number of current gathering cross-overs (Silic, 1989) are present on the survey grid, and as such could easily be caused by resistivity variations within the volcanic sequence. Using the second derivative technique from Silic, 1989, confirms this to be the case.

CONCLUSION

No targets worthy of follow-up were detected by this survey.

REFERENCES

Eadie, E. T., Silic J. and Jack, D. J. (1985), 'The application of geophysics to the discovery of the Hellyer ore deposit, Tasmania', Explor. Geophys. 16, 207-209.

Silic J. (1989), 'Interpretation of TDEM data using spatial derivatives and decay analysis', Explor. Geophys. 20

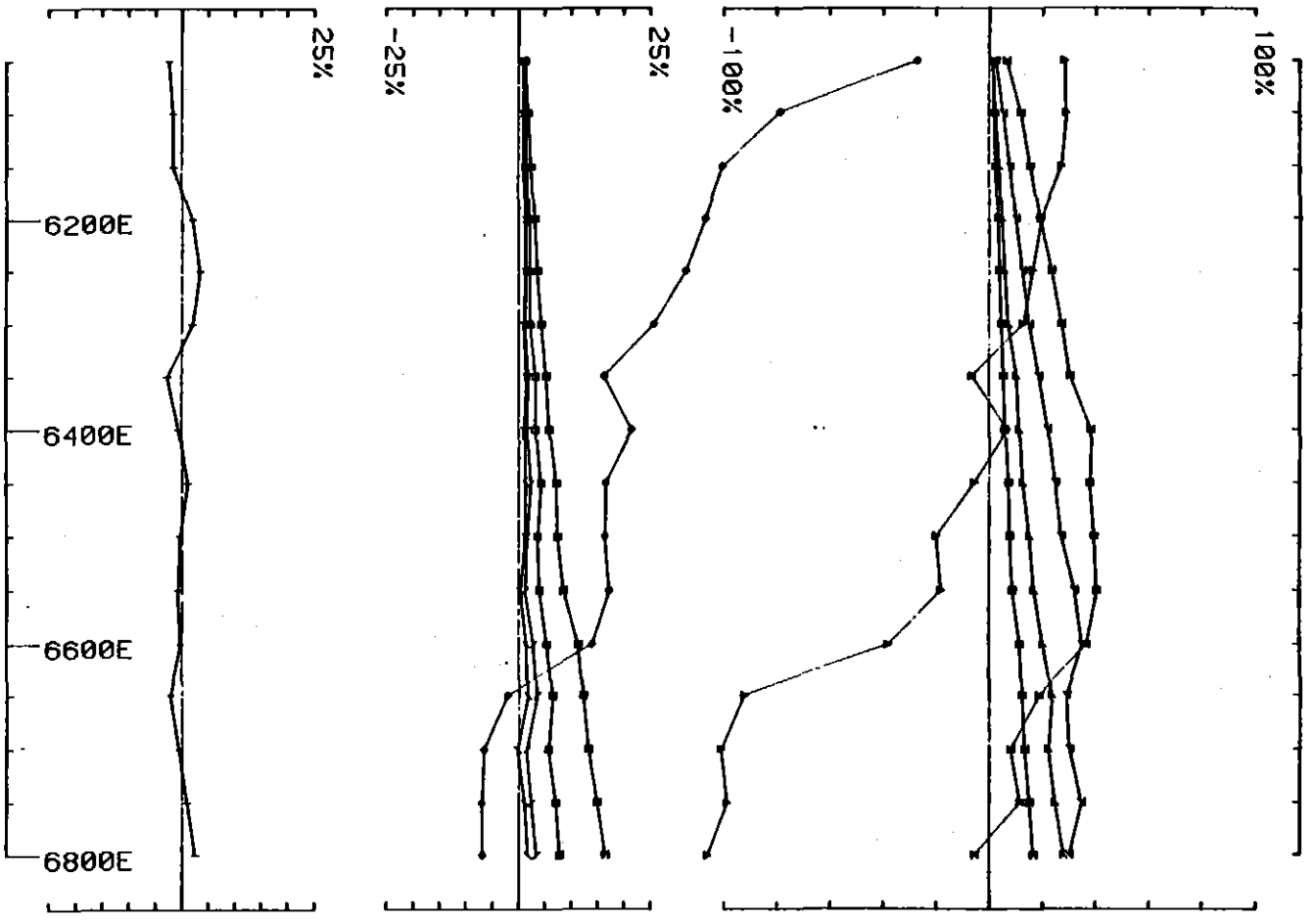
Silic J., Eadie, E. T., and Jack, D. J. (1985), 'Application of time domain electromagnetic methods in the discovery of the Hellyer ore deposit, Tasmania, Australia', in volume of Extended Abstracts of the 55th SEG meeting, Washington, DC.

Webster, S. S. and Skey, E. H. (1979), 'Geophysical and geochemical case history of the Que River deposit, Tasmania', in Geophysics and Geochemistry in the Search for Metallic Ores; Peter J. Hood, editor, Geological Survey of Canada, Economic Geology Report 31, 697-720.

West, G. F., MacNae J. C. and Lamontagne Y. (1984), 'A time domain EM system measuring the step response of the ground', Geophys., 49, 1010-1026.

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APPENDIX 1



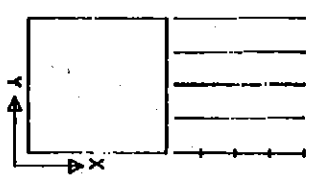
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CLIENT :- ABERFOYLE CREW :- JRG BJS

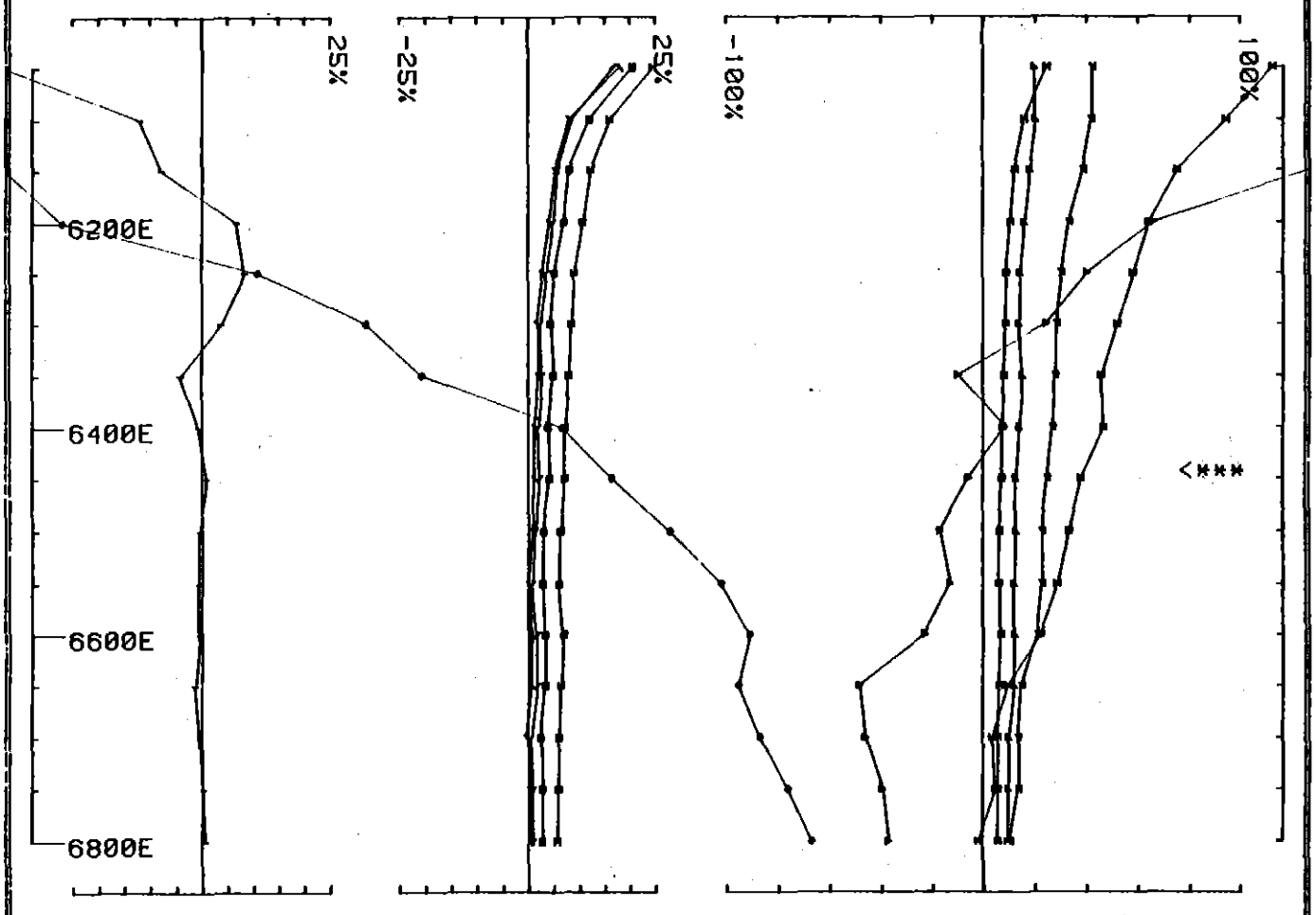
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SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION

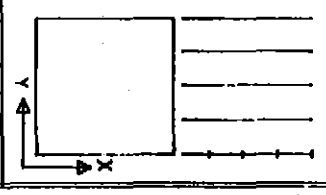


MACKINTOSH
LOOP 8029
LINE 7800N
Hz

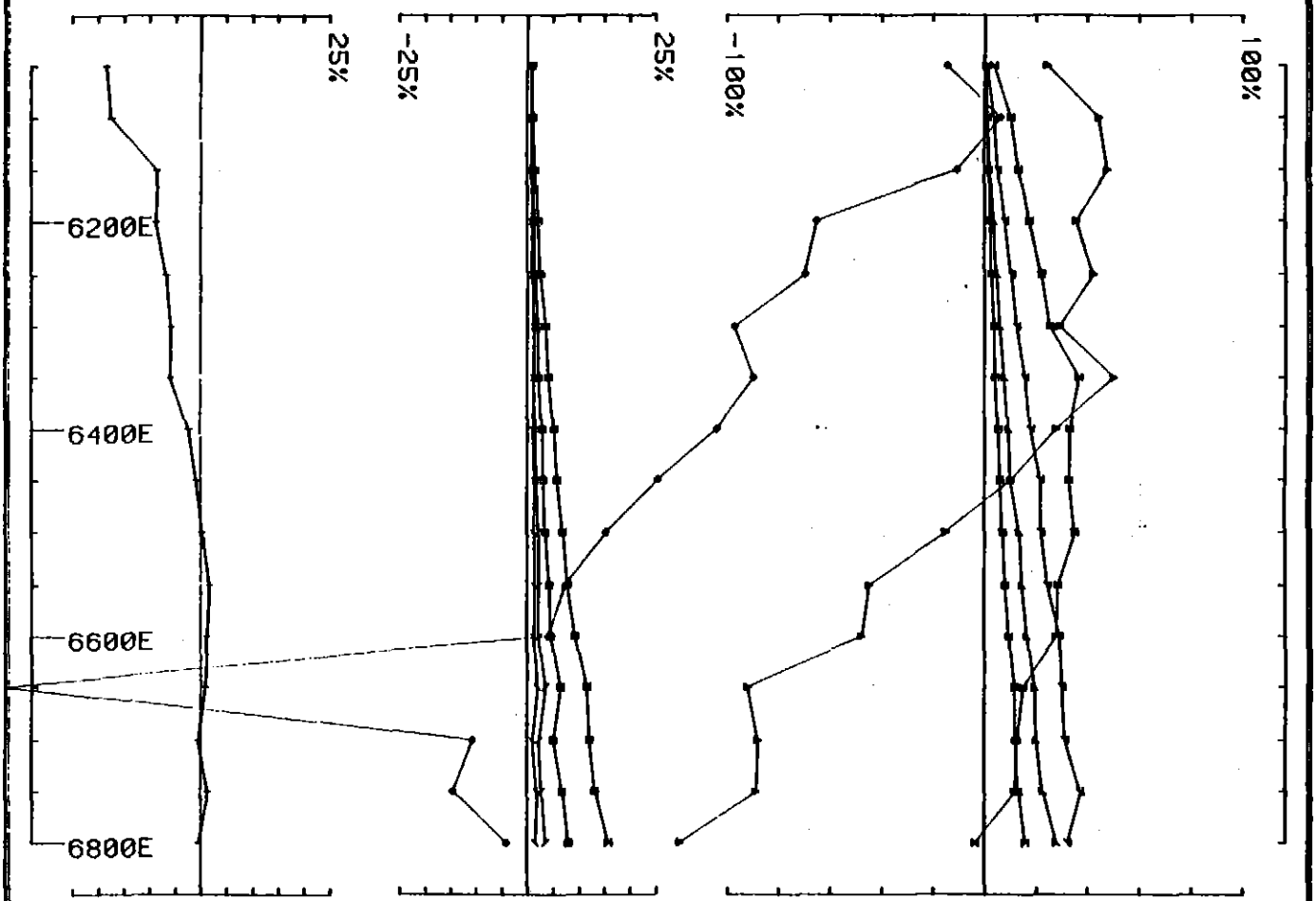
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LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- JRG BJS
Line 7800N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION



MACKINTOSH
LOOP 8029
LINE 7800
Hz



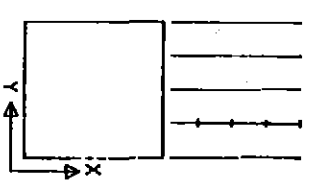
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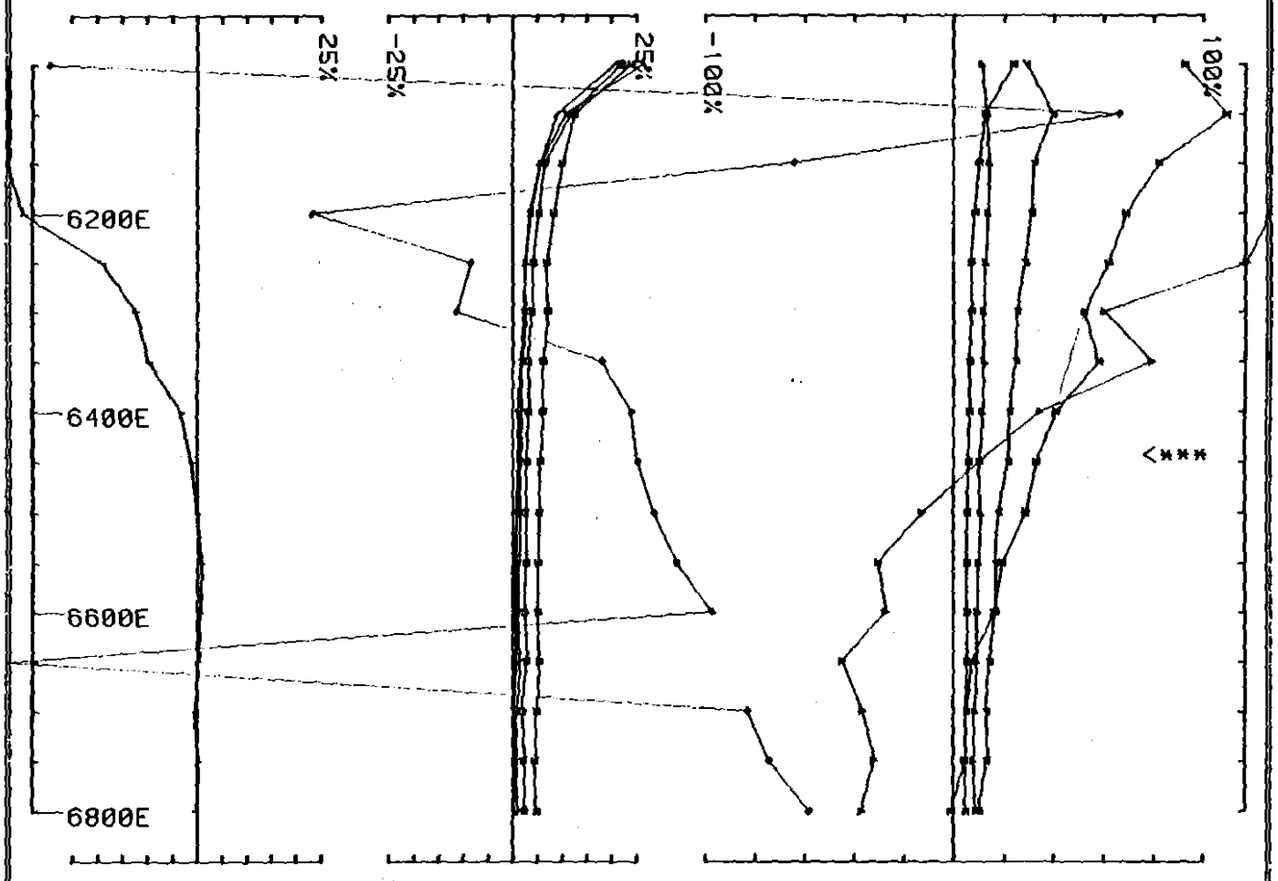
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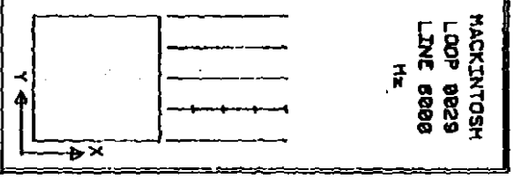


MACKINTOSH
LOOP 0029
LINE 8000N
Hz

377

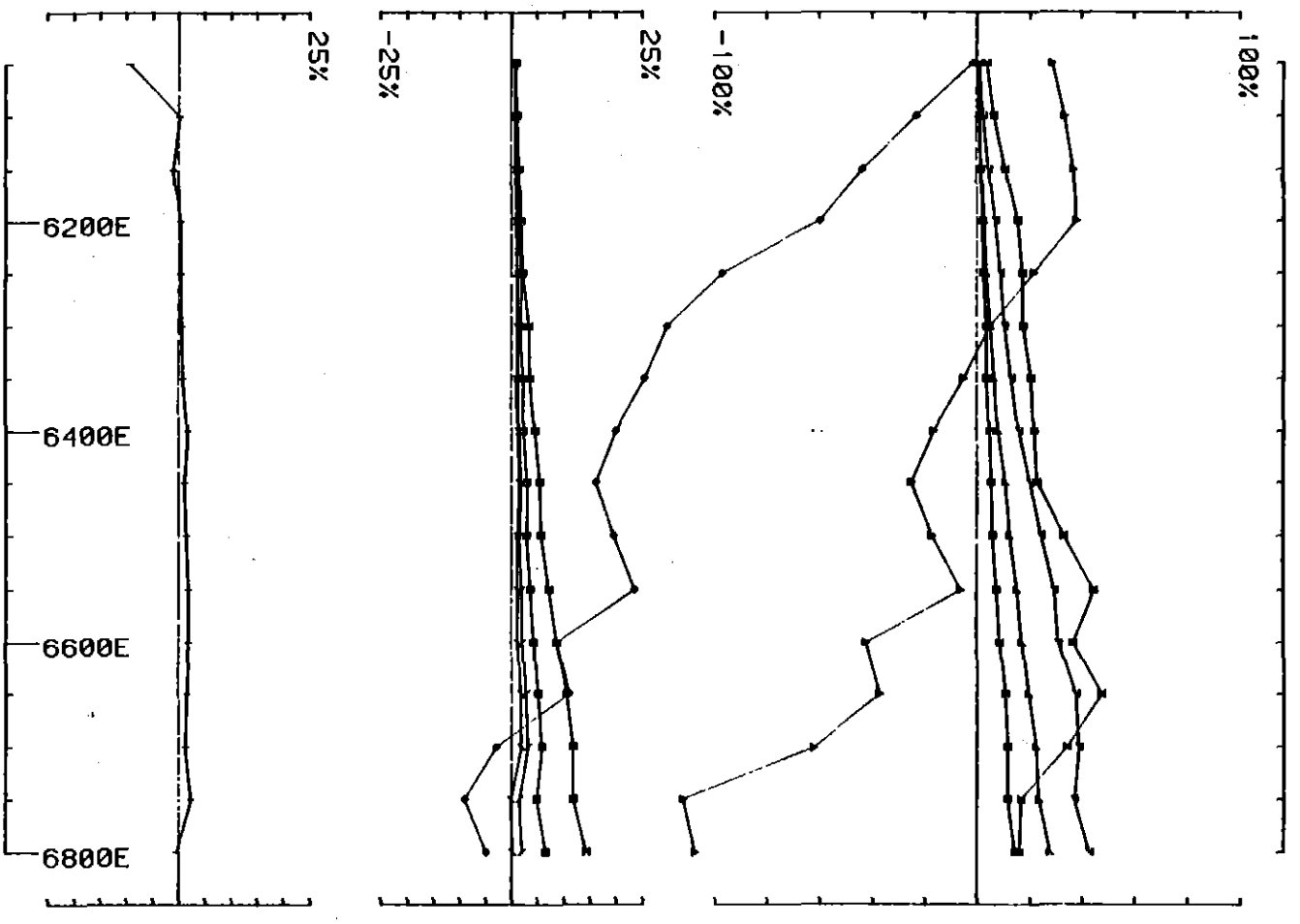


LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- JRG BJS
Line 8000N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION

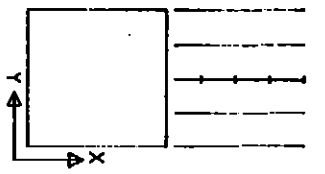


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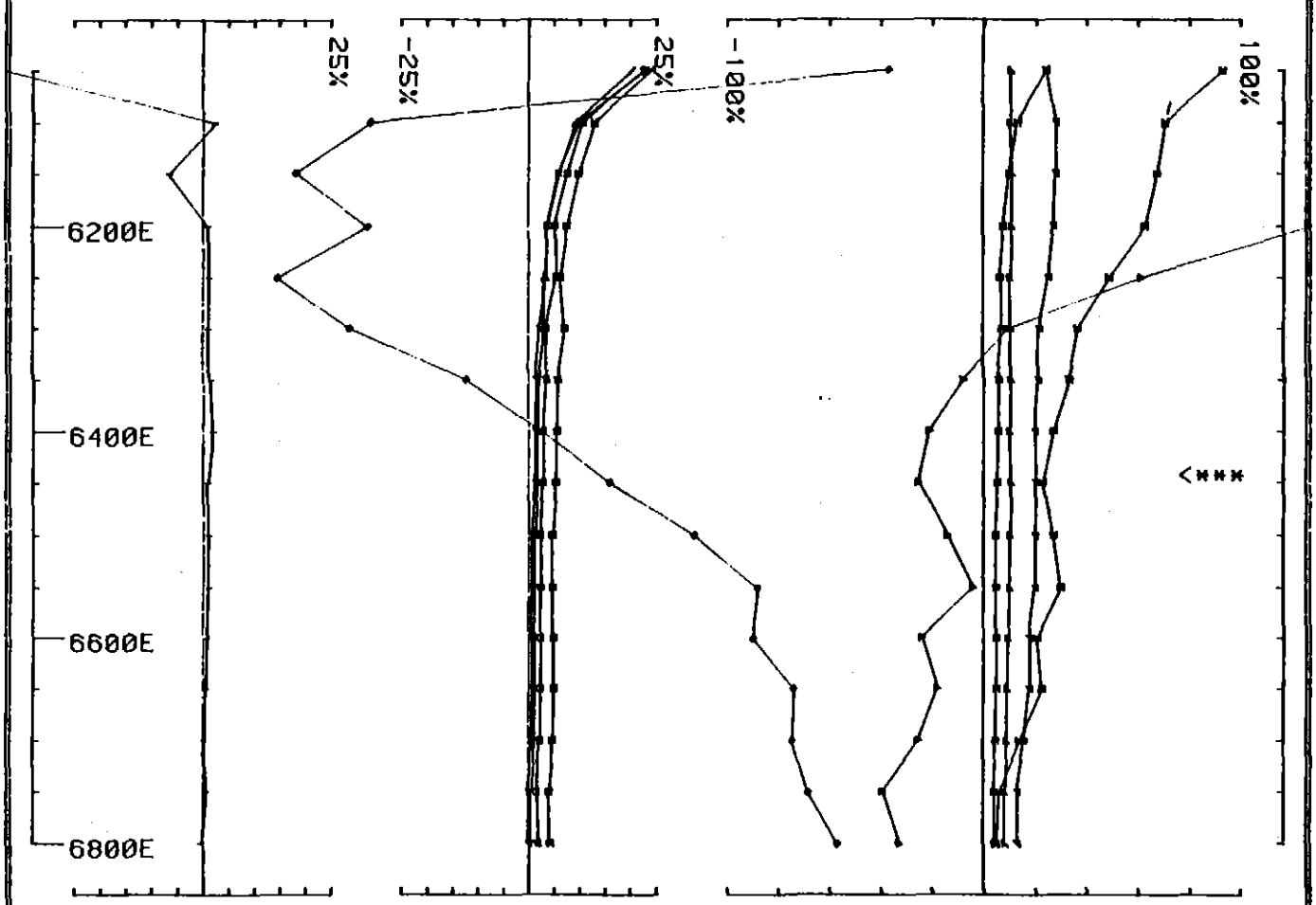


LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- JRG BJS
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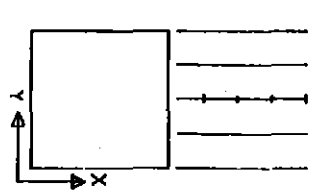


MACKINTOSH
LOOP 0028
LINE 8200N
Hz

379

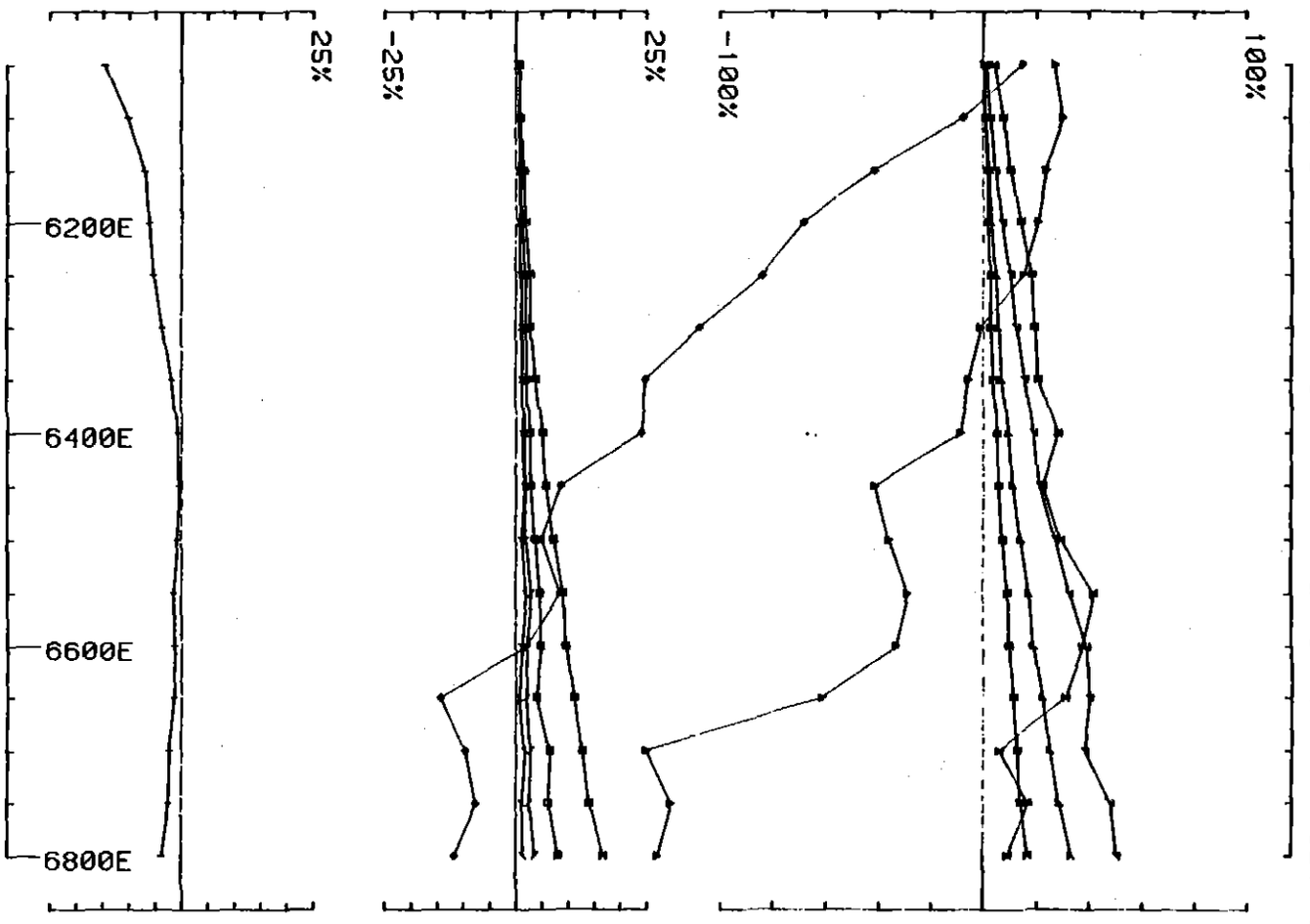


LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- JRG BJS
Line 8200N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION

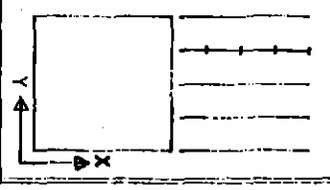


MACKINTOSH
LOOP 0029
LINE 8200
Hz

389

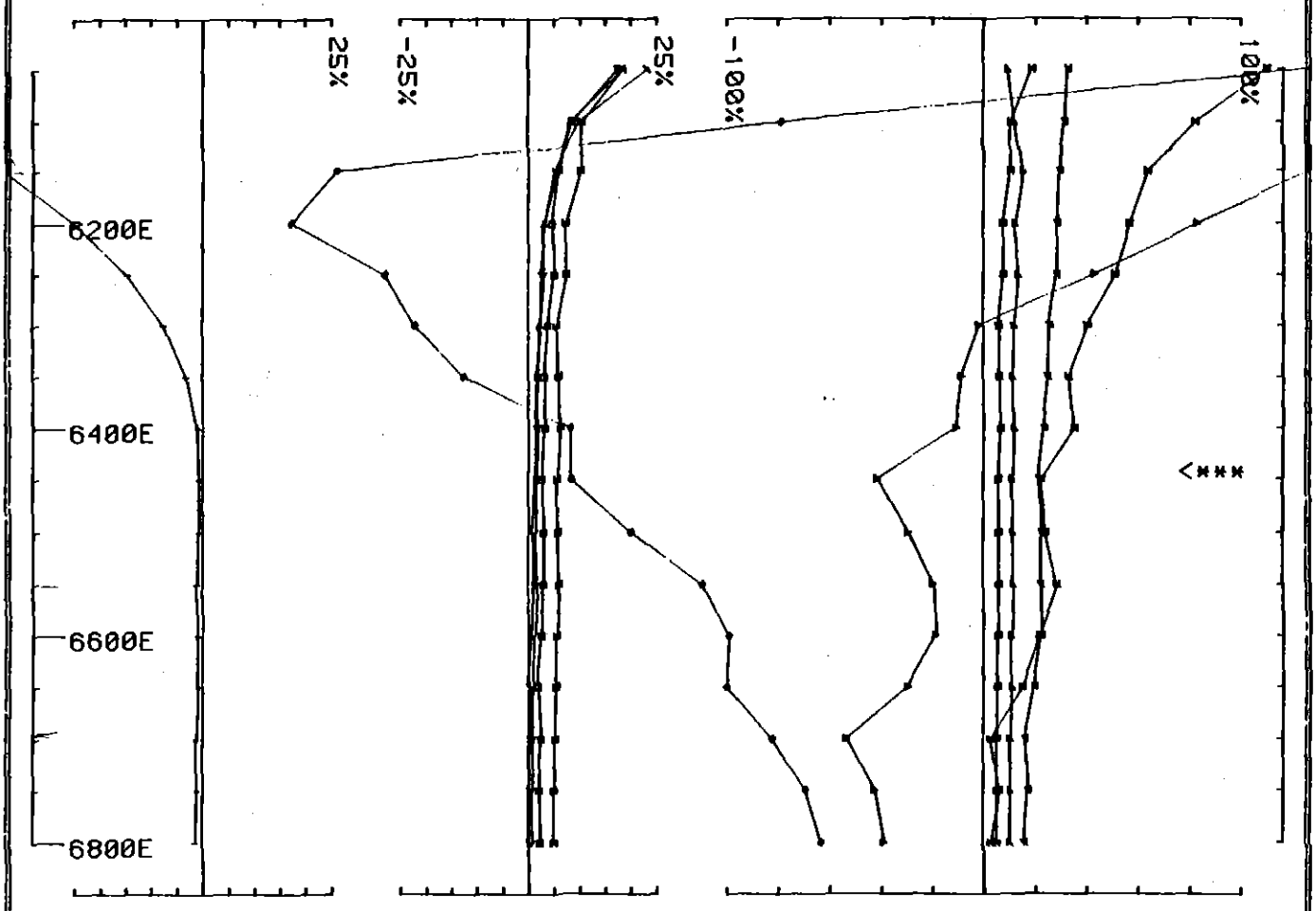


LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
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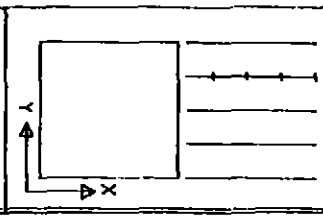


MACKINTOSH
LOOP 8029
LINE 8400N
Hz

381

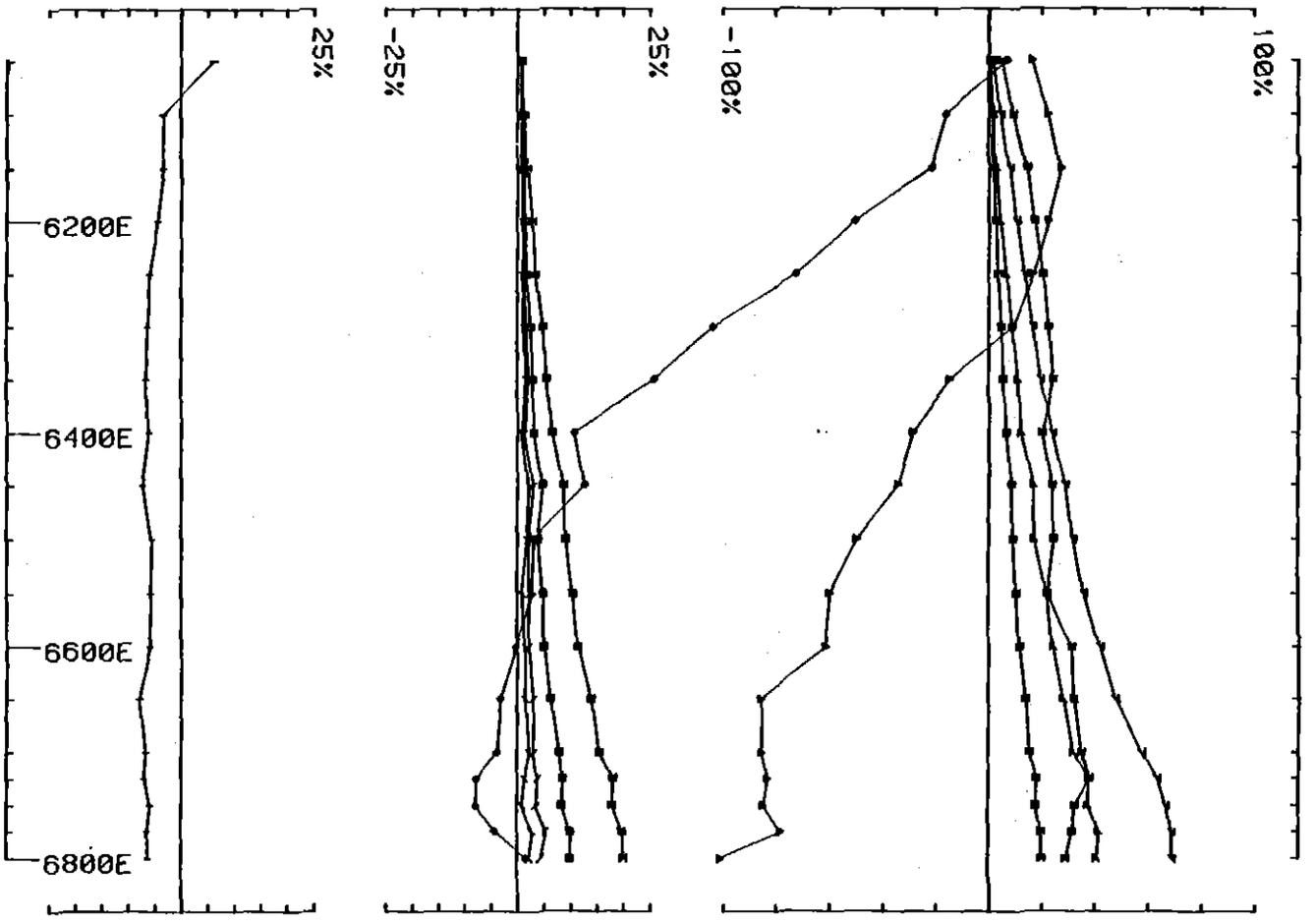


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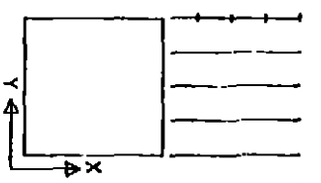


MACKINTOSH
LOOP 8029
LINE 8400
Hz

382

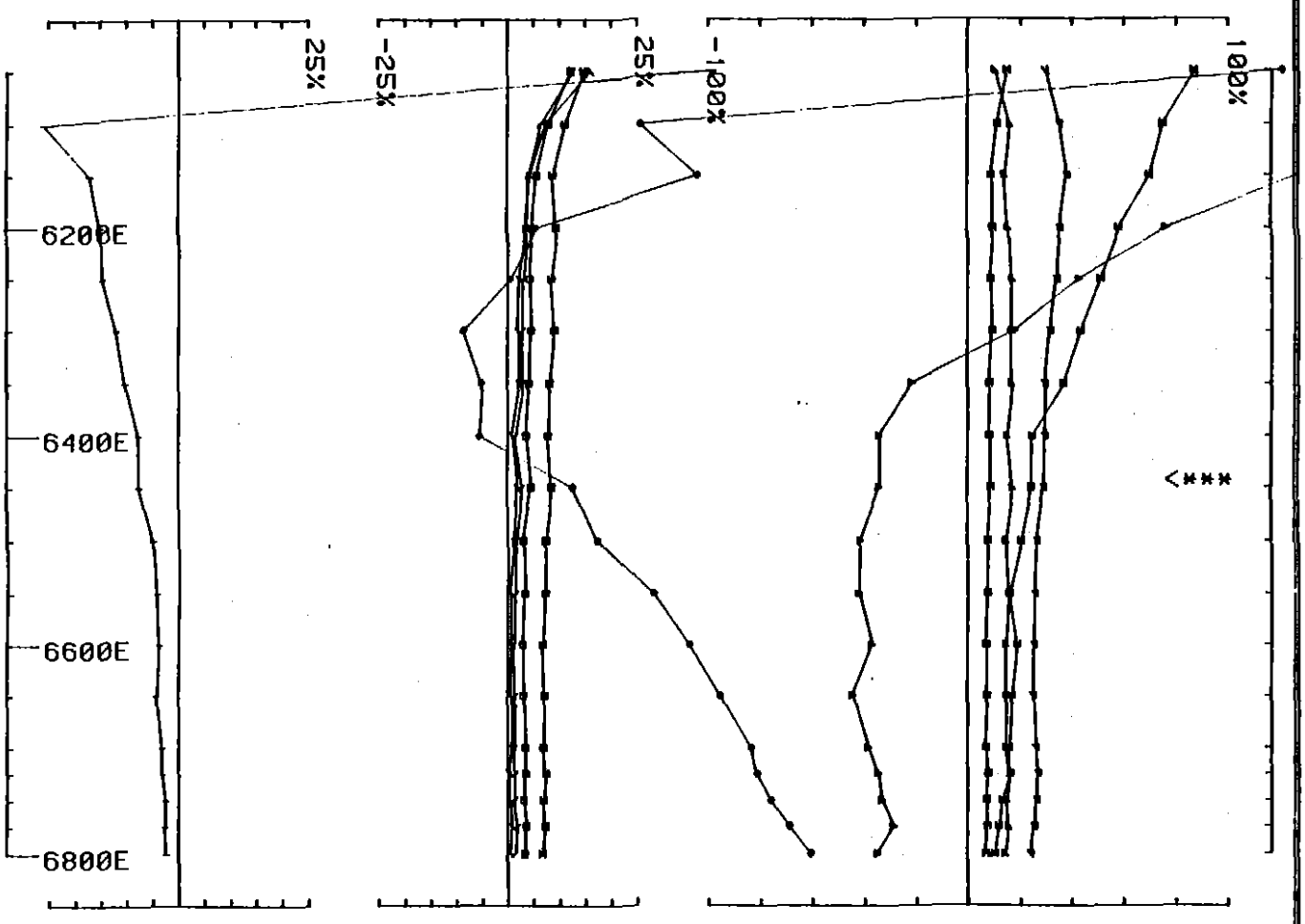


LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- JRG BJS
L8600N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION

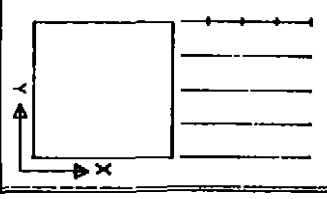


MACKINTOSH
LOOP 8628
LINE 8600N
Hz

383

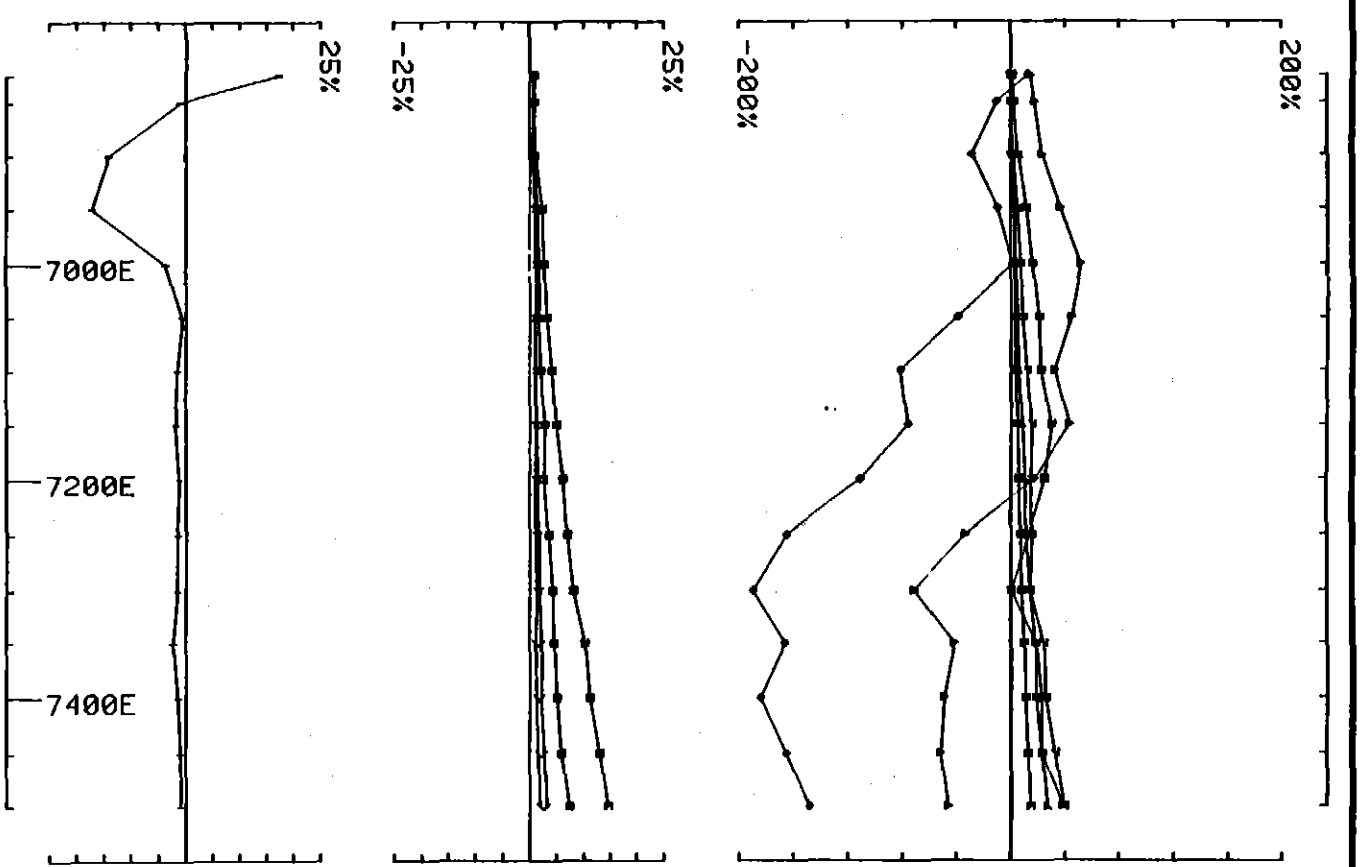


LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
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Line 8600N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION

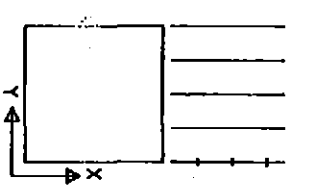


MACKINTOSH
LOOP 8029
LINE 8600
Hz

384

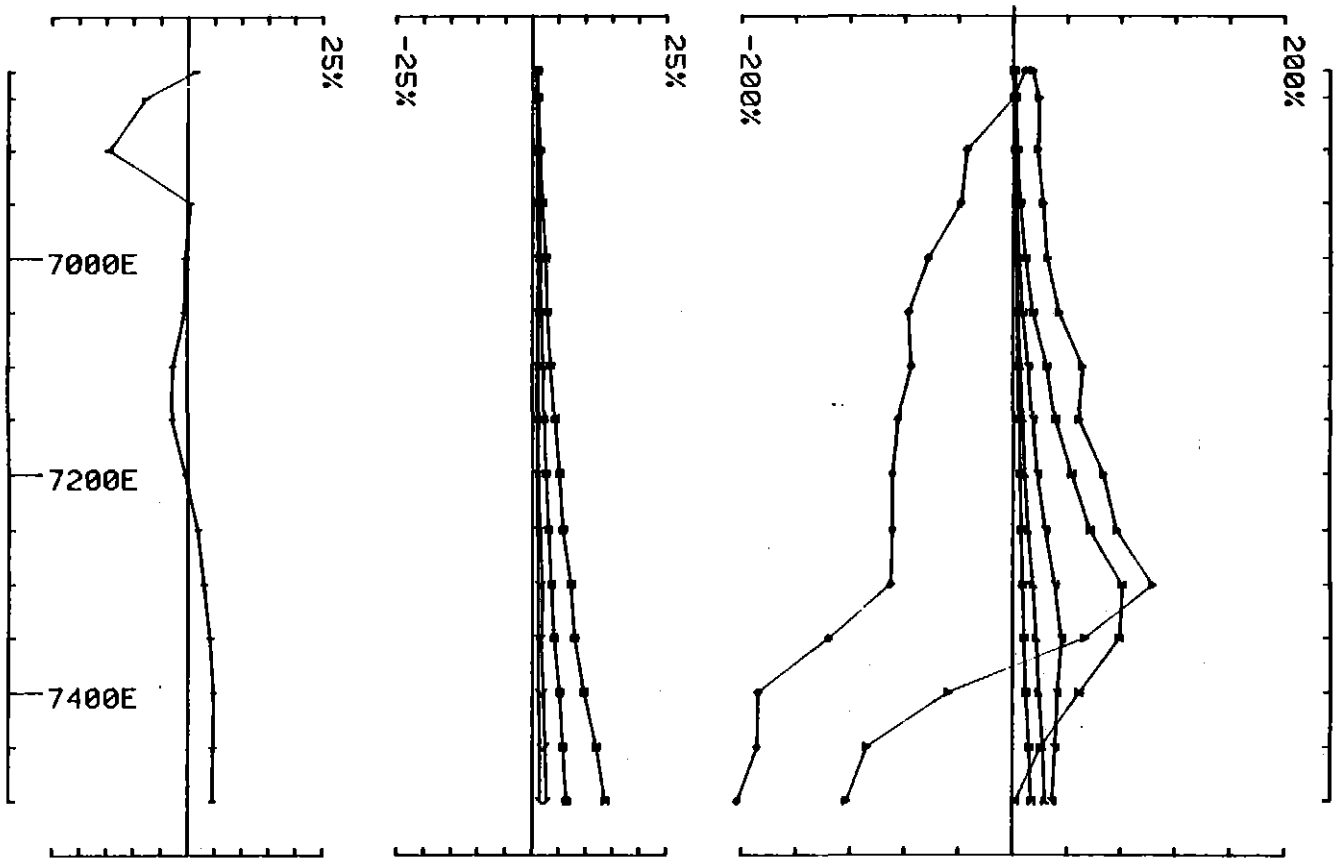


LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
L7800N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION

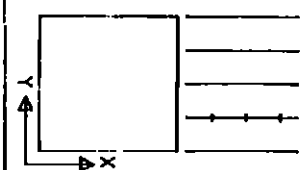


MACKINTOSH
LOOP 8030
LINE 7800N
Hz

335

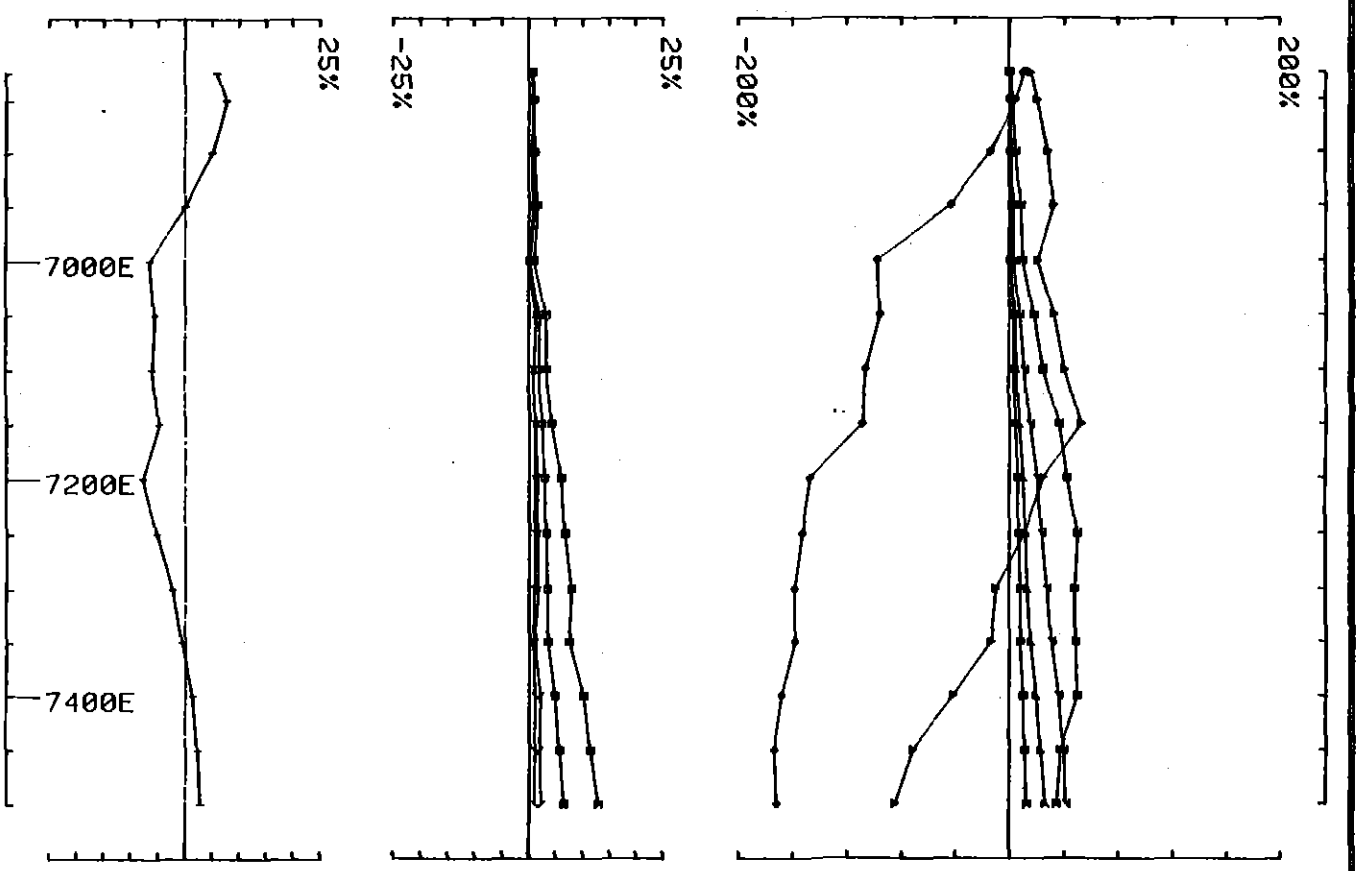


LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
L8000N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION

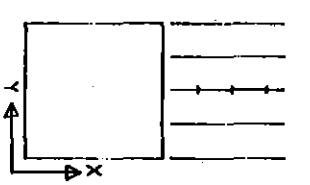


MACKINTOSH
LOOP 8030
LINE 8000N
Hz

386

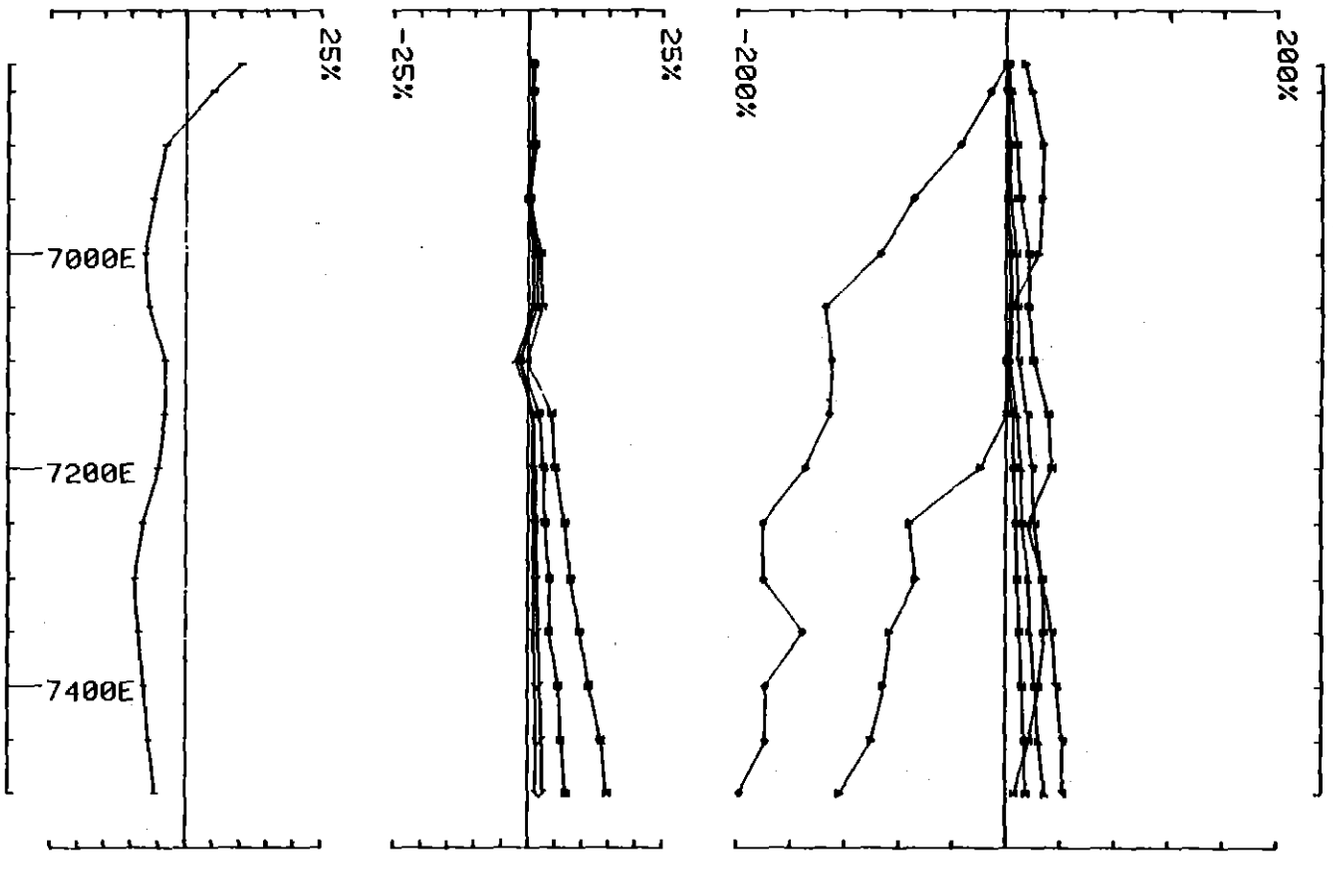


LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
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L8200N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION

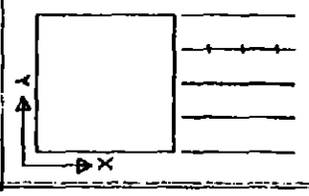


MACKINTOSH
LOOP 8030
LINE 8200N
Hz

387

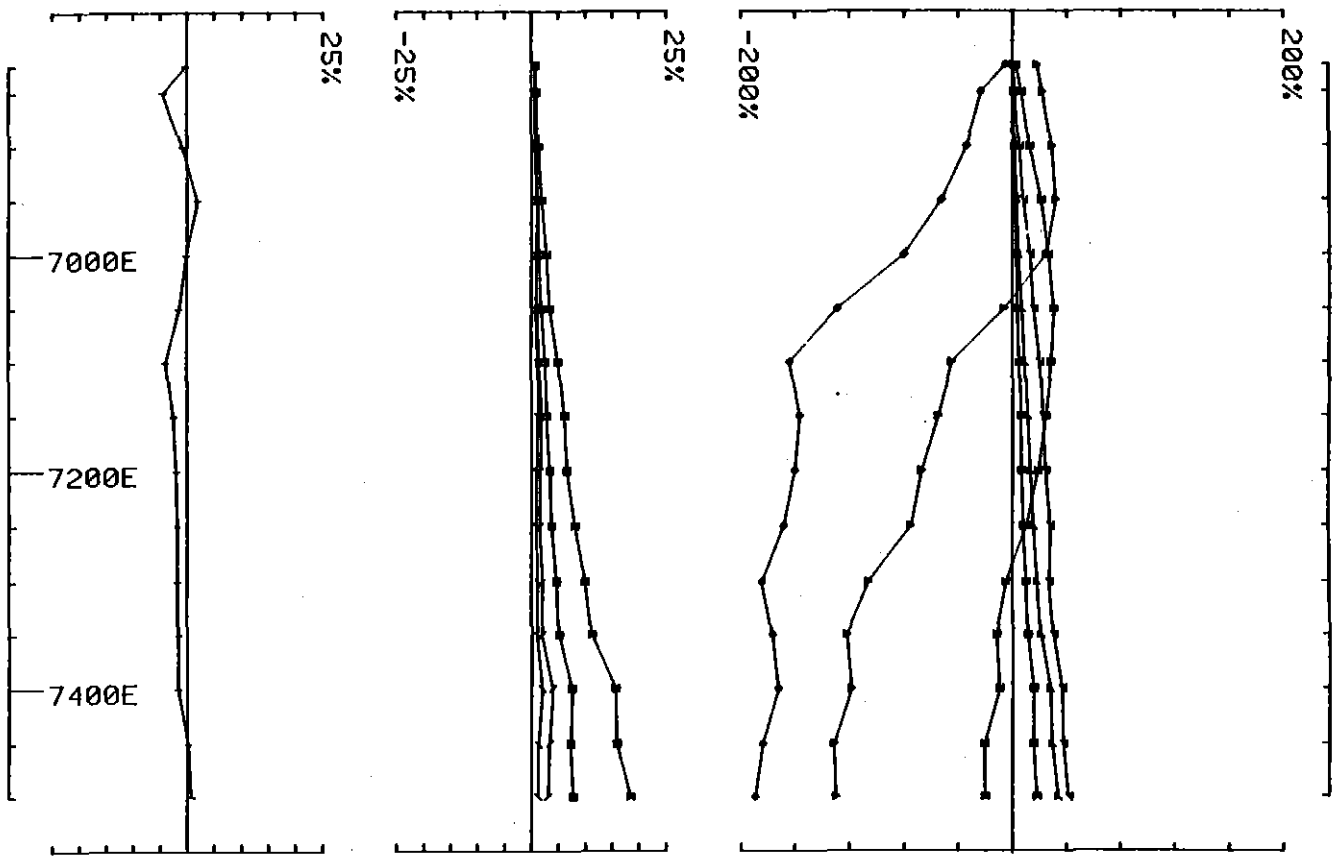


LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
L8400N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION

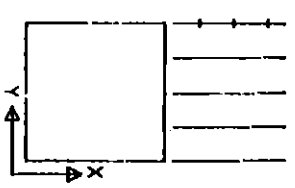


MACKINTOSH
LOOP 8030
LINE 8400N
Hz

388

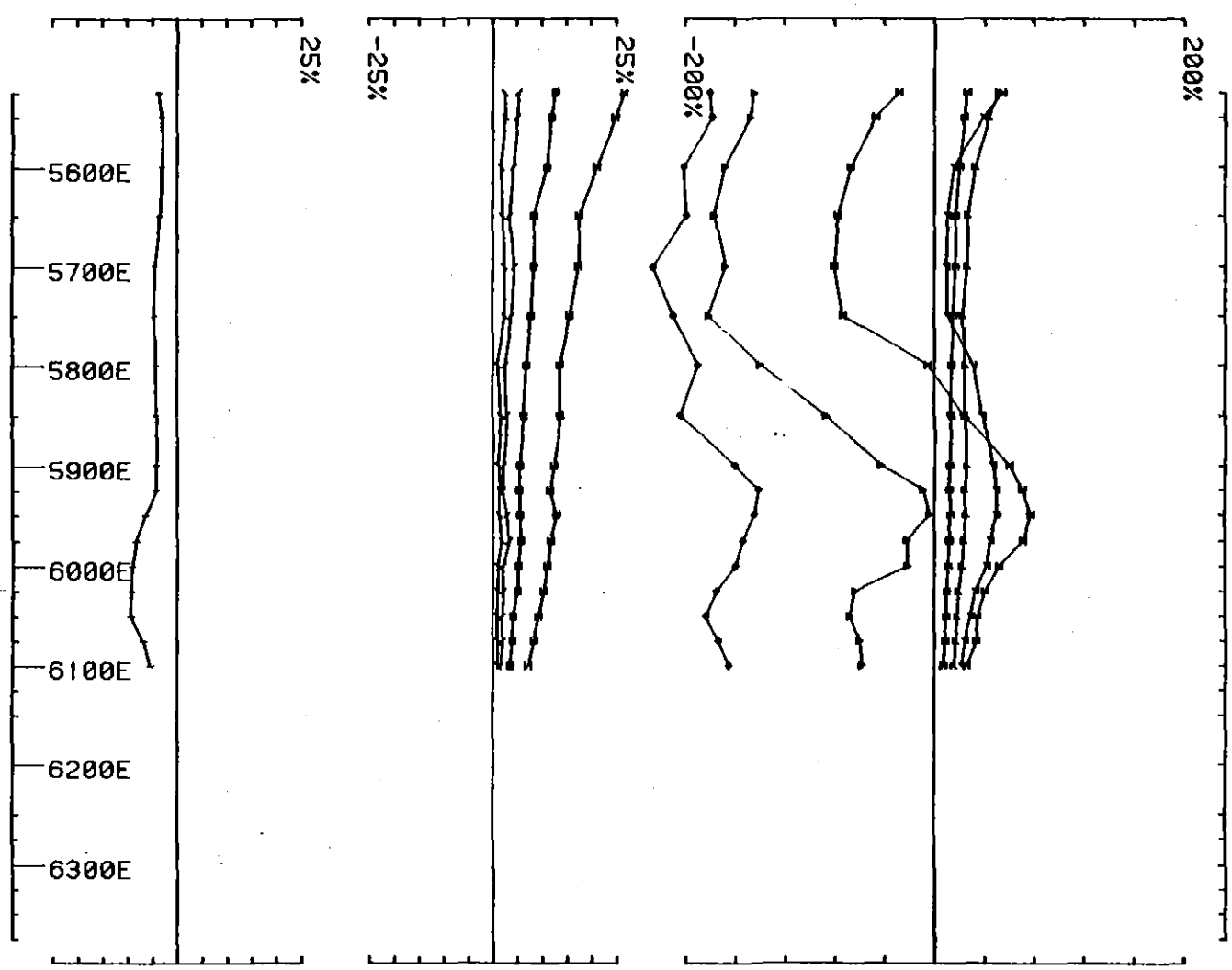


LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
L8600N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION

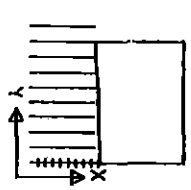


MACKINTOSH
LOOP 8030
LINE 8600N
Hz

389

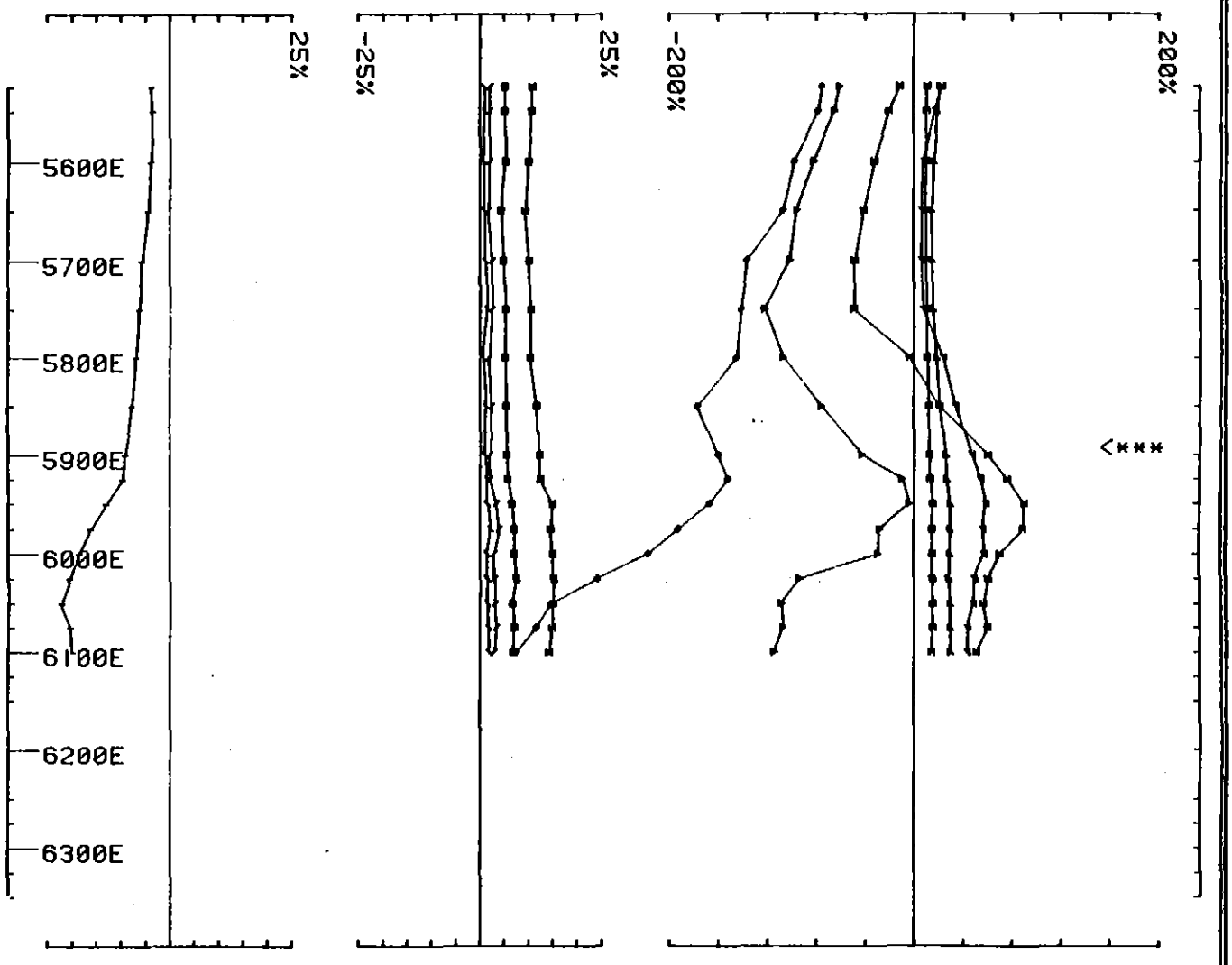


LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
Line 6000N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION

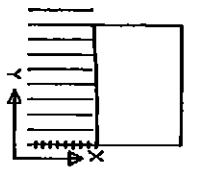


MACKINTOSH
LOOP 8031
LINE 6000
Hz

330



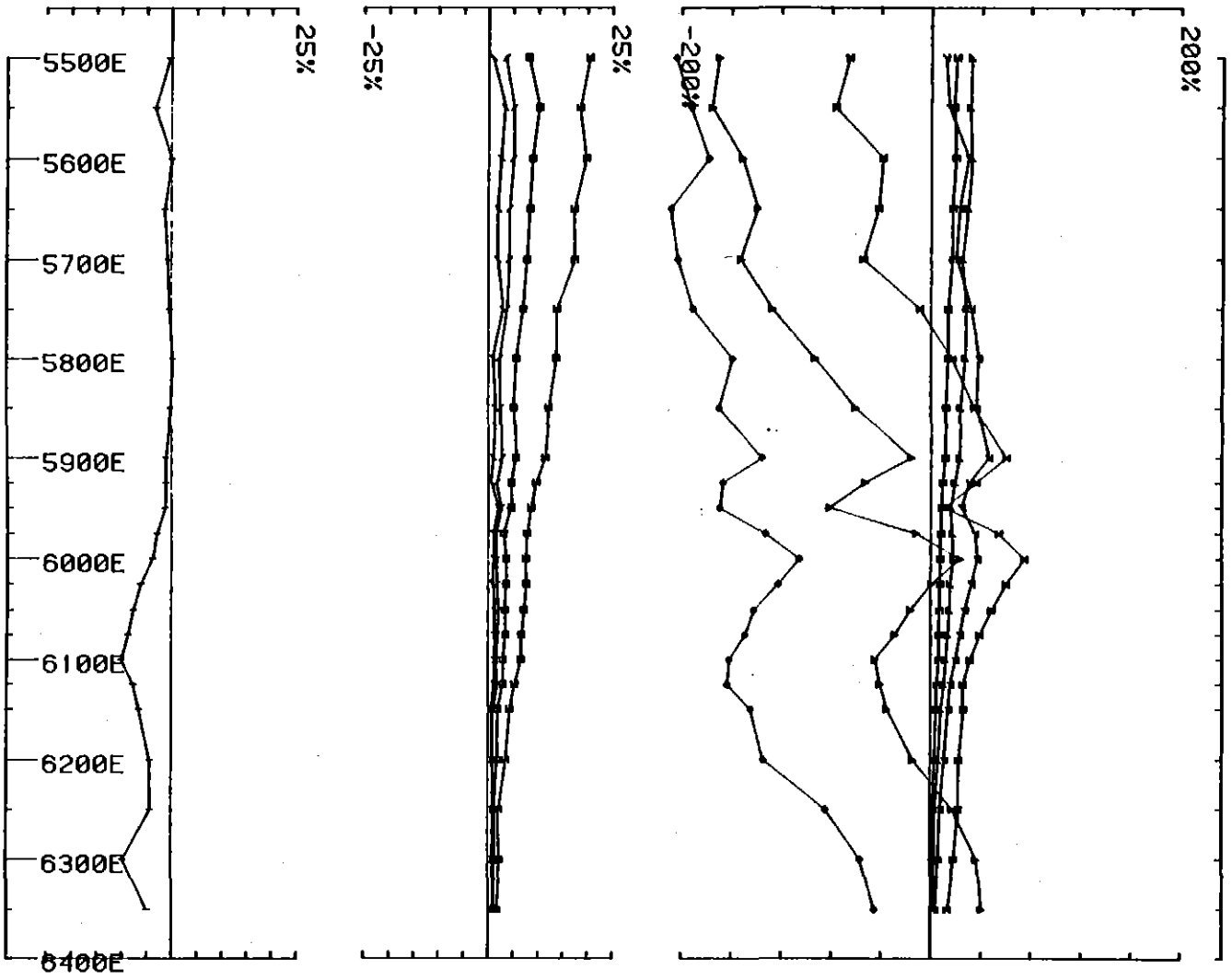
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
Line 6000N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION



MACKINTOSH
LOOP 0031
LINE 6000
Hz

391

598394



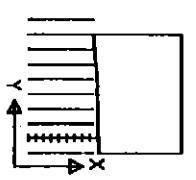
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601

AREA :- MACKINTOSH

CLIENT :- ABERFOYLE CREW :- PMM DW

Line 6200N Hz COMPONENT BASE FREQ :- 26.230HERTZ

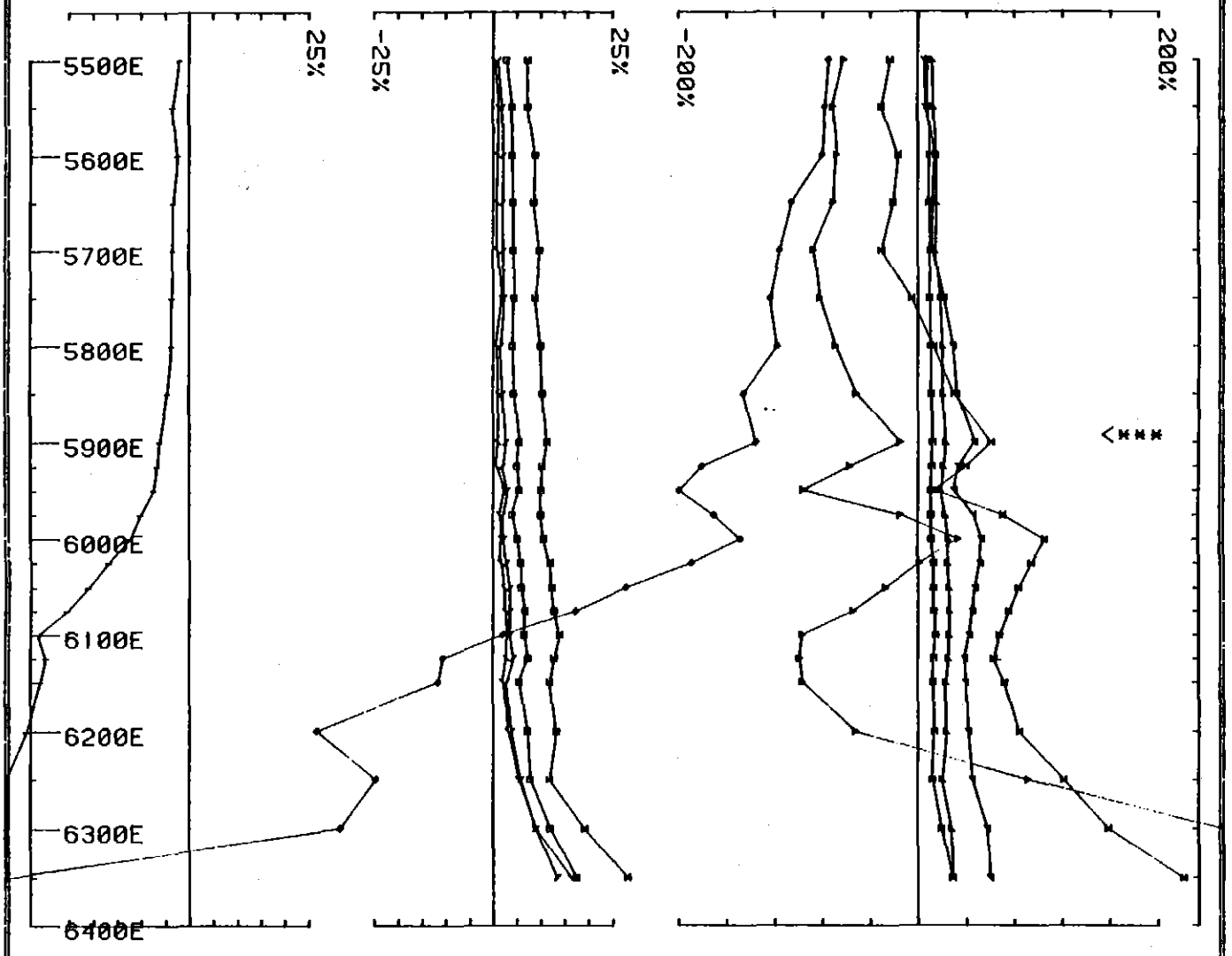
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION



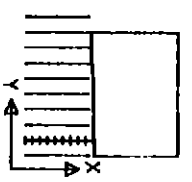
MACKINTOSH
LOOP 8601
LINE 6200
Hz

392

598395



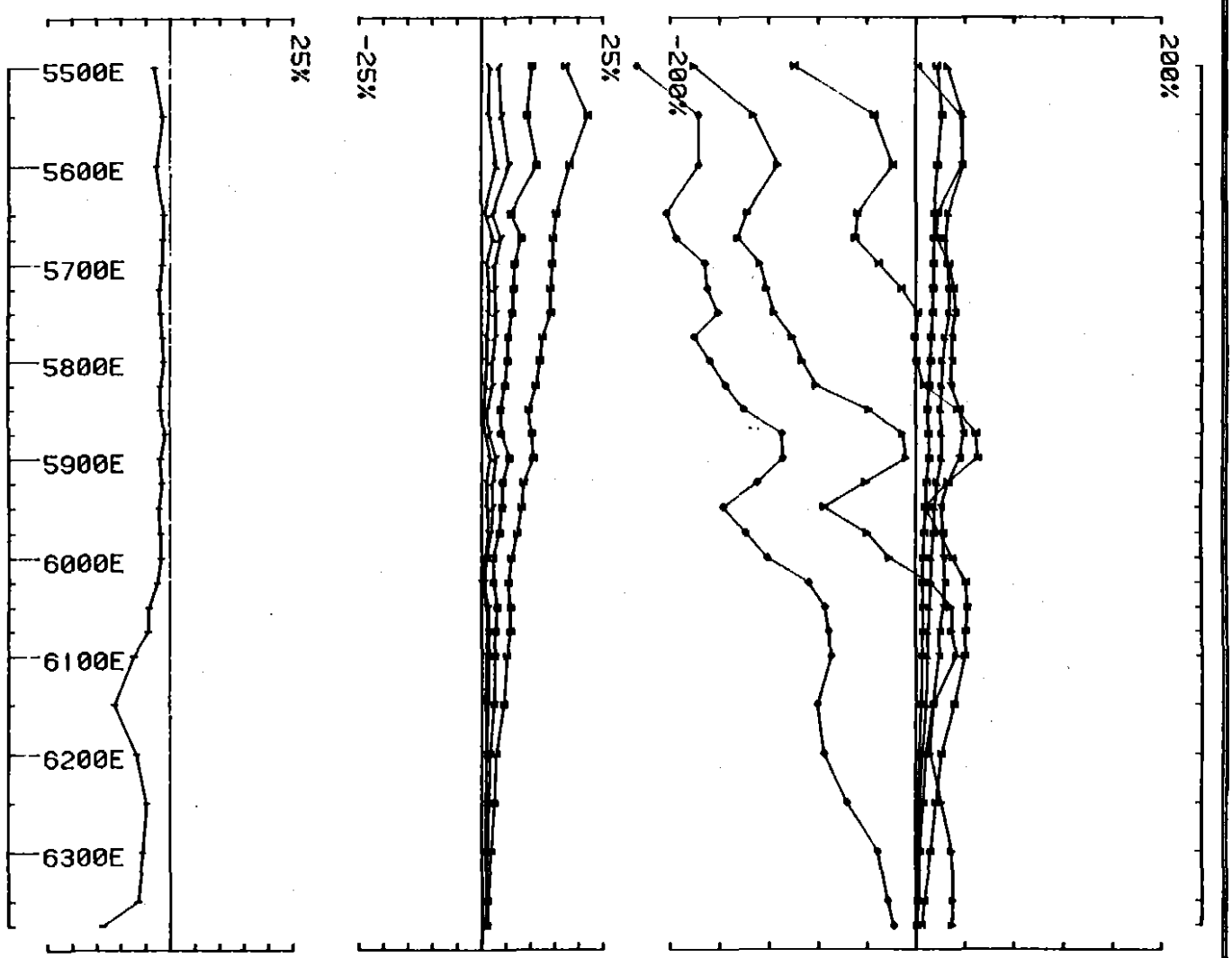
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
Line 6200N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION



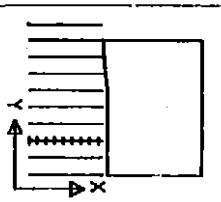
MACKINTOSH
LOOP 8021
LINE 6200
Hz

393

598396



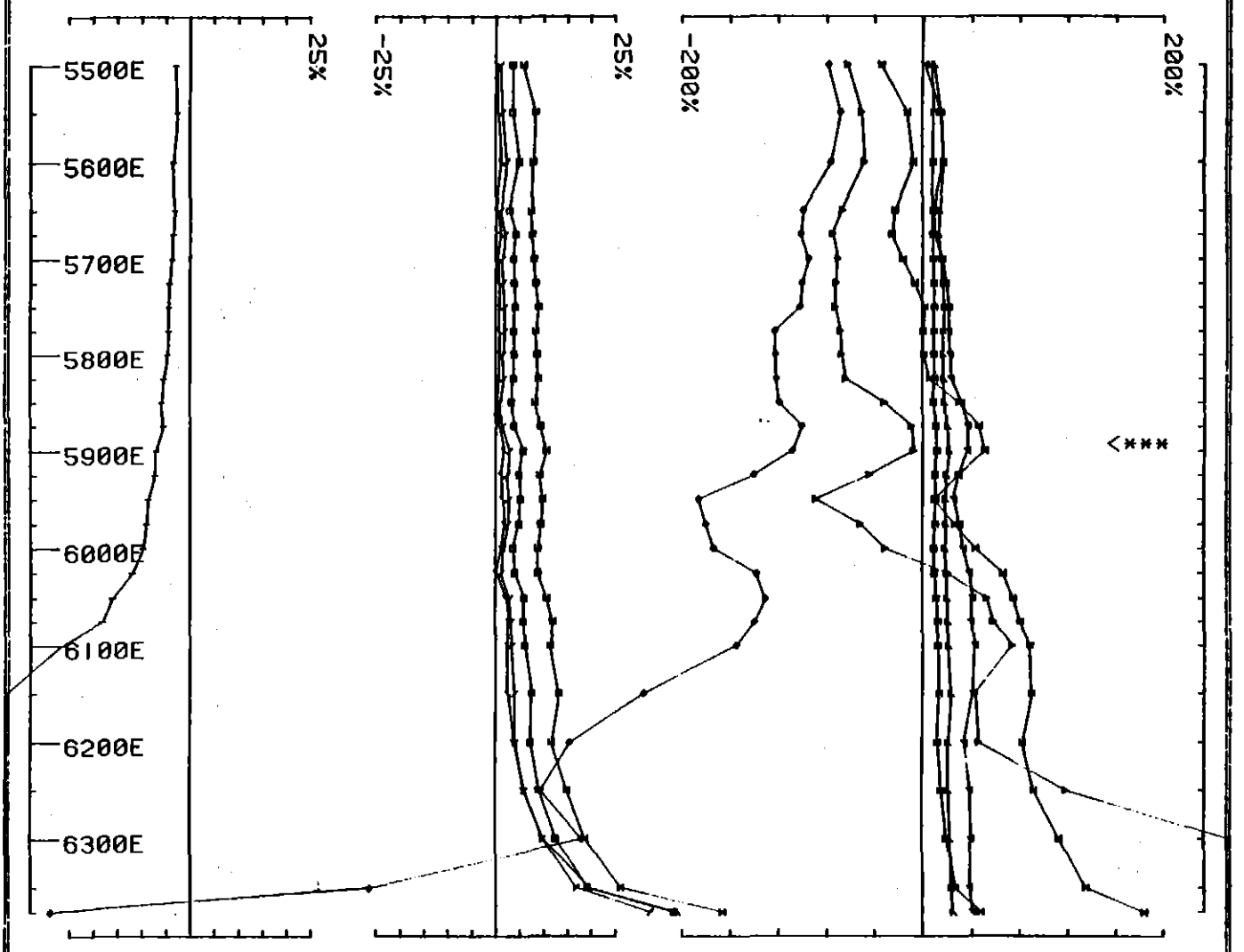
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
Line 6400N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION



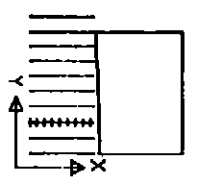
MACKINTOSH
LOOP 8601
LINE 6400
Hz

394

598397



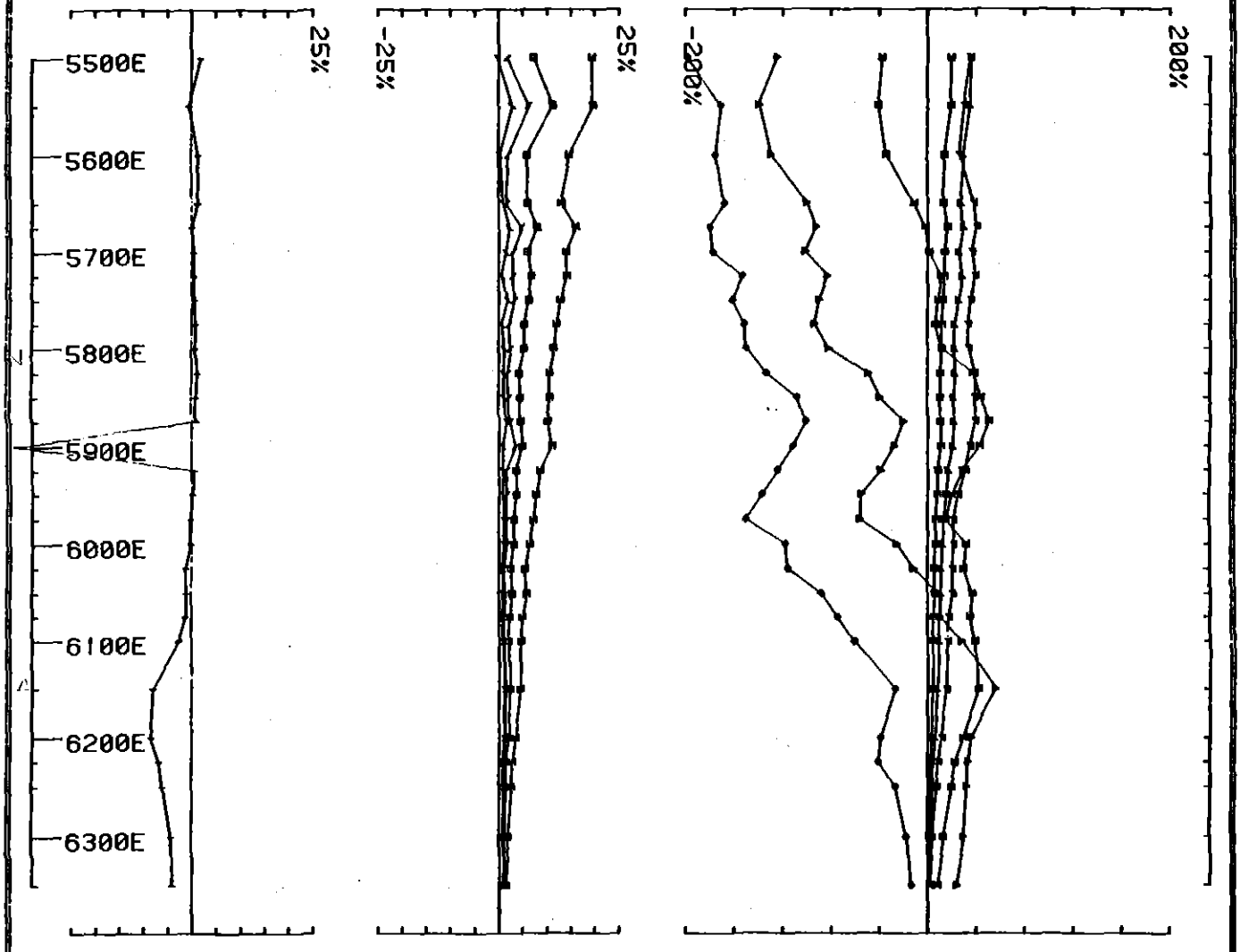
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
Line 6400N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION



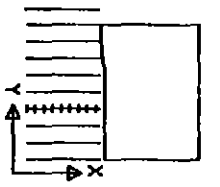
MACKINTOSH
LOOP 8001
LINE 6400
Hz

395

598398



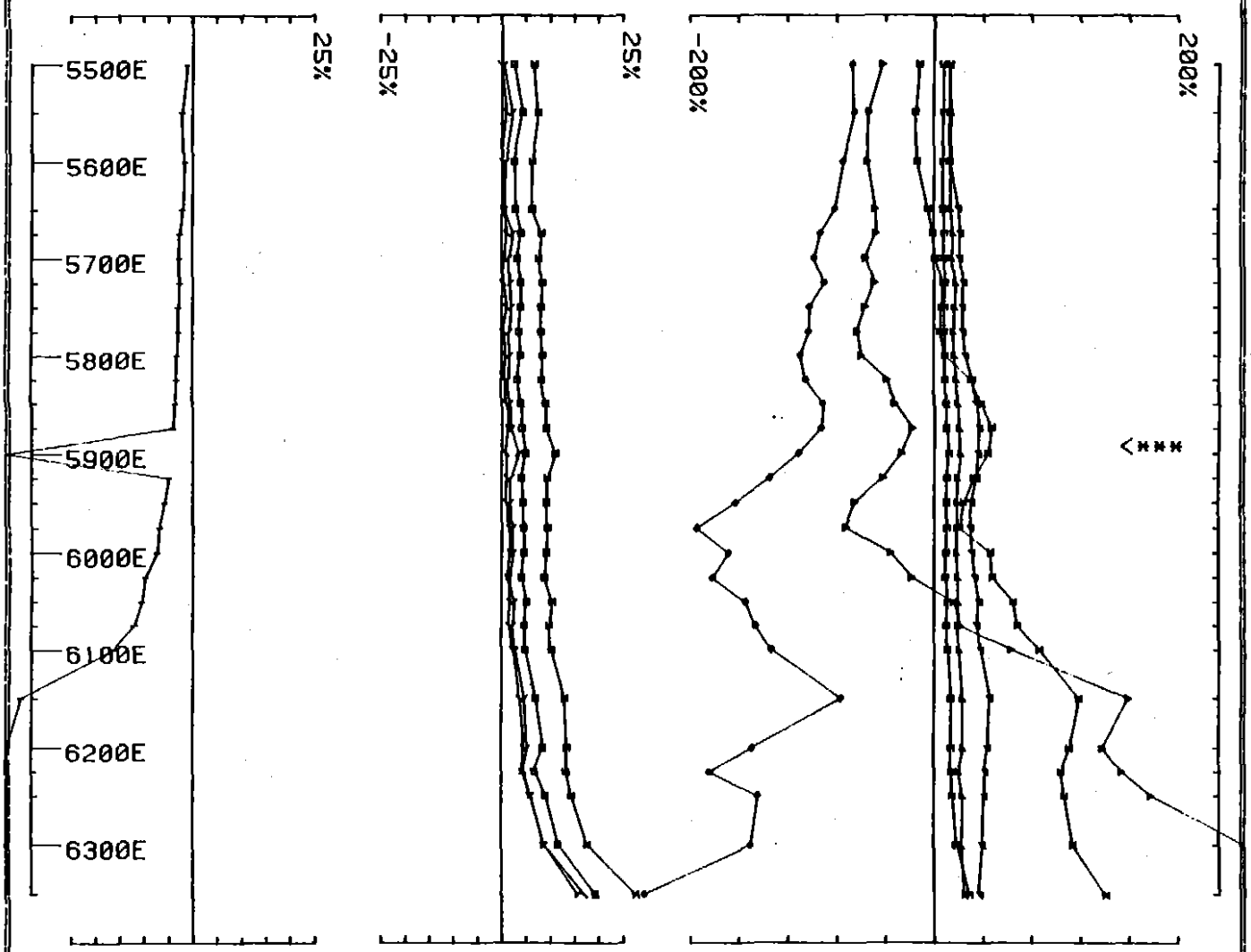
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
Line 6600N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION



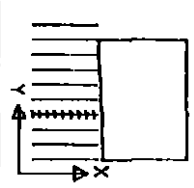
MACKINTOSH
LOOP 8031
LINE 6600
Hz

396

598399



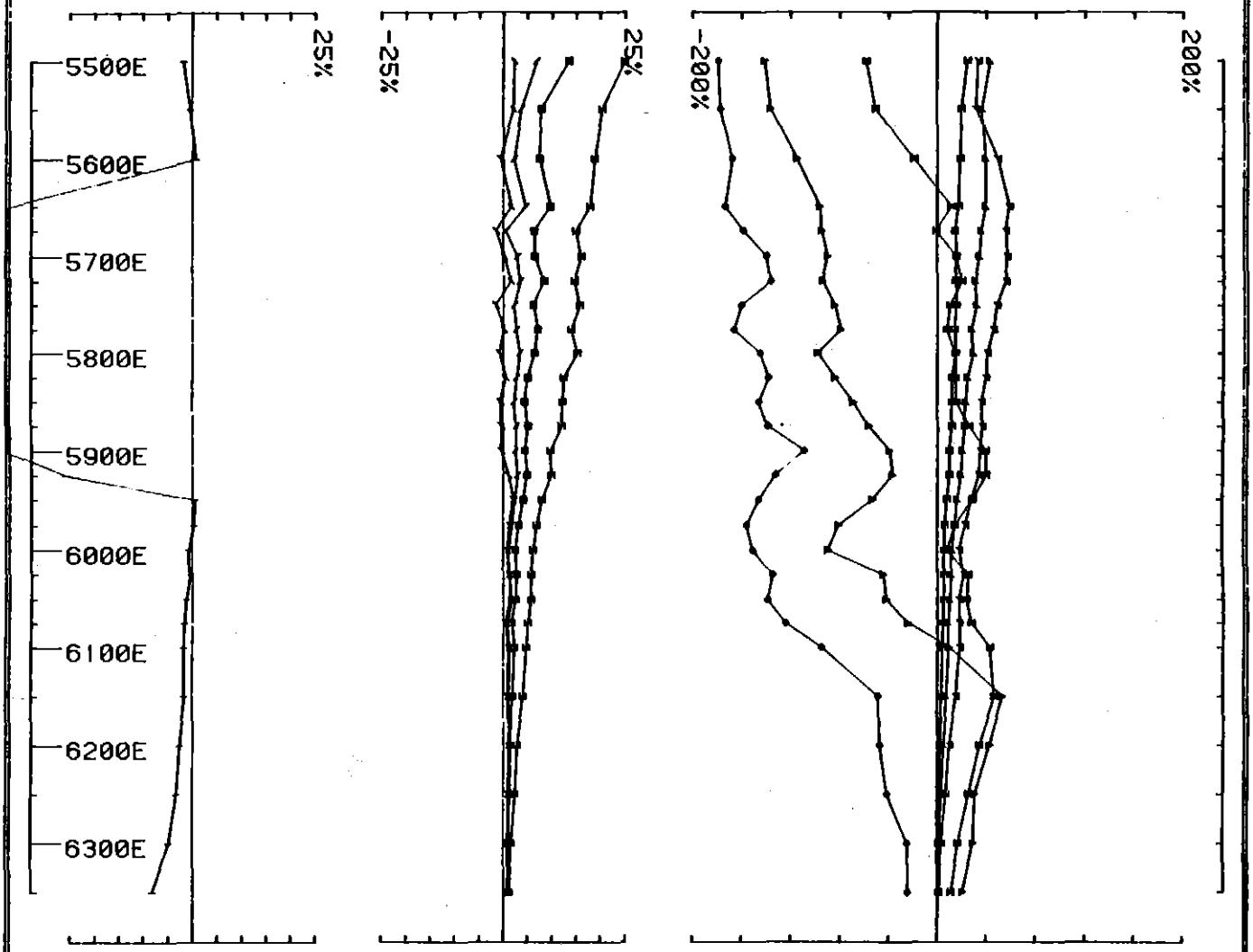
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
Line 6600N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION



MACKINTOSH
LOOP 8031
LINE 6600
Hz

397

598400

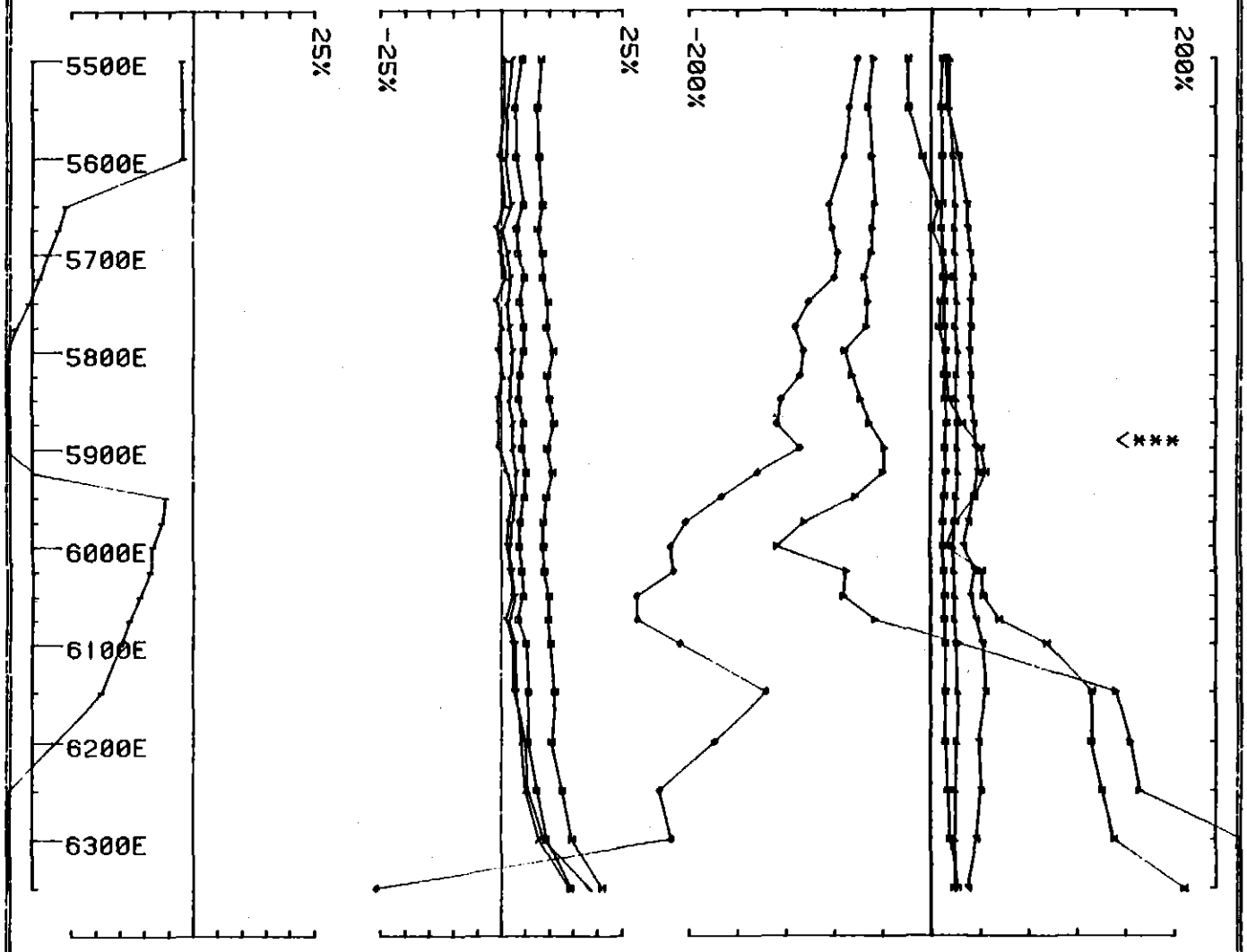


LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
Line 6800N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION

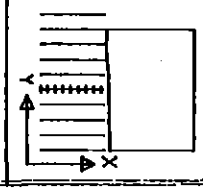
MACKINTOSH
LOOP 8031
LINE 6800
Hz

398

598401



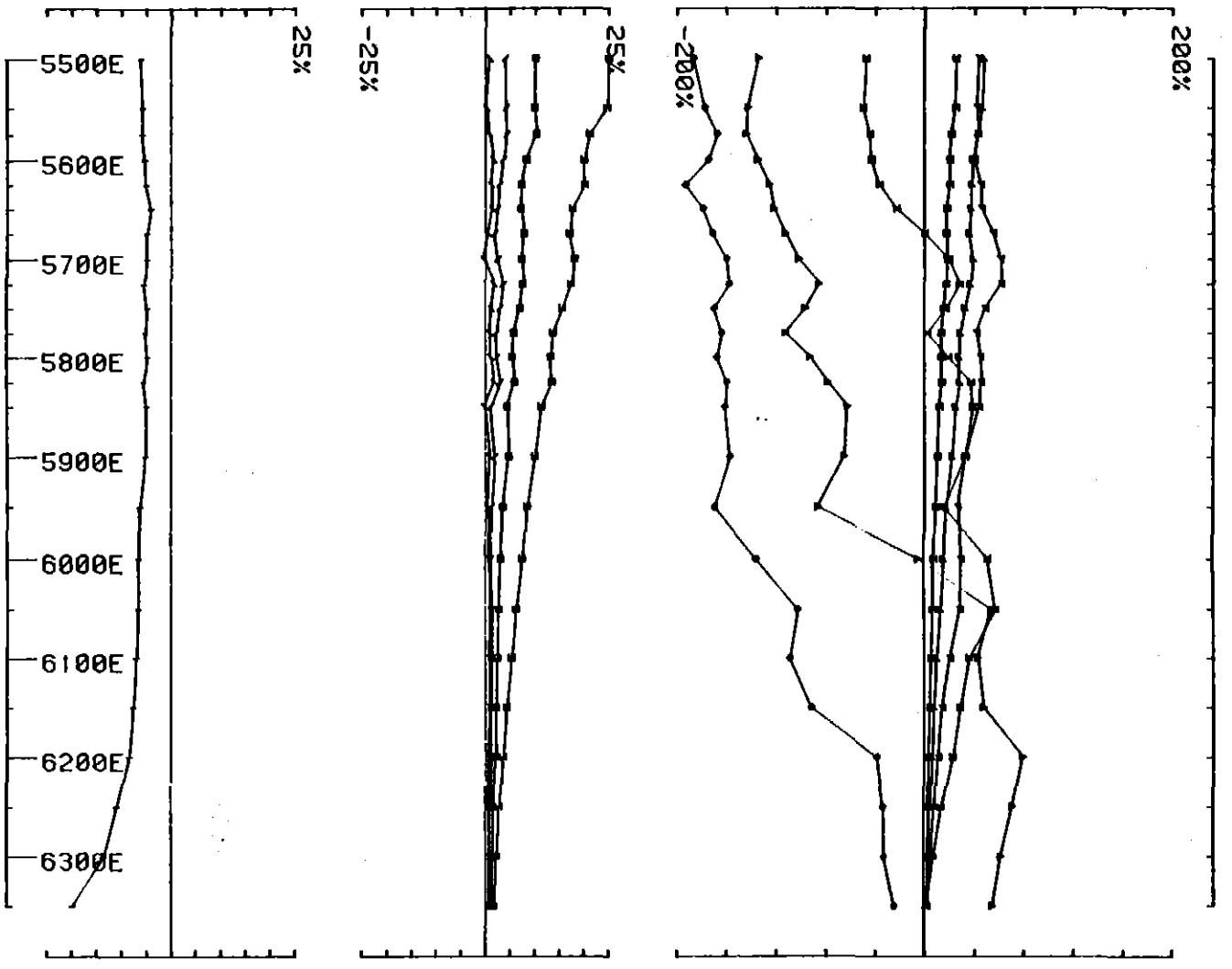
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
Line 6800N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION



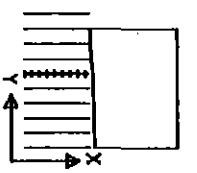
MACKINTOSH
LOOP 8601
LINE 6800
Hz

399

598402



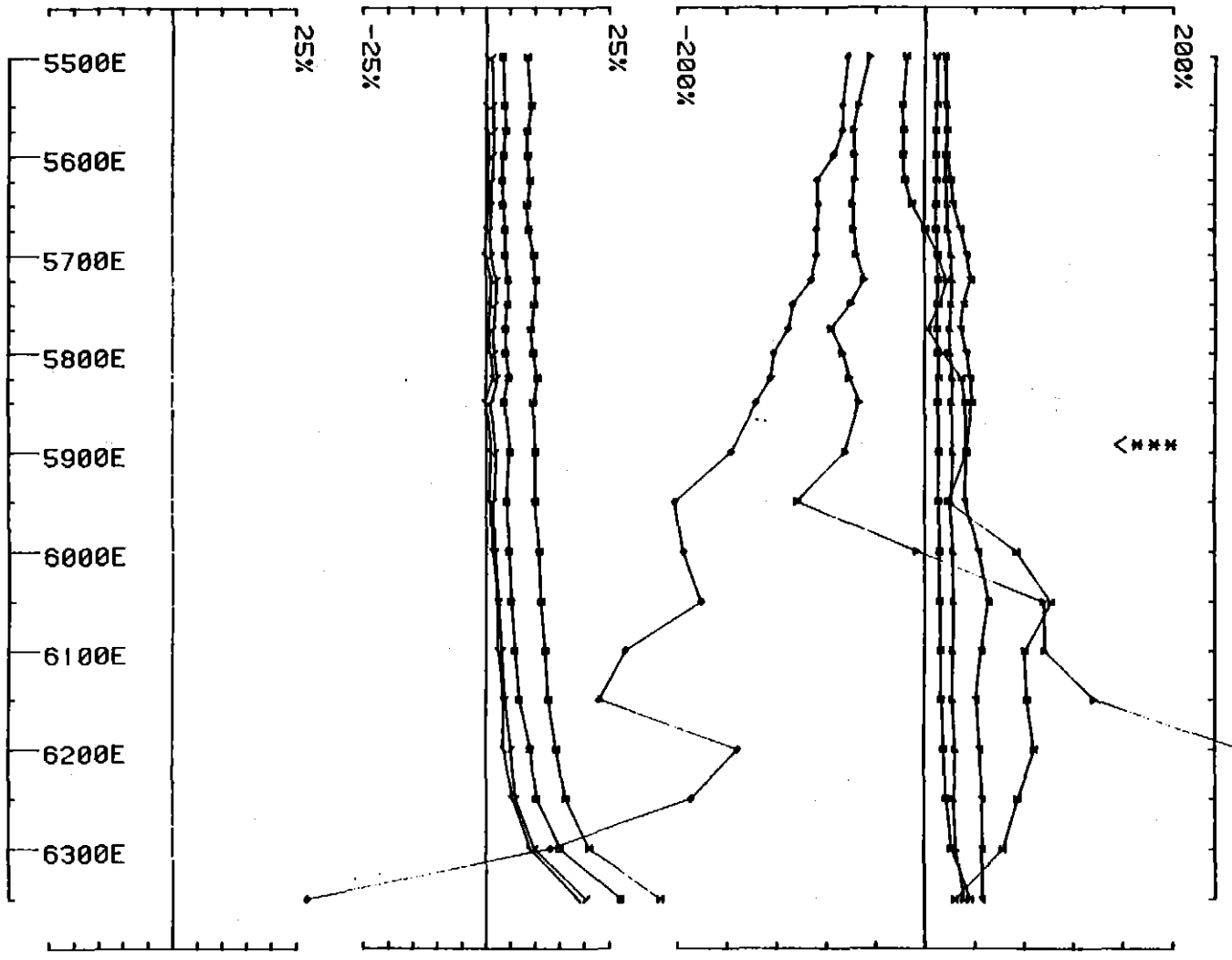
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
Line 7000N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION



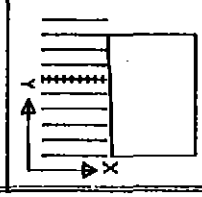
MACKINTOSH
LOOP 8031
LINE 7000
Hz

400

598403



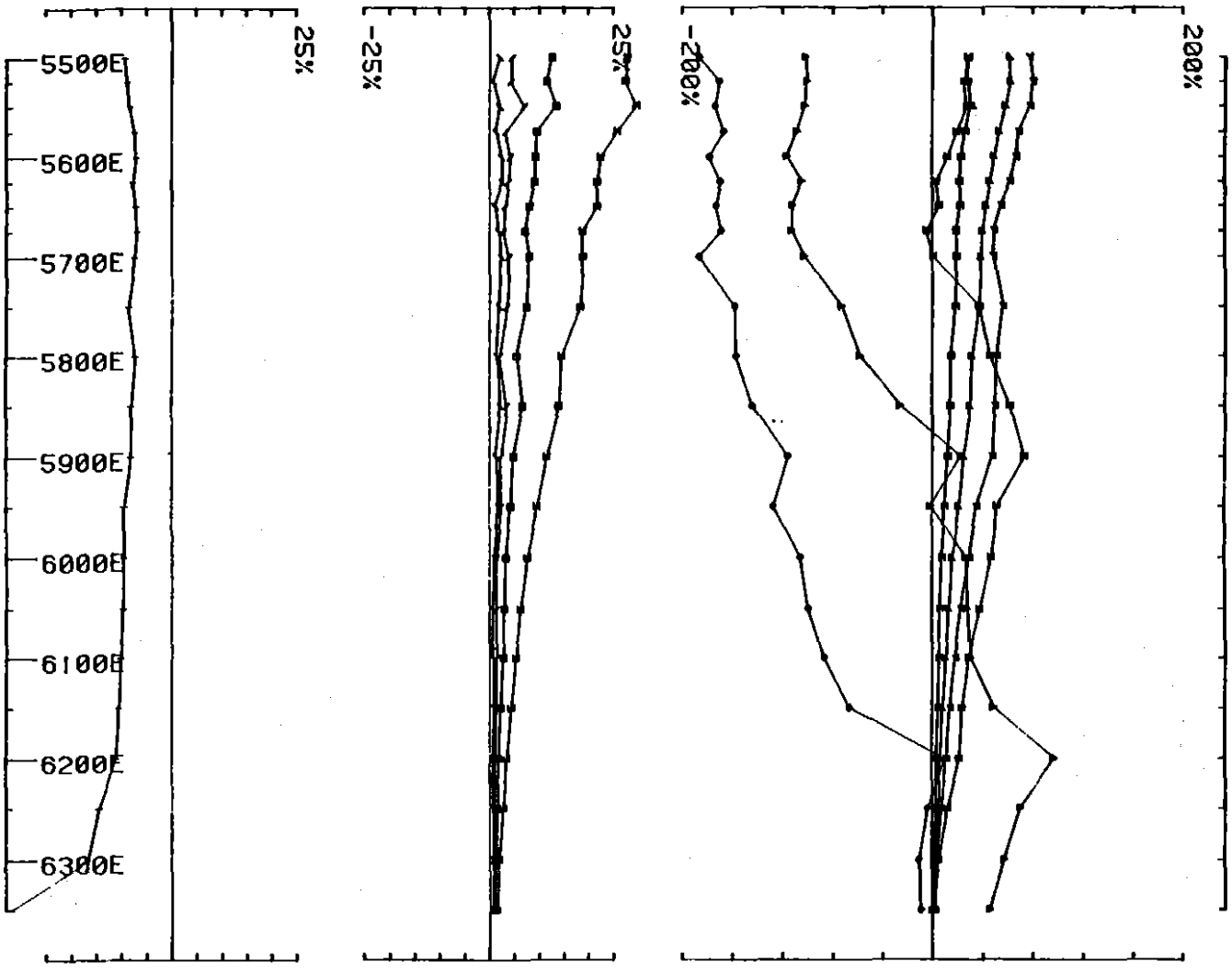
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
Line 7000N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION



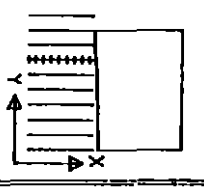
MACKINTOSH
LOOP 8031
LINE 7000
Hz

401

593404



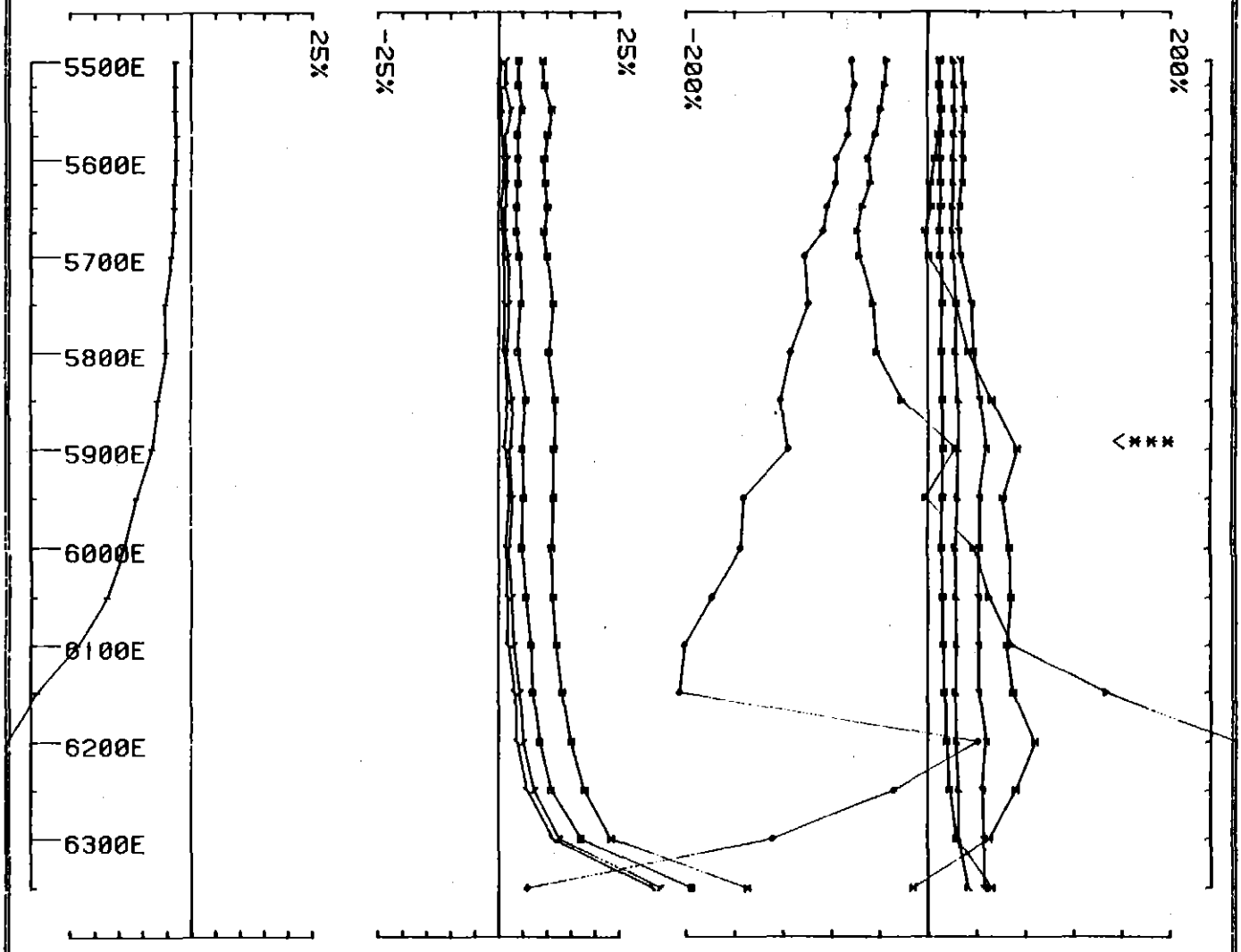
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
Line 7200N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION



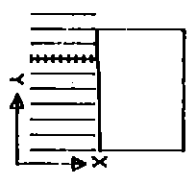
MACKINTOSH
LOOP 8001
LINE 7200
Hz

402

598405



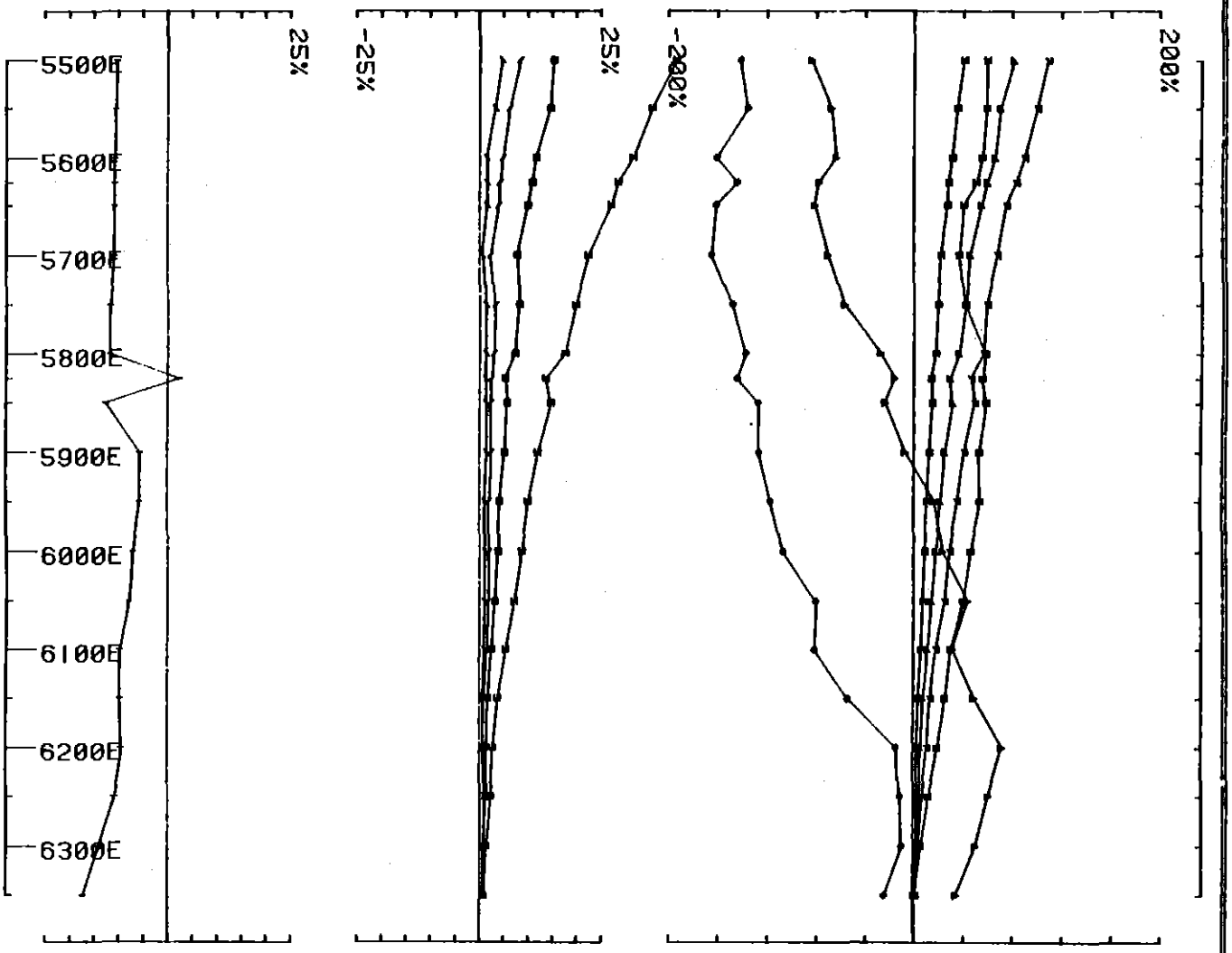
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
Line 7200N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION



MACKINTOSH
LOOP RGS1
LINE 7200
Hz

403

598406



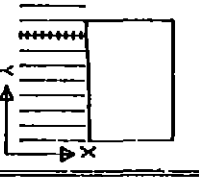
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601

AREA :- MACKINTOSH

CLIENT :- ABERFOYLE CREW :- PMM DW

Line 7400N Hz COMPONENT BASE FREQ :- 26.230HERTZ

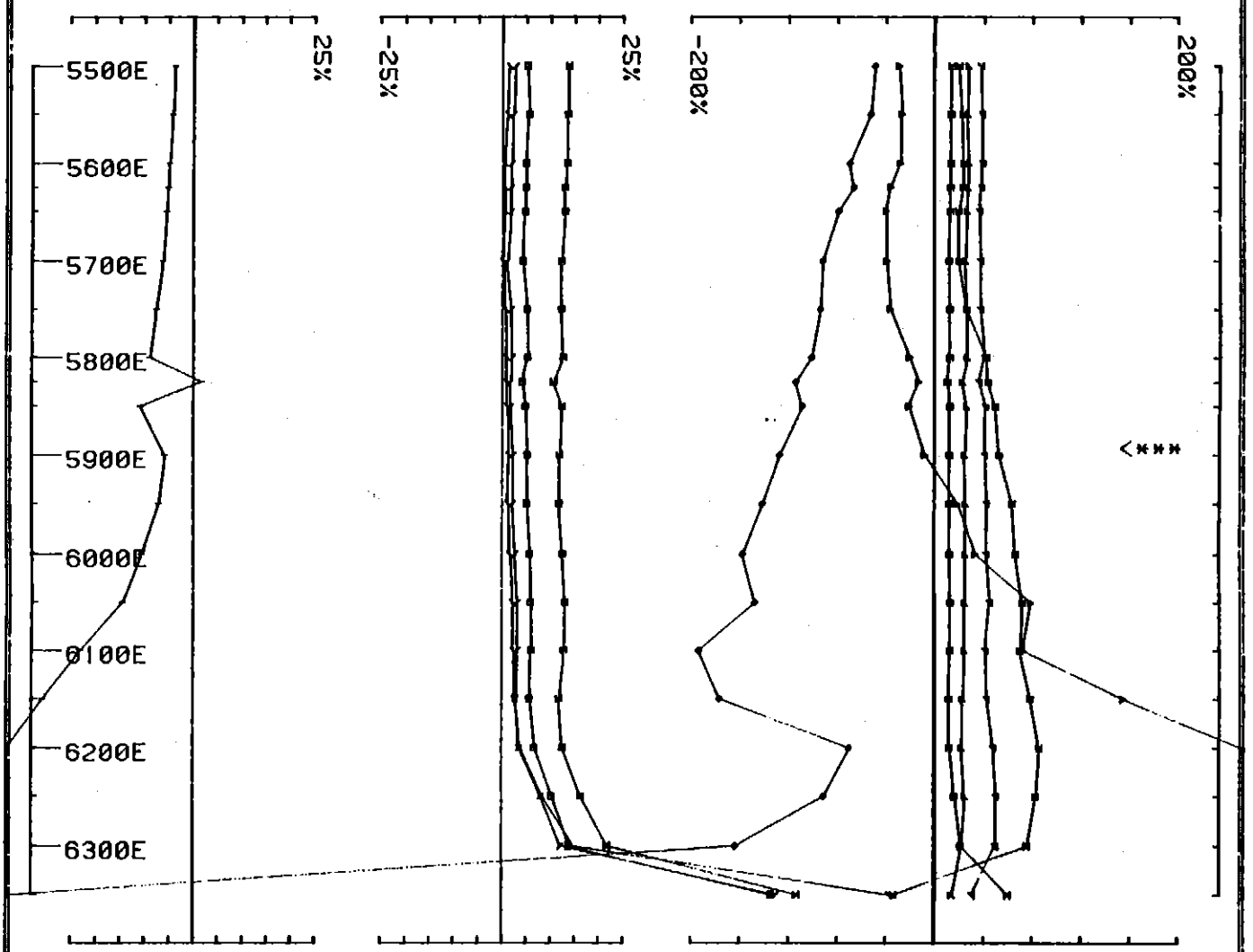
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION



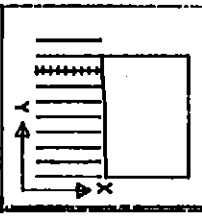
MACKINTOSH
LOOP 8031
LINE 7400
Hz

404

598407



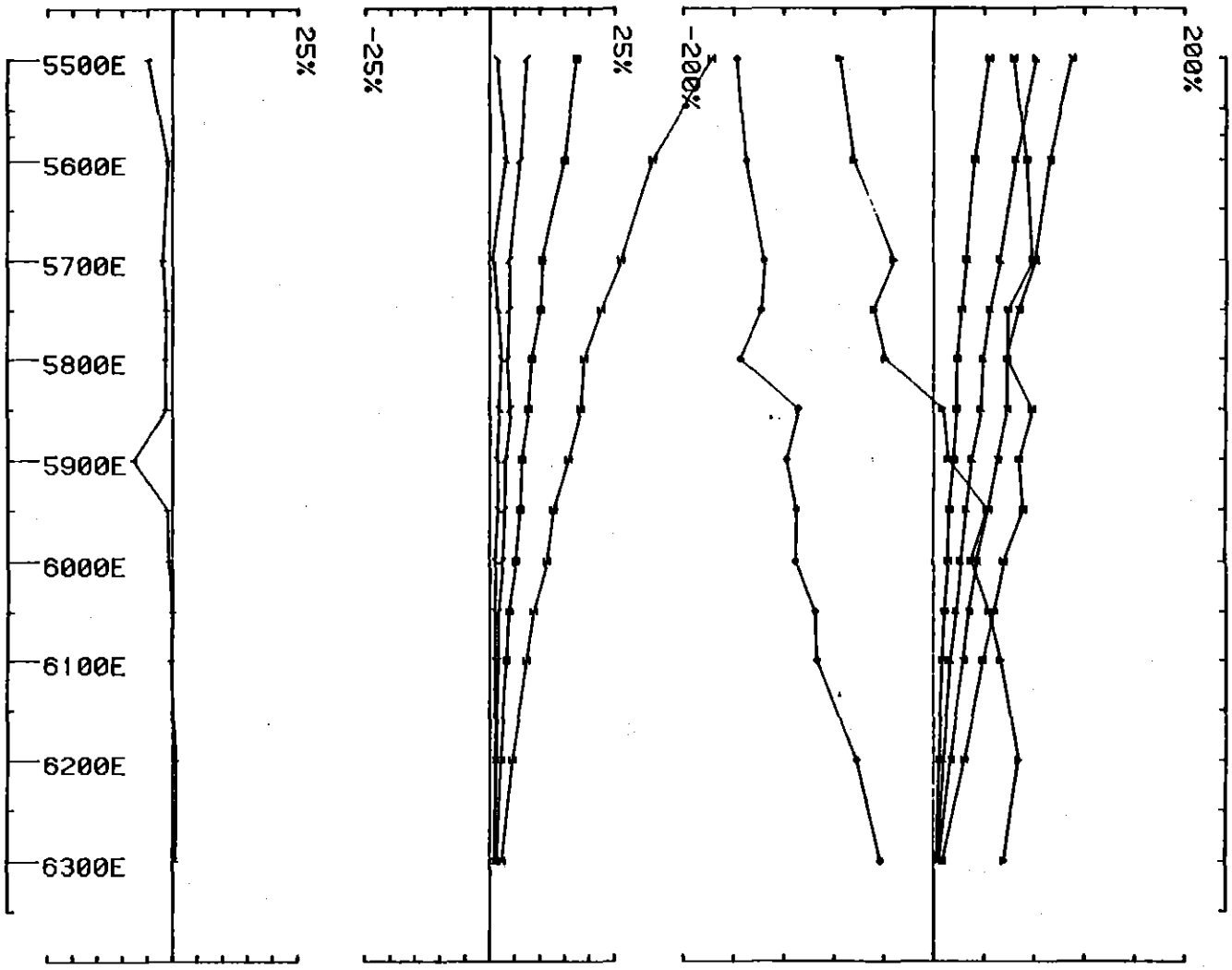
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
Line 7400N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION



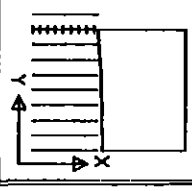
MACKINTOSH
LOOP 8831
LINE 7400
Hz

405

598408



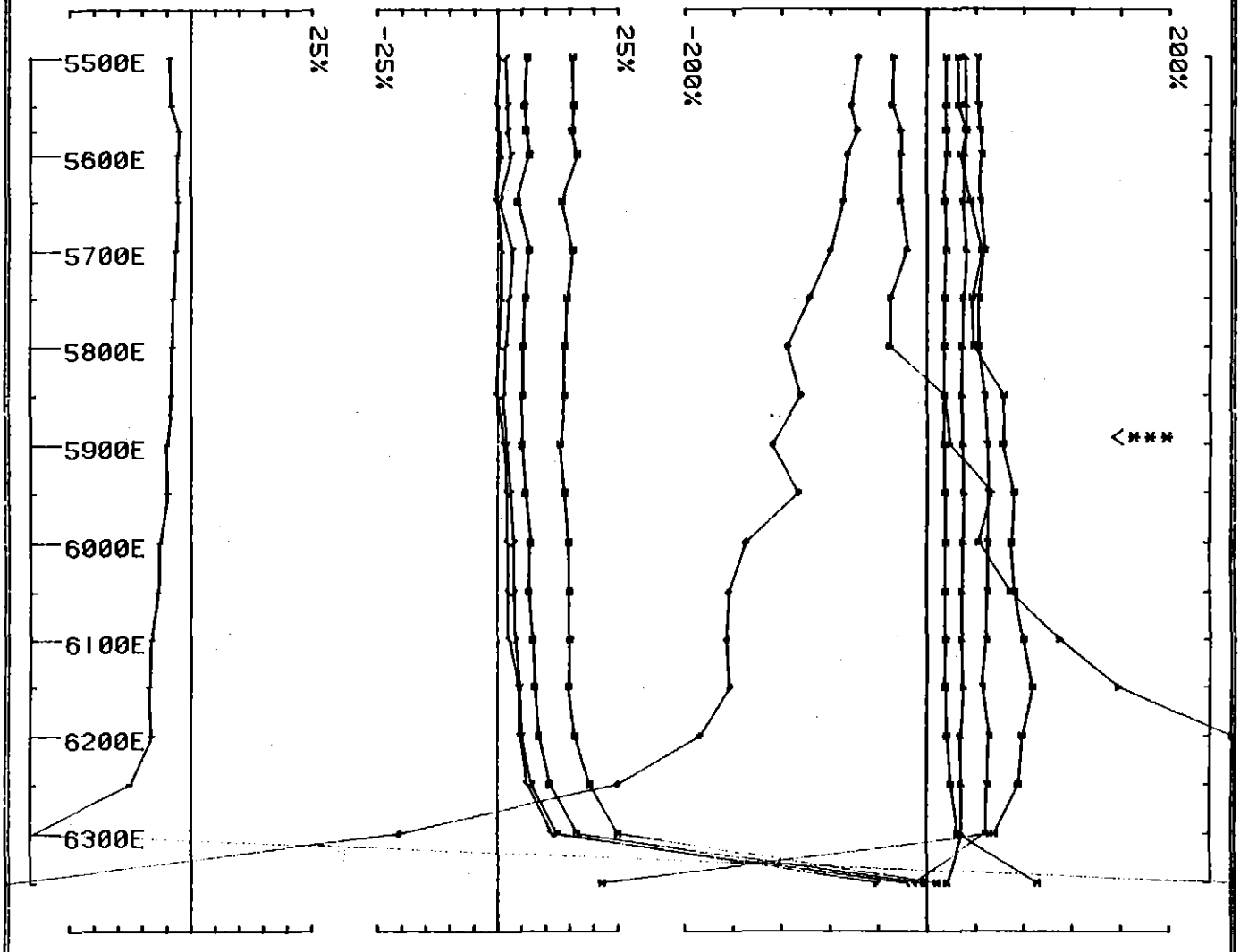
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
Line 7600N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION



MACKINTOSH
LOOP 8601
LINE 7600
Hz

406

598409



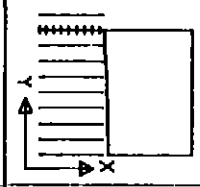
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601

AREA :- MACKINTOSH

CLIENT :- ABERFOYLE CREW :- PMM DW

Line 7600N Hz COMPONENT BASE FREQ :- 26.230HERTZ

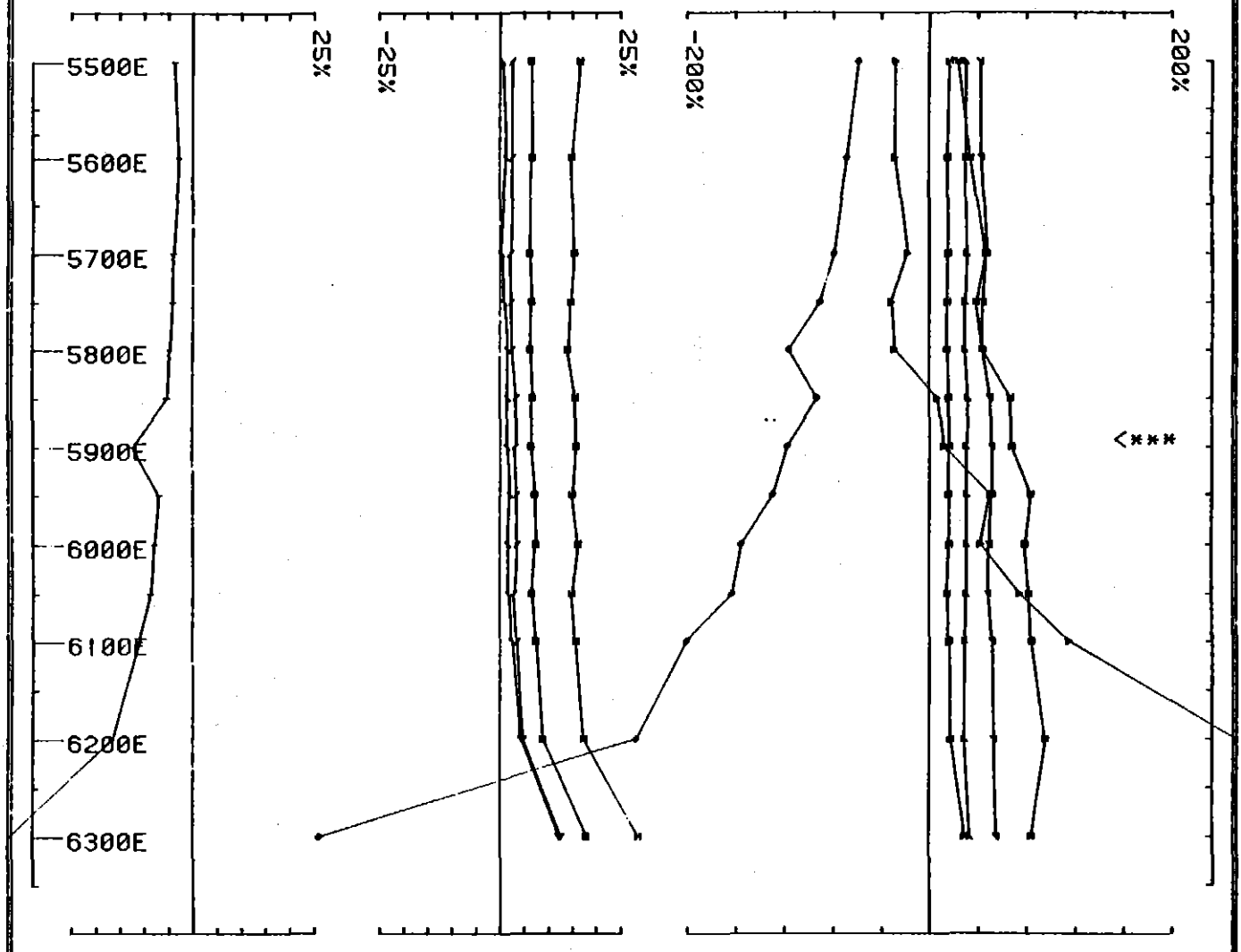
SECONDARY FIELD POINT Ch 1 NORMALIZATION



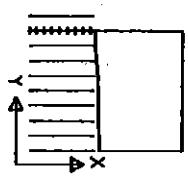
MACKINTOSH
LOOP 8601
LINE 7600
Hz

407

508410



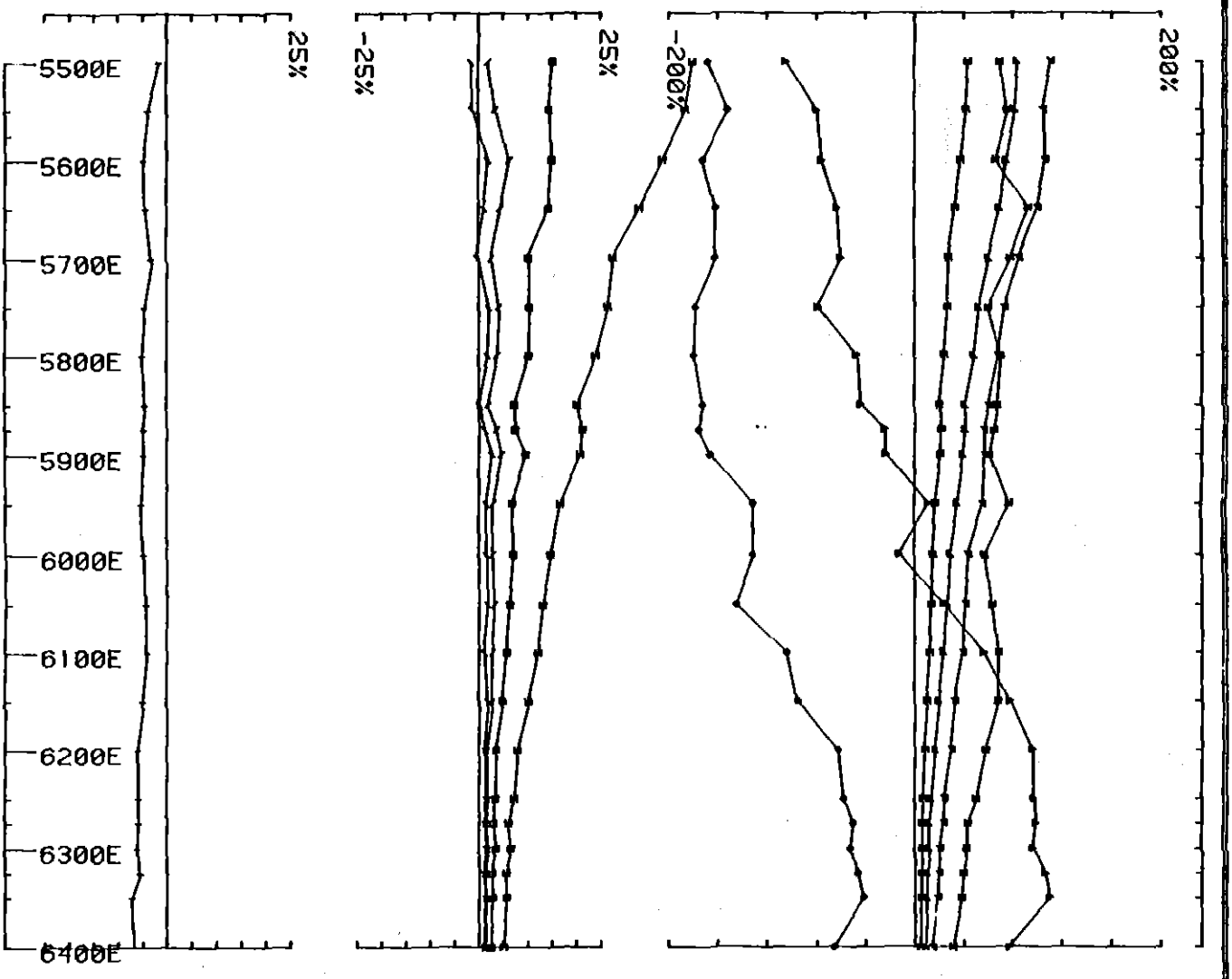
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
Line 7600N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION



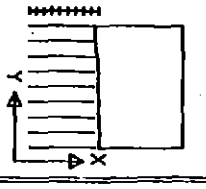
MACKINTOSH
LOOP 8601
LINE 7600
Hz

408

598411



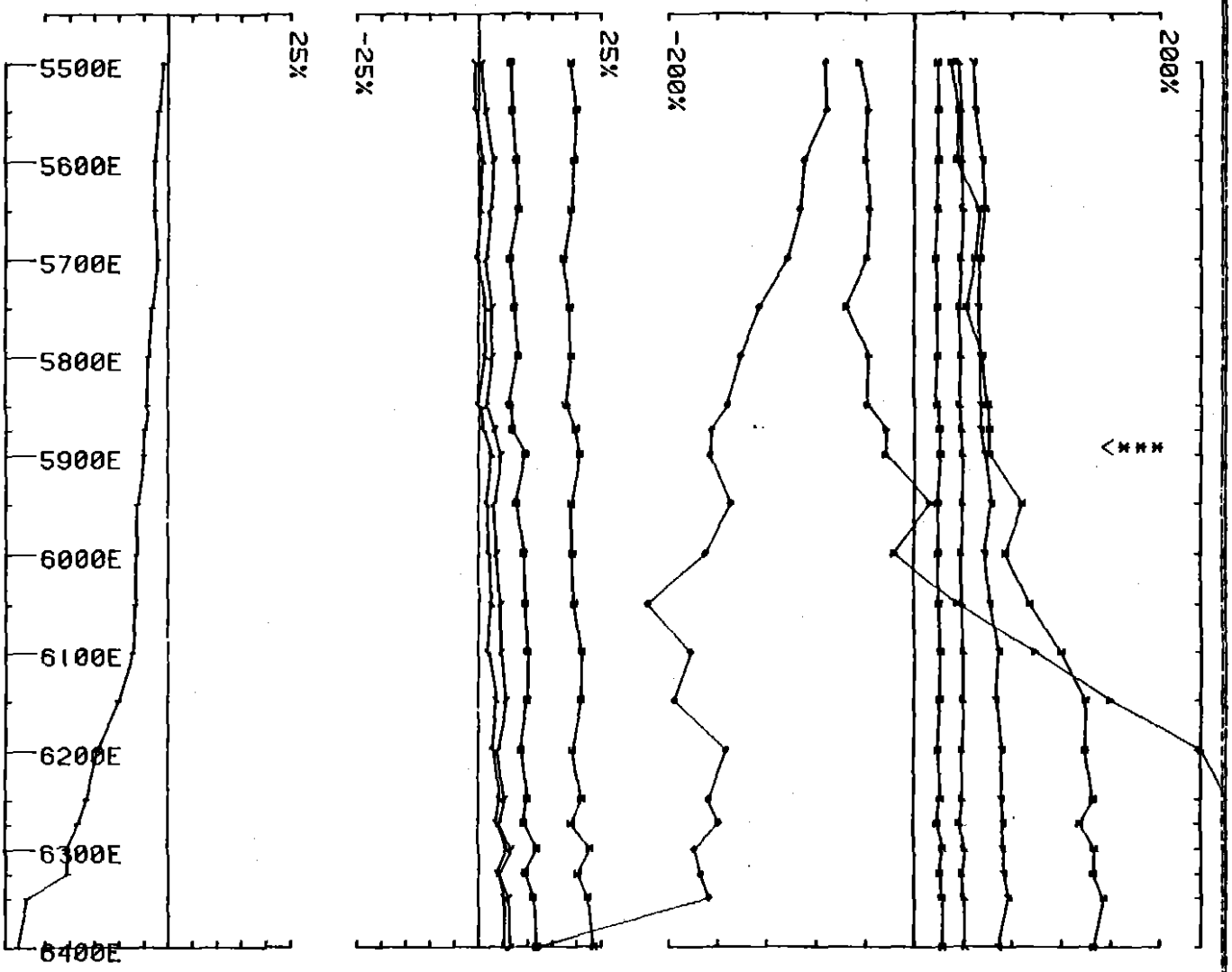
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
Line 7800N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION



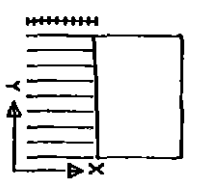
MACKINTOSH
LOOP 0031
LINE 7800
Hz

409

598412



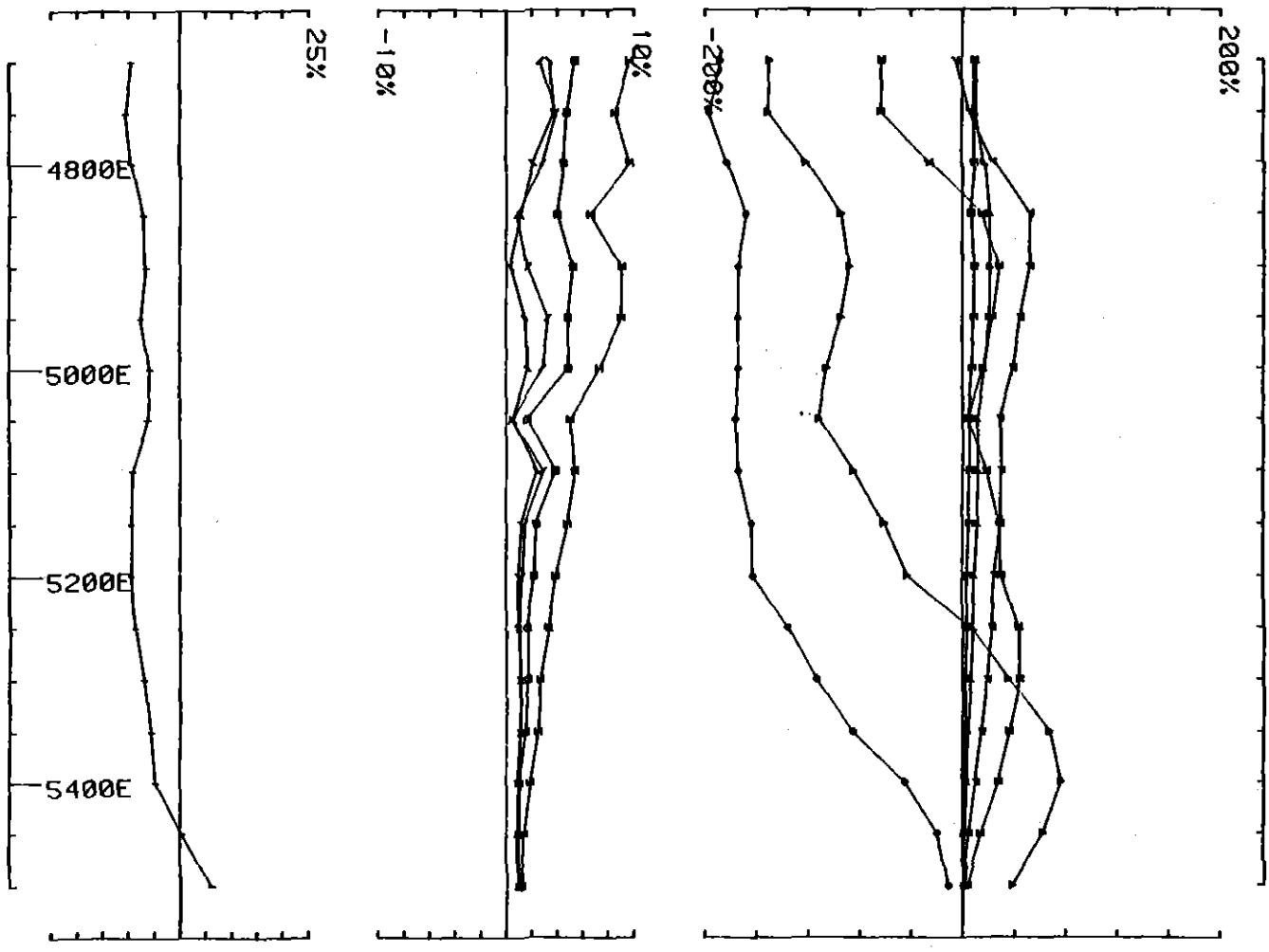
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
Line 7800N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION



MACKINTOSH
LOOP 8031
LINE 7800
Hz

410

598413



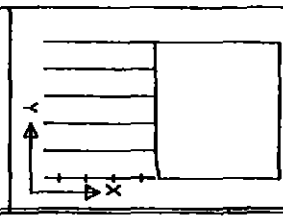
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601

AREA :- MACKINTOSH

CLIENT :- ABERFOYLE CREW :- PMM DW

Line 6000N Hz COMPONENT BASE FREQ :- 26.230HERTZ

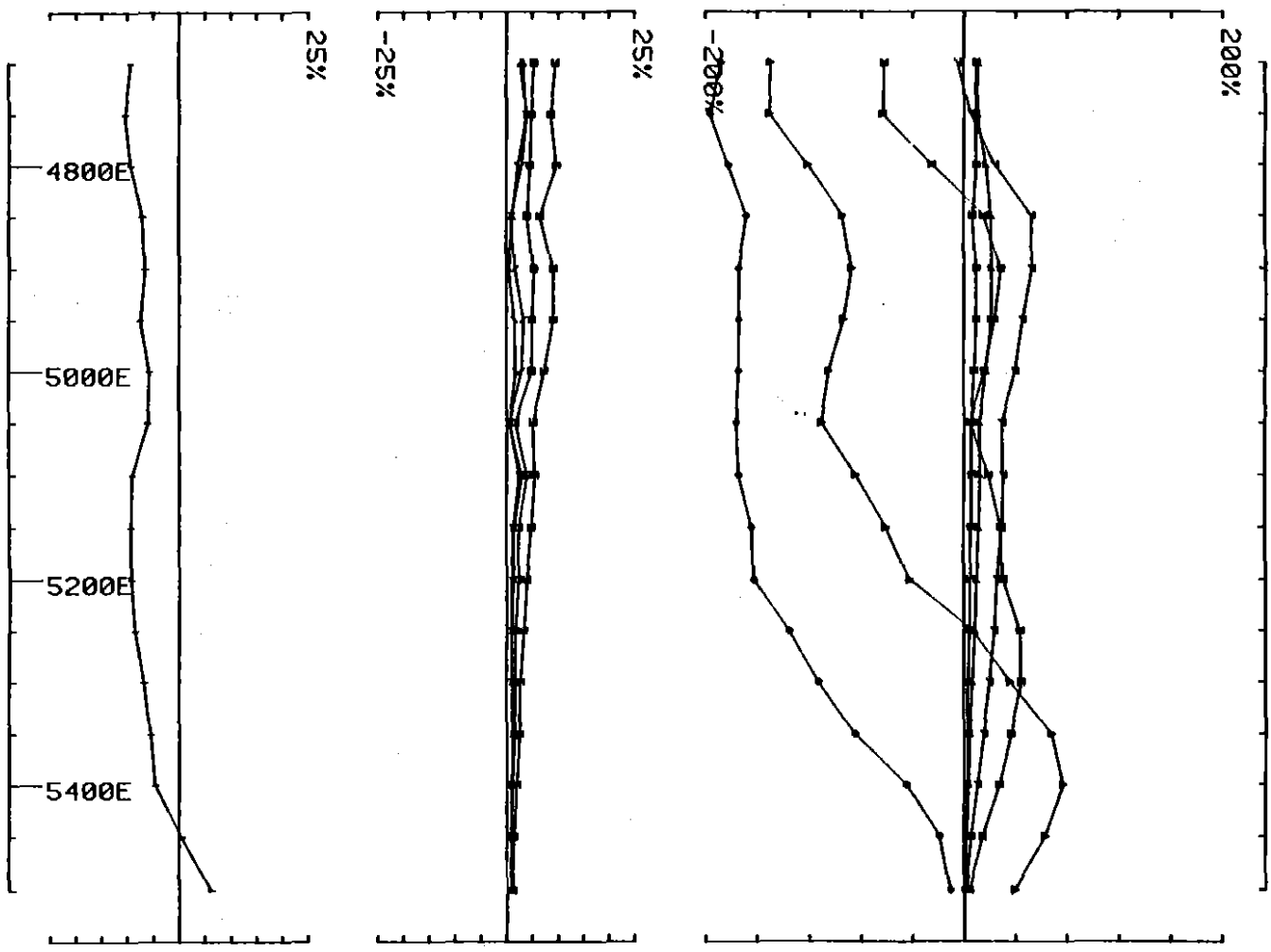
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION



MACKINTOSH
LOOP 8032
LINE 8000
Hz

411

598414



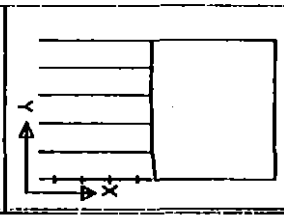
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601

AREA :- MACKINTOSH

CLIENT :- ABERFOYLE CREW :- PMM DW

L6000N Hz COMPONENT BASE FREQ :- 26.230HERTZ

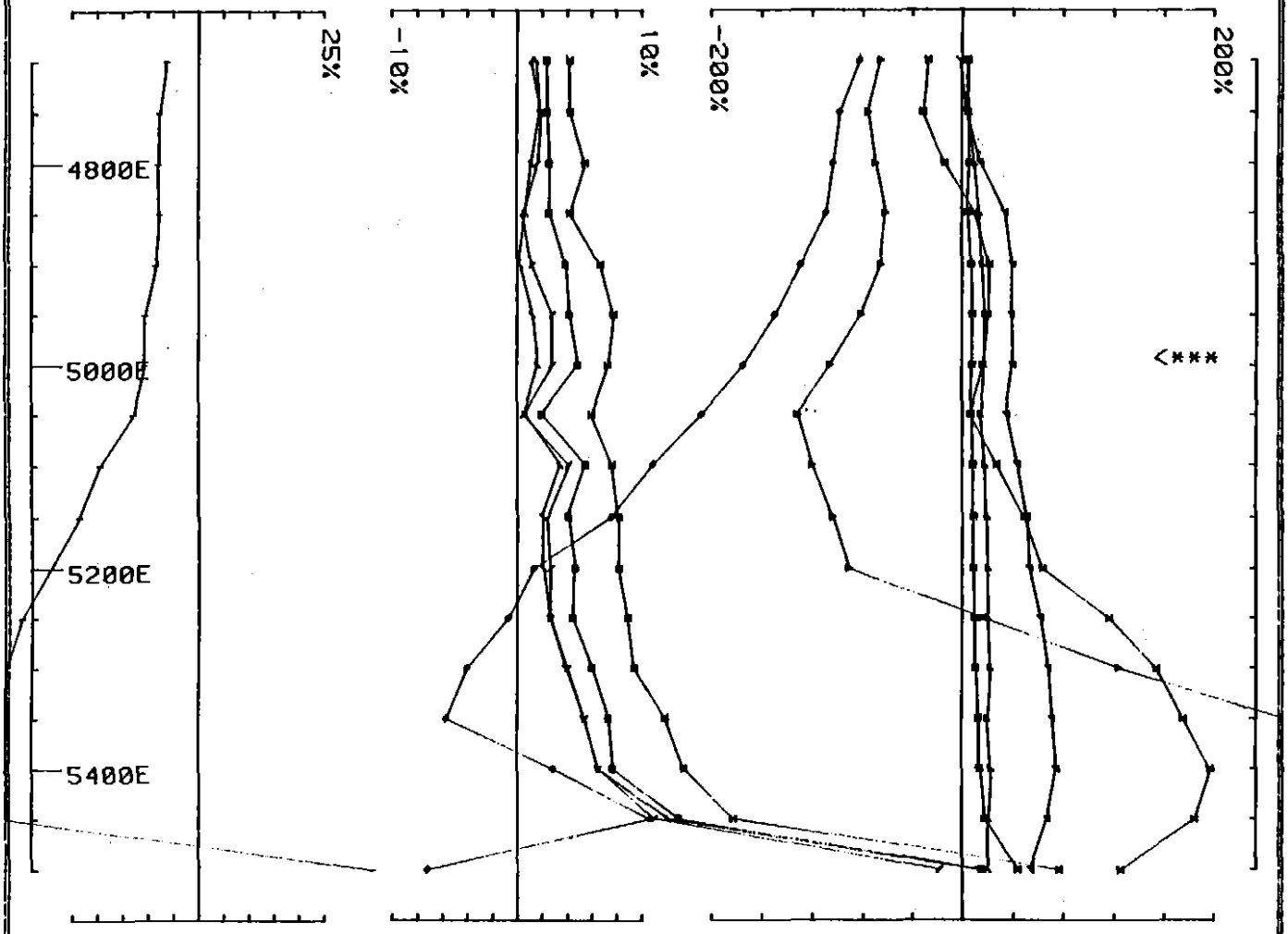
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION



MACKINTOSH
LOOP 8032
LINE 8000N
Hz

412

598415



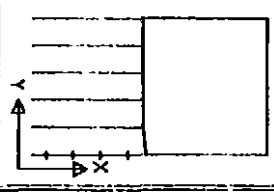
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601

AREA :- MACKINTOSH

CLIENT :- ABERFOYLE CREW :- PMM DW

Line 6000N Hz COMPONENT BASE FREQ :- 26.230HERTZ

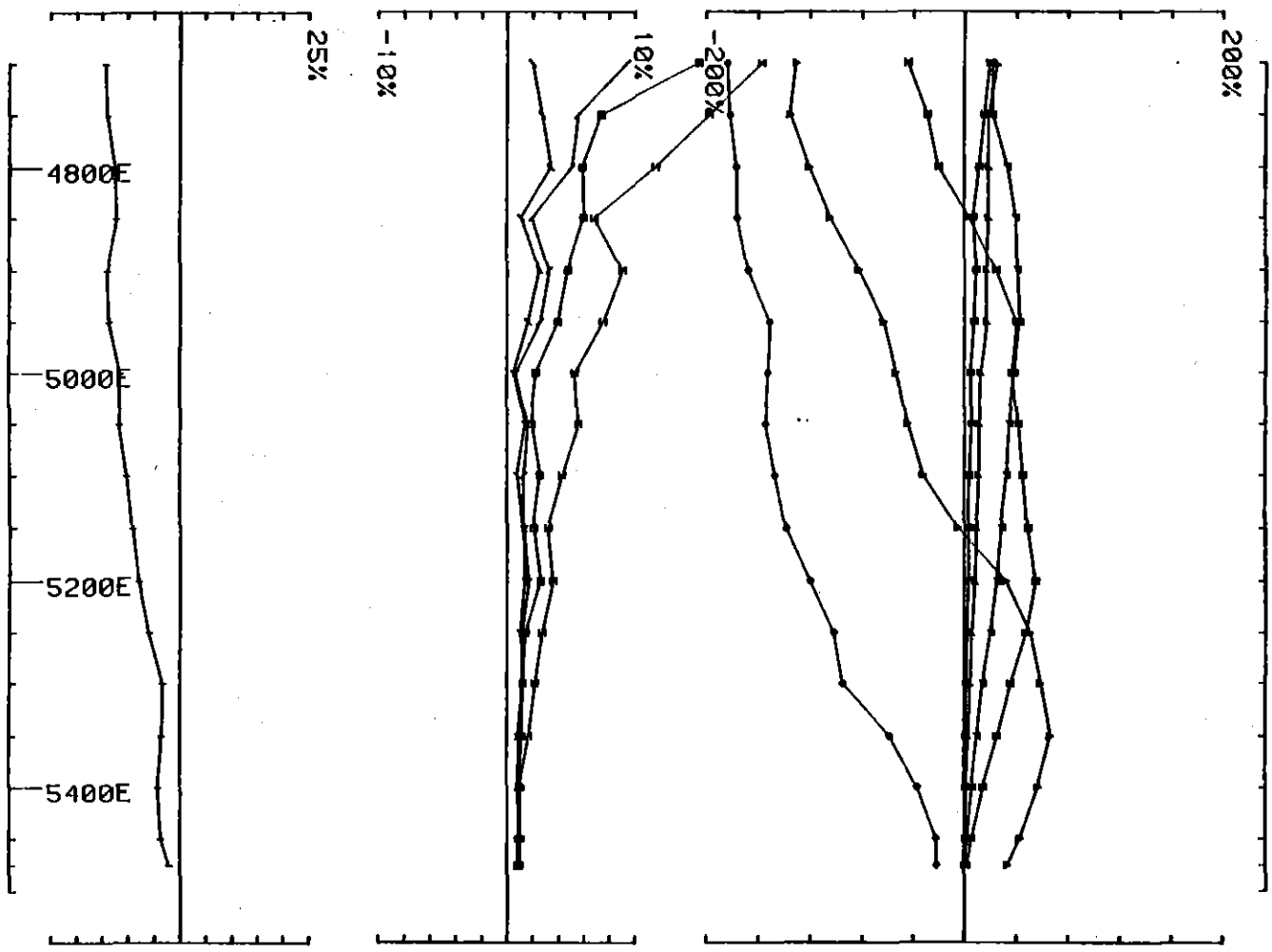
SECONDARY FIELD POINT Ch 1 NORMALIZATION



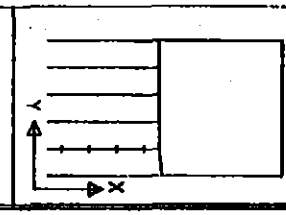
MACKINTOSH
LOOP 8832
LINE 8000
Hz

413

598416



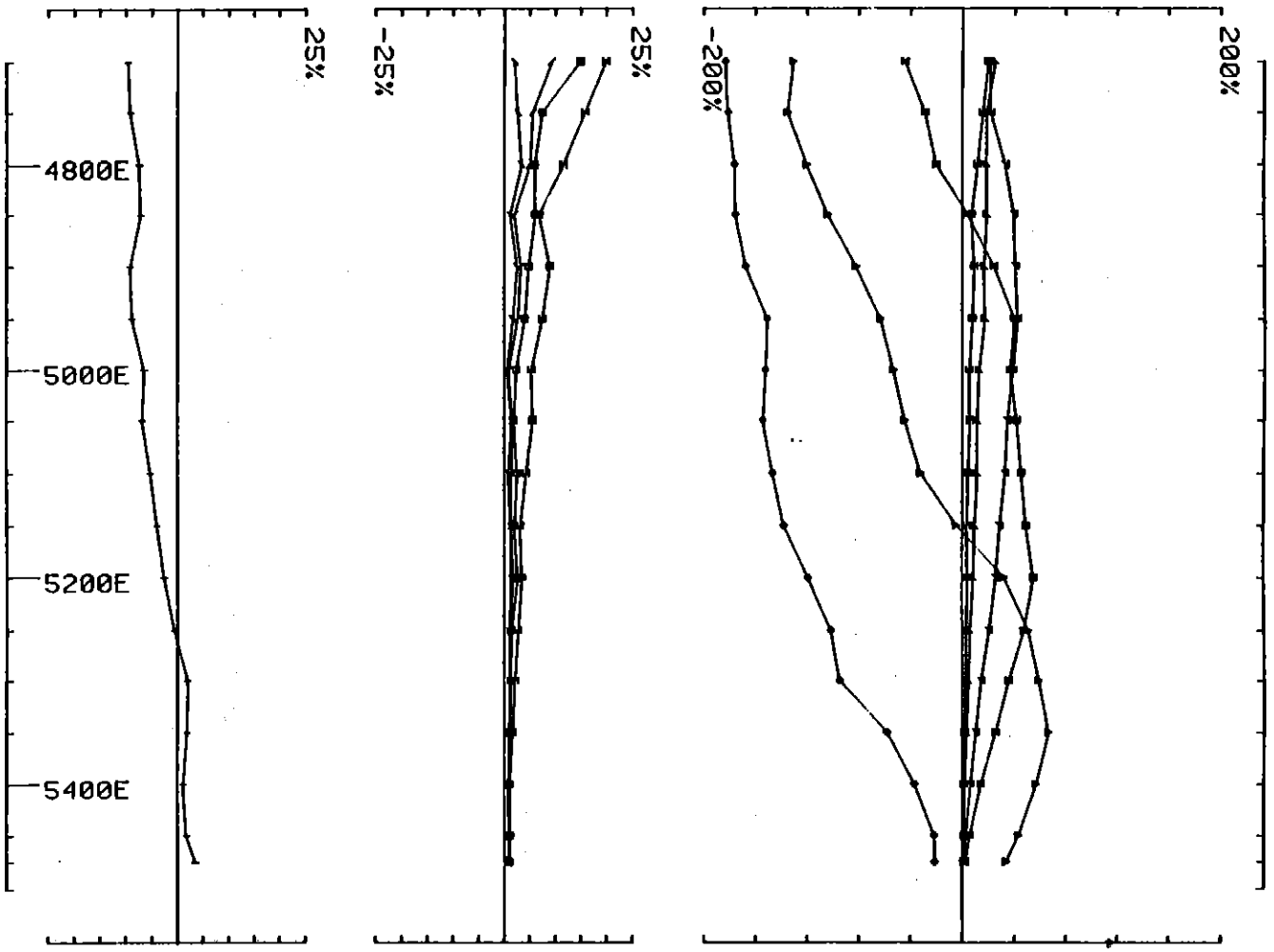
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
Line 6200N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION



MACKINTOSH
LOOP 0032
LINE 6200
Hz

414

598417



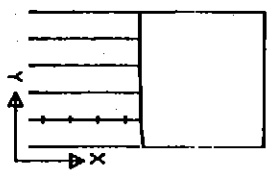
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601

AREA :- MACKINTOSH

CLIENT :- ABERFOYLE CREW :- PMM DW

L6200N Hz COMPONENT BASE FREQ :- 26.230HERTZ

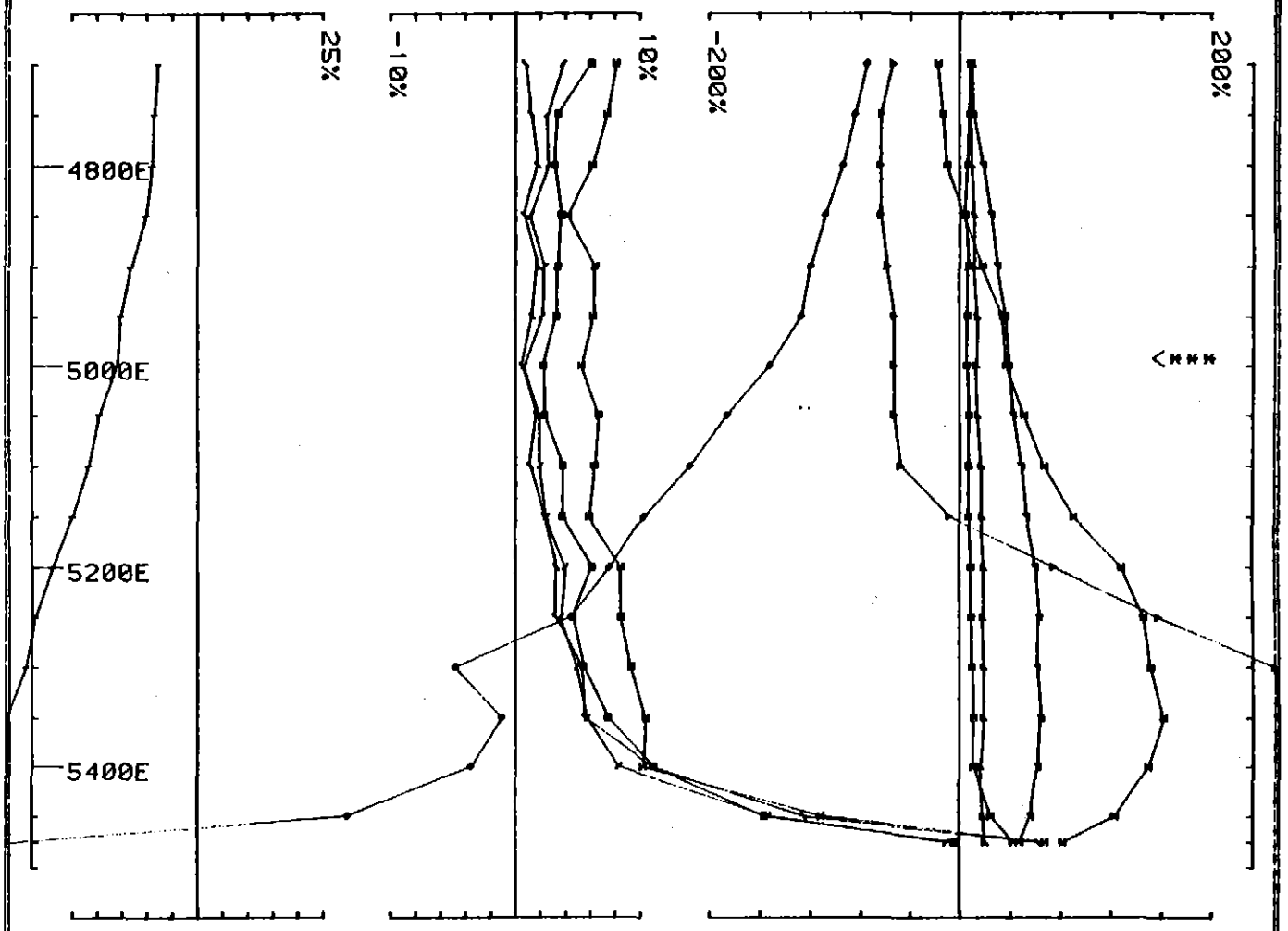
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION



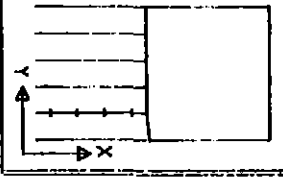
MACKINTOSH
LOOP 8032
LINE 6200N
Hz

415

598418



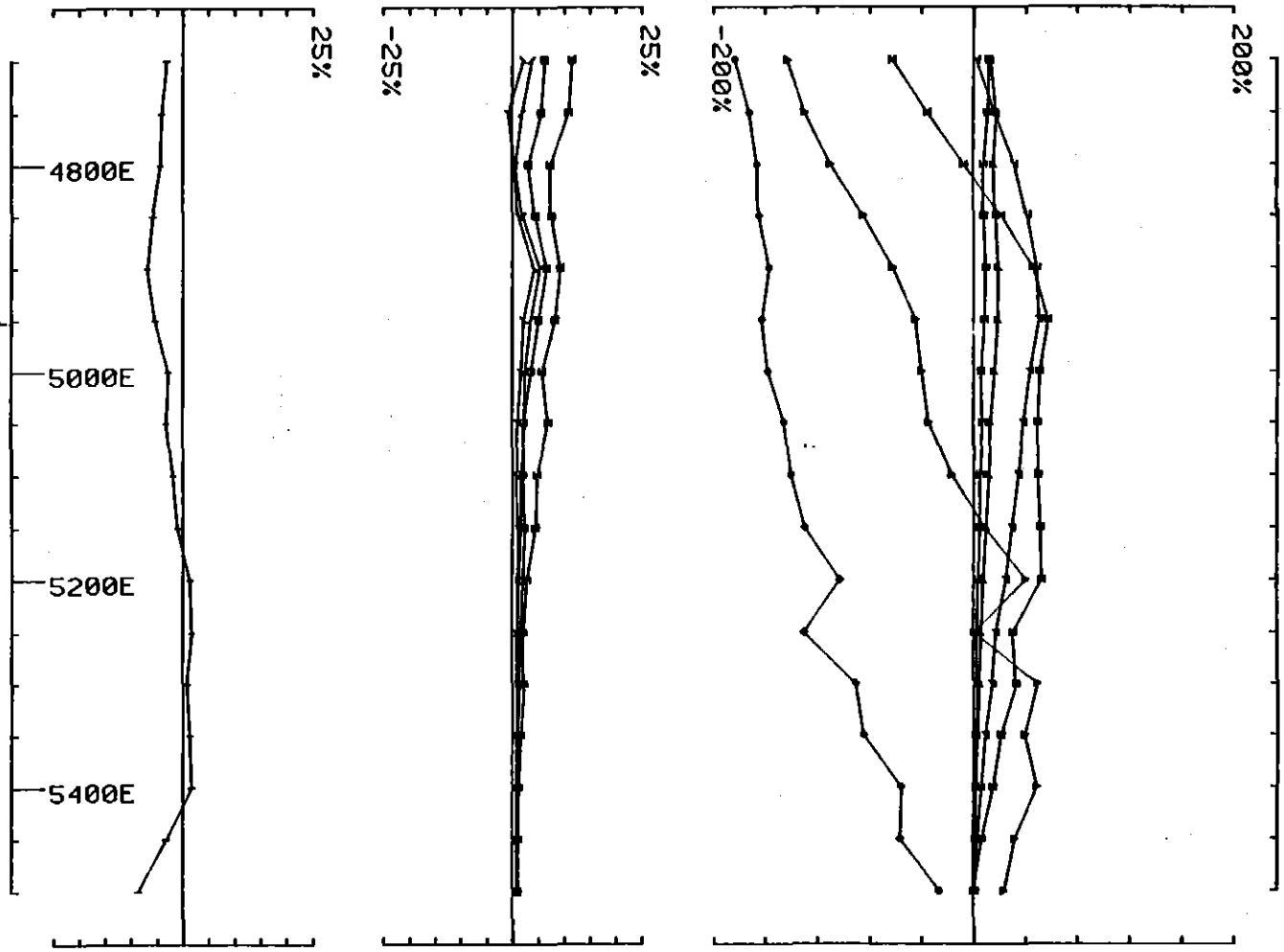
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
Line 6200N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION



MACKINTOSH
LOOP 8602
LINE 6200
Hz

416

598419



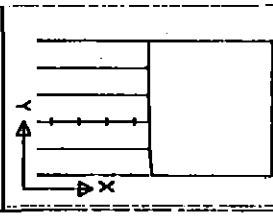
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601

AREA :- MACKINTOSH

CLIENT :- ABERFOYLE CREW :- PMM DW

L6400N Hz COMPONENT BASE FREQ :- 26.230HERTZ

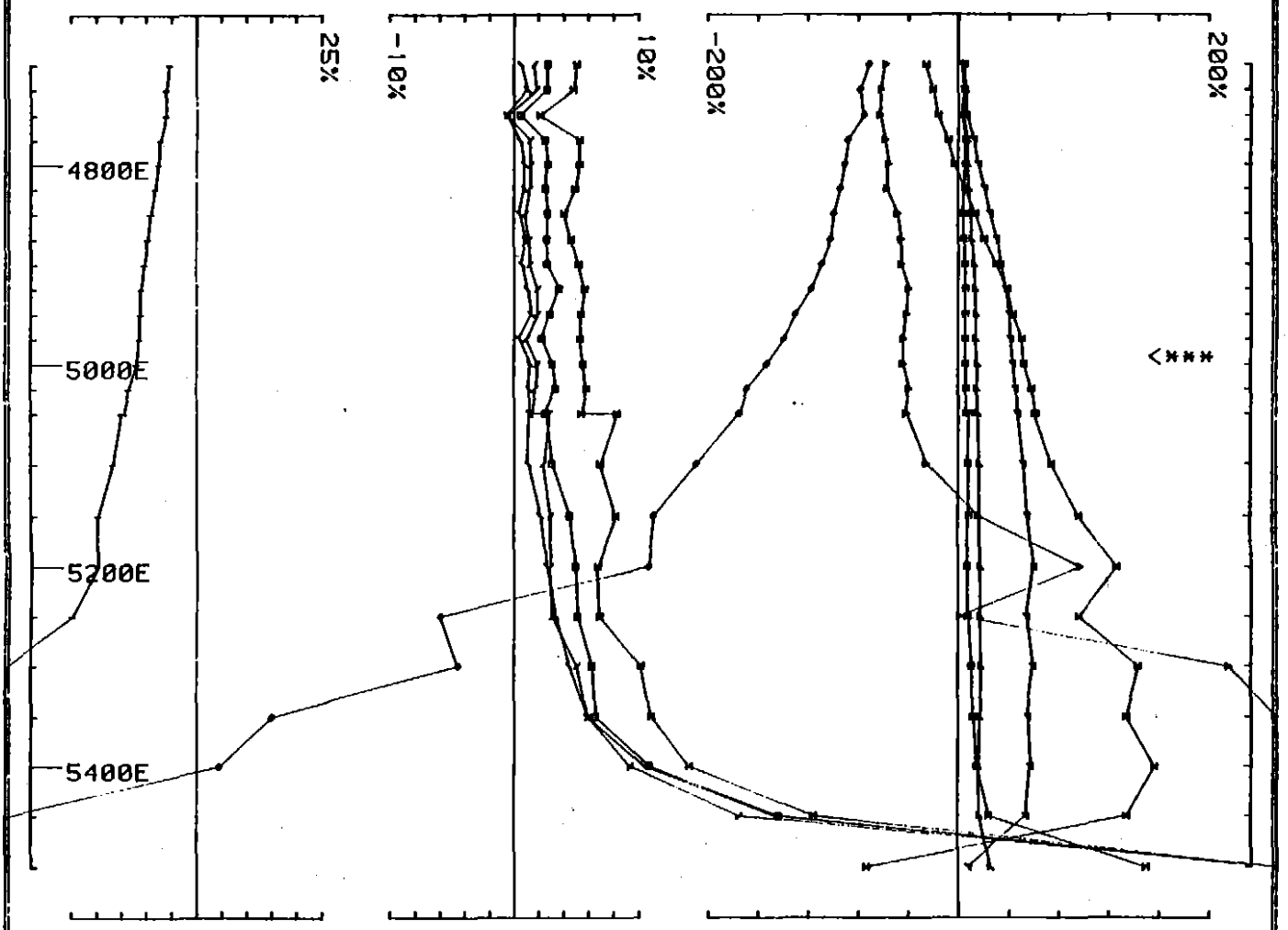
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION



MACKINTOSH
LOOP 6032
LINE 6400N
Hz

417

598420



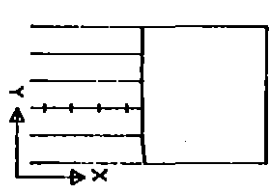
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601

AREA :- MACKINTOSH

CLIENT :- ABERFOYLE CREW :- PMM DW

Line 6400N Hz COMPONENT BASE FREQ :- 26.230HERTZ

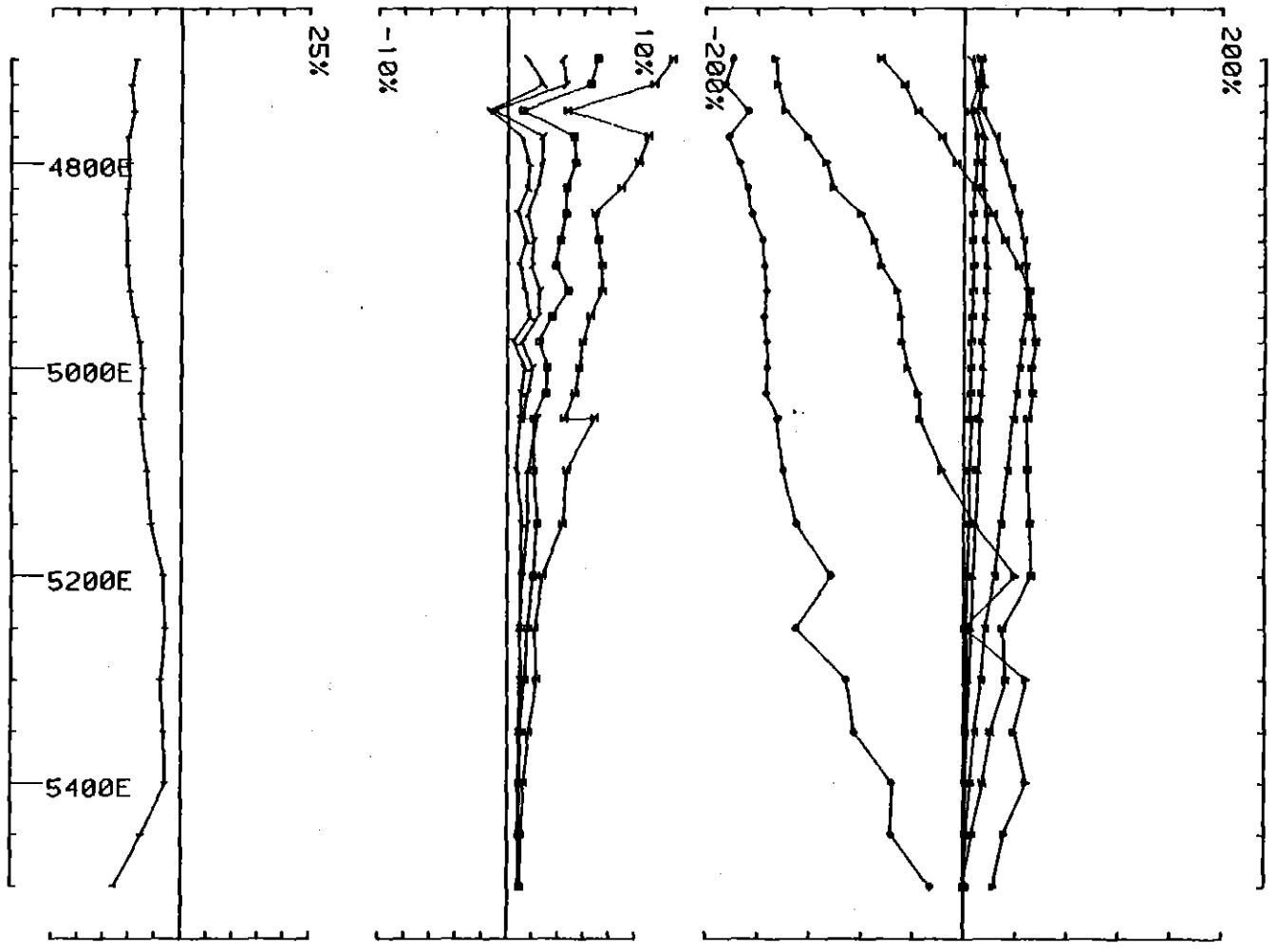
SECONDARY FIELD POINT Ch 1 NORMALIZATION



MACKINTOSH
LOOP 8032
LINE 6400
Hz

418

598421



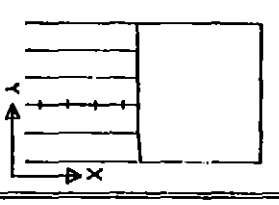
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601

AREA :- MACKINTOSH

CLIENT :- ABERFOYLE CREW :- PMM DW

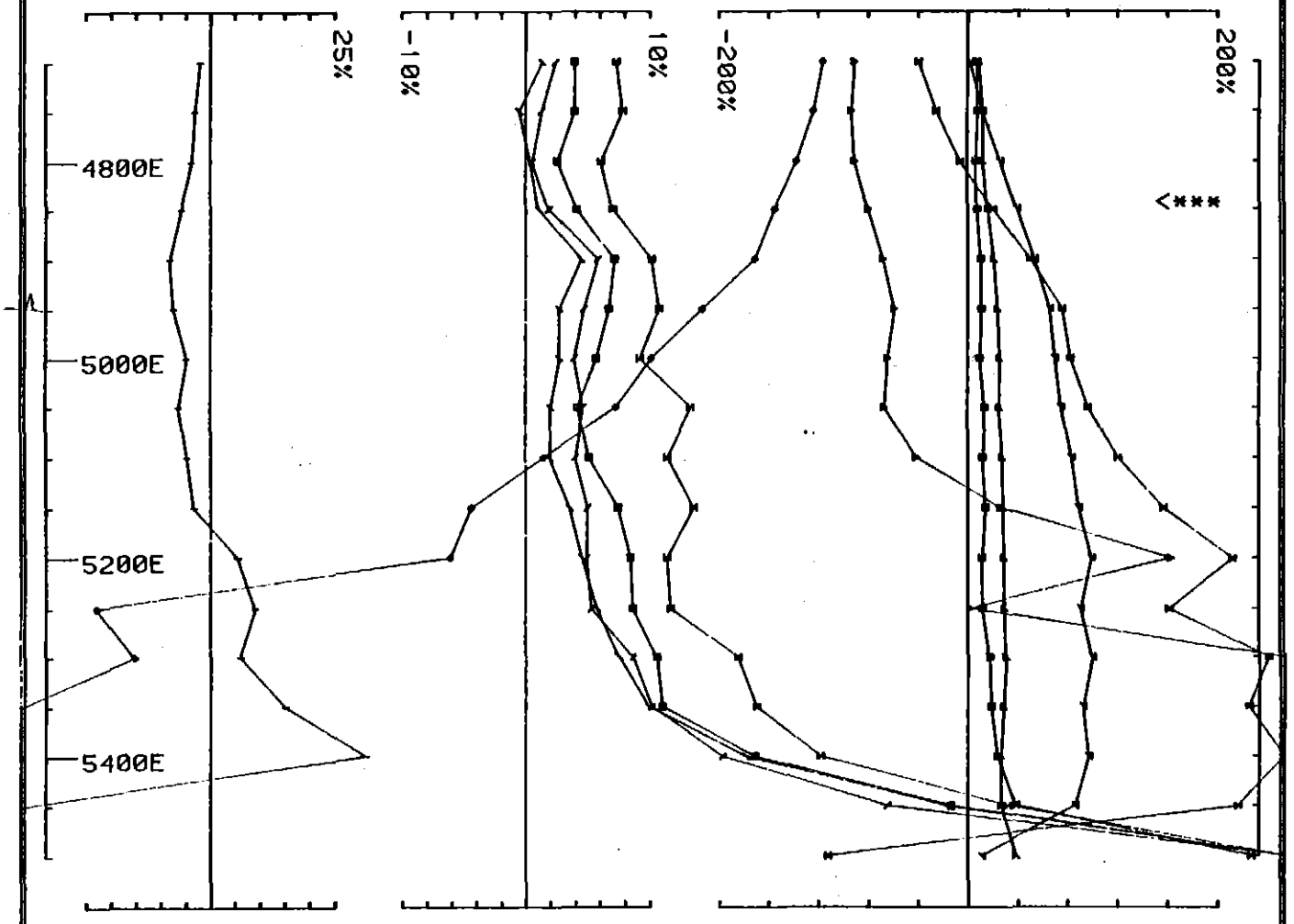
Line 6400N Hz COMPONENT BASE FREQ :- 26.230HERTZ

SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION

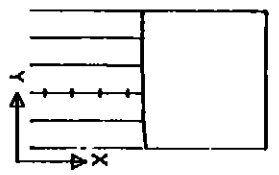


MACKINTOSH
LOOP 0032
LINE 6400
Hz

598422



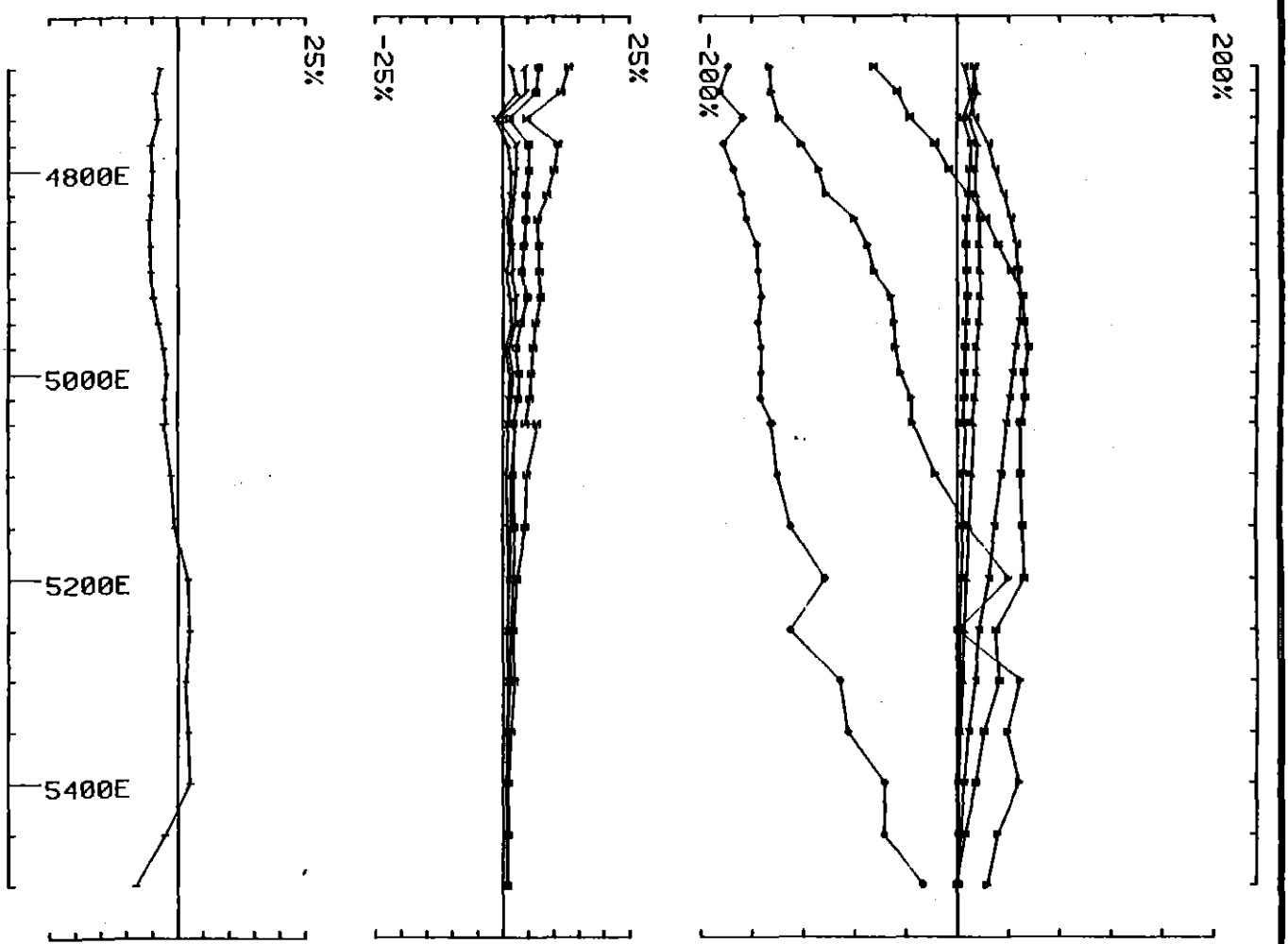
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
L6400N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION



MACKINTOSH
LOOP 0032
LINE 6400N
Hz

420

598423



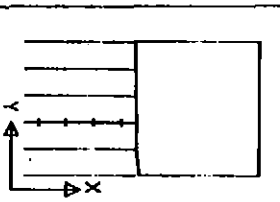
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601

AREA :- MACKINTOSH

CLIENT :- ABERFOYLE CREW :- PMM DW

L6400N Hz COMPONENT BASE FREQ :- 26.230HERTZ

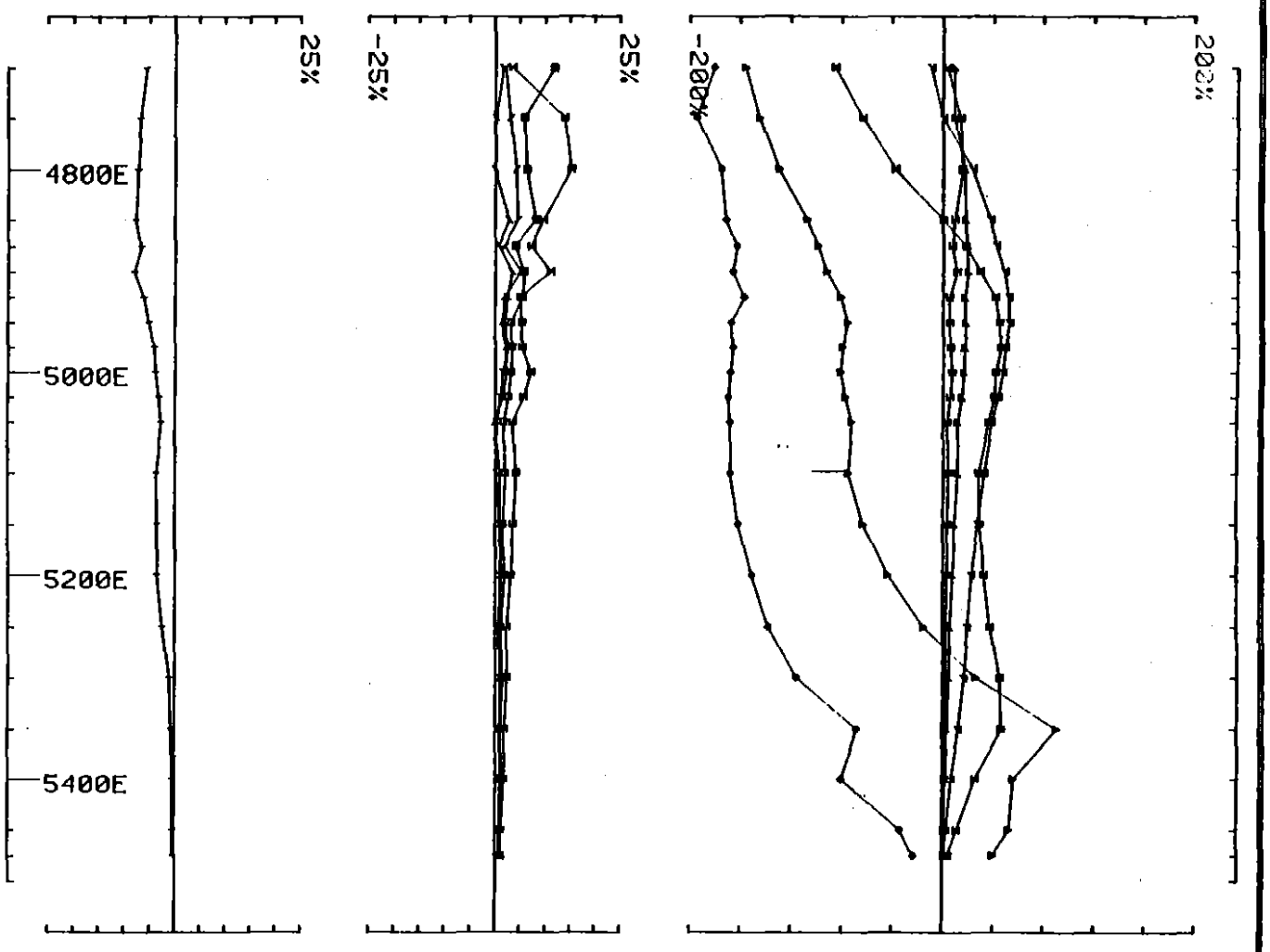
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION



MACKINTOSH
LOOP 8032
LINE 6400N
Hz

421

598424



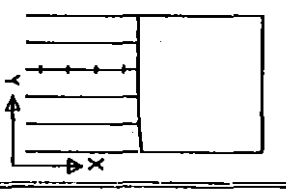
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601

AREA :- MACKINTOSH

CLIENT :- ABERFOYLE CREW :- PMM DW

L6600N Hz COMPONENT BASE FREQ :- 26.230HERTZ

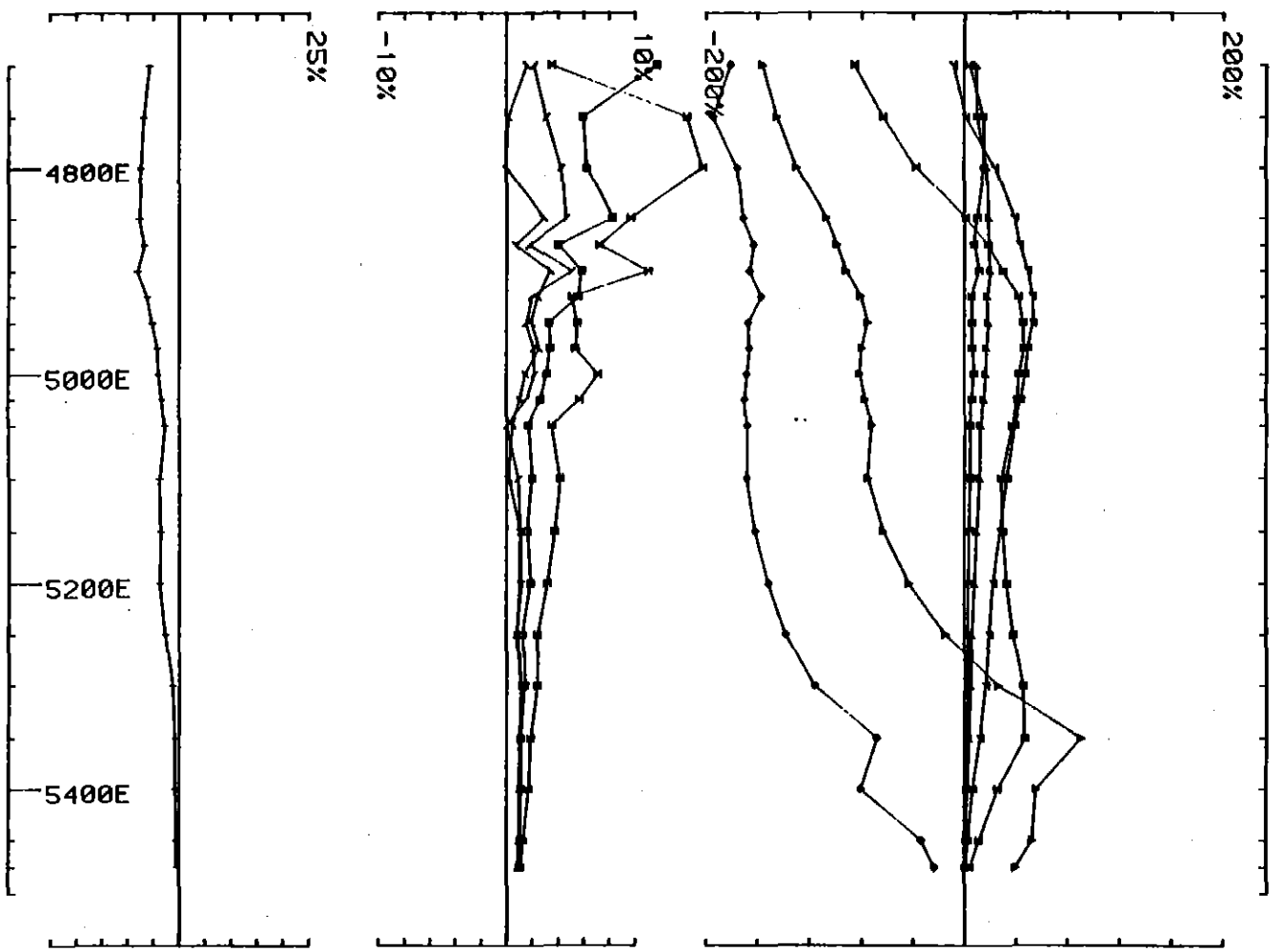
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION



MACKINTOSH
LOOP 8032
LINE 6600N
Hz

422

598425



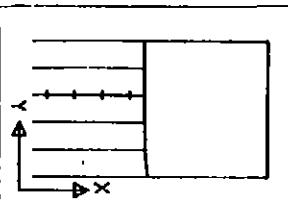
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601

AREA :- MACKINTOSH

CLIENT :- ABERFOYLE CREW :- PMM DW

Line 6600N Hz COMPONENT BASE FREQ :- 26.230HERTZ

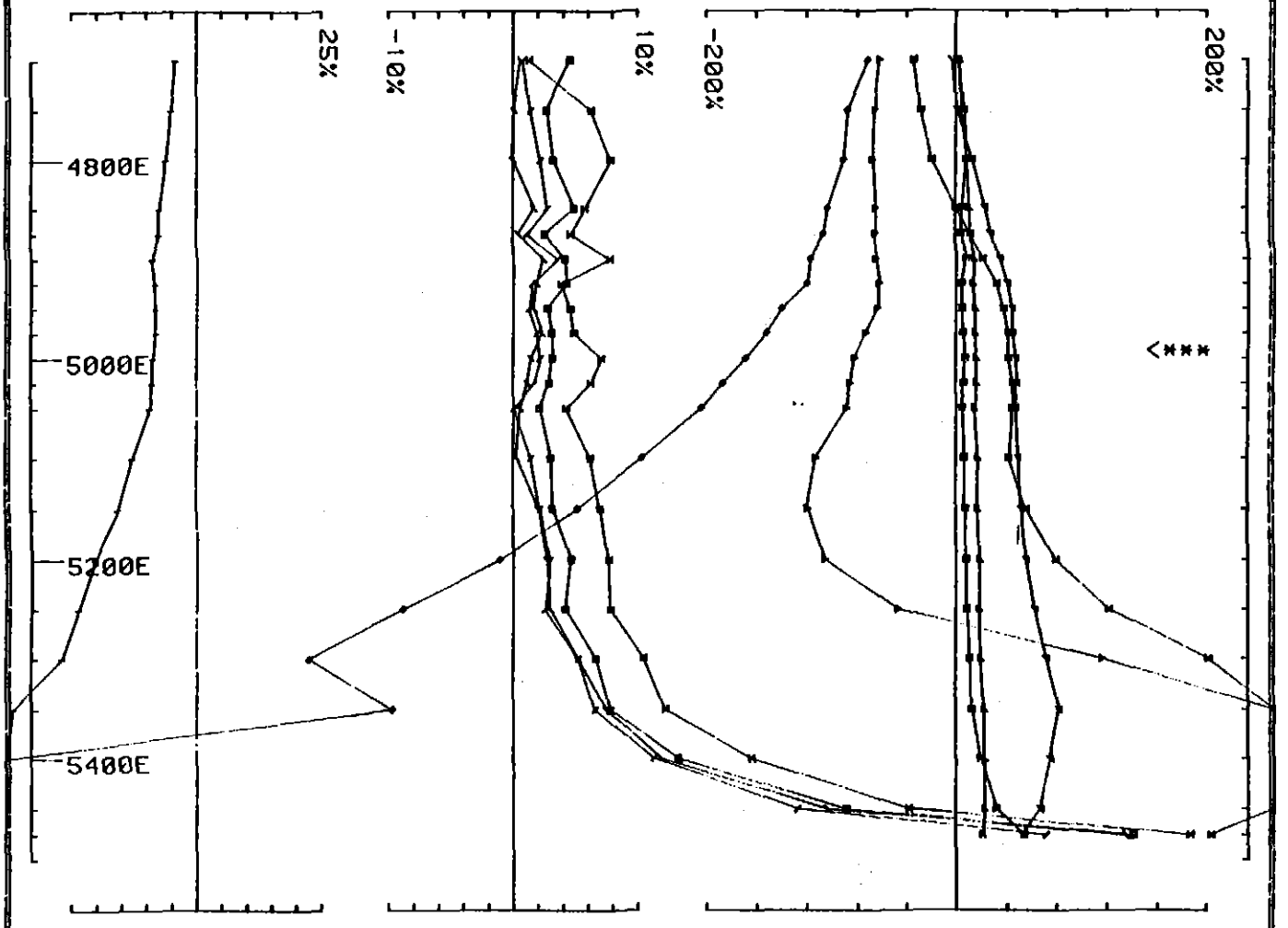
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION



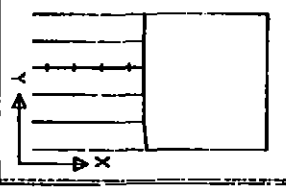
MACKINTOSH
LOOP 0032
LINE 6600
Hz

423

598426



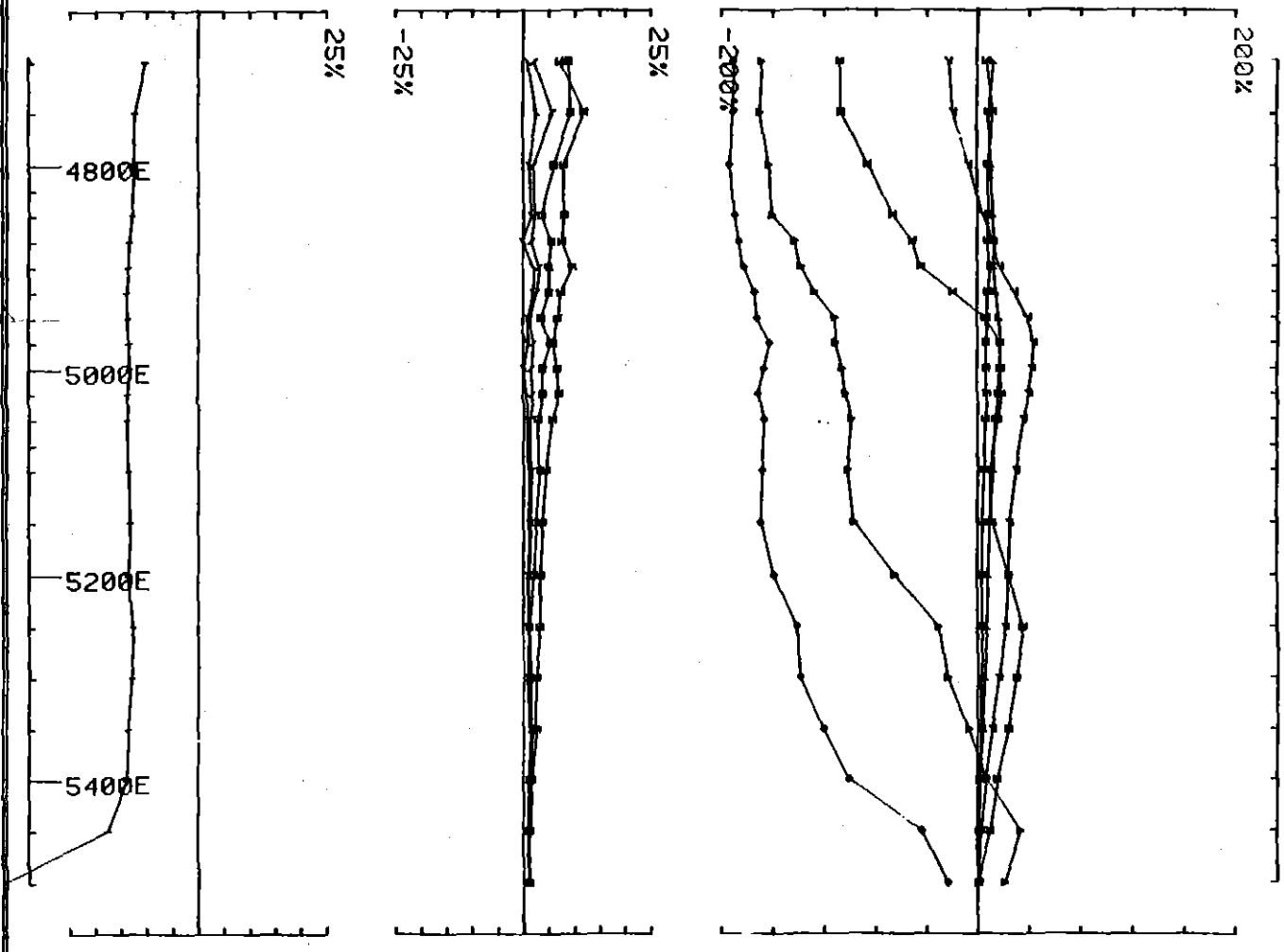
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
Line 6600N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch I NORMALIZATION



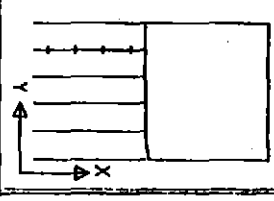
MACKINTOSH
LOOP 8032
LINE 6600
Hz

424

598427



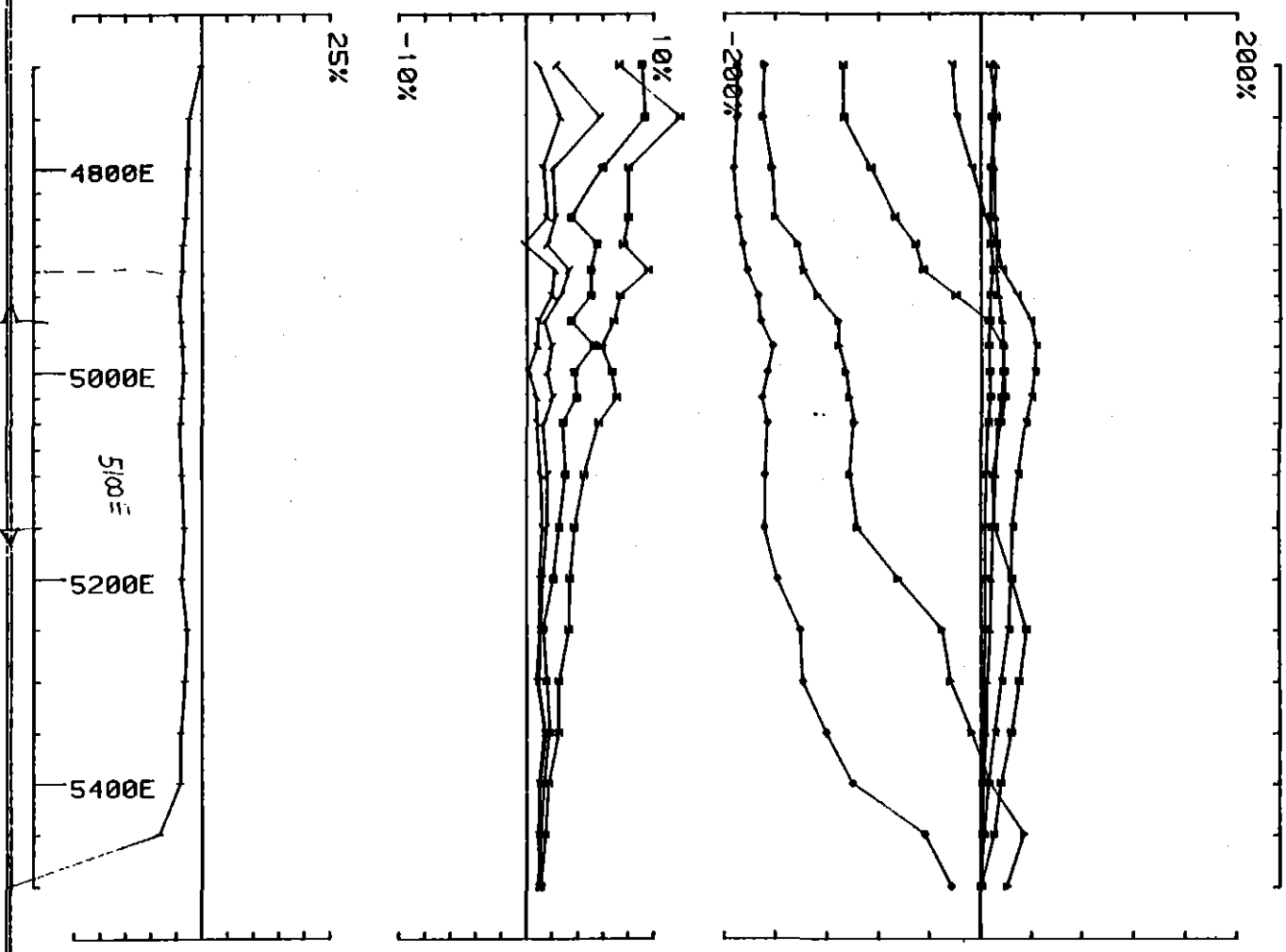
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
L6800N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION



MACKINTOSH
LOOP 8032
LINE 6800N
Hz

425

598428



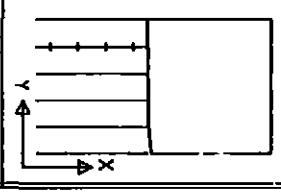
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601

AREA :- MACKINTOSH

CLIENT :- ABERFOYLE CREW :- PMM DW

Line 6800N Hz COMPONENT BASE FREQ :- 26.230HERTZ

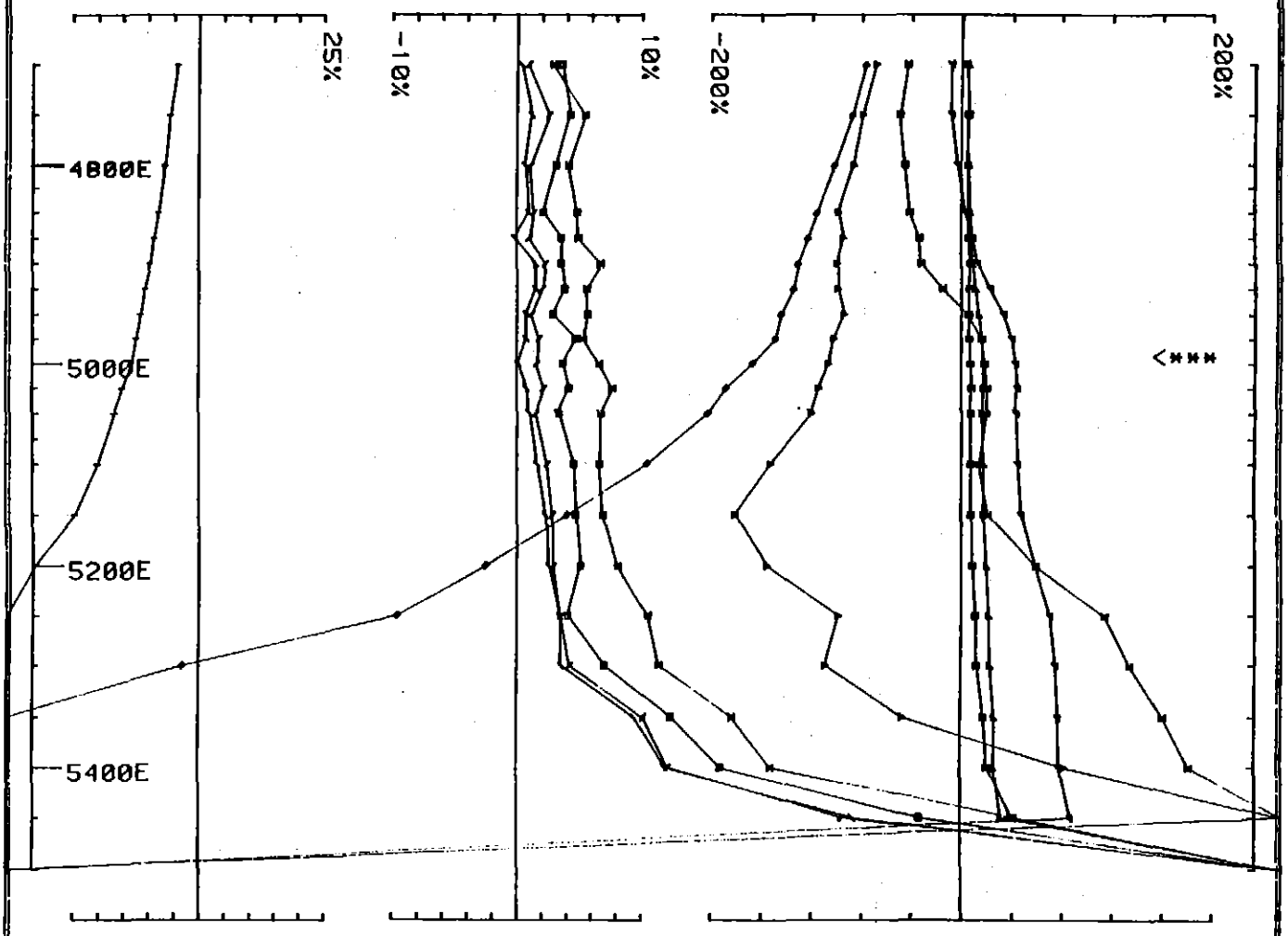
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION



MACKINTOSH
LOOP 0032
LINE 6800
Hz

426

598429



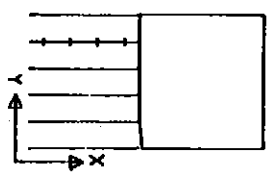
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601

AREA :- MACKINTOSH

CLIENT :- ABERFOYLE CREW :- PMM DW

Line 6800N Hz COMPONENT BASE FREQ :- 26.230HERTZ

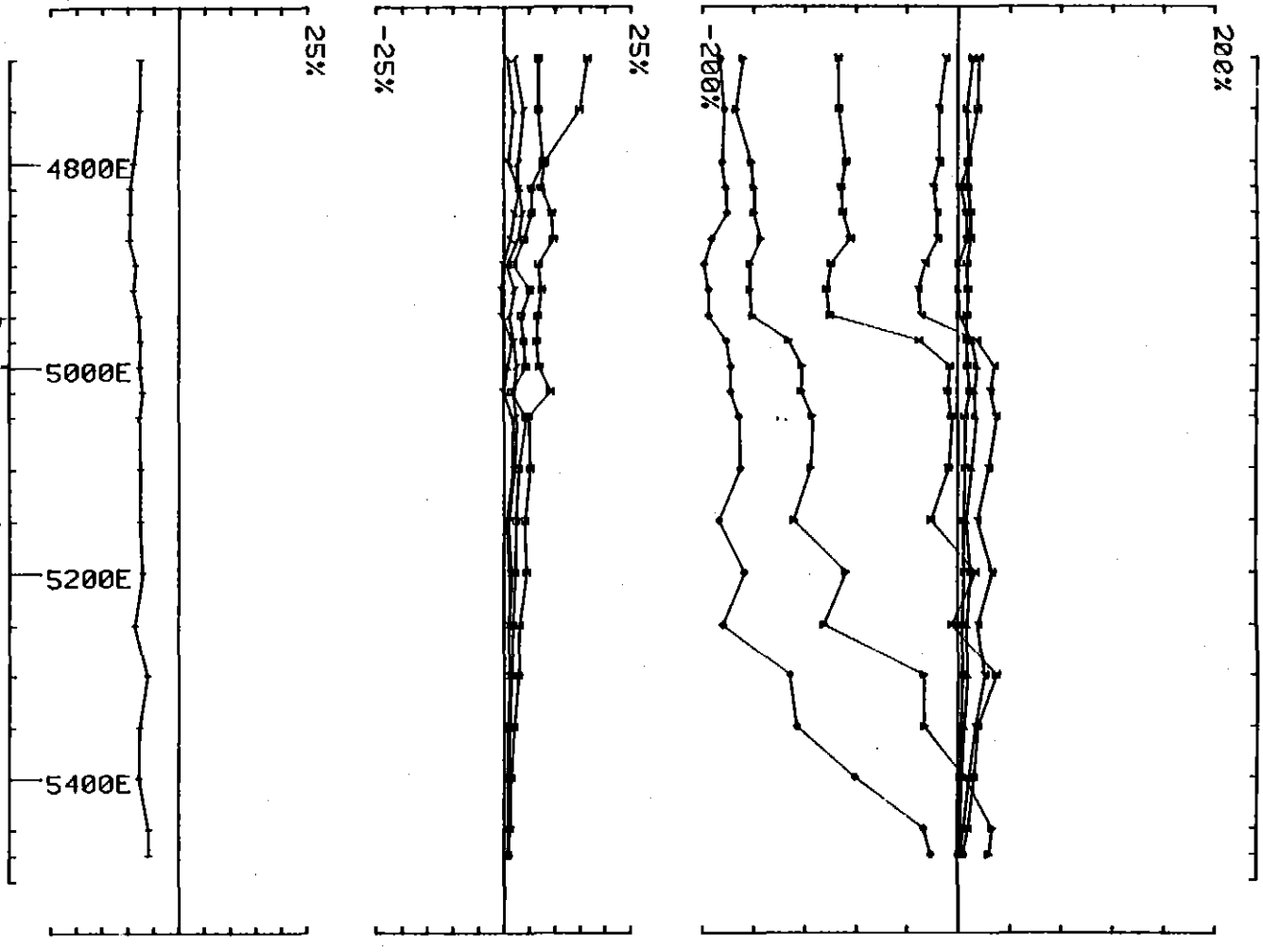
SECONDARY FIELD POINT Ch 1 NORMALIZATION



MACKINTOSH
LOOP 8032
LINE 6800
Hz

427

598430



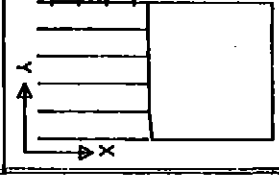
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601

AREA :- MACKINTOSH

CLIENT :- ABERFOYLE CREW :- PMM DW

L7000N Hz COMPONENT BASE FREQ :- 26.230HERTZ

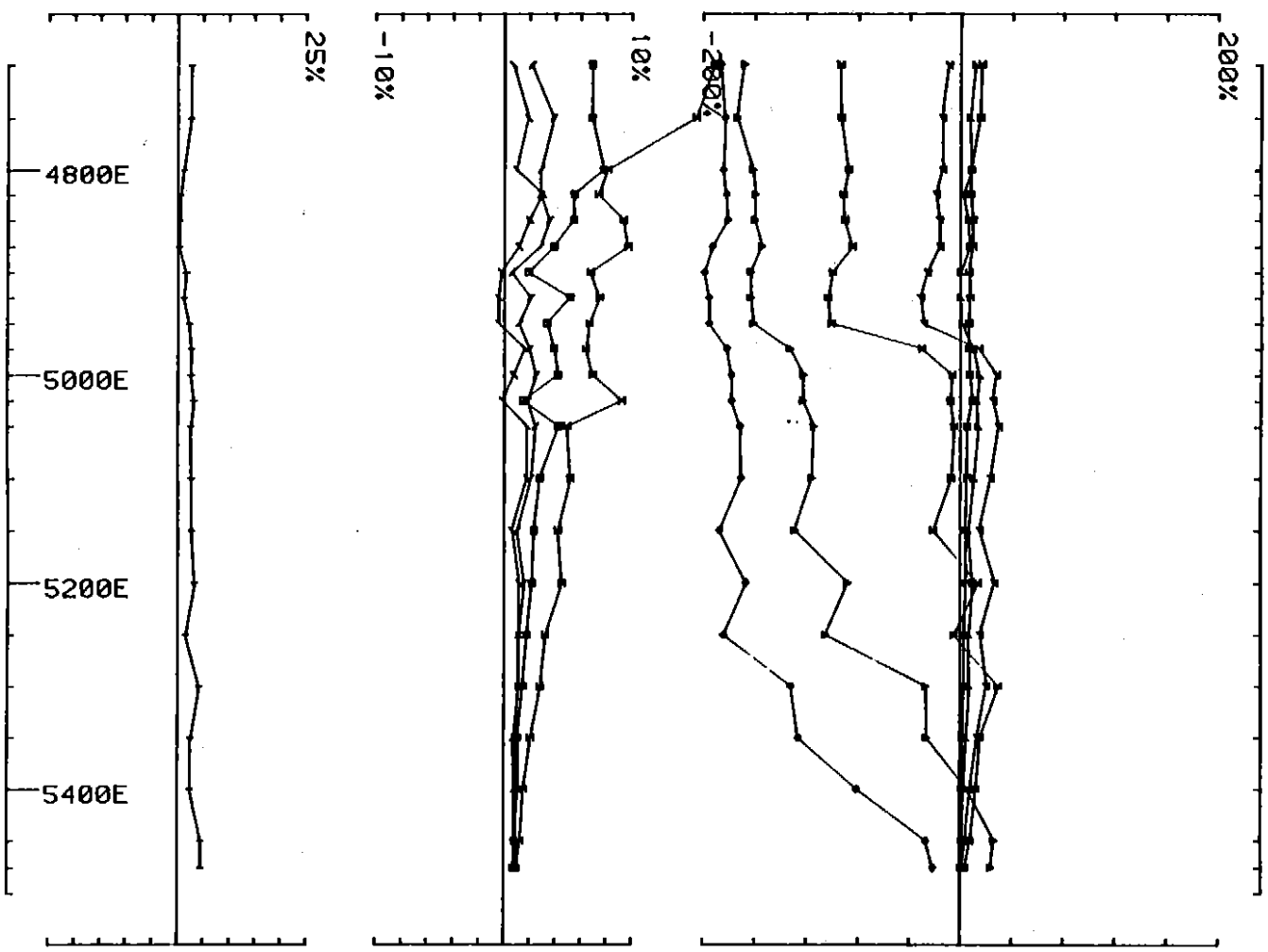
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION



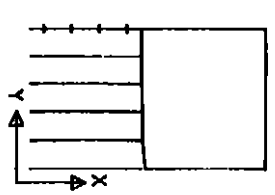
MACKINTOSH
LOOP 8032
LINE 7000N
Hz

428

598431

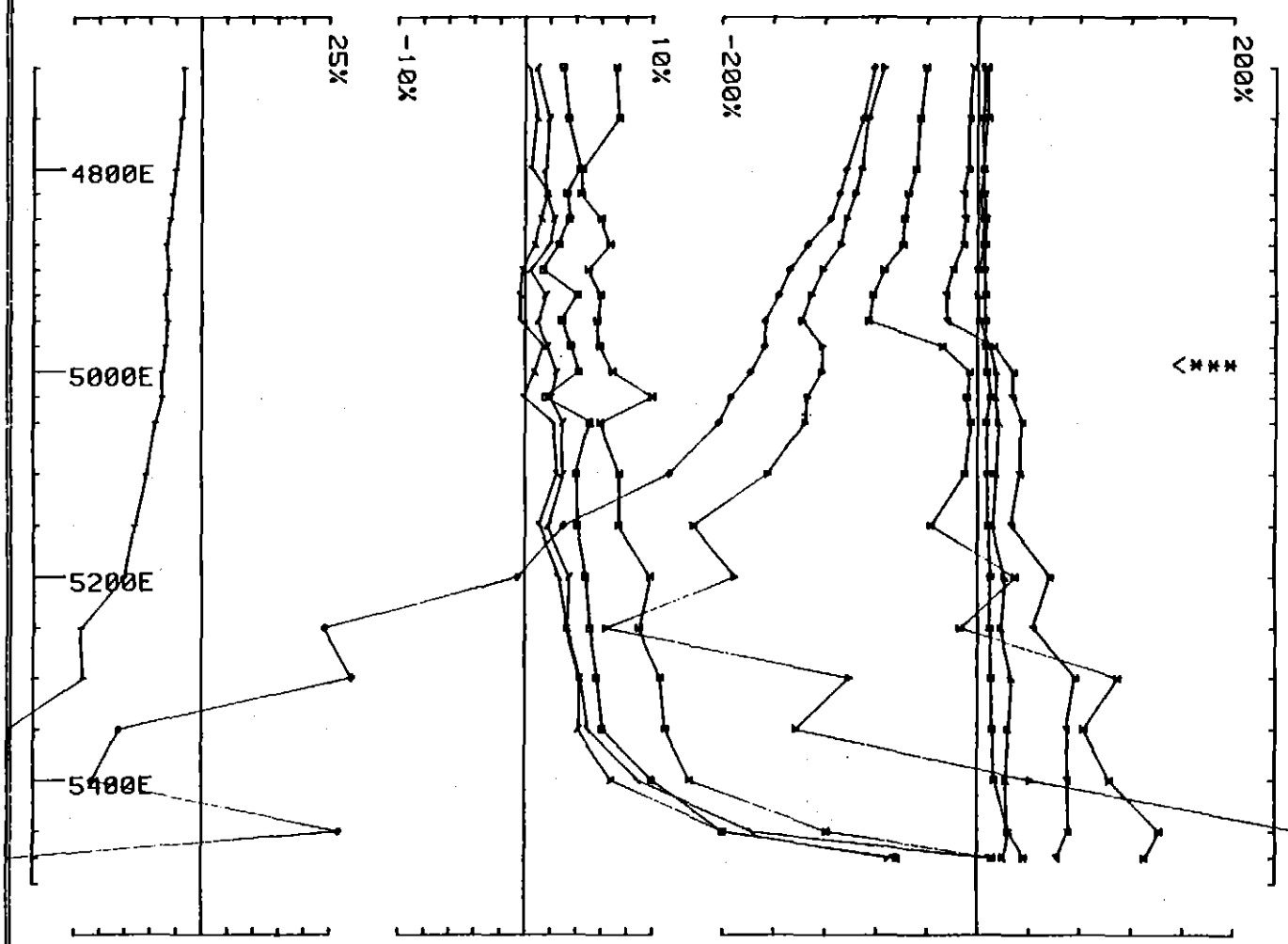


LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
Line 7000N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION

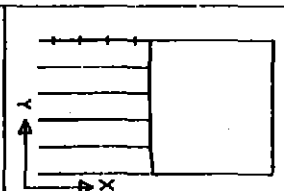


MACKINTOSH
LOOP 8032
LINE 7000
Hz

598432



LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8601
AREA :- MACKINTOSH
CLIENT :- ABERFOYLE CREW :- PMM DW
Line 7000N Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION



MACKINTOSH
LOOP 8032
LINE 7000
Hz

430

598433

INTERPRETATION REPORT

UTEM SURVEY

SOUTHWELL AREA

MACKINTOSH EL 2/70

Prepared by:

J Silic

Distribution

Hawthorn (1)
[redacted] (1)

Issued by:

J Silic

598434

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MAC 113C - UTEM and EM-37 coverage

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INTRODUCTION

Electromagnetic techniques have played important roles in the discoveries of the Que River and Hellyer deposits (Webster and Skey, 1979; Silic et al, 1985; Eadie et al, 1985). Since the Hellyer discovery Aberfoyle Resources has further refined the use of these techniques in the search for Hellyer and Que River type targets (Silic, 1989).

The purpose of this report is to discuss the results of a UTEM (West et al, 1984) survey over the Southwell grid on the Mackintosh licence. (Plate 1)

SURVEY SPECIFICATIONS

A single loop of data was collected on lines 6000E, 6200E, 6400E, 6600E & 7000E, from 7800N to 8800N.

Data was collected at 25 meter station spacings and only the vertical component (Hz) was read.

DISCUSSION OF RESULTS

The purpose of this survey was to follow up a feature detected in a March/April 1983 survey on line 6000E at approximately 8300N, which by using analysis from Silic, 1989, could be interpreted as having a bedrock current gathering source. The recent survey data, which was collected at a closer station spacing, shows that this is unlikely to be the case. The second derivative technique from Silic, 1989, identifies the current gathering anomaly which is centred at approximately from 8300-8400N on line 6000E to 6600E, to be most likely caused by a broad near surface resistivity variation. No other targets worthy of follow up were detected by the survey.

598436

CONCLUSION

A current gathering anomaly previously considered as potentially being caused by a current gathering source at depth has been downgraded. No other targets worthy of follow up exist on the grid.

REFERENCES

Eadie, E. T., Silic, J. and Jack, D. J. (1985), 'The application of geophysics to the discovery of the Hellyer ore depost, Tasmania', Explor. Geophys. 16, 207-209.

Silic, J. (1989), 'Interpretation of TDEM data using spatial derivatives and decay analysis', Explor. Geophys. 20

Silic, J., Eadie, E. T., and Jack, D. J. (1985), 'Application of time domain electromagnetic methods in the discovery of the Hellyer ore deposit, Tasmania, Australia', in volume of Extended Abstracts of the 55th SEG meeting, Washington, DC.

Webster, S. S. and Skey, E. H. (1979), 'Geophysical and geochemical case history of the Que River deposit, Tasmania', in Geophysics and Geochemistry in the Search for Metallic Ores; Peter J. Hood, editor, Geological Survey of Canada, Economic Geology Report 31, 697-720.

West, G. F., MacNae J. C. and Lamontagne Y. (1984), 'A time domain EM system measuring the step response of the ground', Geophys., 49, 1010-1026.

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INTERPRETATION REPORT

UTEM SURVEY

SOUTHWELL AREA

MACKINTOSH EL 2/70

APPX 1 : UTEM DATA SECTIONS

Prepared by:

J Silic

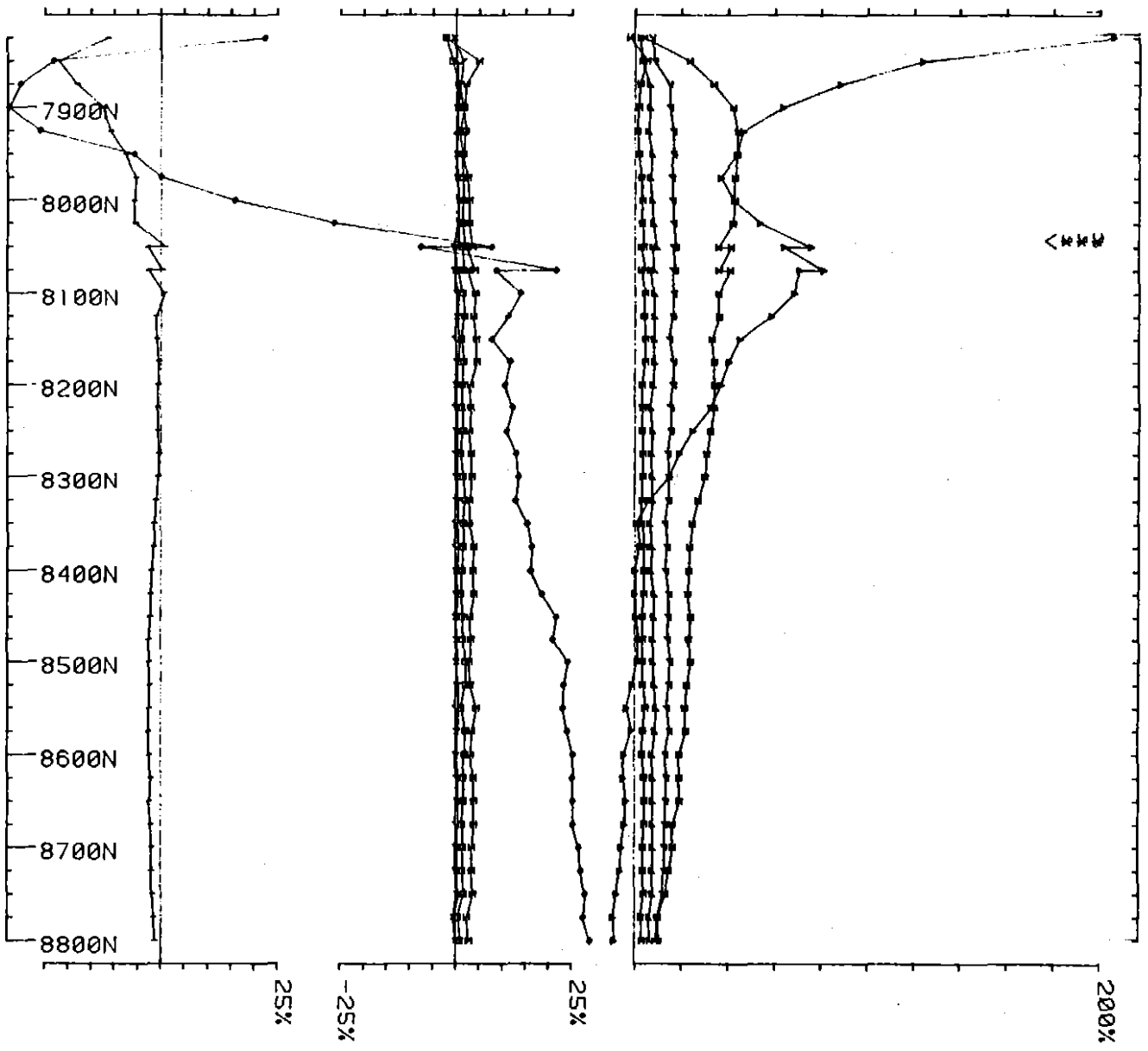
Distribution

Hawthorn (1)
Burnie (1)

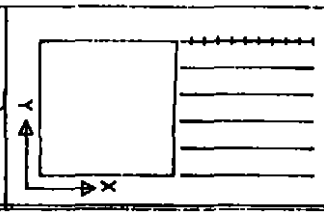
Issued by:

J Silic

435

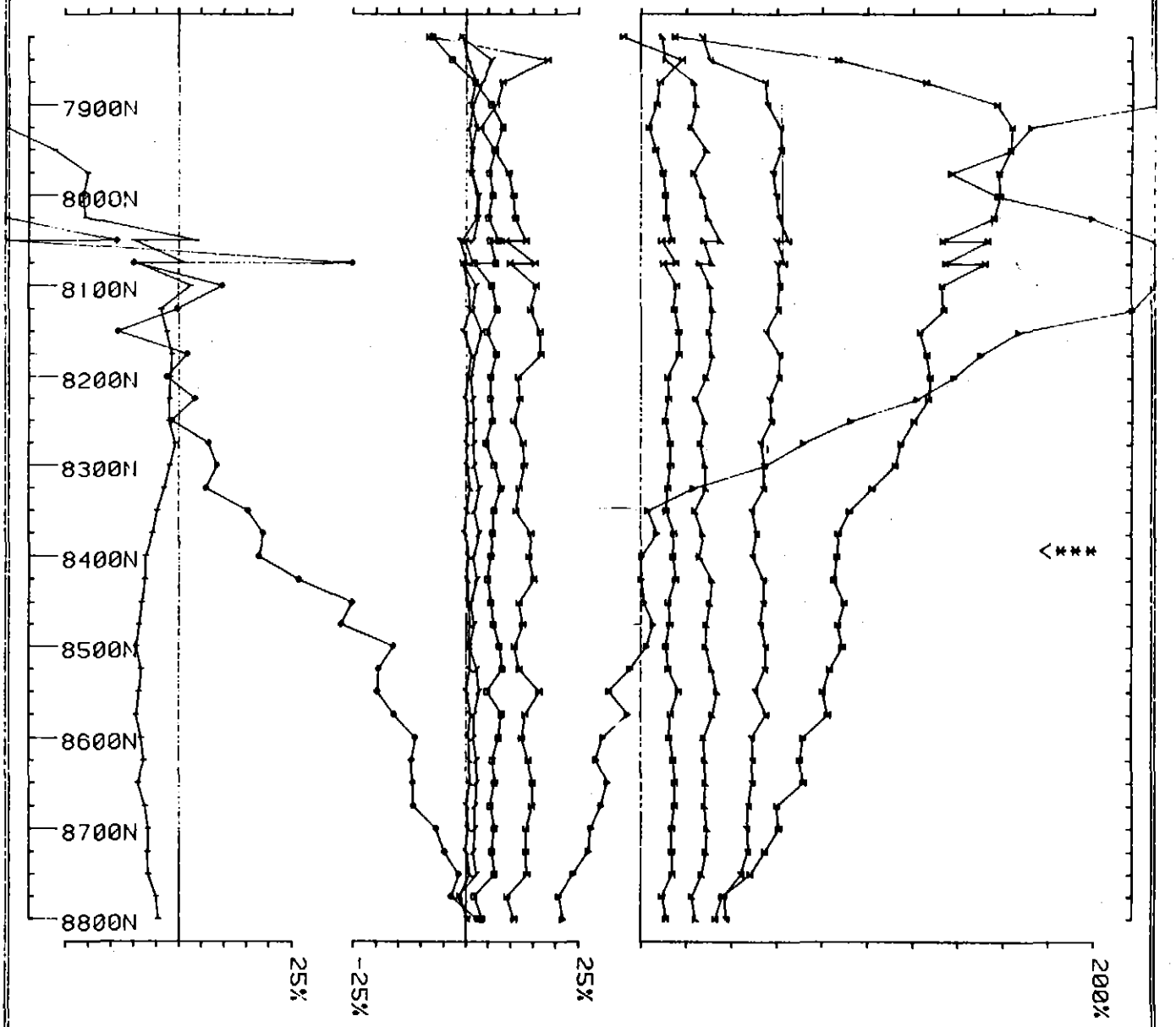


LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8651
AREA :- SOUTHWELL
CLIENT :- ABERFOYLE EXPLORATION CREW :- PMM HU
Line 6000E Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION

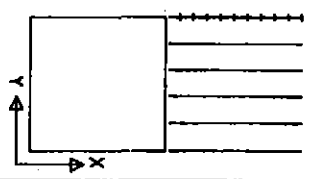


SOUTHWELL
LOOP 8035
LINE 6000
Hz

436

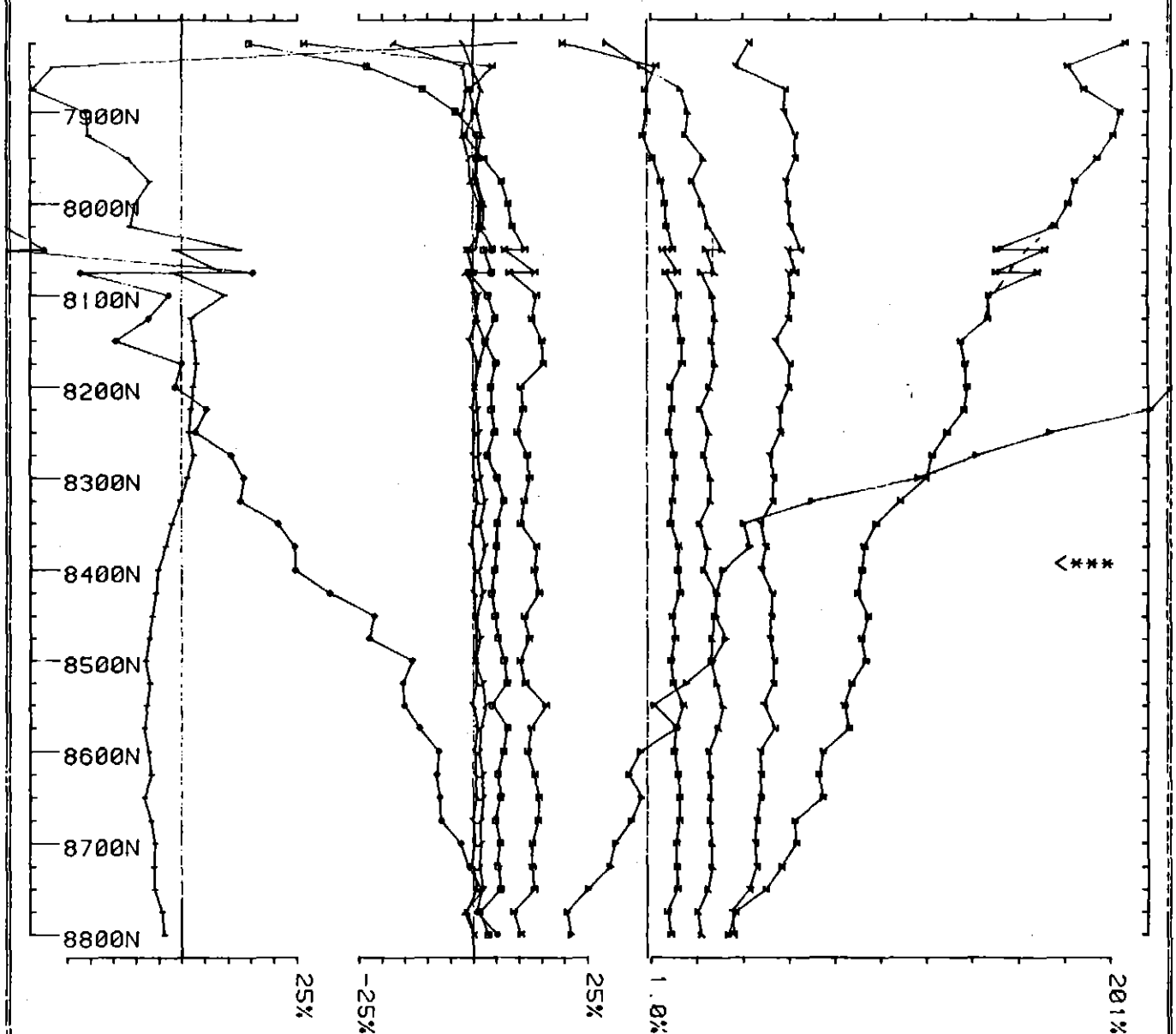


LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8651
AREA :- SOUTHWELL
CLIENT :- ABERFOYLE EXPLORATION CREW :- PMM HU
Line 6000E Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION

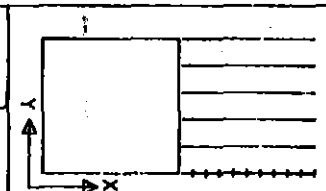


SOUTHWELL
LOOP 8035
LINE 6000
Hz

437

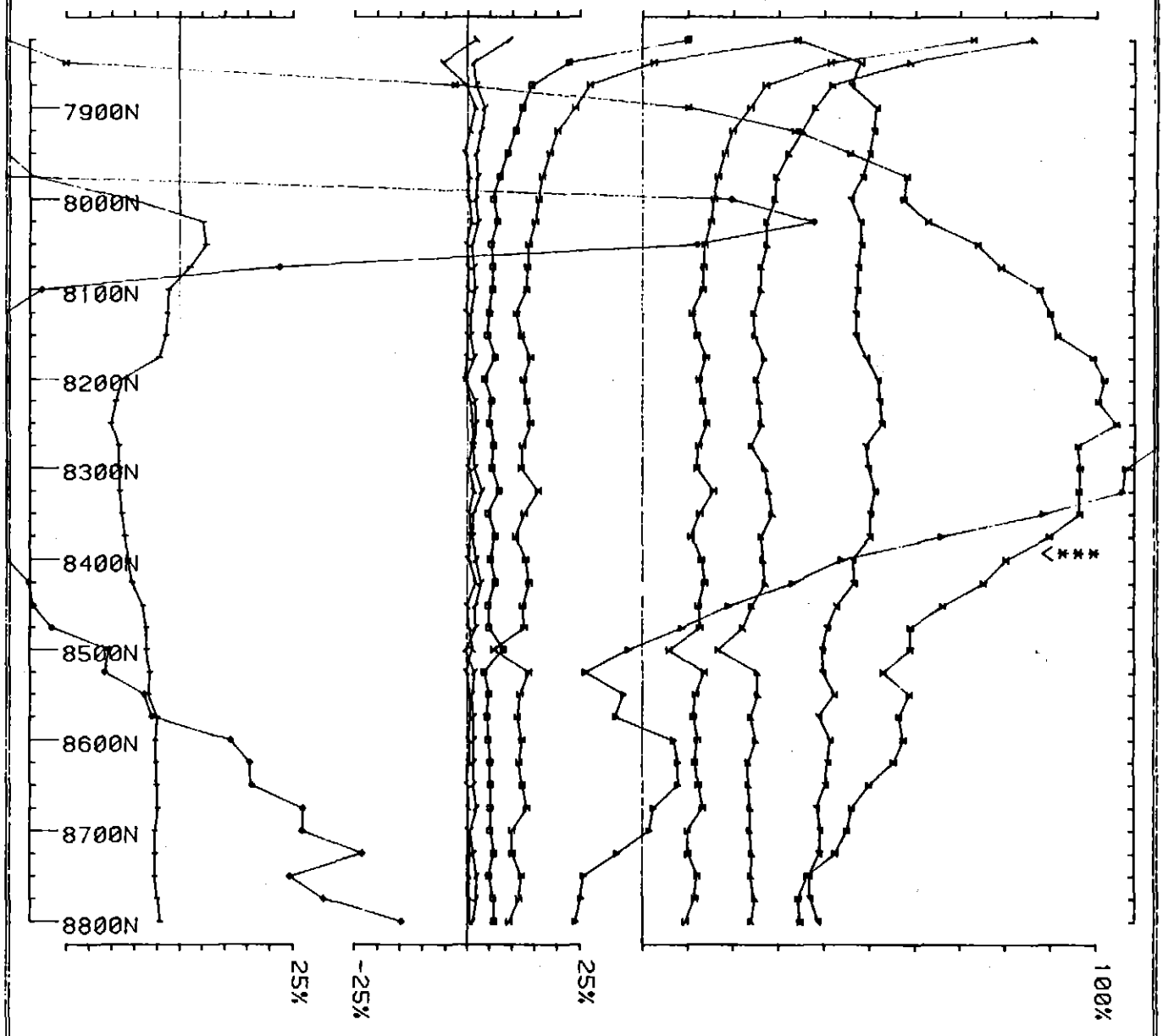


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CLIENT :- ABERFOYLE EXPLORATION CREW :- PMM HU
Line 6000W Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION



SOUTHWELL
LOOP 8835
LINE 6000
Hz

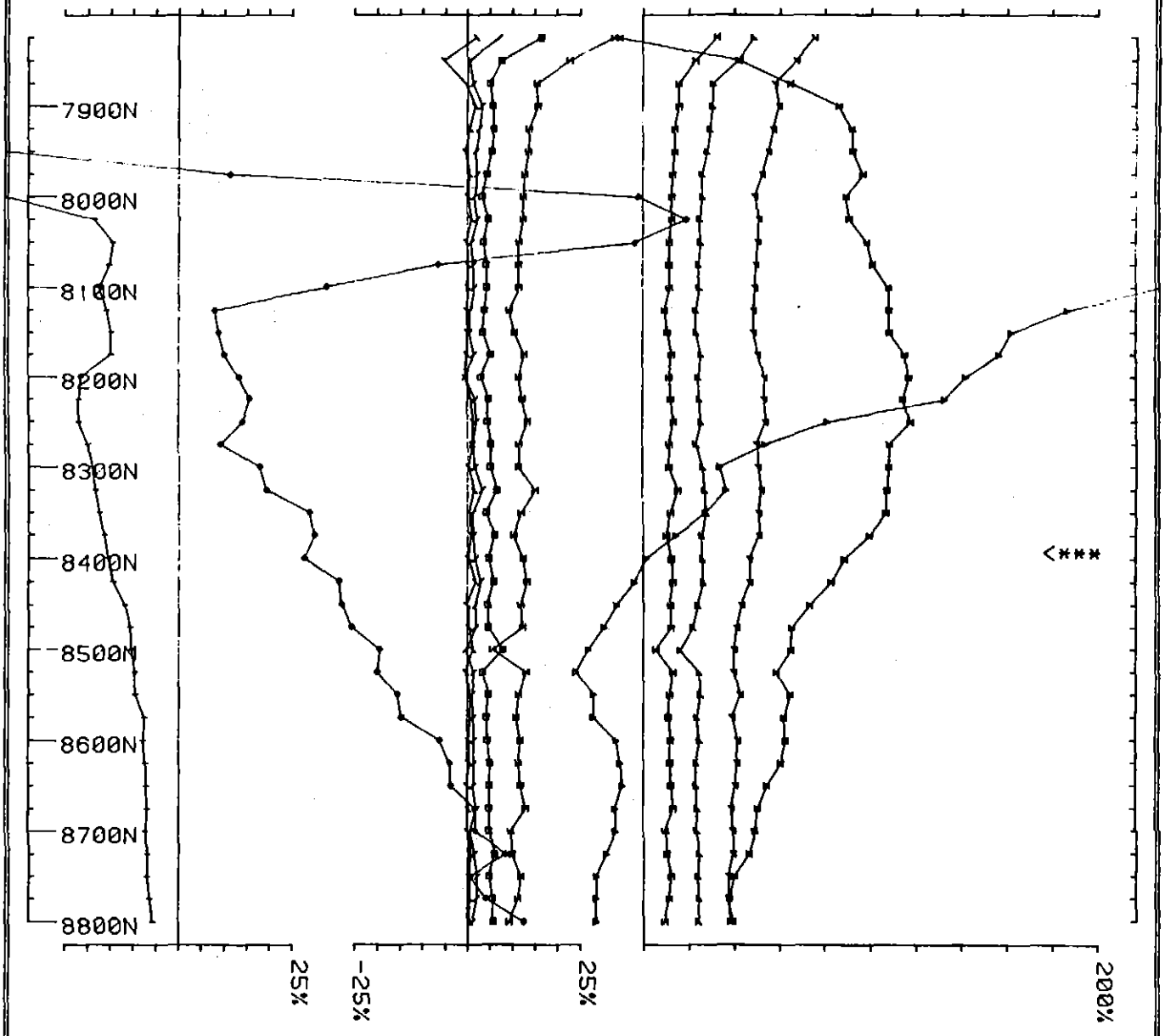
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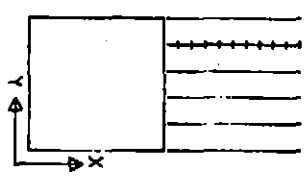
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SECONDARY FIELD POINT Ch 1 NORMALIZATION

SOUTHWELL
LOOP 8035
LINE 6200
Hz

439

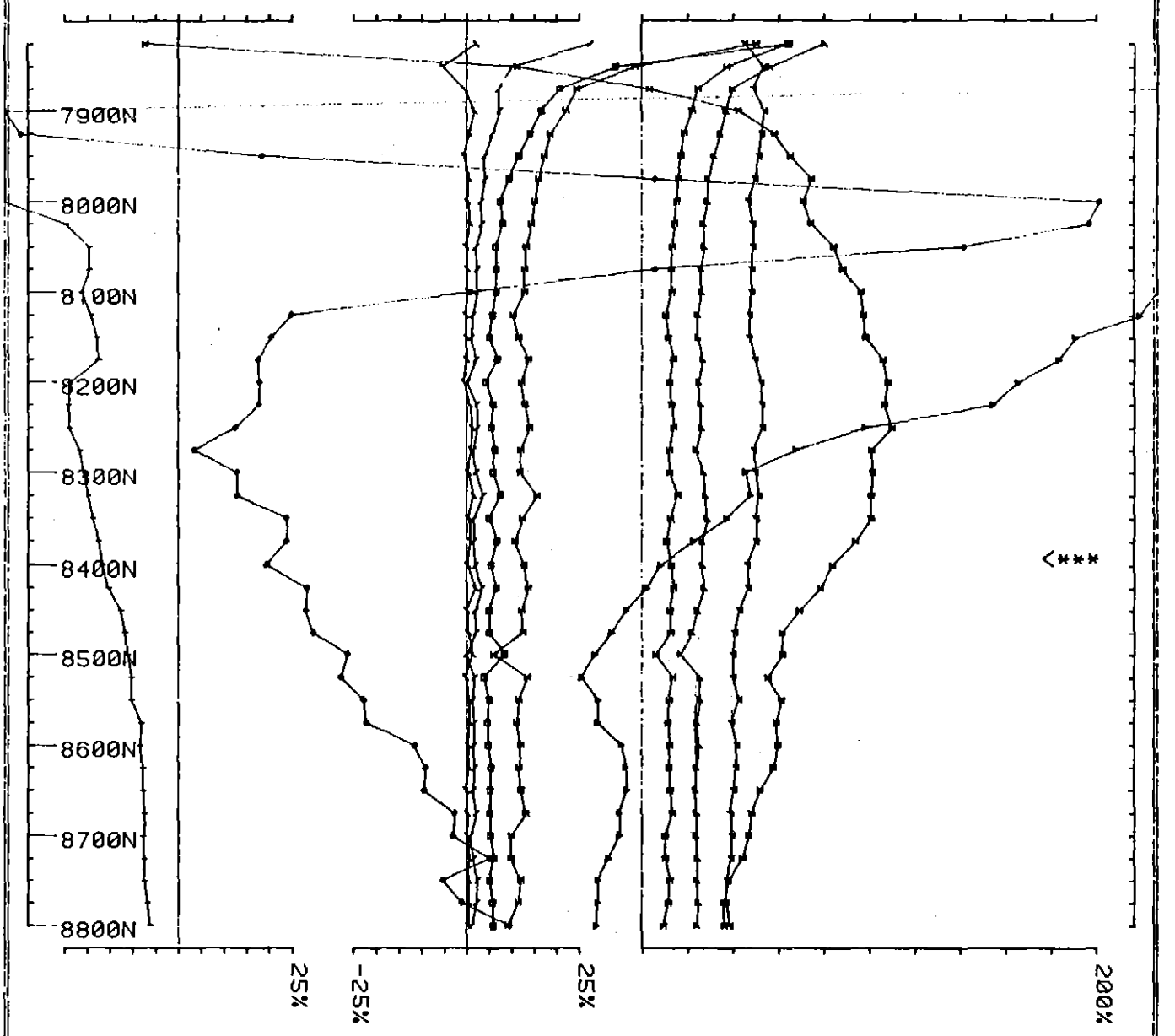


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SECONDARY FIELD POINT Ch 1 NORMALIZATION

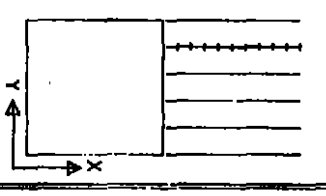


SOUTHWELL
LOOP 8035
LINE
Hz

440

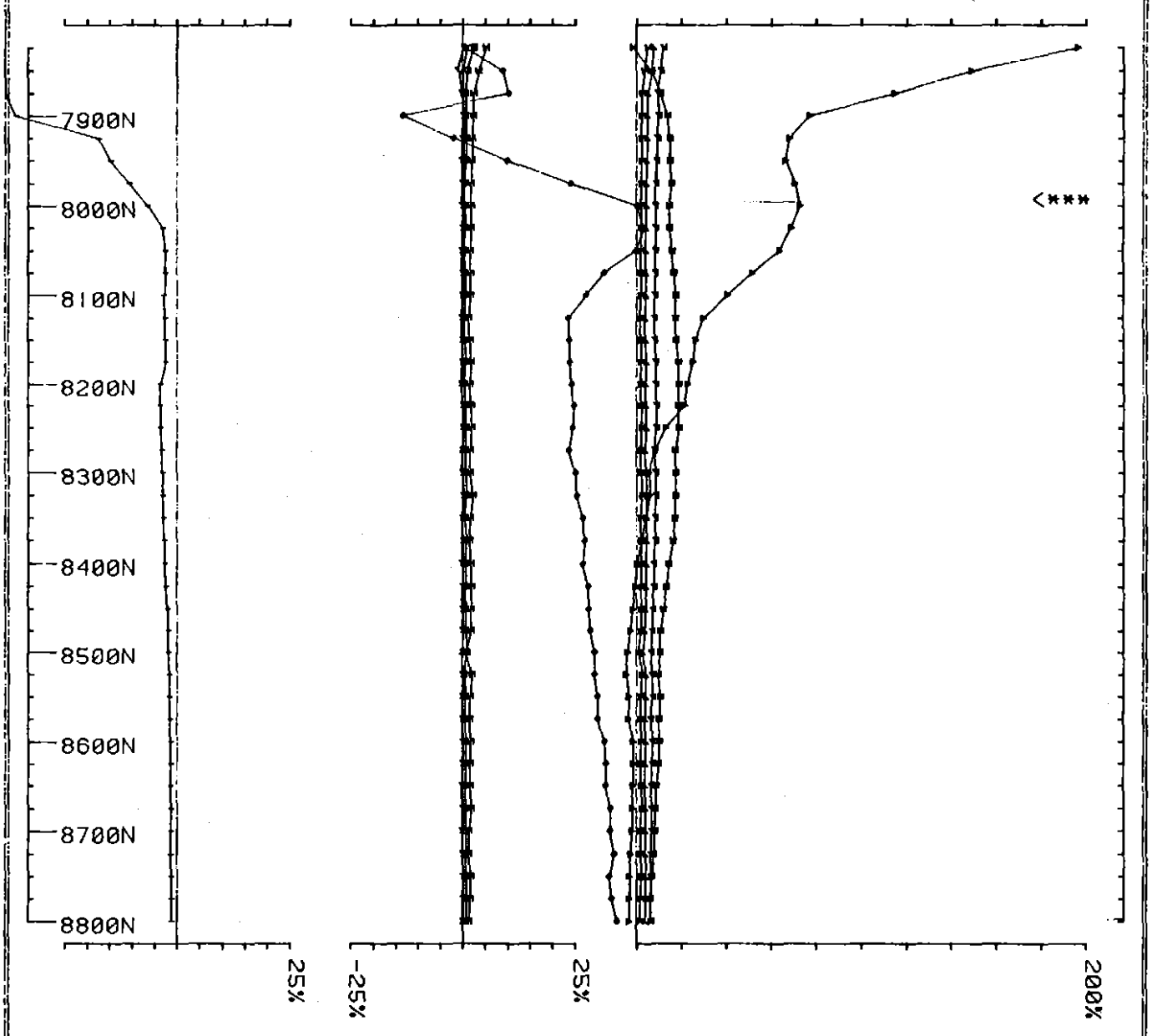


LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8651
AREA :- SOUTHWELL
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Line 6200E Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION

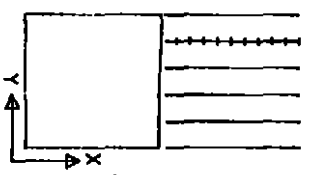


SOUTHWELL
LOOP 0035
LINE 6200
Hz

441



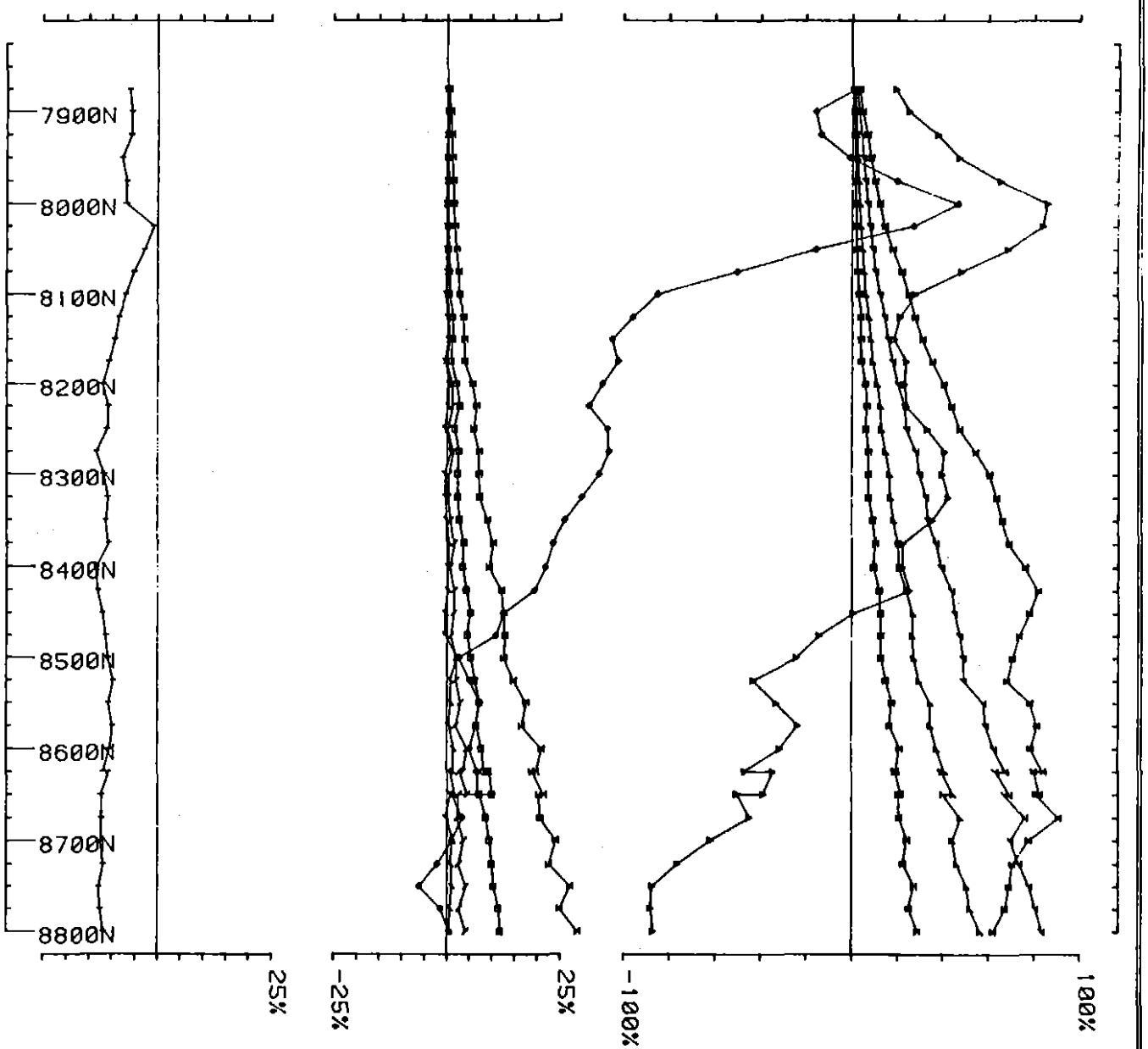
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Line 6200E Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION



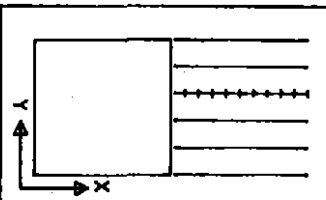
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LOOP 6035
LINE 6200
Hz

598445

442

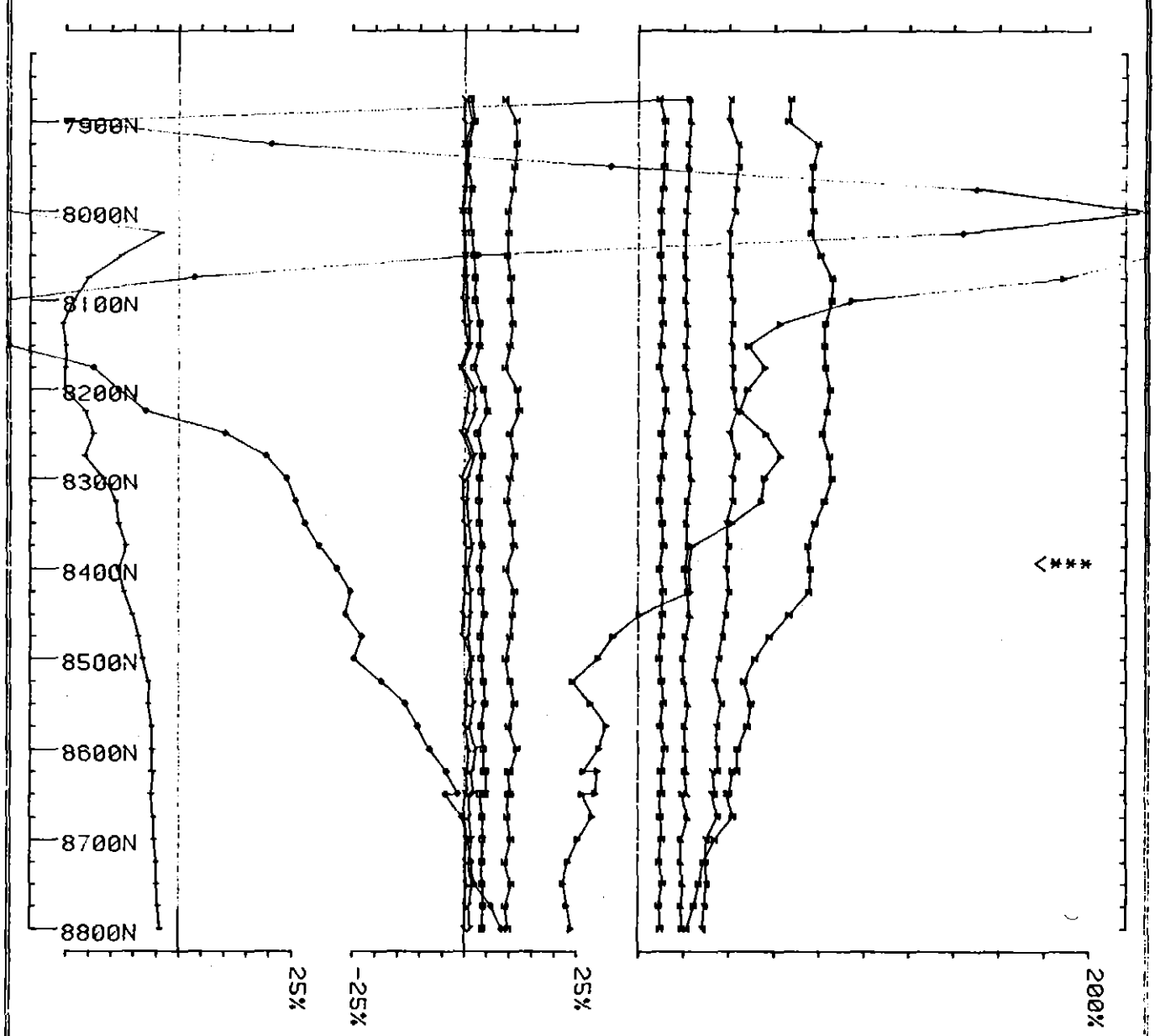


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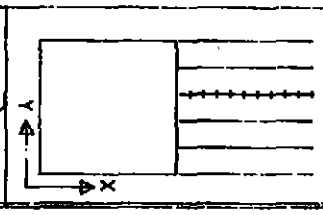


SOUTHWELL
LOOP 0035
LINE 6400
Hz

443

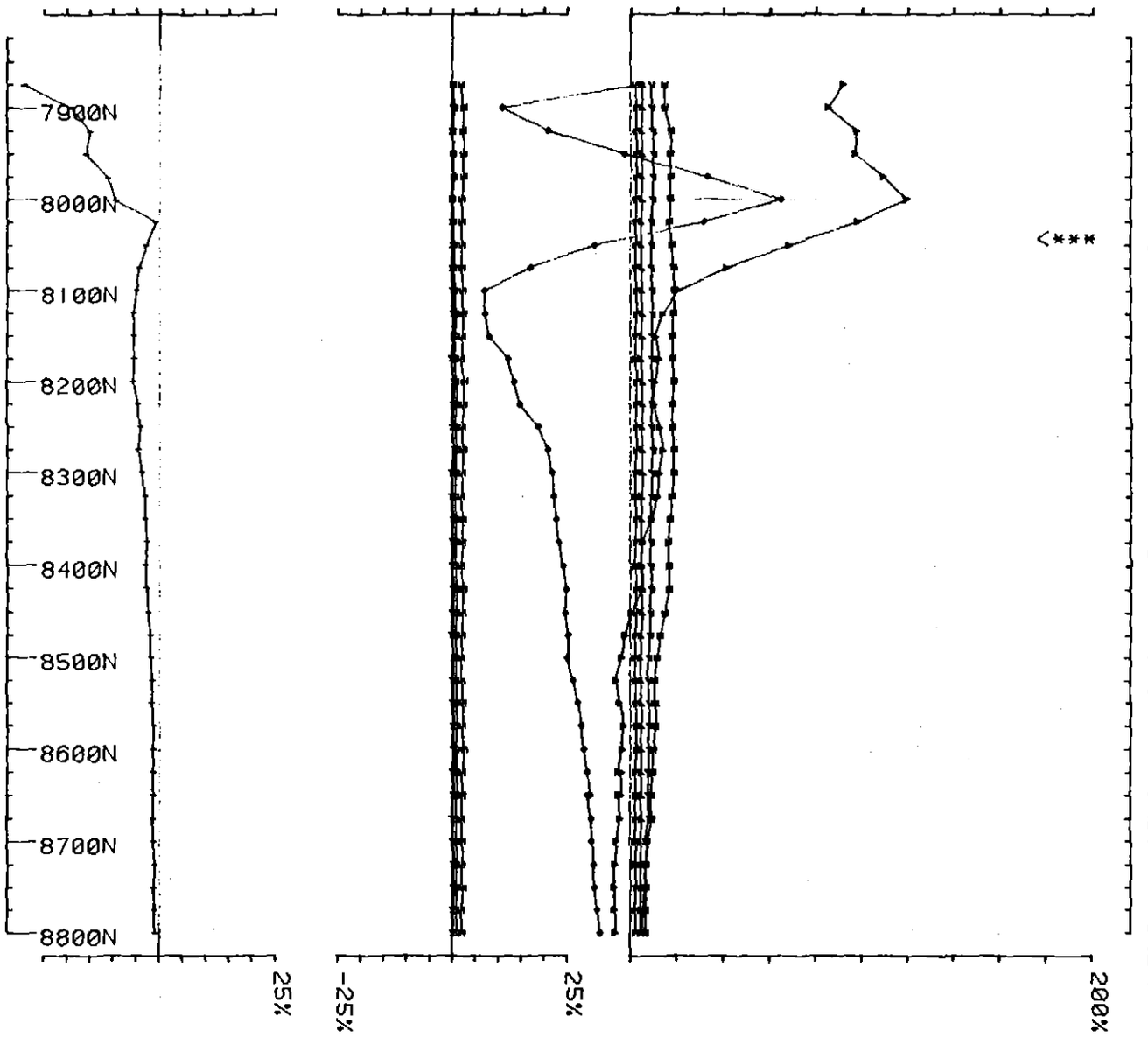


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Line 6400E Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION

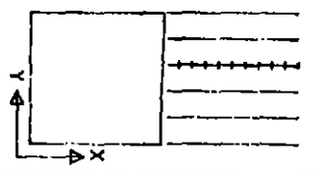


SOUTHWELL
LOOP 8035
LINE 6400
Hz

444

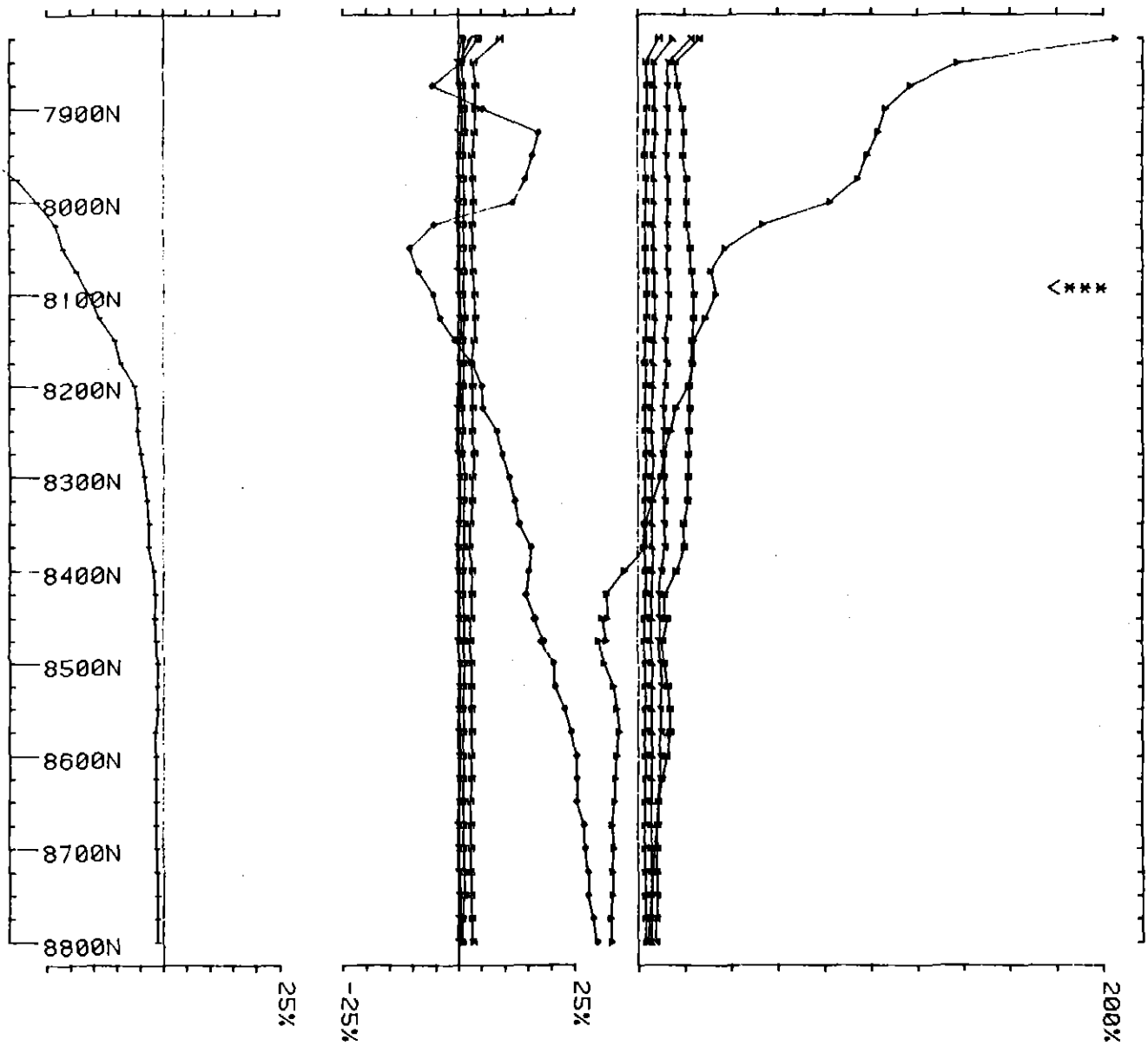


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Line 6400E Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION

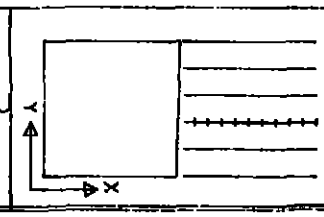


SOUTHWELL
LOOP 0035
LINE 6400
Hz

445

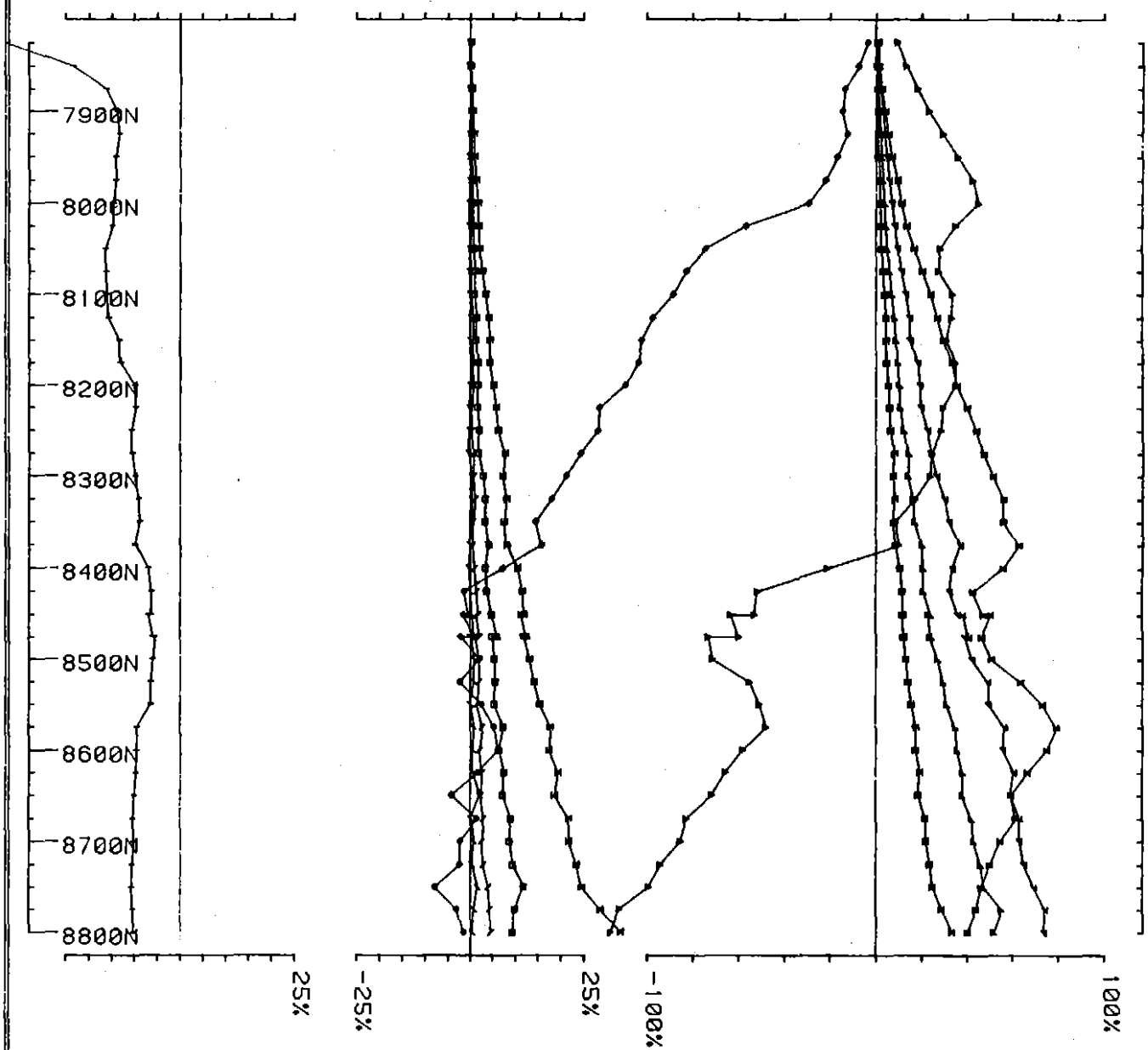


LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8651
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Line 6600E Hz COMPONENT BASE FREQ :- 26.230HERTZ
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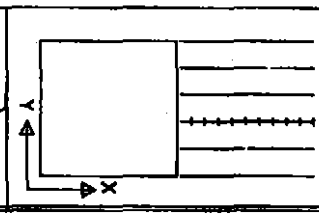


SOUTHWELL
LOOP 8035
LINE 6600
Hz

446

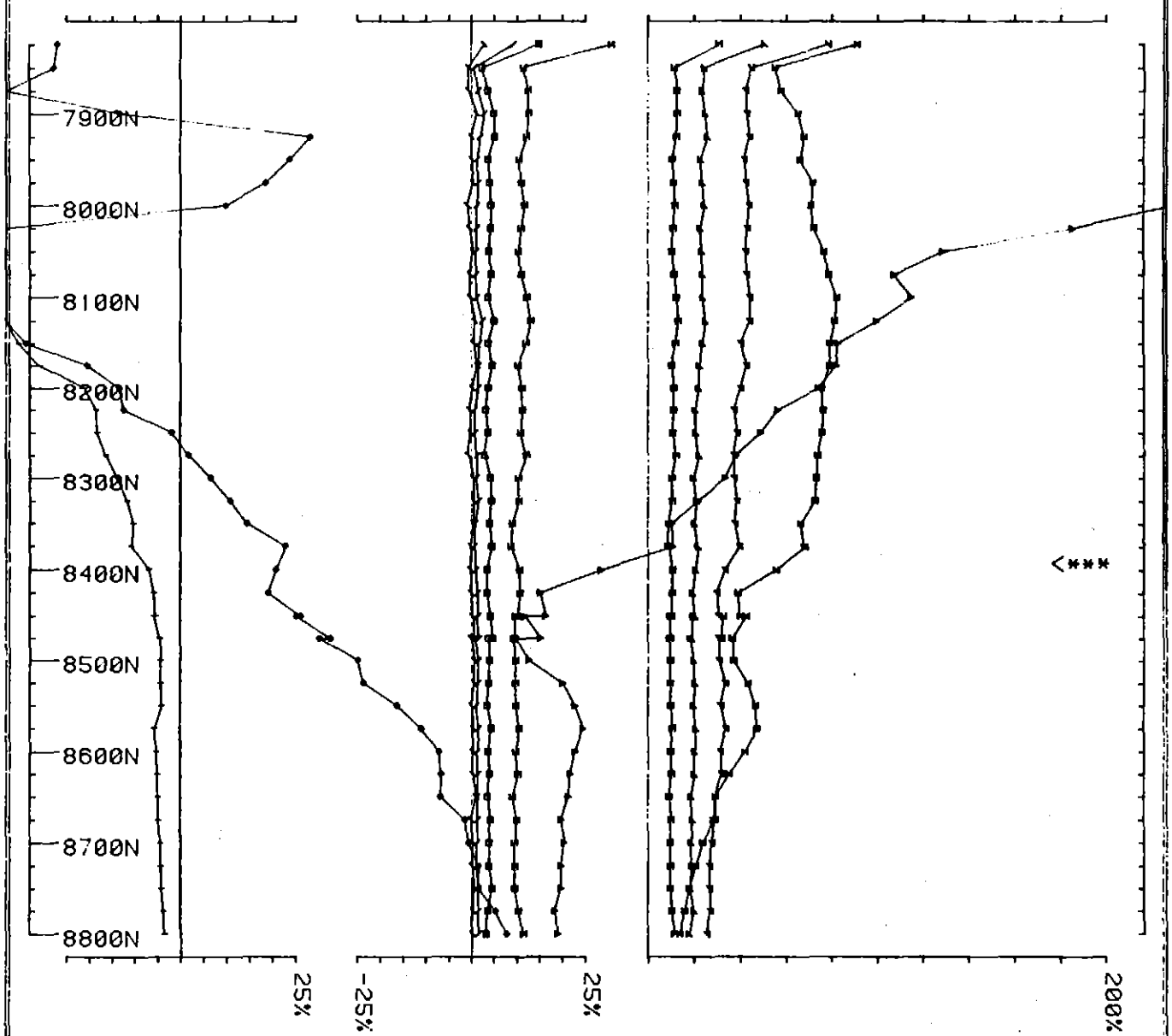


LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8651
AREA :- SOUTHWELL
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Line 6600E Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD CONTINUOUS Ch 1 NORMALIZATION

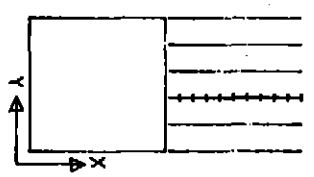


SOUTHWELL
LOOP 0035
LINE 6600
Hz

447

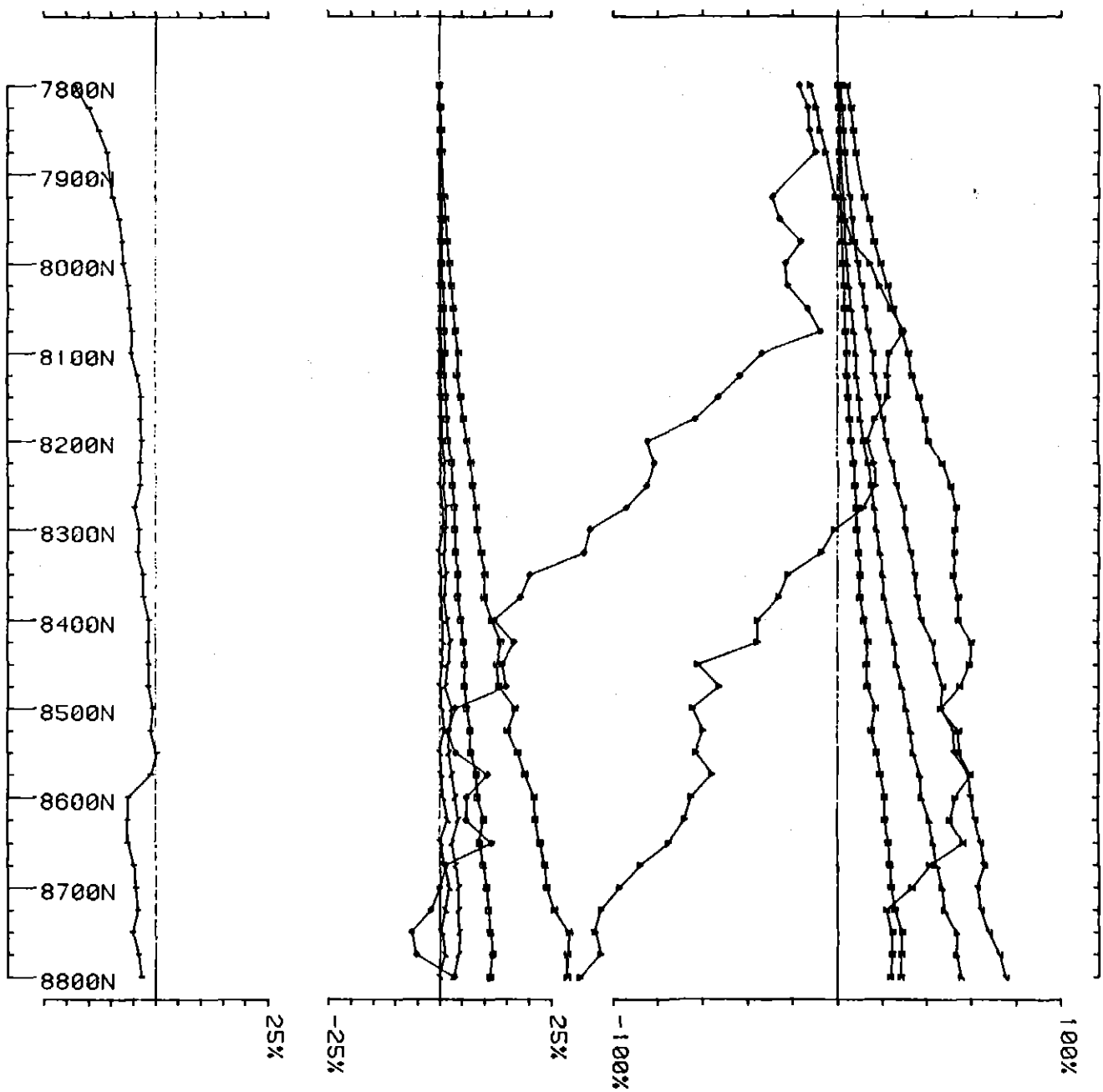


LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8651
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Line 6600E Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION

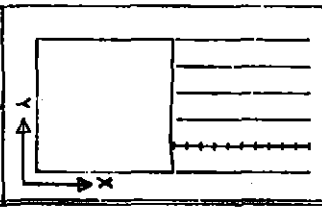


SOUTHWELL
LOOP 8035
LINE 6600
Hz

448

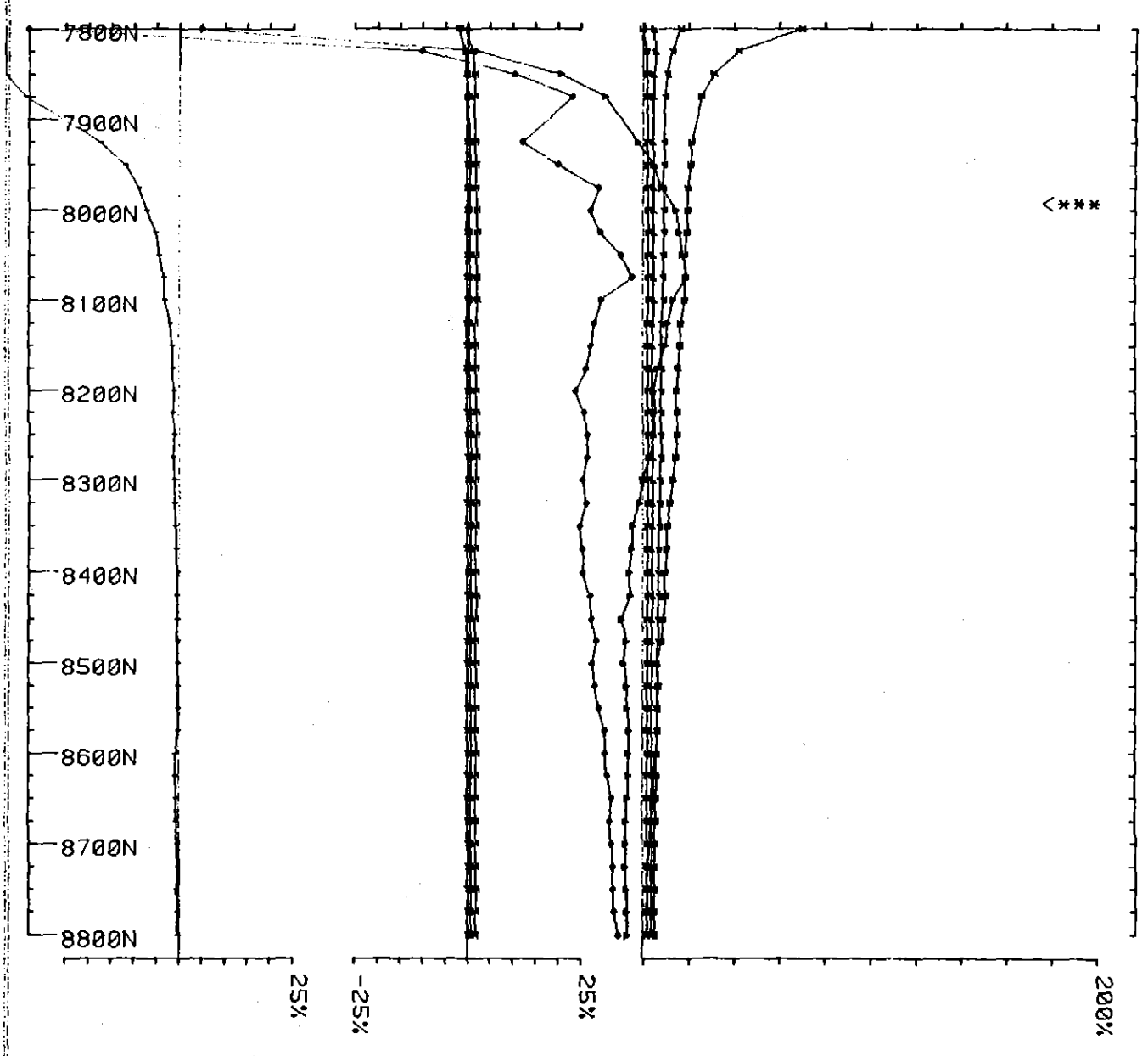


LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8651
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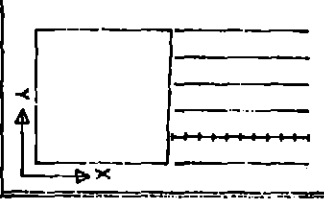


SOUTHWELL
LOOP 0035
LINE 6800
Hz

449

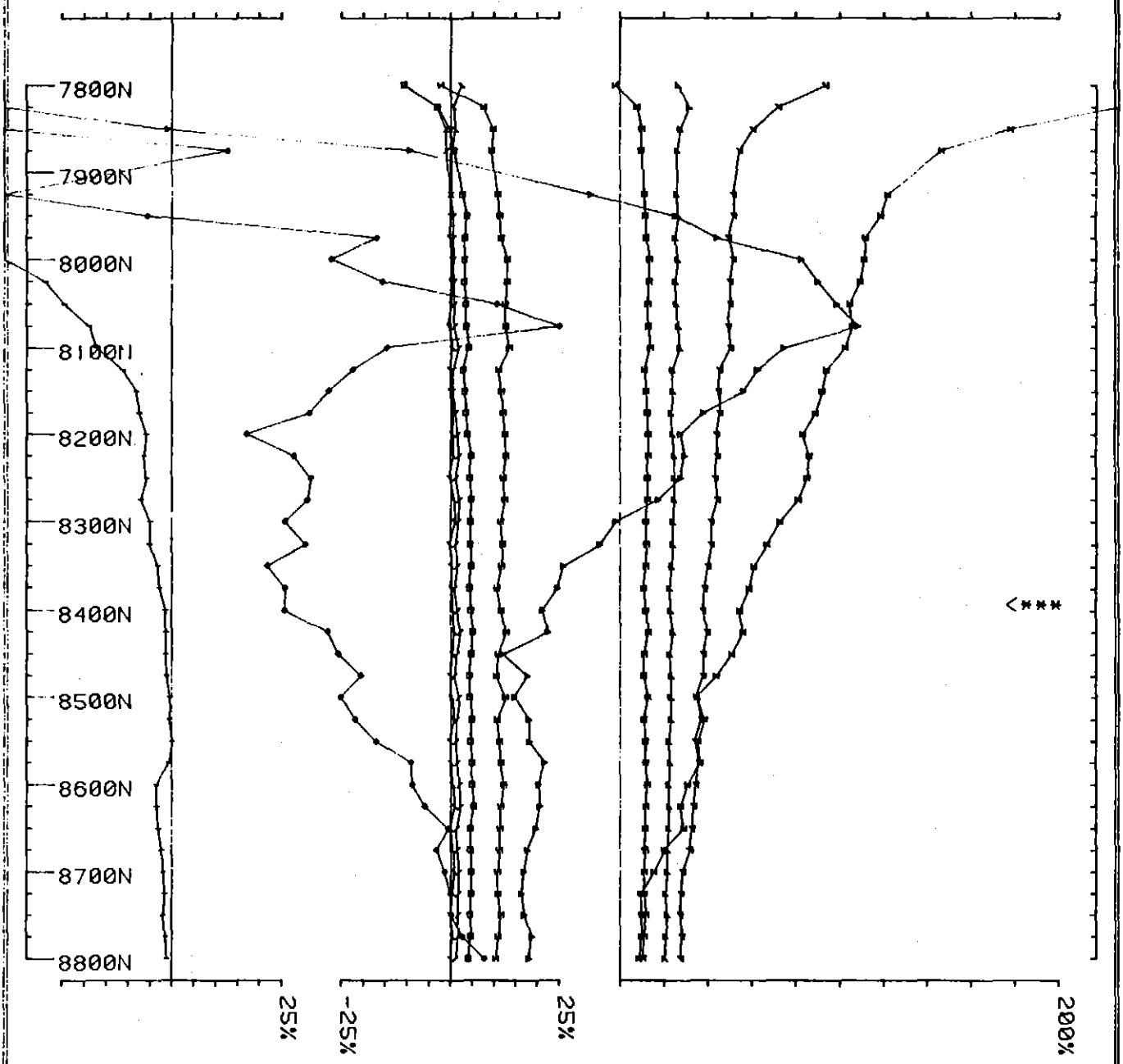


LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8651
AREA :- SOUTHWELL
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Line 6800E Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION

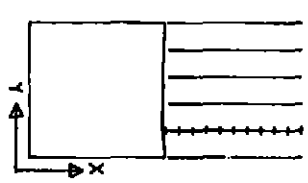


SOUTHWELL
LOOP 8035
LINE 6800
Hz

450

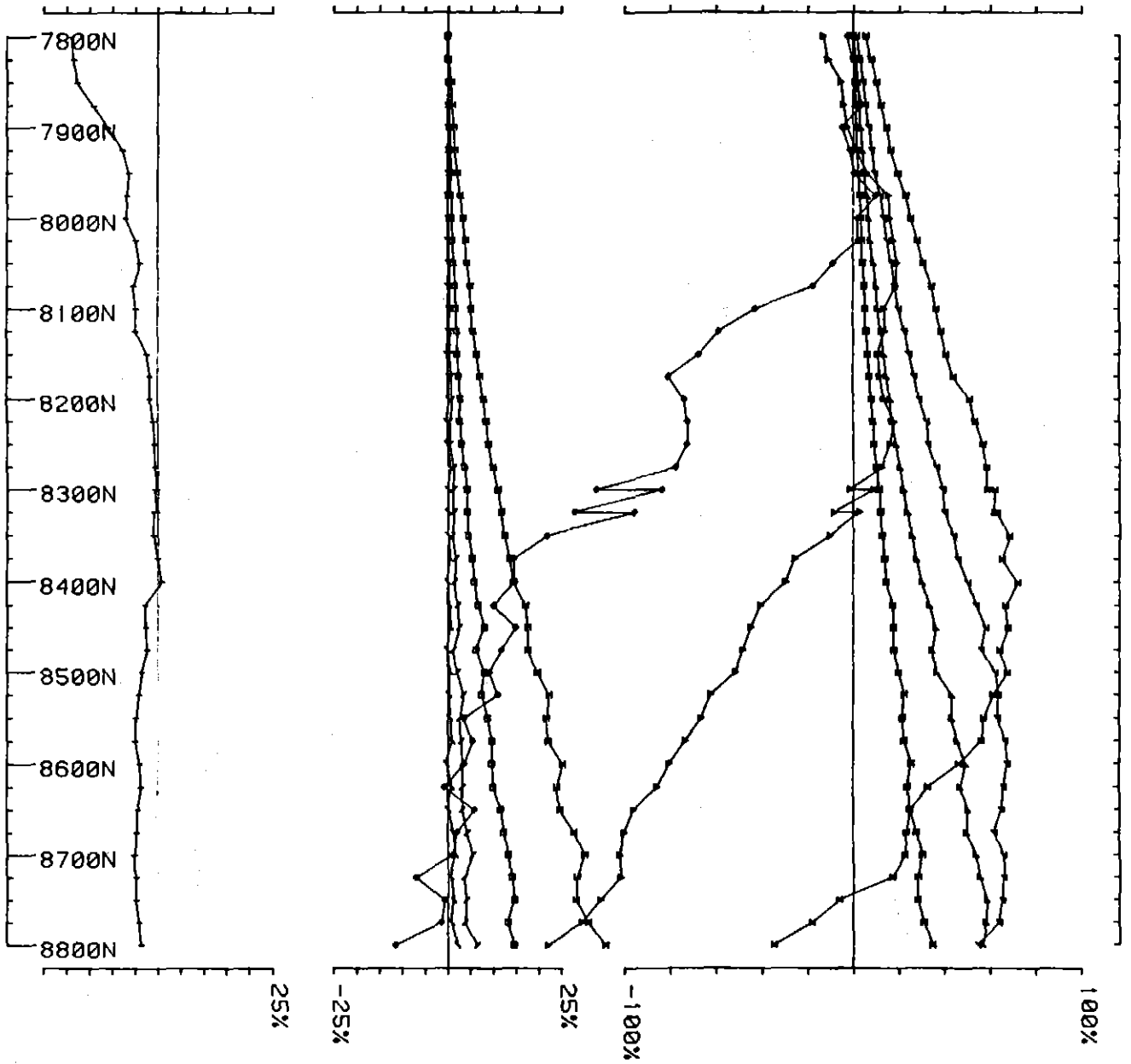


LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8651
AREA :- SOUTHWELL
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Line 6800E Hz COMPONENT BASE FREQ :- 26.230HERTZ
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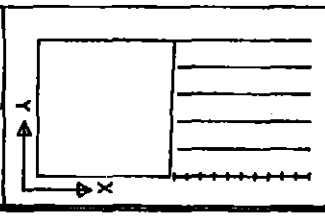


SOUTHWELL
LOOP 003S
LINE 6800
Hz

451

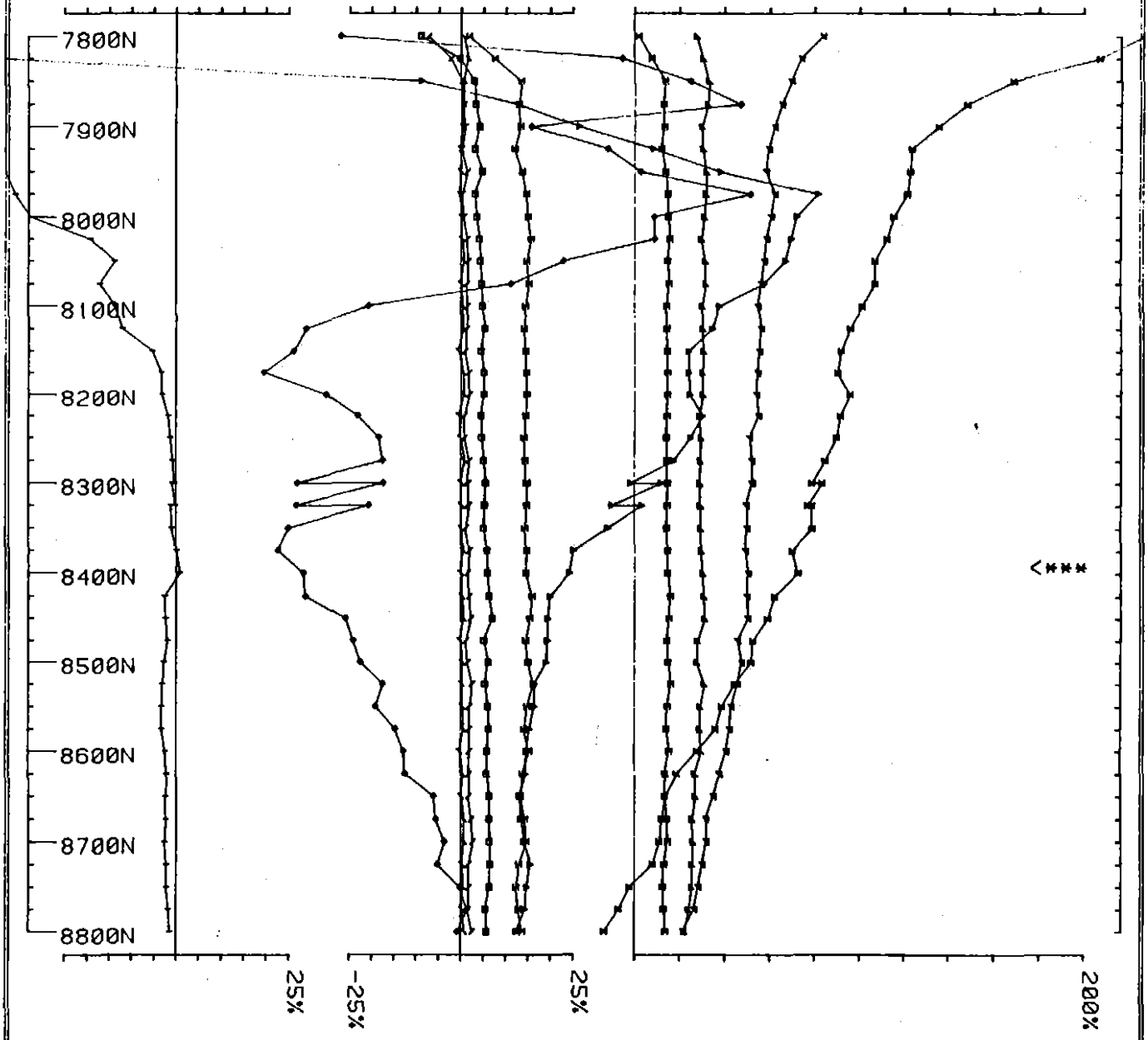


LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8651
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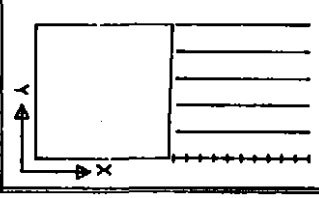


SOUTHWELL
LOOP 8035
LINE 7000
Hz

452



LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8651
AREA :- SOUTHWELL
CLIENT :- ABERFOYLE EXPLORATION CREW :- PMM HU
Line 7000E Hz COMPONENT BASE FREQ :- 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION



SOUTHWELL
LOOP 0035
LINE 7000
Hz

APPENDIX 9.

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

454

598457

ROJECT : MACKINTOSH

ROSPECT: DEEP TRENCH

HOLE NO: MAC 5

PAGE: 1 of

LOGGED: D.T.J.

DATE: 24-10-85

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
											TRICONE	
9.00			R	gn av	minor cl		v. rare Py	F RR 33			minor cl on joint planes only	
23.6		5										
			Bsh				3m< Ba Py 1cm	3m< Ba 65° c.a				
34.2		5						3m Ba 55° c.a.				
			R	gn av	minor cl						minor cl on joint planes only	
40												

ABERFOYLE EXPLORATION

ROJECT : MACKINTOSH

ROSPECT: DEEP TROUGH

455

DIAMOND DRILL LOG

598458

HOLE NO: MAC 5

PAGE: 2 of

LOGGED: D.J.J.

DATE: 24-10-85

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
42												
				42.0 S								
44			Bsh		Ba Ds Py tr	Co 1	Ba Ds Py tr	Lo Ba 50° CA Lo Ba 48° CA			Sub vertical cleavage	
46												
48												
50												
52												
54												
56				55 S1								
				56.5 S								
58			Bsh	S1				Ss Ba 5° CA				
			57.8	F				F SLR Ba				
60			B-1	lt gn pl vns 2	Co P 1	Co 1	1P Py1					
62				65.6 S								
			Ma B – Bsh	pap S		Co 1						
64			Bsh									
66				69.6 S				Lo Ba 42 CA				
68												
70			B-1	pap	Fu 3	Co 1	1P Py2				very highly pegmatitic 50% shale 50% lava	
72												
74												
76												
78												
80				80.7 80.7 S1								

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

456

598459

PROJECT : MACKINTOSH

PROSPECT : DEEP TROUGH

HOLE NO: MAC5

PAGE: 3 of

LOGGED: DJT

DATE: 25·10·85

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
			B·1	gn pl vs2 V 97 Pmf 99	107.5 F 3+ P	Co2					broken core	

ABERFOYLE EXPLORATION

PROJECT : MACKINTOSH

PROSPECT: DEEP TROUGH

457

DIAMOND DRILL LOG

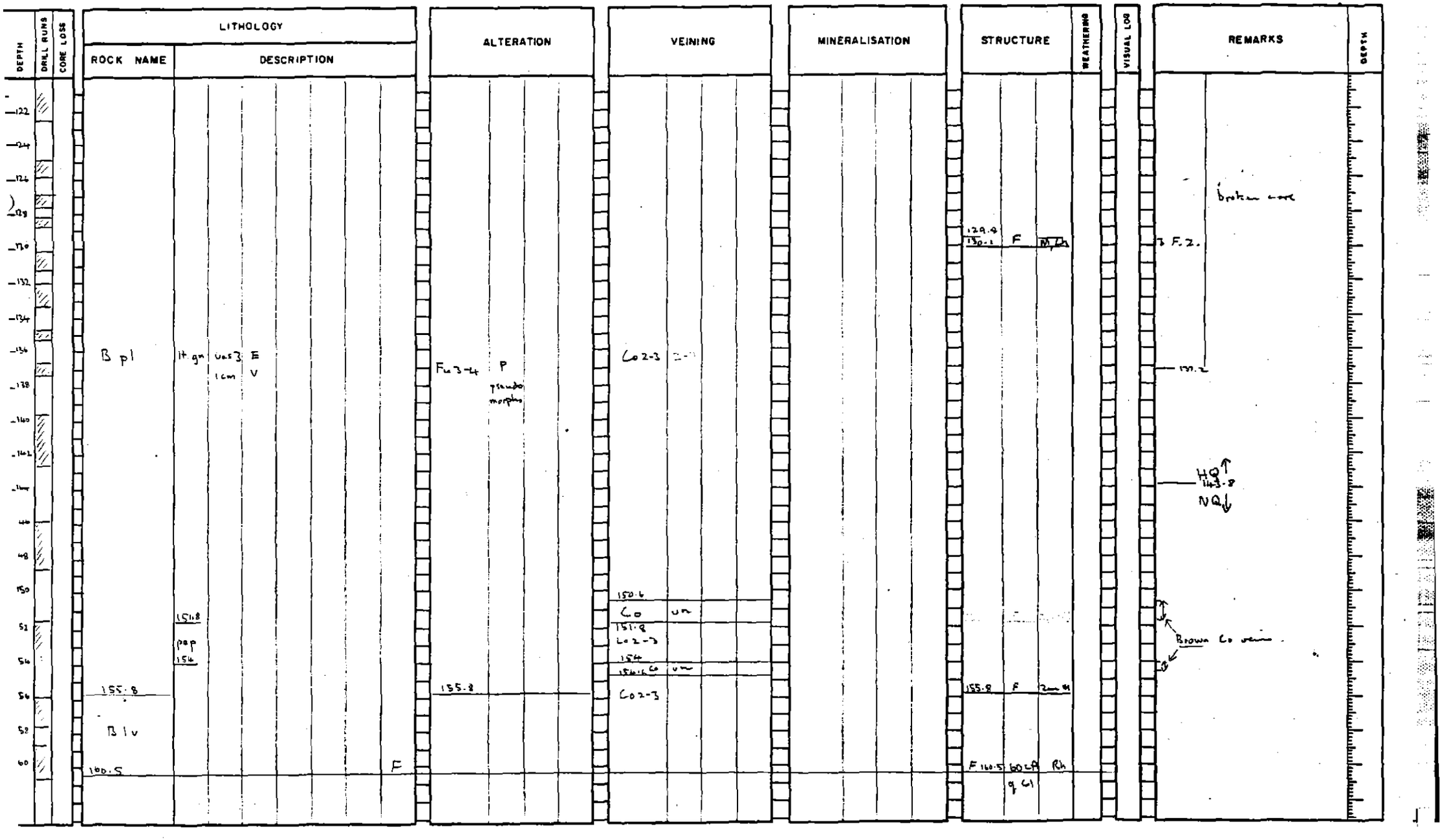
598400

HOLE NO: MAC5

PAGE: 4 of

LOGGED: D.J.I

DATE: 25.10.85



ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598461

PROJECT : MACKINTOSH

PROSPECT: DEEP TROUGH

458

HOLE NO: MAC 5
PAGE: 5 of
LOGGED: D.J.J
DATE:

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
162			D.b	lt bn mas D		C.1						
64						99.P$_y$Si2						
66												
68												
70												
72				S							← 10 cm paperthin - minor B band	
74			172.6 B.sh									
76			174.6 B.1					176.5 F.Z. 1 Ru			← major Fault 176.7	
78			177.9 Y.1v/b					177.9 F				
80								178.5				
82												
84					Fu 3 spots	C.1						
86												
88											D.fr	
90			189	C2							189	
92			B.1v								No D.fr	
4				av		192.9 C.FP 193.2						
6			194.5									
8			194.7 B.1v/b	av								
0			198.6					198.6 BA 25°			greater bedding	
2			198.8					199.8			Flame structure up hole strat up	
			Y.1v		200 C1	C.1					↑ up hole	
					Fu L spots							

ABERFOYLE EXPLORATION

PROJECT : _____ 459

PROSPECT: _____

DIAMOND DRILL LOG 598462

HOLE NO: MAC 5
PAGE: 6 of 11
LOGGED: DJJ
DATE:

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
201.6												
202												
204			Fp. l. lv	dk gn	204 Cl							
205.8												
206												
208												
210												
212												
214												
216												
218												
220			A. l v	Ak gn	Cl Se 2						mineralised carbonate?/ alteration zones	
222.6												
224			Fp. A?. l	gn 224 mas bn		Col	Py Cp Os tr					
228.3												
230												
232			A. l v	gn	gy Si 3	Col						
234												
235.5 Aqu								Fd 79 Co				
235.6												
8			Y. b	D. b.	Fu 2 spots Cl 3 fr Se 3 p	Co 3	Pymit Runs fr				← 234.2 Py fr. 3 mm	
240												

ABERFOYLE EXPLORATION

PROJECT : _____ 460

PROSPECT: _____

DIAMOND DRILL LOG

598463

HOLE NO: MAC5
PAGE: 7 of
LOGGED: DJJ
DATE:

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
242										D		
244										D		
246										D		
248										D		
250						Qz				D		
252										D		
254										D		
256										D		
258										D		
260				260.25						D		
262												
264											Massive chlorite Co filled fractures	
266												
268												
270			B-1	gn mas ms0-2 S E	S1	Qz						
272												
274												
276											veinlets	
278												
280				280.4 S1								

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

461

598464

PROJECT : MACKINTOSH

PROSPECT: DEEP TROUGH

HOLE NO : MAC5

PAGE : 8 of

LOGGED : DJJ

DATE : 28.10.85

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
292				291.1								
294			D	bn mms D 293.4	293.6 Fu3 spots Cl4 Fr P	Co 2	Py Fr Coal				258/40 cm qz Co vn @ Fu3 Cl4 adjacent	
296			Y. lv	gn vas 1 Fr D Ft								
298												
300				290.0 S								
302			Y. av	gn Bd Y av 292.6 S		Co 2		Bd 60 CA			graded bedding Fu mp hole	
304			Y. lv	gn vas 1 fr 300.35 S	Fu 3 spots Cl 3 Fr P	Co 2	Py Sph Fr Py fr				mms Fr Py Sp	
306			Dacite D	bn mas 310.0 S	wk Co2 spots	C. 2					Flow banding	
308					309.9 310.0 qz Sp?							
310												
312			lava fragmental?	gn spth. mk 1. Fr ew angular	Cl 3 pseudomorphs Si 3 P Sc 2 P	Co 2						
314			A? lv.									
316												
318												
320												

ABERFOYLE EXPLORATION

PROJECT : _____

PROSPECT: _____

462

DIAMOND DRILL LOG

598465

HOLE NO: MAC5

PAGE: 9 of

LOGGED: DJS

DATE:

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
322												
324				324.5 S								
326												
328											328 Remnants of unit above – Is this	
330				gn bn bn						D	331 dacite an alteration feature?	
332												
334						Co 2						
336				336.4								
338						Si Py 3 Sp?	Py 3 Fg Sp? De ss un				Pyrite and Sphalerite? occurs with silica between large dacite blocks – very fine-grained.	
340			D.b	bn mas D b								
342												
344												
346				348.0 G2								
348												
350												
352												
354												
356			Fp.A.lu? HA	gn	C14 Si 3	Sy						
358												
360												

ABERFOYLE EXPLORATION

PROJECT : MACKINTOSH

463

DIAMOND DRILL LOG

598466

PROSPECT: DEEP TRENCH

HOLE NO: MAC 5
PAGE: 10 of
LOGGED: DJS
DATE:

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
362												
364				366.2 S		364.75 Qv Ct 365.2		363.5 F gy Sh 365 F Cl				
366												
368												
370												
372												
374					Fw1 P							
376			Fp.A.lv	gn wk fa por	C1≤3 P		mnr Stg Fs					
378												
380												
382												
384												
386												
388											Possible polymict component	
390												
392												
394												
396												
398												
400												

ABERFOYLE EXPLORATION

PROJECT : MACKINTOSH

464

DIAMOND DRILL LOG

598467

PROSPECT: DEEP TROUGH

HOLE NO: MAC5
PAGE: 11 of 11
LOGGED: DJJ
DATE: 29-10-85

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
402												
404												
406												
408												
410												
412												
414												
416												
417				417 — 422								
418												
420				V. lv-av gn			rare fine P_{y}-BMS F_{1}					
422												
424								F 423.5			↕ bottom core	
				424.6							E.O.H.	

Aberfoyle Exploration Pty Ltd

(Incorporated in Victoria)
144 Camberwell Road, Hawthorn East, Victoria 3123 Australia
Telephone: (03) 82 2226 Telex: AA38646

455

598468

Aberfoyle Exploration Pty. Ltd.
39, River Rd., Wivenhoe
(P.O. Box 952, Burnie)
Tasmania 7320
Phone (004) 31 6333

MAC-5

25th November, 1985

Mr. H. W. Fander,
Central Mineralogical Services,
39 Beulah Road,
NORWOOD. S.A. 5067

Dear Wally,

Please thin section and describe the 10 split core samples enclosed.
Please return both the thin sections and the samples to me in Burnie.

Sample No.	Depth to bottom of sample	Hole No.
271984	146.1 m	MAC-5
271985	200.9 m	MAC-5
271986	261.2 m	MAC-5
271987	290.3 m	MAC-5
271988	310.75m	MAC-5
271989	322.6 m	MAC-5
271990	341.4 m	MAC-5
271991	382.1 m	MAC-5
271992	411.7 m	MAC-5
271993	421.7 m	MAC-5

Yours sincerely,

Doug Jack

D. J. Jack,
Geologist.

MAC-5

466

598469

Central Mineralogical Services

39 Beulah Road
Norwood, S.A. 5067
Telephone 42 5659

Mr. D.J. Jack
Geologist
Aberfoyle Exploration Pty. Ltd.
P.O. Box 952
BURNIE / TAS. 7320

23rd December, 1985

REPORT CMS 85/11/43

YOUR REFERENCE:	Letter dated 25.11.1985
DATE RECEIVED:	29th November, 1985
SAMPLE NOS.:	271984 - 271993
SUBMITTED BY:	D.J. Jack
WORK REQUESTED:	Petrology

H.W. Fander, M. Sc.

Copy to:
The Chief Geologist
Aberfoyle Exploration Pty. Ltd.
144, Camberwell Road
HAWTHORN EAST / VIC. 3123

598470

REPORT CMS 85/11/43

Ten split core samples from DDH/MAC-5 were received for routine petrological examination. Representative thin-sections were prepared and examined together with the respective offcuts, with stain tests performed as warranted. Attached tabulated descriptions summarise the microscopic data and include interpretative comments.

Summary

This suite comprises entirely intensely altered volcanics, typically basic to intermediate, with a single felsitic (devitrified) rhyolite (MAC-5/310.75 m).

Primary compositional and, to varying degrees textural detail, are obscured by a marked and pervasive alteration assemblage of quartz, sideritic carbonate, sericite and chlorite. Consequently, lithological determinations are rather tentative, although individual rocks may be broadly categorised as "basaltic" or "andesitic" on the basis of relict features. A few rocks exhibit a "secondary" alteration assemblage of quartz $\pm$ albite, partly fracture-controlled and over-printing the quartz-carbonate-sericite-chlorite assemblage. These relatively altered facies tend to be relatively pyritic (notably MAC-5/341.4 m).

Texturally, this suite is dominated by fragmental facies, including agglomeratic and/or scoriaceous breccias, tuffs and mildly reworked tuffs.

D. Cowan, B. Sc.

456 598471

Sample No.	Classification - Composition	Fabric	Accessories	CENTRAL MINERALOGICAL SERVICES Comments
MAC 5 146.1m 271984 (T.S. 55119)	"Agglomerate". Sideritic carbonate and fine to microcrystalline quartz with varying proportions of sericite and near-isotropic chlorite. Minor quartz-carbonate-sericite-pseudomorphed pyroxene phenocrysts.	Scoriaceous breccia-like, with coarsely siderite-amygdaloidal megaclasts; psammitic lithic fragmental matrix. zones.	Leucoxenised opaques, disseminated chromite. Patchy siderite matrix in psammitic Rare pyrite.	Detail obscured by pervasive quartz-siderite-sericite-chlorite alteration Relict features consistent with a basaltic agglomeratic lithic tuff or flow-marginal breccia.
200.9m 271985	"Scoriaceous Breccia". Microcrystalline quartz, sericite, fine to microcrystalline sideritic carbonate and chlorite in varying proportions with semi-pervasively disseminated ultrafine pyrite.	Poorly sorted, psammite to lapilli grade scoriaceous lithic fragmental. Partly moulded clasts. Mildly sheared.	Leucoxenised opaques, disseminated chromite. Rare xenolithos of sericitic/silicified felsite.	Thoroughly altered "basaltic" scoriaceous lithic tuff. Alteration assemblage similar to 146.1 m, but relatively sericitic-chloritic and pyritic.
261.2m 271986	Amygdaloidal "Andesite". Sporadic chlorite-ankerite amygdales, minor albitised plagioclase phenocrysts in a groundmass of albitised plagioclase microlaths with a chlorite-stained glassy mesostasis. Frequent clots of carbonate.	Weakly amygdaloidal-porphyritic, weakly flow-structured (subtrachytic).	Disseminated pyrite, traces of chalcopyrite. Leucoxenised opaques. Sporadic stressed calcite veinlets.	Pervasively chlorite-albite-carbonate altered lava. Primary compositional detail obscure, but leuco-andesitic on the basis of relict features.
290.3m 271987	"Andesitic" Tuff. Fine to microcrystalline quartz, sericite, cloudy Fe-carbonate and subordinate chlorite. Disseminated sericite-quartz-pseudomorphed feldspar, quartz-pseudomorphed pyroxene grains.	Poorly to moderately sorted psammite-grade lithic-crystal tuffaceous. Weakly banded; incipiently sheared.	Leucoxenised opaques, traces of chromite, pyrite. Sporadic carbonate veinlets.	Includes sporadic "flattened" pumice clasts, minor xenoliths of sericitic impure chert. Vague unwelded ignimbritic features in part, but apparently reworked.
310.75 271988	Felsite. Disseminated quartz, minor sericitised feldspar phenocrysts in a matrix of anhedral poikilitic quartz with disseminated clots of sericite, crude spongy bands of sideritic carbonate.	Coarsely felsitic, semi-perlitic, banded, relatively stressed.	Minor leucoxenised opaques, rare fine pyrite.	Devitrified, thoroughly quartz-sericite-carbonate-altered rhyolite; conceivably minor intrusive. Alteration similar to 146.1 m etc., relatively siliceous.
322.6m 271989	"Andesite". Variably sericitic/carbonate-stained chlorite aggregates, more or less evenly disseminated in a matrix of sericite, fine to microcrystalline quartz, minor chlorite.	Relatively sheared/ phyllitic. Relict perlitic-devitrified "andesitic".	Leucoxenised opaques, minor traces of pyrite.	Relatively sheared, boudinaged-perlitic, porphyritic, andesitic characteristics. Typical quartz-sericite-chlorite-carbonate alteration.
341.4m 271990	Brecciated "Andesite". Fine to cherty microcrystalline quartz and sericite in varying proportions with disseminated to semi-pervasive fine to ultrafine pyrite, minor clots of calcite.	Massive porphyritic-felsitic to brecciated/ cherty quartz-matrixed+ replaced.	Leucoxenised opaques, traces of apatite.	Buff-coloured zones are sericite-quartz-altered, persist as corroded relics in brecciated, relatively silicified and pyritic (dark grey) zones.
382.1m 271991	"Andesitic" Tuff. Microgranular quartz and cloudy sideritic carbonate with subordinate sericite and minor chlorite. Minor chloritic-sericitic quartz veinlets.	Psammite- to lapilli-grade, angular lithic fragmental with a vaguely shardy matrix. Relatively sheared.	Leucoxenised opaques, minor traces of pyrite, chromite.	Finer detail obscured by pervasive alteration, relatively marked shearing. Variably pumiceous lithic clasts, relatively silicified shardy matrix ("lithic-vitric tuff").

Sample No.	Classification - Composition	Fabric	Accessories	Comments
411.7m 271992	Andesitic Tuff. Variably chlorite-sericite ± carbonate-stained microcrystalline lava clasts, subordinate sericitic/albitised plagioclase grains, minor quartz grains with a sericite-chlorite matrix. Minor carbonate veinlets.	Poorly to moderately sorted, weakly bedded, sandy clastic. Moderately sheared.	Leucoxenised opaques. Semi-pervasive fine to ultrafine pyrite. Rare chromite.	Relatively distinct altered andesitic characteristics. Textural features consistent with a mildly reworked lithic-crystal tuff.
421.7m 271993 (T.S. 55128)	Andesitic Breccia. Sericite with varying proportions of chlorite, fine to microcrystalline quartz and albite; sporadic clots and discontinuous films of calcite. Thinly disseminated pyrite.	Random angular, semi-moulded, variably pumiceous and perlitic clasts. Relatively sheared.	Leucoxenised opaques, minor traces of chromite.	Reflects sericite-chlorite alteration and patchy, vaguely fracture-controlled albite-quartz overprint. Relict features suggestive of a flow-marginal breccia.

598473

APPENDIX 10.

598474

Hole No: MC 5:- Core Grinding

Sample No:	Intervals:	
333869	9.0 - 25.6	
870	25.6 - 34.2	
871	34.2 - 42.0	
872	42.0 - 55.0	
873	55.0 - 57.8	
874	57.8 - 65.4	
333875	65.4 - 66.9	
876	66.9 - 69.4	
877	69.4 - 80.7	
878	80.7 - 98.0	
879	98.0 - 120.0	
333880	120.0 - 140.0	
881	140.0 - 151.8	
882	151.8 - 154.0	
883	154.0 - 155.8	
884	155.8 - 160.5	
333885	160.5 - 172.6	
886	172.6 - 174.6	*
887	174.6 - 177.8	
888	177.8 - 189.0	
889	189.0 - 194.5	
333890	194.5 - 194.7	*
891	194.7 - 198.6	
892	198.6 - 198.8	*
893	198.8 - 201.6	
894	201.6 - 205.8	
333 895	205.8 - 222.6	
896	222.6 - 228.3	
897	228.3 - 235.5	
898	235.5 - 240.0	
333 899	240.0 - 260.25	

Sample No:	Intervals:	
333900	260.25 - 280.4	
901	280.4 - 282.1	
902	282.1 - 283.4	*
903	283.4 - 290.0	
904	290.0 - 292.6	
333905	292.6 - 300.55	
906	300.55 - 310.0	
907	310.0 - 324.5	
908	324.5 - 348.0	
909	348.0 - 366.2	
333910	366.2 - 380.0	
911	380.0 - 400.0	
912	400.0 - 417.0	
333913	417.0 - 424.6	E.O.H.

* Split 10cm Sample

FOR Cu, Pb, Zn, Ag, Ni;
Ba, As, Cr, Zr, Ti
Au.

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.
52 Murray Road, Welshpool, W.A. 6106
Phone (09) 458 7999
Telex AA92560

472

598475 10 DEC RECD

ANALYTICAL REPORT No. 23.3 08 3387

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

Aberfoyle Exploration Pty Ltd
PO Box 952
Burnie
Tasmania 7320

ORDER No.	PROJECT
9632	MAC 5

DATE RECEIVED	RESULTS REQUIRED
26.11.85	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
		3	45

STATE OF SAMPLES		PRE-TREATMENT							ANALYSIS		
REMARKS BELOW	SAMPLE NUMBERS	DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD
S	333869-913				1				Cu Pb Zn Ag Ni As Ba Cr Zr Ti Au		101 401 309

RESULTS TO: As Above

RESULTS TO:

REMARKS

MAC-5
core grids.

S.CORE = SPLIT CORE
Nos. 886, 890, 892, 902

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cuttings	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

AUTHORISED OFFICER

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ANALYTICAL DATA

598476

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3 08 3387	9.12.85	9632	1 OF 6

TUBE No.	SAMPLE No.		Cu	Pb	Zn	Ag	Ni	Au	Ba	As
1	333869	9-25.6	15	15	80	×	30	0.025	230	2
2	333870	25.6-34.2	60	90	620	×	80	×	400	35
3	333871	34.2-42	40	5	125	×	35	0.017	260	25
4	333872	42-55	50	60	65	1.5	75	0.025	490	55
5	333873	55-57.8	30	25	75	0.5	40	0.017	610	15
6	333874	57.8-65.4	45	15	85	×	110	×	430	6
7	333875	65.4-66.9	25	30	65	×	95	×	360	6
	333976	66.9-69.4	60	60	105	1.0	60	0.008	500	35
9	333877	69.4-80.7	40	35	100	×	50	×	570	30
10	333878	80.7-98.0	35	15	50	×	45	×	690	15
11	333879	98-120	35	5	50	×	95	×	540	9
12	333880	120-140	45	20	95	×	145	×	560	10
13	333881	140-151.8	60	15	70	×	150	×	590	10
14	333882	151.8-154	30	5	80	×	140	×	400	9
15	333883	154-155.8	60	15	80	×	150	×	630	25
16	333884	155.8-160.5	25	×	70	×	25	×	560	10
17	333885	160.5-172.6	50	×	40	×	25	×	590	6
18	333886	S.CORE 172.6-174.6	75	70	55	1.0	80	×	510	60
19	333887	174.6-177.8	75	60	140	0.5	50	×	640	25
20	333888	177.8-189.0	55	50	180	0.5	95	0.017	620	10
21	333889	189-194.5	110	×	110	×	90	0.008	790	×
22	333890	S.CORE 194.5-194.7	75	×	65	×	95	×	900	×
23	333891	194.7-198.6	70	×	75	×	75	×	750	×
24	333892	S.CORE 198.6-198.8	110	×	85	×	95	×	590	×
25	333893	198.8-201.6	65	5	65	×	1000	0.017	670	10

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

474

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

598477

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3 08 3387	9.12.85	9632	2 OF 6

TUBE No.	SAMPLE No.		Cu	Pb	Zn	Ag	Ni	Au	Ba	As
1	333894	201.6-205.8	65	×	65	×	115	×	460	5
2	333895	205.8-220	75	×	115	×	140	0.008	440	3
3	333896	222.6-228.3	2600	10	180	×	85	×	510	×
4	333897	228.3-235.5	80	×	180	×	100	×	180	×
5	333898	235.5-240	50	60	190	0.5	60	0.032	530	20
6	333899	240-260.25	60	10	160	0.5	70	×	510	2
7	333900	260.25-280.4	65	×	105	×	40	×	3550	6
	333901	280.4-282.1	35	×	200	×	80	×	820	9
9	333902	S.CORE 282.1-283.4	10	×	25	×	40	×	900	×
10	333903	283.4-290	115	55	190	×	115	0.025	740	15
11	333904	290-292.6	105	55	170	0.5	80	0.032	730	20
12	333905	292.6-300.55	160	150	315	0.5	90	0.050	610	20
13	333906	300.55-310	35	5	45	×	35	×	460	×
14	333907	310-324.5	20	×	95	×	15	×	760	4
15	333908	324.5-348	20	×	45	×	25	×	480	4
16	333909	348-366.2	115	×	65	×	20	×	520	4
17	333910	366.2-380	80	×	75	×	55	×	1750	×
18	333911	380-400	100	5	90	×	65	×	950	×
19	333912	400-417	90	5	110	×	55	×	700	×
20	333913	417-424.6	85	×	95	0.5	45	×	720	×
21										
22										
23										
24										
25										

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALABS

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3 08 3387	9.12.85	9632	3 OF 6

TUBE No.	SAMPLE No.		Cu	Pb	Zn	Ag	Ni	Au	Ba	As
1	STD 3036		170	590	250	2.0	150			
2	RPT 333869		20	10	80	x	35			
3	RPT 333888		55	45	185	x	95			
4	STD 3036		160	585	240	1.5	150			
5	RPT 333909		100	5	60	x	20			
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION		5	5	5	0.5	5	0.008	10	2
24	DIGESTION									
25	METHOD		101	101	101	101	101	309	401	401

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3 08 3387	9.12.85	9632	4 OF 6

TUBE No.	SAMPLE No.		Cr	Zr	Ti					
1	333869	9-25.6	25	140	660					
2	333870	25.6-34.2	90	140	3150					
3	333871	34.2-42	20	140	660					
4	333872	42-55	90	130	2650					
5	333873	55-57.8	30	250	2050					
6	333874	57.8-65.4	480	65	1650					
7	333875	65.4-66.9	470	70	1700					
8	333876	66.9-69.4	70	130	2250					
9	333877	69.4-80.7	40	280	3650					
10	333878	80.7-98	30	300	4150					
11	333879	98-120	200	180	2850					
12	333880	120-140	560	190	3200					
13	333881	140-151.8	570	220	3300					
14	333882	151.8-154	470	220	3500					
15	333883	154-155.8	530	250	3800					
16	333884	155.8-160.5	x	160	2700					
17	333885	160.5-172.6	x	160	2550					
18	333886	172.6-174.6	110	110	2350					
19	333887	174.6-177.8	25	120	2750					
20	333888	177.8-189	280	140	2500					
21	333889	189-194.5	200	120	2800					
22	333890	194.5-194.7	320	170	3200					
23	333891	194.7-198.6	200	80	2100					
24	333892	198.6-198.8	200	60	2100					
25	333893	198.8-201.6	380	100	2400					

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3 08 3387	9.12.85	9632	5 OF 6

TUBE No.	SAMPLE No.		Cr	Zr	Ti					
1	333894	201.6-205.8	480	80	2000					
2	333895	205.8-220.6	460	95	2550					
3	333896	220.6-228.3	95	55	2500					
4	333897	228.3-235.5	130	70	2550					
5	333898	235.5-240	110	150	2150					
6	333899	240-260.25	180	140	2500					
7	333900	260.25-280.4	x	160	3400					
8	333901	280.4-282.1	230	170	3300					
9	333902	282.1-283.4	40	120	910					
10	333903	283.4-290	430	120	2250					
11	333904	290-292.6	210	130	2700					
12	333905	292.6-300.55	350	120	2550					
13	333906	300.55-310	45	120	790					
14	333907	310-324.5	x	210	2850					
15	333908	324.5-348	10	170	2200					
16	333909	348-366.2	25	160	3250					
17	333910	366.2-380	70	95	3150					
18	333911	380-400	150	80	2900					
19	333912	400-417	100	100	3200					
20	333913	417-424.6	55	130	4050					
21										
22										
23										
24										
25										

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3 08 3387	9.12.85	9632	6 OF 6

TUBE No.	SAMPLE No.		Cr	Zr	Ti					
1	STD 3036									
2	RPT 333869									
3	RPT 333888									
4	STD 3036									
5	RPT 333909									
6										
7										
8										
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10										
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13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION		5	5	50					
24	DIGESTION									
25	METHOD		401	401	401					

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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APPENDIX 11.

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11 FEB

ABERFOYLE EXPLORATION

(Internal Report)

DOWNHOLE ELECTROMAGNETICS ON THE MACKINTOSH HATFIELD LICENCES TO DECEMBER 1985

Distribution

Aberfoyle Hawthorn (2)
John Sise, Burnie
Dave Wallace, Que River

Tom Eadie
Geophysicist

481

598484

11 FEB

ABERFOYLE EXPLORATION

(Internal Report)

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598483 11 FEB

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I INTRODUCTION

This report summarizes the results from downhole EM work done between September 1985 and December 1985 on the Mackintosh and Hatfield licences. All earlier work is discussed in earlier reports.

The present work includes the results from drill holes Mac 2, Mac 3, Mac 4, Mac 5, Mac 6, Hat 4 and Hat 5.

II SUMMARY

Drill holes Mac 4, Mac 5, Mac 6, and Hat 4 had no significant downhole EM responses at all. Hat 5 had a response typical of that from the black shale. Mac 2 and 3 had fairly strong responses which at first were considered to be of some interest. However further surface work and interpretation aid from an outside consultant, Geoff Dickson, indicates that these responses have been caused by moderately conductive weathered basalt.

III INTERPRETATION

1) Mac 2, Mac 3, Mac 5 Area

Some initial interpretation and data presentation for this area is presented in Eadie, 1985. The discussion in this section supplements that interpretation.

Mac 2 was drilled to test the down dip extension of a volcaniclastic unit with large massive sulphide clasts at surface. No improvement in sulphide content was discovered in the drillhole. Downhole EM in Mac 2 showed a poorly defined off hole conductor. Mac 3 was an attempt to test this conductor and to increase geological understanding of the complex folding and faulting in the area. No massive sulphides were intersected in Mac 3.

A new campaign of DHEM was completed on holes Mac 2 and 3 with transmitter loops laid out in a proper orientation for the geology and the drill holes. This necessitated cutting a small new grid (figure 1). The results are included in figures 2-14 and summarized on figure 15. The results were very surprising and confusing so I hired a consultant, Geoff Dickson, to help with the interpretation. He concluded that the offhole conductor from Mac 2 had in fact been intersected at quite a shallow depth in Mac 3 and the anomaly was in fact caused by the moderately conductive basalt unit at the top of the hole. This unit appeared to be quite a good conductor whenever the transmitter loop was placed directly on top of the basalt, particularly if it had been weathered. This theory appears to explain all of the peculiarities in the data and is supported by the surface Sirotem data (figures 16-18) which was taken with a 200m x 200m transmitter loop positioned over loop positions 1-4. This data shows that the host rock is significantly more conducive on line 0 and particularly line 100E, or in other words to the north of the drilling, where the basalt is known to thicken.

Mac 5 was drilled after this somewhat depressing interpretation had been finished, to test the keel of the syncline at a greater depth to the north, and to check to see if it was possible that the DHEM interpretation by Geoff Dickson had been wrong. No significant massive sulphides were encountered in Mac 5, and no good offhole EM anomaly was seen. However there is a bit of an anomaly at the top of the hole where the basalts are encountered, suggesting that Geoff Dickson's interpretation was right.

2) Mac 4

Mac 4 was drilled to test a subtle UTEM anomaly in an area of prospective stratigraphy SE of Hellyer. The hole was surveyed from eastern (figure 21) and central (figure 22) transmitter loops to check for the possibility of either flat-lying and vertical bodies. No interesting responses were seen in the hole; the noise at the top of the hole must be due to casing.

IV CONCLUSIONS

This downhole EM campaign has been successful only in downgrading several prospects. In spite of initial optimism, even the Mac 2-Mac 3 area has been downgraded now that more interpretation experience and expertise has been gained.

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ABERFOYLE RESOURCES
Exploration Division

INTERPRETATION REPORT

DHEM SURVEYS
DDH MAC 11

MACKINTOSH EL 2/70

Prepared by:

J SILIC

Distribution

Issued by:

J SILIC
Chief Geophysicist

Hawthorn (1)
Burnie (1)

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Discussion of Results

Conclusion

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DHEM: The Que-Hellyer Volcanics Experience

Appendix II

Fig 1
Loop Locations and DHEM profiles

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Fig 1 : DHEM - Loop 1 and Loop 2 Locations

1a: Sirotem profile MAC 11 Loop 1

1b: Sirotem profile MAC 11 Loop 1

1c: Sirotem profile MAC 11 Loop 2

1d: Sirotem profile MAC 11 Loop 2

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Introduction

Electromagnetic techniques have played an important role in the discoveries of the Que River and Hellyer deposits (Webster and Skey, 1979; Silic et al, 1985; Eadie et al, 1985). Since the Hellyer discovery, downhole Em techniques (DHEM, Silic and Eadie, 1989, Appendix I) have been an important part of the exploration strategy in the volcanic sequence hosting the above deposits because of the failure of blanket Em surveys to locate further targets worthy of follow up and because no other method can accurately target drill holes at depths beyond the surface Em detection limits.

The purpose of this report is to discuss and present the results from DHEM surveys in DDH MAC 11 on the Mackintosh EL 2/70.

Survey Specifications

All loops were designed so that their primary magnetic field would couple with targets at specified target horizons. Possible variations in the dips of the targets from the predicted dips (based on the geological knowledge) was also taken into account, as was the detection limitations of the DHEM surveys, the parameters of which are known from in-house research studies (Silic and Eadie 1989).

Discussion of Results

Only responses from host volcanics are evident in the data. The data quality however is good enough for a target of approximately 2 mt to have detected if it was within 150 metres from the holes.

Conclusion

No targets worthy of follow up have been detected by the DHEM surveys in DDH MAC 11.

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APPENDIX I

7th ASEG Conference Paper No 598495

DHEM: THE QUE-HELLYER VOLCANICS EXPERIENCE

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Keywords

downhole electromagnetics, Que River, Hellyer, volcanics

Short title

Que Hellyer DHEM

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Abstract

The intermediate volcanic sequence hosting the Que River and Hellyer mines provides an excellent environment for electromagnetics in that the only two strong conductors ever found in them have been developed into mines. Now that the ground has been thoroughly explored by surface EM and the search is by necessity becoming deeper, downhole EM has become an extremely important aspect of the exploration programme. However, even in this ideal environment for EM, there are factors that cause interpretation headaches, although all can be overcome with care and experience. These problems include the overlying moderately conductive black shales, instrumentation responses from the Sirotem unit, responses from culture, and the effect of strong conductors such as the known ore bodies close to the target.

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Introduction

Electromagnetic techniques have played an important role in the discoveries of the Que River and Hellyer deposits (Webster and Skey, 1979; Silic et al, 1985; Eadie et al, 1985). Since the Hellyer discovery, downhole EM techniques (DHEM) have become an important part of the exploration strategy in the volcanic sequence hosting the above ore bodies (referred to in this paper as the Que-Hellyer volcanics) because of the failure of blanket surface EM surveys to locate further targets worthy of follow up and because no other method can accurately target drillholes at depths beyond the surface EM detection limits. Some forty exploration drillholes have been logged with EM since the Hellyer discovery. Recently drillhole patterns have been designed and are being drilled to be used as geophysical platforms for potential targets at depths beyond the detection capabilities of the surface systems.

This paper discusses our experience with DHEM techniques in the Que-Hellyer volcanics by illustrating the power of the method and also some of the problems encountered.

The EM environment of the Que Hellyer volcanics

The Que-Hellyer volcanics are known to be relatively resistive with a bulk value of about 500 ohm-metres (Webster and Skey, 1979). The overlying Que River Shales are slightly more conductive, although variable, with resistivities as low as 100 ohm-metres. Conductive weathering is not a problem in this environment, and there are not many other spurious conductors. In fact the only two first-priority surface EM conductors followed up in the Que-Hellyer volcanics are the two ore bodies, Que River and Hellyer. However, given the relatively short time constants associated with parts of these deposits (Silic et al, 1985; Eadie et al, 1985; Staltari, 1986) there have been two candidates identified as having the potential to overshadow an EM response from an ore body: the shales that overlie the Que-Hellyer volcanics and the Sirotem instrumentation response.

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DHEM through the overlying shale horizon

The UTEM anomaly shown in Figure 1 is one of the few surface responses in the area that is comparable in strength to the Hellyer UTEM discovery anomaly and the Que River response, with the anomaly lasting beyond 1 ms. An experienced interpreter, using for example the second derivative technique of Silic (1989), would recognise that the sudden changes in slope of the profile mark the edge of a conductive unit, in this case the Que River shale horizon beneath a dolerite sill. This was understood prior to drilling, and a hole was designed not to test the conductor, but rather a prospective horizon some hundreds of metres below the surface. Unlike the surface data which superficially resembles the Hellyer results, the DHEM data (Figure 1) do not at all replicate the DHEM results at Hellyer where a time constant of 3-4 ms is evident (Eadie, 1987). Instead the response can be interpreted to be from a large body with a moderately low resistivity (the shales), and would not be confused with a good inductive ore body response.

Sirotem instrumentation response

A number of responses occur with elevated signal levels which are impossible to reconcile with the resistivites of the Que-Hellyer volcanics. The shape of the response and the signal levels vary significantly with the transmitter loop position. Similar effects have been observed by other companies working in relatively resistive terrains (Irvine, 1986). An example of this effect is shown in Figure 2, where the Sirotem response at 2.05 ms is shown for three loops. Although only the data at 2.05 ms is shown here, the responses at other times have identical shapes with amplitudes decreasing monotonically with time. In this case the signal levels are much higher than the expected signal from the volcanics, which should produce 0.1-0.2 uV/A at this delay time for this set up. The shape of the profile and signal levels vary considerably from loop to loop, with the secondary field being practically zero for Loop 1. The response correlates very closely with the axial component of the primary magnetic field

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produced by each transmitter loop (Figure 2), as was confirmed by inverting the data using simple current filament models (eg Fullagar, 1987). This response is presently referred to as the "probe self response", although without further investigations we cannot be absolutely certain whether this is the case. Nevertheless, we have made the observation that in resistive terrains when the loop is close to the drillhole and the primary field is therefore expected to be large, these "probe self responses" have invariably been noted. To ensure that no target responses are overshadowed, it is good practice to keep the loop as far away from the drill hole as is possible.

Locating targets in electromagnetically active areas

One of the important exploration problems in the Que-Hellyer volcanics is to locate targets in the immediate vicinity of the existing deposits. In these cases the responses from the existing deposits and the associated culture invariably contribute to the DHEM data. Thus, the problem posed in these situations is to understand the effects from the known ore bodies and culture so that these responses may be separated from those of the other targets. Two examples, one a discovery near the Hellyer deposit and the other an attractive target about to be drilled near the Que River mine will be used to show some of the problems and solutions.

Figure 3 shows the Sirotem response at 3.4 ms in two drill holes on a section about 100 m north of the northern limits of the Hellyer ore body. The problem is to determine if the total response can be explained by the nearby orebody or if there is an unknown conductor influencing the results. Data from both drillholes show similar amplitude variations from loop to loop which are for the most part explainable by the Hellyer orebody, but in drillhole HL045, there is a consistent migration of crossovers from Loop 1 to 4, with a corresponding reduction in the width of the anomalies. It was this observation that suggested that a target conductor may lie close to this hole and therefore northeast of the known orebody. In particular, loops 3 and 4, which couple relatively well with a hypothesised flat-

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lying conductor north east of Hellyer and poorly with Hellyer itself, generate current flow within about 50-70 m of HL045. The intersection of 1.9 m of conductive base metal sulphides in HL069A gives geological support to the hypothetical conductor.

Another example of this type occurred during a drilling programme at Que River. Two deep holes were drilled 400 m apart beneath the mine. This pattern was based on the size and conductivity parameters of the target and the detectability limitations of DHEM. Both holes were surveyed using Sirotem with a late time broad negative trough detected in one of the holes, QR1060A (Figure 4), centred at 975 m down the hole. This trough is at least 700 m wide at 4.8 ms with a half-width greater than 500 m (half-width is defined as the width of the anomaly at half of its peak amplitude). Two questions arose regarding this response. The first question was whether or not the response was due to the Que River massive sulphides or culture associated with the mine, 500 metres above the hole. This possibility was ruled out because no late time anomaly was observed in the other hole, QR1001, which was the same distance from the deposit. The second question involved the change in anomaly sign at approximately 2 ms. To better understand the response, both holes were resurveyed with EM-37, and data was obtained from additional surface loops. Selected time channels from two of the loops are shown in Figure 5.

The early time capability and close channel sampling of the EM-37 system enable a thorough interpretation. In the loop 2 data, a strong broad cultural response can be seen clearly at early times shallow in the hole. In fact this cultural effect which decreases slowly down the hole imprints a large long wavelength background response on the data to late delay times even at depth. It is this background response that gives the apparently large half-width in both the EM-37 and Sirotem loop 2 data. Therefore loop 7 data, which has no cultural contamination is used for the interpretation. The signs of the responses are inverted for the loop 7 data because the loop position is on the opposite side of the conductor.

The major effect to be explained is the transition from a broad

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negative, centred at 975 m depth to a broad positive late in time. A similar effect has been noted by Asten et al, (1987) and ascribed to drive delay. However in rocks as resistive as these, this effect can be calculated (Silic, 1987) to die out by 0.1 ms. Another possibility is a change in the magnetic field from being current channelling dominated to vortex flow dominated as documented and reported as a possible effect at Thalanga (Irvine, 1987). This appears to explain the response very well in that from our experience in these volcanics, strong current channelling effects generally last to about 2 ms. In addition, at the changeover time, which in this case is between 1.77 ms and 2.21 ms, the response shows some characteristics of both channelling and vortex flow, instead of just passing straight through zero. Since the channelling and vortex flow responses are of opposite polarity, the conductor is interpreted to lie above the drill hole as shown in Figure 6.

Discussion

Even in the most ideal terrains for electromagnetics, care and experience are necessary to not only ensure that drastic errors are not made in DHEM interpretation, but also to derive the maximum possible information from the data. In fact in these areas, DHEM should be more than just another step in the exploration programme. Rather it should actually lead the effort with every drill hole planned to make full use of its potential. One could also extrapolate the power of DHEM to areas of conductive cover. Having the receiver down the hole overcomes many of the problems of weathering and makes DHEM a powerful exploration tool even in areas where surface EM has been only a limited success.

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Figure Captions

Figure 1: Surface and downhole response to the overlying shale unit. (a) The surface UTEM anomaly lasts to comparable times to that of the Que River and Hellyer ore bodies. (b) The DHEM response is interpreted to be from a large body with a moderately low resistivity.

Figure 2: The Sirotem data in MAC 8 from loops 1, 2 and 3 (top) correlates with the axial component of the primary magnetic field of the transmitter loops (bottom). This instrumental response is referred to as "probe self-response".

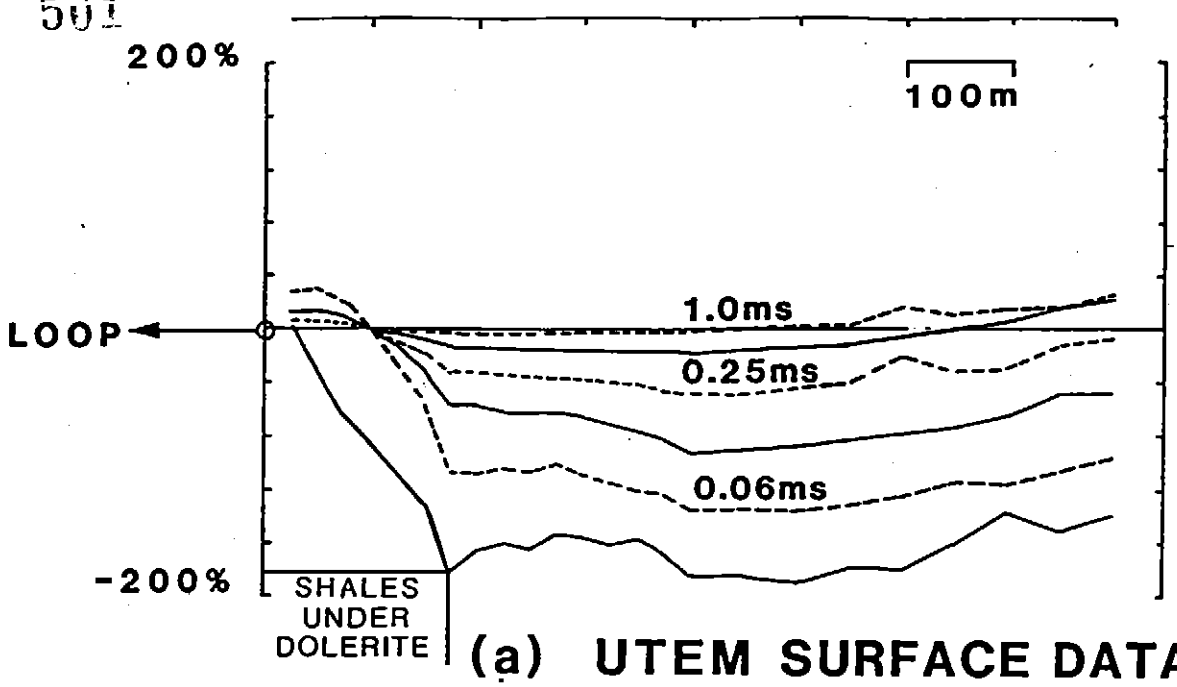
Figure 3: Immediately north of Hellyer, the large responses in HL045 and HL062 can not be interpreted to arise solely from the known ore body. A second conductor must be invoked and this is supported by drill information.

Figure 4: Downhole Sirotem response for QR1060A, loop 2. A very broad anomaly centred at 975 m changes from a positive to a negative with increasing delay time.

Figure 5: Downhole EM-37 responses for QR1060A, loops 2 and 7. The loop 2 response can be seen to have a very large long wavelength response strongest at shallow depths from culture near the Que River Mine, which superimposes a large background on the response to depth. The loop 7 response is initially dominated by a negative response (current channelling) at about 1000 m. It undergoes a sign change, and is finally dominated by a broad positive peak (vortex flow).

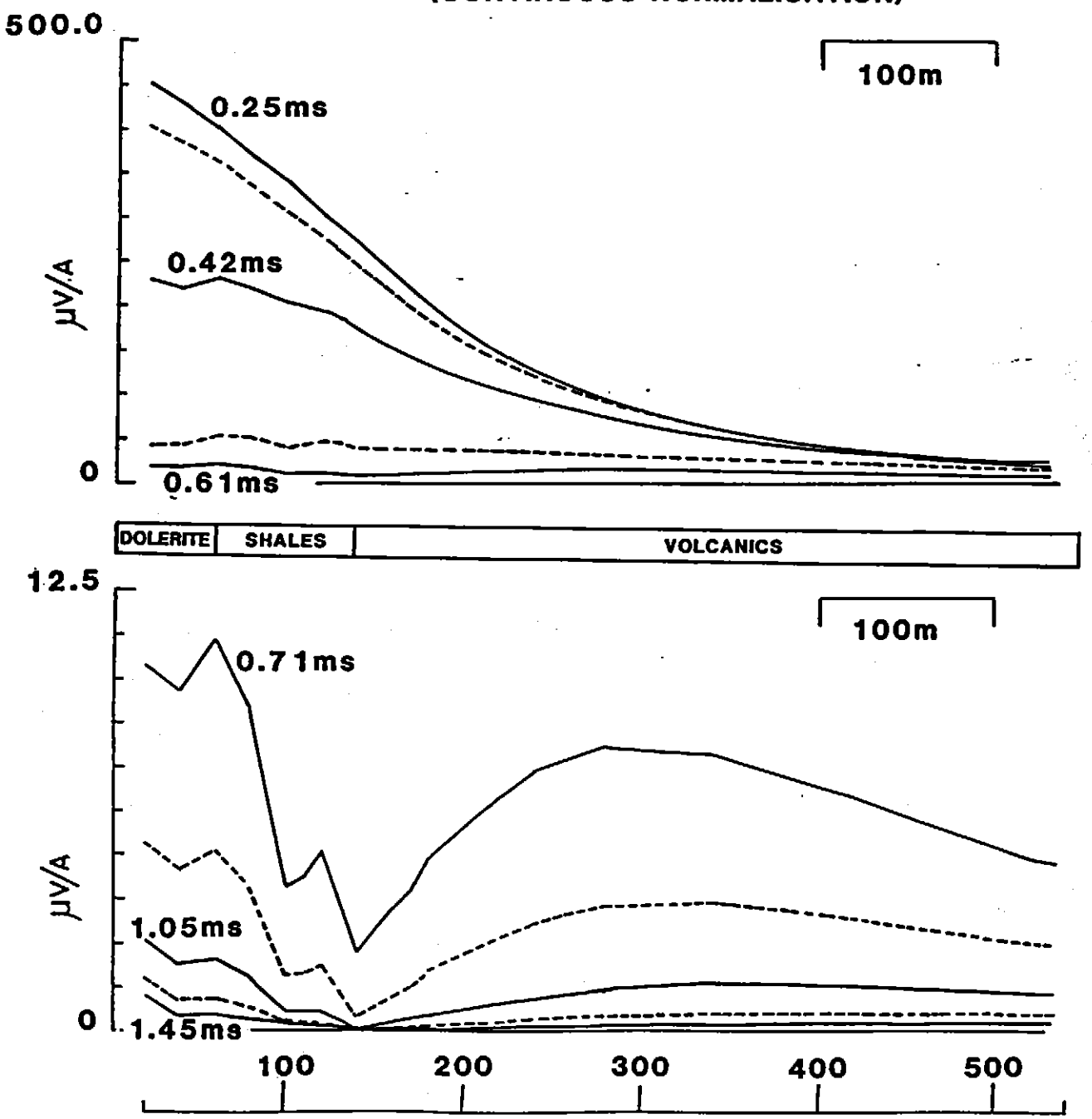
Figure 6: Location of drillhole QR1060A , transmitter loops, Que River Mine and interpreted conductor.

598504



(a) UTEM SURFACE DATA

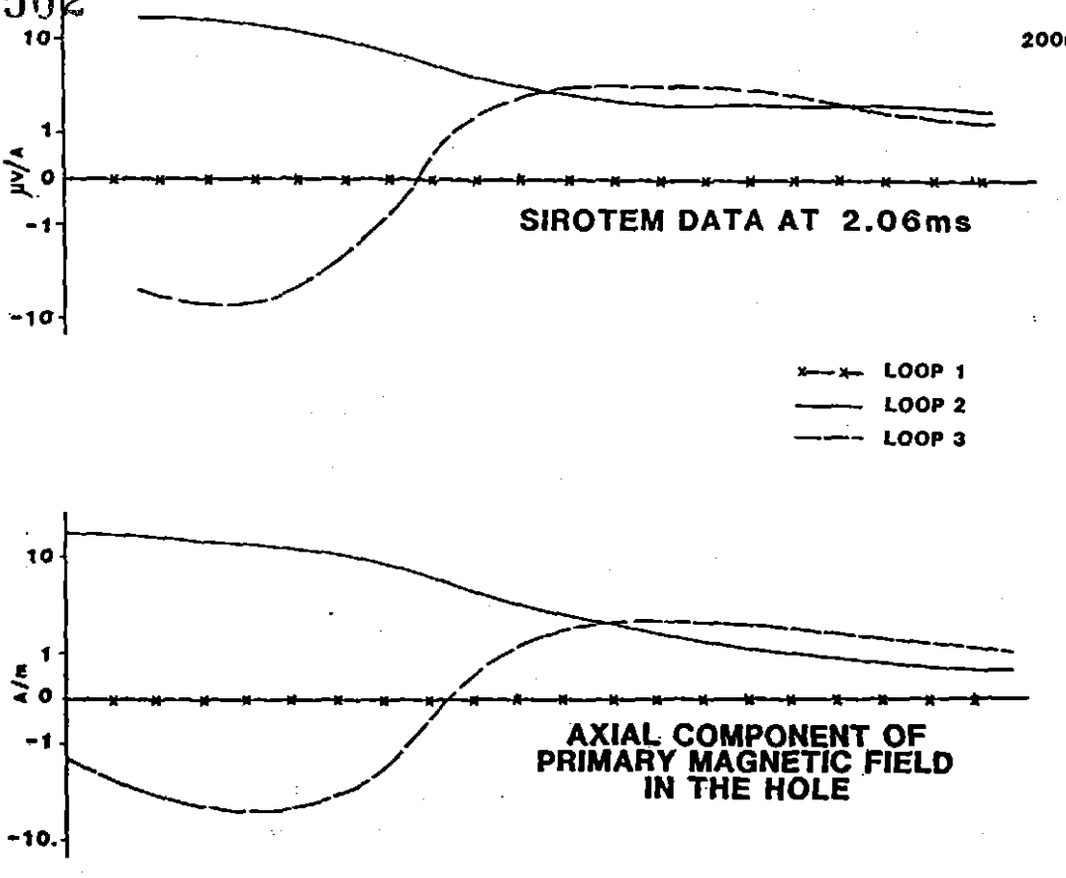
(CONTINUOUS NORMALISATION)



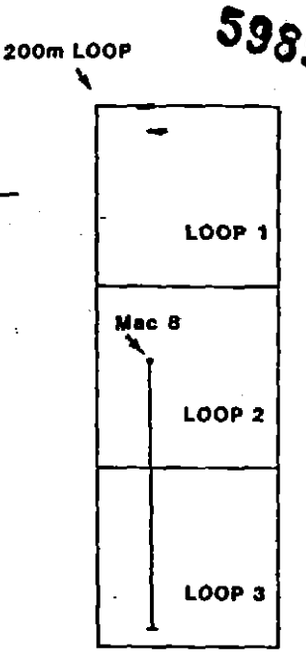
(b) DOWN-HOLE SIROTEM DATA

502

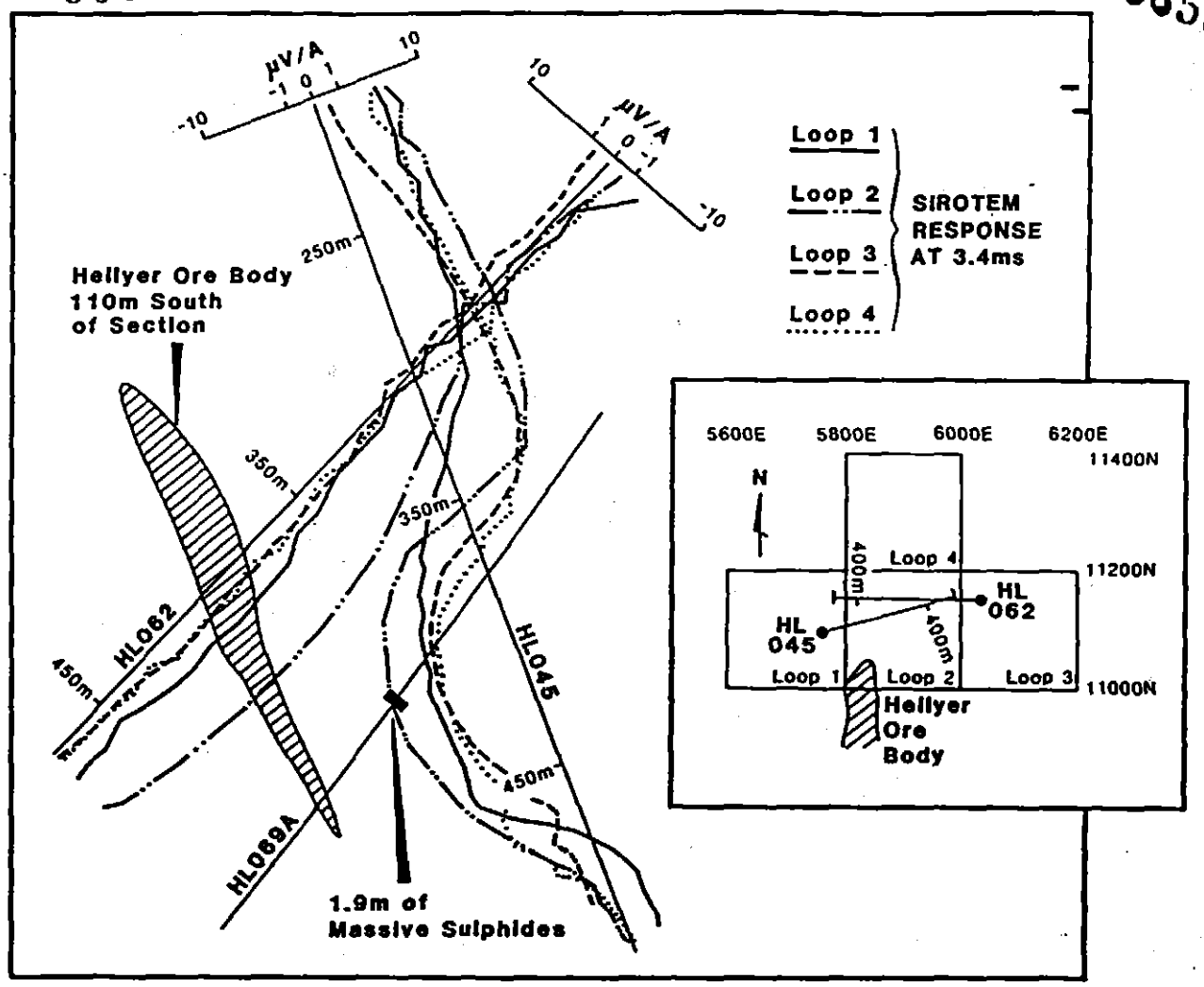
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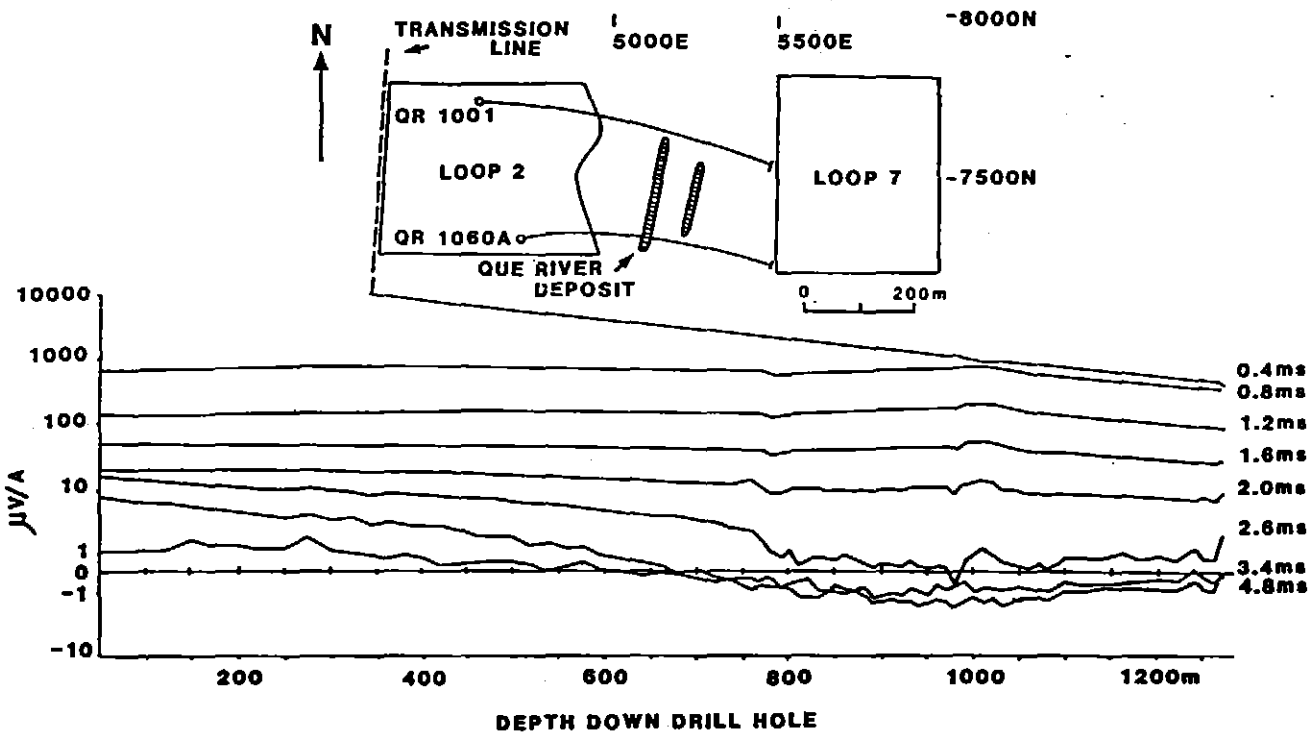

10
1
0
-1
-10
μv/A
SIROTEM DATA AT 2.06ms
LOOP 1
LOOP 2
LOOP 3

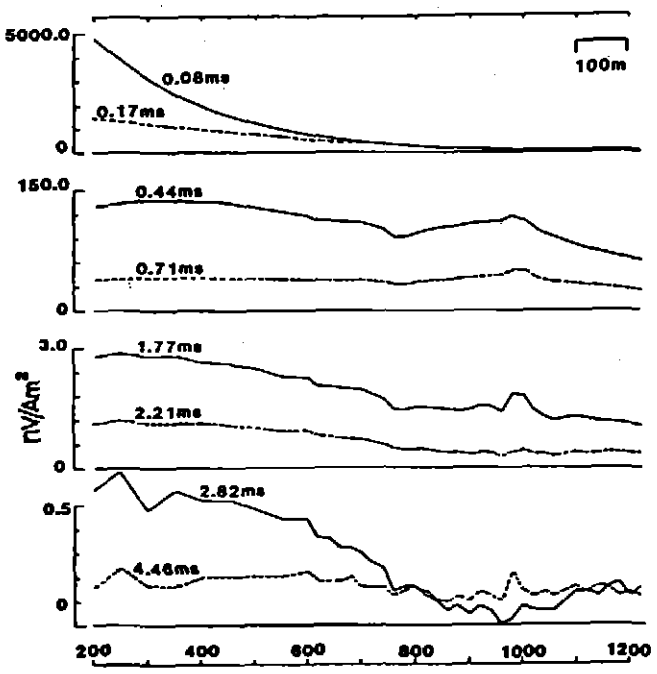
10
1
0
-1
-10.
A/m
AXIAL COMPONENT OF
PRIMARY MAGNETIC FIELD
IN THE HOLE


200m LOOP
LOOP 1
Mac 8
LOOP 2
LOOP 3

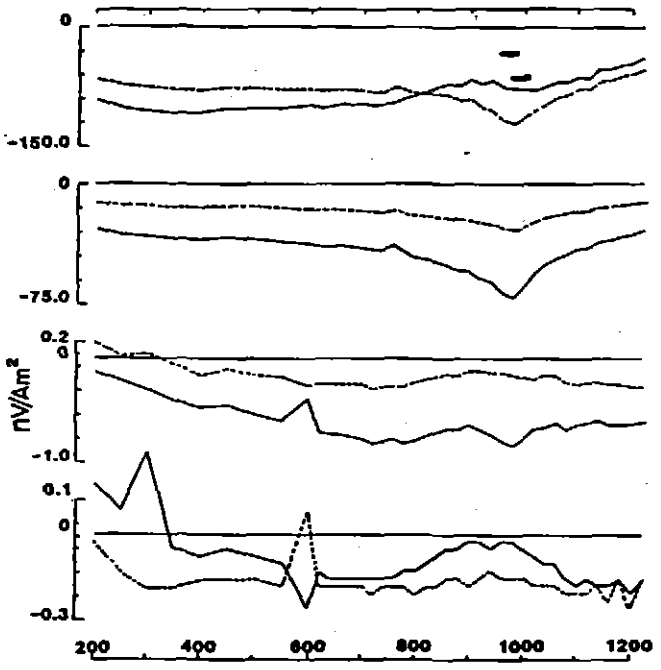
598506


μV/A
-10
-1 0 1
10
Loop 1
Loop 2
Loop 3
Loop 4
SIROTEM
RESPONSE
AT 3.4ms
Hellyer Ore Body
110m South
of Section
250m
350m
350m
450m
HL062
HL045
HL069A
450m
1.9m of
Massive Sulphides
5600E
5800E
6000E
6200E
11400N
11200N
11000N
N
400m
400m
HL
062
HL
045
Loop 1
Loop 2
Loop 3
Loop 4
Hellyer
Ore
Body

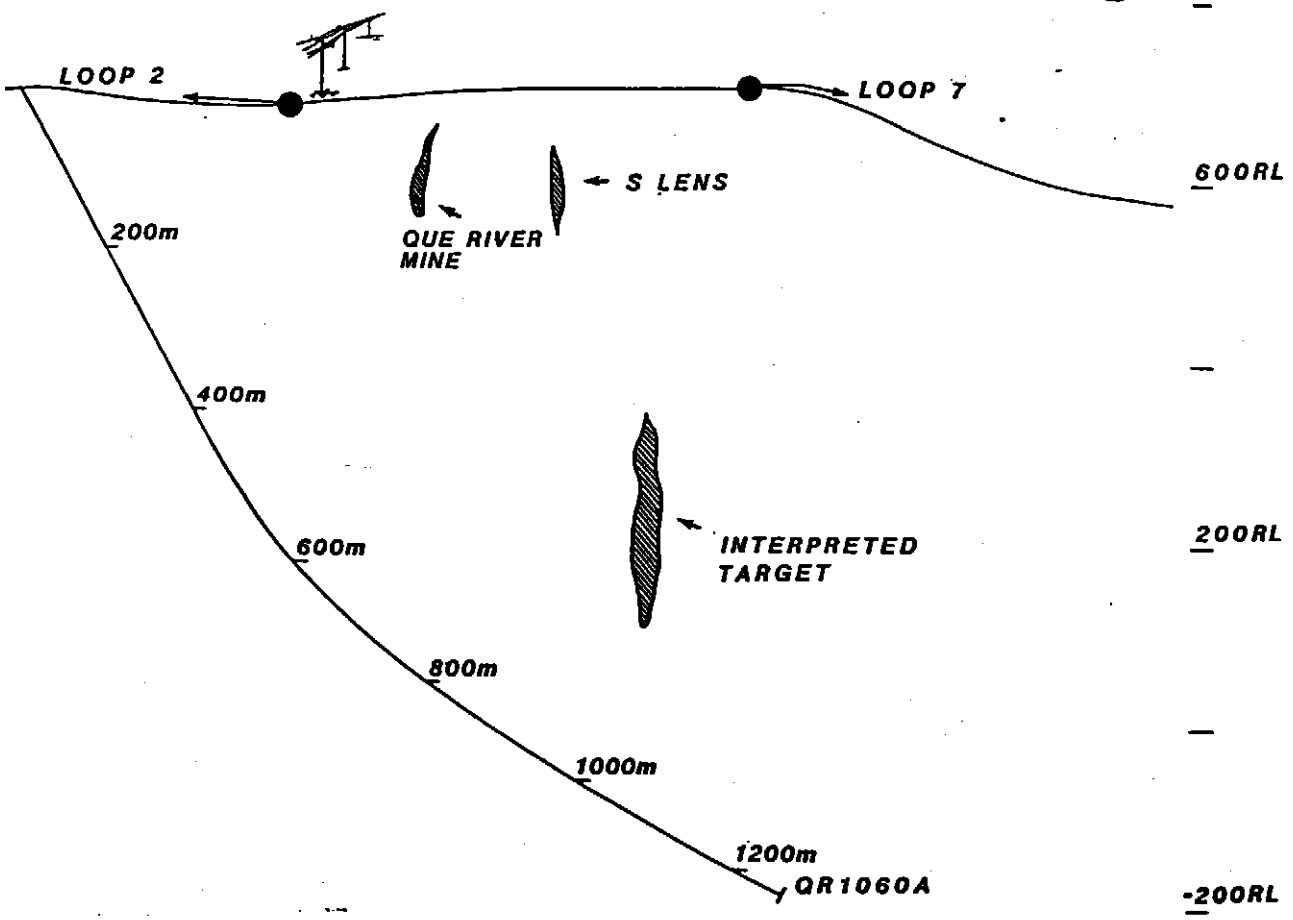

N
TRANSMISSION LINE
5000E
5500E
-8000N
QR 1001
LOOP 2
LOOP 7
-7500N
QR 1060A
QUE RIVER DEPOSIT
0
200m
10000
1000
100
10
1
0
-1
-10
µV/A
0.4ms
0.8ms
1.2ms
1.6ms
2.0ms
2.6ms
3.4ms
4.8ms
200
400
600
800
1000
1200m
DEPTH DOWN DRILL HOLE


5000.0
0
100m
0.08ms
0.17ms
150.0
0
0.44ms
0.71ms
3.0
0
1.77ms
2.21ms
nV/Am²
0.5
0
2.82ms
4.46ms
200
400
600
800
1000
1200
DEPTH DOWN DRILL HOLE (m)

LOOP 2


0
-150.0
0
-75.0
0.2
0
-1.0
nV/Am²
0.1
0
-0.3
200
400
600
800
1000
1200
DEPTH DOWN DRILL HOLE (m)

LOOP 7


LOOP 2
LOOP 7
S LENS
600RL
200m
QUE RIVER
MINE
400m
600m
INTERPRETED
TARGET
200RL
800m
1000m
1200m
QR1060A
-200RL

598510

APPENDIX II

508

598511

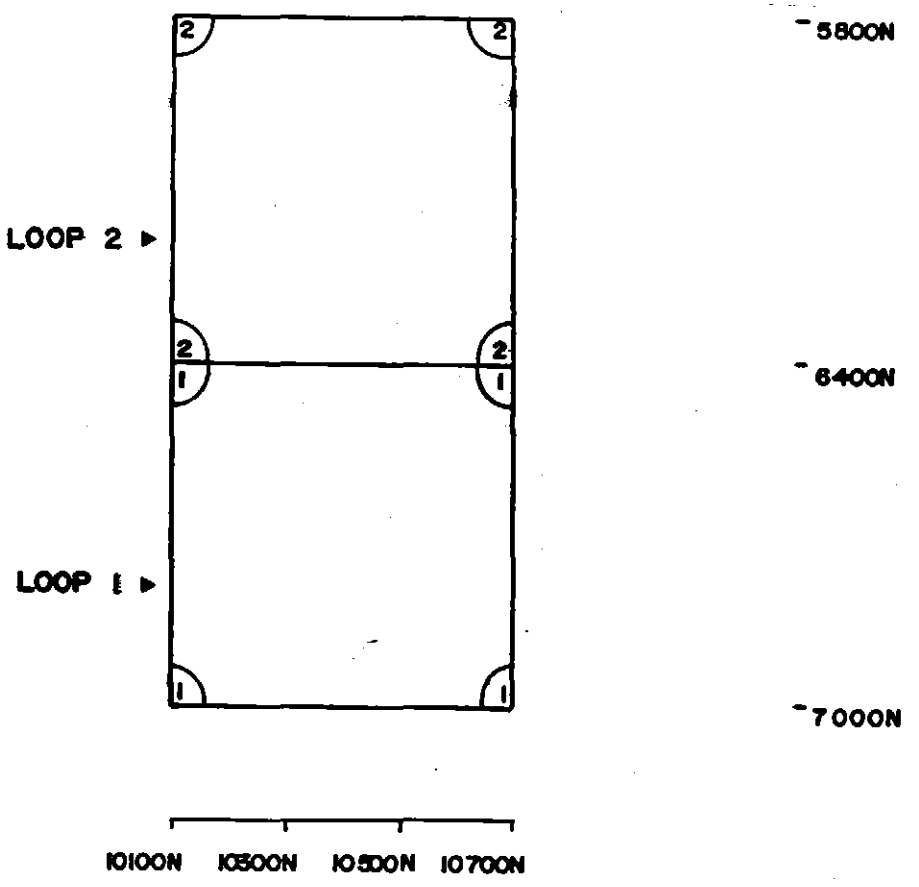


Fig. 1

Aberfoyle Resources Limited

EXPLORATION DIVISION

REVISIONS			
Init.	Date	Init.	Date

Location Code :

NORTH WEST TASMANIA

EL 2/70-MACKINTOSH

DHEM-LOOP 1 and 2 LOCATIONS

Scale : As Shown

Date : August, 1989

Compiled : JS

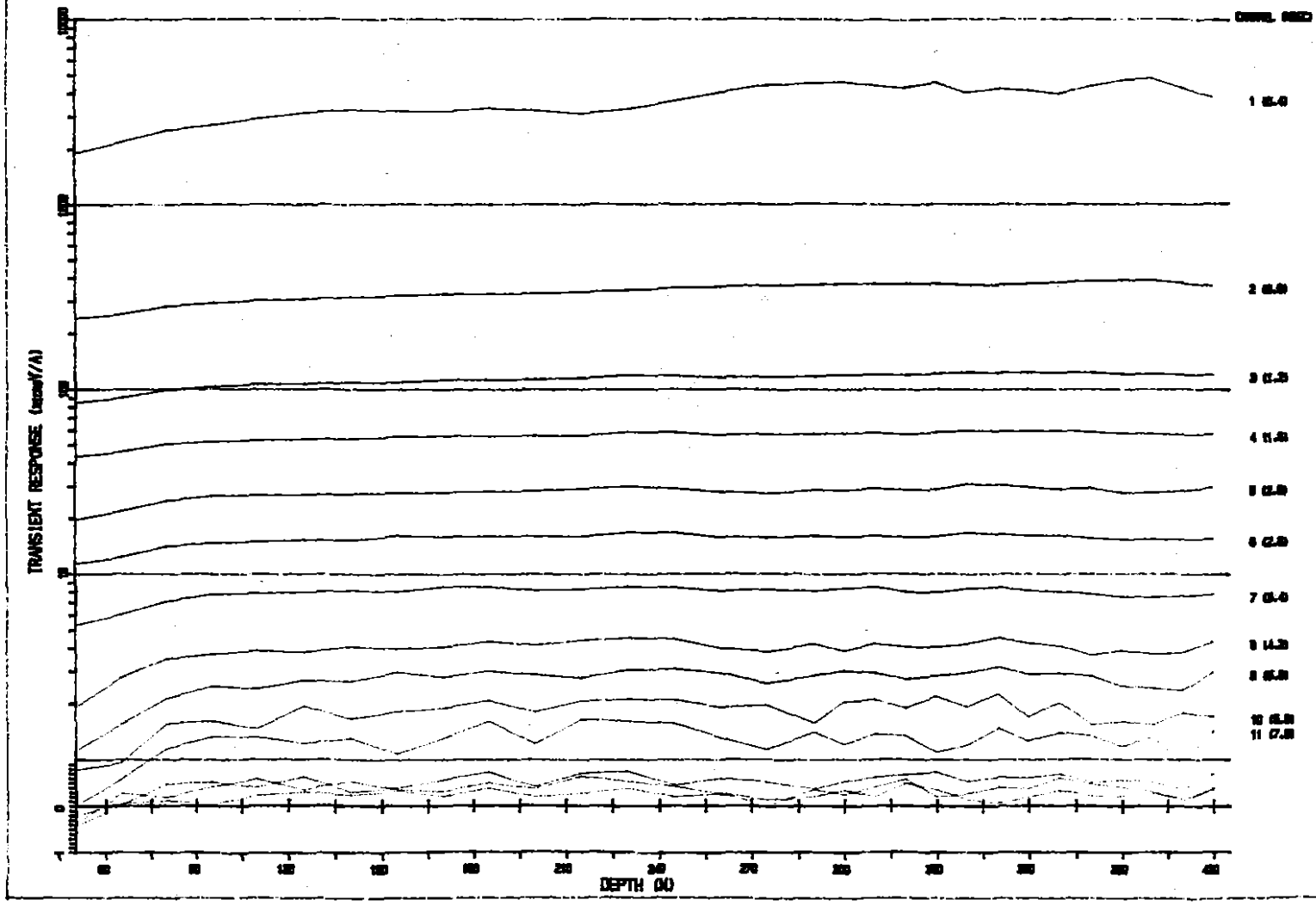
Drawn : JS

Traced : AMcK

Checked :

Plate No. : MAC 256

598512



SURVEY SPECIFICATIONS

5 cm

PLOT SPECIFICATIONS

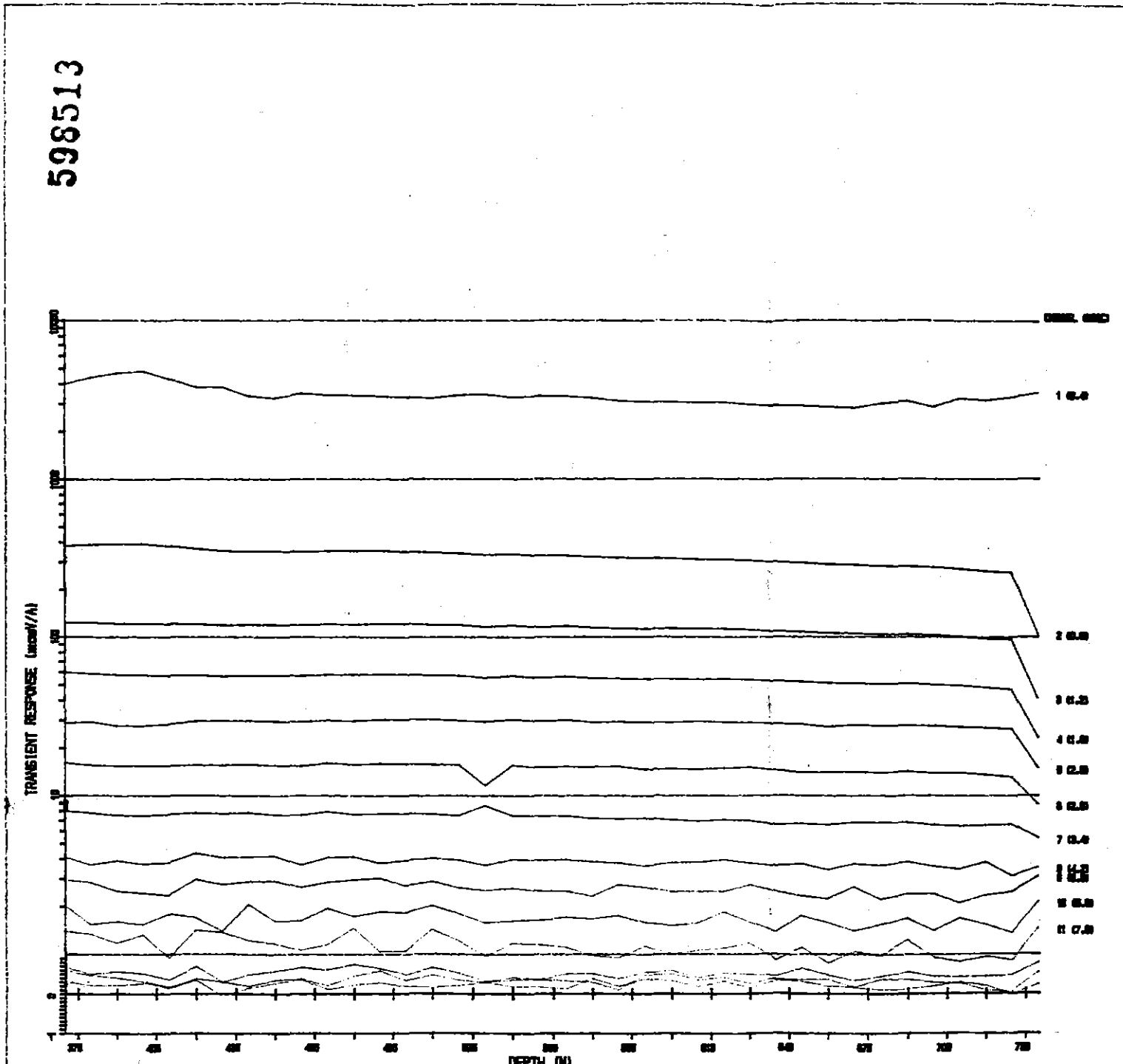
ABERFOYLE

TASMANIA
QUE RIVER
SIROTEM PROFILE
LINE DDH MAC11 LOOP1

Fig. 1a

509

598513



SURVEY SPECIFICATIONS

5 cm

PLOT SPECIFICATIONS

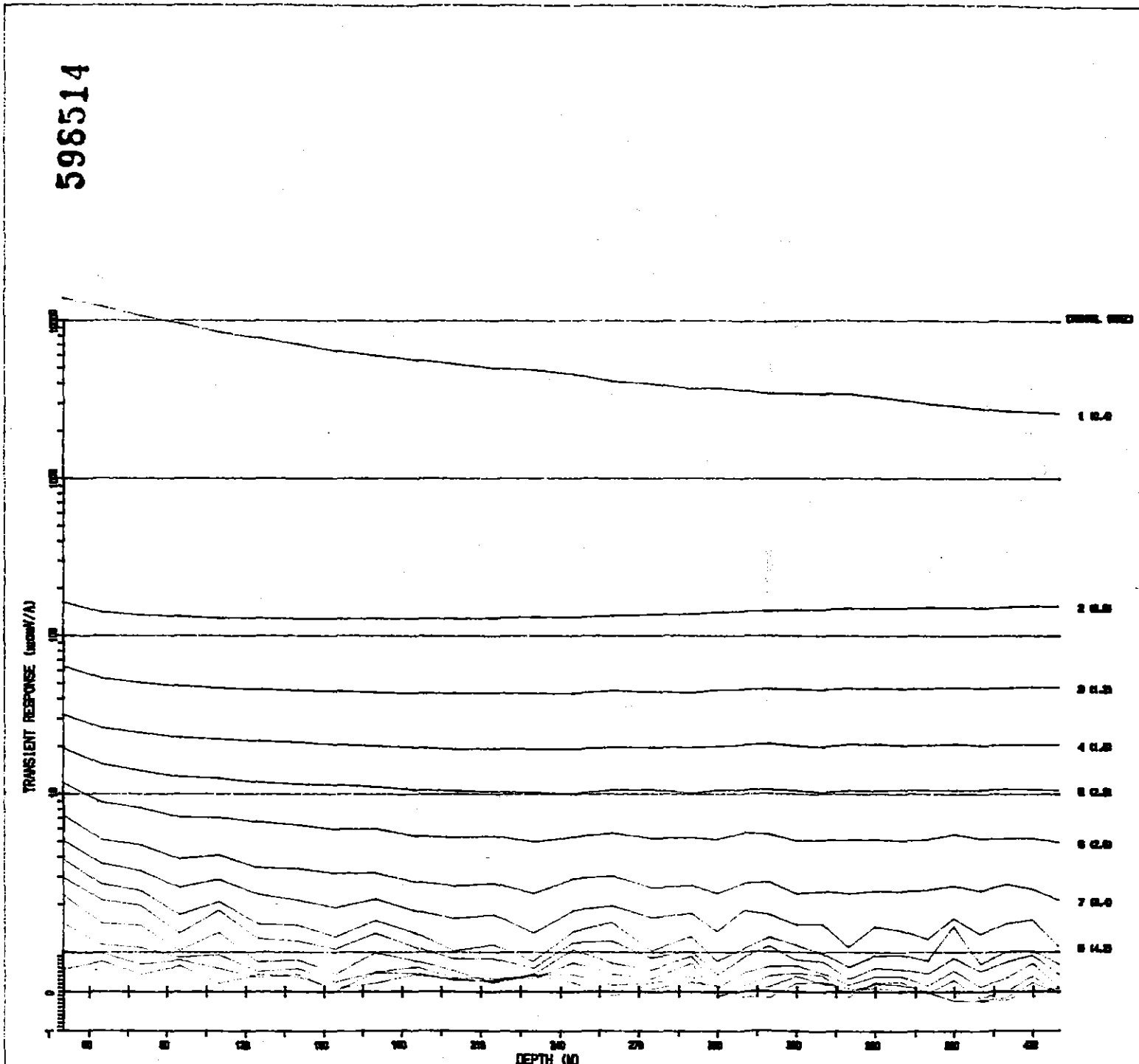
ABERFOYLE

TASMANIA
QUE RIVER
SIROTEM PROFILE
LINE DDH MAC11 LOOP1

Fig. 6

510

598514



SURVEY SPECIFICATIONS

5 cm

PLOT SPECIFICATIONS

ABERFOYLE

TASMANIA

QUE RIVER

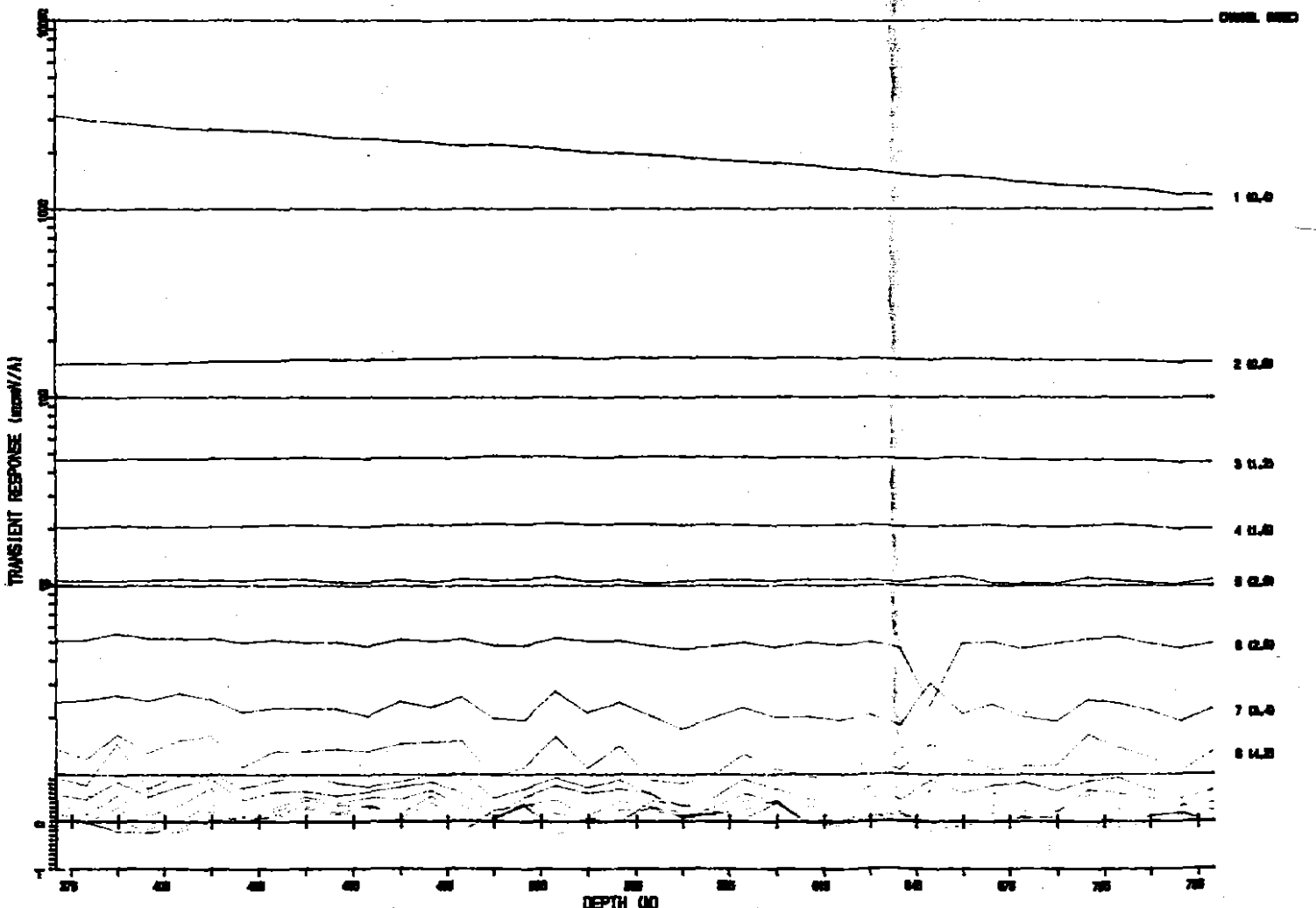
SIROTEM PROFILE

LINE DDH MAC 11 LOOP 2

Fig. 1c

511

598515



SURVEY SPECIFICATIONS

5 cm

PLOT SPECIFICATIONS

ABERFOYLE

TASMANIA

QUE RIVER

SIROTEM PROFILE

LINE DDH MAC 11 LOOP 2

Fig.1d

512

APPENDIX 12.

514

598517

DIAMOND DRILL CORE

MAGNETIC SUSCEPTIBILITY

STUDY

MACKINTOSH AREA,

TASMANIA

COPIES:

HAWTHORN : 1
[redacted] : 1
P. EAGLESON : 1

PREPARED FOR: ABERFOYLE RESOURCES LTD

BY: PAUL EAGLESON
MARCH 1987

INTRODUCTION

This report encloses the results of a susceptibility study of nineteen diamond drill holes from Mackintosh, Que River, Mount Charter and Hatfield areas. Magnetic susceptibility measurements were taken from DDH's Mac-1, Mac-2, Mac-3, Mac-4, Mac-5, Mac-6, Mac-7, Mac-8, Mac-9, QR-81, QR-109, MC-6, MC-8, MC-9, MC-10, MC-14, MC-15, MC-17 and Hat-8.

The measurements were evaluated and fourteen samples were chosen for petrological study. The samples selected for analysis were representative of the highest magnetic measurements or anomalous zones in the holes studied. The analysis of these samples was to determine the possible source, magnetite or pyrrhotite, of these anomalous zones.

METHOD

A Scintrex Core Testing Unit or Magnetic Susceptibility Meter was used to find the anomalous zones.

A measurement was taken every metre, the exactness of each measured metre dependant on the state of the core, for example if the core was too broken or split the measurement may be moved forward or back from the measured metre or left out altogether. The frequency of readings was more important than a measurement every exact metre. A varying scale switch on the meter ensured that very low and extremely high measurements could be taken with equal accuracy.

After the measurements have been taken a calibration curve is used to determine the correct susceptibility measurement. The measurements are entered into a computer programme and a plot made of each hole corresponding to those measurements. The peaks on the plots are representative of the higher susceptibility measurements in the holes.

The depths of these anomalous zones are determined and from these, representative samples are sent away for analysis. The results of the analysis on the core are compared to the logged geology of that depth and a direct comparison is made.

RESULTS

The fifteen petrological samples that are representative of anomalous zones are from DDH's Mac-1 - 334.9m, 138.5m, 336.2m, 147.4m, 145.1m, 148.6m and 146.8m. MC-6 - 175.4m, 171.5m, 172.8m, 174.5m and 173.7m. Mac-9 - 235.4m and 269.5. Mac-4 - 96.2m. The corresponding sample numbers are 271605 to 271619 respectively.

The Central Mineralogical Services report 87/3/16, identifies and describes in detail :

1. The identity of the magnetic phase.
2. Describes the magnetic textural phase in relation to other phases.
3. Describes the degree of alteration or weathering of the magnetic phase.

The major source and only source in some cases for the magnetic anomalies as detected using the Susceptibility meter is Magnetite. The Magnetite appears in various quantities and physical appearance as a primary mineral often relict and replaced later by Hematite as described in the report CMS 87/3/16. In the case of Mac-1 - 145.1m the probable source for the anomaly was a degraded Limonitic Fe-Carbonate. This seems to be isolated to this interval. The range of magnetite content in these samples is 0.2% to 1% dependant on degree of weathering and replacement by Hematite.

CONCLUSIONS

The most significant anomalous zones are to be found in the intermediate to acid volcanics, andesite and dacite respectively with one exception in diamond drill hole "Mac-4" at 96.2m, the anomalous zone being detected in a basalt.

The holes with the most significant anomalous zones detected do not stratigraphically correlate. The anomalies either do not occur in identical rock units in different holes, or they do not occur at similar depths in rock units at different or identical lithologies.

One reason why magnetite may occur at these depths is, that the sequence consists of two separate, almost indistinguishable, lava flows, the magnetic existing at the base of the second flow and above the first due to magmatic differentiation. The second reason may be that altered rock exists either side of the anomalous zone, the altered form of magnetite being hematite, hematite in a rock by itself will not produce an anomaly as intense as that of a rock containing only a small amount of magnetite.

In conclusion the anomalies were found to have been caused by magnetite. Magnetites presence within these rocks is inconsistent relative to stratigraphic correlations and the absence of anomalies of similar intensity in diamond drill holes of similar geological sequences.

517

598520

Aberfoyle Resources Limited

Incorporated in Victoria

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Telex: AA38646

17th March, 1987

Mr. H. W. Fander,
Central Mineralogical Services,
39 Beulah Road,
NORWOOD. S.A. 5067

Dear Wally,

Enclosed are 15 drill core samples from the Que-Hellyer Volcanics. Locations and sample numbers are tabulated on the attached sheet.

These samples have been collected as part of a programme to study magnetic minerals to improve our interpretation of ground magnetic surveys. The majority of exploration drill holes in the Que-Hellyer area have been logged with a susceptibility metre, and each of the samples is representative of a magnetically anomalous zone.

Please prepare polished and thin sections of each sample and :

1. Identify the magnetic phase.
2. Describe its textural relation to other phases. (Magnetite in veins was identified from MAC-9).
3. Describe the degree of alteration or weathering of the magnetic phase.

Yours faithfully,

A. M. Hespe

A. M. Hespe,
Project Geologist.

Encl.

598521

518

Central Mineralogical Services

39 Beulah Road
Norwood, S.A. 5067
Telephone 42 5659

Mr. A.M. Hespe
Project Geologist
Aberfoyle Resources Ltd.
Exploration Division
P.O. Box 952
BURNIE / TAS. 7320

15th May, 1987

REPORT CMS 87/3/16

YOUR REFERENCE:	Letter dated 17.3.1987
DATE RECEIVED:	18th March, 1987
SAMPLE NOS.:	271605 - 271619
SUBMITTED BY:	A.M. Hespe
WORK REQUESTED:	Petrology

H.W. Fander, M. Sc.

Copy to:
Mr. H.Skey
Exploration Manager
Aberfoyle Resources Ltd.
Exploration Division
123, Camberwell Road
HAWTHORN EAST / VIC. 3123

598522

519

REPORT CMS 87/3/16

Fifteen drill core samples selected from magnetically anomalous zones in exploration drill cores of the Que/Hellyer volcanics were received for petrological and mineragraphic examination, with the aim of defining magnetic phases. Representative thin- and polished sections were prepared and examined with a composite of transmitted/oblique incident and reflected light techniques respectively, with stain tests performed, as warranted, on the offcuts. Microscopic data is summarised in the attached descriptive notes, which include modal visual estimates of potentially significant magnetic phases, where applicable.

Summary

All fifteen rocks may be categorised as altered volcanics, and the suite as a whole represents the normal range of Que/Hellyer volcanic types, i.e. with compositional variations from basaltic through andesitic to leuco-andesitic and dacitic. Alteration and vein assemblages are typical as delineated in the individual descriptions.

The only observed ferromagnetic phase may be delineated as magnetite and, as detected, this is invariably a primary igneous component in the absence of vein- or metasomatic magnetite-bearing assemblages. Individual volcanic suites tend to exhibit colour-distinctive varieties of magnetite, but variations are rather subtle and thus not entirely recorded. Generally, andesitic facies exhibit "brown" magnetite and leuco-andesitic to dacitic facies grey magnetites. No zoned types were noted, suggesting magnetite composition is essentially uniform within individual suites.

Overall, magnetite content, although variable, is relatively high in comparing this suite of magnetically anomalous cores with typical (Que/Hellyer) altered volcanics.

A variety of paramagnetic phases is present. These include leucoxene, hematite, ferroan carbonates and, in weathered rocks (notably samples 271609, 271611), carbonate-derived limonite.

Leucoxene and hematite exhibit a variety of habits. Leucoxene replaces primary accessory ilmenite and (Ti-)magnetite. Hematite is partly an alteration phase, typically in chloritic assemblages, but is elsewhere locally primary, secondary after magnetite, or strictly late secondary in association with ferruginised carbonate. Individual rocks may exhibit two or more hematite types.

No relics of ilmenite were observed in the fifteen samples examined. Pyrrhotite was not observed and, as noted, there are no examples of vein- or metasomatic as distinct from primary accessory (igneous) magnetite. Several samples exhibit composites of relict primary magnetite and secondary paramagnetic phases. Total contents are low, but presumably significant against background levels.

D. Cowan, B. Sc.

Sample No. 520 Classification - Brief Description

5953

271605
(MAC-1/334.9 m)
T.S., P.S.
57549

Amygdaloidal Andesite. Albitised/sericite-stained plagioclase-, minor chloritised ferromagnesian phenocrysts, frequent quartz-calcite-chlorite amygdales and quartz micro-amygdales in a sericitised/weakly chlorite-stained felsic groundmass. Moderately sheared/phyllitic; minor contorted cherty quartz veinlets.

The opaque assemblage comprises very fine leucoxenised ilmenite (approx. 1 % of rock) and very thinly disseminated relict primary magnetite (<< 1 %). Magnetite is sized to 200 μ, with a mode of 30-50 μ, and is typically marginally leucoxenised.

271606
(MAC-1/138.5 m)

Amygdaloidal Andesite. Sparse albitised/chlorite-stained to carbonate-pseudomorphed feldspar and quartz-carbonate-chlorite-pseudomorphed ferromagnesian phenocrysts, sporadic quartz-carbonate-chlorite amygdales and micro-amygdales in an albitised feldspar-microlathic groundmass with a chlorite-carbonate mesostasis, conspicuous fine leucoxenised opaques. Flow-structured (subtrachytic) and only incipiently sheared in comparison with 271605. Main carbonate phase is impure calcite, supplemented by sporadic mildly stressed irregular veinlets of ankeritic carbonate.

The opaque assemblage comprises hematite with relatively minor leucoxene and rare magnetite. Hematite is erratically distributed with concentrations in chloritic zones (amygdales, chloritic altered phenocrysts) and is fine-grained (mean 5 μ, clusters to 25 μ), comprising approximately 1 % of the rock. Leucoxene is relatively sparse in comparison with 271605 (<< 1 %), and magnetite occurs only as isolated microscopic (max. 20 μ, mode 10-15 μ) grains and extremely rare spongy clusters (to 35 μ) of relict primary character.

271607
(MAC-1/336.2 m)

Amygdaloidal Andesite. Frequent albitised/calcite-stained plagioclase-, subordinate to minor, variably chloritic microcrystalline quartz pseudomorphs after ferromagnesian phenocrysts, sporadic quartz-chlorite amygdales in an albitised plagioclase-microlathic/chlorite-calcite-mesostasised groundmass. Strongly porphyritic in comparison with 271605 and 271606; weakly flow-structured/subtrachytic and weakly stressed. The irregular vein (white) consists of coarse, stress-twinned calcite with marginal concentrations of quartz and irregular films of chlorite.

This rock carries relatively conspicuous relict primary magnetite, comprising 0.5 to 2 %, and modally approximately 1 % of the areas sectioned. Grainsize is widely variable in the 2-100 μ range, with a mode of 20-25 μ. Coarser grains tend to be microfractured. Relatively quite minor (<< 1 %), similarly variably sized leucoxenised ilmenite is present.

598524

271608
(MAC-1/147.4 m)

Amygdaloidal Andesite. Albitised/chlorite-stained plagioclase-, relatively frequent chlorite-carbonate- and quartz-carbonate-pseudomorphed ferromagnesian (amphibole and pyroxene) phenocrysts, sporadic quartz amygdales with accessory sericite, chlorite and calcite in a sericitised feldspar-microlathic groundmass with a sericite-calcite-altered mesostasis. Weakly flow-structured/subtrachytic and very incipiently sheared. This rock carries sporadic cognate xenoliths and grades into a lava breccia (or strictly a tuff lava, i.e. with a lava cement).

The opaque assemblage is similar to that noted in 271606. Hematite comprises 1-3 % of the rock, largely as single flakes (mean 5 μ diameter) and fine spongy clusters (to 40 μ). Magnetite is present as thinly disseminated relict primary grains ranging up to 220 μ diameter, comprising < 1 % of the rock, with coarser grains variably microfractured and very incipiently martitised (i.e. replaced by hematite). Both phases are concentrated in, and marginal to, the altered ferromagnesian phenocrysts. The bulk of hematite is secondary. Isolated, relatively coarse, stumpy grains (to 30 μ), however, appear to be primary.

271609
(MAC-1/145.1 m)

Altered/Weathered, Amygdaloidal Andesite. Sericite-chlorite-carbonate-pseudomorphed feldspar-, and chlorite-carbonate-quartz-pseudomorphed ferromagnesian phenocrysts, sporadic amygdales and discontinuous veinlets of carbonate with accessory sericite, chlorite and quartz in a sericite-chlorite-quartz-altered, subtrachytic to weakly felsitic groundmass with minor leucoxenised opaques. This rock reflects incipient shearing. The major carbonate phase is thoroughly degraded and ferruginised Fe-carbonate ("siderite"). This is supplemented by interspersed vugs and films of calcite, largely concentrated in secondary fractures.

The opaque assemblage comprises thinly disseminated leucoxenic semi-opaques (<5 - 20 μ, 0.2 - 0.3 % of rock) which, on the basis of habit, represent altered Ti-magnetite. Degraded/limonitic Fe-carbonate is potentially significant in terms of the magnetic anomaly.

271610
(MAC-1/148.6 m)

Amygdaloidal Andesite. Albitised/sericite-calcite-stained to sericite-calcite-pseudomorphed feldspar-, chlorite-carbonate-pseudomorphed ferromagnesian phenocrysts; quartz-calcite amygdales with accessory chlorite and sericite in a groundmass of albitised to sericite-carbonate--pseudomorphed plagioclase microlaths with minor chloritised ferromagnesian microlaths and a chlorite-stained sericitic mesostasis; subtrachytic-textured and incipiently sheared. Amygdale calcite grades into a high R.I. (ferroan) carbonate.

This rock carries relatively conspicuous relict primary magnetite (approx.).5 %) as thinly dispersed an- to subhedral, variably microfractured coarse grains (60-250 μ) and finer (2-30 μ, mode 15-20 μ) groundmass-hosted particles. This phase exhibits a semi-banded distribution. Coarser grains rarely exhibit intergrown hematite (to 120 μ) with accessory traces thinly disseminated in the groundmass as 15-30 μ particles. Minor traces of secondary flaky hematite appear as micro-inclusions in amygdale calcite and as a replacement of the coarse microfractured magnetite subhedra.

598525

271611
(MAC-1/146.8 m)

Altered, Weathered Andesite. Frequent ferromagnesian phenocrysts-pseudomorphous aggregates of extensively degraded/ferruginised Fe-carbonate with subordinate to minor chlorite, calcite and quartz; relatively minor chlorite-calcite (± sericite, quartz) pseudomorphed feldspar phenocrysts, sparse amygdales of calcite, degraded Fe-carbonate and sericite in a sericitised/chlorite-calcite-stained groundmass with a weak relict subtrachytic fabric. Minor late veinlets of calcite with interspersed films of chlorite. This rock is similar to 271609 and is similarly weathered. In comparison, this phase is relatively weakly amygdaloidal, less extensively carbonate-veined and exhibits a variable but modally higher proportion of calcite as distinct from the degraded and ferruginised Fe-carbonate.

Opaques comprise thinly disseminated microfractured and completely martitised (hematite-pseudomorphed) coarse magnetite and similarly altered fine magnetite (primarily approximately 0.5 % of rock), supplemented by sporadic clots of carbonate-replacive goethite, with locally associated very fine scaly hematite. The degraded/martitised magnetite, representing the primary (accessory igneous) opaque phase, is similar to that noted in 271610 in terms of sizing and distribution.

271612
(MC-6/175.4 m)

Leuco-Andesitic Breccia. Clasts of albitised plagioclase-porphyritic/incipiently altered (chloritised) ferromagnesian porphyritic lava with variously semi-felsitic to feldspar-microlitic, albitised/variably chlorite-stained groundmasses, semi-pervasive ultrafine (mean 2-3 μ) thinly disseminated coarser-grained (mean 75 μ, to 200 μ) magnetite, and subordinate leucoxenised opaques. The fabric is moulded lithoclastic (lava breccia), but complexed by fine-scale pervasive microcrystalline albite veining grading into brecciation.

Total magnetite content is approximately 0.5 %. Coarser grains are fresh to marginally leucoxenic. Finer grains are fresh. Optical colouration is grey in contrast to the brownish (relatively titaniferous?) magnetite in the andesitic volcanics (271605 - 271611 incl.). The leucoxenic phase is partly identifiable as cloudy sphene

271613
(MC-6/171.5 m)

Leuco-Andesitic Breccia. This rock is very similar to 271612 and is similarly classified as a leuco-andesitic lava breccia. In comparison, this phase is relatively homogeneous, with only irregular non-pervasive zones of albite-healed microfracturing. The alteration pattern is similar to that noted in 271612, but distinctly chloritic in comparison and is complexed by minor discontinuous chlorite veinlets.

Primary titanopaques are represented by cloudy microcrystalline sphene. In common with 271612, this rock exhibits relatively abundant relict primary magnetite with a similar habit and bimodal sizing. Coarser grains are sized to 200 μ, with a mode of 75 μ. The fine particles have a mean diameter of 5 μ. Magnetite content is slightly variable and slightly modally higher than noted in 271612. Individual grains exhibit incipient leucoxenic and martitic alteration. Accessory traces of fine (< 20 μ) ?primary hematite are present locally.

Sample No.	Classification - Brief Description
271614 (MC-6/172.8 m)	Leuco-Andesitic Breccia. This leuco-andesitic breccia is similar to the 271612 and 271613 examples. Clasts are modally coarser and include centimetric-scale types characterised by relatively marked perlitic microtextures and a homogeneous to disrupted (flow-brecciated) flow banding. The relatively weak primary (flow-)breciation is complexed by secondary brittle deformation, microcrystalline albite-healed, in irregular zones of centimetric proportions. Alteration is analogous to that in 271612, i.e. relatively weakly chloritic in comparison with 271613. Late, mildly stressed veinlets of calcite with interspersed clots and films of chlorite occur sporadically. The opaque assemblage is typical, with thinly disseminated single grains and loose clusters of coarse magnetite (to 250 μ), supplemented by pervasive ultrafine magnetite (mean 2-3 μ), and leucoxenised to cloudy microcrystalline, sphene-replaced titanopaques. Overall, magnetite content is approximately 0.2 to 0.3 %. Coarser grains rarely exhibit incipient hematite replacement.
271615 (MC-6/174.5 m)	Leuco-Andesitic Tuff Lava. This sample represents a mildly flow-brecciated leuco-andesitic lava; compositionally similar to 271612, 271613 and 271614, the main contrasts being textural. There are similarities with the megaclasts in 271614, the rock representing a flow banded to brecciated (cognate xenolithic) lava, or strictly a tuff lava. Clasts are sized < 1 to 5 mm and are variably flow-orientated within the lava matrix. Major compositional features comprise conspicuous albitised plagioclase phenocrysts and rare chloritised ferromagnesian microphenocrysts in a variably chloritic, microcrystalline-albitised, semi-perlitic groundmass. Alteration is complexed by clots of spongy poikilitic calcite and semi-selective chloritisation of some lava clasts. The opaque assemblage is analogous to that noted in 271612-271614 (incl.), with bimodally-sized magnetite (to 200 μ, mode 50-70 μ/mean 5 μ), and leucoxenic to sphene-replaced titanopaques in approximately equal proportions totalling 0.5 to 5 %, mode 1-2 % of the (banded) rock. Coarser magnetite grains are locally marginally to completely martitised.
271616 (MC-6/173.7 m)	Leuco-Andesitic Tuff. This is a leuco-andesitic fragmental, compositionally similar to the 271612-271614 facies, but relatively texturally heterogeneous, "grading" from a moulded breccia to a microcrystalline albite-cemented, poorly sorted lithic fragmental and best classified as a lithic ("lapilli") tuff, rather than a lava breccia. Clasts are semi-orientated and include rare pumiceous types. In detail, the rock appears to represent a composite of flow breccia and strictly lithic fragmental facies, which may be xenolithic in part. The alteration assemblage is typical of the 271612-271614 group, with minor discontinuous chloritic calcite veinlets analogous to those in 271614. The opaque assemblage is similarly typical, with thinly disseminated coarse and pervasive ultrafine magnetite supplemented by leucoxenic semi-opaques and traces of sphene representing altered titanopaques. Modal magnetite content is ca. 0.5 %. Coarser grains (to 250 μ) are rarely incipiently martitised.

598526

Sample No.	524 Classification - Brief Description
271617 (MAC-9/235.4 m)	Amygdaloidal "Dacite". A relatively felsic lava reasonably categorised as dacitic, although compositional detail is obscured by marked sericite-quartz alteration. The rock is variably amydaloidal in quartz and sericite, carries albitised to sericitised feldspar phenocrysts and rare quartz-chlorite-pseudomorphed ferromagnesian microphenocrysts, and exhibits a semi-felsitic relict fabric consistent with a subvitric felsic lava. Alteration is complexed by irregular sericite veins, the rock grading into a sericite-matrixed breccia with the mesoscopic lithoclastic breccia-like appearance enhanced by subsequent shearing effects. Irregular impregnations of calcite occur spradically, with concentrations adjacent to straight-walled calcite-quartz veinlets (stressed). The opaque assemblage is dominated by Ti-magnetite-derived leucoxene, comprising modally approx. 0.5 % of the rock. Rare spongy corroded relics of magnetite persist. These are locally martitised, particularly in vein-marginal zones, producing the faint pinkish mottlings.
271618 (MAC-9/264.5 m)	Amygdaloidal "Dacite". This rock is compositionally and texturally similar to 271617, representing a semi-felsitic porphyritic amygdaloidal felsic (leuco-andesitic/dacitic) lava. In comparison, the alteration pattern is relatively siliceous and the sericite veining relatively poorly developed. Varying proportions of calcite and minor traces of chlorite complex the quartz-sericite assemblage. Sporadic chloritic calcite veinlets exhibit pink-pigmented selvedges ranging to a few millimetres in width. The opaque assemblage is essentially identical to that noted in 271617, with leucoxene (0.5 to 1 % of rock) accompanied by minor spongy corroded relics of magnetite, variably replaced by secondary hematite (martite) in calcite vein-marginal zones.
271619 (MAC-4/96.2 m) T.S., P.S. 57563	Amygdaloidal Basalt. This is a moderately altered amygdaloidal basalt. Phenocrysts comprise abundant marginally chloritised to fresh augite and relatively minor albitised plagioclase accompanied by sporadic chlorite-calcite-quartz amygdales in a chlorite- and cloudy microcrystalline epidote-stained, feldspar-microlathic, semi-flow-structured basaltic groundmass. Sparse pyroxene-pseudomorphous calcite-chlorite aggregates appear to represent selectively altered orthopyroxene. The minor veinlets consist of calcite and chlorite with microscale selvedges of albite and quartz and reflect mild shearing effects. The opaque assemblage comprises thinly disseminated modally coarse (mean 30 μ), incipiently marginally leucoxenised magnetite, and pervasively disseminated finer (mean 2-3 μ) magnetite approximating 1 % of the rock overall. Minor traces of pyrite and rare microscopic, locally supergene-altered blebs of chalcopyrite are present.

599527

APPENDIX 13.

526

ABERFOYLE EXPLORATION

PROJECT : MACKINTOSH

PROSPECT: _____

DIAMOND DRILL LOG 598529

HOLE NO: BDD-10
PAGE: 1 of 5
LOGGED: KMH
DATE: 29-7-87

DRILLED BY THE DEPARTMENT OF MINES - SUB TERTIARY BASES DRILLING DEPARTMENT.

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
120												
122												
				123.19 START OF LOG.								
124	124-97		TERTIARY BASES.	DARK BROWN TO BLACK TERTIARY BASES - MASSIVE AND FELDSPAR PHYRIC OR - COMMONLY VESICULAR WITH CAVITIES IRREGULARLY FILLED WITH CARBONATE, ZEOLITE		VERY RARE 4MM CALCITE VEINS.						
126												
128												
130												
132	131.06											
134	134.91											
136	137.09											
138												
140	139.92											
142								F 142.6; 0-5cm, 20° C.A. BASALT RUBBLE, PUG. MINOR FAULT				
144	143.06											
146	145.54											
148	149.46											
150												
152	152.96							F 151.7; <0.5cm; 20° C.A. PUG. MINOR FAULT.				
154	155.96											
156												
158	158.96											
160												

ABERFOYLE EXPLORATION

PROJECT : MACKINTOSH

PROSPECT: _____

527

DIAMOND DRILL LOG

598530

HOLE NO: BDP-10
PAGE: 2 of 5
LOGGED: tmt
DATE: 29-7-87

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
161	161-06		161.6	/ GRANITE LOWER OVER 500m		161.6.					164.06	
162				LIGHT GREEN MASSIVE TO BROWN MOTTLED ROCK - CHILLED BASE OF LAVA FLOW								
164	165-06		164.7									
166	167-06			INTERFLOW SEDIMENT - PREDOMINANTLY UNCONSOLIDATED. INCLUDES · WHITE MILKY QUARTZ GRAVEL · PALE GREY MICACEOUS CLAYEY SAND WITH CARBONIZED PLANT MATERIAL · LIGNITE · QUARTZITE (OSC?) GRAVEL · SUBANGULAR (?) FRAGMENT OF TUFF								
168												
170	170-06											
172	172-06											
174												
176	176-06											
178												
180	179-06											
182	182-06											
184												
186	185-06											
188	188-06		188.06									
190	191-06		/ FRACTURED BASALT LAVA	N. ABOVE (123.19 - 161.6) 181.06 - 192 VESICULAR GLASSY 192 - 204.3 MASSIVE FELSPATHIC PYROX							191.06	
192												
194	194-06											
196	197-06											
198												
200	200											
202												

PROJECT : Mackintosh

PROSPECT: _____

528

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598531

HOLE NO: BDP-10

PAGE: 3 of 5

LOGGED: AMH

DATE: 29-7-87

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
204				(Contact obscured by rubble - core loss)								
				204.3								
206				LIGHT BROWN GREEN MEDIUM MOTTLED LAPILLI VOLCANILLAMIC PEBBLY SILTSTONE								
				206.1								
				CLAYEY - WHALECAMIC LAND BASE								
208				UNCONSOLIDATED GREY BROWN GRAVEL + LIGNITE (TERTIARY)								
				209.66								
210				TERTIARY WEATHERING ZONE AT BASE OF LAUM. INCLUDES MUCH RUBBISH FROM UPHOLE BUT ALSO WHOLE WEATHERED FRAGMENTS OF UNDERLYING UNIT								
212												
214												
216												
218												
220											206.06	
222											Lithos Recovered	
224												
226												
228												
230												
232												
234												
236												
238				238.0								
			POLYMICTIC CONTACT LAPILLI VOLCANICLASTIC	CLAYEY (1) VERY ANGULAR, IRREGULAR, PINK RHYOLITE-DACITE TEXTURE QUARTZ PHENOCRYSTS (2) DIRTY YELLOW-GREEN DEVITRIFIED VESICULATED PUMICE		238.0 VERY RARE IRREGULAR < CREAM - WHITE CARBONATE VEINS.						
240												
242												
244												

PROJECT : Mackintosh 529

PROSPECT: _____

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG 598532

HOLE NO: BDH 10

PAGE: 4 of 5

LOGGED: AMH

DATE: 29-7-87

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
246				SHEARED AND METAMORPHOSED. Mafic (i) PINK SILICEOUS RHYODACITE MATERIAL (70%) (ii) GREEN CHLORITE OR BARELY BLACK CHLORITE SCHIST (30%) CLAST: MATRIX = 70: 30.							250	
248													
250													
252													
254													
256													
258													
260													
262													
264													
266													
268													
270													
272													
274													
276													
278													
280													
282													
284													
286													

ABERFOYLE EXPLORATION

PROJECT : MACKINTOSH

PROSPECT: _____

530

DIAMOND DRILL LOG

598533

HOLE NO: BDP-10

PAGE: 5 of 5

LOGGED: [illegible]

DATE: 29-7-87

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
288												
292												
296												
298												
300												
302												
304												
306												
308												
312												
316												
318												
320												
322				321.1 EOH				321.0 TO EOH CORE DOMINATED BY A PRIMARY? FABRIC - CLAST ALIGNMENT, FLOW BANDING IN LOBATE CLASTS - AT 330 TO 45° TO C.A.				

SAMPLE NO	:	396925
LOCATION	:	BDP-10/128.0m
REPRESENTATIVE OF:		
REMARKS	:	Massive Tertiary Basalt

SAMPLE NO	:	396926
LOCATION	:	BDP-10/143.2
REPRESENTATIVE OF:		
REMARKS	:	Vesicular Tertiary Basalt

SAMPLE NO	:	396927
LOCATION	:	BDP-10/252.2
REPRESENTATIVE OF:		239.0 - 321.1
REMARKS	:	Describe Shaley matrix

SAMPLE NO	:	396928
LOCATION	:	BDP-10/274.4
REPRESENTATIVE OF:		239.0 - 321.1
REMARKS	:	

SAMPLE NO	:	396929
LOCATION	:	BDP-10/290.6
REPRESENTATIVE OF:		239.0 - 321.1
REMARKS	:	

SAMPLE NO	:	396930
LOCATION	:	BDP-10/307.6
REPRESENTATIVE OF:		239.0 - 321.1
REMARKS	:	Cherty matrix to volcaniclastic

598535

532

Central Mineralogical Services

39 Beulah Road
Norwood, S.A. 5067
Telephone 42 5659

07 SEP REC'D

Mr. A.M. Hespe
Project Geologist
Aberfoyle Resources Ltd.
Exploration Division
P.O. Box 952
BURNIE / TAS. 7320

FAX. 08-363 1820

4th September, 1987

REPORT CMS 87/8/1

YOUR REFERENCE:	Letter dated 29.7.1987
DATE RECEIVED:	3rd August, 1987
SAMPLE NOS.:	396925 - 396930
SUBMITTED BY:	A.M. Hespe
WORK REQUESTED:	Petrology

H.W. Fander, M. Sc.

Copy to:
Mr. H. Skey
Exploration Manager
Aberfoyle Resources Ltd.
Exploration Division
123, Camberwell Road
HAWTHORN EAST / VIC. 3123

598536

REPORT CMS 87/8/1

Six drill core samples from hole BDP-10 to the north of Hellyer were received for thin-section preparation (two per sample) and petrological description. Sections were examined together with respective offcuts, with stain tests performed as warranted. Attached tabulated descriptions summarise the microscopic data and include interpretative comments.

Summary

Samples 396925 and 396926 represent variably amygdaloidal and deuterically clay-carbonate-altered olivine basalts. Both rocks are similar, but with certain contrasts in primary mineralogy, notably in terms of clinopyroxene composition. Alteration in 396925 is complexed by weathering-degradation of the olivine phenocrysts.

Samples 396927-396930 inclusive represent a complex of sodic rhyolitic lithic tuffs and pelite/cherty argillite/pelitic ash-matrixed breccias. These rocks exhibit marked and pervasive silica-sericite-Fe-carbonate (± chlorite) alteration, and (very) incipient shearing effects. Primary detail is partly obscured, but general features are consistent with variably mass flow-reworked lithic tuffs. Pelitic matrices are locally radiolarian (396927) or elsewhere silty-micaceous (396930), consistent with a subaqueous mode of deposition. There are textural similarities with the andesitic breccia facies at Hellyer despite the marked compositional contrasts.

D. Cowan, B. Sc.

598537

CENTRAL MINERALOGICAL SERVICES

Sample No.	Classification - Composition 534	Fabric	Accessories	Comments
396925 (T.S. 58493)	Olivine Basalt. Phenocrysts of extensively bowlingitised olivine, sporadic montmorillonitic amygdales in a groundmass of labradorite laths, pigeonitic pyroxene- and degraded olivine granules, sparse montmorillonitic mesostasis.	Olivine-porphyritic, weakly amygdaloidal, basaltic.	Conspicuous ilmenite, traces ultrafine acicular apatite.	Olivine-porphyritic basalt with mild deuteric effects (montmorillonite mesostasis, amygdales), complexed by degradation of olivine.
396926	Amygdaloidal Basalt. Montmorillonitised olivine phenocrysts, montmorillonite-calcite amygdales in a groundmass of augite laths, subordinate labradorite microlaths, montmorillonitic mesostasis.	Weakly flow-structured, coarsely amygdaloidal, porphyritic, basaltic to weakly subophitic.	Conspicuous fine ilmenite. Minor olivine-replacive calcite, labradorite-replacive clay.	Close affinities with 396925, but with weakly titaniferous augite rather than pigeonitic clinopyroxene. Relatively montmorillonite-calcite-altered.
396927	Altered Breccia. Clasts of sericite/cherty quartz-altered rhyolitic lava, sericitic feldspathic sandy carbonaceous pelite, sericitic impure chert, minor quartz and sericitic albite grains. Sericite/cherty quartz matrix/cement.	Randomly sorted, semi-flow-structured moulded to impure chert- or locally carbonaceous pelite-matrixed.	Sporadic clots, impregnations of ankeritic carbonate. Minor radiolaria, rare ?spongy spicules in pelite.	Mass flow-breccia characteristics. Composite of rhyolitic and (subordinate) sedimentary components. Carbonaceous pelite is (sericitised) tuffaceous, weakly radiolarian.
396928	Altered Tuff. Framework of sericitic/microcrystalline quartz-altered, variably sideritic carbonate-impregnated rhyolitic lava clasts; cemented with microcrystalline quartz, minor sericite and carbonate.	Poorly sorted psammite to lapilli grade lithic fragmental. Corrosive/replacive matrix-cement.	Quartz and minor albite phenocrysts; minor corroded crystal fragments.	Rhyolitic lithic tuff with semi-selectively sericitised clasts/silicified matrix. An orthodox lithic tuff in contrast to the 396927 xenolithic breccia.
396929	Altered Breccia. Framework of sericite/microcrystalline quartz-altered, variably sideritic carbonate-impregnated rhyolitic lava clasts. Sericitic pelite/cherty argillite matrix.	Semi-moulded to pelite-matrixed, poorly sorted lapilli grade lithic fragmental.	Minor leucoxenised opaques. Disseminated corroded quartz, minor albite phenocrysts in rhyolite clasts.	Similarities with 396927 and similarly interpreted. Pelite matrix is relatively homogeneous, vaguely tuffaceous, but non-carbonaceous and devoid of radiolaria.
396930 (T.S. 58498)	Altered Breccia. Framework of silicified/variably sericitic to chloritic and carbonate-stained rhyolitic lava clasts. Matrix of similarly altered pelitic ash with thinly disseminated silt-sized clastic muscovite.	Psammite to lapilli grade lithoclastic with a fine sandy to silty vitroclastic matrix.	Minor leucoxenised opaques, minor traces of very fine pyrite.	Fabric suggestive of a slumped/mass flow-reworked lapilli tuff. Impure (silty-micaceous) pelitic ashy matrix in contrast to 396927 and 396929.

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.
52 Murray Road, Welshpool, W.A. 6106
Phone (09) 458 7999
TLXT AA 93224
Telex AA92560

535 598538

ANALYTICAL REPORT No. 23.3.08.04610

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

Aberfolye Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

ORDER No.	PROJECT
1816	

DATE RECEIVED	RESULTS REQUIRED
09/07/87	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	30/07/87	1	13

STATE OF SAMPLES REFER BELOW	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	6912/24	CG Prep: 012,013,016							Cu,Pb,Zn,Ag,Ni/101,As/114		
	396912/24	CG							Ba,Cr,Zr,Ti/401		
	396912/24	CG							Au/309		

RESULTS TO

R. de Bomford
Aberfoyle Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

RESULTS TO

REMARKS

BDP-10
bore Grinds

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					Inductively coupled plasma	ICP

AUTHORISED OFFICER

536

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

598539

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04610	30/07/87	1816	1 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	123.19-133 396912	60	20	170	0.5	190	1	190	270	140
2	133-143 396913	55	25	165	<0.5	265	1	220	280	140
3	143-153 396914	55	20	200	0.5	200	2	210	260	130
4	153-161.6 396915	50	20	250	0.5	200	2	390	270	160
5	188.06-203 396916	55	20	120	<0.5	185	1	410	280	140
6	396917 *STD	120	170	2300	1.0	295	15	1100	820	85
7	249-259 396918	25	55	260	<0.5	15	4	720	25	240
8	259-269 396919	35	60	115	0.5	15	3	760	10	260
9	269-279 396920	25	35	110	<0.5	15	3	750	15	240
10	279-289 396921	25	15	100	<0.5	15	2	800	<5	270
11	289-299 396922	25	30	100	<0.5	40	2	830	10	290
12	299-309 396923	25	15	100	<0.5	15	2	770	<5	270
13	309-321.1 396924	25	40	95	<0.5	15	6	640	15	240
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	5	1	10	5	5
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	101	101	101	114	401	401	401

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

537

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

598540

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04610	30/07/87	1816	2 OF 2

TUBE No.	SAMPLE No.	Ti	Au
1	396912	10000	<0.008
2	396913	10000	<0.008
3	396914	10000	<0.008
4	396915	11500	<0.008
5	396916	10500	<0.008
6	396917 *SD	2450	<0.008
7	396918	1000	<0.008
8	396919	910	<0.008
9	396920	760	<0.008
10	396921	920	<0.008
11	396922	920	<0.008
12	396923	790	<0.008
13	396924	860	<0.008
14			
15			
16			
17			
18			
19			
20			
21			
22			
23	DETECTION	50	0.008
24	UNITS	PPM	PPM
25	METHOD	401	309

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

538

OPEN FILE

598541

EXPLORATION LICENCE 2/70 MACKINTOSH

TASMANIA

TECHNICAL PROGRESS REPORT

FOR THE PERIOD

DECEMBER 1985 TO FEBRUARY 1988

VOLUME 3

APPENDICES 14-27 28

89-3006

MINES
File Ref. EL 2/70
10 AUG 1989
Doc. Ref.
Action Officer | Initials
Letter 9-8-89
refers
Resubmit to | Date

MICROFILMED

89-3006 VOL 3/5

535

598542

APPENDIX 14.

540

MACK.

598543

Aberfoyle Resources Limited

Incorporated in Victoria

EXPLORATION DIVISION

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123 Camberwell Road
Hawthorn East
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ABERFOYLE RESOURCES LIMITED
EXPLORATION DIVISION
39 RIVER ROAD WIVENHOE
(P.O. BOX 952 BURNIE)
TASMANIA 7320
PHONE (004) 31 6333

Wally Fander
Central Mineralogic Services
39 Beulah Rd
Norwood S.A.

12th May 1986

Dear Wally,

Please have the enclosed samples 271216 and 271220 x rayed the major minerals identified.

Regards,

Doug Jack

White material at Cradle Mt Fuchsite-Mu in veinlets in joints 3km N of Hellyer - see 1:2500 sheet WW for exact locations.

598544

541

Central Mineralogical Services

39 Beulah Road
Norwood, S.A. 5067
Telephone 42 5659

Mr. D.J. Jack
Geologist
Aberfoyle Resources Ltd.
Exploration Division
P.O. Box 952
BURNIE / TAS. 7320

16th May, 1986

REPORT CMS 86/5/12

YOUR REFERENCE:	Letter dated 12.5.1986
DATE RECEIVED:	13th May, 1986
SAMPLE NOS.:	271216, 271220
SUBMITTED BY:	D.J. Jack
WORK REQUESTED:	XRD Determination

H.W. Fander, M. Sc.

Copy to:
The Chief Geologist
Aberfoyle Resources Ltd.
Exploration Division
123, Camberwell Road
HAWTHORN EAST / VIC. 3123

542

CENTRAL MINERALOGICAL SERVICES

598545

Date 16th May, 1986

SAMPLE REPORT (Mineralogy, Petrology, Ore Microscopy)

IDENTIFICATION
271216, 271220
Meta-Halloysite

Job No. CMS 86/5/12 Date Received: 13.5.1986

Reference Letter dated 12.5.1986 - D.J. Jack

Sample No. 271216, 271220

Nature of Sample: Hand Specimens

DESCRIPTION **SECTION No.**

a. Hand Specimen:

b. Microscopic:

The samples were prepared for X-ray identification by grinding representative portions without further treatment.

The X-ray powder photos obtained showed that both samples consist largely or entirely of meta-halloysite; amorphous and minor crystalline components would not be detected by this technique.

Meta-halloysite is stated to form from halloysite by dehydration; the reaction is not reversible, and takes place (mainly) at 110°C, but can also occur under other conditions. It is a hydrothermal clay, but can also form under weathering conditions, and is part of the kaolinite group of related clays.

H.W. Fander, M. Sc.

MURRAYS ROAD PROSPECT

COSTEAN - CHANNEL SAMPLES

Costean 1

Sample No:	Sample Length	
383401	5m	Start co-ordinate: 13565N, 6825E
402	5m	
403	5m	
404	5m	
405	5m	
406	5m	Finish co-ordinate: 13550N, 6800E

Costean 2

Sample No:	Sample Length	
383407	5m	Start co-ordinate: 13530N, 6840E
408	5m	
409	5m	
410	5m	
411	5m	
412	5m	
413	5m	Finish co-ordinate: 13525N, 6810E

Costean 3

Sample No:	Sample Length	
383414	5m	Start co-ordinate: 13500N, 6855E
415	6m	
416	4m	
417	5m	
418	6m	Finish co-ordinate: 13505N, 6830E

Costean 4

Sample No:	Sample Length	
383419	5m	Start co-ordinate: 13475N, 6870E
420	5m	
421	2.5m	
422	7.5m	
423	3m	Finish co-ordinate: 13475N, 6847E

544

598547

(24)

COMLABS SERVICES PTY. LTD.

305 South Road. Mile End South. South Australia 5031 Telephone (08) 43 5722 Telex LABCOM AA89323

MACK.

MURRAYS ROAD COSTEANS.

NATA REGISTERED No. 1526

23 JUN REC'D

OUR REF.: COM860856

YOUR REF.: 906

Mr. A. M. Hespe
Aberfoyle Exploration Pty. Ltd.
39 River Road
WIVENHOE

TAS 7320

June 20, 1986

Dear Sir

RE: JOB COM860856

Enclosed are the assays for the samples delivered to our laboratory on June 6, 1986

Yours Sincerely,
COMLABS PTY LTD

per :

P R Harvey

Report Length 2 pages

598548

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ANALYTICAL REPORT

JOB COM860856
O/N : 906

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti	
383401	8	30	20	<1	20	22	1950	
383402	9	46	20	<1	26	24	2750	No. 1
383403	8	46	16	<1	32	28	2400	
383404	12	55	20	<1	20	120	3250	
383405	5	24	14	<1	16	22	1850	
383406	6	26	22	<1	18	20	1950	
383407	34	34	50	<1	70	130	1950	
383408	34	38	40	<1	60	130	2450	
383409	28	48	26	<1	44	120	3100	
383410	22	48	22	<1	30	130	2900	No. 2
383411	18	65	22	<1	34	80	2550	
383412	12	46	32	1	24	55	1850	
383413	7	60	30	<1	16	22	2200	
383414	32	40	44	<1	65	120	2800	
383415	38	48	36	<1	48	135	2650	
383416	18	38	22	<1	20	30	2500	No. 3
383417	10	42	20	<1	26	26	2600	
383418	8	60	22	<1	24	18	1950	
383419	28	32	36	<1	55	125	2250	
383420	26	36	28	<1	50	120	2500	
383421	20	100	22	<1	30	80	2950	No. 4
383422	20	95	18	<1	34	42	3000	
383423	10	70	12	<1	36	22	2450	
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	COL4	

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ANALYTICAL REPORT

JOB COM860856
O/N : 906

SAMPLE	As	Ba	Zr
383401	12	170	240
383402	10	135	220
383403	28	130	270
383404	20	135	300
383405	7	125	280
383406	8	110	320
383407	14	380	195
383408	12	360	210
383409	16	380	230
383410	28	320	210
383411	20	260	250
383412	18	120	260
383413	9	190	230
383414	14	110	260
383415	24	400	195
383416	16	380	220
383417	22	150	250
383418	12	195	300
383419	9	130	240
383420	26	410	210
383421	24	370	240
383422	30	240	280
383423	10	105	280
UNITS	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1

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598550

22

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.
52 Murray Road, Welshpool, W.A. 6106
Phone (09) 458 7999
Telex AA92560

ANALYTICAL REPORT No. 23.3 08 3702

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

Aberfoyle Resources Ltd.
Exploration Division
P.O. Box 952
Burnie Tas 7320

ORDER No.	PROJECT
268	

DATE RECEIVED	RESULTS REQUIRED
2.5.86	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
		3	3

STATE OF SAMPLES	PRE-TREATMENT								ANALYSIS		
REFER BELOW	SAMPLE NUMBERS	DRY	CRUSH	SPLIT	PUL-VERISE	SIEVE	OTHER SEE REMARKS	NONE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD
SO	271213				1				Cu Pb Zn Ag Ba Au		103 401 309
SO	27214.15	1	2		3				Au		309

RESULTS TO: As Above

RESULTS TO:

REMARKS

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	calorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

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,548

598551

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

AMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3 08 3702	12.5.86	268	1 OF 1

MPLE o.	Cu	Pb	Zn	Ag	Ba				
13	130	145	45	13.0	110				
CTION	5	5	5	0.5	10				
STION									
JD	103	103	103	103	401				

ts in ppm unless otherwise specified
element present; but concentration too low to measure
element concentration is below detection limit
element not determined

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598552

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A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3 08 3702B	12..5.86	268	2 OF 2

TUBE No.	SAMPLE No.	Au
1	271213	0.040
2	271214	0.050
3	271215	X
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23	DETECTION	0.008
24	DIGESTION	
25	METHOD	309

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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598553

APPENDIX 15.

598554

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SIROTOPE

CSIRO
Division of Mineralogy and Geochemistry
Sydney Laboratory

Delhi Road, North Ryde
P.O. Box 136, North Ryde, NSW, Australia 2113
Int. Phone: 61-2-887 8712, 61-2-887 8713
Telex: MINRE AA 25817

REPORT TO

ABERFOYLE RESOURCES LTD

ON

A Pb ISOTOPIC STUDY

OF

PYRITIC ROCKS, HELLYER AREA

GRAHAM R. CARR
JUDITH A. DEAN
28/7/8

1. AIMS OF STUDY

The aim of this work has been to determine whether Pb in pyritic rocks from Cambrian rhyolitic volcanics in the Hellyer area is Cambrian or Devonian in origin.

2. SAMPLES

Two pyritic samples, containing 145 and 225ppm Pb, were analysed.

3 TARGET SIGNATURES

The target signatures used are that of the Hellyer mine, Devonian veins from throughout the west coast of Tasmania and pyritic rocks from the Lake Selina deposit. The target signature is defined by ellipses which represent the distribution of the target data (mean + 2xSD, or 95% confidence domains).

4. METHODS

Sample 271234 was received in a coarsely crushed form which was used for the initial analysis. Subsequently the sample was pulverised and analyses 2 and 3 are duplicates of this material. All samples were digested in a 7N nitric + 7N hydrochloric solution prior to ion exchange and electroplating onto Pt electrodes. The samples were analysed on an ISOMASS 54E solid source thermal ionization mass spectrometer in fully automated mode. Precision estimates representing 2 standard deviations about the mean of over 700 analyses of standards are shown in the top left hand corner of the figures presented below.

5. RESULTS

Sample 271234 was analysed in triplicate (points 1, 2 and 3 in Figures 1 and 2) and 271221 in duplicate (points 4 and 5, Figures 1 and 2) (Table 1). Pb in the pyrite pod sample 271234

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plots within and adjacent to the Hellyer 95% confidence ellipse on the $^{208}Pb/^{204}Pb$ vs $^{206}Pb/^{204}Pb$ diagram (Figure 1) and adjacent to the ellipse on the $^{207}Pb/^{204}Pb$ vs $^{206}Pb/^{204}Pb$ diagram (Figure 2). On Figure 1 the variation between point 1 and points 2 and 3 is outside the analytical precision indicating possible sample inhomogeneity in the $^{208}Pb/^{204}Pb$ ratio. Pb in sample 271221 plots outside the target ellipse and has higher $^{206}Pb/^{204}Pb$ ratios.

6. DISCUSSION AND CONCLUSION

The isotopic compositions of both samples are consistent with a Cambrian origin but, because of the relatively low Pb contents, some uncertainty exists. The variation from the target signature, especially in sample 271221, can be accounted for if the samples contain about 2 to 3ppm U. The addition of radiogenic ^{206}Pb from the decay of ^{238}U over the past 500 Ma could have changed the isotopic composition from the target signature to their present values.

A comparison of the results with pyrite material from Lake Selina indicates some subtle differences exist between the two groups. On both Figures 3 and 4 most of the Lake Selina data plot on a linear array (also probably produced by the post Cambrian in situ decay of U and Th) which lies closer to the average global Pb evolution (growth) curve than does the data from this study. Such differences probably result from slight variations in the isotopic composition of the source rocks of Pb in the two sets of samples.

The results are also compared with a suite of Devonian veins from throughout the west coast of Tasmania. It is apparent that these veins have Pb isotopic compositions that plot in two clusters on both Figure 5 and 6. One cluster has lower

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$^{206}Pb/^{204}Pb$ ratios than the Cambrian target and the other (including the majority of samples from the Queen Hill area) has higher ratios. Except for two low-Pb samples that fall within the Cambrian target, these Devonian data do not overlap the isotopic composition of the pyritic rocks of this study. However, because of the relative heterogeneity of the Devonian data, these two groups cannot be differentiated with any confidence on statistical grounds.

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TABLE 1. Pb ISOTOPE COMPOSITIONS OF PYRITIC SAMPLES.

Sample	$\frac{208\ Pb}{206\ Pb}$	$\frac{207\ Pb}{206\ Pb}$	$\frac{206\ Pb}{204\ Pb}$	$\frac{207\ Pb}{204\ Pb}$	$\frac{208\ Pb}{204\ Pb}$	Pb(ppm)
271221	2.0811	0.8489	18.354	15.581	38.197	145
271221	2.0761	0.8492	18.363	15.593	38.122	145
271221	2.0757	0.8486	18.376	15.595	38.144	145
271234	2.0721	0.8451	18.450	15.593	38.231	225
271234	2.0719	0.8451	18.436	15.581	38.197	225

Figure 1

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598559

DUNDAS TROUGH-SWITCHBACK

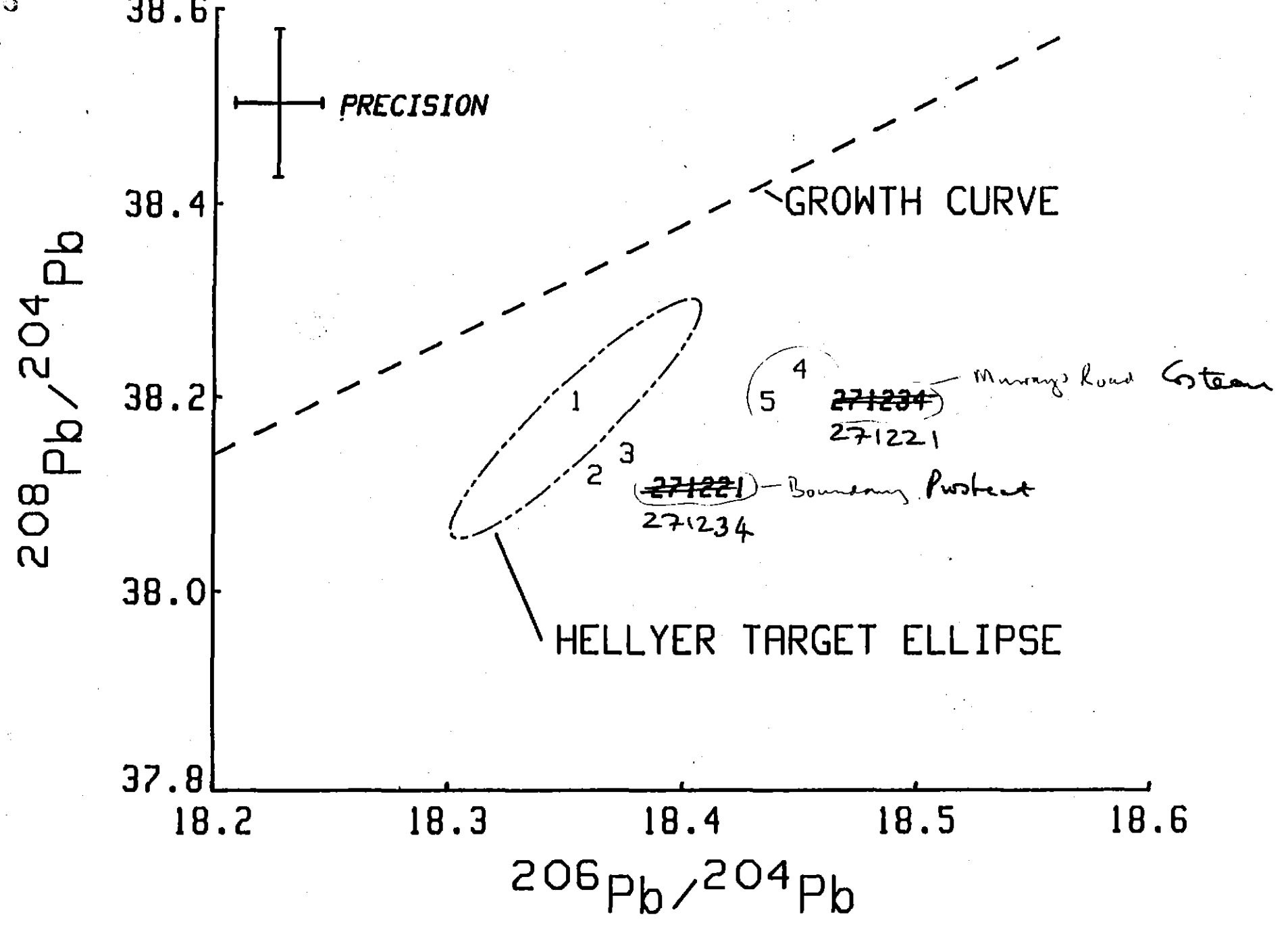


Figure 2

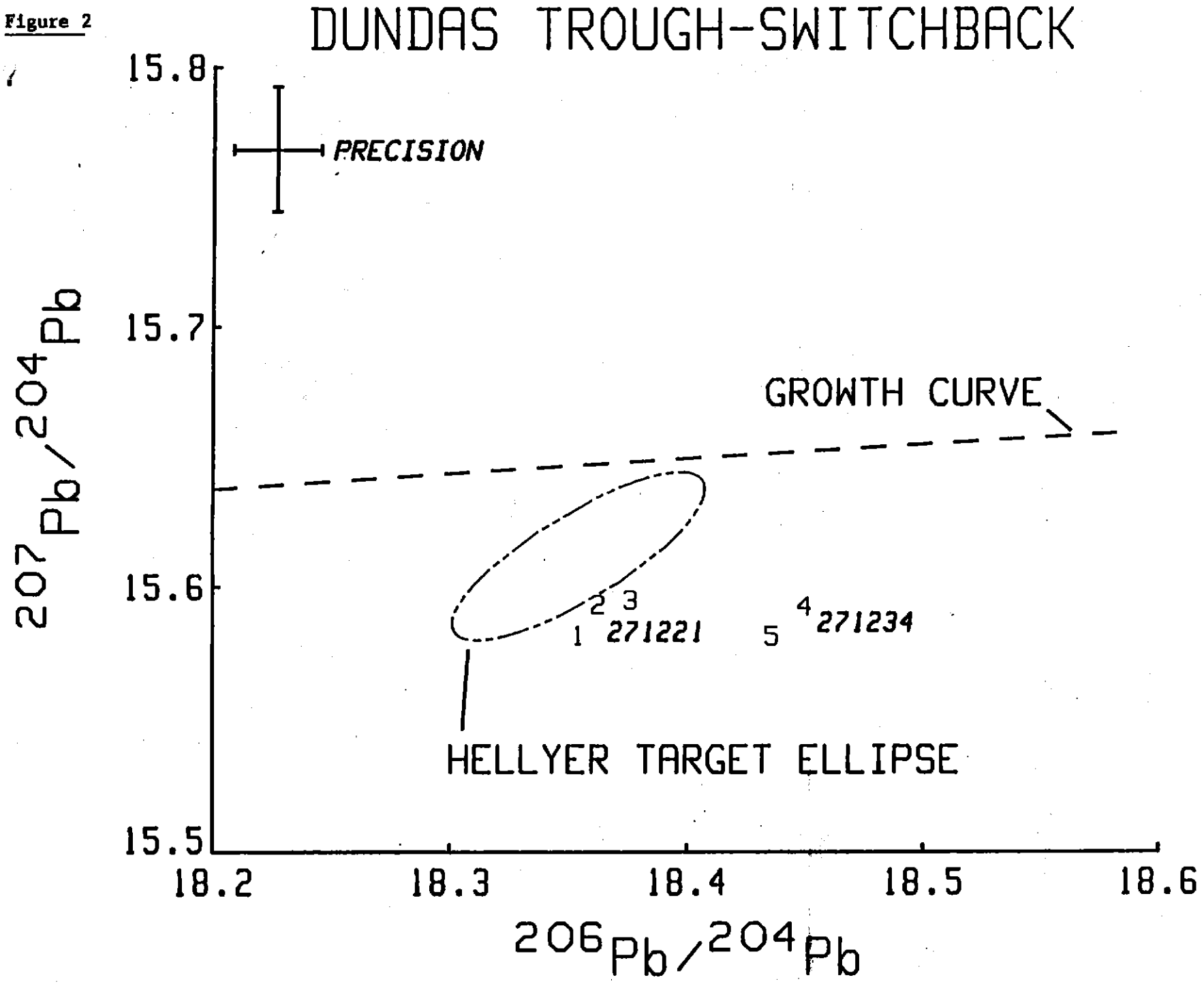

DUNDAS TROUGH-SWITCHBACK
15.8
15.7
15.6
15.5
PRECISION
GROWTH CURVE
1 271221
2
3
4 271234
5
HELLYER TARGET ELLIPSE
18.2
18.3
18.4
18.5
18.6
207Pb/204Pb
206Pb/204Pb

Figure 3

598561

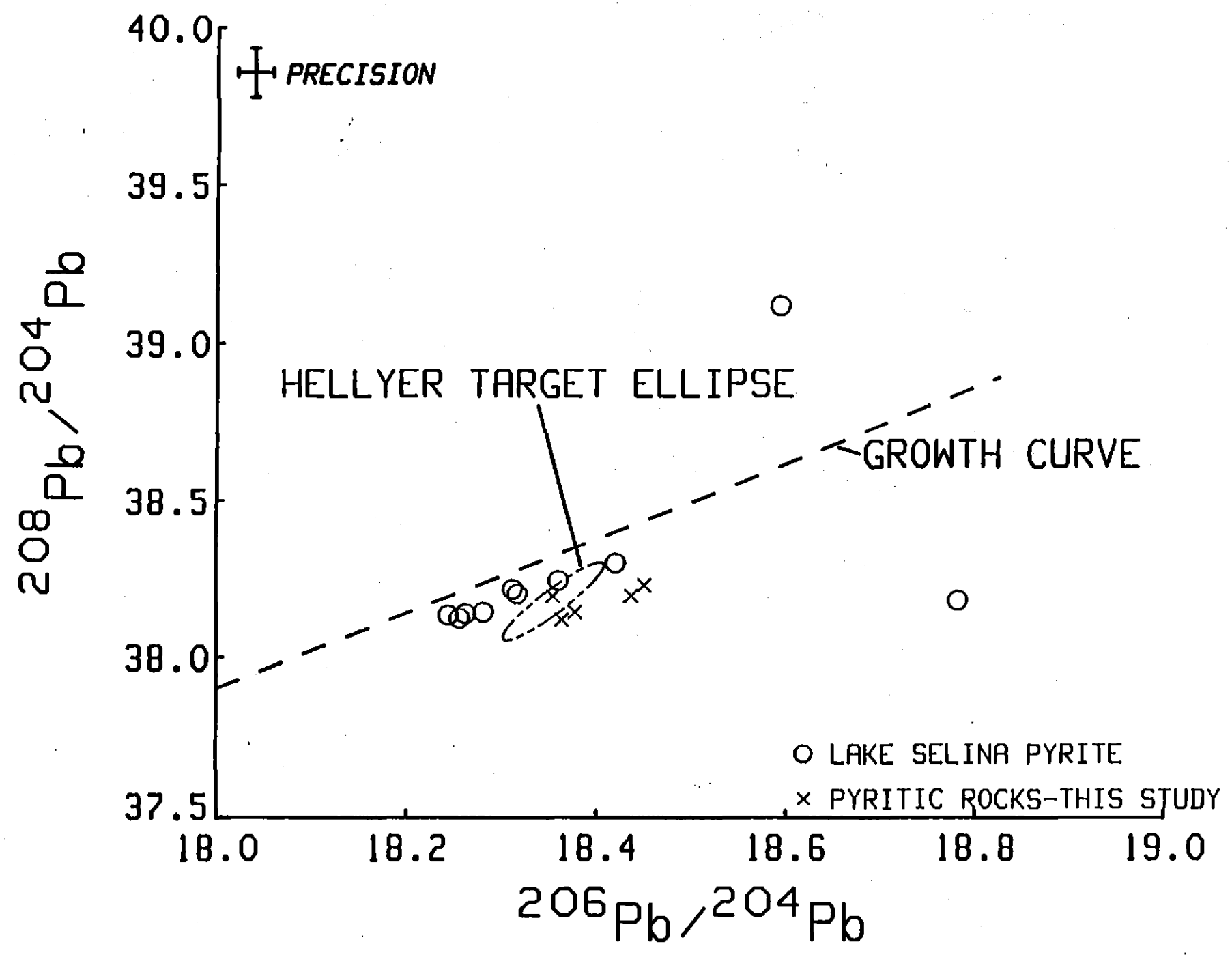


Figure 4

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598562

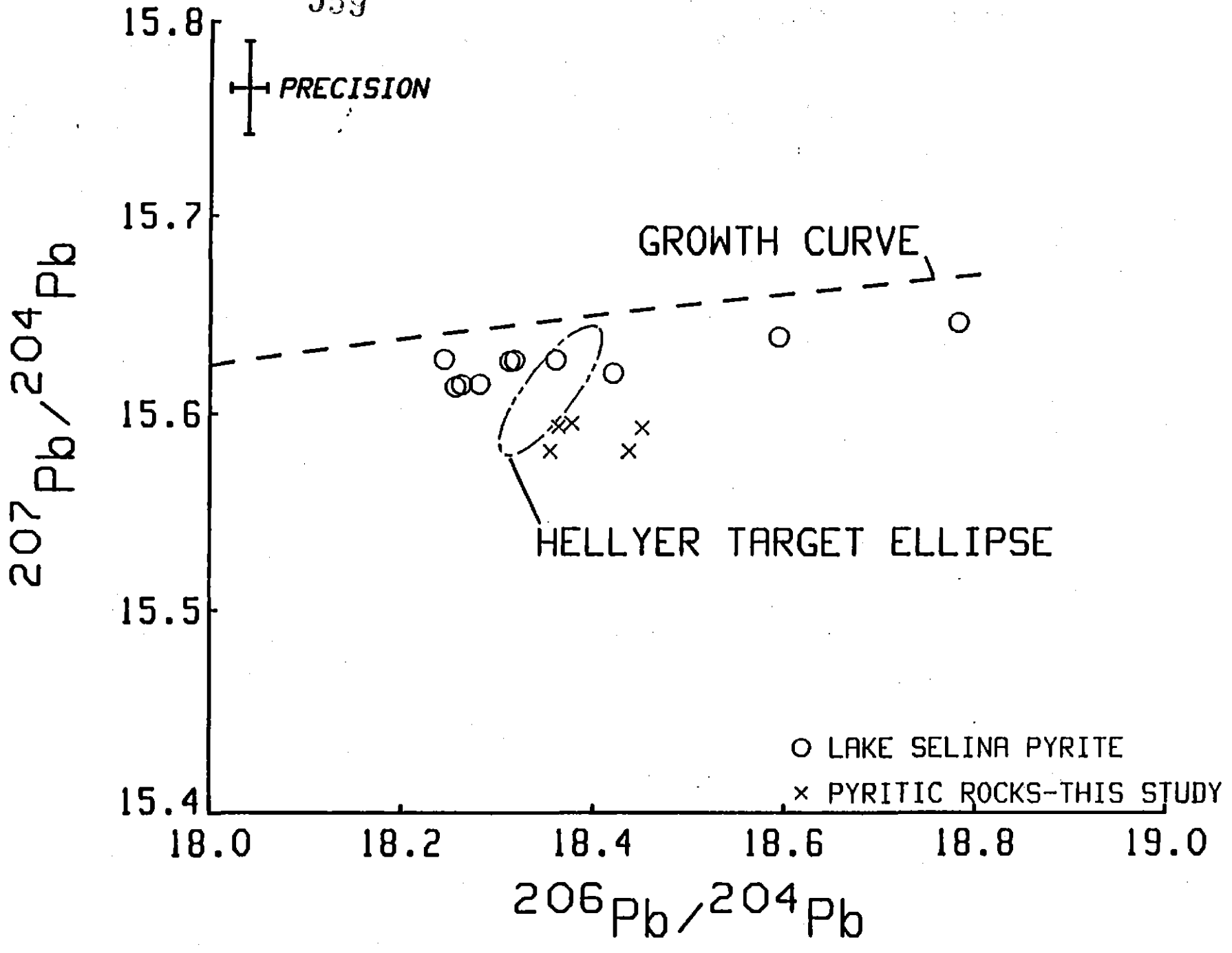


Figure 5

598563

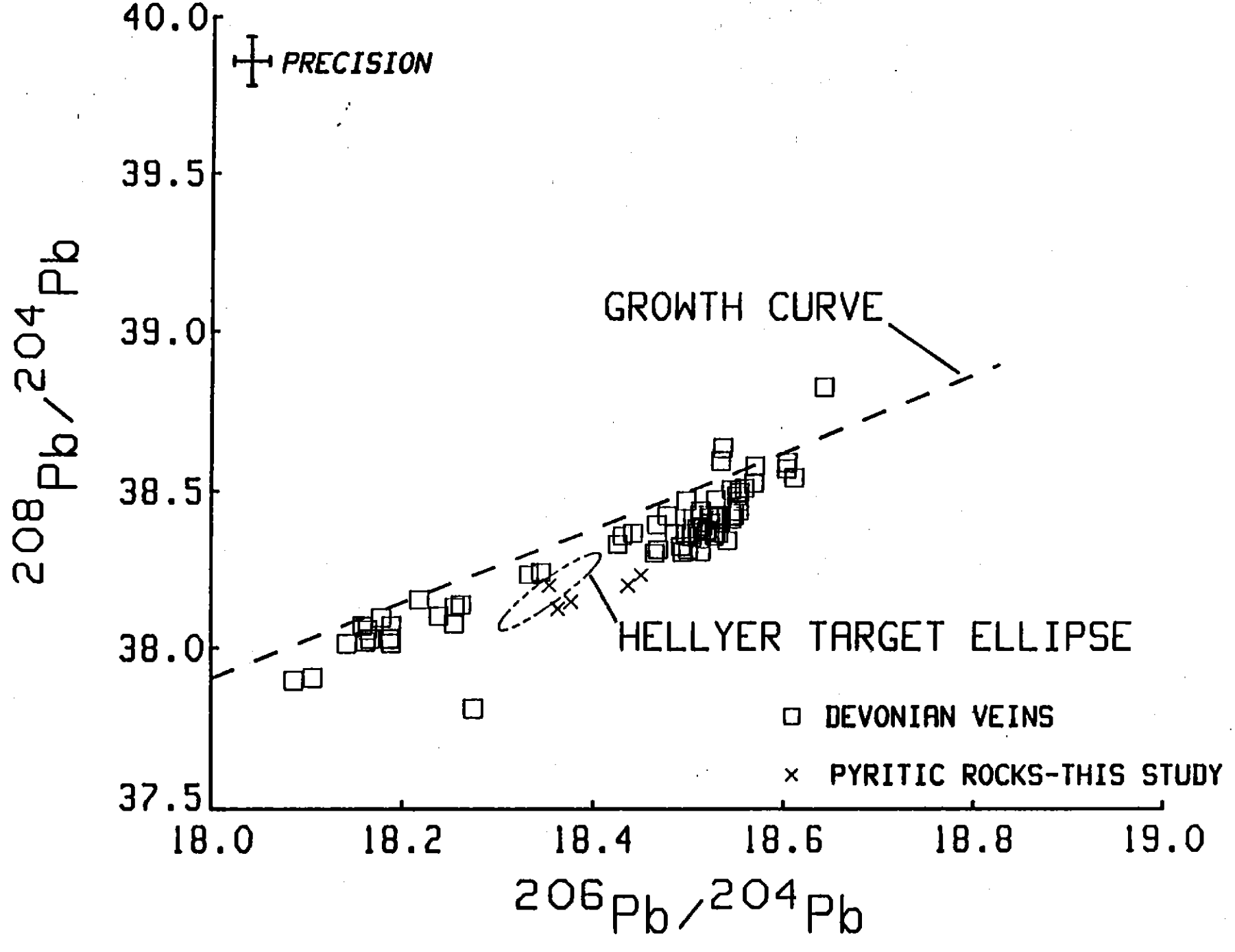
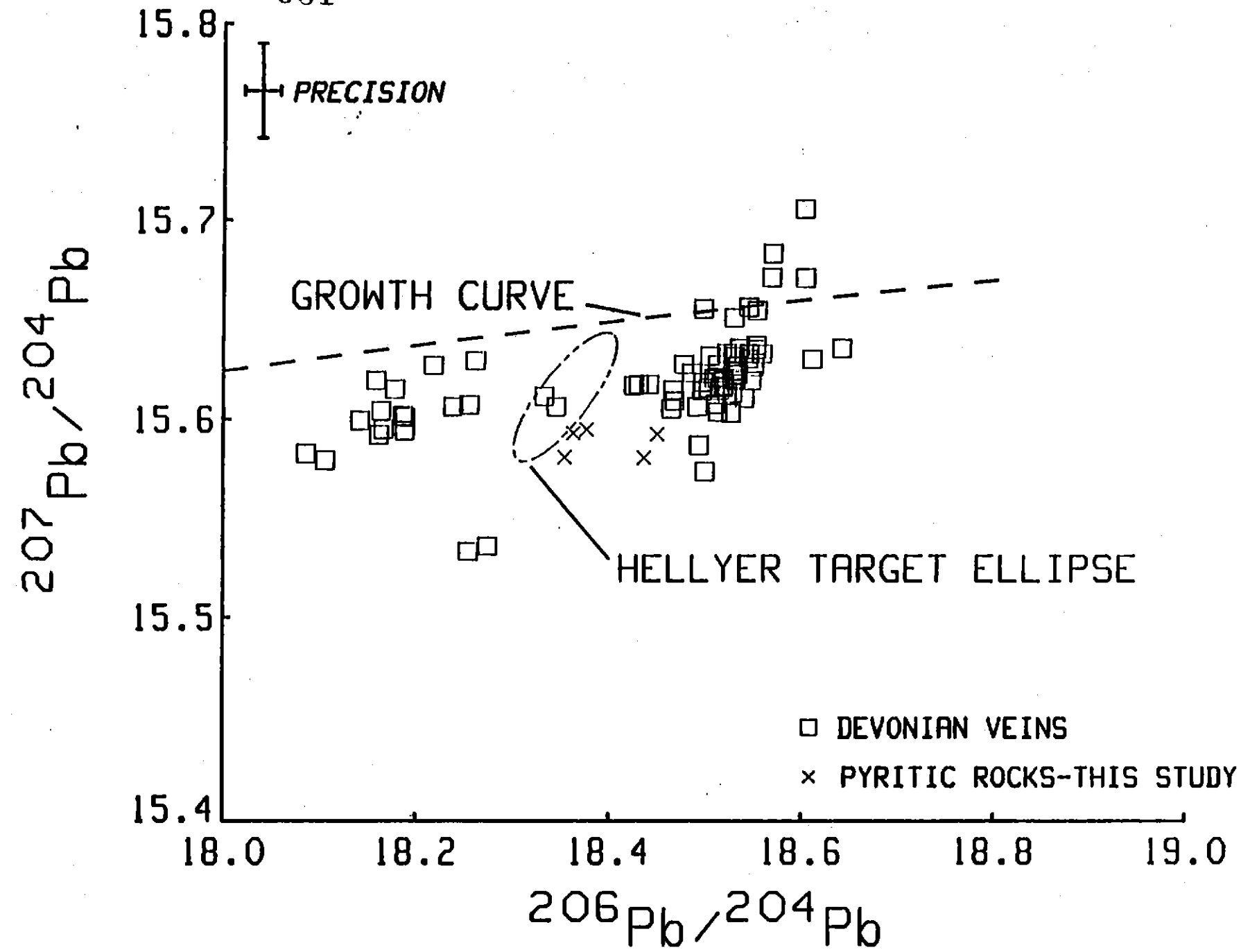


Figure 6

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598564

APPENDIX 16.

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

PROJECT : HELLYER ML

PROSPECT: HELLYER MILL SITE 553

598566

HOLE NO: MAC-11
PAGE: ONE of 23
LOGGED: JUNE 87
DATE: RMH

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING: TYPE	VEINING: INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
2				TRICONE									
4									DECOMPOSED	OX S			
6													
8				THROUGHOUT WEATHERED UPPER FOLIATED SEQUENCE									
				9.0									
10			BLACK SHALE.	FINELY BEDDED GREY BLACK SHALE. PATCHY STRONG WEATHERING. BEDDING 50° TO C.A.		LEACHED OXIDISED VEIN REMANENTS	2						
12									11.9	11.9			
14									BROKEN - WEATHERING ON JOINTS, VEINS	OX 3			
16													
				CONTACT WEATHERED, BROKEN									
18										18.5			
				18.5									
20			RHYOLITE (INTRUSIVE)	MASSIVE GREY SPHERULITIC (?) RHYOLITE (CHILLED MARGIN PHASE?)								PK 37944: 21.2 - RIP 18.5-29.0	
22												ALTERED RHYOLITE. SE-QTZ-CALC-(CHL) ALTERED. WEAKLY AMYGDALOIDAL. QTZ + FLD. PHYRIC.	
24													
						25.0							
26						CALCITE / QUARTZ - MS FINE (<2mm) WITH VEINLETS AND 2-5mm PATCHES (MM2 BX?)	2			OX 2			
28				29.0		+							
30				MASSIVE PINK RHYOLITE FLD + QUARTZ PORPHYRITIC. DISTINCT DARK GREEN 0.5-1cm DIAMETER CHLORITE (?) CLAST. LOCALLY SILICIFICATION FELDSPAR PHENOCRYSTS REPLACED BY CARBONATE (?)		FINE (1-5mm) CHLORITE VEINS WITH GREEN ASSYMILATION SELVAGES. + CONTAIN MINOR AMT OF PYRITE							
32													
34										34.0			
36									BROKEN ALONG FINE VEINLETS - DOES DRILLING				
38													
40													
42							2						

ABERFOYLE EXPLORATION

PROJECT : HELLYER CMTL

PROSPECT: HELLYER MINE SITE

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DIAMOND DRILL LOG

598567

HOLE NO: MAC-11

PAGE: 2 of 23

LOGGED: AMH

DATE: JUNE 87

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING: TYPE	VEINING: INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
44			RHYOLITE (INTRUSIVE)			"	2						
46													
48													
50													
52													
54						55-a							
56						"	3						
58													
60													
62													
64							3		64.6 - SILICIFIED + BX CV + STR FRMS - DRILLING PROBLEMS!				
66						67-a							
68						"	2						
70													
72									! 73-1; 1.0m CHLORITIC RUBBLE				
74													
76													
78													
80													
82						"	1						
84													

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

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598568

PROJECT : HELLYER ORE

PROSPECT: HELLYER MINE SITE

HOLE NO: MHE-11

PAGE: 3 of 23

LOGGED: MMH

DATE: JUNE 87

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING: TYPE	VEINING: INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
86			RHYOLITE (INTRUSIVE)				2						
87.0						87.0							
88						"	3						
90													
92													
94													
96													
98													
100													
102									103.0 - 105.7 BROKEN CORE AFTER HYDRAULIC BRECCIATION.				
104													
106						"	3						
108													
110												PEG. 37948, 111-1, REP 29.0-148.0 ALTERED RHYOLITE, MORE CRYSTALLINE THAN HW. CHLOR-ANH-SER AG. FE MAG PHENOS (minor). QTZ + FLDS. PHYRIC. GREEN CLOTS ARE AFTER FE MAG OR SILICIFIED TO AMYGDULES.	
112													
114													
116													
118													
120													
122													
124													
126						"	3						

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

PROJECT : Hellyer Orig

PROSPECT: Hellyer Mine Site

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598569

HOLE NO: MAC-11

PAGE: 4 of 23

LOGGED: AMH

DATE: JUNE 87

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING: TYPE	VEINING: INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
128													
130						"	3						
132													
134									FAULT ZONE 134.0 - 128.7 (5.3m) RUBBLE, CARB/QTZ VEINING, MINOR OXIDATION			MAJOR FAULT.	
136													
138													
140													
142													
144						"	3						
146													
148				148.0		148.0							
150				149.3 - 153.0 GRADATIONAL CHANGE TO GREY-BROWN TO GREEN RHYOLITE WITHOUT DIFFUSE GREEN CHLORITE SPOTS, SIMILAR TO 18.6 - 29.0 - LOWER CHILLED MARGIN?		"	2						
152													
154												? Pyr. What are i-2mm white ovals?	
156													
158													
160													
162													
164						"	2						
166													
168													

PROJECT : Hellyer Mine

567

PROSPECT: Hellyer Mine Site

ABERFOYLE EXPLORATION
DIAMOND DRILL LOG

598570

HOLE NO: MK-11
PAGE: 5 of 23
LOGGED: RMH
DATE: JUNE 87

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING: TYPE	VEINING: INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
170													
172													
174							2					PER. 379449, 173.9; REP. 148-182.9.	
176												ALTERED RHYOLITE Similar to 147.4m QTZ + HAZY (Clouded) PORPHYRITIC. ANHYDROUS/SOME.	
178													
180													
182				SHARP CONTACT AT 90° C.A, MARKED BY CALCITE VEIN			2						
182.9			BLACK SHALE ↑ RHYOLITE	INTERVALS OF BLACK SHALE (Graph) INTRUDED BY RHYOLITE. RHYOLITE IS RANGE WITH VERY FINE REGULAR FLOW BANDING AT 90° CA AND HAS DIGESTED SHALE CHUNK FORMS.		182.9			f 183.3, 10cm; 70-90° TO C.A; BLACK SHALE PLUS + ROTATED QTZ. VEIN FRAGMENTS.			PERMIAN FAULT. PER. 379450 184.4m REP. 182.9-187.9	
184						IRREGULAR WISPY 1-5mm VEINS + 1-3mm VEINS SPACED of QUARTZ + COARSE CALCITE	2					RHYOLITIC TUFF (DACITIC?) VITRIC - CRYSTAL TUFF WITH ZONES OF TUFF MATRIX SHALE BRECCIA. MICROSHARD TEXTURE. SHEARED.	
186													
187.9				SHARP IRREGULAR CONTACT AT 70°-90° CA									
188			LITTLE WALL	LIGHT GREEN FINE SANDSTONE TO SILTSTONE WITH SCATTERED ANGULAR TO SUBROUNDED <0.5cm BLACK SHALE FRAGMENTS. Bk. Sh. FRAGS. WEAKLY ALIGNED AT ≈ 45° C.A.										
190				SECTION TO 209.5 HAS APPEARANCE OF VARVE INCIPIENT TECTONIC BRECCIATION (STRESS DUE TO RHYOLITE INTRUSION?)										
192													
194													
196													
198													
200													
202													
204													
206													
206.8	HQ NQ												
208													
209.5				N. ABOVE BUT WITHOUT VARVE STRUCTURE. BECOMING DARKER GREY DOWNHOLE.								XENOSUITE MICROCRYSTALLINE + SPLINTERY CLASTIC QTZ; SERICITE, Fe-CARBONATE CLOTS; SUBL. CLASTS.	209.5

PROJECT : Hellyer Cml

PROSPECT: Hellyer Mine Site

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ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598571

HOLE NO: MAC-11

PAGE: 6 of 23

LOGGED: AMH

DATE: JUNE 87

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING: TYPE	VEINING: INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
212													
214							2						
216													
218												TEL. 379482, 219; REP 209·5 - 232·1	
220												XENOLITH 5m TO 420, 45°.	
222													
224													
226													
228						227·6							
230							4						
232				Sharp contact? Obscured by quartz veining + silicification					fault zone.				
233·1													
234			Black Shale	Black Shale 50% massive, 50% finely laminated with foliation at 70° (top) to 45° (bottom) to C.A.									
236							4						
238						239·1							
240									Fault Zone 239·1 - 227·6 Broken core, some fine zones, stronger quartz veining, silicification; incipient sheeting hyperbolic 30°-40° to CA				
242													
244							2						
246													
248													
250													
252													

ABERFOYLE EXPLORATION

PROJECT : Hellyer Cmpl

PROSPECT: Hellyer Mill Site

569

DIAMOND DRILL LOG

598572

HOLE NO: MAC-11

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LOGGED: AMH

DATE: JUNE 87

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING: TYPE	VEINING: INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
256						"	2		F. 256·3; Mm, Broken Shale, Pyr Bands; Strong Foliation Shale.				
258				MINOR SHALE LAYER BRANT QUEN Contact									
258·3					258·3	258·3		258·3					
260			Brans Pillow Lava.	LIGHT GREEN - CREAM - GREY Lac. INTENSELY ALTERED) VESICULAR BRANT FRAGMENTS IN A BLACK (SHALEY) TO GREY (CHERTY) MATRIX. CLAST AND EITHER WHOLE PILLOWS OR PILLOW DERIVED BRECCIA LARGER (5 - 30mm) VESICLES ARE FILLED WITH BIZ/CALCITE, SMALLER (<5mm) VESICLES WITH CHLORITE	INTENSE LIGHT GREEN 5 - CREAM - GREEN SERICITE/PY ALTERATION OF BASALT WITH STRONG FUCHSITE SPOTTING (Se-Carb-Py ds)	WISPY VEINLETS NOT 3 COMMON. CALCITE + MINOR QTZ. PREDOMINANTLY AS VESICLE FILLINGS AND 2-20mm IRREGULAR PATCHES	1-2 VOL % PY. OCCURS IN MATRIX SILICH AS PATCHES AND AS RIMS AROUND BASALT FRAGMENTS.				NOTE PY. IS PART OF ALTERATION PHASE	
262													
264													
266													
268												(WHAT IS THE SIGNIFICANCE OF TWO GROUPS OF VESICLES?)	
270													
272					" 5	" 3		"					
274													
276													
278													
280													
282													
284					" 5	" 3		"					
286													
288													
290													
292													
294													

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

570

598573

PROJECT : Hellyer Mine

PROSPECT: Hellyer Mill Site

HOLE NO: MR-11

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LOGGED: AMH

DATE: June 87

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION: TYPE	ALTERATION: INTENSITY	VEINING: TYPE	VEINING: INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
296					"	5	"	3	"					
298														
300														
302														
304														
306														
308														
310														
312														
314					"	5	"	3	"					
316														
318														
320														
322														
324														
326														
328														
330				Mixed interpenetrating contact over 10cm										
332					"	5	"	3	"					
333.5					333.5		333.5		333.5					
334			Black Shale	Massive (non-laminated) black carbonaceous chert (QRZ equivalent)			Vein irregular 2 Hairline calcite/ quartz veins - moderate recession by texture		< 1vol % patchy fine disseminated pyrite					
336														

PROJECT : Hellyer Mine

PROSPECT: Hellyer Mine Site

571

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598574

HOLE NO: MK-11

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DATE: JUNE 87

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
338				HBM SHOWING APPEARANCE TOWARDS BASE (335.5 - 335.6 - BASALT MIXED WITH CH) AND IS AUGITIC		" Z	"					
340			339.8 LITHIC WACKE	LIGHT GREY MASSIVE SANDSTONE WITH <1cm ANGULAR SUBROUNDED BLACK SHALE FRAGMENTS - < 1%/VOL IDENTICAL LITHOLOGY TO 209.5 - 333.1	(DEFAULT ON CONTACT)	" Z	339.8	F 340.7, 1.5m 35° C.A. SHEAR BRECCIA, RUBBLE AND PUG ALONG SHEAR CONTACT				
342			340.6 BASALTIC PILLOW LAVA, BRECCIA	INTERMIXED SHALE + BASALT FOR 2m BELOW CONTACT	340.6	340.6	340.6				? SEDIMENTARY ROCK SUFFICIENTLY ALTERED TO INTENSE ALTERATION IN THE BASALT - HAVE THEY BEEN AFFECTED? IF NOT SUGGESTS THAT IMPERMEABLE SEDIMENTS CHANNELLED THE FLUIDS WHICH CAUSED THE ALTERATION. NOTE THAT 333.5 - 6 BASALT WITHIN ZONE IS NOT.	
344												
346				M FOR 258.3 - 333.5 WITH WELL DEVELOPED HYALOCLASTITE BRECCIA 358.3 - 383.5.	M FOR 258.3 - 339.5 4 BUT LESS INTENSE (GREYISH COLOUR) AND NO FUCHSITE SPOTS	M FOR 258.3 - 333.5 3	M FOR 258.3 - 333.5				CAL. 1.8cm VEINS IN SHALE CONTROLLED BY TECTONIC BRECCIATION - ?. DEVONIAN	
348												
350												
352												
354				THROUGHOUT THIS UNIT MASSIVE ALTERNATES OVER 10 - 50m INTERVALS BETWEEN								
356												
358												
360												
362					" 4	" 3	"					
364												
366												
368												
370												
372												
374												
376					" 5	" 3	"					
378												

HYALOCLASTITE BRECCIA ZONE

PROJECT : Hellyer ML

PROSPECT: Hellyer Mine Site

572

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598575

HOLE NO: MAC-11

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DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION: TYPE	ALTERATION: INTENSITY	VEINING: TYPE	VEINING: INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
380			Basalt Pillow Lava, Breccia		"	4	"	2	"					
382														
384														
388														
390														
392														
394														
396														
398					"	4	"	3						
400														
402														
404														
406														
408														
410														
412														
414					"	4	"	3	"					
416					416.5									
418					"	3	"	3	"					
420														

PROJECT : Heliyer Ore

PROSPECT: Heliyer Min Side

513

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598576

HOLE NO: MK-11

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DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION: TYPE	ALTERATION: INTENSITY	VEINING: TYPE	VEINING: INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
420			BASALT PILLOW LAVA, BRECCIA		"	3	"	3	"					
424														
426														
428														
430														
432														
434														
436														
438													PET. SAMPLE 437-5 ; REP. 416.0 - 502.0	
440													AMYGDALOIDAL BASALT	
442					"	3	"	3	"				Sc - Ca Mg. Fe Mag. Pyrrhot. Qtz xenocrysts. Predominately Sc - Ca - Qtz - Py Mg.	
444														
446														
448														
450														
452														
454														
456														
458														
460														
462					"	3	"	3	"					

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

574

598577

PROJECT : HELLYER OML

PROSPECT: HELLYER MILL SIDE

HOLE NO : MAC-11
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DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION: TYPE	ALTERATION: INTENSITY	VEINING: TYPE	VEINING: INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
466			BASALT PILLOW LAVA, BRECCIA		"	3	"	3	"					
468														
470														
472														
474														
476														
478														
480					"	3	"	3	"					
482														
484														
486														
488														
490														
492														
494														
496				502.0 ABRUPT ALTERATION BOUNDARY - BASALT STILL BRECCIATED BUT LESS CHLORITE/SERICITE DOWNHOLE										
498														
500					"	3	"	3	"					
502					502.5 WEAK PERVASIVE FOLIATION BROWN TO GREEN FOLIATION	2							502.5 BASE OF PILLOW BASALT UNIT CHANGE TO MASSIVE MAFIC UNIT?	
504														

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

575

598578

PROJECT : HELLYER ML

PROSPECT: HELLYER MILL SITE

HOLE NO: MAR-11

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DATE: JUNE 87

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION: TYPE	ALTERATION: INTENSITY	VEINING: TYPE	VEINING: INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
506			BASALT PILLOW LAVA, BRECCIA		"	2	"	3	507.0					
508														
510														
512														
514														
516														
518														
520														
522					"	2	"	3						
524													REF. 396895 5246 REF. 5225-721:2 AMYGDALOIDAL BANDS. FORTHCOMING + PLAG. PHENOCRYSTS IN GROUNDMASS OF ALBITE, CHLORITE, ATMH + CHL.	
526														
528														
530														
532														
534														
536														
538														
540														
542														
544														
546					2		3							

ABERFOYLE EXPLORATION

PROJECT : Hellyer ML

PROSPECT: Hellyer Mill Site

575

DIAMOND DRILL LOG

598579

HOLE NO: MAC-11

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DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION: TYPE	ALTERATION: INTENSITY	VEINING: TYPE	VEINING: INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
548			Basalt Pillow Lava, Breccia		"	2	"	3						
550														
552														
554														
556														
558														
560					560-4 Patch of pale strong weak chloritic ms. 564-0									
562														
564														
566														
568														
570														
572														
574														
576														
578														
580														
582														
584														
586														
588														

563.0

Veining as above but with appearance of pink quartz + pale green illite in some veins — 3

PROJECT : Hellyer Mill

PROSPECT: Hellyer Mine Site

577

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598580

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DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION: TYPE	ALTERATION: INTENSITY	VEINING: TYPE	VEINING: INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
590			BIMAC PILLOW LAVA, BRECCIA	GRADATIONAL CONTACT OVER 10cm	"	2	"	3						
592														
594				594.0										
596			BIMAC (CHERT) LAVA.	VOLCANIC BRECCIA TEXTURE (AUTO-BRECCIA, BUT CHERTISH MATRIX IS RARE. POORLY VESICULAR COMPARED WITH BIMAC ABOVE.										
598														
600														
602														
604														
606														
608														
610					"	2	"	3						
612														
614														
616														
618														
620														
622														
624														
626														
628														
630					"	2	"	3						

ABERFOYLE EXPLORATION

PROJECT : HELLYER ML

PROSPECT: HELLYER MINE SITE

578

DIAMOND DRILL LOG

598581

HOLE NO: MAC 11

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DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION: TYPE	ALTERATION: INTENSITY	VEINING: TYPE	VEINING: INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
632			BASALT (SHEET) LAVA.		"	2	"	3						
634														
636														
638														
640														
642														
644														
646														
648					"	2	"	3						
650														
652														
654														
656														
658														
660														
662														
664														
666														
668					"	2	"	3						
670														
672														

PROJECT : HELLYER ML

PROSPECT: HELLYER MIN SITE

579

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598582

HOLE NO: MAC 11

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DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION: TYPE	ALTERATION: INTENSITY	VEINING: TYPE	VEINING: INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
674					"	2	"	3						
676														
678														
680														
682														
684														
686														
688													PEG. 396896, 690-2, ESP. 302.5-721.2	
690													AMYGDALOIDAL "LEUCOGRANO"	
692													FERROMAG. DEFICIENT COMPARED WITH 894, 895.	
694					"	2	"	3						
696														
698														
700														
702														
704														
706														
708														
710														
712					"	2	"	3						
714														

PROJECT : HELLYER ML

PROSPECT: HELLYER MILL SITE

580

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598583

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DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION: TYPE	ALTERATION: INTENSITY	VEINING: TYPE	VEINING: INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
716			BASALT PILLOW LAVA, BRECCIA		"	2	"	3						
718														
720														
721				SHARP INTERPENETRATIVE CONTACT OBSCURED BY BROWSIN CORE	"	2	"	2						
				721-2	721-2		721-2							
722			ASH - FINE LAPILLI VOLCANICLASTIC	PINK (10-5 R 6/2) TO GREY-YELLOW (5BG 8/1) FINE TO FINE LAPILLI VOLCANICLASTIC WITH 10-20% VOL FINE STRONG PYRITE TOPS - FRAGMENTS REMAINING FRAGMENTS.			VERY SPARSE WHITE FINE CARBONATE/QTZ VEINS + PATCHES	1		721-7, 20cm; 45°C.A, FOL + SHEARED TRACE, SURROUNDED BY QTZ/CARB VEIN			PE 396898: 721.8, REP 721.2-722.2 DACITIC TUFF PERVASIVE, STRONG SILICIFICATION A LITTLE VITRIC TUFF.	
			722-2											
723			BASALT LAVA.	GRADATIONAL CONTACT OVER 20cm										
				GREY-GREEN PREDOMINANTLY MASSIVE WEAKLY VESICULAR BASALT WITH SOME (HYALOCLASTITE?) BRECCIA ZONES IN FILLED WITH LIGHT GREEN CARB AND PATCHES OF RHOMBIC BRECCIATION BY QTZ/CARB VEINS.											
724				JAGGED CONTACT. MAY BE SOME ASH VEIN MIXED WITH TOP OF ANDESITE										
			724-9											
725			ANDESITE LAVA BRECCIA											
				GREEN - BLACK (WITH PATCHES OF PINK BROWN FELSIC ALT) VERY WEAKLY FELDSPAR PHYRIC ANDESITIC LAVA BRECCIA. CLASTS VERY ANGULAR, (CONTACTS NOT OBSCURED BY ALTERATION); <1 - 5cm; MATRIX IS ANDESITIC OR PINKISH ALTERED CHERT		725-0									
					PATCHY PINK FELSIC ALT	3								
726														
727				POSSIBLE VOLCANICLASTIC INTERVAL - MIXED 724.9 - 725.0										
				MIXED HYALOCLASTITE - AUTOBRECCIA	"	3		1	728.0 PATCHES OF GRANULAR PYRITE (<1% VOL) 729.0					
728														
729														

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

531

598584

PROJECT : Hellyer ML

PROSPECT: Hellyer Mill Site

HOLE NO: MK 11

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DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
736					3	/						
738												
740												
742												
744					3	/						
746				GRADATIONAL CONTACT OVER 35mm - 60° C.A.								
748				748·5								
750			B(or A) av - fiv.	PREDOMINANTLY LIGHT TO DARK GREY-GREEN, MOD-POORLY SORTED VCLL. WITH 50mm BAND OF SIMILAR COMPOSITION BUT FINER (LAV)							PEF. 396899 736.9 REF. 729·8 - 748·5 ANDESITIC BRECCIA Minor xenolithic plagioclase, chloritised FeMg phenocrysts in albitised plagioclase microlathic groundmass. Flow brecciated with clast matrix.	
752				751·5 VAGUE LAMINATION IN CV AT HIGH ANGLE (60°-90°) TO CORE AXIS BROKEN CORE/OBSCURES CONTACT								
754			BASALTIC LAVA BRECCIA		754·0							
756				DARK GREY-GREEN BASALT(?) BRECCIA 751·5 - 756·2 CLAST DOMINANT. CLAST OUTLINES VERY VAGUE RIMS PATCHES OF CHLORITE MATRIX. 756·2 - 761·5 CLASTS HAVE VERY SHARP	2						PEF. 396900 748·5 REF. PMC 748·5 - 751·5 SCORIACEOUS BRECCIA (BASALTIC) Chloritised pumice, chilled selvedge hyalo lava clasts in sparse GM/L matrix. Continuous chlorite.	
758											PEF. 396901 749·8 REF. PMC 748·5 - 751·5 TUFFACEOUS BRECCIA Andesitic lithic/vitric tuff. Chlorite/albite/carbonate altered. (Cu: 280 ppm Cu)	
760				761·5							PEF. 396902, 758·2; REF. 756·2 - 761·5 ANDESITIC BRECCIA Phenocrysts - albitised plagioclase, calcite/chlorite/dimpled pseudomorphic pyroxene. Clasts contained by tough clast matrix (Cu: 35 ppm Cu)	
762			B.Y. fiv	EXTREMELY ANGULAR OUTLINES. RATIO OF CLAST: MATRIX = 60:40. MATRIX IS PALE GREEN-GREEN AND CHERTY IN CONTRAST WITH BLACK GREEN CLASTS. TEXTURE VERY SIMILAR TO ANDESITIC LAVA BRECCIAS (HYALOCLASTITE BX?) NOTE: CLASTS ARE NON-FELDSPAR-PHYRIC AND ONLY OCCASIONALLY VESICULAR - COULD BE ANDESITIC ? BASALT.	2							

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ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

598585

PROJECT : Hellyer ML

PROSPECT: Hellyer Mill Site

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DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
762				CLAST BUFF AND DARK GREEN, ANGULAR TO SUBROUNDED, 2-8mm RARELY TO 20mm; OUTLINES VAGUE DUE TO MATRIX OF SIMILAR COLOUR (AND COMPOSITION?) NOT BEDDED - MASSIVE ASPECT EXCEPT FOR WEAK ALIGNMENT OF CLASTS AT 45° C.A.	2							
763												
764					764.0 2						TR. 396902, 764.2, REF. 761.5-767.5 ANDESITIC BRECCIA SERICITE/CALCITE/QTZ ALTERED AMYGDALOIDAL LAVA, MINOR SILICIFIED 'FIAMME' IN FINE GRAINED CHLORITE/QTZ MATRIX WITH VUGS OF CALCITE. (MOST POSITIVELY IDENTIFIED AS ANDESITE) Cu = 100ppm.	
765												
766												
767				GRADATIONAL CONTACT OVER 10cm								
				767.5	767.5		767.5					
768			B.Y. f-m lv.	GREY-GREEN VOLCANICLASTIC CONGLOM. AND MINOR POLYMICT TUFF ABOVE. CLASTS ARE ANGULAR AND INCLUDE BASALT (ANDESITE?), CHERT AND PYRITE + CREAM SERICITE ALT. FRAGMENTS.	SELECTIVE CREAMY SERICITE ALTERATION OF SOME VUGS FRAMMENTS (POSSIBLY ALT. BEFORE DEPOSITION?)		PYRITE FRAGMENTS IN VOLCANICLASTIC			TR. 396904, 768.2, REF. 767.5-769.4 ANDESITIC TUFF SERICITIC (CHLORITIC, CALCIC) CHERT / ARGILLITE MARGINED LITHIC TUFF.	
769				SHARP CONTACT								
				769.4			769.4					
770			B.Y. gr-Pn.	INTERBEDDED FINELY BEDDED - SLUMP BEDDED GREEN GY AND YPN SIMILAR TO 767.5 - 769.4.	2						TR. 396905, 771.4, REF. 769.4-771.4 PORPHYRITIC HP SERICITE CHLORITE, FEW QUARTZ PHENOS RELICT LITHIC FRAGS ASH TO FINE LAPILLI SIZE.	
771				GRADATIONAL / INTERCALATED CONTACT								
				771.4								
			A.Y. f-m-c lv	SIMILAR TO 767.5 - 769.4 WITH INTERBEDS AND CONTINUOUS LAMINATION DOMINANT AND ALIGNMENT OF CLASTS AT 45° C.A.	CHANGE IRREG. CONTACT AT 72° TO C.A.						TR. 396906, 771.9, REF. 771.4-772.2 ANDESITIC TUFF	
772				772.2								

DARK GREEN - BLACK WEAKLY, FINELY FELDSPHYRIC ANDESITIC LAVA

533

ABERFOYLE EXPLORATION

PROJECT : HELLYER ML

PROSPECT: HELLYER MILL SITE

DIAMOND DRILL LOG

598586

HOLE NO: MAR-U

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DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
772.7												
773			ANDESITIC LAVA BRECCIA (HYALOCLASTITE)	DISTINCTIVE "EUTAXITIC" SHAPE DARK GREEN F.P. ANDESITIC FRAGMENTS IN LIGHT GREY CHERTY MATRIX. CLAST:MATRIX = 40:60. SOME CLASTS STRONGLY ALTERED TO CREAMY SERICITE. SHARP IRREG. CONTACT	" 2	" 1					PET. 396897; 772.6; REF 772.7 - 773.7 HYALOCLASTIC ANDESITE GLASSY, FINELY FLOW BANDED. MICRO VESICULAR LAVA. PHENOCRYSTS - ALBITE/OLIGOCLASE MS. PLAGIOCLASE; CLINOPYROXENE MS. PYROXENE. GROUNDMASS - CHLORITE/GLZ.
774												
774.2			AY from IV.	GRADATIONAL CONTACT OVER 10cm. Similar to 767.5 - 769.5							PET. 396898; 773.7; REF 773.7 - 774.2 ANDESITIC TUFF LAVA CLASTS - CHL/SER/CALCITE ALTERED MATRIX - SERICITE / DOLOMITE CHERT WITH SERICITISED SHARDS.	
775												
776											PET. 396908; 775.7; REF 774.2 - 776.8 POLYMICT BRECCIA PELITE ANDESITE SMALL CHERT CLASTS. SER/CHL/CALC MX. MICROLEO. SERICITE MATRIX. MINOR PY. DISSEMINATIONS.	
776.8				MIXED CHERT + VLCC OVER 15cm ON CONTACT	776.8	776.8						
777			ANDESITE LAVA BRECCIA.	Similar to 727.7 - 774.2. ANGULAR 1-15cm F.P. ANDESITE LAVA CLASTS IN GREY CHERTY MATRIX. DARK GREEN - BLACK ANDESITE CLASTS ARE VARIABLY PINK - ALTERED. CLAST:MATRIX = 50:50	PATCHY PINK FELS MS. 3	TATCHES OF CREAMY CARBONATE + QUARTZ AS HYDRAULIC FRACTURE PATCHES AND MINOR IRREGULAR VEINS 2						
778												
779												
780					" 3							
781												
782						" 2					PET. 396909; 782.4; REF 776.2 - 787.4 TUFFITIC BRECCIA LAVA CLASTS WITH ALBITISED PLAG. PHENOS; QTZ MICROPHENOS IN DOLOMITIC / SERICITIC CHERT GROUNDMASS.	
783					" 3							

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

554

598587

PROJECT : Hellyer ML

PROSPECT: Hellyer Mine Site

HOLE NO: MAC-11

PAGE: 22 of 23

LOGGED: ASMH

DATE: JUNE 87

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
791					3	2						
792				GRADES INTO ↓								
793				793.0								
794				BRECCIATED FP. ANDESITE LAVA, NO CHERT MATRIX. CLASTS USUALLY DEFINED								
795												
796												
797												
798												
799												
800												
801					3	2						
802												
803				GRADES INTO ↓								
804				804.0								
805				FP. ANDESITE LAVA BRECCIA, DISTINCT ANGULAR CLASTS, BROWN-GREY CHERTY MATRIX.				F 812.0; SOME RUBBLE, POOR				
806												
807												
808												
809												
810												
811												
812												
813												
814					3	2						

ABERFOYLE EXPLORATION

PROJECT : HELLYER ML

PROSPECT: HELLYER MILL SITE

585

DIAMOND DRILL LOG

598588

HOLE NO: MK-11

PAGE: 23 of 23

LOGGED: KMH

DATE: JUNE 87

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
826					" 3	" 2					PEG. 39610: 826-9 REP. BK-S-839-9	
828											ANDESITIC BRECCIA	
830											CLASTS - STRONGLY SERICITISED, PLAG/FERRO MAG. PORPHYRITIC.	
832											MATRIX - DOLOMITIC/SERICITIC CLAYEY.	
834												
836												
838												
839					" 3	" 2						
840			839-9 EOH.									
842												
844												
846												
848												
850												

SAMPLE NO : 379447
LOCATION : MAC-11/21.2
REPRESENTATIVE OF: 18.5-29.0
REMARKS : Upper marginal zone of intrusive rhyolite.

SAMPLE NO : 379448
LOCATION : MAC-11/111.1
REPRESENTATIVE OF: 29.0-148.0
REMARKS : Pink quartz - feldspar porphyritic rhyolite from centre of intrusive. What are the green spots?

SAMPLE NO : 379449
LOCATION : MAC-11/173.9
REPRESENTATIVE OF: 148.0-182.9
REMARKS : Lower marginal zone of intrusive rhyolite. Compare textures of 379447, 449 with 379448.

SAMPLE NO : 379450
LOCATION : MAC-11/184.4
REPRESENTATIVE OF: Zones within 182.9-187.9
REMARKS : Flow banded intrusive rhyolite with shale inclusions.

SAMPLE NO : 379451
LOCATION : MAC-11/195.0
REPRESENTATIVE OF: 187.9-209.5
REMARKS : In core, appears to be the same rock type as 379452 but with a vague stress texture and incipient silica alteration. Perhaps due to intrusion of adjacent rhyolite.

SAMPLE NO : 379452
LOCATION : MAC-11/219.0
REPRESENTATIVE OF: 209.5-233.1
REMARKS : Polymict lapilli volcaniclastic. Contains black shale fragments. Compare with 379451.

SAMPLE NO : 396894
LOCATION : MAC-11/437.5
REPRESENTATIVE OF: Alteration, 416.0-502.0
REMARKS : Moderate intensity sericite - carbonate - cpyrites alteration of basalt.

SAMPLE NO : 396895
LOCATION : MAC-11/524.6
REPRESENTATIVE OF: Basalt, 502.5-721.2
REMARKS : Relatively unaltered basalt - compare with 396894.

SAMPLE NO : 396896
LOCATION : MAC-11/690.2
REPRESENTATIVE OF: Basalt, 502.5-721.2
REMARKS : Basalt displaying weak brown feldspar - silica alteration. Compare with 894, 895.

SAMPLE NO : 396898
LOCATION : MAC-11/721.8
REPRESENTATIVE OF: 721.2-722.2
REMARKS : Volcaniclastic from complex sequence of lavas and volcaniclastics (721.2-776.8) correlated with the Hellyer Ore Position.

SAMPLE NO : 396899
LOCATION : MAC-11/736.9
REPRESENTATIVE OF: 724.8-748.5
REMARKS : Non feldsparphyric andesite lava.

SAMPLE NO : 396900
LOCATION : MAC-11/748.6
REPRESENTATIVE OF: Coarser VLCC. in 748.5-751.5
REMARKS : Fine lapilli volcaniclastic. Is it basaltic?

SAMPLE NO : 396901
LOCATION : MAC-11/749.8
REPRESENTATIVE OF: Finer VLCC 748.5-751.5
REMARKS : Interbedded with 396900. Compare.

SAMPLE NO : 396902
LOCATION : MAC-11/758.3
REPRESENTATIVE OF: 756.2-761.5
REMARKS : Basalt lava breccia.

SAMPLE NO : 396903
LOCATION : MAC-11/764.2
REPRESENTATIVE OF: 761.5-767.5
REMARKS : Basaltic volcaniclastic.

SAMPLE NO : 396904
LOCATION : MAC-11/768.2
REPRESENTATIVE OF: 767.5-769.4
REMARKS : Andesitic polymict volcaniclastic, very similar to that at Hellyer. Are pyrite fragments detrital?

SAMPLE NO : 396905
LOCATION : MAC-11/770.1
REPRESENTATIVE OF: 769.4-771.4
REMARKS : Andesitic or basaltic layered ash volcaniclastics.

SAMPLE NO : 396906
LOCATION : MAC-11/771.9
REPRESENTATIVE OF: 771.4-777.2
REMARKS : Volcaniclastic similar to 396904.

SAMPLE NO : 396897
LOCATION : MAC-11/772.6
REPRESENTATIVE OF: 772.2-772.7
REMARKS : Ash volcaniclastic

SAMPLE NO : 396907
LOCATION : MAC-11/773.7
REPRESENTATIVE OF: 772.7-774.2
REMARKS : Andesitic hyaloclastite breccia?

SAMPLE NO : 396908
LOCATION : MAC-11/775.3
REPRESENTATIVE OF: 774.2-776.8
REMARKS : Sericitised polymict volcaniclastic similar to 396904.

SAMPLE NO : 396909
LOCATION : MAC-11/782.4
REPRESENTATIVE OF: 776.8-787.4
REMARKS : Andesite breccia. Compare with 396907.

SAMPLE NO : 396910
LOCATION : MAC-11/826.9
REPRESENTATIVE OF: 808.0-839.9
REMARKS : Andesite breccia. Compare with 396907, 909.

598592

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Central Mineralogical Services

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Mr. A.M. Hespe
Project Geologist
Aberfoyle Resources Ltd.
Exploration Division
P.O. Box 952
BURNIE / TAS. 7320

12th August, 1987

REPORT CMS 87/7/5

YOUR REFERENCE:	Letter dated 3.7.1987
DATE RECEIVED:	7th July, 1987
SAMPLE NOS.:	379447 - 379452 396894 - 396910
SUBMITTED BY:	A.M. Hespe
WORK REQUESTED:	Petrology

MAC-11

H.W. Fander, M. Sc.

Copy to:
Mr. H. Skey
Exploration Manager
Aberfoyle Resources Ltd.
Exploration Division
123, Camberwell Road
HAWTHORN EAST / VIC. 3123

REPORT CMS 87/7/5

598593

A suite of twenty-three drill core samples from DDH/MAC-11 was received for routine petrological examination. Representative thin-sections were prepared and examined together with the respective offcuts, with carbonate stain tests performed as warranted. Attached tabulated descriptions summarise the microscopic data, include interpretative comments, and refer to specific genesis where applicable.

Summary

Samples 379447, 448 and 449 represent a primarily subvitric rhyolite with minor intrusive characteristics. This unit is variably amygdaloidal, notably in core and upper-marginal zones, and exhibits marked sericite-quartz-carbonate(-chlorite) alteration. The rhyolite is flanked by a similarly felsic tuff unit (samples 379450, 451, 452), with xenolithic carbonaceous pelite clasts suggestive of an ignimbritic mode of origin. An alternate interpretation would be the rhyolite representing an extrusive, perhaps analogous to the "Kuroko domes", with ash fall tuff as a precursor.

Acid tuffs are underlain by a basalt-capped, unusually thick sequence of andesitic fragmentals, dominantly lava breccias and typically impure chert-matrixed. These rocks are locally poorly determinate due to relatively marked alteration and shearing effects (notably in samples 396903 and 904), but typically exhibit andesitic relict compositional and textural characteristics. Minor intercalated dacitic volcanics, similarly fragmental, are represented by samples 396898 and 396909.

Overall, this suite exhibits a rather uniform sericite-quartz-carbonate (typically calcite)-chlorite alteration assemblage. Pyrite is more or less ubiquitous in trace to accessory amounts, and minor traces of chalcopyrite occur locally.

D. Cowan, B. Sc.

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CENTRAL MINERALOGICAL SERVICES

ample o.	Classification - Composition	Fabric	Accessories	Comments
79447 T.S. 8284) 21·2	Altered Rhyolite. Disseminated mildly corroded quartz-, subordinate calcitised feldspar phenocrysts, minor calcite-quartz amygdales in a sericite-quartz-calcite-altered felsic groundmass.	Evenly disseminated phenocrysts. Minor crystalline to felsitic/ mildly spherulitic groundmass.	Minor corroded relics of albite, chlorite-calcite-altered phenocrystal amphibole. leucoxenised opaques, rare pyrite.	Sericite-quartz-calcite(-chlorite)-altered, weakly amygdaloidal rhyolite Typical semi-chilled marginal or minor intrusive characteristics.
79448 111·1	Altered Rhyolite. Corroded quartz-, variably sericitised albite-, minor chloritic ankerite-sericite-altered ferromagnesian phenocrysts, sericite-calcite-quartz amygdales. Sericite-calcite-stained/mildly silicified felsic groundmass.	Similar to 379447, relatively amygdaloidal and with a slightly coarser-grained, relatively crystalline groundmass.	Very minor fine leucoxenised opaques.	Close affinities with 379447; relatively crystalline, but primarily subvitric. Greenish clots are chlorite-stained ankeritic carbonate after amphibole and as selvedges on amygdal
379449 173·9	Altered Rhyolite. Corroded quartz-, variably sericitised albite-, minor sericitised amphibole phenocrysts, minor sericite-quartz amygdales. Sericitic/ankeritic acarbonate-stained felsic groundmass.	Similar to 379447; relatively felsitic and microspherulitic, relatively weakly amygdaloidal.	Minor clots of chlorite, sparse leucoxenised opaques, very thinly disseminated fine pyrite.	Close affinities with 379447 and 379448. Primarily relatively glassy and rather incipiently amygdaloidal. Similarly altered; relatively chloritic and ankeritic.
379450 184·4	"Rhyolitic" Tuff. Sericite aggregates with thinly disseminated quartz-, minor sericite-quartz-altered feldspar crystal fragments. Xenoliths and megaclasts of weakly carbonaceous shale.	Weakly phyllitic. Pervasive microshard textures in(silt to fine psammite grade) tuff.	Minor clots, films of ankeritic carbonate. Minor leucoxenised opaques. Rare ultra-fine pyrite.	Xenolithic vitric-crystal tuff with zones of tuff-matrixed "shale breccia Probably strictly dacitic. Finer detail obscured by marked shearing effects.
379451 195·0	Xenotuff. Sericite aggregates, subordinate microcrystalline and minor splintery clastic quartz. Thinly disseminated carbonaceous shale clasts. Semi-pervasive clots, films of Fe-carbonate.	Analogous to 379450; relatively minor crystal fragments, finer pelite clasts, relatively incipiently	Minor leucoxenised opaques. Minor discontinuous sheared sericite veinlets. sheared.	Close affinities with 379450; similarly xenolithic felsic("dacitic' vitric(-crystal) tuff; non-eutaxitic, with sub-distal subaerial transport/ subaqueous depositional characteristics.
379452 219·0	Xenotuff. Sericite with subordinate microcyrstalline quartz, relatively conspicuous quartz crystal fragments and silt- to fine sand-sized carbonaceous shale xenoliths. Pervasive clots of Fe-carbonate.	Closely analogous to 379451, relatively crystal-fragmental, relatively sheared/ phyllitic.	Minor leucoxenised opaques; thinly disseminated fine to ultrafine pyrite.	Close affinities with 379450 and 379451; similarly interpreted, similarly altered and sheared; relatively carbonated. Includes rare radiolaria.
96894 737·5	Amygdaloidal Basalt. Sericite and cloudy microcrystalline ankeritic carbonate, minor microcrystalline quartz with frequent carbonate-quartz amygdales, sporadic sericitised-carbonated ferromagnesian phenocrysts.	Weakly flow-structured, weakly porphyritic, strongly amygdaloidal, basaltic. Mildly sheared.	Rare heavily corroded quartz xenocrysts. Fine leucoxenised opaques, traces chromite, pyrite.	Pervasively sericite-carbonate (-quartz)-altered/mildly pyritised amygdaloidal basalt. Weakly xenocrystal in (corroded) quartz. Weakly chromitiferous.
96895 524·6	Amygdaloidal Basalt. Calcite-quartz-pseudomorphed ?orthopyroxene-, minor albitised plagioclase phenocrysts, sporadic calcite amygdales in a groundmass of augite granules, albite microlaths, chlorite mesostasis.	Flow-structured, porphyritic, amygdaloidal, basaltic.	Rare xenocrystal quartz. Chloritised amphibole laths. Leucoxenised opaques, traces chromite. Minor clots of prehnite, pumpellyit	Affinities with 396894; chlorite-calcite-quartz-altered in contrast, with relict augite, sporadic clots of prehnite and pumpellyite. Similarly xenocrystal.

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CENTRAL MINERALOGICAL SERVICES

Sample No.	Classification - Composition	Fabric	Accessories	Comments
396896 690·2	Amygdaloidal "Leucobasalt". Sparse silicified pyroxene and calcitised feldspar phenocrysts, quartz-calcite amygdales/veinlets with clots of Fe-pigmented albite. Groundmass of albite microlaths, calcite-chlorite/minor quartz mesostasis.	Incipiently flow-structured, variably amygdaloidal, basaltic. Incipiently stressed veinlets.	Leucoxenised opaques, traces of pyrite. Minor chlorite (-calcite-quartz) amygdales.	Calcite-quartz-chlorite-albite-altered amygdaloidal basalt. Primari distinctly ferromag.-deficient in comparison with 396894 and 396895 (hence "leuco-").
396898 721·8	Dacitic Tuff. Sericite with varying proportions of microcrystalline quartz, minor clots of chlorite and calcite; semi-pervasive fine-grained pyrite disseminations, clusters.	Poorly sorted psammite grade lithic fragmental sheared/phyllitic, sericite-matrixed; locally vaguely shardy.	Minor quartz microphenocrysts and crystal fragments. Leucoxenised opaques, rare apatite.	Detail obscured by pervasive sericit alteration and mild but penetrative shearing effects. Relict features consistent with a dacitic lithic-vitric tuff.
396899 736·9	Andesitic Breccia. Sparse albitised plagioclase, minor chloritised ferromagnesian phenocrysts in chlorite-mesostasised, albitised plagioclase-microlathic groundmass. Sparse matrix/veinlets of cryptocrystalline chert.	Massive to mildly flow-brecciated/corrosive chert-matrixed, subtrachytic. Incipiently stressed veinlets.	Conspicuous leucoxenised opaques. Minor fine pyrite (concentrated in matrix).	Massive to brecciated/pyritic chert-cemented andesitic lava; chlorite (-albite)-altered, mildly calcite-quartz-veined and incipiently stressed.
396900 748·6	Scoriaceous Breccia. Clasts of chlorite-cloudy carbonate-sericite-quartz-altered, variably chlorite-amygdaloidal lava and relatively chloritised pumice. Sparse microcrystalline quartz matrix. Sporadic calcite veinlets.	Psammite to lapilli grade, moulded/weakly flow-structured, lithoclastic. Dominantly pumiceous clasts.	Leucoxenised opaques, relatively conspicuous traces of chromite. Minor traces pyrite.	Thoroughly altered pumiceous lava breccia, poorly diagnostic in terms of primary composition, but interpreted as basaltic on basis of relatively conspicuous chromite.
396901 749·8	"Tuffaceous Breccia". Framework of chlorite-microcrystalline albite-cloudy carbonate-altered lava, flattened pumiceous and vitric tuff clasts, minor quartz, albitised plagioclase grains. Chloritic microcrystalline albite cement.	Poorly to moderately sorted angular psammite-grade, lithoclastic; weakly bedded.	Leucoxenised opaques. Minor traces very fine to ultrafine pyrite, very rare chromite.	Finer detail obscured by alteration. Subaqueous andesitic lithic tuffaceo characteristics, apparently mildly reworked despite the angular clastic framework.
396902 758·3	Andesitic Breccia. Clasts of albitised plagioclase-/weakly calcite-chlorite-quartz-pseudomorphed, pyroxene-porphyritic, variably chlorite-quartz-calcite-amygdaloidal lava, cemented by impure (dolomitic, weakly pyritic) chert.	Coarsely amygdaloidal subtrachytic to locally perlitic clasts. Mildly sheared matrix, veinlets.	Calcite-quartz veinlets. Leucoxenised opaques, fine pyrite in clasts, minor traces chalcopyrite in amygdales.	Dolomitic chert-cemented andesitic lava breccia, chlorite-calcite-quart albite-altered, pyritised, calcite-quartz-veined and mildly sheared.
396903 764·2	?Andesitic Breccia. Clasts of sericite-calcite-chlorite-altered/calcite-chlorite-quartz-amygdaloidal lava, minor silicified "fiamme". Fine-grained chloritic quartz matrix with interspersed vugs of calcite.	Essentially an agglomerate-grade scoriaceous breccia, psammitic tuff-matrixed, quartz-calcite-cemented. Mildly sheared.	Leucoxenised opaques. Thinly disseminated pyrite.	Agglomeratic scoriaceous breccia, psammitic tuff-matrixed and (hydrothermal) quartz-calcite-cemented. Poorly diagnostic compositionally, but apparently andesitic.
396904 768·2	?Andesitic Tuff. Sericite and microcrystalline quartz with varying proportions of chlorite and calcite, minor relics of albitised plagioclase. Disseminated pyrite grains, clusters.	Psammite to lapilli grade, lithoclastic with a phyllitic overprint. Mildly boudinaged pyrite aggregates.	Leucoxenised opaques, traces of chromite. Minor clasts of impure chert, sericitic pelite.	Sericitic impure chert/cherty argillite-matrixed lithic tuff, weak xenolithic or possibly slumped-reworked. Poorly diagnostic compositionally, but apparently andesitic.

CENTRAL MINERALOGICAL SERVICES

Sample No.	Classification - Composition	Fabric	Accessories	Comments
396905 770·1	Psammopelitic Ash. Sericite, chlorite, microcrystalline quartz and calcite in varying proportions with pervasive leucoxenic TiO_2 stainings. Minor calcite veinlets.	Psammite-grade lithic fragmental with interbeds of silty fine sandy vitric ash. Medium-angle discordantly sheared.	Minor pyrite disseminations, traces of chlorite. Sparse quartz grains, impure chert clasts.	Planar to weakly transcurrent bedded psammopelitic lithic-vitric tuff. Thoroughly altered, discordantly sheared. Poorly diagnostic compositionally (?andesitic).
396906 771·9	Andesitic Tuff. Sericite and crypto- to microcrystalline quartz, relatively minor calcite and chlorite, minor albitised plagioclase, minor clots of ankeritic carbonate.	Semi-bedded, psammite to lapilli grade lithic fragmental, chert-cemented, locally vaguely relict shardy matrix.	Leucoxenised opaques. Disseminated to locally conspicuous pyrite.	Essentially a coarser-grained, relatively poorly sorted/crudely bedded variant of 396905; similarities with 396904. Corrosive sericitic impure chert cement.
396897 772·6	Amygdaloidal Andesite. Minor albitised/calcitised to sericite-pseudomorphed feldspar-sparse quartz-sericite-chlorite-pseudomorphed pyroxene phenocrysts, frequent quartz microamygdales; chlorite-sericite-quartz-altered groundmass.	Finely flow-banded, strongly micro-amygdaloidal, semi-felsitic on microscale.	Conspicuous leucoxenised opaques, minor traces of chromite.	Primarily a subvitric, finely flow-banded, strongly micro-vesicular lava. Andesitic/trend leuco-andesitic relict compositional features.
396907 773·7	Andesitic Tuff. Chlorite-sericite-calcite-cherty quartz-altered lava clasts in a weakly sericitic/dolomitic chert cement with semi-pervasive sericitised shards. Disseminated pyrite; sporadic calcite veinlets.	Tuffaceous (vitroclastic), chert-matrixed lithic fragmental. Mildly sheared/phyllitic.	Disseminated simple radiolaria, rare ?sponge spicule fragments. Leucoxenised opaques, rare chromite.	Affinities with 396904, 905, 906; relatively tuffaceous impure chert matrix with sporadic radiolaria, minor spicule fragments.
396908 775·3	Polymict Breccia. Framework of sericitic-chloritic pelite, chlorite-calcite-albite-altered andesitic, subordinate similarly basaltic lava, minor impure chert clasts. Sericite-chlorite matrix with zones of lustre-mottled calcite.	Moderately sorted, gritty, angular, lithoclastic; mildly sheared/phyllitic.	Minor quartz grains (volcanic in part), rare metaquartzite clasts. Leucoxene grains. Minor pyrite disseminations.	Andesite-, basalt-derived volcanomict grit with "intrabasinal" pelite and minor metasediment-derived clasts. Sparse radiolaria, rare spicule fragments.
396909 782·4	Dacitic Breccia. Clasts of sericitic/partly silicified, variably calcite-stained lava with albitised plagioclase phenocrysts, quartz microphenocrysts. Matrix/cement of dolomitic/weakly sericitic chert, minor ill-defined sericitic shards.	Lapilli to agglomerate grade lithoclastic, crudely flow-structured. Chert-cemented. Weakly sheared.	Leucoxenised opaques, traces pyrite, clastic apatite. Minor weakly chloritic, siliceous calcite veinlets.	Affinities with 396907. In comparison, lava clasts are relatively felsic (dacitic) and the impure chert matrix is only incipiently tuffaceous (hence breccia).
396910 T.S. (8306) 326·9	Andesitic Breccia. Clasts of sericitic, albitised plagioclase/chloritised ferromag.-porphyritic, chlorite-amygdaloidal lava, albitised plagioclase crystal fragments in a matrix of dolomitic, weakly sericitic chert.	Analogous to 396907 and 396909. Similarly mildly sheared.	Leucoxenised opaques, minor traces pyrite. Minor clast-replacive calcite. Sporadic sheared chlorite-calcite veinlets.	Close affinities with 396907 and 909. Semi-tuffaceous impure chert matrix with altered feldspar crystals/fragments. Similarly altered/mildly sheared.

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ANALABS

598597

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ANALYTICAL REPORT No. 23.3.08.04580

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

Aberfolye Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

ORDER No.	PROJECT
1808	

DATE RECEIVED	RESULTS REQUIRED
25/06/87	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
4	06/07/87	1	23

STATE SAMPLES REFER BELOW	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	379447/52,396894/910	SC	Prep: 009,011,012,013,016						Cu,Pb,Zn,Ag,Ni/101,As/114		
	379447/52,396894/910	SC							Ba,Cr,Zr,Ti/401		
	379447/52,396894/910	SC							Au/309		

RESULTS TO

R. de Bomford
Aberfoyle Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

RESULTS TO

REMARKS

MAC-11

Petrology

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					Inductively coupled plasma	ICP

AUTHORISED OFFICER

ANALABS

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598598

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04580	06/07/87	1808	1 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	379447	<5	<5	320	<0.5	20	2	230	40	130
2	379448	5	<5	40	<0.5	20	3	340	5	130
3	379449	<5	<5	25	<0.5	15	2	240	30	130
4	379450	5	135	250	0.5	15	5	600	<5	150
5	379451	<5	<5	15	<0.5	10	5	310	25	100
6	379452	<5	<5	30	0.5	10	6	460	<5	110
7	396894	65	<5	65	0.5	80	3	600	320	100
8	396895	50	<5	160	<0.5	150	4	3050	550	110
9	396896	30	<5	195	<0.5	60	2	50	210	75
10	396897	<5	<5	175	<0.5	25	2	870	10	160
11	396898	45	110	175	3.0	55	430	1950	110	170
12	396899	10	<5	170	0.5	60	11	150	9	240
13	396900	55	45	280	0.5	155	7	1050	520	140
14	396901	30	<5	160	0.5	70	6	500	120	140
15	396902	85	<5	120	0.5	75	7	5600	300	110
16	396903	150	<5	125	0.5	75	7	750	270	110
17	396904	40	<5	80	0.5	70	37	1150	280	150
18	396905	145	<5	125	0.5	145	4	710	540	150
19	396906	20	<5	65	1.0	40	8	1100	15	190
20	396907	20	<5	115	0.5	20	15	690	40	140
21	396908	55	<5	110	1.0	35	19	680	30	100
22	396909	10	<5	55	0.5	15	12	990	20	230
23	396910	10	<5	100	0.5	10	3	1500	<5	170
24										
25										

Results in ppm unless otherwise specified
T = element present: but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

596

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

598599

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04580	06/07/87	1808	2 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22	DETECTION	5	5	5	0.5	5	1	10	5	5
23	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
24	METHOD	101	101	101	101	101	114	401	401	401
25										

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
-- = element not determined

AUTHORISED OFFICER

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ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

598600

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04580	06/07/87	1808	3 OF 4

TUBE No.	SAMPLE No.	Ti	Au	Zr Hf						
1	379447	610	<0.008	.213						
2	379448	720	<0.008	.180						
3	379449	650	<0.008	0.2						
4	379450	1050	<0.008	.143						
5	379451	750	<0.008	.133						
6	379452	830	<0.008	.132						
7	396894	3200	<0.008	.031						
8	396895	1550	<0.008	.071						
9	396896	1400	<0.008	.054						
10	396897	3250	<0.008	.049						
11	396898	2650	0.008	~~.064~~						
12	396899	5000	<0.008	.048						
13	396900	2950	<0.008	.047						
14	396901	2300	<0.008	.061						
15	396902	2650	<0.008	.042						
16	396903	2750	<0.008	.040						
17	396904	2800	<0.008	.054						
18	396905	2950	<0.008	.051						
19	396906	3050	<0.008	.063						
20	396907	2350	<0.008	.081 .060						
21	396908	3050	<0.008	.033						
22	396909	2950	<0.008	.078						
23	396910	3100	<0.008	.055						
24										
25										

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

598601

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04580	06/07/87	1808	4 OF 4

TUBE No.	SAMPLE No.	Ti	Au							
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22	DETECTION	50	0.008							
23	UNITS	PPM	PPM							
24	METHOD	401	309							
25										

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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APPENDIX 17.

FROM 6896 '87.06.04 14:31 PAGE ONE OF

GUU

CORE GRIND SAMPLING - MACKINTOSH / ~~HATFIELD~~ - 598603

HOLE No. MAC-11

DATE 4.6.87

No.	SAMPLE NUMBER	INTERVAL	ELEMENTS REQUIRED	ST	SAMPLE NUMBER	INTERVAL	ELEMENTS REQUIRED	ST
1	396806	9.5 - 18.5			396838	355 - 365		
2	07	18.5 - 28.0			39	365 - 375		
3	08	28.0 - 50.0			396840	375 - 385		
4	09	50.0 - 70.0			41	385 - 395		
5	396810	70.0 - 90.0			42	395 - 405		
6	11	90.0 - 110.0			43	405 - 415		
7	12	110.0 - 130.0			44	415 - 425		
8	13	130.0 - 150.0			45	425 - 435		
9	14	150.0 - 160.0			46	435 - 445		
10	15	160.0 - 170.0			47	445 - 455		
11	16	170.0 - 182.9			48	455 - 465		
12	17	182.9 - 187.9			49	465 - 475		
13	18	187.9 - 198.0			396850	475 - 485		
14	19	198.0 - 209.5			51	485 - 495		
15	396820	209.5 - 220.0			52	495 - 505		
16	21	220.0 - 233.1			53	505 - 515		
17	22	*STD3		X	54	515 - 525		
18	23	233.1 - 243.0			55	525 - 535		
19	24	243.0 - 253.0			56	535 - 545		
20	25	253.0 - 258.3			57	545 - 555		
21	26	258.3 - 268			58	555 - 565		
22	27	268 - 278			59	565 - 575		
23	28	278 - 288			396860	575 - 585		
24	29	288 - 298			61	*STD3		X
25	396830	298 - 308			62	585 - 595		
26	31	308 - 318			396863	595 - 605		
27	32	318 - 328						
28	33	328 - 333.5						
29	34	333.5 - 339.8						
30	35	*STD3		X				
31	36	339.8 - 344.6						
32								

FAX
TO L DENBY
AT QUE RIVER
FROM M. HEUFF
AT BURNIE
DATE 4 June 87
PAGES ONE

601

CORE GRIND SAMPLING - MACKINTOSH / HATFIELD

598604

HOLE No. MAC-11

DATE 24-6-87

No.	SAMPLE NUMBER	INTERVAL	ELEMENTS REQUIRED	ST	SAMPLE NUMBER	INTERVAL	ELEMENTS REQUIRED	S
1	396864	605 -615						
2	65	615 - 625						
3	66	625 - 635						
4	67	635 - 645						
5	68	645 - 655						
6	69	655 - 665						
7	396870	665 - 675						
8	71	675 - 685						
9	72	685 - 695						
10	73	695 - 715						
11	74	715 - 721.2						
12	75	721.2 - 722.2	split core					
13	76	722.2 - 724.8	"					
14	77		*STD	✓				
15	78	724.8 - 735	"					
16	79	735 - 748.5	"					
17	396880	748.5 - 751.5						
18	81	751.5 - 761.5						
19	82	761.5 - 767.5						
20	83	767.5 - 769.4	split core					
21	84	769.4 - 771.4	"					
22	85	771.4 - 772.7	"					
23	86	772.7 - 774.2	"					
24	87	774.2 - 776.8	"					
25	88	776.8 - 786						
26	89	786 - 796						
27	396890	796 - 806						
28	91	806 - 816						
29	92	816 - 826						
30	396893	826 - 837.9						
31								
32								

302

ANALABS 598605

A division of MacDonald Hamilton & Co. Pty. Ltd.
Phone (09) 458 7999
52 Murray Road, Welshpool, W.A. 6106
TLX: AA 59224
Telex AA92560

ANALYTICAL REPORT No. 23.3.08.04644

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

Aberfolye Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

ORDER No.	PROJECT
1828	

DATE RECEIVED	RESULTS REQUIRED
29/07/87	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
8	10/08/87	1	88

STATE OF SAMPLES		PRE-TREATMENT							ANALYSIS		
REFER BELOW	SAMPLE NUMBERS	DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	396806/93	CG	Prep: 013,016						Cu,Pb,Zn,Ag,Ni/101,As/114		
	396806/93	CG							Ba,Cr,Zr,Ti/401		
	396806/93	CG							Au/309		

RESULTS TO

R. de Bomford
Aberfoyle Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

RESULTS TO

REMARKS

Mac - 11

Core Grinds.

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

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603

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

598606

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04644	10/08/87	1828	1 OF 8

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	396806 9.5-16.5	210	1200	1500	<0.5	45	25	320	90	160
2	396807 18.5-28	10	145	330	<0.5	25	7	400	<5	170
3	396808 28-50	45	65	125	<0.5	20	5	380	15	150
4	396809 50-70	5	50	55	<0.5	10	3	400	<5	160
5	396810 70-90	5	35	55	<0.5	15	2	410	15	150
6	396811 90-110	5	30	35	<0.5	10	3	410	<5	140
7	396812 110-130	10	25	40	<0.5	10	5	550	15	140
8	396813 130-150	15	35	65	<0.5	10	5	520	<5	130
9	396814 150-160	<5	35	35	<0.5	15	4	280	10	150
10	396815 160-170	<5	45	45	<0.5	5	12	240	<5	140
11	396816 170-182.9	<5	35	45	<0.5	15	4	250	10	140
12	396817 182.9-187.9	10	40	80	<0.5	30	17	490	25	150
13	396818 187.9-198	<5	35	30	<0.5	10	9	380	<5	130
14	396819 198-209.5	5	40	40	<0.5	15	7	350	<5	120
15	396820 209.5-220	<5	50	25	<0.5	15	7	440	5	120
16	396821 220-233.1	<5	90	35	<0.5	15	31	640	<5	120
17	396822 *STD3	115	210	2350	<0.5	270	22	1150	870	80
18	396823 233.1-243	255	380	140	1.0	75	250	490	95	130
19	396824 243-253	75	80	115	1.0	60	34	450	100	120
20	396825 253-258.3	60	95	140	1.5	75	48	430	130	120
21	396826 258.3-268	60	50	90	<0.5	105	34	530	500	120
22	396827 268-278	55	50	55	<0.5	130	26	450	480	120
23	396828 278-288	60	50	60	<0.5	135	35	500	540	130
24	396829 288-298	60	50	175	<0.5	140	20	530	560	140
25	396830 298-308	70	45	75	<0.5	140	15	520	530	140

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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A Division of Macdonald Hamilton & Co. Pty. Ltd.

598607

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04644	10/08/87	1828	2 OF 8

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	396831 308-318	60	25	70	<0.5	120	17	590	510	130
2	396832 318-328	65	25	60	<0.5	125	11	600	490	130
3	396833 328-333.5	70	25	65	<0.5	115	23	530	450	120
4	396834 333.5-339.8	50	255	105	1.0	65	97	530	150	120
5	396835 ASTD 3	115	190	2350	<0.5	270	20	1150	880	85
6	396836 339.8-346	5	50	45	<0.5	20	17	490	15	120
7	396837 346-355	35	35	65	1.0	75	82	670	310	120
8	396838 355-365	35	25	60	<0.5	75	18	530	290	100
9	396839 365-375	50	20	65	<0.5	75	12	480	280	100
10	396840 375-385	40	15	65	<0.5	75	8	530	280	110
11	396841 385-395	50	20	50	<0.5	70	15	680	280	90
12	396842 395-405	25	30	50	<0.5	75	28	620	300	100
13	396843 405-415	45	20	65	<0.5	95	33	570	330	100
14	396844 415-425	35	20	70	<0.5	95	10	630	330	100
15	396845 425-435	35	20	65	<0.5	90	16	560	340	100
16	396846 435-445	35	15	65	<0.5	95	5	540	380	90
17	396847 445-455	45	20	60	<0.5	110	4	550	440	95
18	396848 455-465	45	15	55	<0.5	135	11	640	530	95
19	396849 465-475	45	15	55	<0.5	155	7	600	570	100
20	396850 475-485	45	15	55	<0.5	150	7	620	560	95
21	396851 485-495	45	15	55	<0.5	160	7	590	560	95
22	396852 495-505	50	<5	70	<0.5	165	8	1050	580	95
23	396853 505-515	45	15	120	<0.5	160	6	550	590	100
24	396854 515-525	50	70	175	2.0	165	8	1400	600	110
25	396855 525-535	50	10	135	<0.5	160	13	1300	590	110

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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A Division of Macdonald Hamilton & Co. Pty. Ltd.

598608

605

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04644	10/08/87	1828	3 OF 8

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
	396856 535-545	40	15	150	<0.5	185	12	1000	730	120
2	396857 545-555	50	10	100	<0.5	165	4	1000	620	110
3	396858 555-565	40	25	160	<0.5	150	2	1700	540	100
	396859 565-575	60	185	810	<0.5	175	4	1150	630	110
5	396860 575-585	70	5	75	<0.5	160	6	1150	630	110
	396861 XSTD 3	120	190	2350	<0.5	270	20	1150	880	85
7	396862 585-595	55	15	85	<0.5	175	10	1500	570	130
8	396863 595-605	70	10	85	<0.5	165	8	1150	500	160
	396864 605-615	50	<5	115	<0.5	150	5	1200	480	150
10	396865 615-625	80	5	140	<0.5	150	9	1650	500	160
11	396866 625-635	80	60	325	<0.5	170	13	1150	590	150
12	396867 635-645	130	30	155	<0.5	135	10	2450	520	150
13	396868 645-655	90	75	380	<0.5	165	9	1650	570	150
14	396869 655-665	60	25	230	<0.5	165	6	1000	610	160
15	396870 665-675	60	35	505	<0.5	145	3	490	480	170
16	396871 675-685	65	140	830	<0.5	110	2	620	370	150
17	396872 685-695	85	110	810	<0.5	115	3	300	390	150
18	396873 695-715	65	35	475	<0.5	120	3	260	410	150
19	396874 715-721.2 SPLIT CORE	40	10	265	<0.5	105	6	280	370	150
20	396875 721.2-722.2	25	70	135	1.5	50	120	1200	75	150
21	396876 722.2-724.8	120	25	245	<0.5	90	36	340	350	170
22	396877 XSTD 3	120	175	2350	<0.5	270	22	1100	860	85
23	396878 724.8-735	55	30	155	<0.5	50	24	620	15	200
24	396879 735-748.5	60	30	190	<0.5	45	8	480	<5	190
25	396880 748.5-751.5	75	35	235	<0.5	100	6	690	280	130

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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A Division of Macdonald Hamilton & Co. Pty. Ltd.

598609

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04644	10/08/87	1828	4 OF 9

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	396881 751.5-761.5	90	50	190	<0.5	95	9	1100	350	130
2	396882 761.5-767.5	125	15	135	<0.5	80	10	1050	180	130
3	396883 SPLIT CORE 767.5-769.4	85	25	100	<0.5	95	35	1550	360	160
4	396884 SPLIT CORE 769.4-771.4	100	15	135	<0.5	135	5	740	600	170
5	396885 SPLIT CORE 771.4-772.7	20	20	90	<0.5	45	32	950	20	150
6	396886 SPLIT CORE 772.7-774.2	15	25	105	<0.5	25	15	870	20	160
7	396887 SPLIT CORE 774.2-776.8	35	20	95	<0.5	35	26	750	15	110
8	396888 776.8-786	335	35	110	<0.5	20	22	780	10	200
9	396889 786-796	30	10	85	<0.5	15	3	1000	<5	220
10	396890 796-806	20	15	90	<0.5	20	3	860	<5	200
11	396891 806-816	35	20	120	<0.5	20	7	600	<5	170
12	396892 816-826	25	20	120	<0.5	15	6	750	<5	150
13	396893 826-839.9	45	10	130	<0.5	15	3	1700	<5	160
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	5	1	10	5	5
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	101	101	101	114	401	401	401

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

607

598610

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04644	10/08/87	1828	5 OF 8

TUBE No.	SAMPLE No.	Ti	Au	Zr/Ti
1	396806	3550	<0.008	.045
2	396807	1150	0.008	.148
3	396808	700	<0.008	.214
4	396809	690	0.008	.232
5	396810	680	<0.008	.221
6	396811	660	0.008	.21
7	396812	640	<0.008	.219
8	396813	610	<0.008	.213
9	396814	700	<0.008	.214
10	396815	670	<0.008	.209
11	396816	640	<0.008	.219
12	396817	1550	<0.008	.097
13	396818	920	<0.008	.141
14	396819	870	<0.008	.138
15	396820	890	<0.008	.135
16	396821	950	<0.008	.126
17	396822 X STD 3	2350	0.008	.034
18	396823	2400	<0.008	.054
19	396824	2500	<0.008	.048
20	396825	2800	<0.008	.043
21	396826	3500	0.008	.034
22	396827	3100	<0.008	.039
23	396828	3550	<0.008	.037
24	396829	3450	<0.008	.041
25	396830	3200	<0.008	.044

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
-- = element not determined

AUTHORISED OFFICER

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

603

598611

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04644	10/08/87	1828	6 OF 8

TUBE No.	SAMPLE No.	Ti	Au	2V/Ti						
1	396831	3000	<0.008	.043						
2	396832	3000	<0.008	.043						
3	396833	2900	<0.008	.041						
4	396834	2850	0.008	.042						
5	396835 ~~STD~~	2350	<0.008	.036						
6	396836	1050	<0.008	.114						
7	396837	3850	<0.008	.031						
8	396838	3350	<0.008	.03						
9	396839	3350	<0.008	.03						
10	396840	3250	<0.008	.034						
11	396841	3100	<0.008	.029						
12	396842	3150	<0.008	.032						
13	396843	3250	<0.008	.031						
14	396844	3300	<0.008	.03						
15	396845	3300	<0.008	.03						
16	396846	2850	0.008	.032						
17	396847	2850	<0.008	.033						
18	396848	2150	<0.008	.044						
19	396849	1850	<0.008	.054						
20	396850	1750	<0.008	.054						
21	396851	1800	<0.008	.053						
22	396852	1750	<0.008	.054						
23	396853	1700	<0.008	.059						
24	396854	1800	<0.008	.061						
25	396855	1750	<0.008	.063						

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALABS

A Division of Macdonald Hamilton & Co. Pty Ltd.

598612

609

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04644	10/08/87	1828	7 OF 8

TUBE No.	SAMPLE No.	Ti	Au	Zr/Ti
1	396856	2200	<0.008	.055
2	396857	1850	<0.008	.059
3	396858	1650	<0.008	.061
4	396859	1850	<0.008	.059
5	396860	1850	<0.008	.059
6	396861 ~~X~~STD3	2350	0.008	.036
7	396862	2400	<0.008	.054
8	396863	3100	<0.008	.052
9	396864	3050	<0.008	.049
10	396865	3350	<0.008	.048
11	396866	3450	<0.008	.043
12	396867	3100	<0.008	.048
13	396868	3350	0.008	.045
14	396869	3500	<0.008	.046
15	396870	3550	<0.008	.048
16	396871	3000	0.008	.05
17	396872	3150	<0.008	.048
18	396873	3200	<0.008	.047
19	396874	3150	<0.008	.048
20	396875	2550	0.008	.059
21	396876	3350	<0.008	.051
22	396877 ~~X~~STD3	2350	<0.008	.036
23	396878	3950	0.008	.051
24	396879	3800	<0.008	.05
25	396880	2750	<0.008	.047

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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610

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598613

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04644	10/08/87	1828	8 OF 8

TUBE No.	SAMPLE No.	Ti	Au	Zr/Ti						
	396881	3000	<0.008	.043						
2	396882	3250	<0.008	.04						
3	396883	2850	0.008	.056						
	396884	3300	<0.008	.052						
5	396885	3800	<0.008	.039						
	396886	2850	<0.008	.056						
7	396887	3000	<0.008	.037						
8	396888	2900	<0.008	.069						
	396889	2850	0.017	.077						
10	396890	2700	0.008	.074						
	396891	2750	<0.008	.062						
12	396892	2950	<0.008	.051						
13	396893	3100	<0.008	.052						
15										
20										
22										
	DETECTION	50	0.008							
	UNITS	PPM	PPM							
25	METHOD	401	309							

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

APPENDIX 18.

612

598615

ATTACHMENT

Southwell River Petrology

379761	11900N 6580E	Sheared Sandstone
379790	11682N 6547E	pk.fd.q.por.R bk.vtr.mtx
379791	11700N 6585E	Felsite
379792	11745N 6590E	bedded - Dolomite Siltstone
379793	11762N 6595E	very coarse. Y.R.b
379794	11770N 6598E	icl.Slt.bk.mic.Ss
379796	11795N 6614E	fg.gn.R.(int)

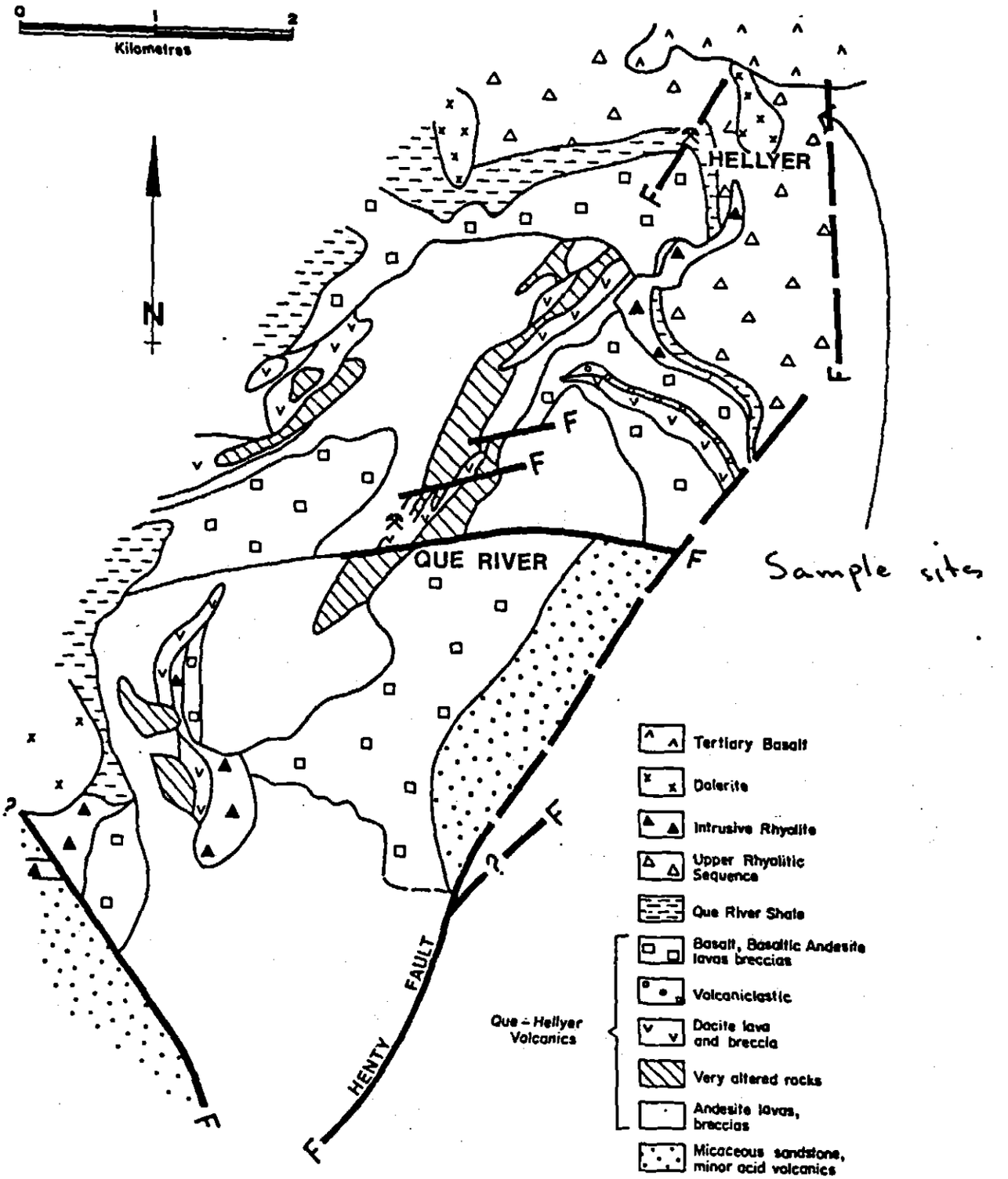


FIG. 1

QUE - HELLYER VOLCANICS
REGIONAL GEOLOGY

614

598617

Central Mineralogical Services

39 Beulah Road
Norwood, S.A. 5067
Telephone 42 5659

Mr. D.J. Jack
Geologist
Aberfoyle Resources Ltd.
Exploration Division
P.O. Box 952
BURNIE / TAS. 7320

13th March, 1987

REPORT CMS 87/2/15

YOUR REFERENCE:	Letter dated 19.2.1987
DATE RECEIVED:	20th February, 1987
SAMPLE NOS.:	379761 - 379796 (7)
SUBMITTED BY:	D.J. Jack
WORK REQUESTED:	Petrology

H.W. Fander, M. Sc.

Copy to:
Mr. H. Skey
Exploration Manager
Aberfoyle Resources Ltd.
Exploration Division
123, Camberwell Road
HAWTHORN EAST / VIC. 3123

615

598618

REPORT CMS 87/2/15

A suite of seven rock chip samples from the Southwell River area, and supplementary to a previous suite described in CMS 87/1/25, was received for routine petrological examination. Representative thin-sections were prepared and examined together with respective offcuts, with stain tests performed as warranted.

Summary

This suite is similar to the previously described suite, exhibiting a composite of acid volcanics (felsites, tuffs), tuffaceous psammopelitic and subordinate quartzose-micaceous sediments.

Volcanics exhibit sericite, sericite-quartz and sericite-chlorite alteration assemblates, variably complexed by carbonate impregnations. Sediments are similarly altered, with relatively enhanced sideritic carbonate development, apparently replacive after dolomite, at least in part. Green tourmaline is rarely associated with sideritic carbonate veinlets. As previously, Au determination would be recommended despite the paucity of sulphide mineralisation.

D. Cowan, B. Sc.

Sample No.	Classification - Composition 598619 616	Fabric	Accessories	Comments
379761 (T.S. 57499)	Altered Siltstone. Framework of subangular silt-sized quartz grains, relatively minor muscovite flakes, carbonaceous pelite and low-grade metapelite clasts. Fine-grained, partly oxidised sideritic carbonate cement.	Well-sorted, incipiently shale-parted, silty clastic. Sporadic microscale carbonate veinlets.	Detrital leucoxene. Minor traces "syngenetic" pyrite. Rare green schorl in carbonate veinlets.	Essentially a fine-grained variant of the 379777 quartz sandstone facies but devoid of megaclasts. Reflects pervasive sideritisation (after dolomite?).
379790	Rhyolitic Tuff. Abundant sericitic albite, subordinate quartz crystals/crystal fragments, sporadic sericitised lithic clasts with a weakly chlorite-stained, partly kaolinised sericitic matrix.	Moderately sorted, crystal-rich, psammite- grade, tuffaceous. Vaguely microshardy sericitised matrix.	Leucoxenised opaques, traces of degraded/ ferruginised carbonate, oxidised pyrite. Minor sericitic microfractures.	Includes rare sericitised/chlorite-stained biotite crystals. Rhyolitic "crystal tuff" with minor lithic clasts, sericitised/chlorite-stained pelitic ashy mstrix.
379791	Altered Felsite. Sporadic sericite/ferruginised carbonate-pseudomorphed feldspar, minor corroded quartz phenocrysts in a quartz-sericite altered felsic groundmass with clots of ferruginised carbonate.	Weakly porphyritic, incipiently banded, felsitic, with sporadic micro-spherulites. Semi-perlitic.	Leucoxenised opaques. Semi-pervasive clots of green 'montmorillonitic" clay.	Close affinities with 379770 etc. (CMS 87/1/25); similarly altered, but with accessory clots of green birefringent clay.
379792	Altered Pelite. Semi- to sericitic white mica with varying proportions of fine silt-sized detrital quartz and muscovite flakes. Disseminated to semi-pervasive, variably ferruginised rhombs and spongy aggregates of sideritic carbonate.	Massive to finely banded/fine siltstone-parted, pelitic. Semi- to banded carbonate distribution.	Minor carbonaceous matter, fine silt-sized detrital leucoxene. Rare carbonate-quartz veinlets.	Quartzose-micaceous silty shale with semi-bedded to distinctly banded, partly oxidised sideritic carbonate, probably secondary after dolomite.
379793	Rhyolitic Tuff. Abundant sericitic albite, subordinate quartz crystals/fragments, minor sericitic and sericite-stained chloritic lithic clasts. Pervasively sericite-chlorite-altered subvitric matrix.	Similar to 379790, slightly finer-grained, well-sorted, loose clastic framework. Vitroclastic matrix.	Leucoxenic semi-opaques. Minor carbonaceous matter, carbonaceous pelite clasts, clastic muscovite, Minor trace pyrite.	Close affinities with 379790; strictly a xenotuff; apparently slumped or mildly reworked. Matrix is strictly a tuffaceous (vitroclastic) pelite/ pelitic ash.
379794	Tuffaceous Sandstone. Framework of carbonaceous pelite, subordinate chert and impure chert clasts, quartz and sericitic to carbonate-pseudomorphed albite grains, muscovite flakes. Sericite/microcrystalline quartz matrix/cement.	Poorly sorted (silty fine to medium), slumped, sandy clastic.	Clastic leucoxene, sericitic felsic lava clasts, minor dolomite clasts. Minor traces of syngenetic pyrite.	Slumped, polymict lithic sandstone with primary tuffaceous components (quartz, feldspar crystals, lithic clasts). Finer detail obscured by advanced sericitic alteration.
379796 (T.S. 57505)	Tuffaceous Siltstone. Semi- to sericitic white mica and crypto- to microcrystalline quartz with disseminated splintery to subangular quartz grains, minor carbonaceous pelite clasts, clastic muscovite flakes.	Weakly banded silty clastic/pervasively vaguely vitroclastic. Incipiently sheared.	Clastic leucoxene. Sporadic spongy clots, disontinuous films of degraded/ferruginised carbonate.	Interpreted as a vitroclastic siltstone/impure pelitic ash on relict microtextural grounds. Thoroughly sericite-altered/carbonate impregnated.

598620

ATTACHMENT

379770	12430N 6520E	Feldspar porphyritic rhyolite intrusive
379771	12370N 6520E	Pink flow banded rhyolite intrusive
379772	12357N 6558E	Red rhyolite intrusive
379773	12190N 6500E	Polymict breccia with eutaxitic green fragments.
379775	12176N 6495E	Pyritic shale block in breccia.
379777	12148N 6476E	Black vitric polymict breccia.
379779	12130N 6490E	Quartzite
379780	12118N 6506E	Green volcaniclastic
379781	12096N 6506E	Grey felsite
379783	12066N 6480E	Sheared red haematitic-vitric feldspar phyric volcaniclastic
379785	12005N 6520E	Felsite - fine disseminated Py
379787	11972N 6555E	"Salami rock" polymict volcaniclastic
379789	11945N 6570E	Green grey felsite

6.16

598621

Central Mineralogical Services

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Geologist
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BURNIE / TAS. 7320

13th March, 1987

REPORT CMS 87/1/25

YOUR REFERENCE:	Letter dated 28.1.1987
DATE RECEIVED:	29th January, 1987
SAMPLE NOS.:	379770 - 379789 (13)
SUBMITTED BY:	D.J. Jack
WORK REQUESTED:	Petrology

H.W. Fander, M. Sc.

Copy to:
Mr. H. Skey
Exploration Manager
Aberfoyle Resources Ltd.
Exploration Division
123, Camberwell Road
HAWTHORN EAST / VIC. 3123

598622

REPORT CMS 87/1/25

A suite of thirteen rock chip samples from a proposed dam site in the Southwell River area was received for routine petrological description. Representative thin-sections were prepared and examined together with respective offcuts, with stain tests performed as warranted. Attached tabulated descriptions summarise the microscopic data and include interpretative comments.

Summary

The bulk of this suite comprises altered acid igneous rocks with felsitic-devitrified "glassy" types (lavas and/or minor intrusives, dependent on field evidence), accompanied by tuffs. tuffaceous breccias and tuffaceous sediments. These rocks reflect an acid (rhyolitic-dacitic) volcanic complex in contrast to the basic-intermediate and intermediate-acid volcanics typical of the Que-Hellyer area.

Volcanics are typically altered, with development of sericite-quartz assemblages and semi-ubiquitous accessory carbonate, typically weathered and ferruginised and thus largely intermediate. A few rocks include accessory secondary pyrite, similarly extensively oxidised.

Subordinate psammopelitic sediments are represented. These rocks are dolomitic in part. One example (379777) exhibits marked sideritic carbonate metasomatism with accessory sericite development, that is, an alteration pattern analogous to that developed in the acid volcanics.

This assemblage is rather widespread in N.W. Tasmania, including some Au-anomalous zones. In view of the proximity of the locally Au-mineralised Henty Fault system, Au determinations would be recommended on a routine basis.

D. Cowan, B. Sc.

Sample No.	Classification - Composition 620	Fabric 598623	Accessories	Comments
379770 (T.S. 57467)	Altered Felsite. Minor sericitised feldspar phenocrysts, corroded quartz microphenocrysts, sporadic vugs of quartz and sericitised feldspar; quartz micro-amygdales in a sericite-quartz-altered felsic groundmass.	Weakly porphyritic, weakly banded, felsitic, slightly perlitic. Incipiently stressed.	Fine leucoxenised opaques, minor fine degraded/ferruginised carbonate. Trace Mn-oxide.	Devitrified/quartz-sericite-altered acid "pitchstone"; broadly rhyolitic Sporadic vugs of quartz, sericitised feldspar, consistent with a shallow intrusive.
379771	Altered Felsite. Minor sericitised feldspar, corroded quartz microphenocrysts, disseminated quartz micro-amygdales, sparse vugs of quartz and sericitised feldspar. Weakly limonitic, quartz-sericite-altered felsic groundmass.	Analogous to 379770, slightly banded, finely porphyritic/ amygdaloidal in comparison.	Fine leucoxenised opaques. Rare sericitised biotite phenocrysts.	Close affinities with 379770, biotit rhyolitic, banded, finely porphyriti in comparison; relatively minor or marginal characteristics. Limonite is carbonate-derived.
379772	Altered Felsite. Quartz micro-amygdales, sparse vugs of sericitised feldspar, minor sericitised feldspar phenocrysts in a quartz-sericite-altered/limonitic Fe-pigmented felsic groundmass.	Felsitic to finely perlitic, with sporadic quartz micro-spherulites. Weakly flow-banded.	Minor leucoxenic semi-opaques. Minor trace fine oxidised pyrite. Traces of Mn-oxide.	Similarities with 379770 and particu ly 379771; similarly altered. Limoni is partly very fine carbonate-derive but largely secondary/introduced.
379773	Tuffaceous Breccia. Clasts of sericitised to quartz-sericite-altered felsic lava, vitric tuff, pumice, chert, quartzose siltstone, quartz grains, with a silty quartzose-micaceous pelitic matrix.	Randomly sorted, angular, gritty to pebbly clastic, with a contorted (slumped) silty clastic matrix.	Leucoxenised opaques, sporadic clots of chlorite, partly oxidised pyrite. Minor carbonaceous pelite clasts.	Polymict slump breccia with a prominent rhyolitic-tuffaceous component. Tuffaceous mass flow breccia characteristics. Extensively sericitised.
379775	Dolomitic Pelite. Abundant silt-sized clastic muscovite flakes with a crypto- to micro-crystalline sericitic quartz matrix. varying proportions of cloudy, microcrystalline dolomitic carbonate.	Massive to weakly banded, silty clastic. Weakly "spotted"; (ferruginised) carbonate-veined.	Minor carbonaceous matter, oxidised very fine pyrite. Secondary limonitic/minor Mn-oxide stainings.	Micaceous silty shale/argillaceous siltstone, variably dolomitic, weakl carbonaceous pyritic. Exhibits sub-hornfelsic induration effects.
379777	Altered Sandstone. Framework of subangular quartz grains, subordinate carbonaceous and metapelite clasts, muscovite flakes, minor sericite-siderite-altered "dolerite" mega-clasts. Siderite matrix, veinlets, replacements.	Moderately sorted fine to medium, weakly megaclastic sandstone. Moderately stressed.	Minor chert clasts, detrital leucoxene, rare chromite. Traces of "syngenetic" pyrite (partly oxidised).	Protoquartzitic sandstone/trend lithic sandstone with pervasive siderite(-sericite) alteration. Fe-carbonate possibly dolomite-replacive in part.
379779	Altered Felsite. Sericite and fine to micro-crystalline, variably sericite-stained quartz with disseminated quartz micro-amygdales, sporadic vugs, discontinuous veinlets of quartz and ankeritic carbonate.	Weakly banded, incipiently porphyritic, felsitic.	Minor leucoxenic semi-opaques, carbonate-pseudomorphed feldspar phenocrysts. Traces of pyrite.	Affinities with 379770, 379771 and 379772. Similarly altered, but with relatively abundant carbonate impregnations, vugs, veinlets.
379780	Rhyolitic Tuff. Sericite with subordinate to minor microcrystalline quartz, abundant quartz crystals/crystal fragments, subordinate sericitised feldspar grains, sporadic sericitised lithic clasts.	Poorly sorted, semi-flow-structured, psammite-grade fragmental; sericitised shardy matrix.	Leucoxenised opaques, clots of degraded carbonate, minor chlorite. Minor pelite quartzite clasts, rare chromite.	Rhyolitic lithic-vitric-crystal tuff weakly xenolithic ignimbritic characteristics. Thoroughly sericite (-carbonate-chlorite)-altered.

ample lo.	Classification - Composition	Fabric	Accessories	Comments
379781	Pelitic Ash. Semi- to sericitic white mica and crypto- to microcrystalline quartz with thinly disseminated silt-sized detrital muscovite flakes, quartz grains. Minor microcrystalline dolomitic carbonate.	Massive to locally banded, silty clastic/ vaguely vitroclastic.	Minor microscopic clots of sideritic carbonate; irregular sericite-siderite veinlets. Traces carbonaceous matter.	Impure (quartzose, micaceous) pelitic vitric ash reflecting sericitic alteration with associated siderite impregnations/sericite-siderite veinlets.
379783	Tuffaceous Pelite. Semi-sericitic white mica with abundant silt-sized clastic muscovite flakes, subordinate silt- to sand-sized quartz and albitised/ferruginised carbonate-stained feldspar grains.	Massive to weakly banded, sandy pelitic. Incipiently sheared/ phyllitic micro-crenulated.	Silt-sized clastic leucoxenic semi-opaques, rare tourmaline. Pervasive Fe-/minor Mn-stainings.	Primarily a mica-quartz siltstone with poorly sorted sand-sized "rhyolitic" tuffaceous crystal fragment debris. Fe-staining reflects degraded carbonate.
379785	Psammopelitic Ash. Semi-to sericitic white mica with thinly disseminated splintery to subangular, silt- to fine sand-sized quartz grains, sericitised feldspar grains and lithic clasts. Minor chlorite.	Silty to fine sandy clastic, pervasively vaguely relict vitroclastic. Incipiently sheared.	Leucoxenic semi-opaques, disseminated extensively oxidised very fine pyrite.	Sericitised lithic clasts include flattened pumiceous types. Interpreted as a distal ignimbritic lithic-vitric-crystal tuff. Thoroughly sericitised.
379787	Tuffaceous Breccia. Sericitised/partly cryptocrystalline quartz-altered and chlorite-carbonate-stained indeterminate to lava-like and eutaxite clasts. Sericitic cryptocrystalline quartz matrix.	Analogous to 379773.	Leucoxenised opaques. Clasts of pyritic chert. Silt-sized quartz, muscovite flakes (matrix). Limonite staining.	Similarities with 379773, but distinctly monomict felsic-tuffaceous in comparison (dacitic as against rhyolitic). Fe-staining reflects degraded carbonate, pyrite.
379789 (T.S. 57479)	Lapilli Tuff. Sericite and microcrystalline sericitic quartz with semi-pervasive poikilitic aggregates of sideritic carbonate. Minor quartz crystal fragments. Minor dolomitic chert clasts.	Lapilli grade, moulded to sericite-quartz-matrixed lithic fragmental. Eutaxite-like clasts.	Leucoxenised opaques, minor carbonaceous pelite clasts. Minor clots partly oxidised pyrite.	Interpreted as a welded and flow-brecciated vitric tuff. Dacitic compositional characteristics. Thoroughly sericite-quartz-siderite-altered.

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APPENDIX 19.

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DAMSITE ROCKCHIPS

379774	12176N	6495E
379776	12176N	6495E
379778	12148N	6476E
379782	12096N	6506E
379784	12066N	6480E
379786	12005N	6520E
379788	11972N	6555E

624

598627 19 FEB RECD

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.
Phone (09) 458 7999 — 52 Murray Road, Welshpool, W.A. 6106 — Telex AA92560
TLX: AA 59224

ANALYTICAL REPORT No. 23.3.08.0418B

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

Aberfoyle Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

ORDER No.	PROJECT
1487	

DATE RECEIVED	RESULTS REQUIRED
29/01/87	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	18/02/87	1	7

STATE OF SAMPLES REFER BELOW	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	Various	RO	Prep: 009,013,017						Cu,Pb,Zn,Ag,Ni/101,As/114		
	Various	RO							Ba,Cr,Zr,Ti/401		
	Various	RO							Au/309		
	Various	RO							Au/309		

RESULTS TO

R. de Bomford
Aberfoyle Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

RESULTS TO

REMARKS

Mack.

Oxide
Rock chips.

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

AUTHORISED OFFICER

ANALABS

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598628

625

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.02.04153	18/02/87	1484	1 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	379774	80	130	280	<0.5	98	17	1200	190	42
2	379776	8	25	80	<0.5	25	10	540	32	221
3	379778	10	18	48	<0.5	180	78	660	670	14
4	379782	45	12	18	<0.5	40	11	280	28	190
5	379784	25	110	245	<0.5	130	21	1050	110	21
6	379788	8	35	50	<0.5	22	8	330	75	250
7	379[illegible]	10	285	60	1.0	28	14	270	45	210
8										
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17										
18										
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22										
23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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626

598629

ANALABS

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.98.04153	19/02/87	1487	2 OF 2

TUBE No.	SAMPLE No.	Ti	Au							
1	379774	1430	0.008							
2	379775	1500	0.003							
3	379776	2220	0.008							
4	379781	1130	0.008							
5	379784	2250	0.008							
6	379785	1450	0.005							
7	379786	1750	0.008							
8										
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13										
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15										
16										
17										
18										
19										
20										
21										
22										
23	[illegible]	[illegible]	[illegible]							
24	[illegible]	[illegible]	[illegible]							
25	[illegible]	[illegible]	[illegible]							

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

MACK

(27)

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598630

FOR FILE ONLY

Well
South River Geochemistry

379762	11900N 6580E	sheared Sandstone
379795	11770N 6598E	icl Siltstone + bk Mic Ss
379797	11795N 6614E	bedded chert
379798	11915N 6552E	Mica Sandstone
379799	11872N 6570E	Mica Sandstone
379763	13104N 5676E	Eutaxitic sheared volcanic
379764	13075N 6020E	Red sheared shale
379765	13200N 6308E	Shear
379766	13230N 6340E	Mica sandstone SP?
379767	12850N 6373E	Longyear camp sheared shale
379768	12615N 6462E	Sheared eux. vlc in stream under HEC near LY camp.
379769	12615N 6462E	Sheared eux. vlc in stream under HEC near LY camp.

628

598631

(27)

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.
Phone (09) 458 7999
52 Murray Road, Welshpool, W.A. 6106
TLX: AA 59224
Telex AA92560

ANALYTICAL REPORT No. 23.3.08.04251

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

Aberfolye Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

ORDER No.	PROJECT
2314	

DATE RECEIVED	RESULTS REQUIRED
19/02/87	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
1	16/03/87	1	12

STATE OF SAMPLES		PRE-TREATMENT							ANALYSIS		
REFER BELOW	SAMPLE NUMBERS	DRY	CRUSH	SPLIT	PUL-VERISE	SIEVE	OTHER SEE REMARKS	NONE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	379762,379795,379797/99	RC	Prep: 009,017,013						Cu,Pb,Zn,Ag,Ni/101,As/114		
	379762,379795,379797/99	RC							Ba,Cr,Zr,Ti/401		
	Various	RC							Au/309		

RESULTS TO

R. de Bomford
Aberfoyle Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

RESULTS TO

REMARKS

Mack.

Bothwell
Rock chips

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHE
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUO
heavy mineral	HM					inductively coupled plasma	ICP

AUTHORISED OFFICER A. J. Bottrill

629

598632

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04251	16/03/87	2314	1 OF 1

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	
1	379762	5	<5	25	<0.5	45	6	420	160	
2	379763	–	–	–	–	–	–	–	–	
3	379764	–	–	–	–	–	–	–	–	
4	379765	–	–	–	–	–	–	–	–	
5	379766	–	–	–	–	–	–	–	–	
6	379767	–	–	–	–	–	–	–	–	
7	379768	–	–	–	–	–	–	–	–	
8	379769	–	–	–	–	–	–	–	–	
9	379795	45	<5	65	<0.5	130	6	330	5	
10	379797	5	5	15	<0.5	15	5	400	230	
11	379798	10	15	85	<0.5	35	5	600	240	
12	379799	100	<5	55	<0.5	110	7	35	60	
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	5	1	10	5	
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	
25	METHOD	101	101	101	101	101	114	401	401	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

598633

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ANALABS

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04251	16/03/87	2314	1 OF 1

TUBE No.	SAMPLE No.	Zr	Ti	Au						
1	379762	170	3600	<0.008						
2	379763	–	–	<0.008						
3	379764	–	–	<0.008						
4	379765	–	–	<0.008						
5	379766	–	–	<0.008						
6	379767	–	–	<0.008						
7	379768	–	–	<0.008						
8	379769	–	–	<0.008						
9	379795	250	1400	0.008						
10	379797	190	4300	<0.008						
11	379798	150	4100	0.067						
12	379799	10	220	0.017						
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	50	0.008						
24	UNITS	PPM	PPM	PPM						
25	METHOD	401	401	309						

Results in ppm unless otherwise specified
T = element present: but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER

MHCR. (28)

631

598634

FOR FILE ONLY

"Henty Fault" Gold Samples N of L.Y. Camp

379719	green eutaxitic volcanic	75m NE	Murrays Road Gate
379720	haematite veining	80m NE	Murrays Road Gate
379721	haematite veining	75m NE	Murrays Road Gate
379722	green eutaxitic volcanic	100m NE	Murrays Road Gate
379723	green eutaxitic volcanic	120m NE	Murrays Road Gate
379724	green eutaxitic fuchsitic volcanic	140m NE	Murrays Road Gate

379725 pyritic chert. Mayday Road 400000mE 5406500mN.

379726 pyritic chert. 4

632

598635

MACK. (28)

ANALABS

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Phone (09) 458 7999 — 52 Murray Road, Welshpool, W.A. 6106 — Telex AA92560
TLX: AA 39224

ANALYTICAL REPORT No. 23.3.08.04256

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

Aberfolye Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

ORDER No.	PROJECT
2316	

DATE RECEIVED	RESULTS REQUIRED
24/02/87	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
1	10/03/87	1	8

STATE OF SAMPLES		PRE-TREATMENT							ANALYSIS		
REFER BELOW	SAMPLE NUMBERS	DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	379719/26	RC Prep: 008,012,013,017							Au/309		

RESULTS TO

R. de Bomford
Aberfoyle Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

RESULTS TO

REMARKS

MACK.
HENTY FAULT ZONE
ROCK CHIPS.

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

AUTHORISED OFFICER a.j. Lobb

633

ANALABS

598636

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04256	10/03/87	2316	1 OF 1

TUBE No.	SAMPLE No.	Au									
1	379719	0.017	DJS								
2	379720	<0.008	"								
3	379721	<0.008	"								
4	379722	<0.008	"								
5	379723	<0.008	"								
6	379724	0.008	"								
7	379725	<0.008	JRS								
8	379726	0.008	JRS								
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23	DETECTION	0.008									
24	UNITS	PPM									
25	METHOD	309									

Results in ppm unless otherwise specified
T = element present: but concentration too low to measure
X = element concentration is below detection limit
— = *element not determined*

AUTHORISED OFFICER a.f.l

634

ANALABS

598637

29

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Phone (09) 458 7999 — 52 Murray Road, Welshpool, W.A. 6106 — Telex AA92560
TLX: AA 59224

ANALYTICAL REPORT No. 23.3.08.04191

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

Aberfolye Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

ORDER No.	PROJECT
1492	

DATE RECEIVED	RESULTS REQUIRED
30/01/87	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	20/02/87	1	2

STATE OF SAMPLES		PRE-TREATMENT							ANALYSIS		
REFER BELOW	SAMPLE NUMBERS	DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	265311/312	RO	Prep: 009,013,017						Cu,Pb,Zn,Ag,Ni/101,As/114		
	265311/312	RO							Ba,Cr,Zr,Ti/401		
	265311/312	RO							Au/309		

RESULTS TO

R. de Bomford
Aberfoyle Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

RESULTS TO

AA ACK. REMARKS

Southwell R.
rock chips

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

AUTHORISED OFFICER

635

598638

ANALABS

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04191	20/02/87	1492	1 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	265311	40	40	60	0.5	70	41	1250	60	110
2	265312	55	20	40	<0.5	60	6	300	70	170
3										
4										
5	BOTH FROM 11870N 6570E									
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	5	1	10	5	5
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	101	101	101	114	401	401	401

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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636

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598639

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04191	20/02/87	1492	2 OF 2

TUBE No.	SAMPLE No.	Ti	Au
1	265311	2950	0.008
2	265312	3150	<0.008
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23	DETECTION	50	0.008
24	UNITS	PPM	PPM
25	METHOD	401	309

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

APPENDIX 20.

Sampled by	Sample Number	Location	N	E	Description
AMH Nov 1985	355154	Lowell Link Track	7060N	6200E	ANDESITIC POLYMICT FINE LAPILLI VOLCANICCLAST
"	355155	" "	7130N	6230E	PALE GREEN SILTSTONE
"	355156	" "	7160N	6260E	GREY MICACEOUS SANDSTONE
"	355157	" "	7325N	6320E	GREEN VESICULAR LAVA
"	355158	" "	7395N	6370E	White-GREY MICACEOUS SS.
"	355159	" "	7500N	6500E	Wthd. fd. porphyritic lava
"	355160	" "	7530N	6570E	Coarsely feldsporphyritic intrusive. Magnetic.
	355161	" "	7605N	6630E	Grey sandstone - not micaceous
	355162	" "	7630N	6640E	Vuggy non-micaceous sandstone.
	355163	" "	7645N	6650E	Fine vcl with dk grey matrix
	355164	" "	7690N	6740E	Bleached limonitic micaceous sandstone.
	355165	" "	7780N	6740E	Wthd feldsporphyritic andesite lava
	35166	" "	7790N	6760E	As for 355165 (NOT sent for petrology)

639

598642

Sampled by, date	Sample Number	Location	N	E	Description
AMH NOV-DEC 85	355167	Southwell Link Track	7910N	6710E	Silicified andesite
"	355168	" "	~~8625N~~ ~~8350N~~	6550E ~~6630E~~	Feldspar phyric andesite lava.
"	355169	Southwell Link Track	8570N	6580E	Vesicular basalt lava.
C	355153	Shark fin track	6900N	5540E	Basalt lava, hornblende phenocrysts Not vesicular.
C					

12 MAR RECD

640

598643

Central Mineralogical Services

39 Beulah Road
Norwood, S.A. 5067
Telephone 42 5659

Mr. A.M. Hespe
Project Geologist
Aberfoyle Resources Ltd.
Exploration Division
P.O. Box 952
BURNIE / TAS. 7320

6th March, 1986

REPORT CMS 86/2/19

YOUR REFERENCE:	Letter dated 24.2.1986
DATE RECEIVED:	25th February, 1986
SAMPLE NOS.:	355153 - 355169
SUBMITTED BY:	A.M. Hespe
WORK REQUESTED:	Petrology

for

H.W. Fander, M. Sc.

Copy to:
The Chief Geologist
Aberfoyle Resources Ltd.
Exploration Division
1st Floor
123, Camberwell Road
HAWTHORN EAST / VIC. 3123

outcrop along
southwell link track,
sharkfin track.

REPORT CMS 86/2/19

Sixteen rock chip samples, numbered 355153 - 355169 (excluding 355166), were received for routine petrological examination. Representative thin-sections were prepared and examined together with respective offcuts, with carbonate and feldspar stain tests performed as warranted. Attached tabulated descriptions summarise the microscopic data and include interpretative comments.

Summary

The bulk of this suite comprises altered and variably weathered volcanics, dominated by lavas, but with subordinate pyroclastics and ranging compositionally from basaltic to andesitic, leuco-andesitic and dacitic in terms of relict features. These rocks typically exhibit sericitic alteration, with varying proportions of chlorite and secondary quartz. Individual samples reflect relatively pervasive chloritisation. Sample 355153 represents a basalt with a "subgreenschist" prehnite-pumpellyite metamorphic rather than a hydrothermal alteration assemblage.

Subordinate associated sedimentary facies include two examples of micaceous quartzitic sandstone (samples 355156, 355158), and two examples of distal ashy pelites (samples 355155, 355161). These latter rocks exhibit well-sorted silt-sized "microshard" components, consistent with subaerially transported/ subaqueously deposited ashes. Sediments of this general type tend to form thin "blanket" horizons and represent useful marker horizons in a number of volcanogenic situations, for example the so-called Mt. Isa "tuff marker" beds.

D. Cowan, B. Sc.

Sample No.	Classification - Composition 642	Fabric 598645	Accessories	Comments
355153 (T.S. 55579)	Basaltic Breccia. Clasts of albitised plagioclase, mildly altered, augite-porphyritic, variably quartz-amygdaloidal, chlorite-stained subvitric lava. Patchy matrix/veinlets of quartz, prehnite, with clots of pumpellyite, minor calcite.	Moulded to quartz-prehnite-cemented, semi-flow-structured "lapilli" lithic fragmental.	Traces of epidote, pyroxene-replacive actinolite, relict primary chromite. Patchy pumpellyite in amygdales.	Flow-marginal basaltic breccia characteristics. Reflects "prehnite-pumpellyite facies" metamorphic effects.
355154	"Dacitic" Tuff. Framework of sericitised feldspar-quartz-weakly chloritised ferromag-porphyritic subvitric lava clasts, minor quartz, sericitised feldspar crystals. Matrix of chlorite, microcrystalline quartz, partly degraded (kaolinised) sericite.	Poorly sorted, crudely bedded psammitic fragmental; vaguely silty clastic matrix.	Leucoxenised opaques, rare clastic muscovite flakes, very rare chromite, chalcedonic radiolaria.	Apparently a pelitic ash-matrixed lithic(-crystal) tuff, subaqueous, with minor accessory non-pyroclastic components. Dacitic-rhyolitic. Pervasively altered, partly weathere
355155	Tuffaceous Siltstone. Loose framework of silt-sized muscovite flakes, subordinate splintery to angular quartz grains, minor pelite, sericitic chert clasts. Variably sericite-cryptocrystalline quartz matirx with pervasive fine ferruginised carbonate.	Massive to incipiently banded silty clastic, with a vaguely vitroclastic matrix.	Sericitised feldspar grains, conspicuous clastic leucoxenic semi-opaques, minor carbonaceous matter, trace oxidised pyrite.	Interpreted as a reworked pelitic as or, alternately, a distal-ashy micaceous siltstone. Reflects sericite-quartz alteration. Rare authigenic tourmaline.
355156	Micaceous Protoquartzite. Framework of silt- to medium sand-sized, angular-subangular quartz grains, relatively minor muscovite flakes, carbonaceous pelite, impure chert clasts. Weakly sericitic chlorite/microcrystalline quartz cement.	Weakly bedded, poorly (trend bimodally) sorted, sandy clastic. Mildly sheared/phyllitic.	Patchy degraded/ferruginised carbonate in cement. Minor clastic leucoxenic semi-opaques, trace oxidised pyrite.	Exhibits "fluvial" bedding/sorting characteristics. No tangible primary or reworked tuffaceous features. Carbonaceous "dolomitic", weakly pyritic in common with 355155.
355157	Amygdaloidal Basalt. Albitised plagioclase, chloritised ?clino- and chloritic/carbonate-stained quartz-pseudomorphed ?orthopyroxene phenocrysts, sporadic quartz-chlorite amygdales in a chloritic, albitised plagioclase-microlathic groundmass.	Strongly porphyritic/weakly amygdaloidal, "basaltic".	Minor mesostasis quartz. Conspicuous leucoxenised opaques, thinly disseminated chromite.	Weakly quartz-chlorite-amygdaloida altered, strongly pyroxenic basalt characteristics. Hydrothermal style of alteration in contrast to 355153.
355158	Micaceous Protoquartzite. Framework of silt- to medium sand-sized, angular-subangular quartz grains, relatively minor muscovite flakes, carbonaceous pelite and chert clasts. Sericite/microcrystalline quartz cement.	Analogous to 355156; irregularly stressed to microfractured in comparison; finer-grained.	Clastic leucoxenic semi-opaques, rare zircons, authigenically overgrown schorl.	Close affinities with 355156, but non-dolomitic, non-pyritic, and relatively heterogeneously sheared in comparison.
355159	"Leuco-Andesite". Frequent albitised/extensively sericitised plagioclase, minor chloritised ferromag phenocrysts, disseminated corroded quartz microphenocrysts in a pervasively sericitic, microcrystalline felsic groundmass.	Strongly porphyritic, flow-structured/weakly flow-banded; concordantly sheared/phyllitic.	Leucoxenised opaques. Minor lava clasts, thinly disseminated fine carbonaceous pelite xenoliths.	Lava-like, but conceivably a pelite-xenolithic welded tuff. Quartz is crystal-fragmental in part, and the matrix is vaguely eutaxite-like. Possibly dacitic.
355160	Andesite. Abundant sericitic/albitised plagioclase, subordinate chlorite-pseudomorphed pyroxene phenocrysts in an extensively sericitised microcrystalline felsic groundmass.	Coarse, evenly disseminated phenocrysts; homogeneous microfelsitic groundmass.	Conspicuous primary magnetite, subordinate leucoxenised opaques, rare phenocrystal apatite.	Semi-chilled minor intrusive "porphyry" characteristics. Incipiently chlorite-quartz-microamygdaloidal. Weakly quartz-veined on a microscale.

643

598646

mple .	Classification - Composition	Fabric	Accessories	Comments
5161	Pelitic Ash. Semi- to sericitic white mica with thinly disseminated splintery to angular silt- to fine sand-sized quartz grains; minor albitised to sericitised plagioclase grains, sparse muscovite flakes.	Massive to weakly banded, pervasively (sericitised) silty-vitroclastic (shardy).	Clastic leucoxenic semi-opaques, minor discontinuous/irregular sericitic micro-fractures.	Thoroughly sericitised distal vitric (-crystal) ash. Close affinities with 355155, but with relatively inconspicuous non-pyroclastic components.
5162	Amygdaloidal Basalt. Phenocrysts/phenocrystal clusters of albitised/weakly chlorite-sericite-stained plagioclase, sparse sericitic quartz amygdales. Groundmass of albitised feldspar, chloritised pyroxene laths, quartz mesostasis.	Glomeroporphyritic/ - weakly amygdaloidal, quartz-mesostasised, basaltic. Weakly stressed.	Abundant very fine leucoxenised opaques, sparse, mildly sheared sericite veinlets.	Weakly flow-structured. Basaltic characteristics, but relatively differentiated (quartz mesostasis). Conceivably a minor intrusive, dependent on field evidence.
5163	"Leuco-Andesite". Conspicuous strongly sericitic albitised plagioclase, subordinate quartz, sparse chloritised ferromagnesian "phenocrysts" in a matrix of microcrystalline quartz and sericite, interspersed clots of chlorite.	Closely analogous to 355159, relatively distinctly flow-structured fragmental.	Leucoxenised opaques, thinly dispersed fine carbonaceous pelite clasts, rare muscovite flakes.	Very close affinities with 355159, with similar/relatively distinctive welded eutaxitic tuffaceous characteristics. Similarly xenolithic, similarly altered.
55164	"Dacite". Albitised/extensively sericitised feldspar phenocrysts, minor corroded quartz microphenocrysts, sparse sericite-quartz amygdales. Altered groundmass of sericite, variably sericite-stained quartz, very fine	Porphyritic/trend glomeroporphyritic, weakly amygdaloidal, felsitic (devitrified). Incipiently sheared.	Leucoxenised opaques, rare zircons, patchy secondary Fe-stainings.	Devitrified/sericite-quartz-altered, incipiently sheared felsic lava; broadly leuco-andesitic to dacitic, finer compositional detail obscured.
55165	"Andesite". Albitised/extensively degraded degraded carbonate, feldspar-quartz-chlorite-pseudomorphed pyroxene, chloritised amphibole phenocrysts in a matrix of semi-sericitic white mica, closely intergrown chlorite.	Phyllitic, micro-crenulated; relict strongly porphyritic. Featureless altered, sheared groundmass.	Conspicuous leucoxenised opaques, traces of chromite.	Thoroughly altered, relatively sheared, crenulated, porphyritic, primarily glassy ?lava. Interpreted as andesitic on the basis of the altered phenocrystal assemblage.
55167	Andesite. Albitised/variably sericitic plagioclase, subordinate chloritised ferromagnesian phenocrysts, sparse sericite-quartz amygdales. Groundmass of sericitised feldspar microlaths, sparse quartz mesostasis, micro-amygdales.	Porphyritic, weakly flow-structured, weakly banded, semi-felsitic. Weakly cognate-xenolithic.	Leucoxenised opaques, minor degraded/ferruginised fine-grained carbonate, trace oxidised pyrite.	Sericite-chlorite-quartz-altered, primarily subvitric, weakly amygdaloidal, flow-structured intermediate lava. Andesitic relict characteristics.
55168	Andesitic "Breccia". Clasts of albitised-sericitised plagioclase-, weakly chloritised ferromagnesian-porphyritic, variably chlorite-amygdaloidal, chloritised groundmassed lava. Matrix of chlorite, minor chloritic quartz.	Psammite to lapilli grade, semi-flow-structured, moulded to chlorite-quartz-cemented lithic fragmental. amygdaloidal quartz. tuffaceous or flow-brecciated.	Conspicuous ultrafine leucoxenised opaques, minor traces of oxidised pyrite. Minor	Finer detail obscured by pervasive chloritic alteration. Semi-scoriaceous breccia characteristics, but poorly diagnostic as to whether strictly
55169 T.S. 5594)	Amygdaloidal Basalt. Sericitic/albitised, partly degraded plagioclase microlaths with a chloritised mesostasis, chloritised pyroxene, sparse albitised feldspar phenocrysts, partly leached chloritic amygdales.	Porphyritic, amygdaloidal, flow-structured basaltic.	Ultrafine leucoxenised opaques, traces of degraded/ferruginised carbonate, chromite.	Pervasively chlorite-sericite-albite-altered, partly weathered amygdaloidal basaltic lava. Chloritic mesostasis is apparently altered glass.

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SAMPLE NO.	LOCATION	N	E	
355809	Southwell Grid	8400N	6950E	Basalt vesicular lava
355810	Southwell Grid	8450N	7055E	Dacite?
355811	Southwell Grid	8000N	6340E	Basaltic Lava
355813	Southwell Grid	8210N	6515E	Basaltic Volcaniclastic similar to 355148
355819	Southwell Spur Grid	8520N	6130E	Feldsparphyric Andesite Lava
355820	Southwell Spur Grid	8515N	6100E	Basaltic medium lapilli/crystal volcaniclastic.
355821	Southwell Area	8650N	6090E	Basaltic volcaniclastic?
355822	Creek draining Que Haulage Road	8625N	6105E	Basaltic medium lapilli volcaniclastic. Similar to 355148.
355823	Creek draining Que Haulage Road	8375N	5980E	Andesite lava pink albitised feldspar phenocrysts.
355024	Creek draining Que Haulage Road	8405N	5955E	Pink feldspar/silica altered andesite lava. Trace cpy, CN associated with alteration.
355025	Creek draining Que Haulage Road	8435N	5945E	Vesicular andesite lava, albitised feldspar phenocrysts.

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SAMPLE NO.	LOCATION	N	E	
355063	Southwell Track	8750N	6275E	Weathered Dacite
355064	Southwell Track	8720N	6275E	?
355065	Southwell Track	8690N	6235E	Dacite (Lava)
355066	Southwell Track	8625N	6200E	Silicified Feldsparphyric andesite lava.
355067	Southwell Track	8665N	6530E	Basaltic Ash Volcaniclastic
355068	Southwell Track	8640N	6475E	Fine-medium grained polymict volcaniclastic.
355069	Southwell Track	8640N	6455E	Fine grained basaltic volcaniclastic
355070	"	8630N	6430E	
355071	Southwell Track	8645N	6375E	Basaltic Lava Breccia - Hyaloclastite?
355072	Southwell Track	8595N	6315E	Basaltic Lava Breccia - Hyaloclastite?
355073	"	8520N	6215E	
355074	Southwell	8545N	6205E	Andesitic? Volcaniclastic
355075	Southwell Track			Vesicular Andesite Lava
355147	Southwell Track	8845N	6575E	Vesicular Andesitic Lava - Sheared?
355149	Southwell Track	8645N	6660E	Basalt vesicular lava
355807	Southwell Grid	8440N	6255E	Basaltic Lava
355808	Southwell Grid	8395N	6380E	Basaltic Lava

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22nd April, 1986

REPORT CMS 86/4/4

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DATE RECEIVED:	3rd April, 1986
SAMPLE NOS.:	28 Samples
SUBMITTED BY:	A.M. Hespe
WORK REQUESTED:	Petrology

for H.W. Fander, M. Sc.

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598650

REPORT CMS 86/4/4

A suite of twenty-eight rock chip samples was received for routine petrological examination. Representative thin-sections were prepared and examined together with respective offcuts, with miscellaneous stain tests performed as warranted. Attached tabulated descriptions summarise the microscopic data and include interpretative comments.

Summary

This suite comprises entirely altered, variably stressed to sheared and variably weathered volcanics ranging from basic (basaltic) to intermediate (andesitic), with subordinate relatively acid (leuco-andesitic to dacitic) types. Primary compositional detail is obscured by pervasive alteration effects and, as is typical of the Que River/Hellyer area, interpretations are based largely on relict and inferred compositional and textural features.

This suite is dominated by lavas and lava breccia facies with subordinate pyroclastics, typically lithic tuffs. The pervasive alteration assemblage comprises albite, chlorite, sericite and varying proportions of quartz and carbonate which is extensively degraded and ferruginised. Individual rocks may carry epidote, prehnite, montmorillonitic clays or rarely K-feldspar as variants of the pervasive assemblage. Locally associated sulphides include pale sphalerite, galena, and chalcopyrite supplementary to relatively widespread but non-pervasive pyrite disseminations.

D. Cowan, B. Sc.

CENTRAL MINERALOGICAL SERVICES

Sample No.	Classification - Composition	Fabric	Accessories	Comments
355808	Brecciated Basalt. Clasts of montmorillonit prehnite-pumpellyite-epidote-stained, variably chlorite-quartz-amygdaloidal lava, augite and albite grains in a matrix of fine to micro-crystalline quartz.	Random submillimetric to centimetric clasts, corrosive matrix, veinlets.	Leucoxenise opaques, minor traces of chromite, rare ultra-fine ?chalcopyrite.	"Prehnite-pumpellyite facies" low-grade metabasalt. Closely fractured to brecciated, quartz-veined/cemented, and partly silicified.
355809	Basalt. Frequent quartz-chlorite-pseudomorphed pyroxene, relatively minor albitised/chlorite-stained feldspar phenocrysts in a matrix of chlorite, subordinate microcrystalline albite, minor quartz and sericite.	Weakly amygdaloidal. Porphyritic, vaguely relict basaltic-textured, relatively sheared, phyllitic.	Chlorite amygdales (partly leached/ cavernous). Leucoxenised opaques, traces of chromite. Limonite, Mn-oxide stainings.	Chloritised; relatively sheared pyroxenic lava with relict basaltic characteristics. Relatively conspicuous very fine chromite.
355810	Dacitic Tuff. Crypto- to microcrystalline quartz with subordinate sericite. Disseminated corroded quartz phenocrysts and crystal fragments; minor sericitised feldspar grains.	Vaguely eutaxitic; obscured by pervasive sericitic fractures, mild shearing effects.	Leucoxenised opaques, degraded/ferruginised carbonate, minor stressed quartz veinlets.	Pervasively silicified/sericitised acid fragmental. Relict features consistent with a welded ignimbritic (vitric-crystal) tuff.
355811	Basalt Breccia. Abundant weakly montmorillonitised augite, subordinate relatively altered feldspar phenocrysts, chlorite amygdales in a feldspar-microlitic chlorite-stained sub-vitric groundmass.	Moulded lithic fragmental with strongly porphyritic/variably amygdaloidal lava clasts.	Minor discontinuous epidote veinlets. Traces of chromite, partly supergene-altered chalcopyrite.	Pyroxenic basaltic flow-breccia. Clasts are rather homogeneous, although variably amygdaloidal. Includes minor clots of prehnite, pumpellyite.
355813	"Andesitic" Breccia. Albite (after plagioclase), sericite and chlorite in varying proportions with subordinate to minor quartz, cloudy epidote. Sporadic clots of prehnite; discontinuous veinlets of calcite.	Variably amygdaloidal moulded lava clasts with secondary quartz (-albite-epidote)-healed fractures. Mildly sheared.	Leucoxenised opaques, rare chromite. Traces of pale sphalerite, minor traces of galena, chalcopyrite.	Clasts are dominantly andesitic with minor basaltic and doleritic-textured types, presumably xenoliths. Detail obscured by secondary brecciation, lat prehnite-calcite veining.
355819	Andesitic Breccia. Albitised plagioclase phenocrysts and microlaths with pervasive chlorite, microcrystalline albite, minor sericite, cloudy epidote, quartz. Semi-pervasive chlorite amygdales/micro-amygdales.	Random to flow-orientated, poorly sorted (<100μ to 2cm+) partly moulded clasts. Patchy albite(-quartz)-healed brecciation.	Leucoxenised opaques; traces degraded/ ferruginised carbonate.	Altered andesitic flow-breccia/trend scoriaceous breccia. Reflects secondary microcrystalline albite-healed brecciation on a microscale. Minor late chloritic microfractures.
355820	Andesitic Tuff. Albitised plagioclase laths, microlaths, phenocrysts with more or less pervasive chlorite, minor quartz, sericite, cloudy epidote; conspicuous fine to ultrafine leucoxenised opaques.	Poorly sorted, partly moulded, psammite to lapilli grade lithic fragmental; locally chlorite-matrixed.	Rare chromite.	Bulk of clasts are sub- to trachytic microtextured porphyritic/weakly quartz-chlorite-amygdaloidal. Interpreted as a lithic ("lapilli") tuff.
355821	"Dacitic" Breccia. Fine to microcrystalline quartz and semi- to sericitic white mica with minor chlorite. Sporadic zones of weakly dolomitic/sericitic impure chert. Irregular zones of secondary limonite, Mn-oxide staining.	Moulded to locally impure chert-matrixed lithic fragmental. Felsitic clasts. Relatively sheared.	Leucoxenised opaques, minor degraded/ferruginised fine-grained carbonate.	Massive ti impure chert-matrixed lava breccia; leuco-andesitic/ dacitic characteristics. Thoroughly quartz-sericite(-chlorite)-altered and relatively sheared.

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CENTRAL MINERALOGICAL SERVICES

Sample No.	Classification - Composition	Fabric	Accessories	Comments
355063 (T.S. 55722)	Weathered Dacite. Sericite and microcrystal[illegible]e quartz with disseminated clots of degraded/ ferruginised carbonate, minor clots of partly degraded chlorite. Sporadic irregular discont- inuous sericitic cherty quartz veinlets.	[illegible]e Moulded to locally impure chert-matrixed lithic fragmental. Felsitic, mildly sheared clasts (<1 mm - 1 cm+). [illegible] zones.	Leucoxenise[illegible]opaques, traces oxidised pyrite Sparse radiolaria in impure chert matrix	Relict features consistent with a massive to locally chert-cemented flow marginal breccia. Detail obscured by pervasive sericite-quartz alteration, shearing and weathering effects.
355064	Dacite. Albitised, sericite-ferruginised carbonate-stained plagioclase phenocrysts in a matrix of fine to microcrystalline quartz, sericite and very fine degraded/ferruginised carbonate, minor clots of chlorite.	Weakly glomeroporphyritic, weakly banded, felsitic, weakly micropherulitic groundmass. Weakly sheared.	Leucoxenised opaques, ultrafine secondary hematite. Minor quartz micro- amygdales.	Altered, mildly sheared dacitic lava. Alteration, shearing effects closely analogous to those in 355063. No detectable oxidised sulphides.
355065	Dacite. Thinly disseminated albitised/weakly sericite-carbonate-stained plagioclase pheno- crysts, minor leucoxenic sericite-pseudomorphed amphibole laths in a sericite-quartz matrix with pervasive fine degraded/ferruginised carbonate.	Banded, porphyritic, felsitic; incipiently sheared.	Leucoxenised opaques, minor quartz micro- amygdales, minor clots of chlorite.	Close affinities with 355064, but with accessory altered phenocrystal ferromags (amphibole) and relatively flow-banded.
355066	Andesite. Sericitised feldspar and chloritised pyroxene phenocrysts in a groundmass of sericite-stained albite with interspersed chlorite- and sericite films, minor quartz.	Strongly porphyritic, with a weakly perlitic, coarsely felsitic groundmass. Mildly sheared.	Leucoxenised opaques, sparse quartz micro- amygdales. Rare oxidised pyrite.	Felsitic-devitrified sericite- chlorite(-quartz)-altered and mildly sheared andesitic lava.
355067	Amygdaloidal Andesite. Sparse sericitised feldspar-, minor silicified-chloritised ferromagnesian phenocrysts, frequent chlorite- cherty quartz amygdales in a sericitised feldspar-microlitic groundmass.	Porphyritic, flow- structured (sub- trachytic), amyg- daloidal. Incipiently sheared.	Conspicuous very fine leucoxenised opaques. Minor traces oxidised pyrite.	Flow-structured, amygdaloidal andesite, pervasively sericite- chlorite-altered. Amygdale quartz is chalcedonic to microcrystalline. Pyrite concentrated in amygdales.
355068	"Andesitic" Tuff. Chlorite-albite-altered lava and pumice clasts, albitised feldspar and subordinate silicified pyroxene grains, minor chert clasts with a chloritic micro- crystalline quartz matrix/cement.	Poorly sorted (fine to coarse), weakly bedded, angular to subangular, sandy clastic.	Disseminated oxidised pyrite. Oxidised/ leucoxenised opaques.	Broadly andesitic with accessory basaltic and non-volcanic clasts. Subaqueous, possibly weakly reworked. Finer detail obscured by alteration.
355069	Andesitic Tuff. Chlorite with subordinate fine to microcrystalline quartz, disseminated albitised plagioclase phenocrysts and crystal fragments. Minor sericite (partly degraded/ illitised). Minor quartz-albite veinlets.	Poorly sorted chlorite- quartz-matrixed, psammite-grade lithic fragmental. Incip- iently sheared.	Leucoxenised opaques Traces of very fine- grained oxidised pyrite.	Pervasively chloritised andesitic lithic(-crystal) tuff. Affinities with 355068, but with relatively uniform andesitic-textured lithoclasts
355070	Amygdaloidal "Basalt". Albitised plagioclase, silicified ferromagnesian phenocrysts, dissem- inated chlorite-quartz amygdales in a ground- mass of albitised feldspar microlaths, micro- lites, with a chloritic subvitric mesostasis.	Strongly porphyritic, amygdaloidal, basaltic trend subtrachytic.	Leucoxenised opaques, traces of chromite, martitised magnetite, very fine oxidised pyrite.	Poorly diagnostic as to primary composition. Relict basaltic characteristics, but possibly strictly andesitic. Alteration complexed by partial weathering.

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Sample No.	Classification - Composition	Fabric	Accessories	Comments
355071	Basaltic Breccia. Chlorite, sericite and cloudy chlorite-stained calcite with varying proportions of microcrystalline quartz. Semi-pervasive leucoxenic TiO_2 stainings.	Moulded scoriaceous psammite to lapilli grade fragmental. Relatively sheared/ semi-mylonitised.	Minor trace of chromite, oxidised ultrafine pyrite. Leucoxenised opaques.	Thoroughly altered, semi-mylonitised scoriaceous breccia. Interpreted as a flow-marginal breccia. Relict basaltic characteristics.
355072	Basaltic Breccia. Sericite, chlorite and cloudy carbonate (calcite) in varying proportions with subordinate to minor microcrystalline quartz. Patchy limonitic stainings.	Analogous to 355071, with a lower proportion of scoriaceous clasts.	Leucoxenised opaques, minor traces of chromite.	Close affinities with 355071, similarly altered/relatively sheared. Flow-breccia characteristics, composite of porphyritic lava, subordinate pumiceous clasts.
355073	Amygdaloidal ?Andesite. Disseminated partly leached sericite, and Fe-stained chloritic pseudomorphs of feldspar and ferromagnesian phenocrysts, abundant quartz-microamygdales in a matrix of partly degraded sericite, subordinate sericitic quartz.	Strongly micro-amygdaloidal, weakly porphyritic. Mildly sheared, altered, microlitic/ semi-felsitic groundmass.	Fine degraded/ferruginised carbonate, conspicuous fine leucoxenised opaques, minor traces chromite.	Includes sporadic lensoid, extensively leached chloritic amygdales. Relict features consistent with a relatively siliceous (trend dacitic) andesitic lava.
355074	Andesitic Breccia. Sericitised feldspar- and chlorite-sericite-pseudomorphed pyroxene phenocrysts in a matrix of microgranular quartz and semi- to sericitic white mica, minor degraded/ferruginised carbonate.	Massive to cognate-xenolithic (tuff lava) with millimetric-scale semi-orientated intraclasts.	Leucoxenised opaques.	Pervasively quartz-sericite-chlorite (-carbonate) altered, partly weathered andesitic clastic lava (flow-breccia/ tuff lava).
355075	Amygdaloidal Andesite. Albitised plagioclase and chlorite-sericite-pseudomorphed ferromagnesian (pyroxene, subordinate amphibole) phenocrysts, sporadic quartz-chlorite amygdales in a sericite-chlorite-quartz-altered groundmass.	Weakly glomeroporphyritic, amygdaloidal, mildly sheared.	Leucoxenic opaques, conspicuous very fine magnetite.	Quartz-sericite-chlorite-altered, quartz-chlorite-amygdaloidal, andesitic characteristics. Unusually conspicuous primary magnetite.
355147	Amygdaloidal Andesite. Albitised plagioclase, subordinate chloritised ferromagnesian phenocrysts, disseminated chlorite-sericite and sericite-quartz amygdales in a sericite-chlorite matrix with minor quartz.	Finely porphyritic, incipiently banded, with flow-orientated lensoid amygdales. Relatively sheared/phyllitic.	Leucoxenised opaques, degraded/ferruginised carbonate, traces of oxidised pyrite.	Flow-structured amygdaloidal andesitic characteristics. Alteration pattern analogous to that in 355073, 355074 and 355075; relatively chloritic.
355149	Amygdaloidal Basalt. Partly quartz-chlorite-altered augite phenocrysts, albite-chlorite-adularia amygdales in a felsic-mesostasised groundmass of variably degraded/Fe-stained feldspar and pyroxene microlaths with interspersed epidote aggregates.	Coarsely amygdaloidal, semi-variolitic, basaltic.	K-feldspathised pelitic ash xenolith. Traces of chromite. Minor secondary limonite. Mn-oxide stainings.	Coarsely amygdaloidal pyroxenic basalt. Reflects feldspar-chlorite-epidote-quartz alteration. Essentially unstressed.
355807	Brecciated Basalt. Silt- to sand-sized angular augite, subordinate albite grains, random weakly chlorite-sericite-altered lava clasts, chlorite aggregates and a feldspathic rock flour matrix.	Randomly sorted, incipiently orientated clasts, mylonitic matrix.	Minor intraclasts of sericitic-pyritic andesitic lava, rare grains of chromite.	Primarily a chlorite-amygdaloidal pyroxenic basalt. Reflects post-alteration mylonitic deformation. ?Fault breccia.

Sample No.	Classification - Composition	Fabric	Accessories	Comments
355822	Andesitic Breccia. Fine to microcrystallin albite with pervasive chlorite, minor sericite. Conspicuous albite-chlorite amygdales. Minor discontinuous quartz veinlets; sporadic chloritic microfractures.	Massive to locally chlorite-matrixed, semi-flow-structured lithic fragmental. Mildly sheared.	Leucoxenised opaques; traces partly oxidised microcrystalline pyrite. Minor degraded ferruginised carbonate.	Andesitic/trend leuco-andesitic flow breccia characteristics. Pervasively albite-chlorite(-sericite)-altered, mildly quartz-veined, sheared, microfractured.
355823	Andesite. Albitised/sericite-stained plagioclase, and microcrystalline quartz(-sericite-chlorite)-pseudomorphed pyroxene phenocrysts in a quartz-chlorite-altered groundmass with minor sericite. Sporadic quartz veinlets.	Strongly porphyritic, with a felsitic groundmass. Mildly sheared; stressed veinlets.	Leucoxenised opaques. Minor clots sericite, traces oxidised carbonate in quartz veinlets. Secondary films Mn-oxide.	Quartz-albite-chlorite(-sericite)-altered, quartz-veined, mildly sheared andesitic characteristics. Alteration enhanced by partial weathering effects.
355824	Andesitic Breccia. Albitised/variably sericite-epidote-stained plagioclase-, quartz-chlorite-calcite-pseudomorphed pyroxene phenocrysts, albitised/chlorite-sericite-stained groundmass. Zones of impure chert. Sporadic quartz-epidote veinlets.	"Megaclastic", moulded to chert-matrixed breccia; variably quartz-amygdaloidal clasts.	Leucoxenised opaques, semi-pervasive very fine pyrite. Traces sphalerite (amygdales), oxidised ?chalcopyrite (veinlets).	Altered, mildly veined andesitic breccia, massive to impure chert-matrixed. Relatively epidote-rich alteration assemblage.
355825 (T.S. 55750)	Andesitic Breccia. Plagioclase-pseudomorphous and microcrystalline albite with more or less pervasive chlorite, subordinate to minor microcrystalline quartz.	Moulded/flow-structured lithic fragmental. Moderately stressed.	Leucoxenised opaques, fine to ultrafine pyrite (partly oxidised).	Clasts texturally similar to those in 355820; similarly altered. In comparison, this rock exhibits lava breccia characteristics.

598655

SAMPLE NO.	DESCRIPTION	LOCATION	N	E
355834	Basalt	Baker Street	7950N	6718E
355835	Tuff or shale within Basalt	Baker Street	8050N	6768E
355836	Basalt	Baker Street	8150N	6810E
355837	Rhyolitic Tuff or intrusive?	Baker Street	8240N	6965E
355838	Similar to 837	Southwell Costean	8562N	6892E
355839	Rhyolitic intrusive	Southwell Costean	8566N	6905E

REPORT CMS 86/8/11

Southwall Area Rocks, Nos. 355834 - 355839

Six rock samples were received for petrographic study; thin-sections were prepared and are described in the attached table.

Summary

This is a miscellaneous group of rocks, and includes a phyllite, volcanic/pyroclastic types, and a rather featureless quartzose rock which could be an argillised aplite if field evidence indicates that it is an igneous intrusive.

355834 consists of two rocks, both extensively altered and thus tentatively interpreted; the contact between them is quite sharp and relatively straight, suggesting that they are two distinct units. This is reinforced by the polymict nature of the tuff-lava (or possibly lithic tuff). In contrast, 355836 is somewhat coarser and seems to consist of only one lithology (though with varying fabrics), and is thus classified as a flow-breccia.

355835 may be of pyroclastic origin, but little evidence now remains to support this, because of alteration and development of schistosity.

355837 and 355838 are believed to be different rocks, both in terms of origin (one is a lava, the other a welded tuff) and composition, judging from relict features and alteration assemblages.

H.W. Fander, M. Sc.

Sample No.	Rock Type - Composition	Fabric	Minor Minerals	Comments
355834 (T.S. 56439)	?Basalt/Tuff-Lava. Sharp contact between altered amygdaloidal ?basalt with a few plagioclase phenocrysts, and tuff-lava of small fragments of glassy basalt, altered ?trachyte.	Main basalt is uniform; fragments are quite variable. All are fine-grained to glassy.	Amygdales filled with quartz, chlorite. Silicified ?ferro-magnesian phenocrysts.	Possibly more andesitic than basalt May be top of flow, with overlying, brecciated, mixed zone of lava + pyroclastics.
355835	Phyllite. Dominantly composed of interleaved illite-sericite flakes with small lenses of sericite aggregates after ?feldspar and/or lithic fragments; ultrafine quartz.	Very good preferred fabric, virtually schistose, with marked lensoid textures. Uniform.	Small goethite grains after ?pyrite. Cross-cutting quartz veins. A few ?felsite grains.	Primary clastic features obliterate but may have been volcanoclastic, at least in part; possibly a fine tuff.
355836	Basalt Flow-Breccia. Fragments of fine-grained amygdaloidal basalt with augite phenocrysts in a mass of epidotised and silicified scoriaceous basalt, also with augite phenocrysts.	Flow fabric in host rock and fragments; contrasting textures and amygdale sizes.	Amygdales generally quartz- and/or chlorite-filled, rarely with prehnite.	May be a flow-top, with solidified fragments incorporated in a cindery surface. Strangely, augite is fresh other minerals all altered.
355837	Argillised ?Trachyte. Now consists entirely of featureless fine sericite and quartz, with a few microphenocrysts of argillised feldspar, and earthy goethite patches throughout.	Fine preferred orientation, perhaps inherited flow-fabric. Some pseudomorphs after ?hornblende.	Ultrafine ?anatase as small crystal clusters. A few oxidised pyrite crystals.	Absence of primary quartz indicates an intermediate rock; if some goethite is after ferromagnesian minerals, rock may have been andesitic.
355838	Altered Welded Tuff. Angular fragments, and microfractured crystals, of quartz, and argillised feldspar fragments, in a fine streaky quartz-sericite matrix of altered glass.	Fine streaky fabric regarded as eutaxitic structure due to welding; some shard textures recognisable.	A few small ?shale fragments. Oxidised pyrite crystals. Minor iron-staining.	Surviving features all suggest a welded tuff, of broadly rhyolitic composition, and differing from 355837.
355839 (T.S. 56444)	Quartz-Sericite Rock. Composed chiefly of granular-interlocking quartz, with small intergranular aggregates of fine sericite and oxidised siderite.	Featureless, medium-grained fabric, no relict textures. Possibly an aplite.	Shapeless voids, may represent leached feldspar.	If intrusive, this rock could be a sericitised aplite or microgranite, but petrographic evidence for igneous origin is poor.

APPENDIX

Sample No.	Location	Description
427317	1000N 3445E	Rhyodacitic lava
427324	1800N 3375E	Rhyodacitic lava
427326	2000N 3510E	Rhyodacitic lava
427327	2200N 3430E	Ignimbrite with lava clasts
427328	2400N 3325E	Ignimbrite?
427330	2400N 3480E	Ignimbrite?
427334	2600N 3680E	Dacitic lava
427335	2600N 3760E	Ignimbrite?
427338	2800N 3465E	Dacitic lava
427343	3200N 2580E	Volcaniclastic
427344	3200N 3495E	Ignimbrite or lava?
427345	3200N 3515E	Ignimbrite or lava?
427352	8570N 6890E	Dacitic lava
427354	9000N 7140E	Spherulitic Rhyolitic intrusive
427355	9090N 7015E	?Volcaniclastic
427356	8990N 6980E	Fine sandstone - affinities with Que River Shale?

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598659

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24th February, 1988

REPORT CMS 88/1/18

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DATE RECEIVED:	27th January, 1988
SAMPLE NOS.:	16 Samples
SUBMITTED BY:	A.W. McNeill
WORK REQUESTED:	Petrology

H.W. Fander, M. Sc.

Copy to:
Mr. H. Skey
Exploration Manager
Aberfoyle Resources Ltd.
Exploration Division
123, Camberwell Road
HAWTHORN EAST / VIC. 3123

598660

REPORT CMS 88/1/18

A suite of sixteen rock chip samples was received for routine petrological description. Representative thin sections were prepared, examined in transmitted light and, together with respective cobaltinitrite-stained offcuts, in oblique incident light. Attached descriptions summarise the microscopic data and include interpretative comments.

Summary

Twelve samples (427317 - 427345 non-inclusive) from the Boundary prospect area represent a sequence of altered felsic intermediate to acid volcanics. These range from andesitic or, strictly, quartz-trachyandesitic, through dacitic to rhyodacitic and rhyolitic in terms of composition, and include lavas, and possibly minor intrusives, in addition to lava breccias and (minor) pyroclastics.

Sample 427343 represents a strongly volcanomict/mildly reworked tuffaceous lithic sandstone with intraclasts of carbonaceous pelite. This rock provides a link with the previous suite of sediment-dominated Central Complex volcanics.

This group, as a whole, exhibits quartz-sericite ± chlorite and carbonate alteration assemblages, locally complexed by a little epidote, and exhibits strictly limited sulphide mineralisation.

Of the remaining four rocks, two represent devitrified and altered acid glassy volcanics (samples 427352, 427354). Sample 427355 represents an altered basic volcanic with a pronounced kaolinitic weathering overprint on the initial phyllosilicate-carbonate alteration assemblage. Sample 427356 represents a lithoclastic fine sandy siltstone with similarities to QRS facies, but with finer detail obscured by partial weathering effects.

D. Cowan, B. Sc.

SAMPLE NO.: 427352 598661 (T.S. 59598) 7.

CLASSIFICATION/ COMPOSITION: **Altered Felsite**. Variably sericite-stained fine anhedral and semi-fibrous quartz with pervasive interstitial clots and films of sericite, semi-pervasive spongy clots of limonite, thinly disseminated sericite-pseudomorphed feldspar phenocrysts.

FABRIC: Semi-banded, weakly flow-structured and weakly intraclastic felsitic with disseminated to conspicuous quartz microspherulites.

ACCESSORIES: Traces oxidised very fine pyrite. Fine leucoxenised opaques.

INTERPRETATION/ COMMENTS: Spongy limonite clots are apparently carbonate-derived, accessory to the pervasive sericite-quartz alteration assemblage. Primarily a weakly feldspar-porphyritic obsidian; probably dacitic, weakly flow-structured, -banded, and -brecciated.

SAMPLE NO.: 427354 (T.S. 59599)

CLASSIFICATION/ COMPOSITION: **Altered Felsite**. Quartz and sericite in near-equant proportions with sporadic quartz-fringed sericite amygdales. Minor limonitic Fe-stainings.

FABRIC: Analogous to 427352; slightly coarser felsitic and spherulitic structures and with flow-orientated amygdales.

ACCESSORIES: Leucoxenised opaques. Very minor traces of oxidised pyrite, traces of degraded/ferruginised carbonate.

INTERPRETATION/ COMMENTS: Close affinities with 427352 and similarly altered, although relatively devoid of oxidised pyrite and carbonate. Primarily a weakly flow-banded, weakly amygdaloidal obsidian.

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598662

SAMPLE NO.: 427355 (T.S. 59600) 8.

CLASSIFICATION/ COMPOSITION: **Altered, Weathered "Andesite".** Abundant kaolin-cryptocrystalline silica-pseudomorphed feldspar-, subordinate similarly altered and weathered pyroxene and amphibole phenocrysts, sporadic kaolin-chalcedony amygdales in a groundmass of argillised/kaolinised feldspar microlaths with a leucoxene-stained degraded chloritic mesostasis.

FABRIC: Strongly porphyritic, amygdaloidal, flow-structured, with a "basaltic" (semi-felted microlathic) microtextured groundmass.

ACCESSORIES: Rare corroded quartz phenocrysts. Relics of semi-sericitic white mica. Kaolin-silica pseudomorphs after fine sparry carbonate. Fine relict primary "chromite". Secondary Fe-, minor Mn-stainings.

INTERPRETATION/ COMMENTS: Primarily a porphyritic, amygdaloidal basalt or "basaltic andesite" with sparse corroded ?xenocrystal quartz, distinctive accessory chrome spinel. Reflects pervasive sericite-chlorite-carbonate alteration, complexed/partly obscured by weathering-induced kaolinisation.

SAMPLE NO.: 427356 (T.S. 59601)

CLASSIFICATION/ COMPOSITION: **Carbonaceous Pelite.** Partly degraded (illitic to kaolinised) semi-sericitic white mica aggregates with pervasively disseminated silt- to fine sand-sized carbonaceous shale clasts, subordinate quartz grains, minor muscovite flakes.

FABRIC: Massive to weakly banded fine sandy argillaceous siltstone with a weak but penetrative slaty cleavage medium-angle discordant to bedding.

ACCESSORIES: Degraded/ferruginised microscopic carbonate rhombs. Silt-sized detrital leucoxene, rare zircons and tourmaline. Traces oxidised very fine pyrite.

INTERPRETATION/ COMMENTS: Carbonaceous lithoclastic siltstone, primarily weakly dolomitic and pyritic. No tangible volcanic or tuffaceous features, but finer detail is obscured by weathering effects. Broad similarities with Q.R.S.

598663

APPENDIX 21.

601

598664

(1)

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.
52 Murray Road, Welshpool, W.A. 6106
Phone (09) 458 7999
FAX: 004 31 8890
Telex AA92560

ANALYTICAL REPORT No. 23.3.08.05098

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

Aberfolye Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

ORDER No.	PROJECT
2681	

DATE RECEIVED	RESULTS REQUIRED
27/01/88	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	15/02/88	1	4

STATE OF SAMPLES		PRE-TREATMENT							ANALYSIS		
REFER BELOW	SAMPLE NUMBERS	DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	427350/53	RC	Prep: 013,016						Cu,Pb,Zn,Ag,Ni/101,As/114		
	427350/53	RC							Ba,Cr,Zr,Ti/401		

RESULTS TO

Aberfolye Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

RESULTS TO

REMARKS

MACK E.L.

Cripps Fault
Rock Chips.

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

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598665

ANALABS

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.05098	15/02/88	2681	1 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ba	As	Cr	Ni	Zr
1	427350	5	<5	30	<0.5	1850	<1	2100	40	160
2	427351	65	10	35	<0.5	630	7	420	85	65
3	427352	10	<5	15	<0.5	270	1	25	5	160
4	427353	115	10	50	<0.5	1600	6	110	50	140
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	10	1	5	5	5
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	101	101	401	114	401	101	401

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

598666

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.05098	15/02/88	2681	2 OF 2

TUBE No.	SAMPLE No.	Ti
1	427350	3900
2	427351	3150
3	427352	1500
4	427353	2000
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23	DETECTION	50
24	UNITS	PPM
25	METHOD	401

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

684

(15)

COMLABS Pty. Ltd.

COMPUTERISED ANALYTICAL LABORATORIES

598667

Head Office and
Central Laboratory
305 South Road,
Mile End South,
Sth. Aust. 5031.
Tel: (08) 43 5722
Telex: AA89323

NATA REGISTERED No. 1526

OUR REF.: COM852323

YOUR REF.: 9663

Mr. A. Hepse
Aberfoyle Exploration Pty. Ltd.
39 River Road
WIVENHOE

TAS 7320

January 10, 1986

Dear Sir

RE: JOB COM852323

Enclosed are the assays for the samples delivered to our laboratory on December 20, 1985

Yours Sincerely,
COMLABS PTY LTD

per :

c.c.: HAWTHORN EAST No. of copies : 1

Report Length 3 pages

Mackintosh WEATHERED BEDROCK AUGER SAMPLES, 20m INTERVALS, MOUNT BANNERMAN TRACK

Plotted on MAP 88

665

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ANALYTICAL REPORT

JOB COM852323
O/N : 9663

SAMPLE	Ni	Cr	Ti	Zr
355677	50	185	4700	170
355678	50	270	2700	155
355679	135	950	5100	195
355680	85	380	5000	175
355681	105	630	4600	170
355682	95	310	3700	85
355683	120	490	4800	160
355684	100	510	6100	165
355685	155	560	4800	145
355686	160	690	4900	135
355687	150	660	6100	165
355688	165	620	6900	200
355689	150	520	6800	200
355690	140	490	5800	150
355691	160	520	5700	165
355692	165	640	6100	170
355693	240	1500	3700	175
355694	55	280	4800	100
355695	110	270	4900	105
355696	95	165	4400	130
355697	85	280	4800	130
355698	135	280	3600	105
355699	105	290	4500	115
355700	80	140	2600	70
355701	75	185	3500	110
UNITS	ppm	ppm	ppm	ppm
SCHEME	AAS1B	AAS1B	AAS1B	XRF1

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ANALYTICAL REPORT

JOB COM852323
O/N : 9663

SAMPLE	Ni	Cr	Ti	Zr
355702	100	210	3800	130
355703	100	180	2600	90
355704	90	135	3300	70
355705	80	290	3800	100
355706	65	200	3600	85
355707	100	280	3800	85
355708	105	210	3400	85
355709	100	210	3500	85
355710	125	110	3800	115
355711	50	50	4100	120
355712	125	410	3200	90
355713	185	770	3900	160
355714	330	260	2200	90
355715	190	550	3400	90
355716	480	830	3800	155
355717	175	690	3900	180
355718	170	230	3000	90
355719	65	135	2800	100
355720	65	250	3400	85
355721	110	330	3800	105
355722	95	250	4200	125
355723	75	195	2200	55
355724	100	400	3600	120
355725	46	210	2000	120
355726	70	270	1800	145
UNITS	ppm	ppm	ppm	ppm
SCHEME	AAS1B	AAS1B	AAS1B	XRF1

667

598670

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ANALYTICAL REPORT

JOB COM852323
O/N : 9663

SAMPLE	Ni	Cr	Ti	Zr
355727	28	115	2900	210
355728	18	110	2200	210
UNITS	ppm	ppm	ppm	ppm
SCHEME	AAS1B	AAS1B	AAS1B	XRF1

598671

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SOUTHWELL LINK TRACK - SOIL/ROCK CHIP SAMPLING

Sample No:	Location	Sample No:	Location
355751	7715N 6755E	355781	N/S
355752	7735N 6745E	355782	8205N 6515E
355753	7755N 6750E	355783	N/S
355754	7765N 6755E	355784	8240N 6530E
355755	7785N 6765E	355785	8255N 6540E
355756	7810N 6770E	355786	8275N 6545E
355757	7830N 6770E	355787	8295N 6560E
355758	7850N 6770E	355788	8315N 6575E
355759	7870N 6765E	355789	8335N 6570E
355760	7880N 6750E	355790	8355N 6565E
355761	7895N 6735E	355791	8375N 6570E
355762	7905N 6715E	355792	8395N 6575E
355763	7925N 6710E	355793	8410N 6585E
355764	7945N 6700E	355794	8420N 6595E
355765	7960N 6685E	355795	8450N 6605E
355766	7975N 6675E	355796	8470N 6600E
355767	7995N 6680E	355797	8485N 6595E
355768	8015N 6685E	355798	8495N 6580E
355769	8030N 6670E	355799	8500N 6560E
355770	8035N 6650E	355800	8520N 6560E
355771	8050N 6635E	355801	8535N 6570E
355772	8030N 6635E	355802	8555N 6575E
355773	8090N 6635E	355803	8570N 6585E
355774	8110N 6630E	355804	8580N 6605E
355775	8125N 6620E	355805	8585N 6625E
355776	8130N 6600E	355806	8595N 6640E
355777	8130N 6580E		
355778	N/S		
355779	8160N 6555E		
355780	N/S		

669

598672 (18)

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Head Office and Central Laboratory
305 South Road,
Mile End South,
Sth. Aust. 5031.
Tel: (08) 43 5722
Telex: AA89323

NATA REGISTERED No. 1526

13 MAR RECD

OUR REF.:

YOUR REF.: COM860194

213

Southwell link track
Mackintosh (Soils + Rock chips)

Mr. A. M. Hespe
Aberfoyle Exploration Pty. Ltd.
39 River Road
WIVENHOE

TAS 7320

March 12, 1986

Dear Sir

RE: JOB COM860194

Enclosed are the assays for the samples delivered to our laboratory on February 19, 1986

Yours Sincerely,
COMLABS PTY LTD

per :

c.c.: VIC - Aberfoyle No. of copies : 1

Report Length 6 pages

670

COMLABS Pty. Ltd.

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ANALYTICAL REPORT

JOB COM860194
O/N : 213

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti
355751	9	12	12	<1	6	125	8100
355752	26	8	22	<1	110	390	5700
355753	55	16	75	<1	185	420	4400
355754	20	<4	55	<1	135	320	5500
355755	22	12	145	<1	48	85	6700
355756	14	12	18	<1	40	280	6100
355757	16	8	28	<1	40	340	4200
355758	12	10	18	<1	22	250	3800
355759	50	4	30	<1	38	145	7600
355760	60	<4	46	<1	46	530	7200
355761	7	<4	8	<1	16	22	4500
355762	<2	<4	8	<1	<4	16	6100
355763	<2	4	18	<1	<4	18	5500
355764	75	18	165	<1	75	300	1.04%
355765	38	14	32	<1	22	155	1.15%
355766	65	8	50	<1	75	250	1.09%
355767	55	60	44	<1	65	390	1.17%
355768	50	34	65	<1	32	190	1.05%
355769	40	4	26	<1	34	550	1.09%
355770	46	4	60	<1	60	230	8300
355771	18	<4	50	<1	46	160	6700
355772	130	8	65	<1	70	150	8500
355773	135	24	120	<1	65	160	9400
355774	40	12	40	<1	24	105	8100
355775	60	10	42	<1	55	135	9200
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	AAS1B

671

598674

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ANALYTICAL REPORT

JOB COM860194
O/N : 213

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti
355776	32	8	38	<1	32	120	5200
355777	65	<4	320	<1	55	150	1.13%
355779	85	20	240	<1	135	270	7900
355782	36	28	70	<1	18	130	8100
355784	42	4	90	<1	32	175	9500
355785	42	8	85	<1	24	270	7200
355786	50	28	85	<1	16	105	1.23%
355787	38	28	70	<1	14	120	8500
355788	46	24	85	<1	22	115	1.19%
355789	32	28	55	<1	14	130	1.46%
355790	40	30	60	<1	18	130	1.29%
355791	36	30	70	<1	18	100	9500
355792	26	34	90	<1	14	105	1.35%
355793	12	28	16	<1	4	70	1.13%
355794	12	32	18	<1	10	85	1.51%
355795	26	50	105	<1	26	120	1.31%
355796	55	70	150	<1	38	165	8600
355797	55	65	145	<1	36	80	7000
355798	70	30	170	<1	36	95	8000
355799	50	120	270	<1	30	95	9400
355800	36	48	195	<1	16	70	9800
355801	28	12	170	<1	24	50	9500
355802	65	105	290	<1	24	70	1.10%
355803	44	55	360	<1	180	530	1.69%
355804	30	12	90	<1	120	520	1.24%
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	AAS1B

598675

672

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ANALYTICAL REPORT

JOB COM860194
O/N : 213

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti
355805	14	6	130	<1	160	640	9200
355806	65	90	170	<1	80	400	8300
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	AAS1B

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ANALYTICAL REPORT

JOB COM860194
O/N : 213

SAMPLE	As	Ba	Zr
355751	12	120	200
355752	24	290	195
355753	16	120	155
355754	28	45	280
355755	26	40	270
355756	16	125	175
355757	16	75	145
355758	14	95	135
355759	7	165	80
355760	3	230	100
355761	5	280	155
355762	4	560	180
355763	4	480	170
355764	9	220	110
355765	12	320	115
355766	8	270	125
355767	14	110	135
355768	8	220	170
355769	4	690	120
355770	5	55	145
355771	9	420	90
355772	10	160	80
355773	12	220	140
355774	8	390	80
355775	7	430	180
UNITS	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1

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ANALYTICAL REPORT

JOB COM860194
O/N :. 213

SAMPLE	As	Ba	Zr
355776	5	410	75
355777	6	250	210
355779	9	65	100
355782	14	240	155
355784	8	175	135
355785	12	175	150
355786	10	165	190
355787	14	220	170
355788	10	145	200
355789	12	95	250
355790	14	90	240
355791	14	115	200
355792	9	80	200
355793	12	65	220
355794	12	65	230
355795	16	130	190
355796	16	220	135
355797	16	490	120
355798	7	330	115
355799	12	210	130
355800	9	1550	115
355801	6	200	140
355802	4	195	160
355803	8	350	155
355804	10	390	140
UNITS	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1

675

598678

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ANALYTICAL REPORT

JOB COM860194
O/N :- 213

SAMPLE	As	Ba	Zr
355805	10	360	195
355806	46	480	135
UNITS	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1

598679 (23)

Project 676 SWITCHBACK EAST COSTEAN Analysis for Cu, Pb, Zn, Ag, Au, As, Co, Ni, Zr, Ti

Co-Ordinate	Sample No.	Depth	Colour	Co-Ordinate	Sample No.	Depth	Colour
COSTEAN	SAMPLES.						
5A-6A	383056						
6A-7A	57						
7A-8A	58						
8A-9A	59						
9A-10A	383060						
10A-11A	61						
11A-12[illegible]	62						
12[illegible]-13B	63						
13B-14[illegible]	64						
14B-15B	65						
15B-16	66	4					
STD.	383067	*	STD				

(23)

677 598680

COMLABS SERVICES PTY. LTD.

305 South Road. Mile End South. South Australia 5031 Telephone (08) 43 5722 Telex LABCOM AA89323

NATA REGISTERED No. 1526

MACK. Switch Back East Loston

OUR REF.: COM860833

YOUR REF.: 299

N.B. All reports of mess. unless otherwise stated report values supersede values in this report.

Mr. A. M. Hespe
Aberfoyle Exploration Pty. Ltd.
39 River Road
WIVENHOE

TAS 7320

June 16, 1986

Dear Sir

RE: JOB COM860833

Enclosed are the assays for the samples delivered to our laboratory on June 4, 1986

Yours Sincerely,
COMLABS PTY LTD

per : Kay Holbrook

Report Length 2 pages

598681

678

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ANALYTICAL REPORT

JOB COM860833
O/N : 299

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti
383056	28	16	9	<1	6	75	2350
383057	28	18	16	<1	4	32	3350
383058	40	18	18	<1	4	32	3700
383059	48	22	30	<1	6	20	3700
383060	60	30	50	<1	12	24	3850
383061	24	22	65	<1	14	22	4650
383062	105	24	75	<1	26	46	3900
383063	100	46	95	<1	34	100	3550
383064	115	60	65	<1	55	95	3850
383065	100	50	55	<1	50	200	3650
383066	32	32	50	<1	65	390	3450
383067	22	155	105	<1	8	28	2000
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	COL4

Iron Samples

* STD

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598632

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ANALYTICAL REPORT

JOB COM860833
O/N : 299

SAMPLE	As	Ba	Zr	
383056	9	500	135	
383057	4	490	110	
383058	6	680	110	
383059	4	640	110	
383060	2	630	130	
383061	5	560	130	
383062	4	390	125	
383063	8	390	145	
383064	12	530	140	
383065	18	750	80	
383066	5	550	60	
383067	75	400	190	* STD.
UNITS	ppm	ppm	ppm	
SCHEME	XRF1	XRF1	XRF1	

'680 REPEATS 598683 (23)

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ANALYTICAL REPORT

JOB COM860833 O/N : Repeat Assays

Results in ppm

	SAMPLE	Ba	As	%Ti	Ni
383056	303056	500	5	0.23	<4
383057	303057	520	8	0.33	6
383058	303058	660	7	0.37	6
383059	303059	660	5	0.38	6
383060	303060	680	5	0.39	10
383061	303061	600	5	0.41	15
383062	303062	360	7	0.39	20
383063	303063	390	10	0.40	40
383064	303064	530	20	0.52	50
383065	303065	740	16	0.47	60
383066	303066	580	6	0.35	85
383067 *	303067	430	75	0.35	10 *

Method of Analysis : Ba As Ti : XRF1
Ni : AAS1

598684

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APPENDIX 22.

(15)

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COMLABS Pty. Ltd.

COMPUTERISED ANALYTICAL LABORATORIES

598685

Head Office and Central Laboratory
305 South Road,
Mile End South,
Sth. Aust. 5031.
Tel: (08) 43 5722
Telex: AA89323

NATA REGISTERED No. 1526

N.B. see repeats attached at rear.

20 FEB RECD

OUR REF.: COM860138

YOUR REF.: 9680

Unless otherwise stated repeat values supersede values in this report

Mr. L.W. Denby
Aberfoyle Exploration Pty. Ltd.
39 River Road
WIVENHOE

TAS 7320

February 19, 1986

Dear Sir

RE: JOB COM860138

Enclosed are the assays for the samples delivered to our laboratory on February 6, 1986

Yours Sincerely,
COMLABS PTY LTD

per :

c.c.: VIC - Aberfoyle No. of copies : 1

Report Length 18 pages

Laurence Prospies (McKintosh)
Lab samples

633

COMLABS Pty. Ltd. 598686

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ANALYTICAL REPORT

JOB COM860138
O/N : 9680

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti	
375412	65	50	38	<1	16	175	6150	
375414	36	18	22	<1	42	280	4100	
375416	65	14	55	<1	55	310	4550	
375418	120	16	220	<1	130	660	5150	
375420	75	20	75	<1	55	300	4850	
375422	115	36	105	<1	80	560	5650	
375424	95	26	90	<1	65	420	5250	
375426	70	26	85	<1	60	330	5900	
375428	80	32	125	<1	65	300	5300	
375430	38	30	40	<1	30	280	5750	
375432	60	55	120	<1	55	330	5400	
375434	105	75	155	<1	55	200	5050	
375436	170	440	410	<1	50	140	5100	
375438	55	90	170	<1	22	90	5650	
375440	60	90	115	<1	36	200	6350	
375442	115	110	195	<1	48	165	5800	
375444	115	105	155	<1	40	175	5600	
375446	65	80	95	<1	38	240	8700	
375448	28	46	50	<1	22	240	1.18%	
375450	26	38	42	<1	20	250	9750	
375534	55	165	46	<1	22	290	3850	7400N/5500E
375536	155	170	150	3	55	380	3700	
375538	140	115	210	2	65	400	4200	
375540	90	60	170	1	46	320	3800	
375542	12	14	36	<1	14	130	5150	
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	AAS1B	

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ANALYTICAL REPORT

JOB COM860138
O/N : 9680 -

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti
375544	38	10	105	<1	40	175	4250
375546	42	12	135	<1	55	180	4100
375548	115	12	220	<1	95	260	4850
375550	80	20	100	<1	85	240	5700
375552	85	22	120	<1	50	190	6300
375554	80	28	105	<1	70	340	4700
375556	80	36	145	<1	75	330	5400
375558	32	14	55	<1	60	420	6650
375560	38	30	40	<1	50	500	8800
375562	24	16	60	<1	36	270	7550
375566	38	60	135	<1	80	310	4900
375568	44	44	120	<1	65	290	5800
375570	42	48	60	<1	55	320	6250
375572	36	38	50	<1	48	300	6600
375574	38	42	46	<1	40	250	8400
375576	42	24	40	<1	44	260	7300
375578	95	30	60	<1	50	370	5800
375580	65	28	60	<1	50	270	6450
375582	75	42	44	<1	34	145	6500
375584	16	18	20	<1	14	110	7800
375586	24	16	32	<1	36	180	6650
375588	90	28	105	<1	55	320	6950
375590	16	14	24	<1	26	170	6850
375592	3	4	3	<1	12	125	4600
375594	6	6	12	<1	36	200	4400
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	AAS1B

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ANALYTICAL REPORT

JOB COM860138
O/N : 9680

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti
375596	20	16	28	<1	28	180	8500
375598	24	18	30	<1	30	185	7150
375600	18	18	26	<1	30	175	6900
375604	4	8	9	<1	10	125	4650
375606	5	6	3	<1	6	85	3100
375608	4	4	2	<1	4	120	2500
375610	3	<4	<2	<1	6	75	2400
375612	3	<4	<2	<1	4	100	2550
375614	4	<4	3	<1	6	95	2000
375616	8	4	14	<1	24	210	3150
375618	26	<4	5	<1	6	55	6600
375620	5	<4	2	<1	4	80	3550
375622	7	<4	6	<1	4	55	1100
375624	4	<4	10	<1	<4	90	2250
375626	6	<4	20	<1	4	85	1700
375628	3	<4	6	<1	<4	8	240
375630	4	<4	6	<1	<4	95	3800
375632	3	<4	6	<1	4	75	2800
375634	3	<4	5	<1	<4	22	500
375636	4	<4	2	<1	4	135	1500
375638	3	<4	5	<1	<4	75	1900
375640	4	<4	7	<1	<4	32	700
375642	3	<4	8	<1	<4	120	1500
375644	4	<4	4	<1	4	115	2400
375646	4	4	7	<1	4	115	2300
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	AAS1B

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ANALYTICAL REPORT

JOB COM860138
O/N : 9680

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti	
375648	4	<4	6	<1	4	135	1400	
375650	4	<4	10	<1	<4	180	1400	
375652	4	4	6	<1	<4	55	1100	
375654	3	<4	5	<1	4	75	2100	
375656	90	20	60	<1	34	95	4900	7400 / 7000E
375658	60	310	135	<1	36	175	6500	
375660	75	340	220	<1	50	155	6300	
375662	75	210	120	<1	55	200	6300	
375664	85	230	160	<1	44	175	5800	
375666	90	140	140	<1	105	510	5200	
375668	50	95	80	<1	85	510	5100	
375670	90	165	160	<1	80	190	4500	
375672	65	90	90	<1	55	240	5000	
375674	75	80	135	<1	65	240	5200	
375676	65	90	85	<1	75	340	5400	
375678	100	48	75	<1	130	460	5700	
375680	60	50	70	<1	95	400	5700	
375682	95	55	100	<1	110	400	5400	
375686	50	100	160	<1	60	300	5500	
375688	55	90	130	<1	70	350	5800	
375690	65	70	90	<1	85	410	6100	
375692	70	60	75	<1	42	210	6100	
375694	80	24	60	<1	55	320	5700	
375696	95	60	80	<1	70	300	6800	
375698	75	38	60	<1	55	300	5800	
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	AAS1B	

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ANALYTICAL REPORT

JOB COM860138
O/N : 9680

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti
375700	115	34	105	<1	55	160	5100
375702	85	50	145	<1	65	250	5200
375704	70	50	150	<1	65	290	5700
375706	38	42	165	<1	60	250	5500
375708	48	30	95	<1	55	290	5200
375710	44	20	95	<1	60	280	2900
375714	24	155	130	<1	14	34	3500
375718	9	4	6	<1	8	125	3200
375720	6	4	6	<1	16	130	3000
375722	4	<4	3	<1	14	115	3100
375724	5	<4	5	<1	10	195	3000
375726	3	<4	3	<1	6	110	3300
375728	4	<4	<2	<1	4	28	2100
375730	5	4	10	<1	12	140	3600
375732	4	<4	5	<1	12	160	3800
375734	5	4	6	<1	12	130	3300
375736	10	12	20	<1	22	110	5000
375738	3	<4	2	<1	6	85	2700
375740	5	<4	16	<1	<4	95	2500
375742	LNR	LNR	LNR	LNR	LNR	LNR	LNR
375744	7	<4	9	<1	6	100	1600
375746	7	<4	7	<1	4	60	1700
375748	6	<4	10	<1	<4	120	2300
375752	5	4	14	<1	<4	110	2300
375756	4	<4	10	<1	<4	85	1700
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	AAS1B

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ANALYTICAL REPORT

JOB COM860138
O/N : 9680

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti
375758	5	<4	8	<1	4	70	1700
375760	5	<4	10	<1	4	115	2100
375762	5	<4	8	<1	<4	85	1400
375764	4	<4	9	<1	6	150	2000
375766	3	<4	8	<1	<4	75	2400
375768	4	<4	10	<1	4	75	1900
375770	4	6	20	<1	<4	130	1400
375772	5	4	16	<1	<4	165	2300
375776	48	55	42	<1	38	110	7100
375778	80	60	80	<1	60	170	5600
375780	65	95	70	<1	55	150	6100
375782	75	90	85	<1	70	270	5900
375784	55	44	55	<1	60	270	5400
375786	50	60	70	<1	80	300	5000
375788	70	60	95	<1	100	380	5100
375792	48	50	100	<1	75	360	6100
375794	36	42	65	<1	60	360	5300
375796	48	28	65	<1	85	350	7800
375798	100	50	145	<1	100	320	5800
375800	105	12	380	<1	85	260	4400
375802	44	28	155	<1	50	260	4300
375804	20	28	110	<1	32	340	3200
375806	24	28	120	<1	40	260	4500
375810	48	42	160	<1	48	190	4800
375812	105	44	260	<1	100	250	4800
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	AAS1B

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ANALYTICAL REPORT

JOB COM860138
O/N : 9680

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti
375814	80	65	220	<1	100	390	4600
375816	80	55	190	<1	90	370	4900
375818	60	48	140	<1	95	390	5200
375820	75	22	165	<1	155	840	5350
375822	65	22	85	<1	85	380	4300
375826	70	16	290	<1	115	380	4000
375828	70	22	165	<1	120	300	4300
375832	30	30	50	<1	60	310	3600
375834	12	10	30	<1	40	175	3700
375836	6	4	14	<1	40	170	2200
375838	22	10	20	<1	60	320	2750
375840	LNR	LNR	LNR	LNR	LNR	LNR	LNR
375842	18	8	16	<1	40	220	4200
375844	5	4	8	<1	16	165	4450
375846	8	14	34	<1	70	290	2700
375848	3	4	8	<1	4	110	2950
375850	7	26	44	<1	44	280	2550
375852	7	20	40	<1	48	260	3650
375854	7	26	70	<1	50	210	2500
375858	22	150	135	<1	12	26	3400
375860	5	10	9	<1	4	20	670
375864	4	<4	9	<1	<4	4	1100
375866	4	<4	8	<1	4	4	780
375868	4	<4	10	<1	6	70	2650
375870	4	<4	7	<1	6	12	2850
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	AAS1B

STANDARD

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ANALYTICAL REPORT

JOB COM860138
O/N : 9680

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti
375872	5	4	10	<1	6	70	2100
375874	4	<4	10	<1	4	10	3050
375876	4	<4	9	<1	4	50	3950
375878	3	<4	10	<1	4	10	2550
375880	3	<4	9	<1	<4	8	1750
375882	9	<4	12	<1	4	80	3050
375884	6	<4	9	<1	4	105	2650
375886	7	<4	8	<1	6	210	3350
375888	5	<4	7	<1	4	200	2650
375890	4	<4	4	<1	<4	70	1650
375892	7	<4	10	<1	8	250	2250
375894	5	<4	8	<1	4	20	2250
375896	4	<4	7	<1	6	100	1500
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	AAS1B

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ANALYTICAL REPORT

JOB COM860138
O/N : 9680 -

SAMPLE	As	Ba	Zr
375412	70	410	130
375414	30	100	100
375416	28	160	100
375418	22	480	105
375420	24	210	125
375422	26	270	130
375424	26	85	130
375426	20	155	145
375428	26	170	150
375430	20	105	130
375432	20	145	115
375434	18	80	110
375436	20	115	115
375438	5	85	115
375440	16	95	135
375442	14	80	125
375444	14	70	115
375446	16	70	175
375448	14	60	195
375450	16	50	220
375534	165	230	110
375536	200	260	135
375538	80	155	95
375540	55	260	90
375542	8	80	130
UNITS	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1

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ANALYTICAL REPORT

JOB COM860138
O/N : 9680

SAMPLE	As	Ba	Zr
375544	9	145	75
375546	9	220	105
375548	4	370	90
375550	8	110	100
375552	10	45	110
375554	10	85	120
375556	9	75	90
375558	3	75	115
375560	18	55	185
375562	9	100	120
375566	9	160	125
375568	14	100	140
375570	12	60	165
375572	12	60	155
375574	14	50	185
375576	6	55	145
375578	9	45	135
375580	10	80	95
375582	14	45	155
375584	8	35	165
375586	10	65	140
375588	7	35	115
375590	7	80	165
375592	6	65	210
375594	12	45	165
UNITS	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1

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COMLABS Pty. Ltd.
COMPUTERISED ANALYTICAL LABORATORIES

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ANALYTICAL REPORT

JOB COM860138
O/N : 9680

SAMPLE	As	Ba	Zr
375596	12	35	160
375598	8	55	180
375600	10	50	170
375604	8	45	220
375606	6	25	210
375608	4	15	170
375610	6	15	195
375612	4	30	210
375614	6	10	180
375616	16	135	180
375618	8	165	230
375620	6	40	360
375622	3	15	280
375624	7	15	320
375626	3	15	210
375628	6	10	90
375630	5	10	340
375632	4	10	310
375634	6	10	280
375636	4	<10	165
375638	4	10	290
375640	6	10	290
375642	5	15	210
375644	4	10	290
375646	7	15	240
UNITS	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1

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ANALYTICAL REPORT

JOB COM860138
O/N : 9680

SAMPLE	As	Ba	Zr
375648	4	10	140
375650	4	<10	175
375652	4	10	300
375654	4	10	440
375656	7	95	170
375658	12	160	210
375660	16	125	180
375662	14	140	180
375664	22	145	175
375666	12	125	140
375668	8	105	150
375670	10	105	130
375672	12	125	130
375674	10	110	140
375676	14	105	155
375678	10	65	135
375680	12	95	135
375682	12	130	130
375686	9	230	125
375688	10	105	140
375690	12	70	155
375692	12	110	130
375694	9	50	100
375696	7	70	100
375698	9	65	125
UNITS	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1

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ANALYTICAL REPORT

JOB COM860138
O/N : 9680

SAMPLE	As	Ba	Zr	
375700	7	130	130	
375702	14	135	130	
375704	12	140	145	
375706	9	220	140	
375708	10	95	125	
375710	14	90	100	
375714	85	430	200	STANDARD
375718	5	40	220	
375720	6	130	180	
375722	6	40	210	
375724	3	95	200	
375726	6	90	195	
375728	2	50	175	
375730	16	75	240	
375732	20	30	230	
375734	7	105	200	
375736	10	195	200	
375738	5	<10	260	
375740	5	10	195	
375742	LNR	LNR	LNR	
375744	7	10	290	
375746	4	25	320	
375748	3	15	370	
375752	5	10	450	
375756	2	10	490	
UNITS	ppm	ppm	ppm	
SCHEME	XRF1	XRF1	XRF1	

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ANALYTICAL REPORT

JOB COM860138
O/N : 9680

SAMPLE	As	Ba	Zr
375758	3	15	620
375760	5	10	750
375762	3	10	530
375764	5	10	450
375766	3	10	390
375768	7	10	400
375770	4	<10	180
375772	6	15	350
375776	18	135	195
375778	14	105	175
375780	12	110	185
375782	20	110	160
375784	14	135	145
375786	10	320	120
375788	14	125	135
375792	14	165	145
375794	10	150	130
375796	10	220	125
375798	18	195	145
375800	9	470	85
375802	9	310	75
375804	12	195	75
375806	6	270	85
375810	9	390	110
375812	7	360	115
UNITS	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1

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ANALYTICAL REPORT

JOB COM860138
O/N : 9680

SAMPLE	As	Ba	Zr	
375814	7	260	120	
375816	10	210	130	
375818	10	185	130	
375820	7	220	160	
375822	5	135	90	
375826	<2	450	85	
375828	5	80	115	
375832	10	95	140	
375834	7	145	180	
375836	9	70	180	
375838	12	135	145	
375840	LNR	LNR	LNR	
375842	10	130	145	
375844	6	35	190	
375846	12	100	140	
375848	6	35	220	
375850	16	80	175	
375852	9	120	200	
375854	9	105	170	
375858	90	350	190	STANDARD
375860	6	15	125	
375864	6	10	260	
375866	6	15	330	
375868	6	20	310	
375870	2	15	330	
UNITS	ppm	ppm	ppm	
SCHEME	XRF1	XRF1	XRF1	

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ANALYTICAL REPORT

JOB COM860138
O/N : 9680

SAMPLE	As	Ba	Zr
375872	3	15	125
375874	4	15	410
375876	8	20	510
375878	5	10	650
375880	6	<10	540
375882	9	20	400
375884	7	10	620
375886	5	10	470
375888	5	<10	380
375890	3	10	300
375892	5	15	240
375894	7	10	320
375896	4	15	210
UNITS	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1

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ANALYTICAL REPORT

JOB COM860138
O/N : 9680

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti
375839	20	12	24	<1	60	270	3300
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	AAS1B

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ANALYTICAL REPORT

JOB COM860138
O/N : 9680

SAMPLE	As	Ba	Zr
375839	9	90	165
UNITS	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1

701 REPEATS

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598704

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ANALYTICAL REPORT

JOB COM860138 O/N : Repeat Assays

Results in ppm

SAMPLE	Ba	%Ti	Ni
375412	430	0.56	20
375414	140	0.37	46
375416	185	0.40	65
375418	480	0.46	140
375420	280	0.50	65
375422	340	0.56	90
375424	120	0.53	85
375426	170	0.59	70
375428	170	0.53	70
375430	115	0.51	36
375432	200	0.53	65
375434	105	0.46	65
375436	120	0.44	65
375438	95	0.55	30
375440	120	0.56	46
375442	95	0.52	60
375444	85	0.51	44
375446	80	0.64	38
375448	70	0.74	30
375450	55	0.78	30
375534	240	0.38	32
375536	320	0.36	70
375538	260	0.36	65
375540	260	0.41	50
375542	120	0.47	18

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ANALYTICAL REPORT

JOB COM860138 O/N : Repeat Assays

Results in ppm

SAMPLE	Ba	%Ti	Ni
375544	165	0.42	46
375546	230	0.42	65
375548	510	0.44	100
375550	125	0.51	90
375552	45	0.59	70
375554	105	0.43	85
375556	145	0.52	85
375558	80	0.48	70
375560	60	0.70	60
375562	90	0.56	40
375566	175	0.58	100
375568	125	0.53	75
375570	60	0.64	55
375572	55	0.60	70
375574	55	0.77	46
375576	55	0.63	48
375578	60	0.57	70
375580	95	0.59	65
375582	60	0.63	44
375584	45	0.77	32
375586	75	0.68	44
375588	40	0.45	55
375590	90	0.53	26
375592	70	0.36	18
375594	60	0.34	48

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ANALYTICAL REPORT

JOB COM860138 O/N : Repeat Assays

Results in ppm

SAMPLE	Ba	%Ti	Ni
375596	35	0.77	38
375598	55	0.73	42
375600	50	0.70	34
375604	50	0.41	16
375606	30	0.35	8
375608	25	0.20	6
375610	10	0.26	<4
375612	35	0.24	6
375614	25	0.22	<4
375616	140	0.33	35
375618	210	0.49	4
375620	50	0.29	<4
375622	20	0.23	<4
375624	<10	0.33	<4
375626	10	0.18	<4
375628	10	0.13	<4
375630	20	0.39	4
375632	<10	0.35	<4
375634	10	0.25	4
375636	<10	0.14	<4
375638	10	0.29	<4
375640	20	0.29	<4
375642	10	0.18	<4
375644	20	0.26	<4
375646	20	0.24	<4

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ANALYTICAL REPORT

JOB COM860138 O/N : Repeat Assays

Results in ppm

SAMPLE	Ba	%Ti	Ni
375648	15	0.13	<4
375650	10	0.19	4
375652	15	0.32	4
375654	<10	0.33	<4
375656	115	0.45	60
375658	160	0.59	55
375660	155	0.55	70
375662	140	0.55	75
375664	140	0.57	65
375666	145	0.54	130
375668	105	0.47	115
375670	115	0.48	95
375672	135	0.56	80
375674	120	0.51	90
375676	90	0.55	95
375678	60	0.52	145
375680	95	0.54	110
375682	160	0.53	125
375686	110	0.57	85
375688	240	0.50	95
375690	75	0.59	105
375692	110	0.61	60
375694	50	0.53	70
375696	90	0.50	85
375698	65	0.56	75

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ANALYTICAL REPORT

JOB COM860138 O/N : Repeat Assays

Results in ppm

SAMPLE	Ba	%Ti	Ni
375700	155	0.50	70
375702	140	0.52	80
375704	140	0.56	80
380706	250	0.65	75
375708	105	0.51	70
375710	80	0.34	70
* 375714	490	0.38	25
375718	40	0.37	10
375720	90	0.26	14
375722	45	0.35	16
375724	115	0.36	10
375726	125	0.29	4
375728	65	0.17	<4
375730	80	0.39	15
375732	45	0.34	4
375734	110	0.31	10
375736	220	0.43	30
375738	15	0.26	<4
375740	15	0.27	<4
375744	<10	0.27	<4
375746	15	0.26	<4
375748	10	0.39	<4
375752	<10	0.32	<4
375756	10	0.33	<4
375758	<10	0.30	<4

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ANALYTICAL REPORT

JOB COM860138 O/N : Repeat Assays

Results in ppm

SAMPLE	Ba	%Ti	Ni
375762	<10	0.31	4
375764	<10	0.23	4
375766	<10	0.29	<4
375768	10	0.32	<4
375770	10	0.14	<4
375772	10	0.26	<4
375776	140	0.60	55
375778	115	0.55	75
375780	100	0.62	70
375782	125	0.56	80
375784	155	0.55	80
375786	350	0.47	90
375788	150	0.53	125
375792	185	0.55	95
375794	170	0.66	80
375796	280	0.51	100
375798	240	0.60	115
375800	610	0.41	95
375802	350	0.55	60
375804	270	0.41	40
375806	310	0.47	50
375810	580	0.56	60
375812	360	0.44	105
375814	300	0.41	110
375816	220	0.49	105

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ANALYTICAL REPORT

JOB COM860138 O/N : Repeat Assays

Results in ppm

SAMPLE	Ba	%Ti	Ni
375818	180	0.58	95
375820	250	0.52	100
375822	115	0.48	90
375826	570	0.39	90
375828	75	0.43	130
375832	130	0.46	70
375834	195	0.47	40
375836	110	0.31	35
375838	160	0.35	70
375840	140	0.39	65
375842	115	0.44	35
375844	50	0.41	10
375846	370	0.27	65
375848	30	0.29	<4
375850	90	0.41	45
375852	115	0.46	50
375854	125	0.36	60
* 375858	390	0.39	20
375860	20	0.14	<4
375864	10	0.23	<4
375866	15	0.28	<4
375868	10	0.29	<4
375870	20	0.33	<4
375872	15	0.16	<4
375874	20	0.32	<4

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ANALYTICAL REPORT

JOB COM860138 O/N : Repeat Assays

Results in ppm

SAMPLE	Ba	%Ti	Ni
375876	10	0.42	4
375878	15	0.37	<4
375880	10	0.38	<4
375882	10	0.34	<4
375884	10	0.45	4
375886	<10	0.34	10
375888	<10	0.29	4
375890	10	0.33	4
375892	15	0.20	<4
375894	15	0.25	<4
375896	<10	0.15	<4

Method of Analysis : Ba Ti : XRF1
Ni : AAS1

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COMLABS Pty. Ltd.

COMPUTERISED ANALYTICAL LABORATORIES

598712

(16)

Head Office and Central Laboratory
305 South Road,
Mile End South,
Sth. Aust. 5031.
Tel: (08) 43 5722
Telex: AA89323

NATA REGISTERED No. 1526

N.B. See repeats attached at rear.

13 MAR RECD

OUR REF.:

YOUR REF.: COM860239

220

Southwell Prospect
Mackintosh (Soils)

Mr. A. M. Hespe
Aberfoyle Exploration Pty. Ltd.
39 River Road
WIVENHOE

TAS 7320

March 12, 1986

Unless otherwise stated repeat values supersede values in this report

Dear Sir

RE: JOB COM860239

Enclosed are the assays for the samples delivered to our laboratory on February 26, 1986

Yours Sincerely,
COMLABS PTY LTD

per

c.c.: VIC - Aberfoyle No. of copies : 1

Report Length 8 pages

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COMLABS Pty. Ltd.
COMPUTERISED ANALYTICAL LABORATORIES

598713

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ANALYTICAL REPORT

JOB COM860239
O/N :. 220

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti	
378402	26	16	16	<1	28	270	7000	8600w / 7025E
378404	30	18	18	<1	14	280	5900	
378406	32	24	34	<1	30	300	4800	
378408	160	16	130	<1	185	500	4100	
378410	50	14	22	<1	36	320	4700	
378412	12	6	9	<1	16	135	5600	
378414	10	6	6	<1	12	85	3400	
378416	7	34	4	<1	12	70	4000	
378418	3	6	5	1	<4	36	4000	
378420	8	80	9	<1	20	40	3000	
378422	12	12	12	<1	6	60	2200	
378424	4	8	5	<1	<4	50	4300	
378426	4	6	6	<1	<4	42	5000	
378428	10	50	20	<1	32	165	6200	
378430	10	26	12	<1	12	85	4700	
378432	12	34	20	<1	8	80	4800	
378434	6	40	14	<1	4	65	5600	
378436	3	16	8	<1	<4	40	4700	
378438	9	44	14	<1	16	100	6400	
378440	4	24	10	<1	8	85	6000	8600w / 7500E
378442	80	8	95	<1	210	710	1.14%	8400w / 7025E
378444	16	14	28	<1	50	320	2700	
378446	7	6	7	<1	4	75	2000	
378448	42	46	115	<1	70	175	4900	
378450	14	30	32	<1	10	100	4200	
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	AAS1B	

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ANALYTICAL REPORT

JOB COM860239
O/N : 220

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti	
378452	22	42	46	<1	20	105	3600	
378454	10	16	24	<1	20	65	1700	
378456	12	36	28	<1	12	80	6200	
378458	12	28	20	<1	18	115	5500	
378460	18	50	48	<1	18	145	7200	
378462	28	48	75	<1	28	145	5700	
378464	34	50	80	<1	34	200	7300	
378466	32	75	75	1	26	170	8300	
378468	36	65	125	1	32	155	5500	
378470	46	110	260	1	55	200	6800	
378472	100	165	2150	1	250	620	6000	* STD.
378474	24	75	50	1	24	130	8000	
378476	42	80	110	<1	32	150	7400	
378478	28	80	70	<1	22	125	9000	
378480	18	65	34	<1	18	110	8100	8450N/7500E
378482	10	6	12	<1	<4	60	3800	8200N/7025E
378484	3	<4	7	1	<4	30	3100	
378486	2	<4	6	<1	<4	38	4700	
378488	2	10	8	<1	4	65	5800	
378490	5	6	10	<1	8	100	5600	
378492	2	<4	10	<1	<4	38	2600	
378494	22	85	145	<1	36	120	9100	
378496	90	175	2100	<1	250	630	6200	* STD.
378498	34	85	75	1	36	165	8300	
378500	20	90	55	1	18	95	6000	
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	AAS1B	

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ANALYTICAL REPORT

JOB COM860239
O/N : 220

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti	
378502	14	65	24	<1	8	85	5900	
378504	10	50	18	<1	10	120	5700	
378506	12	55	24	1	6	70	5000	
378508	8	40	14	<1	4	85	4300	
378510	14	44	22	<1	14	185	6000	
378512	12	50	28	<1	6	70	5600	
378514	26	60	22	<1	42	520	8000	
378516	7	55	14	<1	4	75	4500	
378518	20	65	28	<1	32	290	6700	
378520	10	46	24	<1	18	125	3900	8200N | 7500E
378522	5	<4	7	<1	<4	48	2300	8000N | 7025E
378524	3	<4	8	<1	<4	50	2100	
378526	5	18	8	<1	<4	75	2200	
378528	3	18	9	<1	<4	75	2900	
378530	22	150	155	<1	16	115	5000	
378532	34	95	90	<1	24	135	5400	
378534	28	80	60	<1	18	95	5800	
378536	8	42	16	<1	8	55	4400	
378538	7	42	18	<1	8	60	5000	
378540	6	34	14	<1	4	55	5500	
378542	9	55	22	<1	12	70	7100	
378544	6	48	20	<1	14	55	8200	
378546	10	48	26	<1	6	65	5500	
378548	7	42	18	<1	<4	65	4600	
378550	14	55	36	<1	10	70	5000	
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	AAS1B	

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ANALYTICAL REPORT

JOB COM860239
O/N : 220

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti	
378552	9	55	32	<1	4	70	4200	
378554	8	50	24	<1	6	70	6700	
378556	8	50	20	<1	8	75	5100	
378558	6	42	18	<1	4	60	4400	
378560	18	70	34	<1	8	75	3900	8000N/7500E
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	AAS1B	

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COMPUTERISED ANALYTICAL LABORATORIES

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ANALYTICAL REPORT

JOB COM860239
O/N :- 220

SAMPLE	As	Ba	Zr
378402	50	210	150
378404	26	230	135
378406	16	350	130
378408	10	220	95
378410	28	470	75
378412	16	290	190
378414	14	290	150
378416	6	210	145
378418	4	50	115
378420	14	480	115
378422	12	260	150
378424	5	60	200
378426	7	110	135
378428	9	360	175
378430	14	210	145
378432	12	180	180
378434	14	130	220
378436	8	95	240
378438	16	195	195
378440	9	210	180
378442	16	500	480
378444	18	430	150
378446	6	180	165
378448	12	200	135
378450	12	85	160
UNITS	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1

715

COMLABS Pty. Ltd.
COMPUTERISED ANALYTICAL LABORATORIES

598718

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ANALYTICAL REPORT

JOB COM860239
O/N :-220

SAMPLE	As	Ba	Zr
378452	14	165	135
378454	10	310	165
378456	10	180	155
378458	10	175	190
378460	16	260	180
378462	12	210	170
378464	28	270	195
378466	22	220	140
378468	22	270	140
378470	18	210	150
378472	≈ 18	1000	65
378474	14	350	150
378476	16	310	135
378478	14	370	150
378480	12	390	180
378482	9	260	190
378484	4	300	190
378486	7	260	210
378488	3	300	240
378490	8	310	210
378492	6	400	190
378494	46	270	200
378496	≈ 24	1050	65
378498	20	210	130
378500	14	460	145
UNITS	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1

716

COMLABS Pty. Ltd.
COMPUTERISED ANALYTICAL LABORATORIES

598719
- 7 -

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ANALYTICAL REPORT

JOB COM860239
O/N :- 220

SAMPLE	As	Ba	Zr
378502	10	340	220
378504	10	320	240
378506	10	350	230
378508	7	300	270
378510	24	320	190
378512	8	310	210
378514	20	560	250
378516	5	250	250
378518	16	460	250
378520	7	380	250
378522	3	320	195
378524	9	560	200
378526	6	280	150
378528	8	195	210
378530	26	210	175
378532	16	280	125
378534	14	330	175
378536	10	260	220
378538	12	380	230
378540	10	220	250
378542	8	320	210
378544	6	350	250
378546	6	290	220
378548	10	220	260
378550	10	330	230
UNITS	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1

717

598720

- 8 -

COMLABS Pty. Ltd.
COMPUTERISED ANALYTICAL LABORATORIES

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ANALYTICAL REPORT

JOB COM860239
O/N : 220

SAMPLE	As	Ba	Zr
378552	9	290	220
378554	6	360	210
378556	5	290	260
378558	6	310	230
378560	18	350	210
UNITS	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1

REPEATS

718

598721

(16)

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ANALYTICAL REPORT

JOB COM860239 O/N : Repeat Assays

Results in ppm

SAMPLE	Ba	%Ti	Ni
378402	240	0.65	30
378404	240	0.51	20
378406	330	0.45	24
378408	210	0.40	220
378410	540	0.37	30
378412	390	0.45	16
378414	350	0.33	12
378416	240	0.30	8
378418	45	0.32	4
378420	660	0.24	12
378422	310	0.23	10
378424	80	0.37	6
378426	145	0.38	<4
378428	400	0.48	32
378430	200	0.41	16
378432	155	0.50	10
378434	115	0.52	6
378436	85	0.45	8
378438	180	0.59	22
378440	220	0.51	8
378442	570	0.69	230
378444	490	0.30	44
378446	160	0.18	6
378448	210	0.34	80
378450	65	0.47	20

.../ 2

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ANALYTICAL REPORT

JOB COM860239 O/N : Repeat Assays

Results in ppm

SAMPLE	Ba	%Ti	Ni
378452	180	0.37	28
378454	280	0.16	24
378456	280	0.40	18
378458	120	0.30	16
378460	230	0.44	32
378462	190	0.35	28
378464	240	0.46	38
378466	220	0.54	36
378468	220	0.38	42
378470	250	0.44	60
378472	870	0.23	260
378474	430	0.45	24
378476	410	0.42	42
378478	480	0.44	28
378480	450	0.44	22
378482	260	0.16	8
378484	280	0.13	6
378486	250	0.20	6
378488	320	0.30	<4
378490	370	0.25	18
378492	530	0.11	4
378494	310	0.44	50
378496	1000	0.21	270
378498	280	0.43	40
378500	480	0.37	22

.../ 3

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ANALYTICAL REPORT

JOB COM860239 O/N : Repeat Assays

Results in ppm

SAMPLE	Ba	%Ti	Ni
378502	440	0.39	14
378504	380	0.41	18
378506	420	0.38	16
378508	360	0.40	10
378510	410	0.45	16
378512	450	0.40	10
378514	710	0.66	28
378516	410	0.44	12
378518	570	0.47	28
378520	480	0.43	20
378522	380	0.21	6
378524	680	0.15	10
378526	410	0.19	8
378528	250	0.24	6
378530	240	0.40	12
378532	380	0.40	32
378534	380	0.43	28
378536	430	0.41	14
378538	440	0.39	12
378540	330	0.41	10
378542	420	0.45	14
378544	440	0.43	10
378546	410	0.41	12
378548	270	0.45	8
378550	360	0.38	16

.../ 4

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ANALYTICAL REPORT

JOB COM860239 O/N : Repeat Assays

Results in ppm

SAMPLE	Ba	%Ti	Ni
378552	410	0.42	14
378554	480	0.44	10
378556	430	0.44	14
378558	400	0.41	8
378560	480	0.40	18

Method of Analysis : Ba Ti : XRF1
Ni : AAS1

(17)

722

598725

COMLABS SERVICES PTY. LTD.

305 South Road. Mile End South. South Australia 5031 Telephone (08) 43 5722 Telex LABCOM AA89323

MACK.

Southwell Prospect.

02 JUN REC'D

Date entered 17/6/86

COM860707

275

N.B. see repeats attached at rear. unless otherwise stated repeat values supersede values in this report.

Mr. A. M. Hespe
Aberfoyle Exploration Pty. Ltd.
39 River Road
WIVENHOE

TAS 7320

May 30, 1986

Dear Sir

RE: JOB COM860707

Enclosed are the assays for the samples delivered to our laboratory on May 14, 1986

Yours Sincerely,
COMLABS PTY LTD

per :

Report Length 4 pages

723

COMLABS Pty. Ltd.

COMPUTERISED ANALYTICAL LABORATORIES

598726

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ANALYTICAL REPORT

JOB COM860707
O/N : 275

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti
378562	14	40	28	<1	20	75	3600
378564	22	135	120	1	32	26	3850 * STD.
378566	28	48	42	<1	34	120	3950
378568	10	30	16	<1	22	80	4200
378570	24	46	26	<1	30	110	3800
378572	4	26	12	<1	22	55	4700
378574	6	40	20	<1	22	65	4350
378576	3	28	14	<1	14	48	4400
378578	8	42	24	<1	16	60	4300
378580	12	38	22	<1	20	65	4450
378582	9	40	22	<1	30	65	3850
378584	4	32	16	<1	20	60	4550
378586	6	42	22	<1	22	60	4000
378588	7	50	26	<1	32	70	4050
378590	7	50	22	<1	20	60	4000
378592	10	65	28	<1	28	60	4100
378594	8	55	26	<1	20	60	4600
378596	2	30	12	<1	10	48	4100
378598	<2	4	3	<1	10	18	2500
378600	<2	14	9	<1	16	26	3700
378602	<2	<4	5	<1	<4	26	3250
378604	26	26	60	<1	48	175	3900
378606	26	46	55	<1	44	125	3750
378608	<2	34	18	<1	12	50	4000
378610	<2	28	14	<1	16	40	4550
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	COL4

724

598727

COMLABS Pty. Ltd.
COMPUTERISED ANALYTICAL LABORATORIES

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ANALYTICAL REPORT

JOB COM860707
O/N : 275

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti
378612	16	38	22	<1	22	50	3750
378614	2	30	16	<1	18	55	4800
378616	4	42	20	<1	20	50	3700
378618	6	32	30	<1	20	90	2650
378620	<2	22	16	<1	16	65	4550
378622	9	40	26	<1	26	70	3650
378624	<2	28	18	<1	14	48	4150
378626	24	46	85	<1	34	130	3100
378628	5	30	26	<1	28	85	3300
378630	20	130	125	<1	22	30	2950 * STD.
378632	22	42	46	<1	34	155	2850
378634	<2	24	12	<1	10	44	4700
378636	<2	22	12	<1	6	38	4400
378638	7	40	30	<1	12	50	2250
378640	6	36	30	<1	20	55	3450
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	COL4

COMLABS Pty. Ltd.
COMPUTERISED ANALYTICAL LABORATORIES

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ANALYTICAL REPORT

JOB COM860707
O/N : 275

SAMPLE	As	Ba	Zr
378562	7	250	185
378564	60	490	195
378566	8	210	160
378568	7	240	210
378570	10	270	165
378572	5	230	240
378574	<2	390	210
378576	<2	250	240
378578	6	350	210
378580	5	330	240
378582	6	360	240
378584	4	290	230
378586	4	320	240
378588	5	420	195
378590	3	380	250
378592	4	420	230
378594	7	400	220
378596	3	220	270
378598	3	20	330
378600	2	120	330
378602	3	25	165
378604	9	135	135
378606	12	360	180
378608	<2	290	220
378610	<2	220	210
UNITS	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1

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ANALYTICAL REPORT

JOB COM860707
O/N : 275

SAMPLE	As	Ba	Zr
378612	3	300	210
378614	6	260	250
378616	10	350	220
378618	30	250	195
378620	8	230	230
378622	8	380	220
378624	7	250	260
378626	18	230	155
378628	12	290	195
378630	48	460	190
378632	18	195	115
378634	4	250	310
378636	6	230	330
378638	18	380	200
378640	18	440	200
UNITS	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1

727 REPEATS

(17)

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598730

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ANALYTICAL REPORT

JOB COMA860707 O/N : Repeat Assays

Results in ppm

	SAMPLE	Ba	As	%Ti	Ni
	378562	250	12	0.44	10
*	378564	490	85	0.37	12
	378566	230	20	0.43	14
	378568	250	14	0.51	16
	378570	310	14	0.41	6
	378572	270	7	0.54	6
	378574	390	7	0.50	6
	378576	180	9	0.46	6
	378578	380	7	0.47	6
	378580	320	14	0.44	6
	378582	350	10	0.47	20
	378584	370	9	0.52	6
	378586	320	8	0.50	16
	378588	440	12	0.48	6
	378590	380	10	0.49	4
	378592	370	12	0.45	4
	378594	380	12	0.48	6
	378596	250	10	0.45	4
	378598	26	9	0.37	6
	378600	135	6	0.45	<4
	378602	28	7	0.39	<4
	378604	135	14	0.48	36
	378606	370	18	0.45	22
	378608	330	10	0.49	6
	378610	220	7	0.42	8

.../ 2

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ANALYTICAL REPORT

JOB COMA860707 O/N : Repeat Assays

Results in ppm

	SAMPLE	Ba	As	%Ti	Ni
	378612	320	7	0.46	8
	378614	290	20	0.57	8
	378616	410	16	0.47	8
	378618	230	50	0.46	16
	378620	210	12	0.52	<4
	378622	380	14	0.46	8
	378624	270	16	0.51	6
	378626	230	26	0.39	24
	378628	300	16	0.43	16
*	378630	490	80	0.36	12
	378632	200	28	0.40	24
	378634	280	8	0.59	<4
	378636	240	10	0.57	<4
	378638	410	28	0.43	4
	378640	490	30	0.44	<4

Method of Analysis : Ba As Ti : XRF1
Ni : AAS1B

598732

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COMLABS SERVICES PTY. LTD.

305 South Road, Mile End South, South Australia 5031 Telephone (08) 43 5722 Telex LABCOM AA89323

NATA REGISTERED No. 1526

MACK. Southwell Prospect soils
23 JUN REC'D 6600N

OUR REF.:

YOUR REF: COM860862

907

N.B. see repeats attached at rear. unless otherwise stated repeat values supersede values in this report

Mr. A. M. Hespe
Aberfoyle Exploration Pty. Ltd.
39 River Road
WIVENHOE

TAS 7320

June 20, 1986

Data entered
25/6/86

Dear Sir

RE: JOB COM860862

Enclosed are the assays for the samples delivered to our laboratory on June 10, 1986

Yours Sincerely,
COMLABS PTY LTD

per :

PR Harvey

Report Length 6 pages

730

598733

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ANALYTICAL REPORT

JOB COM860862
O/N : 907

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti
376020	40	40	36	<1	85	330	6000
376022	44	50	65	<1	95	360	5600
376024	75	44	80	<1	340	800	4400
376026	65	55	120	<1	180	510	3400
376028	44	48	50	<1	90	330	5850
376030	46	65	85	<1	120	410	4800
376032	75	46	70	<1	155	480	4750
376034	60	36	50	<1	80	310	5650
376036	40	40	44	<1	80	300	3750
376038	50	38	40	<1	90	340	5000
376040	38	46	75	<1	120	340	5300
376042	48	48	60	<1	110	340	6150
376044	55	46	46	<1	85	300	5700
376046	95	42	80	<1	175	510	5550
376048	80	40	60	<1	150	560	5400
376050	80	38	60	<1	200	700	5450
376052	65	22	55	<1	165	570	4550
376054	65	26	105	<1	210	450	4500
376056	65	30	70	<1	170	470	4600
376058	90	16	175	<1	180	470	4350
376060	55	36	185	<1	155	470	4000
376062	85	32	105	<1	190	540	4650
376064	60	42	210	<1	130	360	3800
376066	60	32	140	<1	120	430	4050
376068	48	28	115	<1	140	450	4400
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	COL4

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ANALYTICAL REPORT

JOB COM860862
O/N : 907

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti
376070	80	36	125	<1	175	530	4600
376072	16	16	38	<1	40	230	2900
376074	24	140	145	<1	26	42	3300
376076	8	22	36	<1	44	170	2650
376078	6	20	12	<1	20	145	2700
376080	8	36	14	<1	24	170	3050
376082	7	46	14	<1	32	185	2750
376084	8	32	20	<1	55	360	2450
376086	9	48	18	<1	44	180	2450
376088	8	30	20	<1	44	210	2600
376090	7	26	10	<1	26	180	2400
376092	6	38	12	<1	24	145	3000
376094	6	20	9	<1	22	140	3000
376096	10	16	10	<1	12	170	2800
376098	7	38	18	<1	22	220	2800
376100	4	8	5	<1	8	55	1900
376102	3	6	3	<1	10	48	1900
376104	3	6	5	<1	10	115	2250
376106	3	4	5	<1	6	75	2200
376108	3	6	8	<1	6	80	1850
376110	7	4	4	<1	8	125	1800
376112	4	<4	4	<1	8	105	780
376114	4	<4	5	<1	<4	30	470
376116	3	10	6	<1	6	95	1250
376118	4	<4	5	<1	8	130	1500
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	COL4

4

* STD.

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ANALYTICAL REPORT

JOB COM860862
O/N : 907

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti
376120	3	4	8	<1	8	75	2850
376122	3	6	5	<1	6	120	1750
376124	3	<4	5	<1	6	80	1700
376126	3	6	4	<1	6	80	2150
376128	3	6	5	<1	4	110	2350
376130	4	8	5	<1	6	100	2300
376132	4	8	5	<1	10	105	2700
376134	3	8	6	<1	6	115	2300
376136	2	4	4	<1	4	75	1800
376138	3	4	3	<1	6	100	2950
376140	5	8	4	<1	8	105	2450
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	COL4

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ANALYTICAL REPORT

JOB COM860862
O/N : 907

SAMPLE	As	Ba	Zr
376020	10	85	155
376022	16	100	155
376024	10	300	140
376026	7	240	130
376028	14	70	135
376030	8	200	135
376032	9	110	140
376034	2	75	145
376036	14	65	130
376038	8	100	120
376040	3	135	130
376042	9	110	150
376044	7	105	130
376046	12	135	135
376048	8	160	165
376050	7	195	165
376052	5	135	100
376054	8	135	120
376056	<2	105	115
376058	8	290	85
376060	7	190	95
376062	12	120	125
376064	8	230	95
376066	10	145	115
376068	10	130	100
UNITS	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1

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ANALYTICAL REPORT

JOB COM860862
O/N : 907

SAMPLE	As	Ba	Zr
376120	4	10	470
376122	<2	15	430
376124	6	15	550
376126	4	10	760
376128	2	40	730
376130	5	10	750
376132	4	<10	620
376134	3	10	530
376136	6	10	400
376138	<2	15	380
376140	5	<10	460
UNITS	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1

735 REPEATS 598738 (18)

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ANALYTICAL REPORT

JOB COMA860862 O/N : Repeat Assays

Results in ppm

SAMPLE	Ba	As	%Ti	Ni
376020	100	12	0.73	80
376022	90	12	0.68	95
376024	290	10	0.61	320
376026	250	12	0.56	170
376028	65	7	0.68	95
376030	195	8	0.55	115
376032	110	10	0.58	145
376034	75	12	0.63	75
376036	85	10	0.66	80
376038	100	8	0.61	90
376040	165	10	0.56	115
376042	120	12	0.69	100
376044	105	10	0.67	85
376046	155	12	0.57	145
376048	170	12	0.61	150
376050	190	8	0.61	190
376052	145	8	0.51	160
376054	150	10	0.55	185
376056	135	9	0.55	170
376058	320	12	0.49	140
376060	210	10	0.46	155
376062	135	8	0.54	180
376064	230	7	0.54	120
376066	160	10	0.60	115
376068	140	7	0.53	140

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ANALYTICAL REPORT

JOB COMA860862 O/N : Repeat Assays

Results in ppm

	SAMPLE	Ba	As	%Ti	Ni
	376070	150	7	0.53	140
	376072	260	8	0.32	32
*	376074	470	80	0.36	20
	376076	140	12	0.34	48
	376078	120	9	0.34	22
	376080	130	8	0.39	26
	376082	110	12	0.34	36
	376084	130	16	0.33	55
	376086	115	6	0.32	46
	376088	145	14	0.34	42
	376090	110	9	0.33	26
	376092	85	7	0.39	22
	376094	80	4	0.44	20
	376096	60	7	0.35	12
	376098	230	28	0.39	14
	376100	150	3	0.23	8
	376102	125	4	0.23	<4
	376104	160	5	0.28	6
	376106	65	5	0.27	8
	376108	18	6	0.23	<4
	376110	12	5	0.25	<4
	376112	<4	5	0.08	6
	376114	6	5	0.22	<4
	376116	12	5	0.16	6
	376118	12	6	0.21	12

.../ 3

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ANALYTICAL REPORT

JOB COMA860862 O/N : Repeat Assays

Results in ppm

SAMPLE	Ba	As	%Ti	Ni
376120	10	6	0.39	<4
376122	10	7	0.24	<4
376124	14	3	0.27	8
376126	8	4	0.29	10
376128	14	8	0.30	8
376130	12	7	0.30	10
376132	14	6	0.35	<
376134	8	4	0.32	8
376136	10	6	0.24	6
376138	30	4	0.36	10
376140	18	4	0.32	8

Method of Analysis : Ba As Ti : XRF1
Ni : AAS1B

MACK Southwell Prospect Soil. 598741 (19)

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305 South Road, Mile End South, South Australia 5031 Telephone (08) 43 5722 Telex LABCOM AA89323

NATA REGISTERED No. 1526

N.B. All repeats attached at rear. Unless otherwise stated repeat values supersede values in this report

OUR REF.: COM861001

YOUR REF.: 924

Mr. A. M. Hespe
Aberfoyle Exploration Pty. Ltd.
39 River Road
WIVENHOE

TAS 7320

July 24, 1986

Dear Sir

RE: JOB COM861001

Enclosed are the assays for the samples delivered to our laboratory on June 30, 1986

Yours Sincerely,
COMLABS PTY LTD

per :

Report Length 12 pages

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598742

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ANALYTICAL REPORT

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JOB COM861001
O/N : 924

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti
375898	48	32	24	<1	65	300	0.56
375900	65	36	42	<1	100	350	0.48
375902	22	24	30	<1	60	220	0.43
375904	22	30	44	<1	70	250	0.49
375906	30	55	90	<1	70	270	0.48
375908	42	110	95	1	85	290	0.46
375910	40	55	65	<1	70	260	0.48
375912	30	50	46	<1	65	170	0.47
375914	34	38	32	<1	65	195	0.44
375916	65	55	70	<1	95	280	0.53
375918	42	34	48	<1	80	250	0.41
375920	60	34	48	<1	65	175	0.47
375922	55	30	32	<1	50	105	0.49
375924	55	34	55	<1	50	90	0.47
375926	80	44	60	<1	130	490	0.47
375928	100	50	95	1	330	1400	0.57
375930	50	32	38	<1	135	670	0.55
375932	60	44	50	<1	110	350	0.54
375934	55	40	30	<1	130	670	0.58
375936	60	50	46	<1	115	450	0.42
375938	60	32	65	<1	175	360	0.36
375940	24	34	80	<1	130	490	0.37
375942	18	38	65	<1	105	360	0.45
375944	44	50	60	<1	90	280	0.46
375946	24	36	30	<1	70	290	0.57
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	%
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	COL4

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598743

COMLABS SERVICES PTY. LTD.

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ANALYTICAL REPORT

JOB COM861001
O/N :.924

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti
375948	20	170	90	<1	28	48	0.31 * STD. 4
375950	9	30	16	<1	30	135	0.21
375952	14	20	20	<1	60	195	0.24
375954	6	14	10	<1	32	140	0.17
375956	5	10	10	<1	32	135	0.22
375958	16	18	26	<1	75	250	0.22
375960	8	18	14	<1	65	195	0.33
375962	10	18	14	<1	55	170	0.37
375964	5	14	4	<1	40	120	0.37
375966	6	8	5	<1	26	130	0.57
375968	8	20	9	<1	50	190	0.16
375970	6	<4	5	<1	18	165	0.22
375972	7	28	22	<1	65	310	0.24
375974	5	16	6	<1	18	160	0.24
375976	4	6	7	<1	14	150	0.19
375978	5	<4	2	<1	10	140	0.11
375980	3	<4	3	<1	6	65	0.11
375982	3	<4	4	<1	6	48	0.15
375984	5	<4	7	<1	4	44	0.13
375986	3	<4	2	<1	6	65	0.22
375988	10	4	5	<1	4	48	0.30
375990	4	<4	2	<1	4	44	0.25
375992	4	<4	5	<1	<4	44	0.22
375994	20	4	10	<1	<4	38	0.14
375996	9	<4	5	<1	6	48	0.19
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	%
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	COL4

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ANALYTICAL REPORT

JOB COM861001
O/N : 924

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti
375998	5	<4	3	<1	8	50	0.26
376000	4	<4	<2	<1	6	42	0.25
376002	4	<4	4	<1	8	46	0.15
376004	5	<4	5	<1	<4	55	0.21
376006	9	<4	5	<1	<4	48	0.25
376008	3	<4	3	<1	6	50	0.21
376010	4	<4	<2	<1	6	48	0.20
376012	4	<4	4	<1	6	42	0.20
376014	4	<4	4	<1	4	40	0.21
376016	5	<4	<2	<1	6	46	0.21
376018	5	<4	2	<1	6	48	0.24
376142	38	20	95	1	190	530	0.33
376144	44	16	38	1	130	370	0.41
376146	44	14	60	<1	210	440	0.39
376148	34	24	26	<1	130	330	0.38
376150	30	24	22	<1	90	270	0.35
376152	24	14	22	<1	70	230	0.34
376154	30	18	32	<1	75	290	0.34
376156	12	14	12	<1	38	155	0.67
376158	28	28	30	<1	85	300	0.61
376160	46	30	48	<1	155	430	0.47
376162	55	34	80	<1	170	470	0.48
376164	70	18	42	<1	170	480	0.42
376166	65	30	46	<1	145	420	0.47
376168	26	20	36	<1	90	300	0.48
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	%
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	COL4

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ANALYTICAL REPORT

JOB COM861001
O/N : 924

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti
376170	32	20	42	<1	75	260	0.43
376172	40	24	130	<1	120	330	0.46
376174	26	22	48	<1	95	350	0.44
376176	55	14	50	<1	75	290	0.29
376178	48	16	46	<1	120	370	0.37
376180	70	26	60	<1	150	400	0.34
376182	65	18	55	1	125	370	0.43
376184	44	22	60	<1	130	360	0.44
376186	16	12	20	<1	28	110	0.39
376188	28	20	32	<1	70	250	0.49
376190	14	14	70	<1	85	300	0.19
376192	14	14	36	<1	46	220	0.25
376194	8	28	26	<1	26	120	0.15
376196	4	8	12	<1	16	120	0.13
376198	4	8	9	<1	4	46	0.33
376200	5	6	10	<1	4	60	0.22
376202	3	6	8	<1	4	24	0.28
376204	3	<4	10	<1	6	20	0.29
376206	3	14	18	<1	<4	40	0.25
376208	3	4	12	<1	<4	50	0.38
376210	4	8	10	<1	10	65	0.34
376212	6	24	20	<1	16	90	0.40
376214	4	8	6	<1	10	44	0.38
376220	60	30	200	<1	110	370	0.27
376222	95	55	220	<1	100	350	0.31
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	%
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	COL4

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ANALYTICAL REPORT

JOB COM861001
O/N : 924

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti
376224	75	60	90	<1	95	380	0.42
376226	65	28	90	1	95	420	0.34
376228	80	20	90	<1	130	470	0.31
376230	70	14	65	<1	100	390	0.28
376232	48	22	90	<1	100	380	0.40
376234	30	32	180	<1	145	310	0.30
376236	40	16	50	<1	100	280	0.33
376238	55	30	85	<1	140	290	0.38
376240	26	32	85	<1	90	210	0.33
376242	38	34	95	<1	100	300	0.37
376244	55	28	75	<1	95	300	0.41
376246	50	34	44	1	90	320	0.50
376248	65	36	24	<1	145	500	0.40
376250	85	28	50	<1	150	530	0.34
376252	55	20	38	<1	130	410	0.41
376254	65	28	50	1	120	430	0.38
376256	60	24	60	<1	105	370	0.46
376258	30	30	40	<1	105	280	0.18
376260	16	14	36	<1	65	250	0.24
376262	5	16	9	<1	14	125	0.15
376264	16	22	36	<1	42	185	0.22
376266	26	140	115	1	26	40	0.25 * STD. 4)
376268	9	16	34	<1	65	220	0.12
376270	6	20	9	<1	16	195	0.07
376272	10	12	20	<1	38	145	0.11
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	%
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	COL4

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ANALYTICAL REPORT

JOB COM861001
O/N : 924

SAMPLE	Cu	Pb	Zn	Ag	Ni	Cr	Ti
376274	6	4	10	<1	26	125	0.27
376276	5	4	10	<1	55	185	0.22
376278	2	4	4	<1	10	32	0.14
376280	2	4	4	<1	10	22	0.13
376282	2	<4	10	<1	10	30	0.17
376284	2	<4	4	<1	10	24	0.13
376286	7	18	16	<1	38	120	0.19
376288	20	125	90	<1	18	34	0.34 * STD.
376290	4	8	12	<1	8	46	0.37
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	%
SCHEME	AAS1	AAS1	AAS1	AAS3	AAS1B	AAS1B	COL4

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ANALYTICAL REPORT

JOB COM861001
O/N : 924

SAMPLE	As	Ba	Zr
375898	10	75	120
375900	2	140	120
375902	<2	160	120
375904	4	220	125
375906	9	310	110
375908	4	220	120
375910	9	120	120
375912	8	130	90
375914	<2	100	120
375916	8	110	120
375918	6	70	105
375920	14	70	115
375922	8	115	115
375924	6	95	120
375926	24	125	155
375928	14	120	230
375930	8	55	185
375932	3	90	150
375934	16	95	190
375936	9	70	155
375938	6	195	95
375940	10	230	95
375942	<2	195	140
375944	3	110	135
375946	10	55	145
UNITS	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1

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ANALYTICAL REPORT

JOB COM861001
O/N :-924

SAMPLE	As	Ba	Zr
375948	65	410	195 * STD. 4
375950	4	70	140
375952	4	115	140
375954	3	70	150
375956	7	90	170
375958	12	130	130
375960	9	130	165
375962	18	165	190
375964	5	90	200
375966	2	75	185
375968	9	100	195
375970	4	115	190
375972	10	140	150
375974	10	135	230
375976	8	90	165
375978	7	80	165
375980	3	75	155
375982	3	10	250
375984	6	10	270
375986	4	10	300
375988	5	30	380
375990	5	10	310
375992	5	15	310
375994	<2	10	320
375996	6	10	380
UNITS	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1

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ANALYTICAL REPORT

JOB COM861001
O/N :-924

SAMPLE	As	Ba	Zr
375998	9	15	660
376000	4	15	620
376002	4	10	630
376004	3	15	610
376006	5	15	610
376008	7	10	410
376010	3	10	400
376012	6	15	440
376014	6	10	380
376016	5	10	350
376018	<2	10	320
376142	18	370	80
376144	14	60	95
376146	10	140	85
376148	9	55	110
376150	9	60	110
376152	7	25	90
376154	6	100	85
376156	7	35	150
376158	12	55	155
376160	7	70	145
376162	20	155	110
376164	14	90	100
376166	8	105	155
376168	5	95	130
UNITS	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1

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598751

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ANALYTICAL REPORT

JOB COM861001
O/N : 924

SAMPLE	As	Ba	Zr
376170	3	90	95
376172	5	200	100
376174	8	90	115
376176	6	90	65
376178	9	80	75
376180	10	95	90
376182	7	115	90
376184	8	140	100
376186	9	115	185
376188	8	110	120
376190	12	260	145
376192	18	110	120
376194	12	290	155
376196	3	190	210
376198	<2	70	210
376200	2	120	180
376202	<2	185	210
376204	2	180	200
376206	5	90	250
376208	12	45	230
376210	5	155	200
376212	<2	170	180
376214	4	155	175
376220	8	960	46
376222	5	400	60
UNITS	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1

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ANALYTICAL REPORT

JOB COM861001
O/N : 924

SAMPLE	As	Ba	Zr
376224	7	190	85
376226	9	115	80
376228	8	140	60
376230	10	145	60
376232	9	70	100
376234	<2	300	80
376236	<2	175	95
376238	14	360	90
376240	4	90	80
376242	10	130	100
376244	12	70	110
376246	6	85	105
376248	4	70	100
376250	<2	125	100
376252	20	70	110
376254	3	85	110
376256	12	110	125
376258	20	240	140
376260	18	180	100
376262	7	75	220
376264	6	100	155
376266	85	410	200
376268	<2	150	150
376270	5	175	175
376272	<2	210	115
UNITS	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1

* STD 4?

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ANALYTICAL REPORT

JOB C0M861001
O/N : 924

SAMPLE	As	Ba	Zr	
376274	2	165	140	
376276	2	280	190	
376278	<2	135	195	
376280	2	175	175	
376282	<2	160	200	
376284	<2	175	170	
376286	10	135	175	
376288	90	390	200	* STD. 4
376290	5	95	145	
UNITS	ppm	ppm	ppm	
SCHEME	XRF1	XRF1	XRF1	

751 REPEATS

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598754

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ANALYTICAL REPORT

JOB COMA861001 O/N : Repeat Assays

Results in ppm

SAMPLE	Ba	%Ti	Ni
375898	75	0.50	80
375900	110	0.46	110
375902	160	0.46	55
375904	230	0.56	55
375906	270	0.60	70
375908	220	0.66	65
375910	85	0.59	60
375912	130	0.49	60
375914	95	0.67	60
375916	140	0.49	100
375918	65	0.45	65
375920	75	0.63	55
375922	125	0.67	44
375924	100	0.63	38
375926	135	0.51	130
375928	135	0.60	330
375930	70	0.59	100
375932	105	0.49	110
375934	110	0.56	120
375936	70	0.49	110
375938	240	0.31	180
375940	230	0.30	180
375942	180	0.54	90
375944	100	0.45	85
375946	60	0.53	70

.../ 2

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ANALYTICAL REPORT

JOB COMA861001 O/N : Repeat Assays

Results in ppm

	SAMPLE	Ba	%Ti	Ni
*	375948	380	0.38	10
	375950	85	0.32	26
	375952	110	0.32	50
	375954	105	0.29	36
	375956	105	0.31	32
	375958	175	0.34	60
	375960	155	0.34	55
	375962	220	0.42	48
	375964	95	0.36	36
	375966	55	0.31	26
	375968	100	0.31	50
	375970	125	0.35	8
	375972	140	0.34	60
	375974	130	0.44	8
	375976	100	0.26	6
	375978	95	0.25	6
	375980	70	0.22	<4
	375982	14	0.20	<4
	375984	20	0.19	<4
	375986	14	0.25	<4
	375988	32	0.35	<4
	375990	18	0.31	<4
	375992	22	0.27	<4
	375994	14	0.22	<4
	375996	16	0.34	<4

.../ 3

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ANALYTICAL REPORT

JOB COMA861001 O/N : Repeat Assays

Results in ppm

SAMPLE	Ba	%Ti	Ni
375998	14	0.43	<4
376000	10	0.34	<4
376002	12	0.32	<4
376004	12	0.27	<4
376006	18	0.37	<4
376008	20	0.37	<4
376010	22	0.30	<4
376012	14	0.34	<4
376014	14	0.35	<4
376016	12	0.31	<4
376018	12	0.30	<4
376142	450	0.40	180
376144	65	0.52	110
376146	170	0.45	200
376148	60	0.57	120
376150	60	0.55	85
376152	42	0.45	60
376154	90	0.51	70
376156	40	0.68	32
376158	65	0.74	75
376160	85	0.73	150
376162	200	0.57	150
376164	105	0.39	160
376166	120	0.49	130
376168	115	0.59	85

.../ 4

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ANALYTICAL REPORT

JOB COMA861001 O/N : Repeat Assays

Results in ppm

SAMPLE	Ba	%Ti	Ni
376170	110	0.54	70
376172	210	0.52	95
376174	110	0.68	75
376176	120	0.39	70
376178	115	0.44	120
376180	140	0.49	140
376182	140	0.53	110
376184	155	0.49	120
376186	175	0.44	26
376188	145	0.52	70
376190	310	0.34	65
376192	125	0.41	28
376194	310	0.27	<4
376196	230	0.31	<4
376198	100	0.17	8
376200	165	0.15	<4
376202	220	0.17	4
376204	250	0.18	<4
376206	105	0.21	<4
376208	50	0.26	<4
376210	175	0.22	<4
376212	210	0.23	<4
376214	175	0.16	<4
376220	1000	0.37	95
376222	440	0.39	90

.../ 5

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ANALYTICAL REPORT

JOB COMA861001 O/N : Repeat Assays

Results in ppm

	SAMPLE	Ba	%Ti	Ni
	376224	180	0.55	85
	376226	125	0.38	85
	376228	175	0.33	100
	376230	175	0.44	100
	376232	100	0.51	90
	376234	310	0.38	130
	376236	200	0.43	90
	376238	370	0.30	120
	376240	130	0.37	75
	376242	160	0.54	90
	376244	90	0.59	85
	376246	115	0.65	75
	376248	90	0.39	120
	376250	145	0.41	125
	376252	95	0.45	120
	376254	115	0.45	110
	376256	115	0.61	110
	376258	240	0.31	95
	376260	200	0.35	60
	376262	95	0.39	12
	376264	110	0.34	38
*	376266	480	0.37	16
	376268	165	0.26	75
	376270	180	0.31	<4
	376272	200	0.29	38

.../ 6

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ANALYTICAL REPORT

JOB COMA861001 O/N : Repeat Assays

Results in ppm

SAMPLE	Ba	%Ti	Ni
376274	200	0.42	30
376276	260	0.39	60
376278	135	0.15	14
376280	185	0.14	12
376282	160	0.17	14
376284	170	0.14	16
376286	165	0.23	32
376288	480	0.38	26
376290	95	0.38	10

Method of Analysis : Ba Ti : XRF1
Ni : AAS1

598760

APPENDIX 23.

598761

MT. CRIPPS FAULT AREA

MACK. E.L.

NOV. 87 (N. POLTOCK) (1)

758

Wachee Samples.

Grid Coord	Sample No.	Description.
9000N 7000E	395108	Rhyolitic volcaniclastic.
7025	109	"
7050	110	"
7075	111	"
7100	112	"
7125	113	"
7150	114	"
7175	115	"
7200	116	"
7225	117	"
7250	118	"
7275	119	"
7300	120	"
7325	121	"
7350	122	"
7375	123	"
7400	124	nil bedrock
7425	125	nil bedrock
7450	126	Dacitic lava.
7475	127	Rhyolitic volcl + Andesitic dyke.
7500	128	Volcaniclastic
7525	129	Nil bedrock.
7550	130	Volcaniclastic.
7575	131	? Dacite
7600	395 132	nil bedrock
7625	395 501	?
7650	502	?
7675	503	? dacite
8000N 7000E	504	Rhyolitic volcl.
7025	505	Rhyolitic volcl
7050	506	Rhyolitic volcl
7075	507	Rhyolitic volcl.
8800N 7000E	395 308	Dacitic lava
7025	309	? Dacitic lava
7050	310	Dacitic lava
7075	311	Rhyolitic lava
7100	312	Dacitic lava
7125	313	Dacitic lava
7150	314	Rhyodacite lava
7175	315	lava?
7200	316	Rhyolitic volcaniclastic
7225	317	Basaltic lava?
7250	318	Basaltic lava?
7275	319	Dacitic lava
7400	320	nil bedrock
7425	321	nil bedrock
7450	322	nil bedrock
7475	323	limestone
7500	324	Nil bedrock
7525	395 325	Nil bedrock.
7550	395 101	nil bedrock.
7575	102	nil bedrock.
8600N 7000E	103	Dacitic lava.
7025	104	Dacitic lava
7050	105	Dacitic lava
7075	106	Basalt lava
7100E	395 107	Basalt lava

TOTAL: 51 samples.

759

598762 MACK. E.L. (1)

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.
Phone (09) 458 7999 52 Murray Road, Welshpool, W.A. 6106 Telex AA92560
FAX: 004 31 8890

ANALYTICAL REPORT No. 23.3.08.04973

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

Aberfolye Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

ORDER No.	PROJECT
2636	EL 2621

DATE RECEIVED	RESULTS REQUIRED
03/12/87	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
6	15/12/87	1	57

STATE OF SAMPLES	PRE-TREATMENT								ANALYSIS		
REFER BELOW	SAMPLE NUMBERS	DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	395101/132,395301/325	So	Prep: 016						Cu,Pb,Zn,Ag,Ni/101,As/114		
	395101/132,395301/325	Pu							Ba,Cr,Zr,Ti/401		

RESULTS TO

Aberfolye Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

RESULTS TO

REMARKS

MT. CRIPPS FAULT AREA

WACKA SAMPLES

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04973	16/12/87	2636	1 OF 6

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ba	As	Cr	Ni	Zr
1	395101	55	130	895	0.5	260	71	120	95	130
2	395102	30	65	80	0.5	720	7	85	35	230
3	395103	70	25	35	<0.5	580	19	500	90	210
4	395104	55	15	20	0.5	550	38	570	60	200
5	395105	105	35	220	1.5	1550	12	610	200	95
6	395106	145	55	115	0.5	630	13	680	145	95
7	395107	105	5	30	<0.5	1100	6	530	240	85
8	395108	25	15	25	1.5	500	16	90	35	200
9	395109	10	30	25	<0.5	340	10	40	30	170
10	395110	<5	10	15	1.5	310	5	55	25	180
11	395111	10	20	20	0.5	300	6	20	30	200
12	395112	<5	<5	15	1.0	250	1	40	20	130
13	395113	<5	5	70	<0.5	340	2	10	30	190
14	395114	<5	5	15	<0.5	400	<1	25	20	190
15	395115	<5	<5	15	<0.5	280	2	<5	10	160
16	395116	<5	10	5	<0.5	330	<1	30	10	360
17	395117	<5	<5	15	<0.5	300	1	8	20	180
18	395118	<5	20	20	1.0	340	3	60	20	150
19	395119	<5	5	15	1.0	300	2	15	15	170
20	395120	20	5	95	<0.5	440	3	110	50	150
21	395121	25	50	50	1.0	500	2	75	45	140
22	395122	30	25	75	1.0	440	10	300	75	180
23	395123	15	50	20	<0.5	750	4	95	30	140
24	395124	10	10	40	<0.5	310	4	120	25	190
25	395125	30	110	390	1.0	270	22	130	65	230

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04973	16/12/87	2636	2 OF 6

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ba	As	Cr	Ni	Zr
1	395126	35	130	310	1.0	270	15	120	65	220
2	395127	25	25	75	1.5	570	4	220	75	160
3	395128	30	65	120	0.5	1000	4	140	40	180
4	395129	30	110	75	1.0	630	3	160	45	230
5	395130	35	90	270	1.5	910	54	110	55	180
6	395131	30	270	240	1.0	480	32	130	50	210
7	395132	10	40	20	<0.5	420	2	100	25	200
8	395301	40	95	120	0.5	810	7	140	40	200
9	395302	15	25	45	<0.5	460	9	370	70	190
10	395303	55	35	100	1.0	600	27	440	95	210
11	395304	60	35	120	1.0	1000	9	500	120	190
12	395305	25	20	20	1.0	540	13	95	25	180
13	395306	15	<5	20	<0.5	360	12	30	25	150
14	395307	25	10	70	<0.5	780	5	880	70	180
15	395308	20	40	65	<0.5	740	7	500	55	190
16	395309	15	10	40	<0.5	580	10	55	30	130
17	395310	25	15	20	1.0	500	8	160	30	190
18	395311	5	55	10	<0.5	550	12	40	20	180
19	395312	15	20	15	0.5	350	5	20	20	140
20	395313	90	90	55	0.5	620	71	160	45	140
21	395314	10	25	55	<0.5	310	23	30	35	180
22	395315	15	<5	25	<0.5	520	18	40	30	170
23	395316	<5	<5	10	<0.5	300	2	<5	5	170
24	395317	25	50	235	<0.5	320	33	110	60	220
25	395318	45	100	660	<0.5	6500	20	85	230	160

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04973	16/12/87	2636	3 OF 6

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ba	As	Cr	Ni	Zr
1	395319	45	95	340	<0.5	630	51	100	120	230
2	395320	30	55	85	<0.5	710	13	110	35	210
3	395321	25	60	290	<0.5	480	83	85	55	190
4	395322	35	75	925	<0.5	4250	34	85	375	190
5	395323	20	45	380	<0.5	1750	22	35	155	100
6	395324	40	100	510	1.0	360	69	95	95	180
7	395325	25	110	470	<0.5	270	210	100	70	210
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	10	1	5	5	5
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	101	101	401	114	401	101	401

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04973	16/12/87	2636	4 OF 6

TUBE No.	SAMPLE No.	Ti
1	395101	3600
2	395102	3500
3	395103	5200
4	395104	4350
5	395105	3350
6	395106	3500
7	395107	3150
8	395108	1950
9	395109	2100
10	395110	2400
11	395111	1850
12	395112	1550
13	395113	1600
14	395114	1550
15	395115	880
16	395116	1650
17	395117	1300
18	395118	2550
19	395119	1750
20	395120	2150
21	395121	1900
22	395122	3100
23	395123	2150
24	395124	3500
25	395125	5450

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04973	16/12/87	2636	5 OF 6

TUBE No.	SAMPLE No.	Ti
1	395126	5350
2	395127	3100
3	395128	3900
4	395129	4850
5	395130	3700
6	395131	4300
7	395132	4550
8	395301	3950
9	395302	5350
10	395303	4800
11	395304	4700
12	395305	2400
13	395306	1000
14	395307	4800
15	395308	2900
16	395309	1250
17	395310	2400
18	395311	1200
19	395312	1000
20	395313	4750
21	395314	1650
22	395315	2050
23	395316	1250
24	395317	4350
25	395318	4600

Results in ppm unless otherwise specified
T = element present; but *concentration too low to measure*
X = element concentration is below detection limit
— = element not determined

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598768

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04973	16/12/87	2636	6 OF 6

TUBE No.	SAMPLE No.	Ti
1	395319	4900
2	395320	3700
3	395321	3750
4	395322	4650
5	395323	2250
6	395324	4850
7	395325	3850
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23	DETECTION	50
24	UNITS	PPM
25	METHOD	401

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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598769

APPENDIX 24.

598770

BARITE CREEK

Sample No.	Co-ordinates		Description
271423 P	5000N	6029E	gn l
271424 P	5000N	6878E	gy bd mudstone
271425 G,P	4803N	6780E	gy B
271426 P	4814N	6780E	Qtz
271427 G,P	4800N	6770E	fp A
271428 G	4800N	6305E	rd wth B
271429 P	4800N	6108E	wh Qtz (Ord)
271430 P	5035N	5095E	Y lv
271431 P	4995N	4430E	shd gn vlc
271432 G,P	5350N	6000E	shd rd B
271433 G,P	4350N	6000E	Fp A
271434 P	5475N	6000E	Rhyolite (intrusive?)
271435 G,P	5475N	5975E	Fp A
271436 P	5600N	6075E	gy B
271437 G	5600N	6190E	shd R/D
271438 P	5600N	6375E	R
271439 G,P	5400N	6035E	B
271440 G,P	4620N	6000E	B
271441 G,P	3840N	6000E	B
271442 G,P	3755N	6000E	B
271443 G,P	3625N	6000E	B
271444 P	3600N	6150E	ft t
271445 G,P	3800N	6075E	Fp A
271446 G	4000N	6196E	wth or B
271447 P	4000N	6475E	Qtz (Fu)
271448 G	4400N	6035E	rd + gn t
271449 P	4400N	6035E	rd + gn t
271450 P	4400N	6100E	B
271451 P	4400N	6235E	Shale
271452 P	4400N	6255E	Fp B
271453 P	4400N	6275E	Mic Ss
271454 P	4400N	6350E	Fp A
271455 P	4600N	6360E	rd mudstone
271456 G	4980N	4470E	D/R
271457 G	4910N	4715E	mas gn B
271458 G	4880N	4840E	R (int)
271459 P	4990N	4970E	gy B mnr epi (Y) + glass fr
271460 G	5080N	5230E	A? - R
271461 P	5095N	5325E	A partly Fp some Y
271462 G	5120N	5410E	gn A lv
271463 G	5115N	5550E	gn A
271464 G	5100N	5615E	B/Se
271465 G	5050N	5710E	B?/patchy Se
271466 G	5060N	5820E	rd B
271467 G	5050N	5880E	rd + bk B
271468 G	5005N	5950E	B
271469 P	+5300N	6100E	Pyritic B scree
	Barite Creek Scree		

MACK

768

598771

Central Mineralogical Services

39 Beulah Road
Norwood, S.A. 5067
Telephone 42 5659

Mr. D.J. Jack
Geologist
Aberfoyle Resources Ltd.
Exploration Division
P.O. Box 952
BURNIE / TAS. 7320

23rd December, 1986

REPORT CMS 86/11/14

YOUR REFERENCE:	Letter dated 10.11.1986
DATE RECEIVED:	14th November, 1986
SAMPLE NOS.:	32 Samples
SUBMITTED BY:	D.J. Jack
WORK REQUESTED:	Petrology

Burie Ck.
Rock chips

H.W. Fander, M. Sc.

Copy to:
The Chief Geologist
Aberfoyle Resources Ltd.
Exploration Division
123, Camberwell Road
HAWTHORN EAST / VIC. 3123

598772

REPORT CMS 86/11/14

Thirty-two rock samples from the Barite Creek Grid were received for routine petrological examination. Representative thin-sections were prepared and examined in transmitted and oblique incident light, supplemented by stain tests on offcuts, where warranted. Attached tabulated descriptions summarise the microscopic data and include interpretative comments.

Summary

This suite is a composite of altered volcanics and quartzose-micaceous sedimentary rocks. Volcanics range from basic to acid and are analogous to those developed in the Que-Hellyer area. In comparison, however, rhyolitic facies appear relatively conspicuous, although this may reflect sampling.

Sediments are typified by micaceous quartzites grading into protoquartzite and relatively micaceous pelitic facies. These rocks are non-tuffaceous, but may include minor reworked volcanic components. In this sense, these rocks may be contrasted with similar quartzose-micaceous psammopelitic facies developed at the Boundary Prospect (CMS 86/11/12), which are typically distinctly tuffaceous in comparison.

D. Cowan, B. Sc.

598773

Sample No.	Classification - Composition	Fabric	Accessories	Comments
271423 (T.S. 56965)	Amygdaloidal Basalt. Actinolite-chlorite-pseudomorphed pyroxene phenocrysts and quartz micro-amygdales in a groundmass of uralitised pyroxene and subordinate sericitised feldspar laths; epidote-stained chloritic mesostasis.	Coarsely porphyritic/ finely amygdaloidal, flow-structured, basaltic.	Variably oxidised magnetite; minor epidotised feldspar phenocrysts.	Primarily a strongly pyroxenic basalt with affinities to the Hellyer basalts. Reflects a relatively high-grade "uralitic" alteration assemblage.
271424	Mica Siltstone. Fine silt-sized, partly degraded white mica flakes, subordinate to minor silt- to locally fine sand-sized quartz grains with a semi-sericitic white mica matrix, minor shale partings.	Silty shale-parted fine-grained siltstone with minor fine sandy quartzose partings.	Minor clastic leucoxenic semi-opaques, traces of carbonaceous matter.	Fine-grained micaceous pelite with a minor quartz sand component concentrated in thin bands. Exhibits lacustrine bedding/sorting characteristics.
271425	Basaltic Breccia. Clasts of silicified ?orthopyroxene/weakly augite-porphyritic, albitised feldspar-microlathic, chloritic glass-mesostasised lava with varying proportions sericitised phenocrystal feldspar. Chloritic impure chert matrix/cement.	Weakly flow-structured, psammite to lapilli grade, lithoclastic. Locally crustiform matrix.	Traces magnetite, apatite. Sporadic albite-epidote-quartz amygdales. Traces of pyrite, pale sphalerite.	Impure chert-cemented subaqueous basaltic flow-breccia characteristics Sulphides concentrated in amygdales and altered pyroxene phenocrysts.
271426	Sericitic Orthoquartzite. Framework of subangular to subround quartz grains, minor angular quartizte clasts. Fine to microcrystalline quartz cement with disseminations, minor clots of sericite.	Poorly sorted, gritty, fine to medium sandstone. Unbedded (?slumped). Stressed.	Minor detrital sericitised feldspar, leucoxenic semi-opaques, zircons.	Slightly impure (weakly sericitised-feldspathic) orthoquartzite or "quartz pebble sandstone". Marked and pervasive stress effects.
271427	Amygdaloidal Basalt. Saussuritised feldspar and fresh to chloritic pigeonitic augite phenocrysts, sporadic chlorite-quartz amygdales. Albitised plagioclase-microlathic/ epidote-stained chloritic mesostasised groundmass.	Flow-textured, porphyritic/ trend glomeroporphyritic, amygdaloidal, basaltic. Locally brecciated/ chert-cemented.	Minor leucoxenised opaques, rare ultrafine pyrite. Minor chloritised phenocrystal ?orthopyroxene.	Massive to flow-brecciated/chert-cemented, amygdaloidal pyroxenic basalt. Close compositional affinities with 271423, 271425.
271429	Quartz-Mica Sandstone. Framework of subangular quartz grains, subordinate muscovite flakes. Overgrowth/subordinate intergranular quartz cement.	Moderately well-sorted, weakly banded silty fine sandstone. Mildly stressed.	Minor medium sand-sized quartzite clasts. Traces tourmaline, zircon, leucoxene, chloritised biotite.	Affinities with 271426; distinctly micaceous in comparison. Strictly a low-grade regional metaquartzite. Tourmaline is marginal metasomatic in part.
271430	Polymict Grit. Framework of sericitic pelite, sericitised andesitic/subordinate dacitic lava, and impure chert/cherty argillite clasts, quartz grains, minor quartz-mica sandstone clasts. Sericite-quartz matrix.	Poorly sorted/weakly bedded, angular-subangular, clastic. Incipiently sheared.	Oxidised/leucoxenised clastic opaques, traces detrital chromite. Secondary kaolin, Fe-stainings.	Polymict pebbly grit/sand-supported conglomerate. Reflects sericitic alteration and mild shearing effects, but essentially unmetamorphosed.
271431	Amygdaloidal Andesite. Sericitised feldspar and silicified ferromagnesian phenorysts, quartz micro-amygdales in a pervasively sericitised/mildly silicified groundmass.	Finely porphyritic/ micro-amygdaloidal, flow-structured, with a phyllitic overprint.	Leucoxenised opaques. Thinly disseminated fine oxidised pyrite euhedra (limonite, jarosite-pseudomorphed).	Pervasively sericite-quartz-altered and "phyllitised" lava, interpreted as andesitic on relict textural/ compositional features.

ample No.	Classification - Composition	Fabric 598774	Accessories	Comments
271432	Rhyolitic Tuff. Sericitised, featureless to quartz-porphyritic lithic clasts, sporadic quartz and sericitised feldspar crystals/ crystal fragments in a matrix of sericite/ minor intergrown microcrystalline quartz.	Poorly sorted psammite-grade lithic-crystal fragmental. Sheared/ phyllitic matrix.	Clots of degraded/ ferruginised feldspar-replacive carbonate. Leucoxenised opaques. Trace fine oxidised pyrite.	Thoroughly sericitised/weakly carbonated and pyritised lithic-crystal or lithic-vitric-crystal tuff; distinctly rhyolitic relict characteristics.
271433	Rhyolitic Breccia. Sericite- and subordinate quartz-sericite-pseudomorphed feldspar, frequent quartz phenocrysts.Groundmass/ irregularly distributed matrix of sericite, varying proportions of chlorite, minor microcrystalline quartz.	Psammite to agglomerate grade, flow-structured, lithoclastic. Mildly phyllitic matrix.	Minor quartz-chlorite-pseudomorphed ferromags, leucoxenised opaques, rare ?chromiferous magnetite.	Quartz-sericite-chlorite-altered acid lava flow breccia or, conceivably a thoroughly welded tuff (locally vaguely shardy). Possibly strictly rhyodacitic.
271434	Felsite. Sericite-stained felsitic quartz and sericitised feldspar with disseminated sericite-pseudomorphed feldspar phenocrysts, quartz microphenocrysts, sporadic quartz micro-amygdales, veinlets.	Porphyritic, micro-amygdaloidal, felsitic. Weakly flow-banded. Weakly sheared/ phyllitic.	Minor sericitised/ leucoxene-stained ?biotite, leucoxenised opaques, oxidised (pressure-shadowed) pyrite.	"Rhyolitic" felsite, pervasively sericite(-quartz) altered and mildly sheared. Conceivably a minor intrusive; dependent on field relationships.
271435	Rhyolite. Frequent sericitic albite and mildly corroded quartz phenocrysts in an altered groundmass of chlorite,sericite, minor microcrystalline quartz. Sporadic displacive sericite and quartz veinlets.	Strongly porphyritic with a featureless to locally vaguely eutaxite-like groundmass.Weakly sheared.	Oxidised/leucoxenised opaques. Late quartz (-albite-chlorite)vein with oxidised carbonate, trace oxidised pyrite.	Similarities with 271433 and similarly conceivably welded-tuffaceous; relatively massive, porphyritic and sodic in comparison.
271436	Quartz-Sericite Phyllite. Relict framework of subangular quartz and sericitised feldspar grains, subordinate sericitic pelite and carbonaceous pelite clasts, muscovite flakes. Sericite matrix.Sporadic sericitic quartz veinlets.	Phyllitic/relict,poorly sorted (silty fine to medium),sandy clastic. Mildly stressed veinlets.	Detrital leucoxene, schorl, apatite, zircon, chromite. Traces oxidised carbonate in, marginal to, veinlets.	Low-grade metamorphic or shear-proximal quartzose polymict argillaceous sandstone. No tangible tuffaceous features. Affinities with 271429.
271438	"Rhyolitic" Tuff. Sericite with minor intergrown microcrystalline quartz; disseminated splintery to subangular, silt- to fine sand-sized quartz grains, minor clasts of carbonaceous pelite.	Weakly sheared/micro-crenulated. Pervasive vague random shardy microtextures.	Conspicuous fine leucoxenic semi-opaques. Rare chalcedonic ?radiolaria and spicule fragments.Traces chlorite.	Relict features consistent with a broadly rhyolitic, subaqueously deposited vitric-crystal tuff; possibly subaerially transported.
271439	Basaltic "Breccia". Clasts of augite-, silicified ?orthopyroxene-, sericitised feldspar-porphyritic/variably quartz-chlorite-amygdaloidal glassy basalt with a semi-pervasive cherty quartz matrix.	Chert-cemented to locally moulded, poorly sorted, angular, lithoclastic.	Semi-pervasive films/ replacive aggregates of, prehnite. Minor traces of chromite, chalcopyrite.	Subaqueous basaltic lithic breccia (agglomeratic tuff) with marked chlorite-sericite-quartz alteration, complexed by late replacive prehnite.
271440	Basalt Breccia. Clasts of weakly augite-porphyritic, albitised plagioclase-microlathic, glass-mesostasised lava in a matrix of weakly feldspar-microlathic chloritic glassy lava.	Random, irregular, flow-structured basaltic clasts, featureless to basaltic microtextured matrix.	Minor chlorite amygdales. Semi-pervasive ultra-fine cloudy epidote. Sporadic veinlets, clots of prehnite.	Lava-matrixed basalt breccia with flow-marginal characteristics. Extensively chlorite-epidote-albite-altered, with minor late prehnite.

598775

Sample No.	Classification - Composition	Fabric	Accessories	Comments
271441	Basaltic Tuff. Framework of variously epidote-chlorite-altered to microcrystalline albite-pseudomorphed, weakly albite-saussurite (plagioclase) and epidote (pyroxene) porphyritic lava clasts. Replacive microcrystalline albite matrix.	Random, angular, sub millimetric to centimetric, basaltic-textured clasts; corrosive/replacive matrix.	Traces magnetite (chromiferous) and leucoxenised opaques. Minor matrix and replacive extensive albitisation. Minor late quartz. clots of prehnite.	Basaltic, subaqueous lithic tuff with a closely packed angular framework partly obscured mesoscopically by
271442	Andesitic Breccia. Clasts of sericitic/albitised plagioclase-, silicified pyroxene-porphyritic, quartz-albite-amygdaloidal, albite-microlitic, chlorite-mesostasised lava. Weakly replacive matrix, veinlets of microcrystalline quartz.	Submillimetric to centimetric, moulded to quartz-cemented, sub-trachytic-microtextured clasts.	Leucoxenised opaques, traces variably leucoxenic magnetite.	Distinctly andesitic characteristics in comparison with 271439 and 271440, and chlorite-albite-sericite-quartz-altered in contrast. Flow-marginal?
271443	Andesitic Breccia. Clasts of albitised plagioclase, weakly pyroxene (silicified) porphyritic quartz-chlorite-amygdaloidal, chlorite-mesostasised, sericitised feldspar-microlitic lava. Sericitic microcrystalline albite matrix. Late vugs of chalcedony.	Similar to 271442; relatively trachytic, relatively corrosive/replacive matrix.	Leucoxenised opaques, minor traces of pyrite, rare chalcopyrite.	Affinities with 271442; similarly altered, but with a corrosive sericitic albite matrix, supplemented by late replacive clots of chalcedonic quartz.
271444	Andesitic Tuff. Montmorillonitic clay aggregates with interspersed clots of microcrystalline quartz, partly degraded/argillised feldspar-replacive albite, clots/lenses of chlorite.	Sheared/crudely phyllitic, vaguely relict sandy clastic/lithic-crystal fragmental.	Leucoxenised/oxidised opaques. Semi-pervasive limonitic stainings.	Interpreted as an andesitic lithic-crystal tuff on relict compositional and textural features. Detail obscured by weathering effects.
271445	Basaltic Breccia. Clasts of augite/albitised-saussuritised feldspar-porphyritic, chlorite-quartz-amygdaloidal, subvitric feldspar-microlitic lava. Microcrystalline albite-quartz matrix with frequent fine vugs of chlorite and quartz.	Similar to 271441, but semi-moulded in comparison. Corrosive/replacive matrix.	Leucoxenised opaques, traces of chromite. Minor clots of pale microcrystalline pumpellyite.	Flow-breccia characteristics, but alternately a weakly moulded lithic ("lapilli") tuff. Typical basaltic relict compositional and alteration features.
271447	Protoquartzite. Framework of subangular to subround quartz grains, subordinate chert/impure chert/cherty argilite clasts, disseminated chromite grains with associated clots/discontinuous films of fuchsite. Overgrowth quartz cement.	Moderately to well-sorted, fine to medium sandy clastic. Weakly bedded; incipiently stressed.	Detrital zircons, leucoxene, tourmaline, cloudy leucoxenic-argillic degraded albitic lava clasts.	"Fuchsitic quartzite" with affinities to 271426, but carrying accessory, volcanically-derived lithic clasts, partly altered chromite grains.
271449	Amygdaloidal Andesite. Minor albitised plagioclase and montmorillonite-epidote-pseudomorphed ferromagnesian phenocrysts, frequent quartz micro-amygdales in a groundmass of argillised feldspar microlites, quartz mesostasis.	Finely amygdaloidal/weakly porphyritic, semi-felsitic, weakly flow-banded.	Conspicuous leucoxenised/oxidised opaques. Minor montmorillonitic veinlets.	Strongly quartz-micro-amygdaloidal lava, weakly porphyritic, but with otherwise typical andesitic characteristics. Alteration enhanced by weathering effects.
271450	Amygdaloidal Basalt. Minor augite and saussuritised feldspar phenocrysts, sporadic chlorite/cherty quartz amygdales; groundmass of saussuritised feldspar microlaths/chloritic cloudy microcrystalline epidote mesostasis.	Flow-structured, weakly amygdaloidal, porphyritic, basaltic.	Minor very fine leucoxenised opaques. Minor traces ultrafine pyrite, chalcopyrite. Traces mesostasis quartz.	Flow-structured amygdaloidal-porphyritic basalt with an epidote-chlorite-saussurite alteration pattern; fresh relict phenocrystal augite.

Sample No.	Classification - Composition 773	Fabric 598776	Accessories	Comments
271451	Mica-Quartz Siltstone. Silt- to fine sand-sized muscovite flakes, subordinate subangular quartz grains, minor sericitic pelite/ carbonaceous pelite clasts, with a sericite matrix.	Weakly phyllitic, (low-angle) resheared, with locally boudinaged shaly partings.	Carbonaceous matter, traces detrital leucoxene, zircon, chromite. Minor quartz veinlets.	Fine sandy micaceous, quartzose siltstone, carbonaceous and weakly lithoclastic. Affinities with 271429; relatively micaceous.
271452	Amygdaloidal Basalt. Albitic epidote-pseudomorphed plagioclase-, epidote-chlorite-pseudomorphed pyroxene phenocrysts, chloritic cherty quartz amygdales; cloudy epidote-mesostasised albite-microlitic groundmass.	Amygdaloidal, porphyritic, flow-structured, basaltic.	Minor silicified microphenocrystal ?orthopyroxene. Conspicuous leucoxenised opaques.	Extensively epidotised amygdaloidal basaltic lava with (altered) feldspar as the major phenocrystal component.
271453	Quartz-Mica Sandstone. Framework of angular to subangular quartz grains, subordinate quartzite, quartz-mica phyllite, carbonaceous pelite, sericitic felsite clasts, muscovite flakes. Sericite-chlorite-quartz matrix/cement.	Poorly sorted (silty fine to medium), weakly bedded sandy clastic; incipiently stressed.	Carbonaceous matter, detrital leucoxene, zircon, schorl.	Similarities with 271451, relatively polymict, coarser-grained and chloritic in comparison. Minor, only, volcanically-derived components, no tuffaceous features.
271454	Rhyolitic Tuff. Partly degraded sericitised/ variably chloritic lithic clasts, albite and quartz crystals/crystal fragments; sericite matrix with minor clots, films of chlorite.	Featureless to porphyritic and vaguely felsitic lithic clasts; phyllitic, locally vaguely eutaxite-like matrix.	Oxidised/leucoxenised opaques.	Similarities with 271432; similarly altered/mildly sheared and similarly interpreted as a lithic-crystal or lithic-vitric-crystal tuff.
271455	Weathered Phyllite. Partly degraded/extensively Fe-stained semi-sericitic white mica with minor silt- to fine sand-sized quartz grains, minor silt-sized relict detrital mica flakes.	Fine-grained, phyllitic/weakly banded.	Minor leucoxenic semi-opaques, rare anatase. Secondary limonite/Mn-oxide films.	Extensively weathered low-grade metapelite, primarily a quartzose-micaceous silty to fine sandy shale. No tangible tuffaceous features.
271459	Basaltic Breccia. Clasts of hornblende-silicified ?orthopyroxene-augite-saussuritised feldspar-porphyritic, chlorite-epidote-stained subvitric basalt; chloritic microcrystalline quartz matrix.	Poorly sorted, semi-moulded to replacive, chert-matrixed, lithoclastic.	Minor traces of chromite.	Distinctive basaltic lava breccia with fresh phenocrystal hornblende in addition to augite. Reflect minor chert-healed secondary brecciation.
271461	Andesitic "Breccia". Partly degraded sericite with minor intergrown microcrystalline quartz disseminated sericite-pseudomorphed feldspar and quartz-pseudomorphed ferromagnesian (pyroxene, amphibole) phenocrysts.	Moulded to sericite-matrixed, lithoclastic, with sub- to millimetric clasts. Incipiently sheared.	Leucoxenised opaques, limonite stainings.	Detail obscured by alteration and weathering effects. Exhibits andesitic relict features. Probably strictly lithic-tuffaceous, alternately a lava-breccia.
271469 (T.S. 56996)	Leuco-Andesite. Frequent sericitic/albitised plagioclase phenocrysts, minor chloritised amphibole microphenocrysts in a groundmass of albite microlaths with a sericite/microcrystalline quartz mesostasis.	Strongly porphyritic/ trend glomero-porphyritic, weakly flow-structured.	Leucoxenised opaques. Sporadic stringers of pyrite, sericite.	Extensively sericitised/weakly pyritised lava with ferromag-deficient (leuco-)andesitic characteristics.

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APPENDIX 25.

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ANALABS

(21)

A division of MacDonald Hamilton & Co. Pty. Ltd.
Phone (09) 458 7999 52 Murray Road, Welshpool, W.A. 6106 Telex AA92560
TLX: AA 59224

ANALYTICAL REPORT No. 23.3.08.03908

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

Aberfolye Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

ORDER No.	PROJECT
1408	

DATE RECEIVED	RESULTS REQUIRED
09/10/86	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
4	28/10/86	1	33

STATE OF SAMPLES		PRE-TREATMENT							ANALYSIS		
REFER BELOW	SAMPLE NUMBERS	DRY	CRUSH	SPLIT	PUL-VERISE	SIEVE	OTHER SEE REMARKS	NONE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	Various	SO	Prep: 01						Cu,Pb,Zn,Ag,Ni/101,As/114		
	Various	PU							Ba,Cr,Zr,Ti/401		

RESULTS TO

R. de Bomford
Aberfoyle Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

RESULTS TO

REMARKS

MACK. BARITE CK.
5800 N
SOIL SAMPS.

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

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ANALABS

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03908	28/10/86	1408	1 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	376366	15	5	20	<0.5	35	17	190	340	200
2	376368	15	<5	25	<0.5	50	12	170	380	210
3	376370	25	15	35	<0.5	80	11	260	450	150
4	376372	15	<5	25	<0.5	40	9	35	270	110
5	376374	10	<5	25	<0.5	50	10	260	280	190
6	376376	10	<5	15	<0.5	20	4	140	270	190
7	376378	5	<5	10	<0.5	20	2	120	300	180
8	376380	5	<5	10	<0.5	20	1	90	270	200
9	376382	10	<5	10	<0.5	25	1	70	130	140
10	376384	5	<5	10	<0.5	25	2	30	140	130
11	376386	5	<5	15	<0.5	15	2	140	130	170
12	376388	10	<5	25	<0.5	60	16	270	370	230
13	376390	10	<5	10	<0.5	35	3	95	220	170
14	376392	5	<5	15	<0.5	15	2	140	45	110
15	376394	5	<5	15	<0.5	10	3	290	55	100
	376396	<5	<5	15	<0.5	15	2	280	30	90
17	376398	10	<5	20	<0.5	15	2	380	60	110
18	376402	10	10	35	<0.5	15	3	400	30	170
19	376404	10	5	30	<0.5	15	2	320	80	100
20	376406	75	35	100	<0.5	45	18	490	130	120
21	376408	10	<5	15	<0.5	25	3	100	130	160
22	376410	5	<5	15	<0.5	15	1	90	70	180
23	376412	5	<5	10	<0.5	20	2	30	85	300
24	376420	10	<5	10	<0.5	25	2	15	70	410
25	376422	10	<5	20	<0.5	35	1	25	140	220

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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598730

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03908	28/10/86	1408	2 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	376424	5	<5	10	<0.5	30	1	<10	80	220
2	376428	10	<5	10	<0.5	40	1	<10	220	260
3	376430	5	<5	20	<0.5	<5	1	<10	110	190
4	376432	5	<5	15	<0.5	20	1	<10	290	240
5	376434	5	<5	15	<0.5	20	1	15	380	350
6	376436 XSTD.5	35	155	155	1.0	20	64	600	20	220
7	376438	5	<5	15	<0.5	15	2	<10	50	230
8	376446	5	<5	5	<0.5	25	2	20	60	200
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	5	1	10	5	5
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	101	101	101	114	401	401	401

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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598781

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03908	28/10/86	1408	3 OF 4

TUBE No.	SAMPLE No.	Ti
1	376366	4400
2	376368	4350
3	376370	3050
4	376372	5000
5	376374	4100
6	376376	3400
7	376378	2600
8	376380	3050
9	376382	2150
10	376384	1650
11	376386	4700
12	376388	4000
13	376390	2950
14	376392	1550
15	376394	1800
16	376396	1200
17	376398	1250
18	376402	1850
19	376404	1200
20	376406	5900
21	376408	2650
22	376410	2200
23	376412	2000
24	376420	3350
25	376422	2400

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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598782

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03908	28/10/86	1408	4 OF 4

TUBE No.	SAMPLE No.	Ti
1	376424	1850
2	376428	2050
3	376430	1700
4	376432	1600
5	376434	3650
6	376436 X STD. 5	3450
7	376438	2000
8	376446	1450
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23	DETECTION	50
24	UNITS	PPM
25	METHOD	401

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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780

598783

(22)

ANALABS

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ANALYTICAL REPORT No. 23.3.08.03909

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Tasmania 7320

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09/10/86	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
4	28/10/86	1	41

STATE OF SAMPLES:

REFER BELOW	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	376694/774/2	SO Prep: 016							Cu,Pb,Zn,Ag,Ni/101,As/114		
	376694/774/2	PU							Ba,Cr,Zr,Ti/401		

RESULTS TO

R. de Bomford
Aberfoyle Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

RESULTS TO

REMARKS

MACK. BARITE CK:
5000 N
SOIL SAMPS.

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					Inductively coupled plasma	ICP

AUTHORISED OFFICER

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598784

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03909	28/10/86	1409	1 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	376694	70	55	85	<0.5	60	45	400	370	140
2	376696	95	30	90	<0.5	80	56	360	490	110
3	376698	85	35	110	<0.5	105	44	380	520	150
4	376700	50	55	110	<0.5	55	39	610	200	180
5	376702	35	25	45	<0.5	30	11	280	360	180
6	376704	50	30	55	<0.5	35	13	280	450	170
(	376706	45	30	50	<0.5	30	13	180	480	160
8	376708	60	20	65	<0.5	65	12	35	600	190
9	376710	75	5	45	<0.5	55	7	25	890	150
10	376712	25	5	20	<0.5	30	8	40	560	160
11	376714	30	10	40	<0.5	75	9	250	430	130
12	376716	10	5	25	<0.5	30	10	230	500	200
13	376718	15	10	15	<0.5	25	6	130	380	190
14	376720	5	<5	10	<0.5	25	1	75	280	190
15	376722 X STD. 6	35	160	160	<0.5	20	68	620	10	240
16	376724	5	5	10	<0.5	15	2	55	35	110
(17	376726	<5	<5	15	<0.5	10	2	95	15	140
18	376728	<5	<5	15	<0.5	10	2	95	7	130
19	376730	<5	<5	10	<0.5	5	1	80	10	130
20	376732	25	25	55	<0.5	45	6	290	310	120
21	376734	5	35	30	<0.5	15	4	320	50	430
22	376736	5	20	15	<0.5	10	2	220	45	430
23	376738	5	35	20	<0.5	15	5	240	45	340
24	376740	<5	<5	20	<0.5	5	1	150	25	460
25	376742	5	35	30	<0.5	10	4	290	35	430

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
-- = element not determined

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ANALABS

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03909	28/10/86	1409	2 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	376744	5	25	15	<0.5	10	2	210	30	400
2	376746	<5	5	10	<0.5	5	1	95	25	500
3	376748	15	35	30	<0.5	10	1	300	35	440
4	376750	5	30	30	<0.5	15	4	320	40	390
5	376752	<5	5	5	<0.5	5	2	80	30	580
6	376754	5	30	20	<0.5	10	3	280	40	490
7	376756	15	55	40	<0.5	15	3	370	55	350
8	376758	10	35	40	<0.5	15	6	370	50	370
9	376760	15	55	40	<0.5	15	5	430	50	300
10	376762	10	35	25	<0.5	10	4	340	40	330
11	376764	5	40	25	<0.5	15	7	350	45	380
12	376766	25	50	100	<0.5	25	16	600	65	290
13	376768	20	60	65	<0.5	20	10	490	55	270
14	376770	10	35	40	<0.5	15	8	450	50	310
15	376772	20	50	50	<0.5	20	6	490	75	350
16	376774	20	40	50	<0.5	30	8	390	85	290
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	5	1	10	5	5
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	101	101	101	114	401	401	401

Results in ppm unless otherwise specified
T = element present: but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03909	28/10/86	1409	3 OF 4

TUBE No.	SAMPLE No.	Ti
1	376694	4900
2	376696	4300
3	376698	4700
4	376700	3750
5	376702	7100
6	376704	6650
7	376706	4900
8	376708	6800
9	376710	6050
10	376712	7300
11	376714	4400
12	376716	4050
13	376718	5050
14	376720	4250
15	376722 *STD. 6	3550
16	376724	1150
17	376726	1200
18	376728	780
19	376730	910
20	376732	2800
21	376734	3150
22	376736	3350
23	376738	3150
24	376740	2850
25	376742	3150

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03909	28/10/86	1409	4 OF 4

TUBE No.	SAMPLE No.	Ti
1	376744	2900
2	376746	3050
3	376748	2850
4	376750	2950
5	376752	3050
6	376754	3050
7	376756	3200
8	376758	3300
9	376760	3100
10	376762	3400
11	376764	3500
12	376766	3200
13	376768	3350
14	376770	3250
15	376772	3200
16	376774	2950
17		
18		
19		
20		
21		
22		
23	DETECTION	50
24	UNITS	PPM
25	METHOD	401

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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(23)

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.
Phone (09) 458 7999 — 52 Murray Road, Welshpool, W.A. 6106 — Telex AA92560
TLX: AA 59224

ANALYTICAL REPORT No. 23.3.08.03918

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

Aberfolye Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

ORDER No.	PROJECT
1412	

DATE RECEIVED	RESULTS REQUIRED
14/10/86	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
4	28/10/86	1	27

STATE OF SAMPLES (REFER BELOW)	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	376776/828/2	SO Prep: 016							Cu,Pb,Zn,Ag,Ni/101,As/114		
	376776/828/2	SO							Ba,Cr,Zr,Ti/401		

RESULTS TO

R. de Bomford
Aberfoyle Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

RESULTS TO

REMARKS

MACK. BARITE CK.
4800N
SOIL SAMPS.

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					Inductively coupled plasma	ICP

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786

598739

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A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03918	28/10/86	1412	1 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	376776	25	<5	50	<0.5	25	5	350	65	150
2	376778	30	<5	40	<0.5	35	14	330	150	180
3	376780	25	<5	35	<0.5	20	41	410	120	160
4	376782	5	<5	15	<0.5	20	5	170	110	200
5	376784	5	<5	20	<0.5	15	10	390	70	200
6	376786	15	<5	25	<0.5	25	4	220	170	170
7	376788	10	<5	25	<0.5	30	1	130	170	170
8	376790	20	<5	20	<0.5	35	2	25	230	190
9	376792	40	<5	40	<0.5	60	1	95	530	130
10	376794	50	<5	50	<0.5	70	2	15	560	90
11	376796	50	<5	45	<0.5	50	1	30	490	100
12	376798	60	<5	60	<0.5	75	3	120	530	130
13	376800	20	<5	25	<0.5	30	<1	140	220	85
14	376802	25	<5	20	<0.5	35	<1	240	230	95
15	376804	15	<5	10	<0.5	20	2	340	490	110
16	376806	<5	<5	5	<0.5	10	1	180	180	100
17	376808	10	<5	10	<0.5	25	2	340	230	100
18	376810	5	5	30	<0.5	15	2	310	65	320
19	376812	<5	<5	10	<0.5	10	1	130	40	340
20	376814	5	<5	20	<0.5	10	2	210	45	370
21	376816	5	10	30	<0.5	15	7	380	65	290
22	376818	5	5	30	<0.5	10	5	310	50	310
23	376820	<5	<5	15	<0.5	5	3	170	45	370
24	376822	5	5	15	<0.5	5	4	140	55	380
25	376824	<5	5	15	<0.5	5	2	160	40	410

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

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598790

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03918	28/10/86	1412	2 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	376826	5	<5	25	<0.5	10	5	270	45	360
2	376828	5	<5	35	<0.5	15	4	360	65	330
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	5	1	10	5	5
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	101	101	101	114	401	401	401

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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A division of MacDonald Hamilton & Co. Pty. Ltd.

598791

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03918	28/10/86	1412	3 OF 4

TUBE No.	SAMPLE No.	Ti
1	376776	4800
2	376778	5050
3	376780	4800
4	376782	5400
5	376784	4950
6	376786	5650
7	376788	6500
8	376790	6700
9	376792	5700
10	376794	4550
11	376796	4950
12	376798	5500
13	376800	5300
14	376802	5550
15	376804	3200
16	376806	3800
17	376808	4550
18	376810	3150
19	376812	2950
20	376814	3050
21	376816	3000
22	376818	3100
23	376820	3200
24	376822	3150
25	376824	2900

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

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ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

598792

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03918	28/10/86	1412	4 OF 4

TUBE No.	SAMPLE No.	Ti
1	376826	2900
2	376828	3600
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23	DETECTION	50
24	UNITS	PPM
25	METHOD	401

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

790

598793

(24)

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.
Phone (09) 458 7999 — 52 Murray Road, Welshpool, W.A. 6106 — Telex AA92560
TLX: AA 93224

ANALYTICAL REPORT No. 23.3.08.03995

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

Aberfolye Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

ORDER No.	PROJECT
1454	

DATE RECEIVED	RESULTS REQUIRED
19/11/86	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
18	18/12/86	1	222

REFER BELOW	SAMPLE NUMBERS	STATE OF SAMPLES	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	Various		SO Prep: 016,013,018							Cu,Pb,Zn,Ag,Ni/101,As/114		
	Various		SO							Ba,Cr,Zr,Ti/401		
	Various		SO Prep: 016,013,018							Cu,Pb,Zn,Ag,Ni/101,As/114		
	Various		SO							Ba,Cr,Zr,Ti/401		

RESULTS TO

R. de Bomford
Aberfoyle Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

RESULTS TO

REMARKS

MACK.
Burie Ck.
Soil samples.

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

AUTHORISED OFFICER

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598794

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03995	18/12/86	1454	1 OF 18

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	376448	25	20	45	<0.5	70	20	380	510	170
2	376452	5	30	20	<0.5	30	21	270	280	210
3	376456	25	55	50	<0.5	25	18	310	110	150
4	376458	20	55	65	1.0	10	21	310	80	140
5	376460	5	<5	30	<0.5	10	3	230	20	120
6	376462	5	<5	10	<0.5	10	1	180	20	240
7	376464	5	<5	20	<0.5	10	4	170	10	230
8	376466	5	10	15	<0.5	10	2	150	30	250
9	376468	5	<5	20	<0.5	5	2	220	8	280
10	376470	5	<5	20	<0.5	10	2	170	<5	260
11	376472	5	<5	20	<0.5	5	<1	130	20	95
12	376474 *STD.	6 40	140	170	<0.5	20	95	660	35	230
13	376476	5	<5	15	<0.5	10	1	290	20	100
14	376478	5	<5	15	<0.5	10	1	120	15	85
15	376480	5	<5	10	<0.5	10	<1	280	50	110
16	376482	5	<5	5	<0.5	5	<1	80	15	90
17	376484	<5	<5	15	<0.5	5	1	140	20	130
18	376486	<5	<5	10	<0.5	10	<1	350	15	140
19	376488	<5	<5	10	<0.5	5	1	130	20	130
20	376490	<5	<5	15	<0.5	15	1	85	70	140
21	376492	<5	<5	20	<0.5	10	5	310	20	120
22	376496	5	10	30	<0.5	20	6	350	80	190
23	376530	60	55	95	0.5	45	8	520	400	180
24	376532	35	15	45	<0.5	50	12	160	370	180
25	376534	110	10	85	<0.5	80	9	65	450	90

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

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598795

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03995	18/12/86	1454	2 OF 18

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	376536	90	20	10	<0.5	85	7	150	500	110
2	376538	40	25	105	0.5	60	10	400	330	170
3	376542	10	10	30	<0.5	15	3	160	<5	180
4	376544	5	<5	30	<0.5	15	3	200	9	120
5	376546	5	10	25	<0.5	15	3	150	<5	140
6	376548	5	10	35	<0.5	15	3	160	35	150
7	376550	5	10	25	<0.5	15	1	120	20	110
8	376554	10	230	25	<0.5	20	5	310	120	140
9	376556	5	10	30	<0.5	10	4	200	15	130
10	376558	<5	<5	15	<0.5	15	1	140	25	110
11	376560	5	10	25	<0.5	15	4	270	<5	230
12	376562	<5	10	25	<0.5	15	2	230	6	190
13	376564	5	15	30	<0.5	20	2	230	<5	180
14	376566	5	<5	40	<0.5	15	2	200	9	100
15	376570	10	<5	30	<0.5	15	13	280	5	110
16	376572	10	5	25	<0.5	15	7	260	20	180
17	376574	10	5	20	<0.5	15	4	290	<5	160
18	376576	10	5	30	<0.5	15	3	250	15	180
19	376578	10	10	80	<0.5	30	6	280	120	160
20	376580	35	55	105	0.5	55	20	390	290	130
21	376582	30	45	75	<0.5	35	25	240	330	120
22	376584	70	100	205	<0.5	100	29	380	460	150
23	376586	30	60	75	<0.5	30	19	600	190	110
24	376590	15	40	40	<0.5	15	5	380	60	300
25	376592	15	40	40	<0.5	15	4	370	50	290

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

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598796

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03995	18/12/86	1454	3 OF 18

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	376594	45	45	85	<0.5	50	12	390	260	200
2	376596	25	30	55	0.5	35	10	370	200	250
3	376598	35	50	60	<0.5	30	45	470	120	260
4	376600	20	45	40	<0.5	20	6	420	60	280
5	376602	15	40	25	<0.5	15	4	400	50	330
6	376604	10	20	25	<0.5	10	5	330	55	370
7	376612	30	5	35	<0.5	20	4	260	90	110
8	376614	50	5	110	<0.5	100	8	140	420	85
9	376616	40	20	75	<0.5	35	30	330	240	130
10	376618	25	5	30	<0.5	35	13	190	500	190
11	376620	45	5	60	0.5	120	22	590	800	85
12	376622	35	10	95	<0.5	75	18	370	470	180
13	376624	15	15	35	<0.5	30	12	250	480	220
14	376626	20	15	50	0.5	35	10	240	380	200
15	376628	15	15	40	<0.5	25	9	190	470	200
16	376630	25	20	85	0.5	80	14	280	400	160
17	376632	20	30	95	<0.5	80	15	240	440	180
18	376634	15	60	15	<0.5	25	17	280	110	130
19	376636	15	60	40	0.5	20	21	250	80	140
20	376638	30	75	60	<0.5	30	20	300	180	130
21	376640	35	45	50	0.5	40	19	260	310	180
22	376642	10	<5	15	<0.5	15	2	160	75	150
23	376644	10	15	30	0.5	15	3	160	55	130
24	376646	10	<5	15	<0.5	15	2	35	50	140
25	376648	10	40	30	<0.5	15	3	150	25	130

Results in ppm unless otherwise specified
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AUTHORISED OFFICER

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598797

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03995	18/12/86	1454	4 OF 18

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	376650	10	<5	20	<0.5	20	1	20	75	120
2	376652	10	5	20	<0.5	20	4	190	130	280
3	376654	20	35	40	<0.5	20	6	370	70	330
4	376656	20	40	50	<0.5	25	5	390	95	350
5	376658	20	35	40	0.5	25	6	380	70	330
6	376660	15	20	30	<0.5	<5	4	290	60	430
7	376662	25	35	65	<0.5	10	16	420	75	310
8	376664	15	45	45	0.5	10	5	470	60	340
9	376666	25	40	50	0.5	5	9	470	140	320
10	376668	15	15	40	0.5	<5	3	340	95	370
11	376670	25	55	70	<0.5	10	10	510	120	300
12	376672	20	40	55	<0.5	<5	9	510	75	350
13	376674	10	20	30	<0.5	10	5	290	40	440
14	376676	20	45	50	0.5	20	9	440	55	320
15	376678	15	25	40	0.5	10	5	280	50	380
16	376680	10	10	40	0.5	10	5	190	55	340
17	376682	10	35	45	<0.5	15	5	290	50	330
18	376684	5	40	45	0.5	10	2	260	45	400
19	376830	15	25	60	<0.5	20	10	490	60	300
20	376832	10	25	40	<0.5	10	7	340	50	350
21	376834	30	60	85	<0.5	25	9	500	70	240
22	376836	30	45	80	<0.5	25	11	550	75	250
23	376838	20	30	65	0.5	30	8	410	75	290
24	376840	50	30	70	<0.5	35	16	410	120	190
25	376858	65	15	85	<0.5	40	8	180	25	100

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ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03995	18/12/86	1454	5 OF 18

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	376860	25	5	45	<0.5	45	3	450	95	120
2	376862	15	<5	20	0.5	25	4	290	20	150
3	376864	25	5	35	<0.5	25	11	460	25	160
4	376866	10	<5	20	<0.5	20	9	400	7	170
5	376868	35	10	45	0.5	35	13	370	65	200
6	376870	40	10	50	0.5	80	7	220	540	110
7	376872	70	5	65	<0.5	100	4	140	530	120
8	376874	50	5	40	<0.5	75	3	400	390	130
9	376876	35	5	55	<0.5	75	3	200	290	160
10	376878	45	<5	80	<0.5	85	5	130	510	140
11	376880	70	15	95	<0.5	100	12	65	400	120
12	376882	20	<5	25	<0.5	40	2	340	85	160
13	376884	50	15	55	0.5	65	6	280	210	140
14	376886	60	5	45	<0.5	65	6	380	210	120
15	376888	55	10	45	<0.5	65	9	380	220	100
16	376890	10	<5	25	0.5	50	8	240	290	130
17	376892	10	10	35	<0.5	40	17	400	270	220
18	376894	5	<5	20	<0.5	15	5	120	25	140
19	376896	10	30	15	<0.5	25	5	270	35	140
20	376898	10	<5	20	0.5	15	7	190	55	120
21	376900	15	<5	10	<0.5	5	8	70	25	130
22	376906	10	<5	5	<0.5	10	2	65	<5	120
23	376940	25	<5	30	0.5	20	17	370	55	160
24	376942	70	30	85	<0.5	45	14	270	180	120
25	376944	65	15	90	0.5	50	14	260	140	150

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ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03995	18/12/86	1454	6 OF 18

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	376946	60	45	85	<0.5	35	12	240	70	140
2	376948	70	25	100	0.5	45	4	230	110	120
3	376950	50	35	100	<0.5	35	3	340	75	150
4	376952	25	15	70	0.5	20	8	440	35	160
5	376960	45	30	80	<0.5	70	20	290	330	190
6	376964	45	20	85	0.5	90	2	110	570	110
7	376966	20	15	45	1.0	35	1	230	140	140
8	376968	20	10	35	0.5	30	3	290	200	170
9	376970	20	20	50	0.5	60	2	270	200	180
10	376972	15	5	30	0.5	30	2	270	200	200
11	376974	20	<5	20	<0.5	10	<1	100	180	250
12	376976	30	20	45	<0.5	30	2	330	120	140
13	376978	10	10	15	<0.5	10	<1	260	60	130
14	377022	85	45	145	0.5	45	1	350	110	180
15	377024	40	25	55	<0.5	30	1	140	200	160
16	377026	60	35	75	0.5	40	3	180	270	170
17	377028	70	40	75	<0.5	45	4	130	310	140
18	377030	40	30	65	<0.5	30	28	55	170	170
19	377032	15	15	20	<0.5	10	2	140	85	180
20	377034	15	10	10	<0.5	<5	1	120	110	170
21	377036	10	<5	5	<0.5	5	1	25	120	180
22	377038	10	5	15	<0.5	<5	<1	10	55	160
23	377042	70	25	60	<0.5	95	<1	120	450	190
24	377044	85	30	55	0.5	100	2	330	1150	230
25	377048	20	10	30	<0.5	45	3	270	290	150

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ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

598800

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03995	18/12/86	1454	7 OF 18

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	377050	15	<5	20	<0.5	15	4	60	260	190
2	377052	10	<5	10	0.5	15	<1	40	300	210
3	377054	15	10	10	<0.5	15	1	60	270	200
4	377106	10	10	25	<0.5	10	3	120	65	190
5	377108	10	<5	20	<0.5	10	2	120	70	200
6	377110	5	<5	10	<0.5	10	<1	75	40	180
7	377112	5	5	15	<0.5	10	1	120	75	180
8	377114	5	10	15	<0.5	15	1	110	40	150
9	377116	80	35	105	<0.5	60	9	130	720	60
10	377122	15	5	30	<0.5	20	3	290	65	160
11	377124	10	<5	15	<0.5	15	<1	230	40	240
12	377126	20	5	40	<0.5	20	1	310	140	160
13	377130	10	<5	10	<0.5	15	1	70	140	190
14	377132	5	<5	10	<0.5	10	<1	95	120	170
15	377134	5	<5	5	<0.5	25	1	20	120	160
16	377136	5	<5	5	<0.5	10	1	15	85	190
17	377186	25	30	60	<0.5	20	8	80	80	280
18	377188	25	15	55	<0.5	20	4	75	85	230
19	377190	40	30	85	<0.5	20	8	90	120	250
20	377192	45	20	80	<0.5	5	5	110	100	240
21	377194	30	10	55	<0.5	25	4	110	70	210
22	377196	30	30	75	<0.5	25	11	50	85	190
23	377198	35	30	60	<0.5	25	7	110	80	140
24	377200	20	10	45	<0.5	20	4	150	75	160
25	377202	10	10	25	<0.5	20	2	65	90	160

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ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

598801

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03995	18/12/86	1454	8 OF 18

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	377204	20	5	40	<0.5	20	2	130	80	170
2	377208	30	5	55	<0.5	35	3	140	270	170
3	377210	10	<5	20	<0.5	40	2	140	260	210
4	377212	10	5	15	<0.5	30	1	65	250	210
5	377214	5	<5	10	<0.5	15	1	45	220	200
6	377216	5	5	10	<0.5	25	<1	60	340	280
7	377218	10	<5	15	<0.5	25	1	35	170	190
8	377220	15	5	10	<0.5	35	6	70	270	180
9	377222	25	5	35	<0.5	60	3	120	410	160
10	377224	30	5	45	<0.5	80	4	140	570	1150
11	377226	10	10	30	<0.5	65	5	180	270	180
12	377228	5	<5	10	<0.5	15	<1	10	240	230
13	377232	5	<5	5	<0.5	20	<1	45	220	160
14	377236	5	<5	5	<0.5	20	<1	25	260	220
15	377238	5	<5	5	0.5	20	<1	<10	95	220
16	377266	25	10	65	<0.5	25	4	90	25	170
17	377268	25	10	70	<0.5	25	2	220	45	180
18	377270	25	10	60	<0.5	25	2	150	10	130
19	377272	35	<5	100	<0.5	15	5	180	15	160
20	377274	40	5	80	0.5	20	7	230	45	170
21	377276	40	10	80	<0.5	20	8	260	85	180
22	377278	25	5	70	<0.5	20	5	190	55	170
23	377280	30	5	5	<0.5	20	7	260	55	170
24	377282	30	10	70	<0.5	20	7	240	90	180
25	377284	25	10	50	<0.5	20	7	230	75	160

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AUTHORISED OFFICER

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598802

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03995	18/12/86	1454	9 OF 18

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	377286	55	10	70	<0.5	45	10	150	460	150
2	377288	40	10	60	0.5	35	12	130	410	180
3	377290	30	10	55	<0.5	35	9	120	570	190
4	377292	40	10	60	<0.5	50	11	170	540	200
5	377294	35	5	50	<0.5	70	7	130	560	150
6	377296	35	10	35	<0.5	60	9	160	590	130
7	377298	25	<5	30	<0.5	55	4	80	530	140
8	377300	30	15	40	<0.5	50	5	30	550	110
9	377302	10	<5	20	<0.5	30	2	70	360	130
10	377304	10	<5	10	<0.5	10	1	30	170	190
11	377306	5	<5	10	<0.5	10	<1	<10	80	150
12	377310	5	<5	5	<0.5	10	1	20	150	230
13	377312	5	<5	10	<0.5	15	<1	15	100	240
14	378006	30	5	50	<0.5	70	9	150	460	150
15	378008	15	<5	25	<0.5	20	7	190	130	200
16	378010	15	<5	25	<0.5	40	5	160	340	140
17	378012	15	5	20	<0.5	25	5	160	290	150
18	378014	5	<5	15	<0.5	10	1	75	260	170
19	378016	10	<5	25	<0.5	35	4	160	400	140
20	378018	35	15	70	<0.5	100	11	210	640	140
21	378020	10	<5	10	<0.5	15	2	75	230	200
22	378022	10	<5	5	<0.5	10	2	25	160	170
23	DETECTION	5	5	5	0.5	5	1	10	5	5
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	101	101	101	114	401	401	401

Results in ppm unless otherwise specified
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598803

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03995	18/12/86	1454	10 OF 18

TUBE No.	SAMPLE No.	Ti
1	376448	3600
2	376452	4700
3	376456	2200
4	376458	2650
5	376460	1450
6	376462	2700
7	376464	2700
8	376466	2550
9	376468	2900
10	376470	2850
11	376472	1300
12	376474 *STD. 6	3500
13	376476	1300
14	376478	1200
15	376480	1200
16	376482	1850
17	376484	1050
18	376486	1150
19	376488	1950
20	376490	2350
21	376492	1450
22	376496	2550
23	376530	3800
24	376532	4450
25	376534	5000

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ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03995	18/12/86	1454	11 OF 18

TUBE No.	SAMPLE No.	Ti
1	376536	4600
2	376538	4150
3	376542	1550
4	376544	1450
5	376546	1200
6	376548	2500
7	376550	2750
8	376554	3600
9	376556	2500
10	376558	1700
11	376560	2200
12	376562	1800
13	376564	1900
14	376566	1400
15	376570	1300
16	376572	1900
17	376574	1650
18	376576	2200
19	376578	2550
20	376580	3500
21	376582	4400
22	376584	4100
23	376586	3500
24	376590	3050
25	376592	3250

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ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03995	18/12/86	1454	12 OF 18

TUBE No.	SAMPLE No.	Ti
1	376594	3800
2	376596	3650
3	376598	3450
4	376600	3150
5	376602	3200
6	376604	3300
7	376612	1500
8	376614	3100
9	376616	4050
10	376618	4200
11	376620	2600
12	376622	4000
13	376624	4450
14	376626	4650
15	376628	4500
16	376630	4050
17	376632	3800
18	376634	4250
19	376636	3000
20	376638	2250
21	376640	3650
22	376642	1600
23	376644	1250
24	376646	1600
25	376648	1550

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ANALABS

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03995	18/12/86	1454	13 OF 18

TUBE No.	SAMPLE No.	Ti									
1	376650	1500									
2	376652	3600									
3	376654	3150									
4	376656	3300									
5	376658	3150									
6	376660	3300									
7	376662	3100									
8	376664	3250									
9	376666	3300									
10	376668	3300									
11	376670	3500									
12	376672	3400									
13	376674	3400									
14	376676	3350									
15	376678	3000									
16	376680	3100									
17	376682	3500									
18	376684	3400									
19	376830	3600									
20	376832	3550									
21	376834	3450									
22	376836	3600									
23	376838	3100									
24	376840	3500									
25	376858	5550									

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A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03995	18/12/86	1454	14 OF 18

TUBE No.	SAMPLE No.	Ti									
1	376860	5400									
2	376862	4200									
3	376864	3300									
4	376866	4600									
5	376868	4150									
6	376870	4400									
7	376872	5600									
8	376874	5400									
9	376876	5400									
10	376878	4800									
11	376880	6600									
12	376882	4700									
13	376884	5250									
14	376886	4750									
15	376888	4550									
16	376890	4700									
17	376892	3800									
18	376894	1000									
19	376896	2600									
20	376898	2500									
21	376900	1100									
22	376906	1100									
23	376940	4900									
24	376942	5350									
25	376944	5550									

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03995	18/12/86	1454	15 OF 18

TUBE No.	SAMPLE No.	Ti									
1	376946	5600									
2	376948	5500									
3	376950	4600									
4	376952	3750									
5	376960	5100									
6	376964	5000									
7	376966	4700									
8	376968	4450									
9	376970	4050									
10	376972	4350									
11	376974	4250									
12	376976	4400									
13	376978	4850									
14	377022	5050									
15	377024	5150									
16	377026	5700									
17	377028	5400									
18	377030	7600									
19	377032	5350									
20	377034	3750									
21	377036	2200									
22	377038	3000									
23	377042	7750									
24	377044	7700									
25	377048	4950									

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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598809

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03995	18/12/86	1454	16 OF 18

TUBE No.	SAMPLE No.	Ti
1	377050	3050
2	377052	3450
3	377054	3400
4	377106	5400
5	377108	5450
6	377110	5100
7	377112	5900
8	377114	4350
9	377116	5100
10	377122	3900
11	377124	3350
12	377126	3950
13	377130	2150
14	377132	1950
15	377134	1450
16	377136	2300
17	377186	11000
18	377188	9750
19	377190	10500
20	377192	9700
21	377194	8200
22	377196	7700
23	377198	6400
24	377200	6400
25	377202	6300

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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598810

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03995	18/12/86	1454	17 OF 18

TUBE No.	SAMPLE No.	Ti									
1	377204	6350									
2	377208	6450									
3	377210	6600									
4	377212	5740									
5	377214	3400									
6	377216	2500									
7	377218	3800									
8	377220	4600									
9	377222	5700									
10	377224	5050									
11	377226	4400									
12	377228	4150									
13	377232	3850									
14	377236	3050									
15	377238	2550									
16	377266	8800									
17	377268	9450									
18	377270	9200									
19	377272	7900									
20	377274	7350									
21	377276	6850									
22	377278	7950									
23	377280	7200									
24	377282	7650									
25	377284	7650									

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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598811

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03995	18/12/86	1454	18 OF 18

TUBE No.	SAMPLE No.	Ti
1	377286	7650
2	377288	8500
3	377290	8750
4	377292	8200
5	377294	6450
6	377296	5500
7	377298	5300
8	377300	3150
9	377302	4200
10	377304	3350
11	377306	2150
12	377310	2100
13	377312	1950
14	378006	4900
15	378008	4550
16	378010	4600
17	378012	4850
18	378014	3550
19	378016	4100
20	378018	3750
21	378020	5550
22	378022	1750
23	DETECTION	50
24	UNITS	PPM
25	METHOD	401

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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APPENDIX 26.

598813

(25)

BARITE CREEK

Sample No.	Co-ordinates		Description
271423 P	5000N	6029E	gn l
271424 P	5000N	6878E	gy bd mudstone
271425 G,P	4803N	6780E	gy B
271426 P	4814N	6780E	Qtz
271427 G,P	4800N	6770E	fp A
271428 G	4800N	6305E	rd wth B
271429 P	4800N	6108E	wh Qtz (Ord)
271430 P	5035N	5095E	Y lv
271431 P	4995N	4430E	shd gn vlc
271432 G,P	5350N	6000E	shd rd B
271433 G,P	4350N	6000E	Fp A
271434 P	5475N	6000E	Rhyolite (intrusive?)
271435 G,P	5475N	5975E	Fp A
271436 P	5600N	6075E	gy B
271437 G	5600N	6190E	shd R/D
271438 P	5600N	6375E	R
271439 G,P	5400N	6035E	B
271440 G,P	4620N	6000E	B
271441 G,P	3840N	6000E	B
271442 G,P	3755N	6000E	B
271443 G,P	3625N	6000E	B
271444 P	3600N	6150E	ft t
271445 G,P	3800N	6075E	Fp A
271446 G	4000N	6196E	wth or B
271447 P	4000N	6475E	Qtz (Fu)
271448 G	4400N	6035E	rd + gn t
271449 P	4400N	6035E	rd + gn t
271450 P	4400N	6100E	B
271451 P	4400N	6235E	Shale
271452 P	4400N	6255E	Fp B
271453 P	4400N	6275E	Mic Ss
271454 P	4400N	6350E	Fp A
271455 P	4600N	6360E	rd mudstone
271456 G	4980N	4470E	D/R
271457 G	4910N	4715E	mas gn B
271458 G	4880N	4840E	R (int)
271459 P	4990N	4970E	gy B mnr epi (Y) + glass fr
271460 G	5080N	5230E	A? - R
271461 P	5095N	5325E	A partly Fp some Y
271462 G	5120N	5410E	gn A lv
271463 G	5115N	5550E	gn A
271464 G	5100N	5615E	B/Se
271465 G	5050N	5710E	B?/patchy Se
271466 G	5060N	5820E	rd B
271467 G	5050N	5880E	rd + bk B
271468 G	5005N	5950E	B
271469 P	±5300N	6100E	Pyritic B scree
	Barite Creek Scree		

811

598814

(25)

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.
Phone (09) 458 7999
52 Murray Road, Welshpool, W.A. 6106
TLX: AA 59224
Telex AA92560

ANALYTICAL REPORT No. 23.3.08.03981

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

Aberfolye Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

ORDER No.	PROJECT
1448	

DATE RECEIVED	RESULTS REQUIRED
11/11/86	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
4	21/11/86	1	26

STATE OF SAMPLES	PRE-TREATMENT							ANALYSIS		
REFER BELOW	SAMPLE NUMBERS	DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	Various	RC	Prep: 009,018						Cu,Pb,Zn,Ag,Ni/101,As/114		
	Various	RC							Ba,Cr,Zr,Ti/401		
	Various	RC							Au/309		

RESULTS TO

R. de Bomford
Aberfoyle Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

RESULTS TO

REMARKS

BARITE CK.

ROCK CHIPS

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					Inductively coupled plasma	ICP

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598815

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03981	21/11/86	1448	1 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	271425	190	35	510	0.5	40	9	1250	130	150
2	271427	30	30	80	<0.5	35	4	750	95	150
3	271428	135	15	95	<0.5	80	3	85	220	110
4	271432	30	35	235	<0.5	55	5	710	310	200
5	271433	25	75	220	<0.5	95	10	670	200	230
6	271435	10	10	60	<0.5	45	11	540	130	190
7	271437	5	5	10	<0.5	20	3	220	<5	280
8	271439	55	10	70	<0.5	85	4	360	290	85
9	271440	80	20	70	<0.5	35	3	750	7	75
10	271441	15	30	190	<0.5	25	14	980	20	180
11	271442	40	5	50	<0.5	15	1	1100	<5	170
12	271443	40	5	140	<0.5	15	1	360	<5	150
13	271445	15	30	120	<0.5	30	7	830	60	150
14	271446	130	15	190	<0.5	115	4	790	750	60
15	271448	30	<5	70	<0.5	25	1	970	20	200
16	271456	45	20	20	1.0	15	280	2650	<5	170
17	271457	40	5	100	<0.5	75	11	710	200	130
18	271458	5	10	10	<0.5	10	79	1000	<5	180
19	271460	5	15	10	<0.5	15	67	850	7	230
20	271462	35	5	80	<0.5	25	23	1050	50	190
21	271463	20	40	140	<0.5	15	13	790	<5	180
22	271464	30	20	55	<0.5	15	30	990	<5	150
23	271465	30	10	20	<0.5	15	5	650	<5	200
24	271466	45	10	45	<0.5	25	17	860	70	140
25	271467	40	10	60	1.0	15	7	880	<5	160

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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598816

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03981	21/11/86	1448	2 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	271468	45	15	40	<0.5	20	86	850	<5	160
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	5	1	10	5	5
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	101	101	101	114	401	401	401

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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598817

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03981	21/11/86	1448	3 OF 4

TUBE No.	SAMPLE No.	Ti	Au
1	271425	2950	<0.008
2	271427	4000	<0.008
3	271428	4950	<0.008
4	271432	2850	<0.008
5	271433	3600	<0.008
6	271435	3050	<0.008
7	271437	2400	<0.008
8	271439	2750	<0.008
9	271440	3150	<0.008
10	271441	5500	0.017
11	271442	5650	<0.008
12	271443	5600	<0.008
13	271445	4000	<0.008
14	271446	3800	<0.008
15	271448	4200	<0.008
16	271456	2500	0.008
17	271457	2700	<0.008
18	271458	1900	0.017
19	271460	2250	<0.008
20	271462	4100	<0.008
21	271463	1800	<0.008
22	271464	3450	0.025
23	271465	3550	<0.008
24	271466	3850	<0.008
25	271467	3700	<0.008

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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598818

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03981	21/11/86	1448	4 OF 4

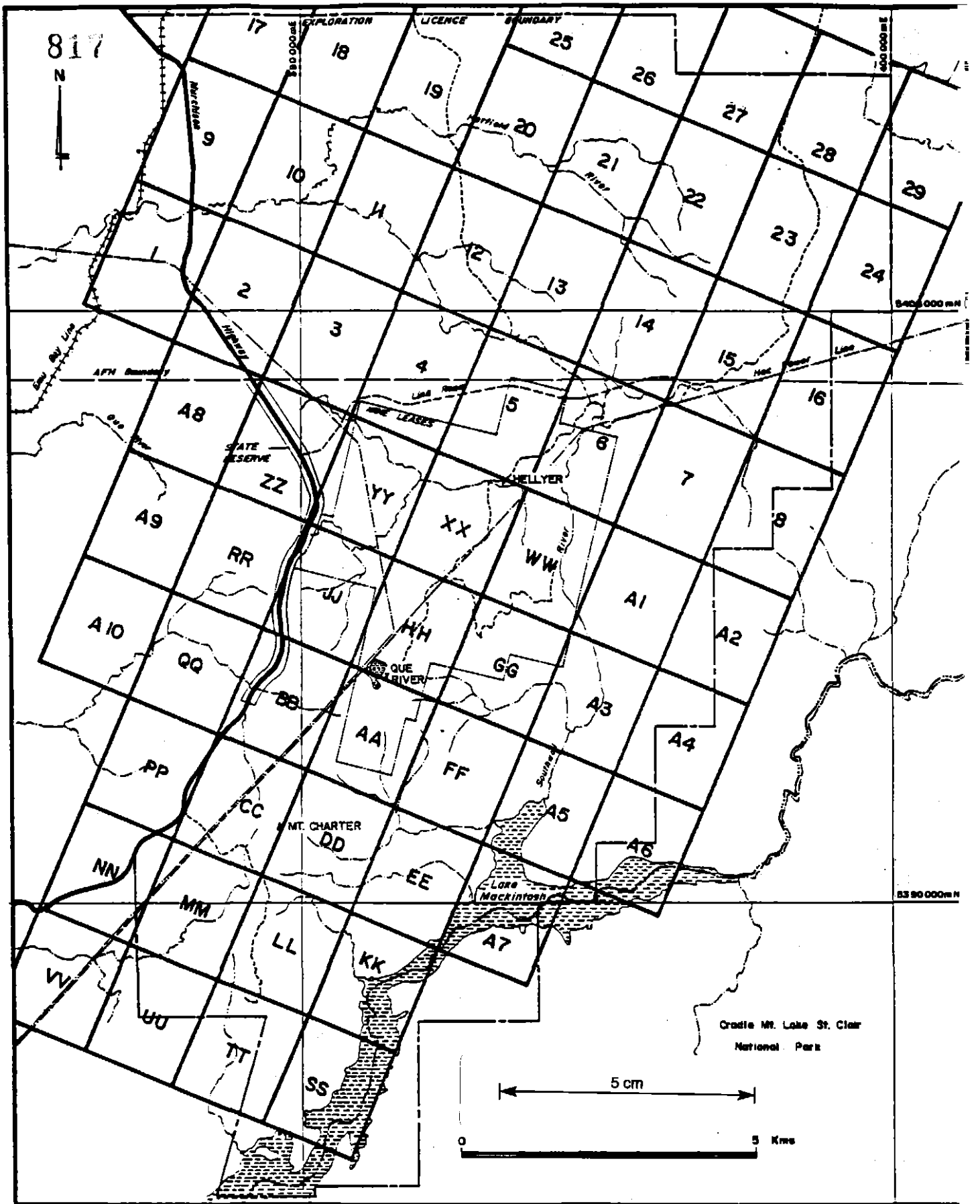
TUBE No.	SAMPLE No.	Ti	Au							
1	271468	4900	0.025							
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	50	0.008							
24	UNITS	PPM	PPM							
25	METHOD	401	309							

Results in ppm unless otherwise specified
T = element present: but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

598819

APPENDIX 27.



Aberfoyle Resources Limited

EXPLORATION DIVISION

598820

REVISIONS			
Init.	Date	Init.	Date

NORTH WEST TASMANIA

MACKINTOSH DISTRICT

1: 2500 MAP SHEETS — INDEX

Compiled :

Drawn : RJE

Traced :

Checked :

Location Code : K55/6/44

Scale : As shown

Date : February, 1988

Plate No. : MAC 181

598821

Abundant	abn
Adularia	Adl
Agglomerate	agg
Albite	Ab
Alkali feldspar	Afd
Altered	alt
Amphibole	Amb
Amygdaloidal	amg
Andesite	A
Angular	ang
Aplite	Ap
Approximate	apx
Arcuate	ar
Arenaceous	arn
Argillaceous	arg
Argillite	Arg
Arkose	Ak
Arkosic	ak
Arsenopyrite	Ap
Ash volcaniclastic	av
Autobrecciated	aub
Average	ave
Banded	bnd
Barite	Ba
Basalt	B
Bedded	bd
Black	bk
Black shale	Bsh
Blue	bl
Boulder	bld
Breccia	b
Breccia volcaniclastic	bv
Bright	brt
Brown	br
Calcareous	cc
Calcite	Cc
Carbonaceous	g
Carbonate	Co
Cavernous	cav
Chalcopyrite	Cp
Chert	Ch
Chlorite	Cl
Chromite	Cr
Chromitiferous	cr
Clay	cy
Coarse	c
Coarse grained	cg
Colour	col
Common	com
Conglomerate	Cg
Conglomeratic	cg
Crystal	x
Crystal volcaniclastic	xv
Dacite	D
Dark	dk
Dense	dns
Devitrification	dv
Diorite	Di
Disseminated	dis
Dolerite	Dol
Dolomite	Dm
Dyke	dy
Elongated	el
Emphasised	emp
Epiclastic (adj.)	e
Epiclastic (noun)	E
Epidote	Ep
Euhedral	euh
Eutaxitic	eux
Fabric	fab
Fault	F
Fault zone	FZ
Feldspar	Fd
Feldspar phyric	fp
Felspathic	fel
Ferruginous	fer
Fibrous	fb
Fine	f
Fine grained	fg
Fissile	fis
Flowbanded	fbn
Fragments	fr
Fuchsite	Fu
Galena	Gn
Glass	Gl
Glassy	gl
Granular	glr
Graphite	Gt
Graphitic	gt
Green	gn
Grey	gy
Greywacke	Gw
Haematite	Hmt
Hornblende	Hb
Ignimbrite	Ig
Illite	Ill
Interbedded	ibd
Intercalated	icl
Intrusive	int
Jurassic	Ju
K-Feldspar	Kfd
Khaki	kh
Laminated	lm
Lapilli volcaniclastic	lv
Lava	l
Lava breccia	lb
Leached	lch
Limonitic	Lim
Light	lgt
Limestone	Lst
Lithic	lh
Magnetite	Mt
Massive	mas
Matrix	mtx
Matrix dominated	md
Medium	med
Medium grained	mg
Metamorphosed	meta
Mica	Mic
Micaceous	mic
Minor	mnr
Mixed	mxd
Mottled	mtl
Mudstone	Mst
Nodule	nd
Off white	ow
Olivine	Ol
Orange	or
Ordovician	O
Oxidised	ox
Patchy	pat
Peperitic	pep
Perlitic	prl
Pervasive	per
Phenocrysts	phn
Phyllite	phyl
Phyric	p
Picrite	Pic
Pillow lava	pl
Pink	pk
Polymict	Y
Porphyritic	por
Pumice	Pu
Pumiceous	pu
Purple	pp
Pyrite	Py
Pyritic	py
Pyroxene	Px
Quartz	Q
Quartzite	Qtz
Quellite	Qll
Questionable	?
Recrystallised	rx
Red	rd
Rehealed	rhd
Reworked	rw
Rhyodacite	RD
Rhyolite	R
Ripple marks	rmk
Round	rnd
Rubble	rbb
Sandstone	Ss
Schist	Sch
Schistose	sch
Sediment	sed
Selected fragments	sfr
Sericite	Se
Serpentine	Srp
Shale	Sh
Sheared	shd
Siderite	Sid
Silica	Si
Siliceous	sil
Siltstone	Slt
Slickenside	slk
Sphalerite	Sp
Spotted	spt
Spotty	spt
Stockwork	stw
Strong	str
Structure controlled	stc
Talc	Tc
Tertiary	T
Trace	tr
Trachyte	Tr
Tuff	Tf
Tuffaceous	tf
Variolitic	vr
Vein	vn
Vein concordant to bedd	cV
Vein discordant to bedd	dV
Very	v
Vesicular	ves
Vitric	vtr
Volcanic	vlc
Volcaniclastic	vlcl
Weak	wk
Weathered	wth
White	wh
Yellow	yw

598822

DIAMOND DRILL CORE

MAGNETIC SUSCEPTIBILITY DATA

APPENDIX 28

598823

	DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
1	MACD003	159.0	159.1			50
5	MACD003	160.0	160.1			30
6	MACD003	161.0	161.1			20
7	MACD003	162.0	162.1			
8	MACD003	163.0	163.1			
9	MACD003	164.0	164.1			
0	MACD003	165.0	165.1			
	MACD003	166.0	166.1			30
2	MACD003	167.0	167.1			30
3	MACD003	168.0	168.1			10
	MACD003	169.0	169.1			20
15	MACD003	170.0	170.1			30
16	MACD003	171.0	171.1			30
17	MACD003	172.0	172.1			40
18	MACD003	173.0	173.1			30
19	MACD003	174.0	174.1			30
20	MACD003	175.0	175.1			30
	MACD003	176.0	176.1			40
22	MACD003	177.0	177.1			30
23	MACD003	178.0	178.1			40
24	MACD003	179.0	179.1			30
	MACD003	180.0	180.1			30
26	MACD003	181.0	181.1			40
	MACD003	182.0	182.1			30
28	MACD003	183.0	183.1			30
	MACD003	184.0	184.1			40
30	MACD003	185.0	185.1			30
	MACD003	186.0	186.1			40
	MACD003	187.0	187.1			30
	MACD003	188.0	188.1			40
	MACD003	189.0	189.1			
	MACD003	190.0	190.1			
	MACD003	191.0	191.1			
	MACD003	192.0	192.1			
	MACD003	193.0	193.1			
	MACD003	194.0	194.1			
	MACD003	195.0	195.1			
	MACD003	196.0	196.1			
	MACD003	197.0	197.1			30
	MACD003	198.0	198.1			30
	MACD003	199.0	199.1			30
	MACD003	200.0	200.1			30
	MACD003	201.0	201.1			30
	MACD003	202.0	202.1			30
	MACD003	203.0	203.1			30
	MACD003	204.0	204.1			30
	MACD003	205.0	205.1			50
	MACD003	206.0	206.1			40
	MACD003	207.0	207.1			30
	MACD003	208.0	208.1			30
	MACD003	209.0	209.1			30
	MACD003	210.0	210.1			20
	MACD003	211.0	211.1			30

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598824

DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
MACD003	212.0	212.1			20
MACD003	213.0	213.1			30
MACD004	0.0	0.1			
MACD004	1.0	1.1			
MACD004	2.0	2.1			
MACD004	3.0	3.1			
MACD004	4.0	4.1			
MACD004	5.0	5.1			
MACD004	6.0	6.1			
MACD004	7.0	7.1			
MACD004	8.0	8.1			
MACD004	9.0	9.1			
MACD004	10.0	10.1			
MACD004	11.0	11.1			
MACD004	12.0	12.1			
MACD004	13.0	13.1			
MACD004	14.0	14.1			
MACD004	15.0	15.1			
MACD004	16.0	16.1			
MACD004	17.0	17.1			
MACD004	18.0	18.1			
MACD004	19.0	19.1			
MACD004	20.0	20.1			
MACD004	21.0	21.1			
MACD004	22.0	22.1			
MACD004	23.0	23.1			
MACD004	24.0	24.1			20
MACD004	25.0	25.1			20
MACD004	26.0	26.1			
MACD004	27.0	27.1			
MACD004	28.0	28.1			
MACD004	29.0	29.1			
MACD004	30.0	30.1			30
MACD004	31.0	31.1			30
MACD004	32.0	32.1			25
MACD004	33.0	33.1			20
MACD004	34.0	34.1			
MACD004	35.0	35.1			
MACD004	36.0	36.1			
MACD004	37.0	37.1			
MACD004	38.0	38.1			40
MACD004	39.0	39.1			20
MACD004	40.0	40.1			15
MACD004	41.0	41.1			20
MACD004	42.0	42.1			20
MACD004	43.0	43.1			40
MACD004	44.0	44.1			40
MACD004	45.0	45.1			20
MACD004	46.0	46.1			20
MACD004	47.0	47.1			10
MACD004	48.0	48.1			50
MACD004	49.0	49.1			25

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598825

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
MACD004	50.0	50.1			30
MACD004	51.0	51.1			20
MACD004	52.0	52.1			30
MACD004	53.0	53.1			25
MACD004	54.0	54.1			30
MACD004	55.0	55.1			30
MACD004	56.0	56.1			
MACD004	57.0	57.1			
MACD004	58.0	58.1			
MACD004	59.0	59.1			
MACD004	60.0	60.1			
MACD004	61.0	61.1			20
MACD004	62.0	62.1			20
MACD004	63.0	63.1			30
MACD004	64.0	64.1			25
MACD004	65.0	65.1			35
MACD004	66.0	66.1			30
MACD004	67.0	67.1			25
MACD004	68.0	68.1			10
MACD004	69.0	69.1			40
MACD004	70.0	70.1			30
MACD004	71.0	71.1			25
MACD004	72.0	72.1			20
MACD004	73.0	73.1			30
MACD004	74.0	74.1			20
MACD004	75.0	75.1			30
MACD004	76.0	76.1			50
MACD004	77.0	77.1			50
MACD004	78.0	78.1			10
MACD004	79.0	79.1			10
MACD004	80.0	80.1			30
MACD004	81.0	81.1			30
MACD004	82.0	82.1			30
MACD004	83.0	83.1			25
MACD004	84.0	84.1			20
MACD004	85.0	85.1			25
MACD004	86.0	86.1			35
MACD004	87.0	87.1			20
MACD004	88.0	88.1			35
MACD004	89.0	89.1			20
MACD004	90.0	90.1			30
MACD004	91.0	91.1			30
MACD004	92.0	92.1			30
MACD004	93.0	93.1			30
MACD004	94.0	94.1			40
MACD004	95.0	95.1			30
MACD004	96.0	96.1			
MACD004	97.0	97.1			250
MACD004	98.0	98.1			290
MACD004	99.0	99.1			260
MACD004	100.0	100.1			360
MACD004	101.0	101.1			
MACD004	102.0	102.1			40

DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
MACD004	103.0	103.1			50
MACD004	104.0	104.1			30
MACD004	105.0	105.1			25
MACD004	106.0	106.1			20
MACD004	107.0	107.1			30
MACD004	108.0	108.1			10
MACD004	109.0	109.1			30
MACD004	110.0	110.1			30
MACD004	111.0	111.1			20
MACD004	112.0	112.1			30
MACD004	113.0	113.1			25
MACD004	114.0	114.1			30
MACD004	115.0	115.1			30
MACD004	116.0	116.1			45
MACD004	117.0	117.1			30
MACD004	118.0	118.1			30
MACD004	119.0	119.1			15
MACD004	120.0	120.1			30
MACD004	121.0	121.1			30
MACD004	122.0	122.1			20
MACD004	123.0	123.1			35
MACD004	124.0	124.1			35
MACD004	125.0	125.1			35
MACD004	126.0	126.1			40
MACD004	127.0	127.1			25
MACD004	128.0	128.1			25
MACD004	129.0	129.1			20
MACD004	130.0	130.1			30
MACD004	131.0	131.1			40
MACD004	132.0	132.1			20
MACD004	133.0	133.1			15
MACD004	134.0	134.1			10
MACD004	135.0	135.1			30
MACD004	136.0	136.1			15
MACD004	137.0	137.1			20
MACD004	138.0	138.1			20
MACD004	139.0	139.1			20
MACD004	140.0	140.1			50
MACD004	141.0	141.1			15
MACD004	142.0	142.1			20
MACD004	143.0	143.1			45
MACD004	144.0	144.1			10
MACD004	145.0	145.1			20
MACD004	146.0	146.1			20
MACD004	147.0	147.1			25
MACD004	148.0	148.1			10
MACD004	149.0	149.1			20
MACD004	150.0	150.1			25
MACD004	151.0	151.1			15
MACD004	152.0	152.1			20
MACD004	153.0	153.1			25
MACD004	154.0	154.1			35
MACD004	155.0	155.1			20

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598827

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
MACD004	156.0	156.1			25
MACD004	157.0	157.1			20
MACD004	158.0	158.1			25
MACD004	159.0	159.1			15
MACD004	160.0	160.1			15
MACD004	161.0	161.1			15
MACD004	162.0	162.1			10
MACD004	163.0	163.1			20
MACD004	164.0	164.1			10
MACD004	165.0	165.1			15
MACD004	166.0	166.1			30
MACD004	167.0	167.1			30
MACD004	168.0	168.1			30
MACD004	169.0	169.1			10
MACD004	170.0	170.1			20
MACD004	171.0	171.1			10
MACD004	172.0	172.1			25
MACD004	173.0	173.1			10
MACD004	174.0	174.1			20
MACD004	175.0	175.1			20
MACD004	176.0	176.1			15
MACD004	177.0	177.1			5
MACD004	178.0	178.1			20
MACD004	179.0	179.1			15
MACD004	180.0	180.1			20
MACD004	181.0	181.1			20
MACD004	182.0	182.1			10
MACD004	183.0	183.1			10
MACD004	184.0	184.1			20
MACD004	185.0	185.1			25
MACD004	186.0	186.1			20
MACD004	187.0	187.1			15
MACD004	188.0	188.1			25
MACD004	189.0	189.1			15
MACD004	190.0	190.1			15
MACD004	191.0	191.1			30
MACD004	192.0	192.1			20
MACD004	193.0	193.1			15
MACD004	194.0	194.1			10
MACD004	195.0	195.1			10
MACD004	196.0	196.1			15
MACD004	197.0	197.1			10
MACD004	198.0	198.1			
MACD004	199.0	199.1			
MACD004	200.0	200.1			15
MACD004	201.0	201.1			10
MACD004	202.0	202.1			5
MACD004	203.0	203.1			10
MACD004	204.0	204.1			35
MACD004	205.0	205.1			10
MACD004	206.0	206.1			10
MACD004	207.0	207.1			10
MACD004	208.0	208.1			15

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598828

DHID9	FROM9	TOTD9	ROCK	ALTNG	SUSCPT
MACD004	209.0	209.1			10
MACD004	210.0	210.1			10
MACD004	211.0	211.1			20
MACD004	212.0	212.1			10
MACD004	213.0	213.1			10
MACD004	214.0	214.1			15
MACD004	215.0	215.1			10
MACD004	216.0	216.1			20
MACD004	217.0	217.1			20
MACD004	218.0	218.1			20
MACD004	219.0	219.1			15
MACD004	220.0	220.1			20
MACD004	221.0	221.1			15
MACD004	222.0	222.1			
MACD004	223.0	223.1			
MACD004	224.0	224.1			
MACD004	225.0	225.1			10
MACD004	226.0	226.1			
MACD004	227.0	227.1			
MACD004	228.0	228.1			10
MACD004	229.0	229.1			10
MACD004	230.0	230.1			10
MACD004	231.0	231.1			10
MACD004	232.0	232.1			10
MACD004	233.0	233.1			15
MACD004	234.0	234.1			10
MACD004	235.0	235.1			15
MACD004	236.0	236.1			20
MACD004	237.0	237.1			15
MACD004	238.0	238.1			25
MACD004	239.0	239.1			15
MACD004	240.0	240.1			25
MACD004	241.0	241.1			20
MACD004	242.0	242.1			20
MACD004	243.0	243.1			15
MACD004	244.0	244.1			15
MACD004	245.0	245.1			20
MACD004	246.0	246.1			40
MACD004	247.0	247.1			35
MACD004	248.0	248.1			10
MACD004	249.0	249.1			10
MACD004	250.0	250.1			30
MACD004	251.0	251.1			25
MACD004	252.0	252.1			15
MACD004	253.0	253.1			15
MACD004	254.0	254.1			15
MACD004	255.0	255.1			15
MACD004	256.0	256.1			15
MACD004	257.0	257.1			10
MACD004	258.0	258.1			10
MACD004	259.0	259.1			25
MACD004	260.0	260.1			15
MACD004	261.0	261.1			50

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
MACD004	262.0	262.1			10
MACD004	263.0	263.1			35
MACD004	264.0	264.1			10
MACD004	265.0	265.1			15
MACD004	266.0	266.1			15
MACD004	267.0	267.1			10
MACD004	268.0	268.1			10
MACD004	269.0	269.1			15
MACD004	270.0	270.1			15
MACD004	271.0	271.1			10
MACD004	272.0	272.1			15
MACD004	273.0	273.1			20
MACD004	274.0	274.1			20
MACD004	275.0	275.1			10
MACD004	276.0	276.1			20
MACD004	277.0	277.1			10
MACD004	278.0	278.1			10
MACD004	279.0	279.1			20
MACD004	280.0	280.1			20
MACD004	281.0	281.1			15
MACD004	282.0	282.1			20
MACD004	283.0	283.1			20
MACD004	284.0	284.1			15
MACD004	285.0	285.1			20
MACD004	286.0	286.1			15
MACD004	287.0	287.1			20
MACD004	288.0	288.1			40
MACD004	289.0	289.1			15
MACD004	290.0	290.1			20
MACD004	291.0	291.1			30
MACD004	292.0	292.1			35
MACD004	293.0	293.1			15
MACD004	294.0	294.1			20
MACD004	295.0	295.1			30
MACD004	296.0	296.1			35
MACD004	297.0	297.1			15
MACD004	298.0	298.1			15
MACD004	299.0	299.1			15
MACD004	300.0	300.1			35
MACD004	301.0	301.1			
MACD004	302.0	302.1			
MACD004	303.0	303.1			35
MACD004	304.0	304.1			30
MACD004	305.0	305.1			50
MACD004	306.0	306.1			30
MACD004	307.0	307.1			25
MACD004	308.0	308.1			35
MACD004	309.0	309.1			10
MACD004	310.0	310.1			35
MACD004	311.0	311.1			35
MACD004	312.0	312.1			40
MACD004	313.0	313.1			45
MACD004	314.0	314.1			70

DHID9	FROM9	TOT09	ROCK ALTNG	SUSCPT
MACD004	315.0	315.1		50
MACD004	316.0	316.1		20
MACD004	317.0	317.1		10
MACD004	318.0	318.1		25
MACD004	319.0	319.1		30
MACD004	320.0	320.1		20
MACD004	321.0	321.1		35
MACD004	322.0	322.1		30
MACD004	323.0	323.1		30
MACD004	324.0	324.1		20
MACD004	325.0	325.1		30
MACD004	326.0	326.1		30
MACD004	327.0	327.1		30
MACD004	328.0	328.1		10
MACD004	329.0	329.1		25
MACD004	330.0	330.1		20
MACD004	331.0	331.1		40
MACD004	332.0	332.1		40
MACD004	333.0	333.1		40
MACD004	334.0	334.1		25
MACD004	335.0	335.1		40
MACD004	336.0	336.1		40
MACD004	337.0	337.1		45
MACD004	338.0	338.1		25
MACD004	339.0	339.1		25
MACD004	340.0	340.1		70
MACD004	341.0	341.1		50
MACD004	342.0	342.1		40
MACD004	343.0	343.1		40
MACD004	344.0	344.1		50
MACD004	345.0	345.1		20
MACD004	346.0	346.1		35
MACD004	347.0	347.1		30
MACD004	347.9	348.0		20
MACD005	0.0	0.1		
MACD005	1.0	1.1		
MACD005	2.0	2.1		
MACD005	3.0	3.1		
MACD005	4.0	4.1		
MACD005	5.0	5.1		
MACD005	6.0	6.1		
MACD005	7.0	7.1		
MACD005	8.0	8.1		
MACD005	9.0	9.1		
MACD005	10.0	10.1		
MACD005	11.0	11.1		
MACD005	12.0	12.1		5
MACD005	13.0	13.1		
MACD005	14.0	14.1		
MACD005	15.0	15.1		
MACD005	16.0	16.1		
MACD005	17.0	17.1		

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
MACD005	18.0	18.1			
MACD005	19.0	19.1			
MACD005	20.0	20.1			
MACD005	21.0	21.1			
MACD005	22.0	22.1			
MACD005	23.0	23.1			
MACD005	24.0	24.1			
MACD005	25.0	25.1			
MACD005	26.0	26.1			
MACD005	27.0	27.1			10
MACD005	28.0	28.1			
MACD005	29.0	29.1			
MACD005	30.0	30.1			
MACD005	31.0	31.1			
MACD005	32.0	32.1			
MACD005	33.0	33.1			
MACD005	34.0	34.1			
MACD005	35.0	35.1			
MACD005	36.0	36.1			5
MACD005	37.0	37.1			10
MACD005	38.0	38.1			25
MACD005	39.0	39.1			10
MACD005	40.0	40.1			25
MACD005	41.0	41.1			20
MACD005	42.0	42.1			0
MACD005	43.0	43.1			0
MACD005	44.0	44.1			
MACD005	45.0	45.1			
MACD005	46.0	46.1			5
MACD005	47.0	47.1			5
MACD005	48.0	48.1			5
MACD005	49.0	49.1			5
MACD005	50.0	50.1			5
MACD005	51.0	51.1			
MACD005	52.0	52.1			
MACD005	53.0	53.1			
MACD005	54.0	54.1			
MACD005	55.0	55.1			
MACD005	56.0	56.1			
MACD005	57.0	57.1			
MACD005	58.0	58.1			10
MACD005	59.0	59.1			10
MACD005	60.0	60.1			10
MACD005	61.0	61.1			5
MACD005	62.0	62.1			5
MACD005	63.0	63.1			20
MACD005	64.0	64.1			20
MACD005	65.0	65.1			15
MACD005	66.0	66.1			
MACD005	67.0	67.1			
MACD005	68.0	68.1			
MACD005	69.0	69.1			5
MACD005	70.0	70.1			10

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DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
MACD005	71.0	71.1			5
MACD005	72.0	72.1			5
MACD005	73.0	73.1			
MACD005	74.0	74.1			
MACD005	75.0	75.1			
MACD005	76.0	76.1			
MACD005	77.0	77.1			
MACD005	78.0	78.1			5
MACD005	79.0	79.1			15
MACD005	80.0	80.1			20
MACD005	81.0	81.1			10
MACD005	82.0	82.1			10
MACD005	83.0	83.1			20
MACD005	84.0	84.1			10
MACD005	85.0	85.1			10
MACD005	86.0	86.1			15
MACD005	87.0	87.1			20
MACD005	88.0	88.1			20
MACD005	89.0	89.1			25
MACD005	90.0	90.1			15
MACD005	91.0	91.1			15
MACD005	92.0	92.1			
MACD005	93.0	93.1			20
MACD005	94.0	94.1			20
MACD005	95.0	95.1			20
MACD005	96.0	96.1			
MACD005	97.0	97.1			25
MACD005	98.0	98.1			20
MACD005	99.0	99.1			40
MACD005	100.0	100.1			20
MACD005	101.0	101.1			
MACD005	102.0	102.1			
MACD005	103.0	103.1			
MACD005	104.0	104.1			
MACD005	105.0	105.1			
MACD005	107.0	107.1			15
MACD005	108.0	108.1			
MACD005	109.0	109.1			30
MACD005	110.0	110.1			35
MACD005	111.0	111.1			30
MACD005	112.0	112.1			30
MACD005	113.0	113.1			20
MACD005	114.0	114.1			20
MACD005	115.0	115.1			30
MACD005	116.0	116.1			
MACD005	117.0	117.1			
MACD005	118.0	118.1			
MACD005	119.0	119.1			
MACD005	120.0	120.1			10
MACD005	121.0	121.1			
MACD005	122.0	122.1			
MACD005	123.0	123.1			
MACD005	124.0	124.1			

DH109	FROM9	TOT09	ROCK ALTNG	SUSCPT
MACD005	125.0	125.1		30
MACD005	126.0	126.1		
MACD005	127.0	127.1		
MACD005	128.0	128.1		
MACD005	129.0	129.1		20
MACD005	130.0	130.1		
MACD005	131.0	131.1		
MACD005	132.0	132.1		
MACD005	133.0	133.1		
MACD005	134.0	134.1		
MACD005	135.0	135.1		25
MACD005	136.0	136.1		
MACD005	137.0	137.1		
MACD005	138.0	138.1		25
MACD005	139.0	139.1		30
MACD005	140.0	140.1		10
MACD005	141.0	141.1		25
MACD005	142.0	142.1		30
MACD005	143.0	143.1		30
MACD005	144.0	144.1		25
MACD005	145.0	145.1		
MACD005	146.0	146.1		40
MACD005	147.0	147.1		25
MACD005	148.0	148.1		15
MACD005	149.0	149.1		20
MACD005	150.0	150.1		20
MACD005	151.0	151.1		15
MACD005	152.0	152.1		40
MACD005	153.0	153.1		25
MACD005	154.0	154.1		25
MACD005	155.0	155.1		
MACD005	156.0	156.1		45
MACD005	157.0	157.1		20
MACD005	158.0	158.1		15
MACD005	159.0	159.1		30
MACD005	160.0	160.1		25
MACD005	161.0	161.1		25
MACD005	162.0	162.1		35
MACD005	163.0	163.1		30
MACD005	164.0	164.1		30
MACD005	165.0	165.1		20
MACD005	166.0	166.1		20
MACD005	167.0	167.1		20
MACD005	168.0	168.1		25
MACD005	169.0	169.1		25
MACD005	170.0	170.1		20
MACD005	171.0	171.1		20
MACD005	172.0	172.1		
MACD005	173.0	173.1		
MACD005	174.0	174.1		
MACD005	175.0	175.1		20
MACD005	176.0	176.1		20
MACD005	177.0	177.1		

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DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
MACD005	178.0	178.1			25
MACD005	179.0	179.1			15
MACD005	180.0	180.1			15
MACD005	181.0	181.1			25
MACD005	182.0	182.1			25
MACD005	183.0	183.1			35
MACD005	184.0	184.1			30
MACD005	185.0	185.1			20
MACD005	186.0	186.1			30
MACD005	187.0	187.1			20
MACD005	188.0	188.1			20
MACD005	189.0	189.1			10
MACD005	190.0	190.1			30
MACD005	191.0	191.1			30
MACD005	192.0	192.1			30
MACD005	193.0	193.1			25
MACD005	194.0	194.1			35
MACD005	195.0	195.1			30
MACD005	196.0	196.1			25
MACD005	197.0	197.1			40
MACD005	198.0	198.1			30
MACD005	199.0	199.1			25
MACD005	200.0	200.1			30
MACD005	201.0	201.1			25
MACD005	202.0	202.1			30
MACD005	203.0	203.1			25
MACD005	204.0	204.1			25
MACD005	205.0	205.1			30
MACD005	206.0	206.1			35
MACD005	207.0	207.1			40
MACD005	208.0	208.1			30
MACD005	209.0	209.1			30
MACD005	210.0	210.1			30
MACD005	211.0	211.1			30
MACD005	212.0	212.1			35
MACD005	213.0	213.1			30
MACD005	214.0	214.1			30
MACD005	215.0	215.1			30
MACD005	216.0	216.1			35
MACD005	217.0	217.1			40
MACD005	218.0	218.1			35
MACD005	219.0	219.1			30
MACD005	220.0	220.1			30
MACD005	221.0	221.1			30
MACD005	222.0	222.1			30
MACD005	223.0	223.1			40
MACD005	224.0	224.1			30
MACD005	225.0	225.1			30
MACD005	226.0	226.1			20
MACD005	227.0	227.1			25
MACD005	228.0	228.1			30
MACD005	229.0	229.1			25
MACD005	230.0	230.1			40

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598835

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
MACD005	231.0	231.1			40
MACD005	232.0	232.1			40
MACD005	233.0	233.1			40
MACD005	234.0	234.1			40
MACD005	235.0	235.1			30
MACD005	236.0	236.1			40
MACD005	237.0	237.1			20
MACD005	238.0	238.1			30
MACD005	239.0	239.1			20
MACD005	240.0	240.1			30
MACD005	241.0	241.1			30
MACD005	242.0	242.1			30
MACD005	243.0	243.1			25
MACD005	244.0	244.1			20
MACD005	245.0	245.1			20
MACD005	246.0	246.1			20
MACD005	247.0	247.1			25
MACD005	248.0	248.1			30
MACD005	249.0	249.1			30
MACD005	250.0	250.1			40
MACD005	251.0	251.1			30
MACD005	252.0	252.1			30
MACD005	253.0	253.1			40
MACD005	254.0	254.1			40
MACD005	255.0	255.1			40
MACD005	256.0	256.1			40
MACD005	257.0	257.1			35
MACD005	258.0	258.1			30
MACD005	259.0	259.1			20
MACD005	260.0	260.1			35
MACD005	261.0	261.1			40
MACD005	262.0	262.1			35
MACD005	263.0	263.1			40
MACD005	264.0	264.1			40
MACD005	265.0	265.1			40
MACD005	266.0	266.1			35
MACD005	267.0	267.1			35
MACD005	268.0	268.1			40
MACD005	269.0	269.1			30
MACD005	269.0	269.1			30
MACD005	270.0	270.1			35
MACD005	271.0	271.1			30
MACD005	272.0	272.1			30
MACD005	273.0	273.1			30
MACD005	274.0	274.1			30
MACD005	275.0	275.1			20
MACD005	276.0	276.1			30
MACD005	277.0	277.1			40
MACD005	278.0	278.1			30
MACD005	279.0	279.1			30
MACD005	280.0	280.1			30
MACD005	281.0	281.1			25
MACD005	282.0	282.1			30

598836

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
MACD005	283.0	283.1			20
MACD005	284.0	284.1			
MACD005	285.0	285.1			30
MACD005	286.0	286.1			40
MACD005	287.0	287.1			10
MACD005	288.0	288.1			30
MACD005	289.0	289.1			30
MACD005	290.0	290.1			50
MACD005	291.0	291.1			40
MACD005	292.0	292.1			25
MACD005	293.0	293.1			20
MACD005	294.0	294.1			30
MACD005	295.0	295.1			35
MACD005	296.0	296.1			30
MACD005	297.0	297.1			50
MACD005	298.0	298.1			35
MACD005	299.0	299.1			20
MACD005	300.0	300.1			20
MACD005	301.0	301.1			10
MACD005	302.0	302.1			40
MACD005	303.0	303.1			15
MACD005	304.0	304.1			15
MACD005	305.0	305.1			20
MACD005	306.0	306.1			10
MACD005	307.0	307.1			10
MACD005	308.0	308.1			5
MACD005	309.0	309.1			10
MACD005	310.0	310.1			10
MACD005	311.0	311.1			10
MACD005	312.0	312.1			20
MACD005	313.0	313.1			20
MACD005	314.0	314.1			20
MACD005	315.0	315.1			20
MACD005	316.0	316.1			20
MACD005	317.0	317.1			20
MACD005	318.0	318.1			20
MACD005	319.0	319.1			20
MACD005	320.0	320.1			30
MACD005	321.0	321.1			20
MACD005	322.0	322.1			20
MACD005	323.0	323.1			20
MACD005	324.0	324.1			20
MACD005	325.0	325.1			10
MACD005	326.0	326.1			10
MACD005	327.0	327.1			10
MACD005	328.0	328.1			10
MACD005	329.0	329.1			10
MACD005	330.0	330.1			15
MACD005	331.0	331.1			10
MACD005	332.0	332.1			10
MACD005	333.0	333.1			10
MACD005	334.0	334.1			10
MACD005	335.0	335.1			10

834

598837

DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
MACD005	336.0	336.1			10
MACD005	337.0	337.1			10
MACD005	338.0	338.1			10
MACD005	339.0	339.1			5
MACD005	340.0	340.1			10
MACD005	341.0	341.1			10
MACD005	342.0	342.1			10
MACD005	343.0	343.1			15
MACD005	344.0	344.1			15
MACD005	345.0	345.1			15
MACD005	346.0	346.1			10
MACD005	347.0	347.1			20
MACD005	348.0	348.1			10
MACD005	349.0	349.1			25
MACD005	350.0	350.1			10
MACD005	351.0	351.1			10
MACD005	352.0	352.1			10
MACD005	353.0	353.1			10
MACD005	354.0	354.1			20
MACD005	355.0	355.1			10
MACD005	356.0	356.1			10
MACD005	357.0	357.1			20
MACD005	358.0	358.1			20
MACD005	359.0	359.1			20
MACD005	360.0	360.1			
MACD005	361.0	361.1			
MACD005	362.0	362.1			20
MACD005	363.0	363.1			30
MACD005	364.0	364.1			30
MACD005	365.0	365.1			
MACD005	366.0	366.1			0
MACD005	367.0	367.1			20
MACD005	368.0	368.1			20
MACD005	369.0	369.1			30
MACD005	370.0	370.1			30
MACD005	371.0	371.1			30
MACD005	372.0	372.1			25
MACD005	373.0	373.1			25
MACD005	374.0	374.1			20
MACD005	375.0	375.1			30
MACD005	376.0	376.1			20
MACD005	377.0	377.1			30
MACD005	378.0	378.1			30
MACD005	379.0	379.1			30
MACD005	380.0	380.1			20
MACD005	381.0	381.1			25
MACD005	382.0	382.1			25
MACD005	383.0	383.1			20
MACD005	384.0	384.1			20
MACD005	385.0	385.1			25
MACD005	386.0	386.1			10
MACD005	387.0	387.1			20
MACD005	388.0	388.1			20

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598838

DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
MACD005	389.0	389.1			20
MACD005	390.0	390.1			25
MACD005	391.0	391.1			20
MACD005	392.0	392.1			20
MACD005	393.0	393.1			20
MACD005	394.0	394.1			20
MACD005	395.0	395.1			20
MACD005	396.0	396.1			30
MACD005	397.0	397.1			25
MACD005	398.0	398.1			30
MACD005	399.0	399.1			25
MACD005	400.0	400.1			30
MACD005	401.0	401.1			20
MACD005	402.0	402.1			30
MACD005	403.0	403.1			25
MACD005	404.0	404.1			30
MACD005	405.0	405.1			10
MACD005	406.0	406.1			40
MACD005	407.0	407.1			30
MACD005	408.0	408.1			35
MACD005	409.0	409.1			30
MACD005	410.0	410.1			30
MACD005	411.0	411.1			30
MACD005	412.0	412.1			20
MACD005	413.0	413.1			30
MACD005	414.0	414.1			40
MACD005	415.0	415.1			35
MACD005	416.0	416.1			30
MACD005	417.0	417.1			20
MACD005	418.0	418.1			30
MACD005	419.0	419.1			20
MACD005	420.0	420.1			20
MACD005	421.0	421.1			20
MACD005	422.0	422.1			20
MACD005	423.0	423.1			20
MACD005	424.0	424.1			
MACD006	0.0	0.1			
MACD006	1.0	1.1			
MACD006	2.0	2.1			
MACD006	3.0	3.1			
MACD006	4.0	4.1			
MACD006	5.0	5.1			
MACD006	6.0	6.1			10
MACD006	7.0	7.1			30
MACD006	8.0	8.1			10
MACD006	9.0	9.1			10
MACD006	10.0	10.1			10
MACD006	11.0	11.1			10
MACD006	12.0	12.1			10
MACD006	13.0	13.1			10
MACD006	14.0	14.1			30
MACD006	15.0	15.1			70

836

598839

DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
MACD006	16.0	16.1			10
MACD006	17.0	17.1			10
MACD006	18.0	18.1			20
MACD006	19.0	19.1			20
MACD006	20.0	20.1			10
MACD006	21.0	21.1			20
MACD006	22.0	22.1			20
MACD006	23.0	23.1			10
MACD006	24.0	24.1			10
MACD006	25.0	25.1			10
MACD006	26.0	26.1			30
MACD006	27.0	27.1			20
MACD006	28.0	28.1			20
MACD006	29.0	29.1			20
MACD006	30.0	30.1			20
MACD006	31.0	31.1			20
MACD006	32.0	32.1			20
MACD006	33.0	33.1			30
MACD006	34.0	34.1			10
MACD006	35.0	35.1			10
MACD006	36.0	36.1			20
MACD006	37.0	37.1			10
MACD006	38.0	38.1			10
MACD006	39.0	39.1			10
MACD006	40.0	40.1			10
MACD006	41.0	41.1			10
MACD006	42.0	42.1			10
MACD006	43.0	43.1			20
MACD006	44.0	44.1			10
MACD006	45.0	45.1			20
MACD006	46.0	46.1			20
MACD006	47.0	47.1			20
MACD006	48.0	48.1			20
MACD006	49.0	49.1			20
MACD006	50.0	50.1			20
MACD006	51.0	51.1			20
MACD006	52.0	52.1			20
MACD006	53.0	53.1			20
MACD006	54.0	54.1			30
MACD006	55.0	55.1			30
MACD006	56.0	56.1			20
MACD006	57.0	57.1			20
MACD006	58.0	58.1			20
MACD006	59.0	59.1			20
MACD006	60.0	60.1			20
MACD006	61.0	61.1			20
MACD006	62.0	62.1			30
MACD006	63.0	63.1			20
MACD006	64.0	64.1			30
MACD006	65.0	65.1			20
MACD006	66.0	66.1			20
MACD006	67.0	67.1			20
MACD006	68.0	68.1			30

837

598840

DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
MACD006	69.0	69.1			20
MACD006	70.0	70.1			20
MACD006	71.0	71.1			20
MACD006	72.0	72.1			20
MACD006	73.0	73.1			30
MACD006	74.0	74.1			20
MACD006	75.0	75.1			40
MACD006	76.0	76.1			10
MACD006	77.0	77.1			20
MACD006	78.0	78.1			30
MACD006	79.0	79.1			70
MACD006	80.0	80.1			40
MACD006	81.0	81.1			20
MACD006	82.0	82.1			30
MACD006	83.0	83.1			
MACD006	84.0	84.1			30
MACD006	85.0	85.1			40
MACD006	86.0	86.1			30
MACD006	87.0	87.1			20
MACD006	88.0	88.1			30
MACD006	89.0	89.1			20
MACD006	90.0	90.1			30
MACD006	91.0	91.1			30
MACD006	92.0	92.1			30
MACD006	93.0	93.1			40
MACD006	94.0	94.1			30
MACD006	95.0	95.1			30
MACD006	96.0	96.1			30
MACD006	97.0	97.1			40
MACD006	98.0	98.1			20
MACD006	99.0	99.1			30
MACD006	100.0	100.1			40
MACD006	101.0	101.1			30
MACD006	102.0	102.1			30
MACD006	103.0	103.1			30
MACD006	104.0	104.1			20
MACD006	105.0	105.1			20
MACD006	106.0	106.1			20
MACD006	107.0	107.1			30
MACD006	108.0	108.1			30
MACD006	109.0	109.1			20
MACD006	110.0	110.1			20
MACD006	111.0	111.1			20
MACD006	112.0	112.1			10
MACD006	113.0	113.1			20
MACD006	114.0	114.1			30
MACD006	115.0	115.1			30
MACD006	116.0	116.1			30
MACD006	117.0	117.1			20
MACD006	118.0	118.1			10
MACD006	119.0	119.1			20
MACD006	120.0	120.1			30
MACD006	121.0	121.1			20

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
MACD006	122.0	122.1			20
MACD006	123.0	123.1			10
MACD006	124.0	124.1			10
MACD006	125.0	125.1			10
MACD006	126.0	126.1			10
MACD006	127.0	127.1			30
MACD006	128.0	128.1			20
MACD006	129.0	129.1			50
MACD006	130.0	130.1			20
MACD006	131.0	131.1			30
MACD006	132.0	132.1			30
MACD006	133.0	133.1			20
MACD006	134.0	134.1			30
MACD006	135.0	135.1			10
MACD006	136.0	136.1			30
MACD006	137.0	137.1			30
MACD006	138.0	138.1			30
MACD006	139.0	139.1			20
MACD006	140.0	140.1			30
MACD006	141.0	141.1			20
MACD006	142.0	142.1			20
MACD006	143.0	143.1			30
MACD006	144.0	144.1			30
MACD006	145.0	145.1			30
MACD006	146.0	146.1			20
MACD006	147.0	147.1			20
MACD006	148.0	148.1			30
MACD006	149.0	149.1			30
MACD006	150.0	150.1			30
MACD006	151.0	151.1			20
MACD006	152.0	152.1			30
MACD006	153.0	153.1			30
MACD006	154.0	154.1			40
MACD006	155.0	155.1			30
MACD006	156.0	156.1			30
MACD006	157.0	157.1			30
MACD006	158.0	158.1			30
MACD006	159.0	159.1			10
MACD006	160.0	160.1			30
MACD006	161.0	161.1			30
MACD006	162.0	162.1			30
MACD006	163.0	163.1			30
MACD006	164.0	164.1			30
MACD006	165.0	165.1			40
MACD006	166.0	166.1			30
MACD006	167.0	167.1			30
MACD006	168.0	168.1			20
MACD006	169.0	169.1			30
MACD006	170.0	170.1			30
MACD006	171.0	171.1			40
MACD006	172.0	172.1			30
MACD006	173.0	173.1			29
MACD006	174.0	174.1			30

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
MACD006	175.0	175.1			30
MACD006	176.0	176.1			30
MACD006	177.0	177.1			30
MACD006	178.0	178.1			20
MACD006	179.0	179.1			30
MACD006	180.0	180.1			30
MACD006	181.0	181.1			30
MACD006	182.0	182.1			30
MACD006	183.0	183.1			30
MACD006	184.0	184.1			30
MACD006	185.0	185.1			30
MACD006	186.0	186.1			30
MACD006	187.0	187.1			20
MACD006	188.0	188.1			30
MACD006	189.0	189.1			30
MACD006	190.0	190.1			30
MACD006	191.0	191.1			20
MACD006	192.0	192.1			20
MACD006	193.0	193.1			20
MACD006	194.0	194.1			20
MACD006	195.0	195.1			20
MACD006	196.0	196.1			10
MACD006	197.0	197.1			10
MACD006	198.0	198.1			20
MACD006	199.0	199.1			20
MACD006	200.0	200.1			20
MACD006	201.0	201.1			20
MACD006	202.0	202.1			10
MACD006	203.0	203.1			20
MACD006	204.0	204.1			30
MACD006	205.0	205.1			20
MACD006	206.0	206.1			20
MACD006	207.0	207.1			20
MACD006	208.0	208.1			20
MACD006	209.0	209.1			30
MACD006	210.0	210.1			30
MACD006	211.0	211.1			20
MACD006	212.0	212.1			30
MACD006	213.0	213.1			30
MACD006	214.0	214.1			30
MACD006	215.0	215.1			30
MACD006	216.0	216.1			10
MACD006	217.0	217.1			30
MACD006	218.0	218.1			20
MACD006	219.0	219.1			20
MACD006	220.0	220.1			20
MACD006	221.0	221.1			10
MACD006	222.0	222.1			20
MACD006	223.0	223.1			20
MACD006	224.0	224.1			20
MACD006	225.0	225.1			10
MACD006	226.0	226.1			10
MACD006	227.0	227.1			20

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598843

DHID9	FROM9	TOTO9	ROCK	ALTND	SUSCPT
MACD006	228.0	228.1			20
MACD006	229.0	229.1			20
MACD006	230.0	230.1			10
MACD006	231.0	231.1			10
MACD006	232.0	232.1			10
MACD006	233.0	233.1			30
MACD006	234.0	234.1			20
MACD006	235.0	235.1			20
MACD006	236.0	236.1			20
MACD006	237.0	237.1			20
MACD006	238.0	238.1			30
MACD006	239.0	239.1			20
MACD006	240.0	240.1			20
MACD006	241.0	241.1			20
MACD006	242.0	242.1			20
MACD006	243.0	243.1			20
MACD006	244.0	244.1			20
MACD006	245.0	245.1			30
MACD006	246.0	246.1			30
MACD006	247.0	247.1			30
MACD006	248.0	248.1			30
MACD006	249.0	249.1			40
MACD006	250.0	250.1			30
MACD006	251.0	251.1			30
MACD006	252.0	252.1			30
MACD007	0.0	0.1			
MACD007	1.0	1.1			
MACD007	2.0	2.1			
MACD007	3.0	3.1			
MACD007	4.0	4.1			
MACD007	5.0	5.1			
MACD007	6.0	6.1			
MACD007	7.0	7.1			
MACD007	8.0	8.1			
MACD007	9.0	9.1			
MACD007	10.0	10.1			
MACD007	11.0	11.1			
MACD007	12.0	12.1			
MACD007	13.0	13.1			
MACD007	14.0	14.1			
MACD007	15.0	15.1			
MACD007	16.0	16.1			
MACD007	17.0	17.1			20
MACD007	18.0	18.1			
MACD007	19.0	19.1			30
MACD007	20.0	20.1			20
MACD007	21.0	21.1			
MACD007	22.0	22.1			
MACD007	23.0	23.1			
MACD007	24.0	24.1			
MACD007	25.0	25.1			25
MACD007	26.0	26.1			20

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(841

OHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
MACD007	27.0	27.1			
MACD007	28.0	28.1			
MACD007	29.0	29.1			
MACD007	30.0	30.1			
MACD007	31.0	31.1			
MACD007	32.0	32.1			
MACD007	33.0	33.1			
MACD007	34.0	34.1			
MACD007	35.0	35.1			
MACD007	36.0	36.1			25
MACD007	37.0	37.1			25
MACD007	38.0	38.1			25
MACD007	39.0	39.1			
MACD007	40.0	40.1			
MACD007	41.0	41.1			25
MACD007	42.0	42.1			35
MACD007	43.0	43.1			30
MACD007	44.0	44.1			
MACD007	45.0	45.1			
MACD007	46.0	46.1			20
MACD007	47.0	47.1			20
MACD007	48.0	48.1			20
MACD007	49.0	49.1			15
MACD007	50.0	50.1			10
MACD007	51.0	51.1			35
MACD007	52.0	52.1			25
MACD007	53.0	53.1			20
MACD007	54.0	54.1			20
MACD007	55.0	55.1			15
MACD007	56.0	56.1			20
MACD007	57.0	57.1			15
MACD007	58.0	58.1			15
MACD007	59.0	59.1			15
MACD007	60.0	60.1			10
MACD007	61.0	61.1			20
MACD007	62.0	62.1			15
MACD007	63.0	63.1			20
MACD007	64.0	64.1			10
MACD007	65.0	65.1			20
MACD007	66.0	66.1			5
MACD007	67.0	67.1			
MACD007	68.0	68.1			20
MACD007	69.0	69.1			30
MACD007	70.0	70.1			20
MACD007	71.0	71.1			25
MACD007	72.0	72.1			50
MACD007	73.0	73.1			40
MACD007	74.0	74.1			10
MACD007	75.0	75.1			25
MACD007	76.0	76.1			35
MACD007	77.0	77.1			35
MACD007	78.0	78.1			30
MACD007	79.0	79.1			30

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598845

HID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
MACD007	80.0	80.1			35
MACD007	81.0	81.1			55
MACD007	82.0	82.1			50
MACD007	83.0	83.1			
MACD007	84.0	84.1			55
MACD007	85.0	85.1			40
MACD007	86.0	86.1			10
MACD007	87.0	87.1			35
MACD007	88.0	88.1			35
MACD007	89.0	89.1			35
MACD007	90.0	90.1			
MACD007	91.0	91.1			
MACD007	92.0	92.1			
MACD007	93.0	93.1			40
MACD007	94.0	94.1			30
MACD007	95.0	95.1			40
MACD007	96.0	96.1			30
MACD007	97.0	97.1			30
MACD007	98.0	98.1			35
MACD007	99.0	99.1			30
MACD007	100.0	100.1			30
MACD007	101.0	101.1			30
MACD007	102.0	102.1			30
MACD007	103.0	103.1			35
MACD007	104.0	104.1			30
MACD007	105.0	105.1			30
MACD007	106.0	106.1			20
MACD007	107.0	107.1			30
MACD007	108.0	108.1			30
MACD007	109.0	109.1			25
MACD007	110.0	110.1			5
MACD007	111.0	111.1			30
MACD007	112.0	112.1			40
MACD007	113.0	113.1			30
MACD007	114.0	114.1			30
MACD007	115.0	115.1			30
MACD007	116.0	116.1			35
MACD007	117.0	117.1			30
MACD007	118.0	118.1			30
MACD007	119.0	119.1			30
MACD007	120.0	120.1			40
MACD007	121.0	121.1			10
MACD007	122.0	122.1			10
MACD007	123.0	123.1			40
MACD007	124.0	124.1			30
MACD007	125.0	125.1			35
MACD007	126.0	126.1			40
MACD007	127.0	127.1			35
MACD007	128.0	128.1			35
MACD007	129.0	129.1			35
MACD007	130.0	130.1			40
MACD007	131.0	131.1			30
MACD007	132.0	132.1			30

THID9	FROM9	TOTO9	ROCK ALTNG	SUSCPT
MACD007	133.0	133.1		30
MACD007	134.0	134.1		30
MACD007	135.0	135.1		25
MACD007	136.0	136.1		25
MACD007	137.0	137.1		20
MACD007	138.0	138.1		40
MACD007	139.0	139.1		30
MACD007	140.0	140.1		30
MACD007	141.0	141.1		40
MACD007	142.0	142.1		40
MACD007	143.0	143.1		20
MACD007	144.0	144.1		10
MACD007	145.0	145.1		35
MACD007	146.0	146.1		20
MACD007	147.0	147.1		10
MACD007	148.0	148.1		10
MACD007	149.0	149.1		10
MACD007	150.0	150.1		15
MACD007	151.0	151.1		10
MACD007	152.0	152.1		15
MACD007	153.0	153.1		20
MACD007	154.0	154.1		20
MACD007	155.0	155.1		15
MACD007	156.0	156.1		15
MACD007	157.0	157.1		15
MACD007	158.0	158.1		15
MACD007	159.0	159.1		15
MACD007	160.0	160.1		10
MACD007	161.0	161.1		20
MACD007	162.0	162.1		20
MACD007	163.0	163.1		15
MACD007	164.0	164.1		15
MACD007	165.0	165.1		20
MACD007	166.0	166.1		15
MACD007	167.0	167.1		10
MACD007	168.0	168.1		10
MACD007	169.0	169.1		10
MACD007	170.0	170.1		10
MACD007	171.0	171.1		10
MACD007	172.0	172.1		10
MACD007	173.0	173.1		10
MACD007	174.0	174.1		10
MACD007	175.0	175.1		10
MACD007	176.0	176.1		15
MACD007	177.0	177.1		10
MACD007	178.0	178.1		10
MACD007	179.0	179.1		10
MACD007	180.0	180.1		10
MACD007	181.0	181.1		10
MACD007	182.0	182.1		10
MACD007	183.0	183.1		10
MACD007	184.0	184.1		10
MACD007	185.0	185.1		10

598846

report on data-set @GPHMH from data-base @DBDMH:MH:20

using key-item KDHID from master-set @MIDMH

598847

BHID9	FROM9	TOTD9	ROCK	ALTNG	SUSCPT
HATD008	0.0	0.1			
HATD008	1.0	1.1			
HATD008	2.0	2.1			
HATD008	3.0	3.1			
HATD008	4.0	4.1			
HATD008	5.0	5.1			
HATD008	6.0	6.1			
HATD008	7.0	7.1			
HATD008	8.0	8.1			
HATD008	9.0	9.1			
HATD008	10.0	10.1			
HATD008	11.0	11.1			
HATD008	12.0	12.1			
HATD008	13.0	13.1			
HATD008	14.0	14.1			
HATD008	15.0	15.1			
HATD008	16.0	16.1			
HATD008	17.0	17.1			
HATD008	18.0	18.1			
HATD008	19.0	19.1			
HATD008	20.0	20.1			
HATD008	21.0	21.1			
HATD008	22.0	22.1			
HATD008	23.0	23.1			
HATD008	24.0	24.1			
HATD008	25.0	25.1			20
HATD008	26.0	26.1			30
HATD008	27.0	27.1			40
HATD008	28.0	28.1			40
HATD008	29.0	29.1			40
HATD008	30.0	30.1			50
HATD008	31.0	31.1			20
HATD008	32.0	32.1			20
HATD008	33.0	33.1			40
HATD008	34.0	34.1			30
HATD008	35.0	35.1			40
HATD008	36.0	36.1			40
HATD008	37.0	37.1			
HATD008	38.0	38.1			20
HATD008	39.0	39.1			30
HATD008	40.0	40.1			30
HATD008	41.0	41.1			30
HATD008	42.0	42.1			20
HATD008	43.0	43.1			40
HATD008	44.0	44.1			30
HATD008	45.0	45.1			30
HATD008	46.0	46.1			20
HATD008	47.0	47.1			40
HATD008	48.0	48.1			20
HATD008	49.0	49.1			30
HATD008	50.0	50.1			20
HATD008	51.0	51.1			30
HATD008	52.0	52.1			20

840

598848

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
HATD008	53.0	53.1			30
HATD008	54.0	54.1			30
HATD008	55.0	55.1			30
HATD008	56.0	56.1			30
HATD008	57.0	57.1			
HATD008	58.0	58.1			20
HATD008	59.0	59.1			30
HATD008	60.0	60.1			30
HATD008	61.0	61.1			30
HATD008	62.0	62.1			
HATD008	63.0	63.1			40
HATD008	64.0	64.1			30
HATD008	65.0	65.1			30
HATD008	66.0	66.1			40
HATD008	67.0	67.1			30
HATD008	68.0	68.1			30
HATD008	69.0	69.1			30
HATD008	70.0	70.1			40
HATD008	71.0	71.1			40
HATD008	72.0	72.1			30
HATD008	73.0	73.1			40
HATD008	74.0	74.1			30
HATD008	75.0	7541			40
HATD008	76.0	76.1			30
HATD008	77.0	77.1			30
HATD008	78.0	78.1			30
HATD008	79.0	79.1			40
HATD008	80.0	80.1			40
HATD008	81.0	81.1			40
HATD008	82.0	82.1			40
HATD008	83.0	83.1			30
HATD008	84.0	84.1			30
HATD008	85.0	85.1			30
HATD008	86.0	86.1			30
HATD008	87.0	87.1			30
HATD008	88.0	88.1			30
HATD008	89.0	89.1			30
HATD008	90.0	90.1			30
HATD008	91.0	91.1			30
HATD008	92.0	92.1			
HATD008	93.0	93.1			
HATD008	94.0	94.1			
HATD008	95.0	95.1			
HATD008	96.0	96.1			30
HATD008	97.0	97.1			40
HATD008	98.0	98.1			30
HATD008	99.0	99.1			30
HATD008	100.0	100.1			30
HATD008	101.0	101.1			30
HATD008	102.0	102.1			40
HATD008	103.0	103.1			30
HATD008	104.0	104.1			20
HATD008	105.0	105.1			10

847

598849

DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
HATD008	106.0	106.1			30
HATD008	107.0	107.1			30
HATD008	108.0	108.1			20
HATD008	109.0	109.1			30
HATD008	110.0	110.1			10
HATD008	111.0	111.1			10
HATD008	112.0	112.1			30
HATD008	113.0	113.1			30
HATD008	114.0	114.1			30
HATD008	115.0	115.1			30
HATD008	116.0	116.1			20
HATD008	117.0	117.1			30
HATD008	118.0	118.1			30
HATD008	119.0	119.1			20
HATD008	120.0	120.1			30
HATD008	121.0	121.1			20
HATD008	122.0	122.1			20
HATD008	123.0	123.1			20
HATD008	124.0	124.1			20
HATD008	125.0	125.1			30
HATD008	126.0	126.1			40
HATD008	127.0	127.1			30
HATD008	128.0	128.1			20
HATD008	129.0	129.1			20
HATD008	130.0	130.1			30
HATD008	131.0	131.1			20
HATD008	132.0	132.1			20
HATD008	133.0	133.1			20
HATD008	134.0	134.1			30
HATD008	135.0	135.1			20
HATD008	136.0	136.1			40
HATD008	137.0	137.1			30
HATD008	138.0	138.1			30
HATD008	139.0	139.1			30
HATD008	140.0	140.1			20
HATD008	141.0	141.1			40
HATD008	142.0	142.1			40
HATD008	143.0	143.1			20
HATD008	144.0	144.1			20
HATD008	145.0	145.1			40
HATD008	146.0	146.1			30
HATD008	147.0	147.1			30
HATD008	148.0	148.1			30
HATD008	149.0	149.1			20
HATD008	150.0	150.1			30
HATD008	151.0	151.1			10
HATD008	152.0	152.1			30
HATD008	153.0	153.1			30
HATD008	154.0	154.1			20
HATD008	155.0	155.1			30
HATD008	156.0	156.1			30
HATD008	157.0	157.1			30
HATD008	158.0	158.1			30

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
HATD008	159.0	159.1			30
HATD008	160.0	160.1			30
HATD008	161.0	161.1			40
HATD008	162.0	162.1			30
HATD008	163.0	163.1			40
HATD008	164.0	164.1			30
HATD008	165.0	165.1			30
HATD008	166.0	166.1			30
HATD008	167.0	167.1			30
HATD008	168.0	168.1			30
HATD008	169.0	169.1			30
HATD008	170.0	170.1			40
HATD008	171.0	171.1			30
HATD008	172.0	172.1			30
HATD008	173.0	173.1			30
HATD008	174.0	174.1			40
HATD008	175.0	175.1			40
HATD008	176.0	176.1			40
HATD008	177.0	177.1			20
HATD008	178.0	178.1			30
HATD008	179.0	179.1			40
HATD008	180.0	180.1			30
HATD008	181.0	181.1			30
HATD008	182.0	182.1			20
HATD008	183.0	183.1			30
HATD008	184.0	184.1			40
HATD008	185.0	185.1			30
HATD008	186.0	186.1			40
HATD008	187.0	187.1			40
HATD008	188.0	188.1			40
HATD008	189.0	189.1			40
HATD008	190.0	190.1			40
HATD008	191.0	191.1			40
HATD008	192.0	192.1			30
HATD008	193.0	193.1			30
HATD008	194.0	194.1			30
HATD008	195.0	195.1			40
HATD008	196.0	196.1			50
HATD008	197.0	197.1			50
HATD008	198.0	198.1			40
HATD008	199.0	199.1			30
HATD008	200.0	200.1			30
HATD008	201.0	201.1			40
HATD008	202.0	202.1			20
HATD008	203.0	203.1			10
HATD008	204.0	204.1			30
HATD008	205.0	205.1			30
HATD008	206.0	206.1			40
HATD008	207.0	207.1			30
HATD008	208.0	208.1			40
HATD008	209.0	209.1			30
HATD008	210.0	210.1			20
HATD008	211.0	211.1			20

598851

DHID9	FROM9	TOT09	ROCK ALTNG	SUSCPT
HATD008	212.0	212.1		40
HATD008	213.0	213.1		30
HATD008	214.0	214.1		30
HATD008	215.0	215.1		30
HATD008	216.0	216.1		30
HATD008	217.0	217.1		20
HATD008	218.0	218.1		20
HATD008	219.0	219.1		30
HATD008	220.0	220.1		30
HATD008	221.0	221.1		20
HATD008	222.0	222.1		30
HATD008	223.0	223.1		20
HATD008	224.0	224.1		20
HATD008	225.0	225.1		20
HATD008	226.0	226.1		20
HATD008	227.0	227.1		30
HATD008	228.0	228.1		30
HATD008	229.0	229.1		40
HATD008	230.0	230.1		40
HATD008	231.0	231.1		30
HATD008	232.0	232.1		50
HATD008	233.0	233.1		30
HATD008	234.0	234.1		40
HATD008	235.0	235.1		50
HATD008	236.0	236.1		30
HATD008	237.0	237.1		50
HATD008	238.0	238.1		20
HATD008	239.0	239.1		30
HATD008	240.0	240.1		20
HATD008	241.0	241.1		40
HATD008	242.0	242.1		20
HATD008	243.0	243.1		40
HATD008	244.0	244.1		30
HATD008	245.0	245.1		30
HATD008	246.0	246.1		30
HATD008	247.0	247.1		30
HATD008	248.0	248.1		30
HATD008	249.0	249.1		20
HATD008	250.0	250.1		30
HATD008	251.0	251.1		30
HATD008	252.0	252.1		30
HATD008	253.0	253.1		30
HATD008	254.0	254.1		20
HATD008	255.0	255.1		20
HATD008	256.0	256.1		40
HATD008	257.0	257.1		30
HATD008	258.0	258.1		30
HATD008	259.0	259.1		20
HATD008	260.0	260.1		30
HATD008	261.0	261.1		20
HATD008	262.0	262.1		30
HATD008	263.0	263.1		20
HATD008	264.0	264.1		30

850

598852

DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
HATD008	265.0	265.1			30
HATD008	266.0	266.1			20
HATD008	267.0	267.1			20
HATD008	268.0	268.1			20
HATD008	269.0	269.1			30
HATD008	270.0	270.1			30
HATD008	271.0	271.1			30
HATD008	272.0	272.1			20
HATD008	273.0	273.1			20
HATD008	274.0	274.1			30
HATD008	275.0	275.1			30
HATD008	276.0	276.1			30
HATD008	277.0	277.1			30
HATD008	278.0	278.1			40
HATD008	279.0	279.1			40
HATD008	280.0	280.1			40
HATD008	281.0	281.1			30
HATD008	282.0	282.1			30
HATD008	283.0	283.1			30
HATD008	284.0	284.1			40
HATD008	285.0	285.1			40
HATD008	286.0	286.1			30
HATD008	287.0	287.1			30
HATD008	288.0	288.1			20
HATD008	289.0	289.1			30
HATD008	290.0	290.1			30
HATD008	291.0	291.1			30
HATD008	292.0	292.1			40
HATD008	293.0	293.1			40
HATD008	294.0	294.1			30
HATD008	295.0	295.1			40
HATD008	296.0	296.1			40
HATD008	297.0	297.1			40
HATD008	298.0	298.1			30
HATD008	299.0	299.1			40
HATD008	300.0	300.1			30
HATD008	301.0	301.1			20
HATD008	302.0	302.1			20
HATD008	303.0	303.1			30
HATD008	304.0	304.1			30
HATD008	305.0	305.1			20
HATD008	306.0	306.1			20
HATD008	307.0	307.1			30
HATD008	308.0	308.1			30
HATD008	309.0	309.1			30
HATD008	310.0	310.1			30
HATD008	311.0	311.1			20
HATD008	312.0	312.1			10
HATD008	313.0	313.1			20
HATD008	314.0	314.1			20
HATD009	315.0	315.1			20
HATD008	316.0	316.1			40
HATD008	317.0	317.1			30

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DHID9	FROM9	TOTO9	ROCK ALTNG	SUSCPT
HATD008	318.0	318.1		20
HATD008	319.0	319.1		20
HATD008	320.0	320.1		20
HATD008	321.0	321.1		40
HATD008	322.0	322.1		30
HATD008	323.0	323.1		20
HATD008	324.0	324.1		20
HATD008	325.0	325.1		10
HATD008	326.0	326.1		20
HATD008	327.0	327.1		30
HATD008	328.0	328.1		30
HATD008	329.0	329.1		30
HATD008	330.0	330.1		20
HATD008	331.0	331.1		30
HATD008	332.0	332.1		30
HATD008	333.0	333.1		30
HATD008	334.0	334.1		20
HATD008	335.0	335.1		20
HATD008	336.0	336.1		20
HATD008	337.0	337.1		30
HATD008	338.0	338.1		30
HATD008	339.0	339.1		20
HATD008	340.0	340.1		40
HATD008	341.0	341.1		30
HATD008	342.0	342.1		30
HATD008	343.0	343.1		30
HATD008	344.0	344.1		30
HATD008	345.0	345.1		30
HATD008	346.0	346.1		20
HATD008	347.0	347.1		30
HATD008	348.0	348.1		20
HATD008	349.0	349.1		30
HATD008	350.0	350.1		30
HATD008	351.0	351.1		30
HATD008	352.0	352.1		40
HATD008	353.0	353.1		30
HATD008	354.0	354.1		20
HATD008	355.0	355.1		40
HATD008	356.0	356.1		30
HATD008	357.0	357.1		20
HATD008	358.0	358.1		20
HATD008	359.0	359.1		50
HATD008	360.0	360.1		40
HATD008	361.0	361.1		30
HATD008	362.0	362.1		30
HATD008	363.0	363.1		30
HATD008	364.0	364.1		30
HATD008	365.0	365.1		30
HATD008	366.0	366.1		30
HATD008	367.0	367.1		20
HATD008	368.0	368.1		30
HATD008	369.0	369.1		30
HATD008	370.0	370.1		30

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DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
MATD008	371.0	371.1			30
MATD008	372.0	372.1			30
MATD008	373.0	373.1			20
MATD008	374.0	374.1			30
MATD008	375.0	375.1			10
MATD008	376.0	376.1			20
MATD008	377.0	377.1			20
MATD008	378.0	378.1			40
MATD008	379.0	379.1			40
MATD008	380.0	380.1			20
MATD008	381.0	381.1			0
MATD008	382.0	382.1			30
MATD008	383.0	383.1			30
MATD008	384.0	384.1			40
MATD008	385.0	385.1			30
MATD008	386.0	386.1			40
MATD008	387.0	387.1			30
MATD008	388.0	388.1			40
MATD008	389.0	389.1			30
MATD008	390.0	390.1			20
MATD008	391.0	391.1			40
MATD008	392.0	392.1			40
MATD008	393.0	393.1			30
MATD008	394.0	394.1			30
MATD008	395.0	395.1			30
MATD008	396.0	396.1			30
MATD008	397.0	397.1			30
MATD008	398.0	398.1			30
MATD008	399.0	399.1			30
MATD008	400.0	400.1			30
MATD008	401.0	401.1			30
MATD008	402.0	402.1			40
MATD008	403.0	403.1			30
MACD001	2.0	2.1			10
MACD001	3.0	3.1			10
MACD001	4.0	4.1			
MACD001	5.0	5.1			
MACD001	6.0	6.1			5
MACD001	7.0	7.1			
MACD001	8.0	8.1			0
MACD001	9.0	9.1			
MACD001	10.0	10.1			10
MACD001	11.0	11.1			10
MACD001	12.0	12.1			10
MACD001	13.0	13.1			5
MACD001	14.0	14.1			5
MACD001	15.0	15.1			5
MACD001	16.0	16.1			
MACD001	17.0	17.1			
MACD001	18.0	18.1			
MACD001	19.0	19.1			
MACD001	20.0	20.1			

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598855

DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
MACD001	21.0	21.1			
MACD001	22.0	22.1			
MACD001	23.0	23.1			
MACD001	24.0	24.1			
MACD001	25.0	25.1			
MACD001	26.0	26.1			60
MACD001	27.0	27.1			15
MACD001	28.0	28.1			50
MACD001	29.0	29.1			35
MACD001	30.0	30.1			
MACD001	31.0	31.1			50
MACD001	32.0	32.1			40
MACD001	33.0	33.1			30
MACD001	34.0	34.1			20
MACD001	35.0	35.1			15
MACD001	36.0	36.1			15
MACD001	37.0	37.1			20
MACD001	38.0	38.1			30
MACD001	39.0	39.1			20
MACD001	40.0	40.1			30
MACD001	41.0	41.1			40
MACD001	42.0	42.1			30
MACD001	43.0	43.1			30
MACD001	44.0	44.1			25
MACD001	45.0	45.1			25
MACD001	46.0	46.1			15
MACD001	47.0	47.1			10
MACD001	48.0	48.1			10
MACD001	49.0	49.1			5
MACD001	50.0	50.1			20
MACD001	51.0	51.1			40
MACD001	52.0	52.1			40
MACD001	53.0	53.1			40
MACD001	54.0	54.1			60
MACD001	55.0	55.1			35
MACD001	56.0	56.1			120
MACD001	57.0	57.1			85
MACD001	58.0	58.1			85
MACD001	59.0	59.1			95
MACD001	60.0	60.1			65
MACD001	61.0	61.1			110
MACD001	62.0	62.1			85
MACD001	63.0	63.1			65
MACD001	64.0	64.1			135
MACD001	65.0	65.1			90
MACD001	66.0	66.1			65
MACD001	67.0	67.1			60
MACD001	68.0	68.1			65
MACD001	69.0	69.1			55
MACD001	70.0	70.1			75
MACD001	71.0	71.1			70
MACD001	72.0	72.1			50
MACD001	73.0	73.1			70

598856

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
MACD001	74.0	74.1			55
MACD001	75.0	75.1			50
MACD001	76.0	76.1			45
MACD001	77.0	77.1			60
MACD001	78.0	78.1			35
MACD001	79.0	79.1			50
MACD001	80.0	80.1			75
MACD001	81.0	81.1			60
MACD001	82.0	82.1			75
MACD001	83.0	83.1			80
MACD001	84.0	84.1			70
MACD001	85.0	85.1			
MACD001	86.0	86.1			40
MACD001	87.0	87.1			90
MACD001	88.0	88.1			60
MACD001	89.0	89.1			60
MACD001	90.0	90.1			50
MACD001	91.0	91.1			75
MACD001	92.0	92.1			25
MACD001	93.0	93.1			75
MACD001	94.0	94.1			30
MACD001	95.0	95.1			90
MACD001	96.0	96.1			50
MACD001	97.0	97.1			50
MACD001	98.0	98.1			50
MACD001	99.0	99.1			45
MACD001	100.0	100.1			55
MACD001	101.0	101.1			25
MACD001	102.0	102.1			35
MACD001	103.0	103.1			60
MACD001	104.0	104.1			55
MACD001	105.0	105.1			60
MACD001	106.0	106.1			75
MACD001	107.0	107.1			70
MACD001	108.0	108.1			60
MACD001	109.0	109.1			45
MACD001	110.0	110.1			75
MACD001	111.0	111.1			60
MACD001	112.0	112.1			70
MACD001	113.0	113.1			80
MACD001	114.0	114.1			60
MACD001	115.0	115.1			
MACD001	116.0	116.1			50
MACD001	117.0	117.1			70
MACD001	118.0	118.1			60
MACD001	119.0	119.1			60
MACD001	120.0	120.1			50
MACD001	121.0	121.1			50
MACD001	122.0	122.1			70
MACD001	123.0	123.1			65
MACD001	124.0	124.1			70
MACD001	125.0	125.1			70
MACD001	126.0	126.1			80

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DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
MACD001	127.0	127.1			75
MACD001	128.0	128.1			85
MACD001	129.0	129.1			120
MACD001	130.0	130.1			110
MACD001	131.0	131.1			80
MACD001	132.0	132.1			80
MACD001	133.0	133.1			75
MACD001	134.0	134.1			105
MACD001	135.0	135.1			70
MACD001	136.0	136.1			310
MACD001	137.0	137.1			150
MACD001	138.0	138.1			650
MACD001	139.0	139.1			880
MACD001	140.0	140.1			60
MACD001	141.0	141.1			170
MACD001	142.0	142.1			280
MACD001	143.0	143.1			540
MACD001	144.0	144.1			85
MACD001	145.0	145.1			115
MACD001	146.0	146.1			1100
MACD001	147.0	147.1			2100
MACD001	148.0	148.1			2600
MACD001	149.0	149.1			1150
MACD001	150.0	150.1			220
MACD001	151.0	151.1			340
MACD001	152.0	152.1			95
MACD001	153.0	153.1			70
MACD001	154.0	154.1			75
MACD001	155.0	155.1			35
MACD001	156.0	156.1			
MACD001	157.0	157.1			
MACD001	158.0	158.1			
MACD001	159.0	159.1			
MACD001	160.0	160.1			30
MACD001	161.0	161.1			30
MACD001	162.0	162.1			
MACD001	163.0	163.1			80
MACD001	164.0	164.1			85
MACD001	165.0	165.1			75
MACD001	166.0	166.1			65
MACD001	167.0	167.1			75
MACD001	168.0	168.1			100
MACD001	169.0	169.1			110
MACD001	170.0	170.1			45
MACD001	171.0	171.1			
MACD001	172.0	172.1			
MACD001	173.0	173.1			25
MACD001	174.0	174.1			95
MACD001	175.0	175.1			95
MACD001	176.0	176.1			100
MACD001	177.0	177.1			95
MACD001	178.0	178.1			60
MACD001	179.0	179.1			90

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598858

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
MACD001	180.0	180.1			80
MACD001	181.0	181.1			115
MACD001	182.0	182.1			250
MACD001	183.0	183.1			85
MACD001	184.0	184.1			90
MACD001	185.0	185.1			170
MACD001	186.0	186.1			145
MACD001	187.0	187.1			100
MACD001	188.0	188.1			85
MACD001	189.0	189.1			85
MACD001	190.0	190.1			105
MACD001	191.0	191.1			90
MACD001	192.0	192.1			130
MACD001	193.0	193.1			120
MACD001	194.0	194.1			110
MACD001	195.0	195.1			90
MACD001	196.0	196.1			80
MACD001	197.0	197.1			120
MACD001	198.0	198.1			120
MACD001	199.0	199.1			105
MACD001	200.0	200.1			115
MACD001	201.0	201.1			115
MACD001	202.0	202.1			105
MACD001	203.0	203.1			40
MACD001	204.0	204.1			25
MACD001	205.0	205.1			35
MACD001	206.0	206.1			25
MACD001	207.0	207.1			20
MACD001	208.0	208.1			45
MACD001	209.0	209.1			45
MACD001	210.0	210.1			40
MACD001	211.0	211.1			25
MACD001	212.0	212.1			50
MACD001	213.0	213.1			45
MACD001	214.0	214.1			25
MACD001	215.0	215.1			85
MACD001	216.0	216.1			60
MACD001	217.0	217.1			55
MACD001	218.0	218.1			55
MACD001	219.0	219.1			45
MACD001	220.0	220.1			65
MACD001	221.0	221.1			45
MACD001	222.0	222.1			40
MACD001	223.0	223.1			55
MACD001	224.0	224.1			60
MACD001	225.0	225.1			40
MACD001	226.0	226.1			15
MACD001	227.0	227.1			25
MACD001	228.0	228.1			40
MACD001	229.0	229.1			30
MACD001	230.0	230.1			80
MACD001	231.0	231.1			40
MACD001	232.0	232.1			65

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DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
MACD001	233.0	233.1			45
MACD001	234.0	234.1			15
MACD001	235.0	235.1			70
MACD001	236.0	236.1			50
MACD001	237.0	237.1			55
MACD001	238.0	238.1			20
MACD001	239.0	239.1			60
MACD001	240.0	240.1			45
MACD001	241.0	241.1			35
MACD001	242.0	242.1			15
MACD001	243.0	243.1			45
MACD001	244.0	244.1			25
MACD001	245.0	245.1			35
MACD001	246.0	246.1			75
MACD001	247.0	247.1			35
MACD001	248.0	248.1			30
MACD001	249.0	249.1			35
MACD001	250.0	250.1			50
MACD001	251.0	251.1			40
MACD001	252.0	252.1			35
MACD001	253.0	253.1			20
MACD001	254.0	254.1			40
MACD001	255.0	255.1			35
MACD001	256.0	256.1			35
MACD001	257.0	257.1			55
MACD001	258.0	258.1			50
MACD001	259.0	259.1			15
MACD001	260.0	260.1			30
MACD001	261.0	261.1			40
MACD001	262.0	262.1			35
MACD001	263.0	263.1			35
MACD001	264.0	264.1			55
MACD001	265.0	265.1			45
MACD001	266.0	266.1			55
MACD001	267.0	267.1			35
MACD001	268.0	268.1			30
MACD001	269.0	269.1			40
MACD001	270.0	270.1			35
MACD001	271.0	271.1			45
MACD001	272.0	272.1			30
MACD001	273.0	273.1			30
MACD001	274.0	274.1			70
MACD001	275.0	275.1			30
MACD001	276.0	276.1			15
MACD001	277.0	277.1			30
MACD001	278.0	278.1			20
MACD001	279.0	279.1			30
MACD001	280.0	280.1			35
MACD001	281.0	281.1			30
MACD001	282.0	282.1			35
MACD001	283.0	283.1			55
MACD001	284.0	284.1			70
MACD001	285.0	285.1			60

598860

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
MACD001	286.0	286.1			45
MACD001	287.0	287.1			30
MACD001	288.0	288.1			65
MACD001	289.0	289.1			50
MACD001	290.0	290.1			50
MACD001	291.0	291.1			25
MACD001	292.0	292.1			35
MACD001	293.0	293.1			40
MACD001	294.0	294.1			65
MACD001	295.0	295.1			35
MACD001	296.0	296.1			80
MACD001	297.0	297.1			105
MACD001	298.0	298.1			90
MACD001	299.0	299.1			100
MACD001	300.0	300.1			95
MACD001	301.0	301.1			95
MACD001	302.0	302.1			95
MACD001	303.0	303.1			70
MACD001	304.0	304.1			110
MACD001	305.0	305.1			100
MACD001	306.0	306.1			105
MACD001	307.0	307.1			60
MACD001	308.0	308.1			150
MACD001	309.0	309.1			105
MACD001	310.0	310.1			110
MACD001	311.0	311.1			100
MACD001	312.0	312.1			125
MACD001	313.0	313.1			85
MACD001	314.0	314.1			130
MACD001	315.0	315.1			110
MACD001	316.0	316.1			105
MACD001	317.0	317.1			100
MACD001	318.0	318.1			95
MACD001	319.0	319.1			120
MACD001	320.0	320.1			110
MACD001	321.0	321.1			85
MACD001	322.0	322.1			100
MACD001	323.0	323.1			90
MACD001	324.0	324.1			90
MACD001	325.0	325.1			120
MACD001	326.0	326.1			175
MACD001	327.0	327.1			150
MACD001	328.0	328.1			130
MACD001	329.0	329.1			110
MACD001	330.0	330.1			130
MACD001	331.0	331.1			110
MACD001	332.0	332.1			100
MACD001	333.0	333.1			120
MACD001	334.0	334.1			135
MACD001	335.0	335.1			910
MACD001	336.0	336.1			1500
MACD001	337.0	337.1			250
MACD001	338.0	338.1			295

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598861

DHID9	FROM9	TOT09	ROCK ALTNG	SUSCPT
MACD001	339.0	339.1		151
MACD001	340.0	340.1		95
MACD001	341.0	341.1		110
MACD001	342.0	342.1		150
MACD001	343.0	343.1		180
MACD001	344.0	344.1		270
MACD001	345.0	345.1		190
MACD001	346.0	346.1		80
MACD001	347.0	347.1		150
MACD001	348.0	348.1		105
MACD001	349.0	349.1		120
MACD001	350.0	350.1		135
MACD001	351.0	351.1		145
MACD001	352.0	352.1		120
MACD001	353.0	353.1		100
MACD001	354.0	354.1		85
MACD001	355.0	355.1		125
MACD001	356.0	356.1		120
MACD001	357.0	357.1		100
MACD001	357.9	358.0		130
MACD002	0.0	0.1		
MACD002	1.0	1.1		
MACD002	2.0	2.1		
MACD002	3.0	3.1		
MACD002	4.0	4.1		
MACD002	5.0	5.1		30
MACD002	6.0	6.1		10
MACD002	7.0	7.1		
MACD002	8.0	8.1		
MACD002	9.0	9.1		
MACD002	10.0	10.1		
MACD002	11.0	11.1		20
MACD002	12.0	12.1		10
MACD002	13.0	13.1		
MACD002	14.0	14.1		
MACD002	15.0	15.1		10
MACD002	16.0	16.1		10
MACD002	17.0	17.1		10
MACD002	18.0	18.1		20
MACD002	19.0	19.1		30
MACD002	20.0	20.1		20
MACD002	21.0	21.1		20
MACD002	22.0	22.1		10
MACD002	23.0	23.1		30
MACD002	24.0	24.1		20
MACD002	25.0	25.1		10
MACD002	26.0	26.1		20
MACD002	27.0	27.1		20
MACD002	28.0	28.1		30
MACD002	29.0	29.1		20
MACD002	30.0	30.1		20
MACD002	31.0	31.1		10

860

598862

DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
MACD002	32.0	32.1			20
MACD002	33.0	33.1			
MACD002	34.0	34.1			
MACD002	35.0	35.1			
MACD002	36.0	36.1			10
MACD002	37.0	37.1			10
MACD002	38.0	38.1			20
MACD002	39.0	39.1			20
MACD002	40.0	40.1			30
MACD002	41.0	41.1			20
MACD002	42.0	42.1			20
MACD002	43.0	43.1			30
MACD002	44.0	44.1			
MACD002	45.0	45.1			20
MACD002	46.0	46.1			20
MACD002	47.0	47.1			20
MACD002	48.0	48.1			20
MACD002	49.0	49.1			30
MACD002	50.0	50.1			20
MACD002	51.0	51.1			30
MACD002	52.0	52.1			10
MACD002	53.0	53.1			20
MACD002	54.0	54.1			20
MACD002	55.0	55.1			20
MACD002	56.0	56.1			20
MACD002	57.0	57.1			10
MACD002	58.0	58.1			10
MACD002	59.0	59.1			20
MACD002	60.0	60.1			20
MACD002	61.0	61.1			
MACD002	62.0	62.1			
MACD002	63.0	63.1			20
MACD002	64.0	64.1			10
MACD002	65.0	65.1			20
MACD002	66.0	66.1			30
MACD002	67.0	67.1			20
MACD002	68.0	68.1			20
MACD002	69.0	69.1			20
MACD002	70.0	70.1			30
MACD002	71.0	71.1			20
MACD002	72.0	72.1			20
MACD002	73.0	73.1			20
MACD002	74.0	74.1			20
MACD002	75.0	75.1			
MACD002	76.0	76.1			
MACD002	77.0	77.1			
MACD002	78.0	78.1			
MACD002	79.0	79.1			30
MACD002	80.0	80.1			20
MACD002	81.0	81.1			30
MACD002	82.0	82.1			10
MACD002	83.0	83.1			20
MACD002	84.0	84.1			20

598863

598863

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
MACD002	85.0	85.1			20
MACD002	86.0	86.1			20
MACD002	87.0	87.1			30
MACD002	88.0	88.1			20
MACD002	89.0	89.1			20
MACD002	90.0	90.1			20
MACD002	91.0	91.1			30
MACD002	92.0	92.1			10
MACD002	93.0	93.1			20
MACD002	94.0	94.1			30
MACD002	95.0	95.1			20
MACD002	96.0	96.1			30
MACD002	97.0	97.1			30
MACD002	98.0	98.1			20
MACD002	99.0	99.1			30
MACD002	100.0	100.1			30
MACD002	101.0	101.1			30
MACD002	102.0	102.1			10
MACD002	103.0	103.1			20
MACD002	104.0	104.1			20
MACD002	105.0	105.1			20
MACD002	106.0	106.1			30
MACD002	107.0	107.1			20
MACD002	108.0	108.1			20
MACD002	109.0	109.1			30
MACD002	110.0	110.1			20
MACD002	111.0	111.1			10
MACD002	112.0	112.1			40
MACD002	113.0	113.1			50
MACD002	114.0	114.1			40
MACD002	115.0	115.1			30
MACD002	116.0	116.1			30
MACD002	117.0	117.1			70
MACD002	118.0	118.1			60
MACD002	119.0	119.1			30
MACD002	120.0	120.1			40
MACD002	121.0	121.1			20
MACD002	122.0	122.1			40
MACD002	123.0	123.1			40
MACD002	124.0	124.1			30
MACD002	125.0	125.1			20
MACD002	126.0	126.1			20
MACD002	127.0	127.1			30
MACD002	128.0	128.1			20
MACD002	129.0	129.1			10
MACD002	130.0	130.1			10
MACD002	131.0	131.1			20
MACD002	132.0	132.1			30
MACD002	133.0	133.1			20
MACD002	134.0	134.1			30
MACD002	135.0	135.1			20
MACD002	136.0	136.1			20
MACD002	137.0	137.1			40

864

598864

DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
MACD002	138.0	138.1			20
MACD002	139.0	139.1			20
MACD002	140.0	140.1			20
MACD002	141.0	141.1			20
MACD002	142.0	142.1			20
MACD002	143.0	143.1			10
MACD002	144.0	144.1			20
MACD002	145.0	145.1			20
MACD002	146.0	146.1			20
MACD002	147.0	147.1			20
MACD002	148.0	148.1			20
MACD002	149.0	149.1			40
MACD002	150.0	150.1			
MACD002	151.0	151.1			10
MACD002	152.0	152.1			20
MACD002	153.0	153.1			20
MACD002	154.0	154.1			20
MACD002	155.0	155.1			30
MACD002	156.0	156.1			30
MACD002	157.0	157.1			20
MACD002	158.0	158.1			20
MACD002	159.0	159.1			30
MACD002	160.0	160.1			20
MACD002	161.0	161.1			20
MACD002	162.0	162.1			0
MACD002	163.0	163.1			10
MACD002	164.0	164.1			30
MACD002	165.0	165.1			20
MACD002	166.0	166.1			30
MACD002	167.0	167.1			20
MACD002	168.0	168.1			40
MACD002	169.0	169.1			20
MACD002	170.0	170.1			10
MACD002	171.0	171.1			30
MACD002	172.0	172.1			20
MACD002	173.0	173.1			40
MACD002	174.0	174.1			30
MACD002	175.0	175.1			20
MACD002	176.0	176.1			40
MACD002	177.0	177.1			30
MACD002	178.0	178.1			40
MACD002	179.0	179.1			40
MACD002	180.0	180.1			30
MACD002	181.0	181.1			30
MACD002	182.0	182.1			20
MACD002	183.0	183.1			20
MACD002	184.0	184.1			40
MACD002	185.0	185.1			40
MACD002	186.0	186.1			30
MACD002	187.0	187.1			40
MACD002	188.0	188.1			30
MACD002	189.0	189.1			20
MACD002	190.0	190.1			20

863

598865

DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
MACD002	191.0	191.1			20
MACD002	192.0	192.1			20
MACD002	193.0	193.1			20
MACD002	194.0	194.1			20
MACD002	195.0	195.1			10
MACD002	196.0	196.1			10
MACD002	197.0	197.1			20
MACD002	198.0	198.1			20
MACD002	199.0	199.1			40
MACD002	200.0	200.1			20
MACD002	201.0	201.1			30
MACD002	202.0	202.1			40
MACD002	203.0	203.1			30
MACD002	204.0	204.1			30
MACD002	205.0	205.1			30
MACD002	206.0	206.1			30
MACD002	207.0	207.1			30
MACD002	208.0	208.1			30
MACD002	209.0	209.1			20
MACD002	210.0	210.1			20
MACD002	211.0	211.1			20
MACD002	212.0	212.1			30
MACD002	213.0	213.1			30
MACD002	214.0	214.1			30
MACD002	215.0	215.1			20
MACD002	216.0	216.1			20
MACD002	217.0	217.1			30
MACD002	218.0	218.1			20
MACD002	219.0	219.1			30
MACD002	220.0	220.1			20
MACD002	221.0	221.1			30
MACD002	222.0	222.1			20
MACD002	223.0	223.1			20
MACD002	224.0	224.1			20
MACD002	225.0	225.1			30
MACD002	226.0	226.1			10
MACD002	227.0	227.1			20
MACD002	228.0	228.1			30
MACD002	229.0	229.1			40
MACD002	230.0	230.1			30
MACD002	231.0	231.1			20
MACD002	232.0	232.1			20
MACD002	233.0	233.1			30
MACD002	234.0	234.1			10
MACD002	235.0	235.1			20
MACD002	236.0	236.1			20
MACD002	237.0	237.1			20
MACD002	238.0	238.1			30
MACD002	239.0	239.1			20
MACD002	240.0	240.1			20
MACD002	241.0	241.1			30
MACD002	242.0	242.1			20
MACD002	243.0	243.1			30

598866

864

DMID9	FROM9	TOTO9	ROCK ALTNG	SUSCPT
MACD002	244.0	244.1		20
MACD002	245.0	245.1		20
MACD002	246.0	246.1		30
MACD002	247.0	247.1		30
MACD002	248.0	248.1		20
MACD002	249.0	249.1		30
MACD002	250.0	250.1		30
MACD002	251.0	251.1		30
MACD002	252.0	252.1		30
MACD002	253.0	253.1		30
MACD002	254.0	254.1		20
MACD002	255.0	255.1		30
MACD002	256.0	256.1		20
MACD002	257.0	257.1		20
MACD002	258.0	258.1		20
MACD002	259.0	259.1		20
MACD002	260.0	260.1		30
MACD002	261.0	261.1		20
MACD002	262.0	262.1		20
MACD002	263.0	263.1		20
MACD002	264.0	264.1		40
MACD002	265.0	265.1		20
MACD002	266.0	266.1		20
MACD002	267.0	267.1		20
MACD002	268.0	268.1		20
MACD002	269.0	269.1		20
MACD002	270.0	270.1		20
MACD002	271.0	271.1		20
MACD002	272.0	272.1		60
MACD002	273.0	273.1		10
MACD002	274.0	274.1		30
MACD002	275.0	275.1		30
MACD002	276.0	276.1		30
MACD002	277.0	277.1		30
MACD002	278.0	278.1		20
MACD002	279.0	279.1		20
MACD002	280.0	280.1		10
MACD002	281.0	281.1		30
MACD002	282.0	282.1		30
MACD002	283.0	283.1		30
MACD002	284.0	284.1		30
MACD002	285.0	285.1		30
MACD002	286.0	286.1		30
MACD002	287.0	287.1		40
MACD002	288.0	288.1		30
MACD002	289.0	289.1		30
MACD002	290.0	290.1		20
MACD002	291.0	291.1		40
MACD002	292.0	292.1		30
MACD002	293.0	293.1		40
MACD002	294.0	294.1		30
MACD002	295.0	295.1		30
MACD002	296.0	296.1		20

865

598867

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
MACD002	297.0	297.1			30
MACD002	298.0	298.1			50
MACD002	299.0	299.1			30
MACD002	300.0	300.1			40
MACD002	301.0	301.1			30
MACD002	302.0	302.1			30
MACD002	303.0	303.1			40
MACD002	304.0	304.1			40
MACD002	305.0	305.1			30
MACD002	306.0	306.1			30
MACD002	307.0	307.1			40
MACD002	308.0	308.1			30
MACD002	309.0	309.1			30
MACD002	310.0	310.1			30
MACD002	311.0	311.1			20
MACD002	312.0	312.1			0
MACD002	313.0	313.1			20
MACD002	314.0	314.1			30
MACD002	315.0	315.1			20
MACD002	316.0	316.1			30
MACD002	317.0	317.1			10
MACD002	318.0	318.1			10
MACD002	319.0	319.1			20
MACD002	320.0	320.1			20
MACD002	321.0	321.1			20
MACD002	322.0	322.1			20
MACD002	323.0	323.1			20
MACD002	324.0	324.1			10
MACD002	325.0	325.1			20
MACD002	326.0	326.1			30
MACD002	327.0	327.1			30
MACD002	328.0	328.1			30
MACD002	329.0	329.1			30
MACD002	330.0	330.1			30
MACD002	331.0	331.1			20
MACD002	332.0	332.1			20
MACD002	333.0	333.1			20
MACD002	334.0	334.1			30
MACD002	335.0	335.1			20
MACD002	336.0	336.1			20
MACD002	337.0	337.1			20
MACD002	338.0	338.1			20
MACD002	339.0	339.1			20
MACD002	340.0	340.1			30
MACD002	341.0	341.1			30
MACD002	342.0	342.1			40
MACD002	343.0	343.1			40
MACD002	344.0	344.1			30
MACD002	345.0	345.1			30
MACD002	346.0	346.1			30
MACD002	347.0	347.1			30
MACD002	348.0	348.1			40
MACD002	349.0	349.1			30

866

598868

DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
MACD002	350.0	350.1			40
MACD002	351.0	351.1			20
MACD002	352.0	352.1			40
MACD002	353.0	353.1			40
MACD002	354.0	354.1			30
MACD002	355.0	355.1			30
MACD002	356.0	356.1			30
MACD002	357.0	357.1			40
MACD002	358.0	358.1			30
MACD002	359.0	359.1			40
MACD002	360.0	360.1			40
MACD002	361.0	361.1			10
MACD002	362.0	362.1			50
MACD002	363.0	363.1			10
MACD002	364.0	364.1			30
MACD002	365.0	365.1			30
MACD002	366.0	366.1			40
MACD002	367.0	367.1			30
MACD002	368.0	368.1			40
MACD002	369.0	369.1			40
MACD002	370.0	370.1			30
MACD002	371.0	371.1			30
MACD002	372.0	372.1			30
MACD002	373.0	373.1			10
MACD002	374.0	374.1			30
MACD002	375.0	375.1			40
MACD002	376.0	376.1			30
MACD002	377.0	377.1			40
MACD002	378.0	378.1			10
MACD002	379.0	379.1			30
MACD002	380.0	380.1			20
MACD002	381.0	381.1			20
MACD002	382.0	382.1			30
MACD002	383.0	383.1			30
MACD002	384.0	384.1			40
MACD002	385.0	385.1			10
MACD002	386.0	386.1			30
MACD002	387.0	387.1			30
MACD002	388.0	388.1			30
MACD002	389.0	389.1			30
MACD002	390.0	390.1			30
MACD002	391.0	391.1			30
MACD002	392.0	392.1			30
MACD002	393.0	393.1			30
MACD002	394.0	394.1			30
MACD002	395.0	395.1			30
MACD002	396.0	396.1			30
MACD002	397.0	397.1			30
MACD002	398.0	398.1			20
MACD002	399.0	399.1			40
MACD002	400.0	400.1			40
MACD002	401.0	401.1			20

867

598869

DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
MACD003	0.0	0.1			
MACD003	1.0	1.1			
MACD003	2.0	2.1			
MACD003	3.0	3.1			
MACD003	4.0	4.1			
MACD003	5.0	5.1			
MACD003	6.0	6.1			
MACD003	7.0	7.1			
MACD003	8.0	8.1			
MACD003	9.0	9.1			
MACD003	10.0	10.1			
MACD003	11.0	11.1			
MACD003	12.0	12.1			
MACD003	13.0	13.1			
MACD003	14.0	14.1			
MACD003	15.0	15.1			
MACD003	16.0	16.1			
MACD003	17.0	17.1			
MACD003	18.0	18.1			
MACD003	19.0	19.1			
MACD003	20.0	20.1			
MACD003	21.0	21.1			
MACD003	22.0	22.1			
MACD003	23.0	23.1			
MACD003	24.0	24.1			
MACD003	25.0	25.1			
MACD003	26.0	26.1			
MACD003	27.0	27.1			
MACD003	28.0	28.1			
MACD003	29.0	29.1			
MACD003	30.0	30.1			
MACD003	31.0	31.1			20
MACD003	32.0	32.1			20
MACD003	33.0	33.1			
MACD003	34.0	34.1			
MACD003	35.0	35.1			20
MACD003	36.0	36.1			20
MACD003	37.0	37.1			20
MACD003	38.0	38.1			30
MACD003	39.0	39.1			30
MACD003	40.0	40.1			20
MACD003	41.0	41.1			10
MACD003	42.0	42.1			20
MACD003	43.0	43.1			20
MACD003	44.0	44.1			20
MACD003	45.0	45.1			20
MACD003	46.0	46.1			20
MACD003	47.0	47.1			20
MACD003	48.0	48.1			30
MACD003	49.0	49.1			30
MACD003	50.0	50.1			20
MACD003	51.0	51.1			20
MACD003	52.0	52.1			30

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
MACD003	53.0	53.1			30
MACD003	54.0	54.1			20
MACD003	55.0	55.1			10
MACD003	56.0	56.1			20
MACD003	57.0	57.1			10
MACD003	58.0	58.1			20
MACD003	59.0	59.1			30
MACD003	60.0	60.1			20
MACD003	61.0	61.1			20
MACD003	62.0	62.1			20
MACD003	63.0	63.1			20
MACD003	64.0	64.1			20
MACD003	65.0	65.1			10
MACD003	66.0	66.1			30
MACD003	67.0	67.1			20
MACD003	68.0	68.1			20
MACD003	69.0	69.1			30
MACD003	70.0	70.1			30
MACD003	71.0	71.1			30
MACD003	72.0	72.1			20
MACD003	73.0	73.1			20
MACD003	74.0	74.1			20
MACD003	75.0	75.1			20
MACD003	76.0	76.1			20
MACD003	77.0	77.1			30
MACD003	78.0	78.1			20
MACD003	79.0	79.1			20
MACD003	80.0	80.1			20
MACD003	81.0	81.1			20
MACD003	82.0	82.1			20
MACD003	83.0	83.1			10
MACD003	84.0	84.1			20
MACD003	85.0	85.1			10
MACD003	86.0	86.1			20
MACD003	87.0	87.1			20
MACD003	88.0	88.1			10
MACD003	89.0	89.1			20
MACD003	90.0	90.1			30
MACD003	91.0	91.1			30
MACD003	92.0	92.1			50
MACD003	93.0	93.1			20
MACD003	94.0	94.1			20
MACD003	95.0	95.1			40
MACD003	96.0	96.1			30
MACD003	97.0	97.1			60
MACD003	98.0	98.1			30
MACD003	99.0	99.1			20
MACD003	100.0	100.1			30
MACD003	101.0	101.1			30
MACD003	102.0	102.1			30
MACD003	103.0	103.1			30
MACD003	104.0	104.1			30
MACD003	105.0	105.1			40

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
MACD003	106.0	106.1			
MACD003	107.0	107.1			30
MACD003	108.0	108.1			10
MACD003	109.0	109.1			10
MACD003	110.0	110.1			30
MACD003	111.0	111.1			30
MACD003	112.0	112.1			40
MACD003	113.0	113.1			20
MACD003	114.0	114.1			40
MACD003	115.0	115.1			20
MACD003	116.0	116.1			20
MACD003	117.0	117.1			20
MACD003	118.0	118.1			40
MACD003	119.0	119.1			20
MACD003	120.0	120.1			20
MACD003	121.0	121.1			20
MACD003	122.0	122.1			20
MACD003	123.0	123.1			30
MACD003	124.0	124.1			30
MACD003	125.0	125.1			20
MACD003	126.0	126.1			20
MACD003	127.0	127.1			30
MACD003	128.0	128.1			30
MACD003	129.0	129.1			30
MACD003	130.0	130.1			30
MACD003	131.0	131.1			20
MACD003	132.0	132.1			30
MACD003	133.0	133.1			10
MACD003	134.0	134.1			20
MACD003	135.0	135.1			20
MACD003	136.0	136.1			30
MACD003	137.0	137.1			30
MACD003	138.0	138.1			30
MACD003	139.0	139.1			30
MACD003	140.0	140.1			30
MACD003	141.0	141.1			40
MACD003	142.0	142.1			30
MACD003	143.0	143.1			30
MACD003	144.0	144.1			30
MACD003	145.0	145.1			30
MACD003	146.0	146.1			30
MACD003	147.0	147.1			30
MACD003	148.0	148.1			20
MACD003	149.0	149.1			20
MACD003	150.0	150.1			30
MACD003	151.0	151.1			30
MACD003	152.0	152.1			20
MACD003	153.0	153.1			30
MACD003	154.0	154.1			20
MACD003	155.0	155.1			30
MACD003	156.0	156.1			20
MACD003	157.0	157.1			40
MACD003	158.0	158.1			30

598872

DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
MACD007	186.0	186.1			10
MACD007	187.0	187.1			0
MACD007	188.0	188.1			10
MACD007	189.0	189.1			15
MACD007	190.0	190.1			10
MACD007	191.0	191.1			20
MACD007	192.0	192.1			5
MACD007	193.0	193.1			10
MACD007	194.0	194.1			10
MACD007	195.0	195.1			15
MACD007	196.0	196.1			10
MACD007	197.0	197.1			0
MACD007	198.0	198.1			10
MACD007	199.0	199.1			20
MACD007	200.0	200.1			15
MACD007	201.0	201.1			25
MACD007	202.0	202.1			10
MACD007	203.0	203.1			10
MACD007	204.0	204.1			10
MACD007	205.0	205.1			15
MACD007	206.0	206.1			10
MACD007	207.0	207.1			10
MACD007	208.0	208.1			20
MACD007	209.0	209.1			20
MACD007	210.0	210.1			20
MACD007	211.0	211.1			25
MACD007	212.0	212.1			25
MACD007	213.0	213.1			30
MACD007	214.0	214.1			20
MACD007	215.0	215.1			40
MACD007	216.0	216.1			30
MACD007	217.0	217.1			35
MACD007	218.0	218.1			30
MACD007	219.0	219.1			40
MACD007	220.0	220.1			40
MACD007	221.0	221.1			45
MACD007	222.0	222.1			10
MACD007	223.0	223.1			20
MACD007	224.0	224.1			
MACD007	225.0	225.1			25
MACD007	226.0	226.1			25
MACD007	227.0	227.1			40
MACD007	228.0	228.1			35
MACD007	229.0	229.1			35
MACD007	230.0	230.1			50
MACD007	231.0	231.1			20
MACD007	232.0	232.1			25
MACD007	233.0	233.1			40
MACD007	234.0	234.1			30
MACD007	235.0	235.1			40
MACD007	236.0	236.1			40
MACD007	237.0	237.1			30
MACD007	238.0	238.1			40

DHTD9	FROM9	TOTO7	ROCK ALTNG	SUSCPT
MACD007	239.0	239.1		30
MACD007	240.0	240.1		40
MACD007	241.0	241.1		35
MACD007	242.0	242.1		35
MACD007	243.0	243.1		30
MACD007	244.0	244.1		35
MACD007	245.0	245.1		40
MACD007	246.0	246.1		30
MACD007	247.0	247.1		35
MACD007	248.0	248.1		25
MACD007	249.0	249.1		30
MACD007	250.0	250.1		25
MACD007	251.0	251.1		40
MACD007	252.0	252.1		35
MACD007	253.0	253.1		35
MACD007	254.0	254.1		40
MACD007	255.0	255.1		30
MACD007	256.0	256.1		30
MACD007	257.0	257.1		10
MACD007	258.0	258.1		
MACD007	259.0	259.1		30
MACD007	260.0	260.1		30
MACD007	261.0	261.1		40
MACD007	262.0	262.1		40
MACD007	263.0	263.1		40
MACD007	264.0	264.1		30
MACD007	265.0	265.1		40
MACD007	266.0	266.1		
MACD007	267.0	267.1		
MACD007	268.0	268.1		
MACD007	269.0	269.1		
MACD007	270.0	270.1		
MACD007	271.0	271.1		
MACD007	272.0	272.1		30
MACD007	273.0	273.1		
MACD007	274.0	274.1		
MACD007	275.0	275.1		
MACD007	276.0	276.1		
MACD007	277.0	277.1		
MACD007	278.0	278.1		
MACD007	279.0	279.1		
MACD007	280.0	280.1		
MACD007	281.0	281.1		
MACD007	282.0	282.1		
MACD007	283.0	283.1		
MACD007	284.0	284.1		30
MACD007	285.0	285.1		25
MACD007	286.0	286.1		20
MACD007	287.0	287.1		30
MACD007	288.0	288.1		30
MACD007	289.0	289.1		40
MACD007	290.0	290.1		30
MACD007	291.0	291.1		

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598874

DHID9	FROM9	TO9	ROCK	ALTNG	SUSCPT
MACD007	292.0	292.1			
MACD007	293.0	293.1			35
MACD007	294.0	294.1			40
MACD007	295.0	295.1			20
MACD007	296.0	296.1			20
MACD007	297.0	297.1			35
MACD007	298.0	298.1			30
MACD007	299.0	299.1			30
MACD007	300.0	300.1			25
MACD007	301.0	301.1			20
MACD007	302.0	302.1			10
MACD007	303.0	303.1			10
MACD007	304.0	304.1			10
MACD007	305.0	305.1			25
MACD007	306.0	306.1			15
MACD007	307.0	307.1			20
MACD007	308.0	308.1			15
MACD007	309.0	309.1			15
MACD007	310.0	310.1			30
MACD007	311.0	311.1			10
MACD007	312.0	312.1			20
MACD007	313.0	313.1			10
MACD007	314.0	314.1			5
MACD007	315.0	315.1			15
MACD007	316.0	316.1			30
MACD007	317.0	317.1			
MACD007	318.0	318.1			
MACD007	319.0	319.1			
MACD007	320.0	320.1			25
MACD007	321.0	321.1			35
MACD007	322.0	322.1			35
MACD007	323.0	323.1			30
MACD007	324.0	324.1			30
MACD007	325.0	325.1			
MACD007	326.0	326.1			25
MACD007	327.0	327.1			30
MACD007	328.0	328.1			5
MACD007	329.0	329.1			20
MACD007	330.0	330.1			20
MACD007	331.0	331.1			30
MACD007	332.0	332.1			15
MACD007	333.0	333.1			20
MACD007	334.0	334.1			20
MACD007	335.0	335.1			30
MACD007	336.0	336.1			30
MACD007	337.0	337.1			30
MACD007	338.0	338.1			25
MACD007	339.0	339.1			20
MACD007	340.0	340.1			30
MACD007	341.0	341.1			30
MACD007	342.0	342.1			20
MACD007	343.0	343.1			10
MACD007	344.0	344.1			20

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598875

JHID9	FROM9	TOT09	ROCK ALTNG	SUSCPT
MACD007	345.0	345.1		10
MACD007	346.0	346.1		25
MACD007	347.0	347.1		35
MACD007	348.0	348.1		30
MACD007	349.0	349.1		35
MACD007	350.0	350.1		
MACD007	351.0	351.1		25
MACD007	352.0	352.1		30
MACD007	353.0	353.1		30
MACD007	354.0	354.1		40
MACD007	355.0	355.1		500
MACD007	356.0	356.1		40
MACD007	357.0	357.1		60
MACD007	358.0	358.1		40
MACD007	359.0	359.1		25
MACD007	360.0	360.1		30
MACD007	361.0	361.1		20
MACD007	361.9	362.0		35
MACD008	0.0	0.1		
MACD008	1.0	1.1		
MACD008	2.0	2.1		
MACD008	3.0	3.1		
MACD008	4.0	4.1		
MACD008	5.0	5.1		
MACD008	6.0	6.1		
MACD008	7.0	7.1		
MACD008	8.0	8.1		
MACD008	9.0	9.1		
MACD008	10.0	10.1		45
MACD008	11.0	11.1		
MACD008	12.0	12.1		50
MACD008	13.0	13.1		
MACD008	14.0	14.1		
MACD008	15.0	15.1		
MACD008	16.0	16.1		
MACD008	17.0	17.1		
MACD008	18.0	18.1		35
MACD008	19.0	19.1		60
MACD008	20.0	20.1		
MACD008	21.0	21.1		
MACD008	22.0	22.1		
MACD008	23.0	23.1		
MACD008	24.0	24.1		
MACD008	25.0	25.1		
MACD008	26.0	26.1		40
MACD008	27.0	27.1		40
MACD008	28.0	28.1		40
MACD008	29.0	29.1		35
MACD008	30.0	30.1		30
MACD008	31.0	31.1		35
MACD008	32.0	32.1		40
MACD008	33.0	33.1		45

598876

DHID?	FROM?	TOTO?	ROCK	ALTNG	SUSCPT
MACD008	34.0	34.1			50
MACD008	35.0	35.1			30
MACD008	36.0	36.1			40
MACD008	37.0	37.1			40
MACD008	38.0	38.1			30
MACD008	39.0	39.1			30
MACD008	40.0	40.1			100
MACD008	41.0	41.1			70
MACD008	42.0	42.1			75
MACD008	43.0	43.1			50
MACD008	44.0	44.1			30
MACD008	45.0	45.1			40
MACD008	46.0	46.1			30
MACD008	47.0	47.1			20
MACD008	48.0	48.1			40
MACD008	49.0	49.1			30
MACD008	50.0	50.1			25
MACD008	51.0	51.1			20
MACD008	52.0	52.1			30
MACD008	53.0	53.1			30
MACD008	54.0	54.1			20
MACD008	55.0	55.1			15
MACD008	56.0	56.1			
MACD008	57.0	57.1			25
MACD008	58.0	58.1			30
MACD008	59.0	59.1			30
MACD008	60.0	60.1			10
MACD008	61.0	61.1			30
MACD008	62.0	62.1			20
MACD008	63.0	63.1			20
MACD008	64.0	64.1			25
MACD008	65.0	65.1			30
MACD008	66.0	66.1			30
MACD008	67.0	67.1			20
MACD008	68.0	68.1			20
MACD008	69.0	69.1			30
MACD008	70.0	70.1			20
MACD008	71.0	71.1			30
MACD008	72.0	72.1			25
MACD008	73.0	73.1			20
MACD008	74.0	74.1			30
MACD008	75.0	75.1			20
MACD008	76.0	76.1			30
MACD008	77.0	77.1			15
MACD008	78.0	78.1			20
MACD008	79.0	79.1			15
MACD008	80.0	80.1			10
MACD008	81.0	81.1			10
MACD008	82.0	82.1			20
MACD008	83.0	83.1			10
MACD008	84.0	84.1			25
MACD008	85.0	85.1			30
MACD008	86.0	86.1			35

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598877

DHID?	FROM?	TO TO?	ROCK	ALTNG	SUSCPT
MACD008	87.0	87.1			30
MACD008	88.0	88.1			30
MACD008	89.0	89.1			30
MACD008	90.0	90.1			30
MACD008	91.0	91.1			15
MACD008	92.0	92.1			10
MACD008	93.0	93.1			20
MACD008	94.0	94.1			50
MACD008	95.0	95.1			30
MACD008	96.0	96.1			30
MACD008	97.0	97.1			30
MACD008	98.0	98.1			30
MACD008	99.0	99.1			25
MACD008	100.0	100.1			20
MACD008	101.0	101.1			25
MACD008	102.0	102.1			30
MACD008	103.0	103.1			20
MACD008	104.0	104.1			30
MACD008	105.0	105.1			15
MACD008	106.0	106.1			30
MACD008	107.0	107.1			20
MACD008	108.0	108.1			20
MACD008	109.0	109.1			30
MACD008	110.0	110.1			
MACD008	111.0	111.1			20
MACD008	112.0	112.1			25
MACD008	113.0	113.1			30
MACD008	114.0	114.1			30
MACD008	115.0	115.1			
MACD008	116.0	116.1			20
MACD008	117.0	117.1			35
MACD008	118.0	118.1			25
MACD008	119.0	119.1			20
MACD008	120.0	120.1			25
MACD008	121.0	121.1			20
MACD008	122.0	122.1			20
MACD008	123.0	123.1			25
MACD008	124.0	124.1			20
MACD008	125.0	125.1			30
MACD008	126.0	126.1			25
MACD008	127.0	127.1			25
MACD008	128.0	128.1			40
MACD008	129.0	129.1			30
MACD008	130.0	130.1			40
MACD008	131.0	131.1			50
MACD008	132.0	132.1			30
MACD008	133.0	133.1			60
MACD008	134.0	134.1			50
MACD008	135.0	135.1			20
MACD008	136.0	136.1			30
MACD008	137.0	137.1			40
MACD008	138.0	138.1			30
MACD008	139.0	139.1			30

598878

OHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
MACD008	140.0	140.1			30
MACD008	141.0	141.1			30
MACD008	142.0	142.1			40
MACD008	143.0	143.1			40
MACD008	144.0	144.1			30
MACD008	145.0	145.1			60
MACD008	146.0	146.1			30
MACD008	147.0	147.1			35
MACD008	148.0	148.1			40
MACD008	149.0	149.1			45
MACD008	150.0	150.1			50
MACD008	151.0	151.1			40
MACD008	152.0	152.1			30
MACD008	153.0	153.1			30
MACD008	154.0	154.1			45
MACD008	155.0	155.1			50
MACD008	156.0	156.1			50
MACD008	157.0	157.1			40
MACD008	158.0	158.1			30
MACD008	159.0	159.1			70
MACD008	160.0	160.1			30
MACD008	161.0	161.1			25
MACD008	162.0	162.1			20
MACD008	163.0	163.1			30
MACD008	164.0	164.1			30
MACD008	165.0	165.1			40
MACD008	166.0	166.1			25
MACD008	167.0	167.1			40
MACD008	168.0	168.1			30
MACD008	169.0	169.1			30
MACD008	170.0	170.1			45
MACD008	171.0	171.1			30
MACD008	172.0	172.1			35
MACD008	173.0	173.1			30
MACD008	174.0	174.1			30
MACD008	175.0	175.1			15
MACD008	176.0	176.1			30
MACD008	177.0	177.1			30
MACD008	178.0	178.1			20
MACD008	179.0	179.1			20
MACD008	180.0	180.1			20
MACD008	181.0	181.1			5
MACD008	182.0	182.1			10
MACD008	183.0	183.1			30
MACD008	184.0	184.1			15
MACD008	185.0	185.1			20
MACD008	186.0	186.1			20
MACD008	187.0	187.1			5
MACD008	188.0	188.1			10
MACD008	189.0	189.1			15
MACD008	190.0	190.1			20
MACD008	191.0	191.1			10
MACD008	192.0	192.1			0

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598879

DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
MACD008	193.0	193.1			20
MACD008	194.0	194.1			15
MACD008	195.0	195.1			20
MACD008	196.0	196.1			10
MACD008	197.0	197.1			10
MACD008	198.0	198.1			20
MACD008	199.0	199.1			25
MACD008	200.0	200.1			20
MACD008	201.0	201.1			15
MACD008	202.0	202.1			15
MACD008	203.0	203.1			10
MACD008	204.0	204.1			15
MACD008	205.0	205.1			20
MACD008	206.0	206.1			10
MACD008	207.0	207.1			20
MACD008	208.0	208.1			20
MACD008	209.0	209.1			10
MACD008	210.0	210.1			10
MACD008	211.0	211.1			20
MACD008	212.0	212.1			25
MACD008	213.0	213.1			50
MACD008	214.0	214.1			20
MACD008	215.0	215.1			20
MACD008	216.0	216.1			25
MACD008	217.0	217.1			20
MACD008	218.0	218.1			20
MACD008	219.0	219.1			30
MACD008	220.0	220.1			25
MACD008	221.0	221.1			25
MACD008	222.0	222.1			30
MACD008	223.0	223.1			25
MACD008	224.0	224.1			20
MACD008	225.0	225.1			30
MACD008	226.0	226.1			10
MACD008	227.0	227.1			15
MACD008	228.0	228.1			30
MACD008	229.0	229.1			25
MACD008	230.0	230.1			30
MACD008	231.0	231.1			25
MACD008	232.0	232.1			30
MACD008	233.0	233.1			20
MACD008	234.0	234.1			35
MACD008	235.0	235.1			25
MACD008	236.0	236.1			30
MACD008	237.0	237.1			40
MACD008	238.0	238.1			20
MACD008	239.0	239.1			35
MACD008	240.0	240.1			25
MACD008	241.0	241.1			15
MACD008	242.0	242.1			40
MACD008	243.0	243.1			30
MACD008	244.0	244.1			30
MACD008	245.0	245.1			30

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598880

HID9	FROM9	TOT09	ROCK ALTNG	SUSCPT
MACD008	246.0	246.1		30
MACD008	247.0	247.1		30
MACD008	248.0	248.1		40
MACD008	249.0	249.1		35
MACD008	250.0	250.1		30
MACD008	251.0	251.1		30
MACD008	252.0	252.1		25
MACD008	253.0	253.1		25
MACD008	254.0	254.1		20
MACD008	255.0	255.1		20
MACD008	256.0	256.1		30
MACD008	257.0	257.1		30
MACD008	258.0	258.1		15
MACD008	259.0	259.1		20
MACD008	260.0	260.1		20
MACD008	261.0	261.1		25
MACD008	262.0	262.1		15
MACD008	263.0	263.1		30
MACD008	264.0	264.1		20
MACD008	265.0	265.1		25
MACD008	266.0	266.1		15
MACD008	267.0	267.1		25
MACD008	268.0	268.1		20
MACD008	269.0	269.1		30
MACD008	270.0	270.1		10
MACD008	271.0	271.1		30
MACD008	272.0	272.1		30
MACD008	273.0	273.1		20
MACD008	274.0	274.1		30
MACD008	275.0	275.1		20
MACD008	276.0	276.1		30
MACD008	277.0	277.1		25
MACD008	278.0	278.1		30
MACD008	279.0	279.1		20
MACD008	280.0	280.1		30
MACD008	281.0	281.1		25
MACD008	282.0	282.1		20
MACD008	283.0	283.1		25
MACD008	284.0	284.1		20
MACD008	285.0	285.1		20
MACD008	286.0	286.1		25
MACD008	287.0	287.1		25
MACD008	288.0	288.1		30
MACD008	289.0	289.1		25
MACD008	290.0	290.1		35
MACD008	291.0	291.1		35
MACD008	292.0	292.1		30
ACD008	293.0	293.1		25
MACD008	294.0	294.1		30
MACD008	295.0	295.1		30
MACD008	296.0	296.1		20
MACD008	297.0	297.1		30
MACD008	298.0	298.1		50

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DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
MACD008	299.0	299.1			40
MACD008	300.0	300.1			30
MACD008	301.0	301.1			30
MACD008	302.0	302.1			35
MACD008	303.0	303.1			25
MACD008	304.0	304.1			20
MACD008	305.0	305.1			30
MACD008	306.0	306.1			25
MACD008	307.0	307.1			20
MACD008	308.0	308.1			30
MACD008	309.0	309.1			15
MACD008	310.0	310.1			30
MACD008	311.0	311.1			30
MACD008	312.0	312.1			15
MACD008	313.0	313.1			20
MACD008	314.0	314.1			20
MACD008	315.0	315.1			40
MACD008	316.0	316.1			30
MACD008	317.0	317.1			40
MACD008	318.0	318.1			25
MACD008	319.0	319.1			30
MACD008	320.0	320.1			30
MACD008	321.0	321.1			25
MACD008	322.0	322.1			30
MACD008	323.0	323.1			30
MACD008	324.0	324.1			25
MACD008	325.0	325.1			25
MACD008	326.0	326.1			25
MACD008	327.0	327.1			25
MACD008	328.0	328.1			40
MACD008	329.0	329.1			30
MACD008	330.0	330.1			30
MACD008	331.0	331.1			30
MACD008	332.0	332.1			25
MACD008	333.0	333.1			30
MACD008	334.0	334.1			25
MACD008	335.0	335.1			25
MACD008	336.0	336.1			40
MACD008	337.0	337.1			20
MACD008	338.0	338.1			10
MACD008	339.0	339.1			10
MACD008	340.0	340.1			15
MACD008	341.0	341.1			15
MACD008	342.0	342.1			25
MACD008	343.0	343.1			20
MACD008	344.0	344.1			25
MACD008	345.0	345.1			20
MACD008	346.0	346.1			30
MACD008	347.0	347.1			20
MACD008	348.0	348.1			20
MACD008	349.0	349.1			20
MACD008	350.0	350.1			20
MACD008	351.0	351.1			20

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598882

DHID9	FROM9	TOTG9	ROCK ALTNG	SUSCPT
MACD008	352.0	352.1		20
MACD008	353.0	353.1		20
MACD008	354.0	354.1		20
MACD008	355.0	355.1		20
MACD008	356.0	356.1		20
MACD008	357.0	357.1		25
MACD008	358.0	358.1		20
MACD008	359.0	359.1		15
MACD008	360.0	360.1		20
MACD008	361.0	361.1		30
MACD008	362.0	362.1		25
MACD008	363.0	363.1		20
MACD008	364.0	364.1		20
MACD008	365.0	365.1		10
MACD008	366.0	366.1		10
MACD008	367.0	367.1		25
MACD008	368.0	368.1		20
MACD008	369.0	369.1		10
MACD008	370.0	370.1		10
MACD008	371.0	371.1		15
MACD008	372.0	372.1		25
MACD008	373.0	373.1		5
MACD008	374.0	374.1		10
MACD008	375.0	375.1		0
MACD008	376.0	376.1		20
MACD008	377.0	377.1		40
MACD008	378.0	378.1		15
MACD008	379.0	379.1		20
MACD008	380.0	380.1		20
MACD008	381.0	381.1		30
MACD008	382.0	382.1		30
MACD008	383.0	383.1		20
MACD008	384.0	384.1		20
MACD008	385.0	385.1		35
MACD008	386.0	386.1		25
MACD008	387.0	387.1		20
MACD008	388.0	388.1		20
MACD008	389.0	389.1		20
MACD008	390.0	390.1		30
MACD008	391.0	391.1		35
MACD008	392.0	392.1		15
MACD008	393.0	393.1		30
MACD008	394.0	394.1		10
MACD008	395.0	395.1		10
MACD008	396.0	396.1		15
MACD008	397.0	397.1		30
MACD008	398.0	398.1		15
MACD008	399.0	399.1		25
MACD008	400.0	400.1		25
MACD008	401.0	401.1		30
MACD008	402.0	402.1		35
MACD008	403.0	403.1		30
MACD008	404.0	404.1		40

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DHID9	FROM9	TO T09	ROCK	ALTNG	SUSCPT
MACD008	405.0	405.1			40
MACD008	406.0	406.1			40
MACD008	407.0	407.1			25
MACD008	408.0	408.1			25
MACD008	409.0	409.1			0
MACD008	410.0	410.1			20
MACD008	411.0	411.1			30
MACD008	412.0	412.1			25
MACD008	413.0	413.1			30
MACD008	414.0	414.1			20
MACD008	415.0	415.1			30
MACD008	416.0	416.1			30
MACD008	417.0	417.1			25
MACD008	418.0	418.1			45
MACD008	419.0	419.1			30
MACD008	420.0	420.1			35
MACD008	421.0	421.1			30
MACD008	422.0	422.1			35
MACD008	423.0	423.1			30
MACD009	0.0	0.1			
MACD009	1.0	1.1			
MACD009	2.0	2.1			
MACD009	3.0	3.1			
MACD009	4.0	4.1			
MACD009	5.0	5.1			
MACD009	6.0	6.1			
MACD009	7.0	7.1			
MACD009	8.0	8.1			
MACD009	9.0	9.1			20
MACD009	10.0	10.1			
MACD009	11.0	11.1			
MACD009	12.0	12.1			
MACD009	13.0	13.1			
MACD009	14.0	14.1			
MACD009	15.0	15.1			
MACD009	16.0	16.1			
MACD009	17.0	17.1			30
MACD009	18.0	18.1			
MACD009	19.0	19.1			
MACD009	20.0	20.1			
MACD009	21.0	21.1			
MACD009	22.0	22.1			30
MACD009	23.0	23.1			
MACD009	24.0	24.1			10
MACD009	25.0	25.1			30
MACD009	26.0	26.1			30
MACD009	27.0	27.1			30
MACD009	28.0	28.1			30
MACD009	29.0	29.1			
MACD009	30.0	30.1			
MACD009	31.0	31.1			
MACD009	32.0	32.1			

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DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
MACD009	33.0	33.1			
MACD009	34.0	34.1			
MACD009	35.0	35.1			
MACD009	36.0	36.1			
MACD009	37.0	37.1			
MACD009	38.0	38.1			10
MACD009	39.0	39.1			
MACD009	40.0	40.1			
MACD009	41.0	41.1			
MACD009	42.0	42.1			
MACD009	43.0	43.1			
MACD009	44.0	44.1			35
MACD009	45.0	45.1			30
MACD009	46.0	46.1			40
MACD009	47.0	47.1			40
MACD009	48.0	48.1			30
MACD009	49.0	49.1			30
MACD009	50.0	50.1			35
MACD009	51.0	51.1			30
MACD009	52.0	52.1			15
MACD009	53.0	53.1			30
MACD009	54.0	54.1			35
MACD009	55.0	55.1			20
MACD009	56.0	56.1			35
MACD009	57.0	57.1			25
MACD009	58.0	58.1			20
MACD009	59.0	59.1			25
MACD009	60.0	60.1			20
MACD009	61.0	61.1			30
MACD009	62.0	62.1			20
MACD009	63.0	63.1			35
MACD009	64.0	64.1			20
MACD009	65.0	65.1			30
MACD009	66.0	66.1			40
MACD009	67.0	67.1			20
MACD009	68.0	68.1			30
MACD009	69.0	69.1			30
MACD009	70.0	70.1			30
MACD009	71.0	71.1			20
MACD009	72.0	72.1			50
MACD009	73.0	73.1			25
MACD009	74.0	74.1			30
MACD009	75.0	75.1			25
MACD009	76.0	76.1			35
MACD009	77.0	77.1			30
MACD009	78.0	78.1			25
MACD009	79.0	79.1			25
MACD009	80.0	80.1			15
MACD009	81.0	81.1			35
MACD009	82.0	82.1			20
MACD009	83.0	83.1			30
MACD009	84.0	84.1			30
MACD009	85.0	85.1			20

DHID9	FROM9	TOTO9	ROCK ALTNG	SUSCPT
MACD009	86.0	86.1		25
MACD009	87.0	87.1		30
MACD009	88.0	88.1		30
MACD009	89.0	89.1		20
MACD009	90.0	90.1		30
MACD009	91.0	91.1		30
MACD009	92.0	92.1		25
MACD009	93.0	93.1		30
MACD009	94.0	94.1		20
MACD009	95.0	95.1		25
MACD009	96.0	96.1		25
MACD009	97.0	97.1		25
MACD009	98.0	98.1		20
MACD009	99.0	99.1		30
MACD009	100.0	100.1		30
MACD009	101.0	101.1		30
MACD009	102.0	102.1		30
MACD009	103.0	103.1		30
MACD009	104.0	104.1		30
MACD009	105.0	105.1		30
MACD009	106.0	106.1		35
MACD009	107.0	107.1		40
MACD009	108.0	108.1		40
MACD009	109.0	109.1		30
MACD009	110.0	110.1		30
MACD009	111.0	111.1		40
MACD009	112.0	112.1		35
MACD009	113.0	113.1		45
MACD009	114.0	114.1		40
MACD009	115.0	115.1		20
MACD009	116.0	116.1		20
MACD009	117.0	117.1		30
MACD009	118.0	118.1		40
MACD009	119.0	119.1		30
MACD009	120.0	120.1		35
MACD009	121.0	121.1		50
MACD009	122.0	122.1		40
MACD009	123.0	123.1		70
MACD009	124.0	124.1		30
MACD009	125.0	125.1		40
MACD009	126.0	126.1		10
MACD009	127.0	127.1		30
MACD009	128.0	128.1		40
MACD009	129.0	129.1		15
MACD009	130.0	130.1		45
MACD009	131.0	131.1		30
MACD009	132.0	132.1		20
MACD009	133.0	133.1		70
MACD009	134.0	134.1		90
MACD009	135.0	135.1		20
MACD009	136.0	136.1		40
MACD009	137.0	137.1		45
MACD009	138.0	138.1		40

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DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
MACD009	139.0	139.1			20
MACD009	140.0	140.1			15
MACD009	141.0	141.1			45
MACD009	142.0	142.1			25
MACD009	143.0	143.1			30
MACD009	144.0	144.1			130
MACD009	145.0	145.1			25
MACD009	146.0	146.1			20
MACD009	147.0	147.1			30
MACD009	148.0	148.1			30
MACD009	149.0	149.1			35
MACD009	150.0	150.1			25
MACD009	151.0	151.1			30
MACD009	152.0	152.1			20
MACD009	153.0	153.1			40
MACD009	154.0	154.1			10
MACD009	155.0	155.1			20
MACD009	156.0	156.1			25
MACD009	157.0	157.1			40
MACD009	158.0	158.1			25
MACD009	159.0	159.1			20
MACD009	160.0	160.1			20
MACD009	161.0	161.1			30
MACD009	162.0	162.1			25
MACD009	163.0	163.1			35
MACD009	164.0	164.1			40
MACD009	165.0	165.1			25
MACD009	166.0	166.1			45
MACD009	167.0	167.1			35
MACD009	168.0	168.1			20
MACD009	169.0	169.1			30
MACD009	170.0	170.1			20
MACD009	171.0	171.1			30
MACD009	172.0	172.1			25
MACD009	173.0	173.1			20
MACD009	174.0	174.1			40
MACD009	175.0	175.1			40
MACD009	176.0	176.1			30
MACD009	177.0	177.1			35
MACD009	178.0	178.1			40
MACD009	179.0	179.1			30
MACD009	180.0	180.1			30
MACD009	181.0	181.1			25
MACD009	182.0	182.1			20
MACD009	183.0	183.1			25
MACD009	184.0	184.1			80
MACD009	185.0	185.1			40
MACD009	186.0	186.1			35
MACD009	187.0	187.1			75
MACD009	188.0	188.1			20
MACD009	189.0	189.1			30
MACD009	190.0	190.1			40
MACD009	191.0	191.1			40

DHID9	FROM9	TOT09	ROCK ALTNG	SUSCPT
MACD009	192.0	192.1		45
MACD009	193.0	193.1		40
MACD009	194.0	194.1		45
MACD009	195.0	195.1		55
MACD009	196.0	196.1		60
MACD009	197.0	197.1		40
MACD009	198.0	198.1		20
MACD009	199.0	199.1		20
MACD009	200.0	200.1		30
MACD009	201.0	201.1		40
MACD009	202.0	202.1		30
MACD009	203.0	203.1		50
MACD009	204.0	204.1		30
MACD009	205.0	205.1		30
MACD009	206.0	206.1		30
MACD009	207.0	207.1		40
MACD009	208.0	208.1		25
MACD009	209.0	209.1		40
MACD009	210.0	210.1		30
MACD009	211.0	211.1		40
MACD009	212.0	212.1		30
MACD009	213.0	213.1		50
MACD009	214.0	214.1		30
MACD009	215.0	215.1		30
MACD009	216.0	216.1		30
MACD009	217.0	217.1		25
MACD009	218.0	218.1		30
MACD009	219.0	219.1		40
MACD009	220.0	220.1		35
MACD009	221.0	221.1		30
MACD009	222.0	222.1		40
MACD009	223.0	223.1		30
MACD009	224.0	224.1		45
MACD009	225.0	225.1		40
MACD009	226.0	226.1		40
MACD009	227.0	227.1		30
MACD009	228.0	228.1		40
MACD009	229.0	229.1		30
MACD009	230.0	230.1		35
MACD009	231.0	231.1		250
MACD009	232.0	232.1		170
MACD009	233.0	233.1		100
MACD009	234.0	234.1		170
MACD009	235.0	235.1		480
MACD009	236.0	236.1		420
MACD009	237.0	237.1		235
MACD009	238.0	238.1		30
MACD009	239.0	239.1		50
MACD009	240.0	240.1		30
MACD009	241.0	241.1		10
MACD009	242.0	242.1		10
MACD009	243.0	243.1		25
MACD009	244.0	244.1		130

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DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
MACD009	245.0	245.1			200
MACD009	246.0	246.1			70
MACD009	247.0	247.1			30
MACD009	248.0	248.1			35
MACD009	249.0	249.1			15
MACD009	250.0	250.1			30
MACD009	251.0	251.1			30
MACD009	252.0	252.1			25
MACD009	253.0	253.1			20
MACD009	254.0	254.1			40
MACD009	255.0	255.1			40
MACD009	256.0	256.1			30
MACD009	257.0	257.1			35
MACD009	258.0	258.1			40
MACD009	259.0	259.1			30
MACD009	260.0	260.1			35
MACD009	261.0	261.1			30
MACD009	262.0	262.1			30
MACD009	263.0	263.1			30
MACD009	264.0	264.1			660
MACD009	265.0	265.1			500
MACD009	266.0	266.1			45
MACD009	267.0	267.1			30
MACD009	268.0	268.1			10
MACD009	269.0	269.1			40
MACD009	270.0	270.1			20
MACD009	271.0	271.1			40
MACD009	272.0	272.1			30
MACD009	273.0	273.1			20
MACD009	274.0	274.1			20
MACD009	275.0	275.1			25
MACD009	276.0	276.1			30
MACD009	277.0	277.1			40
MACD009	278.0	278.1			40
MACD009	279.0	279.1			20
MACD009	280.0	280.1			35
MACD009	281.0	281.1			20
MACD009	282.0	282.1			30
MACD009	283.0	283.1			20
MACD009	284.0	284.1			25
MACD009	285.0	285.1			30
MACD009	286.0	286.1			30
MACD009	287.0	287.1			20
MACD009	288.0	288.1			10
MACD009	289.0	289.1			50
MACD009	290.0	290.1			50
MACD009	291.0	291.1			40
MACD009	291.0	291.1			40
MACD009	292.0	292.1			20
MACD009	293.0	293.1			50
MACD009	294.0	294.1			30
MACD009	295.0	295.1			20
MACD009	296.0	296.1			40

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DHID9	FROM9	TOTO9	ROCK ALTNG	SUSCPT
MACD009	298.0	298.1		20
MACD009	299.0	299.1		30
MACD009	300.0	300.1		30
MACD009	301.0	301.1		30
MACD009	302.0	302.1		30
MACD009	303.0	303.1		30
MACD009	304.0	304.1		30
MACD009	305.0	305.1		25
MACD009	306.0	306.1		50
MACD009	307.0	307.1		30
MACD009	308.0	308.1		30
MACD009	309.0	309.1		30
MACD009	310.0	310.1		30
MACD009	311.0	311.1		40
MACD009	312.0	312.1		30
MACD009	313.0	313.1		30
MACD009	314.0	314.1		30
MACD009	315.0	315.1		35
MACD009	316.0	316.1		30
MACD009	317.0	317.1		35
MACD009	318.0	318.1		30
MACD009	319.0	319.1		35
MACD009	320.0	320.1		25
MACD009	321.0	321.1		25
MACD009	322.0	322.1		40
MACD009	323.0	323.1		30
MACD009	324.0	324.1		35
MACD009	325.0	325.1		50
MACD009	326.0	326.1		30
MACD009	327.0	327.1		50
MACD009	328.0	328.1		30
MACD009	329.0	329.1		25
MACD009	330.0	330.1		40
MACD009	331.0	331.1		20
MACD009	332.0	332.1		20
MACD009	333.0	333.1		30
MACD009	334.0	334.1		30
MACD009	335.0	335.1		25
MACD009	336.0	336.1		30
MACD009	337.0	337.1		30
MACD009	338.0	338.1		30
MACD009	339.0	339.1		20
MACD009	340.0	340.1		30
MACD009	341.0	341.1		40
MACD009	342.0	342.1		30
MACD009	343.0	343.1		30
MACD009	344.0	344.1		40
MACD009	345.0	345.1		50
MACD009	346.0	346.1		40
MACD009	347.0	347.1		40
MACD009	348.0	348.1		35
MACD009	349.0	349.1		30
MACD009	350.0	350.1		40

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
MACD009	351.0	351.1			30
MACD009	352.0	352.1			40
MACD009	353.0	353.1			20
MACD009	354.0	354.1			30
MACD009	355.0	355.1			40
MACD009	356.0	356.1			40
MACD009	357.0	357.1			40
MACD009	358.0	358.1			40
MACD009	359.0	359.1			60
MACD009	360.0	360.1			15
MACD009	361.0	361.1			40
MACD009	362.0	362.1			35
MACD009	363.0	363.1			30
MACD009	364.0	364.1			40
MACD009	365.0	365.1			30
MACD009	366.0	366.1			30
MACD009	367.0	367.1			30
MACD009	368.0	368.1			50
MACD009	369.0	369.1			50
MACD009	370.0	370.1			40
MACD009	371.0	371.1			40
MACD009	372.0	372.1			25
MACD009	373.0	373.1			30
MACD009	374.0	374.1			30
MACD009	375.0	375.1			40
MACD009	376.0	376.1			30
MACD009	377.0	377.1			60
MACD009	378.0	378.1			30
MACD009	379.0	379.1			40
MACD009	380.0	380.1			40
MACD009	381.0	381.1			30
MACD009	382.0	382.1			30
MACD009	383.0	383.1			30
MACD009	384.0	384.1			30
MACD009	385.0	385.1			30
MACD009	386.0	386.1			30
MACD009	387.0	387.1			30
MACD009	388.0	388.1			25
MACD009	389.0	389.1			30
MACD009	390.0	390.1			30
MACD009	391.0	391.1			30
MACD009	392.0	392.1			30
MACD009	393.0	393.1			40
MACD009	394.0	394.1			40
MACD009	395.0	395.1			50
MACD009	396.0	396.1			30
MACD009	397.0	397.1			60
MACD009	398.0	398.1			40
MACD009	399.0	399.1			40
MACD009	400.0	400.1			40
MACD009	401.0	401.1			20
MACD009	402.0	402.1			35
MACD009	403.0	403.1			30

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DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
MACD009	404.0	404.1			40
MACD009	405.0	405.1			35
MACD009	406.0	406.1			30
MACD009	407.0	407.1			30
MACD009	408.0	408.1			30
MACD009	409.0	409.1			30
MACD009	410.0	410.1			40
XMCD008	0.0	0.1			
XMCD008	1.0	1.1			
XMCD008	2.0	2.1			
XMCD008	3.0	3.1			
XMCD008	4.0	4.1			20
XMCD008	5.0	5.1			20
XMCD008	6.0	6.1			20
XMCD008	7.0	7.1			20
XMCD008	8.0	8.1			10
XMCD008	9.0	9.1			10
XMCD008	10.0	10.1			20
XMCD008	11.0	11.1			15
XMCD008	12.0	12.1			15
XMCD008	13.0	13.1			20
XMCD008	14.0	14.1			15
XMCD008	15.0	15.1			10
XMCD008	16.0	16.1			
XMCD008	17.0	17.1			10
XMCD008	18.0	18.1			15
XMCD008	19.0	19.1			10
XMCD008	20.0	20.1			10
XMCD008	21.0	21.1			10
XMCD008	22.0	22.1			10
XMCD008	23.0	23.1			15
XMCD008	24.0	24.1			15
XMCD008	25.0	25.1			10
XMCD008	26.0	26.1			20
XMCD008	27.0	27.1			10
XMCD008	28.0	28.1			10
XMCD008	29.0	29.1			10
XMCD008	30.0	30.1			15
XMCD008	31.0	31.1			20
XMCD008	32.0	32.1			10
XMCD008	33.0	33.1			40
XMCD008	34.0	34.1			15
XMCD008	35.0	35.1			20
XMCD008	36.0	36.1			15
XMCD008	37.0	37.1			25
XMCD008	38.0	38.1			5
XMCD008	39.0	39.1			15
XMCD008	40.0	40.1			20
XMCD008	41.0	41.1			10
XMCD008	42.0	42.1			15
XMCD008	43.0	43.1			10
XMCD008	44.0	44.1			

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DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
XMCD008	45.0	45.1			15
XMCD008	46.0	46.1			10
XMCD008	47.0	47.1			20
XMCD008	48.0	48.1			15
XMCD008	49.0	49.1			20
XMCD008	50.0	50.1			20
XMCD008	51.0	51.1			20
XMCD008	52.0	52.1			30
XMCD008	53.0	53.1			20
XMCD008	54.0	54.1			20
XMCD008	55.0	55.1			20
XMCD008	56.0	56.1			15
XMCD008	57.0	57.1			20
XMCD008	58.0	58.1			20
XMCD008	59.0	59.1			20
XMCD008	60.0	60.1			10
XMCD008	61.0	61.1			50
XMCD008	62.0	62.1			30
XMCD008	63.0	63.1			10
XMCD008	64.0	64.1			20
XMCD008	65.0	65.1			20
XMCD008	66.0	66.1			20
XMCD008	67.0	67.1			15
XMCD008	68.0	68.1			30
XMCD008	69.0	69.1			15
XMCD008	70.0	70.1			10
XMCD008	71.0	71.1			20
XMCD008	72.0	72.1			10
XMCD008	73.0	73.1			15
XMCD008	74.0	74.1			25
XMCD008	75.0	75.1			20
XMCD008	76.0	76.1			15
XMCD008	77.0	77.1			15
XMCD008	78.0	78.1			10
XMCD008	79.0	79.1			15
XMCD008	80.0	80.1			10
XMCD008	81.0	81.1			5
XMCD008	82.0	82.1			10
XMCD008	83.0	83.1			10
XMCD008	84.0	84.1			20
XMCD008	85.0	85.1			5
XMCD008	86.0	86.1			10
XMCD008	87.0	87.1			10
XMCD008	88.0	88.1			5
XMCD008	89.0	89.1			5
XMCD008	90.0	90.1			10
XMCD008	91.0	91.1			10
XMCD008	92.0	92.1			5
XMCD008	93.0	93.1			5
XMCD008	94.0	94.1			10
XMCD008	95.0	95.1			15
XMCD008	96.0	96.1			10
XMCD008	97.0	97.1			5

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DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
XMCD008	98.0	98.1			5
XMCD008	99.0	99.1			10
XMCD008	100.0	100.1			5
XMCD008	101.0	101.1			20
XMCD008	102.0	102.1			10
XMCD008	103.0	103.1			10
XMCD008	104.0	104.1			5
XMCD008	105.0	105.1			10
XMCD008	106.0	106.1			10
XMCD008	107.0	107.1			5
XMCD008	108.0	108.1			10
XMCD008	109.0	109.1			10
XMCD008	110.0	110.1			10
XMCD008	111.0	111.1			15
XMCD008	112.0	112.1			5
XMCD008	113.0	113.1			10
XMCD008	114.0	114.1			5
XMCD008	115.0	115.1			15
XMCD008	116.0	116.1			20
XMCD008	117.0	117.1			10
XMCD008	118.0	118.1			10
XMCD008	119.0	119.1			15
XMCD008	120.0	120.1			10
XMCD008	121.0	121.1			10
XMCD008	122.0	122.1			10
XMCD008	123.0	123.1			10
XMCD008	124.0	124.1			15
XMCD008	125.0	125.1			15
XMCD008	126.0	126.1			10
XMCD008	127.0	127.1			10
XMCD008	128.0	128.1			10
XMCD008	129.0	129.1			10
XMCD008	130.0	130.1			10
XMCD008	131.0	131.1			10
XMCD008	132.0	132.1			5
XMCD008	133.0	133.1			0
XMCD008	134.0	134.1			10
XMCD008	135.0	135.1			0
XMCD008	136.0	136.1			15
XMCD008	137.0	137.1			5
XMCD008	138.0	138.1			5
XMCD008	139.0	139.1			5
XMCD008	140.0	140.1			5
XMCD008	141.0	141.1			10
XMCD008	142.0	142.1			10
XMCD008	143.0	143.1			10
XMCD008	144.0	144.1			5
XMCD008	145.0	145.1			5
XMCD008	146.0	146.1			10
XMCD008	147.0	147.1			10
XMCD008	148.0	148.1			5
XMCD008	149.0	149.1			10
XMCD008	150.0	150.1			5

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DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
XMCD008	151.0	151.1			5
XMCD008	152.0	152.1			5
XMCD008	153.0	153.1			0
XMCD008	154.0	154.1			5
XMCD008	155.0	155.1			0
XMCD008	156.0	156.1			5
XMCD008	157.0	157.1			0
XMCD008	158.0	158.1			0
XMCD008	159.0	159.1			0
XMCD008	160.0	160.1			0
XMCD008	161.0	161.1			10
XMCD008	162.0	162.1			10
XMCD008	163.0	163.1			5
XMCD008	164.0	164.1			10
XMCD008	165.0	165.1			10
XMCD008	166.0	166.1			5
XMCD008	167.0	167.1			10
XMCD008	168.0	168.1			5
XMCD008	169.0	169.1			10
XMCD008	170.0	170.1			10
XMCD008	171.0	171.1			10
XMCD008	172.0	172.1			10
XMCD008	173.0	173.1			10
XMCD008	174.0	174.1			15
XMCD008	175.0	175.1			15
XMCD008	176.0	176.1			5
XMCD008	177.0	177.1			5
XMCD008	178.0	178.1			5
XMCD008	179.0	179.1			10
XMCD008	180.0	180.1			5
XMCD008	181.0	181.1			0
XMCD008	182.0	182.1			10
XMCD008	183.0	183.1			10
XMCD008	184.0	184.1			0
XMCD008	185.0	185.1			10
XMCD008	186.0	186.1			5
XMCD008	187.0	187.1			10
XMCD008	188.0	188.1			5
XMCD008	189.0	189.1			5
XMCD008	190.0	190.1			5
XMCD008	191.0	191.1			10
XMCD008	192.0	192.1			0
XMCD008	193.0	193.1			10
XMCD008	194.0	194.1			5
XMCD008	195.0	195.1			5
XMCD008	196.0	196.1			5
XMCD008	197.0	197.1			5
XMCD008	198.0	198.1			0
XMCD008	199.0	199.1			10
XMCD008	200.0	200.1			5
XMCD008	201.0	201.1			0
XMCD008	202.0	202.1			0
XMCD008	203.0	203.1			5

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WHID9	FROM9	TOT09	ROCK ALTNG	SUSCPT
XMCD008	204.0	204.1		5
XMCD008	205.0	205.1		0
XMCD008	206.0	206.1		0
XMCD008	207.0	207.1		0
XMCD008	208.0	208.1		5
XMCD008	209.0	209.1		0
XMCD008	210.0	210.1		10
XMCD008	211.0	211.1		5
XMCD008	212.0	212.1		10
XMCD008	213.0	213.1		5
XMCD008	214.0	214.1		10
XMCD008	215.0	215.1		5
XMCD008	216.0	216.1		5
XMCD008	217.0	217.1		5
XMCD008	218.0	218.1		10
XMCD008	219.0	219.1		5
XMCD008	220.0	220.1		10
XMCD008	221.0	221.1		0
XMCD008	222.0	222.1		10
XMCD008	223.0	223.1		10
XMCD008	224.0	224.1		10
XMCD008	225.0	225.1		10
XMCD008	226.0	226.1		5
XMCD008	227.0	227.1		5
XMCD008	228.0	228.1		5
XMCD008	229.0	229.1		5
XMCD008	230.0	230.1		10
XMCD008	231.0	231.1		5
XMCD008	232.0	232.1		5
XMCD008	233.0	233.1		5
XMCD008	234.0	234.1		10
XMCD008	235.0	235.1		10
XMCD009	0.0	0.1		25
XMCD009	1.0	1.1		
XMCD009	2.0	2.1		
XMCD009	3.0	3.1		20
XMCD009	4.0	4.1		
XMCD009	5.0	5.1		30
XMCD009	6.0	6.1		20
XMCD009	7.0	7.1		
XMCD009	8.0	8.1		
XMCD009	9.0	9.1		
XMCD009	10.0	10.1		30
XMCD009	11.0	11.1		10
XMCD009	12.0	12.1		25
XMCD009	13.0	13.1		25
XMCD009	14.0	14.1		40
XMCD009	15.0	15.1		
XMCD009	16.0	16.1		25
XMCD009	17.0	17.1		
XMCD009	18.0	18.1		
XMCD009	19.0	19.1		

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DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
XMCD009	20.0	20.1			
XMCD009	21.0	21.1			20
XMCD009	22.0	22.1			40
XMCD009	23.0	23.1			30
XMCD009	24.0	24.1			15
XMCD009	25.0	25.1			20
XMCD009	26.0	26.1			
XMCD009	27.0	27.1			30
XMCD009	28.0	28.1			
XMCD009	29.0	29.1			30
XMCD009	30.0	30.1			20
XMCD009	31.0	31.1			40
XMCD009	32.0	32.1			35
XMCD009	33.0	33.1			40
XMCD009	34.0	34.1			40
XMCD009	35.0	35.1			
XMCD009	36.0	36.1			40
XMCD009	37.0	37.1			30
XMCD009	38.0	38.1			20
XMCD009	39.0	39.1			50
XMCD009	40.0	40.1			20
XMCD009	41.0	41.1			
XMCD009	42.0	42.1			30
XMCD009	43.0	43.1			30
XMCD009	44.0	44.1			30
XMCD009	45.0	45.1			20
XMCD009	46.0	46.1			30
XMCD009	47.0	47.1			40
XMCD009	48.0	48.1			10
XMCD009	49.0	49.1			20
XMCD009	50.0	50.1			25
XMCD009	51.0	51.1			30
XMCD009	52.0	52.1			
XMCD009	53.0	53.1			20
XMCD009	54.0	54.1			20
XMCD009	55.0	55.1			30
XMCD009	56.0	56.1			35
XMCD009	57.0	57.1			30
XMCD009	58.0	58.1			30
XMCD009	59.0	59.1			35
XMCD009	60.0	60.1			30
XMCD009	61.0	61.1			30
XMCD009	62.0	62.1			40
XMCD009	63.0	63.1			40
XMCD009	64.0	64.1			40
XMCD009	65.0	65.1			40
XMCD009	66.0	66.1			40
XMCD009	67.0	67.1			30
XMCD009	68.0	68.1			20
XMCD009	69.0	69.1			40
XMCD009	70.0	70.1			50
XMCD009	71.0	71.1			40
XMCD009	72.0	72.1			

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DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
XMCD009	73.0	73.1			30
XMCD009	74.0	74.1			
XMCD009	75.0	75.1			30
XMCD009	76.0	76.1			30
XMCD009	77.0	77.1			40
XMCD009	78.0	78.1			
XMCD009	79.0	79.1			35
XMCD009	80.0	80.1			40
XMCD009	81.0	81.1			45
XMCD009	82.0	82.1			40
XMCD009	83.0	83.1			40
XMCD009	84.0	84.1			40
XMCD009	85.0	85.1			50
XMCD009	86.0	86.1			60
XMCD009	87.0	87.1			40
XMCD009	88.0	88.1			40
XMCD009	89.0	89.1			40
XMCD009	90.0	90.1			50
XMCD009	91.0	91.1			
XMCD009	92.0	92.1			
XMCD009	93.0	93.1			40
XMCD009	94.0	94.1			30
XMCD009	95.0	95.1			35
XMCD009	96.0	96.1			40
XMCD009	97.0	97.1			40
XMCD009	98.0	98.1			40
XMCD009	99.0	99.1			35
XMCD009	100.0	100.1			45
XMCD009	101.0	101.1			40
XMCD009	102.0	102.1			70
XMCD009	103.0	103.1			40
XMCD009	104.0	104.1			40
XMCD009	105.0	105.1			50
XMCD009	106.0	106.1			30
XMCD009	107.0	107.1			35
XMCD009	108.0	108.1			40
XMCD009	109.0	109.1			30
XMCD009	110.0	110.1			30
XMCD009	111.0	111.1			30
XMCD009	112.0	112.1			30
XMCD009	113.0	113.1			
XMCD009	114.0	114.1			
XMCD009	115.0	115.1			35
XMCD009	116.0	116.1			35
XMCD009	117.0	117.1			30
XMCD009	118.0	118.1			
XMCD009	119.0	119.1			
XMCD009	120.0	120.1			40
XMCD009	121.0	121.1			40
XMCD009	122.0	122.1			50
XMCD009	123.0	123.1			20
XMCD009	124.0	124.1			35
XMCD009	125.0	125.1			40

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DHID9	FROM9	TO9	ROCK	ALTNG	SUSCPT
XMCD009	126.0	126.1			40
XMCD009	127.0	127.1			30
XMCD009	128.0	128.1			10
XMCD009	129.0	129.1			30
XMCD009	130.0	130.1			30
XMCD009	131.0	131.1			
XMCD009	132.0	132.1			35
XMCD009	133.0	133.1			30
XMCD009	134.0	134.1			25
XMCD009	135.0	135.1			35
XMCD009	136.0	136.1			30
XMCD009	137.0	137.1			25
XMCD009	138.0	138.1			40
XMCD009	139.0	139.1			20
XMCD009	140.0	140.1			30
XMCD009	141.0	141.1			40
XMCD009	142.0	142.1			30
XMCD009	143.0	143.1			20
XMCD009	144.0	144.1			30
XMCD009	145.0	145.1			35
XMCD009	146.0	146.1			50
XMCD009	147.0	147.1			10
XMCD009	148.0	148.1			30
XMCD009	149.0	149.1			30
XMCD009	150.0	150.1			40
XMCD009	151.0	151.1			35
XMCD009	152.0	152.1			20
XMCD009	153.0	153.1			40
XMCD009	154.0	154.1			30
XMCD009	155.0	155.1			40
XMCD009	156.0	156.1			35
XMCD009	157.0	157.1			35
XMCD009	158.0	158.1			35
XMCD009	159.0	159.1			35
XMCD009	160.0	160.1			10
XMCD009	161.0	161.1			20
XMCD009	162.0	162.1			10
XMCD009	163.0	163.1			20
XMCD009	164.0	164.1			10
XMCD009	165.0	165.1			10
XMCD009	166.0	166.1			20
XMCD009	167.0	167.1			20
XMCD009	168.0	168.1			10
XMCD009	169.0	169.1			10
XMCD009	170.0	170.1			40
XMCD009	171.0	171.1			10
XMCD009	172.0	172.1			10
XMCD009	173.0	173.1			10
XMCD009	174.0	174.1			10
XMCD009	175.0	175.1			20
XMCD009	176.0	176.1			20
XMCD009	177.0	177.1			20
XMCD009	178.0	178.1			15

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DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
XMCD009	179.0	179.1			20
XMCD009	180.0	180.1			20
XMCD009	181.0	181.1			20
XMCD009	182.0	182.1			10
XMCD009	183.0	183.1			20
XMCD009	184.0	184.1			25
XMCD009	185.0	185.1			20
XMCD009	186.0	186.1			25
XMCD009	187.0	187.1			40
XMCD009	188.0	188.1			25
XMCD009	189.0	189.1			25
XMCD009	190.0	190.1			30
XMCD009	191.0	191.1			20
XMCD009	192.0	192.1			20
XMCD009	193.0	193.1			20
XMCD009	194.0	194.1			20
XMCD009	195.0	195.1			10
XMCD009	196.0	196.1			
XMCD009	197.0	197.1			10
XMCD009	198.0	198.1			10
XMCD009	199.0	199.1			25
XMCD009	200.0	200.1			20
XMCD009	201.0	201.1			20
XMCD009	202.0	202.1			20
XMCD009	203.0	203.1			10
XMCD009	204.0	204.1			20
XMCD009	205.0	205.1			20
XMCD009	206.0	206.1			20
XMCD009	207.0	207.1			10
XMCD009	208.0	208.1			10
XMCD009	209.0	209.1			10
XMCD009	210.0	210.1			10
XMCD009	211.0	211.1			20
XMCD009	212.0	212.1			10
XMCD009	213.0	213.1			10
XMCD009	214.0	214.1			20
XMCD009	215.0	215.1			5
XMCD009	216.0	216.1			10
XMCD009	217.0	217.1			20
XMCD009	218.0	218.1			20
XMCD009	219.0	219.1			20
XMCD009	220.0	220.1			20
XMCD009	221.0	221.1			10
XMCD009	222.0	222.1			20
XMCD009	223.0	223.1			30
XMCD009	224.0	224.1			20
XMCD009	225.0	225.1			30
XMCD009	226.0	226.1			25
XMCD009	227.0	227.1			15
XMCD009	228.0	228.1			25
XMCD009	229.0	229.1			25
XMCD009	230.0	230.1			20
XMCD009	231.0	231.1			20

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DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
XMCD009	232.0	232.1			30
XMCD009	233.0	233.1			30
XMCD009	234.0	234.1			25
XMCD009	235.0	235.1			20
XMCD009	236.0	236.1			20
XMCD009	237.0	237.1			25
XMCD009	238.0	238.1			20
XMCD009	239.0	239.1			20
XMCD009	240.0	240.1			30
XMCD009	241.0	241.1			15
XMCD009	242.0	242.1			15
XMCD009	243.0	243.1			10
XMCD009	244.0	244.1			20
XMCD009	245.0	245.1			20
XMCD009	246.0	246.1			20
XMCD009	247.0	247.1			20
XMCD009	248.0	248.1			10
XMCD010	0.0	0.1			30
XMCD010	1.0	1.1			
XMCD010	2.0	2.1			
XMCD010	3.0	3.1			60
XMCD010	4.0	4.1			50
XMCD010	5.0	5.1			20
XMCD010	6.0	6.1			40
XMCD010	7.0	7.1			40
XMCD010	8.0	8.1			30
XMCD010	9.0	9.1			30
XMCD010	10.0	10.1			30
XMCD010	11.0	11.1			20
XMCD010	12.0	12.1			30
XMCD010	13.0	13.1			20
XMCD010	14.0	14.1			30
XMCD010	15.0	15.1			20
XMCD010	16.0	16.1			30
XMCD010	17.0	17.1			40
XMCD010	18.0	18.1			50
XMCD010	19.0	19.1			30
XMCD010	20.0	20.1			40
XMCD010	21.0	21.1			40
XMCD010	22.0	22.1			40
XMCD010	23.0	23.1			35
XMCD010	24.0	24.1			30
XMCD010	25.0	25.1			40
XMCD010	26.0	26.1			40
XMCD010	27.0	27.1			30
XMCD010	28.0	28.1			30
XMCD010	29.0	29.1			30
XMCD010	30.0	30.1			40
XMCD010	31.0	31.1			35
XMCD010	32.0	32.1			30
XMCD010	33.0	33.1			30
XMCD010	34.0	34.1			30

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
XMCD010	35.0	35.1			50
XMCD010	36.0	36.1			20
XMCD010	37.0	37.1			30
XMCD010	38.0	38.1			50
XMCD010	39.0	39.1			50
XMCD010	40.0	40.1			30
XMCD010	41.0	41.1			40
XMCD010	42.0	42.1			50
XMCD010	43.0	43.1			25
XMCD010	44.0	44.1			25
XMCD010	45.0	45.1			30
XMCD010	46.0	46.1			15
XMCD010	47.0	47.1			40
XMCD010	48.0	48.1			30
XMCD010	49.0	49.1			40
XMCD010	50.0	50.1			30
XMCD010	51.0	51.1			30
XMCD010	52.0	52.1			35
XMCD010	53.0	53.1			25
XMCD010	54.0	54.1			30
XMCD010	55.0	55.1			40
XMCD010	56.0	56.1			30
XMCD010	57.0	57.1			
XMCD010	58.0	58.1			30
XMCD010	59.0	59.1			20
XMCD010	60.0	60.1			30
XMCD010	61.0	61.1			30
XMCD010	62.0	62.1			25
XMCD010	63.0	63.1			30
XMCD010	64.0	64.1			20
XMCD010	65.0	65.1			40
XMCD010	66.0	66.1			40
XMCD010	67.0	67.1			20
XMCD010	68.0	68.1			15
XMCD010	69.0	69.1			20
XMCD010	70.0	70.1			20
XMCD010	71.0	71.1			20
XMCD010	72.0	72.1			
XMCD010	73.0	73.1			20
XMCD010	74.0	74.1			20
XMCD010	75.0	75.1			90
XMCD010	76.0	76.1			
XMCD010	77.0	77.1			80
XMCD010	78.0	78.1			20
XMCD010	79.0	79.1			
XMCD010	80.0	80.1			20
XMCD010	81.0	81.1			20
XMCD010	82.0	82.1			20
XMCD010	83.0	83.1			20
XMCD010	84.0	84.1			15
XMCD010	85.0	85.1			20
XMCD010	86.0	86.1			20
XMCD010	87.0	87.1			25

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UNIT9	FROM9	TOT09	ROCK ALTNC	SUSCPT
XMCD010	88.0	88.1		20
xMCD010	89.0	89.1		10
XMCD010	90.0	90.1		10
YMCD010	91.0	91.1		20
XMCD010	92.0	92.1		30
YMCD010	93.0	93.1		30
XMCD010	94.0	94.1		20
YMCD010	95.0	95.1		35
XMCD010	96.0	96.1		30
YMCD010	97.0	97.1		25
XMCD010	98.0	98.1		40
YMCD010	99.0	99.1		50
XMCD010	100.0	100.1		20
MCD010	101.0	101.1		10
YMCD010	102.0	102.1		25
YMCD010	103.0	103.1		20
XMCD010	104.0	104.1		30
XMCD010	105.0	105.1		30
XMCD010	106.0	106.1		40
XMCD010	107.0	107.1		25
XMCD010	108.0	108.1		50
YMCD010	109.0	109.1		40
XMCD010	110.0	110.1		10
MCD010	111.0	111.1		20
MCD010	112.0	112.1		30
MCD010	113.0	113.1		30
MCD010	114.0	114.1		30
YMCD010	115.0	115.1		30
XMCD010	116.0	116.1		20
YMCD010	117.0	117.1		60
YMCD010	118.0	118.1		50
XMCD010	119.0	119.1		20
MCD010	120.0	120.1		20
MCD010	121.0	121.1		40
YMCD010	122.0	122.1		30
MCD010	123.0	123.1		40
YMCD010	124.0	124.1		40
MCD010	125.0	125.1		40
YMCD010	126.0	126.1		40
MCD010	127.0	127.1		40
XMCD010	128.0	128.1		20
XMCD010	129.0	129.1		40
XMCD010	130.0	130.1		40
XMCD010	131.0	131.1		50
XMCD010	132.0	132.1		40
XMCD010	133.0	133.1		50
YMCD010	134.0	134.1		30
MCD010	135.0	135.1		35
YMCD010	136.0	136.1		40
XMCD010	137.0	137.1		40
XMCD010	138.0	138.1		50
YMCD010	139.0	139.1		40
YMCD010	140.0	140.1		40

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598903

HID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
XMCD010	141.0	141.1			50
XMCD010	142.0	142.1			40
XMCD010	143.0	143.1			45
XMCD010	144.0	144.1			40
XMCD010	145.0	145.1			20
XMCD010	146.0	146.1			40
XMCD010	147.0	147.1			30
XMCD010	148.0	148.1			40
XMCD010	149.0	149.1			30
XMCD010	150.0	150.1			35
XMCD010	151.0	151.1			40
XMCD010	152.0	152.1			20
XMCD010	153.0	153.1			30
XMCD010	154.0	154.1			35
XMCD010	155.0	155.1			50
XMCD010	156.0	156.1			20
XMCD010	157.0	157.1			30
XMCD010	158.0	158.1			45
XMCD010	159.0	159.1			20
XMCD010	160.0	160.1			15
XMCD010	161.0	161.1			20
XMCD010	162.0	162.1			5
XMCD010	163.0	163.1			30
XMCD010	164.0	164.1			30
XMCD010	165.0	165.1			20
XMCD010	166.0	166.1			20
XMCD010	167.0	167.1			30
XMCD010	168.0	168.1			20
XMCD010	169.0	169.1			40
XMCD010	170.0	170.1			20
XMCD010	171.0	171.1			30
XMCD010	172.0	172.1			30
XMCD010	173.0	173.1			35
XMCD010	174.0	174.1			30
XMCD010	175.0	175.1			30
XMCD010	176.0	176.1			35
XMCD010	177.0	177.1			30
XMCD010	178.0	178.1			15
XMCD010	179.0	179.1			40
XMCD010	180.0	180.1			30
XMCD010	181.0	181.1			20
XMCD010	182.0	182.1			40
XMCD010	183.0	183.1			30
XMCD010	184.0	184.1			30
XMCD010	185.0	185.1			30
XMCD010	186.0	186.1			20
XMCD010	187.0	187.1			25
XMCD010	188.0	188.1			20
XMCD010	189.0	189.1			40
XMCD010	190.0	190.1			30
XMCD010	191.0	191.1			30
XMCD010	192.0	192.1			20
XMCD010	193.0	193.1			30

UNIT	FROM	TO	ROCK ALTNC	SUSCPT
XMCD010	194.0	194.1		45
XMCD010	195.0	195.1		50
XMCD010	196.0	196.1		20
XMCD010	197.0	197.1		30
XMCD010	198.0	198.1		30
XMCD010	199.0	199.1		30
XMCD010	200.0	200.1		30
XMCD010	201.0	201.1		20
XMCD010	202.0	202.1		30
XMCD010	203.0	203.1		30
XMCD010	204.0	204.1		15
XMCD010	205.0	205.1		30
XMCD010	206.0	206.1		30
XMCD010	207.0	207.1		25
XMCD010	208.0	208.1		30
XMCD010	209.0	209.1		30
XMCD010	210.0	210.1		20
XMCD010	211.0	211.1		30
XMCD010	212.0	212.1		30
XMCD010	213.0	213.1		30
XMCD010	214.0	214.1		30
XMCD010	215.0	215.1		30
XMCD010	216.0	216.1		20
XMCD010	217.0	217.1		45
XMCD010	218.0	218.1		25
XMCD010	219.0	219.1		30
XMCD010	220.0	220.1		30
XMCD010	221.0	221.1		30
XMCD010	222.0	222.1		25
XMCD010	223.0	223.1		30
XMCD010	224.0	224.1		20
XMCD010	225.0	225.1		20
XMCD010	226.0	226.1		30
XMCD010	227.0	227.1		35
XMCD010	228.0	228.1		10
XMCD010	229.0	229.1		20
XMCD010	230.0	230.1		25
XMCD010	231.0	231.1		20
XMCD010	232.0	232.1		25
XMCD010	233.0	233.1		15
XMCD010	234.0	234.1		20
XMCD010	235.0	235.1		30
XMCD010	236.0	236.1		20
XMCD010	237.0	237.1		30
XMCD010	238.0	238.1		20
XMCD010	239.0	239.1		35
XMCD010	240.0	240.1		20
XMCD010	241.0	241.1		20
XMCD010	242.0	242.1		40
XMCD010	243.0	243.1		35
XMCD010	244.0	244.1		30
XMCD010	245.0	245.1		20
XMCD010	246.0	246.1		25

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
XMCD010	247.0	247.1			15
XMCD010	248.0	248.1			25
XMCD010	249.0	249.1			30
XMCD010	250.0	250.1			30
XMCD010	251.0	251.1			15
XMCD010	252.0	252.1			10
XMCD010	253.0	253.1			20
XMCD010	254.0	254.1			20
XMCD010	255.0	255.1			30
XMCD010	256.0	256.1			30
XMCD010	257.0	257.1			25
XMCD010	258.0	258.1			25
XMCD010	259.0	259.1			20
XMCD010	260.0	260.1			20
XMCD010	261.0	261.1			20
XMCD010	262.0	262.1			20
XMCD010	263.0	263.1			20
XMCD010	264.0	264.1			40
XMCD014	0.0	0.1			
XMCD014	1.0	1.1			
XMCD014	2.0	2.1			
XMCD014	3.0	3.1			
XMCD014	4.0	4.1			
XMCD014	5.0	5.1			
XMCD014	6.0	6.1			
XMCD014	7.0	7.1			
XMCD014	8.0	8.1			
XMCD014	9.0	9.1			
XMCD014	10.0	10.1			
XMCD014	11.0	11.1			
XMCD014	12.0	12.1			
XMCD014	13.0	13.1			
XMCD014	14.0	14.1			
XMCD014	15.0	15.1			
XMCD014	16.0	16.1			
XMCD014	17.0	17.1			
XMCD014	18.0	18.1			
XMCD014	19.0	19.1			
XMCD014	20.0	20.1			
XMCD014	21.0	21.1			
XMCD014	22.0	22.1			
XMCD014	23.0	23.1			20
XMCD014	24.0	24.1			
XMCD014	25.0	25.1			
XMCD014	26.0	26.1			30
XMCD014	27.0	27.1			30
XMCD014	28.0	28.1			
XMCD014	29.0	29.1			
XMCD014	30.0	30.1			
XMCD014	31.0	31.1			30
XMCD014	32.0	32.1			20
XMCD014	33.0	33.1			25

DHID9	FROM9	TOT09	ROCK ALTNG	SUSCPT
XMCD014	34.0	34.1		30
XMCD014	35.0	35.1		30
XMCD014	36.0	36.1		35
XMCD014	37.0	37.1		30
XMCD014	38.0	38.1		
XMCD014	39.0	39.1		25
XMCD014	40.0	40.1		30
XMCD014	41.0	41.1		30
XMCD014	42.0	42.1		40
XMCD014	43.0	43.1		30
XMCD014	44.0	44.1		30
XMCD014	45.0	45.1		20
XMCD014	46.0	46.1		20
XMCD014	47.0	47.1		20
XMCD014	48.0	48.1		35
XMCD014	49.0	49.1		35
XMCD014	50.0	50.1		30
XMCD014	51.0	51.1		35
XMCD014	52.0	52.1		30
XMCD014	53.0	53.1		30
XMCD014	54.0	54.1		25
XMCD014	55.0	55.1		25
XMCD014	56.0	56.1		25
XMCD014	57.0	57.1		25
XMCD014	58.0	58.1		20
XMCD014	59.0	59.1		20
XMCD014	60.0	60.1		10
XMCD014	61.0	61.1		10
XMCD014	62.0	62.1		
XMCD014	63.0	63.1		
XMCD014	64.0	64.1		
XMCD014	65.0	65.1		
XMCD014	66.0	66.1		
XMCD014	67.0	67.1		
XMCD014	68.0	68.1		
XMCD014	69.0	69.1		
XMCD014	70.0	70.1		
XMCD014	71.0	71.1		
XMCD014	72.0	72.1		
XMCD014	73.0	73.1		
XMCD014	74.0	74.1		10
XMCD014	75.0	75.1		10
XMCD014	76.0	76.1		20
XMCD014	77.0	77.1		
XMCD014	78.0	78.1		
XMCD014	79.0	79.1		55
XMCD014	80.0	80.1		30
XMCD014	81.0	81.1		10
XMCD014	82.0	82.1		15
XMCD014	83.0	83.1		10
XMCD014	84.0	84.1		
XMCD014	85.0	85.1		
XMCD014	86.0	86.1		

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DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
XMCD014	87.0	87.1			
XMCD014	88.0	88.1			
XMCD014	89.0	89.1			
XMCD014	90.0	90.1			
XMCD014	91.0	91.1			
XMCD014	92.0	92.1			
XMCD014	93.0	93.1			
XMCD014	94.0	94.1			
XMCD014	95.0	95.1			
XMCD014	96.0	96.1			
XMCD014	97.0	97.1			
XMCD014	98.0	98.1			
XMCD014	99.0	99.1			
XMCD014	100.0	100.1			15
XMCD014	101.0	101.1			10
XMCD014	102.0	102.1			20
XMCD014	103.0	103.1			10
XMCD014	104.0	104.1			20
XMCD014	105.0	105.1			
XMCD014	106.0	106.1			
XMCD014	107.0	107.1			20
XMCD014	108.0	108.1			20
XMCD014	109.0	109.1			15
XMCD014	110.0	110.1			10
XMCD014	111.0	111.1			
XMCD014	112.0	112.1			
XMCD014	113.0	113.1			
XMCD014	114.0	114.1			
XMCD014	115.0	115.1			15
XMCD014	116.0	116.1			20
XMCD014	117.0	117.1			25
XMCD014	118.0	118.1			10
XMCD014	119.0	119.1			20
XMCD014	120.0	120.1			20
XMCD014	121.0	121.1			20
XMCD014	122.0	122.1			35
XMCD014	123.0	123.1			20
XMCD014	124.0	124.1			15
XMCD014	125.0	125.1			15
XMCD014	126.0	126.1			15
XMCD014	127.0	127.1			20
XMCD014	128.0	128.1			30
XMCD014	129.0	129.1			15
XMCD014	130.0	130.1			10
XMCD014	131.0	131.1			10
XMCD014	132.0	132.1			10
XMCD014	133.0	133.1			10
XMCD014	134.0	134.1			10
XMCD014	135.0	135.1			20
XMCD014	136.0	136.1			10
XMCD014	137.0	137.1			10
XMCD014	138.0	138.1			10
XMCD014	139.0	139.1			10

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DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
XMCD014	140.0	140.1			10
XMCD014	141.0	141.1			10
XMCD014	142.0	142.1			15
XMCD014	143.0	143.1			20
XMCD014	144.0	144.1			20
XMCD014	145.0	145.1			10
XMCD014	146.0	146.1			10
XMCD014	147.0	147.1			0
XMCD014	148.0	148.1			
XMCD014	149.0	149.1			10
XMCD014	150.0	150.1			15
XMCD014	151.0	151.1			10
XMCD014	152.0	152.1			15
XMCD014	153.0	153.1			10
XMCD014	154.0	154.1			40
XMCD014	155.0	155.1			30
XMCD014	156.0	156.1			40
XMCD014	157.0	157.1			40
XMCD014	158.0	158.1			30
XMCD014	159.0	159.1			30
XMCD014	160.0	160.1			
XMCD014	161.0	161.1			30
XMCD014	162.0	162.1			20
XMCD014	163.0	163.1			30
XMCD014	164.0	164.1			20
XMCD014	165.0	165.1			10
XMCD014	166.0	166.1			30
XMCD014	167.0	167.1			30
XMCD014	168.0	168.1			30
XMCD014	169.0	169.1			30
XMCD014	170.0	170.1			40
XMCD014	171.0	171.1			35
XMCD014	172.0	172.1			10
XMCD014	173.0	173.1			30
XMCD014	174.0	174.1			30
XMCD014	175.0	175.1			20
XMCD014	176.0	176.1			30
XMCD014	177.0	177.1			40
XMCD014	178.0	178.1			30
XMCD014	179.0	179.1			30
XMCD014	180.0	180.1			20
XMCD014	181.0	181.1			30
XMCD014	182.0	182.1			40
XMCD014	183.0	183.1			30
XMCD014	184.0	184.1			40
XMCD014	185.0	185.1			30
XMCD014	186.0	186.1			40
XMCD014	187.0	187.1			40
XMCD014	188.0	188.1			25
XMCD014	189.0	189.1			40
XMCD014	190.0	190.1			30
XMCD014	191.0	191.1			30
XMCD014	192.0	192.1			20

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
XMCD014	193.0	193.1			30
XMCD014	194.0	194.1			30
XMCD014	195.0	195.1			20
XMCD014	196.0	196.1			30
XMCD014	197.0	197.1			40
XMCD014	198.0	198.1			25
XMCD014	199.0	199.1			10
XMCD014	200.0	200.1			30
XMCD014	201.0	201.1			40
XMCD014	202.0	202.1			25
XMCD014	203.0	203.1			50
XMCD014	204.0	204.1			30
XMCD014	205.0	205.1			30
XMCD014	206.0	206.1			30
XMCD014	207.0	207.1			30
XMCD014	208.0	208.1			30
XMCD014	209.0	209.1			30
XMCD014	210.0	210.1			40
XMCD014	211.0	211.1			30
XMCD014	212.0	212.1			40
XMCD014	213.0	213.1			30
XMCD014	214.0	214.1			40
XMCD014	215.0	215.1			40
XMCD014	216.0	216.1			30
XMCD014	217.0	217.1			30
XMCD014	218.0	218.1			40
XMCD014	219.0	219.1			30
XMCD014	220.0	220.1			40
XMCD014	221.0	221.1			40
XMCD014	222.0	222.1			50
XMCD014	223.0	223.1			40
XMCD014	224.0	224.1			50
XMCD014	225.0	225.1			30
XMCD014	226.0	226.1			40
XMCD014	227.0	227.1			40
XMCD014	228.0	228.1			30
XMCD014	229.0	229.1			
XMCD014	230.0	230.1			30
XMCD014	231.0	231.1			20
XMCD014	232.0	232.1			
XMCD014	233.0	233.1			30
XMCD014	234.0	234.1			30
XMCD014	235.0	235.1			30
XMCD014	236.0	236.1			40
XMCD014	237.0	237.1			30
XMCD014	238.0	238.1			20
XMCD014	239.0	239.1			20
XMCD014	240.0	240.1			20
XMCD014	241.0	241.1			10
XMCD014	242.0	242.1			20
XMCD014	243.0	243.1			30
XMCD014	244.0	244.1			40
XMCD014	245.0	245.1			30

598910

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
XMCD014	246.0	246.1			45
XMCD014	247.0	247.1			40
XMCD014	248.0	248.1			40
XMCD014	249.0	249.1			40
XMCD014	250.0	250.1			50
XMCD014	251.0	251.1			40
XMCD014	252.0	252.1			20
XMCD014	253.0	253.1			30
XMCD014	254.0	254.1			40
XMCD014	255.0	255.1			30
XMCD014	256.0	256.1			30
XMCD014	257.0	257.1			35
XMCD014	258.0	258.1			20
XMCD014	259.0	259.1			50
XMCD014	260.0	260.1			40
XMCD014	261.0	261.1			30
XMCD014	262.0	262.1			20
XMCD014	263.0	263.1			30
XMCD014	264.0	264.1			30
XMCD014	265.0	265.1			20
XMCD014	266.0	266.1			30
XMCD014	267.0	267.1			40
XMCD014	268.0	268.1			30
XMCD014	269.0	269.1			40
XMCD014	270.0	270.1			30
XMCD014	271.0	271.1			30
XMCD014	272.0	272.1			30
XMCD014	273.0	273.1			30
XMCD014	274.0	274.1			20
XMCD014	275.0	275.1			30
XMCD014	276.0	276.1			20
XMCD014	277.0	277.1			40
XMCD014	278.0	278.1			30
XMCD014	279.0	279.1			40
XMCD014	280.0	280.1			30
XMCD014	281.0	281.1			30
XMCD014	282.0	282.1			30
XMCD014	283.0	283.1			30
XMCD014	284.0	284.1			20
XMCD014	285.0	285.1			30
XMCD014	286.0	286.1			30
XMCD014	287.0	287.1			30
XMCD014	288.0	288.1			30
XMCD014	289.0	289.1			40
XMCD014	290.0	290.1			30
XMCD014	291.0	291.1			30
XMCD014	292.0	292.1			40
XMCD014	293.0	293.1			30
XMCD014	294.0	294.1			25
XMCD014	295.0	295.1			20
XMCD014	296.0	296.1			40
XMCD014	297.0	297.1			20
XMCD014	298.0	298.1			20

598911

909

DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
XMCD014	299.0	299.1			10
XMCD014	300.0	300.1			30
XMCD014	301.0	301.1			20
XMCD014	302.0	302.1			30
XMCD014	303.0	303.1			30
XMCD014	304.0	304.1			10
XMCD014	305.0	305.1			20
XMCD014	306.0	306.1			20
XMCD014	307.0	307.1			15
XMCD014	308.0	308.1			30
XMCD014	309.0	309.1			20
XMCD014	310.0	310.1			30
XMCD014	311.0	311.1			30
XMCD014	312.0	312.1			20
XMCD014	313.0	313.1			30
XMCD014	314.0	314.1			30
XMCD014	315.0	315.1			30
XMCD014	316.0	316.1			30
XMCD014	317.0	317.1			20
XMCD014	318.0	318.1			10
XMCD014	319.0	319.1			30
XMCD014	320.0	320.1			10
XMCD014	321.0	321.1			30
XMCD014	322.0	322.1			30
XMCD014	323.0	323.1			30
XMCD014	324.0	324.1			10
XMCD014	325.0	325.1			10
XMCD014	326.0	326.1			30
XMCD014	327.0	327.1			30
XMCD014	328.0	328.1			30
XMCD014	329.0	329.1			20
XMCD014	330.0	330.1			30
XMCD014	331.0	331.1			30
XMCD014	332.0	332.1			20
XMCD014	333.0	333.1			10
XMCD014	334.0	334.1			20
XMCD014	335.0	335.1			20
XMCD014	336.0	336.1			40
XMCD014	337.0	337.1			20
XMCD014	338.0	338.1			20
XMCD014	339.0	339.1			20
XMCD014	340.0	340.1			30
XMCD014	341.0	341.1			30
XMCD014	342.0	342.1			10
XMCD014	343.0	343.1			30
XMCD014	344.0	344.1			40
XMCD014	345.0	345.1			20
XMCD014	346.0	346.1			10
XMCD014	347.0	347.1			20
XMCD014	348.0	348.1			20
XMCD014	349.0	349.1			
XMCD014	350.0	350.1			
XMCD014	351.0	351.1			

598912

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
XMCD014	352.0	352.1			
XMCD014	353.0	353.1			20
XMCD014	354.0	354.1			20
XMCD014	355.0	355.1			30
XMCD014	356.0	356.1			40
XMCD014	357.0	357.1			20
XMCD014	358.0	358.1			20
XMCD014	359.0	359.1			20
XMCD014	360.0	360.1			20
XMCD014	361.0	361.1			30
XMCD014	362.0	362.1			20
XMCD014	363.0	363.1			20
XMCD014	364.0	364.1			20
XMCD014	365.0	365.1			20
XMCD014	366.0	366.1			30
XMCD014	367.0	367.1			30
XMCD014	368.0	368.1			20
XMCD014	369.0	369.1			20
XMCD014	370.0	370.1			20
XMCD014	371.0	371.1			40
XMCD014	372.0	372.1			20
XMCD014	373.0	373.1			30
XMCD014	374.0	374.1			20
XMCD014	375.0	375.1			40
XMCD014	376.0	376.1			30
XMCD014	377.0	377.1			20
XMCD014	378.0	378.1			30
XMCD014	379.0	379.1			40
XMCD014	380.0	380.1			20
XMCD014	381.0	381.1			30
XMCD014	382.0	382.1			30
XMCD014	383.0	383.1			30
XMCD014	384.0	384.1			40
XMCD014	385.0	385.1			30
XMCD014	386.0	386.1			30
XMCD014	387.0	387.1			20
XMCD014	388.0	388.1			30
XMCD014	389.0	389.1			20
XMCD014	390.0	390.1			20
XMCD014	391.0	391.1			30
XMCD014	392.0	392.1			10
XMCD014	393.0	393.1			40
XMCD014	394.0	394.1			50
XMCD014	395.0	395.1			40
XMCD014	396.0	396.1			35
XMCD014	397.0	397.1			40
XMCD014	398.0	398.1			30
XMCD014	399.0	399.1			30
XMCD014	400.0	400.1			40
XMCD014	401.0	401.1			30
XMCD014	402.0	402.1			30
XMCD014	403.0	403.1			20
XMCD014	404.0	404.1			30

911

598913

DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
XMCD014	405.0	405.1			40
XMCD014	406.0	406.1			40
XMCD014	407.0	407.1			40
XMCD014	408.0	408.1			20
XMCD014	409.0	409.1			40
XMCD014	410.0	410.1			30
XMCD014	411.0	411.1			30
XMCD014	412.0	412.1			30
XMCD014	413.0	413.1			30
XMCD014	414.0	414.1			30
XMCD014	415.0	415.1			10
XMCD014	416.0	416.1			30
XMCD014	417.0	417.1			40
XMCD014	418.0	418.1			40
XMCD014	419.0	419.1			40
XMCD014	420.0	420.1			40
XMCD014	421.0	421.1			40
XMCD014	422.0	422.1			40
XMCD014	423.0	423.1			30
XMCD014	424.0	424.1			30
XMCD014	425.0	425.1			20
XMCD014	426.0	426.1			10
XMCD014	427.0	427.1			30
XMCD014	428.0	428.1			20
XMCD014	429.0	429.1			20
XMCD014	430.0	430.1			40
XMCD014	431.0	431.1			30
XMCD014	432.0	432.1			30
XMCD014	433.0	433.1			40
XMCD014	434.0	434.1			30
XMCD014	435.0	435.1			30
XMCD014	436.0	436.1			30
XMCD014	437.0	437.1			40
XMCD014	438.0	438.1			30
XMCD014	439.0	439.1			40
XMCD014	440.0	440.1			30
XMCD014	441.0	441.1			30
XMCD014	442.0	442.1			40
XMCD014	443.0	443.1			30
XMCD014	444.0	444.1			50
XMCD014	445.0	445.1			40
XMCD014	446.0	446.1			30
XMCD014	447.0	447.1			40
XMCD014	448.0	448.1			30
XMCD014	449.0	449.1			40
XMCD014	450.0	450.1			30
XMCD014	451.0	451.1			40
XMCD014	452.0	452.1			30
XMCD014	453.0	453.1			30
XMCD014	454.0	454.1			30
XMCD014	455.0	455.1			30
XMCD014	456.0	456.1			20
XMCD014	457.0	457.1			20

912

598914

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
XMCD014	458.0	458.1			30
XMCD014	459.0	459.1			30
XMCD014	460.0	460.1			30
XMCD014	461.0	461.1			30
XMCD014	462.0	462.1			20
XMCD014	463.0	463.1			30
XMCD014	464.0	464.1			20
XMCD014	465.0	465.1			30
XMCD014	466.0	466.1			40
XMCD014	467.0	467.1			30
XMCD014	468.0	468.1			40
XMCD014	469.0	469.1			20
XMCD014	470.0	470.1			20
XMCD014	471.0	471.1			20
XMCD014	472.0	472.1			30
XMCD014	473.0	473.1			10
XMCD014	474.0	474.1			40
XMCD014	475.0	475.1			50
XMCD014	476.0	476.1			40
XMCD014	477.0	477.1			30
XMCD014	478.0	478.1			40
XMCD014	479.0	479.1			30
XMCD014	480.0	480.1			50
XMCD014	481.0	481.1			60
XMCD014	482.0	482.1			50
XMCD014	483.0	483.1			50
XMCD014	484.0	484.1			20
XMCD014	485.0	485.1			30
XMCD014	486.0	486.1			30
XMCD014	487.0	487.1			30
XMCD014	488.0	488.1			30
XMCD014	489.0	489.1			20
XMCD014	490.0	490.1			30
XMCD014	491.0	491.1			30
XMCD014	492.0	492.1			40
XMCD014	493.0	493.1			30
XMCD014	494.0	494.1			30
XMCD014	495.0	495.1			30
XMCD014	496.0	496.1			40
XMCD014	497.0	497.1			40
XMCD014	498.0	498.1			40
XMCD014	499.0	499.1			40
XMCD014	500.0	500.1			30
XMCD014	501.0	501.1			40
XMCD014	502.0	502.1			40
XMCD014	503.0	503.1			40
XMCD014	504.0	504.1			30
XMCD014	505.0	505.1			40
XMCD014	506.0	506.1			30
XMCD014	507.0	507.1			40
XMCD014	508.0	508.1			20
XMCD014	509.0	509.1			10
XMCD014	510.0	510.1			30

913

598915

DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
XMCD014	511.0	511.1			20
XMCD014	512.0	512.1			10
XMCD014	513.0	513.1			20
XMCD014	514.0	514.1			30
XMCD014	515.0	515.1			20
XMCD014	516.0	516.1			20
XMCD014	517.0	517.1			20
XMCD014	518.0	518.1			30
XMCD014	519.0	519.1			20
XMCD014	520.0	520.1			40
XMCD014	521.0	521.1			20
XMCD014	522.0	522.1			20
XMCD014	523.0	523.1			20
XMCD014	524.0	524.1			20
XMCD014	525.0	525.1			20
XMCD014	526.0	526.1			
XMCD014	527.0	527.1			
XMCD014	528.0	528.1			
XMCD014	529.0	529.1			
XMCD015	407.0	407.1			40
XMCD015	408.0	408.1			30
XMCD015	409.0	409.1			20
XMCD015	410.0	410.1			20
XMCD015	411.0	411.1			30
XMCD015	412.0	412.1			10
XMCD015	413.0	413.1			
XMCD015	414.0	414.1			20
XMCD015	415.0	415.1			
XMCD015	416.0	416.1			
XMCD015	417.0	417.1			10
XMCD015	418.0	418.1			20
XMCD015	419.0	419.1			30
XMCD015	420.0	420.1			
XMCD015	421.0	421.1			
XMCD015	422.0	422.1			
XMCD015	423.0	423.1			
XMCD015	424.0	424.1			
XMCD015	425.0	425.1			30
XMCD015	426.0	426.1			20
XMCD015	427.0	427.1			20
XMCD015	428.0	428.1			25
XMCD015	429.0	429.1			20
XMCD015	430.0	430.1			20
XMCD015	431.0	431.1			20
XMCD015	432.0	432.1			20
XMCD015	433.0	433.1			20
XMCD015	434.0	434.1			20
XMCD015	435.0	435.1			20
XMCD015	436.0	436.1			20
XMCD015	437.0	437.1			20
XMCD015	438.0	438.1			20
XMCD015	439.0	439.1			20

598916

)HID9	FROM9	TOT09	ROCK ALTNG	SUSCPT
XMCD015	440.0	440.1		20
MCD015	441.0	441.1		10
YMCD015	442.0	442.1		10
XMCD015	443.0	443.1		20
XMCD015	444.0	444.1		20
MCD015	445.0	445.1		30
XMCD015	446.0	446.1		20
YMCD015	447.0	447.1		20
XMCD015	448.0	448.1		30
XMCD015	449.0	449.1		30
XMCD015	450.0	450.1		20
(MCD015	451.0	451.1		20
XMCD015	452.0	452.1		20
XMCD015	453.0	453.1		20
XMCD015	454.0	454.1		10
XMCD015	455.0	455.1		20
XMCD015	456.0	456.1		20
XMCD015	457.0	457.1		10
XMCD015	458.0	458.1		20
XMCD015	459.0	459.1		10
XMCD015	460.0	460.1		20
XMCD015	461.0	461.1		20
XMCD015	462.0	462.1		20
XMCD015	463.0	463.1		20
XMCD015	464.0	464.1		30
XMCD015	465.0	465.1		20
XMCD015	466.0	466.1		20
XMCD015	467.0	467.1		30
XMCD015	468.0	468.1		20
XMCD015	469.0	469.1		30
XMCD015	470.0	470.1		20
XMCD015	471.0	471.1		20
XMCD015	472.0	472.1		20
XMCD015	473.0	473.1		20
XMCD015	474.0	474.1		40
XMCD015	475.0	475.1		20
XMCD015	476.0	476.1		20
XMCD015	477.0	477.1		30
XMCD015	478.0	478.1		30
(MCD015	479.0	479.1		30
XMCD015	480.0	480.1		20
(MCD015	481.0	481.1		30
XMCD015	482.0	482.1		10
(MCD015	483.0	483.1		20
XMCD015	484.0	484.1		10
(MCD015	485.0	485.1		10
(MCD015	486.0	486.1		20
(MCD015	487.0	487.1		10
XMCD015	488.0	488.1		10
(MCD015	489.0	489.1		10
XMCD015	490.0	490.1		10
(MCD015	491.0	491.1		10
XMCD015	492.0	492.1		20

915

598917

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
XMCD015	493.0	493.1			10
XMCD015	494.0	494.1			10
XMCD015	495.0	495.1			10
XMCD015	496.0	496.1			10
XMCD015	497.0	497.1			20
XMCD015	498.0	498.1			30
XMCD015	499.0	499.1			40
XMCD015	500.0	500.1			10
XMCD015	501.0	501.1			20
XMCD015	502.0	502.1			20
XMCD015	503.0	503.1			20
XMCD015	504.0	504.1			20
XMCD015	505.0	505.1			10
XMCD015	506.0	506.1			10
XMCD015	507.0	507.1			20
XMCD015	508.0	508.1			20
XMCD015	509.0	509.1			10
XMCD015	510.0	510.1			10
XMCD015	511.0	511.1			10
XMCD015	512.0	512.1			20
XMCD015	513.0	513.1			10
XMCD015	514.0	514.1			20
XMCD015	515.0	515.1			20
XMCD015	516.0	516.1			20
XMCD015	517.0	517.1			10
XMCD015	518.0	518.1			20
XMCD015	519.0	519.1			20
XMCD015	520.0	520.1			20
XMCD015	521.0	521.1			20
XMCD015	522.0	522.1			30
XMCD015	523.0	523.1			20
XMCD015	524.0	524.1			20
XMCD015	525.0	525.1			20
XMCD015	526.0	526.1			20
XMCD015	527.0	527.1			10
XMCD015	528.0	528.1			30
XMCD015	529.0	529.1			30
XMCD015	530.0	530.1			40
XMCD015	531.0	531.1			30
XMCD015	532.0	532.1			40
XMCD015	533.0	533.1			30
XMCD015	534.0	534.1			20
XMCD015	535.0	535.1			20
XMCD015	536.0	536.1			30
XMCD015	537.0	537.1			30
XMCD015	538.0	538.1			40
XMCD015	539.0	539.1			30
XMCD015	540.0	540.1			30
XMCD015	541.0	541.1			30
XMCD015	542.0	542.1			20
XMCD015	543.0	543.1			20
XMCD015	544.0	544.1			30
XMCD015	545.0	545.1			30

916

598918

OHID9	FROM9	TOT09	ROCK ALTNG	SUSCPT
XMCD015	546.0	546.1		20
XMCD015	547.0	547.1		20
XMCD015	548.0	548.1		20
XMCD015	549.0	549.1		20
XMCD015	550.0	550.1		20
XMCD015	551.0	551.1		30
XMCD015	552.0	552.1		20
XMCD015	553.0	553.1		30
XMCD015	554.0	554.1		20
XMCD015	555.0	555.1		10
XMCD015	556.0	556.1		10
XMCD015	557.0	557.1		20
XMCD015	558.0	558.1		10
XMCD015	559.0	559.1		10
XMCD015	560.0	560.1		10
XMCD015	561.0	561.1		10
XMCD015	562.0	562.1		10
XMCD015	563.0	563.1		10
XMCD015	564.0	564.1		20
XMCD015	565.0	565.1		10
XMCD015	566.0	566.1		10
XMCD015	567.0	567.1		10
XMCD015	568.0	568.1		10
XMCD015	569.0	569.1		10
XMCD015	570.0	570.1		
XMCD015	571.0	571.1		20
XMCD015	572.0	572.1		20
XMCD015	573.0	573.1		20
XMCD015	574.0	574.1		10
XMCD015	575.0	575.1		10
XMCD015	576.0	576.1		20
XMCD015	577.0	577.1		20
XMCD015	578.0	578.1		20
XMCD015	579.0	579.1		10
XMCD015	580.0	580.1		10
XMCD015	581.0	581.1		10
XMCD015	582.0	582.1		10
XMCD015	583.0	583.1		10
XMCD015	584.0	584.1		10
XMCD015	585.0	585.1		10
XMCD015	586.0	586.1		20
XMCD015	587.0	587.1		10
XMCD015	588.0	588.1		10
XMCD015	589.0	589.1		10
XMCD015	590.0	590.1		10
XMCD015	591.0	591.1		20
XMCD015	592.0	592.1		20
XMCD015	593.0	593.1		20
XMCD015	594.0	594.1		10
XMCD015	595.0	595.1		20
XMCD015	596.0	596.1		10
XMCD015	597.0	597.1		10
XMCD015	598.0	598.1		20

598919

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
XMCD015	599.0	599.1			20
XMCD015	600.0	600.1			20
XMCD015	601.0	601.1			10
XMCD015	602.0	602.1			10
XMCD015	603.0	603.1			20
XMCD015	604.0	604.1			20
XMCD015	605.0	605.1			10
XMCD015	606.0	606.1			20
XMCD017	188.0	188.1			30
XMCD017	189.0	189.1			20
XMCD017	190.0	190.1			20
XMCD017	191.0	191.1			20
XMCD017	192.0	192.1			20
XMCD017	193.0	193.1			20
XMCD017	194.0	194.1			20
XMCD017	195.0	195.1			20
XMCD017	196.0	196.1			10
XMCD017	197.0	197.1			20
XMCD017	198.0	198.1			20
XMCD017	199.0	199.1			20
XMCD017	200.0	200.1			10
XMCD017	201.0	201.1			10
XMCD017	202.0	202.1			20
XMCD017	203.0	203.1			10
XMCD017	204.0	204.1			20
XMCD017	205.0	205.1			10
XMCD017	206.0	206.1			10
XMCD017	207.0	207.1			10
XMCD017	208.0	208.1			10
XMCD017	209.0	209.1			10
XMCD017	210.0	210.1			20
XMCD017	211.0	211.1			20
XMCD017	212.0	212.1			20
XMCD017	213.0	213.1			20
XMCD017	214.0	214.1			20
XMCD017	215.0	215.1			10
XMCD017	216.0	216.1			20
XMCD017	217.0	217.1			20
XMCD017	218.0	218.1			10
XMCD017	219.0	219.1			10
XMCD017	220.0	220.1			10
XMCD017	221.0	221.1			10
XMCD017	222.0	222.1			10
XMCD017	223.0	223.1			10
XMCD017	224.0	224.1			10
XMCD017	225.0	225.1			10
XMCD017	226.0	226.1			10
XMCD017	227.0	227.1			10
XMCD017	228.0	228.1			10
XMCD017	229.0	229.1			10
XMCD017	230.0	230.1			10
XMCD017	231.0	231.1			20

598920

DHID9	FROM9	TOTO9	ROCK	ALTNC	SUSCPT
XMCD017	232.0	232.1			10
XMCD017	233.0	233.1			10
XMCD017	234.0	234.1			10
XMCD017	235.0	235.1			10
XMCD017	236.0	236.1			10
XMCD017	237.0	237.1			10
XMCD017	238.0	238.1			10
XMCD017	239.0	239.1			10
XMCD017	240.0	240.1			10
XMCD017	241.0	241.1			10
XMCD017	242.0	242.1			10
XMCD017	243.0	243.1			20
XMCD017	244.0	244.1			10
XMCD017	245.0	245.1			10
XMCD017	246.0	246.1			10
XMCD017	247.0	247.1			10
XMCD017	248.0	248.1			10
XMCD017	249.0	249.1			10
XMCD017	250.0	250.1			10
XMCD017	251.0	251.1			10
XMCD017	252.0	252.1			10
XMCD017	253.0	253.1			10
XMCD017	254.0	254.1			20
XMCD017	255.0	255.1			10
XMCD017	256.0	256.1			10
XMCD017	257.0	257.1			20
XMCD017	258.0	258.1			20
XMCD017	259.0	259.1			20
XMCD017	260.0	260.1			20
XMCD017	261.0	261.1			20
XMCD017	262.0	262.1			20
XMCD017	263.0	263.1			20
XMCD017	264.0	264.1			20
XMCD017	265.0	265.1			20
XMCD017	266.0	266.1			10
XMCD017	267.0	267.1			10
XMCD017	268.0	268.1			10
XMCD017	269.0	269.1			20
XMCD017	270.0	270.1			10
XMCD017	271.0	271.1			20
XMCD017	272.0	272.1			20
XMCD017	273.0	273.1			10
XMCD017	274.0	274.1			10
XMCD017	275.0	275.1			20
XMCD017	276.0	276.1			10
XMCD017	277.0	277.1			10
XMCD017	278.0	278.1			30
XMCD017	279.0	279.1			10
XMCD017	280.0	280.1			10
XMCD017	281.0	281.1			30
XMCD017	282.0	282.1			20
XMCD017	283.0	283.1			30
XMCD017	284.0	284.1			20

598921

DHID9	FROM9	TOTO9	ROCK ALTNG	SUSCPT
XMCD017	285.0	285.1		30
XMCD017	286.0	286.1		20
XMCD017	287.0	287.1		20
XMCD017	288.0	288.1		20
XMCD017	289.0	289.1		20
XMCD017	290.0	290.1		20
XMCD017	291.0	291.1		40
XMCD017	292.0	292.1		10
XMCD017	293.0	293.1		20
XMCD017	294.0	294.1		20
XMCD017	295.0	295.1		20
XMCD017	296.0	296.1		20
XMCD017	297.0	297.1		10
XMCD017	298.0	298.1		10
XMCD017	299.0	299.1		10
XMCD017	300.0	300.1		20
XMCD017	301.0	301.1		
XMCD017	302.0	302.1		10
XMCD017	303.0	303.1		20
XMCD017	304.0	304.1		10
XMCD017	305.0	305.1		20
XMCD017	306.0	306.1		10
XMCD017	307.0	307.1		10
XMCD017	308.0	308.1		20
XMCD017	309.0	309.1		10
XMCD017	310.0	310.1		30
XMCD017	311.0	311.1		20
XMCD017	312.0	312.1		30
XMCD017	313.0	313.1		30
XMCD017	314.0	314.1		30
XMCD017	315.0	315.1		20
XMCD017	316.0	316.1		30
XMCD017	317.0	317.1		20
XMCD017	318.0	318.1		40
XMCD017	319.0	319.1		30
XMCD017	320.0	320.1		30
XMCD017	321.0	321.1		30
XMCD017	322.0	322.1		
XMCD017	323.0	323.1		20
XMCD017	324.0	324.1		40
XMCD017	325.0	325.1		30
XMCD017	326.0	326.1		30
XMCD017	327.0	327.1		10
XMCD017	328.0	328.1		
XMCD017	329.0	329.1		20
XMCD017	330.0	330.1		20
XMCD017	331.0	331.1		30
XMCD017	332.0	332.1		30
XMCD017	333.0	333.1		30
XMCD017	334.0	334.1		30
XMCD017	335.0	335.1		50
XMCD017	336.0	336.1		
XMCD017	337.0	337.1		40

920

598922

DHID9	FROM9	TOTO9	ROCK	ALTNS	SUSCPT
XMCD017	338.0	338.1			30
XMCD017	339.0	339.1			
XMCD017	340.0	340.1			
XMCD017	341.0	341.1			20
XMCD017	342.0	342.1			
XMCD017	343.0	343.1			
XMCD017	344.0	344.1			
XMCD017	345.0	345.1			
XMCD017	346.0	346.1			
XMCD017	347.0	347.1			
XMCD017	348.0	348.1			
XMCD017	349.0	349.1			
XMCD017	350.0	350.1			30
XMCD017	351.0	351.1			
XMCD017	352.0	352.1			30
XMCD017	353.0	353.1			20
XMCD017	354.0	354.1			20
XMCD017	355.0	355.1			20
XMCD017	356.0	356.1			20
XMCD017	357.0	357.1			20
XMCD017	358.0	358.1			20
XMCD017	359.0	359.1			20
XMCD017	360.0	360.1			30
XMCD017	361.0	361.1			20
XMCD017	362.0	362.1			20
XMCD017	363.0	363.1			
XMCD017	364.0	364.1			20
XMCD017	365.0	365.1			20
XMCD017	366.0	366.1			
XMCD017	367.0	367.1			30
XMCD017	368.0	368.1			20
XMCD017	369.0	369.1			30
XMCD017	370.0	370.1			30
XMCD017	371.0	371.1			20
XMCD017	372.0	372.1			10
XMCD017	373.0	373.1			10
XMCD017	374.0	374.1			40
XMCD017	375.0	375.1			20
XMCD017	376.0	376.1			20
XQRD081	0.0	0.1			
XQRD081	1.0	1.1			
XQRD081	2.0	2.1			
XQRD081	3.0	3.1			
XQRD081	4.0	4.1			20
XQRD081	5.0	5.1			10
XQRD081	6.0	6.1			20
XQRD081	7.0	7.1			10
XQRD081	8.0	8.1			20
XQRD081	9.0	9.1			20
XQRD081	10.0	10.1			20
XQRD081	11.0	11.1			20
XQRD081	12.0	12.1			20

598923

DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
XQRD081	13.0	13.1			20
XQRD081	14.0	14.1			20
XQRD081	15.0	15.1			10
XQRD081	16.0	16.1			20
XQRD081	17.0	17.1			20
XQRD081	18.0	18.1			10
XQRD081	19.0	19.1			10
XQRD081	20.0	20.1			20
XQRD081	21.0	21.1			30
XQRD081	22.0	22.1			60
XQRD081	23.0	23.1			10
XQRD081	24.0	24.1			20
XQRD081	25.0	25.1			40
XQRD081	26.0	26.1			10
XQRD081	27.0	27.1			20
XQRD081	28.0	28.1			20
XQRD081	29.0	29.1			20
XQRD081	30.0	30.1			20
XQRD081	31.0	31.1			30
XQRD081	32.0	32.1			20
XQRD081	33.0	33.1			20
XQRD081	34.0	34.1			
XQRD081	35.0	35.1			
XQRD081	36.0	36.1			
XQRD081	37.0	37.1			
XQRD081	38.0	38.1			
XQRD081	39.0	39.1			10
XQRD081	40.0	40.1			10
XQRD081	41.0	41.1			10
XQRD081	42.0	42.1			10
XQRD081	43.0	43.1			10
XQRD081	44.0	44.1			10
XQRD081	45.0	45.1			10
XQRD081	46.0	46.1			0
XQRD081	47.0	47.1			10
XQRD081	48.0	48.1			10
XQRD081	49.0	49.1			0
XQRD081	50.0	50.1			10
XQRD081	51.0	51.1			10
XQRD081	52.0	52.1			10
XQRD081	53.0	53.1			10
XQRD081	54.0	54.1			10
XQRD081	55.0	55.1			10
XQRD081	56.0	56.1			10
XQRD081	57.0	57.1			10
XQRD081	58.0	58.1			10
XQRD081	59.0	59.1			10
XQRD081	60.0	60.1			20
XQRD081	61.0	61.1			20
XQRD081	62.0	62.1			20
XQRD081	63.0	63.1			10
XQRD081	64.0	64.1			20
XQRD081	65.0	65.1			20

924

598924

OHID?	FROM?	TOTO?	ROCK ALTNG	SUSCPT
XQRD081	66.0	66.1		10
XQRD081	67.0	67.1		20
XQRD081	68.0	68.1		10
XQRD081	69.0	69.1		20
XQRD081	70.0	70.1		10
XQRD081	71.0	71.1		10
XQRD081	72.0	72.1		20
XQRD081	73.0	73.1		10
XQRD081	74.0	74.1		10
XQRD081	75.0	75.1		10
XQRD081	76.0	76.1		20
XQRD081	77.0	77.1		20
XQRD081	78.0	78.1		10
XQRD081	79.0	79.1		10
XQRD081	80.0	80.1		10
XQRD081	81.0	81.1		10
XQRD081	82.0	82.1		10
XQRD081	83.0	83.1		10
XQRD081	84.0	84.1		20
XQRD081	85.0	85.1		0
XQRD081	86.0	86.1		10
XQRD081	87.0	87.1		
XQRD081	88.0	88.1		
XQRD081	89.0	89.1		
XQRD081	90.0	90.1		
XQRD081	91.0	91.1		
XQRD081	92.0	92.1		
XQRD081	93.0	93.1		
XQRD081	94.0	94.1		10
XQRD081	95.0	95.1		20
XQRD081	96.0	96.1		10
XQRD081	97.0	97.1		10
XQRD081	98.0	98.1		10
XQRD081	99.0	99.1		10
XQRD081	100.0	100.1		0
XQRD081	101.0	101.1		10
XQRD081	102.0	102.1		10
XQRD081	103.0	103.1		10
XQRD081	104.0	104.1		10
XQRD081	105.0	105.1		
XQRD081	106.0	106.1		10
XQRD081	107.0	107.1		10
XQRD081	108.0	108.1		10
XQRD081	109.0	109.1		10
XQRD081	110.0	110.1		10
XQRD081	111.0	111.1		20
XQRD081	112.0	112.1		10
XQRD081	113.0	113.1		10
XQRD081	114.0	114.1		20
XQRD081	115.0	115.1		10
XQRD081	116.0	116.1		20
XQRD081	117.0	117.1		30
XQRD081	118.0	118.1		10

923

598925

	DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
	XQRD081	119.0	119.1			10
	XQRD081	120.0	120.1			10
	XQRD081	121.0	121.1			10
	XQRD081	122.0	122.1			10
	XQRD081	123.0	123.1			10
9	XQRD081	124.0	124.1			10
	XQRD081	125.0	125.1			10
	XQRD081	126.0	126.1			20
4	XQRD081	127.0	127.1			20
8	XQRD081	128.0	128.1			30
	XQRD081	129.0	129.1			20
5	XQRD081	130.0	130.1			20
6	XQRD081	131.0	131.1			10
7	XQRD081	132.0	132.1			10
10	XQRD081	133.0	133.1			20
11	XQRD081	134.0	134.1			10
3	XQRD081	135.0	135.1			10
2	XQRD081	136.0	136.1			10
12	XQRD081	137.0	137.1			20
3	XQRD081	138.0	138.1			10
1	XQRD081	139.0	139.1			20
1	XQRD081	140.0	140.1			20
1	XQRD081	141.0	141.1			20
	XQRD081	142.0	142.1			10
	XQRD081	143.0	143.1			10
4	XQRD081	144.0	144.1			20
6	XQRD081	145.0	145.1			10
	XQRD081	146.0	146.1			10
	XQRD081	147.0	147.1			20
	XQRD081	148.0	148.1			10
	XQRD081	149.0	149.1			20
	XQRD081	150.0	150.1			20
	XQRD081	151.0	151.1			30
	XQRD081	152.0	152.1			10
	XQRD081	153.0	153.1			20
	XQRD081	154.0	154.1			
	XQRD081	155.0	155.1			10
	XQRD081	156.0	156.1			20
	XQRD081	157.0	157.1			10
	XQRD081	158.0	158.1			10
	XQRD081	159.0	159.1			10
	XQRD081	160.0	160.1			10
	XQRD081	161.0	161.1			10
	XQRD081	162.0	162.1			0
	XQRD081	163.0	163.1			0
	XQRD081	164.0	164.1			0
	XQRD081	165.0	165.1			0
	XQRD081	166.0	166.1			0
	XQRD081	167.0	167.1			10
	XQRD081	168.0	168.1			10
	XQRD081	169.0	169.1			
	XQRD081	170.0	170.1			
	XQRD081	171.0	171.1			10

598926

924

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
XQRD081	172.0	172.1			0
XQRD081	173.0	173.1			0
XQRD081	174.0	174.1			0
XQRD081	175.0	175.1			0
XQRD081	176.0	176.1			0
XQRD081	177.0	177.1			0
XQRD081	178.0	178.1			10
XQRD081	179.0	179.1			0
XQRD081	180.0	180.1			10
XQRD081	181.0	181.1			0
XQRD081	182.0	182.1			0
XQRD081	183.0	183.1			10
XQRD081	184.0	184.1			10
XQRD081	185.0	185.1			0
XQRD081	186.0	186.1			0
XQRD081	187.0	187.1			0
XQRD081	188.0	188.1			0
XQRD081	189.0	189.1			10
XQRD081	190.0	190.1			0
XQRD109	0.0	0.1			
XQRD109	1.0	1.1			
XQRD109	2.0	2.1			
XQRD109	3.0	3.1			
XQRD109	4.0	4.1			
XQRD109	5.0	5.1			
XQRD109	6.0	6.1			
XQRD109	7.0	7.1			
XQRD109	8.0	8.1			
XQRD109	9.0	9.1			
XQRD109	10.0	10.1			
XQRD109	11.0	11.1			
XQRD109	12.0	12.1			
XQRD109	13.0	13.1			
XQRD109	14.0	14.1			
XQRD109	15.0	15.1			
XQRD109	16.0	16.1			
XQRD109	17.0	17.1			
XQRD109	18.0	18.1			
XQRD109	19.0	19.1			
XQRD109	20.0	20.1			
XQRD109	21.0	21.1			
XQRD109	22.0	22.1			
XQRD109	23.0	23.1			
XQRD109	24.0	24.1			
XQRD109	25.0	25.1			10
XQRD109	26.0	26.1			20
XQRD109	27.0	27.1			10
XQRD109	28.0	28.1			10
XQRD109	29.0	29.1			10
XQRD109	30.0	30.1			10
XQRD109	31.0	31.1			20
XQRD109	32.0	32.1			20

DHID9	FROM9	TOTO9	ROCK ALTNG	SUSCPT
XQRD109	33.0	33.1		20
XQRD109	34.0	34.1		10
XQRD109	35.0	35.1		20
XQRD109	36.0	36.1		20
XQRD109	37.0	37.1		20
XQRD109	38.0	38.1		20
XQRD109	39.0	39.1		10
XQRD109	40.0	40.1		10
XQRD109	41.0	41.1		20
XQRD109	42.0	42.1		20
XQRD109	43.0	43.1		10
XQRD109	44.0	44.1		20
XQRD109	45.0	45.1		20
XQRD109	46.0	46.1		10
XQRD109	47.0	47.1		10
XQRD109	48.0	48.1		10
XQRD109	49.0	49.1		10
XQRD109	50.0	50.1		10
XQRD109	51.0	51.1		10
XQRD109	52.0	52.1		20
XQRD109	53.0	53.1		30
XQRD109	54.0	54.1		20
XQRD109	55.0	55.1		30
XQRD109	56.0	56.1		10
XQRD109	57.0	57.1		20
XQRD109	58.0	58.1		30
XQRD109	59.0	59.1		20
XQRD109	60.0	60.1		20
XQRD109	61.0	61.1		20
XQRD109	62.0	62.1		20
XQRD109	63.0	63.1		20
XQRD109	64.0	64.1		20
XQRD109	65.0	65.1		20
XQRD109	66.0	66.1		20
XQRD109	67.0	67.1		10
XQRD109	68.0	68.1		20
XQRD109	69.0	69.1		20
XQRD109	70.0	70.1		20
XQRD109	71.0	71.1		30
XQRD109	72.0	72.1		30
XQRD109	73.0	73.1		20
XQRD109	74.0	74.1		20
XQRD109	75.0	75.1		20
XQRD109	76.0	76.1		20
XQRD109	77.0	77.1		20
XQRD109	78.0	78.1		10
XQRD109	79.0	79.1		30
XQRD109	80.0	80.1		10
XQRD109	81.0	81.1		20
XQRD109	82.0	82.1		20
XQRD109	83.0	83.1		10
XQRD109	84.0	84.1		20
XQRD109	85.0	85.1		20

598928

DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
XQRD109	86.0	86.1			20
XQRD109	87.0	87.1			10
XQRD109	88.0	88.1			20
XQRD109	89.0	89.1			20
XQRD109	90.0	90.1			30
XQRD109	91.0	91.1			10
XQRD109	92.0	92.1			20
XQRD109	93.0	93.1			10
XQRD109	94.0	94.1			20
XQRD109	95.0	95.1			30
XQRD109	96.0	96.1			30
XQRD109	97.0	97.1			40
XQRD109	98.0	98.1			40
XQRD109	99.0	99.1			40
XQRD109	100.0	100.1			30
XQRD109	101.0	101.1			30
XQRD109	102.0	102.1			30
XQRD109	103.0	103.1			30
XQRD109	104.0	104.1			40
XQRD109	105.0	105.1			40
XQRD109	106.0	106.1			30
XQRD109	107.0	107.1			40
XQRD109	108.0	108.1			30
XQRD109	109.0	109.1			30
XQRD109	110.0	110.1			40
XQRD109	111.0	111.1			40
XQRD109	112.0	112.1			40
XQRD109	113.0	113.1			30
XQRD109	114.0	114.1			30
XQRD109	115.0	115.1			30
XQRD109	116.0	116.1			40
XQRD109	117.0	117.1			40
XQRD109	118.0	118.1			30
XQRD109	119.0	119.1			30
XQRD109	120.0	120.1			40
XQRD109	121.0	121.1			40
XQRD109	122.0	122.1			40
XQRD109	123.0	123.1			40
XQRD109	124.0	124.1			40
XQRD109	125.0	125.1			40
XQRD109	126.0	126.1			40
XQRD109	127.0	127.1			40
XQRD109	128.0	128.1			30
XQRD109	129.0	129.1			30
XQRD109	130.0	130.1			20
XQRD109	131.0	131.1			30
XQRD109	132.0	132.1			20
XQRD109	133.0	133.1			40
XQRD109	134.0	134.1			30
XQRD109	135.0	135.1			30
XQRD109	136.0	136.1			10
XQRD109	137.0	137.1			30
XQRD109	138.0	138.1			20

598929

927

	DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
	XQRD109	139.0	139.1			20
	XQRD109	140.0	140.1			30
	XQRD109	141.0	141.1			30
	XQRD109	142.0	142.1			30
	XQRD109	143.0	143.1			40
9	XQRD109	144.0	144.1			40
	XQRD109	145.0	145.1			20
	XQRD109	146.0	146.1			20
	XQRD109	147.0	147.1			30
	XQRD109	148.0	148.1			20
	XQRD109	149.0	149.1			20
	XQRD109	150.0	150.1			20
	XQRD109	151.0	151.1			40
	XQRD109	152.0	152.1			10
	XQRD109	153.0	153.1			20
19	XQRD109	154.0	154.1			20
20	XQRD109	155.0	155.1			20
2	XQRD109	156.0	156.1			20
22	XQRD109	157.0	157.1			20
23	XQRD109	158.0	158.1			20
2	XQRD109	159.0	159.1			30
2	XQRD109	160.0	160.1			20
	XQRD109	161.0	161.1			30
7	XQRD109	162.0	162.1			20
	XQRD109	163.0	163.1			30
	XQRD109	164.0	164.1			20
	XQRD109	165.0	165.1			20
	XQRD109	166.0	166.1			10
	XQRD109	167.0	167.1			20
	XQRD109	168.0	168.1			20
	XQRD109	169.0	169.1			20
	XQRD109	170.0	170.1			20
	XQRD109	171.0	171.1			30
	XQRD109	172.0	172.1			10
	XQRD109	173.0	173.1			20
	XQRD109	174.0	174.1			20
	XQRD109	175.0	175.1			30
	XQRD109	176.0	176.1			30
	XQRD109	177.0	177.1			30
	XQRD109	178.0	178.1			20
	XQRD109	179.0	179.1			30
	XQRD109	180.0	180.1			30
	XQRD109	181.0	181.1			40
	XQRD109	182.0	182.1			30
	XQRD109	183.0	183.1			20
	XQRD109	184.0	184.1			20
	XQRD109	185.0	185.1			30
	XQRD109	186.0	186.1			20
	XQRD109	187.0	187.1			20
	XQRD109	188.0	188.1			30
	XQRD109	189.0	189.1			30
	XQRD109	190.0	190.1			10
	XQRD109	191.0	191.1			20

598930

928

DHID9	FROM9	TOTO9	ROCK	ALTNG	SUSCPT
XQRD109	192.0	192.1			20
XQRD109	193.0	193.1			30
XQRD109	194.0	194.1			30
XQRD109	195.0	195.1			20
XQRD109	196.0	196.1			30
XQRD109	197.0	197.1			20
XQRD109	198.0	198.1			20
XQRD109	199.0	199.1			20
XQRD109	200.0	200.1			10
XQRD109	201.0	201.1			10
XQRD109	202.0	202.1			20
XQRD109	203.0	203.1			30
XQRD109	204.0	204.1			20
XQRD109	205.0	205.1			20
XQRD109	206.0	206.1			30
XQRD109	207.0	207.1			20
XQRD109	208.0	208.1			30
XQRD109	209.0	209.1			30
XQRD109	210.0	210.1			30
XQRD109	211.0	211.1			30
XQRD109	212.0	212.1			40
XQRD109	213.0	213.1			20
XQRD109	214.0	214.1			20
XQRD109	215.0	215.1			20
XQRD109	216.0	216.1			20
XQRD109	217.0	217.1			20
XQRD109	218.0	218.1			30
XQRD109	219.0	219.1			20
XQRD109	220.0	220.1			20
XQRD109	222.0	222.1			20
XQRD109	223.0	223.1			20
XQRD109	224.0	224.1			20
XQRD109	225.0	225.1			20
XQRD109	226.0	226.1			20
XQRD109	227.0	227.1			20
XQRD109	228.0	228.1			20
XQRD109	229.0	229.1			20
XQRD109	230.0	230.1			30
XQRD109	231.0	231.1			20
XQRD109	232.0	232.1			10
XQRD109	233.0	233.1			30
XQRD109	234.0	234.1			20
XQRD109	235.0	235.1			20
XQRD109	236.0	236.1			20
XQRD109	237.0	237.1			20
XQRD109	238.0	238.1			10
XQRD109	239.0	239.1			10
XQRD109	240.0	240.1			20
XQRD109	241.0	241.1			20
XQRD109	242.0	242.1			30
XQRD109	243.0	243.1			30
XQRD109	244.0	244.1			20
XQRD109	245.0	245.1			30

929

598931

	DHID9	FROM9	TOT09	ROCK	ALTNG	SUSCPT
	XQRD109	246.0	246.1			20
	XQRD109	247.0	247.1			30
	XQRD109	248.0	248.1			30
7	XQRD109	249.0	249.1			20
8	XQRD109	250.0	250.1			30
9	XQRD109	251.0	251.1			10
0	XQRD109	252.0	252.1			30
	XQRD109	253.0	253.1			30
2	XQRD109	254.0	254.1			20
	XQRD109	255.0	255.1			20
	XQRD109	256.0	256.1			10
	XQRD109	257.0	257.1			20
	XQRD109	258.0	258.1			20
	XQRD109	259.0	259.1			30
6	XQRD109	260.0	260.1			10
7	XQRD109	261.0	261.1			20
	XQRD109	262.0	262.1			10
	XQRD109	263.0	263.1			30
22	XQRD109	264.0	264.1			30
23	XQRD109	265.0	265.1			20
24	XQRD109	266.0	266.1			30
25	XQRD109	267.0	267.1			20
26	XQRD109	268.0	268.1			
27	XQRD109	268.9	269.0			
8						
9						
0						

939

598932

DIAMOND DRILL CORE

SURVEY DATA

APPENDIX 29

ABERFOYLE 931

DRILL HOLE RECORD

59803

Location Charter Dolerite **Property** Hellyer EL 15/73 **District** Tasmania **Bearing (M)** Vertical **Hole No** MC-14

Commenced 4-7-86 **Completed** 30-7-86 **% Recovery** **Grid bearing (M)** Vertical **Date**

Objective Test Hellyer ore position beneath Charter Dolerite **Core size** **Logged** A.M.Hespe

Co-ordinates 4548.2 N, 2988.0 E **Dip** -90 **Alt./R.L.** 685.2

SURVEY DATA				GRAPH DERIVED DATA			CALCULATED CO-ORDINATES			REMARKS
DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE	DEPTH	DIP	BEARING(M)	NORTHING	EASTING	ALTITUDE	
				0	-90	161.5				Collar pick-up: L Mackenzie and associates.
				25	-89.8	164.0				Ang Coordinates not calculated
				50	-89.7	160.6				
				75	-89.4	169.3				
				100	-89.1	172.1				
				125	-88.7	172.5				
				150	-88.3	178.4				
				175	-88	180.9				
				200	-88	185.1				
				225	-88	188.0				
				250	-88	190.2				
				275	-88	192.2				
				300	-88	193.6				
				325	-88	195.2				
				350	-88.1	197.3				
				375	-88.1	199.4				
				400	-88.3	201.5				
				425	-88.6	204.0				
				450	-89.0	206.6				
				475	-89.0	209.5				
				500	-88.9	212.6				
				525	-88.7	216.0				
				529.70	-88.6	217.0				
										0 - 19.50 m Triconе
										19.5 - 51.0 m HQ
										51.0 - 529.7m NQ
										19.5m of HW Casing kept in hole. PVC casing to 529.7m.

ABERFOYLE 932

DRILL HOLE RECORD

59893

Location South Mt. Charter | Property Hatfield EL 15/73 | District Tasmania | Bearing (M) | Hole No MC-15

Commenced 3-7-86 | Completed 17-1-87 | % Recovery | Grid bearing (M) 111.6 | Date

Objective Stratigraphic section of the Que-Hellyer Volcanics | Core size | Logged AMH

Co-ordinates 4249.0N, 3772.8E | Dip -67° | Alt./R.L. 754.5

SURVEY DATA				GRAPH DERIVED DATA			CALCULATED CO-ORDINATES			REMARKS
DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE	DEPTH	DIP	BEARING(M)	NORTHING	EASTING	ALTITUDE	
				0	67	111.6	4249.0N	3772.8	754.5	Collar pick up by: A Colson, Que River Mine, 28-11-86
				25	67.4	112				AMG Coordinates:
				50	67.7	112				5391 601.9 N
				75	67.9	112				389066.0 E
				100	68.1	112				
				125	68.3	111.5				
				150	68.5	111				
				175	68.3	111				
				200	68	111				
				225	67.5	111				
				250	66.9	110.5				
				275	66.4	110.5				
				300	66	110.5				
				325	65.6	110				
				350	65.2	109.5				
				375	65	109				
				400	64.8	108.5				
				425	64.7	108.5				
				450	64.4	108.5				
				475	64	109				
				500	63.2	109.5				
				525	62.2	110				0-33m HQ
				550	61.6	111.5				33-513.9 NQ
				575	60.8	113				513.9-606.3 BQ
				600	59.9	115				0-606.3 PVC ?
				606.3	59.5	115				
						* all bearings are grid				

ABERFOYLE

933

DRILL HOLE RECORD

598935

Location South M. Charter | Property Hatfield EL 15/75 | District Tasmania | Bearing (M) ≈ 344·7° | Hole No MC-17

Commenced October '86 | Completed December '86 | % Recovery | Grid bearing (M) 334·7° | Date

Objective Stratigraphic test of the Charter fault. | Core size | Logged A.M.H.

Co-ordinates 4032·1 N, 5776·4 E | Dip −58·6° | Alt./R.L. 743·2

SURVEY DATA				GRAPH DERIVED DATA			CALCULATED CO-ORDINATES			REMARKS
DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE	DEPTH	DIP	BEARING(M)	NORTHING	EASTING	ALTITUDE	
				0	58·6	334·7	4032·1 N	5776·4 E	743·2	Collar pick-up: A Colson, Que river Mine, 28/6/86
				25	59·7	335·4				AMG Coordinates:
				50	60·0	336·2				5390999·7 N
				75	59·6	337·0				388987·7 E
				100	59·1	337·8				
				125	58·4	338·7				
				150	57·6	339·6				
				175	56·7	340·4				
				200	56·1	340·9				
				225	55·1	340·9				
				250	54·4	340·5				
				275	53·9	339·8				
				300	53·4	338·7				
				325	53	338·0				
				350	52·6	339·7				
				375	52	341·2				
				376·45	52	341·2				0 - 30·3 m HQ
						* All	bearings are grid.			30·3 - 376·45 m NQ
										PVC to bottom of hole

ABERFOYLE

934

DRILL HOLE RECORD

598039

Location S.W. Mt. Charter
Property Hatfield EL 15/73
District Tasmania
Bearing (M) 259°
Hole No Mc-19

Commenced 14-4-87
Completed 29-4-87
% Recovery
Grid bearing (M) 249°
Date
Logged A.M.H.

Objective Follow-up intersection in DDH Mc-9
Core size
Co-ordinates 5682.6N, 4696.5 E
Dip -65° 48'
Alt./R.L. 666.05

SURVEY DATA			
DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE

GRAPH DERIVED DATA		
DEPTH	DIP	BEARING(M)
0	65.5	245
25	64.8	245.6
50	64.6	246.2
75	64.4	246.8
100	64.2	247.6
125	64.0	248.4
150	64.0	249.4
175	63.9	250.4
200	63.4	251.4
225	62.6	252.4
250	62.0	253.9
275	61.4	254.9
300	60.4	254.6
325	58.7	253.6
350	57.2	253.4
375	56.4	253.9
400	56.2	254.8
425	55.9	255.9
443.2	-55.8	257

CALCULATED CO-ORDINATES		
NORTHING	EASTING	ALTITUDE
5682.6	4696.5	666.05

REMARKS

Collar pick-up by: A Colson, Que River Mine, 30/4/87
AMG Coordinates:
5590329.7 N
389708.2 E

0 - 6m Tricone
6 - 27m HQ
27 - 443.2m NQ
6m HW Casing at top
56mm PVC to bottom of hole

ABERFOYLE EXPLORATION 935 DRILL HOLE RECORD

5988 CJ

Location Tailings Dam | Property Hatfield CL 15/73 | District Tasmania | Bearing (M) Vertical | Hole No HTR-9
Commenced 7-4-87 | Completed 13-4-87 | % Recovery | Grid bearing (M) Vertical | Date
Objective Test immediate vicinity of proposed tailings Dam wall | Core size | Logged A.N. Hespe
Co-ordinates 10196·2 N, 3994·4 E | Dip -90 | Alt./R.L. 630·5m

SURVEY DATA				GRAPH DERIVED DATA			CALCULATED CO-ORDINATES			REMARKS
DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE	DEPTH	DIP	BEARING(M)	NORTHING	EASTING	ALTITUDE	
				0	90	291	10196·2 N	3994·4 E	630·5	Collar pick-up: A Colton, Que River Mine, 10/4/87
				25	89·8	306				AMG Coordinates:
				50	89·6	311				539 6625·9 N
				75	89·5	306				391510·1 E
				100	89·5	296				
				125	89·4	261				
				150	89·4	261				
				175	89·3	191				
				194·5	89·3	41				
						*	All bearings in Grid			0 - 105m HQ
										105 - 184·5 NQ
										No casing left in hole
										36mm PVC to bottom of hole

ABERFOYLE EXPLORATION 936 DRILL HOLE RECORD

Location Tailings Dam **Property** Mackintosh EL 2/70 **District** Tasmania **Bearing (M)** ≈ 92° Mag. **Hole No** MAc-10

Commenced 20-3-87 **Completed** 5-4-87 **% Recovery** **Grid bearing (M)** 83° 41' **Date**

Objective Test of area to be sterilized by Hellyer Tailings Dam. **Core size** **Logged** A.M. Hespe

Co-ordinates 10641·7 N, 4164·6 E **Dip** −78° 00' **Alt./R.L.** 631·7

5988933

SURVEY DATA				GRAPH DERIVED DATA			CALCULATED CO-ORDINATES			REMARKS
DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE	DEPTH	DIP	BEARING(M)	NORTHING	EASTING	ALTITUDE	
				0	79	83·7	10641·7	4164·6	631·7	Collar pick-up : A. Colson, Que River Mine, 21-3-87
				25	78·9	83·5				AMG Coordinates:
				50	80·5	83·0				5396974·4 N
				75	81·2	80				391835·4 E
				100	82·0	74·5				
				125	82·6	70·5				
				150	83·0	69·5				
				175	83·0	69·5				
				200	82·9	70				
				225	82·7	71				
				250	82·4	72				
				275	82·1	72·5				
				300	82	73				
				325	82	74				
				350	82·1	76·5				
				375	82	79·5				
				400	81·9	81				
				425	81·8	82				
				450	81·9	84·0				
				475	82	83·5				
				500	82·2	80·5				
				525	82·5	76				
				529·6	82·6	75·5				0 - 6m Tricone
						*	All bearings in Mine Grid.			6 - 47·9m HQ
										47·9 - 529·6m NQ
										No casing left in hole. 36 mm PVC to bottom of hole

ABERFOYLE EXPLORATION 937 **DRILL HOLE RECORD**

598039

Location Mill Site **Property** Mackintosh E.L. 4/70 **District** Tasmania **Bearing (M)** ≃ 267° **Hole No** DDH MAC-11

Commenced 5/5/87 **Completed** 13/6/87 **% Recovery** **Grid bearing (M)** 258° 23' **Date**

Objective Test Hellyer Ore position at depth below Mill Site. **Core size** **Logged** D. J. Jack.

Co-ordinates 10380·07N, 6396·49 **Dip** −75° 21' **Alt./R.L.** 690·53

SURVEY DATA				GRAPH DERIVED DATA			CALCULATED CO-ORDINATES			REMARKS
DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE	DEPTH	DIP	BEARING(M)	NORTHING	EASTING	ALTITUDE	
				0	75·3	256	10380·07	6396·49	690·53	Collar pick-up: A Colson, Que River Mine, 12-5-87
				25	75·2	256				AMG Coordinates:
				50	75·6	256				5395891·9 N
				75	75·9	256				393803·8 E
				100	75·4	255·6				
				125	75·1	256				
				150	75·2	257				
				175	75·0	257				
				200	74·6	256·1				
				225	73·8	257·2				
				250	72·6	259·6				
				275	71·7	261·5				
				300	71·1	262·3				
				325	70·3	263·3				
				350	69·8	264·3				
				375	69·8	265·0				
				400	69·8	265·5				
				425	69·8	266·0				
				450	69·6	266·5				
				475	68·8	266·8				
				500	67·8	267·0				
				525	67·2	267·1				
				550	66·8	267·0				
				575	66·1	266·6				
				600	65·6	266·4				
				625	65·2	266·0				
				650	65·0	265·8				

ABERFOYLE EXPLORATION 938 **DRILL HOLE RECORD**

5989040

Location Mill site | Property Mackintosh EL 2/70 | District Tasmania | Bearing (M) | Hole No Mac-11

Commenced | Completed | % Recovery | Grid bearing (M) | Date

Objective | Core size | Logged

Co-ordinates | Dip | Alt./R.L.

SURVEY DATA				GRAPH DERIVED DATA			CALCULATED CO-ORDINATES			REMARKS
DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE	DEPTH	DIP	BEARING(M)	NORTHING	EASTING	ALTITUDE	
				685	64·9	265·7				
				700	64·6	266·2				
				725	64·1	266·9				
				750	63·4	267·1				
				775	62·8	267·1				
				800	62	266·8				
				825	61	266·3				
				839·9	−60·5	266				
						*	All bearings Mine Grid			0–9m tricone
										9–206·8m HQ
										206·8–839·9 NQ
										9m of H Casing at top of hole
										36mm PVC to bottom of hole, lower 400m clam P
										upper 439m = class 12.

ABERFOYLE EXPLORATION 939

DRILL HOLE RECORD

598941

Location Deep trough Syncline **Property** Mackintosh EL 2/70 **District** Tasmania **Bearing (M)** Vertical **Hole No** MAC-D-05

Commenced 15-10-85 **Completed** 29-10-85 **% Recovery** **Grid bearing (M)** Vertical **Date**

Objective Follow-up prospective stratigraphy in DDH MAC2 and MAC3. **Core size** **Logged** D.J. Jack

Co-ordinates 9198·80 N 5971·80 E **Dip** -90° **Alt./R.L.** 694·70 m

SURVEY DATA				GRAPH DERIVED DATA			CALCULATED CO-ORDINATES			REMARKS
DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE	DEPTH	DIP	BEARING(M)	NORTHING	EASTING	ALTITUDE	
				0	-90.00	N/A	9198·80	5971·8	694·70	No information available on collar pick-up.
				25	-89·6	78·0				
				50	-89·2	156·0				
				75	-88·9	192·9				
				100	-88·8	197·5				
				125	-88·6	202·2				
				150	-88·5	206·8				
				175	-88·3	211·9				
				200	-88·1	231·5				
				225	-87·9	244·6				
				250	-87·6	251·1				
				276	-87·3	257·7				
				300	-86·6	262·1				
				325	-85·8	264·5				
				350	-84·7	267·47				
				375	-82·8	272·3				
				400	-80·8	272·2				
				424·60	-79	282·10				
						*	Bearings are Magnetic			0 - 6·3 m Tricone 6·3 - 124·9 m HQ 124·9 - 424·6 m NQ 36mm PVC to bottom of hole No casing left in hole

ABERFOYLE EXPLORATION 940 DRILL HOLE RECORD

539042

Location OLD Mill Syncline | Property Hatfield EL 15/73 | District Tasmania | Bearing (M) Vertical | Hole No HAT-6
Commenced 31-7-86 | Completed 8-8-86 | % Recovery | Grid bearing (M) Vertical | Date
Objective To test a major Pb soil anomaly associated with the OLD Mill Syncline. | Core size | Logged A.M. Hope
Co-ordinates 7178.91 N, 4364.9 | Dip -90 | Alt./R.L. 707.59

SURVEY DATA				GRAPH DERIVED DATA			CALCULATED CO-ORDINATES			REMARKS
DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE	DEPTH	DIP	BEARING(M)	NORTHING	EASTING	ALTITUDE	
				0	-90	348.5	7178.98	4364.9	707.59	Collar pick-up: L. Mackenzie and Assoc.
				25	-89.8	354.0				AMG Coords:
				50	-89.6	359.7				Not Calculated
				75	-89.4	5.5				
				100	-89.3	11.0				
				125	-89.2	16.7				
				150	-89.1	22.4				
				175	-89	28.0				
				200	-88.8	33.6				
				225	-88.5	39.4				
				250	-88.0	45.0				
				262.5	-87.6	47.8				
						*	All bearings are Mine grid.			0 - 31m HW.
										31 - 111 m HQ
										111 - 262.5m NQ
										X m of HW casing left in hole.

ABERFOYLE EXPLORATION

941 DRILL HOLE RECORD

59394

Location I, Zone Property Hatfield EL 15/73 District Tasmania Bearing (M) Approx 97° Hole No HAT-7

Commenced 19-1-87 Completed 27-1-87 % Recovery Grid bearing (M) 88°09' Date

Objective Investigate I, UTEM Anomaly Core size Logged A.M. Hespe

Co-ordinates 5777.98N, 4111.22E Dip -44.58° Alt./R.L. 708.02 RL

SURVEY DATA				GRAPH DERIVED DATA			CALCULATED CO-ORDINATES			REMARKS
DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE	DEPTH	DIP	BEARING(M)	NORTHING	EASTING	ALTITUDE	
				0	-45	88.2	5777.98	4111.22	708.02	Collar Pick-up: A. Colson, Que River Mine, 27/2/87
				25	-45.6	91				AMG Collar Coordinates:
				50	-46.1	93.5				5392490.45N
				75	-46.2	94.5				389955.02E
				100	-46.1	95.5				
				125	-45.6	97.5				
				150	-45.5	100				
				175	-44.8	101				
				200	-44.4	100.5				
				220.9	-44	99				
						*	All bearings are	Mine grid		0 - 13.5m HW
										13.5 - 38.4m HQ
										38.4 - 220.9m NQ
										13.5m of HW left in hole
										PVC to bottom of hole

ABERFOYLE EXPLORATION

942

DRILL HOLE RECORD

5989941

Location Old Mill Syncline **Property** Hatfield EL 15/75 **District** Tasmania **Bearing (M)** Vertical **Hole No** HAT-8

Commenced 28-1-87 **Completed** 13-2-87 **% Recovery** **Grid bearing (M)** Vertical **Date**

Objective to test Pb soil anomaly in the Old Mill Site Syncline **Core size** **Logged** A.M. Hespe

Co-ordinates 6714.6 N, 4029.64 E **Dip** 90 **Alt./R.L.** 685.90

SURVEY DATA				GRAPH DERIVED DATA			CALCULATED CO-ORDINATES			REMARKS
DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE	DEPTH	DIP	BEARING(M)	NORTHING	EASTING	ALTITUDE	
				0	90	286	6714.6 N	4029.64	685.9	collar pick-up: A Colson, Queries line, 27/2/87
				25	89.3	286.5				Ang coordinates:
				50	88.8	287				5393388.51 N
				75	88.5	287.5				390232.07 E
				100	88.4	287.5				
				125	88.4	288.5				
				150	88.4	289.5				
				175	88.2	291				
				200	88	292				
				225	88	293				
				250	87.9	294				
				275	87.9	294.5				
				300	87.9	295				
				325	87.8	296				
				350	87.6	296				
				375	87.4	295				
				400	87.3	293				
				403.3	87.3	293				
										0-24 m Tricone
										24-65.9 m HQ
										65.9-403.3m NQ
										24 m of Hw casing at top of hole.
										Pvc casing to bottom of hole.

EXPLORATION LICENCE2/70 MACKINTOSH

TASMANIA

TECHNICAL PROGRESS REPORT

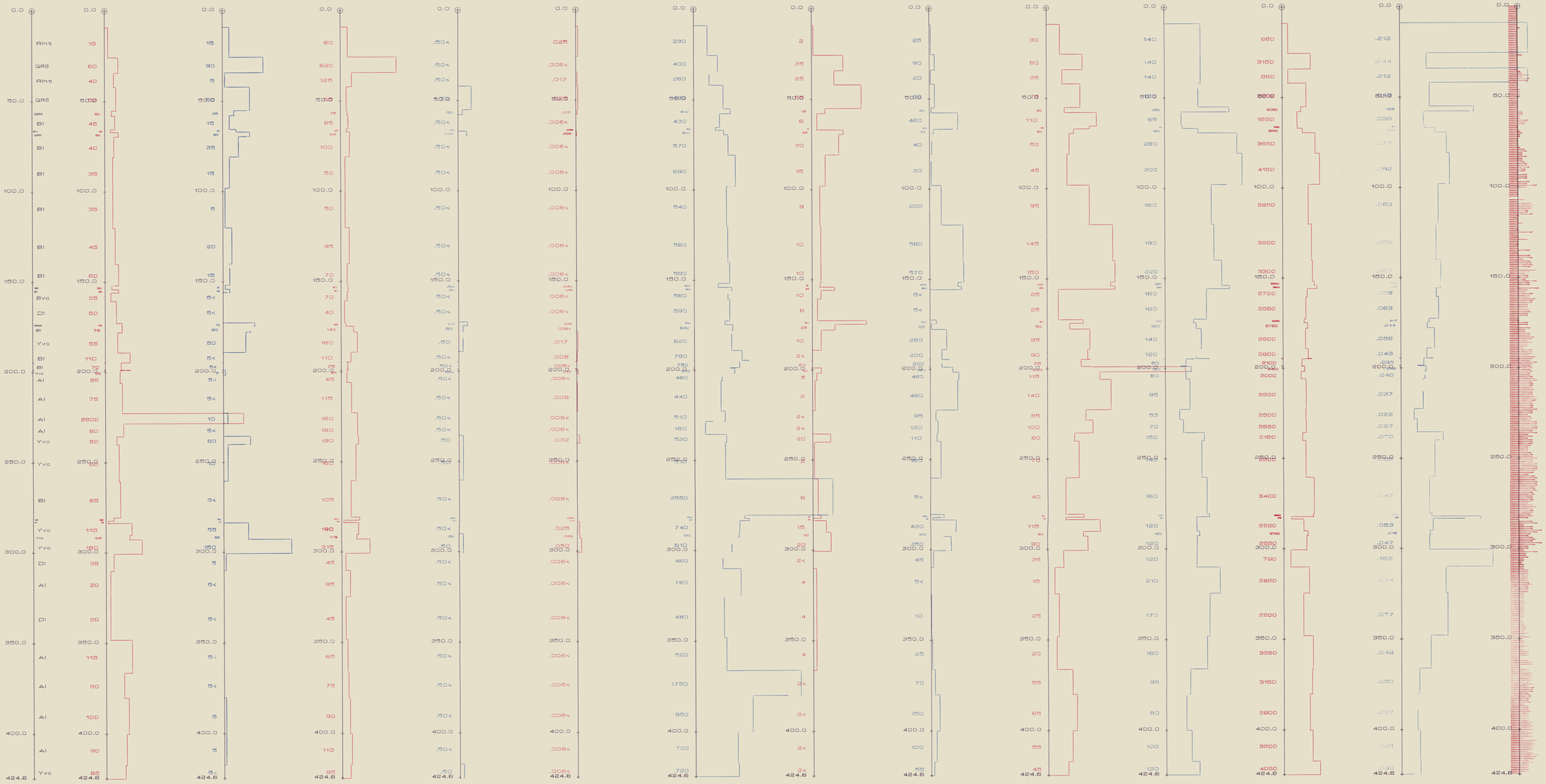
FOR THE PERIOD

DECEMBER 1985 TO FEBRUARY 1988

VOLUME 4 - PLATES

593945

8613



5 cm

SCALE 1: 1000		Aberfoyle Expl. P.L.
DRAWN ADB		SECTION : MAC 5
CHECKED		DRAWING No. MAC 134 A
DESIGNED		REVISION 28 JULY, 1989
DESIGN CKD		
DESIGN APP		
PROJECT APP		

598946

89-3006

8614

5500 N | 5000 N | 4500 N | 4000 N | 3500 N

7500 E

7000 E

6500 E

6000 E

Qtz - Oc

mudstone - Oc

Mic. Ss

L.B

Mic - Ss

R

Hill

Hilltop

Flood plain

Cliff

Edge of forest

Edge of rain forest

Eucalypt
Tea tree
Cutty grass

Button grass

Tea tree

Eucalypt and celery top

Bowra

Horizontal

Steep slope

Open myrtle,

Open myrtle, sass.

Old Pack Track

Track

View

L.B ?

icl B + Mic Ss

L.B ?

gy soil

wh Qtz (Ord)

wh. Qtz. (Ord)

wh Qtz.

wh. Qtz. & Cg. (Owen) (Ord)

wh. Qtz. (Ord) float

wh. Qtz (Fu) 271447

wh. Qtz. (Ord)

wh. Qtz. soil (Ord)

Cg (Owen) blds

Cg (Owen)

Q vn
wh Qtz (Ord)

Qtz

shd lgt br R
(moss fp)

shd R

shd R/D?

vtr

wth wh R

R (Int)

shd R 271436

mic Ss, Sh

shd R ? D ?
271437

shd mic Ss

mic Ss, lcl Sh
271436

mic Ss

R fp ?

R
271434

shd fp vtr A ?
271433

mic Ss, shd R

gy, B
271439

foliated Bsh

blk mic Sh & grey green Ss

shd A ? rd vlc
271432

shd bd fp ↑ 271435

Cliff

gn A / B ? ves 2

or mic. Ss.

flat lying gy bd. mudstone (Ord)
271424

wth. Qtz
271426

gn. B / Py mnr Sp. 271425

b. B. fr.

gn. gy. B / Cl. por Co. spots

L.B. ?

gy. or. soil

or. Qtz

bd. or gy. mudstone

gy. soil

gy. soil

or wth. clay (after vlc)

mic. Ss. ?

Sp. soil

q.

gy. vlc.

wth or A / B. ?

wh Qtz. (Ord)
271429

gn. A/B large Cl. alt. phenocrysts
mnr. smsh fp

wth. or. gy. mudstone

or. wth. B. ? shd.

rd. or. wth. B. 271428

wth

wh Qtz (Ord)

or. mudstone
horizontal bs

or. mudstone

or. mudstone

wh Qtz

wh. B rd. Qtz. (Ord)

wh. Qtz. (Ord)

gy soil

mic. Ss

rd. wth. B. shd / Mn 3.
271455

or. wth. B / Mn

or. wth. B.

or. wth. B.

or. wth. B.

or wth. B.

wth. or mudstone

wth. ves. vlc & mic Ss 271454

gn. bleached mic Ss

mic. Ss.

mic Ss 271453

bk mic Ss & bk Sh.

moss. gn B occ. fp. 271452

271451(P)

shd. bk. mic Ss bd ⊥ cleavage

Qtz. fp A B scree

prom fp. A
B/Sh 4 ρ

gn. B. Cl. filled ves 2/ tr Py 271450 (P)

wth. or. B.

/Mn 2

wth or B

wth gn. moss. B. p
271449 (G)?
271448 (P)

rd. or. B/Mn

rd. B

or wth. B.

ooo

moss gn A.D
blds

rounded
Ord Qtz float

or. B gy soil

platy B

gn B

gn B scree

B b./Co 3

gn. B

fp. A - B
271441

gn B b.

gn. B
271442

gn fp A/Sh 3
271445

gn. B mnr. fp 271444

wh. Qtz. (Ord)

gn. B.

wh. Qtz. (Ord) (float)

or. B.

wh. Qtz. (Ord)

wh. Qtz. (Ord)

gn. B. / Cl. por.

mic. Ss.

shd. B. & mic. Ss.

moss. shd. gn B & mic. Ss.

ves B & mic. Ss.

moss. gn B

or. wth. soil (B)

Qtz (Ord) float

or wth B 271446

or. wth. B

or wth. B.

B

wh. Qtz. (Ord)

wh. Qtz. (Ord)

wh. Qtz. (Ord)

8615

5500 N
5000 N
4500 N
4000 N
3500 N
6000 E
5500 E
5000 E
4500 E

271468
271467
271466
271465
271464
271463
271462
271461
271460
271459
271458
271457
D 265929 (R)
271456
271451
Y 271430

L.B
FPA
U.B
Y.lv
R(int)

5 cm

598948

89-3006

Aberfoyle Resources Limited
EXPLORATION DIVISION

REVISIONS			
Init.	Date	Init.	Date

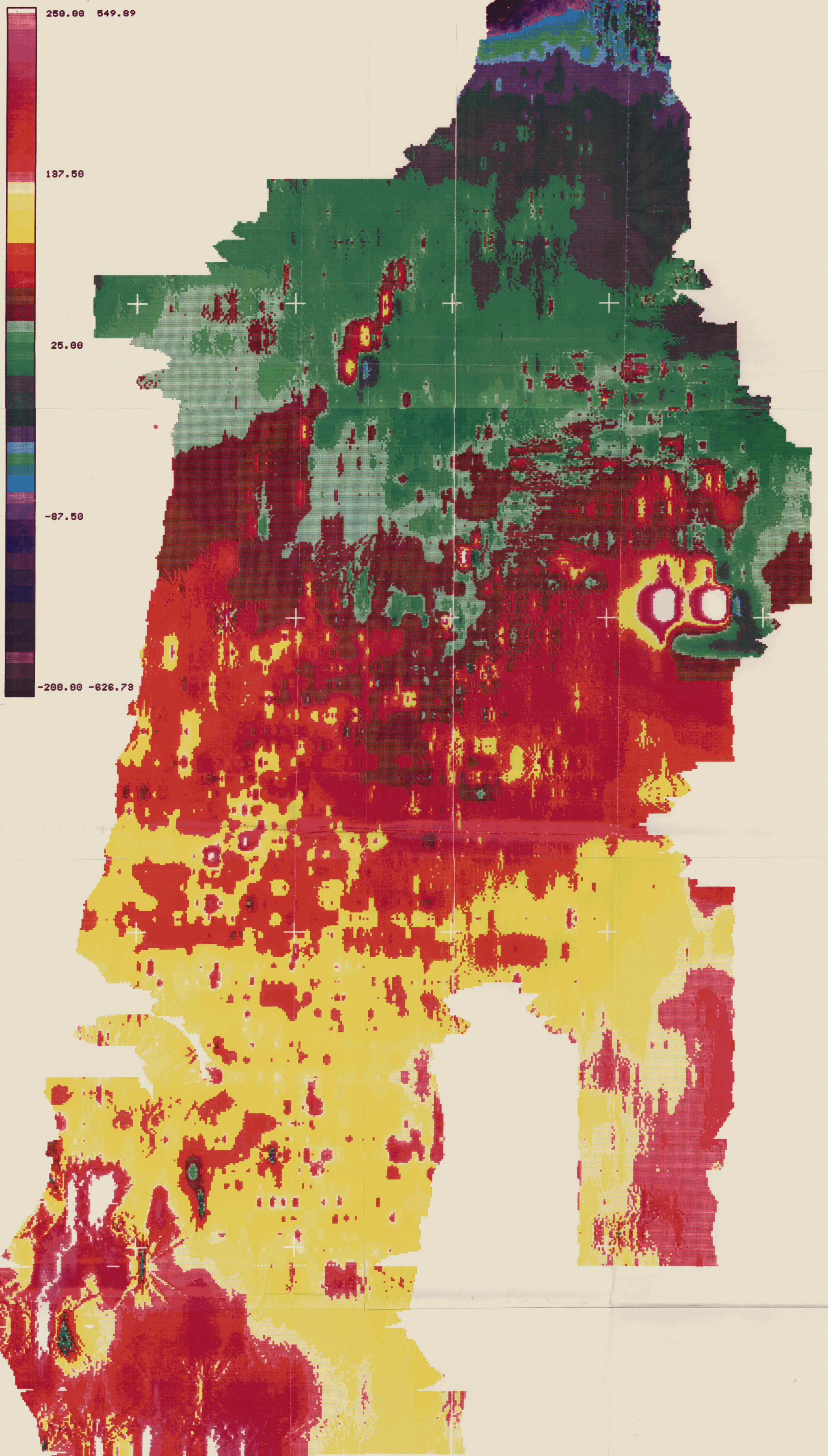
NORTH WEST TASMANIA
MACKINTOSH EL 2/70 / HATFIELD 15/73
INTERPRETIVE GEOLOGY

Compiled: DJJ
Drawn:
Traced: BAN
Checked:
Plate No: Mac W8/'00

Location Code: K55/6/46 | Scale: 1:2500 | Date: October, 1986

RMO 556

8617



MACKINTOSH MAGNETICS

5 cm

ABERFOYLE RESOURCES LIMITED EXPLORATION DIVISION	
NORTH WEST TASMANIA MACKINTOSH/HATFIELD **MAGNETICS**	
Drawn : RGP	Date : February, 1987
Scale : 1:10 000	Plate No : MAC 155B

89-3006

598949

8616

5900 E 6000 E 6100 E 6200 E 6300 E 6400 E 6500 E

RL 700

600

500

400

300

200

100

0

-100

MAC II 10380 N 6396 E 690 RL

Bl

bk Sh

R int

P379447

wthd R Vcl

bk Sh

(-20)

50 (-23)

F, Chl rbb

P379448

R int

100 (-26)

F Z rbb qtz / carb veining

150 (-29)

P379449

P379450

R int + bk Sh

F, 70° To CA, bk Sh pug + qtz

P379451

200 (-32)

Lithic wacke

P379452

FZ, 35° CA, Pug + Py + qtz / carb veins

bk Sh

250 (-35)

FZ, Pug, foliated shale

B pl

Se Carb - Py - Fd5

300 (-37)

bk Sh

Lithic wacke

F, 35° CA, Pug

350 (-39)

Se Carb - Py 4

400 (-41)

P396894

450 (-42)

B pl

Se Carb Py 3

500 (-43)

P396895

550 (-44)

600 (-45)

Fd - Sl2

HELLYER ORE POSITION

650 (-47)

Bl

P396896

P396898

700 (-48)

P396899

P396900

P396901

Afp lm

F, 45° CA, Pug + sheared vcl

P396902

6 cv fv

P396903

P396904

P396905-908

P396907

Bb

750 (-50)

B Y fv

B Y r m lv

A Y r m lv

A Y r m lv

Fd - Sl3

Fd - Sl2

Sl2

P396909

P396910

Afp l

800 (-51)

F, rbb + Pug

Fd - Sl2

EOH 839.9m (-52)

5 cm

89-3006

Aberfoyle Resources Limited
EXPLORATION DIVISION

598950

REVISIONS			
Init	Date	Init	Date

Location Code : K55/6/44

NORTH WEST TASMANIA

MACKINTOSH E.L. 2/70

CROSS SECTION 10400N MAC II

Scale : 1 1000

Date : September, 1987

Compiled : AMH

Drawn : AMH

Traced : RJE

Checked :

Plate No. : MAC 165

8625

5900 E | 6000 E | 6100 E | 6200 E | 6300 E | 6400 E | 6500 E

RL 700

600

500

400

300

200

100

0

-100

MAC II 10380 N 6396 E 690 RL

Bl

bk Sh

R int

P379447

wthd R vfcl

bk Sh

(-20)

50 (-23)

F, Chl rbb

P379448

R int

100 (-26)

F Z, rbb qtz/carb veining

150 (-29)

P379449

P379450 R int + bk Sh

F, 70° To CA, bk Sh, pug + qtz

P379451

Lithic wacke

200 (-32)

P379452

FZ, 35° CA, Pug + Py + qtz/carb veins

bk Sh

250 (-35)

FZ, Pug, foliated shale

B pl

300 (-37)

Se Carb - Py - Pug

bk Sh

Lithic wacke

F, 35° CA, Pug

350 (-39)

Se Carb - Py 4

400 (-41)

P396894

450 (-42)

B pl

Se Carb Py 3

500 (-43)

P396895

550 (-44)

500 (-45)

Fd - 5.2

HELLYER ORE POSITION

B l

650 (-47)

P396896

P396898

700 (-48)

P396899

qv

Bl

F, 45° CA, Pug + sheared vlcl

P396900

P396901

A fp m

P396902

B ov fN

750 (-50)

P396903

P396904

P396905 906

P396907

Bb

BY fN

P396909

Fd - 5.3

Fd - 5.2

Sr2

P396910

A fp l

800 (-51)

F, rbb + Pug

Fd - 5.2

EOH 839.9m (-52)

5 cm

89-3006

Aberfoyle Resources Limited
EXPLORATION DIVISION

598951

REVISIONS			
Init.	Date	Init	Date

NORTH WEST TASMANIA
MACKINTOSH E.L. 2/70
CROSS SECTION 10400N MAC II

Compiled : AMH
Drawn : AMH
Traced : RJE
Checked :

Location Code : K55/6/44
Scale : 1 1000
Date : September, 1987
Plate No. : MAC 165

8619

11100N

9200N

7300N

5400N

3500N

1600N

0.000000
130.00
97.50
65.00
32.50
0.00
0.00

21003E 31003E 41003E 51003E 61003E 71003E

MACK.HAT Cu 1:10000

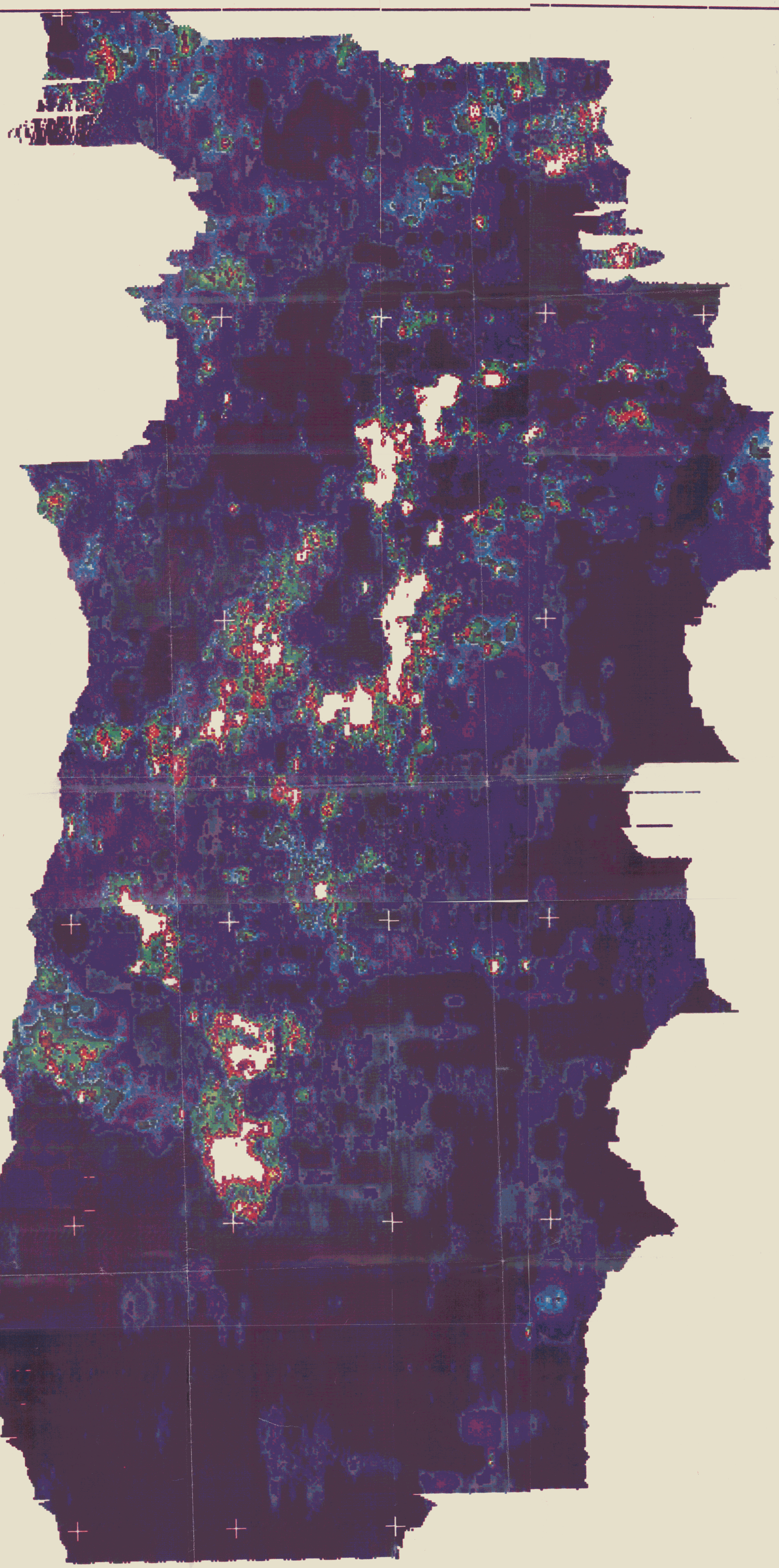
5 cm

89-3006

Aberfoyle Resources Limited
EXPLORATION DIVISION
598952

REVISIONS				TASMANIA		
Init	Date	Init	Date	MACKINTOSH - HATFIELD		Compiled : RGP
				Cu GEOCHEMISTRY		Drawn : Apollo
				C HORIZON SOIL		Traced :
Location Code :				Scale : 1:10000	Date : September, 1987	Checked : RGP
						Plate No. : MAC 168f

8621



11100N
9200N
7300N
5400N
3500N
1600N

MAX. 1266E+20
300.00
225.00
150.00
75.00
0.01
MIN. 0.00

2100E
3100E
4100E
5100E
6100E
7100E

MACK.HAT Pb 1:10000

5 cm

8621

89-3006

Aberfoyle Resources Limited
EXPLORATION DIVISION
598953

REVISIONS				TASMANIA	Compiled : RGP
Init.	Date	Init.	Date	MACKINTOSH - HATFIELD	Drawn : Apollo
				Pb GEOCHEMISTRY	Traced :
				C HORIZON SOIL	Checked : RGP
Location Code :				Scale : 1:10000 Date : September, 1987	Plate No. : MAC168e

8620

11100N

9200N

7300N

5400N

3500N

1600N

2100E

3100E

4100E

5100E

6100E

7100E

MAX. 1427

50.00

37.50

25.00

12.50

MIN. 0.00

0.19

MACK.HAT As 1:10000

5 cm

89-3006

Aberfoyle Resources Limited 598054

EXPLORATION DIVISION

TASMANIA

MACKINTOSH - HATFIELD

As GEOCHEMISTRY

C HORIZON SOIL

REVISIONS			
Init.	Date	Init.	Date

Location Code : K55/6/44

Scale : 1:10 000

Date : September, 1987

Compiled : RGP

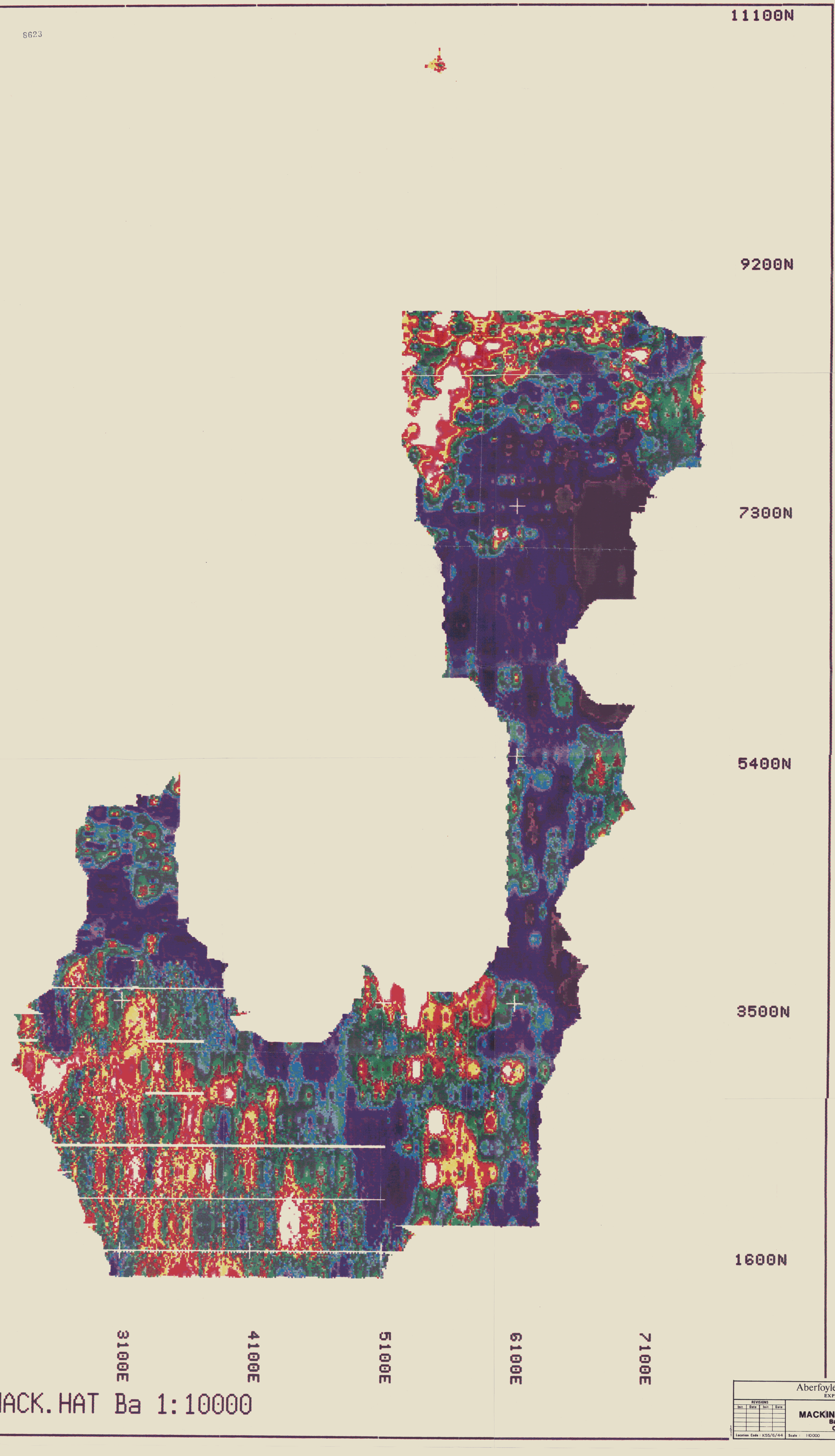
Drawn : Apollo

Traced :

Checked : RGP

Plate No. : MAC 168 b

8623



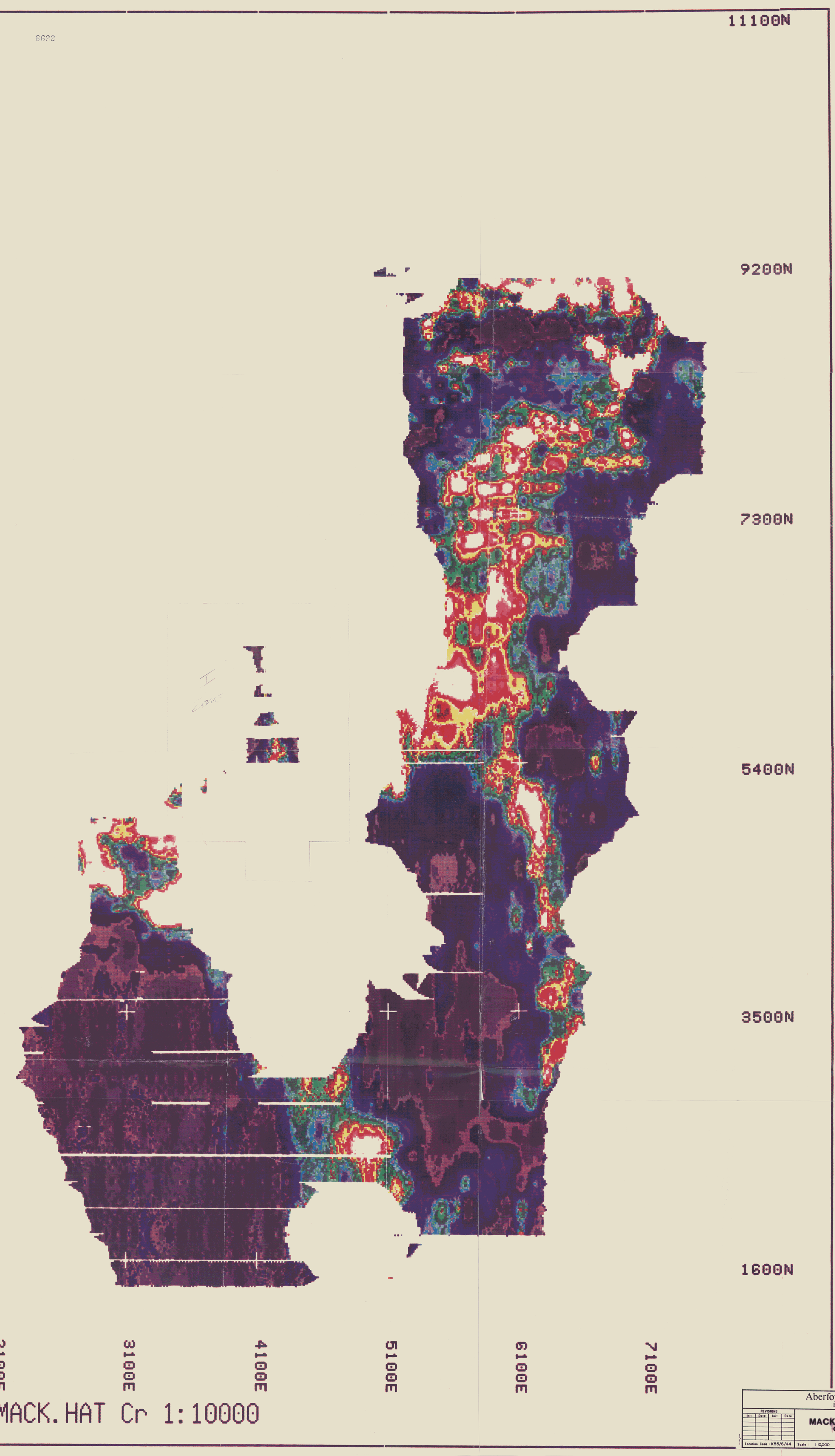
MACK.HAT Ba 1:10000

8623

89-3006

Aberfoyle Resources Limited EXPLORATION DIVISION				598955
REVISIONS Init / Date / Init / Date	TASMANIA **MACKINTOSH - HATFIELD** **Ba GEOCHEMISTRY** **C HORIZON SOIL**			Compiled : RGP Drawn : Apollo Traced : Checked : RGP
Location Code : K55/6/44	Scale : 1:10000	Date : September 1987		Plate No. : MAC 168 a

8622



MACK. HAT Cr 1:10000

8622

89-3006

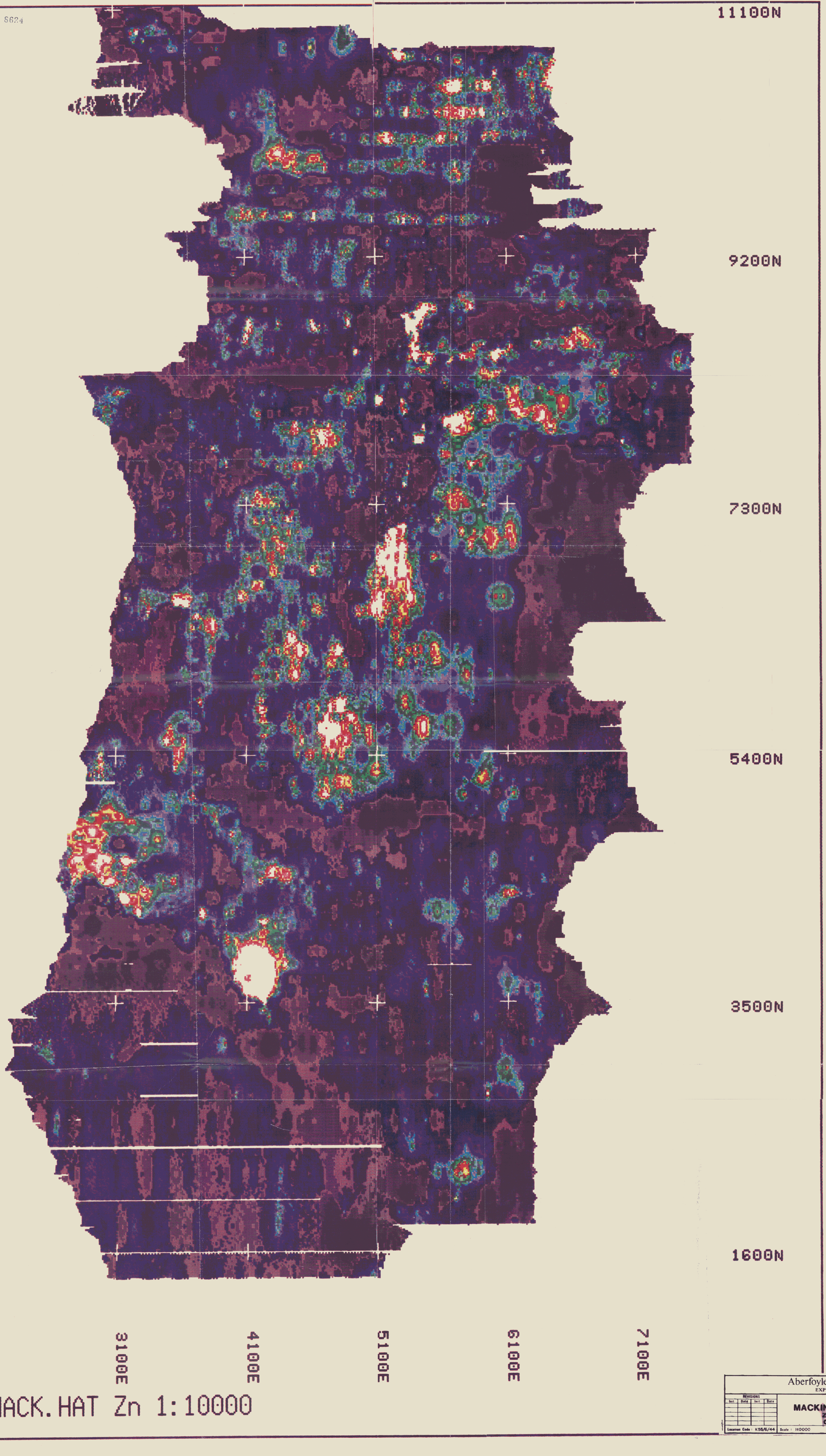
Aberfoyle Resources Limited
EXPLORATION DIVISION
598956

REVISIONS			
Init	Date	Init	Date

TASMANIA
MACKINTOSH - HATFIELD
Cr GEOCHEMISTRY
C HORIZON SOIL

Location Code : K55/6/44	Scale : 1:10,000
Date : September 1987	Compiled : RGP
Drawn : Apollo	Traced :
Checked : RGP	Plate No. : MAC 168 d

8624





5 cm

MACK.HAT Zn 1:10000

8624

89-3006

Aberfoyle Resources Limited 598957
EXPLORATION DIVISION
TASMANIA
MACKINTOSH - HATFIELD
Zn GEOCHEMISTRY
C HORIZON SOIL

REVISIONS					
Init	Date	Init	Date	Compiled :	RGP
				Drawn :	Agiotio
				Traced :	
				Checked :	RGP
Location Code : K55/6/44		Scale : 1:10000		Plate No. :	MAC 1588 c
		Date : September 1987			

8616

13500 N | 13000 N | 12500 N | 12000 N | 11500 N

7500 E | 7000 E | 6500 E | 6000 E

wtn.rd.Cg (Jukes breccia)

bd.vlc.Ss

R xv - rd.bk + glossy Fr I

Cg.slt

bd Ss.cl.Slt - sh 2

cl. I + 2

Sh

bd. wacke - water lain ruffs (E. - facing)

wtn Fbn R

rd R

rd. + gn. q. A

gn q A

POWER LINE

See enlarged area for detail

Y. Eu

rd.q.por.vlc.

I Mn.Fu.3

30 x 30cm py pod.

rd.q.por.vlc.

I Mn rd.q.

wacke Sh

Fu Mn5 holosyite clay

brick rd.vlc - cg

brick rd.vlc

wacke Sh

bd. highly disrupted

rd.q.fd.por.R

wacke-Sh

cg.

bd Ss

gy Qtz

rd + gn R vlc

Sil-mic Ss - Sh

333306 (Per) gn q A

3 x 3cm Py Pod

mic Ss (rott)

grit mic Ss

Sil 333305

Y. Eu

Sh

Y. Eu

Sh

Southwell

River

R (int)

Sh

Cg

cl. gn. + gy mic. Ss

graded Cg - wacke - Sh (E facing)

Cg - Sh

gn. Sh.

major shear

mass. gn. bd. t

Y. Eu

Y. (pyroclastic Y.E.)

Carbonaceous

x 379766 (G)

gn. bd mic Ss

minor shear 379765 (G)

Pebble base

bk Sh Top

gn. mic. Ss. cl. Sh

wacke

R. (int)

contact on 125°

major sheer zone

Similar to ignimbrite on portal road. (Y.R. vlc. gn. aux. fr.

bd. gn + Ss. Y. ov. in 379764 (G)

gn. mass + bd. vlc. Ss. (as at Southwell waterfall)

Y. Eu URS

T. B.

FROM AIRPHOTO

LONGYEAR CAMP

R (int)

bk. Sh.

Scn. Sh. 379767 (haematite)

gy. gn. bd. t

rd + gn R vlc

T. B

vns. T. B

T. B (feeder)

271218 gn. Sd

271217

rd R

SHARPIES CAMP

vns. T. B

R (int)

q. por. R (int)

highly vns rd. vlc

Mic. Ss

fp. R (int)

fp por R (int) 379770 (P)

bk fbn R (int) 379771 (P)

R (int) 379772 (P)

Cg bld

R (int)

R (int) 333305 (Per)

fbn

R (int)

Y. vlc. aux. gn. Ss Fu/s 379768, 9 (G)

R vlc. fp spots

Mic. Ss

bk vfr Yb gn flamme

R + bk vfr R

Cg

graded Cg - wacke - Sh

R (int)

bk. vfr. Yb

intense sheering

Y. Eu

R (int)

Y. Eu URS

Y. bk vfr b. 379776 (G)

wl. large Sh rotts with mor. Py 379774 (G), 5 (P)

gn vlc. 379780 (P)

Qtz. 379779 (P)

gy felsite 379781 (P), 2 (G)

bk vfr Yb 379778 (G), 9 (P)

Felsite 379789 (P)

Felsite vn & fine dss Py

Y. vlc (sooms rock) 379787 (P), 8 (G)

q mic Ss 379798 (G)

bk. vfr R + felsite

379785 (P), 6 (G) - vn & Py

cg. R por & cl sads

263311 (G) 263312 (G)

bk vfr Y. vlc

rd shd hoem vfr fp vn 379783 (P), 4 (G)

cl bk felsite + mor fg R vlc 379783 (P), 4 (G)

Southwell waterfall

highly shd mic Ss - Sh 379799 (G)

bd ch sample 379797 (G)

fg. gn R (int) 379796 (P)

cl Slt bk mic. Ss 379794 (P), 5 (G)

bd. dol Slt 379792 (P)

cl. t Vvlc Ss. dol

v. cg R Y b 379793 (P)

fg R (felsite) 379791 (P)

ridge

felsite chloritized 265013

Overhang waterfall

pk fd q. por R bk vfr mtx 379790 (P)

cg. fp q. por R bk vfr. mtx

R - porphyry URS

fg. R bk vfr. mtx

highly vns. T. B

Do

Do

Do

Do

F

F?

Sh

Sh

Sh

Sh

Sh

Sh

Cg

Cg

Cg - Sh

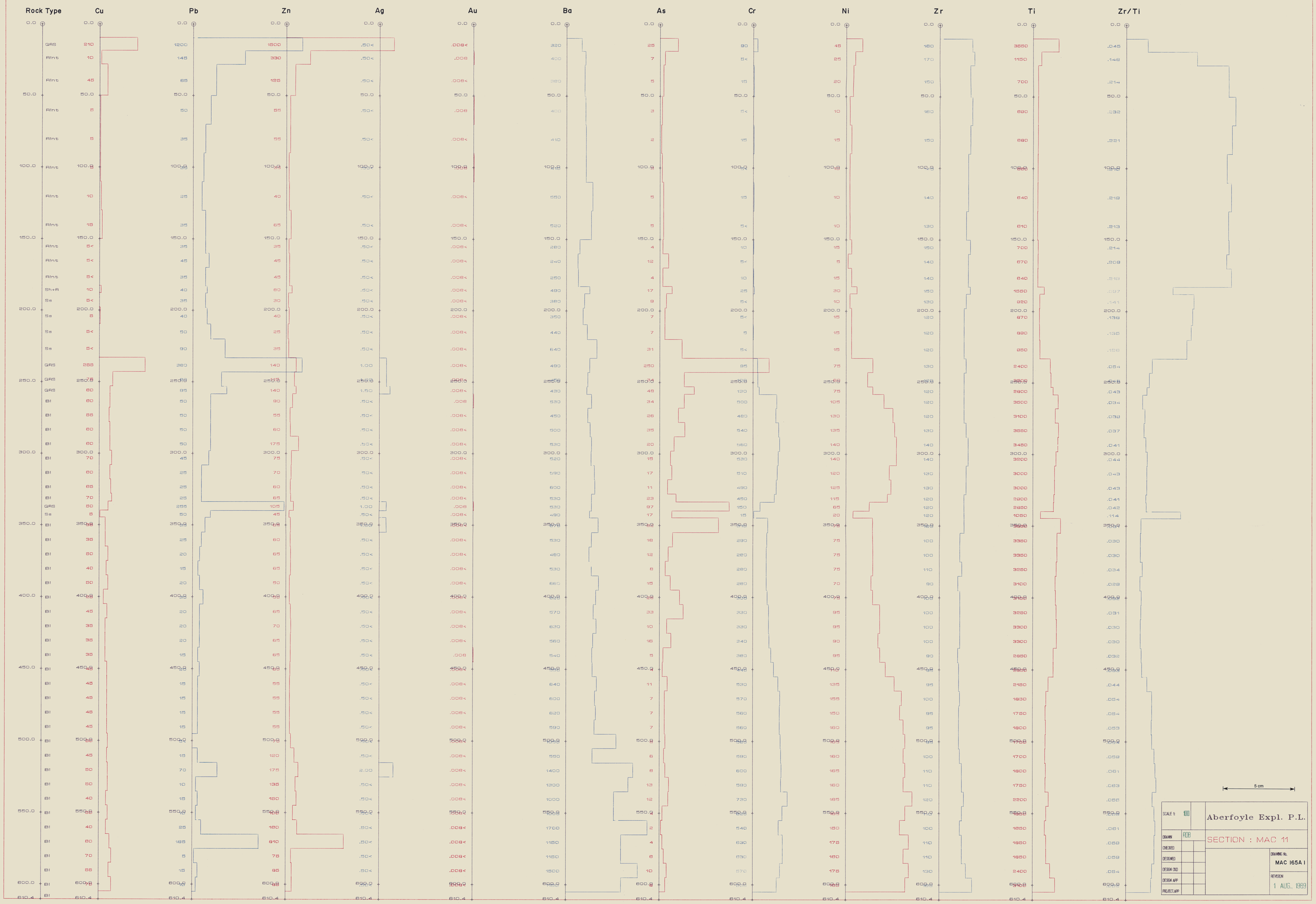
Sh

Sh

Sh

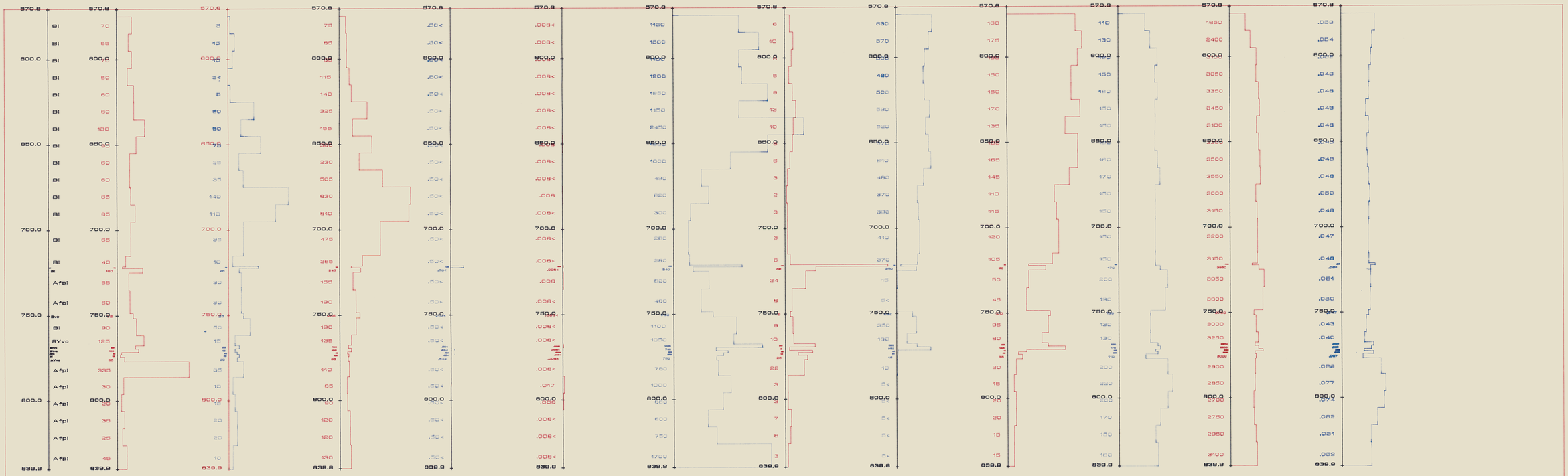
Sh

Sh



89-3006 593959

8627



5 cm

SCALE 1: 1000		Aberfoyle Expl. P.L.
DRAWN ADB		SECTION : MAC 11
CHECKED		
DESIGNED		DRAWING No. MAC 165 A2
DESIGN CKD		
DESIGN APP		REVISION 1 AUG., 1989
PROJECT APP		

89-3006
598960

8628

2 500E

5 000E

7 500E

13 000N

10 500N

8 000N

E.L. 15/73

E.L. 2/70

MURRAY's ROAD PROSPECT
- Mapping
- Costeaning
- UTEM

STORAGE DAM
- Mapping
- Rock Chip Geochemistry

HELLYER FACILLITIES

MILL SITE
- Mapping
- Diamond Drilling

SWITCHBACK
- Diamond Drilling

SOUTHWELL PROSPECT
- Mapping
- Soil Sampling
- Costeaning
- Ground Magnetics
- UTEM

GRIDDING

A	21200 N
B	14350 N
C	7500 N
D	0650 N
	6200 S

0650 W — 9400 E

5 cm

MURCHISON HIGHWAY

Proposed Cradle Mountain Link Road

H.E.C. Power Line

Hellyer Offices

Portal

Baker St.

Southwell Link

Southwell River

Que River

30M/84 · 88M/84 · 89M/84 · 86M/84 · 87M/84 · 109M/84 · CML 68M/84

MAC1 · MAC2 · MAC3 · MAC4 · MAC5 · MAC6 · MAC11 · HL80 · DA1 · DA2 · DA3 · DA4 · DA5 · HAT 3 · HAT 4 · HAT 5

Aberfoyle Resources Limited
EXPLORATION DIVISION

598961

REVISIONS			
Int	Date	Int	Date

NORTH WEST TASMANIA

MACKINTOSH E.L. 2/70

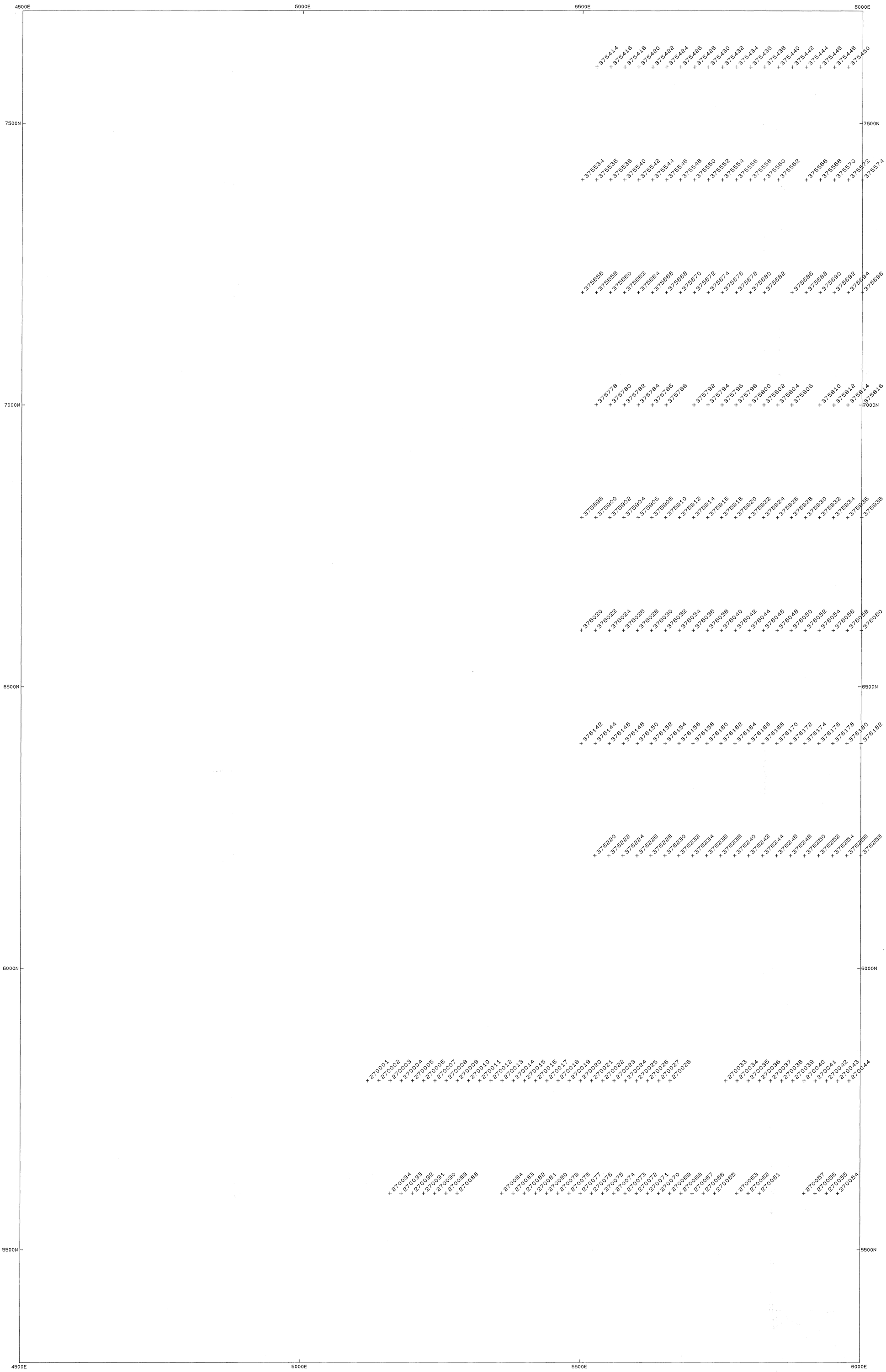
Exploration Activity 1986-1988

Compiled:	AMcN
Drawn:	AMcN
Traced:	JLR RJE
Checked:	AMcN
Plate No:	MAC249

Location Code K55/6/44 · Scale 1:10 000 · Date July, 1989

RMO 556

8630A



8630A

89-3006.

Legend:
+sample

Aberfoyle Resources Limited
EXPLORATION DIVISION

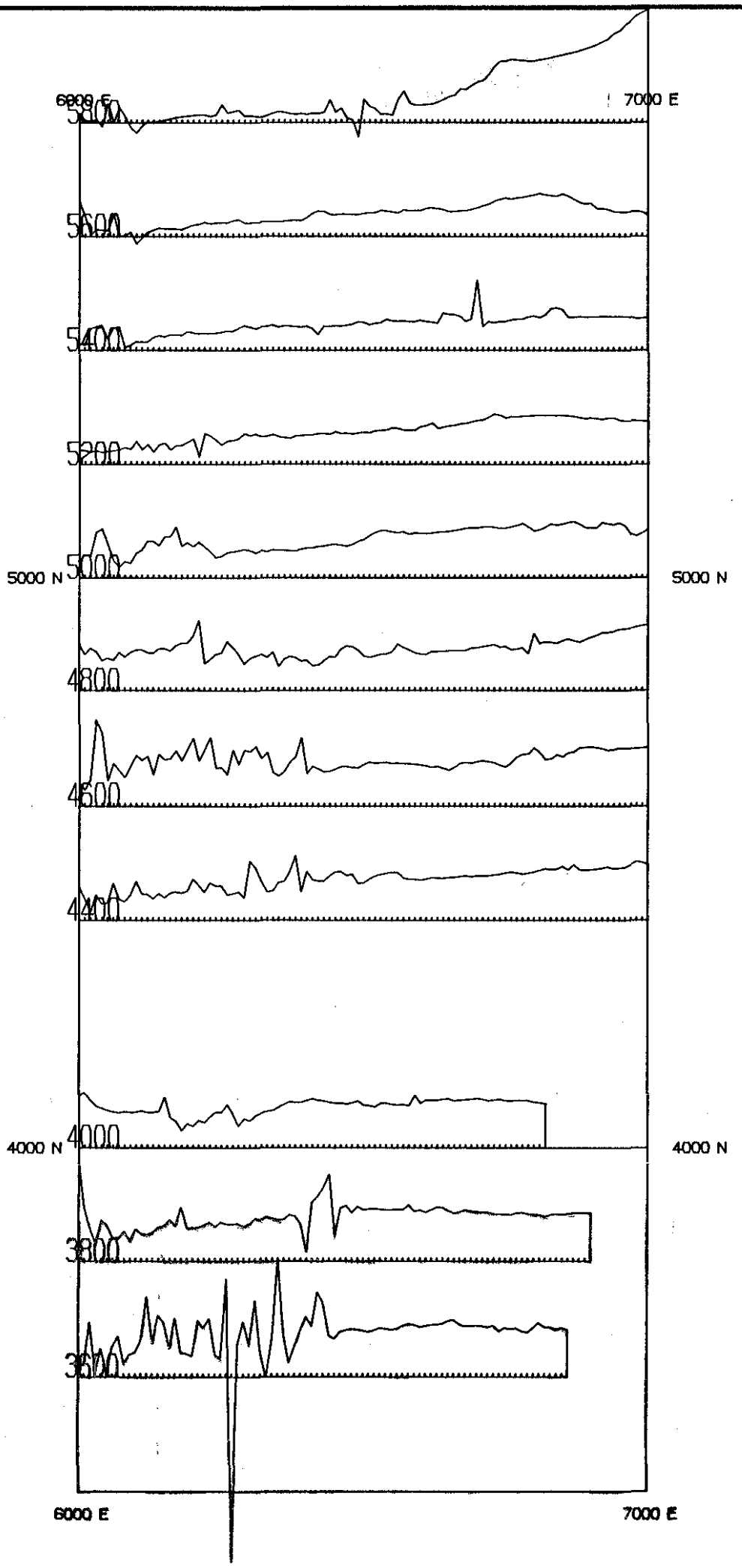
598962

REVISIONS			
Init.	Date	Init.	Date

TASMANIA
MACKINTOSH
SOIL SAMPLE LOCATIONS
~

Compiled:			
Drawn:			
Traced:			
Checked:			
Location Code: K55/6/44	Scale: 1 : 2500	Date: 18/06/90	Plate No.: MSC260AA

8630



VERTICAL SCALE 50 nT/cm
BASE LEVEL 100 nT

5 cm

200 0 200 400 600 metres

AUSTRALIAN MAP GRID

598963

89-3006

ABERFOYLE RESOURCES LIMITED

EXPLORATION DIVISION

REVISIONS			
Init.	Date	Init.	Date

TASMANIA

= ' '

MACKINTOSH EL - BARITE CREEK

GROUND MAGNETIC PROFILES

Location Code:

Scale:10000

Date: July, 1989

Compiled:

Drawn:

Traced:

Checked:

Plate No: MAC 250

8629

2500E

3000E

MAIN QUE RIVER SHAFT

4700E

Southwell link track

7400N

7500E

6600N

6000E

Sharks Fin track.

CML 68M/64

5800E

6400E

6000N

5500N

HAT 1

MC13

MC11

MC12

HAT 2

MC4

Barite Creek track

LAKE MACKINTOSH

5000N

MC1

MC3

MC2

MC7,8

MC5

Mt. Charter

MC6

BARITE CREEK PROSPECT
- Mapping
- Soil Sampling
- Ground Magnetics

4200N

H.E.C. Power Lines

MC10

MC9

HIGHWAY

MURCHISON

E.L. 2/70

4000N

6000E

3400N

6000E

E.L. 15/73

3000N

A 21200 N
B 14350 N
C 7500 N
D 0650 N
6200 S
0600 W
3400 W

5 cm

GRIDDING

Aberfoyle Resources Limited
EXPLORATION DIVISION

598964

REVISIONS			
Init	Date	Init	Date

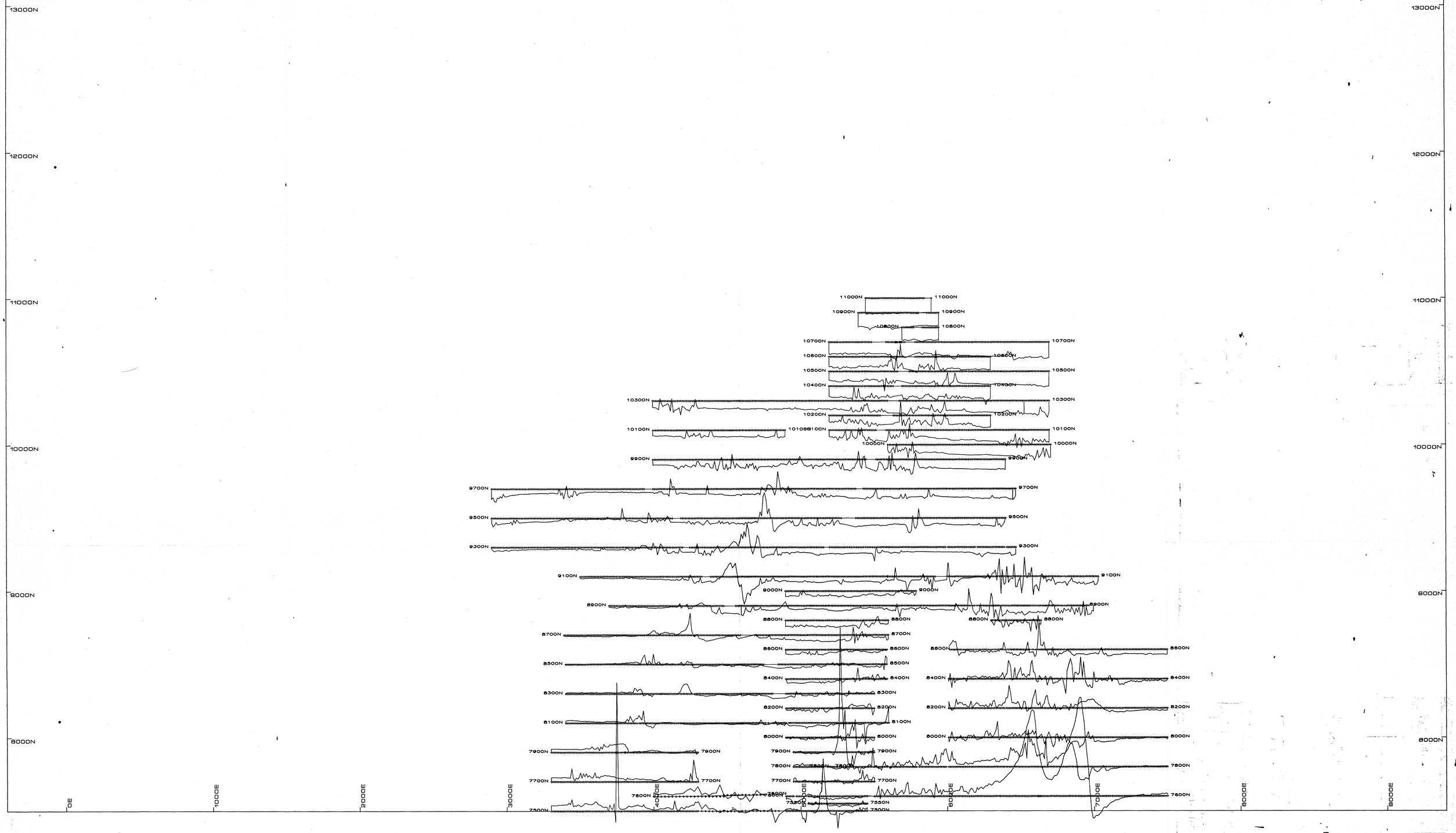
NORTH WEST TASMANIA
MACKINTOSH E.L. 2/70
Exploration Activity 1986-1988

Location Code K55/6/44 | Scale: 1:10 000 | Date: July, 1989

Compiled: AMcN
Drawn: AMcN
Traced: RJE
Checked: AMcN
Plate No: MAC 249C

RMO 556

8606



89-3006

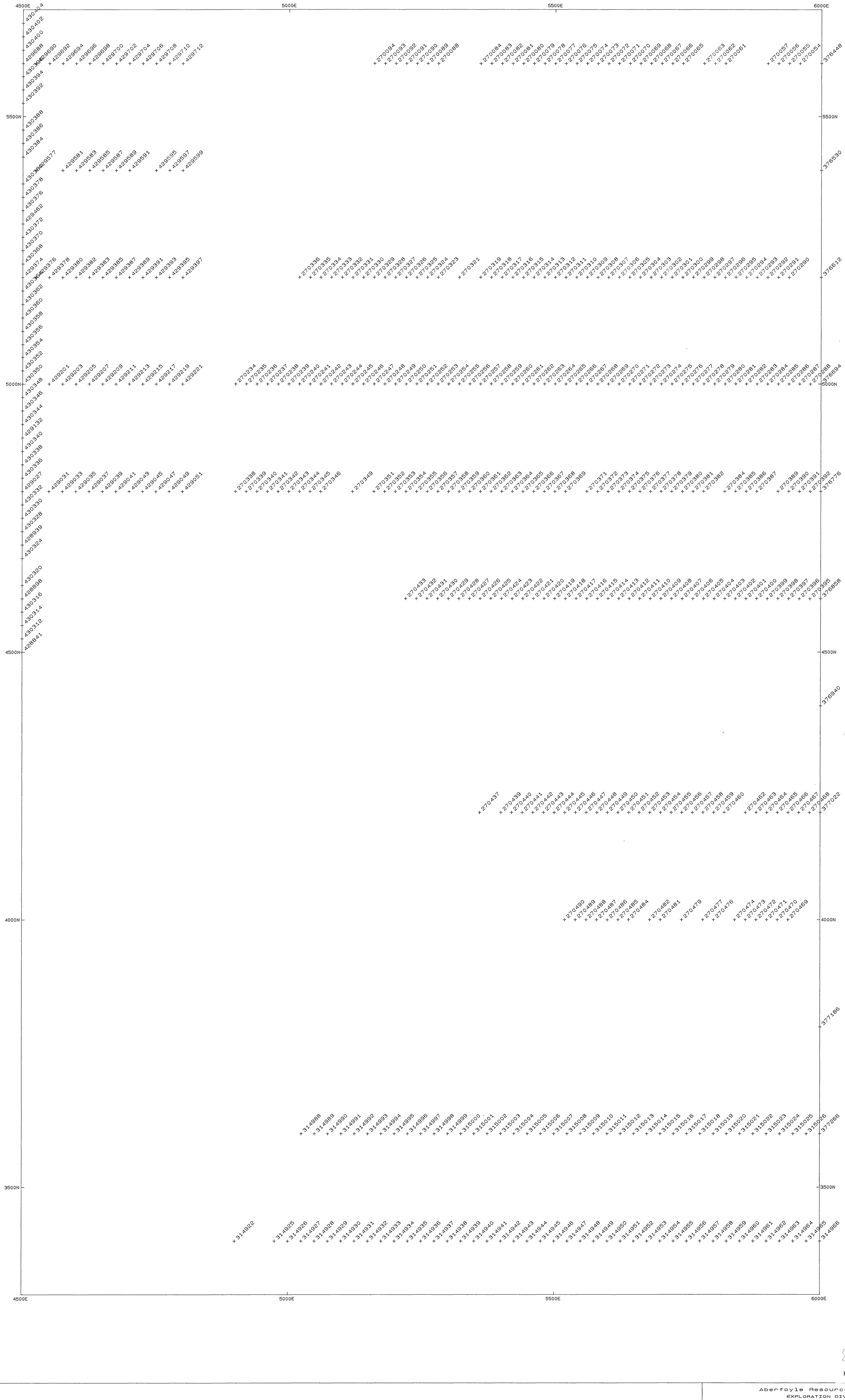
598965

Aberfoyle Resources

MACKINTOSH E.L.2/70
HATFIELD E.L.15/73
GROUND MAGNETICS
TOTAL FIELD PROFILES

ref:MAC 111B/E	1 : 10000.
drawn:rgp	base = 50nt
revised:	plate:
file:rmmhrp	22 JULY, 1986

S6306



8630B

5 cm

Legend:
+ sample

Aberfoyle Resources Limited
EXPLORATION DIVISION

598966

REVISIONS			
Init.	Date	Init.	Date

TASMANIA
MACKINTOSH
SOIL SAMPLE LOCATIONS
~

Compiled:
Drawn:
Traced:
Checked:

Location Code: K55/6/44 | Scale: 1 : 2500 | Date: 18/06/90 | Plate No.: RSC2600

89-3006.

86 30 C



86 30 C

5 cm

Legend:
+ sample

Aberfoyle Resources Limited
EXPLORATION DIVISION

REVISIONS			
Init.	Date	Init.	Date

TASMANIA
MACKINTOSH
SOIL SAMPLE LOCATIONS
~

Compiled:
Drawn:
Traced:
Checked:

Location Code: K55/6/44 | Scale: 1 : 2500 | Date: 18/06/90 | Plate No.: MSC250EE

593967 89-3006.

8630D



8630D

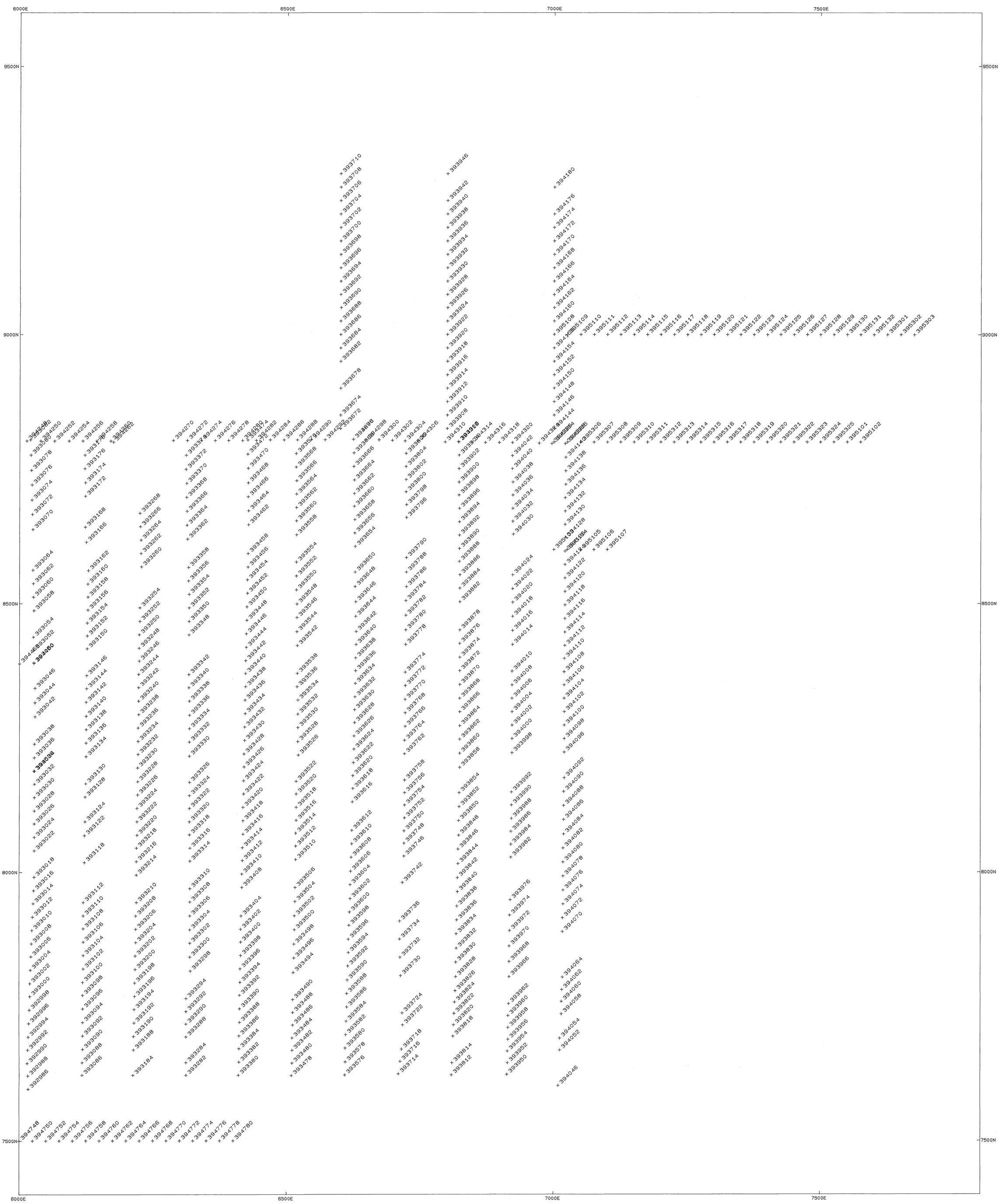
Legend:
+ sample

Aberfoyle Resources Limited 593968
EXPLORATION DIVISION

REVISIONS				TASMANIA	
Init.	Date	Init.	Date	MACKINTOSH	Compiled:
				SOIL SAMPLE LOCATIONS	Drawn:
				-	Traced:
					Checked:
Location Code: K55/6/44				Scale: 1 : 2500 Date: 18/06/90	Plate No.: RSC260FF

89-3006.

8630E



598969

8630E

5 cm

Aberfoyle Resources Limited
EXPLORATION DIVISION

REVISIONS			
Init.	Date	Init.	Date

TASMANIA
MACKINTOSH
SOIL SAMPLE LOCATIONS
~

Compiled:		
Drawn:		
Traced:		
Checked:		
Location Code: K55/6/44	Scale: 1 : 2500	Date: 18/06/90
Plate No.: Mac26089		

89-3006.

8630F



8630F

5 cm

Legend:
+ sample

Aberfoyle Resources Limited
EXPLORATION DIVISION

REVISIONS			
Init.	Date	Init.	Date

TASMANIA
MACKINTOSH
SOIL SAMPLE LOCATIONS
~

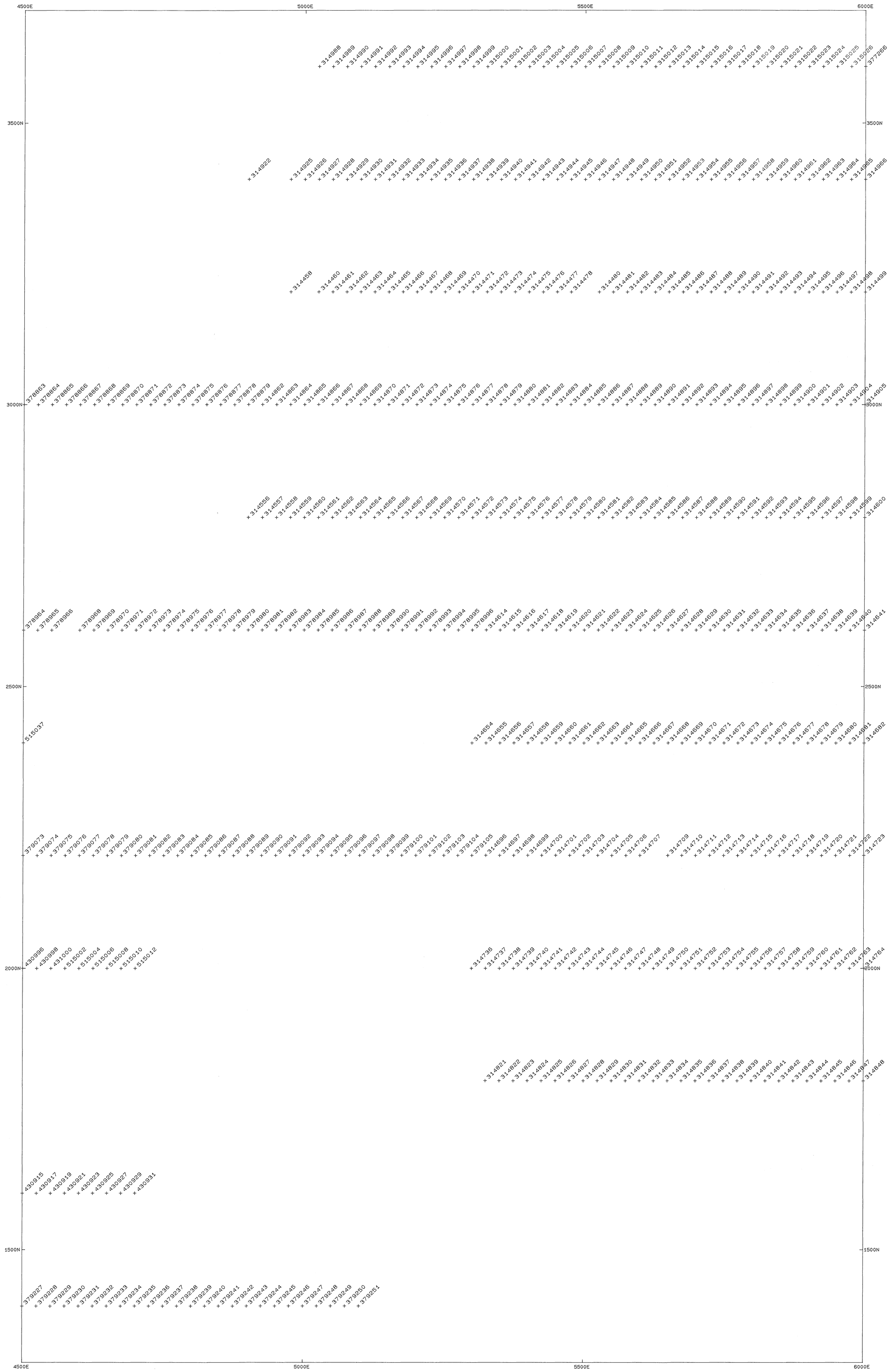
Compiled:
Drawn:
Traced:
Checked:

Location Code: K55/6/44 | Scale: 1 : 2500 | Date: 18/06/90 | Plate No.: MAC260KK

598970

89-3006.

8630G



598971

8630G

5 cm

Legend:
+ sample

Aberfoyle Resources Limited
EXPLORATION DIVISION

REVISIONS				TASMANIA	Compiled:
Init.	Date	Init.	Date	MACKINTOSH	Drawn:
				SOIL SAMPLE LOCATIONS	Traced:
				~	Checked:
Location Code: K55/6/44				Scale: 1 : 2500 Date: 18/06/90	Plate No.: BSC260LL

89-3006.

EXPLORATION LICENCE 2/70 MACKINTOSH

TASMANIA

TECHNICAL PROGRESS REPORT

FOR THE PERIOD

DECEMBER 1985 TO FEBRUARY 1988

VOLUME 5 - PLATES

598972

8587

5300 E | 5400 E | 5500 E | 5600 E | 5700 E | 5800 E | 5900 E | 6000 E | 6100 E | 6200 E

RL 700 | 600 | 500 | 400 | 300 | 200

0 500 1000 1500 ppm Zn

HL 30 | HL 25 (18m N) | HL 26 HL 11 (17m N) | HL 19 (7m N) | HL 18 (7m N) HL 24 (7m N) HL 28 (7m N) | HL 55 (0m) | HL 35 HL 31 (0m)

UES | QRS | PLS | HVS | FPS | BMS | STZ | SEZ | F | JACK FAULT | CROWN FAULT

5600 E — HL 25 (18m N)

31-2 (16m N) HL 25 E.O.H (Abandoned)

5700 E — HL 26A

23\ (19m S) HL 26A E.O.H

5800 E — HL 28

LEGEND

STRATIGRAPHY (See HEL 22 series) / ROCK TYPES (Shown West of hole path)

UPPER RHYOLITE SEQUENCE	URS	R, Y-F	Rhyolite ?
UPPER EPICLASTIC SEQUENCE	UES	Y-Sh, Sh	Acid epiclastic volcanic Black shale
QUE RIVER SHALE	QRS	Sh, Ss	Black shale Siltstone, sandstone
PILLOW LAVA SEQUENCE	PLS	A-Pl, A-L, A-B, Sh, A-Pl, Ch	Pillow lava Andesite lava Andesite breccia Black shale Dacite/rhyolite, contact rock
UPPER ANDESITE SEQUENCE	UAS	A-L, A-B, Y-Lt, Y-B	Andesite lava Andesite breccia Polymict lapilli tuff Polymict breccia
HANGINGWALL VOLCANICLASTICS	HVS	BMS, Ba, Tx, MPy, MCPy, To-Lt, PD-B, FP-L/B, A-L, PD-B, Y-E, Y-Lt, Y-B, A-Lt, Am-Lt, A-L, PD, PD-B, PD, O-Brl, HA	Base metal sulphides Barite rich mineralization Tetrahedrite mineralization Massive pyrite Massive chalcopyrite Polymict lapilli tuff with pumice Porphyritic dacite tuff/breccia Feldspar phyric trachyte lava/breccia Andesite lava Porphyritic dacite tuff/breccia Polymict epiclastic Polymict lapilli tuff Polymict breccia Andesitic lapilli tuff Matrix dominated andesitic tuff Andesite lava Porphyritic dacite intrusive Porphyritic dacite tuff/breccia Dacite breccia Highly altered rock
MAIN ORE POSITION	MOP		
FOOTWALL VOLCANICLASTICS	FVS		
FELDSPAR PHYRIC SEQUENCE	FPS		
LOWER EPICLASTIC SEQUENCE	LES		
LOWER ANDESITIC TUFF SEQUENCE	LAS		
DACITE VENT UNIT	DVU		
STRINGER ZONE	STZ		

(Numbers shown are Derwent pencil colours)

ALTERATION (Shown East of hole path)

Intensity: 1. very weak (not shown) — 5. intense

FAULTS (Shown East of hole path)

MINERALIZATION TEXTURE (Shown West of hole path)

Bn Banded; Ds Disseminated; Fr Fragmented; Mz Massive; Po Porous; Rx Re-crystallized; Sh Sheared; Ss Shrinkage Shadows; Vn Veins

Mineralization texture: 0-5% (Pb + Zn); 5-10; 10-20; 20-40; > 40

Pb + Zn GRADES

Ag GRADES

SCALE 1:1000

5 cm

598973

89-3006

Aberfoyle Exploration Pty Ltd

REVISIONS				
Init	Date	Init	Date	
GLC	11-2-85			
GLC	15-2-85			
EUM	17-4-85			

NORTH WEST TASMANIA

MACKINTOSH DISTRICT

HELLYER CORE GRINDS – Zn

CROSS SECTION 10900N

Compiled	G.J.McA
Drawn	ASTEC
Traced	GLC
Checked	GJMcA
Plate No	HEL103/Zn
Location Code	K55/6/44
Scale	1:1000
Date	January, 1988

RMC 55

8588

5300 E 5400 E 5500 E 5600 E 5700 E 5800 E 5900 E 6000 E 6100 E 6200 E

RL 700 600 500 400 300 200

HL 30 (0m) HL 25 (18m N) HL 26 (17m N) HL 11 HL 19 (1m N) HL 18 (1m N) HL 24 (1m N) HL 28 (1m N) HL 55 (0m) HL 35 (1m N) HL 31 (0m)

UES QRS PLS FPS HVS BMS STZ SEZ JACK FAULT F

31 2 (16m N) HL 25 E.O.H (Abandoned) See inset for details

HL 25 (18m N) 31 2 (16m N) HL 25 E.O.H (Abandoned)

HL 26A 231 (19m S) 256 9 (13m S) HL 26A E.O.H

HL 28 250 (8m S) 266 05 300 (10m S) 342 0 350 (15m S)

0 25 50 100 ppm

LEGEND

STRATIGRAPHY (See HEL 22 series)

			ROCK TYPES (Shown West of hole path)
UPPER RHYOLITE SEQUENCE	URS	Y-E 24 65	Rhyolite
UPPER EPICLASTIC SEQUENCE	UES	Y-E 65 Sh 65	Acid "epiclastic" volcanic Black shale
QUE RIVER SHALE	QRS	Sh 66 Ss 66	Black shale Siltstone, sandstone
PILLOW LAVA SEQUENCE	PLS	A-Pl 50 A-L 48 A-B 42 Sh 66 A-Pl-Sh 50 50-66	Pillow lava Andesite lava Andesite breccia Black shale Peperite contact rock
UPPER ANDESITE SEQUENCE	UAS	A-L 48 A-B 42	Andesite lava Andesite breccia
HANGINGWALL VOLCANICLASTICS	HVS	Y-Lt 56 Y-B 58	Polymict lapilli tuff Polymict breccia
MAIN ORE POSITION	MOP	BMS 80 Tx 83 MPy 78 MCPy 74	Base metal sulphides Barite rich mineralization Tetrahedrite mineralization Massive pyrite Massive chalcopyrite
FOOTWALL VOLCANICLASTICS	FVS	Yp-Lt 64 PD-B 66	Polymict lapilli tuff with pumice Porphyritic dacite tuff/breccia
FELDSPAR PHYRIC SEQUENCE	FPS	FP-Lt/B 70 A-L 68 PD-B 70	Feldspar phyric trachyte lava/ breccia Andesite lava Porphyritic dacite tuff/breccia
LOWER EPICLASTIC SEQUENCE	LES	Y-E 52 Y-Lt 56 Y-B 58	Polymict epiclastic Polymict lapilli tuff Polymict breccia
LOWER ANDESITIC TUFF SEQUENCE	LAS	A-Lt 46 Am-Lt 46 A-L 48	Andesitic lapilli tuff Matrix dominated andesitic tuff Andesite lava
DACITE VENT UNIT	DVU	PD 0 PD-B 0 D-B/Lt 0	Porphyritic dacite intrusives Porphyritic dacite tuff/breccia Dacite breccia
STRINGER ZONE	STZ	HA 0	Highly altered rock

(Numbers shown are Derwent pencil colours)

ALTERATION (Shown East of hole path)

Si 2	Silica
Si-K 3	Silica - Kaolin
Si-K-Py-Cl 14	Silica-K. Feldspar-Pyrite-Chlorite
Se 58	Sericite
Se-Py 59	Sericite-Pyrite
C 47	Chlorite
CHO 4	Chlorite (Ophiolite)
Fu 46	Fuchsite

Intensity 1. very weak (not shown) — 5. intense

FAULTS (Shown East of hole path)

Bx Barite
Br Brecciation
C Chlorite
Cb Carbonate
Cc Chalcopyrite
Cv Covellinite
Ep Epidote
Fu Fuchsite
Gn Galena
Lx Leached
Ox Oxidised
Py Pyrite
Rh Rehealed
Rb Rubble
Sh Sheared
Sv Quartz
Sl Slickensided
Sp Sphalerite

MINERALIZATION TEXTURE (Shown West of hole path)

Bn Banded
Ds Disseminated
Fr Fragmented
Ma Massive
Po Porous
Rx Re-crystallized
Sh Sheared
Ss Shrinkage Shadows
Vn Veins

Pb + Zn GRADES: 0.5% (Pb + Zn); 4-10; 10-20; 20-40; > 40

Ag GRADES: 5-10 g/t Ag; 10-20; 20-40; 40-80; > 80

HL 17 — Shown West of hole path — Shown East of hole path

SCALE 1:1000

5 cm

598974 **89-3006**

Aberfoyle Exploration Pty Ltd

REVISIONS				
Init.	Rev.	Date		
GLC	1)	2.85		
GLC	2)	2.85		
EUM	3)	4.85		

NORTH WEST TASMANIA
MACKINTOSH DISTRICT
HELLYER CORE GRINDS - As
CROSS SECTION 10900N

Location Code K55/6/44 | Scale 1:1000 | Date January, 1988

Compiled GJ McA | Drawn ASTEC | Traced GLC | Checked GJ McA | Plate No HEL103/As

8589

5300 E | 5400 E | 5500 E | 5600 E | 5700 E | 5800 E | 5900 E | 6000 E | 6100 E | 6200 E

RL 700 | 600 | 500 | 400 | 300 | 200

HL 30 (0m) | HL 25 (18m N) | HL 26 (18m N) | HL 11 (17m N) | HL 19 (1m N) | HL 18 (1m N) | HL 24 (1m N) | HL 28 (1m N) | HL 55 (0m N) | HL 35 (1m N) | HL 31 (0m)

UES | QRS | PLS | HVS | FPS | BMS | STZ | SEZ

JACK FAULT | F | Fragment of 'CROWN'

HL 25 (18m N) — 5600 E — 31 2 (18m N) HL 25 E.O.H. (Abandoned)

HL 26A — 5700 E — 231 (9m S) — 255.9 (13m S) HL 26A E.O.H.

HL 28 — 5800E — 250 (8m S) — 266.05 — 300 (2m S) — 342.0 — 350 (10m S)

31 2 (16m N) HL 25 E.O.H. (Abandoned) See inset for details

HL 25 E (5m N) HL 26 E.O.H. (See also HL 26A)

HL 26 E (5m N) HL 26 E.O.H. (See also HL 26A)

HL 19 E.O.H. | HL 18 E.O.H. | HL 24 E.O.H. | HL 55 E.O.H. | HL 35 E.O.H. | HL 31 E.O.H.

STRATIGRAPHY (See HEL 22 series) / ROCK TYPES (Shown West of hole path)

STRATIGRAPHY		ROCK TYPES	
UPPER RHYOLITE SEQUENCE	URS	R 26	Rhyolite
		Y-E 65	Acid "epiclastic" volcanic
UPPER EPICLASTIC SEQUENCE	UES	Y-E 65	Acid "epiclastic" volcanic
		Sh 66	Black shale
QUE RIVER SHALE	QRS	Sh 66	Black shale
		Ss 63	Siltstone, sandstone
PILLOW LAVA SEQUENCE	PLS	A-PL 50	Pillow lava
		A-L 48	Andesite lava
		A-B 42	Andesite breccia
		Sh 66	Black shale
		A-PL/Ch 50/66	Peperite contact rock
UPPER ANDESITE SEQUENCE	UAS	A-L 48	Andesite lava
		A-B 42	Andesite breccia
HANGINGWALL VOLCANICLASTICS	HVS	Y-Lt 58	Polymict lapilli tuff
		Y-B 60	Polymict breccia
MAIN ORE POSITION	MOP	BMS 21	Base metal sulphides
		Ba 22	Barite rich mineralization
		Te 23	Tetrahedrite mineralization
		MPy 28	Massive pyrite
		MCPy 21	Massive chalcopyrite
FOOTWALL VOLCANICLASTICS	FVS	Y-Lt 64	Polymict lapilli tuff with pumice
		PD-B 64	Porphyritic dacite tuff/breccia
FELDSPAR PHYRIC SEQUENCE	FPS	FP-L/B 70	Feldspar phyric trachyte lava breccia
		A-L 48	Andesite lava
		PD-B 70	Porphyritic dacite tuff/breccia
LOWER EPICLASTIC SEQUENCE	LES	Y-E 52	Polymict epiclastic
		Y-Lt 58	Polymict lapilli tuff
		Y-B 60	Polymict breccia
LOWER ANDESITIC TUFF SEQUENCE	LAS	A-Lt 48	Andesitic lapilli tuff
		Am-Lt 48	Matrix dominated andesitic tuff
		A-L 48	Andesite lava
DACITE VENT UNIT	DVU	PD 18	Porphyritic dacite intrusive
		PD-B 64	Porphyritic dacite tuff/breccia
		D-B/Lt 18 64	Dacite breccia
STRINGER ZONE	STZ	HA 6	Highly altered rock

(Numbers shown are Derwent pencil colours)

ALTERATION (Shown East of hole path)

Si 2	Silica
SiKF 13	Pink Silica / K-Feldspar
SiKFPyCl 14	Silica / K-Feldspar / Pyrite / Chlorite
Se 36	Sericite
SePy 35	Sericite / Pyrite
Cl 43	Chlorite
ClCb 41	Chlorite / Carbonate
Fu 44	Fuchsite

Intensity: 1. very weak (not shown) — 5. intense

FAULTS (Shown East of hole path)

Ba	Barite
Br	Brecciated
C	Chlorite
Cb	Carbonate
Cp	Chalcopyrite
Cv	Cavernous
Ep	Epidote
Fu	Fuchsite
Gn	Galena
Lh	Leached
Ox	Oxidised
Py	Pyrite
Rh	Rehealed
Ru	Rubble
Sh	Sheared
Si	Quartz
Sl	Slickensided
Sp	Sphalerite

MINERALIZATION TEXTURE (Shown West of hole path)

Bn	Banded
Ds	Disseminated
Fr	Fragmented
Ma	Massive
Po	Porous
Re	Re-crystallized
Sh	Sheared
Sz	Shrinkage Shadows
Vn	Veins

LEGEND

HL 17 — Drill hole location with hole number and projection N or S of section

Down hole fiducial with distance N or S to nearest metre

Shown West of hole path — Shown East of hole path

Core axis angle / gouge (Centipede = cm (mm) proportional to gouge thickness)

Fault zone

Distance in metres E.O.H. with projection N or S of section

SCALE 1:1000 — 50 — metres

Pb + Zn GRADES: 0-5% (Pb + Zn) | 5-10 | 10-20 | 20-40 | > 40 (Mineralization Texture)

Ag GRADES: 0-50 g/t Ag | 50-100 | 100-200 | 200-400 | > 400 (Mineralization Texture)

5 cm

598975

89-3006

Aberfoyle Exploration Pty Ltd

REVISIONS				
Init	Dwn	Init	Date	
GLC	11.2.88			
GLC	10.2.88			
EJM	17-6-88			

NORTH WEST TASMANIA

MACKINTOSH DISTRICT

HELLYER CORE GRINDS - Hg

CROSS SECTION 10900N

Compiled	G.J.McA
Drawn	ASTEC
Traced	GLC
Checked	G.J.McA

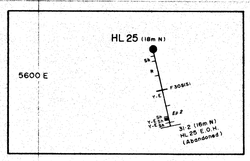
Location Code K55/6/44 | Scale 1:1000 | Date January, 1988 | Plate No HEL 103 / Hg

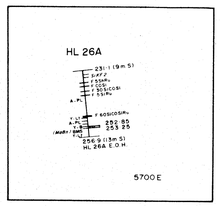
RMC 5.88

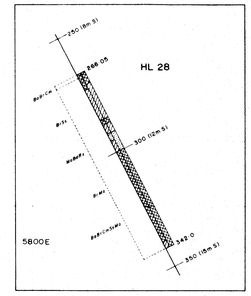
8586

5300 E | 5400 E | 5500 E | 5600 E | 5700 E | 5800 E | 5900 E | 6000 E | 6100 E | 6200 E

RL 700 | 600 | 500 | 400 | 300 | 200







STRATIGRAPHY (See HEL 20 series) — ROCK TYPES (Shown West of hole path)

UPPER RHYOLITE SEQUENCE	URS	R-F 26	R-F 65	Rhyolite; Acid "epiclastic" volcanic
UPPER EPICLASTIC SEQUENCE	UES	Y-E 65	Sh 68	Acid "epiclastic" volcanic; Black shale
QUE RIVER SHALE	QRS	Sh 68	Ss 69	Black shale; Siltstone, sandstone
PILLOW LAVA SEQUENCE	PLS	A-Pl 50	A-L 48	Pillow lava; Andesite lava
		A-L 48	A-B 42	Andesite lava; Andesite breccia
		Sh 68	APL/Dr 50/68	Black shale; Peperite, contact rock
UPPER ANDESITE SEQUENCE	UAS	A-L 48	A-B 42	Andesite lava; Andesite breccia
HANGINGWALL VOLCANICLASTICS	HVS	Y-Lt 58	Y-B 60	Polymict lapilli tuff; Polymict breccia
MAIN ORE POSITION	MOP	BMS 21	Bo 22	Base metal sulphides; Bornite rich mineralization
		Te 23	MPy 29	Tetrahedrite mineralization; Massive pyrite
		MCPy 9		Massive chalcopyrite
FOOTWALL VOLCANICLASTICS	FVS	Yp-Lt 64	PD-B 7	Polymict lapilli tuff with pumice; Porphyritic dacite tuff / breccia
FELDSPAR PHYRIC SEQUENCE	FPS	FP-L 70	A-L 48	Feldspar phyric trachyte lava breccia; Andesite lava
		PD-B 70		Porphyritic dacite tuff / breccia
LOWER EPICLASTIC SEQUENCE	LES	Y-E 52	Y-Lt 58	Polymict epiclastic; Polymict lapilli tuff
		Y-B 60	A-Lt 44	Polymict breccia; Andesitic lapilli tuff
LOWER ANDESITIC TUFF SEQUENCE	LAS	Am-Lt 45	A-L 48	Matrix dominated andesitic tuff; Andesite lava
		PD 48		Porphyritic dacite intrusive
DACITE VENT UNIT	DVU	PD-B 48	D-B/Lt 42	Porphyritic dacite tuff / breccia; Dacite breccia
STRINGER ZONE	STZ	HA 4		Highly silicified rock

(Numbers shown are Derwent pencil colours)

LEGEND

ALTERATION (Shown East of hole path)

Si	2	Silica
Sik-F	1	Fine Silica & Feldspar
Sik-FpCl	4	Silica / K-Feldspar - Pyrite - Chlorite
Se	36	Sericite
SeFp	39	Sericite / Pyrite
Cl	47	Chlorite
Ch-Cb	41	Chlorite / Carbonate
Fu	44	Fuchsite

Intensity 1. very weak (not shown) — 5. intense

FAULTS (Shown East of hole path)

Bn Barite; Ch Chlorite; Cp Chalcopyrite; Cv Covellite; Ep Epidote; Fu Fuchsite; Gn Galena; Lx Leached; Ox Oxidised; Py Pyrite; Rh Rehealed; Ru Rutile; Sh Sheared; Si Silicified; Sl Slickensided; Sp Sphalerite

MINERALIZATION TEXTURE (Shown West of hole path)

Bn Banded; Ds Disseminated; Fr Fragmented; Mo Massive; Po Porous; Rx Re-crystallized; Sh Sheared; Sv Shrinkage Shadows; Vn Veins

Pb + Zn GRADES: 0-5% (Pb+Zn); 5-10; 10-20; 20-40; >40

Ag GRADES: <50 g/t Ag; 50-100; 100-200; 200-400; >400

HL 17 — Hole location with hole number and elevation of collar R.L. of section

Drill hole traced with projection R.L. of nearest metre

Shown West of hole path

Shown East of hole path

Core axis angle - azimuth (Trend of drill projection on plane of section)

Fault Zone

Distance in metres (+ hanging wall, - footwall)

SCALE 1:1000

5 cm

598976 **89-3006**

Aberfoyle Exploration Pty Ltd

REVISIONS			
Init.	Date	Init.	Date
GLC	11-2-85		
GLC	15-2-85		
EUM	17-4-85		

NORTH WEST TASMANIA
MACKINTOSH DISTRICT
HELLYER CORE GRINDS - Pb
CROSS SECTION 10900N

Location Code: K55/6/44 | Scale: 1:1000 | Date: January, 1988

Compiled: GJMcA | Drawn: ASTEC | Traced: GLC | Checked: GJMcA | Plate No: HEL 103/Pb

RMC 54

8590

5300 E 5400 E 5500 E 5600 E 5700 E 5800 E 5900 E 6000 E 6100 E 6200 E

RL 700 600 500 400 300 200

HL 25 (18m N)
5600 E
3i 2 (18m N) HL 25 E.O.H. (Abandoned)

HL 26A
231.1 (9m S)
255.9 (13m S) HL 26A E.O.H.
5700 E

HL 28
5800E
350 (8m S)
342.0 (8m S) HL 28 E.O.H.

0 1000 2000 3000 ppm Ba

HL 30 (0m) HL 25 (18m N) HL 26 (18m N) HL 11 (17m N) HL 19 (11m N) HL 18 (11m N) HL 24 (11m N) HL 28 (11m N) HL 55 (0m) HL 35 (0m) HL 31 (0m)

UES QRS PLS FPS HVS BMS SEZ STZ

JACK FAULT

3i 2 (18m N) HL 25 E.O.H. (Abandoned) See inset for details

331.6 (15m S) HL 19 E.O.H.

295.5 (19m N) HL 24 E.O.H. (See also HL 26A)

374.6 (7m S) HL 18 E.O.H.

484.4 (13m S) HL 30 E.O.H.

342.4 (15m S) HL 24 E.O.H.

342.0 (8m N) HL 28 E.O.H.

384.3 (15m S) HL 55 E.O.H.

430.9 (12m S) HL 31 E.O.H.

STRATIGRAPHY (See HEL 22 series)

		ROCK TYPES (Shown West of hole path)
UPPER RHYOLITE SEQUENCE	URS	Rhyolite; Acid "epiclastic" volcanic
UPPER EPICLASTIC SEQUENCE	UES	Acid "epiclastic" volcanic; Black shale
QUE RIVER SHALE	QRS	Black shale; Siltstone, sandstone
PILLOW LAVA SEQUENCE	PLS	Pillow lava; Andesite lava; Andesite breccia; Black shale; Peperite contact rock
UPPER ANDESITE SEQUENCE	UAS	Andesite lava; Andesite breccia
HANGINGWALL VOLCANICLASTICS	HVS	Polymict lapilli tuff; Polymict breccia
MAIN ORE POSITION	MOP	Base metal sulphides; Barite rich mineralization; Tetrasulphide mineralization; Massive pyrite; Massive chalcopyrite
FOOTWALL VOLCANICLASTICS	FVS	Polymict lapilli tuff with pumice; Porphyritic dacite tuff/breccia
FELDSPAR PHYRIC SEQUENCE	FPS	Feldspar phyric trachyte lava breccia; Andesite lava; Porphyritic dacite tuff/breccia
LOWER EPICLASTIC SEQUENCE	LES	Polymict epiclastic; Polymict lapilli tuff; Polymict breccia
LOWER ANDESITIC TUFF SEQUENCE	LAS	Andesitic lapilli tuff; Matrix dominated andesitic tuff; Andesite lava
DACITE VENT UNIT	DVU	Porphyritic dacite intrusive; Porphyritic dacite tuff/breccia; Dacite breccia
STRINGER ZONE	STZ	Highly siliceous rock

(Numbers shown are Derwent pencil colours)

ALTERATION (Shown East of hole path)

Si	Silica
SiKf	Pink Silica / K-Feldspar
SiKfPyCl	Silica / K-Feldspar / Pyrite / Chlorite
Se	Sericite
SePy	Sericite / Pyrite
Cl	Chlorite
ClCb	Chlorite / Carbonate
Fu	Fuchsite

Intensity: 1. very weak (not shown) — 5. intense

FAULTS (Shown East of hole path)

Ba	Barite
Br	Brecciated
Cl	Chlorite
Cb	Carbonate
Cp	Chalcopyrite
Cv	Cavernous
Ep	Epidote
Fu	Fuchsite
Gn	Galena
Lh	Leached
Ox	Oxidised
Py	Pyrite
Rh	Rehealed
Ru	Rubble
Sh	Sheared
Sr	Quartz
Sl	Slickensided
Sp	Sphalerite

MINERALIZATION TEXTURE (Shown West of hole path)

Bn	Banded
Ds	Disseminated
Fr	Fragmented
Ma	Massive
Po	Porous
Rx	Re-crystallized
Sh	Sheared
Sd	Shrinkage Shadows
Ve	Veins

LEGEND

HL 17 — Collar location with hole number and projection N or S of section

Down hole fiducial with projection N or S, to nearest metre

Shown West of hole path — Shown East of hole path

Core axis angle / gouge (Downhole = dth (m) proportional to line thickness)

Fault zone

Distance in metres E.O.H. with projection N or S of section

SCALE 1:1000

50 0 50 metres

Pb + Zn GRADES: 0-5% (Pb + Zn); 5-10; 10-20; 20-40; > 40

Ag GRADES: 0-50 g/t Ag; 50-100; 100-200; 200-400; > 400

Mineralization texture

5 cm

89-3006

598977

Aberfoyle Exploration Pty Ltd

REVISIONS			
Init	Date	Init	Date
GLC	11-2-88		
GLC	5-2-88		
EUM	17-4-86		

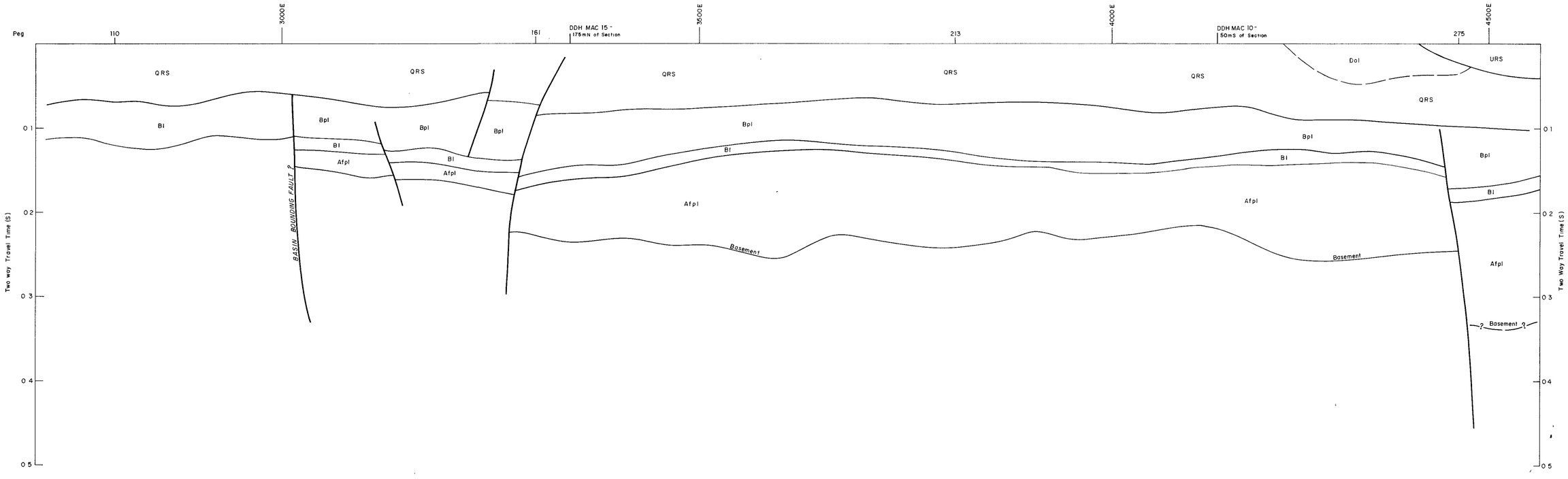
NORTH WEST TASMANIA
MACKINTOSH DISTRICT
HELLYER CORE GRINDS - Ba
CROSS SECTION 10900N

Location Code K55/6/44 | Scale 1:1000 | Date January, 1988

Compiled GJMcA
Drawn ASTEC
Traced GLC
Checked GJMcA
Plate No. HEL 103 / Ba

RMO 5/86

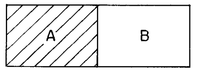
8591



LEGEND

Dol	Dolerite
URS	Upper Rhyolite Sequence
QRS	Que River Shale
Bpl	Basalt sheet lava and pillow lava
Bl	Volcaniclastics and basalt lava
Afpl	Andesite feldspar phyric lava

SHEET INDEX



5 cm

89-3006

Aberfoyle Resources Limited 598973
EXPLORATION DIVISION

REVISIONS			
Init	Date	Init	Date

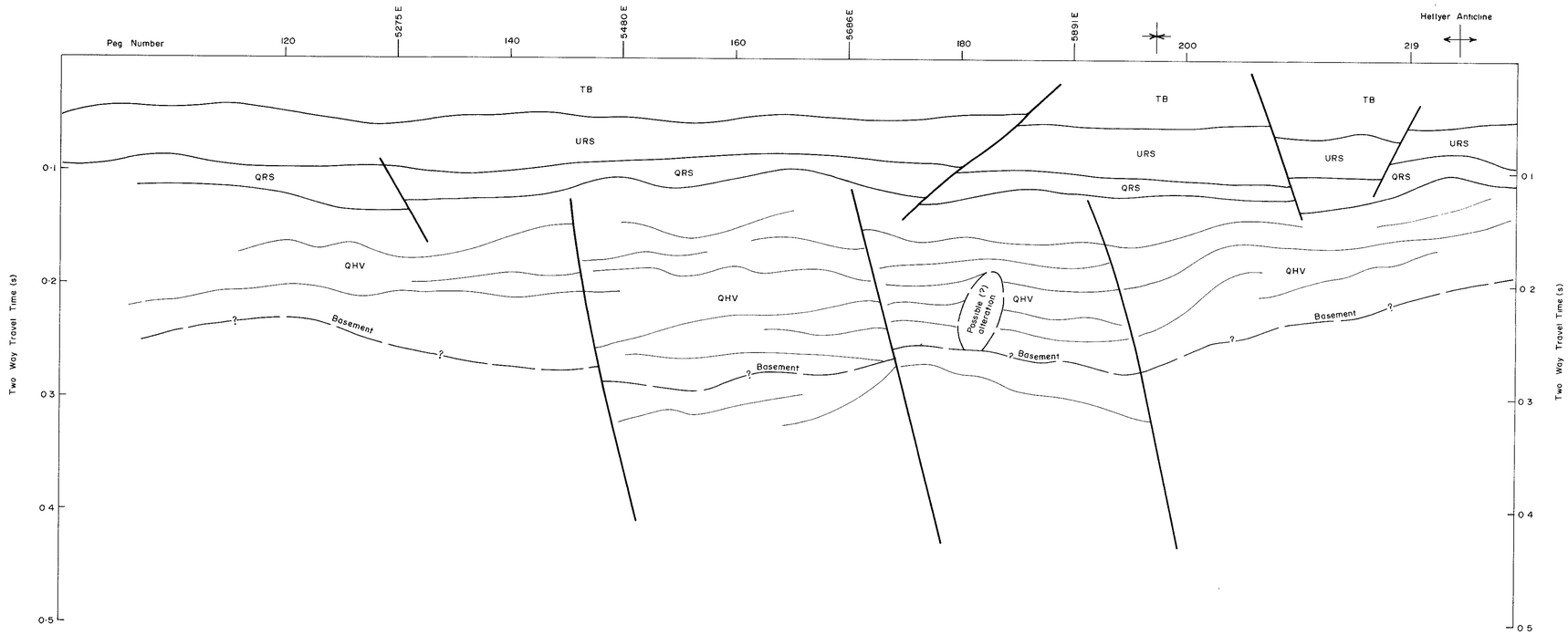
NORTH WEST TASMANIA

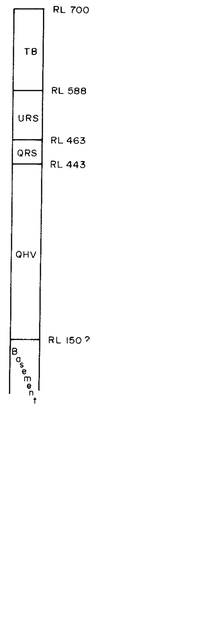
MACKINTOSH EL 106/87

HELLYER SEISMIC INTERPRETATION
LINE 10600N WEST

Location Code	K55/3
Scale	1 - 2500 (vertical)
Date	Aug 1988
Compiled	JJR
Drawn	JJR
Traced	Geo Drafting
Checked	GLC
Plate No	HEL 108A

8593





LEGEND

TB	Tertiary Basalt
URS	Upper Rhyolite Sequence
QRS	Que River Shale
QHV	Que – Hellyer Volcanics

Seismic Velocities

TB	= 4500 ms^{-1}
URS	= 5000 ms^{-1}
QRS	= 4500 ms^{-1}
QHV	= 5500 ms^{-1}

Horizontal Scale

0 — 300

Metres

5cm

89-3006

598979

Aberfoyle Resources Limited
EXPLORATION DIVISION

REVISIONS			
Init	Date	Init	Date

NORTH WEST TASMANIA

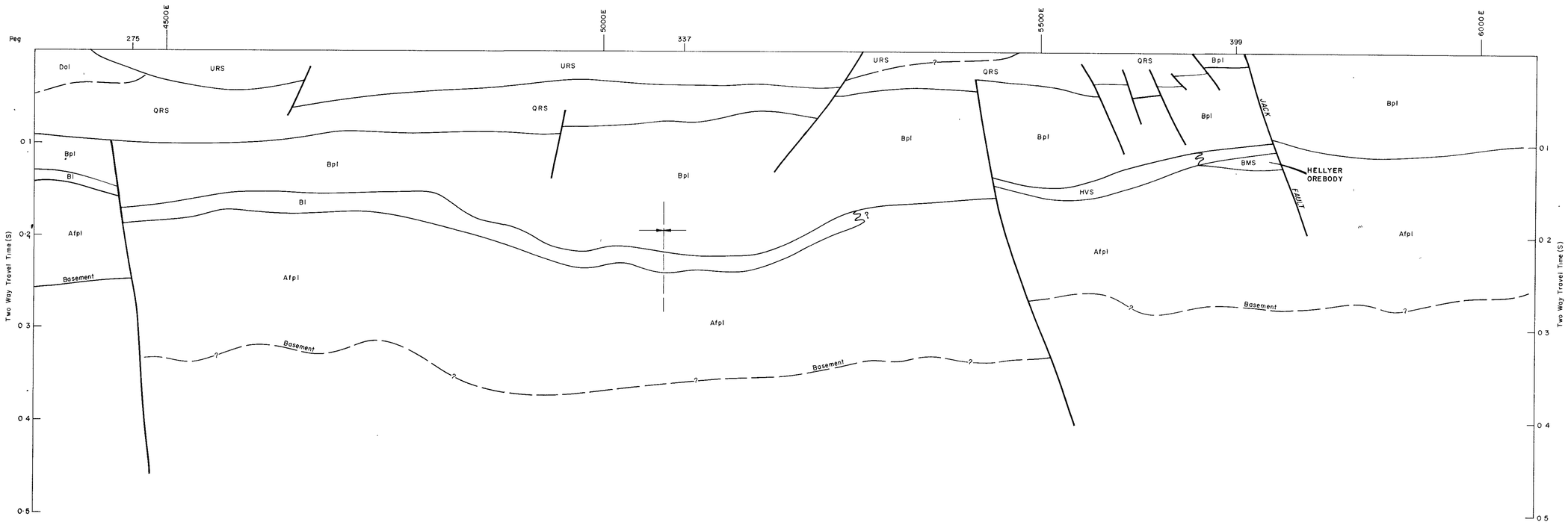
MACKINTOSH EL 106/87

HELLYER SEISMIC INTERPRETATION
SECTION 11800N

Location Code	K55/3	Scale	1 2500
Date	August, 1988	Plate No	HEL 109

Compiled	JJR
Drawn	JJR
Traced	GLC
Checked	JJR

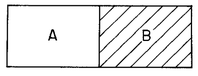
8592



LEGEND

Dol	Dolerite
URS	Upper Rhyolite Sequence
QRS	Que River Shale
Bpl	Basalt sheet lava and pillow lava
Bl	Volcaniclastics and basalt lava
HVS	Hangingwall Volcaniclastics
BMS	Base Metal Sulphides
Afpl	Andesite feldspar phyric lava

SHEET INDEX



5 cm

89-3006

598930

Aberfoyle Resources Limited
EXPLORATION DIVISION

REVISIONS			
Init	Date	Init	Date

NORTH WEST TASMANIA

MACKINTOSH EL 106/87

HELLYER SEISMIC INTERPRETATION
LINE 10600N EAST

Location Code K55/3 | Scale 1:2500 (vertical) | Date Aug 1988

Compiled	JJR
Drawn	JJR
Traced	Geo Drafting
Checked	GLC
Plate No	HEL 1088

8597

9500 N
9000 N
8500 N
8000 N
7500 N
7500 E
7000 E
6500 E
6000 E
Qa
Qes
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Qxa
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Qxg
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Qxi
Qxj
Qxk
Qxl
Qxm
Qxn
Qxo
Qxp
Qxq
Qxr
Qxs
Qxt
Qxu
Qxv
Qxw
Qxx
Qxy
Qxz
Qya
Qyb
Qyc
Qyd
Qye
Qyf
Qyg
Qyh
Qyi
Qyj
Qyk
Qyl
Qym
Qyn
Qyo
Qyp
Qyq
Qyr
Qys
Qyt
Qyu
Qyv
Qyw
Qyx
Qyy
Qyz
Qza
Qzb
Qzc
Qzd
Qze
Qzf
Qzg
Qzh
Qzi
Qzj
Qzk
Qzl
Qzm
Qzn
Qzo
Qzp
Qzq
Qzr
Qzs
Qzt
Qzu
Qzv
Qzw
Qzx
Qzy
Qzz

Aberfoyle Resources Limited
EXPLORATION DIVISION

598981

NORTH WEST TASMANIA

MACKINTOSH EL. 2/70 / HATFIELD E.L. 1573

OUTCROP GEOLOGY

REVISIONS			
Init	Date	Init	Date
AMH	25-10-85	AMH rpt	29-1-86
AMH plot	8-1-86	AMH rpt	19-2-86
AMH plot	27-3-86	DWR jr	9-5-89
AMH plot	19-5-86		
DWR rpt	3-6-87		
RDB rpt	16-9-87		

Location Code	K55/6/44
Scale	1:2500
Date	February, 1985
Compiled	D.J.J. AMH
Drawn	D.J.J. AMH
Traced	R.J.E. ACD
Checked	
Plate No	Mac 89/GG

RMG 556

8596

11500 N
11000N
10500 N
10000N
9500N
7500 E
7000 E
6500E
6000 E
11500 N
11000N
10500N
10000N

RIVER

SOUTHWEST

Aberfoyle Resources Limited 598932
EXPLORATION DIVISION

NORTH WEST TASMANIA
MACKINTOSH E.L. 2/70 / HATFIELD E.L 15/73

OUTCROP GEOLOGY

REVISIONS			
Init	Date	Init	Date
RJE	9 9 85		
S.L.C	7.1.86		
DJJ	18 2 86		
AMHgic	8 4 87		
AMHgic	27.5.87		
AMH rm	21 8 87		

Location Code: K55/6,/44

Scale: 1 2500

Date: February 1985

Compiled: DJJ, AMH
Drawn: DJJ, AMH
Traced: RJE, ACD
Checked:
Plate No: MAC 89 WW

5 cm

RMO 5m

8595

ABERFOYLE RESOURCES LIMITED

LINE 2

598933

HEL III

QUE RIVER

LINE 2 : SPS 100 TO 230

FINAL STACK

RECØRDING PARAMETERS

RECORDED BY	VELOCITY DATA PTY. LTD.
DATE SHOT	5TH ØCTØBER 1987
INSTRUMENT	SERCEL SN338 HR
RECEIVERS	SENSER NATURAL F=3ØHZ.
TAPE FORMAT	9 TRACK,1600 BPI,SEGB
SAMPLE RATE	2 MILLISECOND
FILTERS LO-CUT	16 HZ. @ 24 DB./OCTAVE SLOPE.
HI-CUT	OUT
NOTCH	OUT

RECØRDING GEØMETRY

SOURCE	DYNAMITE 2XD BØØSTERS
	TR.24 <---10M--->X<---10M---> TR.25
RECEIVER ARRAY	10 METRES - 6 PHONES CENTRED ON STATION.
SPREAD	SYMETRICAL SPLIT
	1.....24...X...25.....48
OFFSETS	NEAR TRACE 10 METRES
	FAR TRACE 240 METRES
GROUP SPACING	10 METRES - 48 GROUPS PER RECORD
SHOT SPACING	20 METRES
COVERAGE	1200%

PRØCESSING SEQUENCE

* * * DATUM : 700 METRES A.S.L. * * *

REFORMAT	TO SEG-Y FORMAT AND FLOAT DATA.
GAIN-RECOVER	TO 0.5 SECS. USING THE GAIN FUNCTION:
	GAIN (DB) = 3 * (T) + 0.5 * 20 LOG (T) , WHERE T IS THE TWO WAY TRAVEL TIME.
BALANCE	WITH A RAMPED SCALAR FUNCTION BASED ON THE MEAN LEVEL WITHIN 200 MS. WINDOWS.
VELOCITY FILTER	IN THE F-K DOMAIN TO ATTENUATE COHERENT VELOCITIES BELOW 2000 M/S.
GATHER	FIELD RECORDS SORTED INTO COMMON MID POINT GATHERS.
	DATUM STATICS CALCULATED USING A REFRACTION MØDEL AND A REPLACMENT VELOCITY OF 2500 M/S.
DECONVOLUTION	USING A 80 MS OPERATOR WITH A 4 MS GAP.
NMO	USING SURFACE REFERENCED VELOCITIES FROM CONSTANT VELOCITY STACKS.
STATIC	MEAN STATIC CORRECTED TO HORIZONTAL DATUM.
MUTE	USING MUTE PICKED FROM COMMON DISTANCE STACK
RESIDUAL STATIC	CORRECTIONS USING A SURFACE CONSISTENT MODEL.
NMO	USING SURFACE REFERENCED VELOCITIES FROM CONSTANT VELOCITY STACKS PERFORMED EVERY 0.5 KILOMETRES.
RESIDUAL STATIC	CORRECTIONS USING A CDP REFERENCE TRACE MODEL.
	REFERENCE TRACE : 5 TRACE MIX. MAXIMUM SHIFT ALLOWED : +/-6 MS.
STACK	OF FINAL CORRECTED GATHERS.
FXDECON	COMPLEX WIENER PREDICTION FILTER TO REMOVE RANDOM NOISE.
FILTER	TIME VARIANT BANDPASS FILTER AS DEPICTED BELOW.
BALANCE	WITH A RAMPED SCALAR FUNCTION BASED ON THE MEAN LEVEL WITHIN 100 MS. WINDOWS.

SCALE = 1:5000

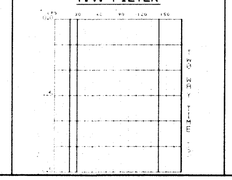
5 cm

DATA PRØCESSED BY **Petty-Ray** Brisbane DPC

CHECKED NAME / DATE

APPRØVED NAME / DATE

TRACE SUPPRESSIØN



T.V. FILTER

◆◆◆◆◆◆ FILMING PARAMETERS ◆◆◆◆◆◆

FILM REEL NUMBER	-
GAIN VALUE	- 100
POLARITY	- BLACK +VE
HØRIZØNTAL SCALE	- 5.000 TR/CM
VERTICAL SCALE	- 40.000 CM/SEC
FILMING DIRECTIØN	- L/R
DATE FILMED	- 17/11/87
INPUT REEL NUMBER	- 01090

89-3006

LINE 2 SPS 100 TO 230

ABERFOYLE RESOURCES LIMITED

DIRECTIØN ØF SHØØTING

TIME	RMS	INT	DEPTH
0	2000	2200	55
50	2200	2916	135
105	2600	4091	309
190	3350	4608	516
280	3800	4660	1029
500	4200		

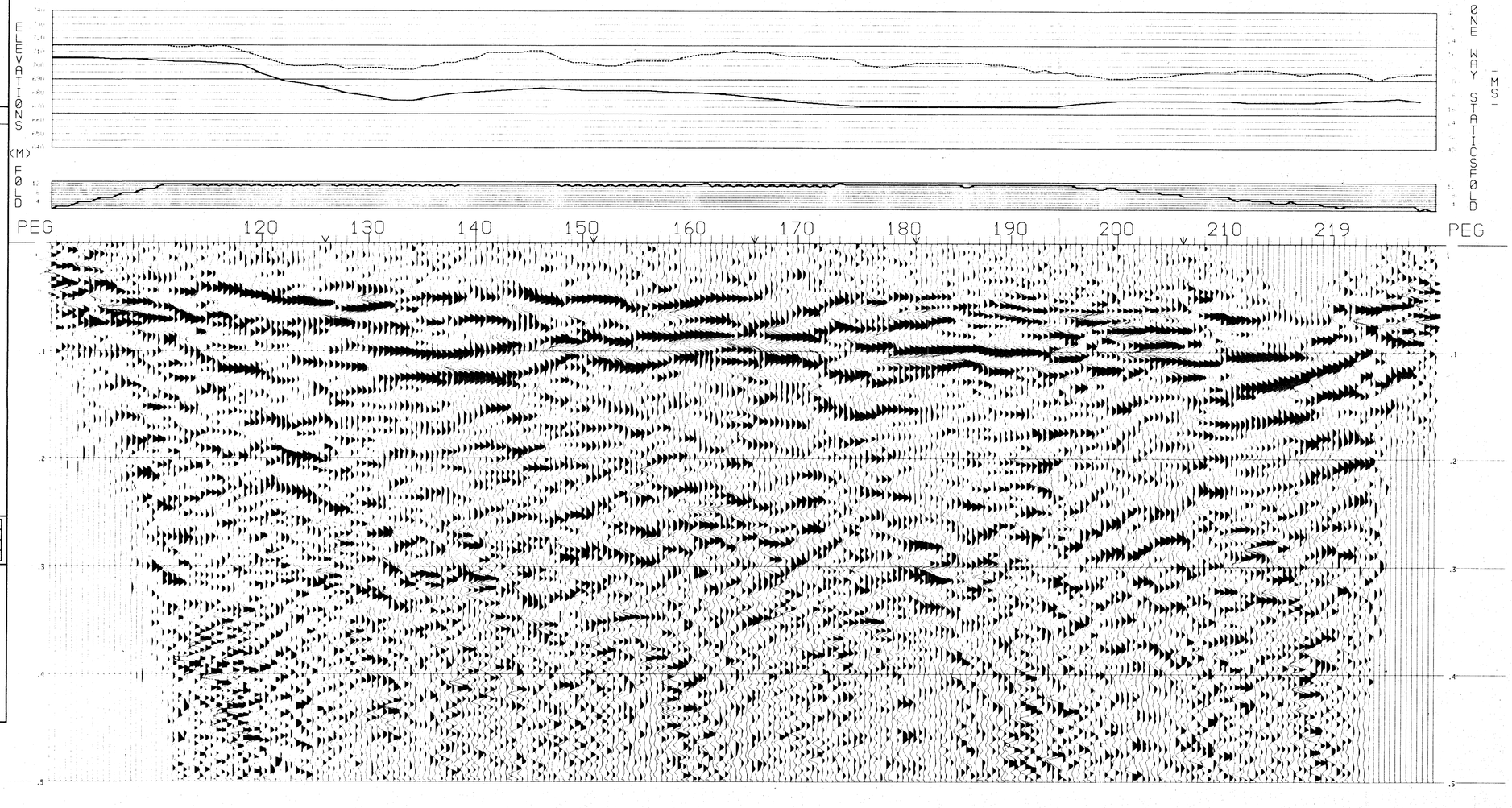
TIME	RMS	INT	DEPTH
0	2000	2300	69
60	2300	2994	129
100	2600	3842	417
250	3400	4870	1026
500	4200		

TIME	RMS	INT	DEPTH
0	2300	2600	117
90	2600	3033	155
115	2700	3657	237
160	3000	4619	722
370	4000	4723	1029
500	4200		

TIME	RMS	INT	DEPTH
0	2300	2900	160
110	2900	3175	255
170	3000	3861	409
250	3300	5364	677
350	4000	4633	1025
500	4200		

TIME	RMS	INT	DEPTH
0	2500	3200	144
90	3200	4226	250
140	3600	4340	575
290	4000	4899	1090
500	4400		

SOLID LINE _____ ELEVATION
DASHED LINE ------ RECEIVER STATIC



8594

598934 89-3006 |

ABERFOYLE RESOURCES LIMITED

LINE 1

HEL 110

QUE RIVER

LINE 1 : SPS 100 TO 422

FINAL STACK

RECORDING PARAMETERS		RECORDING GEOMETRY	
RECORDED BY	VELOCITY DATA PTY. LTD.	SOURCE	DYNAMITE 2KG 6M/S/M3
DATE SHOT	5TH OCTOBER 1987		78.24 + -1.0M + -1.5M + -1.0M + 78.25
INSTRUMENT	SERCEL DN356 MR	RECEIVER ARRAY	10 METRES - 6 PHONES CENTRED ON STATION.
RECEIVERS	SENSOR NATURAL FHSOHZ.	SPREAD	SYMETRICAL SPLIT
SPS FORMAT	9 TRACK, 0630 BPI, SEGD		1 24 .. 6 .. 25 .. 48
SAMPLE RATE	2 MILLISECOND	OFFSETS	NEAR TRACE 22 METRES
FILTERS LO-CUT	16 HZ, @ 24 DB/OCTAVE SLOPE.		FAR TRACE 240 METRES
HI-CUT	OUT	GROUP SPACING	10 METRES - 48 GROUPS PER RECORD
NOTCH	OUT	SHOT SPACING	20 METRES
		COVERAGE	1200%

PROCESSING SEQUENCE

* * * DATUM : 700 METRES A.S.L. * * *

REFORMAT	TO SEG-Y FORMAT AND FLOPS DATA.
GEOM-RECOMER	TO G.A. SEGS. USING THE GEOM FUNCTION:
	GEOM : DB) = 3 + (F) + 0.5 + 20 LOG (F) , WHERE F IS THE TWO WAY TRAVEL TIME.
BALANCE	WITH A WINDED SCALAR FUNCTION BASED ON THE MEAN LEVEL WITHIN 200 MS. WINDOWS.
VELOCITY FILTER	ON THE FIVE DOMAIN TO INTERPOLATE COHERENT VELOCITIES BELOW 2000 M/S.
GATHER	FIELD RECORDS SORTED INTO COMMON MID POINT GATHERS.
	DATUM STATICS CALCULATED USING A REFRACTION MODEL AND A REPLACMENT VELOCITY OF 2000 M/S.
DECONVOLUTION	USING A 80 MS OPERATOR WITH A 4 MS GAP.
NMO	USING SURFACE REFERENCED VELOCITIES FROM CONSTANT VELOCITY STACKS.
STATICS	MOVE STATICS CORRECTED TO DERIVE CONTROL DATUM.
MUTE	USING MUTE PICKED FROM COMMON OFFSETS STACK
RESIDUAL STATICS	CORRECTIONS USING A SURFACE CONSISTENT MODEL.
NMO	USING SURFACE REFERENCED VELOCITIES FROM CONSTANT VELOCITY STACKS PERFORMED EVERY 0.5 KILOMETRES.
RESIDUAL STATICS	CORRECTIONS USING A CDP REFERENCE TRACE MODEL.
	REFERENCE TRACE : 5 TRACE MIX. MAXIMUM SHIFT ALLOWED : +/-6 MS.
STACK	OF FINAL CORRECTED GATHERS.
FXDECON	COMPLEX WIENER PREDICTION FILTER TO REMOVE RANDOM NOISE.
FILTER	TIME VARIENT BANDPASS FILTER AS DEPICTED BELOW.
BALANCE	WITH A WINDED SCALAR FUNCTION BASED ON THE MEAN LEVEL WITHIN 100 MS. WINDOWS.

SCALE = 1:5000

5 cm

DATA PROCESSED BY **Petty-Ray** Brisbane QLD

CHECKED
APPROVED

NAME	
DATE	
NAME	
DATE	

TRACE SUPPRESSION

T.V. FILTER

****** FILMING PARAMETERS ******

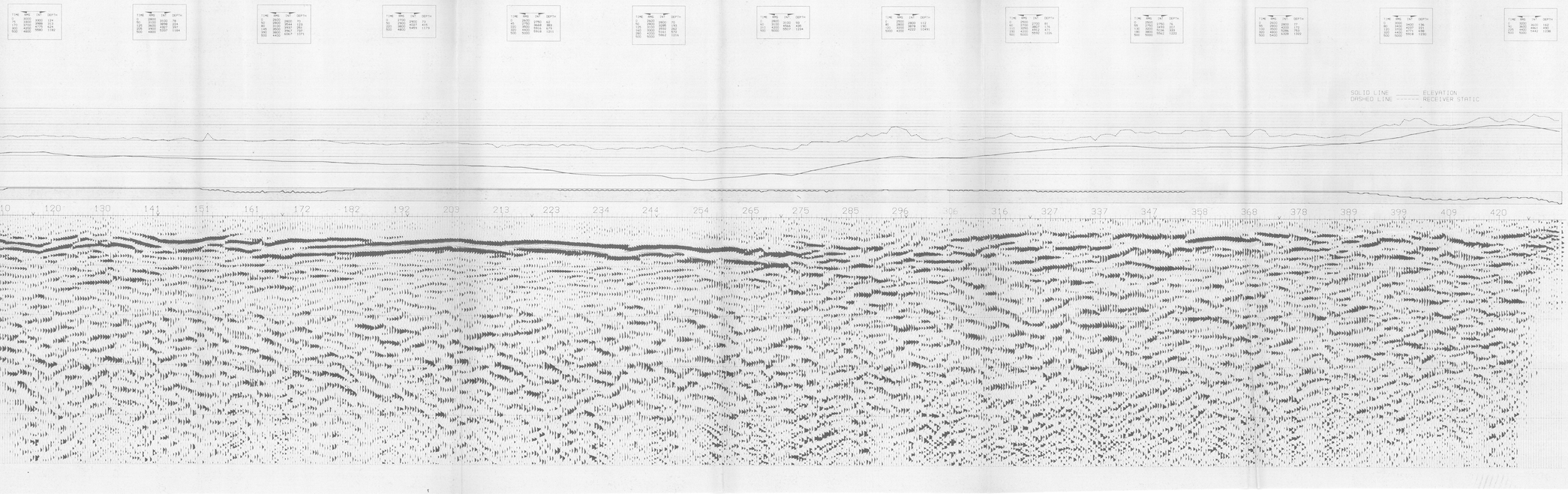
FILM REEL NUMBER	100
FILM TYPE	35MM
POLARITY	BLACK +VE
HORIZONTAL SCALE	5.000 TR/CM
VERTICAL SCALE	40.000 CM/SEC
RECORDING DIRECTION	REVERSE
DATE FILMED	27/11/87

INPUT REEL NUMBER : 03323

LINE 1 SPS 100 TO 422

ABERFOYLE RESOURCES LIMITED

DIRECTION OF SHOOTING



8598

7500 N 7000 N 6500 N 6000 N 5500 N

7500 E 7000 E 6500 E 6000 E

swl.20 Bleached limonitic D.I Tr fuchsite P.355164

f. lam. gv. or Sh

f. layered khc. mic. Ss

interb. mic. Ss and sbed mic. Sh.

gy - bk mic. Sh

A. f.v. (similar to 355159) P. 355163

gn - gy Sh. mn vuggy B. P.355162 (possibly intrusive)

gy ox P.355161 similar to 355155

mag. Fd. Por intrusive P.355160 (Andesitic)

gy. wh. fg. mic. Ss. mn. Sh. bands

gy - gn. mic. Sh. lam.

gn. Por. vas. l./Ox4 P.355159

lgt. br. mic. Ss. /Ox3 and lst. b. mic. Sh.

wh. mic. Ss wh. bed rare Sh bands P.355158 (Tourmaline)

gy - gn. mic. Ss /Ox2 with bands of gy - gn. bk Sh.

gn. Por. vas. B.l./Ox 4 P.355157

gy - gn. pl. mic. Ss /Ox2 20% mic Sh bands

gy - gn. mic. Ss /Ox3 20% gy - gn. Sh bands P.355156

gy - gn. Sh. /Ox3 P.355155 tuff contains Tourmaline

gy - gn. A. f.v. /Ox3

bk - gn. A. f.v. /Ox3 P.355154

EXCAVATOR TRENCH

wh - gy Sh/Ox3

mic. Ss, mic. Sh/Ox1 breached contact (tourmaline at contact)

gn. A. f.v/Ox3 breached, Fu at contact

gossan scree

SP14

SP15

SP16

SP17

SP18

SP19

SP20

SP21

SP22

SP23

SP24

SP25

strongly cleaved Se2 / Sl. dit 70. P.355829

gn - gy chloritic (?) fg. mic. Ss or Sh. /Ox2 rare mm. qtz vn Intense cleavage P.355830

gy - gn. mic. Ss. mn. Sh. mn. qtz. vn.

pale gn. mic. Ss/Ox2

gy Qtz (ord)

gy - br. Mc Sstx/Qvn

gy Sh.

gy - gn. mic. Ss

ibd. bk mic. Sh. gn. mic. Ss.

ibd. mic. Ss. Sh

gy Mc. Ss

br Mc. Ss. mas.

gy. Sh.

gy - br. Mic. Ss

gy. sh.

gy Mc. Ss. ibd gy. sh

gn. A. f.v. br / Lct 2

gn - gy Bl. Pxp. /Qx Cx Mt (427463P)

Bl.

ves. Bl

Granite (Dev.)

gy. br. snd RD - D.l / Ser 2

RD - D.l. Shd

gy - wh. xx. Q+fp. E. chl. pot /Ser 3 /Lch 2 (427464P)

gy Sh. shd

RD - D.l. E. wh. gk. Qtz (Ord).

gy - gn. RD - D.l. f.p / Sl 3.

wk. Shd. Mic. Ss + xv. Q+Mc /Ser 2. /Lch 4

gy Mc. Ss

Mic. Ss. E. mn. Sh.

Shd gy Mic. Ss + Bl

gy - br Mic. Ss

A. f.p.l

Mic. Ss

Bl

gy - br. Mic. Ss.

gy - br. Mic. Ss.

gy - br. Mic. Ss + A - Bl.

A.f.p. l (427467P)

Lgt gn to Bl. (427466P)

gy Sh - Mic. Ss.

P. A. l (427466P)

gy - gn. xx. Q+fp. shd /Ser 3

gy. xx. Q+fp. /Ser 3

gy - br. mas. D.l. /Q Vn - 2 - 3 (427472P)

chl. gy. vic. E. cgl - apt Shd (427471P)

gn - wh. vic. shd. Ekm. w bands /Ser 4 (427470P)

wk. shd. Mic. Ss. Qvn

gy Mic. Ss. shd /Qvn. Qx Co vn. feox stained (427469P)

gy - gn. Mic. Ss. wk. shd. /Qvn. ibd. phyllitic Sh.

gy Mic. Ss. /Qvn

gy Mic. Ss. mas

Mic. Ss

gy. Mic. Ss

Cg. (Owen) blds.

Cg. (Owen)

g. vn. wh. Qtz. (Ord.)

gy. soil

Eucolypt
Tea tree
Cutty grass

Edge of rain forest

gn. A. /B? ves. 2

wh. Qtz (Ord)

Qtz.

shd. lgt br. R. (moss. fp)

shd. R.

R

R (ute)

shd. R. 271436

Horizontal

Mic. Ss - Sh.

wh. wh. R.

Hill

gy. soil

shd. R90? 271437

shd. Mic. Ss.

R

shd. R. / D?

gy. vtr

5 cm

Aberfoyle Resources Limited
EXPLORATION DIVISION

598935

NORTH WEST TASMANIA

MACKINTOSH E.L. 2/7C / HATFIELD E.L. 15/73

OUTCROP GEOLOGY

REVISIONS				
Init.	Date	Init.	Date
DAG/JC	2-10-86		
AMN/JF	5-5-86		

Location Code: K55/6/44

Scale: 1:2500

Date: February, 1986

Compiled: AMH
Drawn: AMH
Traced: GLC
Checked:
Plate No: Moc 89/FF

8599

5000 E

6700 N
700 RL

Murchison Hwy
F?
UB
UB ?
HAT 6
479 mN
QR 28
QR 29
Cl
HA
FPA
LB
Major Fault
S of Que River
F?
F
mic Ss
Oo

5200 N
700 RL

Murchison Hwy
H
H2
MC 4
QRS
Do
?
D
UB
R(int)
HA
FPA
LB
Cv
mic Ss
Y
Ba ?
Cv?
Henty
Fault
Zone ?

4500 N
700 RL

Murchison Hwy
MC 14
Mt. Charter
Ba
Ba ?
Zone of major deformation
R (int)

3900 N
700 RL

MC 9
MC 19
EL 15/73
EL 2/70
W
Cv 1
Cv 2

5000 E

5 cm

89-3006 1

Aberfoyle Resources Limited
EXPLORATION DIVISION
598986

REVISIONS			
Init.	Date	Init.	Date
DJJ glc	11-86		
DJJ glc	6-87		

NORTH WEST TASMANIA
MACKINTOSH EL2/70 HATFIELD EL15/73
INTERPRETIVE CROSS SECTION
SHEET A

Compiled: DJJ
Drawn: DJJ
Traced: GLC
Checked: DJJ

Location Code: K55/6/44
Scale: 1:10 000
Date: October, 1986.
Plate No: MAC 97A

RMO 557

8600

5000 E

9100 N
700 RL

Murchison Hwy
EL 15/73 EL 2/70
UB
FPA
LB
D
Y
R(int)
DA 2
DA 4
HA
MAC 5 100 mN
MAC 1 50 mN
A
Y+D
106 mS
B
F

8700 N
700 RL

Murchison Hwy
URS
QRS
UB
FPA
LB
mic Ss
D
Y
Fu
D+Y
HA
DA 5
QR 81
QR 109
Y+B
B

8000 N
700 RL

Murchison Hwy
HAT 4 121 mS
HAT 3
QR 52,51,47
Gold Hill Trench
Hellyer Anticline
Que Synclinorium
W Fold
Ba
MAC 7 85 mN
MAC 6 118 mN
DY + B
URS
QRS
UB
FPA
LB
D
Q
Y
Fu
HA
245 mS
16 mN
50 mS
35° dip E facing in exploration drive
R dyke
mic Ss
Oo
?LB

7500 N
700 RL

Murchison Hwy
HAT 6 321 mS
QR 81
Que River Shaft
QRS
UB
FPA
LB
D
Q
HA
Fu
S lens
PQ lens
F?
Mic Ss
Oo
Magnetic Intrusives

5000 E

5 cm

89-3006

Aberfoyle Resources Limited
EXPLORATION DIVISION
598987

REVISIONS			
Init.	Date	Init.	Date
DJJ glc	11-86		

NORTH WEST TASMANIA

MACKINTOSH EL2/70 HATFIELD EL15/73

INTERPRETIVE CROSS SECTION

SHEET B

Location Code: K55/6/44

Scale: 1:10 000

Date: October, 1986.

Compiled: DJJ
Drawn: DJJ
Traced: GLC
Checked: DJJ
Plate No: MAC 97B

RMO 557

8601

5000 E

10200 N
700 RL

Murchison Hwy
TB
F?
QRS
?
Mic Ss
QRS
UB
FPA
LB
Mic Ss
HAT9
Do
URS
QRS
UB
FPA
LB
Mic
DY?
HOP
Jack Fault
HL1
HL8
HL80
HL2
MAC11
R (int)
Fu5
HA
Fu
HOP
LB
UB
FPA
URS
QRS

9900 N
700 RL

MAC4
TB
QRS
?
Mic Ss
FPA
UB
Do
URS
QRS
UB
FPA
HA
Cl
Y
D
Q
R (int)
URS
QRS
UB
FPA

9600 N
700 RL

Murchison Hwy
TB
QRS
UB
D
FPA
LB
QRS
UB
D
FPA
LB
UB
D
FPA
Jack Fault
HA
Q
Cl + Se5
D
R(int)
URS
QRS
R(int)
QRS
UB
D
Y

9300 N
700 RL

Murchison Hwy
HAT 005
QRS
UB
Y+D
Y+D
FPA
LB
Mic Ss
UB
Y
FPA
D
HA
DA3
D
Y
HA
FPA
R (int)
QRS
QRS
UB
Y
D
Y

5000 E

5 cm

89-3006

Aberfoyle Resources Limited
EXPLORATION DIVISION
598988

REVISIONS			
Init.	Date	Init.	Date
DJJ glc	11-86		
DJJ glc	5-87		
DJJ rje	9-87		

NORTH WEST TASMANIA
MACKINTOSH EL2/70 HATFIELD EL15/73
INTERPRETIVE CROSS SECTION
SHEET C

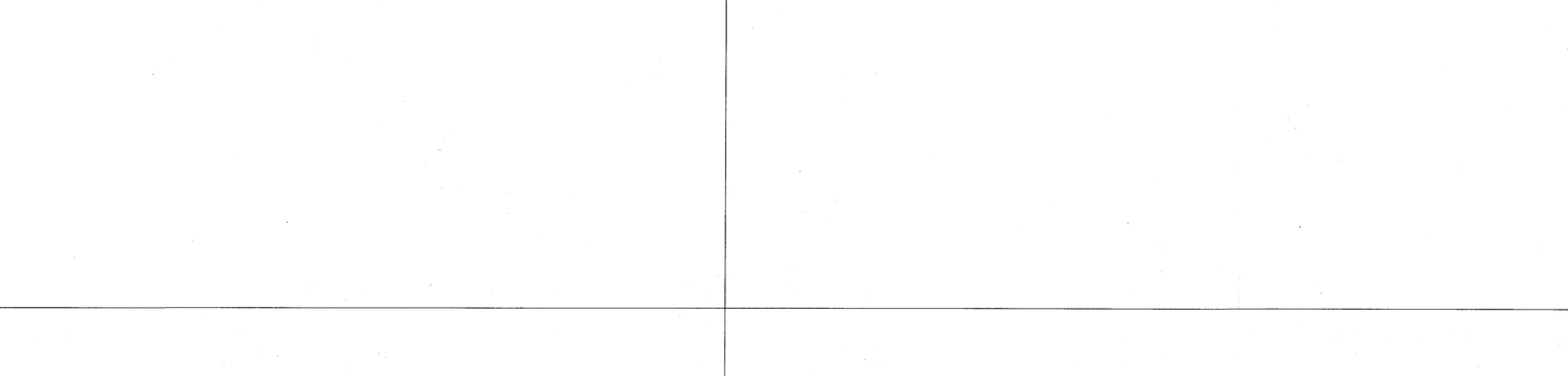
Location Code: K55/6/44
Scale: 1 : 10 000
Date: October, 1986.

Compiled: DJJ
Drawn: DJJ
Traced: BAN
Checked: DJJ
Plate No: MAC 97C

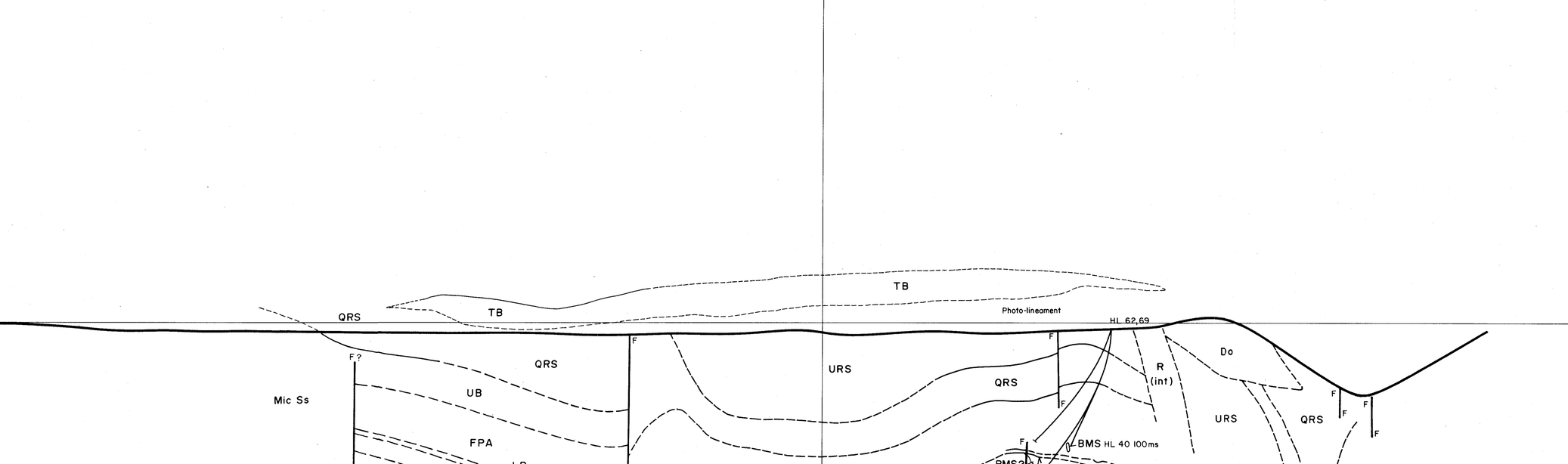
RMO 557

8602

5000 E



11100N
700 RL



10700N
700 RL

5000 E

5 cm

89-3006

Aberfoyle Resources Limited
EXPLORATION DIVISION
598939

REVISIONS			
Init.	Date	Init.	Date
DJJ gtc	11-86		
DJJ gtc	5-87		

NORTH WEST TASMANIA

MACKINTOSH EL 2/70 HATFIELD EL 15/73

INTERPRETIVE CROSS SECTION

SHEET D

Location Code: K55/6/44

Scale: 1:10 000

Date: October, 1986.

Compiled: DJJ
Drawn: DJJ
Traced: BAN
Checked: DJJ
Plate No: MAC 97D

RMO 557

8604

LEGEND FOR MAC III SERIES INTERPRETIVE GEOLOGY

TERTIARY BASALT	TB	Basalt
ORDOVICIAN	Oo	Conglomerate (Owen) Quartzite
JUKES BRECCIA	Jk	Red Conglomerate upward fining to Mudstone
SEDIMENTS and RHYOLITIC VOLCANICS	Sht	Waterlain tuff
	Shw,Sh	Wacke, Shale
	Rv	Rhyolitic Volcanics
	Cg	Conglomerate Grit
UPPER RHYOLITE SEQUENCE including COMSTOCK TUFF	Vc	Red Pyroclastic
	URS	Shale, Siltstone, Sandstone Polymict units, Ignimbrites Bedded tuff
QUE RIVER SHALE	QRS	Black Shale, Minor Siltstone
QUE RIVER-HELLYER INTERMEDIATE VOLCANICS	UB	Upper Basalt
	Y	Polymict Rocks
	D	Dacite
	A	Non Feldspar Phyric Andesite and others
	FPA	Feldspar Phyric Andesite
	LB	Lower Basalt
VOLCANOSEDIMENTARY SEQUENCE	Ms	Mica Sandstone
	W	Bedded tuffs, Sandstones, Quartzites, Felsites, Ignimbrites
CENTRAL BELT MT READ ACID VOLCANICS	Cv2	Polymict
	Cv1	Ignimbrite
	Cv	Undifferentiated

ALTERATION HA highly altered rocks

INTRUSIVES Do Dolerite; R Rhyolite

Contacts
- position accurate
- position approximate
- position inferred
- end of information
- photo boundary of vegetation
- Henty Fault photo linear
- dip
- cleavage
- Fault
- Fault inferred
- track

E.L. 15/73

E.L. 2/70

Fault Zone

Proposed Cradle Mountain Link Road

MURCHISON HIGHWAY

Hellyer Offices

Hellyer Portal

SECTION 11100N

SECTION 11000N

SECTION 10700N

SECTION 10200N

SECTION 9900N

SECTION 9600N

SECTION 9300N

SECTION 9100N

SECTION 8700N

SECTION 8000N

SECTION 7500N

13000N

10500N

8000N

2500E

5000E

7500E

A	21200 N
B	14350 N
C	7500 N
D	0650 S

6200 S

5 cm

Aberfoyle Resources Limited 598990

EXPLORATION DIVISION

NORTH WEST TASMANIA

MACKINTOSH E.L. 2/70 / HATFIELD E.L. 15/73

INTERPRETIVE GEOLOGY

REVISIONS			
Init	Date	Init	Date
GLC	8-86		
DJJ/ph	10-86		
DJJ/glc	11-86		
DJJ/lc	2-87		

Compiled: DJJ

Drawn: DJJ

Traced: GLC

Checked: DJJ

Plate No MAC III B

Location Code K55/6/44 | Scale: 1:10 000 | Date May, 1986

RMO 55

8605

LEGEND FOR MAC III SERIES INTERPRETIVE GEOLOGY

TERTIARY BASALT	TB	Basalt
ORDOVICIAN	Oo	Conglomerate (Owen) Quartzite
JUKES BRECCIA	Jk	Red Conglomerate upward fining to Mudstone
	Sht	Waterlain tuff
	Shw, Sh	Wacke, Shale
SEDIMENTS and RHYOLITIC VOLCANICS	Rv	Rhyolitic Volcanics
	Cg	Conglomerate Grit
	Vc	Red Pyroclastic
UPPER RHYOLITE SEQUENCE including COMSTOCK TUFF	URS	Shale, Siltstone, Sandstone Polymict units, Ignimbrites Bedded tuff
QUE RIVER SHALE	QRS	Black Shale, Minor Siltstone
QUE RIVER - HELLYER INTERMEDIATE VOLCANICS	UB	Upper Basalt
	Y	Polymict Rocks
	D	Dacite
	A	Non Feldspar Phyric Andesite and others
	FPA	Feldspar Phyric Andesite
	LB	Lower Basalt
VOLCANOSEDIMENTARY SEQUENCE	Ms	Mica Sandstone
	W	Bedded tuffs, Sandstones, Quartzites, Felsites, Ignimbrites
CENTRAL BELT MT READ ACID VOLCANICS	Cv2	Polymict
	Cv1	Ignimbrite
	Cv	Undifferentiated

Contacts
- position accurate
- position approximate
- position inferred
- end of information
- photo boundary of vegetation
- Henty Fault photo linear
- 40 dip
- cleavage
- F Fault
- F Fault inferred
- track

ALTERATION HA highly altered rocks

INTRUSIVES Do Dolerite; R Rhyolite

2500E 5000E 7500E

5500N 3000N

SECTION 7500N
SECTION 6700N
SECTION 5200N
SECTION 4500N
SECTION 3900N

HIGHWAY
MURCHISON
LAKE MACKINTOSH
CML 68M/64

E.L. 15/73
E.L. 2/70

A	21200 N
B	14350 N
C	7500 N
D	6200 S

0800 E 9400 E

5cm

89-3006

Aberfoyle Resources Limited 598991
EXPLORATION DIVISION

REVISIONS			
Init	Date	Init	Date
GLC	8-86		
DJJ/GLC	10-86		
DJJ/GLC	11-86		
DJJ/rje	1987		

NORTH WEST TASMANIA
MACKINTOSH E.L. 2/70 / HATFIELD E.L. 15/73
INTERPRETIVE GEOLOGY

Compiled	DJJ
Drawn	DJJ
Traced	GLC
Checked	DJJ
Plate No	MAC III C

Location Code K55/6/44 | Scale: 1:10 000 | Date: July, 1986

RMO 556

8603

000

2500E

5000E

7500E

389 000 mN

388 000 mN

387 000 mN

386 000 mN

385 000 mN

384 000 mN

383 000 mN

2500 S

5000 S

MURCHISON HIGHWAY

E.L. 2/70

Oo

Oo

glaciats

Silurian - Devonian

F ?

165

wm. fp. vlc. sed. Sh. clasts 704

fp. R. (lin) 703

181

gn. lava rare ves. 702
(Que - Heltyer volcs.)

glaciats lct cg. blds

Henty Fault Zone ?

pk. fp. px. gn R. 701

LAKE MACKINTOSH

A 21200 N
B 14350 N
C 7500 N
D 0650 N
6200 S
0600 W
5400E

5 cm

389 000 mE

390 000 mE

382 000 mE

383 000 mE

384 000 mE

385 000 mE

386 000 mE

387 000 mE

388 000 mE

Aberfoyle Resources Limited
EXPLORATION DIVISION

598992

REVISIONS			
Inst	Date	Inst	Date

NORTH WEST TASMANIA

MACKINTOSH E.L. 2/70 / HATFIELD E.L. 15/73

OUTCROP GEOLOGY

Compiled	DJJ
Drawn	DJJ
Traced	GLC
Checked	
Plate No	MAC 110 D

Location Code K55/6/44 | Scale 1:10 000 | Date February, 1987

RMO 556

8608

E.L. 15/73

E.L. 2/70

MURCHISON HIGHWAY

Proposed Cradle Mountain Link Road

H.E.C. Power Line

Hellyer Offices

Portal

Southwest River

000
2500E
5000E
7500E
13000N
10500N
8000N
10000N
9500N
9000N
8500N
2900E
3600E
3850E
3400E
3300E
4200E
4900E
5600E
6700E
4000E
5600E
6400E
6000E

HAT 5
HAT 3
HAT 4
HL80
MAC4
MAC1
MAC2
MAC3
MAC6
DA1
DA2
DA3
DA4
DA5
QUE RIVER

88M/84
89M/84
87M/84
86M/84
90M/84
109M/84
CML 68M/84

A	21200 N	
B	14350 N	
C	7500 N	0650 W
D	6200 S	9400E

5 cm

Aberfoyle Resources Limited
EXPLORATION DIVISION

598993

REVISIONS			
Init.	Date	Init.	Date
G.L.C.	22-6-86		

NORTH WEST TASMANIA
MACKINTOSH E.L. 2/70 / HATFIELD E.L. 15/73
UTEM and EM 37 coverage

Compiled: A.M.H.
Drawn: L.M.L.
Traced: L.M.L.
Checked:

Location Code: K55/6/44 | Scale: 1:10 000 | Date: June, 1986 | Plate No: MAC 113B

RMO 556

8609

000

2500E

7500E

5500N

3000N

MAIN QUE RIVER SHAFT

7000N

4000E

4300E

4500E

5000E

6500N

3700E

HAT 1

6000N

MC13

MC11

MC12

5500N

HAT 2

MC4

3200E

3700E

3800E

5000N

MC1

MC3

MC2

2800E

3500E

MC7,8

4500N

Lines

Power

H.E.C.

Mt. Chorter

MC6

MC10

4000N

MC9

HIGHWAY

MURCHISON

3500N

E.L. 15 73

4500E

4900E

6000E

6400E

5300E

6300E

LAKE MACKINTOSH

E.L. 2/70

2500N

2000N

1500N

1000N

A 21200 N

B 14350 N

C 7500 N

D 0650 N

6200 S

0600 E

6400 E

5 cm

89-3006

Aberfoyle Resources Limited
EXPLORATION DIVISION
598994

REVISIONS			
Init	Date	Init	Date
GLC	22-6-86		
R.E	2-9-87		

NORTH WEST TASMANIA

MACKINTOSH E.L. 2/70 / HATFIELD E.L. 15/73

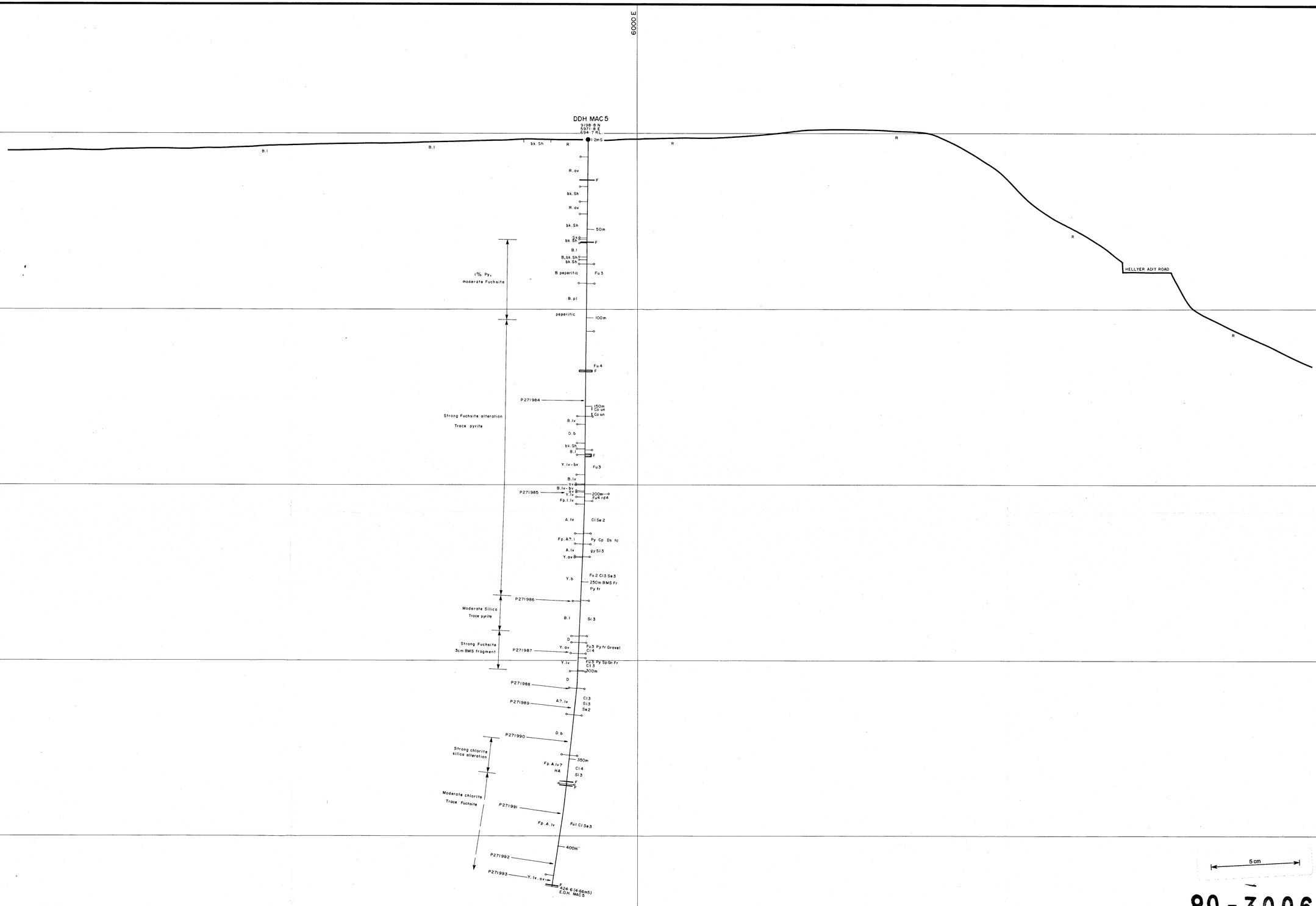
UTEM and EM 37 coverage

Compiled: A.M.H.
Drawn: L.M.L.
Traced: L.M.L.
Checked:

Location Code: K55/6/44 | Scale: 1:10 000 | Date: June, 1986 | Plate No: MAC 113C

RMO 556

8612



89-3006

Aberfoyle Resources Limited 598995
EXPLORATION DIVISION

REVISIONS			
Init.	Date	Init.	Date

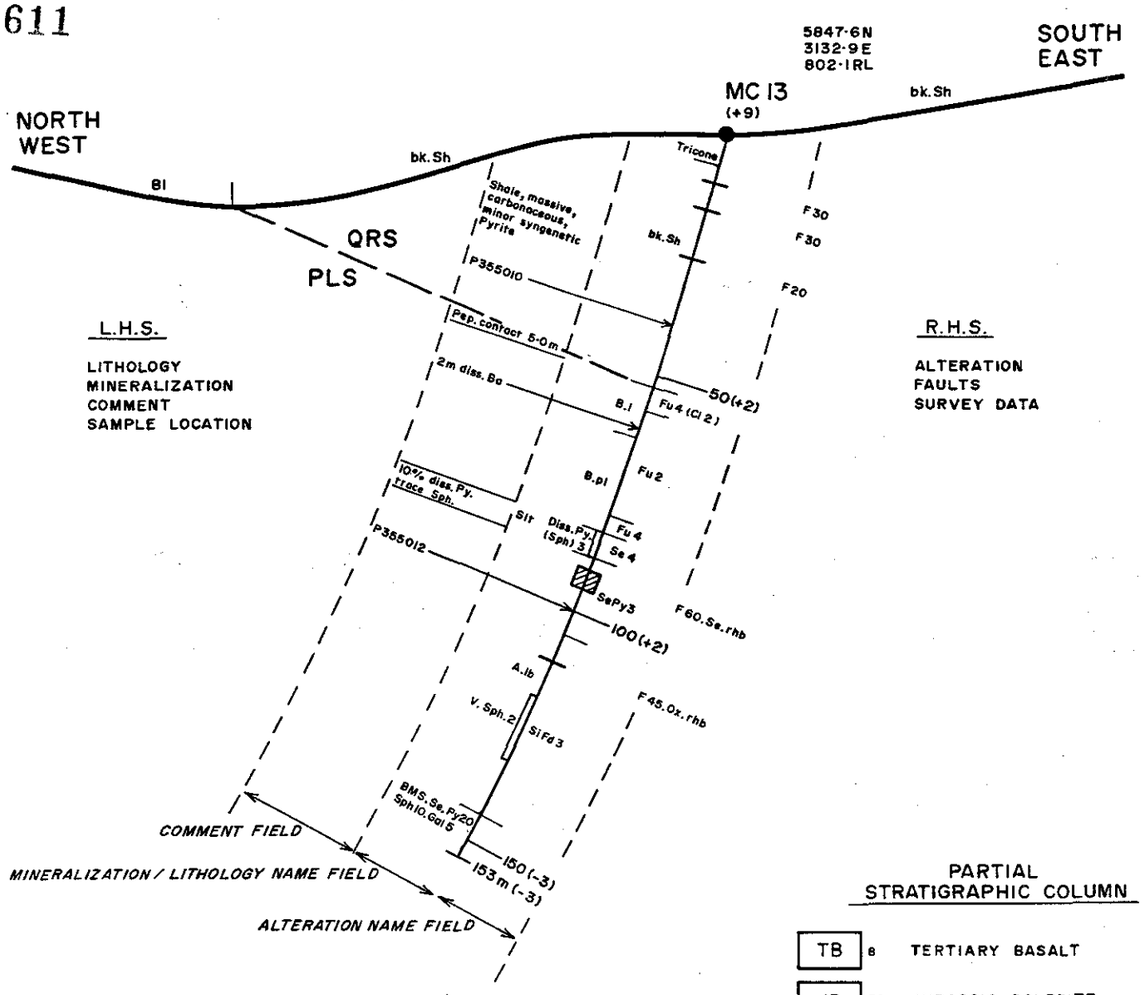
NORTH WEST TASMANIA
MACKINTOSH EL. 2/70
DDH-MAC 5
CROSS SECTION 9200N
MINE GRID E-W

Compiled: DJJ
Drawn: DJJ
Traced: TN
Checked:
Plate No: MAC 134

Location Code: K55/6/44
Scale: 1:1000
Date: July 1986

RMO 554

8611



L.H.S.

LITHOLOGY
MINERALIZATION
COMMENT
SAMPLE LOCATION

R.H.S.

ALTERATION
FAULTS
SURVEY DATA

VOLCANICS

R.l / R.lb	26	Rhyolite lava, lava breccia
R.av / R.lv / R.bv / R.xv	25	Rhyolite volcaniclastic
YR.av / YR.lv / YR.bv	65	Rhyolitic Polymict volcaniclastic
D.l / D.l.b	63	Dacite lava, lava breccia
D.av / D.lv / D.bv / D.xv	54	Dacite volcaniclastic
YD.av / YD.lv / YD.bv	56	Dacitic Polymict volcaniclastic
A.fp.l / A.fp.lb	48	Andesite feldsparphyric lava, lava breccia
A.l / A.lb	41	Andesite lava, lava breccia
A.av / A.lv / A.bv / A.xv	44	Andesite volcaniclastic
YA.av / YA.lv / YA.bv	40	Andesitic Polymict volcaniclastic
B.l / B.lv	45	Basalt lava, lava breccia
B.pl	50	Basalt pillow lava
B.av / B.lv / B.bv / B.xv	49	Basalt volcaniclastic
YB.av / YB.lv / YB.bv	42	Basaltic Polymict volcaniclastic
Y.av / Y.lv / Y.bv	58	Polymict rock
av	52	Ash volcaniclastics (composition not determined)

SEDIMENTS

Ss / Gw	71	Sandstone, micaceous Greywacke
Sh	66	Shale, black (carbonaceous, pyritic)
Slt	69	Siltstone, tuffaceous Siltstone

SULPHIDES, SULPHATES

BMS	21	Base Metal Sulphide rock
MPy	29	Massive pyrite rock
GS P	23	Glassy silica, colloform pyrite rock
Ba	22	Barite

POST CAMBRIAN ROCKS

TB	8	Tertiary Basalt
JD	32	Jurassic Dolerite
OCg	20	Ordovician Siliciclastics

ALTERATION ROCK TYPES

HA	6	Highly altered rock
Qll	18	Quellite
Q-lv / Q-bv	17	Quellite fragmental

PARTIAL STRATIGRAPHIC COLUMN

TB	8	TERTIARY BASALT
JD	32	JURASSIC DOLERITE
OCG	20	ORDOVICIAN SILICICLASTICS
URS	65	UPPER RHYOLITIC SEQUENCE
QRS	66	QUE RIVER SHALE
MGW	71	MT. CHARTER MICACEOUS GREYWACKE
HBS	45	HELLYER BASALT SEQUENCE
HVS / SWB	56	HANGINGWALL VOLCANICLASTIC SEQUENCE / SWITCHBACK VOLCANICLASTIC SEQUENCE
HMS	21	HELLYER MINERALISED SEQUENCE
FPS	48	ANDESITE FELDSPAR PHYRIC SEQUENCE

ALTERATION

Si	2	Silica	SeCl	30	Sericite Chlorite
SiFd	13	Silica Feldspar	SePy	39	Sericite Pyrite
SiFdCl	14	Silica Feldspar Chlorite	Se	38	Sericite
Cl	47	Chlorite	Fu	46	Fuchsite
ClCo	41	Chlorite Carbonate	Il	19	Illite

INTENSITY SCALE

1	Trace
2	Weak
3	Moderate
4	Strong
5	Extreme

MC 13 (+9) — DDH number, DDH collar distance behind (+), in front (-) of section *(-35/100,60)*

5847·6 N 3132·9 E 802·1 RL — Survey pick-up of collar *(/60)*

50(+2) — Downhole fiducial, 50m interval for 1:1000 section *(-25/60)*

Lithology, alteration boundary - DDH and surface *(-18/)*

DDH to surface correlation *(-35/)*

B.pl — Lithology abbreviation classification, colour on adjoining table *(/50)*

QRS — Stratigraphic classification *(/100)*

Fu4 (Cl2) — Alteration composition, intensity. Subordinate alteration type in brackets *(/50)*

F60.Se.rhb — Fault zone, angle to core axis, gouge composition *(-35/50)*

F45.Ox.rhb — Fault, angle to core axis, gouge composition *(-35/50)*

Diss.Py. (Sph) 3 — Low grade mineralization disseminated, composition, intensity. Minor sulphides in brackets *(-18/50)*

V.Sph. (Py) 2 — Low grade mineralization vein, composition, intensity. Minor sulphides in brackets *(-18/50)*

P 355010 — Petrology sample location, specify other sample type eg. Pb isotope *(/50)*

BMS.Se.Py20. Sph.10.Gal.5 — High grade mineralization, composition, visual estimate *(/50)*

ALL LINEWORK AND LETTERING SHOWN AT ACTUAL SIZE
(LINE THICKNESS / LEROY LETTER SIZE)

NOTE : GEOPHYSICAL AND GEOCHEMICAL DATA ARE SHOWN ON OVERLAYS

598996

Aberfoyle Exploration Pty Ltd

REVISIONS			
Init	Date	Init	Date
GLC	12·85		

Location Code: K55/6/44

NORTH WEST TASMANIA

MACKINTOSH E.L.2/70, HATFIELD E.L.15/73

GEOLOGICAL LEGEND 1:1000 SCALE DDH SECTIONS

Scale: ———— Date: November, 1985

Compiled:	AMH
Drawn:	AMH
Traced:	GLC
Checked:	AMH
Plate No:	MAC 115

RMO 554

8610

FACT GEOLOGICAL MAPPING LEGEND MAC 79,110 PLAN SERIES

(NOTE : COMPLETE LIST OF ABBREVIATIONS IS STORED ON HP-1000 FILE ABBRV:HL:14)

LITHOLOGY COMPOSITION

R	Rhyolite
D	Dacite
A	Andesite
B	Basalt
Y	Polymict
Ss	Sandstone
Sh	Shale
Slt	Siltstone
Ba	Barite
Py	Pyrite
BMS	Base Metal Sulphide
Ch	Chert
TB	Tertiary Basalt
JDo	Jurrasic Dolerite
OCg	Ordovician Conglomerate

LITHOLOGY TEXTURE / FORM

l	lava
lb	lava breccia
pl	pillow lava
av	ash volcaniclastic
flv	fine lapilli volcaniclastic
mlv	medium " "
clv	coarse " "
bv	breccia "
xv	crystal "
ves	vesicular
por	porphyritic
eux	eutaxitic
fbn	flowbanded
gnlr	granular
ibd	interbedded
md	matrix dominant
gl	glassy
mas	massive
lm	laminated
fp	feldspar phyric
rnd	rounded
pep	peperitic

VOLCANICLASTIC SIZE RANGE

> 2mm	ash
2-8	fine lapilli
8-32	medium lapilli
32-64	coarse lapilli
> 64	breccia

ALTERATION COMPOSITION

Co	Carbonate
Cl	Chlorite
Kf	K-feldspar
Fu	Fuchsite
Py	Pyrite
Se	Sericite
Si	Silica

ALTERATION TEXTURE / FORM

per	pervasive
dis	disseminated
pat	patchy
spt	spotty
sfr	selected fragments
stw	stockwork
stc	structure controlled
vn	vein
mtx	matrix

ALTERATION INTENSITY WEATHERING INTENSITY

1	trace
2	weak
3	moderate
4	strong
5	extreme

COLOUR

br	brown
bk	black
gy	grey
gn	green
or	orange
pk	pink
wh	white
yw	yellow
bl	blue

FAULT TERMS

cav	cavernous
lch	leached
slk	slickenside
rhd	rehealed
rbb	rubble
shd	sheared

GENERAL TERMS

tr	trace
lgt	light
dk	dark
brt	bright
ox	oxidised
fg	fine grained
mg	medium grained
cg	coarse grained

ABBREVIATED DESCRIPTION FORMAT

LITHOLOGY :

LITHOLOGY | WEATHERING | ALTERATION

colour. composition. form. texture / intensity / composition. intensity. form. texture

example gy-gn. YA. flv / Ox 3 / Fu.3. dis

Interpretive comment can be added in brackets ( )

FAULT :

WIDTH (cms) / MINERALOGY. TEXTURE

example F 20 / Cl. cav.

VEIN :

WIDTH (cms) / MINERALOGY. TEXTURE

example V 5 / Q. Py. cav

INTERPRETIVE GEOLOGICAL MAPPING LEGEND MAC89,111 PLAN SERIES

VOLCANICS

R.l, R.lb	26	Rhyolite lava, lava breccia
R.av, R.lv, R.bv, R.xv	25	Rhyolite volcaniclastic
YR.av, YR.lv, YR.bv	68	Rhyolitic Polymict volcaniclastic
D.l, D.l.b	63	Dacite lava, lava breccia
D.av, D.lv, D.bv, D.xv	54	Dacite volcaniclastic
YD.av, YD.lv, YD.bv	56	Dacitic Polymict volcaniclastic
A.fp.l, A.fp.lb	48	Andesite feldsparphyric lava, lava breccia
A.l, A.lb	41	Andesite lava, lava breccia
A.av, A.lv, A.bv, A.xv	44	Andesite volcaniclastic
YA.av, YA.lv, YA.bv	40	Andesitic Polymict volcaniclastic
B.l, B.lv	45	Basalt lava, lava breccia
B.pl	50	Basalt pillow lava
B.av, B.lv, B.bv, B.xv	49	Basalt volcaniclastic
YB.av, YB.lv, YB.bv	42	Basaltic Polymict volcaniclastic
Y.av, Y.lv, Y.bv	58	Polymict rock
av	52	Ash volcaniclastics (composition not determined)

SEDIMENTS

Ss, Gw	71	Sandstone, micaceous Greywacke
Sh	68	Shale, black (carbonaceous, pyritic)
Slt	69	Siltstone, tuffaceous Siltstone

SULPHIDES, SULPHATES

BMS	21	Base Metal Sulphide rock
MPy	29	Massive pyrite rock
GS P	23	Glassy silica, colloform pyrite rock
Ba	22	Barite

POST CAMBRIAN ROCKS

TB	8	Tertiary Basalt
JD	32	Jurassic Dolerite
OCg	20	Ordovician Siliciclastics

ALTERATION ROCK TYPES

HA	6	Highly altered rock
Qll	18	Quellite
Q-lv, Q-bv	17	Quellite fragmental

PARTIAL STRATIGRAPHIC COLUMN

TB	8	TERTIARY BASALT
JD	32	JURASSIC DOLERITE
OCG	20	ORDOVICIAN SILICICLASTICS
URS	65	UPPER RHYOLITIC SEQUENCE
QRS	68	QUE RIVER SHALE
MGW	71	MT. CHARTER MICACEOUS GREYWACKE
HBS	45	HELLYER BASALT SEQUENCE
HVS / SWB	56	HANGINGWALL VOLCANICLASTIC SEQUENCE; SWITCHBACK VOLCANICLASTIC SEQUENCE
HMS	21	HELLYER MINERALISED SEQUENCE
FPS	48	ANDESITE FELDSPAR PHYRIC SEQUENCE

ALTERATION SYMBOLS

Overprint on "HA" symbol

(Combinations can be used)

Carbonate, Chlorite, Fuchsite, Sericite, Illite, Feldspar, Pyrite, Silica

SYMBOLS MAC79,110 AND MAC89,111 SERIES

(SYMBOLS AS SHOWN IN ABEX "STANDARDS FOR GEOLOGICAL DRAWINGS", JAN. 1983)

LINE TH'NESS / LEROY LETTER SIZE (LENGTH AS SHOWN)

.35	Outcrop boundary
.35	Float
.35	Contact known
.35	Contact interpreted
.35	Contact inferred
.35	Facies change
.35	Unconformity
.25	Anticline, syncline with plunge and trend
.25	Minor fold with plunge and trend
.25/50	Bedding, strike, dip
.25/50	Foliation, strike, dip
.25/50	Joint, strike, dip
.5/50,100	Fault, definite, strike, dip, mineralogy
.5/100	Fault, inferred
.35	Shear zone
.35/60	DDH collar and trace, top 20m geology shown
.25	Grid line, stadia surveyed
.25	Grid line, tape and compass survey
.25	Grid line, nominal position
/60	P 355012 Petrology sample location
.35	Track, unsurveyed
.35	Road (unsealed) or track, surveyed
.7	Major road
.35	Costean
.25	Creek
.35	Mining Lease boundary
.5	Exploration Licence boundary
/60	•13 Peg with number, tape and compass surveyed
/60	⊕ HT17 Peg with number, stadia surveyed
.25	Alteration boundary

598997

89-3006

Aberfoyle Exploration Pty Ltd

REVISIONS			
Init.	Date	Init.	Date
GLC	12-85		
GLC	1-86		

NORTH WEST TASMANIA

MACKINTOSH E.L.2/70, HATFIELD E.L.15/73

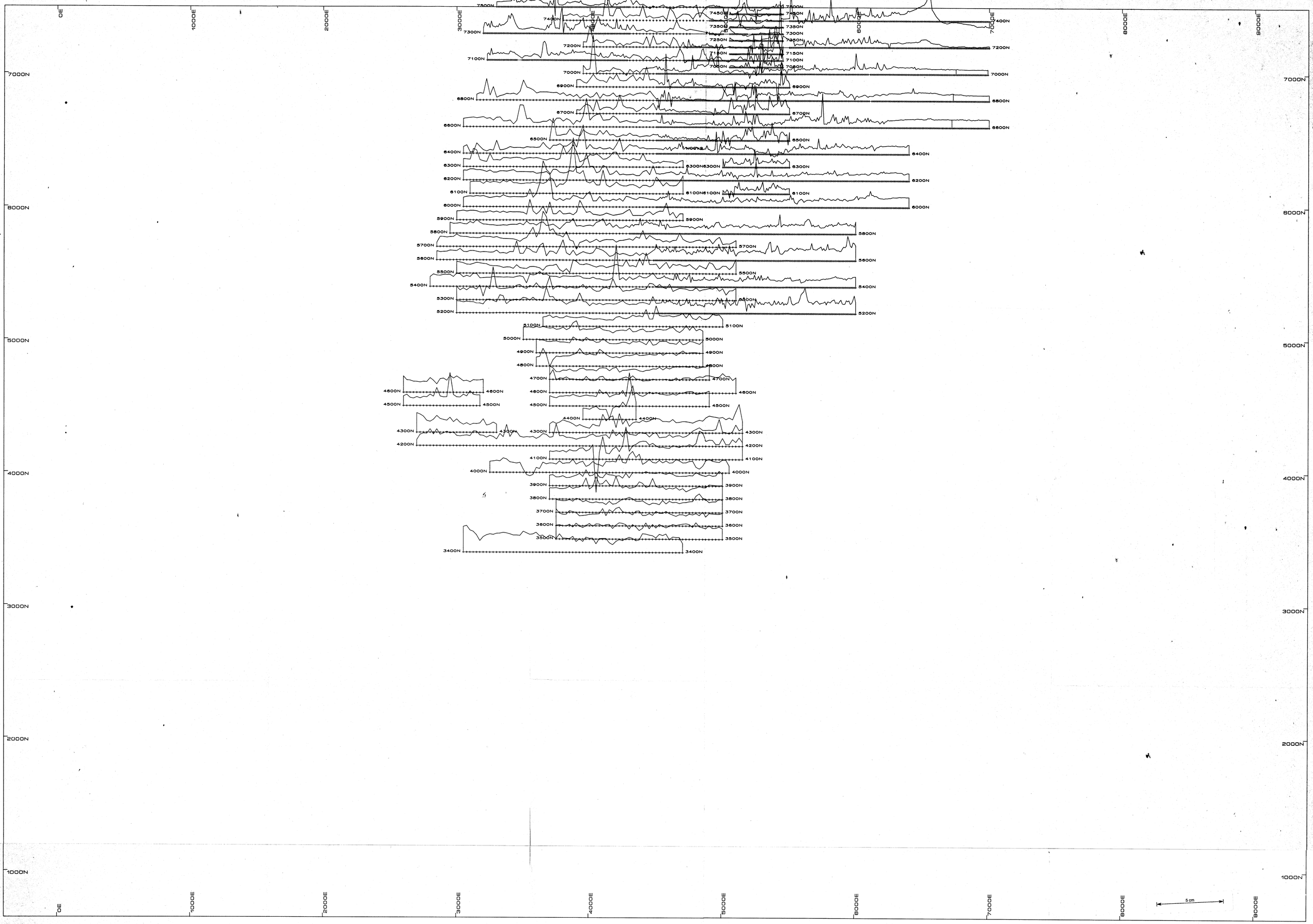
SURFACE GEOLOGICAL MAPPING LEGEND

Location Code: K55/6/44 | Scale: ——— | Date: November, 1985

Compiled:	AMH
Drawn:	AMH
Traced:	GLC
Checked:	AMH
Plate No:	MAC 114

RMO 554

8607



8607

598998

nanoteslas
420.000
280.000
140.000
.000000E+00
-140.000

89-3006

Aberfoyle Resources

MACKINTOSH E.L.2/70
HATFIELD E.L.15/73
GROUND MAGNETICS
TOTAL FIELD PROFILES

ref:MAC 111C/5	1 : 10000.
drawn:rgp	base = 50nt
revised:	plate:
file:rmmhrp	2 JULY, 1986