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Aberfoyle Resources Limited

EXPLORATION DIVISION

LAKE MACKINTOSH

EXPLORATION LICENCE 106/87

TASMANIA

PROGRESS REPORT FOR THE PERIOD

FEBRUARY 1989 TO APRIL 1990

VOLUME 1

TEXT AND APPENDICES 1-4

MICROFILMED

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488002

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MAC89 DD	1:2500	Outcrop Geology.
MAC89 EE	1:2500	Outcrop Geology.
MAC89 FF	1:2500	Outcrop Geology.
MAC89 GG	1:2500	Outcrop Geology.
MAC89 LL	1:2500	Outcrop Geology.
MAC89/3	1:2500	Outcrop Geology.
MAC89/14	1:2500	Outcrop Geology.
MAC89/15	1:2500	Outcrop Geology.
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2. Mackintosh District - Areas relinquished.

3. Lithogeochemical discrimination : Cr vs Ti/Zr.

4. Henty Fault Zone - Mount Charter follow-up stream sediment sampling.

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1. SUMMARY

Areas of exploration activity on the Lake Mackintosh licence the period February 1989 to April 1990 are shown on plates MAC 289 A, B and C. Major results are:

i) Compilation of geological mapping, soil geochemical and diamond drill hole core grind data has lead to the definition of a regionally extenisve dacitic unit between hangingwall basalt or andesite and footwall andesite. Mineralisation at Que River and Hellyer is considered to occur at the top of the footwall andesite under-lying dacite in the case of Que River and Basalt at Hellyer. Much previous drilling is considered not to have tested this position, which now represents a high priority target. Further petrological and geochemical work is required to confirm the new interpretation.

ii) 'C' horizon soil geochemical coverage of the QHV has been completed (2059 samples analysed) for both lithogeochemical (Cr, Ti and Zr) and pathfinder (Ag, As, Ba) elements. This data has been used to update the geological interpretation and has defined areas of anomalous Ba, As and Ag geochemistry not previously recognised, most notably at the contact of andesite and lower basalt.

iii) The core grind geochemical data base for the QHV has been completed. Re- interpretation of drill sections is still in progress but rhyodacitic to dacitic lithologies appear to be more widespread than previously recognised. This study has confirmed that the current geochemical classification is valid although both primary variations and alteration effects indicate a combined petrological-geochemical approach is warranted.

iv) UTEM coverage of the QHV was completed by surveys over the I_1 Zone and Mount Charter dolerite prospects. No anomalies attributable to massive sulphide mineralisation were detected.

v) Mapping, rock chip geochemistry and UTEM surveys have considerably down-graded prospectivity of the Medway and Cradle Mountain Link Road prospects in Southwell Sub-Group lithologies. Mapping to follow -up encouraging stream sediment results in the Southwell Valley area is in progress.

MAC 24

vi) Diamond Drilling (488m) and costeaning at the Black Harry Road prospect, indicate that disseminated mineralisation is probably related to dacitic intrusives in the lower part of the Animal Creek Greywacke. The Central Volcanic Complex, if present, would be at considerable depth (>500m) in this area. No further work is warranted.

MAC 23

vii) At Mount Charter, diamond drilling (280m) and rock chip geochemistry have further defined the low grade precious metal zone. To the northwest the hangingwall anomaly, defined by soil geochemistry, has been exposed by costeaning and shown to be the result of sericitie-pyrite alteration of andesite. It is recommended that this anomaly be followed-up prior to further investigation of the main Stringer zone at Mount Charter.

viii) Stream sediment sampling, soil geochemistry and mapping have down-graded the North Henty Fault and Barite Creek gold anomalies. No further work is recommended in these areas.

ix) Mapping and soil geochemistry over the South Mackintosh area indicate that dacitic lithologies are more widespread than previously recognised and may overly an untested potential ore-horizon. Stratigraphic drilling is recommended. The QHV are not closed off to the south around 2000N, 6000E and further mapping is required in this area.

x) At southwest Mount Charter diamond drilling (530m) MAC 25 failed to intersect the target Que-Hellyer host horizon but DHEM is considered to have effectively tested the immediate vicinity of this hole. Further potential exists at depth below DDH MC-9 and MC-10, to the north, but the design of subsequent drilling should include geological input from a planned deep drill hole at Mount Charter.

xi) Under the terms of the Hellyer Mine Agreement Ratification Act 1987 a total of approximately 40.2 sq. km., in six blocks, on the northern and eastern edges of EL 106/87 were relinquished on 5 February, 1990. These areas are underlain by either Tertiary basalt and/or mid-late palaeozoic sediments and are considered unprospective for Cambrian VMS deposits.

2. INTRODUCTION

The Lake Mackintosh licence (EL 106/87) was granted to Aberfoyle Resources Limited on 5 February, 1988 as a result of the Hellyer Mine Agreement Ratification Act 1987. The licence comprises 135 square km. previously covered by EL's 2/70 (Mackintosh) and 15/73 (Hatfield) and encloses the 20.2km^2 of CML's 68M/84 and 103M/87 (around the Que River and Hellyer mines and facilities) (Figure 1).

Under the terms of this Act the first phase of EL reduction, to 95 sq. km. was completed on 5 February, 1989. The six areas relinquished are shown on Figure 2.

This report summarises exploration completed on the Lake Mackintosh licence, EL 106/87, for the period February 1989 to April 1990.

The result of regional programmes covering both EL 106/87 and CML 103M/87, normally reported separately, have been included in this report for the scake of clarity and brevity.

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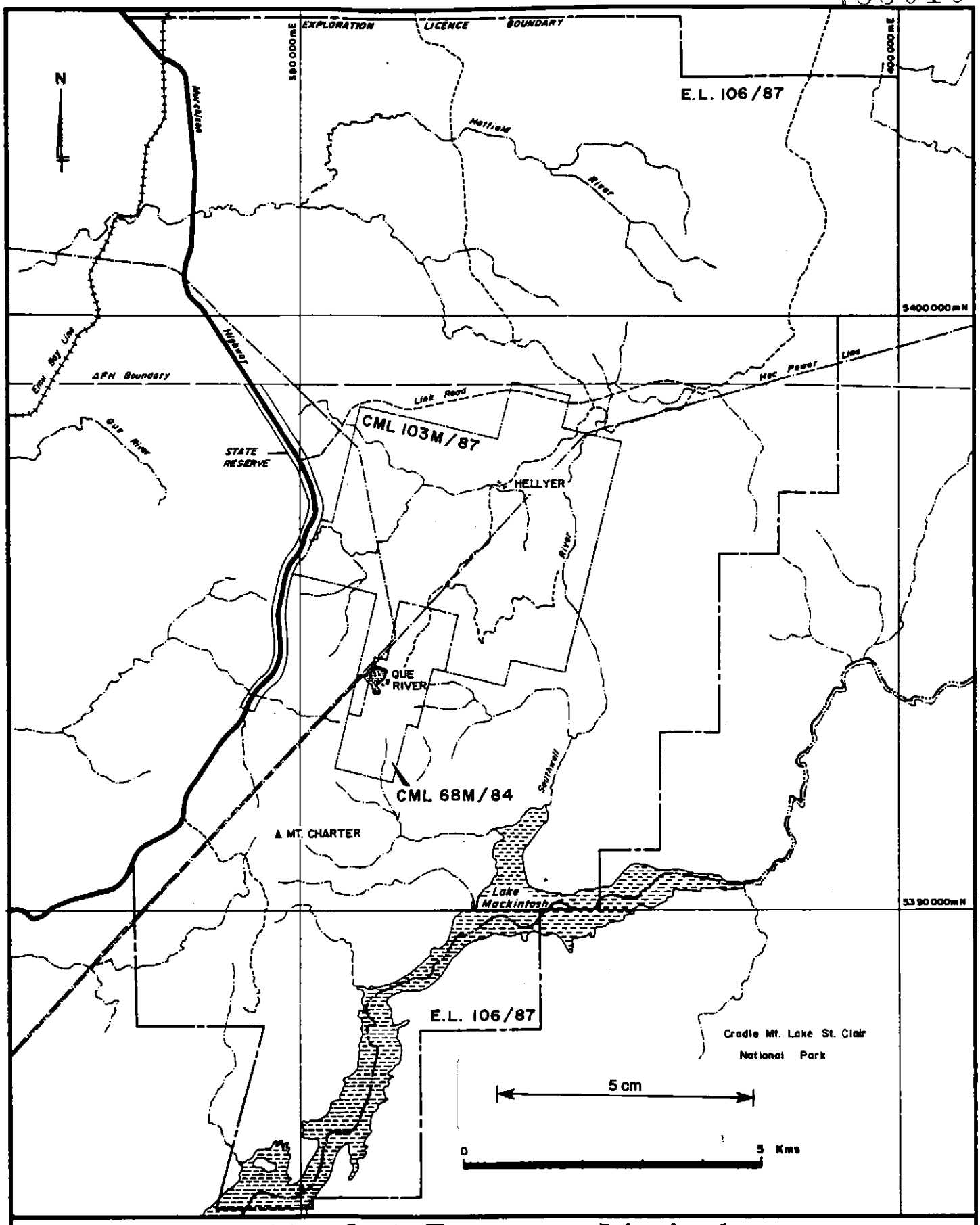

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FIGURE 1.

REVISIONS			
Init.	Date	Init.	Date

NORTH WEST TASMANIA

MACKINTOSH DISTRICT

TENURE SUMMARY

Compiled : AMcN

Drawn :

Traced : JLR

Checked : A McN

Location Code : K55/6/44

Scale : As shown

Date : February, 1988

Plate No. : MAC 181

1511

488011

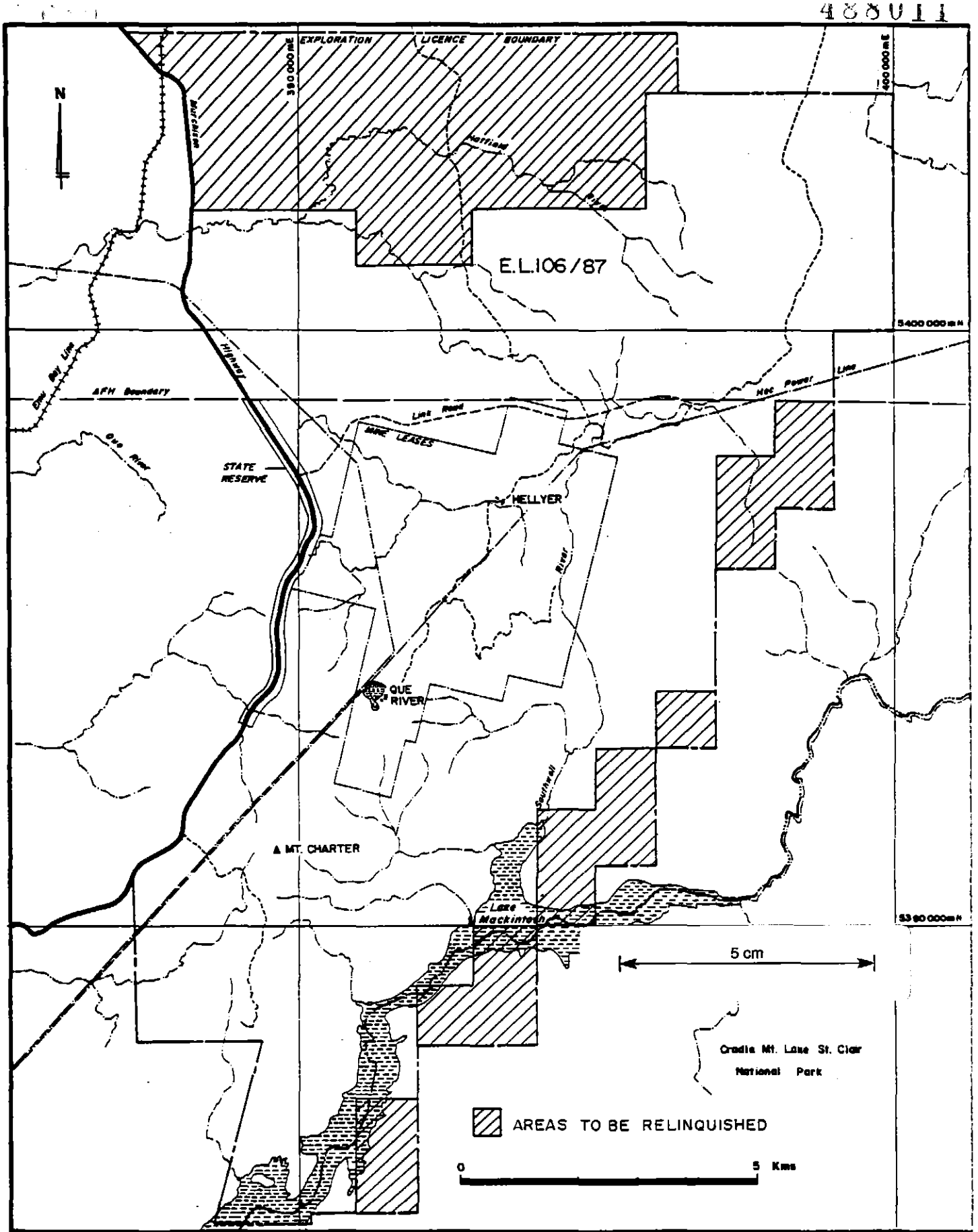

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FIGURE 2.

REVISIONS			
Inst.	Date	Inst.	Date

NORTH WEST TASMANIA

MACKINTOSH E.L.106/87

AREAS TO BE RELINQUISHED

Compiled : AMcN

Drawn :

Traced : RJE

Checked :

Location Code : K55/6/44

Scale : As shown

Date : December, 1989

Plate No. : MAC 274

3. REGIONAL PROJECT

3.1 Introduction

Exploration to date has resulted in virtually complete coverage of the QHV by soil geochemistry, UTEM and mapping with the resultant conclusion that all near surface targets have been tested and future targets will be deep (<200m) blind systems.

To aid in defining deep targets it was planned to complete the surface data base by mapping, soil geochemistry and UTEM and to further utilize existing drill hole data by completion of the core grind lithogeochemical data base and initiating investigations into geochemical vectors for blind mineralised systems.

3.2 Geology

3.2.1 Infill Mapping

Barite Creek

In conjunction with the Max-Min survey (section 3.4.2) the Barite Creek infill grid was mapped at 1:2500 scale. Results are presented on plate MAC89 EE (see plate MAC114 for legend). The geology of the eastern part of the grid is dominated by Quaternary glacial deposits varying from rounded pebble-cobble clasts of quartzite (both Precambrian and Siluro-Devonian) and volcanics in a grey-brown clay rich matrix to finely laminated (varved) shale and mudstone.

Basalt float around 4800N, 6800E has been mapped previously (McNeill 1989 b) but despite a close examination of this area no outcrop was located and most basalt float is mixed with glacially derived material. ?fluioglacial deposits up to 2m thick occur on the west bank of the creek here.

Float of basalt, identical in appearance to the lower basalt, is common around 5300N, 6500E in the immediate vicinity of a major creek. It is not clear whether this material is derived from down-slope dispersion or is in-situ. Soil sampling is proposed in an attempt to resolve this problem. The only outcrop of volcanic on this grid, a siliceous rhyodacitic-dacitic lava occurs at 5100N, 6520E and is typical of lithologies east of the Henty Fault Zone.

3.2.2 Regional Geology

Mapping completed during the reporting period has been incorporated into an updated 1:10000 geological interpretation, plates MAC161 A, B and C. Detailed geology is discussed in relevant sections but major features are:

i) A large doubly plunging syncline southeast of Mount Charter defined by dacitic to rhyodacitic lava with hangingwall andesite in its core.

ii) The Henty Fault Zone does not appear to crop out north of the Sharks Fin track.

iii) Boundaries in the Amoeba zone - Old Mill Site Syncline have been refined by interpretation of the new soil geochemical data (section 3.3.1).

This updated interpretation has been combined with drilling information to produce a series of 1:10000 regional interpretive cross sections, plates MAC269 A-D. Major features of these sections are:

i) The presence of hangingwall andesite, between basalt and dacite, north of the Que fault.

ii) A continuous dacite horizon from the Mount Charter area north to the tailings dam area.

iii) Presence of 'domes' of hangingwall basalt in a dominantly andesitic sequence south of the Que fault.

iv) The lower basalt shows major thickness changes superimposed on a general westward thinning.

The cross sections have been used, in conjunction with drilling information, to compile 1:10000 level plans at 500m (± 50m) and 250m (± 50m) R.L. (plates MAC284 and 285 B and C). These plans emphasise that the QHV are interpreted to be relatively thin (generally <700m thick) and thus the volume of volcanics not tested by UTEM, i.e. >200m below surface for a Que River size target, is not large.

Compilation of this data has led to the proposal of a new model for mineralisation in the QHV. It is now considered that the Que River and Hellyer ore bodies occur at one horizon, the Que-Hellyer Host Horizon, at the top of the footwall andesite. This position underlyies dacite at Que River and basalt at Hellyer.

Further work, planned and in progress, will include petrological and geochemical studies to confirm the validity of the Que-Hellyer Host Horizon model, and locate its position south of the Que Fault, updating of cross sections and level plans by incorporating recent mapping, showing degree of reliability of interpretation, and production of level plans for the 0m R.L. and -250m R.L. levels. This will lead to definition and prioritization of prospects for stratigraphic/target drilling.

3.2.3 Mackintosh Lineament Study

This initial study completed by Ian Freytag, had two main aims:

i) To define fractures, faults, linears and lineaments which might contribute to a better understanding of structure, geology and mineralisation/ore controls on the Mackintosh licence.

ii) To test a regional lineament - massive sulphide relationship, interpreted from 1:500,000 data sets (Freytag pers. comm., 1989), by focussing on the Que-Hellyer-Charter mineralised trend.

To this end Lands Department 1:10,000 colour airphotos (1986 series) were used to identify linears, which were then plotted onto 1:10,000 interpretative geology sheets (plates MAC 283 B and C). These linears were eye-balled and not corrected for distortion, sometimes leading to a "refraction" effect from photo to photo. Apparent variations in the strength of linears may be the result of light angle effects while extensive clearing and earthworks associated with the Que and Hellyer mines may have masked important structures. Linears have been graded as strong or clear to subtle.
A rapid appraisal of image processed Cu, Pb and Zn 'C' horizon soil geochemistry (plate MAC 168, held in Burnie) provided arbitrary highs (anomalies) which have been plotted along with linear breaks in this data. These are not well understood and are currently being investigated, as are broad geochemical patterns related to lithological variations.

There appears to be a strong set of WNW to NW striking linears that cut the Que-Hellyer-Charter mineralised trend more or less orthogonally. L1 (see plate MAC 283) is probably an expression of this trend which further north becomes a topographic and then geologic lineament. There is a good indication that the WNW-NW linears form corridors (labelled C1 to C7) associated with known centres of mineralisation/alteration. These may be important structural indicators for VMS concentrations. Some linears clearly control extent of certain rock types and, in some cases geochemical patterns (e.g. L2, L6). L6 is a strong feature striking into the Que deposit from the SSE, and appears to affect the geology north of the mine. L7 and L8 are similar features near Mount Charter.

Three major areas of interest have been highlighted:

A1 (Mount Charter): Review all data (geological and geophysical) in terms of possible large structures in this area.

A2 (Nth Mount Charter): There appears to be good structural and lithological indicators in this area but poor geochemistry. Geophysical data should be reviewed to ascertain if the EM configuration used has eliminated the possibility of a NW plunge to mineralisation.

A3 (East of I_1 Zone): This is considered to be a high priority target on structural grounds, with weak geochemical encouragement (at the andesite-lower basalt transition?). The effectiveness of deep search EM in this area should be assessed.

In addition it is recommended that this study should be expanded to include geophysical (Magnetics and EM) and further soil geochemical (image processed Ba, As, Ag, Cr and Ti/Zr) data to confirm these initial conclusions.

3.3 Geochemistry

3.3.1 Soils

The usefulness of Cr, Ti and Zr analyses of soil samples, to aid in geological interpretation of areas of poor outcrop, has been demonstrated, in the Mackintosh district, by sampling programmes described in McNeill (1989b and c). As only partial coverage of the QHV for these, and the pathfinder elements (i.e. Ag, As, Ba), was available, a programme to complete coverage was initiated.

To this end a total of 67.7 line km of grid was cut and re-cleared, on both EL 106/87 and CML 103M/87, and 2011 'C' horizon samples were collected by hand auger, from depths up to 1m, at 25m sample spacing. A total of 48 samples from lines 5800N and 5600N, which had been collected in previous programmes and for which sufficient pulp remained, were also re-assayed.

Results are included as Appendix 1 while sample locations are included in Appendix 1 and on plate MAC294.

Data has been merged with the existing Mackintosh soil data base and transferred from the HP1000 to the Amiga 2000 in Burnie. Image processing at 1:10000 scale is in progress and will be reported at a later date.

Major features apparent in the data are:

i) An apparent continuation of the Mount Charter - hangingwall anomaly trend (section 7.3) north west to near DDH MC-11, parallel to a recently interpreted fault. Pb and Zn anomalies appear to be displaced further north than As and Ag anomalies.

ii) A low in Cr and Cu values, indicating non-basaltic lithologies, in the Old Mill Site Syncline, around 6300N, 4000E, that requires follow-up geological mapping and may be related to a major E-W trending discontinuity in Cu data.

iii) The andesite-lower basalt contact, north of the Barite Creek track, is defined by a weak Zn and moderate to spotty high Ba, As and Pb anomalies.

iv) Moderate Ba and As anomalies are centred on 3500N, 5400E over andesite and dacite in the South Mackintosh Syncline and moderate As anomalies around 1800-2000N, 5500-6000E.

v) There appears to be a well defined zone of Ba dispersion downslope and to the east of Mount Charter.

These comments result from an initial examination of the data and further interpretation based on the results of the image processing is required.

3.3.2 Costean

A total of 19, 5m, channel samples were collected from the 6400N, 3375E and 6500N, 3425E costeans at the N.W. Mount Charter prospect, to check the geological interpretation prior to planned rehabilitation of these costeans. Results and sample locations are included in Appendix 2. Base metal values are generally low with spotty highs, most notably 1100 ppm Pb in QRS. As anomalies to 200 ppm, occur in basalt in the 6500N; and QRS in the 6400N costean. In both trenches Ba is high adjacent to the QRS - basalt contact (1950 ppm max.) and drops off in the volcanics (to 350-900 ppm). High Cr values confirm the volcanics to be basalt in the 6400N costean, but are variable (from 100-500 ppm) in the 6500N costean, suggesting andesitic to basaltic lithologies. However, high Ti/Zr values, up to 39, confirm the volcanics are basalts.

3.3.3 Alteration Geochemistry

Research at Hellyer, by Dr. Bruce Gemmell (Gemmell, 1989) has indicated the usefulness of major element variation to define proximity to ore position within a VMS alteration system. This has prompted a review of geochemical vectors for blind mineralisation (Appendix 7) that indicates a combination of major element (K_2O, MgO, CaO, Na_2O and S) and isotopic (oxygen and sulphur) geochemistry may be applicable.

As an initial test a suite of seven samples were collected from DDH HAT-3 (Sise, 1983) and analysed for alteration index elements. Results indicate that alteration commences at between 48 and 78m and persists to the end of the hole, whereas initial logging suggested the hole had passed out of the alteration, with values of the alteration index from 32.8 in unaltered, to 91 in altered lithologies. The high alteration index at 28.5m (93.6) is most probably the result of near-surface leaching and highlights the sensitivity of this technique.

It is planned to apply these vectors to specific horizons, e.g. the top of the footwall andesite, from drill holes on both the EL and ML in an attempt to locate blind mineralised systems.

3.4 Geophysics

3.4.1 Mount Charter Dolerite

A review of ground EM coverage of the Mackintosh district indicated that the area between 4600N and 5400N and 3200E to the Murchison Highway had not been surveyed and that the interpreted Hellyer ore position may occur within the range of effective UTEM.

A one loop survey generated 3.1 line km of 50m spaced H_z component data. Results and interpretation are included as Appendix 3. No conductors attributable to sulphide mineralisation were detected.

3.4.2 Barite Creek

Two airborne EM anomalies, 27 and 28/75, located by the 1975 McPhar H400 survey had not previously been followed-up, however their location close to the basalt occurence east of the Henty Fault Zone provided encouragement for further work using Max-Min EM. A total of 5.1 line km of 25m spaced data was collected. Results and interpretation are included in Appendix 4. The airborne-EM anomalies show poor correlation with Max-Min anomalies, possibly due to plotting errors, but both are attributed to glacial overburden.

3.5 Diamond Drilling

3.5.1 Core Grind Geochemistry

Introduction

Previous work, summarised in McNeill (1989b), has demonstrated the usefulness of lithological discriminator elements (i.e. Cr, Ti and Zr) when applied to core-grind data and, although a large database exists many early drill holes were not analysed for these elements.

A project to complete this database, for both lithological and alteration pathfinders (i.e. Ba, As and Ag), was completed and the results used as an aid to reassessing the geology of the Mackintosh district.

Results

A total of 522 samples, including standards, were analysed from diamond drill holes on both the EL and ML (see Appendix 5 for results). In the majority of cases, existing samples were re-assayed although re-grinding of short intervals or entire holes was necessary where samples were lost or insufficient sample remained. In some cases it proved feasible to bulk samples over two or more intervals to avoid re-grinding (see Appendix 5 for a list of these samples). Results were then entered onto the database and the rock-type, as defined on Cr vs Ti/Zr plot (Fig. 3), was compared with logged rock-type and discrepancies noted. Many of these discrepancies have been resolved by re-description of thin-sections (Appendix 6) and/or re-examination of core.

The results of this study, for each drill hole investigated, are summarised below. Note that for ease of comparison with other datasets Ti/Zr values are quoted and not Zr/Ti as previously used.

HAT-1 (Young, 1977)

This hole had not previously been core-ground. Grinding intervals and results are included in Appendix 5. This hole was originally logged as Que River Shale overlying andesitic-dacitic volcanics, however re-logging by Hespe (1985b) suggests a sequence from shale to basalt, potential host lithology and footwall sericite-pyrite altered andesitic lavas. The presence of hangingwall basalt is confirmed by high Cr values, although Ti/Zr values of approximately 14 appear to be rather low. The footwall "andesites" have low Cr (<20 ppm) and Ti/Zr ratios (15) on the border between andesite and dacite. Further petrology is required to resolve this discrepancy.

HAT-2/2A (Young, 1977)

This hole was initially ground and analysed for Cu, Pb and Zn. These grinds (sample nos. 205863-205965) were re-assayed for Ba, As, Ag, Au, Cr, Ti and Zr. The interval 132.8-140m was logged as andesite and has geochemistry consistent with this identification, however from 140-217m Cr values are low and Ti/Zr values fall at the upper limit for dacite, suggesting these lithologies are more dacitic in character. Petrological work is required to resolve this problem.

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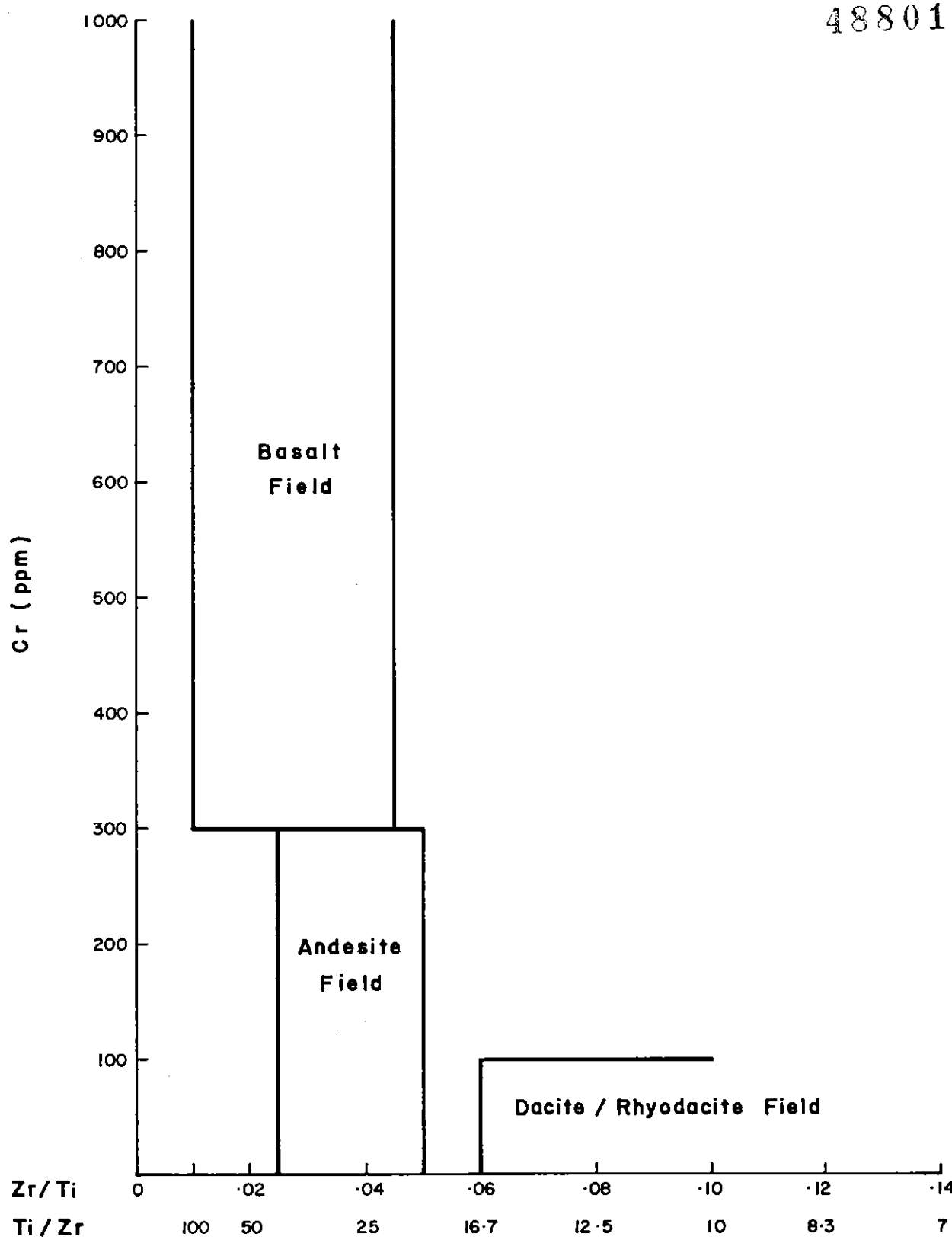

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FIGURE 3.

REVISIONS			
Init.	Date	Init.	Date
Location Code :			

LITHOGEOCHEMICAL DISCRIMINATION BY Cr VERSUS Ti/Zr REFERENCE FIELD

Scale :

Date : April 1990

Compiled : A McN

Drawn :

Traced : J M S

Checked :

Plate No. : MAC 292

1511

HAT-3 (Sise, 1983)

Core grinds, initially analysed for Cu, Pb, Zn were re-assayed for all elements (Cu, Pb, Zn, Ba, As, Ag, Au, Cr, Ti, and Zr). The section was initially logged as interbedded variably altered dacite and andesite, however the geochemical results indicate the section is dominantly dacite, with minor andesite from 125-140m. This conclusion is supported by petrology (Sise, 1983). Ag, As, Au and Ba values also confirm that the hole terminated in alteration (see section 3.3.3).

HAT-4 (Hespe, 1986)

No re-assaying required. The interval 478.2-496.2m logged as silica-albite altered andesitic breccia has dacitic-rhyodacitic chemical characteristics (Cr <5ppm, Ti/Zr <10). Petrologically a sample from this interval was described as an "andesitic breccia". Re-examination of this thin-section is warranted to resolve this discrepancy.

HAT-6 (McNeill, 1989b)

No re-grinding or assays required. Basalt, logged from 118-190m, has lower Cr values (<100ppm) than would be expected. Petrology from this interval (CMS 86/9/13 McNeill, 1989b and Appendix 6) indicate that the lithology is basaltic and that low Cr values may be due to patchily developed intense quartz-epidote alteration (described in drill log as an rhyolitic dyke at 119.8m). From 280.8m to E.O.H. (262.5m) lithologies logged as andesitic lava have low Cr and Ti/Zr values (~5ppm and ~0.5 respectively) more characteristic of dacitic-rhyodacitic lava's.

This has been confirmed by petrology (samples 383633 and 634) which classifies the lithologies as silicified perlitic dacitic obsidian.

HAT-7 (McNeill, 1989b)

No re-assays required. Identification based on lithological discriminator elements is in good agreement with logged rock-types except for the interval 13.0-19.0m where Cr (30ppm) and Ti/Zr (10) are low and more characteristic of dacite than the logged andesite. This is supported by thin-section description which indicates leuco-andesitic (i.e. dacitic) composition.

MC-6 (Hespe, 1985a)

Several intervals were re-ground due to insufficient remaining sample and these, and existing samples were analysed for Ti and Zr. This hole was originally logged as dominantly andesite with minor dacitic intervals, however generally low Cr and Ti/Zr values indicate dacite below 22.2m. This has been confirmed by re-examination of thin sections no. 315722, 727 and 430850 (Rand, 1988) which were initially described as felsic intermediate or leuco andesitic lava but, are now considered to be dacite (Appendix 6).

The cause of spotty high Cr values (max. 940 ppm) in dacite below 204m is not understood.

MC-8 (Hespe, 1985a)

Samples from this hole were re-assayed for Ti and Zr. The interval 30-90m has low Cr and Ti/Zr (approximately 14) suggesting a dacitic composition, however CMS petrological descriptions suggest one sample, from this interval, is andesitic while another (315721 at 83.3m) was described as a dacite. Further petrology is required to resolve this discrepancy. The intervals 40-130m and 220 to 235.3m (E.O.H.) again have dacitic chemistry and this is confirmed by petrological descriptions ("leuco-andesites", now considered to be dacite). The dacites in the interval 180-200m have high Cr (to 120 ppm). As with MC-6, the reason for this is unclear.

MC-9 (Hespe, 1985a)

The complete length of this hole, except the interval 159.6-160m, was re-ground and samples assayed for all elements (i.e. Cu, Pb, Zn, Ba, As, Ag, Au, Cr, Ti and Zr) as the original grinds appear to have been lost.
Lithological discriminator elements confirm the logged rock types to 160m but lithologies lower in the hole, initially logged as andesite, have Cr (10-40 ppm) and Ti/Zr ratios (approximately 8) indicative of dacite from 160-200m and lower Ti/Zr values (approximately 5) suggesting rhyodacite from 200-248m. Thin sections from both these units (315737 and 739) have been described as weakly sheared chloritically altered dacite (Appendix 6). Basalt from the interval 70-80m has a high Ti/Zr (43) approaching that of the core lava described by Jack (1989) from directly above Hellyer. Lithologies with this geochemistry are normally found at the base of the hangingwall basalt and the significance of this interval, within the basalt, is not understood.

MC-10 (Hepse, 1985b)

As with MC-9 the complete length of this hole was re-ground, but samples were analysed for Ti and Zr only. Logged lithologies are consistent with geochemistry above 250.4m. However from 250.4-264.4m (E.O.H.), Ti/Zr values are low (approximately 9) suggesting dacitic affinities but with unusually high Cr values (270 and 440 ppm respectively). Thin sections have been described as leuco-andesites and sericitised trachyte, generally confirming the geochemical interpretation. The interval 246.2-250.4m considered by Hespe (1985b) to be volcaniclastic and equivalent to the potential ore position in MC-9, has been described in thin section as dominantly lava breccia.

MC-11 (Hespe, 1985b)

Existing samples from this hole, and a re-grind of the interval 116-126m were assayed for Ti and Zr. The interval 6.0-162.0m is dominated by brecciated to massive andesitic lava with apparent dacite clasts which may correlate with similar lithologies mapped at surface (section 6.2) with low Cr values and Ti/Zr ration of 12-20. From 162m to 250.0m (E.O.H.) lithologies have low Cr (<10 ppm) and Ti/Zr ratios of approximately 10, suggesting dacitic affinities. This is confirmed by re-description of samples 315770 and 771, which are classified as patchily chlorite altered dacites. Included in the lower interval is a 1.5m wide (239.1-240.6m) vesicular-basaltic lava or intrusive with high Cr (1400 ppm) and Ti/Zr (44) that is approaching the Hellyer core lava ratio described by Jack (1989). It is possible that this unit is a more primitive feeder to the Hellyer basalt.

MC-12 (Hespe, 1985b)

Existing samples and a re-grind of the interval 340.2-343m, were analysed for Ti and Zr. From the base of the QRS to 325m, Ti/Zr values of 14-18 and low Cr (>5 ppm) suggest these lavas, logged as andesite, are on the border between andesitic and dacitic chemistry. Further petrology from this interval is required. From 325m to E.O.H. geochemical classification is in agreement with logged rock type.

MC-13 (Hespe, 1985b)

The interval 283-288.4m was re-ground and analysed, with the remaining original grinds, for Ti and Zr. There is a good correlation between logged lithology and geochemical classification in this hole.

MC-14 (McNeill, 1989a)

No further assays required. The interval 148.9-253.5m was logged as andesite with Cr values from 35 to 60 ppm and Ti/Zr averaging 15. Petrographically these lithologies have both ?quartz and ferromagnesian phenocrysts. Further petrology is required to resolve if these lithologies are dacitic or andesitic. The interval 253-269m was logged as andesite, however high Cr (420 ppm) and Ti/Zr (27) indicate basaltic affinities. Basalts from 332.8-452.8m have low Cr (120 ppm max.) and Ti/Zr (16 average) suggesting andesitic affinities. This is supported by re-examination of sample 383611 which has andesitic-dacitic characteristics. From 452.8m to 529.7m (E.O.H.) lithologies logged as interbedded andesite and basalt have low Cr (<70 ppm) and Ti/Zr of 13 to 17, indicating andesitic, possibly bordering on dacitic, affinities for the whole interval.

MC-15 (McNeill, 1989a)

No further assays required. The interval 10.4-57.7m has low Cr (<10 ppm) and Ti/Zr (10) values suggesting dacitic affinities. A second dacitic unit, from 120.5-188.0m, is defined by low Cr (<30 ppm) and Ti/Zr (approximately 10) and has previously been identified by D.O.M. geologists (McNeill 1989a). This dacite is underlain by a unit logged as basalt (188.0-354.3m), but with low Cr (<80 ppm), a sample (383648) of which has been described as an andesite. The lower part of this interval has Ti/Zr values of 38-40.

MC-17 (McNeill, 1989a)

Only the lower 141m of this hole was sampled and no further assaying was required. The interval 285-309m has low Cr and Ti/Zr (8.3) and has been described in thin section as a leuco-andesite by CMS. It is now considered that this interval is a rhyodacitic lava, rather than andesitic, overlying the ?lower basalt.

MC-19 (McNeill, 1989a)

No further assays required. The interval 16-40.4m has low Ti/Zr (approximately 6-7) and Cr (<20 ppm) indicating dacitic affinities rather than andesitic as logged. Probable dacites were also intersected from 40.4-186.5m with Cr values generally lower than 10 ppm and Ti/Zr averaging 13. The one thin section from this interval that has been re-examined is a polymict dacitic-andesitic lava breccia and thus not diagnostic. Further petrology is required to confirm this interval is dacitic.

MAC-20 (McNeill, 1989c)

Core grind samples from the base of the tertiary basalt, i.e. 51m, to E.O.H. were analysed for Cr, Ti and Zr. The affinities of these volcaniclastics and sediments are variable from rhyolite to andesitic while Cr values in micaceous greywacke are high (up to 520 ppm). This may reduce the usefulness of this indicator in characterising the Animal Creek greywacke.

Summary and Recommendations

i) The core-grind geochemical database for the QHV has been completed and data re-assessed to aid in re-interpretation of drill sections.

ii) Although many discrepancies between logged lithologies and corresponding geochemical classification have been resolved, there are still problem areas that require further petrological and/or geochemical work. This process is on-going and when completed will lead to updating of existing drill sections and lithological descriptions in the core-grind database.

iii) Rhyodacitic to dacitic volcanics appear to be more widespread than previously interpreted. Many of these intersections were originally logged as andesite and the mismatch between geochemistry, where available, and logged rock-type was ascribed to the effects of intense silica-albite alteration. Petrographic descriptions also appear to have classified many of these intervals "leuco-andesites" which have since been re-described as true dacites. It should also be noted however, that a continuum from true dacite to true andesite may exist and this has, and will, complicate classification.

(iv) Basalts with a geochemistry approaching that described by Jack (1989) from the core lava above Hellyer, occur in: MC-9; (70-80m) and MC-11 (239.1-240.6m). The genetic significance of samples with similar chemistry from elsewhere on the licence is currently being assessed as part of the Hellyer Stringer Zone Project (Gemmell, 1989).

v) The current geochemical classification system (see McNeill, 1989c) appears to be valid although alteration effects, e.g. low Cr in quartz-epidote-carbonate altered basalt, and some probable primary variations, e.g. high Cr (to 940 ppm) in dacites in MC-6 and MC-8 make a combined petrological-geochemical approach more useful.

3.6 Summary and Recommendations

i) Soil geochemical, UTEM and core grind geochemical coverage of the QHV has been completed. Updating of geological mapping is on-going as problem areas are located.

ii) An updated interpretation of the QHV, including recent mapping and soil geochemisty, is presented on plates MAC161 B and C. The presence of large areas of dacite has important implications for exploration.

iii) A total of 2059 'C' horizon soil samples were analysed to complete lithogeochemical and path-finders element coverage of the QHV. Interpretation of these results is in progress.

iv) A UTEM survey at Mount Charter Dolerite and Max-Min EM at Barite Creek failed to locate conductors worthy of follow-up.

v) A review of core grind and petrological data indicate that dacite lithologies are more widespread than previously recognised. This has important implications for the location of VMS prospective horizons in the QHV, however further petrological work is required to confirm these interpretations.

4. SOUTHWELL-LEVEN RIVER

4.1 Introduction

Exploration of the Southwell Sub-Group (including the Upper rhyolitic sequence), a volcano-sedimentary sequence conformably overlying the QHV, was initiated during the 1987-1988 field season (McNeill, 1989c) and resulted in the definition of three areas worthy of follow-up:

1) Medway River: reconnaissance mapping has located a complex of rhyolitic lava/intrusive flanked by felsic volcaniclastics and overlain by Owen Conglomerate, with no intervening Tyndall Group, suggesting it formed a topographic high in the late Cambrian. This is a similar stratigraphic setting to the Red Hills prospect, and thus may be prospective for Rosebery style VMS.

2) Southwell Valley: a -72# stream sediment programme in conjunction with reconnaissance 1:2500 scale mapping has located two first order As, Pb, Zn anomalies and a lower order Pb, Zn, As anomaly associated with pyrite-silica altered volcanics.

3) Cradle Mountain Link Road: Barite veining on the margins of a rhyolitic lava/intrusive appears to be spatially related to intense fuchsite alteration in adjacent volcaniclastic grits and sandstones. This alteration style is similar to that described above Hellyer by Jack (1989).

These three areas were followed up by mapping, UTEM, Max-Min EM and rock chip sampling.

4.2 Geology

4.2.1 Medway River

Mapping at 1:2500 scale was completed over the Medway UTEM grid. Results are shown on plates MAC 89/14 and 15. Major lithological types have been described by McNeill (1989c). No major changes to the geological interpretation have resulted from this mapping but boundaries with tertiary basalt cover have been refined. It has also been recognised that some outcrops of grey siliceous conglomerate, initially mapped as Owen Conglomerate, are tertiary silcretes, especially around 17000N, 7600E. Felsic lapilli volcaniclastic, with sericitic eutaxitic and rhyolitic lava clasts, north of 16000N appear to be more widespread than previously recognised. Float of possible ore host lithologies i.e. un-mineralised grey laminated shale and ash volcaniclastic has been located at 16200N, 7120 and 7350E and 16800N, 8090E. No further alteration or mineralisation has been located but iron oxide rich gossanous float, possibly after felsic lapilli volcaniclastic was seen at 16000N, 7620E.

4.3 Geochemistry

4.3.1 Cradle Mountain Link Road

Channel Samples:

5m channel samples were collected from 40m either side of the rhyolite-volcaniclastic contact and analysed for Cu, Pb, Zn, Ba, As, Ag, Au, Cr, Ti, Zr, and CaO. Results are included in Appendix 8. Base metal values are low throughout the section (maximum 75 ppm Pb) while precious metal values are all below detection limit as is As. Ba reaches a peak value of 42.4% on the margin of the rhyolite and is high (up to 4200 ppm) in volcaniclastics adjacent the contact but decrease with increasing distance from this point. Cr is high in the intensely fuchsite altered volcaniclastics (up to 1000 ppm) but low immediately adjacent to the rhyolite contact (45 ppm). CaO values are all low, <400 ppm, possibly a result of weathering of the exposure.

4.4 Geophysics

4.4.1 Medway River

A four loop UTEM survey was completed over this area, considered prospective for Rosebery style VMS deposits. 30.4 line km of 50m spaced H_z component data was collected in both in and out-of-loop configuration (as the orientation of the target conductor was poorly constrained). Results and interpretation are included in Appendix 9. No responses attributable to massive sulphide mineralisation were detected.

4.4.2 Cradle Mountain Link Road

This prospect was covered by 2 lines of the North Hellyer UTEM survey, over the northern portion of CML 103M/87 (Walker, 1989). Single component Hz data, at 50m station spacing, from lines 13200N and 13000N is included in Appendix 10. No responses attributable to VMS accumulations were recorded.

4.4.3 Southwell Valley

Three lines of Max-Min EM data were collected on the southern part of the Southwell Valley grid in a further attempt to locate airborne EM anomaly 4/75. Results and interpretations are included in Appendx 4. An ambiguous anomaly, lacking a negative double phase anomaly, was recorded over the plotted location of anomaly 4/75. A separate anomaly was identified at the eastern end of line 10600N, but requires geological or geochemical encouragment before UTEM can be recommended.

4.5 Diamond Drilling

DDH MAC-22

Geophysics

MAC-22, drilled last reporting period (McNeill, 1989c), was cased with PVC to 404m and read with DHEM (EM-37). No off-hole conductors were detected. Results of the survey are included in Appendix 11.

4.6 Summary and Recommendations

i) Mapping at the Medway River prospect failed to locate further alteration but float of un-mineralised fine grained volcaniclastic, a potential ore host, were located in two areas. A UTEM survey at this prospect did not locate any responses attributable to VMS mineralisation and as a result no further work can be recommended.

ii) Mapping of the Southwell Valley project is currently in progress and results will be reported at a later date. A Max-Min survey has defined an enigmatic response over AEM anomaly 4/75.

iii) Channel samples from the Cradle Mountain Link Road fuchsite-barite alteration were anomalous in Cr and Ba but lacked supporting As and CaO anomalies typical of hangingwall style alteration. Two lines of UTEM also failed to provide encouragement for relatively shallow (<300m) mineralisation. This prospect may require further assessment but no further work is warranted at present.

5. NORTH HATFIELD

5.1 Introduction

Exploration in this area has had two components during this reporting period:

i) Regional reconnaissance mapping, north of the Hatfield River, aimed at delimiting areas suitable for relinquishment, i.e. where prospective volcanics are covered by both mid-late palaeozoic sediments and Tertiary Basalt.

ii) Reconnaissance mapping (McNeill, 1989c) had located outcrop of possible Central Volcanic Complex lava, flanked by mica sandstone (Animal Creek Greywacke Correlate) in a window through Tertiary Basalt at the eastern end of Black Harry Road. This area was explored by costeaning, mapping and diamond drilling to assess its potential for Rosebery style VMS deposits.

5.2 Geology

Reconnaissance regional mapping was completed over an area of approximately 50 sq. km. in the northwestern corner of EL 106/87 and the D.O.M. exempt area to the north. Results are shown on plates MAC 193 A and G. Only five windows, exposing mid-upper palaeozoic sediments, in Tertiary Basalt were located while no Cambrian Volcanics were exposed.

In the Moory Mountain area (16400N, 1700E), outcrop comprises common, white-red or purple medium to coarse grained, well-bedded, bioturbated quartz-mica sandstone with rare lenses of coarse conglomeratic units containing minor chert fragments. Bedding is typically moderately to steeply northwest dipping. An anticlinal fold closure in the Moory quarry plunges at 50° to 000° magnetic. Tertiary silcrete flanks these sediments in the valley east of Moory Mt. while the contact with Tertiary Basalt is exposed in a railway cutting to the south. These sandstones and conglomerates are considered to be correlates of the upper-upper Owen Conglomerate (using the terminology of Corbett, pers. comm. 1989) on lithological criteria.

In the Clipper Road-Hellyer River area a small outcrop of orange to brown fine grained quartz-mica sandstone is tentatively correlated with the Siluro-Devonian Eldon Group. To the west of Painter Road, around 20,000N, 2,000E, Tertiary Silcrete (described as ?Moina sandstone by McNeill, 1989c) flanks a large area of quartz-sandstone and massive quartz pebble breccia. Brachiopod fossils from the north of this area indicate a probable Silurian age (Appendix 12). No structural data was obtained from this area.

White to orange, fine to medium grained, mica-quartz sandstone with coarse sand interbeds and weak cross bedding crop out south of the Painter Road and is similar to the Crotty quartzite correlate described by McNeill (1989c).

Mapping, at 1:2500 scale of the Black Harry Road access track to DDH MAC-24 (see below) and costeans 1615E and 1645E is shown on plate MAC89/3. Outcrop on the access track is dominated by massive dacitic lava, with minor disseminated pyrite, that is overlain to the south by moderately south east dipping interbedded mica sandstone and volcaniclastic sandstone that are in turn unconformably overlain by Tertiary basalt at approximately 12400N.

Costean 1615E has exposed the contact of dacite lava and mica sandstone which has a variable strike and dip but is not obviously faulted. In one exposure, clasts of pyritic dacite are included in the base of a mica sandstone unit. This relationship is suggestive of some mixing at the lava-sediment interface. Mineralisation is restricted to disseminated pyrite at the sandstone-dacite contact. It is likely that the pyrite is related to emplacement of the dacite.

5.3 Geochemistry

Rock Chip

Both Black Harry Road costeans were channel sampled, at 2m intervals, and samples assayed for Cu, Pb, Zn, Ba, Ag, Au, As and Ba. Results are presented in Appendix 13 and sample locations on plate MAC89/3. Samples from massive lava in the 1645E costean yielded low base and precious metal values while those from the 1615E costean also produced low values, with a maximum of 565 ppm Cu and 0.8 ppm Ag from the dacitic lava.

Grab samples from the dacite/mica sandstone contact in the 1615E costean (see Appendix 14 and Plate MAC 89/3 for results and locations) also have low base and precious metal values, the exception being sample 515663 with 280 ppm Cu, 2 ppm Ag, 26 ppb Au and 140 ppm As.

Pb Isotope

Sample 427184, a pyritic dacite (525 ppm Pb, 1300 ppm Zn, 1.0 ppm Ag), was submitted to Sirotope for Pb isotope analysis. Results and interpretation are included as Appendix 14. This sample falls within the target field for Cambrian massive sulphide mineralisation, supporting the concept that the disseminated mineralisation is syn-volcanic and related to emplacement of the dacite.

5.4 Diamond Drilling

5.4.1 DDH MAC-24

Geology

This hole (see plate MAC 89/3 for collar location) was drilled by the D.O.M. as part of the MRV project, to confirm the presence of interpreted Central Volcanic Complex volcanics beneath mica sandstone near Black Harry Road. Logistical support was provided by Aberfoyle Resources and as a result access was granted to the core for logging and sampling.

A detailed log and petrographic descriptions are included as Appendix 15 while a section of the hole is presented as plate MAC 273 (see plate MAC 115 for legend). A summary log is as follows:

0 - 9.8m	Tertiary basalt and sediments.
9.8 - 120.7m	Feldspar-phyric dacitic lava/intrusive with minor volcaniclastic interbeds.
120.7 - 150.95m	Interbedded shale, siltstone and sandstone with volcanic derived fragments and minor volcaniclastic interbeds.
150.95 - 163.45m	Dacitic lava.
163.45 - 230.9m	Interbedded sandstone, shale and ash to fine lapilli volcaniclastic fault contact to:
220.9 - 279.2m	Dacitic lava. Gradational contact to:
279 2 - 302.2m	Dominantly ash volcaniclastic.
302.2. - 313.95m	Dacite lava.
313.95 - 488.8m	Dominantly ash volcaniclastic with minor lapilli volcaniclastic, shale and dacite lava.

The sequence intersected in this hole may be broadly correlated with the basal part of the Animal Creek Greywacke, defined near Animal Creek by Komyshan (1986) and at the southwest corner of EL 106/87 by Corbett and McNeill (1986). In this area micaceous sandstone overlies a sequence of dominantly ash volcaniclastic with minor sandstone (referred to as tuffaceous lithicwacke by Komyshan [1986]). The major difference between the MAC-24 section and areas to the south is the presence of shallow dacitic intrusives/lavas and prominent ovoid devitrification structures, not noted near Animal Creek.

An implication of this correlation is that the Central Volcanic Complex, if present, occurs at considerable depth in this area (>500m).

Alteration is of a generally low-grade regional type, dominated by sericite-carbonate assemblages, with minor haematite in the upper most dacite unit. Mineralisation is restricted to trace minor disseminated and vein pyrite ± sphalerite apparently concentrated in breccia zones within the dacitic lava.

Geochemistry

The complete length of MAC-24 was core-ground and samples analysed for Cu, Pb, Zn, Ba, As, Ag, Au, Cr, Ti and Zr. Results are presented in Appendix 16 and on plate MAC 273a.

Base metal values are low throughput the section (maximum 300 ppm Zn and 100 ppm Pb) as are precious metals, which are generally below detection limit with scattered values to 13 ppb. As (max. 47 ppm) and Ba (360 ppm) are also not encouraging.

Cr values in sandstone units are generally much lower than in the Animal Creek Greywacke, probably due to the increased volcaniclastic component. Low Ti/Zr ratios and Cr values confirm that the lavas/intrusives are dacitic.

Geophysics

DDH MAC-24 was cased with PVC and read with DHEM (EM-37). Results are included in Appendix 11. No conductors attributable to massive sulphide mineralisation were detected.

5.5 Summary and Recommendations

i) Several windows in Tertiary basalt cover of mid-late palaeozoic sedmients have been located. These indicate that prospective volcanics, if present are at considerable depth and thus, currently impractical to explore. As a result much of the north Hatfield area was relinquished (Fig. 2) in February 1990 as part of the first phase of EL reduction as required by the Hellyer Mine Agreement Ratification Act 1987.

ii) Geochemical results from the Black Harry Road costeans were not encouraging and it would appear that mineralisation is related to the margins of a shallow dacitic intrusive. DDH MAC-24 intersected a sequence correlatable with the lower volcaniclastic unit of the Animal Creek Greywacke indicating that the target Central Volcanic Complex, if present, is at considerable depth (>500m). In view of these results no further work is warranted on this prospect.

6. I_1 ZONE

6.1 Introduction

Prior to 1988 the I_1 Zone area southwest of Que River had not been completely covered by UTEM. A survey in December 1988 (McNeill 1989c) to complete this coverage, located a response that due to poor data quality required further follow-up. The geology of this area also remains poorly understood, despite recent mapping and soil sampling for lithological indicator elements (McNeill 1989c), and in an attempt to resolve outstanding problems, further mapping has been completed on the western part of the grid and on the HEC transmission line track.

6.2 Geology

Mapping at 1:2500 scale was completed on lines 5800N-6400N and the HEC transmission line road, north of the Barite Creek track. Results are shown on plate MAC 89 BB (see plate MAC 114 for legend) while analyses of rock chip samples are included in Appendix 17.

Outcrop along the transmission line is dominated by massive to brecciated dacitic lava, some of which has previously been described as epiclastic (Komyshan, 1986). These lavas are unusual in that they leach to a pink-brown colour with common Mn staining, more characteristic of basalt, but have relict dacitic textures and chemistry (e.g. sample 517873). These dacites abut andesitic-basaltic lithologies at about 6400N 4150E, on the transmission line track and form a corridor approximately 100m wide, west of the tranmission line, and are overlain by feldspar-phyric andesitic lavas and a sequence of unusual lavas with a green andesitic matrix supporting common pink dacitic clasts, that may correlate with lithologies in DDH MC-11.

Geochemically, this unit has low Ti/Zr and moderate Cr (30 ppm) values suggesting dacitic affinities (sample 517870).

6.3 Geophysics

To follow-up the poorly defined response in the 1988 UTEM data, a second loop was placed east of the I_1 Zone grid and 3.8 line km of 25m spaced H_z component data collected on lines 5800N-6600N. The results of this survey are summarised in Appendix 18. The loop 2 data confirms that the anomaly is a lithological conductor of no further interest.

6.4 Summary and Recommendations

i) A follow-up UTEM survey has defined a lithological conductor on the eastern margin of the I_1 Zone grid. The area is now considered to have been adequately explored by deep search EM.

ii) The geology of the area is still poorly understood, however the area remains prospective for deep mineralisation as it falls on the Que-Hellyer-Charter trend on the intersection of prospective lineament corridors (see section 3.2.3). The Que Hellyer host horizon may be present at depth over a considerable part of this area (see plate MAC269 B) and has not been tested by drilling. To aid in interpreting the geology of this area stratigraphic drilling is recommended.

7. MOUNT CHARTER

7.1 Introduction

Two phases of exploration for VMS mineralisation have been completed in this area following the discovery of pyrite-sericite alteration beneath a zone of vein and massive barite mineralisation near the summit of Mount Charter during the 1970's (Hespe, 1984, Hespe, 1985). However, more recent work on this prospect (Rand, 1988; McNeill, 1989c) has been aimed at testing the potential for a near surface large tonnage, low-grade gold-silver deposit. Further surface sampling, costeaning and diamond drilling have been completed during the current reporting period.

7.2 Geology

Mapping at 1:1000 scale completed during the reporting period is shown on plate MAC 243. This mapping was aimed at 'ground truthing' a refined position of the main stringer system at Mount Charter based on detailed assessment of the soil geochemistry (refer to Section 7.3.1), to provide samples for geochemical analysis. The mapping and sampling programme involved costean and pit sampling.

Topsoil was removed in a 20m costean along the eastern edge of the Mount Charter ridge (costean 4350E/4600N) exposing strongly silicified, pyrite and barite veined volcaniclastic rocks interpreted to be at the hangingwall/footwall contact.

The pit sampling programme, where pits were dug to bedrock at approximately 10m intervals over the interpreted main mineralisation, was conducted on a north-south traverse along approximately 4375N, and an east-west traverse along line 4700N. Important points to note from this mapping are that the barite and pyrite mineralised and strongly silica-sericite-pyrite altered rocks continue north to approximately 4860N, and east to around 4500E.

A costean excavated at the hangingwall anomaly (costean 4750N/4050E) exposed both fresh, green andesite lava breccia and sericite-pyrite altered andesite lava breccia with minor pyrite silica veins and rare barite (sample no. 515311, see Appendix 19).

The black shale(QRS)/andesite contact, well exposed by track excavation and renovation, appears to be a fault zone containing strongly sericite and pyrite altered andesite shale fragments and occasional pyrite pods to approximately 30cm in diameter. Re-examination of this contact in MC-8 revealed a similar fault zone which when correlated with surface exposure has a westerly dip with apparent east side up movement (i.e. normal movement). This fault has been incorporated into the new geological interpretation shown on Plate MAC 161C.

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7.3 Geochemistry

7.3.1 Soil

The soil geochemical data (McNeill, 1989c) was re-examined in detail to better define the position of the stringer system beneath the massive barite zone and indicated the following:

Arsenic defines the otline of the interpreted stringer system at Mount Charter trending N-S along approximately 4400E from 4550N to 4850N (200 ppm contour, max. 330 ppm). It also indicates that the hangingwall anomaly area (from around 4050E, 4800N to 3950E, 4900N) contains significantly anomalous arsenic values (400 ppm contour, max. 1100 ppm).

Barium defines the stringer system with a 5% contour extending around the massive barite and N-S along 4400E from 4600N to 4800N. The hangingwall anomaly area is also strongly anomalous with a 5% contour extending from 4100E, 4700N to 4050E, 4800N.

Copper appears to reflect a predominantly lithological distribution, generally low in the dacite and slightly higher in the andesite. The stringer system is weakly defined with a 50 ppm contour extending N-S along 4400E from 4500N to 4800N. No significant anomaly is present in the hangingwall anomaly position.

Lead soil geochemistry cannot be used to pick out the position of the stringer system. Anomalous values do occur, however, in the massive barite zone and into the overlying andesite, evident in the 500 ppm contour which extends over the massive barite zone along the andesite/dacite contact. Lead is also strongly anomalous in the hangingwall anomaly position (max. 995 and 1500 ppm).

Zinc does not reflect either stringer system or hangingwall anomaly area well (50 ppm contour over interpreted stringer position and 150 ppm contour over hangingwall anomaly area).

Silver shows two distinct groups in the soils, one over the massive barite zone and extending N-S over the interpreted stringer position (max. 17 ppm) with a second strongly anomalous area of the hangingwall anomaly position (max. 35 ppm).

The strongest gold anomalism occurs over the massive barite and stringer zone (0.4 ppm contours, max. 0.810 ppm). In the hangingwall anomaly area values are still typically above 0.2 ppm (max. 0.289).

The major result of reprocessing the soil geochemistry at 1:2500 scale has been to outline the massive barite zone and underlying stringer system, and a second distinct area of anomalous soil geochemistry in the hangingwall.

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7.3.2 Rock Chips

Rock chip samples collected from the pitting programme over the stringer system (for results see Appendix 20 and plate MAC 244) contain highly variable gold and silver values (max. Ag 160 ppm, Au 3.70 ppm). There is no obvious correlation between these and the barium values (from <1% to 57.1%) although higher gold grades usually occur with elevated barium values. Arsenic values vary up to 2500 ppm, with maximum copper, lead and zinc values of 350 ppm, 2.2% and 7750 ppm respectively.

Rock chip samples were collected from the faulted andesite/shale contact exposed in the Mount Charter access track east of the collar position of MC-8. Samples of the massive pyrite pods returned maximum values of 160 ppm Cu, 1000 ppm Pb, 635 ppm Zn, 19 ppm Ag, 0.017 ppm Au, 1900 ppm Ba and 560 ppm As. A sample of strongly sericite/pyrite altered andesite/shale breccia returned a value of 2125 ppm Zn.

Rock chip sample numbers and gold/silver values are shown on plate MAC 244.

7.3.3 Costean

Channel samples collected at 5m intervals in the 4350E/4600N costean (Appendix 21) were strongly anomalous in Au (1.33 to 2.65 ppm, av. = 2.08 ppm), Ag (32 to 74 ppm, av. = 49 ppm), Ba (23 to 48.4%) As (max. 1580 ppm), Zn (max. 5800 ppm) and copper (max. 400 ppm). Lead values were surprisingly low (max. 40 ppm).

Channel samples collected at 5m intervals from costean 4050E/4700N through the hangingwall soil anomaly (see Appendix 21 for results) yielded anomalous barium values for the sericite pyrite altered andesite (max. 3.3% Ba and 0.440 ppm Au). This confirms that the soil anomaly is due to hydrothermal alteration of the underlying andesite rather than being due simply to downslope dispersion from the massive barite zone. The discrepancy between the high Ba values in soils over the hangingwall (>5% Ba) and the maximum bedrock value of 3.3% Ba is most likely due to the presence of massive barite clasts in the 'C' horizon derived by downslope dispersion from the Mount Charter massive barite.

Channel samples were collected at 5m intervals from the Mount Charter access track over the faulted andesite/shale contact, approximately 70m east of the collar position of MC-8. Results from this program were disappointing with none of the samples considered anomalous for the elements tests (see Appendix 21 for results).

Channel samples were also collected over 10m intervals from the access spur track to the site for proposed diamond drillhole MAC-26 (4720N, 4350E). Maximum values from this sampling were 230 ppm Cu, 2100 ppm Pb, 1500 ppm Zn, 22 ppm Ag, 0.915 ppm Au, 29.9% Ba and 880 ppm As.

Channel sample locations and gold/silver grades are shown on plate MAC 244.

7.4 Diamond Drilling

7.4.1 DDH MAC-23

Geology

DDH MAC-23 was designed to test variations in gold grade with depth in the core of the interpreted stringer system. The hole was collared (see plate MAC243 for location) 35m downhill from outcropping massive barite and drilled northeast beneath the most intense mineralisation and alteration outcropping at surface.

A detailed log and petrographic report are included in Appendix 21, while a section of the hole is included as plate MAC261 (see plate MAC 115 for legend). A summary log is as follows:

0 - 15.8m	Silica-sericite pyrite altered andesite lava breccia, weak barite veining.
15.8 - 31.8m	Altered polymict andesitic lapilli volcaniclastic, fining toward base, well bedded in part with minor barite veins.
31.8 - 89.4m	Strongly silica-sericite-pyrite altered dacitic lava and lava breccia. Variably barite-pyrite veined with a 1.2m barite vein at 62.6m.
89.4 - 98.0m	Fault zone; leached and broken altered dacite.
98.0 - 127.7m	Silica-sericite-pyrite altered dacitic lava. Variably pyrite-barite veined.
127.7 - 128.6m	Moderately altered polymict dacitic lapilli volcaniclastic, trace pyrite.
128.6 - 135.4m	Variably chlorite-sericite-silica-pyrite altered dacitic lava.
135.4 - 198.3m	Variably silica-dacitic-pyrite altered and pyrite-barite veined dacitic lava with major barite vein from 196.7-198.3m.
198.3 - 280.0m	Moderate to strongly silica-sericite-pyrite altered dacitic lava with variably intense but pervasive chlorite alteration. Intensity of both chlorite alteration and pyrite-barite veining increase toward the end of hole.

The sequence of altered andesite overlying strongly silica-sericite-pyrite altered dacite was as expected, however the massive barite mapped at surface was not intersected with its interpreted position occupied by a polymictic volcaniclastic. These volcaniclastics were not intersected by previous drilling and have been seen at surface only in the 4350E, 4600N costean where clastic features are virtually obscured by intense barite-silica-sericite-pyrite alteration. This mode of occurence suggests that the 'massive' barite zone is formed by patchy replacement of the volcaniclastic in a resticted basin.

The hole appears to have stayed in stringer core type alteration for its entire length with barite veins, up to 4m thick persisting to the end of the hole, implying oxidising conditions persisted even at relatively deep stratigraphic levels within the alteration zone. The significance of pervasive chlorite alteration below ~ 198m is not understood.

The presence of silica-sericite-pyrite alteration in the hangingwall andesite implies that either the mineralising system persisted during deposition of the andesite on the sea floor or that the mineralisation is replacement style at the dacite/andesite contact as suggested by Rand (1988).

Geochemistry

A total of 79 drill cutting samples were collected while the hole was in progress and bulked on approximate lithological boundaries, to produce 32 samples, that were assayed for Au and Ag to provide preliminary grade estimates (see Appendix 22 for interval and assay results). Core was then cut on lithological boundaries at a maximum of 3m intervals (see Appendix for intervals and assay results) and samples analysed for Cu, Pb, Zn, Ba, As, Ag, Au, Cr, Ti, Zr, Sb, S, CaO and Fe. Selected samples were also submitted to Classic Comlabs and ALS as checks on Au values obtained (Appendix 22). Split core assay results are shown on plate MAC261a.

Good correlation was obtained between drill cuttings and split core samples with best intersections of 6m of 2.3 ppm Au and 12 ppm Ag (135-141m) and 6m of 2.9 ppm Au and 3 ppm Ag (216 to 222m). These intervals correspond to strongly altered dacite with intense barite veining. Base metal values are variable but typically elevated in areas of strong barite-pyrite veining (max. 3650 ppm Cu, 1.95% Pb and 3.74% Zn).

Lithological indicator elements, in particular Ti and Zr, may be affected by high Ba contents when analysed by XRF techniques, thus reducing their usefulness in determining lithological types. However, Cr values are generally low, <20 ppm, as are Ti/Zr ratios confirming lithologies are andesitic or dacitic.

Geophysics

DDH MAC23 was read with DHEM (EM-37). Results and interpretations are included in Appendix 11. No off-hole conductors attributable to VMS accumulations were detected.

7.5 Summary and Recommendations

The most recent phase of exploration at Mount Charter has not significantly altered the geological interpretation of the area. A strongly silica-sericite-pyrite altered dacite with pyrite and barite stringer mineralisation is overlain by a similarly altered and mineralised areally restricted volcaniclastic unit and andesitic lava and lava breccia. Alteration and mineralisation in the hangingwall andesite decreases in intensity away from the dacite/andesite contact.

Low grade Au from <1 ppm to a maximum of 3.8 ppm, and Ag from 1 ppm to 160 ppm, is associated with the most intensely altered and mineralised rocks and in particular those areas of strong barite mineralisation.

To the northwest of Mount Charter, in the hangingwall anomaly area, costeaning has exposed minor sericite-pyritic altered andesite with weakly elevated Ba and Au values. This area should be followed-up to determine the style and intensity of mineralisation at the contact with underlying dacite. It is recommended that this anomaly be followed-up prior to further investigation of the main stringer zone at Mount Charter.

8. SOUTHWEST MOUNT CHARTER

8.1 Introduction

Previous drilling at the south west Mount Charter prospect, designed to test the J_3 UTEM zone and associated Pb/Zn soil anomaly, intersected hangingwall basalt and what was interpreted to be footwall andesitic, separated by a thin volcaniclastic with syngenetic sulphides (1.14% Zn) in MC-9.

A re-interpretation of the petrological and geochemical data from drill holes in the Mount Charter area (section 3.5) indicates that the upper basalt is underlain by dacite rather than andesite, and as such a potential host horizon, equivalent to the Que River and Hellyer ore positions, may occur as the untested lower contact of the dacite.

8.2 Diamond Drilling

Geology

DDH MAC-25 was designed to test the interpreted Que/Hellyer ore position, at approximately 320 RL, below the range of effective UTEM for a Que River sized target and at the limits of detection for a Hellyer sized target.

The collar of DDH MAC-25 was located in such a way as to intersect the Que/Hellyer ore position close to the Mount Charter fault which was active during deposition of the Que/Hellyer volcanics and possibly acted as a focus for hydrothermal fluids (see plate MAC 89 CC). However, the orientation of the Mount Charter fault was poorly known. Based on observation at surface, where cleavage is essentially steeply north dipping, and in DDH MC-18 where the fault dips at approximately 50°, the hole was designed to intersect the Que/Hellyer ore position far enough north not to intersect this structure.

A detailed log is included in Appendix 23 while a section of the hole is presented as plate MAC-291. Petrological descriptions and lithogeochemical results are presently unavailable.

A summary log is as follows:

0.0 - 74.2m	Green vesicular basalt lava/lava breccia with moderate calcite veining containing minor sphalerite inclusions.
74.2 - 121.5m	Interbedded green basalt lava/lava breccia and basaltic pillow lava sequences with sphalerite and pyrite as veinlets and disseminations on pillow rims and disseminated pyrite in interpillow cherts.
121.5 - 125.38m	Basalt pillow lavas with "interpillow"? sphalerite/pyrite stringers and intense pyrite mineralisation. Strong fuchsite spotting.

125.38 - 156.2m	Green basalt lava/lava breccia with minor fuchsite spotting and weak calcite alteration.
156.2 - 156.33m	Green basalt/dacite volcaniclastic with interstitial pyrite and minor sphalerite mineralisation. (Mount Charter ore position).
156.33 - 296.7m	Pink to green mottled variably chlorite/ silica altered intercalations of massive dacite lava/lava breccia and dacitic volcaniclastic.
296.7 - 302.5m	Green weakly vesicular basalt lava.
302.5 - 339.2m	As for 156.33 - 296.7m.
338.2 - 353.4m	Green weakly vesicular basalt lava/lava breccia with rare pink dacitic clasts at 344.5m.
353.4 - 456.4m	As for 156.33 - 296.7m.
456.4 - 462.6m	Strongly schistose intercalated black graphitic-shale, greywacke and minor dacitic lava. (Mount Charter fault zone). Fault.
462.6 - 482.5m	Interbedded black graphitic shale and greywacke.
482.5 - 489.9m	Green basalt lava with weak chlorite alteration.
489.9 - 520.9m	Grey-black greywacke with minor inter-beds of black graphitic shale. Minor unit of green basaltic lava @ 502.9 - 503.9m.
520.9 - 530.3m (E.O.H.)	Green basalt lava with minor interbedded greywacke.

Due to greater than expected thicknesses of the basalt and dacite units, and a shallower than expected dip of the Mount Charter fault, the Animal Creek greywacke was encountered before the Que/Hellyer ore position. The hole was continued past the fault position for approximately 80m to act as a geophysical platform.

The source of the Pb, Zn soil anomaly in the basalt is undoubtably due to sphalerite/minor galena inclusions in calcite veins in the upper part of the basalt. Elsewhere in the basalt, sphalerite/pyrite veins and disseminations occur on pillow margins and disseminated pyrite can be seen in the interpillow cherts. The zone of sphalerite/pyrite mineralisation from 121.5-125.38m appears to be "interpillow stringer" type mineralisation.

Mineralisation for the most part, appears restricted to the basalt with only minor disseminated pyrite in the dacite.

Dominant regional alteration in the basalt is carbonate ± silica with chlorite/silica ± carbonate in the dacitic units. Rare fuchsite spotting occurs in close proximity to the mineralisation in the basalt between approximately 120.0-125.0m and 137.0-137.6m.

Geochemistry

The complete length of DDH MAC-25 was core ground and samples analysed for Cu, Pb, Zn, Au, Ag, As, Ba, Ti, Zr and Cr. Samples containing abundant sulphide mineralisation were split and analysed for Cu, Pb, Zn, Au, Ag, As and Ba. Petrological samples were also analysed for Na_2O, K_2O, MgO, CaO and S, in addition to the elements analysed in the core grinds.

Unfortunately the majority of these results are unavailable with only the analysis for split core and two petrology samples to hand.

Results of split core from the interval 121.5-125.38m are given in Appendix 24. Maximum values were 1.77m at 125 ppm Cu, 1000 ppm Pb, 2.6% Zn, 5 ppm Ag, 0.022 ppm Au, 1100 ppm Ba and 75 ppm As (123.6-125.38m) in an interval of 3.88m at 118 ppm Cu, 675 ppm Pb, 1.35% Zn, 3.7 ppm Ag, 0.015 ppm Au, 1066 ppm Ba and 66 ppm As (121.5-125.38m).

Ti/Zr values of approximately 12.5 and Cr values of around 30-35 ppm for petrological samples taken from 188.9m and 241.2m confirm these lithologies to be dacitic.

Geophysics

DDH MAC-25 was cased with PVC and read with DHEM (Sirotem). No off-hole conductors attributable to massive sulphides were dectected. Results of the survey are included in Appendix 11.

8.3 Summary and Recommendations

DDH MAC-25 failed to intersect the interpreted Que/Hellyer host horizon due to a thicker basalt and dacite sequence and shallower dip on the Mount Charter fault than anticipated.

Weak mineralisation in the upper basalt and at the Mount Charter ore horizon provide some encouragment but, the lack of a DHEM response downgrades prospectivity of the immediate area. There remains potential at depth below DDH MC-9 and MC-10 to the north but further drilling should await geological input from a proposed DDH (MAC-26) at Mount Charter.

9. HENTY FAULT ZONE

9.1 Introduction

Following a stream sediment sampling programme and review of existing soil geochemical and geological data (McNeill 1989c) two areas with potential for Au mineralisation have been defined;

i) the area around 6100E, 5000N, where -72# stream sediment sampling has defined an approximately 400m long Au anomaly apparently closed around 5980E and which may be associated with a weak anomaly in a small creek to the east (4950N, 6350E). It was considered important to show that this major anomaly, termed the Barite Creek anomaly, is not related to the Mount Charter Au zone, approximately 2.5km upstream.

ii) Moderate Ba and As soil anomalies and coincident bulls-eye ground magnetic high appear to be associated with the intersection of the Cripps and Henty faults around 7800N, 6800E (North Henty fault prospect).

These two areas were explored by mapping, re-assaying of soil samples and further stream sediment sampling.

9.2 Geology

To improve the geological interpretation in the North Henty Fault Zone a grid, at 100m line spacing, was cut on 7200N to 8000N from approximately 6200E to 7000E for a total of 7.2 line km.

Results of this mapping are shown on plates MAC 89 FF and GG and a geological interpretation on plate MAC 161 B and C.

The geology of the western part of the grid is dominated by steeply west dipping mica sandstone (Animal Creek Greywacke correlate) conformably overlain by lavas of the lower basalt. A lense of lower basalt occurs in the mica sandstone between 7500 and 7700N. On the northern part of the grid the west dipping sandstone abuts lower basalt on an E-W trending contact interpreted to be the Que-Cripps fault. Structurally underlying the sandstone to the east is a pink-brown feldspar-phyric dacitic intrusive, that may be correlated with similar lithologies on the Sharksfin track around 6600N, 6600E.

The intrusive partially cuts across the N-S trending stratigraphy and is flanked by scattered outcrops of dacite that may represent smaller dykes.

The dacite is variably chlorite-haematite altered with most intense alteration occuring close to the base of the shallow to moderately east dipping Owen Conglomerate which comprises quartzite and conglomerate of the Upper Upper Owen (using the terminology of K. D. Corbett, pers. comm. 1989). The conglomerate unconformably overlies the volcanics east of the north flowing creek around 6500-6600E. In the area of 8800N an anticlinal tongue of Owen Conglomerate overlies andesitic-dacitic intrusive to the west and leached andesitic to basaltic lavas to the east. It is unclear whether these more mafic lithologies form part of the QHV, as the geology of this area from Baker Street, south to approximately 7700N, is still poorly understood.

Ductile deformation features, i.e. cleavage development, L-S fabrics and kinking, characteristic of the HFZ to the south of Barite Creek were not seen in this area while mapping by Mark Rattenbury (pers. comm. 1990) suggests that the HFZ, if present, may have a brittle character north of the Sharksfin track. It is suggested that the HFZ may in fact not extend this far north but may be terminated by a cross structure to the south, possibly near Barite Creek.

9.3 Geochemistry

Rock Chip

A total of 7 samples from the North Henty fault area have been analysed (see Appendix 24 for results). The chlorite haematite altered volcanics returned low Au, As and base metals with the highest values, 335 ppm Pb and 360 ppm Zn, from an apparently unaltered but oxidised basalt lava (517880). This basalt was identified on the basis of a high Cr content. Cr and Ti/Zr values in other samples suggest that andesites are more common than was recognised in the field (samples 512879, 881 and 882).

Soil

Fortyone, 25m spaced 'c' horizon soil samples, collected as part of the 1986 Southwell Valley programme (McNeill 1989b) from lines 7800N, 7600N and 7400N and covering a weak-moderate coincident Ba and As anomaly were re-assayed for Au (see Appendix 25 for results). All assays, bar one (12 ppb), were below detection limit as were assays for Ag (1 ppm detection limit), previously reported in McNeill (1989b).

Stream Sediment

A total of 8 bulk cyanide leach (BCL), 11 -72# and 13 -200# samples were collected from the major creek draining east from Mount Charter between 4600E and 6100E. Sample locations are shown on plate MAC 203c and assay results on plate MAC 204c and in Appendix 26.

BCL samples were collected as 4-6 kg, wet, -7mm material which was despatched wet, without further preparation often with considerable organic material. The -72# samples were collected by gathering 2-3 kg, of wet -2mm material then drying and sieving to the required mesh. This sample was then split and a portion sieved to produce a -200# sample. It was initially planned to collect BCL samples at all sample sites, however due to a lack of fine grained material this proved to be impractical.

Bulk leach samples were analysed at Analabs and yielded values from 26.8 ppb (515100) to 8 ppb, with an obvious decrease in concentration with increasing distance from the Mount Charter Au zone. Assay values obtained are much lower than from the -72 or -200# samples possibly due in part to a high percentage of Au locked in sulphide grains and unavailable for leaching. The contrast between highest and lowest values is also much less than for the other two techniques.

Gold values in the -72# samples range from 1150 ppb to 34 ppb with an irregular, but discernable decrease in value with increasing distance from the Mount Charter Au zone (Figure 4). Repeat sampling at 4795N, 5980E, where initial sampling returned below detection limit Au and indicated the Barite Creek prospect anomaly had been closed off to the west, now yielded values of 58 ppb and 116 ppb for -72# and -200# respectively.

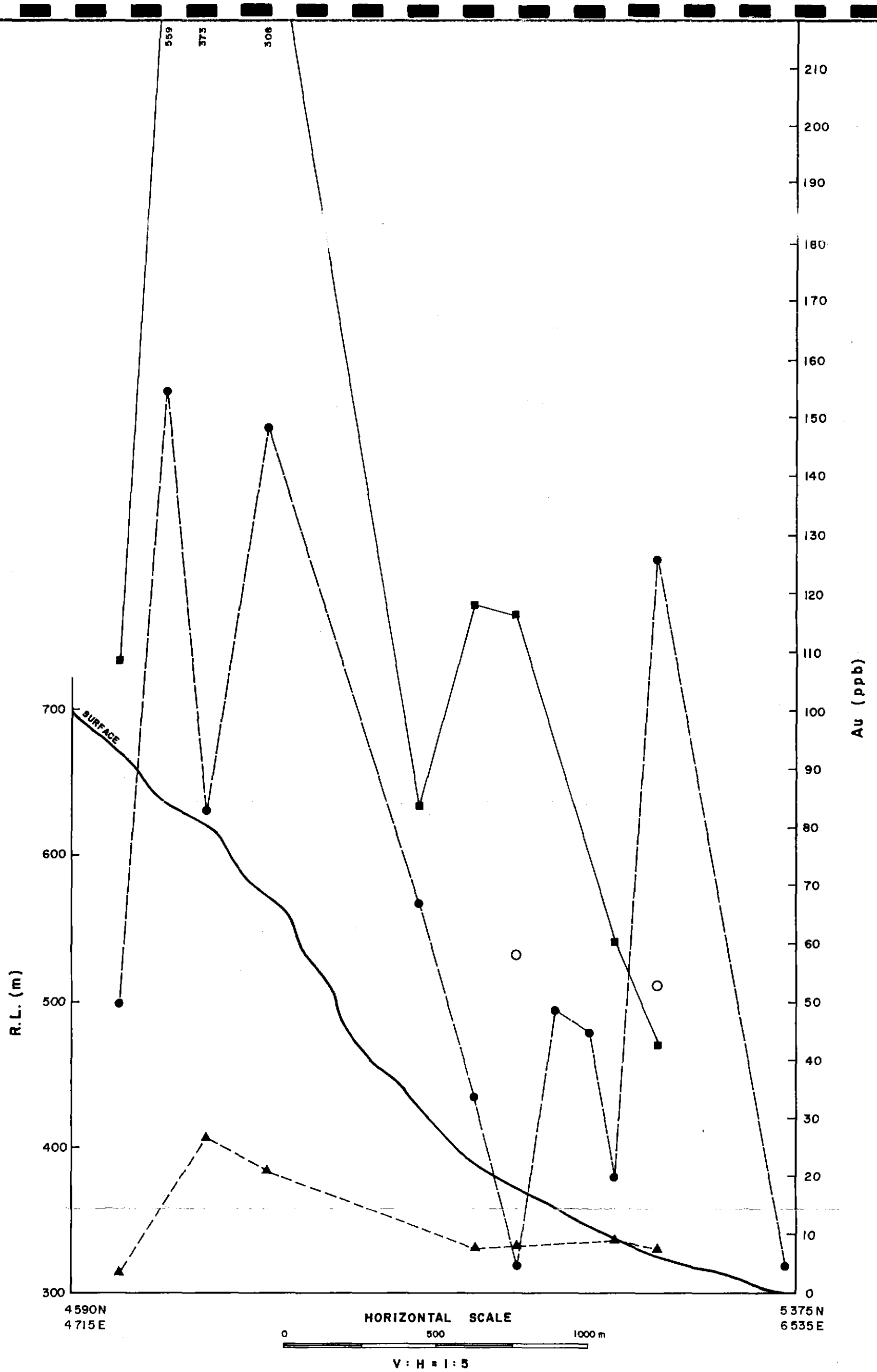
Au values in -200# samples range from 1800 ppb to a minimum of 43 ppb. Of the three techniques used the most consistent decrease in analytical value, with increasing distance from Mount Charter. However, the increased consistency and higher Au values obtained must be considered against the relatively large sample required.

9.4 Summary and Recommendations

i) The North Henty fault prospect failed to yield anomalous precious metal values in soils or rock-chip samples and this coupled with new geological mapping, suggesting little evidence for the presence of the Henty fault zone in this area, seriously downgrades prospectivity and no further work is recommended.

ii) In the Barite Creek area follow-up BCL, -72# and -200# stream sediment sampling has demonstrated that the major anomaly described by McNeill (1989c) is related to the Mount Charter Au zone. A minor anomaly around 4950N, 6350E remains unexplained. No further work is warranted on this prospect.

iii) All three stream sediment sampling techniques used, have defined a dispersion trail up to 2.5 km from the Mount Charter Au zone. The -200# fraction appears to produce higher Au values and a larger contrast than the other two techniques.



SAMPLE TYPE

- ■ -200 #
- ● - 72 #
- ○ REPEAT -72 #
- ▲ BCL

5 cm

Aberfoyle Resources Limited

EXPLORATION DIVISION

FIGURE 4.

REVISIONS			
Init.	Date	Init.	Date

Location Code :

NORTH WEST TASMANIA

MACKINTOSH E.L. 106/87

HENTY FAULT ZONE – MT. CHARTER

FOLLOW-UP STREAM SEDIMENT SAMPLING

Scale : V : H = 1 : 5

Date : April 1990

Compiled : A McN

Drawn :

Traced : J M S

Checked :

Plate No : MAC 293

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10. SOUTH MACKINTOSH

10.1 Introduction

This area, south of the Que River Mine and between 4500E and 6000E, had been covered by UTEM (1979/83 surveys - Eadie in Jack [1984] and the 1984 survey [Hespe, 1985C]) but had only been geologically mapped at a regional scale south of 6000N (McNeill 1989 b). To the improve geological understanding of this area, partly as an aid to assessing the effectiveness of the EM coverage, a programme of 1:2500 scale creek and grid mapping, soil geochemistry (see section 3.3.2) and ground magnetics was completed.

10.2 Geology

Results of mapping are presented on plates MAC 89 AA, DD and LL and a geological interpretation on plate MAC 161c. Petrological descriptions of selected samples are included in Appendix 27. The northern part of this area is dominated by the lower basalt (previously interpreted on the basis of Cu soil geochemistry [McNeill 1989 b]) a complex of dominantly massive green-grey occasionally feldspar-and/or pyroxene-phyric, vesicular (carbonate± epidote filled) lava with lesser lava breccias and minor volcaniclastic. Regional prehnite-pumpellyite alteration is widespread. The basalt is underlain to the east by the basal mica sandstone containing lenses of basalt, grey feldspar-phyric rhyolitic volcaniclastic and quartz-feldspar-phyric intrusive. Both the mica sandstone and overlying lower basalt are truncated by the Henty Fault Zone at about 5000N 6100E. To the west the lower basalt is overlain by andesitic lava, volcaniclastic and minor dacitic lava (6600N 5000E) while to the south it is terminated abruptly north of the Barite Creek track (plate MAC 89 DD) where it is overlain by feldspar-phyric massive to brecciated andesite lavas, with a minor polymictic component and by polymict andesitic-dacitic volcaniclastic with minor clasts of basal mica sandstone, up to 70-80m thick, to the west. The volcaniclastic and andesite are interpreted to be overlain by a brown-pink sparsely feldspar-phyric dacite that is generally massive, but with some brecciated weakly polymictic interbeds.

This unit is in turn overlain by andesite lava and lava breccia, correlated with the andesite overlying the Mount Charter dacite, in the core of a south plunging syncline.

The geology between 4600E and 5000E around the Barite Creek track is less well understood as here dacitic to rhyodacitic lithologies appear to overly lower basalt with no intervening andesite or volcaniclastic.

The area between the Barite Creek track and 3000N is dominated by andesitic and dacitic lithologies with an outcrop pattern suggesting a plunge reversal in the interpreted regional syncline around 4200N. Discrimination of andesitic and dacitic lavas proved difficult in this area and interpretation has relied on a combination of petrology and rock chip and soil (see section 3.3.2) geochemistry.

This sequence is terminated to the east by the Henty Fault Zone, and in the southern part overlies andesitic-basaltic lava and lava breccias interbedded with minor volcaniclastics that have a moderate NW dip around 3000N. These lithologies are similar in appearance to the lower basalt but have a much lower Cr content more typical of andesite.

Mapping has refined the location of the Mount Charter fault, originally located from soil geochemistry and wide spaced regional mapping. It is now interpreted to splay south of 2600N, with lithologies in this area defining the southern, north plunging closure of the South Mackintosh syncline.

In the southern part of this area the lower basalt is underlain by pink-brown rhyodactic-dacitic lava and probable andesitic lava on lines 2000N and 1800N (these lavas have previously been sampled and a petrographic report prepared [CMS 88/11/3, Appendix 28] but had not been drafted on the outcrop geology sheet). Further mapping is required in this area to close off these volcanics. "Dolerite" is interpreted to be associated with the Mount Charter fault, on 1800N, but further petrological work is required to resolve if it is a dolerite or a feeder to the lower basalt as interpreted by Corbett and McNeill (1986). Not in reference list.

No major altered or mineralised zones were located, however around 4500N, 5100E a zone of minor sericite-silica alteration with associated fuchsite spotting and pyrite-barite veining occurs. This zone is apparently separated from the main Mount Charter alteration system, which it resembles, by unaltered andesite and dacite.

10.3 Geochemistry

Rock Chip

A total of 51 samples have been submitted for assay from this area. Results and sample locations are included in Appendix 28. Base and precious metal values are generally low with a maximum of 630 ppm Pb, 770 ppm Zn, 1550 ppm Ba from an andesitic volcaniclastic (575042), while values of 150 ppm Cu, 175 ppm Pb, 675 ppm Zn (515049), were recorded from a weakly sericite-chlorite altered andesitic lava, both of which overly the lower basalt south of the Que River Mine. The weak alteration around 4500N, 5100E yielded low base metal values, maximum 140 ppm Zn, but anomalous Ba, 5000 ppm (samples 515090, 091). Au values are below detection limit.

An apparently un-altered lithology adjacent to this zone (515093) returned values of 265 ppm Zn, 1.0 ppm Ag, 1700 ppm Ba and 260 ppm As while results of 5 ppm Ag, 0.13 ppm Au and 47% Ba were obtained from float of sugary and crystaline massive barite (515094: 4560N, 4840E).

Cr and Ti/Zr data have been used to aid interpretation of rock types using the classification scheme outlined in section 3.3.2, and indicate as noted above, that the area south of the Barite Creek track is underlain by a larger proportion of dacite than previously interpreted. Ti/Zr and Y data indicates the 'dolerite' on line 1800N, is calc-alkaline and is not chemically dissimilar to dolerites from elsewhere in the QHV, described by Komyshan and Corbett (1989).

10.4 Geophysics

Ground Magnetics

A total of 10 line km, 3200N to 5000N and 5000E to 6000E, of 10m spaced data was collected using a GSM-18 magnetometer and base station. Stacked profiles are shown on plate MAC-276, no interpretation has been completed. This data has been merged with the Mackintosh data base and will be processed to remove the regional magnetic gradient and incorporated in a 1:10,000 image of the Mackintosh district.

10.5 Summary and Recommendations

Geological mapping has been completed over the South Mackintosh area and has resulted in the interpretation of a large body of dactie forming a doubly plunging syncline with andesite, correlated with the upper andesite (equivalent to the Hellyer basalt south of the Que fault). This interpretation indicates the potential for mineralisation in the core of this structure at the dacite-lower andesite contact (by analogy with Que River).

The UTEM configuration from the 1983 and 1984 surveys should be reviewed to ascertain if they were in the optimum orientation to couple with a target in this location, if not then a further survey of this area is warranted. Stratigraphic drilling is required to confirm this new interpretation but should be completed after review of the UTEM data. Further mapping is required to close off the QHV east of 6000E and south of 2000N.

11. REFERENCES

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488052

APPENDIX 1

48053

TRAVERSE	EAST	NORTH	SAMPLE	Ag	As	Ba	Cr	Ti	Zr
03209N	3900	3200	515750 ?	.3	5	240	330	3800	210
03209N	3925	3200	515751 ?	.3	3	300	450	2850	130
03209N	3950	3200	515752 ?	.3	1	220	220	3950	230
03209N	3975	3200	515753 ?	.3	1	140	90	4200	250
03209N	4000	3200	515754 ?	.3	1	170	70	3350	220
03209N	4025	3200	515755 ?	.5	1	290	210	3500	250
03209N	4050	3200	515756 ?	.5	1	240	280	3450	230
03209N	4075	3200	515757 ?	.3	3	210	320	3250	210
03209N	4100	3200	515758 ?	.5	1	140	290	3350	240
03209N	4125	3200	515759 ?	.3	1	110	420	3100	230
03209N	4150	3200	515760 ?	.3	5	130	280	3200	230
03209N	4175	3200	515761 ?	.3	1	100	300	2950	250
03209N	4200	3200	515762 ?	.3	3	160	390	3600	260
03209N	4225	3200	515763 ?	.3	1	30	520	2950	230
03209N	4250	3200	515764 ?	.3	1	30	350	3400	210
03209N	4275	3200	515765 ?	.5	1	140	460	2900	230
03209N	4300	3200	515766 ?	.5	1	100	350	2900	230
03209N	4325	3200	515767 ?	.3	18	110	430	3050	230
03209N	4350	3200	515768 ?	.3	6	150	440	3000	190
03209N	4400	3200	515770 ?	.5	6	330	150	3000	200
03209N	4425	3200	515771 ?	.5	2	290	220	2450	180
03209N	4450	3200	515772 ?	.3	3	170	310	3300	230
03209N	4475	3200	515773 ?	.3	8	200	380	3250	210
03209N	4500	3200	515774 ?	.5	8	160	270	3500	220
03209N	4525	3200	515775 ?	.3	1	40	330	3950	240
03209N	4550	3200	515776 ?	.3	3	60	270	2700	230
03209N	4575	3200	515777 ?	.3	1	25	440	2650	220
03209N	4600	3200	515778 ?	.3	8	120	300	3050	250
03209N	4625	3200	515779 ?	.3	25	180	380	4000	200
03209N	4650	3200	515780 ?	.3	25	190	410	3600	210
03209N	4675	3200	515781 ?	.3	20	210	470	3400	200
03209N	4700	3200	515782 ?	.3	30	220	430	3050	200
03209N	4725	3200	515783 ?	.3	25	200	390	3150	180
03209N	4750	3200	515784 ?	.3	15	280	500	3100	140
03209N	4775	3200	515785 ?	.5	10	240	300	3450	190
03209N	4800	3200	515786 ?	.5	1	660	70	3150	200
03209N	4825	3200	515787 ?	.3	1	300	60	4450	240
03209N	4850	3200	515788 ?	.3	9	240	260	3300	200
03209N	4875	3200	515789 ?	.5	1	370	150	2500	210
03209N	4900	3200	515790 ?	.5	1	530	40	2650	270
03209N	4925	3200	515791 ?	.3	1	360	75	3800	170
03209N	4950	3200	515792 ?	.3	1	380	15	3750	210
03209N	4975	3200	515793 ?	.5	90	190	-999	3150	170
03209N	5000	3200	515794 ?	.3	1	380	20	4000	230
03409N	3925	3400	515796 ?	.3	1	210	200	4050	270
03409N	3950	3400	515797 ?	.3	1	220	100	2700	230
03409N	3975	3400	515798 ?	.3	1	140	95	2700	170
03409N	4000	3400	515799 ?	.3	1	210	380	3100	170
03409N	4025	3400	515800 ?	.3	15	200	270	3650	180
03409N	4050	3400	515801 ?	.3	20	140	270	4150	220
03409N	4075	3400	515802 ?	.3	20	130	340	3800	220
03409N	4100	3400	515803 ?	.3	20	130	390	3200	190
03409N	4125	3400	515804 ?	.3	10	60	390	3250	210
03409N	4150	3400	515805 ?	.3	45	200	420	3500	200
03409N	4175	3400	515806 ?	.3	20	95	360	4050	230
03409N	4200	3400	515807 ?	.3	4	170	380	3150	170
03409N	4225	3400	515808 ?	.3	9	100	350	4300	170
03409N	4250	3400	515809 ?	.3	1	190	120	4650	200
03409N	4275	3400	515810 ?	.3	20	85	800	4550	140
03409N	4300	3400	515811 ?	.3	1	250	70	2900	160
03409N	4325	3400	515812 ?	.3	1	170	340	3150	150
03409N	4350	3400	515813 ?	.3	1	160	3	2350	240
03409N	4375	3400	515814 ?	.3	1	220	8	2800	190
03409N	4400	3400	515815 ?	.3	1	270	3	2600	220

03409N	4425	3400	515816	?	.3	1	260	3	2750	180
03409N	4450	3400	515817	?	.3	1	270	8	2500	190
03409N	4475	3400	515818	?	.3	1	300	5	1650	210
03409N	4500	3400	515819	?	.3	1	380	3	2550	210
03409N	4525	3400	515820	?	.3	1	100	20	2850	200
03409N	4575	3400	515822	?	.3	1	490	15	2900	190
03409N	4600	3400	515823	?	.3	1	280	20	2600	210
03409N	4625	3400	515824	?	.3	1	250	15	2800	220
03409N	4650	3400	515825	?	.3	1	200	30	3450	240
03409N	4675	3400	515826	?	.3	1	270	20	2550	220
03409N	4700	3400	515827	?	.3	1	220	7	3250	220
03409N	4725	3400	515828	?	.3	1	170	25	3250	220
03409N	4775	3400	515830	?	.3	1	290	15	2400	200
03409N	4825	3400	515832	?	.3	1	270	3	2250	180
03409N	4850	3400	515833	?	.3	1	290	10	2100	200
03409N	4875	3400	515834	?	.3	1	360	45	2150	160
03409N	4925	3400	515836	?	.3	1	95	7	5050	180
03409N	4950	3400	515837	?	.3	2	480	3	3700	230
03609N	3900	3600	515840	?	.3	1	360	140	4100	180
03609N	3925	3600	515841	?	.3	1	160	40	2200	160
03609N	3950	3600	515842	?	.3	1	130	260	3450	190
03609N	3975	3600	515843	?	.3	7	55	290	3350	190
03609N	4000	3600	515844	?	.3	10	140	520	3050	190
03609N	4025	3600	515845	?	.3	25	160	330	3900	160
03609N	4050	3600	515846	?	.3	5	420	310	2650	130
03609N	4075	3600	515847	?	.3	1	520	500	3750	85
03609N	4100	3600	515848	?	.3	7	360	630	5350	110
03609N	4125	3600	515849	?	.3	30	190	1700	4450	90
03609N	4150	3600	515850	?	.3	9	710	610	3900	95
03609N	4175	3600	515851	?	.3	25	730	560	4700	120
03609N	4200	3600	515852	?	.3	30	500	1050	5150	120
03609N	4250	3600	515854	?	.3	10	580	1350	5400	110
03609N	4275	3600	515855	?	.3	15	550	920	5550	160
03609N	4300	3600	515856	?	.3	20	560	510	3300	210
03609N	4325	3600	515857	?	.3	10	260	55	3350	240
03609N	4350	3600	515858	?	.3	3	250	35	2650	220
03609N	4375	3600	515859	?	1.5	1	250	10	2400	190
03609N	4400	3600	515860	?	.5	10	350	15	2600	220
03609N	4425	3600	515861	?	1.0	1	150	3	3000	200
03609N	4450	3600	515862	?	1.0	1	280	15	2800	220
03609N	4475	3600	515863	?	.5	1	220	30	1850	200
03609N	4500	3600	515864	?	1.0	30	540	30	5100	210
03609N	4525	3600	515865	?	.5	10	250	5	1600	170
03609N	4550	3600	515866	?	.5	8	250	15	2500	220
03609N	4575	3600	515867	?	1.0	5	120	35	2800	180
03609N	4600	3600	515868	?	1.5	9	250	15	2650	230
03609N	4625	3600	515869	?	2.0	10	320	15	1950	190
03609N	4650	3600	515870	?	.3	10	360	10	2900	220
03609N	4675	3600	515871	?	.3	65	310	15	1650	220
03609N	4700	3600	515872	?	.3	6	300	35	2800	210
03609N	4725	3600	515873	?	.3	1	280	10	2000	220
03609N	4750	3600	515874	?	.3	3	260	3	1950	190
03609N	4775	3600	515875	?	.3	8	390	3	2050	220
03609N	4800	3600	515876	?	.3	3	200	3	2150	200
03609N	4825	3600	515877	?	.3	3	400	8	1800	210
03609N	4850	3600	515878	?	.3	4	330	3	2800	220
03609N	4875	3600	515879	?	.3	2	220	10	3700	220
03609N	4900	3600	515880	?	.3	1	160	9	2750	200
03609N	4925	3600	515881	?	.3	3	50	20	3050	200
03609N	4975	3600	515883	?	.3	8	180	3	2600	200
03609N	5000	3600	515884	?	.3	5	270	70	3100	240
03809N	3650	3800	515885	?	.3	30	370	3	2150	200
03809N	3700	3800	515887	?	.3	30	190	250	3900	200

03809N	3750	3800	515889	?	.3	7	220	280	3550	200
03809N	3775	3800	515890	?	.3	20	190	340	3900	200
03809N	3800	3800	515891	?	.3	25	180	350	3650	200
03809N	3825	3800	515892	?	.3	35	140	300	3600	170
03809N	3850	3800	515893	?	.3	4	40	530	3150	230
03809N	3875	3800	515894	?	.3	45	250	300	3900	200
03809N	3925	3800	515896	?	.3	6	400	75	3450	160
03809N	3950	3800	515897	?	.3	3	460	20	2650	150
03809N	3975	3800	515898	?	.3	20	420	450	5250	100
03809N	4000	3800	515899	?	.3	15	400	500	6750	120
03809N	4025	3800	515900	?	.3	15	370	360	5300	90
03809N	4075	3800	515902	?	.3	10	660	330	7000	150
03809N	4100	3800	515903	?	.3	15	520	440	6650	170
03809N	4125	3800	515904	?	.3	20	380	410	6650	150
03809N	4150	3800	515905	?	.3	20	340	390	7700	180
03809N	4175	3800	515906	?	.3	15	450	400	6150	150
03809N	4200	3800	515907	?	.3	70	300	1150	5450	140
03809N	4225	3800	515908	?	.3	40	410	740	5850	140
03809N	4250	3800	515909	?	.3	20	570	840	5850	140
03809N	4300	3800	515911	?	.3	20	270	890	7250	160
03809N	4325	3800	515912	?	.3	45	300	810	6750	140
03809N	4350	3800	515913	?	.3	15	360	700	7600	160
03809N	4375	3800	515914	?	.3	6	370	360	4250	170
03809N	4425	3800	515916	?	.3	10	550	280	3350	160
03809N	4475	3800	515918	?	.3	1	410	150	2250	110
03809N	4500	3800	515919	?	.3	4	530	100	1800	140
03809N	4550	3800	515921	?	.3	4	670	60	4500	230
03809N	4575	3800	515922	?	.3	1	590	60	1850	190
03809N	4600	3800	515923	?	.3	4	560	40	2300	210
03809N	4625	3800	515924	?	.3	2	580	55	2100	190
03809N	4650	3800	515925	?	1.0	6	340	65	3050	220
03809N	4675	3800	515926	?	.3	3	160	20	3100	160
03809N	4700	3800	515927	?	.3	40	490	7	2900	160
03809N	4725	3800	515928	?	.3	8	390	3	2900	170
03809N	4750	3800	515929	?	.3	140	280	20	3300	200
03809N	4775	3800	515930	?	.3	10	300	3	2400	200
03809N	4800	3800	515931	?	.3	4	280	9	2300	200
03809N	4825	3800	515932	?	.3	1	140	3	2400	150
03809N	4850	3800	515933	?	.3	2	160	3	2550	210
03809N	4875	3800	515934	?	.3	1	250	20	2300	230
03809N	4900	3800	515935	?	.3	1	170	25	2900	200
03809N	4925	3800	515936	?	.3	1	260	15	2400	200
03809N	4950	3800	515937	?	.3	6	220	20	2650	220
03809N	4975	3800	515938	?	.3	2	280	20	3150	160
03809N	5000	3800	515939	?	.3	1	270	20	3150	230
03809N	5025	3800	515940	?	.3	1	340	5	2950	522
03809N	5050	3800	515941	?	.3	1	370	35	2700	240
03809N	5075	3800	515942	?	.3	1	340	3	2200	250
03809N	5100	3800	515943	?	.3	1	250	10	2900	240
03809N	5125	3800	515944	?	.3	1	280	3	1750	270
03809N	5150	3800	515945	?	.3	1	340	15	2950	210
03809N	5175	3800	515946	?	.3	1	320	3	4500	230
03809N	5200	3800	515947	?	.3	1	290	10	3950	240
03809N	5225	3800	515948	?	.3	1	300	10	3100	240
03809N	5250	3800	515949	?	.3	1	240	65	3650	270
03809N	5275	3800	515950	?	.3	1	340	75	4050	240
03809N	5300	3800	515951	?	.3	1	300	25	4750	220
03809N	5325	3800	515952	?	.3	1	210	80	4750	280
03809N	5350	3800	515953	?	.3	1	310	50	4550	270
03809N	5375	3800	515954	?	.3	1	290	50	4550	250
03809N	5400	3800	515955	?	.3	1	280	40	4900	240
03809N	5425	3800	515956	?	.3	1	160	35	5700	200
03809N	5450	3800	515957	?	.3	1	220	40	4050	210
03809N	5475	3800	515958	?	.3	1	20	130	4200	170

03809N	5500	3800	515959	?	.3	1	120	120	2250	170
03809N	5550	3800	515961	?	.3	1	160	95	5000	190
03809N	5575	3800	515962	?	.3	1	680	45	1750	140
03809N	5600	3800	515963	?	.3	1	85	150	4850	200
03809N	5625	3800	515964	?	.3	1	180	15	2900	220
03809N	5650	3800	515965	?	.3	1	230	15	4300	160
03809N	5675	3800	515966	?	.3	5	170	280	4550	180
03809N	5700	3800	515967	?	.3	1	30	70	7250	210
03809N	5725	3800	515968	?	.3	1	25	3	6000	200
03809N	5750	3800	515969	?	.3	2	25	65	6250	210
03809N	5775	3800	515970	?	.3	1	140	10	6450	190
03809N	5800	3800	515971	?	.3	4	270	45	5900	210
03809N	5825	3800	515972	?	.3	1	400	7	3900	220
03809N	5850	3800	515973	?	.3	1	350	15	3450	200
03809N	5875	3800	515974	?	.3	2	120	130	5850	190
03809N	5900	3800	515975	?	.3	8	100	95	6950	160
03809N	5925	3800	515976	?	.3	9	5	150	7950	200
03809N	5950	3800	515977	?	.3	6	55	130	6950	180
03809N	5975	3800	515978	?	.3	1	25	100	9000	220
04009N	3925	4000	515985	?	.5	15	400	230	5650	140
04009N	3950	4000	515986	?	.3	10	230	310	5150	150
04009N	3975	4000	515987	?	.3	45	310	220	7100	200
04009N	4000	4000	515988	?	.3	20	350	130	7850	190
04009N	4025	4000	515989	?	.5	25	570	110	7650	200
04009N	4125	4000	515993	?	.3	8	330	80	8200	230
04009N	4175	4000	515995	?	.5	20	350	160	8900	250
04009N	4200	4000	515996	?	.5	7	490	260	7000	200
04009N	4225	4000	515997	?	.3	10	550	140	7800	220
04009N	4250	4000	515998	?	.5	7	320	1350	5300	120
04009N	4275	4000	515999	?	.3	2	220	1350	5200	110
04009N	4300	4000	517001	?	.5	7	310	530	7150	180
04009N	4325	4000	517002	?	1.0	5	320	410	7100	200
04009N	4350	4000	517003	?	.5	4	420	210	7550	200
04009N	4375	4000	517004	?	.5	3	420	170	6650	210
04009N	4400	4000	517005	?	.5	3	450	50	3300	260
04009N	4425	4000	517006	?	.5	1	320	30	2750	250
04009N	4450	4000	517007	?	.3	1	320	50	3800	250
04009N	4475	4000	517008	?	.3	1	480	3	1850	220
04009N	4500	4000	517009	?	.3	1	360	10	1800	260
04009N	4525	4000	517010	?	.3	1	380	3	2200	220
04009N	4550	4000	517011	?	.5	1	260	10	3100	240
04009N	4575	4000	517012	?	.3	1	460	9	3900	230
04009N	4625	4000	517014	?	.3	1	520	20	4300	200
04009N	4650	4000	517015	?	.5	1	380	3	3300	200
04009N	4700	4000	517017	?	.3	1	310	15	2400	250
04009N	4725	4000	517018	?	.3	2	500	3	3000	220
04009N	4750	4000	517019	?	.3	1	670	10	3150	230
04009N	4775	4000	517020	?	.3	10	390	7	3700	240
04009N	4800	4000	517021	?	.3	1	280	35	3450	210
04009N	4825	4000	517022	?	.3	1	460	10	3100	220
04009N	4850	4000	517023	?	.3	1	490	7	4200	210
04009N	4875	4000	517024	?	.3	1	490	6	3100	250
04009N	4900	4000	517025	?	.3	6	360	3	2650	200
04009N	4925	4000	517026	?	.3	4	290	65	3500	240
04009N	4950	4000	517027	?	1.0	15	430	55	2650	210
04009N	4975	4000	517028	?	.3	8	500	3	2100	230
04009N	5000	4000	517029	?	.5	25	380	25	3500	200
04009N	5025	4000	517030	?	.5	30	260	45	3900	180
04009N	5050	4000	517031	?	1.0	4	450	8	3650	190
04009N	5075	4000	517032	?	1.0	2	340	35	3450	170
04009N	5125	4000	517034	?	.3	1	540	120	2150	160
04009N	5150	4000	517035	?	.5	1	580	15	2350	260
04009N	5175	4000	517036	?	.5	1	260	30	3700	210
04009N	5200	4000	517037	?	.5	1	180	40	3000	190

TRAVERSE	EAST	NORTH	SAMPLE	Ag	As	Ba	Cr	Ti	Zr
04009N	5225	4000	517038 ?	.3	1	270	40	4500	210
04009N	5250	4000	517039 ?	.3	1	280	30	3100	220
04009N	5275	4000	517040 ?	.3	1	380	40	3250	210
04009N	5300	4000	517041 ?	.3	1	260	95	4400	190
04009N	5325	4000	517042 ?	.3	1	290	9	4300	200
04009N	5350	4000	517043 ?	.5	1	380	45	5100	200
04009N	5375	4000	517044 ?	.5	1	210	25	5050	200
04009N	5400	4000	517045 ?	.3	1	150	130	3950	180
04009N	5425	4000	517046 ?	.5	1	240	25	2950	180
04009N	5450	4000	517047 ?	.5	1	150	40	3350	80
04009N	5500	4000	517049 ?	.3	1	240	30	4700	140
04009N	5525	4000	517050 ?	.5	1	120	50	4550	130
04009N	5550	4000	517051 ?	.5	1	240	30	5200	150
04009N	5575	4000	517052 ?	.5	1	250	410	3500	140
04009N	5600	4000	517053 ?	.3	1	160	-999	-999	-999
04009N	5625	4000	517054 ?	.3	1	240	-999	-999	-999
04009N	5650	4000	517055 ?	.3	1	260	-999	-999	-999
04009N	5675	4000	517056 ?	.3	1	280	-999	-999	-999
04009N	5700	4000	517057 ?	.3	1	220	-999	-999	-999
04009N	5725	4000	517058 ?	.3	1	200	-999	-999	-999
04009N	5750	4000	517059 ?	.3	1	280	-999	-999	-999
04009N	5775	4000	517060 ?	.3	1	70	-999	-999	-999
04009N	5800	4000	517061 ?	.3	1	100	-999	-999	-999
04009N	5825	4000	517062 ?	.3	1	5	-999	-999	-999
04009N	5850	4000	517063 ?	.3	2	50	-999	-999	-999
04009N	5875	4000	517064 ?	.3	5	5	-999	-999	-999
04009N	5900	4000	517065 ?	.3	4	5	-999	-999	-999
04009N	5925	4000	517066 ?	.3	1	10	-999	-999	-999
04009N	5950	4000	517067 ?	.3	2	5	-999	-999	-999
04209N	3775	4200	517071 ?	.3	10	400	15	3150	210
04209N	3800	4200	517072 ?	.3	1	800	3	3050	230
04209N	3825	4200	517073 ?	.3	3	430	10	2950	190
04209N	3850	4200	517074 ?	.3	40	650	500	3700	170
04209N	3875	4200	517075 ?	.3	20	580	120	4250	160
04209N	3900	4200	517076 ?	.3	15	370	100	4850	140
04209N	3950	4200	517078 ?	.3	6	150	30	3450	95
04209N	3975	4200	517079 ?	.3	3	140	90	4700	140
04209N	4000	4200	517080 ?	.3	6	70	75	8700	260
04209N	4025	4200	517081 ?	.3	10	95	70	8650	240
04209N	4050	4200	517082 ?	.3	9	100	45	8950	200
04209N	4075	4200	517083 ?	.3	9	90	50	8150	170
04209N	4100	4200	517084 ?	.3	15	130	70	8900	230
04209N	4125	4200	517085 ?	.3	15	450	50	8100	220
04209N	4150	4200	517086 ?	.3	15	280	50	7800	210
04209N	4200	4200	517088 ?	.3	20	180	30	9000	240
04209N	4225	4200	517089 ?	.3	20	170	20	10050	220
04209N	4250	4200	517090 ?	.3	6	190	60	9150	220
04209N	4275	4200	517091 ?	.3	4	110	45	8750	180
04209N	4300	4200	517092 ?	.3	5	220	45	7700	150
04209N	4325	4200	517093 ?	.3	2	200	35	9500	200
04209N	4350	4200	517094 ?	.3	2	210	55	8550	210
04209N	4375	4200	517095 ?	.3	15	350	80	6350	220
04209N	4400	4200	517096 ?	.3	20	260	60	6900	240
04209N	4425	4200	517097 ?	.3	20	280	50	7100	220
04209N	4450	4200	517098 ?	.3	15	300	40	7200	220
04209N	4475	4200	517099 ?	.3	15	240	55	7300	210
04209N	4500	4200	517100 ?	.3	2	200	65	8050	230
04209N	4525	4200	517101 ?	.3	2	390	15	4500	170
04209N	4550	4200	517102 ?	.3	5	470	30	3650	190
04209N	4575	4200	517103 ?	.3	1	340	8	4000	190
04209N	4600	4200	517104 ?	.3	2	540	35	3200	200
04209N	4675	4200	517107 ?	.3	1	480	15	2400	210
04209N	4700	4200	517108 ?	.3	3	380	60	3300	220
04209N	4725	4200	517109 ?	.3	2	410	5	3850	200

04209N	4750	4200	517110 ?	.3	6	370	15	3950	210
04209N	4775	4200	517111 ?	.3	1	300	20	2800	180
04209N	4800	4200	517112 ?	.3	50	260	3	3000	170
04209N	4825	4200	517113 ?	.3	4	320	3	3750	200
04209N	4850	4200	517114 ?	.3	1	170	30	3750	260
04209N	4875	4200	517115 ?	.3	1	260	25	3100	230
04209N	4900	4200	517116 ?	.3	1	540	20	2750	220
04209N	4925	4200	517117 ?	.3	1	250	20	3150	220
04209N	4950	4200	517118 ?	.3	1	390	8	2450	270
04209N	4975	4200	517119 ?	.3	6	240	90	3100	240
04209N	5000	4200	517120 ?	.3	7	900	15	3850	190
04209N	5025	4200	517121 ?	.3	1	370	35	3300	160
04209N	5050	4200	517122 ?	.3	5	240	80	5400	180
04209N	5075	4200	517123 ?	.3	1	200	70	4650	180
04209N	5100	4200	517124 ?	.3	1	280	45	4200	200
04209N	5125	4200	517125 ?	.3	1	330	40	3650	190
04209N	5150	4200	517126 ?	.3	1	360	85	4000	210
04209N	5175	4200	517127 ?	.3	1	300	120	4650	200
04209N	5200	4200	517128 ?	.3	1	260	50	4200	210
04209N	5225	4200	517129 ?	.3	1	120	15	6500	150
04209N	5250	4200	517130 ?	.3	1	190	45	2525	230
04209N	5275	4200	517131 ?	.3	1	250	55	3800	220
04209N	5300	4200	517132 ?	.3	1	190	15	4000	200
04209N	5325	4200	517133 ?	.3	1	75	380	5700	160
04209N	5350	4200	517134 ?	.3	1	270	-999	-999	-999
04209N	5375	4200	517135 ?	.3	1	220	-999	-999	-999
04209N	5400	4200	517136 ?	.3	1	310	-999	-999	-999
04209N	5425	4200	517137 ?	.3	1	60	-999	-999	-999
04209N	5450	4200	517138 ?	.3	20	300	-999	-999	-999
04209N	5475	4200	517139 ?	.3	1	230	-999	-999	-999
04209N	5500	4200	517140 ?	.3	1	410	-999	-999	-999
04209N	5525	4200	517141 ?	.3	3	310	-999	-999	-999
04209N	5550	4200	517142 ?	.3	1	320	-999	-999	-999
04209N	5575	4200	517143 ?	.3	1	320	-999	-999	-999
04209N	5600	4200	517144 ?	.3	1	300	-999	-999	-999
04209N	5625	4200	517145 ?	.3	1	290	-999	-999	-999
04209N	5650	4200	517146 ?	.3	1	360	-999	-999	-999
04209N	5675	4200	517147 ?	.3	1	330	-999	-999	-999
04209N	5700	4200	517148 ?	.3	1	310	-999	-999	-999
04209N	5725	4200	517149 ?	.3	1	150	-999	-999	-999
04209N	5750	4200	517150 ?	.3	1	45	-999	-999	-999
04209N	5775	4200	517151 ?	.3	1	5	-999	-999	-999
04209N	5800	4200	517152 ?	.3	2	20	-999	-999	-999
04209N	5825	4200	517153 ?	.3	2	25	-999	-999	-999
04209N	5850	4200	517154 ?	.3	1	20	-999	-999	-999
04209N	5875	4200	517155 ?	.3	1	65	-999	-999	-999
04209N	5900	4200	517156 ?	.3	2	140	-999	-999	-999
04209N	5925	4200	517157 ?	.3	3	190	-999	-999	-999
04209N	5950	4200	517158 ?	.3	2	110	-999	-999	-999
04209N	5975	4200	517159 ?	.3	1	460	-999	-999	-999
04409N	3800	4400	517161 ?	.3	8	490	360	5000	170
04409N	3825	4400	517162 ?	.3	6	590	220	4200	170
04409N	3850	4400	517163 ?	.3	15	700	130	4050	180
04409N	3900	4400	517165 ?	.3	4	740	130	3550	160
04409N	3925	4400	517166 ?	.3	10	660	90	4200	190
04409N	3950	4400	517167 ?	.3	20	720	100	4450	180
04409N	3975	4400	517168 ?	.3	4	660	85	4350	190
04409N	4000	4400	517169 ?	.3	1	460	60	4850	200
04409N	4025	4400	517170 ?	.3	40	670	120	4950	200
04409N	4050	4400	517171 ?	.3	15	470	65	8000	240
04409N	4075	4400	517172 ?	.3	15	300	65	9450	260
04409N	4100	4400	517173 ?	.3	10	420	65	8700	250
04409N	4125	4400	517174 ?	.3	15	370	90	8800	240
04409N	4150	4400	517175 ?	.3	10	470	50	8300	250

04409N	4175	4400	517176	?	.3	15	500	60	8200	240
04409N	4200	4400	517177	?	.3	10	310	65	8000	240
04409N	4225	4400	517178	?	.3	3	560	50	9250	240
04409N	4250	4400	517179	?	.3	9	420	35	9950	200
04409N	4275	4400	517180	?	.3	2	220	40	9950	200
04409N	4300	4400	517181	?	.3	1	280	30	9600	160
04409N	4325	4400	517182	?	.3	1	380	25	7900	190
04409N	4350	4400	517183	?	.3	2	330	30	9100	160
04409N	4375	4400	517184	?	.3	8	560	60	8250	240
04409N	4400	4400	517185	?	.3	9	390	65	7100	230
04409N	4425	4400	517186	?	.3	15	260	3	3350	270
04409N	4450	4400	517187	?	.3	25	540	35	4650	280
04409N	4475	4400	517188	?	.3	20	410	45	5800	240
04409N	4500	4400	517189	?	.3	1	800	35	1850	250
04409N	4525	4400	517190	?	.3	10	1100	10	3000	260
04409N	4550	4400	517191	?	.3	15	790	20	2300	180
04409N	4575	4400	517192	?	.3	85	1250	30	3600	230
04409N	4600	4400	517193	?	.3	45	940	40	3450	230
04409N	4625	4400	517194	?	.3	35	950	25	3200	230
04409N	4650	4400	517195	?	.3	25	720	10	2250	220
04409N	4675	4400	517196	?	.3	45	830	40	2100	200
04409N	4700	4400	517197	?	.3	40	760	15	2700	220
04409N	4725	4400	517198	?	.3	20	660	15	3600	230
04409N	4750	4400	517199	?	.3	10	500	15	3200	200
04409N	4775	4400	517200	?	.3	10	580	60	3400	180
04409N	4800	4400	517201	?	.3	1	410	15	3400	180
04409N	4825	4400	517202	?	.3	2	710	60	3500	190
04409N	4850	4400	517203	?	.3	1	410	60	3350	170
04409N	4875	4400	517204	?	.3	25	540	10	3150	250
04409N	4900	4400	517205	?	.3	15	590	10	2100	260
04409N	4925	4400	517206	?	.3	15	710	25	2900	240
04409N	4975	4400	517208	?	1.5	210	2450	20	3250	210
04409N	5000	4400	517209	?	.3	2	140	100	4900	180
04409N	5025	4400	517210	?	.3	1	490	3	5250	170
04409N	5050	4400	517211	?	.3	1	260	30	5500	170
04409N	5075	4400	517212	?	.3	15	490	95	3900	180
04409N	5100	4400	517213	?	.3	3	500	40	3350	230
04409N	5125	4400	517214	?	.3	1	350	6	3500	250
04409N	5150	4400	517215	?	.3	1	320	25	4250	210
04409N	5175	4400	517216	?	.3	7	1600	110	4600	170
04409N	5200	4400	517217	?	.3	6	150	170	5500	250
04409N	5225	4400	517218	?	.3	1	150	100	4500	220
04409N	5250	4400	517219	?	.3	5	240	110	4250	230
04409N	5275	4400	517220	?	.3	1	160	110	4500	200
04409N	5300	4400	517221	?	.3	15	310	65	4350	220
04409N	5350	4400	517223	?	.3	1	200	40	4700	130
04409N	5375	4400	517224	?	.3	1	210	75	4100	120
04409N	5400	4400	517225	?	.3	2	400	15	3850	210
04409N	5425	4400	517226	?	.3	1	250	55	3100	150
04409N	5450	4400	517227	?	.3	1	350	10	3500	200
04409N	5475	4400	517228	?	.3	1	230	140	4700	150
04409N	5525	4400	517230	?	.3	1	130	60	2850	45
04409N	5550	4400	517231	?	.3	1	610	30	3800	110
04409N	5575	4400	517232	?	.3	1	130	85	2850	190
04409N	5600	4400	517233	?	.3	1	660	20	4500	130
04409N	5625	4400	517234	?	.3	1	220	35	4400	160
04409N	5650	4400	517235	?	.3	1	250	9	4450	160
04409N	5675	4400	517236	?	.3	2	350	30	3750	190
04409N	5700	4400	517237	?	.3	3	420	65	3550	170
04409N	5725	4400	517238	?	.3	2	230	35	4550	190
04409N	5750	4400	517239	?	.3	8	310	65	4150	180
04409N	5775	4400	517240	?	.3	6	300	35	4100	170
04409N	5800	4400	517241	?	.3	10	370	55	3950	190
04409N	5825	4400	517242	?	.3	1	160	40	5200	180

04409N	5850	4400	517243 ?	.3	4	280	70	3600	170
04409N	5875	4400	517244 ?	.3	6	210	35	5150	170
04409N	5900	4400	517245 ?	.3	10	280	55	4600	170
04409N	5925	4400	517246 ?	.3	10	400	80	5700	170
04409N	5950	4400	517247 ?	.3	10	500	80	5100	160
04409N	5975	4400	517248 ?	.3	4	330	35	5100	160
04609N	4550	4600	517252 ?	.3	5	740	35	2500	180
04609N	4575	4600	517253 ?	.5	40	720	20	2200	190
04609N	4600	4600	517254 ?	.5	25	710	30	2600	190
04609N	4625	4600	517255 ?	.3	40	890	25	2400	220
04609N	4650	4600	517256 ?	.3	15	740	15	2800	210
04609N	4675	4600	517257 ?	.5	30	1100	10	2400	210
04609N	4700	4600	517258 ?	.3	3	920	40	2750	200
04609N	4725	4600	517259 ?	.3	1	970	20	2500	190
04609N	4750	4600	517260 ?	1.5	140	8700	20	3050	180
04609N	4800	4600	517262 ?	.3	15	990	15	3100	170
04609N	4825	4600	517263 ?	.3	15	1050	40	2150	200
04609N	4850	4600	517264 ?	.3	5	620	3	250	190
04609N	4875	4600	517265 ?	.5	10	620	6	2750	210
04609N	4900	4600	517266 ?	.3	15	430	3	3400	190
04609N	4925	4600	517267 ?	.3	5	1150	20	3340	210
04609N	4950	4600	517268 ?	.3	7	610	10	3950	180
04609N	4975	4600	517269 ?	.5	8	320	10	3400	200
04609N	5000	4600	517270 ?	.3	60	470	25	4050	200
04609N	5025	4600	517271 ?	.3	15	470	25	3450	180
04609N	5050	4600	517272 ?	.3	20	510	20	3850	180
04609N	5075	4600	517273 ?	.3	6	610	25	4500	160
04609N	5100	4600	517274 ?	.3	15	490	10	4350	180
04609N	5125	4600	517275 ?	.3	30	550	70	3650	180
04609N	5175	4600	517277 ?	.3	9	600	20	2350	210
04609N	5200	4600	517278 ?	.3	6	390	780	5500	190
04609N	5225	4600	517279 ?	.3	4	200	10	4850	140
04609N	5250	4600	517280 ?	.5	20	340	30	3250	170
04609N	5275	4600	517281 ?	.3	150	550	120	2250	200
04609N	5300	4600	517282 ?	.3	4	410	-999	-999	-999
04609N	5325	4600	517283 ?	.3	6	310	-999	-999	-999
04609N	5350	4600	517284 ?	.3	3	270	-999	-999	-999
04609N	5375	4600	517285 ?	.3	2	160	-999	-999	-999
04609N	5400	4600	517286 ?	.3	2	490	-999	-999	-999
04609N	5425	4600	517287 ?	.3	3	45	-999	-999	-999
04609N	5450	4600	517288 ?	.3	1	100	-999	-999	-999
04609N	5500	4600	517290 ?	.3	5	520	-999	-999	-999
04609N	5525	4600	517291 ?	.3	10	430	-999	-999	-999
04609N	5550	4600	517292 ?	.3	4	300	-999	-999	-999
04609N	5575	4600	517293 ?	.3	2	330	-999	-999	-999
04609N	5600	4600	517294 ?	.5	10	340	-999	-999	-999
04609N	5625	4600	517295 ?	.3	6	220	-999	-999	-999
04609N	5675	4600	517297 ?	.5	5	220	-999	-999	-999
04609N	5700	4600	517298 ?	.5	10	260	-999	-999	-999
04609N	5725	4600	517299 ?	.3	1	300	-999	-999	-999
04609N	5750	4600	517300 ?	.3	1	340	-999	-999	-999
04609N	5775	4600	517301 ?	.3	1	130	-999	-999	-999
04609N	5800	4600	517302 ?	.3	1	220	-999	-999	-999
04609N	5825	4600	517303 ?	.3	1	280	-999	-999	-999
04609N	5850	4600	517304 ?	.3	1	180	-999	-999	-999
04609N	5875	4600	517305 ?	.3	1	150	-999	-999	-999
04609N	5900	4600	517306 ?	.3	5	320	-999	-999	-999
04609N	5925	4600	517307 ?	.3	4	270	-999	-999	-999
04609N	5950	4600	517308 ?	.5	1	350	-999	-999	-999
04609N	5975	4600	517309 ?	.5	3	300	-999	-999	-999
04809N	4825	4800	517312 ?	.3	1	1100	25	2650	210
04809N	4850	4800	517313 ?	.3	1	1000	45	3000	160
04809N	4875	4800	517314 ?	.3	1	950	3	2550	170
04809N	4900	4800	517315 ?	.3	8	900	30	2600	160

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TRAVERSE	EAST	NORTH	SAMPLE	Ag	As	Ba	Cr	Ti	Zr
04809N	4925	4800	517316 ?	.3	1	840	15	2250	150
04809N	4950	4800	517317 ?	.3	1	800	-999	-999	-999
04809N	4975	4800	517318 ?	.3	10	740	-999	-999	-999
04809N	5000	4800	517319 ?	.3	1	580	-999	-999	-999
04809N	5025	4800	517320 ?	.3	1	710	-999	-999	-999
04809N	5050	4800	517321 ?	.3	1	600	-999	-999	-999
04809N	5075	4800	517322 ?	.3	1	520	-999	-999	-999
04809N	5100	4800	517323 ?	.3	1	810	-999	-999	-999
04809N	5125	4800	517324 ?	.3	1	610	-999	-999	-999
04809N	5150	4800	517325 ?	.3	1	1100	-999	-999	-999
04809N	5175	4800	517326 ?	.3	2	640	-999	-999	-999
04809N	5200	4800	517327 ?	.3	1	480	-999	-999	-999
04809N	5225	4800	517328 ?	.3	2	410	-999	-999	-999
04809N	5250	4800	517329 ?	.3	8	600	-999	-999	-999
04809N	5275	4800	517330 ?	.3	1	490	-999	-999	-999
04809N	5300	4800	517331 ?	.3	5	560	-999	-999	-999
04809N	5325	4800	517332 ?	.3	1	390	-999	-999	-999
04809N	5350	4800	517333 ?	.3	1	610	-999	-999	-999
04809N	5375	4800	517334 ?	.3	1	420	-999	-999	-999
04809N	5400	4800	517335 ?	.3	1	340	-999	-999	-999
04809N	5425	4800	517336 ?	.3	1	200	-999	-999	-999
04809N	5450	4800	517337 ?	.3	1	280	-999	-999	-999
04809N	5475	4800	517338 ?	.3	1	250	-999	-999	-999
04809N	5500	4800	517339 ?	.3	1	160	-999	-999	-999
04809N	5525	4800	517340 ?	.3	1	150	-999	-999	-999
04809N	5550	4800	517341 ?	.3	1	200	-999	-999	-999
04809N	5575	4800	517342 ?	.3	1	380	-999	-999	-999
04809N	5600	4800	517343 ?	.3	1	450	-999	-999	-999
04809N	5625	4800	517344 ?	.3	1	360	-999	-999	-999
04809N	5650	4800	517345 ?	.3	1	460	-999	-999	-999
04809N	5675	4800	517346 ?	.3	1	480	-999	-999	-999
04809N	5700	4800	517347 ?	.3	15	390	-999	-999	-999
04809N	5725	4800	517348 ?	.3	1	95	-999	-999	-999
04809N	5750	4800	517349 ?	.3	1	130	-999	-999	-999
04809N	5775	4800	517350 ?	.3	1	220	-999	-999	-999
04809N	5800	4800	517351 ?	.3	1	250	-999	-999	-999
04809N	5825	4800	517352 ?	.3	2	310	-999	-999	-999
04809N	5850	4800	517353 ?	.3	3	330	-999	-999	-999
04809N	5875	4800	517354 ?	.3	1	260	-999	-999	-999
04809N	5900	4800	517355 ?	.3	6	290	-999	-999	-999
04809N	5925	4800	517356 ?	.3	10	370	-999	-999	-999
04809N	5975	4800	517358 ?	.3	1	280	-999	-999	-999
05009N	4825	5000	517361 ?	.3	25	360	180	4250	140
05009N	4850	5000	517362 ?	.3	30	770	55	2800	160
05009N	4875	5000	517363 ?	.3	40	460	7	1400	160
05009N	4900	5000	517364 ?	.3	6	630	-999	-999	-999
05009N	4925	5000	517365 ?	.3	30	370	-999	-999	-999
05009N	4950	5000	517366 ?	.3	65	710	-999	-999	-999
05009N	4975	5000	517367 ?	.3	40	470	-999	-999	-999
05009N	5000	5000	517368 ?	.5	20	570	-999	-999	-999
05009N	5025	5000	517369 ?	.5	10	420	-999	-999	-999
05009N	5050	5000	517370 ?	.3	7	620	-999	-999	-999
05009N	5075	5000	517371 ?	.3	6	590	-999	-999	-999
05009N	5100	5000	517372 ?	.3	15	630	-999	-999	-999
05009N	5125	5000	517373 ?	.3	4	620	-999	-999	-999
05009N	5150	5000	517374 ?	.3	15	400	-999	-999	-999
05009N	5175	5000	517375 ?	.3	8	370	-999	-999	-999
05009N	5200	5000	517376 ?	.3	5	870	-999	-999	-999
05009N	5225	5000	517377 ?	.3	1	290	-999	-999	-999
05009N	5250	5000	517378 ?	.3	1	300	-999	-999	-999
05009N	5275	5000	517379 ?	.3	75	460	-999	-999	-999
05009N	5300	5000	517380 ?	.3	1	380	-999	-999	-999
05009N	5325	5000	517381 ?	.3	1	470	-999	-999	-999
05009N	5350	5000	517382 ?	.3	3	510	-999	-999	-999

05009N	5375	5000	517383	?	.3	3	270	-999	-999	-999
05009N	5400	5000	517384	?	.3	35	460	-999	-999	-999
05009N	5425	5000	517385	?	.3	15	460	-999	-999	-999
05009N	5450	5000	517386	?	.3	10	500	-999	-999	-999
05009N	5475	5000	517387	?	.3	8	500	-999	-999	-999
05009N	5500	5000	517388	?	.3	2	260	-999	-999	-999
05009N	5525	5000	517389	?	.3	5	690	-999	-999	-999
05009N	5550	5000	517390	?	.3	3	580	-999	-999	-999
05009N	5575	5000	517391	?	.3	2	770	-999	-999	-999
05009N	5600	5000	517392	?	.3	4	840	-999	-999	-999
05009N	5625	5000	517393	?	.3	2	680	-999	-999	-999
05009N	5675	5000	517395	?	.3	15	420	-999	-999	-999
05009N	5700	5000	517396	?	.3	15	610	-999	-999	-999
05009N	5725	5000	517397	?	.3	10	590	-999	-999	-999
05009N	5750	5000	517398	?	.3	15	480	-999	-999	-999
05009N	5775	5000	517399	?	.3	10	410	-999	-999	-999
05009N	5800	5000	517400	?	.3	8	550	-999	-999	-999
05009N	5825	5000	517401	?	.3	8	480	-999	-999	-999
05009N	5850	5000	517402	?	.3	10	590	-999	-999	-999
05009N	5875	5000	517403	?	.3	10	580	-999	-999	-999
05009N	5925	5000	517405	?	1.0	50	260	-999	-999	-999
05009N	5950	5000	517406	?	.3	40	360	-999	-999	-999
05009N	5975	5000	517407	?	.3	30	340	-999	-999	-999
05209N	4825	5200	517410	?	.3	15	660	230	4250	160
05209N	4850	5200	517411	?	.3	25	1000	230	4150	140
05209N	4875	5200	517412	?	.3	15	280	200	3700	140
05209N	4900	5200	517413	?	.3	15	390	200	4050	120
05209N	4925	5200	517414	?	.3	20	330	420	4200	140
05209N	4950	5200	517415	?	.3	35	1200	290	2650	170
05209N	4975	5200	517416	?	.3	20	4750	190	4400	170
05209N	5000	5200	517417	?	.3	6	470	280	3300	160
05209N	5025	5200	517418	?	.3	1	570	-999	-999	-999
05209N	5050	5200	517419	?	.3	8	300	-999	-999	-999
05209N	5075	5200	517420	?	.3	25	280	-999	-999	-999
05209N	5100	5200	517421	?	.3	25	470	-999	-999	-999
05209N	5125	5200	517422	?	.3	80	280	-999	-999	-999
05209N	5150	5200	517423	?	.3	250	300	-999	-999	-999
05209N	5175	5200	517424	?	.3	90	460	-999	-999	-999
05209N	5200	5200	517425	?	.3	160	400	-999	-999	-999
05209N	5225	5200	517426	?	.3	400	420	-999	-999	-999
05209N	5250	5200	517427	?	.3	110	930	-999	-999	-999
05209N	5275	5200	517428	?	.3	35	600	-999	-999	-999
05209N	5300	5200	517429	?	.3	110	720	-999	-999	-999
05209N	5325	5200	517430	?	.3	40	900	-999	-999	-999
05209N	5350	5200	517431	?	.3	25	690	-999	-999	-999
05209N	5375	5200	517432	?	.3	50	650	-999	-999	-999
05209N	5400	5200	517433	?	.3	40	730	-999	-999	-999
05209N	5425	5200	517434	?	.3	40	400	-999	-999	-999
05209N	5450	5200	517435	?	.3	40	480	-999	-999	-999
05209N	5475	5200	517436	?	.3	40	520	-999	-999	-999
05209N	5500	5200	517437	?	.3	55	460	-999	-999	-999
05209N	5525	5200	517438	?	.3	25	400	-999	-999	-999
05209N	5550	5200	517439	?	.3	25	320	-999	-999	-999
05209N	5575	5200	517440	?	.3	7	340	-999	-999	-999
05209N	5600	5200	517441	?	.3	25	530	-999	-999	-999
05209N	5625	5200	517442	?	.3	40	740	-999	-999	-999
05209N	5650	5200	517443	?	.3	30	320	-999	-999	-999
05209N	5675	5200	517444	?	.3	50	610	-999	-999	-999
05209N	5700	5200	517445	?	.3	55	660	-999	-999	-999
05209N	5725	5200	517446	?	.3	40	330	-999	-999	-999
05209N	5750	5200	517447	?	.3	35	210	-999	-999	-999
05209N	5775	5200	517448	?	.3	15	210	-999	-999	-999
05209N	5800	5200	517449	?	.3	15	120	-999	-999	-999
05209N	5825	5200	517450	?	3	15	250	999	999	999

05209N	5850	5200	517451	?	.3	1	200	-999	-999	-999
05209N	5875	5200	517452	?	.3	25	450	-999	-999	-999
05209N	5900	5200	517453	?	.3	20	630	-999	-999	-999
05209N	5925	5200	517454	?	.3	20	610	-999	-999	-999
05209N	5950	5200	517455	?	.3	15	340	-999	-999	-999
05209N	5975	5200	517456	?	.3	6	770	-999	-999	-999
05409N	4825	5400	517459	?	.5	15	150	440	6550	140
05409N	4850	5400	517460	?	.5	15	200	330	6650	130
05409N	4875	5400	517461	?	.5	10	140	640	6600	150
05409N	4900	5400	517462	?	.5	10	140	740	7450	160
05409N	4925	5400	517463	?	.5	5	110	590	7800	160
05409N	4950	5400	517464	?	.5	4	100	420	7100	220
05409N	4975	5400	517465	?	.5	15	55	1250	7500	170
05409N	5000	5400	517466	?	.3	2	120	1200	7550	170
05409N	5025	5400	517467	?	.5	4	85	1200	7500	190
05409N	5050	5400	517468	?	.3	7	100	1250	7650	190
05409N	5075	5400	517469	?	1.0	3	110	1300	7000	180
05409N	5150	5400	517472	?	1.0	3	180	820	4650	100
05409N	5175	5400	517473	?	.5	1	60	740	4300	85
05409N	5200	5400	517474	?	.5	9	65	620	5600	150
05409N	5225	5400	517475	?	.5	5	110	700	4150	85
05409N	5250	5400	517476	?	.5	8	120	420	3850	95
05409N	5275	5400	517477	?	.5	7	40	630	4450	95
05409N	5325	5400	517479	?	.5	3	25	680	6150	120
05409N	5350	5400	517480	?	.5	8	65	460	5850	140
05409N	5375	5400	517481	?	1.0	8	110	540	5550	120
05409N	5400	5400	517482	?	1.0	4	240	690	4950	95
05409N	5425	5400	517483	?	.5	15	120	700	5300	120
05409N	5450	5400	517484	?	1.0	15	530	560	4000	100
05409N	5500	5400	517486	?	.5	10	130	830	5300	130
05409N	5525	5400	517487	?	.3	9	110	760	5300	110
05409N	5550	5400	517488	?	.3	10	170	410	3650	130
05409N	5575	5400	517489	?	.3	6	25	470	3600	140
05409N	5600	5400	517490	?	.5	6	25	420	4350	130
05409N	5625	5400	517491	?	.5	8	170	580	5200	110
05409N	5650	5400	517492	?	.5	6	200	490	4250	110
05409N	5675	5400	517493	?	.5	3	140	220	2600	65
05409N	5700	5400	517494	?	.5	5	110	440	3750	85
05409N	5725	5400	517495	?	.5	20	300	470	4050	130
05409N	5750	5400	517496	?	.3	15	320	590	4550	140
05409N	5775	5400	517497	?	.3	15	410	470	3650	120
05409N	5800	5400	517498	?	.3	3	95	840	4350	70
05409N	5825	5400	517499	?	.3	1	70	840	4300	80
05409N	5850	5400	517500	?	.5	1	270	760	3600	100
05409N	5875	5400	517501	?	.3	1	110	420	5500	130
05409N	5900	5400	517502	?	.5	1	75	560	5300	120
05409N	5925	5400	517503	?	.3	1	85	660	5450	130
05409N	5950	5400	517504	?	.3	1	90	1350	6300	220
05409N	5975	5400	517505	?	.3	1	180	1800	7550	260
05609N	4825	5600	517507	?	.5	10	410	640	6650	160
05609N	4850	5600	517508	?	.5	5	170	940	7100	160
05609N	4875	5600	517509	?	.5	1	160	460	6500	160
05609N	4900	5600	517510	?	.3	2	60	1200	5550	90
05609N	4925	5600	517511	?	.5	1	230	380	5750	130
05609N	4950	5600	517512	?	.5	1	280	1150	5900	160
05609N	4975	5600	517513	?	.3	3	370	820	5550	100
05609N	5000	5600	517514	?	.5	1	320	590	4900	75
05609N	5025	5600	517515	?	.3	1	180	520	5300	120
05609N	5050	5600	517516	?	.3	1	320	580	5800	110
05609N	5075	5600	517517	?	.5	1	430	660	5550	110
05609N	5100	5600	517518	?	.5	1	490	510	4000	85
05609N	5125	5600	517519	?	.5	1	240	950	4300	95
05609N	5150	5600	517520	?	.5	1	300	900	4400	95
05609N	5175	5600	517521	?	.5	5	250	1060	4950	120

05609N	5200	5600	517522	?	.5	5	70	720	5400	120
05609N	5225	5600	517523	?	.5	1	180	1050	3500	110
05609N	5250	5600	517524	?	.5	1	150	710	5300	110
05609N	5300	5600	517526	?	.5	1	190	1100	4650	110
05609N	5325	5600	517527	?	1.0	1	400	1100	5250	130
05609N	5350	5600	517528	?	.3	1	330	600	4050	85
05609N	5375	5600	517529	?	.5	10	250	350	5250	150
05609N	5400	5600	517530	?	.5	2	80	370	5150	140
05609N	5425	5600	517531	?	.3	1	65	620	4500	95
05609N	5450	5600	517532	?	.3	1	200	720	4350	70
05609N	5475	5600	517533	?	.3	1	310	620	4100	85
05609N	5500	5600	270077	?	.3	4	130	-999	-999	-999
05609N	5500	5600	517534	?	.3	1	270	840	4300	85
05609N	5520	5600	270076	?	.3	3	590	-999	-999	-999
05609N	5540	5600	270075	?	.3	5	190	-999	-999	-999
05609N	5580	5600	270073	?	.3	5	290	-999	-999	-999
05609N	5600	5600	270072	?	.3	7	230	-999	-999	-999
05609N	5620	5600	270071	?	.3	15	410	-999	-999	-999
05609N	5640	5600	270070	?	.3	7	480	-999	-999	-999
05609N	5660	5600	270069	?	.3	17	300	-999	-999	-999
05609N	5680	5600	270068	?	.3	7	220	-999	-999	-999
05609N	5700	5600	270067	?	.3	9	200	-999	-999	-999
05609N	5720	5600	270066	?	.3	17	170	-999	-999	-999
05609N	5740	5600	270065	?	.3	10	210	-999	-999	-999
05609N	5780	5600	270063	?	.3	8	310	-999	-999	-999
05609N	5800	5600	270062	?	.3	9	20	-999	-999	-999
05609N	5820	5600	270061	?	.3	37	499	-999	-999	-999
05609N	5900	5600	270057	?	.3	14	370	-999	-999	-999
05609N	5920	5600	270056	?	.3	17	310	-999	-999	-999
05609N	5940	5600	270055	?	.3	7	240	-999	-999	-999
05609N	5960	5600	270054	?	.3	4	200	-999	-999	-999
05809N	4825	5800	517535	?	.3	6	260	930	7750	150
05809N	4850	5800	517536	?	.3	10	140	740	7350	160
05809N	4875	5800	517537	?	.3	20	100	760	6950	140
05809N	4900	5800	517538	?	.3	8	100	620	5500	95
05809N	4925	5800	517539	?	.3	3	220	330	6000	130
05809N	4950	5800	517540	?	.3	8	360	370	5550	140
05809N	4975	5800	517541	?	.3	6	320	480	4900	120
05809N	5000	5800	517542	?	.3	4	110	480	6100	120
05809N	5025	5800	517543	?	.3	7	180	550	6000	130
05809N	5050	5800	517544	?	498.5	-999	-999	-999	-999	-999
05809N	5075	5800	517545	?	.3	7	140	660	6900	160
05809N	5100	5800	517546	?	.3	6	120	620	7350	140
05809N	5125	5800	517547	?	.3	6	140	440	4650	95
05809N	5175	5800	517549	?	.3	2	270	-999	-999	-999
05809N	5200	5800	517550	?	.3	4	370	-999	-999	-999
05809N	5225	5800	517551	?	.3	4	220	-999	-999	-999
05809N	5250	5800	517552	?	.3	7	170	-999	-999	-999
05809N	5275	5800	517553	?	.3	5	190	-999	-999	-999
05809N	5325	5800	517555	?	.3	1	380	-999	-999	-999
05809N	5350	5800	517556	?	.3	9	380	-999	-999	-999
05809N	5375	5800	517557	?	.3	3	60	-999	-999	-999
05809N	5400	5800	517558	?	.3	1	5	-999	-999	-999
05809N	5425	5800	517559	?	.3	1	130	-999	-999	-999
05809N	5450	5800	517560	?	.3	2	30	-999	-999	-999
05809N	5475	5800	517561	?	.3	1	20	-999	-999	-999
05809N	5500	5800	517562	?	.3	3	55	-999	-999	-999
05809N	5520	5800	270021	?	.3	4	75	-999	-999	-999
05809N	5525	5800	517563	?	.3	1	190	-999	-999	-999
05809N	5540	5800	270022	?	.3	2	5	-999	-999	-999
05809N	5560	5800	270023	?	.3	2	5	-999	-999	-999
05809N	5580	5800	270024	?	.3	3	260	-999	-999	-999
05809N	5600	5800	270025	?	.3	8	15	-999	-999	-999
05809N	5620	5800	270026	?	.3	11	200	-999	-999	-999

05809N	5640	5800	270027	?	.3	15	65	-999	-999	-999
05809N	5660	5800	270028	?	.3	10	85	-999	-999	-999
05809N	5680	5800	270033	?	.3	10	90	-999	-999	-999
05809N	5700	5800	270034	?	.3	14	95	-999	-999	-999
05809N	5720	5800	270035	?	.3	10	95	-999	-999	-999
05809N	5740	5800	270036	?	.3	11	420	-999	-999	-999
05809N	5760	5800	270037	?	.3	11	290	-999	-999	-999
05809N	5780	5800	270038	?	.3	25	300	-999	-999	-999
05809N	5800	5800	270039	?	.3	11	160	-999	-999	-999
05809N	5820	5800	270040	?	.3	9	270	-999	-999	-999
05809N	5840	5800	270041	?	.3	6	90	-999	-999	-999
05809N	5860	5800	270042	?	.3	4	110	-999	-999	-999
05809N	5880	5800	270043	?	.3	7	120	-999	-999	-999
05809N	5900	5800	270044	?	.3	2	95	-999	-999	-999
05809N	5940	5800	270046	?	.3	5	130	-999	-999	-999
05809N	5960	5800	270047	?	.3	9	180	-999	-999	-999
05809N	5980	5800	270048	?	.3	9	240	-999	-999	-999
06009N	4825	6000	517564	?	1.0	5	374	555	5763	140
06009N	4850	6000	517565	?	.5	15	283	650	5319	110
06009N	4875	6000	517566	?	1.0	4	290	164	5685	140
06009N	4900	6000	517567	?	1.0	1	490	40	5142	110
06009N	4925	6000	517568	?	1.0	3	294	345	4765	120
06009N	4950	6000	517569	?	1.0	45	645	313	4768	140
06009N	4975	6000	517570	?	.5	10	538	199	5044	130
06009N	5000	6000	517571	?	.5	10	370	380	5786	130
06009N	5025	6000	517572	?	.5	3	152	460	6224	120
06009N	5050	6000	517573	?	.5	3	145	517	6224	110
06009N	5075	6000	517574	?	.5	15	267	340	6079	140
06009N	5100	6000	517575	?	.5	9	233	287	5769	140
06009N	5125	6000	517576	?	.3	45	194	562	5319	120
06009N	5150	6000	517577	?	.3	1	103	597	5650	120
06009N	5175	6000	517578	?	.5	1	134	474	5755	140
06009N	5200	6000	517579	?	.5	6	86	450	5553	120
06009N	5225	6000	517580	?	.5	1	134	640	5318	130
06009N	5250	6000	517581	?	.5	6	92	573	5430	120
06009N	5275	6000	517582	?	.5	3	155	592	5553	150
06009N	5300	6000	517583	?	.5	8	238	609	4898	130
06009N	5325	6000	517584	?	.5	6	199	573	5177	140
06009N	5350	6000	517585	?	.3	1	86	696	5597	130
06009N	5375	6000	517586	?	.5	1	36	758	5886	150
06009N	5400	6000	517587	?	.3	3	125	677	5742	140
06009N	5425	6000	517588	?	.5	1	140	554	6687	160
06009N	5450	6000	517589	?	1.0	1	845	684	5741	100
06009N	5475	6000	517590	?	.3	1	394	626	6130	130
06209N	3025	6200	563302	?	.3	1	100	7	1136	130
06209N	3050	6200	563303	?	.3	1	865	74	4523	150
06209N	3075	6200	563304	?	.3	4	1294	90	3938	150
06209N	3100	6200	563305	?	.5	5	1074	111	4297	150
06209N	3125	6200	563306	?	.3	4	633	98	4490	140
06209N	3250	6200	563311	?	.3	2	378	72	5219	150
06209N	3275	6200	563312	?	.3	3	864	124	4389	140
06209N	3300	6200	563313	?	.3	7	1152	116	4382	130
06209N	3325	6200	563314	?	.3	1	1024	69	4912	170
06209N	3350	6200	563315	?	.3	1	982	84	4797	150
06209N	3375	6200	563316	?	.3	2	744	67	5266	200
06209N	4825	6200	517592	?	.3	30	980	420	6900	110
06209N	4850	6200	517593	?	.3	60	840	410	6300	130
06209N	4875	6200	517594	?	.3	60	650	490	6250	120
06209N	4900	6200	517595	?	.3	35	640	360	5050	95
06209N	4925	6200	517596	?	.3	7	560	95	6600	110
06209N	5000	6200	517599	?	.3	10	180	400	6000	110
06209N	5025	6200	517600	?	.3	6	150	950	7200	170
06209N	5050	6200	517601	?	.3	5	170	550	6700	160
06209N	5075	6200	517602	?	.3	2	530	340	4750	100

TRAVERSE	EAST	NORTH	SAMPLE	Ag	As	Ba	Cr	Ti	Zr
06209N	5100	6200	517603 ?	.3	2	260	420	5200	110
06209N	5125	6200	517604 ?	.3	4	430	390	4350	100
06209N	5150	6200	517605 ?	.3	6	490	1350	5950	140
06209N	5175	6200	517606 ?	.3	10	390	570	4900	120
06209N	5200	6200	517607 ?	.3	6	150	860	7350	150
06209N	5225	6200	517608 ?	.3	1	20	940	5900	140
06209N	5250	6200	517609 ?	.3	3	90	790	5950	140
06209N	5275	6200	517610 ?	.3	1	400	750	3750	65
06209N	5300	6200	517611 ?	.3	1	230	450	5100	110
06209N	5325	6200	517612 ?	.3	1	180	640	4500	95
06209N	5350	6200	517613 ?	.3	1	260	630	4350	120
06209N	5375	6200	517614 ?	.3	2	740	710	4300	90
06209N	5400	6200	517615 ?	.3	1	290	770	4550	70
06209N	5425	6200	517616 ?	.3	10	360	740	5700	140
06209N	5450	6200	517617 ?	.3	1	360	730	4250	70
06409N	3100	6400	563318 ?	.3	15	401	614	7400	220
06409N	3125	6400	563319 ?	.3	5	573	614	5911	180
06409N	3150	6400	563320 ?	.3	15	1207	651	6657	190
06409N	3175	6400	563321 ?	.3	10	2347	553	5741	170
06409N	3200	6400	563322 ?	.3	10	446	896	7963	180
06409N	3225	6400	563323 ?	.3	9	385	556	7839	160
06409N	3250	6400	563324 ?	.3	7	325	496	7645	160
06409N	3275	6400	563325 ?	.3	10	150	557	9029	170
06409N	3300	6400	563326 ?	.3	55	709	1438	8954	270
06409N	3325	6400	563327 ?	.3	15	424	701	8749	230
06409N	3350	6400	563328 ?	.3	20	341	598	9910	220
06409N	3375	6400	563329 ?	1.0	1	369	126	6740	130
06409N	4825	6400	517620 ?	.5	4	990	90	8550	170
06409N	4850	6400	517621 ?	.3	25	720	270	7050	120
06409N	4875	6400	517622 ?	.5	55	1350	370	6450	140
06409N	4900	6400	517623 ?	.3	65	1250	540	5550	170
06409N	4925	6400	517624 ?	.5	55	1150	430	4350	120
06409N	4950	6400	517625 ?	.3	45	570	450	4850	110
06409N	4975	6400	517626 ?	.5	40	470	380	5700	120
06409N	5000	6400	517627 ?	.5	25	180	680	6250	110
06409N	5025	6400	517628 ?	.3	9	640	210	5350	120
06409N	5050	6400	517629 ?	.3	10	240	140	4800	100
06409N	5075	6400	517630 ?	.5	20	100	290	6400	170
06409N	5100	6400	517631 ?	.3	20	170	510	6500	120
06409N	5125	6400	517632 ?	.5	10	180	490	5850	950
06409N	5150	6400	517633 ?	.5	20	190	700	6550	120
06409N	5175	6400	517634 ?	.3	20	540	1300	6850	180
06409N	5200	6400	517635 ?	.5	15	430	1050	6600	160
06409N	5225	6400	517636 ?	.5	55	780	620	4650	140
06409N	5250	6400	517637 ?	.3	15	570	1400	7450	240
06409N	5275	6400	517801 ?	.5	6	770	1800	6100	210
06409N	5300	6400	517802 ?	.5	6	780	1500	5500	150
06409N	5325	6400	517803 ?	.3	9	460	1800	5950	190
06409N	5350	6400	517804 ?	.3	6	610	1900	5150	120
06409N	5375	6400	517805 ?	.5	7	160	1400	7900	150
06409N	5400	6400	517806 ?	.5	10	330	1800	8550	180
06409N	5425	6400	517807 ?	.5	15	310	1600	6650	150
06409N	5450	6400	517808 ?	.5	5	270	860	6200	100
06409N	5475	6400	517809 ?	.5	10	450	1150	4200	100
06609N	3150	6600	563331 ?	.5	10	498	62	4774	150
06609N	3225	6600	563334 ?	.5	1	520	1015	5806	160
06609N	3250	6600	563335 ?	.3	1	294	883	6766	130
06609N	3275	6600	563336 ?	.3	1	88	510	6635	130
06609N	3300	6600	563337 ?	.3	5	90	208	6132	70
06609N	3325	6600	563338 ?	.3	15	235	599	6366	120
06609N	3350	6600	563339 ?	.3	6	238	443	6447	120
06609N	3375	6600	563340 ?	.3	9	245	535	6472	120
06609N	4825	6600	517812 ?	.5	25	670	70	5200	120

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06609N	4875	6600	517814	?	.5	20	680	45	3500	170
06609N	4900	6600	517815	?	.5	65	660	230	4950	130
06609N	4925	6600	517816	?	1.0	80	630	130	4200	140
06609N	4975	6600	517818	?	.5	70	540	270	4600	150
06609N	5025	6600	517820	?	.3	30	460	680	5650	170
06609N	5050	6600	517821	?	.5	25	480	700	6400	170
06609N	5075	6600	517822	?	.5	20	430	1100	5850	210
06609N	5100	6600	517823	?	.5	20	450	1450	6350	210
06609N	5125	6600	517824	?	.3	15	550	1600	7800	230
06609N	5150	6600	517825	?	.5	10	330	2200	7300	240
06609N	5175	6600	517826	?	.5	1	560	1800	8700	300
06609N	5200	6600	517827	?	.5	1	600	1900	8400	260
06609N	5225	6600	517828	?	.5	3	1050	1800	6900	220
06609N	5250	6600	517829	?	.5	2	820	1800	7450	220
06609N	5275	6600	517830	?	.5	2	770	1500	7100	220
06609N	5300	6600	517831	?	.5	350	580	460	4650	140
06609N	5325	6600	517832	?	.5	150	540	510	4900	150
06609N	5375	6600	517834	?	.3	4	480	820	5850	140
06609N	5425	6600	517836	?	.3	1	210	680	5950	120
06609N	5450	6600	517837	?	.3	4	280	820	6700	170
06609N	5475	6600	517838	?	.3	1	190	720	7500	170
06809N	3250	6800	561003	?	.3	15	480	850	7350	200
06809N	3275	6800	561004	?	.3	10	500	870	7100	210
06809N	3300	6800	561005	?	.3	15	250	1000	7700	180
06809N	3325	6800	561006	?	.3	10	590	95	3650	130
06809N	3350	6800	561007	?	.3	4	750	330	4600	180
06809N	3375	6800	561008	?	.3	1	620	35	3750	140
06809N	3400	6800	561009	?	.3	1	510	35	3450	120
06809N	3425	6800	561010	?	.3	1	800	10	3450	150
06809N	3450	6800	561011	?	.3	1	710	20	3500	140
06809N	3475	6800	561012	?	.3	1	870	6	3550	170
06809N	3500	6800	561013	?	.3	2	1200	15	3350	170
06809N	3525	6800	561014	?	.3	1	780	15	4100	160
06809N	3550	6800	561015	?	.3	1	890	45	3550	160
06809N	3575	6800	561016	?	.3	1	700	25	4150	150
06809N	3600	6800	561017	?	.3	1	800	40	3950	140
06809N	3625	6800	561018	?	.3	1	850	20	3700	150
06809N	3650	6800	561019	?	.3	9	850	30	3600	160
06809N	3675	6800	561020	?	.3	25	810	35	3200	140
06809N	3700	6800	561021	?	.3	5	620	71	4550	130
06809N	3725	6800	561022	?	.3	10	220	410	4850	100
06809N	3750	6800	561023	?	.3	9	75	600	6300	110
06809N	3775	6800	561024	?	.3	9	110	560	6700	160
06809N	3800	6800	561025	?	.3	5	160	780	7400	150
06809N	3825	6800	561026	?	.3	6	120	890	8750	180
06809N	3850	6800	561027	?	.3	10	85	830	7700	150
06809N	3875	6800	561028	?	.3	2	510	1550	6400	200
06809N	3900	6800	561029	?	.3	2	300	1000	6900	150
06809N	3925	6800	561030	?	.3	1	350	1150	7000	180
06809N	3950	6800	561031	?	.3	1	370	970	8050	190
06809N	3975	6800	561032	?	.3	2	320	900	8150	210
06809N	4000	6800	561033	?	.3	6	270	1000	7850	220
06809N	4025	6800	561034	?	.3	1	420	890	7750	200
06809N	4050	6800	561035	?	.3	5	320	740	6150	190
06809N	4075	6800	561036	?	.3	3	380	930	6000	180
06809N	4100	6800	561037	?	.3	1	340	920	5250	110
06809N	4125	6800	561038	?	.3	1	570	740	8350	210
06809N	4200	6800	561041	?	.3	1	360	490	7800	190
06809N	4250	6800	561043	?	.3	1	380	550	6800	190
06809N	4275	6800	561044	?	.3	1	380	430	5800	180
06809N	4325	6800	561046	?	.3	1	360	310	6200	150
06809N	4375	6800	561048	?	.3	1	320	320	5800	140
06809N	4400	6800	561049	?	.3	1	160	300	6800	190
06809N	4425	6800	561050	?	3	1	300	380	6200	150

06809N	4450	6800	561051 ?	.3	1	80	380	6600	170
06809N	4475	6800	561052 ?	.3	1	150	890	7000	220
06809N	4500	6800	563342 ?	.3	2	79	497	6880	190
06809N	4525	6800	563343 ?	.3	4	173	424	6290	160
06809N	4550	6800	563344 ?	.3	1	233	527	6465	170
06809N	4575	6800	563345 ?	.3	20	233	798	6265	160
06809N	4600	6800	563346 ?	.3	9	261	840	6414	110
06809N	4625	6800	563347 ?	.3	4	237	247	5383	160
06809N	4650	6800	563348 ?	.3	5	222	555	5586	150
06809N	4675	6800	563349 ?	.3	1	376	179	4392	160
06809N	4700	6800	563350 ?	.5	15	616	104	4044	120
06809N	4725	6800	563351 ?	.5	75	708	125	4526	150
06809N	4750	6800	563352 ?	.5	90	1209	64	5382	180
06809N	4775	6800	563353 ?	.5	240	2887	61	4130	170
06809N	4800	6800	563354 ?	.3	610	420	183	3592	75
06809N	4825	6800	563355 ?	.3	230	696	159	4459	110
06809N	4875	6800	563357 ?	.3	1050	760	150	6294	75
06809N	4900	6800	563358 ?	1.0	65	818	104	4097	110
06809N	4925	6800	563359 ?	1.0	120	1258	114	5556	120
06809N	4950	6800	563360 ?	1.5	220	637	89	4839	110
06809N	4975	6800	563361 ?	1.0	75	772	163	4721	130
06809N	5000	6800	563362 ?	.5	55	553	153	6327	140
06809N	5025	6800	563363 ?	.3	25	220	379	5620	120
06809N	5050	6800	563364 ?	.3	7	76	243	6220	140
06809N	5075	6800	563365 ?	.3	10	150	329	5735	85
06809N	5100	6800	563366 ?	.3	10	139	205	6697	150
06809N	5125	6800	563367 ?	.3	60	492	238	4320	130
06809N	5150	6800	563368 ?	.3	8	165	387	5650	130
06809N	5175	6800	563369 ?	.3	7	240	529	6013	110
06809N	5200	6800	563370 ?	.3	10	111	353	5748	120
06809N	5225	6800	563371 ?	.3	15	214	388	5653	130
06809N	5250	6800	563372 ?	.3	15	349	392	5541	130
06809N	5275	6800	563373 ?	.5	20	405	337	5012	130
06809N	5300	6800	563374 ?	.3	55	630	286	4850	130
06809N	5325	6800	563375 ?	.3	20	341	292	4731	150
06809N	5350	6800	563376 ?	.3	3	118	600	7427	130
06809N	5375	6800	563377 ?	.3	4	380	480	6023	150
06809N	5400	6800	563378 ?	.3	2	149	379	6237	110
06809N	5425	6800	563379 ?	.3	1	11	776	7773	130
06809N	5450	6800	563380 ?	.3	7	63	537	6899	160
06809N	5475	6800	563381 ?	.3	4	125	505	6642	120
07009N	3300	7000	561054 ?	.3	5	390	630	6950	210
07009N	3325	7000	561055 ?	.3	5	540	110	4350	190
07009N	3350	7000	561056 ?	.3	2	520	70	3300	170
07009N	3375	7000	561057 ?	.3	1	700	45	3250	150
07009N	3400	7000	561058 ?	.3	1	560	8	3200	160
07009N	3425	7000	561059 ?	.3	30	390	25	3900	140
07009N	3450	7000	561060 ?	.3	2	600	10	3750	160
07009N	3475	7000	561061 ?	.3	6	620	20	3500	170
07009N	3500	7000	561062 ?	.3	1	780	25	3700	150
07009N	3525	7000	561063 ?	.3	1	730	40	3800	140
07009N	3550	7000	561064 ?	.3	1	780	15	3300	140
07009N	3575	7000	561065 ?	.3	4	1050	20	3650	170
07009N	3600	7000	561066 ?	.3	2	910	25	4000	170
07009N	3625	7000	561067 ?	.3	1	770	45	4500	160
07009N	3650	7000	561068 ?	.3	1	520	20	4150	140
07009N	3675	7000	561069 ?	.3	5	710	30	3750	130
07009N	3700	7000	561070 ?	.3	1	800	50	4050	140
07009N	3725	7000	561071 ?	.3	1	600	40	4200	120
07009N	3750	7000	561072 ?	.3	1	710	50	3500	160
07009N	3775	7000	561073 ?	.3	2	160	470	5750	120
07009N	3800	7000	561074 ?	.3	1	590	560	5350	140
07009N	3825	7000	561075 ?	.3	1	370	700	6600	160
07009N	3850	7000	561076 ?	.3	3	320	630	7700	150

07009N	3875	7000	561077	?	.3	1	320	700	6250	130
07009N	3900	7000	561078	?	.3	1	680	880	9000	200
07009N	3925	7000	561079	?	.3	1	530	650	8800	130
07009N	3950	7000	561080	?	.3	2	540	980	8100	220
07009N	3975	7000	561081	?	.3	2	340	1200	8200	180
07009N	4000	7000	561082	?	.3	2	580	1150	8450	190
07009N	4025	7000	561083	?	.3	1	320	1200	6900	170
07009N	4050	7000	561084	?	.3	3	270	1000	7400	200
07009N	4075	7000	561085	?	.3	3	250	860	8700	230
07009N	4100	7000	561086	?	.3	2	570	640	7650	200
07009N	4125	7000	561087	?	.3	2	280	600	5750	180
07009N	4150	7000	561088	?	.3	4	240	640	5950	150
07009N	4200	7000	561090	?	.3	1	450	290	6600	210
07009N	4250	7000	561092	?	.3	1	270	230	6200	110
07009N	4275	7000	561093	?	.3	5	390	220	6700	170
07009N	4300	7000	561094	?	.3	1	360	240	5950	110
07009N	4350	7000	561096	?	.3	6	270	320	6100	170
07009N	4400	7000	561098	?	.3	5	210	370	7150	180
07009N	4475	7000	561101	?	.3	10	310	390	5500	140
07009N	4500	7000	561102	?	.3	1	390	360	6750	200
07009N	4525	7000	563384	?	.3	1	359	372	6737	210
07009N	4550	7000	563385	?	.3	2	461	317	6061	180
07009N	4600	7000	563387	?	.3	2	709	247	6117	200
07009N	4625	7000	563388	?	.5	2	350	268	6551	180
07009N	4650	7000	563389	?	.3	4	450	133	6180	180
07009N	4675	7000	563390	?	.3	2	591	77	4432	160
07009N	4700	7000	563391	?	.3	2	770	64	5368	150
07009N	4725	7000	563392	?	.3	1	863	130	3136	180
07009N	4750	7000	563393	?	.3	2	166	207	5662	130
07009N	4775	7000	563394	?	.3	1	450	55	3759	160
07009N	4800	7000	563395	?	.3	2	856	52	3109	200
07009N	4825	7000	563396	?	.3	1	605	60	2880	160
07009N	4850	7000	563397	?	.3	4	878	37	3625	140
07009N	4875	7000	563398	?	.3	3	1168	46	3839	160
07009N	4900	7000	563399	?	.3	5	1139	62	3575	200
07009N	4925	7000	563400	?	.3	2	1250	55	3333	190
07009N	4950	7000	563401	?	.3	2	1378	39	3320	160
07009N	4975	7000	563402	?	.3	1	661	42	4864	150
07009N	5000	7000	563403	?	.3	3	606	47	4269	140
07009N	5025	7000	563404	?	.3	50	734	84	3534	150
07009N	5050	7000	563405	?	.3	3	638	136	5366	130
07009N	5075	7000	563406	?	.5	30	359	221	5397	120
07009N	5100	7000	563407	?	.3	20	314	164	6636	160
07009N	5125	7000	563408	?	.3	40	641	177	5178	150
07209N	3300	7200	561103	?	.3	5	720	10	6150	150
07209N	3325	7200	561104	?	.3	1	520	220	6550	180
07209N	3350	7200	561105	?	.3	2	880	80	3950	160
07209N	3375	7200	561106	?	.3	3	650	340	5350	180
07209N	3400	7200	561107	?	.3	1	640	20	3250	150
07209N	3425	7200	561108	?	.3	5	730	30	4350	180
07209N	3450	7200	561109	?	.3	4	790	50	4050	180
07209N	3475	7200	561110	?	.3	1	530	25	4000	180
07209N	3500	7200	561111	?	.3	1	440	20	5250	180
07209N	3525	7200	561112	?	.3	1	430	25	3300	160
07209N	3550	7200	561113	?	.3	1	360	25	4450	140
07209N	3575	7200	561114	?	.3	60	500	25	3900	180
07209N	3600	7200	561115	?	.5	90	510	70	3900	150
07209N	3675	7200	561118	?	.3	1	330	35	3500	160
07209N	3700	7200	561119	?	.3	1	220	45	3450	150
07209N	3725	7200	561120	?	.3	1	110	20	3650	140
07209N	3750	7200	561121	?	.5	1	110	35	4100	140
07209N	3775	7200	561122	?	.3	8	130	80	3000	140
07209N	3800	7200	561123	?	.3	1	260	40	3500	180
07209N	3825	7200	561124	?	3	2	570	31	4000	160

07209N	3850	7200	561125	?	.3	1	760	30	3300	150
07209N	3875	7200	561126	?	.3	2	810	30	3700	160
07209N	3900	7200	561127	?	.3	1	740	45	3650	130
07209N	3925	7200	561128	?	.3	1	760	25	3350	140
07209N	3950	7200	561129	?	.3	1	670	70	4550	140
07209N	3975	7200	561130	?	.3	1	700	35	3450	140
07209N	4000	7200	561131	?	.3	5	250	500	5800	130
07209N	4025	7200	561132	?	.3	4	330	540	5350	140
07209N	4050	7200	561133	?	.5	1	420	960	6000	180
07209N	4075	7200	561134	?	.3	1	520	1300	7200	210
07209N	4100	7200	561135	?	.5	2	210	590	6100	190
07209N	4125	7200	561136	?	.3	1	260	360	6150	170
07209N	4150	7200	561137	?	.3	1	500	350	5650	140
07209N	4175	7200	561138	?	.3	2	300	240	7950	190
07209N	4200	7200	561139	?	.3	5	380	330	9000	230
07209N	4225	7200	561140	?	.3	15	460	170	7950	220
07209N	4250	7200	561141	?	.5	15	140	55	6700	210
07209N	4275	7200	561142	?	.3	9	220	30	6000	220
07209N	4425	7200	561148	?	.3	6	190	440	6750	140
07209N	4500	7200	561151	?	.3	1	150	340	5750	140
07209N	4525	7200	561152	?	.3	1	127	440	7391	190
07209N	4550	7200	561153	?	.3	1	200	563	7461	210
07209N	4575	7200	561154	?	.3	2	113	595	6828	200
07209N	4625	7200	561156	?	.3	1	384	739	7023	180
07209N	4650	7200	561157	?	.3	1	171	789	6137	170
07209N	4675	7200	561158	?	.3	2	128	446	6537	140
07209N	4700	7200	561159	?	.5	10	18	458	6153	120
07209N	4725	7200	561160	?	.3	3	451	244	4445	140
07209N	4750	7200	561161	?	.5	1	562	192	4422	180
07209N	4775	7200	561162	?	.5	4	537	201	4787	170
07209N	4800	7200	561163	?	.3	1	597	181	4539	160
07209N	4825	7200	561164	?	.3	1	645	128	3521	160
07209N	4850	7200	561165	?	.3	1	573	39	3100	150
07209N	4875	7200	561166	?	.3	1	552	18	2433	150
07209N	4900	7200	561167	?	.3	2	409	23	3570	120
07209N	4925	7200	561168	?	.3	1	474	15	2974	130
07209N	4950	7200	561169	?	.3	1	321	21	3074	110
07209N	5000	7200	561171	?	.5	1	246	30	3664	130
07409N	3250	7400	561185	?	.5	1	735	95	4559	160
07409N	3275	7400	561186	?	1.0	30	1153	3	5899	210
07409N	3300	7400	561187	?	.5	8	672	12	8366	200
07409N	3325	7400	561188	?	.5	4	204	52	8641	240
07409N	3350	7400	561189	?	.5	7	148	146	6988	210
07409N	3375	7400	561190	?	.5	4	665	118	6770	230
07409N	3400	7400	561191	?	.5	10	823	162	4252	180
07409N	3425	7400	561192	?	.5	1	1152	31	3315	170
07409N	3450	7400	561193	?	.3	1	804	45	3698	170
07409N	3475	7400	561194	?	.5	1	1166	53	3408	170
07409N	3500	7400	561195	?	.5	1	629	71	2873	160
07409N	3525	7400	561196	?	.3	1	824	15	3348	160
07409N	3550	7400	561197	?	.3	1	718	30	4148	170
07409N	3575	7400	561198	?	.3	1	600	29	3944	190
07409N	3600	7400	561199	?	.5	1	743	32	3462	170
07409N	3625	7400	561200	?	.3	1	588	28	3341	170
07409N	3650	7400	561201	?	.3	1	232	38	4774	180
07409N	3675	7400	561202	?	.5	1	186	77	5662	170
07409N	3700	7400	561203	?	.5	1	291	91	5447	170
07409N	3725	7400	561204	?	.3	1	417	97	4212	180
07409N	3750	7400	561205	?	.5	1	419	58	3710	150
07409N	3775	7400	561206	?	.3	1	142	68	4716	170
07409N	3800	7400	561207	?	.3	1	359	44	3978	140
07409N	3850	7400	561209	?	.5	7	449	58	4797	170
07409N	3875	7400	561210	?	.5	10	319	384	5235	160
07409N	3900	7400	561211	?	.3	15	497	47	5057	160

TRAVERSE	EAST	NORTH	SAMPLE	Ag	As	Ba	Cr	Ti	Zr
07409N	4225	7400	561224 ?	.3	1	381	171	4824	180
07409N	4250	7400	561225 ?	.3	15	117	157	6753	200
07409N	4275	7400	561226 ?	.3	30	150	82	4061	210
07409N	4300	7400	561227 ?	.3	1	188	39	5193	200
07409N	4325	7400	561228 ?	.3	1	168	35	5973	190
07409N	4350	7400	561229 ?	.5	1	84	49	6423	220
07409N	4375	7400	561230 ?	.3	1	209	52	5744	200
07409N	4400	7400	561231 ?	.5	3	186	67	4652	180
07409N	4425	7400	561232 ?	.3	4	192	124	5578	210
07409N	4450	7400	561233 ?	.3	7	386	213	7585	190
07409N	4475	7400	561234 ?	.3	5	167	360	6827	190
07409N	4500	7400	561235 ?	.3	5	197	191	5448	150
07409N	4525	7400	561236 ?	.5	20	216	345	6206	170
07409N	4550	7400	561237 ?	.5	3	192	549	6530	160
07409N	4650	7400	561241 ?	1.0	3	366	206	4748	150
07409N	4675	7400	561242 ?	.5	1	776	45	3586	160
07409N	4700	7400	561243 ?	.5	1	760	98	3415	190
07609N	3200	7600	561250 ?	.5	15	722	96	3598	140
07609N	3225	7600	561251 ?	1.0	10	839	120	3991	130
07609N	3250	7600	561252 ?	.5	5	927	130	4295	140
07609N	3275	7600	561253 ?	.5	4	711	122	4706	170
07609N	3300	7600	561254 ?	.5	3	978	104	4367	140
07609N	3325	7600	561255 ?	.5	3	729	84	4516	140
07609N	3350	7600	561256 ?	.5	3	754	51	4376	170
07609N	3375	7600	561257 ?	.5	1	715	57	4105	170
07609N	3400	7600	561258 ?	.3	1	1091	34	3388	200
07609N	3425	7600	561259 ?	.5	8	929	47	6084	210
07609N	3450	7600	561260 ?	1.0	4	1474	13	6456	220
07609N	3475	7600	561261 ?	.5	6	1054	13	6387	220
07609N	3500	7600	561262 ?	.5	1	942	20	5801	200
07609N	3525	7600	561263 ?	.5	1	639	405	4771	190
07609N	3550	7600	561264 ?	.3	1	581	11	3524	160
07609N	3575	7600	561265 ?	.5	1	809	23	3205	170
07609N	3600	7600	561266 ?	.5	1	783	11	3592	160
07609N	3625	7600	561267 ?	.3	1	818	15	3403	180
07609N	3650	7600	561268 ?	.3	1	1208	14	3952	180
07609N	3675	7600	561269 ?	.5	1	1112	25	3634	150
07609N	3700	7600	561270 ?	.3	1	446	91	6145	200
07609N	3725	7600	561271 ?	.5	1	242	16	4415	140
07609N	3750	7600	561272 ?	.3	1	542	57	4383	180
07609N	3800	7600	561274 ?	.5	1	504	40	4053	140
07609N	3825	7600	561275 ?	1.0	1	567	44	3883	140
07609N	3850	7600	561276 ?	.5	1	578	27	3440	140
07609N	3875	7600	561277 ?	.3	1	700	44	3501	150
07609N	3900	7600	561278 ?	.3	1	621	40	3167	170
07609N	3925	7600	561279 ?	.3	1	523	33	4527	160
07609N	3950	7600	561280 ?	.3	2	524	28	3112	150
07609N	3975	7600	561281 ?	.5	5	756	21	3322	120
07609N	4000	7600	561282 ?	.5	9	675	43	3140	120
07609N	4025	7600	561283 ?	.5	80	1070	44	3171	120
07609N	4050	7600	561284 ?	3.5	9	602	36	4011	100
07609N	4075	7600	561285 ?	.5	1	680	12	4104	150
07609N	4100	7600	561286 ?	.3	1	579	19	3752	140
07609N	4125	7600	561287 ?	.5	1	806	30	4168	140
07609N	4150	7600	561288 ?	.3	1	721	31	4319	140
07609N	4175	7600	561289 ?	.3	1	396	12	4895	180
07609N	4200	7600	561290 ?	.3	1	238	27	5150	140
07609N	4225	7600	561291 ?	.3	2	269	69	5161	170
07609N	4250	7600	561292 ?	.3	1	248	73	4836	160
07609N	4275	7600	561293 ?	.5	2	254	45	4611	180
07609N	4300	7600	561294 ?	.5	4	248	315	6047	220
07609N	4325	7600	561295 ?	.3	7	322	563	6573	220
07609N	4350	7600	561296 ?	.3	5	268	424	8425	200
07609N	4375	7600	561297 ?	.3	8	323	327	8125	220

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07609N	4400	7600	561298	?	.3	4	322	297	8251	180
07609N	4425	7600	561299	?	.5	3	585	339	4380	140
07809N	3400	7800	561307	?	.5	9	1082	122	4181	170
07809N	3425	7800	561308	?	.5	5	1004	77	4087	160
07809N	3450	7800	561309	?	.5	4	1105	88	3818	170
07809N	3475	7800	561310	?	.5	1	1071	84	3845	150
07809N	3500	7800	561311	?	.5	1	1228	43	3026	180
07809N	3525	7800	561312	?	.3	10	1168	60	5297	210
07809N	3550	7800	561313	?	.5	7	1128	128	5470	210
07809N	3625	7800	561316	?	.5	1	534	25	3869	130
07809N	3650	7800	561317	?	.5	1	901	15	3635	180
07809N	3675	7800	561318	?	.5	1	787	14	3796	150
07809N	3700	7800	561319	?	.5	1	660	3	3927	140
07809N	3725	7800	561320	?	.3	1	719	9	3989	160
07809N	3750	7800	561321	?	.5	1	611	24	4132	160
07809N	3775	7800	561322	?	.5	1	574	8	3277	130
07809N	3800	7800	561323	?	.3	1	384	51	3352	140
07809N	3825	7800	561324	?	.3	1	278	37	3291	120
07809N	3850	7800	561325	?	.3	1	218	31	3298	110
07809N	3875	7800	561326	?	.3	2	324	49	3331	170
07809N	3900	7800	561327	?	.3	1	379	57	3893	160
07809N	3925	7800	561328	?	.3	1	502	26	2868	190
07809N	3950	7800	561329	?	.3	1	774	11	2722	220
07809N	3975	7800	561330	?	.3	1	639	33	2531	220
07809N	4025	7800	561332	?	.5	3	486	50	2670	140
07809N	4050	7800	561333	?	.5	55	624	36	2834	130
07809N	4075	7800	561334	?	.5	2	624	43	2633	150
07809N	4100	7800	561335	?	.3	10	420	38	2572	130
07809N	4125	7800	561336	?	.5	15	545	72	2478	120
07809N	4150	7800	561337	?	.5	5	482	34	4785	150
07809N	4200	7800	561339	?	.5	2	481	137	3898	190
07809N	4225	7800	561340	?	.3	10	450	81	2873	210
07809N	4250	7800	561341	?	.5	1	539	118	3636	200
07809N	4325	7800	561344	?	.3	1	292	105	4877	180
07809N	4350	7800	561345	?	.3	4	129	525	8901	220
07809N	4375	7800	561346	?	.5	2	251	418	9535	220
07809N	4400	7800	561347	?	.3	7	384	313	7451	210
07809N	4425	7800	561348	?	.5	1	301	282	6564	160
07809N	4450	7800	561349	?	.5	10	601	251	6282	180
07809N	4475	7800	561350	?	.3	55	979	485	5845	170
07809N	4500	7800	561351	?	.3	7	1245	61	3558	230
07809N	4525	7800	561352	?	.3	1	455	57	4877	240
07809N	4550	7800	561353	?	.3	25	392	98	5006	230
07809N	4575	7800	561354	?	.5	7	99	33	5657	180
07809N	4925	7800	561368	?	.3	1	812	75	2868	210
07809N	4950	7800	561369	?	.5	1	848	100	2892	230
07809N	4975	7800	561370	?	.5	2	1279	66	4526	180
07809N	5000	7800	561371	?	.5	1	1366	63	4835	160
07809N	5025	7800	561372	?	.5	10	757	68	4418	180
08009N	3450	8000	561380	?	.5	15	960	119	4366	140
08009N	3475	8000	561381	?	.5	25	1085	122	4278	140
08009N	3500	8000	561382	?	.5	7	766	88	3954	160
08009N	3525	8000	561383	?	.5	8	642	45	3294	170
08009N	3550	8000	561384	?	.3	7	941	40	2960	160
08009N	3575	8000	561385	?	.3	10	781	50	4017	190
08009N	3600	8000	561386	?	.3	4	897	79	5813	230
08009N	3625	8000	561387	?	.3	6	521	326	5458	170
08009N	3650	8000	561388	?	.3	7	538	807	6345	220
08009N	3675	8000	561389	?	.5	1	626	72	4017	160
08009N	3700	8000	561390	?	.3	2	691	64	3703	150
08009N	3725	8000	561391	?	.3	1	748	54	3875	170
08009N	3750	8000	561392	?	.5	1	690	48	3271	160
08009N	3775	8000	561393	?	.3	25	776	37	3865	170
08009N	3800	8000	561394	?	.5	1	791	44	3565	150

08009N	3825	8000	561395	?	.3	1	563	41	4130	170
08009N	3850	8000	561396	?	.5	1	260	44	4627	130
08009N	3875	8000	561397	?	.3	1	386	36	4429	140
08009N	3900	8000	561398	?	.5	1	681	127	4012	150
08009N	3925	8000	561399	?	.5	1	562	82	2942	200
08009N	3950	8000	561400	?	.5	3	508	97	3808	180
08009N	3975	8000	561401	?	.5	4	629	117	3134	200
08009N	4000	8000	561402	?	.5	3	494	115	3518	170
08009N	4025	8000	561403	?	.5	2	406	95	2858	150
08009N	4050	8000	561404	?	.5	7	659	83	3253	180
08009N	4075	8000	561405	?	.5	20	580	71	3519	180
08009N	4100	8000	561406	?	1.0	9	260	51	3488	110
08009N	4125	8000	561407	?	1.0	35	449	11	2210	110
08009N	4150	8000	561408	?	1.0	95	2448	8	3183	190
08009N	4175	8000	561409	?	.5	8	946	41	3475	140
08009N	4200	8000	561410	?	.3	45	397	46	2693	110
08009N	4225	8000	561411	?	1.0	30	500	45	2339	160
08009N	4250	8000	561412	?	.5	2	466	31	3401	160
08009N	4275	8000	561413	?	.5	1	321	31	2482	200
08009N	4300	8000	561414	?	.3	4	443	69	4077	180
08009N	4325	8000	561415	?	.3	1	415	29	2855	220
08009N	4350	8000	561416	?	.5	1	580	34	3923	210
08009N	4375	8000	561417	?	.5	5	372	93	6011	200
08009N	4400	8000	561418	?	.5	4	491	91	6740	210
08009N	4425	8000	561419	?	.5	6	580	76	6518	230
08009N	4450	8000	561420	?	.5	3	1008	30	2736	270
08009N	4475	8000	561421	?	.5	1	756	19	3251	260
08009N	4500	8000	561422	?	.3	2	868	21	2484	230
08009N	4525	8000	561423	?	.3	1	658	101	4440	160
08009N	4550	8000	561424	?	.3	1	635	21	3025	200
08009N	4575	8000	561425	?	.3	1	1047	36	3852	160
08009N	4600	8000	561426	?	.5	1	698	27	4019	150
08009N	4625	8000	561427	?	.3	1	846	41	4976	160
08009N	4650	8000	561428	?	.5	1	837	20	4029	150
08009N	4675	8000	561429	?	.5	1	805	66	3470	160
08009N	4800	8000	561434	?	.3	1	79	382	5621	190
08009N	4825	8000	561435	?	.3	1	124	840	6426	200
08009N	4850	8000	561436	?	.5	1	180	867	5764	130
08009N	4875	8000	561437	?	.5	4	636	160	3066	130
08009N	4900	8000	561438	?	.5	9	826	120	4283	150
08009N	4925	8000	561439	?	.5	20	841	112	3774	95
08009N	4950	8000	561440	?	.5	6	818	56	3506	190
08009N	4975	8000	561441	?	.5	20	1273	107	3432	240
08009N	5000	8000	561442	?	3.0	50	898	84	2523	170
08009N	5025	8000	561443	?	5.5	35	1199	100	2735	250
08009N	5050	8000	561444	?	3.0	100	715	71	4580	100
08009N	5075	8000	561445	?	5.0	40	943	95	3486	180
08009N	5100	8000	561446	?	1.0	25	846	93	4203	170
08009N	5125	8000	561447	?	1.0	25	1041	127	4243	170
08009N	5150	8000	561448	?	1.0	60	1005	198	4355	140
08209N	3700	8200	561449	?	.5	1	1145	38	2858	200
08209N	3725	8200	561450	?	.5	10	1035	121	4576	150
08209N	3750	8200	561451	?	.3	15	529	85	4364	140
08209N	3775	8200	561452	?	.5	10	957	100	5039	170
08209N	3800	8200	561453	?	.5	15	756	520	4502	160
08209N	3825	8200	561454	?	.5	6	928	68	5799	190
08209N	3850	8200	561455	?	.5	6	564	254	5482	140
08209N	3875	8200	561456	?	.5	1	583	42	3681	140
08209N	3900	8200	561457	?	.5	2	701	7	3357	130
08209N	3925	8200	561458	?	.3	8	691	32	3715	160
08209N	3950	8200	561459	?	.3	1	1080	12	3542	150
08209N	3975	8200	561460	?	.3	1	633	38	2749	120
08209N	4000	8200	561461	?	.3	1	734	3	3999	120
08209N	4025	8200	561462	?	.5	4	692	230	3898	160

08209N	4050	8200	561463	?	1.0	1	552	54	2366	180
08209N	4075	8200	561464	?	.5	1	494	24	3174	170
08209N	4100	8200	561465	?	1.0	1	607	51	3170	200
08209N	4125	8200	561466	?	.5	1	526	80	4447	120
08209N	4150	8200	561467	?	.5	1	411	36	3858	120
08209N	4175	8200	561468	?	.5	1	384	28	2946	180
08209N	4200	8200	561469	?	.3	1	540	47	2997	210
08209N	4225	8200	561470	?	.3	1	745	22	2364	200
08209N	4250	8200	561471	?	.5	1	462	102	3169	150
08209N	4275	8200	561472	?	.5	1	501	12	3052	160
08209N	4300	8200	561473	?	.5	1	405	48	2859	140
08209N	4325	8200	561474	?	1.0	1	624	21	2975	160
08209N	4350	8200	561475	?	.5	1	585	46	3084	180
08209N	4375	8200	561476	?	.5	1	1024	46	3418	130
08209N	4400	8200	561477	?	.5	1	667	75	3224	200
08209N	4425	8200	561478	?	.5	1	668	92	3143	240
08209N	4450	8200	561479	?	.5	1	484	70	3113	210
08209N	4475	8200	561480	?	.3	1	602	39	2631	210
08209N	4500	8200	561481	?	.5	1	236	116	2811	170
08209N	4525	8200	561482	?	1.0	1	371	379	3832	190
08209N	4550	8200	561483	?	.5	1	551	51	2817	240
08209N	4575	8200	561484	?	.5	1	464	75	2437	190
08209N	4600	8200	561485	?	.5	1	544	24	2259	200
08209N	4625	8200	561486	?	.3	1	359	15	3083	190
08209N	4650	8200	561487	?	.5	1	649	87	3465	200
08209N	4675	8200	561488	?	.5	1	621	103	3261	200
08209N	4700	8200	561489	?	.5	3	395	122	4542	200
08209N	4725	8200	561490	?	.5	6	667	172	5232	190
08209N	4900	8200	561497	?	.5	1	780	60	4680	130
08209N	4925	8200	561498	?	.3	8	834	60	4633	140
08209N	4950	8200	561499	?	.3	8	591	132	5090	120
08209N	4975	8200	561500	?	.3	15	717	143	4674	120
08209N	5000	8200	561501	?	.5	25	832	108	4875	120
08209N	5025	8200	561502	?	.5	15	566	74	3476	100
08209N	5050	8200	561503	?	.5	160	510	98	4104	110
08209N	5075	8200	561504	?	.5	80	656	66	3777	100
08209N	5100	8200	561505	?	.5	85	844	54	3822	110
08209N	5125	8200	561506	?	.5	95	478	23	4678	120
08209N	5150	8200	561507	?	.3	45	256	3	5658	150
08209N	5200	8200	561509	?	.3	50	805	15	5235	160
08409N	3750	8400	561512	?	.3	2	1229	31	3188	160
08409N	3775	8400	561513	?	.3	5	1424	29	3134	210
08409N	3800	8400	561514	?	.3	9	1577	78	3288	180
08409N	3825	8400	561515	?	.5	15	1032	80	4077	130
08409N	3850	8400	561516	?	.3	15	1069	612	3153	120
08409N	3875	8400	561517	?	.3	3	1044	405	4947	160
08409N	3900	8400	561518	?	.3	3	1098	10	6201	220
08409N	3925	8400	561519	?	.3	1	567	53	6452	160
08409N	3950	8400	561520	?	.3	4	350	668	7162	210
08409N	3975	8400	561521	?	.3	5	418	611	6163	190
08409N	4000	8400	561522	?	.3	1	552	332	5324	170
08409N	4025	8400	561523	?	.3	1	881	32	3275	130
08409N	4050	8400	561524	?	.3	1	1000	3	3487	150
08409N	4075	8400	561525	?	.3	1	675	22	3094	130
08409N	4100	8400	561526	?	.3	1	595	10	3641	160
08409N	4125	8400	561527	?	.3	1	1074	19	4124	160
08409N	4150	8400	561528	?	.3	1	593	22	3688	130
08409N	4175	8400	561529	?	.3	1	447	50	4573	130
08409N	4200	8400	561530	?	.3	4	667	44	4476	130
08409N	4225	8400	561531	?	.3	1	487	61	6428	120
08409N	4250	8400	561532	?	.3	1	514	3	3615	150
08409N	4275	8400	561533	?	.3	1	608	50	4134	150
08409N	4300	8400	561534	?	.3	1	593	37	4274	150
08409N	4325	8400	561535	?	.3	1	407	30	2862	150

08409N	4350	8400	561536 ?	.3	1	601	3	3900	160
08409N	4375	8400	561537 ?	.3	1	534	36	3088	220
08409N	4400	8400	561538 ?	.3	1	552	19	2721	240
08409N	4425	8400	561539 ?	.3	1	364	30	2607	200
08409N	4450	8400	561540 ?	.3	1	654	13	1871	210
08409N	4475	8400	561541 ?	.3	1	378	36	2868	220
08409N	4500	8400	561542 ?	.3	1	485	19	2756	220
08409N	4525	8400	561543 ?	.3	1	557	33	2872	210
08409N	4550	8400	561544 ?	.3	2	574	37	2416	190
08409N	4575	8400	561545 ?	.3	10	610	151	3356	150
08409N	4600	8400	561546 ?	.5	9	629	202	4837	200
08409N	4625	8400	561547 ?	.3	1	900	82	3325	140
08409N	4650	8400	561548 ?	.3	1	943	48	4123	200
08409N	4675	8400	561549 ?	.3	1	465	63	5190	150
08409N	4700	8400	561550 ?	.3	1	689	11	2509	220
08409N	4725	8400	561551 ?	.3	1	1125	18	2807	240
08409N	4750	8400	561552 ?	.3	1	914	3	2585	280
08409N	4925	8400	561559 ?	.5	3	670	101	3287	190
08409N	4950	8400	561560 ?	.5	25	582	92	4745	150
08409N	4975	8400	561561 ?	.5	140	716	63	3785	120
08409N	5000	8400	561562 ?	.3	95	956	50	3763	130
08409N	5025	8400	561563 ?	.3	170	952	67	3530	100
08409N	5050	8400	561564 ?	.3	160	897	68	3425	120
08409N	5075	8400	561565 ?	.3	65	1113	58	4492	110
08409N	5100	8400	561566 ?	.3	120	1119	21	3982	140
08409N	5125	8400	561567 ?	1.0	140	2495	13	5300	160
08409N	5175	8400	561569 ?	.3	25	638	55	6054	120
08409N	5200	8400	378480 ?	.0	250	819	48	4501	150
08609N	3900	8600	561572 ?	.3	2	1033	105	3969	180
08609N	3950	8600	561574 ?	.3	10	1086	101	3191	180
08609N	3975	8600	561575 ?	.3	5	607	251	5605	180
08609N	4000	8600	561576 ?	.5	3	554	260	5918	180
08609N	4025	8600	561577 ?	.3	1	649	52	4785	170
08609N	4050	8600	561578 ?	.3	1	481	38	3567	140
08609N	4075	8600	561579 ?	.5	1	717	10	3627	170
08609N	4100	8600	561580 ?	.3	1	710	11	3887	150
08609N	4125	8600	561581 ?	.3	1	795	92	3552	160
08609N	4150	8600	561582 ?	.3	1	690	101	3463	180
08609N	4175	8600	561583 ?	.5	1	676	25	3375	160
08609N	4200	8600	561584 ?	.5	1	546	19	3858	180
08609N	4225	8600	561585 ?	.5	1	301	18	3764	130
08609N	4250	8600	561586 ?	.5	1	187	3	5457	110
08609N	4275	8600	561587 ?	.5	1	556	3	3810	140
08609N	4300	8600	561588 ?	.5	2	452	7	3509	150
08609N	4325	8600	561589 ?	.5	1	386	13	3272	130
08609N	4350	8600	561590 ?	.3	2	431	16	3000	180
08609N	4375	8600	561591 ?	.3	1	495	50	3586	180
08609N	4400	8600	561592 ?	.3	1	423	3	2334	200
08609N	4425	8600	561593 ?	.3	1	419	12	3165	200
08609N	4450	8600	561594 ?	.5	1	539	27	3903	150
08609N	4475	8600	561595 ?	.3	2	595	107	4982	130
08609N	4500	8600	561596 ?	.5	1	525	66	3839	110
08609N	4525	8600	561597 ?	.5	1	563	45	4930	120
08609N	4550	8600	561598 ?	.3	3	532	77	3893	130
08609N	4575	8600	561599 ?	.5	1	474	31	2996	170
08609N	4600	8600	561600 ?	.3	1	670	50	3497	190
08609N	4625	8600	561601 ?	.3	1	691	49	4262	180
08609N	4650	8600	561602 ?	.3	1	829	52	3622	160
08609N	4725	8600	561605 ?	.5	1	579	39	3880	140
08609N	4750	8600	561606 ?	.3	2	638	123	4576	150
08609N	4775	8600	561607 ?	.3	1	629	186	4730	140
08609N	4825	8600	561609 ?	.3	1	677	31	3711	240
08609N	4850	8600	561610 ?	.5	2	772	15	3721	160
08609N	5000	8600	561616 ?	.5	20	595	62	3095	190

TRAVERSE	EAST	NORTH	SAMPLE	Ag	As	Ba	Cr	Ti	Zr
08609N	5025	8600	561617 ?	.5	30	447	70	3263	200
08609N	5050	8600	561618 ?	.5	35	898	39	4677	180
08609N	5075	8600	561619 ?	.5	580	754	51	4549	140
08609N	5100	8600	561620 ?	.5	200	547	51	4794	140
08609N	5125	8600	561621 ?	1.5	140	338	37	5846	120
08609N	5150	8600	561622 ?	3.0	180	441	75	4585	130
08609N	5175	8600	561623 ?	.5	15	420	76	5081	170
08809N	3900	8800	561625 ?	.5	15	691	151	4506	160
08809N	3925	8800	561626 ?	1.0	10	693	144	4169	160
08809N	3950	8800	561627 ?	.5	15	918	82	2544	190
08809N	3975	8800	561628 ?	.3	15	795	895	2739	110
08809N	4000	8800	561629 ?	.3	9	829	944	3557	120
08809N	4025	8800	561630 ?	.5	9	709	874	3996	120
08809N	4050	8800	561631 ?	.5	15	646	271	4630	130
08809N	4075	8800	561632 ?	.3	8	518	899	3061	130
08809N	4100	8800	561633 ?	.3	4	154	1101	4273	130
08809N	4125	8800	561634 ?	.3	10	342	592	4731	150
08809N	4150	8800	561635 ?	.3	8	377	248	4101	160
08809N	4175	8800	561636 ?	.3	20	624	55	3963	150
08809N	4200	8800	561637 ?	.3	4	608	11	2966	140
08809N	4225	8800	561638 ?	.3	1	691	3	3644	150
08809N	4250	8800	561639 ?	.3	4	446	23	3537	160
08809N	4275	8800	561640 ?	.3	3	381	11	3636	140
08809N	4300	8800	561641 ?	.3	1	691	18	3477	130
08809N	4325	8800	561642 ?	.3	2	473	17	4764	150
08809N	4350	8800	561643 ?	.3	5	519	25	4250	150
08809N	4375	8800	561644 ?	.3	2	465	19	3652	140
08809N	4400	8800	561645 ?	.3	1	534	20	3478	140
08809N	4425	8800	561646 ?	.3	1	431	18	4090	150
08809N	4450	8800	561647 ?	.3	1	362	22	3745	150
08809N	4475	8800	561648 ?	.3	1	647	43	3153	180
08809N	4500	8800	561649 ?	.3	1	610	53	2697	210
08809N	4600	8800	561653 ?	.3	2	915	97	4558	140
08809N	4625	8800	561654 ?	.3	1	473	63	5054	140
08809N	4650	8800	561655 ?	.3	1	427	64	4666	110
08809N	4675	8800	561656 ?	.3	1	301	70	3959	120
08809N	4700	8800	561657 ?	.3	1	372	57	3713	180
08809N	4725	8800	561658 ?	.3	1	398	32	2962	170
08809N	4750	8800	561659 ?	.3	1	290	28	2778	190
08809N	4775	8800	561660 ?	.3	1	524	26	2260	190
08809N	4800	8800	561661 ?	.3	1	400	41	2807	210
08809N	4825	8800	561662 ?	.3	6	674	21	3159	170
08809N	4850	8800	561663 ?	.3	1	702	54	3755	150
08809N	4875	8800	561664 ?	.3	8	529	89	4021	140
08809N	4900	8800	561665 ?	.3	1	534	70	4294	110
08809N	4925	8800	561666 ?	.3	3	582	82	4048	120
08809N	4950	8800	561667 ?	.3	1	502	78	4584	130
08809N	4975	8800	561668 ?	.3	2	544	75	3975	130
08809N	5100	8800	561673 ?	.5	30	523	85	3555	100
08809N	5125	8800	561674 ?	.3	40	594	110	5736	130
08809N	5150	8800	561675 ?	.5	200	734	97	5543	150
08809N	5175	8800	561676 ?	.3	100	521	109	4806	130
09009N	3925	9000	561679 ?	.3	3	991	99	4943	170
09009N	3950	9000	561680 ?	.3	25	1069	125	4399	160
09009N	3975	9000	561681 ?	.3	15	748	115	4393	160
09009N	4000	9000	561682 ?	.3	9	892	101	4358	150
09009N	4025	9000	561683 ?	.3	15	904	87	4428	150
09009N	4050	9000	561684 ?	.3	25	802	97	4121	140
09009N	4075	9000	561685 ?	.3	1	754	89	4520	150
09009N	4100	9000	561686 ?	.3	1	1111	90	2934	170
09009N	4125	9000	561687 ?	.3	15	1084	91	2525	190
09009N	4150	9000	561688 ?	.3	1	1062	55	3115	190
09009N	4175	9000	561689 ?	.3	6	446	309	3193	160
09009N	4200	9000	561690 ?	.3	7	803	141	3740	200

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09009N	4225	9000	561691 ?	.3	10	1061	949	4144	140
09009N	4250	9000	561692 ?	.3	2	497	821	3256	130
09009N	4275	9000	561693 ?	.3	4	176	821	4137	140
09009N	4300	9000	561694 ?	.3	1	811	886	3656	140
09009N	4325	9000	561695 ?	.3	7	525	635	6568	200
09009N	4350	9000	561696 ?	.3	3	282	703	6833	190
09009N	4375	9000	561697 ?	.3	4	785	156	4027	190
09009N	4525	9000	561703 ?	.3	2	435	26	3466	160
09009N	4550	9000	561704 ?	.3	2	710	14	3439	170
09009N	4575	9000	561705 ?	.3	1	516	13	4219	150
09009N	4600	9000	561706 ?	.3	2	516	27	3729	160
09009N	4625	9000	561707 ?	.5	20	540	92	4030	160
09009N	4650	9000	561708 ?	.3	3	459	28	3854	260
09009N	4675	9000	561709 ?	.3	1	471	23	3554	280
09009N	4700	9000	561710 ?	.3	2	444	31	2635	200
09009N	4725	9000	561711 ?	.5	8	393	57	3283	190
09009N	4750	9000	561712 ?	.3	20	494	100	4349	170
09009N	4775	9000	561713 ?	.5	2	651	74	3899	130
09009N	4800	9000	561714 ?	.3	2	427	65	6280	160
09009N	4825	9000	561715 ?	.3	10	315	66	4270	150
09009N	4850	9000	561716 ?	.3	35	1228	78	3506	140
09009N	4875	9000	561717 ?	.3	120	2296	74	3468	90
09009N	4900	9000	561718 ?	.3	470	1271	55	2976	150
09009N	4925	9000	561719 ?	.3	65	1266	46	3801	140
09009N	4950	9000	561720 ?	.3	1	684	81	3664	120
09009N	4975	9000	561721 ?	.3	1	413	94	4465	140
09009N	5000	9000	561722 ?	.3	1	247	100	5409	140
09009N	5025	9000	561723 ?	.3	1	404	67	5831	150
09009N	5050	9000	561724 ?	.3	1	569	65	4780	160
09009N	5075	9000	561725 ?	.3	1	612	75	4431	140
09009N	5150	9000	561729 ?	.3	1	807	47	7357	200
09009N	5175	9000	561730 ?	.0	1	729	60	4782	160
09009N	5200	9000	561731 ?	.5	1	895	67	5946	160
09009N	5225	9000	561732 ?	.3	2	640	52	5630	170
09009N	5250	9000	561733 ?	.3	1	390	27	6556	140
09009N	5275	9000	561734 ?	.3	1	608	84	4363	140
09009N	5300	9000	561735 ?	.3	65	818	81	5414	180
09009N	5325	9000	561736 ?	.3	15	468	33	4564	170
09009N	5350	9000	561737 ?	.3	3	602	14	4835	180
09009N	5375	9000	561738 ?	.3	1	443	22	4249	150
09009N	5400	9000	561739 ?	.3	1	264	65	4991	130
09009N	5425	9000	561740 ?	.3	1	731	86	3783	280
09009N	5450	9000	561741 ?	.3	1	772	133	3823	240
09009N	5475	9000	561742 ?	.3	1	673	125	3495	220
09009N	5500	9000	561743 ?	.3	1	982	175	3472	240
09009N	5525	9000	561744 ?	.3	1	600	123	3495	210
09009N	5550	9000	561745 ?	.3	1	880	108	2987	220
09009N	5600	9000	561747 ?	.5	1	962	65	2683	230
09009N	5625	9000	561748 ?	.5	1	664	109	2699	200
09009N	5650	9000	561749 ?	.3	1	866	126	3218	200
09009N	5675	9000	561750 ?	.3	1	469	347	4682	150
09009N	5700	9000	561751 ?	.3	1	334	136	5851	190
09009N	5725	9000	561752 ?	.3	1	779	75	4138	150
09009N	5750	9000	561753 ?	.3	1	719	10	4537	140
09009N	5775	9000	561754 ?	.3	1	633	28	4462	130
09009N	5800	9000	561755 ?	.3	1	531	76	5391	160
09009N	5850	9000	561757 ?	.3	1	829	64	4957	170
09009N	5875	9000	561758 ?	.3	6	552	338	6572	190
09009N	5900	9000	561759 ?	.3	1	542	764	6948	240
09009N	5925	9000	561760 ?	.3	1	837	45	4681	150
09009N	5950	9000	561761 ?	.3	1	962	38	5201	160
09009N	5975	9000	561762 ?	.3	1	841	39	4690	160
09209N	3800	9200	561786 ?	.5	1	554	97	4148	130
09209N	3825	9200	561787 ?	.5	1	389	125	2492	100

09209N	3850	9200	561789 ?	.5	1	417	186	3463	120
09209N	3875	9200	561790 ?	.3	1	492	233	4273	130
09209N	3900	9200	561791 ?	.3	3	329	651	5356	180
09209N	3925	9200	561792 ?	.3	10	315	616	4472	140
09209N	3950	9200	561793 ?	.3	9	286	640	4258	140
09209N	3975	9200	561794 ?	.3	5	206	1071	4645	150
09209N	4000	9200	561795 ?	.3	1	335	1401	4234	160
09209N	4025	9200	561796 ?	.3	1	232	1374	4708	180
09209N	4050	9200	561797 ?	.3	1	255	1347	4722	160
09209N	4100	9200	561799 ?	.3	7	353	366	6560	210
09209N	4125	9200	561800 ?	.3	7	184	500	9141	270
09209N	4150	9200	561801 ?	.3	9	274	260	5995	180
09209N	4175	9200	561802 ?	.3	6	127	573	10489	280
09209N	4200	9200	561803 ?	.3	2	252	1749	10385	280
09209N	4225	9200	561804 ?	.3	8	390	382	6048	200
09209N	4250	9200	561805 ?	.3	9	304	771	7304	220
09209N	4275	9200	561806 ?	.3	50	534	154	3569	160
09209N	4400	9200	561811 ?	.3	1	353	565	5500	170
09209N	4425	9200	561812 ?	.3	3	380	630	5263	160
09209N	4450	9200	561813 ?	.3	15	109	1014	8402	200
09209N	4475	9200	561814 ?	.3	1	1242	36	3914	200
09209N	4500	9200	561815 ?	.3	1	1327	31	4181	160
09209N	4525	9200	561816 ?	.3	35	1297	65	3452	150
09209N	4550	9200	561817 ?	.3	1	816	3	3586	160
09209N	4575	9200	561818 ?	.3	1	912	21	3562	160
09209N	4600	9200	561819 ?	.3	1	455	115	4345	150
09209N	4625	9200	561820 ?	.5	1	441	64	4175	170
09209N	4650	9200	561821 ?	.3	1	342	40	4570	170
09209N	4675	9200	561822 ?	.3	1	355	3	4329	170
09209N	4700	9200	561823 ?	.3	1	797	15	3001	150
09209N	4725	9200	561824 ?	.3	1	674	10	3942	200
09209N	4750	9200	561825 ?	.5	1	1343	32	2529	280
09209N	4775	9200	561826 ?	.5	1	1085	44	2951	220
09209N	4800	9200	561827 ?	.3	5	704	136	4912	180
09209N	4825	9200	561828 ?	.3	20	442	109	4486	120
09209N	4850	9200	561829 ?	.3	6	462	110	6229	170
09209N	4875	9200	561830 ?	.3	5	1151	78	4183	120
09209N	4900	9200	561831 ?	.3	15	505	97	4406	160
09209N	4925	9200	561832 ?	.3	7	307	91	7023	180
09209N	4950	9200	561833 ?	.3	1	346	18	3187	180
09209N	4975	9200	561834 ?	.3	1	328	43	2925	170
09209N	5000	9200	561835 ?	.3	10	811	74	5534	150
09209N	5025	9200	561836 ?	2.0	180	1540	23	2962	120
09209N	5050	9200	561837 ?	.5	25	6217	79	3869	140
09209N	5075	9200	561838 ?	.5	20	670	85	4405	100
09209N	5100	9200	561839 ?	.3	25	740	58	3887	100
09209N	5125	9200	561840 ?	.3	30	738	73	4000	130
09209N	5275	9200	561846 ?	.3	25	632	90	4533	160
09209N	5300	9200	561847 ?	.3	35	607	100	3308	150
09209N	5325	9200	561848 ?	.3	10	447	47	4714	170
09209N	5350	9200	561849 ?	.5	50	517	87	4127	160
09209N	5375	9200	561850 ?	.3	40	559	82	3712	180
09209N	5400	9200	561851 ?	.3	95	467	76	4071	150
09209N	5425	9200	561852 ?	.3	20	561	75	4012	200
09209N	5450	9200	561853 ?	.3	110	626	60	5130	140
09209N	5475	9200	561854 ?	.5	20	449	67	5093	150
09209N	5575	9200	561858 ?	.5	3	607	101	4662	210
09209N	5600	9200	561859 ?	.5	1	586	141	4508	170
09209N	5625	9200	561860 ?	.5	1	661	113	4194	140
09209N	5650	9200	561861 ?	.5	1	436	75	4194	160
09209N	5675	9200	561862 ?	.5	1	380	107	5449	160
09209N	5700	9200	561863 ?	.5	1	583	149	4588	160
09209N	5725	9200	561864 ?	.5	1	864	39	4387	120
09209N	5750	9200	561865 ?	.5	15	549	123	5132	150

09209N	5775	9200	561866	?	.5	25	631	248	5888	180
09209N	5800	9200	561867	?	.5	6	341	770	7735	220
09209N	5825	9200	561868	?	.5	6	519	882	6477	220
09209N	5875	9200	561870	?	.5	1	329	119	4883	200
09209N	5900	9200	561871	?	.3	1	364	112	4665	180
09409N	3600	9400	561876	?	.5	5	460	940	3900	110
09409N	3625	9400	561877	?	.3	5	360	910	4350	140
09409N	3650	9400	561878	?	.3	3	250	1350	4300	130
09409N	3675	9400	561879	?	.3	4	340	920	4050	160
09409N	3700	9400	561880	?	.5	5	620	160	4750	140
09409N	3725	9400	561881	?	.5	15	620	180	4750	140
09409N	3750	9400	561882	?	.5	4	600	180	5100	150
09409N	3775	9400	561883	?	1.0	10	650	180	4650	150
09409N	3800	9400	561884	?	1.0	10	490	270	5000	130
09409N	3825	9400	561885	?	1.0	15	420	470	4600	130
09409N	3850	9400	561886	?	.3	20	420	270	4900	140
09409N	3875	9400	561887	?	.3	15	440	270	6600	180
09409N	3950	9400	561890	?	.3	9	420	460	4450	150
09409N	3975	9400	561891	?	.3	10	320	680	4700	140
09409N	4000	9400	561892	?	.3	15	350	440	5750	160
09409N	4025	9400	561893	?	.3	5	290	1050	3450	140
09409N	4050	9400	561894	?	.3	20	180	450	6750	180
09409N	4075	9400	561895	?	.3	9	220	560	6150	180
09409N	4100	9400	561896	?	.5	10	170	480	3800	100
09409N	4125	9400	561897	?	.3	15	320	830	8150	230
09409N	4150	9400	561898	?	.3	15	290	560	6500	170
09409N	4175	9400	561899	?	.5	15	600	250	4300	160
09409N	4225	9400	561901	?	.5	60	640	170	4350	170
09409N	4250	9400	561902	?	.5	35	510	140	3300	150
09409N	4275	9400	561903	?	.5	30	600	180	3600	150
09409N	4300	9400	561904	?	.5	1	500	340	3800	130
09409N	4325	9400	561905	?	.3	15	550	760	5400	180
09409N	4350	9400	561906	?	.5	15	370	420	5350	170
09409N	4375	9400	561907	?	.3	8	490	690	3800	140
09409N	4400	9400	561908	?	.5	1	520	630	5350	150
09409N	4425	9400	561909	?	.5	1	520	700	6050	150
09409N	4450	9400	561910	?	.5	10	260	440	8200	180
09409N	4475	9400	561911	?	.3	15	290	770	6850	200
09409N	4500	9400	561912	?	.3	4	200	750	7300	190
09409N	4550	9400	561914	?	.5	1	110	740	7250	190
09409N	4575	9400	561915	?	.3	3	120	700	7200	200
09409N	4600	9400	561916	?	.3	1	670	180	4150	170
09409N	4650	9400	561918	?	.5	1	410	50	4100	150
09409N	4675	9400	561919	?	.3	1	380	55	3750	150
09409N	4700	9400	561920	?	.3	1	180	45	5700	140
09409N	4725	9400	561921	?	.3	1	150	30	3600	180
09409N	4750	9400	561922	?	.3	1	230	40	4850	150
09409N	4775	9400	561923	?	.3	1	470	65	4600	160
09409N	4800	9400	561924	?	.3	1	740	100	2900	100
09409N	4850	9400	561926	?	.5	1	500	40	2400	160
09409N	4875	9400	561927	?	.3	1	470	55	3300	170
09409N	4900	9400	561928	?	.3	2	590	70	6250	190
09409N	4925	9400	561929	?	.5	2	460	100	7500	180
09409N	4950	9400	561930	?	.5	1	440	80	7050	180
09409N	4975	9400	561931	?	.5	2	300	100	8050	180
09409N	5000	9400	561932	?	.3	5	410	95	6050	150
09409N	5025	9400	561933	?	.3	7	540	120	5150	150
09409N	5050	9400	561934	?	.3	15	750	180	5050	150
09409N	5075	9400	561935	?	.5	1	640	75	4450	140
09409N	5100	9400	561936	?	.5	1	1250	25	2450	250
09409N	5125	9400	561937	?	.3	1	830	110	5100	180
09409N	5150	9400	561938	?	.3	1	520	55	5300	130
09409N	5175	9400	561939	?	.3	9	180	90	6250	170
09409N	5200	9400	561940	?	.5	6	140	55	6950	110

09409N	5225	9400	561941	?	.3	25	260	230	7450	160
09409N	5250	9400	561942	?	.3	15	150	120	6900	130
09409N	5350	9400	561946	?	.5	25	900	260	5850	110
09409N	5375	9400	561947	?	.5	45	1300	65	3800	130
09409N	5400	9400	561948	?	.5	20	1750	40	3330	120
09409N	5425	9400	561949	?	.5	35	1550	90	4350	900
09409N	5450	9400	561950	?	.5	25	1250	460	5150	160
09409N	5475	9400	561951	?	.5	40	1700	280	5250	160
09409N	5500	9400	561952	?	.5	15	1400	360	4650	150
09409N	5525	9400	561953	?	.3	45	720	150	3350	200
09409N	5550	9400	561954	?	.5	25	440	90	3050	150
09409N	5575	9400	561955	?	.3	100	240	110	2450	110
09409N	5600	9400	561956	?	.3	45	210	85	2900	160
09409N	5625	9400	561957	?	.3	2	240	100	3500	200
09409N	5650	9400	561958	?	.3	3	780	90	2900	200
09409N	5675	9400	561959	?	.3	1	240	25	2400	150
09409N	5700	9400	561960	?	.5	20	470	340	3450	160
09409N	5725	9400	561961	?	.3	2	760	350	4450	150
09409N	5750	9400	561962	?	.3	2	670	160	6450	220
09409N	5775	9400	561963	?	.3	15	750	130	4850	190
09409N	5800	9400	561964	?	.3	1	270	110	3000	160
09409N	5900	9400	561968	?	.5	1	380	140	3550	180
09409N	5925	9400	561969	?	.3	1	170	85	2050	150
09409N	5950	9400	561970	?	.3	1	160	85	2050	140
09409N	6000	9400	561972	?	.3	1	100	30	2300	140
09609N	3600	9600	563001	?	.5	4	950	138	4941	150
09609N	3625	9600	563002	?	.3	1	644	121	5587	140
09609N	3650	9600	563003	?	.3	1	726	121	5402	140
09609N	3675	9600	563004	?	.3	2	794	143	5349	150
09609N	3700	9600	563005	?	.3	4	717	119	5234	160
09609N	3725	9600	563006	?	.3	4	731	136	4719	150
09609N	3750	9600	563007	?	.3	2	709	163	5117	160
09609N	3775	9600	563008	?	.3	1	749	150	5735	170
09609N	3800	9600	563009	?	.5	3	578	125	5119	140
09609N	3825	9600	563010	?	.3	1	597	140	5839	170
09609N	3850	9600	563011	?	.3	4	440	108	6758	160
09609N	3875	9600	563012	?	.3	7	73	578	5519	190
09609N	3900	9600	563013	?	.5	7	103	514	6714	160
09609N	3925	9600	563014	?	.3	6	348	222	7184	170
09609N	3950	9600	563015	?	.3	7	493	141	5827	150
09609N	3975	9600	563016	?	.3	5	311	315	8877	180
09609N	4000	9600	563017	?	.3	9	289	351	8274	160
09609N	4025	9600	563018	?	.5	2	329	284	7949	190
09609N	4050	9600	563019	?	.3	3	370	380	7011	170
09609N	4075	9600	563020	?	.3	5	462	395	5822	170
09609N	4100	9600	563021	?	.5	6	344	423	2220	55
09609N	4125	9600	563022	?	.3	5	479	608	3970	130
09609N	4150	9600	563023	?	.3	8	516	507	3941	120
09609N	4175	9600	563024	?	.5	30	559	1035	2870	120
09609N	4200	9600	563025	?	.5	15	699	865	3208	120
09609N	4225	9600	563026	?	.3	3	693	968	3472	140
09609N	4300	9600	563029	?	.5	1	434	329	4735	150
09609N	4325	9600	563030	?	.3	4	591	531	4475	150
09609N	4350	9600	563031	?	.3	45	684	663	4067	130
09609N	4375	9600	563032	?	.3	8	490	507	4255	150
09609N	4400	9600	563033	?	.3	10	413	370	4487	150
09609N	4425	9600	563034	?	.3	7	477	382	4485	160
09609N	4450	9600	563035	?	.3	1	447	510	3445	140
09609N	4475	9600	563036	?	.3	5	458	330	3912	170
09609N	4500	9600	563037	?	.3	30	633	869	3172	110
09609N	4525	9600	563038	?	.5	8	652	981	3210	120
09609N	4550	9600	563039	?	.5	35	636	805	2885	120
09609N	4575	9600	563040	?	.3	15	478	941	4089	120
09609N	4600	9600	563041	?	.3	15	647	993	3482	120

TRAVERSE	EAST	NORTH	SAMPLE	Ag	As	Ba	Cr	Ti	Zr
09609N	4625	9600	563042 ?	.3	30	658	902	4133	130
09609N	4650	9600	563043 ?	.3	9	367	817	5057	140
09609N	4675	9600	563044 ?	.3	1	247	999	3980	120
09609N	4700	9600	563045 ?	.3	1	357	979	3390	120
09609N	4725	9600	563046 ?	.3	25	586	1147	4665	140
09609N	4750	9600	563047 ?	.3	15	367	1057	6281	180
09609N	4775	9600	563048 ?	.3	9	433	819	6067	180
09609N	4800	9600	563049 ?	.5	1	825	120	5272	180
09609N	4825	9600	563050 ?	.3	15	1160	105	4074	200
09609N	4850	9600	563051 ?	.3	6	1089	138	4507	160
09609N	4875	9600	563052 ?	.5	3	566	443	6885	180
09609N	4900	9600	563053 ?	.3	20	714	285	5164	190
09609N	4925	9600	563054 ?	.3	1	1106	103	4865	180
09609N	4950	9600	563055 ?	.3	1	828	156	4624	220
09609N	4975	9600	563056 ?	.3	2	574	82	4153	220
09609N	5000	9600	563057 ?	.3	2	296	109	5520	220
09609N	5025	9600	563058 ?	.3	5	1101	120	4662	130
09609N	5050	9600	563059 ?	.3	15	724	131	6150	150
09609N	5075	9600	563060 ?	.3	10	666	147	6127	130
09609N	5100	9600	563061 ?	.3	7	625	84	5021	140
09609N	5125	9600	563062 ?	.3	8	1008	189	4340	120
09609N	5150	9600	563063 ?	.3	15	420	217	5821	130
09609N	5175	9600	563064 ?	.3	10	524	161	6013	110
09609N	5200	9600	563065 ?	.3	15	156	137	7312	130
09609N	5225	9600	563066 ?	.3	20	174	216	5785	130
09609N	5250	9600	563067 ?	.3	35	1078	148	5987	150
09609N	5275	9600	563068 ?	.3	70	1022	161	5284	150
09609N	5300	9600	563069 ?	.3	75	1002	119	4489	110
09609N	5400	9600	563073 ?	.3	65	816	32	4684	120
09609N	5425	9600	563074 ?	.3	120	985	183	4916	130
09609N	5450	9600	563075 ?	.3	120	570	93	5468	95
09609N	5475	9600	563076 ?	.3	30	1266	270	6094	160
09609N	5500	9600	563077 ?	.3	50	1514	341	5726	170
09609N	5525	9600	563078 ?	.3	20	1295	46	4635	150
09609N	5550	9600	563079 ?	.3	25	1131	74	4358	150
09609N	5575	9600	563080 ?	.3	40	584	92	3514	170
09609N	5600	9600	563081 ?	.5	5	615	111	4788	170
09609N	5625	9600	563082 ?	.3	15	1072	43	4096	180
09609N	5650	9600	563083 ?	.5	4	504	87	5155	180
09609N	5675	9600	563084 ?	.5	9	418	57	3778	150
09609N	5700	9600	563085 ?	.5	4	511	76	4012	160
09609N	5725	9600	563086 ?	.3	4	539	62	3477	170
09609N	5750	9600	563087 ?	.3	6	683	321	3894	160
09609N	5775	9600	563089 ?	.3	4	1167	852	4164	120
09609N	5800	9600	563090 ?	.5	5	1253	81	5256	170
09609N	5825	9600	563091 ?	.3	1	1051	139	5219	120
09609N	5850	9600	563092 ?	.5	5	1006	257	5009	160
09609N	5875	9600	563093 ?	.3	2	796	72	5209	160
09609N	5900	9600	563094 ?	.3	20	800	58	5218	180
09609N	5925	9600	563095 ?	.3	1	234	51	2374	130
09609N	5950	9600	563096 ?	.3	1	129	21	1515	140
09609N	5975	9600	563097 ?	.3	1	139	44	1370	140
09609N	6000	9600	563098 ?	.3	1	1228	103	4365	170
09809N	3900	9800	563099 ?	.3	10	800	210	4750	190
09809N	3925	9800	563100 ?	.3	10	570	210	5600	180
09809N	3950	9800	563101 ?	.3	6	720	220	4350	150
09809N	3975	9800	563102 ?	.3	15	700	310	4750	170
09809N	4000	9800	563103 ?	.3	25	770	480	4850	170
09809N	4050	9800	563105 ?	.3	5	410	310	4650	170
09809N	4075	9800	563106 ?	.3	10	280	320	8000	200
09809N	4100	9800	563107 ?	.3	10	410	340	8050	170
09809N	4125	9800	563108 ?	.3	9	550	290	4800	170
09809N	4150	9800	563109 ?	.3	40	320	260	3300	65
09809N	4175	9800	563110 ?	.3	15	500	140	4750	160

480081

09809N	4200	9800	563111	?	.3	1	490	100	4300	160
09809N	4225	9800	563112	?	.3	60	460	130	4300	160
09809N	4250	9800	563113	?	.3	1	570	100	4150	180
09809N	4275	9800	563114	?	.3	7	510	110	4100	160
09809N	4300	9800	563115	?	.3	10	480	110	4350	170
09809N	4325	9800	563116	?	.3	1	500	150	3700	130
09809N	4350	9800	563117	?	.3	8	360	160	4700	160
09809N	4400	9800	563119	?	.3	25	520	440	3400	110
09809N	4425	9800	563120	?	.3	45	460	950	2750	110
09809N	4450	9800	563121	?	.5	15	660	960	2800	130
09809N	4525	9800	563124	?	.5	35	580	800	2500	120
09809N	4550	9800	563125	?	1.0	30	680	140	3050	130
09809N	4575	9800	563126	?	.5	7	640	130	3700	150
09809N	4600	9800	563127	?	.3	2	590	320	3600	140
09809N	4625	9800	563128	?	.3	10	650	540	3150	150
09809N	4650	9800	563129	?	.3	2	850	300	2700	190
09809N	4675	9800	563130	?	.3	1	750	390	3000	130
09809N	4700	9800	563131	?	.3	2	630	400	2400	130
09809N	4725	9800	563132	?	.3	6	640	760	3300	130
09809N	4750	9800	563133	?	.3	1	680	280	3550	150
09809N	4775	9800	563134	?	.3	5	740	340	3850	140
09809N	4800	9800	563135	?	.3	10	1150	1500	4050	120
09809N	4825	9800	563136	?	.3	8	880	1400	5250	140
09809N	4850	9800	563137	?	.3	2	540	1300	6250	150
09809N	4875	9800	563138	?	.3	6	380	1200	6400	170
09809N	4900	9800	563139	?	.3	9	720	970	6300	210
09809N	4925	9800	563140	?	.3	4	500	960	5300	180
09809N	4950	9800	563141	?	.3	15	580	580	4700	150
09809N	4975	9800	563142	?	.3	2	330	700	6850	150
09809N	5000	9800	563143	?	.3	4	430	660	7450	190
09809N	5025	9800	563144	?	.3	5	350	440	8100	160
09809N	5050	9800	563145	?	.5	7	860	610	4800	170
09809N	5100	9800	563147	?	.5	35	1950	90	5250	200
09809N	5125	9800	563148	?	.3	65	1450	90	6450	220
09809N	5150	9800	563149	?	.3	25	1550	170	5500	160
09809N	5175	9800	563150	?	.3	60	920	660	6150	160
09809N	5200	9800	563151	?	.3	160	1350	500	6200	170
09809N	5225	9800	563152	?	.3	120	1250	230	6750	170
09809N	5250	9800	563153	?	.5	45	1550	180	5400	180
09809N	5275	9800	563154	?	.5	55	850	100	5250	140
09809N	5300	9800	563155	?	.3	10	880	170	6950	160
09809N	5325	9800	563156	?	.3	20	940	170	5950	170
09809N	5375	9800	563158	?	.3	40	1250	30	4450	170
09809N	5525	9800	563164	?	.3	25	1050	130	5100	170
09809N	5550	9800	563165	?	.3	25	1000	110	5150	150
09809N	5575	9800	563166	?	.3	15	910	40	5500	160
09809N	5600	9800	563167	?	.3	1	860	40	5100	190
09809N	5625	9800	563168	?	.3	10	470	15	7450	160
09809N	5650	9800	563169	?	.3	4	820	40	7050	230
09809N	5675	9800	563170	?	.3	9	880	30	7550	230
09809N	5700	9800	563171	?	.3	10	610	40	7050	190
09809N	5725	9800	563172	?	.3	1	700	45	6050	140
09809N	5750	9800	563173	?	.3	2	1000	50	5900	170
09809N	5800	9800	563175	?	.3	7	280	530	5950	170
10009N	4800	10000	563184	?	.3	2	440	110	4350	160
10009N	4825	10000	563185	?	.3	25	570	180	4500	160
10009N	4875	10000	563187	?	.3	30	480	1100	4450	140
10009N	4925	10000	563189	?	.3	15	350	540	6600	160
10009N	4950	10000	563190	?	.3	30	470	690	6650	190
10009N	4975	10000	563191	?	.5	30	550	730	6950	230
10009N	5000	10000	563192	?	.5	15	590	480	6800	190
10009N	5025	10000	563193	?	.5	10	270	730	8400	240
10009N	5050	10000	563194	?	.3	15	250	810	6800	190
10009N	5075	10000	563195	?	.3	10	310	930	8000	250

082

10009N	5100	10000	563196 ?	.3	1	280	740	8450	190
10009N	5125	10000	563197 ?	.3	4	190	760	8950	220
10009N	5150	10000	563198 ?	.3	2	340	800	7400	180
10009N	5175	10000	563199 ?	.5	1	290	690	5900	160
10009N	5200	10000	563200 ?	.3	5	170	910	8050	170
10009N	5225	10000	563201 ?	.3	1	220	670	8750	220
10009N	5250	10000	563202 ?	.3	9	90	740	9050	230
10009N	5275	10000	563203 ?	.3	8	85	900	9400	230
10009N	5300	10000	563204 ?	.3	15	330	820	9200	240
10009N	5325	10000	563205 ?	.3	85	320	1000	7450	190
10009N	5350	10000	563206 ?	.3	20	640	490	7400	210
10009N	5375	10000	563207 ?	.3	10	780	260	7200	200
10009N	5400	10000	563208 ?	.3	10	600	350	7550	200
10009N	5425	10000	563209 ?	.3	20	270	810	9800	250
10009N	5450	10000	563210 ?	.3	20	170	850	10500	240
10009N	5550	10000	563214 ?	.3	15	490	410	7900	240
10009N	5575	10000	563215 ?	.3	15	410	370	8850	260
10009N	5600	10000	563216 ?	.3	15	320	530	8800	240
10009N	5625	10000	563217 ?	.3	8	290	580	6300	230
10009N	5650	10000	563218 ?	.3	5	160	500	5600	170
10009N	5675	10000	563219 ?	.3	5	850	170	5250	160
10009N	5700	10000	563220 ?	.3	35	990	100	4700	190
10009N	5725	10000	563221 ?	.3	20	470	330	7450	210
10009N	5750	10000	563222 ?	.3	15	620	75	7250	180
10009N	5775	10000	563223 ?	.3	35	690	160	6500	180
10009N	5800	10000	563224 ?	.3	30	590	140	5550	180
10009N	5825	10000	563225 ?	.3	6	500	540	4600	200
10009N	5850	10000	563226 ?	.3	1	210	160	1650	110
10009N	5875	10000	563227 ?	.3	1	310	280	3050	150
10009N	5900	10000	563228 ?	.3	1	250	190	3100	120
10009N	5925	10000	563229 ?	.3	1	210	150	1600	120
10009N	5950	10000	563230 ?	.3	1	140	20	980	100
10009N	5975	10000	563231 ?	.3	1	210	85	1400	120
10009N	6000	10000	563232 ?	.3	1	70	10	1350	100
10209N	4900	10200	563233 ?	.3	1	420	65	2450	170
10209N	4925	10200	563234 ?	.3	9	310	35	1950	130
10209N	4950	10200	563235 ?	.3	1	430	55	2250	150
10209N	4975	10200	563236 ?	.3	3	450	110	3550	180
10209N	5000	10200	563237 ?	.3	1	320	60	4050	200
10209N	5075	10200	563240 ?	.3	1	370	600	6050	170
10209N	5100	10200	563241 ?	.3	1	420	650	5250	170
10209N	5125	10200	563242 ?	.3	1	560	620	6100	190
10209N	5150	10200	563243 ?	.3	1	400	770	5850	180
10209N	5175	10200	563244 ?	.3	6	360	690	6500	180
10209N	5200	10200	563245 ?	.3	15	410	780	6650	190
10209N	5225	10200	563246 ?	.3	15	500	750	6000	170
10209N	5250	10200	563247 ?	.3	20	440	770	6550	170
10209N	5275	10200	563248 ?	.3	4	360	900	6250	170
10209N	5300	10200	563249 ?	.3	4	430	930	6750	190
10209N	5325	10200	563250 ?	.3	5	290	860	7050	170
10209N	5350	10200	563251 ?	.5	9	350	740	7900	200
10209N	5375	10200	563252 ?	.3	10	320	880	7050	170
10209N	5400	10200	563253 ?	.3	4	190	600	8900	210
10209N	5425	10200	563254 ?	.3	7	180	760	7450	180
10209N	5450	10200	563255 ?	.3	5	280	860	7200	180
10209N	5475	10200	563256 ?	.3	3	230	820	8550	220
10209N	5500	10200	563257 ?	.3	9	330	920	8650	230
10209N	5525	10200	563258 ?	.3	15	340	790	8450	200
10209N	5550	10200	563259 ?	.3	15	480	680	8000	220
10209N	5650	10200	563263 ?	.3	2	440	380	5850	200
10209N	5675	10200	563264 ?	.3	7	470	270	5050	150
10209N	5725	10200	563266 ?	.3	7	650	870	8800	170
10209N	5750	10200	563267 ?	.3	20	460	1050	7750	220
10209N	5775	10200	563268 ?	.3	1	260	520	6650	130

10209N	5800	10200	563269	?	.3	2	350	690	5550	170
10209N	5825	10200	563270	?	.3	1	920	540	3950	160
10209N	5850	10200	563271	?	.3	1	480	570	4000	170
10209N	5875	10200	563272	?	.3	6	520	550	5250	170
10209N	5925	10200	563274	?	.3	4	580	600	5350	170
10209N	5950	10200	563275	?	.3	5	370	570	6000	180
10209N	6000	10200	563277	?	.3	4	400	630	6250	190
10409N	5200	10400	563278	?	.3	4	320	790	4050	100
10409N	5225	10400	563279	?	.5	15	460	110	3750	140
10409N	5250	10400	563280	?	.3	10	590	120	3950	120
10409N	5275	10400	563281	?	.3	10	550	130	4450	150
10409N	5300	10400	563282	?	.5	10	450	90	4200	130
10409N	5325	10400	563283	?	.3	25	730	610	4350	120
10409N	5350	10400	563284	?	.3	15	580	810	4200	110
10409N	5375	10400	563285	?	.3	10	520	1000	3700	90
10409N	5400	10400	563286	?	.3	20	520	750	4450	130
10409N	5425	10400	563287	?	1.5	15	240	580	7650	180
10409N	5475	10400	563289	?	1.5	15	240	780	7800	200
10409N	5500	10400	563290	?	1.5	7	340	590	7550	200
10409N	5575	10400	563293	?	2.0	4	910	820	5350	180
10409N	5600	10400	563294	?	1.5	7	460	730	7300	190
10609N	5200	10600	563241	?	.3	1	350	40	2400	200
10609N	5225	10600	563242	?	.3	5	340	60	2950	210
10609N	5250	10600	563243	?	.3	1	340	25	2300	180
10609N	5275	10600	563244	?	.3	1	370	25	2350	220
10609N	5300	10600	563245	?	.3	1	360	50	4550	150
10609N	5325	10600	563246	?	.3	1	480	80	5250	130
10609N	5350	10600	563247	?	.3	1	520	10	2150	170
10609N	5375	10600	563248	?	.3	1	450	110	3950	170
10609N	5400	10600	563249	?	.3	1	730	120	3850	170
10609N	5425	10600	563250	?	.3	2	550	90	4400	170
10609N	5450	10600	563251	?	.5	1	530	110	4050	160
10609N	5650	10600	563259	?	.3	30	1750	1500	4200	140
10609N	5725	10600	563262	?	.3	7	1050	800	5500	200
10609N	5775	10600	563264	?	.3	3	1250	700	5500	210
10609N	5800	10600	563265	?	.3	2	730	630	7750	250
10609N	5825	10600	563266	?	.3	1	770	710	7400	210
10609N	5850	10600	563267	?	.3	1	1050	780	7200	200
10609N	5875	10600	563268	?	.3	3	1200	600	6850	190
10609N	5900	10600	563269	?	.3	20	1350	900	6000	190
10609N	5925	10600	563270	?	.3	20	1200	880	5750	170
10609N	5950	10600	563271	?	.3	20	1000	760	6400	200
10609N	5975	10600	563272	?	.3	10	930	680	7050	180
10609N	6000	10600	563273	?	.3	2	830	230	3550	170
10609N	6025	10600	563274	?	.3	8	650	250	4150	160
10609N	6050	10600	563275	?	.3	20	920	400	5250	180
10609N	6075	10600	563276	?	.3	1	450	130	4250	160
10609N	6100	10600	563277	?	.3	1	490	15	1700	130

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. 23.3.08.06439

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

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

ORDER No.	PROJECT
8410	

DATE RECEIVED	RESULTS REQUIRED
23/08/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
7	28/09/89	1	169

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: 006,013,016							Ag/101,As/114		
	Various	SO								Ba/401		
	Various	SO								Cr,Zr,Ti/401		

RESULTS TO

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

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	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

A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

488086

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06439	28/09/89	8410	1 OF 7

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	517071	<0.5	400	10	15	210	3150			
2	517072	<0.5	800	<2	<5	230	3050			
3	517073	<0.5	430	3	10	190	2950			
4	517074	<0.5	650	40	500	170	3700			
5	517075	<0.5	580	20	120	160	4250			
6	517076	<0.5	370	15	100	140	4850			
7	517077 STD	<0.5	600	85	35	250	3800			
	517078	<0.5	150	6	30	95	3450			
9	517079	<0.5	140	3	90	140	4700			
10	517080	<0.5	70	6	75	260	8700			
11	517081	<0.5	95	10	70	240	8650			
12	517082	<0.5	100	9	45	200	8950			
13	517083	<0.5	90	9	50	170	8150			
14	517084	<0.5	130	15	70	230	8900			
15	517085	<0.5	450	15	50	220	8100			
16	517086	<0.5	280	15	50	210	7800			
	517087 STD	<0.5	610	85	15	250	3850			
18	517088	<0.5	180	20	30	240	9000			
19	517089	<0.5	170	20	20	220	10050			
20	517090	<0.5	190	6	60	220	9150			
21	517091	<0.5	110	4	45	180	8750			
22	517092	<0.5	220	5	45	150	7700			
23	517093	<0.5	200	2	35	200	9500			
24	517094	<0.5	210	2	55	210	8550			
25	517095	<0.5	350	15	80	220	6350			

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 Inchcape Inspection and Testing Services Australia Pty. Ltd.

488087

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06439	28/09/89	8410	2 OF 7

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	517096	<0.5	260	20	60	240	6900			
2	517097	<0.5	280	20	50	220	7100			
3	517098	<0.5	300	15	40	220	7200			
4	517099	<0.5	240	15	55	210	7300			
5	517100	<0.5	200	2	65	230	8050			
6	517101	<0.5	390	2	15	170	4500			
7	517102	<0.5	470	5	30	190	3650			
[illegible]	517103	<0.5	340	<2	8	190	4000			
9	517104	<0.5	540	2	35	200	3200			
10	517107	<0.5	480	<2	15	210	2400			
11	517108	<0.5	380	3	60	220	3300			
12	517109	<0.5	410	2	5	200	3850			
13	517110	<0.5	370	6	15	210	3750			
14	517111	<0.5	300	<2	20	180	2800			
15	517112	<0.5	260	50	<5	170	3000			
16	517113	<0.5	320	4	<5	200	3750			
17	517114	<0.5	170	<2	30	260	3750			
18	517115	<0.5	260	<2	25	230	3100			
19	517116	<0.5	540	<2	20	220	2750			
20	517117	<0.5	250	<2	20	220	3150			
21	517118	<0.5	390	<2	8	270	2450			
22	517119	<0.5	240	6	90	240	3100			
23	517120	<0.5	900	7	15	190	3850			
24	517121	<0.5	370	<2	35	160	3300			
25	517122	<0.5	240	5	80	180	5400			

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 Inchcape Inspection and Testing Services Australia Pty. Ltd.

488088

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
[redacted]	23.3.08.06439	28/09/89	8410	3 OF 7

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
[redacted]1	517123	<0.5	200	<2	70	180	4650			
[redacted]2	517124	<0.5	280	<2	45	200	4200			
[redacted]3	517125	<0.5	330	<2	40	190	3650			
[redacted]4	517126	<0.5	360	<2	85	210	4000			
5	517127	<0.5	300	<2	120	200	4650			
[redacted]6	517128	<0.5	260	<2	50	210	4200			
[redacted]7	517129	<0.5	120	<2	15	150	6500			
[redacted]	517130	<0.5	190	<2	45	230	5050			
[redacted]9	517131	<0.5	250	<2	55	220	3800			
10	517132	<0.5	190	<2	15	200	4000			
[redacted]1	517133	<0.5	75	<2	380	160	5700			
[redacted]2	517134	<0.5	270	<2	–	–	–			
[redacted]3	517135	<0.5	220	<2	–	–	–			
[redacted]4	517136	<0.5	310	<2	–	–	–			
15	517137	<0.5	60	<2	–	–	–			
[redacted]6	517138	<0.5	300	20	–	–	–			
[redacted]	517139	<0.5	230	<2	–	–	–			
[redacted]8	517140	<0.5	410	<2	–	–	–			
[redacted]9	517141	<0.5	310	3	–	–	–			
20	517142	<0.5	320	<2	–	–	–			
[redacted]1	517143	<0.5	320	<2	–	–	–			
22	517144	<0.5	300	<2	–	–	–			
[redacted]3	517145	<0.5	290	<2	–	–	–			
[redacted]4	517146	<0.5	360	<2	–	–	–			
25	517147	<0.5	330	<2	–	–	–			

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 Inclicape Inspection and Testing Services Australia Pty. Ltd.

468089

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No	PAGE
	23.3.08.06439	28/09/89	8410	4 OF 7

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	517148	<0.5	310	<2	–	–	–			
2	517149	<0.5	150	<2	–	–	–			
3	517150	<0.5	45	<2	–	–	–			
4	517151	<0.5	<10	<2	–	–	–			
5	517152	<0.5	20	2	–	–	–			
6	517153	<0.5	25	2	–	–	–			
7	517154	<0.5	20	<2	–	–	–			
[illegible]	517155	<0.5	65	<2	–	–	–			
9	517156	<0.5	140	2	–	–	–			
10	517157	<0.5	190	3	–	–	–			
11	517158	<0.5	110	2	–	–	–			
12	517159	<0.5	460	<2	–	–	–			
13	517160	<0.5	230	<2	–	–	–			
14	517209	<0.5	140	2	100	180	4900			
15	517210	<0.5	490	<2	<5	170	5250			
16	517211	<0.5	260	<2	30	170	5500			
17	517212	<0.5	490	15	95	180	3900			
18	517213	<0.5	500	3	40	230	3350			
19	517214	<0.5	350	<2	6	250	3500			
20	517215	<0.5	320	<2	25	210	4250			
21	517216	<0.5	1600	7	110	170	4600			
22	517217	<0.5	150	6	170	250	5500			
23	517218	<0.5	150	<2	100	220	4500			
24	517219	<0.5	240	5	110	230	4250			
25	517220	<0.5	160	<2	110	200	4500			

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06439	28/09/89	8410	5 OF 7

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
	517221	<0.5	310	15	65	220	4350			
2	517222 SD	<0.5	610	90	15	240	3800			
3	517223	<0.5	200	<2	40	130	4700			
	517224	<0.5	210	<2	75	120	4100			
5	517225	<0.5	400	2	15	210	3850			
	517226	<0.5	250	<2	55	150	3100			
	517227	<0.5	350	<2	10	200	3500			
	517228	<0.5	230	<2	140	150	4700			
	517229 SD	<0.5	590	80	20	250	3800			
10	517230	<0.5	130	<2	60	45	2850			
11	517231	<0.5	610	<2	30	110	3800			
12	517232	<0.5	130	<2	85	190	2850			
13	517233	<0.5	660	<2	20	130	4500			
14	517234	<0.5	220	<2	35	160	4400			
15	517235	<0.5	250	<2	9	160	4450			
16	517236	<0.5	350	2	30	190	3750			
17	517237	<0.5	420	3	65	170	3550			
18	517238	<0.5	230	2	35	190	4550			
19	517239	<0.5	310	8	65	180	4150			
20	517240	<0.5	300	6	35	170	4100			
21	517241	<0.5	370	10	55	190	3950			
22	517242	<0.5	160	<2	40	180	5200			
23	517243	<0.5	280	4	70	170	3600			
24	517244	<0.5	210	6	35	170	5150			
25	517245	<0.5	280	10	55	170	4600			

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T = element present, but concentration too low to measure
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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

488091

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06439	28/09/89	8410	6 OF 7

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	517246	<0.5	400	10	80	170	5700			
2	517247	<0.5	500	10	80	160	5100			
3	517248	<0.5	330	4	35	160	5100			
4	517249	<0.5	350	10	55	150	4850			
5	517270	<0.5	470	60	25	200	4050			
6	517271	<0.5	470	15	25	180	3450			
7	517272	<0.5	510	20	20	180	3850			
	517273	<0.5	610	6	25	160	4500			
9	517274	<0.5	490	15	10	180	4350			
10	517275	<0.5	550	30	70	180	3650			
11	517276 SDD	<0.5	590	100	25	240	3800			
12	517277	<0.5	600	9	20	210	2350			
13	517278	<0.5	390	6	780	190	5500			
14	517279	<0.5	200	4	10	140	4850			
15	517280	0.5	340	20	30	170	3250			
16	517281	<0.5	550	150	120	200	2250			
17	517282	<0.5	410	4	—	—	—			
18	517283	<0.5	310	6	—	—	—			
19	517284	<0.5	270	3	—	—	—			
20	517285	<0.5	160	2	—	—	—			
21	517286	<0.5	490	2	—	—	—			
22	517287	<0.5	45	3	—	—	—			
23	517288	<0.5	100	<2	—	—	—			
24	517290	<0.5	520	5	—	—	—			
25	517291	<0.5	430	10	—	—	—			

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

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

428092

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06439	28/09/89	8410	7 OF 7

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	517292	<0.5	300	4	—	—	—			
2	517293	<0.5	330	2	—	—	—			
3	517294	0.5	340	10	—	—	—			
4	517295	<0.5	220	6	—	—	—			
5	517296	0.5	590	110	—	—	—			
6	517297	0.5	220	5	—	—	—			
7	517298	0.5	260	10	—	—	—			
[illegible]	517299	<0.5	300	<2	—	—	—			
9	517300	<0.5	340	<2	—	—	—			
10	517301	<0.5	130	<2	—	—	—			
11	517302	<0.5	220	<2	—	—	—			
12	517303	<0.5	280	<2	—	—	—			
13	517304	<0.5	180	<2	—	—	—			
14	517305	<0.5	150	<2	—	—	—			
15	517306	<0.5	320	5	—	—	—			
16	517307	<0.5	270	4	—	—	—			
17	517308	0.5	350	<2	—	—	—			
18	517309	0.5	300	3	—	—	—			
19	517310	<0.5	230	<2	—	—	—			
20										
21										
22										
23	DETECTION	0.5	10	2	5	5	50			
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM			
25	METHOD	101	401	401	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.

Phone (09) 458 7999 — 52 Murray Road, Welshpool, W.A. 6106 — Telex AA92560

ANALYTICAL REPORT No. 23.3.08.06428

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

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

ORDER No.	PROJECT
8292	

DATE RECEIVED	RESULTS REQUIRED
17/08/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
5	27/09/89	1	101

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
	517310/359,517408/458	SO	Prep: 006,013,016							Ag/101,As/114		
	517310/359,517408/458	SO	Prep: 006,013,016							Ba/401		
	517310/316,517408/417	SO	Prep: 006,013,016							Cr,Zr,Ti/401		

RESULTS TO

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

RESULTS TO

REMARKS

4800N
5200N

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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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

488094

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06428	27/09/89	8292	1 OF 5

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	517310	<0.5	630	75	25	250	3850			
2	517311	<0.5	950	<2	25	210	2950			
3	517312	<0.5	1100	<2	25	210	2650			
4	517313	<0.5	1000	<2	45	160	3000			
5	517314	<0.5	950	<2	<5	170	2550			
6	517315	<0.5	900	8	30	160	2600			
7	517316	<0.5	840	<2	15	150	2250			
8	517317	<0.5	800	<2	–	–	–			
9	517318	<0.5	740	10	–	–	–			
10	517319	<0.5	580	<2	–	–	–			
11	517320	<0.5	710	<2	–	–	–			
12	517321	<0.5	600	<2	–	–	–			
13	517322	<0.5	520	<2	–	–	–			
14	517323	<0.5	810	<2	–	–	–			
15	517324	<0.5	610	<2	–	–	–			
16	517325	<0.5	1100	<2	–	–	–			
17	517326	<0.5	640	2	–	–	–			
18	517327	<0.5	480	<2	–	–	–			
19	517328	<0.5	410	2	–	–	–			
20	517329	<0.5	600	8	–	–	–			
21	517330	<0.5	490	<2	–	–	–			
22	517331	<0.5	560	5	–	–	–			
23	517332	<0.5	390	<2	–	–	–			
24	517333	<0.5	610	<2	–	–	–			
25	517334	<0.5	420	<2	–	–	–			

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 Inchcape Inspection and Testing Services Australia Pty Ltd.

488095

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06428	27/09/89	8292	2 OF 5

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	517335	<0.5	340	<2	–	–	–			
2	517336	<0.5	200	<2	–	–	–			
3	517337	<0.5	280	<2	–	–	–			
4	517338	<0.5	250	<2	–	–	–			
5	517339	<0.5	160	<2	–	–	–			
6	517340	<0.5	150	<2	–	–	–			
7	517341	<0.5	200	<2	–	–	–			
8	517342	<0.5	380	<2	–	–	–			
9	517343	<0.5	450	<2	–	–	–			
10	517344	<0.5	360	<2	–	–	–			
11	517345	<0.5	460	<2	–	–	–			
12	517346	<0.5	480	<2	–	–	–			
13	517347	<0.5	390	15	–	–	–			
14	517348	<0.5	95	<2	–	–	–			
15	517349	<0.5	130	<2	–	–	–			
16	517350	<0.5	220	<2	–	–	–			
17	517351	<0.5	250	<2	–	–	–			
18	517352	<0.5	310	2	–	–	–			
19	517353	<0.5	330	3	–	–	–			
20	517354	<0.5	260	<2	–	–	–			
21	517355	<0.5	290	6	–	–	–			
22	517356	<0.5	370	10	–	–	–			
23	517357 STD	<0.5	620	85	–	–	–			
24	517358	<0.5	280	<2	–	–	–			
25	517359	<0.5	300	<2	–	–	–			

Results in ppm unless otherwise specified
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AUTHORISED OFFICER

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A Division of Inchcape Inspection and Testing Services Australia Pty Ltd.

488096

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
[redacted]	23.3.08.06428	27/09/89	8292	3 OF 5

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
[redacted] STD	517408	<0.5	630	85	25	240	3850			
[redacted]	517409	<0.5	660	10	240	160	5700			
3	517410	<0.5	660	15	230	160	4250			
[redacted]	517411	<0.5	1000	25	230	140	4150			
5	517412	<0.5	280	15	200	140	3700			
[redacted]	517413	<0.5	390	15	200	120	4050			
[redacted]	517414	<0.5	330	20	420	140	4200			
[redacted]	517415	<0.5	1200	35	290	170	2650			
[redacted]	517416	<0.5	4750	20	190	170	4400			
10	517417	<0.5	470	6	280	160	3300			
[redacted]1	517418	<0.5	570	<2	—	—	—			
[redacted]2	517419	<0.5	300	8	—	—	—			
13	517420	<0.5	280	25	—	—	—			
[redacted]4	517421	<0.5	470	25	—	—	—			
15	517422	<0.5	280	80	—	—	—			
[redacted]6	517423	<0.5	300	250	—	—	—			
17	517424	<0.5	460	90	—	—	—			
[redacted]8	517425	<0.5	400	160	—	—	—			
[redacted]9	517426	<0.5	420	400	—	—	—			
20	517427	<0.5	930	110	—	—	—			
[redacted]1	517428	<0.5	600	35	—	—	—			
22	517429	<0.5	720	110	—	—	—			
[redacted]3	517430	<0.5	900	40	—	—	—			
[redacted]4	517431	<0.5	690	25	—	—	—			
25	517432	<0.5	650	50	—	—	—			

Results in ppm unless otherwise specified
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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

488097

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06428	27/09/89	8292	4 OF 5

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	517433	<0.5	730	40	—	—	—			
2	517434	<0.5	400	40	—	—	—			
3	517435	<0.5	480	40	—	—	—			
4	517436	<0.5	520	40	—	—	—			
5	517437	<0.5	460	55	—	—	—			
6	517438	<0.5	400	25	—	—	—			
7	517439	<0.5	320	25	—	—	—			
8	517440	<0.5	340	7	—	—	—			
9	517441	<0.5	530	25	—	—	—			
10	517442	<0.5	740	40	—	—	—			
11	517443	<0.5	320	30	—	—	—			
12	517444	<0.5	610	50	—	—	—			
13	517445	<0.5	660	55	—	—	—			
14	517446	<0.5	330	40	—	—	—			
15	517447	<0.5	210	35	—	—	—			
16	517448	<0.5	210	15	—	—	—			
17	517449	<0.5	120	15	—	—	—			
18	517450	<0.5	250	15	—	—	—			
19	517451	<0.5	200	<2	—	—	—			
20	517452	<0.5	450	25	—	—	—			
21	517453	<0.5	630	20	—	—	—			
22	517454	<0.5	610	20	—	—	—			
23	517455	<0.5	340	15	—	—	—			
24	517456	<0.5	770	6	—	—	—			
25	517457	<0.5	250	40	—	—	—			

Results in ppm unless otherwise specified
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A Division of Inchcape Inspection and Testing Services Australia Pty Ltd.

488098

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06428	27/09/89	8292	5 OF 5

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	517458 STD.	<0.5	640	80	—	—	—			
2										
3										
4										
5										
6										
7										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	0.5	10	2	5	5	50			
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM			
25	METHOD	101	401	401	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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ANALABS

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

Phone (09) 458 7999 — 52 Murray Road, Welshpool, W.A. 6106 — Telex AA92560

488099

ANALYTICAL REPORT No. 23.3.08.06463

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

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

ORDER No.	PROJECT
8428	

DATE RECEIVED	RESULTS REQUIRED
29/08/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
3	27/09/89	1	50

STATE SAMPLES REFER BELOW	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PUL-VERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	Various	SO							Ag/101,As/114		
	Various	SO							Ba/401		

RESULTS TO: Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

RESULTS TO:

REMARKS

5600 N
5800 N

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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A Division of Inchcape Inspection and Testing Services Australia Pty Ltd.

488100

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06463	27/09/89	8428	1 OF 3

TUBE No.	SAMPLE No.	Ag	Ba	As						
1	270021	<0.5	75	4	5800N	5520				
2	270022	<0.5	<10	2		5540				
3	270023	<0.5	<10	2		5560				
4	270024	<0.5	260	3		5580				
5	270025	<0.5	15	8		5600				
6	270026	<0.5	200	11		5620				
7	270027	<0.5	65	15		5640				
[illegible]	270028	<0.5	85	10		5660				
9	270029	SNR	SNR	SNR						
10	270030	SNR	SNR	SNR						
11	270031	SNR	SNR	SNR						
12	270032	SNR	SNR	SNR						
13	270033	<0.5	90	10		5680				
14	270034	<0.5	95	14		700				
15	270035	<0.5	95	10		720				
16	270036	<0.5	420	11		740				
17	270037	<0.5	290	11		760				
18	270038	<0.5	300	25		780				
19	270039	<0.5	160	11		900				
20	270040	<0.5	270	9		5820				
21	270041	<0.5	90	6		5840				
22	270042	<0.5	110	4		5860				
23	270043	<0.5	120	7		5880				
24	270044	<0.5	95	2		5900				
25	270045	SNR	SNR	SNR						

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 Inchcape Inspection and Testing Services Australia Pty.Ltd.

188101

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06463	27/09/89	8428	2 OF 3

TUBE No.	SAMPLE No.	Ag	Ba	As						
1	270046	<0.5	130	5	5800	5960				
2	270047	<0.5	180	9		5960				
3	270048	<0.5	240	9		5980				
4	270049	<0.5	220	9	5800N	6000E				
4	270050 STD	<0.5	640	83						
6	270054	<0.5	200	4	5600N	5960				
7	270055	<0.5	240	7		5940				
8	270056	<0.5	310	17		5920				
9	270057	<0.5	370	14		5900				
10	270061	<0.5	19	37		5820				
11	270062	<0.5	20	9		5800				
12	270063	<0.5	310	8		5740				
13	270064 STD	<0.5	640	110		–				
14	270065	<0.5	210	10		5740				
15	270066	<0.5	170	17		5720				
16	270067	<0.5	200	9		5700				
17	270068	<0.5	220	7		5680				
18	270069	<0.5	300	17		5660				
19	270070	<0.5	480	7		5640				
20	270071	<0.5	410	15		5620				
21	270072	<0.5	230	7		5600				
22	270073	<0.5	290	5	*	5580				
23	270075	<0.5	190	5		5540				
24	270076	<0.5	590	3		5520				
25	270077	<0.5	130	4	5600N	5500				

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 Inchcape Inspection and Testing Services Australia Pty. Ltd.

488102

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06463	27/09/89	8428	3 OF 3

TUBE No.	SAMPLE No.	Ag	Ba	As						
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20	SNR = Sample Not Received									
21	IS = Insufficient Sample									
22	DETECTION	0.5	10	1						
23	UNITS	PPM	PPM	PPM						
24	METHOD	101	401	114						
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

ANALABS

488103 (8)

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. 23.3.08.06466

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

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

ORDER No.	PROJECT
8431	

DATE RECEIVED	RESULTS REQUIRED
31/08/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
6	27/09/89	1	138

STATE SAMPLES REFER BELOW	SAMPLE NUMBERS	PRE-TREATMENT DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	Various	SO	Prep: 016,013						Ag/101,As/114		
	Various	SO	Prep: 016,013						Ba/401		
	Various	SO	Prep: 016,013						Cr,Zr,Ti/401		
	Various	SO							Ti:Zr/199		

RESULTS TO

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

RESULTS TO

REMARKS

3800 N
4400 N
5000 N

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
[illegible]	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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488104

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A Division of Inchcape Inspection and Testing Services Australia Pty Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06466	27/09/89	8431	1 OF 6

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	515939	<0.5	270	<2	20	230	3150	13.7		
2	515940	<0.5	340	<2	5	522	2950	5.7		
3	515941	<0.5	370	<2	35	240	2700	11.2		
4	515942	<0.5	340	<2	<5	250	2200	8.8		
5	515943	<0.5	250	<2	10	240	2900	12.1		
6	515944	<0.5	280	<2	<5	270	1750	6.5		
7	515945	<0.5	340	<2	15	210	2950	14.0		
8	515946	<0.5	320	<2	<5	230	4500	19.6		
9	515947	<0.5	290	<2	10	240	3950	16.5		
10	515948	<0.5	300	<2	10	240	3100	12.9		
11	515949	<0.5	240	<2	65	270	3650	13.5		
12	515950	<0.5	340	<2	75	240	4050	16.9		
13	515951	<0.5	300	<2	25	220	4750	21.6		
14	515952	<0.5	210	<2	80	280	4750	17.0		
15	515953	<0.5	310	<2	50	270	4550	16.9		
16	515954	<0.5	290	<2	50	250	4550	18.2		
17	515955	<0.5	280	<2	40	240	4900	20.4		
18	515956	<0.5	160	<2	35	200	5700	28.5		
19	515957	<0.5	220	<2	40	210	4050	19.3		
20	515958	<0.5	20	<2	130	170	4200	24.7		
21	515959	<0.5	120	<2	120	170	2250	13.2		
22	515960 STD	<0.5	640	80	25	260	3850	14.8		
23	515961	<0.5	160	<2	95	190	5000	26.3		
24	515962	<0.5	680	<2	45	140	1750	12.5		
25	515963	<0.5	85	<2	150	200	4850	24.2		

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 Inchcape Inspection and Testing Services Australia Pty Ltd.

488105

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06466	27/09/89	8431	2 OF 6

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	515964	<0.5	180	<2	15	220	2900	13.2		
2	515965	<0.5	230	<2	15	160	4300	26.9		
3	515966	<0.5	170	5	280	180	4550	25.3		
4	515967	<0.5	30	<2	70	210	7250	34.5		
5	515968	<0.5	25	<2	<5	200	6000	30.0		
6	515969	<0.5	25	2	65	210	6250	29.8		
7	515970	<0.5	140	<2	10	190	6450	33.9		
	515971	<0.5	270	4	45	210	5900	28.1		
9	515972	<0.5	400	<2	7	220	3900	17.7		
10	515973	<0.5	350	<2	15	200	3450	17.2		
11	515974	<0.5	120	2	130	190	5850	30.8		
12	515975	<0.5	100	8	95	160	6950	43.4		
13	515976	<0.5	<10	9	150	200	7950	39.7		
14	515977	<0.5	55	6	130	180	6950	38.6		
15	515978	<0.5	25	<2	100	220	9000	40.9		
16	515979	<0.5	<10	4	75	280	11300	40.4		
17	517161	<0.5	490	8	360	170	5000	29.4		
18	517162	<0.5	590	6	220	170	4200	24.7		
19	517163	<0.5	700	15	130	180	4050	22.5		
20	517164 STD	<0.5	630	80	15	260	3850	14.8		
	517165	<0.5	740	4	130	160	3550	22.2		
22	517166	<0.5	660	10	90	190	4200	22.1		
23	517167	<0.5	720	20	100	180	4450	24.7		
24	517168	<0.5	660	4	85	190	4350	22.9		
25	517169	<0.5	460	<2	60	200	4850	24.2		

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

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488106

A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06466	27/09/89	8431	3 OF 6

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	517170	<0.5	670	40	120	200	4950	24.7		
2	517171	<0.5	470	15	65	240	8000	33.3		
3	517172	<0.5	300	15	65	260	9450	36.3		
4	517173	<0.5	420	10	65	250	8700	34.8		
5	517174	<0.5	370	15	90	240	8800	36.7		
6	517175	<0.5	470	10	50	250	8300	33.2		
7	517176	<0.5	500	15	60	240	8200	34.2		
[illegible]	517177	<0.5	310	10	65	240	8000	33.3		
9	517178	<0.5	560	3	50	240	9250	38.5		
10	517179	<0.5	420	9	35	200	9950	49.7		
11	517180	<0.5	220	2	40	200	9950	49.7		
12	517181	<0.5	280	<2	30	160	9600	60.0		
13	517182	<0.5	380	<2	25	190	7900	41.6		
14	517183	<0.5	330	2	30	160	9100	56.9		
15	517184	<0.5	560	8	60	240	8250	34.4		
16	517185	<0.5	390	9	65	230	7100	30.9		
[illegible]	517186	<0.5	260	15	<5	270	3350	12.4		
18	517187	<0.5	540	25	35	280	4650	16.6		
19	517188	<0.5	410	20	45	240	5800	24.2		
20	517189	<0.5	800	<2	35	250	1850	7.4		
21	517190	<0.5	1100	10	10	260	3000	11.5		
22	517191	<0.5	790	15	20	180	2300	12.8		
23	517192	<0.5	1250	85	30	230	3600	15.7		
24	517193	<0.5	940	45	40	230	3450	15.0		
25	517194	<0.5	950	35	25	230	3200	13.9		

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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A Division of Inchcape Inspection and Testing Services Australia Pty Ltd.

408107

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06466	27/09/89	8431	4 OF 6

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	517195	<0.5	720	25	10	220	2250	10.2		
2	517196	<0.5	830	45	40	200	2100	10.5		
3	517197	<0.5	760	40	15	220	2700	12.3		
4	517198	<0.5	660	20	15	230	3600	15.7		
5	517199	<0.5	500	10	15	200	3200	16.0		
6	517200	<0.5	580	10	60	180	3400	18.9		
7	517201	<0.5	410	<2	15	180	3400	18.9		
[illegible]	517202	<0.5	710	2	60	190	3500	18.4		
9	517203	<0.5	410	<2	60	170	3350	17.7		
10	517204	<0.5	540	25	10	250	3150	12.6		
11	517205	<0.5	590	15	10	260	2100	8.1		
12	517206	<0.5	710	15	25	240	2900	12.1		
~~13~~	517207 57D	<0.5	660	90	20	250	3800	15.2		
14	517208	1.5	2450	210	20	210	3250	15.5		
15	517360	<0.5	300	35	150	160	4550	28.4		
16	517361	<0.5	360	25	180	140	4250	30.4		
[illegible]	517362	<0.5	770	30	55	160	2800	17.5		
18	517363	<0.5	460	40	7	160	1400	8.8		
19	517364	<0.5	630	6	--	--	--	--		
20	517365	<0.5	370	30	--	--	--	--		
21	517366	<0.5	710	65	--	--	--	--		
22	517367	<0.5	470	40	--	--	--	--		
23	517368	0.5	570	20	--	--	--	--		
24	517369	0.5	420	10	--	--	--	--		
25	517370	<0.5	620	7	--	--	--	--		

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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-- = element not determined

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

488108

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06466	27/09/89	8431	5 OF 6

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti : Zr		
1	517371	<0.5	590	6	—	—	—	—		
2	517372	<0.5	630	15	—	—	—	—		
3	517373	<0.5	620	4	—	—	—	—		
4	517374	<0.5	400	15	—	—	—	—		
5	517375	<0.5	370	8	—	—	—	—		
6	517376	<0.5	870	5	—	—	—	—		
7	517377	<0.5	290	<2	—	—	—	—		
8	517378	<0.5	300	<2	—	—	—	—		
9	517379	<0.5	460	75	—	—	—	—		
10	517380	<0.5	380	<2	—	—	—	—		
11	517381	<0.5	470	<2	—	—	—	—		
12	517382	<0.5	510	3	—	—	—	—		
13	517383	<0.5	270	3	—	—	—	—		
14	517384	<0.5	460	35	—	—	—	—		
15	517385	<0.5	460	15	—	—	—	—		
16	517386	<0.5	500	10	—	—	—	—		
17	517387	<0.5	500	8	—	—	—	—		
18	517388	<0.5	260	2	—	—	—	—		
19	517389	<0.5	690	5	—	—	—	—		
20	517390	<0.5	580	3	—	—	—	—		
21	517391	<0.5	770	2	—	—	—	—		
22	517392	<0.5	840	4	—	—	—	—		
23	517393	<0.5	680	2	—	—	—	—		
24	517394 STD.	<0.5	600	85	—	—	—	—		
25	517395	<0.5	420	15	—	—	—	—		

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 Inchcape Inspection and Testing Services Australia Pty. Ltd.

498109

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06466	27/09/89	8431	6 OF 6

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	517396	<0.5	610	15	--	--	--	--		
2	517397	<0.5	590	10	--	--	--	--		
3	517398	<0.5	480	15	--	--	--	--		
4	517399	<0.5	410	10	--	--	--	--		
5	517400	<0.5	550	8	--	--	--	--		
6	517401	<0.5	480	8	--	--	--	--		
7	517402	<0.5	590	10	--	--	--	--		
	517403	<0.5	580	10	--	--	--	--		
9	517404 STD	<0.5	610	80	--	--	--	--		
10	517405	1.0	260	50	--	--	--	--		
11	517406	<0.5	360	40	--	--	--	--		
12	517407	<0.5	340	30	--	--	--	--		
13	517408	0.5	100	35	--	--	--	--		
14										
15										
16										
18										
19										
20										
21										
22										
23	DETECTION	0.5	10	2	5	5	50	0.1		
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	-		
25	METHOD	101	401	401	401	401	401	199		

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.

Phone (09) 458 7999 — 52 Murray Road, Welshpool, W.A. 6106 — Telex AA92560

FAX: 004 31 0890

458110

ANALYTICAL REPORT No. 23.3.08.06471

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

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

ORDER No.	PROJECT
8433	MACK

DATE RECEIVED	RESULTS REQUIRED
01/09/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
6	27/09/89	1	134

STATE SAMPLES REFER BELOW	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	Various	So Prep: 006,017							Ag/101,As/114		
	Various	Pu							Ba,Cr,Zr,Ti,Ti:Zr/401		

RESULTS TO

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

RESULTS TO

REMARKS

3400 N
3600 N
3800 N

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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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

488111

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06471	27/09/89	8433	1 OF 6

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	515795	<0.5	180	<2	190	230	3000	13.0		
2	515796	<0.5	210	<2	200	270	4050	15.0		
3	515797	<0.5	220	<2	100	230	2700	11.7		
4	515798	<0.5	140	<2	95	170	2700	15.9		
5	515799	<0.5	210	<2	380	170	3100	18.2		
6	515800	<0.5	200	15	270	180	3650	20.3		
7	515801	<0.5	140	20	270	220	4150	18.9		
8	515802	<0.5	130	20	340	220	3800	17.3		
9	515803	<0.5	130	20	390	190	3200	16.8		
10	515804	<0.5	60	10	390	210	3250	15.5		
11	515805	<0.5	200	45	420	200	3500	17.5		
12	515806	<0.5	95	20	360	230	4050	17.6		
13	515807	<0.5	170	4	380	170	3150	18.5		
14	515808	<0.5	100	9	350	170	4300	25.3		
15	515809	<0.5	190	<2	120	200	4650	23.2		
16	515810	<0.5	85	20	800	140	4550	32.5		
17	515811	<0.5	250	<2	70	160	2900	18.1		
18	515812	<0.5	170	<2	340	150	3150	21.0		
19	515813	<0.5	160	<2	<5	240	2350	9.8		
20	515814	<0.5	220	<2	8	190	2800	14.7		
21	515815	<0.5	270	<2	<5	220	2600	11.8		
22	515816	<0.5	260	<2	<5	180	2750	15.3		
23	515817	<0.5	270	<2	8	190	2500	13.2		
24	515818	<0.5	300	<2	5	210	1650	7.9		
25	515819	<0.5	380	<2	<5	210	2550	12.1		

Results in ppm unless otherwise specified
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--- = element not determined

AUTHORISED OFFICER

ANALABS

A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd

4CS112

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No	PAGE
	23.3.08.06471	27/09/89	8433	2 OF 6

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti : Zr		
1	515820	<0.5	100	<2	20	200	2850	14.2		
2	515821 STD	<0.5	620	85	15	220	3800	17.3		
3	515822	<0.5	490	<2	15	190	2900	15.3		
4	515823	<0.5	280	<2	20	210	2600	12.4		
5	515824	<0.5	250	<2	15	220	2800	12.7		
6	515825	<0.5	200	<2	30	240	3450	14.4		
7	515826	<0.5	270	<2	20	220	2550	11.6		
8	515827	<0.5	220	<2	7	220	3250	14.8		
9	515828	<0.5	170	<2	25	220	3250	14.8		
10	515830	<0.5	290	<2	15	200	2400	12.0		
11	515832	<0.5	270	<2	<5	180	2250	12.5		
12	515833	<0.5	290	<2	10	200	2100	10.5		
13	515834	<0.5	360	<2	45	160	2150	13.4		
14	515836	<0.5	95	<2	7	180	5050	28.1		
15	515837	<0.5	480	2	<5	230	3700	16.1		
16	515838 STD	<0.5	620	85	15	230	3750	16.3		
17	515840	<0.5	360	<2	140	180	4100	22.8		
18	515841	<0.5	160	<2	40	160	2200	13.7		
19	515842	<0.5	130	<2	260	190	3450	18.2		
20	515843	<0.5	55	7	290	190	3350	17.6		
21	515844	<0.5	140	10	520	190	3050	16.1		
22	515845	<0.5	160	25	330	160	3900	24.4		
23	515846	<0.5	420	5	310	130	2650	20.4		
24	515847	<0.5	520	<2	500	85	3750	44.1		
25	515848	<0.5	360	7	630	110	5350	48.6		

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

488113

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06471	27/09/89	8433	3 OF 6

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	515849	<0.5	190	30	1700	90	4450	49.4		
2	515850	<0.5	710	9	610	95	3900	41.0		
3	515851	<0.5	730	25	560	120	4700	39.2		
4	515852	<0.5	500	30	1050	120	5150	42.9		
5	515853 STD	<0.5	620	95	5	220	3750	17.0		
6	515854	<0.5	580	10	1350	110	5400	49.1		
7	515855	<0.5	550	15	920	160	5550	34.7		
8	515856	<0.5	560	20	510	210	3300	15.7		
9	515857	<0.5	260	10	55	240	3350	14.0		
10	515858	<0.5	250	3	35	220	2650	12.0		
11	515859	1.5	250	<2	10	190	2400	12.6		
12	515860	0.5	350	10	15	220	2600	11.8		
13	515861	1.0	150	<2	<5	200	3000	15.0		
14	515862	1.0	280	<2	15	220	2800	12.7		
15	515863	0.5	220	<2	30	200	1850	9.2		
16	515864	1.0	540	30	30	210	5100	24.3		
17	515865	0.5	250	10	5	170	1600	9.4		
18	515866	0.5	250	8	15	220	2500	11.4		
19	515867	1.0	120	5	35	180	2800	15.6		
20	515868	1.5	250	9	15	230	2650	11.5		
21	515869	2.0	320	10	15	190	1950	10.3		
22	515870	<0.5	360	10	10	220	2900	13.2		
23	515871	<0.5	310	65	15	220	1650	7.5		
24	515872	<0.5	300	6	35	210	2800	13.3		
25	515873	<0.5	280	<2	10	220	2000	9.1		

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488114

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06471	27/09/89	8433	4 OF 6

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	515874	<0.5	260	3	<5	190	1950	10.3		
2	515875	<0.5	390	8	<5	220	2050	9.3		
3	515876	<0.5	200	3	<5	200	2150	10.7		
4	515877	<0.5	400	3	8	210	1800	8.6		
5	515878	<0.5	330	4	<5	220	2800	12.7		
6	515879	<0.5	220	2	10	220	3700	16.8		
7	515880	<0.5	160	<2	9	200	2750	13.7		
	515881	<0.5	50	3	20	200	3050	15.2		
9	515883	<0.5	180	8	<5	200	2600	13.0		
10	515884	<0.5	270	5	70	240	3100	12.9		
11	515885	<0.5	370	30	<5	200	2150	10.7		
12	515886 STD	<0.5	630	85	35	220	3750	17.0		
13	515887	<0.5	190	30	250	200	3900	19.5		
14	515888	<0.5	180	5	380	160	3150	19.7		
15	515889	<0.5	220	7	280	200	3550	17.7		
16	515890	<0.5	190	20	340	200	3900	19.5		
17	515891	<0.5	180	25	350	200	3650	18.2		
18	515892	<0.5	140	35	300	170	3600	21.2		
19	515893	<0.5	40	4	530	230	3150	13.7		
20	515894	<0.5	250	45	300	200	3900	19.5		
21	515896	<0.5	400	6	75	160	3450	21.6		
22	515897	<0.5	460	3	20	150	2650	17.7		
23	515898	<0.5	420	20	450	100	5250	52.5		
24	515899	<0.5	400	15	500	120	6750	56.3		
25	515900	<0.5	370	15	360	90	5300	58.9		

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488115

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06471	27/09/89	8433	5 OF 6

TUBE No.	SAMPLE No	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	515902	<0.5	660	10	330	150	7000	46.7		
2	515903	<0.5	520	15	440	170	6650	39.1		
3	515904	<0.5	380	20	410	150	6650	44.3		
4	515905	<0.5	340	20	390	180	7700	42.8		
5	515906	<0.5	450	15	400	150	6150	41.0		
6	515907	<0.5	300	70	1150	140	5450	38.9		
7	515908	<0.5	410	40	740	140	5850	41.8		
	515909	<0.5	570	20	840	140	5850	41.8		
9	515911	<0.5	270	20	890	160	7250	45.3		
10	515912	<0.5	300	45	810	140	6750	48.2		
11	515913	<0.5	360	15	700	160	7600	47.5		
12	515914	<0.5	370	6	360	170	4250	25.0		
~~13~~	515915	<0.5	600	100	15	220	3800	17.3		
14	515916	<0.5	550	10	280	160	3350	20.9		
15	515918	<0.5	410	<2	150	110	2250	20.4		
16	515919	<0.5	530	4	100	140	1800	12.9		
17	515921	<0.5	670	4	60	230	4500	19.6		
18	515922	<0.5	590	<2	60	190	1850	9.7		
19	515923	<0.5	560	4	40	210	2300	10.9		
20	515924	<0.5	580	2	55	190	2100	11.1		
21	515925	1.0	340	6	65	220	3050	13.9		
22	515926	<0.5	160	3	20	160	3100	19.4		
23	515927	<0.5	490	40	7	160	2900	18.1		
24	515928	<0.5	390	8	<5	170	2900	17.1		
25	515929	<0.5	280	140	20	200	3300	16.5		

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488116

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06471	27/09/89	8433	6 OF 6

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	515930	<0.5	300	10	<5	200	2400	12.0		
2	515931	<0.5	280	4	9	200	2300	11.5		
3	515932	<0.5	140	<2	<5	150	2400	16.0		
4	515933	<0.5	160	2	<5	210	2550	12.1		
5	515934	<0.5	250	<2	20	230	2300	10.0		
6	515935	<0.5	170	<2	25	200	2900	14.5		
7	515936	<0.5	260	<2	15	200	2400	12.0		
[illegible]	515937	<0.5	220	6	20	220	2650	12.0		
9	515938	<0.5	280	2	20	160	3150	19.7		
10										
11										
12										
13										
14										
15										
16										
[illegible]										
18										
19										
20										
21										
22										
23	DETECTION	0.5	10	2	5	5	50	0.1		
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	–		
25	METHOD	101	401	401	401	401	401	199		

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ANALABS

488117 (10)

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. 23.3.08.06514

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

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

ORDER No.	PROJECT
8473	Mack EL

DATE RECEIVED	RESULTS REQUIRED
15/09/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
9	12/10/89	1	216

STATE OF SAMPLE REFER BELOW	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	Various	Sb Prep: 006,018							Ba,As,Cr,Ir,Ti,Ti.Ir/401		
	<517,053/068	Sb Prep: 005,018							Ag/101		
	<517,053/068	Pu							Ba,As/401		
	Various	Sb Prep: 006,018							Ba/403		
	Various	Sb Prep: 006,018							Ag/101		

RESULTS TO

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

RESULTS TO

REMARKS

Mack
Solcs.

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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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

468118

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06514	12/10/89	8473	1 OF 9

TUBE No.	SAMPLE No.	Ag	Ba	Ba	As	Cr	Zr	Ti	Ti.Zr	
1	515750	<0.5	240	—	5	330	210	3800	18.1	
2	515751	<0.5	300	—	3	450	130	2850	21.9	
3	515752	<0.5	220	—	<2	220	230	3950	17.2	
4	515753	<0.5	140	—	<2	90	250	4200	16.8	
5	515754	<0.5	170	—	<2	70	220	3350	15.2	
6	515755	0.5	290	—	<2	210	250	3500	14.0	
7	515756	0.5	240	—	<2	280	230	3450	15.0	
8	515757	<0.5	210	—	3	320	210	3250	15.5	
9	515758	0.5	140	—	<2	290	240	3350	14.0	
10	515759	<0.5	110	—	<2	420	230	3100	13.5	
11	515760	<0.5	130	—	5	280	230	3200	13.9	
12	515761	<0.5	100	—	<2	300	250	2950	11.8	
13	515762	<0.5	160	—	3	350	260	3600	13.8	
14	515763	<0.5	30	—	<2	520	230	2950	12.8	
15	515764	<0.5	30	—	<2	350	210	3400	16.2	
16	515765	0.5	140	—	<2	460	230	2900	12.6	
17	515766	0.5	100	—	<2	370	230	2900	12.6	
18	515767	<0.5	110	—	18	430	230	3050	13.3	
19	515768	<0.5	150	—	6	440	190	3000	15.8	
~~20~~	515769 STD	0.5	630	—	90	20	240	3700	15.4	
21	515770	0.5	330	—	6	150	200	3000	15.0	
22	515771	0.5	270	—	2	220	180	2450	13.6	
23	515772	<0.5	170	—	3	310	230	3300	14.3	
24	515773	<0.5	200	—	8	380	210	3250	15.5	
25	515774	0.5	160	—	8	270	220	3500	15.9	

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

485110

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
[redacted]	23.3.08.06514	12/10/89	8473	2 OF 9

TUBE No.	SAMPLE No.	Ag	Ba	Be	As	Cr	Zr	Ti	Ti.Zr	
[redacted]1	515775	<0.5	40	–	<2	330	240	3950	16.5	
[redacted]2	515776	<0.5	60	–	3	270	230	2700	11.7	
3	515777	<0.5	25	–	<2	440	220	2650	12.0	
[redacted]4	515778	<0.5	120	–	8	300	250	3050	12.2	
5	515779	<0.5	100	–	25	380	200	4000	20.0	
[redacted]6	515780	<0.5	190	–	25	410	210	3600	17.1	
[redacted]7	515781	<0.5	210	–	20	470	200	3400	17.0	
8	515782	<0.5	220	–	30	430	200	3050	15.2	
[redacted]9	515783	<0.5	200	–	25	390	180	3150	17.5	
10	515784	<0.5	280	–	15	500	140	3100	22.1	
[redacted]1	515785	0.5	240	–	10	300	190	3450	18.1	
[redacted]2	515786	0.5	660	–	<2	90	200	3130	15.7	
13	515787	<0.5	300	–	<2	60	240	4450	18.5	
[redacted]4	515788	<0.5	240	–	9	260	200	3300	16.5	
15	515789	0.5	370	–	<2	150	210	2500	11.9	
[redacted]6	515790	0.5	530	–	<2	40	270	2650	9.8	
[redacted]7	515791	<0.5	360	–	<2	75	170	3800	22.4	
[redacted]8	515792	<0.5	380	–	<2	15	210	3750	17.9	
[redacted]9	515793	0.5	190	–	90	650	170	3150	18.5	
20	515794	<0.5	380	–	<2	20	230	4000	17.4	
[redacted]1	515985	0.5	400	–	15	230	140	5650	40.4	
[redacted]2	515986	<0.5	230	–	10	310	150	5150	34.3	
[redacted]3	515987	<0.5	310	–	45	220	200	7100	35.5	
[redacted]4	515988	<0.5	350	–	20	130	170	7550	41.3	
25	515989	0.5	570	–	25	110	200	7650	38.2	

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A Division of Inchcape Inspection and Testing Services Australia Pty Ltd.

188120

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
[redacted]	23.3.03.06514	12/10/89	8473	3 OF 9

TUBE No.	SAMPLE No.	Ag	Ba	Be	As	Cr	Zr	Ti	Ti.Zr	
[redacted]1	515993	<0.5	330	–	8	80	230	8200	35.6	
[redacted]	515994 STD	1.0	610	–	85	20	230	3650	15.9	
3	515995	0.5	350	–	20	160	250	8900	35.6	
[redacted]4	515996	0.5	490	–	7	240	200	7000	35.0	
5	515997	<0.5	530	–	10	140	220	7800	35.5	
[redacted]6	515998	0.5	320	–	7	1350	120	5300	44.2	
[redacted]7	515999	<0.5	220	–	2	1350	110	5200	47.3	
[redacted]8	517001	0.5	310	–	7	530	180	7150	39.7	
[redacted]9	517002	1.0	330	–	5	410	200	7100	35.5	
10	517003	0.5	420	–	4	210	200	7550	37.7	
[redacted]1	517004	0.5	420	–	3	170	210	6650	31.7	
[redacted]2	517005	0.5	450	–	3	50	260	3300	12.7	
13	517006	0.5	320	–	<2	30	250	2750	11.0	
[redacted]4	517007	<0.5	320	–	<2	50	250	3800	15.2	
15	517008	<0.5	480	–	<2	<5	220	1850	8.4	
[redacted]6	517009	<0.5	360	–	<2	10	260	1800	6.9	
[redacted]7	517010	<0.5	380	–	<2	<5	220	2200	10.0	
[redacted]8	517011	0.5	260	–	<2	10	240	3100	12.9	
[redacted]9	517012	<0.5	460	–	<2	9	230	3900	16.9	
20	517014	<0.5	520	–	<2	20	200	4300	21.5	
[redacted]1	517015	0.5	380	–	<2	<5	200	3300	16.5	
[redacted]2	517017	<0.5	310	–	<2	15	250	2400	9.6	
[redacted]3	517018	<0.5	500	–	2	<5	220	3000	13.6	
[redacted]4	517019	<0.5	670	–	<2	10	230	3150	13.7	
25	517020	<0.5	390	–	10	7	240	3700	15.4	

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 Inchcape Inspection and Testing Services Australia Pty. Ltd.

488121

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
[redacted]	23.3.08.06514	12/10/89	8473	4 OF 9

TUBE No.	SAMPLE No.	Ag	Be	Ba	As	Cr	Zr	Ti	Ti.Zr	
[redacted]1	517021	<0.5	280	–	<2	35	210	3450	16.4	
[redacted]2	517022	<0.5	460	–	<2	10	220	3100	14.1	
[redacted]3	517023	<0.5	490	–	<2	7	210	4200	20.0	
[redacted]4	517024	<0.5	490	–	<2	6	250	3100	12.4	
5	517025	<0.5	360	–	6	<5	200	2650	13.2	
[redacted]6	517026	<0.5	270	–	4	65	240	3500	14.6	
[redacted]7	517027	1.0	430	–	15	55	210	2650	12.6	
8	517028	<0.5	500	–	0	<5	230	2100	9.1	
[redacted]9	517029	0.5	380	–	25	25	200	3500	17.5	
10	517030	0.5	260	–	30	45	190	3700	21.7	
[redacted]1	517031	1.0	450	–	4	8	190	3650	19.2	
[redacted]2	517032	1.0	340	–	2	35	170	3450	20.3	
X3	517033 STD	0.5	630	–	80	10	240	3700	15.4	
[redacted]4	517034	<0.5	540	–	<2	130	160	2150	13.4	
15	517035	0.5	380	–	<2	15	260	2350	9.0	
[redacted]6	517036	0.5	260	–	<2	30	210	3700	17.6	
[redacted]7	517037	0.5	180	–	<2	40	190	3000	15.8	
[redacted]8	517038	<0.5	270	–	<2	40	210	4500	21.4	
[redacted]9	517039	<0.5	280	–	<2	30	220	3100	14.1	
20	517040	<0.5	380	–	<2	40	210	3250	15.5	
[redacted]1	517041	<0.5	260	–	<2	75	190	4400	23.1	
[redacted]2	517042	<0.5	290	–	<2	9	200	4300	21.5	
23	517043	0.5	380	–	<2	45	200	5100	25.5	
[redacted]4	517044	0.5	210	–	<2	25	200	5050	25.2	
25	517045	<0.5	150	–	<2	130	180	3950	21.9	

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 Inchcape Inspection and Testing Services Australia Pty Ltd.

483122

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
[redacted]	23.3.08.06514	12/10/89	8473	5 OF 9

TUBE No.	SAMPLE No.	Ag	Ba	Ba	As	Cr	Zr	Ti	Ti.Zr	
[redacted]1	517046	0.5	240	–	<2	25	180	2750	16.4	
[redacted]2	517047	0.5	150	–	<2	40	80	3350	41.9	
[redacted]3	517048	15	–	–	–	–	–	–	–	
[redacted]4	517049	<0.5	240	–	<2	30	140	4700	33.6	
5	517050	0.5	120	–	<2	50	130	4550	35.0	
[redacted]6	517051	0.5	240	–	<2	30	150	5200	34.7	
[redacted]7	517052	0.5	250	–	<2	410	140	3500	25.0	
[redacted]8	517053	<0.5	160	–	<2	–	–	–	–	
[redacted]9	517054	<0.5	240	–	<2	–	–	–	–	
10	517055	<0.5	260	–	<2	–	–	–	–	
[redacted]1	517056	<0.5	280	–	<2	–	–	–	–	
[redacted]2	517057	<0.5	220	–	<2	–	–	–	–	
[redacted]3	517058	<0.5	200	–	<2	–	–	–	–	
[redacted]4	517059	<0.5	280	–	<2	–	–	–	–	
15	517060	<0.5	70	–	<2	–	–	–	–	
[redacted]6	517061	<0.5	100	–	<2	–	–	–	–	
[redacted]7	517062	<0.5	<10	–	<2	–	–	–	–	
[redacted]8	517063	<0.5	50	–	2	–	–	–	–	
[redacted]9	517064	<0.5	<10	–	5	–	–	–	–	
20	517065	<0.5	<10	–	4	–	–	–	–	
[redacted]1	517066	<0.5	10	–	<2	–	–	–	–	
22	517067	<0.5	<10	–	7	–	–	–	–	
[redacted]	517068 STD	<0.5	610	–	75	–	–	–	–	
[redacted]4	517250	0.5	820	–	20	25	180	2750	15.3	
25	517252	<0.5	740	–	5	35	180	2500	13.9	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

488123

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06514	12/10/89	8473	6 OF 9

TUBE No.	SAMPLE No.	Ag	Ba	Ba	As	Cr	Zr	Ti	Ti.Zr	
1	517253	0.5	720	–	40	20	190	2200	11.6	
2	517254	0.5	710	–	25	30	190	2600	13.7	
3	517255	<0.5	890	–	40	25	220	2400	10.9	
4	517256	<0.5	740	–	15	15	210	2800	13.3	
5	517257	0.5	1100	–	30	10	210	2400	11.4	
6	517258	<0.5	920	–	3	40	200	2750	13.7	
7	517259	<0.5	970	–	<2	20	190	2500	13.2	
8	517260	1.5	–	0.87	140	20	180	3050	16.9	
9	517261 SD	<0.5	630	–	100	7	240	3700	15.4	
10	517262	<0.5	990	–	15	15	170	3100	18.2	
11	517263	<0.5	1050	–	15	40	200	2150	10.7	
12	517264	<0.5	620	–	5	<5	190	250	13.2	
13	517265	0.5	620	–	10	6	210	2750	13.1	
14	517266	<0.5	430	–	15	<5	190	3400	17.9	
15	517267	<0.5	1150	–	5	20	210	3340	15.9	
16	517268	<0.5	610	–	7	10	180	3950	21.9	
17	517269	0.5	320	–	8	10	200	3400	17.0	
18	517458	0.5	240	–	6	260	85	5200	61.2	
19	517459	0.5	150	–	15	440	140	6550	46.8	
20	517460	0.5	200	–	15	330	130	6650	51.1	
21	517461	0.5	140	–	10	640	150	6600	44.0	
22	517462	0.5	140	–	10	740	160	7450	46.6	
23	517463	0.5	110	–	5	590	160	7800	48.7	
24	517464	0.5	100	–	4	420	220	7100	32.3	
25	517465	0.5	55	–	15	1250	170	7500	44.1	

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06514	12/10/89	8473	7 OF 9

TUBE No.	SAMPLE No.	Ag	Ba	Ba	As	Cr	Zr	Ti	Ti.Zr	
1	517466	<0.5	120	–	2	1200	170	7550	44.4	
2	517467	0.5	85	–	4	1200	190	7500	39.5	
3	517468	<0.5	100	–	7	1250	190	7650	40.3	
4	517469	1.0	110	–	3	1300	180	7000	38.9	
5	517472	1.0	180	–	3	820	100	4650	46.5	
6	517473	0.5	60	–	<2	740	85	4300	50.6	
7	517474	0.5	65	–	9	620	150	5600	37.3	
8	517475	0.5	110	–	5	700	85	4150	48.8	
9	517476	0.5	120	–	8	420	95	3850	40.5	
10	517477	0.5	40	–	7	630	95	4450	46.8	
11	517479	0.5	25	–	3	680	120	6150	51.2	
12	517480	0.5	65	–	8	460	140	5850	41.8	
13	517481	1.0	110	–	8	540	120	5550	46.2	
14	517482	1.0	240	–	4	690	95	4950	52.1	
15	517483	0.5	120	–	15	700	120	5300	44.2	
16	517484	1.0	530	–	15	560	100	4000	40.0	
17	517485 SD	1.0	640	–	100	30	240	3700	15.4	
18	517486	0.5	130	–	10	830	130	5300	40.8	
19	517487	<0.5	110	–	9	760	110	5300	48.2	
20	517488	<0.5	170	–	10	410	130	3650	28.1	
21	517489	<0.5	25	–	6	470	140	3600	25.7	
22	517490	0.5	25	–	6	420	130	4350	33.5	
23	517491	0.5	170	–	8	580	110	5200	47.3	
24	517492	0.5	200	–	6	490	110	4250	38.6	
25	517493	0.5	140	–	3	220	65	2600	40.0	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
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488125

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.93.06514	12/10/89	8473	8 OF 9

TUBE No.	SAMPLE No.	Ag	Ba	Ba	As	Cr	Zr	Ti	Ti.Zr	
1	517494	0.5	110	–	5	440	85	3750	44.1	
2	517495	0.5	300	–	20	470	130	4050	31.1	
3	517496	<0.5	320	–	15	590	140	4550	32.5	
4	517497	<0.5	410	–	15	470	120	3650	30.4	
5	517498	<0.5	95	–	3	840	70	4350	62.1	
6	517499	<0.5	70	–	<2	840	80	4300	53.7	
7	517500	0.5	270	–	<2	760	100	3600	36.0	
8	517501	<0.5	110	–	<2	420	130	5500	42.3	
9	517502	0.5	75	–	<2	560	120	5300	44.2	
10	517503	<0.5	85	–	<2	660	130	5450	41.9	
11	517504	<0.5	90	–	<2	1350	220	6300	28.6	
12	517505	<0.5	180	–	<2	1800	260	7550	29.0	
13	517506	<0.5	330	–	<2	460	190	4000	21.1	
14	517507	0.5	410	–	10	640	160	6650	41.6	
15	517508	0.5	170	–	5	940	160	7100	44.4	
16	517509	0.5	160	–	<2	460	160	6500	40.6	
17	517510	<0.5	60	–	2	1200	90	5550	61.7	
18	517511	0.5	230	–	<2	380	130	5750	44.2	
19	517512	0.5	280	–	<2	1150	160	5900	36.9	
20	517513	<0.5	370	–	3	820	100	5550	55.5	
21	517514	0.5	320	–	<2	590	75	4900	65.3	
22	517515	<0.5	180	–	<2	520	120	5300	44.2	
23	517516	<0.5	320	–	<2	580	110	5800	52.7	
24	517517	0.5	430	–	<2	660	110	5550	50.5	
25	517518	0.5	490	–	<2	510	85	4000	47.1	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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488126

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06514	12/10/89	8473	9 OF 9

TUBE No.	SAMPLE No.	Ag	Ba	Be	As	Cr	Zr	Ti	Ti.Zr	
1	517519	0.5	240	–	<2	950	95	4300	45.3	
2	517520	0.5	300	–	<2	900	95	4400	46.3	
3	517521	0.5	250	–	5	1050	120	4950	41.2	
4	517522	0.5	70	–	5	720	120	5400	45.0	
5	517523	0.5	180	–	<2	1050	110	3500	50.0	
6	517524	0.5	150	–	<2	710	110	5300	48.2	
X	517525 STD	<0.5	620	–	85	35	240	3700	15.4	
8	517526	0.5	170	–	<2	1100	110	4650	42.3	
9	517527	1.0	400	–	<2	1100	130	5250	40.4	
10	517528	<0.5	330	–	<2	600	85	4050	47.6	
11	517529	0.5	250	–	10	350	150	5250	35.0	
12	517530	0.5	80	–	2	370	140	5150	36.8	
13	517531	<0.5	65	–	<2	620	95	4500	47.4	
14	517532	<0.5	200	–	<2	720	70	4350	62.1	
15	517533	<0.5	310	–	<2	620	85	4100	48.2	
16	517534	<0.5	270	–	<2	840	85	4300	50.6	
17										
18										
19										
20										
21										
22	IS = Insufficient Sample									
23	DETECTION	0.5	10	0.01	2	5	5	50	0.1	
24	UNITS	PPM	PPM	%	PPM	PPM	PPM	PPM	–	
25	METHOD	101	401	403	401	401	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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ANALABS

188127 (11)

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. 23.3.08.06530

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

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

ORDER No.	PROJECT
3479	Mack

DATE RECEIVED	RESULTS REQUIRED
20/09/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
3	12/10/89	1	54

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: 013						Ag/101		
	Various	Pu							Ba,As/401		
	(517,535/548,592/597,599/618	Pu							Cr,Zr,Ti,Ti:Zr/401		

RESULTS TO

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

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	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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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

188128

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06530	12/10/89	8479	1 OF 3

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	517535	<0.5	260	6	930	150	7750	51.7		
2	517536	<0.5	140	10	740	160	7350	45.9		
3	517537	<0.5	100	20	760	140	6950	49.6		
4	517538	<0.5	100	8	620	95	5500	57.9		
5	517539	<0.5	220	3	330	130	6000	46.1		
6	517540	<0.5	360	8	370	140	5550	39.6		
7	517541	<0.5	320	6	480	120	4900	40.8		
8	517542	<0.5	110	4	480	120	6100	50.8		
9	517543	<0.5	190	7	550	130	6000	46.1		
10	517544	SNR	–	–	–	–	–	–		
11	517545	<0.5	140	7	660	160	6900	43.1		
12	517546	<0.5	120	6	620	140	7350	52.5		
13	517547	<0.5	140	6	440	95	4650	48.9		
14	517548 STD	<0.5	640	65	45	230	3800	16.5		
15	517549	<0.5	270	2	–	–	–	–		
16	517550	<0.5	370	4	–	–	–	–		
17	517551	<0.5	220	4	–	–	–	–		
18	517552	<0.5	170	7	–	–	–	–		
19	517553	<0.5	190	5	–	–	–	–		
20	517555	<0.5	330	<2	–	–	–	–		
21	517556	<0.5	350	9	–	–	–	–		
22	517557	<0.5	60	3	–	–	–	–		
23	517558	<0.5	<10	<2	–	–	–	–		
24	517559	<0.5	130	<2	–	–	–	–		
25	517560	<0.5	30	2	–	–	–	–		

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 Inchcape Inspection and Testing Services Australia Pty Ltd

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06530	12/10/89	3479	2 OF 3

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	517561	<0.5	20	<2	–	–	–	–		
2	517562	<0.5	55	3	–	–	–	–		
3	517563	<0.5	190	<2	–	–	–	–		
4	517592	<0.5	980	30	420	110	6700	62.7		
5	517593	<0.5	840	60	410	130	6300	48.5		
6	517594	<0.5	650	60	490	120	6250	52.1		
7	517595	<0.5	640	35	360	95	5050	53.1		
8	517596	<0.5	560	7	95	110	6600	60.0		
9	517597 STD	<0.5	650	65	40	240	3800	15.8		
10	517599	<0.5	180	10	400	110	6000	54.5		
11	517600	<0.5	150	6	950	170	7200	42.4		
12	517601	<0.5	170	5	550	160	6700	41.9		
13	517602	<0.5	530	2	340	100	4750	47.5		
14	517603	<0.5	260	2	420	110	5200	47.3		
15	517604	<0.5	430	4	390	100	4350	43.5		
16	517605	<0.5	490	6	1350	140	5950	42.5		
17	517606	<0.5	390	10	570	120	4900	40.8		
18	517607	<0.5	150	6	860	150	7350	49.0		
19	517608	<0.5	20	<2	940	140	5900	42.1		
20	517609	<0.5	90	3	790	140	5950	42.5		
21	517610	<0.5	400	<2	750	65	3750	57.7		
22	517611	<0.5	230	<2	450	110	5100	46.4		
23	517612	<0.5	180	<2	640	95	4500	47.4		
24	517613	<0.5	260	<2	630	120	4350	36.2		
25	517614	<0.5	740	2	710	90	4300	47.8		

Results in ppm unless otherwise specified
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488130

A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06530	12/10/89	8479	3 OF 3

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	517615	<0.5	290	<2	770	70	4550	65.0		
2	517616	<0.5	360	10	740	140	5700	40.7		
3	517617	<0.5	360	<2	730	70	4250	60.7		
X	517618 SD	<0.5	630	70	35	240	3750	15.6		
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22	SNR=Sample Not Received									
23	DETECTION	0.5	10	2	5	5	50	0.1		
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	-		
25	METHOD	101	401	401	401	401	401	199		

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

488131 (1x)

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 8390

ANALYTICAL REPORT No. 23.3.08.06536

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

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

ORDER No.	PROJECT
3434	

DATE RECEIVED	RESULTS REQUIRED
25/09/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
4	16/11/89	1	90

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: 004,009,016						Ag/101			
	Various	SO							Ba,As,Cr,Zr,Ti/401			
	Various	SO							Ti:Zr/199			

RESULTS TO

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

RESULTS TO

REMARKS

SOILS.

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
hole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
plit 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
il	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
lp	PU	HF mixture	A6	ignition	IG	titration	TTN
ater	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
avy mineral	HM					inductively coupled plasma	ICP

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

488132

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06536	16/11/89	8484	1 OF 4

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	561003	<0.5	480	15	850	200	7350	36.7		
2	561004	<0.5	500	10	870	210	7100	33.8		
3	561005	<0.5	250	15	1000	180	7700	42.8		
4	561006	<0.5	590	10	95	130	3650	28.1		
5	561007	<0.5	750	4	330	180	4600	25.6		
6	561008	<0.5	620	<2	35	140	3750	26.8		
7	561009	<0.5	510	<2	35	120	3450	28.7		
8	561010	<0.5	800	<2	10	150	3450	23.0		
9	561011	<0.5	710	<2	20	140	3500	25.0		
10	561012	<0.5	870	<2	6	170	3550	20.9		
11	561013	<0.5	1200	2	15	170	3350	19.7		
12	561014	<0.5	780	<2	15	160	4100	25.6		
13	561015	<0.5	890	<2	45	160	3550	22.2		
14	561016	<0.5	700	<2	25	150	4150	27.7		
15	561017	<0.5	800	<2	40	140	3950	28.2		
16	561018	<0.5	850	<2	20	150	3700	24.7		
17	561019	<0.5	850	9	30	160	3600	22.5		
18	561020	<0.5	810	25	35	140	3200	22.9		
19	561021	<0.5	620	5	71	130	4550	35.0		
20	561022	<0.5	220	10	410	100	4850	48.5		
21	561023	<0.5	75	9	600	110	6300	57.3		
22	561024	<0.5	110	9	560	160	6700	41.9		
23	561025	<0.5	160	5	780	150	7400	49.3		
24	561026	<0.5	120	6	890	180	8750	48.6		
25	561027	<0.5	85	10	830	150	7700	51.3		

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 Inchcape Inspection and Testing Services Australia Pty. Ltd.

488133

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06536	16/11/89	8484	2 OF 4

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	561028	<0.5	510	2	1550	200	6400	32.0		
2	561029	<0.5	300	2	1000	150	6900	46.0		
3	561030	<0.5	350	<2	1150	180	7000	38.9		
4	561031	<0.5	370	<2	970	190	8050	42.4		
5	561032	<0.5	320	2	900	210	8150	38.8		
6	561033	<0.5	270	6	1000	220	7850	35.7		
7	561034	<0.5	420	<2	850	200	7750	38.7		
8	561035	<0.5	320	5	740	190	6150	32.4		
9	561036	<0.5	380	3	930	180	6000	33.3		
10	561037	<0.5	340	<2	920	110	5250	47.7		
11	561038	<0.5	570	<2	740	210	8350	39.8		
12	561039 STD	<0.5	610	65	33	230	3850	16.7		
13	561041	<0.5	360	<2	470	190	7800	41.0		
14	561043	<0.5	380	<2	550	170	6800	35.8		
15	561044	<0.5	380	<2	430	180	5800	32.2		
16	561046	<0.5	360	<2	310	150	6200	41.3		
17	561048	<0.5	320	<2	320	140	5800	41.4		
18	561049	<0.5	160	<2	300	190	6800	35.8		
19	561050	<0.5	300	<2	380	150	6200	41.3		
20	561051	<0.5	80	<2	380	170	6600	38.8		
21	561052	<0.5	150	<2	890	220	7000	31.8		
22	561054	<0.5	390	5	630	210	6950	33.1		
23	561055	<0.5	540	5	110	190	4350	22.9		
24	561056	<0.5	520	2	70	170	3300	19.4		
25	561057	<0.5	700	<2	45	150	3250	21.7		

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

488134

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06536	16/11/89	8484	3 OF 4

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	561058	<0.5	560	<2	8	160	3200	20.0		
2	561059	<0.5	390	30	28	140	3900	27.9		
3	561060	<0.5	600	2	10	160	3750	23.4		
4	561061	<0.5	620	6	20	170	3500	20.6		
5	561062	<0.5	780	<2	25	150	3700	24.7		
6	561063	<0.5	730	<2	40	140	3800	27.1		
7	561064	<0.5	780	<2	15	140	3300	23.6		
8	561065	<0.5	1050	4	20	170	3650	21.5		
9	561066	<0.5	910	2	25	170	4000	23.5		
10	561067	<0.5	770	<2	45	160	4500	28.1		
11	561068	<0.5	520	<2	20	140	4150	29.6		
12	561069	<0.5	710	5	30	130	3750	28.9		
13	561070	<0.5	800	<2	50	140	4050	28.9		
14	561071	<0.5	600	<2	40	120	4200	35.0		
15	561072	<0.5	710	<2	50	160	3500	21.9		
16	561073	<0.5	160	2	470	120	5750	47.9		
17	561074	<0.5	590	<2	560	140	5350	38.2		
18	561075	<0.5	370	<2	700	160	6600	41.3		
19	561076	<0.5	320	3	630	150	7700	51.3		
20	561077	<0.5	320	<2	700	130	6250	48.1		
21	561078	<0.5	680	<2	880	200	9000	45.0		
22	561079	<0.5	530	<2	650	130	8800	67.7		
23	561080	<0.5	540	2	980	220	8100	36.7		
24	561081	<0.5	340	2	1200	180	8200	45.6		
25	561082	<0.5	580	2	1150	190	8450	44.5		

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

488135

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06536	16/11/89	8484	4 OF 4

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	561083	<0.5	320	<2	1200	170	6900	40.6		
2	561084	<0.5	270	3	1000	200	7400	37.0		
3	561085	<0.5	250	3	860	230	8700	37.8		
4	561086	<0.5	570	2	640	200	7650	38.3		
5	561087	<0.5	280	2	600	180	5750	31.9		
6	561088	<0.5	240	4	640	150	5950	39.7		
*	561089 STD	<0.5	620	65	35	240	3850	16.0		
8	561090	<0.5	450	<2	290	210	6600	31.4		
9	561092	<0.5	270	<2	230	110	6200	56.4		
10	561093	<0.5	390	5	220	170	6700	39.4		
11	561094	<0.5	360	<2	240	110	5950	54.1		
12	561096	<0.5	270	6	320	170	6190	35.7		
13	561098	<0.5	210	5	370	180	7150	39.7		
14	561101	<0.5	310	10	390	140	5500	39.3		
15	561102	<0.5	390	<2	360	200	6750	33.8		
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	0.5	10	2	5	5	50	0.1		
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	–		
25	METHOD	101	401	401	401	401	401	199		

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
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AUTHORISED OFFICER

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. 23.3.08.06534

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

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

ORDER No.	PROJECT
8487	

DATE RECEIVED	RESULTS REQUIRED
25/09/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
6	12/10/89	1	142

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	SO	Prep: 004,016						Ag/101		
	Various	SO							Ba,As,Cr,Zr,Ti/401		
	Various	SO							Ti:Zr/199		

RESULTS TO

R. de Domford
Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

RESULTS TO

REMARKS

Mtkl.
Sums

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 _____

488137

ANALABS

A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06534	12/10/89	8487	1 OF 6

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	563099	<0.5	800	10	210	190	4750	25.0		
2	563100	<0.5	570	10	210	180	5600	31.1		
3	563101	<0.5	720	6	220	150	4350	29.0		
4	563102	<0.5	700	15	310	170	4750	27.9		
5	563103	<0.5	770	25	480	170	4850	28.5		
X	563104 STD	<0.5	670	65	35	240	3800	15.8		
7	563105	<0.5	410	5	310	170	4650	27.4		
8	563106	<0.5	260	10	320	200	8000	40.0		
9	563107	<0.5	410	10	340	170	8050	47.4		
10	563108	<0.5	550	9	290	170	4800	28.2		
11	563109	<0.5	320	40	260	65	3300	50.8		
12	563110	<0.5	500	15	140	160	4750	29.7		
13	563111	<0.5	490	<2	100	160	4300	26.9		
14	563112	<0.5	460	60	130	160	4300	26.9		
15	563113	<0.5	570	<2	100	180	4150	23.1		
16	563114	<0.5	510	7	110	160	4100	25.6		
17	563115	<0.5	480	10	110	170	4350	25.6		
18	563116	<0.5	500	<2	150	130	3700	28.5		
19	563117	<0.5	360	8	160	160	4700	29.4		
20	563119	<0.5	520	25	440	110	3400	30.9		
21	563120	<0.5	460	45	950	110	2750	25.0		
22	563121	0.5	660	15	960	130	2800	21.5		
23	563124	0.5	580	35	800	120	2500	20.8		
24	563125	1.0	680	30	140	130	3050	23.5		
25	563126	0.5	640	7	130	150	3700	24.7		

Results in ppm unless otherwise specified
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AUTHORISED OFFICER

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ANALABS

A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06334	12/10/89	8487	2 OF 6

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	563127	<0.5	590	2	320	140	3600	25.7		
2	563128	<0.5	650	10	540	150	3150	21.0		
3	563129	<0.5	850	2	300	190	2700	14.2		
4	563130	<0.5	750	<2	390	130	3000	23.1		
5	563131	<0.5	630	2	400	130	2400	18.5		
6	563132	<0.5	640	6	760	130	3300	25.4		
7	563133	<0.5	680	<2	280	150	3550	23.7		
8	563134	<0.5	740	5	340	140	3850	27.5		
9	563135	<0.5	1150	10	1500	120	4050	33.7		
10	563136	<0.5	880	8	1400	140	5250	37.5		
11	563137	<0.5	540	2	1300	150	6250	41.7		
12	563138	<0.5	380	6	1200	170	6400	37.6		
13	563139	<0.5	720	9	970	210	6300	30.0		
14	563140	<0.5	500	4	960	180	5300	29.4		
15	563141	<0.5	580	15	580	150	4700	31.3		
16	563142	<0.5	330	2	700	150	6850	45.7		
17	563143	<0.5	430	4	660	190	7450	39.2		
18	563144	<0.5	350	5	440	160	8100	50.6		
19	563145	0.5	860	7	610	170	4800	28.2		
~~20~~ 24	563146 STD	0.5	670	65	40	240	3800	15.8		
21	563147	0.5	1950	35	90	200	5250	26.2		
22	563148	<0.5	1430	65	90	220	6450	29.3		
23	563149	<0.5	1550	25	170	160	5500	34.4		
24	563150	<0.5	920	60	660	160	6150	38.4		
25	563151	<0.5	1350	160	500	170	6200	36.5		

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AUTHORISED OFFICER

ANALABS

A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

488139

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06534	12/10/89	8487	3 OF 6

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	563152	<0.5	1250	120	230	170	6750	39.7		
2	563153	0.5	1550	45	180	180	5400	30.0		
3	563154	0.5	850	55	100	140	5250	37.5		
4	563155	<0.5	880	10	170	160	6950	43.4		
5	563156	<0.5	940	20	170	170	5950	35.0		
6	563158	<0.5	1250	40	30	170	4450	26.2		
7	563163 STD	<0.5	650	70	40	240	3800	15.8		
8	563164	<0.5	1050	25	130	170	5100	30.0		
9	563165	<0.5	1000	25	110	150	5150	34.3		
10	563166	<0.5	910	15	40	160	5500	34.4		
11	563167	<0.5	860	<2	40	190	5100	26.8		
12	563168	<0.5	470	10	15	160	7450	46.6		
13	563169	<0.5	820	4	40	230	7050	30.6		
14	563170	<0.5	880	9	30	230	7550	32.8		
15	563171	<0.5	610	10	40	190	7050	37.1		
16	563172	<0.5	700	<2	45	140	6050	43.2		
17	563173	<0.5	1000	2	50	170	5900	34.7		
18	563175	<0.5	280	7	530	170	5950	35.0		
19	563184	<0.5	440	2	110	160	4350	27.2		
20	563185	<0.5	570	25	180	160	4500	28.1		
21	563187	<0.5	480	30	1100	140	4450	31.8		
22	563189	<0.5	350	15	540	160	6600	41.2		
23	563190	<0.5	470	30	690	190	6650	35.0		
24	563191	0.5	550	30	730	230	6950	30.2		
25	563192	0.5	590	15	480	190	6800	35.8		

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AUTHORISED OFFICER

488140

ANALABS

A Division of Inchcape Inspection and Testing Services Australia Pty Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06534	12/10/89	8487	4 OF 6

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti : Zr		
1	563193	0.5	270	10	730	240	8400	35.0		
2	563194	<0.5	250	15	810	190	6800	35.8		
3	563195	<0.5	310	10	930	250	8000	32.0		
4	563196	<0.5	280	<2	740	170	8450	44.5		
5	563197	<0.5	190	4	760	220	8950	40.7		
6	563198	<0.5	340	2	800	180	7400	41.1		
7	563199	0.5	290	<2	690	160	5900	36.9		
8	563200	<0.5	170	5	910	170	8050	47.4		
9	563201	<0.5	220	<2	670	220	8750	39.8		
10	563202	<0.5	90	9	740	230	9050	39.3		
11	563203	<0.5	85	8	900	230	9400	40.9		
12	563204	<0.5	330	15	820	240	9200	38.3		
13	563205	<0.5	320	85	1000	190	7450	39.2		
14	563206	<0.5	640	20	490	210	7400	35.2		
15	563207	<0.5	780	10	260	200	7200	36.0		
16	563208	<0.5	600	10	350	200	7550	37.7		
17	563209	<0.5	270	20	810	250	9800	39.2		
18	563210	<0.5	170	20	650	240	10500	43.8		
~~19~~	563213 SD	<0.5	650	70	30	250	3900	15.6		
20	563214	<0.5	490	15	410	240	7900	32.9		
21	563215	<0.5	410	15	370	260	8850	34.0		
22	563216	<0.5	320	15	530	240	8800	36.6		
23	563217	<0.5	290	8	580	230	6300	27.4		
24	563218	<0.5	160	5	500	170	5600	32.9		
25	563219	<0.5	850	5	170	160	5250	32.8		

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AUTHORISED OFFICER

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ANALABS

A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06534	12/10/89	8487	5 OF 6

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	563220	<0.5	990	35	100	190	4700	24.7		
2	563221	<0.5	470	20	330	210	7450	35.5		
3	563222	<0.5	620	15	75	180	7250	40.3		
4	563223	<0.5	690	35	160	180	6500	36.1		
5	563224	<0.5	590	30	140	180	5550	30.8		
6	563225	<0.5	500	6	540	200	4600	23.0		
7	563226	<0.5	210	<2	160	110	1650	15.0		
8	563227	<0.5	310	<2	280	150	3050	20.3		
9	563228	<0.5	250	<2	190	120	3100	25.8		
10	563229	<0.5	210	<2	150	120	1600	13.3		
11	563230	<0.5	140	<2	20	100	980	9.8		
12	563231	<0.5	210	<2	85	120	1400	11.7		
13	563232	<0.5	70	<2	10	100	1350	13.5		
14	563241	<0.5	350	<2	40	200	2400	12.0		
15	563242	<0.5	340	5	60	210	2950	14.0		
16	563243	<0.5	340	<2	25	180	2300	12.8		
17	563244	<0.5	370	<2	25	220	2350	10.7		
18	563245	<0.5	360	<2	50	150	4550	30.3		
19	563246	<0.5	480	<2	60	130	5250	40.4		
20	563247	<0.5	520	<2	10	170	2150	12.6		
21	563248	<0.5	450	<2	110	170	3950	23.2		
22	563249	<0.5	730	<2	120	170	3850	22.6		
23	563250	<0.5	550	2	90	170	4400	25.9		
24	563251	0.5	530	<2	110	160	4050	25.3		
25	563253	<0.5	530	10	130	160	4500	28.1		

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
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A Division of Inchcape Inspection and Testing Services Australia Pty Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06534	12/10/89	8487	6 OF 6

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti : Zr		
1	563259	<0.5	1750	30	1500	140	4200	30.0		
2	563262	<0.5	1050	7	800	200	5500	27.5		
~~3~~	563263 5711)	<0.5	640	60	25	250	3650	14.6		
4	563264	<0.5	1250	3	700	210	5500	26.2		
5	563265	<0.5	730	2	630	250	7750	31.0		
6	563266	<0.5	770	<2	710	210	7400	35.2		
7	563267	<0.5	1050	<2	780	200	7200	36.0		
8	563268	<0.5	1200	3	600	190	6850	36.0		
9	563269	<0.5	1350	20	900	190	6000	31.6		
10	563270	<0.5	1200	20	880	170	5750	33.8		
11	563271	<0.5	1000	20	760	200	6400	32.0		
12	563272	<0.5	930	10	680	180	7050	39.2		
13	563273	<0.5	830	2	230	170	3550	20.9		
14	563274	<0.5	650	8	250	160	4150	25.9		
15	563275	<0.5	920	20	400	180	5250	29.2		
16	563276	<0.5	450	<2	130	160	4250	26.6		
17	563277	<0.5	490	<2	15	130	1700	13.1		
18										
19										
20										
21										
22										
23	DETECTION	0.5	10	2	5	5	50	0.1		
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	–		
25	METHOD	101	401	401	401	401	401	199		

Results in ppm unless otherwise specified
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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. 23.3.08.06554

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

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

ORDER No.	PROJECT
8498	MACK E.L

DATE RECEIVED	RESULTS REQUIRED
29/09/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
10	07/11/89	1	236

STATE SAMPLES REFER BELOW	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	Various	SO Prep: 006,018							Ag/101		
	Various	SO							Ba,As,Cr,Zr,Ti/401		
	Various	SO							Ti:Zr/199		

RESULTS TO

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

RESULTS TO

REMARKS

MACK
10400 SOILS
10200 6600, 6400
7200 9400

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

A Division of Inchcape Inspection and Testing Services Australia Pty Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06554	07/11/89	8498	1 OF 10

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	517620	0.5	990	4	90	170	8550	50.3		
2	517621	<0.5	720	25	270	120	7050	58.7		
3	517622	0.5	1350	55	370	140	6450	46.1		
4	517623	<0.5	1250	65	540	170	5550	32.6		
5	517624	0.5	1150	55	430	120	4350	36.2		
6	517625	<0.5	570	45	450	110	4850	44.1		
7	517626	0.5	470	40	380	120	5700	47.5		
8	517627	0.5	180	25	680	110	6250	56.8		
9	517628	<0.5	640	9	210	120	5350	44.6		
10	517629	<0.5	240	10	140	100	4800	48.0		
11	517630	0.5	100	20	290	170	6400	37.6		
12	517631	<0.5	170	20	510	120	6500	54.2		
13	517632	0.5	180	10	490	950	5850	61.6		
14	517633	0.5	190	20	700	120	6550	54.6		
15	517634	<0.5	540	20	1300	180	6850	38.0		
16	517635	0.5	430	15	1050	160	6600	41.2		
17	517636	0.5	780	55	620	140	4650	33.2		
18	517637	<0.5	570	15	1400	240	7450	31.0		
19	517801	0.5	770	6	1800	210	6100	29.1		
20	517802	0.5	780	6	1500	150	5500	36.7		
21	517803	<0.5	460	9	1800	190	5950	31.3		
22	517804	<0.5	610	6	1900	120	5150	42.9		
23	517805	0.5	160	7	1400	150	7900	52.7		
24	517806	0.5	330	10	1800	180	8550	47.5		
25	517807	0.5	310	15	1600	150	6650	44.3		

Results in ppm unless otherwise specified
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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06554	07/11/89	8498	2 OF 10

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	517808	0.5	270	5	860	100	6200	62.0		
2	517809	0.5	450	10	1150	100	4200	42.0		
3	517810	<0.5	130	8	810	950	4900	51.6		
4	517812	0.5	670	25	70	120	5200	43.3		
5	517813	0.5	830	20	95	120	3900	32.5		
6	517814	0.5	680	20	45	170	3500	20.6		
7	517815	0.5	660	65	230	130	4950	38.1		
8	517816	1.0	630	80	130	140	4200	30.0		
9	517818	0.5	540	70	270	150	4600	30.7		
10	517820	<0.5	460	30	680	170	5650	33.2		
11	517821	0.5	480	25	700	170	6400	37.6		
12	517822	0.5	430	20	1100	210	5850	27.9		
13	517823	0.5	450	20	1450	210	6350	30.2		
14	517824	<0.5	550	15	1600	230	7800	33.9		
15	517825	0.5	330	10	2200	240	7300	30.4		
16	517826	0.5	560	<2	1800	300	8700	29.0		
17	517827	0.5	600	<2	1900	260	8400	32.3		
18	517828	0.5	1050	3	1800	220	6900	31.4		
19	517829	0.5	820	2	1800	220	7450	33.9		
20	517830	0.5	770	2	1500	220	7100	32.3		
21	517831	0.5	580	350	460	140	4650	33.2		
22	517832	0.5	540	150	510	150	4900	32.7		
~~23~~	517833 STD	<0.5	660	65	20	240	3800	15.8		
24	517834	<0.5	480	4	820	140	5850	41.8		
25	517836	<0.5	210	<2	680	120	5950	49.6		

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06554	07/11/89	8498	3 OF 10

TUBE No	SAMPLE No	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	517837	<0.5	280	4	820	170	6700	23.9		
2	517838	<0.5	190	<2	720	170	7500	44.1		
3	517839	<0.5	160	3	700	170	7950	46.8		
4	561103	<0.5	720	5	10	150	6150	41.0		
5	561104	<0.5	520	<2	220	180	6550	36.4		
6	561105	<0.5	880	2	80	160	3950	24.7		
7	561106	<0.5	650	3	340	180	5350	29.7		
8	561107	<0.5	640	<2	20	150	3250	21.7		
9	561108	<0.5	730	5	30	180	4350	24.2		
10	561109	<0.5	790	4	50	180	4050	22.5		
11	561110	<0.5	530	<2	25	180	4000	22.2		
12	561111	<0.5	440	<2	20	180	5250	29.2		
13	561112	<0.5	430	<2	25	160	3300	20.6		
14	561113	<0.5	360	<2	25	140	4450	31.8		
15	561114	<0.5	500	60	25	180	3900	21.7		
16	561115	0.5	510	90	70	150	3900	26.0		
17	561117 SD	<0.5	650	60	30	240	3850	16.0		
18	561118	<0.5	330	<2	35	160	3500	21.9		
19	561119	<0.5	220	<2	45	150	3450	23.0		
20	561120	<0.5	110	<2	20	140	3650	26.1		
21	561121	0.5	110	<2	35	140	4100	29.3		
22	561122	<0.5	130	8	80	140	3000	21.4		
23	561123	<0.5	260	<2	40	180	3500	19.4		
24	561124	<0.5	570	2	31	160	4000	25.0		
25	561125	<0.5	760	<2	30	150	3300	22.0		

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06554	07/11/89	8498	4 OF 10

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	561126	<0.5	810	2	30	160	3700	23.1		
2	561127	<0.5	740	<2	45	130	3650	28.1		
3	561128	<0.5	760	<2	25	140	3350	23.9		
4	561129	<0.5	670	<2	70	140	4550	32.5		
5	561130	<0.5	700	<2	35	140	3450	24.6		
6	561131	<0.5	250	5	500	130	5800	44.6		
7	561132	<0.5	330	4	540	140	5350	38.2		
8	561133	0.5	420	<2	960	180	6000	33.3		
9	561134	<0.5	520	<2	1300	210	7200	34.3		
10	561135	0.5	210	2	590	190	6100	32.1		
11	561136	<0.5	260	<2	360	170	6150	36.2		
12	561137	<0.5	500	<2	350	140	5650	40.4		
13	561138	<0.5	300	2	240	170	7950	41.8		
14	561139	<0.5	380	5	330	230	9000	39.1		
15	561140	<0.5	460	15	170	220	7950	36.1		
16	561141	0.5	140	15	55	210	6700	31.9		
17	561142	<0.5	220	9	30	220	6000	27.3		
~~18~~	561143 STD	<0.5	650	60	25	240	3850	16.0		
19	561148	<0.5	190	6	440	140	6750	48.2		
20	561151	<0.5	150	<2	340	140	5750	41.1		
21	561876	0.5	460	5	940	110	3900	35.5		
22	561877	<0.5	360	5	910	140	4350	31.1		
23	561878	<0.5	250	3	1350	130	4300	33.1		
24	561879	<0.5	340	4	920	160	4050	25.3		
25	561880	0.5	620	5	160	140	4750	33.9		

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A Division of Inchcape Inspection and Testing Services Australia Pty Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06554	07/11/89	8498	5 OF 10

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	561881	0.5	620	15	180	140	4750	33.9		
2	561882	0.5	600	4	180	150	5100	34.0		
3	561883	1.0	650	10	180	150	4650	31.0		
4	561884	1.0	490	10	270	130	5000	38.5		
5	561885	1.0	420	15	470	130	4600	35.4		
6	561886	<0.5	420	20	270	140	4900	35.0		
7	561887	<0.5	440	15	270	180	6600	36.7		
8	561890	<0.5	420	9	460	150	4450	29.7		
9	561891	<0.5	320	10	680	140	4700	33.6		
10	561892	<0.5	350	15	440	160	5750	35.9		
11	561893	<0.5	290	5	1050	140	3450	24.6		
12	561894	<0.5	180	20	450	180	6750	37.5		
13	561895	<0.5	220	9	560	180	6150	34.2		
14	561896	0.5	170	10	480	100	3800	38.0		
15	561897	<0.5	320	15	830	230	8150	35.4		
16	561898	<0.5	290	15	560	170	6500	38.2		
17	561899	0.5	600	15	250	160	4300	26.9		
18	561900	<0.5	650	60	30	240	3800	15.8		
19	561901	0.5	640	60	170	170	4350	25.6		
20	561902	0.5	510	35	140	150	3300	22.0		
21	561903	0.5	600	30	180	150	3600	24.0		
22	561904	0.5	500	<2	340	130	3800	29.2		
23	561905	<0.5	550	15	760	180	5400	30.0		
24	561906	0.5	370	15	420	170	5350	31.5		
25	561907	<0.5	490	8	690	140	3800	27.1		

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06554	07/11/89	8498	6 OF 10

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	561908	0.5	520	<2	630	150	5350	35.7		
2	561909	0.5	520	<2	700	150	6050	40.3		
3	561910	0.5	260	10	440	180	8200	45.5		
4	561911	<0.5	290	15	770	200	6850	34.2		
5	561912	<0.5	200	4	750	190	7300	38.4		
6	561914	0.5	110	<2	740	190	7250	38.2		
7	561915	<0.5	120	3	700	200	7200	36.0		
8	561916	<0.5	670	<2	180	170	4150	24.4		
9	561918	0.5	410	<2	50	150	4100	27.3		
10	561919	<0.5	380	<2	55	150	3750	25.0		
11	561920	<0.5	180	<2	45	140	5700	40.7		
12	561921	<0.5	150	<2	30	180	3600	20.0		
13	561922	<0.5	230	<2	40	150	4850	32.3		
14	561923	<0.5	470	<2	65	160	4600	28.7		
15	561924	<0.5	740	<2	100	100	2900	29.0		
~~17~~	561925 SD	<0.5	660	60	35	240	3800	15.8		
1	561926	0.5	500	<2	40	160	2400	15.0		
18	561927	<0.5	470	<2	55	170	3300	19.4		
19	561928	<0.5	590	2	70	190	6250	32.9		
20	561929	0.5	460	2	100	180	7500	41.7		
21	561930	0.5	440	<2	80	180	7050	39.2		
22	561931	0.5	300	2	100	180	8050	44.7		
23	561932	<0.5	410	5	95	150	6050	40.3		
24	561933	<0.5	540	7	120	150	5150	34.3		
25	561934	<0.5	750	15	180	150	5050	33.7		

Results in ppm unless otherwise specified
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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06554	07/11/89	8498	7 OF 10

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	561935	0.5	640	<2	75	140	4450	31.8		
2	561936	0.5	1250	<2	25	250	2450	9.8		
3	561937	<0.5	830	<2	110	180	5100	28.3		
4	561938	<0.5	520	<2	55	130	5300	40.8		
5	561939	<0.5	180	9	90	170	6250	36.8		
6	561940	0.5	140	6	55	110	6950	63.2		
7	561941	<0.5	260	25	230	160	7450	46.6		
8	561942	<0.5	150	15	120	130	6900	53.1		
9	561945 STD	<0.5	650	65	25	230	3850	16.7		
10	561946	0.5	900	25	260	110	5850	53.2		
11	561947	0.5	1300	45	65	130	3800	29.2		
12	561948	0.5	1750	20	40	120	3330	27.5		
13	561949	0.5	1550	35	90	900	4350	48.3		
14	561950	0.5	1250	25	460	160	5150	32.2		
15	561951	0.5	1700	40	280	160	5250	32.8		
16	561952	0.5	1400	15	360	150	4650	31.0		
	561953	<0.5	720	45	150	200	3350	16.7		
18	561954	0.5	440	25	90	150	3050	20.3		
19	561955	<0.5	240	100	110	110	2450	22.3		
20	561956	<0.5	210	45	85	160	2900	18.1		
21	561957	<0.5	240	2	100	200	3500	17.5		
22	561958	<0.5	780	3	90	200	2900	14.5		
23	561959	<0.5	240	<2	25	150	2400	16.0		
24	561960	0.5	470	20	340	160	3450	21.6		
25	561961	<0.5	760	2	350	150	4450	29.7		

Results in ppm unless otherwise specified
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-- = element not determined

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06554	07/11/89	8498	8 OF 10

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	561962	<0.5	670	2	160	220	6450	29.3		
2	561963	<0.5	750	15	130	190	4850	25.5		
3	561964	<0.5	270	<2	110	160	3000	18.8		
4	561968	0.5	380	<2	140	180	3550	19.7		
5	561969	<0.5	170	<2	85	150	2050	13.7		
6	561970	<0.5	160	<2	85	140	2050	14.6		
7	561972	<0.5	100	<2	30	140	2300	16.4		
8	563233	<0.5	420	<2	65	170	2450	14.4		
9	563234	<0.5	310	9	35	130	1950	15.0		
10	563235	<0.5	430	<2	55	150	2250	15.0		
11	563236	<0.5	450	3	110	180	3550	19.7		
12	563237	<0.5	320	<2	60	200	4050	20.2		
13	563238	<0.5	640	65	40	240	3850	16.0		
14	563240	<0.5	370	<2	600	170	6050	35.6		
15	563241	<0.5	420	<2	650	170	5250	30.9		
16	563242	<0.5	560	<2	620	190	6100	32.1		
17	563243	<0.5	400	<2	770	180	5850	32.5		
18	563244	<0.5	360	6	690	180	6500	36.1		
19	563245	<0.5	410	15	780	190	6650	35.0		
20	563246	<0.5	500	15	750	170	6000	35.3		
21	563247	<0.5	440	20	770	170	6550	38.5		
22	563248	<0.5	360	4	900	170	6250	36.8		
23	563249	<0.5	430	4	930	190	6750	35.5		
24	563250	<0.5	290	5	860	170	7050	41.5		
25	563251	0.5	350	9	740	200	7900	39.5		

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06554	07/11/89	8498	9 OF 10

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	563252	<0.5	320	10	880	170	7050	41.5		
2	563253	<0.5	190	4	600	210	8900	42.4		
3	563254	<0.5	180	7	760	180	7450	41.4		
4	563255	<0.5	280	5	860	180	7200	40.0		
5	563256	<0.5	230	3	820	220	8550	38.9		
6	563257	<0.5	330	9	920	230	8650	37.6		
7	563258	<0.5	340	15	790	200	8450	42.2		
8	563259	<0.5	480	15	680	220	8000	36.4		
9	563263	<0.5	440	2	380	200	5850	29.2		
10	563264	<0.5	470	7	270	150	5050	33.7		
11	563265 SD	<0.5	640	70	35	240	3850	16.0		
12	563266	<0.5	650	7	870	170	8800	51.8		
13	563267	<0.5	460	20	1050	220	7750	35.2		
14	563268	<0.5	260	<2	520	130	6650	51.1		
15	563269	<0.5	350	2	690	170	5550	32.6		
16	563270	<0.5	920	<2	540	160	3950	24.7		
17	563271	<0.5	480	<2	570	170	4000	23.5		
18	563272	<0.5	520	6	550	170	5250	30.9		
19	563274	<0.5	580	4	600	170	5350	31.5		
20	563275	<0.5	370	5	570	180	6000	33.3		
21	563277	<0.5	400	4	630	190	6250	32.9		
22	563278	<0.5	320	4	790	100	4050	40.5		
23	563279	0.5	460	15	110	140	3750	26.8		
24	563280	<0.5	590	10	120	120	3950	32.9		
25	563281	<0.5	550	10	130	150	4450	29.7		

Results in ppm unless otherwise specified
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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06554	07/11/89	8498	10 OF 10

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti	Ti:Zr		
1	563282	0.5	450	10	90	130	4200	32.3		
2	563283	<0.5	730	25	610	120	4350	36.2		
3	563284	<0.5	580	15	810	110	4200	38.2		
4	563285	<0.5	520	10	1000	90	3700	41.1		
5	563286	<0.5	520	20	750	130	4450	34.2		
6	563287	1.5	240	15	580	180	7650	42.5		
7	563288 STD	1.5	640	65	30	230	3800	16.5		
8	563289	1.5	240	15	780	200	7800	39.0		
9	563290	1.5	340	7	590	200	7550	37.7		
10	563293	2.0	910	4	820	180	5350	29.7		
11	563294	1.5	460	7	730	190	7300	38.4		
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	0.5	10	2	5	5	50	0.1		
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	-		
25	METHOD	101	401	401	401	401	401	199		

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
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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. 13.3.08.06604

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

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

ORDER No.	PROJECT
7313	

DATE RECEIVED	RESULTS REQUIRED
17/10/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
33	22/11/89	1	806

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		SO Prep: 005,012,016							Ag/101		
Various		SO Prep: 004,009,016							Ag/101		
Various		SO							Ba,As,Cr,Zr,Ti/401,Ti:Zr/199		
Various		SO							Ba,As,Cr,Zr,Ti/401,Ti:Zr/199		

RESULTS TO:
R. de Bomford
Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

RESULTS TO:

REMARKS

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorption	AAS
spot core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Mo	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 method	OHEM
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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A Division of Inchcape Inspection and Testing Services Australia Pty Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No	PAGE
	23.3.08.06604	22/11/89	7313	1 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	517564	1.0	374	5	555	140	5763			
2	517565	0.5	283	15	550	110	5319			
3	517566	1.0	290	4	164	140	5685			
4	517567	1.0	490	<2	40	110	5142			
5	517568	1.0	294	3	345	120	4765			
6	517569	1.0	645	45	313	140	4760			
7	517570	0.5	538	10	199	130	5044			
8	517571	0.5	370	10	380	130	5786			
9	517572	0.5	152	3	460	120	6224			
10	517573	0.5	145	3	517	110	6224			
11	517574	0.5	267	15	340	140	6077			
12	517575	0.5	253	9	297	140	5769			
13	517576	<0.5	194	45	562	120	5319			
14	517577	<0.5	103	<2	597	120	5650			
15	517578	0.5	134	<2	474	140	5755			
16	517579	0.5	86	6	450	120	5583			
17	517580	0.5	134	<2	440	130	5318			
18	517581	0.5	92	6	573	120	5430			
19	517582	0.5	155	3	592	150	5583			
20	517583	0.5	238	8	609	130	4878			
21	517584	0.5	199	6	573	140	5177			
22	517585	<0.5	86	<2	696	130	5577			
23	517586	0.5	36	<2	758	150	5806			
24	517587	<0.5	125	3	677	140	5742			
25	517588	0.5	140	<2	554	160	6687			

Results in ppm unless otherwise specified
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A Division of Inchcape Inspection and Testing Services Australia Pty Ltd

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06604	22/11/89	7313	2 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	517589	1.0	845	<2	684	100	5741			
2	517590	<0.5	394	<2	626	130	6130			
3	517591	<0.5	243	<2	696	160	6857			
4	561152	<0.5	127	<2	440	190	7391			
5	561153	<0.5	200	<2	563	210	7461			
6	561154	<0.5	113	2	575	200	6828			
7	561155 STD	<0.5	647	75	23	240	3874			
8	561156	<0.5	384	<2	739	180	7023			
9	561157	<0.5	171	<2	789	170	6137			
10	561158	<0.5	128	2	446	140	6537			
11	561159	0.5	18	10	458	120	6153			
12	561160	<0.5	451	3	244	140	4445			
13	561161	0.5	562	<2	192	180	4422			
14	561162	0.5	537	4	201	170	4787			
15	561163	<0.5	597	<2	181	160	4539			
16	561164	<0.5	645	<2	128	160	3521			
17	561165	<0.5	573	<2	39	150	3100			
18	561166	<0.5	552	<2	19	150	2433			
19	561167	<0.5	407	2	23	120	3570			
20	561168	<0.5	474	<2	15	130	2974			
21	561169	<0.5	321	<2	21	110	3074			
22	561171	0.5	246	<2	30	130	3664			
23	561185	0.5	735	<2	95	160	4587			
24	561186	1.0	1153	30	<5	210	5899			
25	561187	0.5	672	8	12	200	8366			

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06604	22/11/89	7313	3 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	561188	0.5	204	4	52	240	8641			
2	561189	0.5	148	7	146	210	6988			
3	561190	0.5	665	4	118	230	6770			
4	561191	0.5	328	10	162	180	4252			
5	561192	0.5	1152	<2	31	170	3315			
6	561193	<0.5	804	<2	45	170	3699			
7	561194	0.5	1166	<2	53	170	3408			
8	561195	0.5	627	<2	71	160	3873			
9	561196	<0.5	824	<2	15	160	3348			
10	561197	<0.5	718	<2	30	170	4149			
11	561198	<0.5	600	<2	29	150	3744			
12	561199	0.5	743	<2	32	170	3462			
13	561200	<0.5	588	<2	25	170	3341			
14	561201	<0.5	252	<2	38	180	4774			
15	561202	0.5	186	<2	77	170	5562			
16	561203	0.5	291	<2	91	170	5447			
17	561204	<0.5	417	<2	97	180	4212			
18	561205	0.5	419	<2	58	150	3710			
19	561206	<0.5	142	<2	60	170	4716			
20	561207	<0.5	357	<2	44	140	3978			
~~21~~	561208 STD	0.5	635	75	31	240	3794			
22	561209	0.5	447	7	58	170	4797			
23	561210	0.5	319	10	384	160	5235			
24	561211	<0.5	497	15	47	160	5057			
25	561224	<0.5	381	<2	171	150	4824			

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A Division of Inchcape Inspection and Testing Services Australia Pty Ltd

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.03.06604	22/11/89	7313	4 OF 33

TUBE No.	SAMPLE No.	Ag	Be	As	Cr	Zr	Ti			
1	561225	<0.5	117	15	157	200	6753			
2	561226	<0.5	150	30	82	210	4061			
3	561227	<0.5	188	<2	39	200	5193			
4	561228	<0.5	168	<2	35	190	5973			
5	561229	0.5	84	<2	45	220	6423			
6	561230	<0.5	209	<2	52	200	5744			
7	561231	0.5	136	3	67	150	4652			
8	561232	<0.5	192	4	124	210	5578			
9	561233	<0.5	386	7	213	190	7585			
10	561234	<0.5	167	5	360	150	6827			
11	561235	<0.5	197	5	171	150	5448			
12	561236	0.5	716	20	345	170	6206			
	561237	0.5	192	3	569	160	6530			
14	561241	1.0	366	3	906	150	4748			
15	561242	0.5	776	<2	45	160	3566			
16	561243	0.5	760	<2	98	190	3415			
17	561250	0.5	722	15	96	140	3598			
18	561251	1.0	839	10	120	130	3991			
19	561252	0.5	927	5	130	140	4295			
20	561253	0.5	711	4	122	170	4706			
21	561254	0.5	778	3	104	140	4367			
22	561255	0.5	729	3	84	140	4516			
23	561256	0.5	754	3	51	170	4376			
24	561257	0.5	715	<2	57	170	4105			
25	561258	<0.5	1091	<2	34	200	3388			

Results in ppm unless otherwise specified
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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06604	22/11/89	7313	5 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	561257	0.5	927	8	47	210	6084			
2	561260	1.0	1474	4	13	220	6456			
3	561261	0.5	1054	6	13	220	6387			
4	561262	0.5	942	<2	20	200	5801			
5	561263	0.5	639	<2	405	190	4771			
6	561264	<0.5	581	<2	11	160	3524			
7	561265	0.5	507	<2	23	170	3205			
8	561266	0.5	783	<2	11	160	3592			
9	561267	<0.5	610	<2	15	150	3403			
10	561268	<0.5	1206	<2	14	180	3952			
11	561269	0.5	1112	<2	25	150	3634			
12	561270	<0.5	446	<2	91	200	6145			
13	561271	0.5	242	<2	16	140	4415			
14	561272	<0.5	542	<2	57	180	4383			
15	561274	0.5	504	<2	40	140	4053			
16	561275	1.0	567	<2	44	140	3883			
17	561276	0.5	573	<2	27	140	3440			
18	561277	<0.5	700	<2	44	150	3501			
19	561278	<0.5	621	<2	40	170	3167			
20	561279	<0.5	523	<2	33	160	4527			
21	561280	<0.5	524	2	28	150	3112			
22	561281	0.5	756	5	21	120	3322			
23	561282	0.5	675	9	43	120	3140			
24	561283	0.5	1070	80	44	120	3171			
25	561284	3.5	602	4	36	100	4011			

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element not determined

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.00.06604	22/11/89	7313	6 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	561285	0.5	680	<2	12	150	4104			
2	561286	<0.5	579	<2	19	140	3752			
3	561287	0.5	806	<2	30	140	4160			
4	561288	<0.5	721	<2	31	140	4319			
5	561289	<0.5	396	<2	12	190	4895			
6	561290	<0.5	238	<2	27	140	5150			
7	561291	<0.5	269	2	67	170	5161			
8	561292	<0.5	246	<2	73	160	4836			
9	561293	0.5	254	7	45	180	4611			
10	561294	<0.5	249	4	315	220	6047			
11	561295	<0.5	322	7	563	220	6573			
12	561296	<0.5	268	5	424	200	8425			
13	561297	<0.5	323	8	327	220	8125			
14	561298	<0.5	322	4	797	180	8251			
15	561299	0.5	585	3	339	140	4350			
16	561300 STD	0.5	649	70	37	250	3878			
17	561307	0.5	1082	9	122	170	4181			
18	561308	0.5	1004	5	77	160	4087			
19	561309	0.5	1105	4	88	170	3018			
20	561310	0.5	1071	<2	84	150	3848			
21	561311	0.5	1228	<2	43	180	3026			
22	561312	<0.5	1168	10	60	210	5297			
23	561313	0.5	1128	7	128	210	5470			
24	561314 STD	<0.5	649	90	25	230	3921			
25	561315	0.5	534	<2	25	130	3869			

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.03.06604	22/11/89	7313	7 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	561317	0.5	901	<2	15	180	3635			
2	561318	0.5	787	<2	14	150	3796			
3	561319	0.5	660	<2	<5	140	3927			
4	561320	<0.5	717	<2	9	160	3989			
5	561321	0.5	611	<2	24	160	4132			
6	561322	0.5	574	<2	8	130	3277			
7	561323	<0.5	384	<2	51	140	3382			
8	561324	<0.5	278	<2	37	120	3271			
9	561325	<0.5	218	<2	31	110	3298			
10	561326	<0.5	324	2	49	170	3331			
11	561327	<0.5	377	<2	57	160	3093			
12	561328	<0.5	502	<2	26	190	2868			
13	561329	<0.5	774	<2	11	220	2722			
14	561330	<0.5	639	<2	33	220	2531			
15	561331 STD	0.5	445	80	30	230	3768			
16	561332	0.5	486	3	50	140	2670			
17	561333	0.5	624	55	36	130	2834			
18	561334	0.5	624	2	43	150	2633			
19	561335	<0.5	420	10	38	130	2572			
20	561336	0.5	565	15	72	120	2478			
21	561337	0.5	482	3	34	150	4755			
22	561339	0.5	481	2	137	190	3898			
23	561340	<0.5	450	10	81	210	2873			
24	561341	0.5	337	<2	115	200	3636			
25	561344	<0.5	392	<2	105	180	4877			

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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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06604	22/11/89	7313	8 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	561345	<0.5	129	4	525	220	8701			
2	561346	0.5	281	2	418	220	9535			
3	561347	<0.5	384	7	313	210	7451			
4	561348	0.5	301	<2	252	160	6264			
5	561349	0.5	601	10	251	180	6232			
6	561350	<0.5	975	56	485	170	5845			
7	561351	<0.5	1245	7	61	230	3558			
8	561352	<0.5	455	<2	57	240	4877			
9	561353	<0.5	392	25	78	230	5006			
10	561354	0.5	99	7	33	180	5657			
11	561368	<0.5	812	<2	75	210	2868			
12	561369	0.5	840	<2	100	230	2892			
13	561370	0.5	1279	2	66	180	4526			
14	561371	0.5	1364	<2	63	160	4335			
15	561372	0.5	757	10	68	180	4418			
16	561373 STD	<0.5	638	75	32	240	3892			
17	561380	0.5	960	15	117	140	4366			
18	561381	0.5	1085	25	122	140	4278			
19	561382	0.5	766	7	88	160	3954			
20	561383	0.5	842	8	45	170	3294			
21	561384	<0.5	941	7	40	160	2960			
22	561385	<0.5	781	10	50	190	4017			
23	561386	<0.5	897	4	77	230	5813			
24	561387	<0.5	521	6	326	170	5458			
25	561388	<0.5	538	7	307	220	6345			

Results in ppm unless otherwise specified
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AUTHORISED OFFICER _____

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A Division of Inchcape Inspection and Testing Services Australia Pty Ltd

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.03.06604	22/11/89	7313	9 OF 33

TUBE No	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	561389	0.5	626	<2	72	160	4017			
2	561390	<0.5	691	2	64	150	3703			
3	561391	<0.5	740	<2	54	170	3875			
4	561392	0.5	690	<2	48	160	3271			
5	561393	<0.5	776	25	37	170	3865			
6	561394	0.5	791	<2	44	150	3565			
7	561395	<0.5	563	<2	41	170	4130			
8	561396	0.5	260	<2	44	130	4627			
9	561397	<0.5	386	12	36	140	4429			
10	561398	0.5	631	<2	127	150	4012			
11	561399	0.5	562	<2	82	200	2942			
12	561400	0.5	508	3	97	180	3808			
13	561401	0.5	629	4	117	200	3134			
14	561402	0.5	494	3	115	170	3518			
15	561403	0.5	406	2	95	150	2858			
16	561404	0.5	657	7	83	180	3253			
17	561405	0.5	580	20	71	180	3519			
18	561406	1.0	260	9	51	110	3458			
19	561407	1.0	449	33	11	110	2210			
20	561408	1.0	2448	95	8	190	3183			
21	561409	0.5	946	8	41	140	3475			
22	561410	<0.5	397	48	46	110	2693			
23	561411	1.0	500	30	45	160	2339			
24	561412	0.5	466	2	31	160	3401			
25	561413	0.5	321	<2	31	200	2482			

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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A Division of Inchcape Inspection and Testing Services Australia Pty Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.09.06604	22/11/89	7313	10 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	561414	<0.5	443	4	69	180	4077			
2	561415	<0.5	415	<2	29	220	2855			
3	561416	0.5	580	<2	34	210	3923			
4	561417	0.5	372	5	93	200	6011			
5	561418	0.5	471	4	91	210	6740			
6	561419	0.5	580	6	76	230	6518			
7	561420	0.5	1008	3	30	270	2736			
8	561421	0.5	756	<2	19	260	3251			
9	561422	<0.5	868	2	21	230	2484			
10	561423	<0.5	658	<2	101	160	4440			
11	561424	<0.5	635	<2	21	200	3025			
12	561425	<0.5	1047	<2	36	160	3852			
13	561426	0.5	698	<2	27	150	4019			
14	561427	<0.5	846	<2	41	160	4976			
15	561428	0.5	837	<2	20	150	4029			
16	561429	0.5	805	<2	66	160	3470			
17	561433 STD	<0.5	640	75	26	240	3805			
18	561434	<0.5	74	<2	302	190	5621			
19	561435	<0.5	124	<2	840	200	6426			
20	561436	0.5	180	<2	867	130	5764			
21	561437	0.5	636	4	160	130	3066			
22	561438	0.5	826	7	120	150	4283			
23	561439	0.5	841	20	112	95	3774			
24	561440	0.5	818	6	56	190	3506			
25	561441	0.5	1273	20	107	240	3432			

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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A Division of Inchcape Inspection and Testing Services Australia Pty Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06604	22/11/89	7313	11 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	561442	3.0	858	50	84	170	2523			
2	561443	5.5	1199	35	100	350	2735			
3	561444	3.0	715	100	71	100	4580			
4	561445	5.0	943	40	95	180	3486			
5	561446	1.0	846	25	93	170	4203			
6	561447	1.0	1041	25	127	170	4243			
7	561448	1.0	1005	60	198	140	4355			
8	561449	0.5	1145	<2	38	200	2858			
9	561450	0.5	1035	10	121	150	4576			
10	561451	<0.5	527	15	85	140	4364			
11	561452	0.5	957	10	100	170	5039			
12	561453	0.5	756	15	520	160	4502			
13	561454	0.5	928	6	68	190	5799			
14	561455	0.5	564	6	254	140	5482			
15	561456	0.5	503	<2	42	140	3681			
16	561457	0.5	701	2	7	130	3357			
17	561458	<0.5	691	8	32	160	3715			
18	561459	<0.5	1080	<2	12	150	3542			
19	561460	<0.5	633	<2	38	120	2749			
20	561461	<0.5	734	<2	<5	120	3979			
21	561462	0.5	692	4	230	160	3898			
22	561463	1.0	552	<2	54	190	2366			
23	561464	0.5	494	<2	24	170	3174			
24	561465	1.0	607	<2	51	200	3170			
25	561466	0.5	526	<2	80	120	4447			

Results in ppm unless otherwise specified
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AUTHORISED OFFICER _____

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.99.06604	22/11/99	7313	12 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	561467	0.5	411	<2	36	120	3858			
2	561468	0.5	384	<2	28	180	2946			
3	561469	<0.5	540	<2	47	210	2977			
4	561470	<0.5	745	<2	22	200	2364			
5	561471	0.5	462	<2	102	150	3169			
6	561472	0.5	501	<2	12	160	3052			
7	561473	0.5	405	<2	48	140	2839			
8	561474	1.0	624	<2	21	160	2975			
9	561475	0.5	585	<2	46	180	3084			
10	561476	0.5	1024	<2	46	130	3418			
11	561477	0.5	667	<2	75	200	3224			
12	561478	0.5	668	<2	92	240	3143			
13	561479	0.5	484	<2	70	210	3113			
14	561480	<0.5	602	<2	39	210	2631			
15	561481	0.5	236	<2	116	170	2811			
16	561482	1.0	371	<2	379	190	3832			
17	561483	0.5	551	<2	51	240	2817			
18	561484	0.5	464	<2	75	190	2437			
19	561485	0.5	544	<2	24	200	2259			
20	561486	<0.5	359	<2	15	170	3083			
21	561487	0.5	649	<2	87	200	3465			
22	561488	0.5	621	<2	103	200	3261			
23	561489	0.5	395	3	122	200	4542			
24	561490	0.5	667	6	172	190	5232			
25	561497	0.5	780	<2	60	130	4680			

Results in ppm unless otherwise specified
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- element not determined

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A Division of Inchcape Inspection and Testing Services Australia Pty Ltd

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.89.06604	22/11/89	7313	13 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	561498	<0.5	834	8	60	140	4633			
2	561499	<0.5	591	8	132	120	5090			
3	561500	<0.5	717	15	143	120	4674			
4	561501	0.5	832	25	109	120	4875			
5	561502	0.5	566	15	74	100	3476			
6	561503	0.5	510	160	98	110	4104			
7	561504	0.5	656	80	66	100	3777			
8	561505	0.5	844	65	54	110	3822			
9	561506	0.5	478	95	23	120	4678			
10	561507	<0.5	256	45	<5	150	5658			
*	561508 STD	0.5	636	75	23	240	3826			
12	561509	<0.5	805	50	15	160	5235			
13	561512	<0.5	1229	2	31	160	3188			
14	561513	<0.5	1424	5	29	210	3134			
15	561514	<0.5	1577	9	78	180	3288			
16	561515	0.5	1032	15	80	130	4077			
	561516	<0.5	1069	15	612	120	3153			
18	561517	<0.5	1044	3	405	160	4947			
19	561518	<0.5	1098	3	10	220	6201			
20	561519	<0.5	567	<2	53	160	6452			
21	561520	<0.5	350	4	666	210	7162			
22	561521	<0.5	418	5	611	190	6163			
23	561522	<0.5	552	<2	332	170	5324			
24	561523	<0.5	381	<2	32	130	3275			
25	561524	<0.5	1000	<2	<5	150	3487			

Results in ppm unless otherwise specified
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A Division of Inchcape Inspection and Testing Services Australia Pty Ltd

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.88.06604	22/11/89	7313	14 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	561525	<0.5	675	<2	22	130	3094			
2	561526	<0.5	595	<2	10	160	3641			
3	561527	<0.5	1074	<2	19	160	4124			
4	561528	<0.5	593	<2	22	130	3688			
5	561529	<0.5	447	<2	50	130	4573			
6	561530	<0.5	667	4	44	130	4476			
7	561531	<0.5	497	<2	61	120	6428			
8	561532	<0.5	514	<2	<5	150	3615			
9	561533	<0.5	608	<2	50	150	4134			
10	561534	<0.5	593	<2	37	150	4274			
11	561535	<0.5	407	<2	30	150	2862			
12	561536	<0.5	601	<2	<5	160	3900			
13	561537	<0.5	534	<2	36	220	3088			
14	561538	<0.5	552	<2	19	240	2721			
15	561539	<0.5	364	<2	30	200	2607			
16	561540	<0.5	654	<2	13	210	1871			
17	561541	<0.5	378	<2	36	220	2868			
18	561542	<0.5	488	<2	19	220	2756			
19	561543	<0.5	557	<2	33	210	2872			
20	561544	<0.5	574	2	37	190	2416			
21	561545	<0.5	610	10	151	150	3356			
22	561546	0.5	629	9	202	200	4837			
23	561547	<0.5	900	<2	82	140	3325			
24	561548	<0.5	943	<2	48	200	4123			
25	561549	<0.5	465	<2	63	150	5190			

Results in ppm unless otherwise specified
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= element not determined

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A Division of Inchcape Inspection and Testing Services Australia Pty Ltd

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06604	22/11/89	7313	15 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	561550	<0.5	689	<2	11	220	2509			
2	561551	<0.5	1125	<2	18	240	2807			
3	561552	<0.5	914	<2	<5	280	2595			
*	561553 STD	<0.5	647	70	28	230	3003			
5	561559	0.5	670	3	101	190	3287			
6	561560	0.5	582	25	92	150	4745			
7	561561	0.5	714	140	63	120	3785			
8	561562	<0.5	956	95	50	130	3763			
9	561563	<0.5	952	170	67	100	3530			
10	561564	<0.5	897	160	68	120	3425			
11	561565	<0.5	1113	65	58	110	4492			
12	561566	<0.5	1119	120	21	140	3982			
13	561567	1.0	2475	140	13	160	5300			
14	561569	<0.5	638	25	55	120	6054			
15	561570	<0.5	819	230	48	150	4501			
16	561572	<0.5	1033	2	105	180	3969			
*	561573 STD	<0.5	634	75	26	240	3712			
18	561574	<0.5	1086	10	101	180	3191			
19	561575	<0.5	607	5	251	180	5605			
20	561576	0.5	554	3	260	180	5918			
21	561577	<0.5	649	<2	52	170	4785			
22	561578	<0.5	481	<2	38	140	3567			
23	561579	0.5	717	<2	10	170	3627			
24	561580	<0.5	710	<2	11	150	3887			
25	561581	<0.5	795	<2	92	160	3852			

Results in ppm unless otherwise specified
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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06604	22/11/89	7313	16 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	561582	<0.5	490	<2	101	100	3463			
2	561583	0.5	676	<2	25	160	3375			
3	561584	0.5	546	<2	19	180	3838			
4	561585	0.5	301	<2	18	130	3764			
5	561586	0.5	187	<2	<5	110	5457			
6	561587	0.5	556	<2	<5	140	3810			
7	561588	0.5	452	2	7	150	3509			
8	561589	0.5	386	<2	13	130	3272			
9	561590	<0.5	431	2	16	180	3000			
10	561591	<0.5	498	<2	50	180	3566			
11	561592	<0.5	423	<2	<5	200	2334			
12	561593	<0.5	419	<2	12	200	3165			
13	561594	0.5	539	<2	27	150	3903			
14	561595	<0.5	595	2	107	130	4987			
15	561596	0.5	525	<2	66	110	3839			
16	561597	0.5	563	<2	45	120	4930			
17	561598	<0.5	532	3	77	130	3873			
18	561599	0.5	474	<2	31	170	2996			
19	561600	<0.5	670	<2	50	190	3497			
20	561601	<0.5	691	<2	49	180	4262			
21	561602	<0.5	829	<2	52	160	3622			
22	561605	0.5	579	<2	39	140	3880			
23	561606	<0.5	638	2	123	150	4576			
24	561607	<0.5	629	<2	186	140	4730			
25	561609	<0.5	677	<2	31	240	3711			

Results in ppm unless otherwise specified
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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	33.3.08.06604	22/11/89	7313	17 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	561610	0.5	772	2	15	160	3721			
2	561616	0.5	575	20	62	190	3095			
3	561617	0.5	447	30	70	200	3263			
4	561618	0.5	898	33	39	180	4677			
5	561619	0.5	754	580	51	140	4549			
6	561620	0.5	547	200	53	140	4794			
7	561621	1.5	338	140	37	120	5846			
8	561622	3.0	441	180	75	130	4585			
9	561623	0.5	420	15	76	170	5081			
~~10~~	561624 STD	1.0	624	75	30	240	3985			
11	561625	0.5	691	15	151	160	4506			
12	561626	1.0	693	10	144	160	4169			
13	561627	0.5	918	15	52	190	2544			
14	561628	<0.5	795	15	895	110	2738			
15	561629	<0.5	829	9	944	170	3557			
16	561630	0.5	709	9	874	170	3996			
17	561631	0.5	646	15	271	130	4630			
18	561632	<0.5	518	8	899	130	3061			
19	561633	<0.5	154	4	1101	130	4273			
20	561634	<0.5	342	10	592	130	4731			
21	561635	<0.5	377	8	248	160	4101			
22	561636	<0.5	624	20	55	150	3963			
23	561637	<0.5	608	4	11	140	2966			
24	561638	<0.5	691	<2	<5	150	3644			
25	561639	<0.5	446	4	23	160	3537			

Results in ppm unless otherwise specified
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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.03.06604	22/11/89	7313	18 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	561640	<0.5	381	3	11	140	3636			
2	561641	<0.5	491	<2	18	130	3477			
3	561642	<0.5	473	2	17	150	4764			
4	561643	<0.5	519	5	25	150	4250			
5	561644	<0.5	465	2	19	140	3652			
6	561645	<0.5	534	<2	20	140	3478			
7	561646	<0.5	431	<2	18	150	4090			
8	561647	<0.5	362	<2	22	150	3745			
9	561648	<0.5	647	<2	43	180	3153			
10	561649	<0.5	610	<2	53	210	2677			
11	561653	<0.5	715	2	97	140	4559			
12	561654	<0.5	473	<2	63	140	5054			
13	561655	<0.5	427	<2	64	110	4666			
14	561656	<0.5	301	<2	70	120	3959			
15	561657	<0.5	372	<2	57	180	3713			
16	561658	<0.5	358	<2	32	170	2962			
17	561659	<0.5	290	<2	28	190	2778			
18	561660	<0.5	524	<2	26	190	2260			
19	561661	<0.5	400	<2	41	210	2807			
20	561662	<0.5	674	6	21	170	3159			
21	561663	<0.5	702	<2	54	150	3755			
22	561664	<0.5	529	8	89	140	4021			
23	561665	<0.5	534	<2	70	110	4294			
24	561666	<0.5	582	3	82	120	4048			
25	561667	<0.5	502	<2	75	130	4594			

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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AUTHORISED OFFICER _____

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06604	22/11/09	7313	19 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	561668	<0.5	544	2	75	130	3975			
2	561672 STD	<0.5	624	90	70	230	3963			
3	561673	0.5	523	30	85	100	3558			
4	561674	<0.5	594	40	110	130	5736			
5	561675	0.5	734	200	97	150	5543			
6	561676	<0.5	521	100	109	130	4806			
7	561677	<0.5	603	40	88	120	5042			
8	561678	<0.5	462	60	111	110	4654			
9	561679	<0.5	991	3	99	170	4943			
10	561680	<0.5	1069	25	125	160	4399			
11	561681	<0.5	748	15	115	160	4393			
12	561682	<0.5	892	9	101	150	4358			
13	561683	<0.5	904	15	87	150	4428			
14	561684	<0.5	802	25	97	140	4121			
15	561685	<0.5	754	<2	89	150	4520			
16	561686	<0.5	1111	<2	90	170	2934			
17	561687	<0.5	1084	15	91	190	2522			
18	561688	<0.5	1062	<2	55	190	3115			
19	561689	<0.5	446	6	309	160	3193			
20	561690	<0.5	803	7	141	200	3740			
21	561691	<0.5	1061	10	949	140	4144			
22	561692	<0.5	497	2	821	150	3256			
23	561693	<0.5	176	4	821	140	4137			
24	561694	<0.5	811	<2	886	140	3656			
25	561695	<0.5	525	7	635	200	6568			

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06604	22/11/89	7313	20 OF 33

TUBE No.	SAMPLE No.	Ag	Be	As	Cr	Zr	Ti			
1	561696	<0.5	282	3	703	190	6833			
2	561697	<0.5	785	4	156	190	4027			
3	561701	<0.5	257	4	84	110	4476			
4	561703	<0.5	435	2	26	160	3466			
5	561704	<0.5	710	2	14	170	3439			
6	561705	<0.5	516	<2	13	150	4219			
7	561706	<0.5	516	2	27	160	3729			
8	561707	0.5	540	20	92	160	4030			
9	561708	<0.5	459	3	28	260	3854			
10	561709	<0.5	471	<2	23	280	3554			
11	561710	<0.5	444	2	31	200	2635			
12	561711	0.5	393	8	57	190	3283			
13	561712	<0.5	494	20	100	170	4347			
14	561713	0.5	651	2	74	130	3859			
15	561714	<0.5	427	2	65	160	6280			
16	561715	<0.5	315	10	66	150	4270			
17	561716	<0.5	1228	35	78	140	3506			
18	561717	<0.5	2296	120	74	90	3468			
19	561718	<0.5	1271	470	55	150	2976			
20	561719	<0.5	1266	65	46	140	3801			
21	561720	<0.5	684	<2	81	120	3664			
22	561721	<0.5	413	<2	94	140	4465			
23	561722	<0.5	247	<2	100	140	5409			
24	561723	<0.5	404	<2	67	150	5831			
25	561724	<0.5	569	<2	65	160	4780			

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06604	22/11/89	7313	21 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	561725	<0.5	612	<2	75	140	4431			
2	561726 STD	<0.5	629	65	27	240	3906			
3	561727	<0.5	807	<2	47	200	7357			
4	561730	<0.5	729	<2	60	160	4782			
5	561731	0.5	895	<2	67	160	5946			
6	561732	<0.5	640	2	57	170	5630			
7	561733	<0.5	390	<2	27	140	6556			
8	561734	<0.5	608	<2	64	140	4363			
9	561735	<0.5	818	65	81	150	5414			
10	561736	<0.5	468	15	33	170	4564			
11	561737	<0.5	602	3	14	150	4835			
12	561738	<0.5	443	<2	22	150	4249			
13	561739	<0.5	264	<2	65	130	4991			
14	561740	<0.5	731	<2	86	280	3783			
15	561741	<0.5	772	<2	133	240	3623			
16	561742	<0.5	673	<2	128	220	3495			
	561743	<0.5	982	<2	175	240	3472			
18	561744	<0.5	600	<2	123	210	3495			
19	561745	<0.5	890	<2	108	720	2987			
20	561746 STD	<0.5	624	70	11	240	3637			
21	561747	0.5	962	<2	65	230	2683			
22	561748	0.5	664	<2	109	200	2699			
23	561749	<0.5	866	<2	126	200	3215			
24	561750	<0.5	469	<2	347	150	4682			
25	561751	<0.5	334	<2	136	140	5051			

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06604	22/11/89	7313	22 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	561752	<0.5	779	<2	75	150	4139			
2	561753	<0.5	719	<2	10	140	4537			
3	561754	<0.5	633	<2	20	130	4462			
4	561755	<0.5	531	<2	76	160	5391			
5	561757	<0.5	829	<2	64	170	4957			
6	561758	<0.5	552	6	338	190	6572			
7	561759	<0.5	542	<2	764	240	6948			
8	561780	<0.5	837	<2	45	150	4601			
9	561781	<0.5	962	<2	38	160	5201			
10	561782	<0.5	841	<2	39	160	4690			
11	561783	<0.5	807	<2	14	150	4916			
12	561786	0.5	554	<2	97	130	4148			
13	561787	0.5	389	<2	175	100	2492			
14	561789	0.5	417	<2	186	120	3463			
15	561790	<0.5	492	<2	233	130	4273			
16	561791	<0.5	329	3	651	180	3356			
	561792	<0.5	315	10	616	140	4472			
18	561793	<0.5	256	9	640	140	4258			
19	561794	<0.5	206	5	1071	150	4645			
20	561795	<0.5	338	<2	1401	160	4234			
21	561796	<0.5	232	<2	1374	180	4708			
22	561797	<0.5	255	<2	1347	160	4722			
23*	561798 STD	<0.5	652	70	38	240	3828			
24	561799	<0.5	353	7	366	210	6560			
25	561800	<0.5	194	7	500	270	9141			

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06604	22/11/87	7313	23 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	561801	<0.5	274	9	260	180	5995			
2	561802	<0.5	127	6	575	280	10489			
3	561803	<0.5	252	2	1747	280	10385			
4	561804	<0.5	390	8	382	200	6048			
5	561805	<0.5	304	9	771	220	7304			
6	561806	<0.5	534	50	154	160	3569			
7	561811	<0.5	353	<2	565	170	5500			
8	561812	<0.5	380	3	630	160	5263			
9	561813	<0.5	109	15	1014	200	8402			
10	561814	<0.5	1242	<2	36	200	3914			
11	561815	<0.5	1327	<2	31	160	4191			
12	561816	<0.5	1297	35	65	150	3452			
13	561817	<0.5	816	<2	<5	160	3586			
14	561818	<0.5	912	<2	21	160	3562			
15	561819	<0.5	455	<2	115	150	4345			
16	561820	0.5	441	<2	64	170	4175			
17	561821	<0.5	342	<2	40	170	4570			
18	561822	<0.5	353	<2	<5	170	4329			
19	561823	<0.5	797	<2	15	150	3001			
20	561824	<0.5	674	<2	10	200	3942			
21	561825	0.5	1343	<2	32	300	2529			
22	561826	0.5	1085	<2	44	220	2951			
23	561827	<0.5	704	5	136	180	4912			
24	561828	<0.5	442	20	109	120	4486			
25	561829	<0.5	462	6	110	170	6229			

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06604	22/11/89	7313	24 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	561830	<0.5	1151	5	78	120	4153			
2	561831	<0.5	505	15	97	160	4406			
3	561832	<0.5	307	7	91	180	7023			
4	561833	<0.5	346	<2	10	180	3187			
5	561834	<0.5	328	<2	43	170	2925			
6	561835	<0.5	811	10	74	150	5534			
7	561836	2.0	1340	180	23	120	2962			
8	561837	0.5	6217	25	77	140	3869			
9	561838	0.5	670	20	85	100	4405			
10	561839	<0.5	740	25	58	100	3887			
11	561840	<0.5	738	30	73	130	4000			
12*	561841 STD	0.5	633	65	31	240	3839			
13	561846	<0.5	632	25	70	160	4573			
14	561847	<0.5	607	35	100	130	3303			
15	561848	<0.5	447	10	47	170	4714			
16	561849	0.5	517	30	67	160	4127			
	561850	<0.5	359	40	82	180	3712			
18	561851	<0.5	467	95	76	150	4071			
19	561852	<0.5	561	20	70	200	4012			
20	561853	<0.5	626	110	60	140	5130			
21	561854	0.5	449	20	47	150	5093			
22	561858	0.5	607	3	101	210	4662			
23	561859	0.5	586	<2	141	170	4508			
24	561860	0.5	661	<2	113	140	4194			
25	561861	0.5	436	<2	75	160	4194			

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AUTHORISED OFFICER _____

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06604	22/11/89	7313	25 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	561862	0.5	380	<2	107	160	5449			
2	561863	0.5	583	<2	149	160	4588			
3	561864	0.5	864	<2	39	120	4387			
4	561865	0.5	549	15	123	150	5132			
5	561866	0.5	631	25	248	180	3888			
6	561867	0.5	341	6	770	220	7735			
7	561868	0.5	519	6	882	220	6477			
8	561869 * STD	<0.5	629	70	33	240	3839			
9	561870	0.5	329	<2	119	200	4803			
10	561871	<0.5	364	<2	112	180	4665			
11	563001	0.5	950	4	138	150	4941			
12	563002	<0.5	644	<2	121	140	5587			
13	563003	<0.5	726	<2	121	140	5402			
14	563004	<0.5	794	2	143	150	5349			
15	563005	<0.5	717	4	119	160	5234			
16	563006	<0.5	731	4	136	150	4719			
17	563007	<0.5	709	2	163	160	5117			
18	563008	<0.5	749	<2	150	170	5735			
19	563009	0.5	578	3	125	140	5119			
20	563010	<0.5	597	<2	140	170	5839			
21	563011	<0.5	440	4	108	160	6758			
22	563012	<0.5	73	7	578	190	5519			
23	563013	0.5	103	7	514	160	6714			
24	563014	<0.5	348	6	222	170	7184			
25	563015	<0.5	493	7	141	150	5627			

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06604	22/11/89	7313	26 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	563016	<0.5	311	5	315	180	8677			
2	563017	<0.5	289	9	351	160	8274			
3	563018	0.5	327	2	284	170	7949			
4	563019	<0.5	370	3	380	170	7011			
5	563020	<0.5	462	5	395	170	5822			
6	563021	0.5	344	6	423	55	2220			
7	563022	<0.5	479	5	608	130	3970			
8	563023	<0.5	516	8	507	120	3941			
9	563024	0.5	559	30	1035	120	2870			
10	563025	0.5	699	15	865	120	3208			
11	563026	<0.5	693	3	968	140	3472			
12	563027 * Std	<0.5	631	70	30	230	3777			
13	563029	0.5	434	<2	329	150	4735			
14	563030	<0.5	591	4	531	150	4475			
15	563031	<0.5	684	45	663	130	4067			
16	563032	<0.5	490	8	507	150	4255			
17	563033	<0.5	413	10	370	150	4487			
18	563034	<0.5	477	7	382	160	4485			
19	563035	<0.5	447	<2	510	140	3445			
20	563036	<0.5	458	5	330	170	3912			
21	563037	<0.5	633	30	869	110	3172			
22	563038	0.5	652	8	781	120	3210			
23	563039	0.5	636	35	805	120	2855			
24	563040	<0.5	475	15	941	120	4087			
25	563041	<0.5	647	15	975	120	3482			

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06604	22/11/89	7313	27 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	563042	<0.5	658	30	702	130	4133			
2	563043	<0.5	367	9	817	140	5057			
3	563044	<0.5	247	<2	999	120	3980			
4	563045	<0.5	357	<2	979	120	3390			
5	563046	<0.5	586	23	1147	140	4665			
6	563047	<0.5	367	15	1057	100	6281			
7	563048	<0.5	433	9	819	100	6067			
8	563049	0.5	625	<2	120	100	5272			
9	563050	<0.5	1160	15	105	200	4074			
10	563051	<0.5	1089	6	138	160	4507			
11	563052	0.5	566	3	443	180	6885			
12	563053	<0.5	714	20	285	190	5164			
13	563054	<0.5	1106	<2	103	180	4865			
14	563055	<0.5	828	<2	156	220	4624			
15	563056	<0.5	574	2	82	220	4153			
16	563057	<0.5	296	2	109	220	5520			
	563058	<0.5	1101	5	120	130	4662			
18	563059	<0.5	724	15	131	150	6150			
19	563060	<0.5	666	10	147	130	6127			
20	563061	<0.5	625	7	84	140	5021			
21	563062	<0.5	1008	8	189	120	4340			
22	563063	<0.5	420	15	217	130	5821			
23	563064	<0.5	324	10	161	110	6013			
24	563065	<0.5	156	15	137	130	7312			
25	563066	<0.5	174	20	216	130	5785			

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06604	22/11/89	7313	28 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	563067	<0.5	1078	35	148	150	5787			
2	563068	<0.5	1022	70	161	150	5284			
3	563069	<0.5	1002	75	117	110	4489			
4	563070 * STD	<0.5	626	70	34	230	3861			
5	563073	<0.5	816	65	32	120	4684			
6	563074	<0.5	985	120	185	130	4916			
7	563075	<0.5	570	120	75	55	5468			
8	563076	<0.5	1266	30	270	160	6094			
9	563077	<0.5	1514	50	341	170	5726			
10	563078	<0.5	1295	20	46	150	4635			
11	563079	<0.5	1131	25	74	150	4358			
12	563080	<0.5	584	40	92	170	3514			
13	563081	0.5	615	5	111	170	4708			
14	563082	<0.5	1072	15	43	160	4096			
15	563083	0.5	504	4	87	160	5155			
16	563084	0.5	418	7	57	150	3778			
	563085	0.5	511	4	76	160	4012			
18	563086	<0.5	539	4	62	170	3477			
19	563087	<0.5	683	6	321	160	3894			
20	563089	<0.5	1167	4	852	120	4163			
21	563090	0.5	1253	5	81	170	5256			
22	563091	<0.5	1051	<2	139	120	5219			
23	563092	0.5	1006	5	257	160	5009			
24	563093	<0.5	796	2	72	160	5209			
25	563094	<0.5	800	20	58	180	5218			

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
	23.3.08.06604	22/11/89	7313	29 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	563095	<0.5	234	<2	51	130	2374			
2	563096	<0.5	129	<2	21	140	1515			
3	563097	<0.5	139	<2	44	140	1370			
4	563098	<0.5	1228	<2	103	170	4365			
5	563302	<0.5	100	<2	7	130	1136			
6	563303	<0.5	865	<2	74	150	4523			
7	563304	<0.5	1294	4	90	150	3938			
8	563305	0.5	1074	5	111	150	4297			
9	563306	<0.5	633	4	98	140	4490			
10	563310 *STD	<0.5	630	70	34	240	3797			
11	563311	<0.5	378	2	72	150	5219			
12	563312	<0.5	864	3	124	140	4389			
13	563313	<0.5	1152	7	116	130	4382			
14	563314	<0.5	1024	<2	69	170	4912			
15	563315	<0.5	982	<2	84	150	4797			
16	563316	<0.5	744	2	67	200	5266			
	563317	0.5	542	<2	74	190	5342			
18	563318	<0.5	401	15	614	220	7400			
19	563319	<0.5	573	5	614	180	5911			
20	563320	<0.5	1207	15	651	190	6657			
21	563321	<0.5	2347	10	553	170	5741			
22	563322	<0.5	446	10	896	180	7963			
23	563323	<0.5	385	9	556	160	7839			
24	563324	<0.5	325	7	496	160	7645			
25	563325	<0.5	150	10	557	170	9029			

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
	23.3.08.06604	22/11/89	7313	30 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	563326	<0.5	709	55	1438	270	8954			
2	563327	<0.5	424	15	701	230	8749			
3	563328	<0.5	341	20	598	220	9910			
4	563329	1.0	369	<2	126	130	6740			
5	563330	0.5	433	<2	53	190	6044			
6	563331	0.5	498	10	62	150	4774			
7	563334	0.5	520	<2	1015	160	5806			
8	563335	<0.5	294	<2	883	130	6766			
9	563336	<0.5	88	<2	510	130	6635			
10	563337	<0.5	90	5	208	70	6132			
11	563338	<0.5	235	15	599	120	6366			
12	563339	<0.5	238	6	443	120	6447			
13	563340	<0.5	245	9	535	120	6472			
14	563341	<0.5	509	10	1114	200	7468			
15	563342	<0.5	79	2	497	170	6880			
16	563343	<0.5	173	4	424	160	6290			
	563344	<0.5	233	<2	527	170	6465			
18	563345	<0.5	233	20	798	160	6265			
19	563346	<0.5	261	9	840	110	6414			
20	563347	<0.5	237	4	247	160	5383			
21	563348	<0.5	222	5	555	150	5586			
22	563349	<0.5	376	<2	179	160	4392			
23	563350	0.5	616	15	104	120	4044			
24	563351	0.5	708	75	125	150	4526			
25	563352	0.5	1209	90	64	180	5392			

Results in ppm unless otherwise specified
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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
	23.3.08.06604	22/11/89	7313	31 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	563353	0.5	2887	240	61	170	4130			
2	563354	<0.5	420	610	183	73	3972			
3	563355	<0.5	696	230	159	110	4439			
4*	563356 STD	<0.5	650	70	30	230	3836			
5	563357	<0.5	760	1050	150	75	6294			
6	563358	1.0	818	65	104	110	4077			
7	563359	1.0	1258	120	114	120	5536			
8	563360	1.5	637	220	89	110	4839			
9	563361	1.0	772	75	163	130	4723			
10	563362	0.5	553	55	153	140	6327			
11	563363	<0.5	220	25	379	120	5620			
12	563364	<0.5	76	7	243	140	6220			
13	563365	<0.5	150	10	327	85	5735			
14	563366	<0.5	139	10	295	150	6677			
15	563367	<0.5	492	60	238	130	4320			
16	563368	<0.5	165	8	387	130	5650			
	563369	<0.5	240	7	529	110	6013			
18	563370	<0.5	111	10	353	120	5748			
19	563371	<0.5	214	15	338	130	5653			
20	563372	<0.5	349	15	372	130	5541			
21	563373	0.5	405	20	337	130	5012			
22	563374	<0.5	630	55	286	130	4850			
23	563375	<0.5	341	20	292	150	4731			
24	563376	<0.5	118	3	600	130	7427			
25	563377	<0.5	380	4	480	150	6023			

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
	23.3.08.06604	22/11/89	7313	32 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	563378	<0.5	149	2	379	110	6237			
2	563379	<0.5	11	<2	776	130	7773			
3	563380	<0.5	63	7	537	160	6899			
4	563381	<0.5	125	4	505	120	6642			
5	563382	<0.5	64	4	487	130	6924			
6	563383	<0.5	331	2	399	210	6609			
7	563384	<0.5	359	<2	372	210	6737			
8	563385	<0.5	461	2	317	190	6061			
9	563387	<0.5	709	2	247	200	6117			
10	563388	0.5	350	2	268	180	6551			
11	563389	<0.5	450	4	133	180	6180			
12	563390	<0.5	591	2	77	160	4432			
13	563391	<0.5	770	2	64	150	5368			
14	563392	<0.5	863	<2	130	180	3136			
15	563393	<0.5	166	2	207	130	5662			
16	563394	<0.5	450	<2	55	160	3759			
	563395	<0.5	856	2	52	200	3109			
18	563396	<0.5	605	<2	60	160	2880			
19	563397	<0.5	878	4	37	140	3625			
20	563398	<0.5	1168	3	46	160	3839			
21	563399	<0.5	1139	5	62	200	3575			
22	563400	<0.5	1250	2	55	150	3333			
23	563401	<0.5	1378	2	39	160	3320			
24	563402	<0.5	661	<2	42	150	4864			
25	563403	<0.5	606	3	47	140	4267			

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06604	22/11/89	7313	33 OF 33

TUBE No.	SAMPLE No.	Ag	Ba	As	Cr	Zr	Ti			
1	563404	<0.5	734	50	84	150	3534			
2	563405	<0.5	638	3	136	130	5366			
3	563406	0.5	339	30	121	130	5377			
4	563407	<0.5	314	20	164	160	6636			
5	563408	<0.5	641	40	177	130	3178			
6 *	563409 SMD	<0.5	636	70	27	240	3889			
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
18										
19										
20										
21										
22										
23	DETECTION	0.5	10	2	5	5	50			
24	UNITS	ppm	ppm	ppm	ppm	ppm	ppm			
25	METHOD	101	401	401	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 2

Asbestos Exploration — GEOCHEMICAL SAMPLE LEDGER — GW + GC

PROJECT						DATE	SHEET
Mankintah EL Costeans.					YES / NO	24/4/89	1 of 1.

EASTING	NORTHING	SAMPLE NUMBER	METAL VALUES PPM	GEOLOGICAL LOG
3375	6400	563531	Channel Cu, Pb, Zn, Ba, As, Ag, Cr, Ti, Zr	0-5m Que River Shale 6400N 3375E Costean.
		532	"	5-10m "
		533	"	10-15m Basalt lava
		534	"	15-20m "
		535	"	20-25m "
		536	"	25-30m "
		537	"	30-35m "
3325	6400	563538	"	35-38m
			Channel Cu, Pb, Zn, Ba, As, Ag, Cr, Ti, Zr	
3455	6500	563520	"	0-5m Que River Shale 6500N, 3425E Costean.
		521	"	5-10m "
		522	"	10-15m "
		523	"	15-20m ? Basalt lava.
		524	"	20-25m
		525	"	25-30m
		526	"	30-35m
		527	"	35m-40m
		528	"	40-45m
		529	"	45-50m
3395	6510	530	"	50-56m

A050169

488190 (52)

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. 23.3.08.06671

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

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

ORDER No.	PROJECT
7427	

DATE RECEIVED	RESULTS REQUIRED
22/11/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
1	11/12/89	1	19

STATE OF SAMPLE REFER BELOW	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	X5635,20/38	CO Prep: 018							Cu,Pb,Zn,Ag/101		
	X5635,20/38	CO							Ba,As,Cr,Zr,Ti/401		

RESULTS TO
R. de Bomford
Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

RESULTS TO

REMARKS

N.W. MT. CHAMPION
COSTEANS.

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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A Division of Inchcape Inspection and Testing Services Australia Pty Ltd.

438191

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06691	11/12/89	7427	1 OF 1

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ba	As	Cr	Zr	Ti
1	563520	20	1100	90	<0.5	710	<2	100	160	4000
2	563521	40	70	75	<0.5	760	10	120	150	3750
3	563522	25	60	50	<0.5	810	7	120	150	3900
4	563523	160	50	60	<0.5	1800	160	170	190	5200
5	563524	60	50	50	<0.5	1900	15	160	240	5150
6	563525	25	40	35	<0.5	1900	6	400	210	5100
7	563526	40	55	50	<0.5	1550	3	390	200	5150
8	563527	10	65	30	<0.5	330	<2	100	170	6650
9	563528	20	110	50	<0.5	360	<2	130	170	6650
10	563529	125	300	155	<0.5	730	200	350	160	4650
11	563530	110	205	95	<0.5	660	130	500	190	7350
12	563531	35	30	65	0.5	800	7	120	160	4100
13	563532	40	35	120	0.5	880	8	130	140	3650
14	563533	60	40	60	<0.5	1250	85	210	170	4400
15	563534	95	35	40	0.5	1950	40	530	220	5150
16	563535	95	30	55	<0.5	1550	10	510	200	4500
17	563536	160	30	115	0.5	960	9	720	200	4600
18	563537	195	40	160	0.5	760	15	940	210	5250
19	563538	120	40	125	0.5	870	9	780	220	6650
20										
21										
22										
23	DETECTION	5	5	5	0.5	10	2	5	5	50
24	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
25	METHOD	101	101	101	101	401	401	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
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488192

APPENDIX 3

488193

ABERFOYLE RESOURCES LIMITED

EXPLORATION REPORT

MACKINTOSH EL106/87

CHARTER DOLERITE

UTEM SURVEY

FEBRUARY 1990

TECHNICAL REPORT

DISTRIBUTION

HAWTHORN (1)
BURNIE (1)

PREPARED BY

G B WALKER
GEOPHYSICIST

ISSUED BY

J SILIC
CHIEF GEOPHYSICIST

488194

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1. Introduction

2. Survey Specifications

3. Discussion of Results

4. Conclusion

5. References

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Figure 1 - Location Plan
Figure 2 - Model Primary Field
Figure 3 - Model 1 Total Field Z-component
Figure 4 - Model 1 Secondary Field Z-component
Figure 5 - Model 1 Total Field X-component
Figure 6 - Model 2 Total Field Z-component
Figure 7 - Model 2 Secondary Field Z-component

Plate

Plate 1a- Geological Section 5200N
b- UTEM Interpretation

Appendix

UTEM Data Sections

1. INTRODUCTION

Electromagnetic techniques have made significant contributions to the discovery and delineation of the Que River and Hellyer massive sulphide deposits (Webster and Skey, 1979; Silic et al, 1985; Eadie et al, 1985). Following the discovery of the Hellyer orebody, Aberfoyle has rigorously employed the UTEM method (West et al, 1984) in the search for new targets.

This report presents the results of a UTEM survey completed over the Charter Dolerite grid on Mackintosh EL106/87 (Figure 1). The survey was designed to test the Hellyer ore position within the Que-Hellyer Volcanics beneath cover of the Charter Dolerite. A cross-section of the geology on 5200N indicating the position of the target horizon is shown on Plate 1 a).

2. Survey Specifications

The UTEM survey was carried out by Lamontagne Geophysics (Australia) Pty Ltd using UTEM-III instrumentation on February 8 and 9, 1990. Single, vertical component (HZ) magnetic field was recorded at a base frequency of 26.23Hz.

The single loop, five line survey acquired 3.1 line-km of data spaced at 50m. The loop front was aligned to be parallel to the HEC power lines in order to minimise noise. Survey geometry is shown on Plate 1b).

3. Discussion of Results

The digital UTEM data were obtained and re-plotted to enhance subtle late-time responses (see Appendix).

All responses detected in the survey may be explained by "formational" sources.

The Charter Dolerite is clearly represented in the data as a less conductive body enclosed by the more conductive Que River Shales. Time decay analysis of the response over the shales indicates a $t^{-1.66}$ power law decay, implying that some degree of inductive flow was occurring through the shales. This is to be expected due to their proximity to the surface and the energising loop.

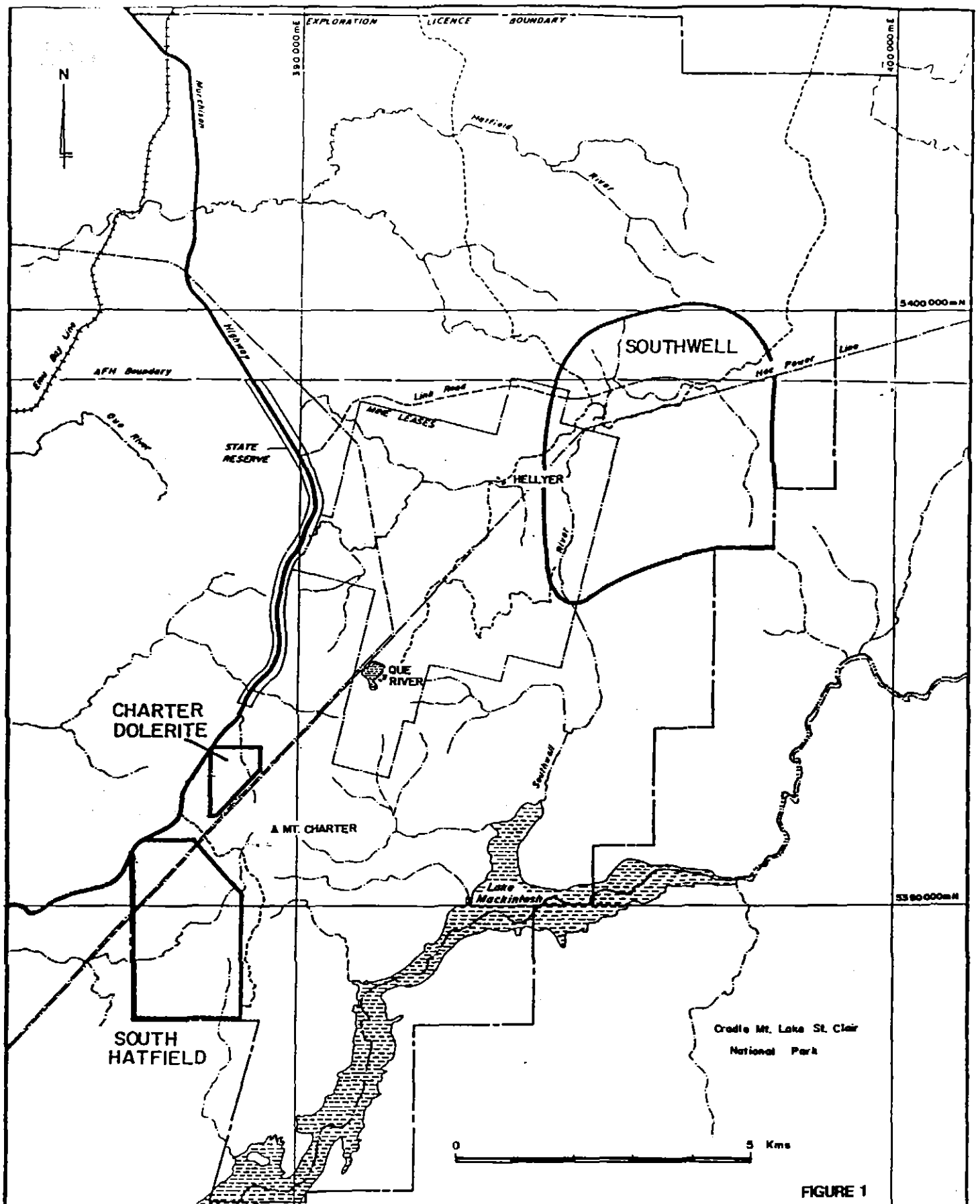


FIGURE 1

Aberfoyle Resources Limited

EXPLORATION DIVISION

488196

REVISIONS			
Init.	Date	Init.	Date

NORTH WEST TASMANIA

MACKINTOSH DISTRICT

LOCATION OF CHARTER DOLERITE GRID

Compiled : AMcN.

Drawn : RJE

Traced :

Checked :

Location Code : K55/6/44

Scale : As shown

Date : February, 1988

Plate No. : MAC 181

Examination of Plate 1a) suggests that maximum coupling of the primary field with the target horizon on Line 5200N would have occurred at the western end of the line up to approximately 3000E. Poorer coupling would have resulted with a conductor of limited depth extent in the target horizon east of 3000E, and late time responses from this position would be contaminated by power line noise and inductive effects from the near surface Que River Shales. However, the data indicate that complete shielding of deep conductors by the shales did not occur, and responses from targets of significant depth extent would have been manifested in the late-time channels.

Tests were carried out with SCHEIBE, a new TEM modelling program developed for AMIRA by the CSIRO. The program calculates the response from a conductive sheet enclosed by a half-space and capped by conductive overburden. A simulation of the Charter Dolerite case was carried out incorporating the shales, modelled as conductive overburden 100m thick, and a hypothetical flat-lying Hellyer-sized conductor at 300m depth. Figure 2 shows the primary field, dominated by a response from the shales at early times (channels 1-5). The secondary field is represented on Figure 3, showing a pronounced anomaly from the conductor. Figure 4 shows the total field (ie. the field measure by impulse EM systems). At early times the shales dominate the response. However, at late-times (channels 16-19) a subtle anomaly due to the conductor is distinguished from the half-space effect. The X-component also reflects a late-time anomalous trough (Figure 5).

A larger body, 200m thick produces even more pronounced total and secondary field anomalies (Figures 6,7).

It is clear that despite disadvantageous survey geometry, a concentration of sulphides the size of the Hellyer orebody would have been reflected in the Charter Dolerite UTEM data. Smaller deposits may have produced subtle anomalies not easily resolved from effects due to the shales and half space. In this situation, the current gathering mechanism would be relied upon to produce detectable anomalies.

4. Conclusions

The UTEM survey over the Charter Dolerite grid failed to define a response directly attributable to sulphide mineralisation. All responses may be explained by geological or "formational" sources.

It is possible poor coupling with the primary field would have applied to sections of the target horizon. Detection of conductors significantly smaller than the Hellyer orebody in this position would have relied on the current gathering mechanism to be distinguishable from responses attributable to geological sources.

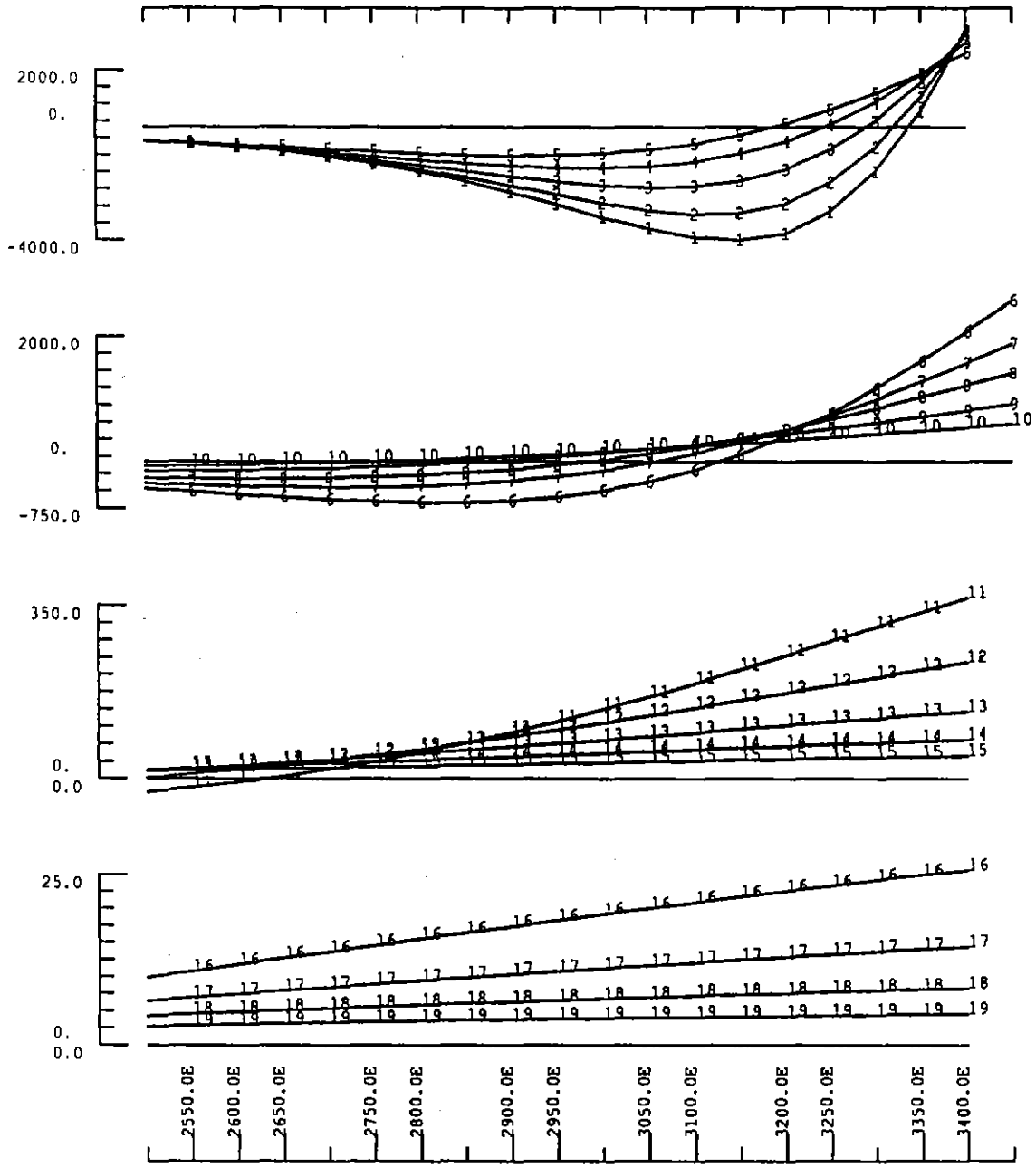
5. References

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., 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.



CHARTER DOLERITE

SCHEIBE MODEL

PRIMARY FIELD

Z-COMPONENT

Aberfoyle Resources Ltd

March 1990

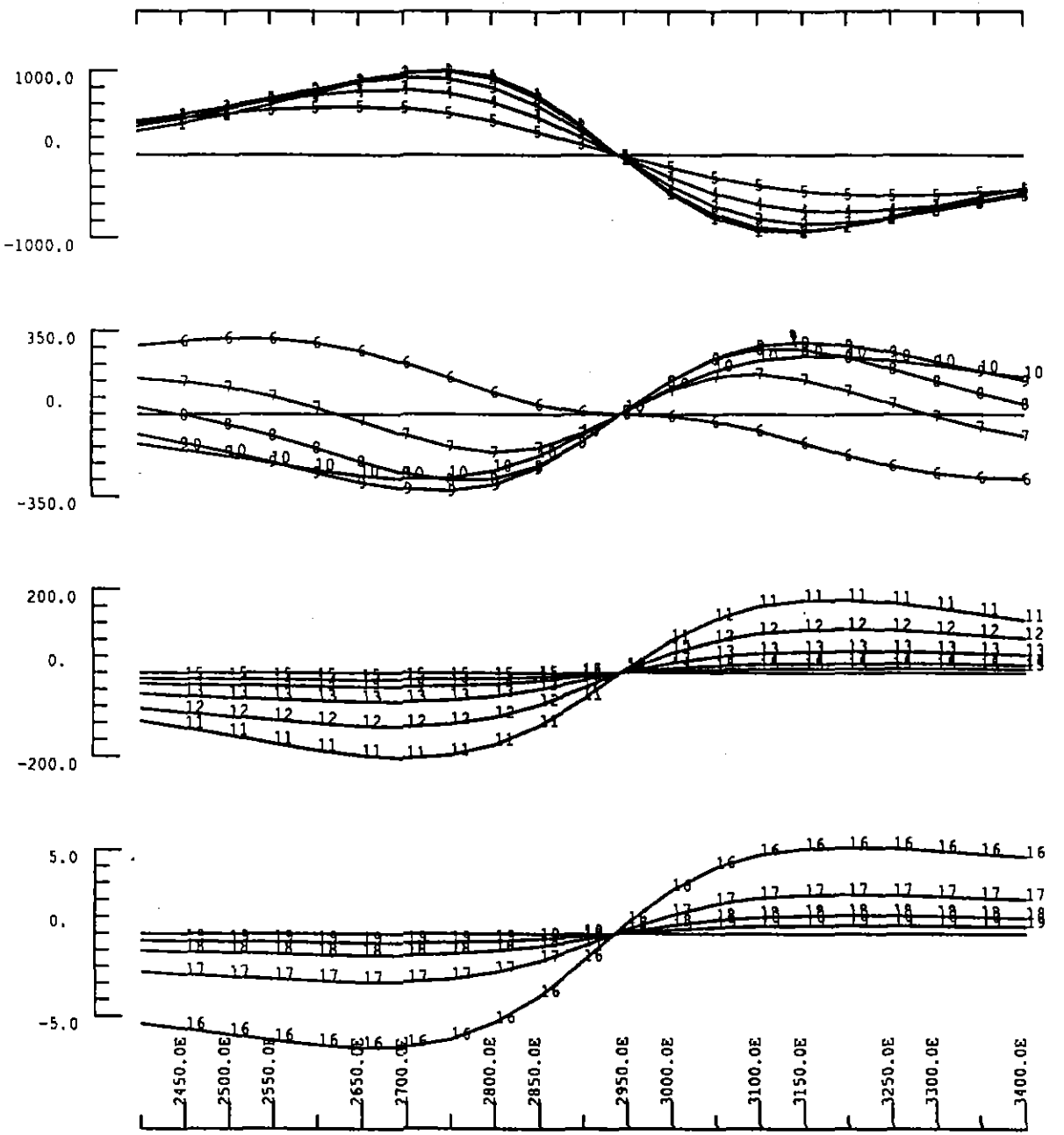
<gbw>

Plot Date : 29/03/90 Horiz

Figure 2

488199

488200



CHARTER DOLERITE

SCHEIBE MODEL

SECONDARY FIELD

Z-COMPONENT

Aberfoyle Resources Ltd

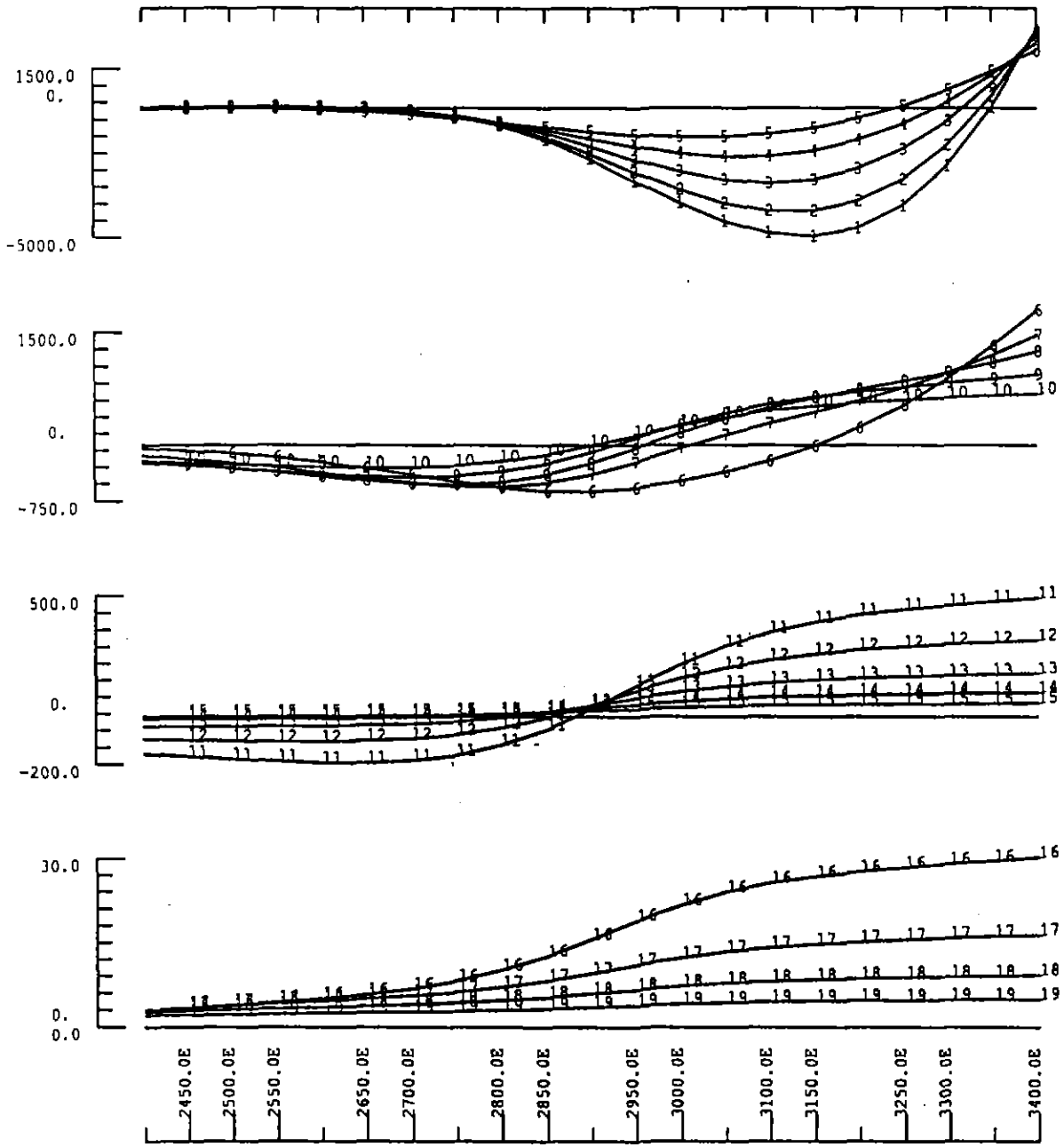
April 1990

<gbw>

Plot Date : 05/04/90 Horiz

Figure 3

488201



CHARTER DOLERITE

SCHEIBE MODEL

TOTAL FIELD

Z-COMPONENT

Aberfoyle Resources Ltd

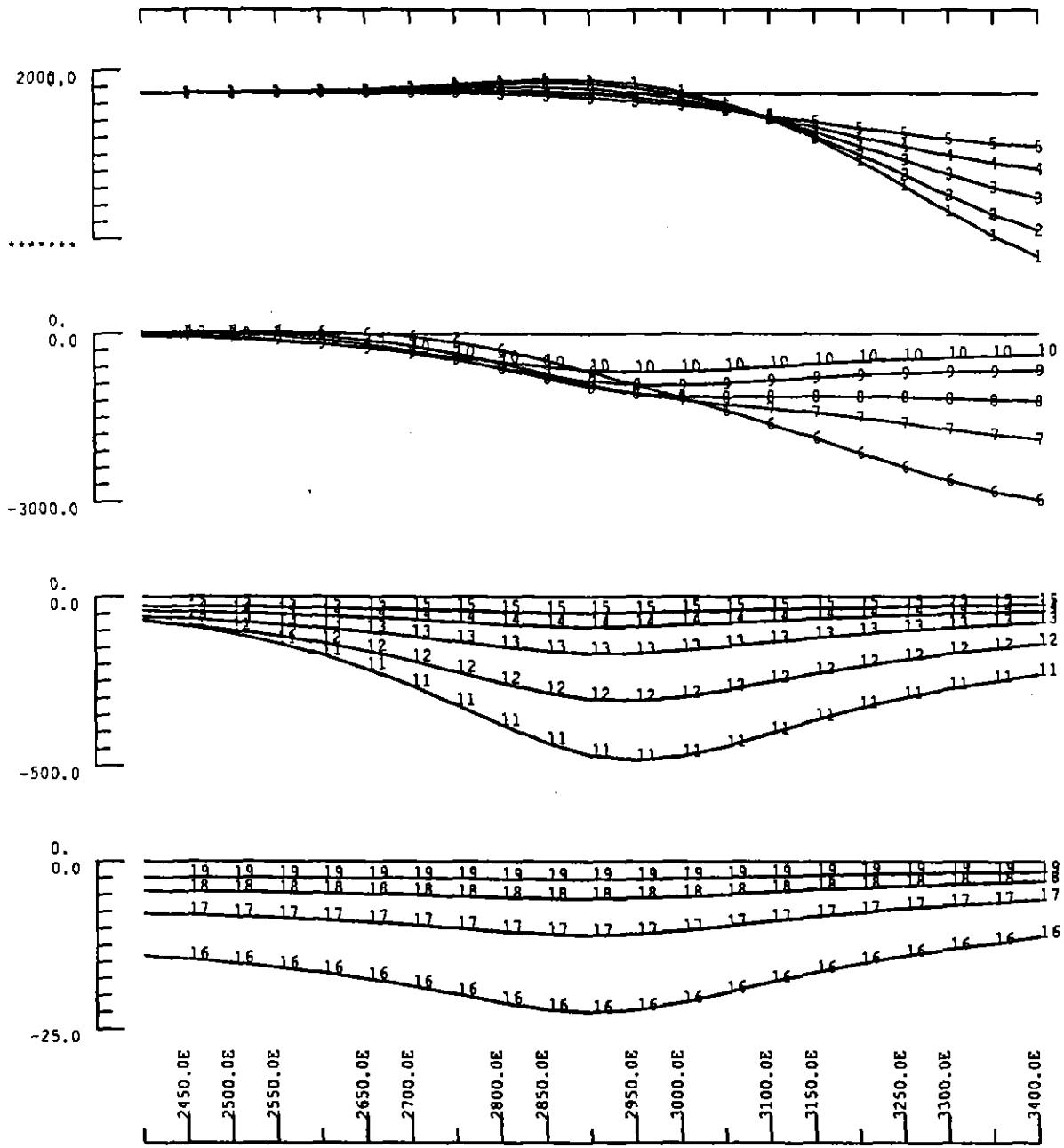
April 1990

<gbw>

Plot Date : 05/04/90 Horiz

Figure 4

488202



CHARTER DOLERITE

SCHEIBE MODEL

SECONDARY FIELD

X-COMPONENT

Aberfoyle Resources Ltd

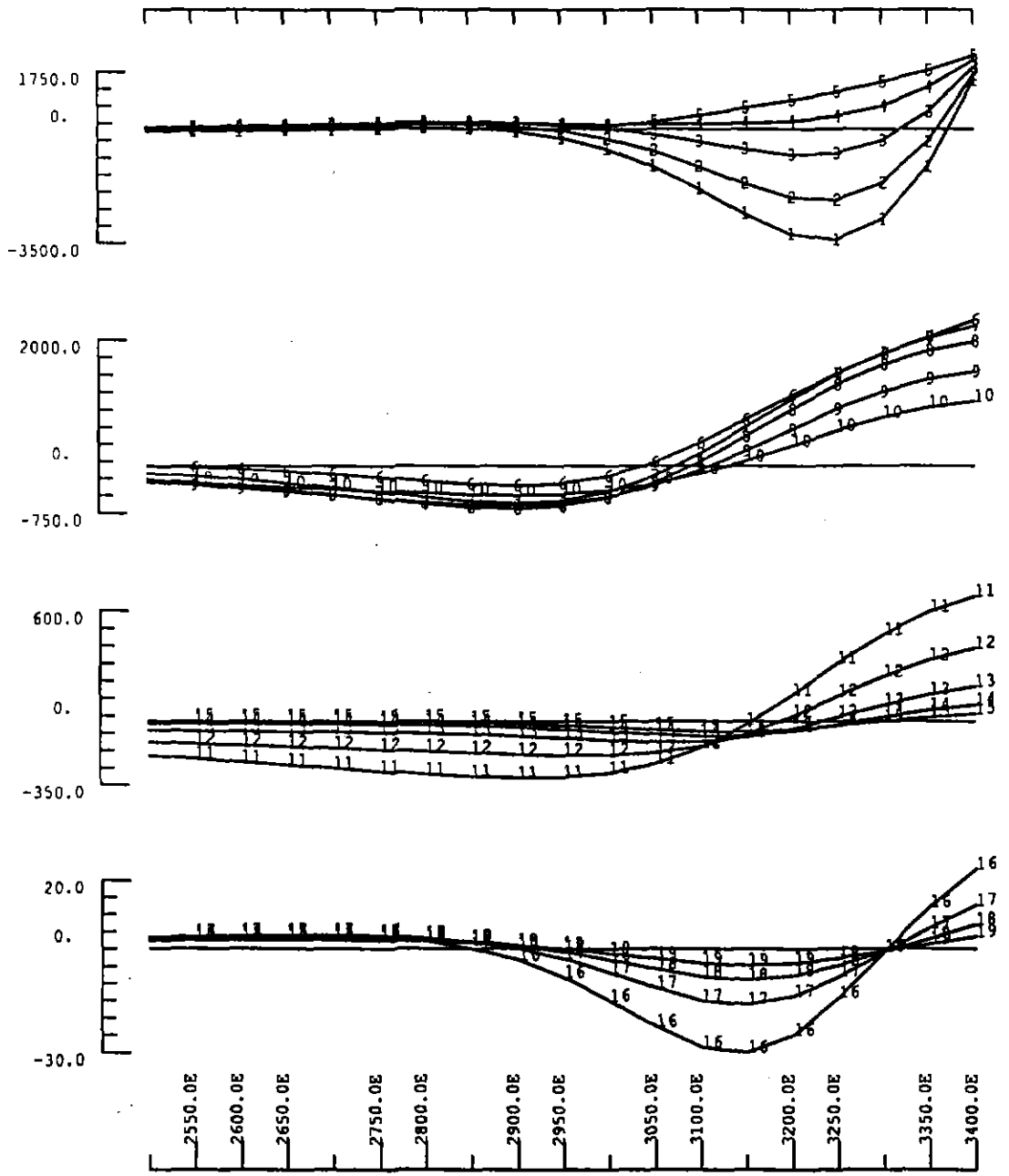
April 1990

<gbw>

Plot Date : 05/04/90 Horiz

Figure 5

488203



CHARTER DOLERITE

SCHEIBE MODEL

TOTAL FIELD

Z-COMPONENT

Aberfoyle Resources Ltd

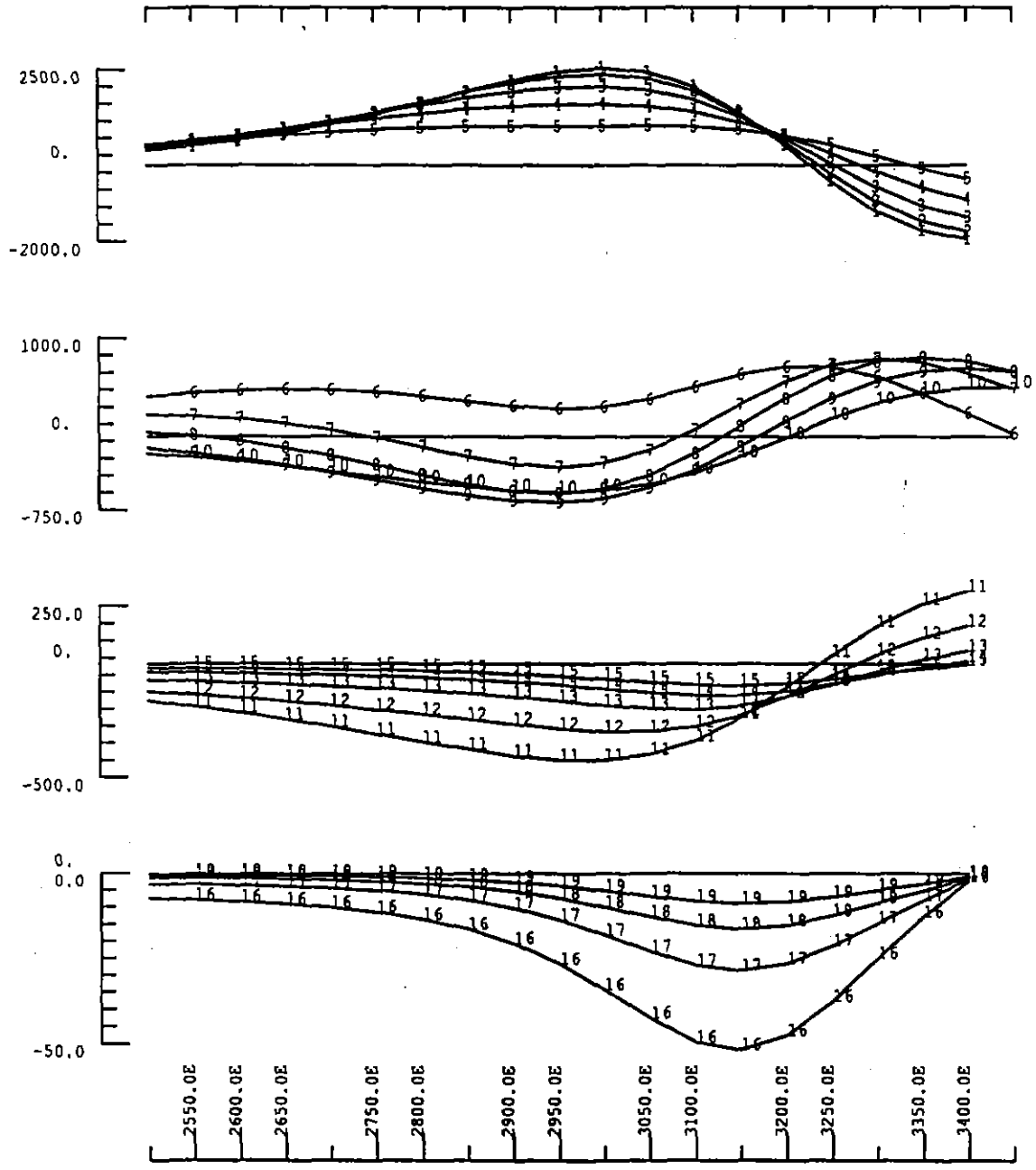
March 1990

<qbw>

Plot Date : 29/03/90 Horiz

Figure 6

488204



CHARTER DOLERITE

SCHEIBE MODEL

SECONDARY FIELD

Z-COMPONENT

Aberfoyle Resources Ltd

March 1990

<gbw>

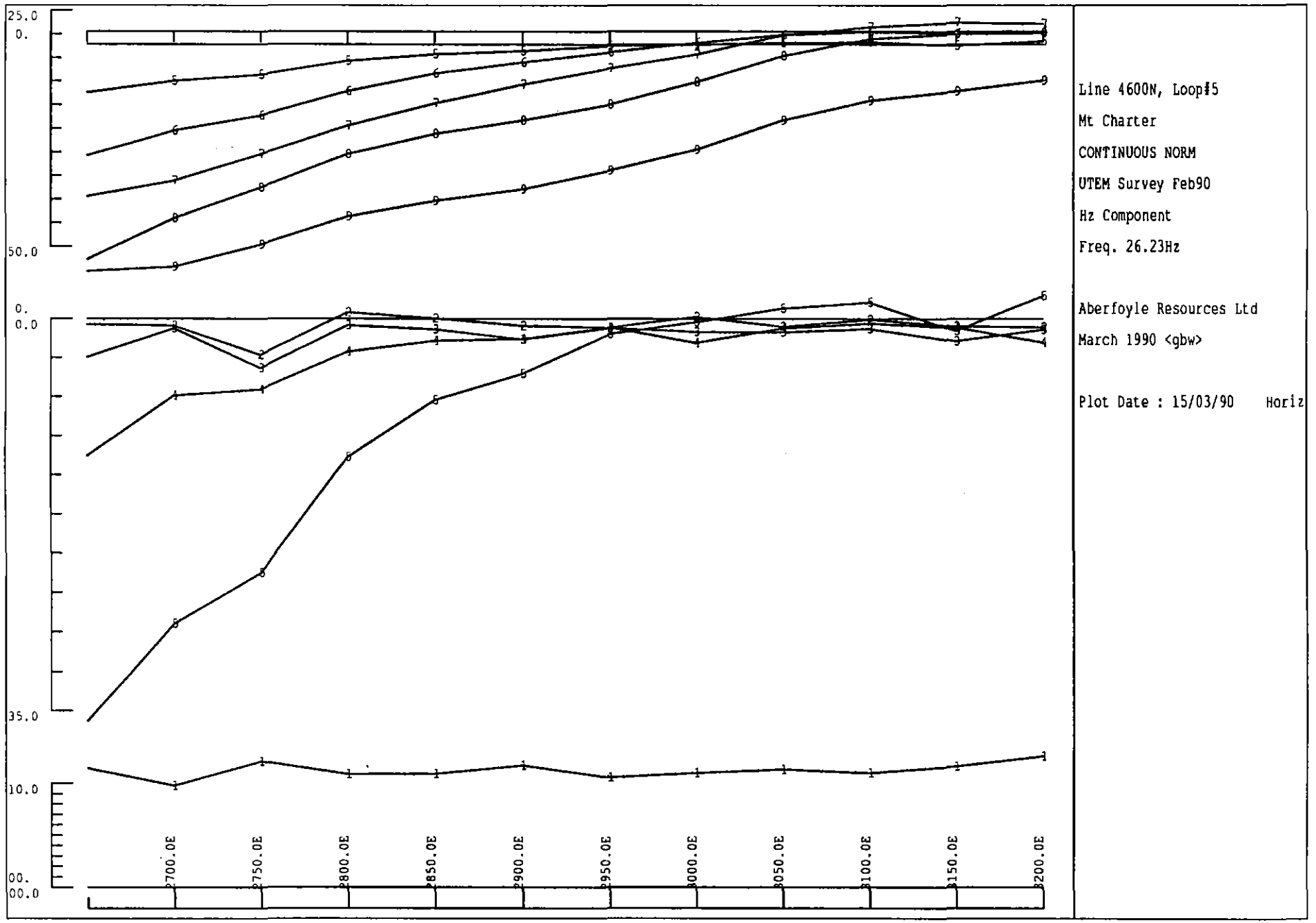
Plot Date : 29/03/90 Horiz

Figure 7

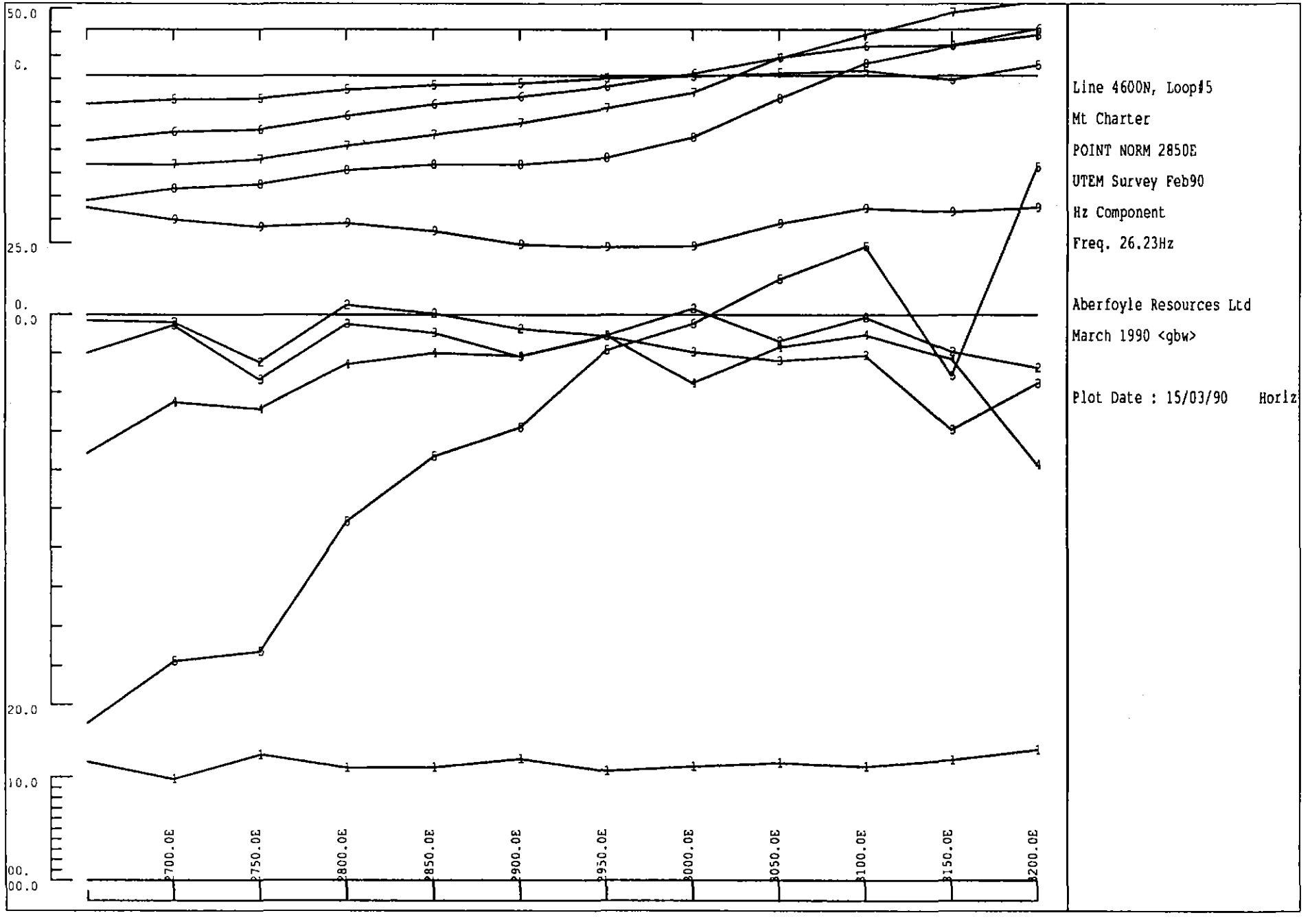
488205

APPENDIX

UTEM Data Sections


25.0
0.
50.0
0.
0.0
35.0
10.0
00.
00.0
2700.0E
2750.0E
2800.0E
2850.0E
2900.0E
2950.0E
3000.0E
3050.0E
3100.0E
3150.0E
3200.0E
Line 4600N, Loop#5
Mt Charter
CONTINUOUS NORM
UTEM Survey Feb90
Hz Component
Freq. 26.23Hz
Aberfoyle Resources Ltd
March 1990 <gbw>
Plot Date : 15/03/90
Horiz

488206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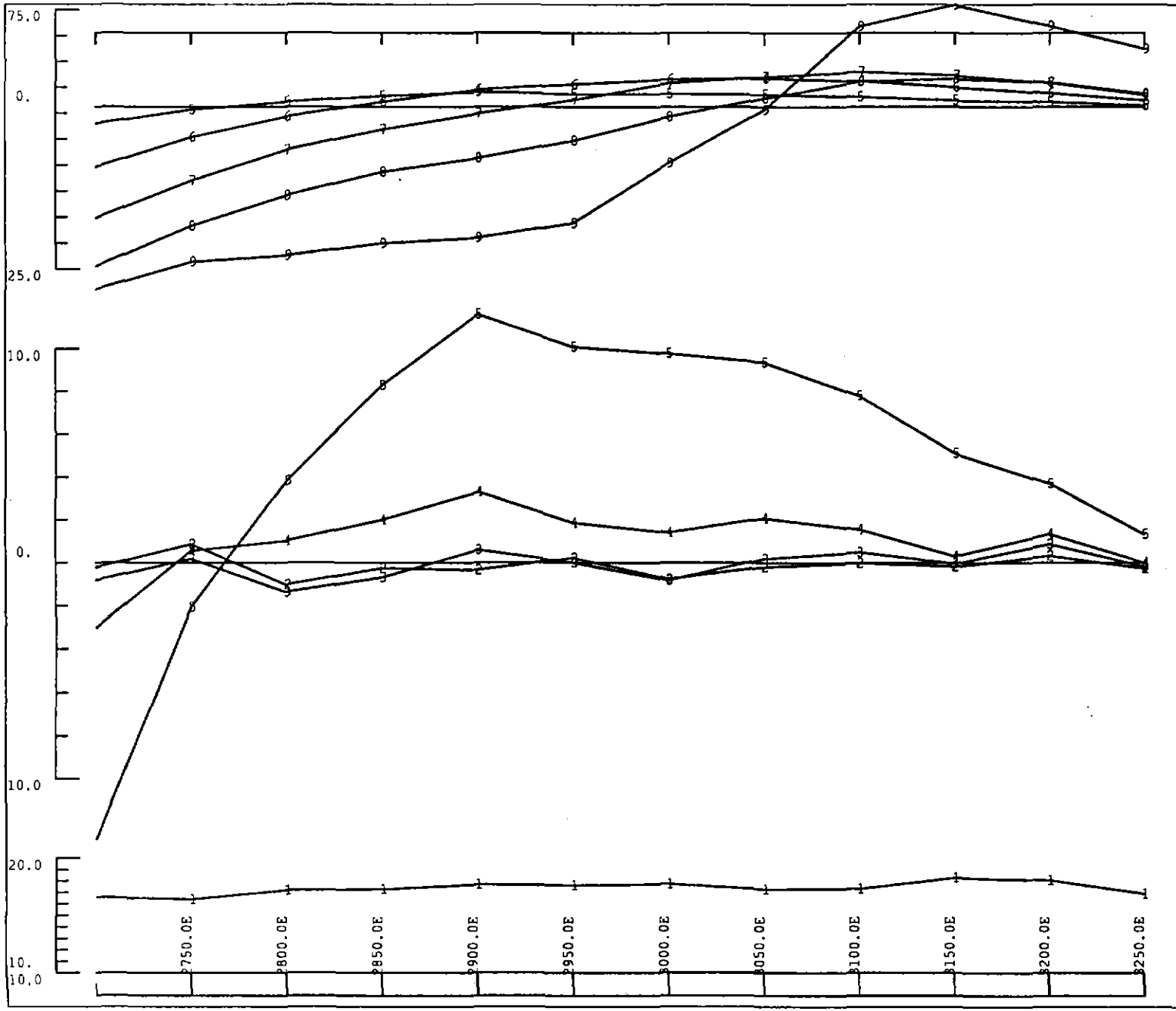
0.
25.0
0.
0.0
20.0
10.0
00.
00.0
2700.0E
2750.0E
2800.0E
2850.0E
2900.0E
2950.0E
3000.0E
3050.0E
3100.0E
3150.0E
3200.0E
Line 4600N, Loop#5
Mt Charter
POINT NORM 2850E
UTEM Survey Feb90
Hz Component
Freq. 26.23Hz
Aberfoyle Resources Ltd
March 1990 <gbw>
Plot Date : 15/03/90
Horiz

188207



Line 4800N, Loop#5

Mt Charter

CONTINUOUS NORM

UTEM Survey Feb90

Hz Component

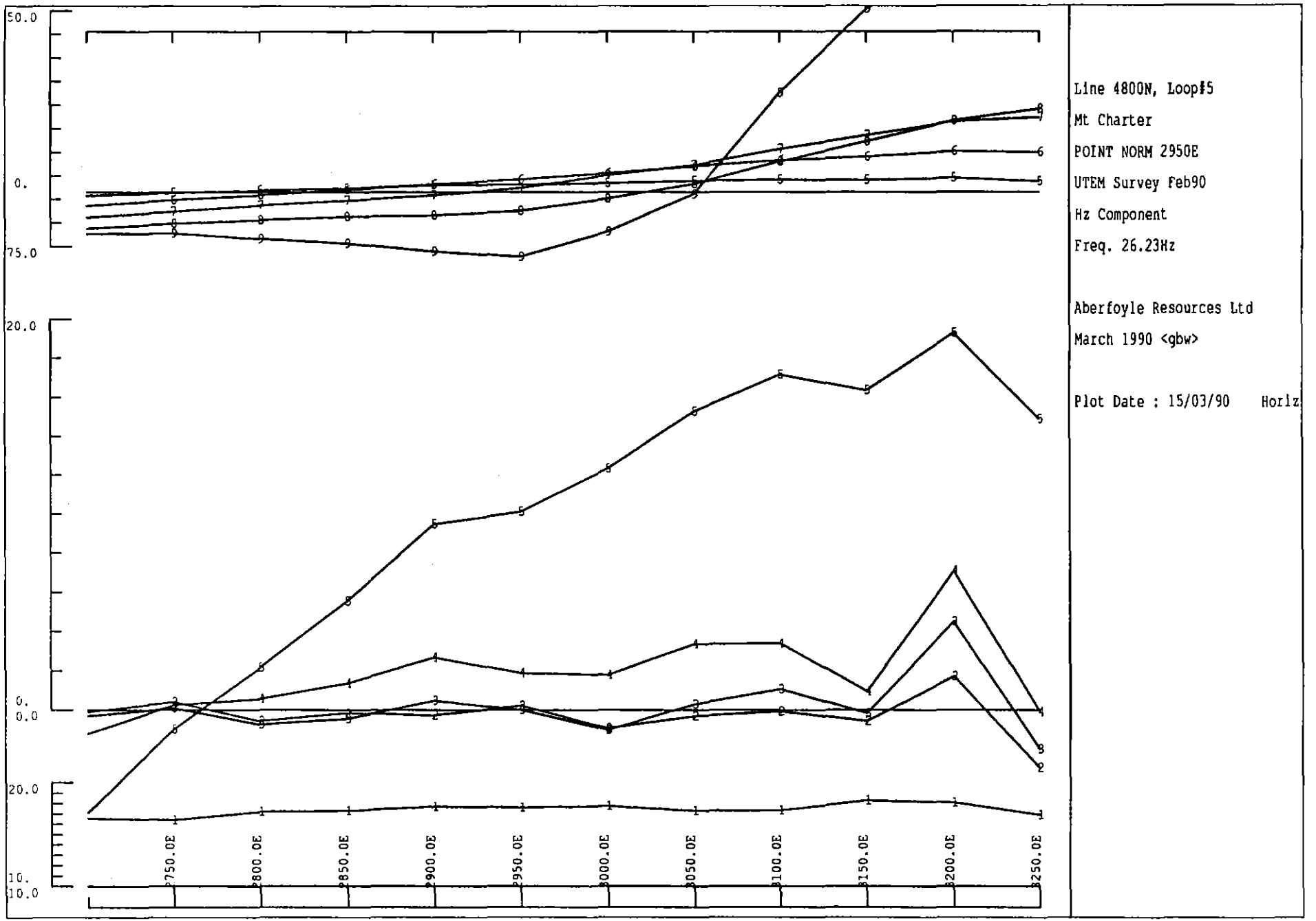
Freq. 26.23Hz

Aberfoyle Resources Ltd

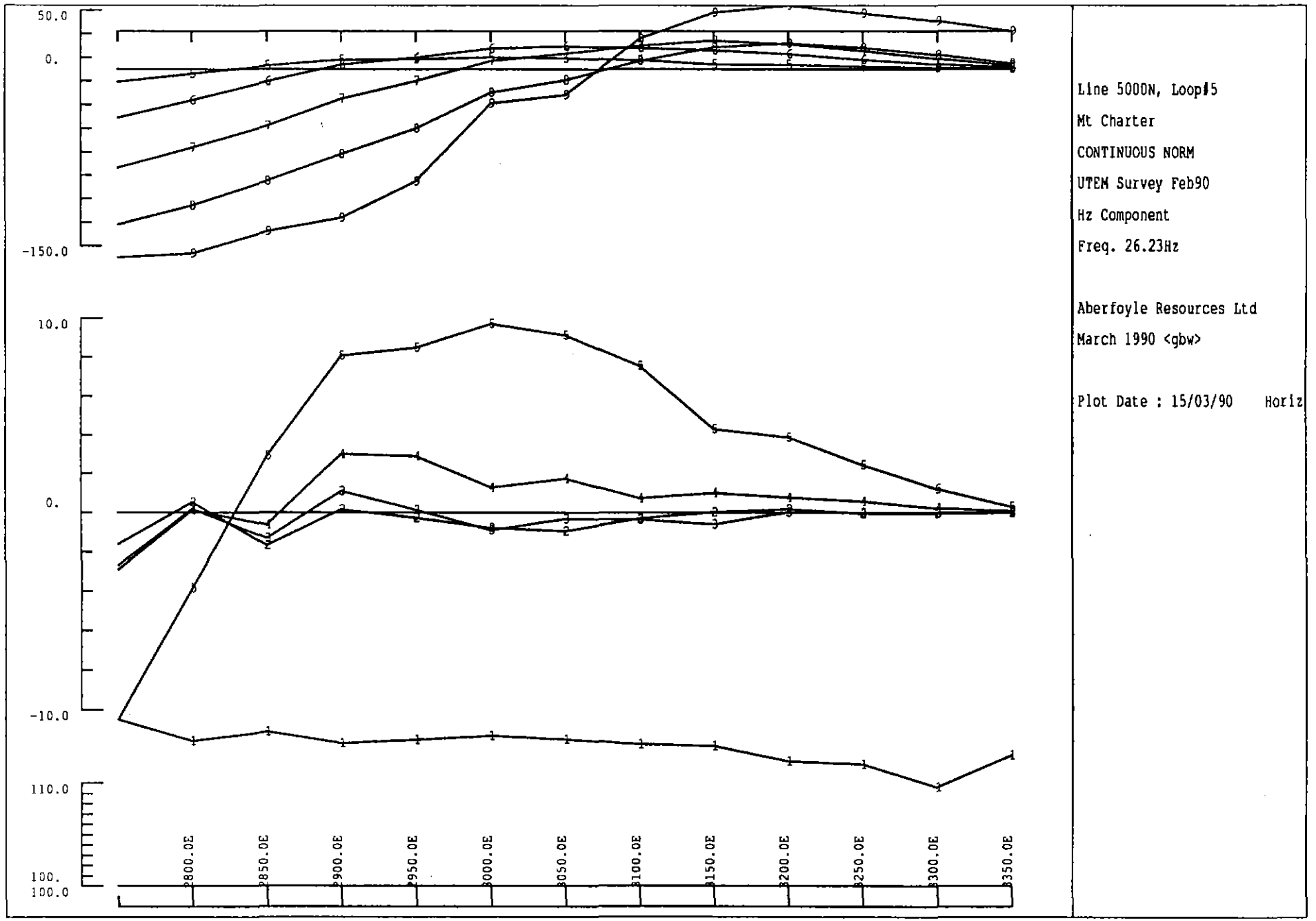
March 1990 <gbw>

Plot Date : 15/03/90 Horiz

488208


50.0
0.
75.0
20.0
0.
0.0
20.0
10.
10.0
2750.0E
2800.0E
2850.0E
2900.0E
2950.0E
3000.0E
3050.0E
3100.0E
3150.0E
3200.0E
3250.0E
Line 4800N, Loop#5
Mt Charter
POINT NORM 2950E
UTEM Survey Feb90
Hz Component
Freq. 26.23Hz
Aberfoyle Resources Ltd
March 1990 <gbw>
Plot Date : 15/03/90 Horiz

4882209


50.0
0.
-150.0
10.0
0.
-10.0
110.0
100.
100.0
2800.0E
2850.0E
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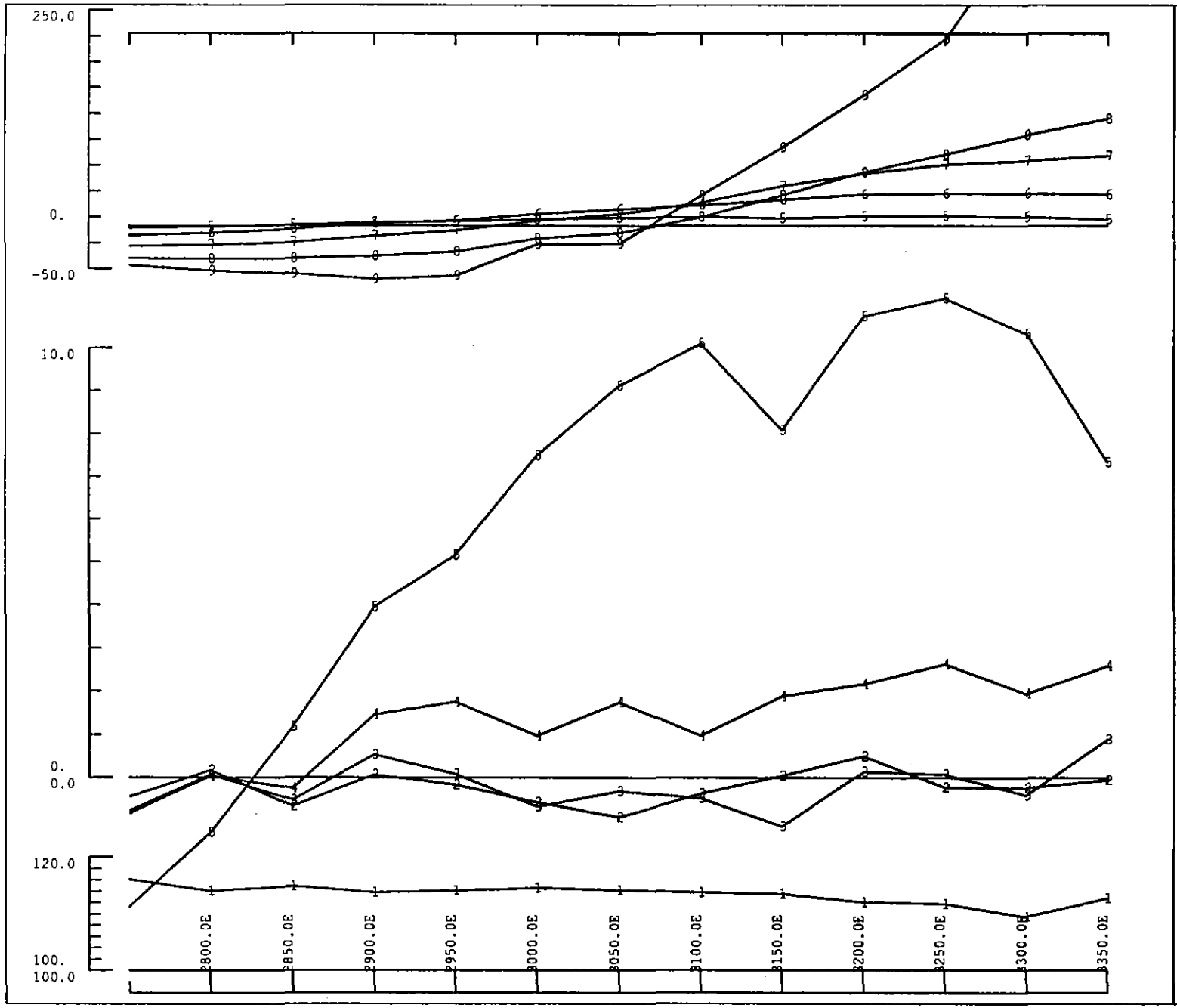
2950.0E
3000.0E
3050.0E
3100.0E
3150.0E
3200.0E
3250.0E
3300.0E
3350.0E
Line 5000N, Loop#5
Mt Charter
CONTINUOUS NORM
UTEM Survey Feb90
Hz Component
Freq. 26.23Hz
Aberfoyle Resources Ltd
March 1990 <gbw>
Plot Date : 15/03/90
Horiz

488210



Line 5000N, Loop#5

Mt Charter

POINT NORM 3050E

UTEM Survey Feb90

Hz Component

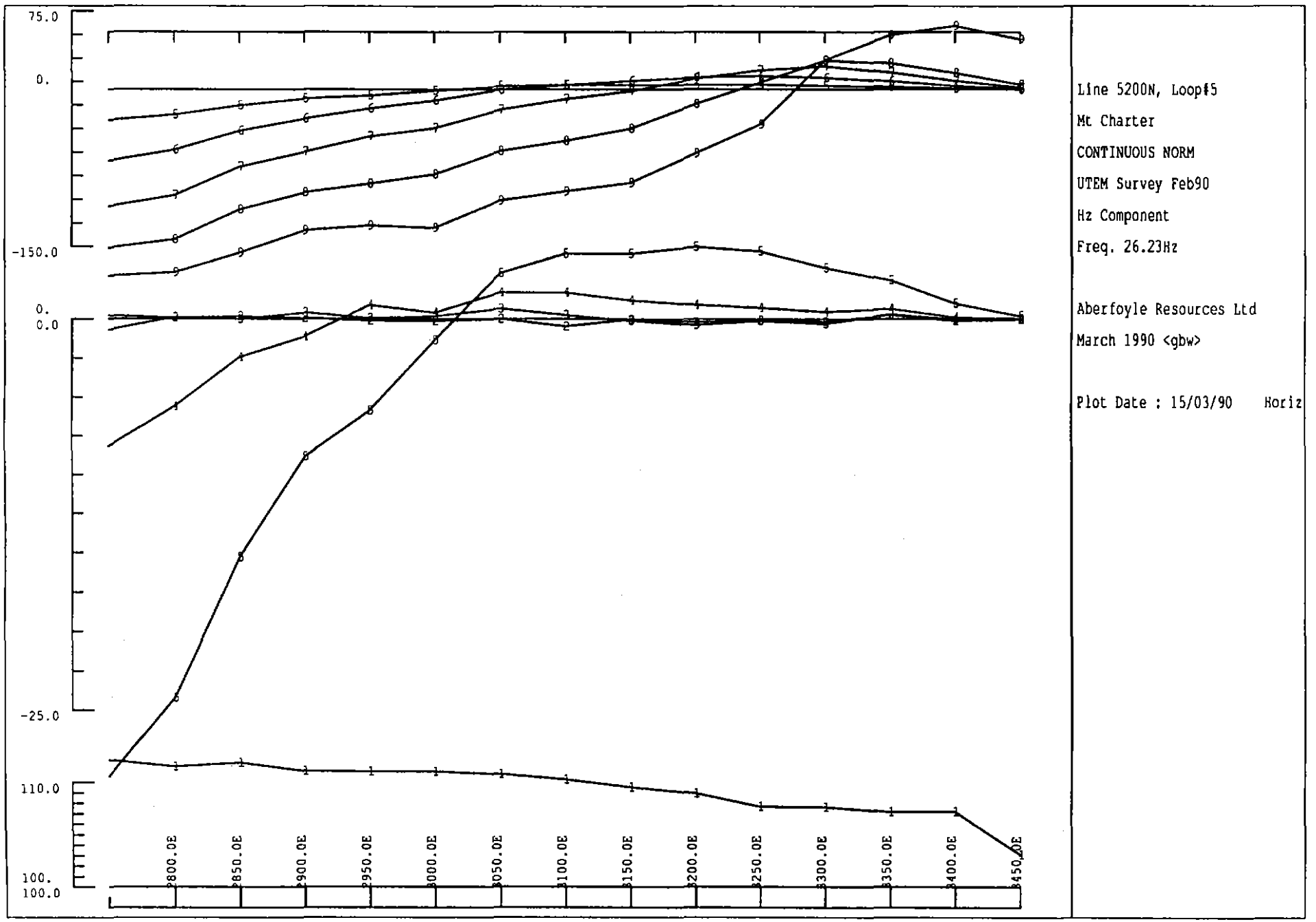
Freq. 26.23Hz

Aberfoyle Resources Ltd

March 1990 <gbw>

Plot Date : 15/03/90 Horiz

41283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-150.0
0.
0.0
-25.0
110.0
100.
100.0
2800.0E
2850.0E
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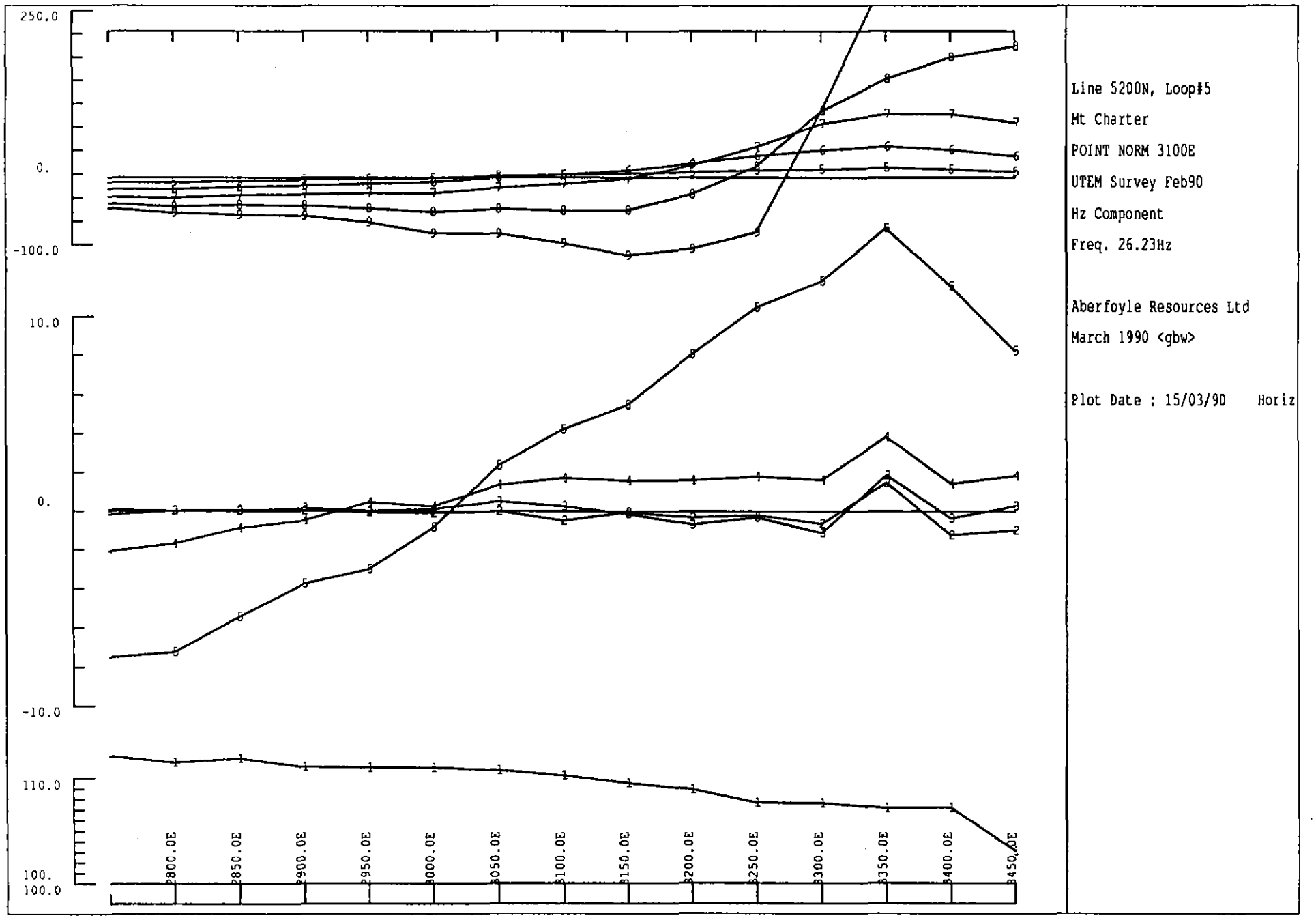
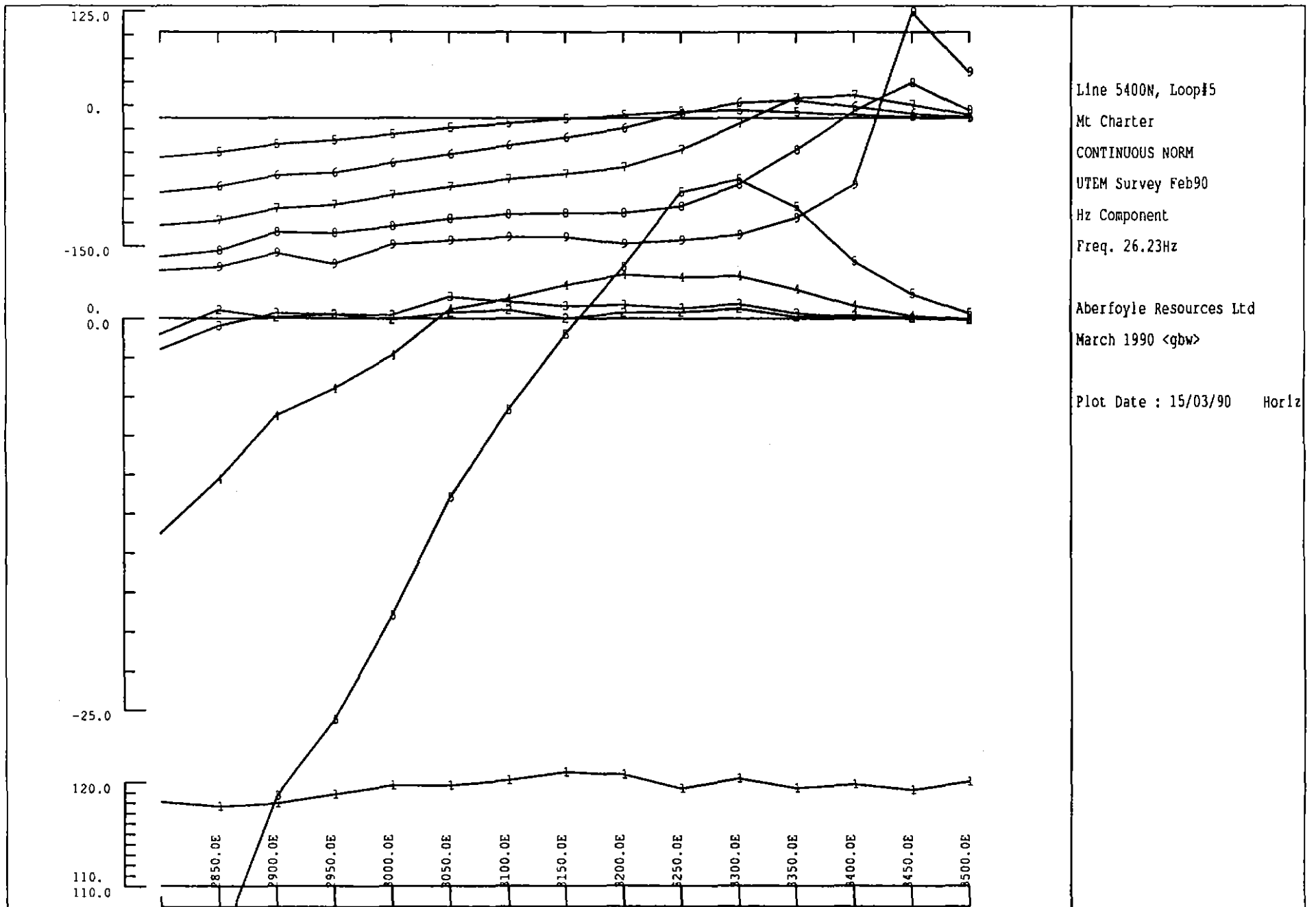
2950.0E
3000.0E
3050.0E
3100.0E
3150.0E
3200.0E
3250.0E
3300.0E
3350.0E
3400.0E
3450.0E
Line 5200N, Loop#5
Mt Charter
CONTINUOUS NORM
UTEM Survey Feb90
Hz Component
Freq. 26.23Hz
Aberfoyle Resources Ltd
March 1990 <gbw>
Plot Date : 15/03/90 Horiz

488212


250.0
0.
-100.0
10.0
0.
-10.0
110.0
100.
100.0
2800.0E
2850.0E
2900.0E
2950.0E
3000.0E
3050.0E
3100.0E
3150.0E
3200.0E
3250.0E
3300.0E
3350.0E
3400.0E
3450.0E
Line 5200N, Loop#5
Mt Charter
POINT NORM 3100E
UTEM Survey Feb90
Hz Component
Freq. 26.23Hz
Aberfoyle Resources Ltd
March 1990 <gbw>
Plot Date : 15/03/90 Horiz

488213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0.
0.0
-25.0
120.0
110.
110.0
2850.0E
2900.0E
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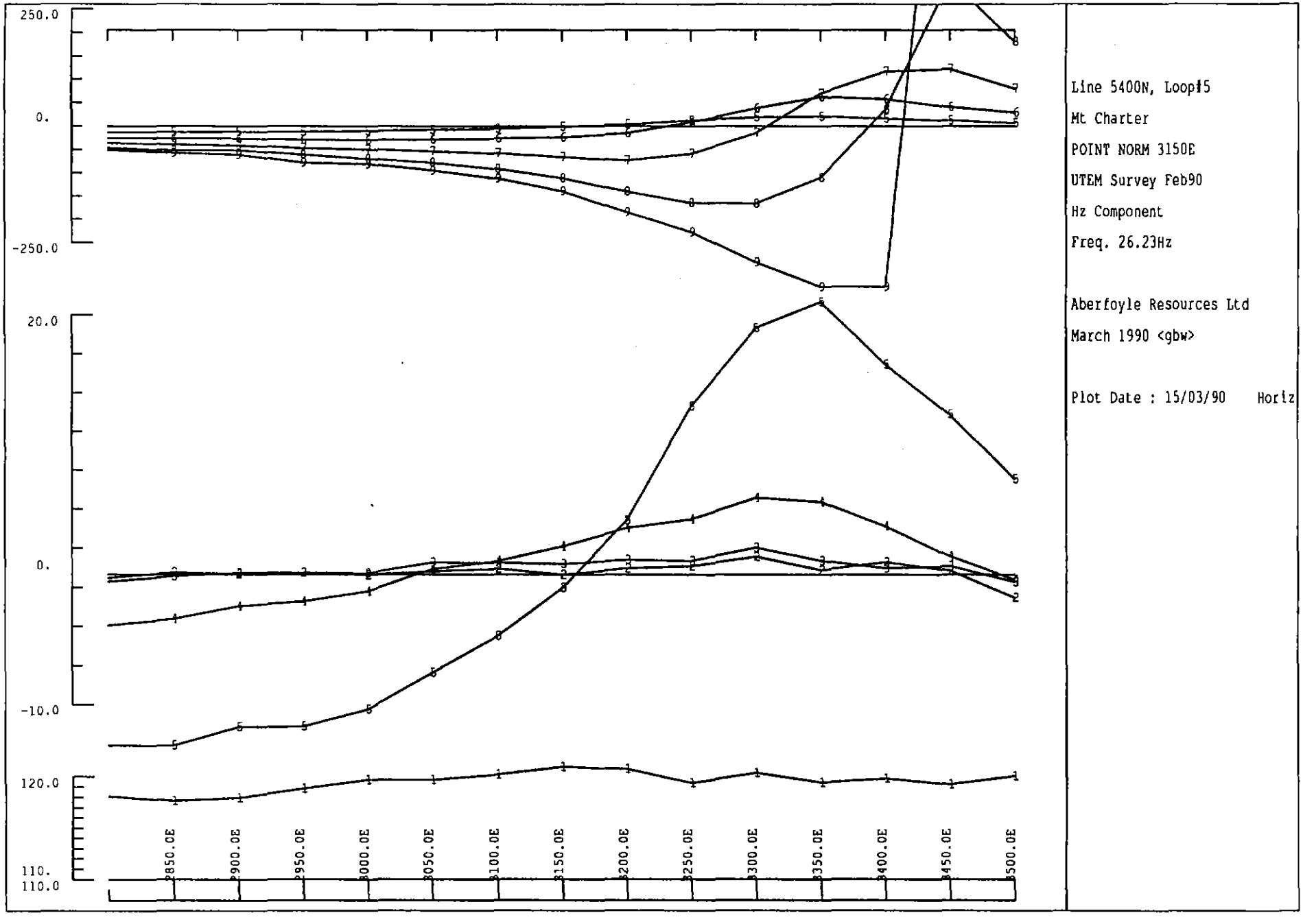
3050.0E
3100.0E
3150.0E
3200.0E
3250.0E
3300.0E
3350.0E
3400.0E
3450.0E
3500.0E
Line 5400N, Loop#5
Mt Charter
CONTINUOUS NORM
UTEM Survey Feb90
Hz Component
Freq. 26.23Hz
Aberfoyle Resources Ltd
March 1990 <gbw>
Plot Date : 15/03/90 Horiz

488214


250.0
0.
-250.0
20.0
0.
-10.0
120.0
110.
110.0
2850.0E
2900.0E
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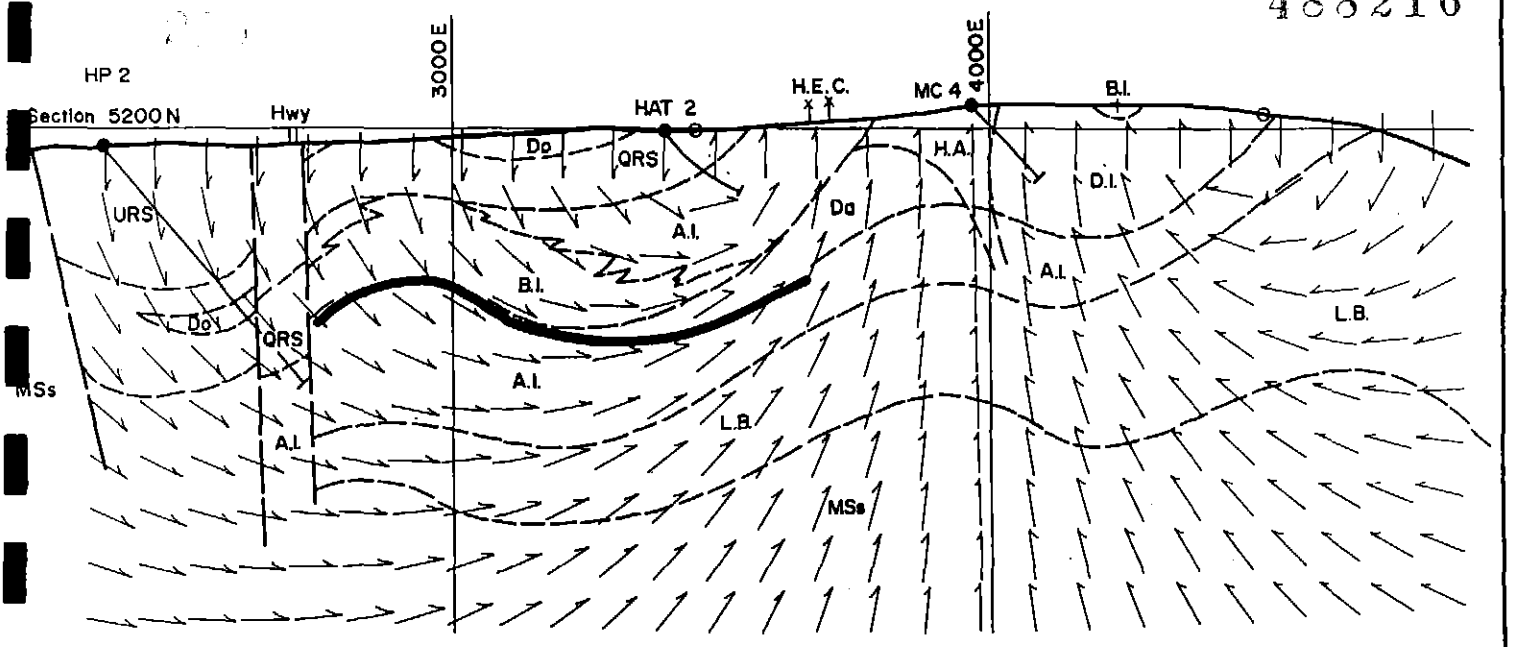
3000.0E
3050.0E
3100.0E
3150.0E
3200.0E
3250.0E
3300.0E
3350.0E
3400.0E
3450.0E
3500.0E
Line 5400N, Loop#5
Mt Charter
POINT NORM 3150E
UTEM Survey Feb90
Hz Component
Freq. 26.23Hz
Aberfoyle Resources Ltd
March 1990 <gbw>
Plot Date : 15/03/90 Horiz

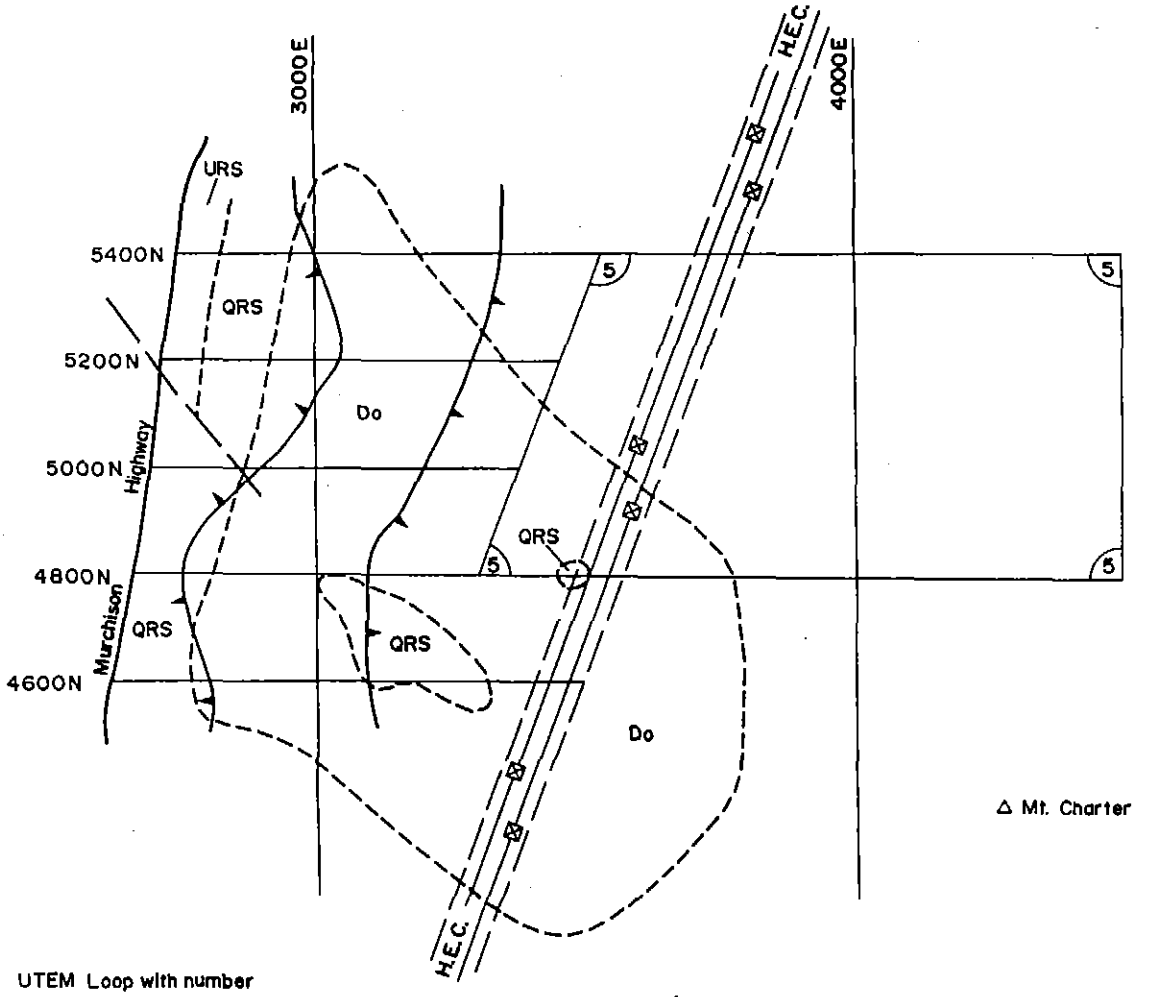
488215

488216

a) Geological Section 5200N with Target Horizon and Primary Energising Field



b) UTEM Survey Geometry with Conductive Sources



5 UTEM Loop with number

Anomalous Unit
-positions accurate to ±25m

Plate 1

Aberfoyle Resources Limited EXPLORATION DIVISION			
REVISIONS Init. Date Init. Date	Northwest Tasmania CHARTER DOLERITE UTEM SURVEY Mackintosh E.L. 106/87		Compiled : GBW Drawn : GBW Traced : JAB Checked : GBW
Location Code :	Scale : 1:10 000	Date : APRIL 1990	Plate No. : MAC 282

488217

APPENDIX 4

ABERFOYLE 488218 MEMORANDUM

Date	26 April 1990	Ref	GBW:FLM
To	A McNeill, R Henham	From	G Walker
At	Burnie	At	Hawthorn
Copies to		Keep	

Subject MACKINTOSH EL MAX-MIN II SURVEYS, MARCH 1990

Introduction

The MaxMin-II is a portable, frequency-domain electromagnetic system capable of operating at five frequencies, namely 222/444/888/1777 and 3555 Hertz.

Surveys were conducted on the Mackintosh EL in the period 7/3/90 to 12/3/90. The purpose of the surveys was to provide ground definition of DIGHEM anomalies detected in a 1975 survey (Figs 1,2). The instrument was operated entirely in the maximum-coupled mode at a coil separation of 100m. In-phase and out-of-phase readings on all other frequencies on all five selectable frequencies were recorded.

The In-phase readings were corrected for slope effects by subtracting the 222 Hz in-phase reading from in-phase readings on all other frequencies. The out-of-phase readings are slope-independant in the absence of any phase-mixing.

SURVEY COVERAGE

1. Barite Creek Grid (Fig 1.)

   Lines surveyed encompassed 4800N and 5300N at a line spacing of 100m. A total of 3.175 line-km of data was recorded.

2. Southwell Grid (Fig 2.)

   MaxMin data was acquired on lines 10400N and 10600N. A total of 2.125 line-km of data was collected.

RESULTS

1. Barite Creek Grid

The MaxMin data sections for the Barite Creek Grid are shown in Figures 3 to 8.

The main features in the data are as follows:

a) Poor correlation with airborne anomalies. Only line 5300N displays an all-frequency, double phase anomaly coinciding with the position of a DIGHEM anomaly. Errors in plotting of the DIGHEM anomalies may explain the lack of correlation. However, the DIGHEM probably responded to the anomalies described in b).

b) Broad, all frequency, double-phase negative anomalies associated with glacial till in bedrock troughs are shown in Fig. 1. Significant conductors beneath glacial till would remain detectable at depths to approximately 150m.

c) Narrow, all-frequency, double phase positive anomalies associated with bedrock highs, eg. Line 4800N/6775E.

2. Southwell Grid

The MaxMin data sections for the Southwell Grid are shown on Figs 9 and 10.

Main features from the data include:

a) A weak correlation between the DIGHEM anomaly on Line 10600N (approximately 7325E) and MaxMin data. Interpretation is complicated by the absence of the negative, double-phase anomaly on the out-of-phase component of 1777Hz and 3555Hz. Any negative response manifested in the lower frequencies should also be reflected in the high frequency data. This ambiguity downgrades the anomaly.

   Anomalies in the results may be related to slope effects at the conductor positions. Despite corrections made using the 222Hz data, inaccuracies may have arisen due to the reduction of horizontal coil separation length by extreme gradients. In some instances the along-line coil separation was reduced from 100m from 75m due to slope effects.

b) a weak conductive zone on the far eastern end of 10600N, commencing at 7900E and extending past the end of the line

CONCLUSIONS AND RECOMMENDATIONS

1. Barite Creek Grid

The DIGHEM anomalies appear to be associated with zones of glacial till. No further geophysical work is recommended from the results of the Maxmin survey.

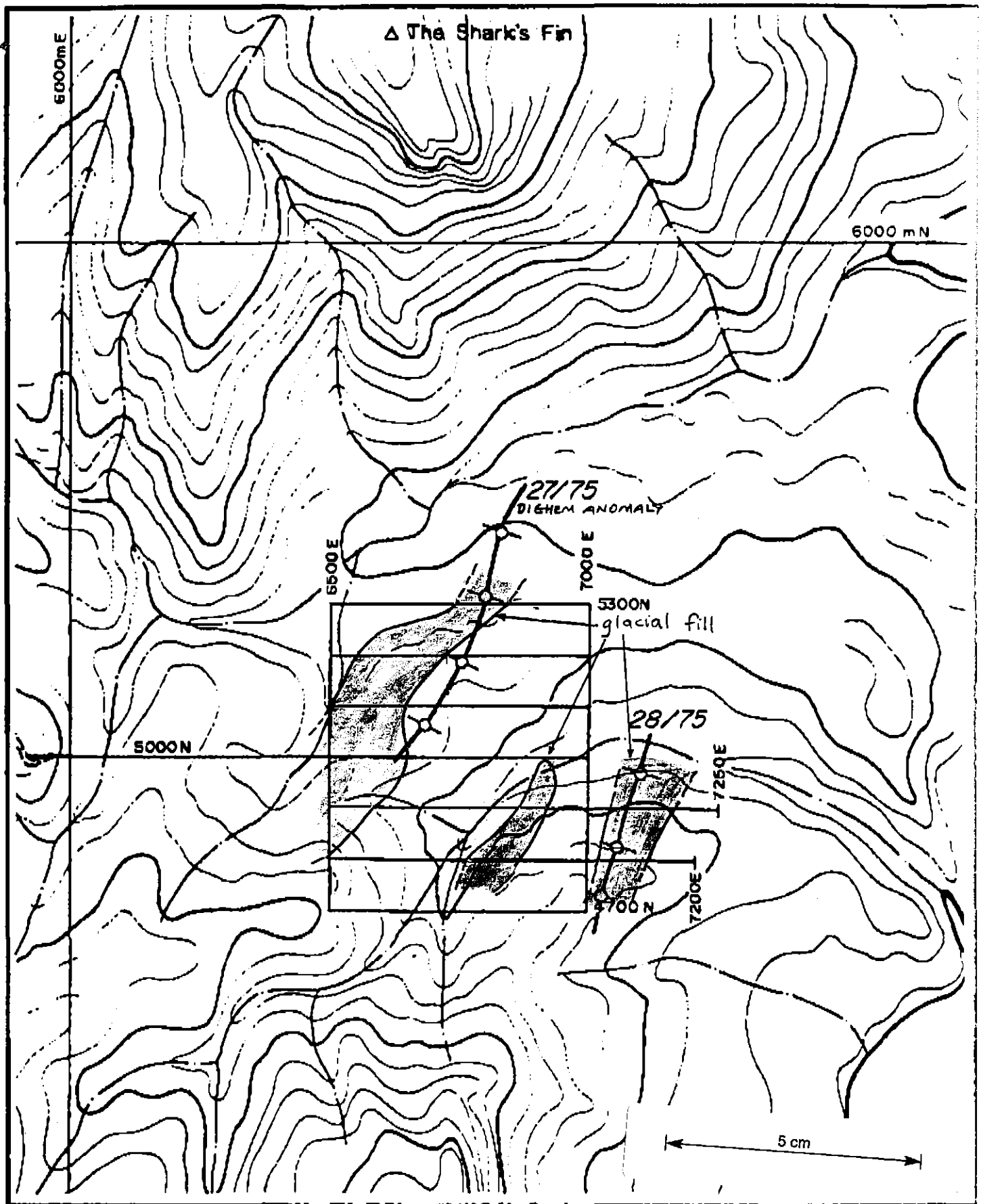
2. Southwell Grid

The MaxMin survey defined a response corresponding to the 1975 DIGHEM anomaly. An additional zone was identified at the eastern end of 10600N.

The results of further mapping on the grid should be considered when planning further geophysical work in the grid. Encouragement from geological and/or geochemical investigations over these zones should lead to planning of a deep-penetrating electromagnetic survey, preferably UTEM.

GREG WALKER

488221



Aberfoyle Resources Limited

EXPLORATION DIVISION

Figure 1

REVISIONS			
Init.	Date	Init.	Date

NORTH WEST TASMANIA

MACKINTOSH E.L. 106/87

BARITE CREEK

MAX-MIN & AIRBORNE ANOMALIES

Compiled : AMcN

Drawn :

Traced : RJE

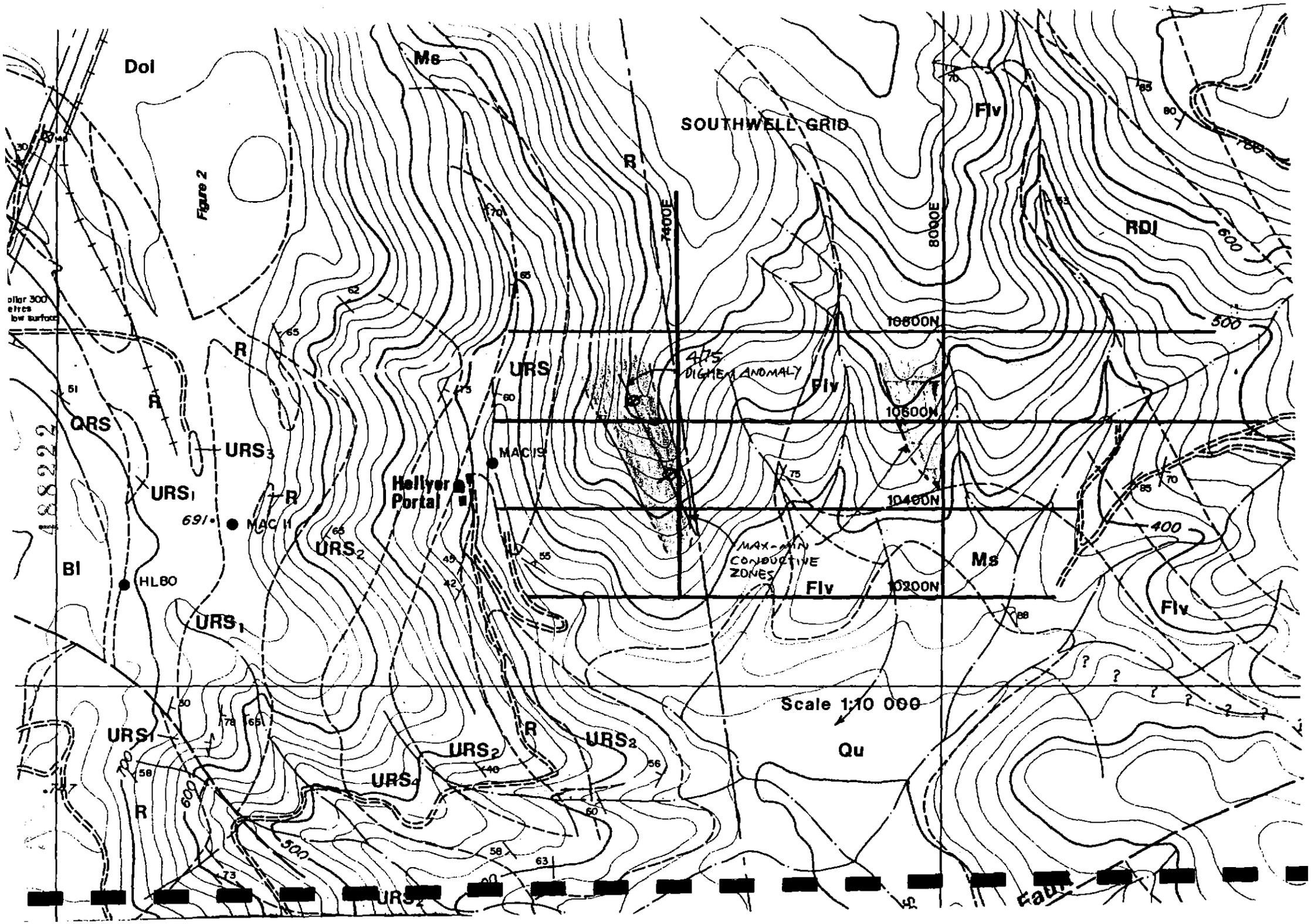
Checked :

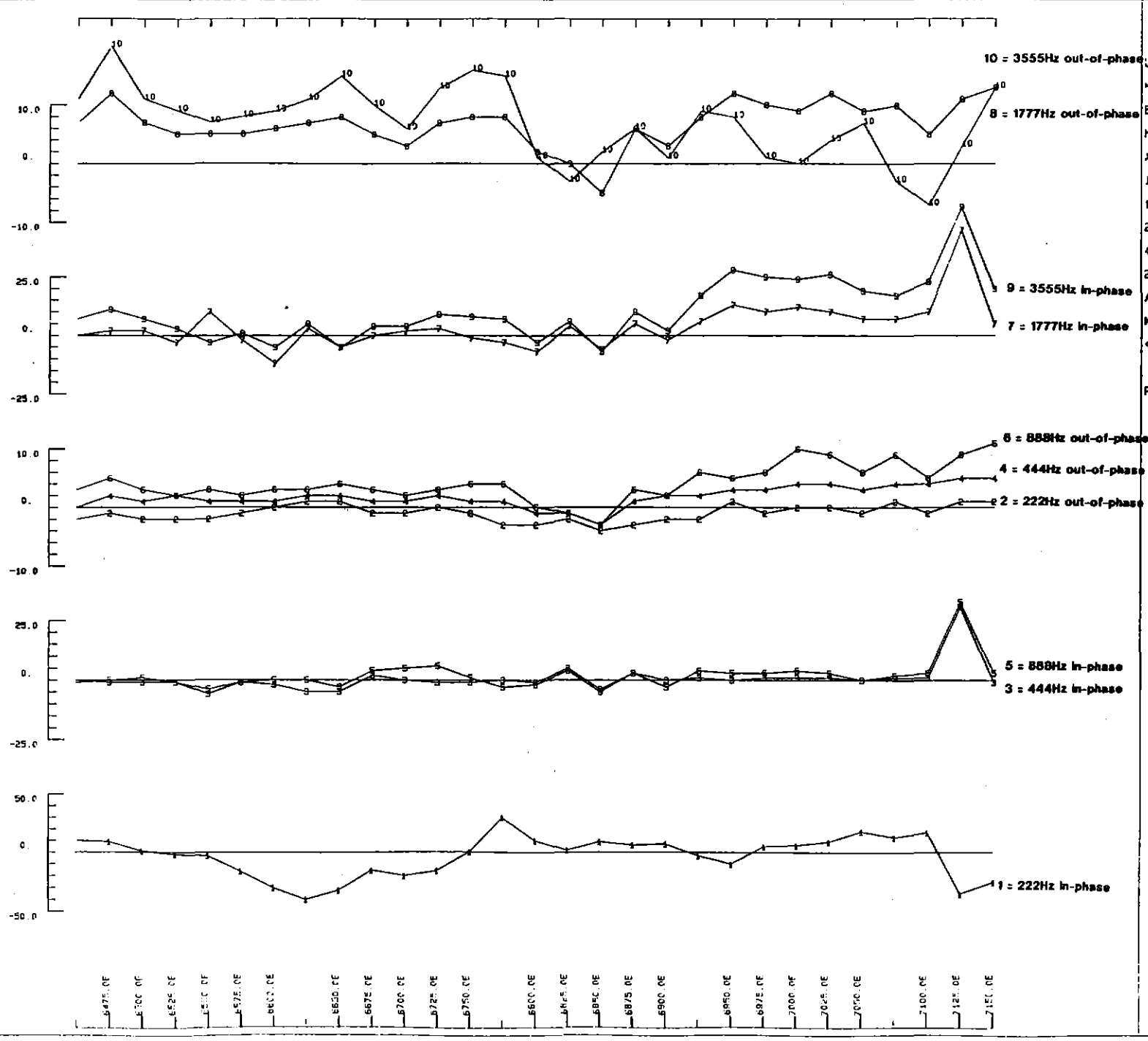
Location Code :

Scale : 1 : 10,000

Date : April, 1990

Plate No MAC 288


SOUTHWELL GRID
Figure 2
Dol
Ms
R
Flv
RDI
7400E
8000E
10600N
10500N
10400N
10200N
475
DIGHEM ANOMALY
URS
QRS
URS3
URS1
URS2
URS4
MAC 19
MAC 11
691
Hellyer Portal
HLBO
Bl
MAX-MIN CONDUCTIVE ZONES
Qu
Scale 1:10 000
Fault
500
400
600
700

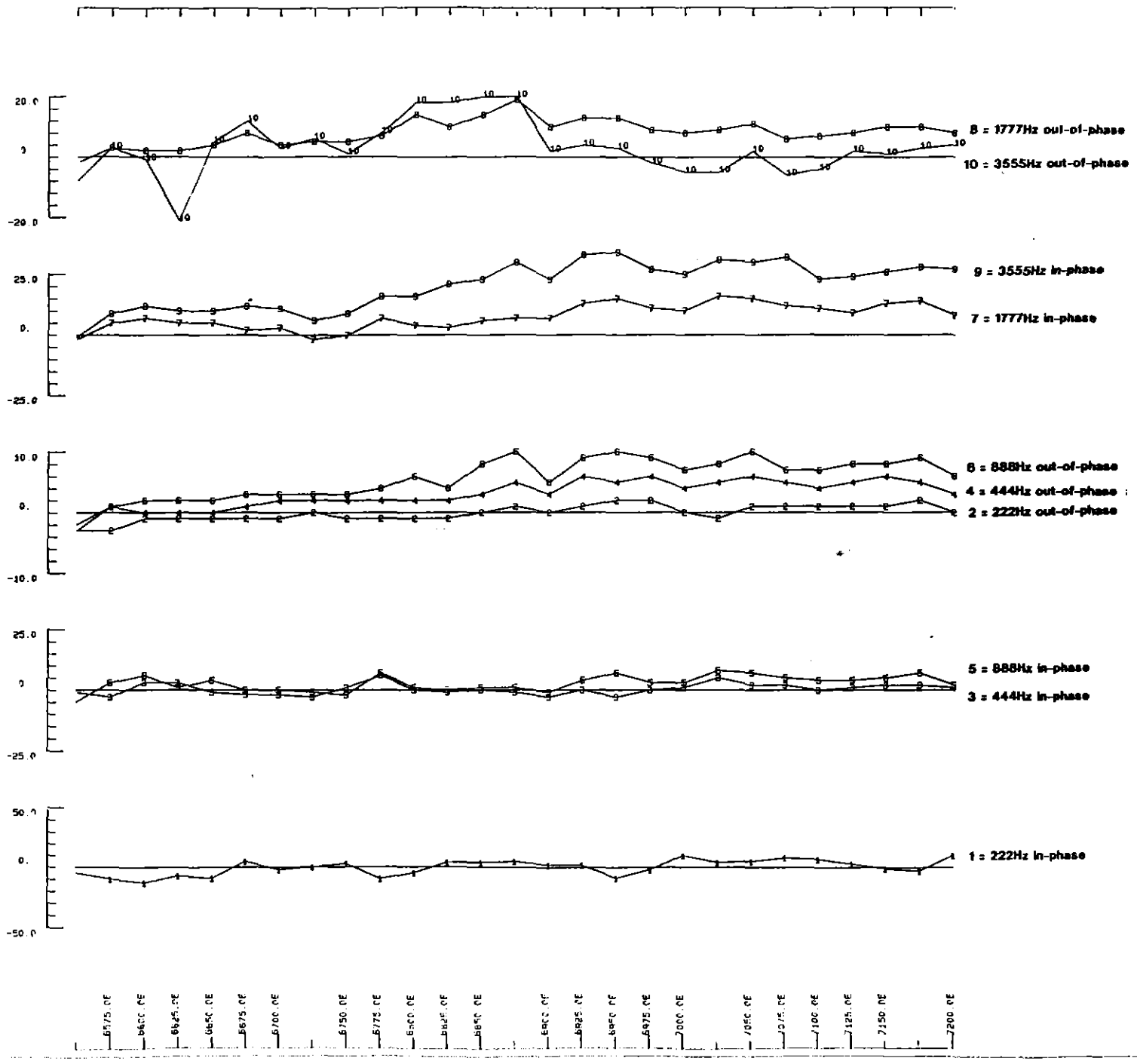


Line 4800N
Maxmin Survey
Barite Creek Grid
Mackintosh EL
Axes (Hz).
1777/3555 out-of-phase
1777/3555 in-phase
222/444/888 out-of-phase
444/888 in-phase
222 in-phase
Aberfoyle Resources Ltd
March 1990
<gbw>

Plot Date : 16/03/90 Horiz

Figure 3

488223

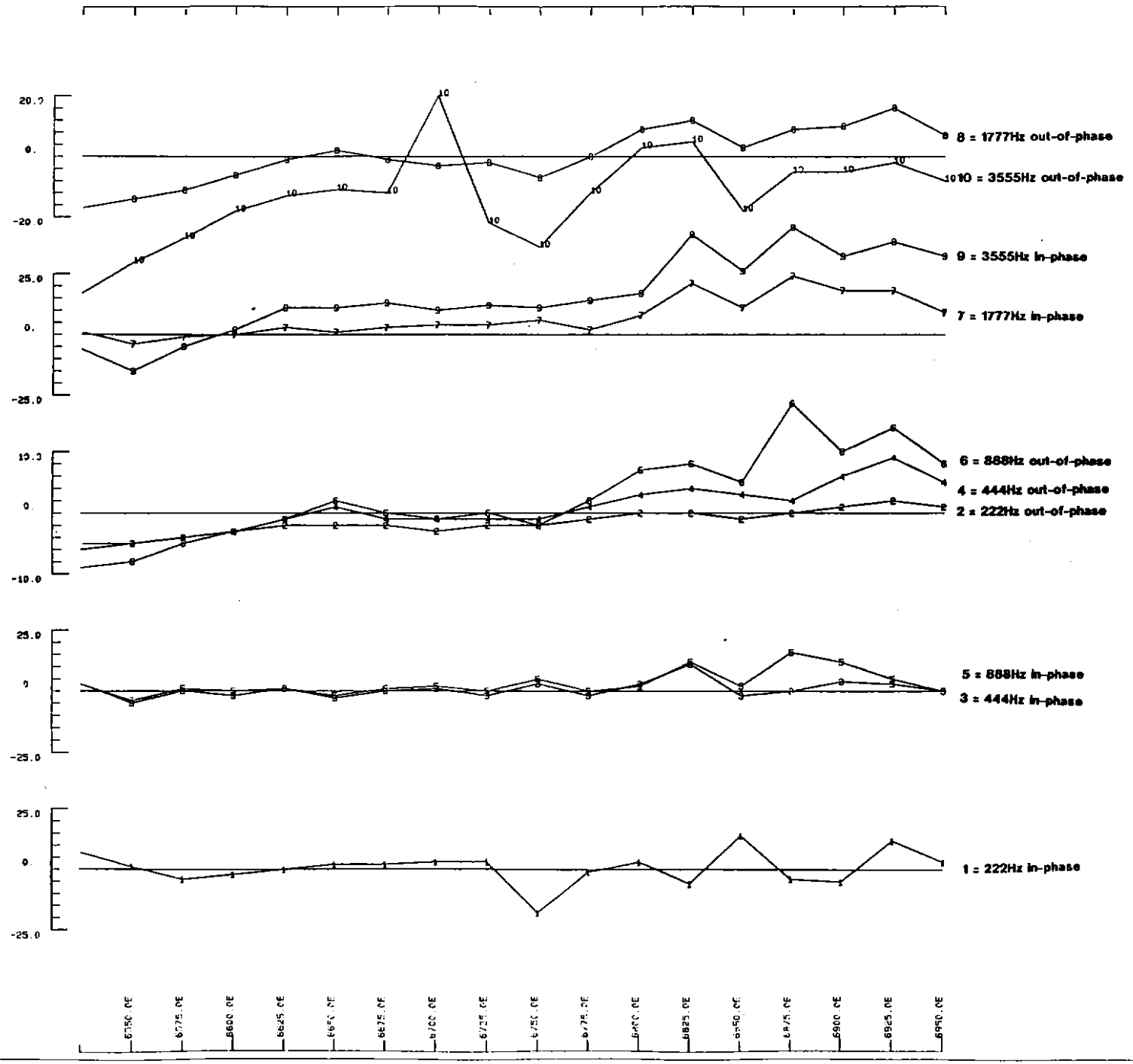


Line 4300N
Maxwin Survey
Barite Creek Grid
Mackintosh EL
Axes (Hz):
1777/3555 out-of-phase
1777/3555 in-phase
222/444/888 out-of-phase
444/888 in-phase
222 in-phase
Aberfoyle Resources Ltd
March 1990
<gbw>

Plot Date : 16/03/90 Horiz

Figure 4

488224

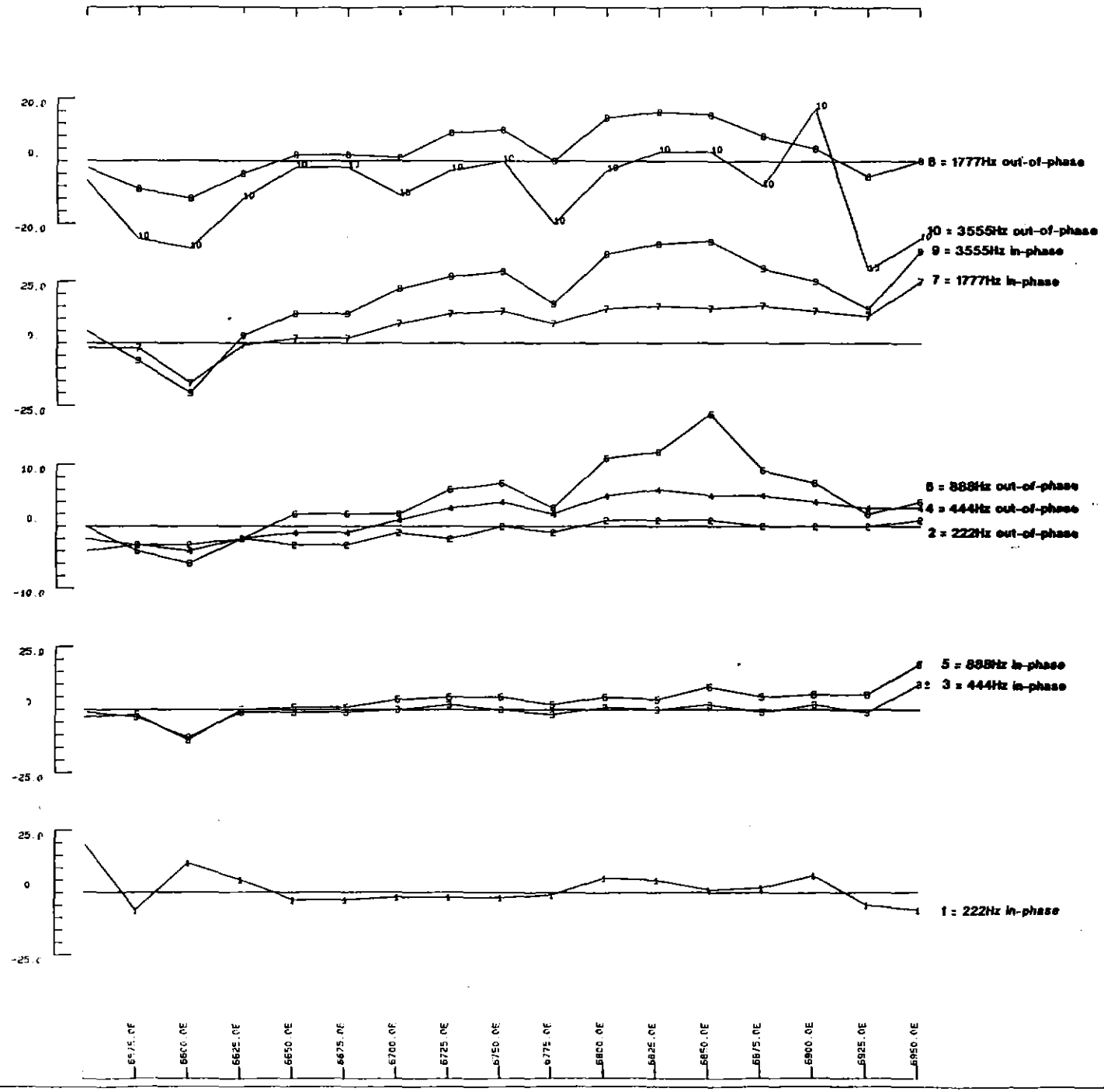


Line 5000N
MaxMin Survey
Barite Creek Grid
Mackintosh EL
Axes (Hz)
1777/3555 out-of-phase
1777/3555 in-phase
222/444/888 out-of-phase
444/888 in-phase
222 in-phase
Aberfoyle Resources Ltd
March 1990
<gbw>

Plot Date . 16/03/90 Horiz

Figure 5

488225

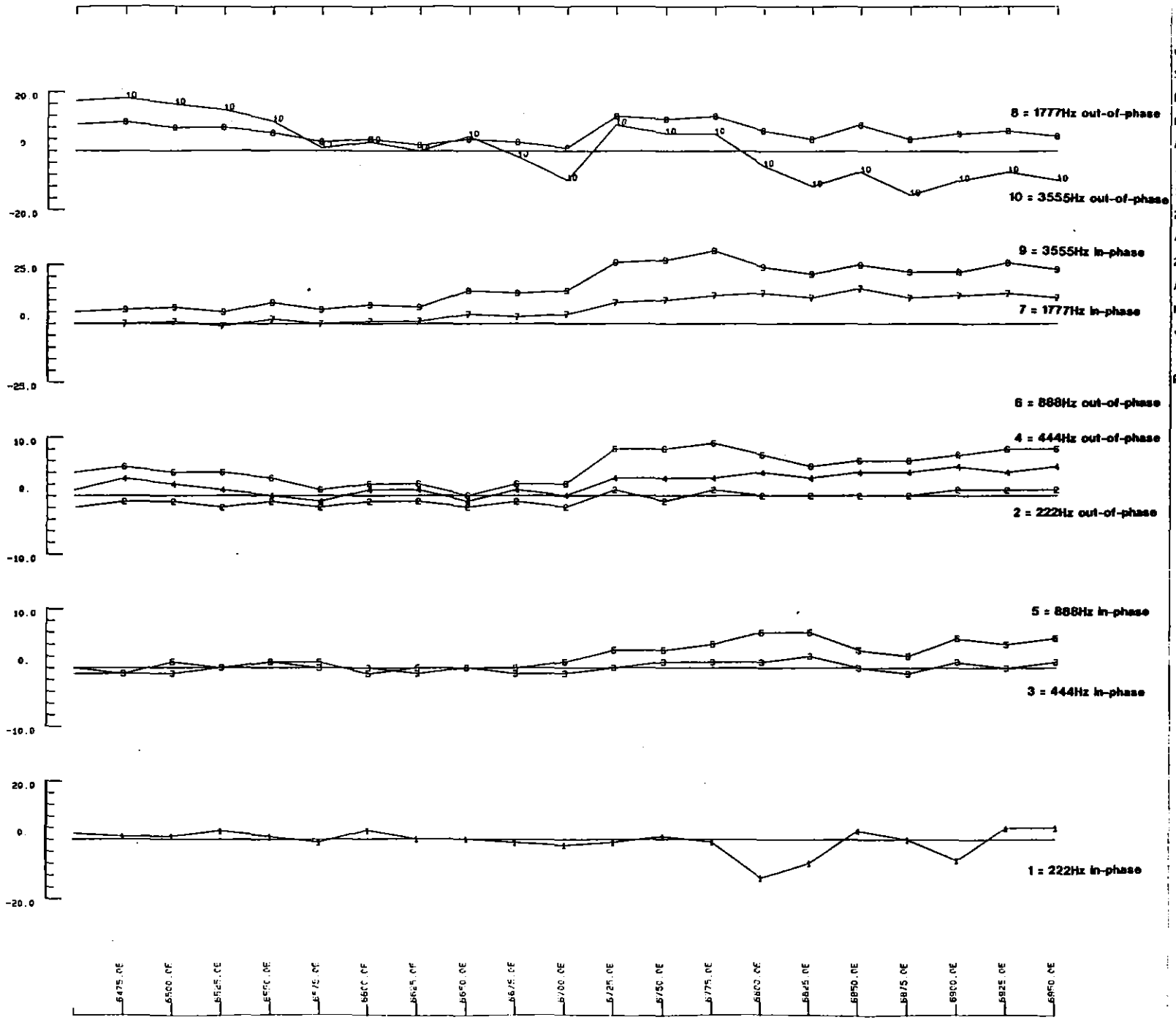


Line 5100N
MaxMin Survey
Barite Creek Grid
Mackintosh EL
Axes (Hz).
1777/3555 out-of-phase
1777/3555 in-phase
222/444/888 out-of-phase
444/888 in-phase
222 in-phase
Aberfoyle Resources Ltd
March 1990
<gbw>

Plot Date : 16/03/90 Horiz

Figure 6

488226

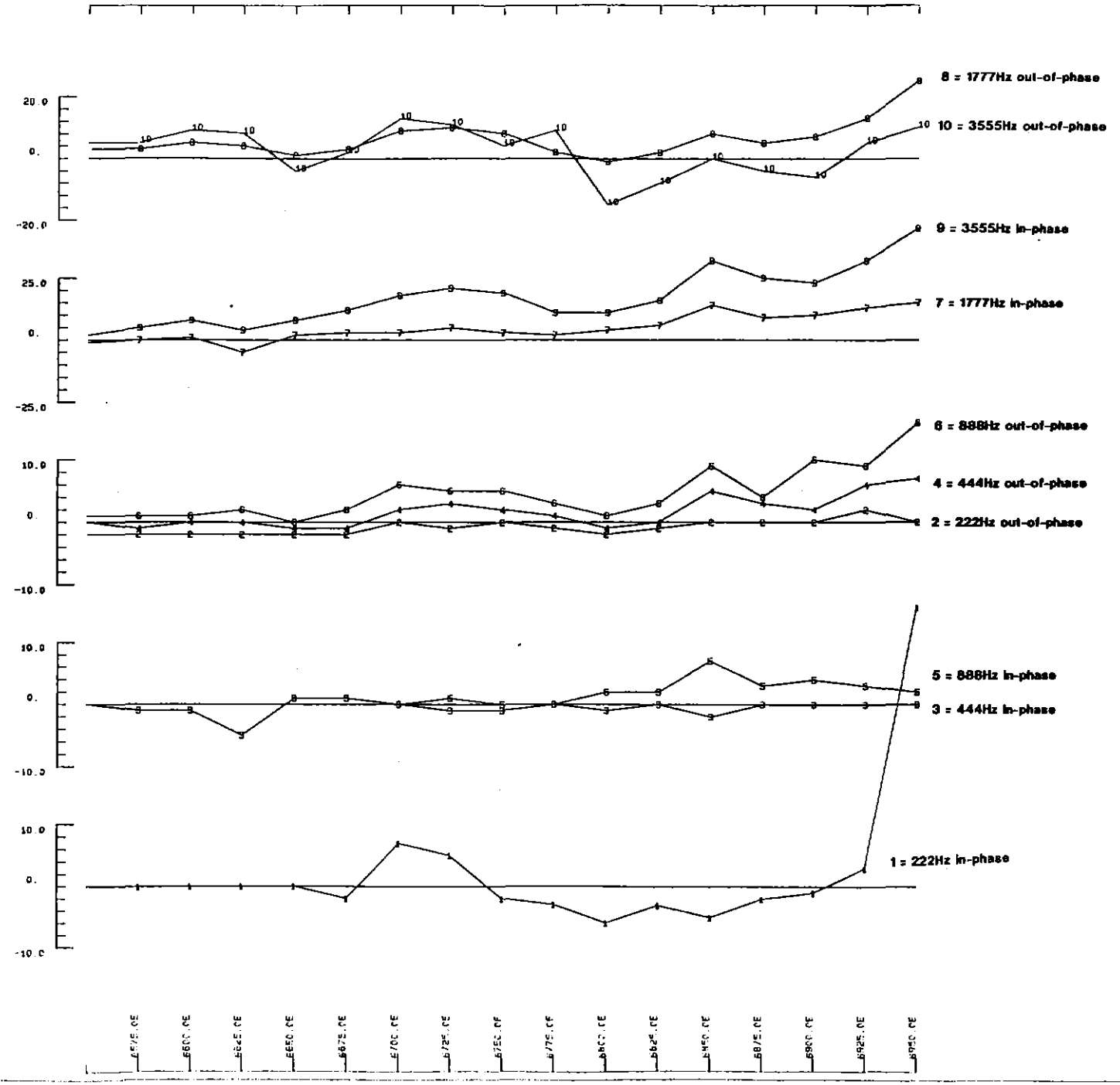


Line 92204
MaxMin Survey
Barite Creek Grid
Mackintosh EL
Axes (Hz).
1777/3555 out-of-phase
1777/3555 in-phase
222/444/888 out-of-phase
444/888 in-phase
222 in-phase
Aberfoyle Resources Ltd
March 1990
<gbw>

Plot Date : 16/03/90 Horiz

Figure 7

888227

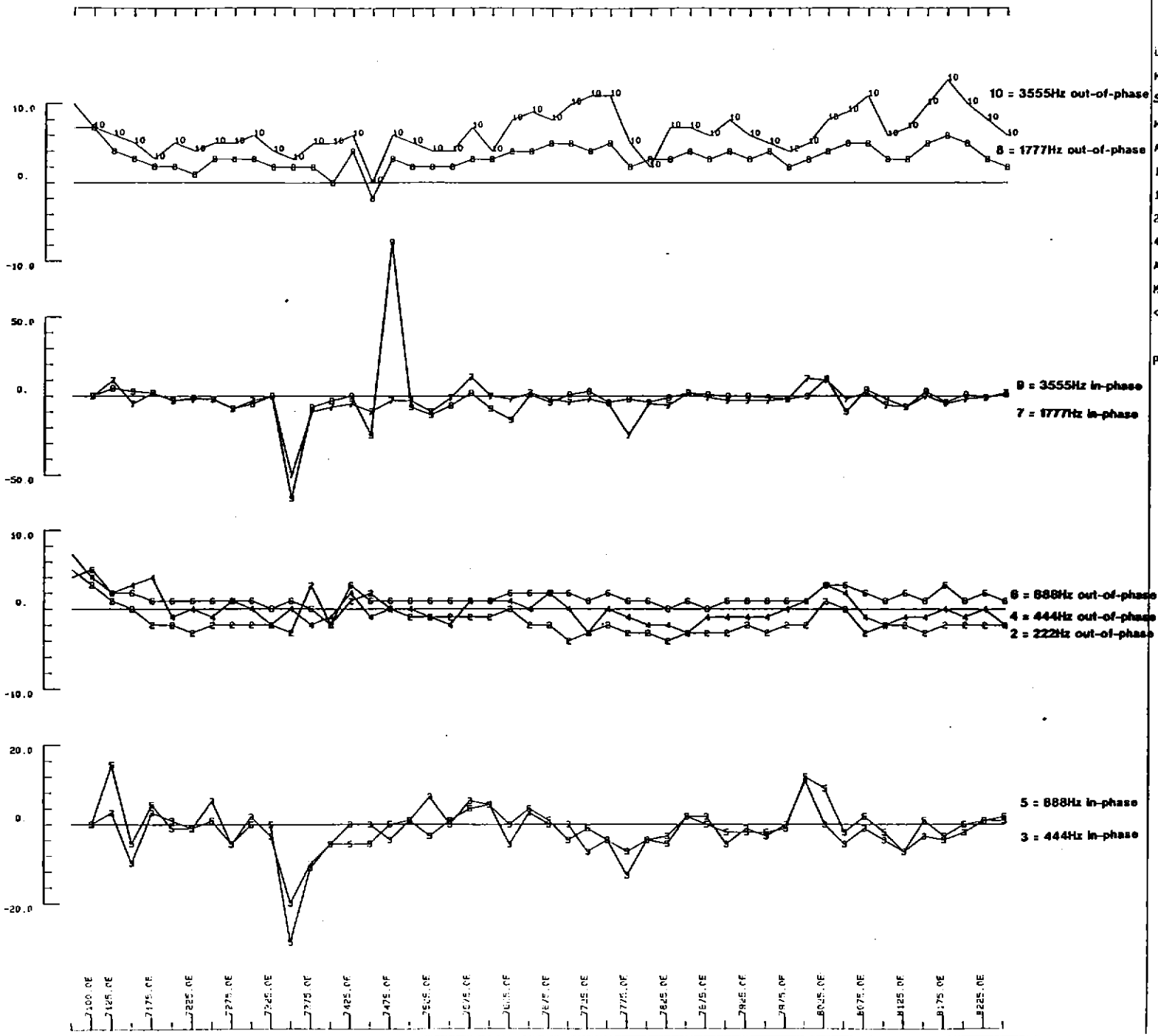


Line 5300N
MaxMin Survey
Barite Creek Grid
MacKintosh EL
Axes (Hz):
1777/3555 out-of-phase
1777/3555 in-phase
222/444/888 out-of-phase
444/888 in-phase
222 in-phase
Aberfoyle Resources Ltd
March 1990
<gbw>

Plot Date : 16/03/90 Horiz

Figure 8

488228

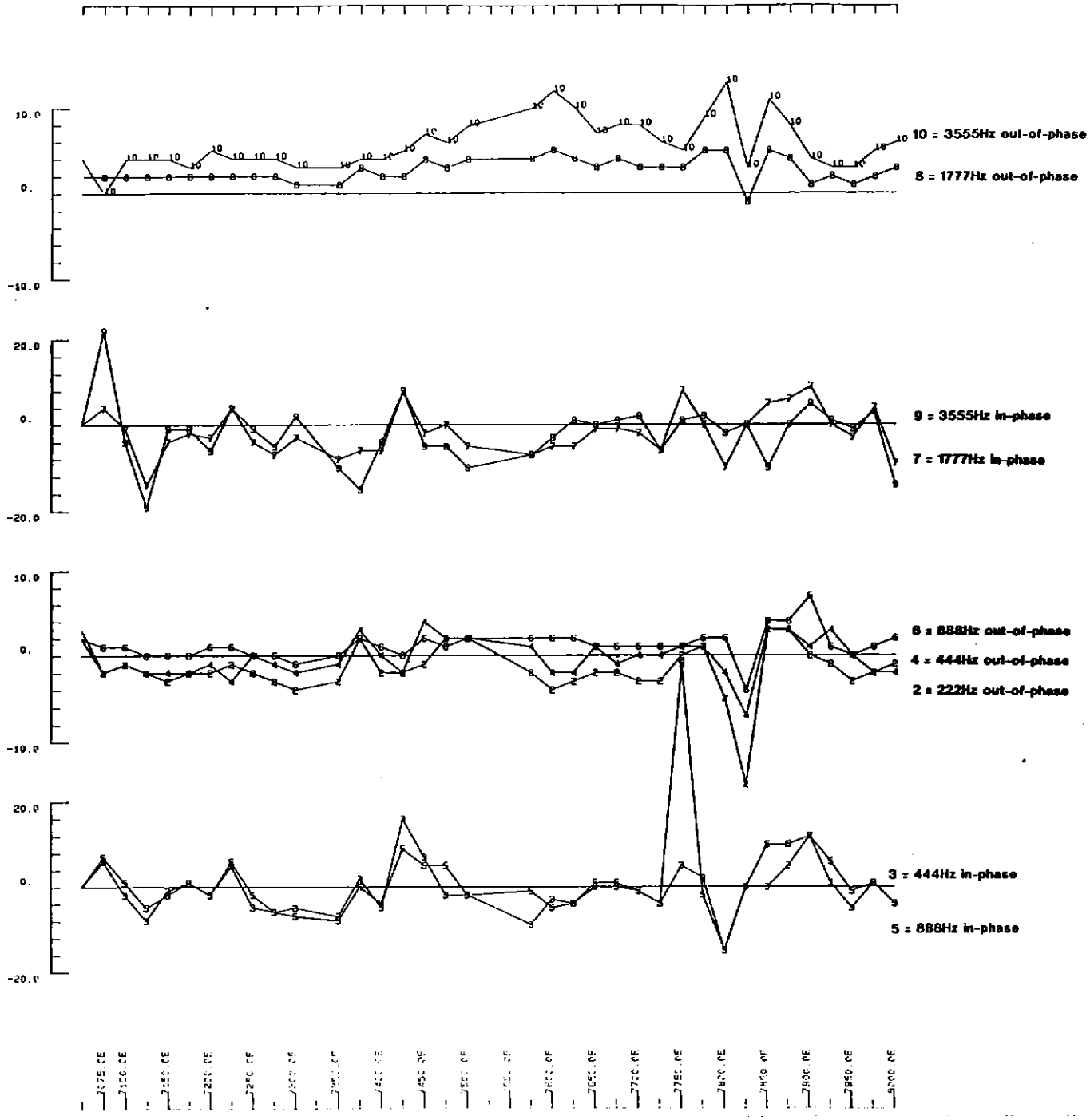


Line 104009
MaxMin Survey
SOUTHWELL GRID
Mackintosh Ec
Axes (Hz).
1777/3555 out-of-phase
1777/3555 in-phase
222/444/888 out-of-phase
444/888 in-phase
Aberfoyle Resources Ltd
March 1990
<gbw>

Plot Date : 16/03/90 Horiz

Figure 9

4882229



Line 10600N
HaxMin Survey
SOUTHWELL GRID
MacIntosh EL
Axes (Hz):
1777/3555 out-of-phase
1777/3555 in-phase
222/444/888 out-of-phase
444/888 in-phase
Aberfoyle Resources Ltd
March 1990
<gbw>

Plot Date : 16/03/90 Horiz

Figure 10

488230

Aberfoyle Resources Limited

EXPLORATION DIVISION

LAKE MACKINTOSH

EXPLORATION LICENCE 106/87

TASMANIA

PROGRESS REPORT FOR THE PERIOD

FEBRUARY 1989 TO APRIL 1990

VOLUME 2

APPENDICES 5-15

90-3128

EL 106/87

FOLIO 94
REFERS

Distribution

Aberfoyle - Burnie (1)
Aberfoyle - Hawthorn (1)
Department of Mines (1)

VOL 2/4

488232

APPENDIX 5

Core Grind Assays - Bulked Samples

Hole No.	Interval	Original Sample No.	Assay Sample No.
MC-5	30-50m	333054 + 055	323054
	150-170m	333066 + 067	333066
	200-220m	333071 + 072	333071
MC-6	113.4-133.4m	333547 + 548	333547
	163.4-183.4m	333552 + 553	333552
	204.8-214.8m	333557 + 558	333557
	224.8-244.8m	333559 + 560	333559
MC-8	200-220m	333047 + 048	333047
	220-235.3m	333049 + 050	333049
MC-11	16.0-36.0m	333111 + 112	333111
	197.0-297.0m	333132 + 133	333132
MC-12	245-265m	333520 + 521	333520
	265-285m	333522 + 523	333522
	370-389.7m	333534 + 535	333534
MC-13	288-318m	333694 + 695 + 696	333694
	318-348m	333697 + 698 + 699	333697

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.
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ANALYTICAL REPORT No. 23.3.08.06207

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
7587	

DATE RECEIVED	RESULTS REQUIRED
18/05/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
15	15/06/89	1	369

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	METH
	Various	PU							Ag/101			
	205863/906,333543,333752	PU							As/114			
	Various	PU							Au/309			
	Various	PU							Ba/401			
	Various	PU							Cr/401			

RESULTS TO

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

RESULTS TO

REMARKS

Mack. Strategy Review

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)	PF	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
	23.3.08.06207	15/06/89	7587	1 OF 15

TUBE No.	SAMPLE No.	Ag	Au	Ba	As	Cr	Zr	Ti		Zr/Ti
1	205863	0.5	0.008	710	6	–	–	–	HAT 2	
2	205864	0.5	<0.008	710	10	–	–	–		
3	205865	0.5	<0.008	670	7	–	–	–		
4	205866	0.5	<0.008	670	9	–	–	–		
5	205867	0.5	<0.008	660	7	–	–	–		
6	205868	0.5	<0.008	710	7	–	–	–		
7	205869	0.5	<0.008	720	8	–	–	–		
8	205870	1.0	0.009	760	9	–	–	–		
	205871	1.0	<0.008	510	9	–	–	–		
10	205872	1.0	<0.008	740	13	–	–	–		
11	205873	1.0	0.008	780	14	–	–	–		
12	205874	0.5	<0.008	670	13	–	–	–		
13	205875	1.0	<0.008	710	12	–	–	–		
14	205876	1.0	<0.008	660	12	–	–	–		
15	205877	0.5	<0.008	660	11	–	–	–		
16	205878	1.5	0.009	520	14	–	–	–		
1	205879	0.5	<0.008	550	24	–	–	–		
18	205880	1.0	<0.008	710	14	–	–	–		
19	205881	1.0	0.009	550	16	–	–	–		
20	205882	1.0	0.010	560	16	–	–	–		
21	205883	0.5	0.010	1750	28	20	260	3650		·071
22	205884	1.0	<0.008	1050	140	95	170	3450		·049
23	205885	0.5	<0.008	1450	29	65	200	3300		·061
24	205886	1.5	<0.008	1750	11	<5	230	3750		·061
25	205887	1.5	<0.008	1300	6	<5	180	2800		·064

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
	23.3.08.06207	15/06/89	7587	2 OF 15

TUBE No.	SAMPLE No.	Ag	Au	Ba	As	Cr	Zr	Ti		
1	205888	1.0	0.008	1200	6	<5	200	2850		·070
2	205889	1.5	<0.008	1100	16	<5	180	2850		·063
3	205890	1.5	<0.008	1100	140	<5	170	2850	HAT 2	·060
4	205891	1.5	<0.008	1100	9	<5	170	2700	HAT 2A	·063
5	205892	1.5	<0.008	1250	17	<5	170	2550		·067
6	205893	2.0	<0.008	800	27	<5	190	2750		·064
7	205894	1.0	<0.008	760	67	<5	180	3100		·058
8	205895	1.5	<0.008	1100	11	<5	170	2750		·062
9	205896	1.5	<0.008	800	14	15	200	2850		·070
10	205897	1.0	<0.008	1150	9	10	190	2800		·068
11	205898	0.5	<0.008	800	8	<5	180	2600		·069
12	205899	1.0	<0.008	710	7	6	180	2700		·067
13	205900	1.0	<0.008	1000	3	5	140	2050		·068
14	205901	0.5	<0.008	2150	6	7	180	2500		·072
15	205902	1.0	<0.008	2400	8	<5	170	2850		·075
16	205903	1.5	<0.008	2200	7	6	180	2450		·073
17	205904	0.5	<0.008	1600	3	5	180	2600		·069
18	205905	0.5	<0.008	1950	7	9	170	2400		·071
19	205906	<0.5	<0.008	1100	9	1050	85	2600	* STD. HAT 2A	·033
20	333029	–	–	–	–	–	240	3900	MC8	·062
21	333030	–	–	–	–	–	210	3250		·065
22	333031	–	–	–	–	–	230	3900		·059
23	333032	–	–	–	–	–	180	2700		·067
24	333033	–	–	–	–	–	220	3000		·073
25	333034	–	–	–	–	–	200	2600		·077

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06207	15/06/89	7587	3 OF 15

TUBE No.	SAMPLE No.	Ag	Au	Ba	As	Cr	Zr	Ti		
1	333035	–	–	–	–	–	200	2550		·078
2	333036	–	–	–	–	–	230	2600		·088
3	333037	–	–	–	–	–	240	2800		·086
4	333038	–	–	–	–	–	200	2650		·075
5	333039	–	–	–	–	–	200	2550		·078
6	333040	–	–	–	–	–	220	2550		·086
7	333041	–	–	–	–	–	260	2850		·091
8	333042	–	–	–	–	–	240	2200		·109
(	333043	–	–	–	–	–	210	1850		·113
10	333044	–	–	–	–	–	220	2100		·105
11	333045	–	–	–	–	–	85	2450	* STD	·035
12	333046	–	–	–	–	–	190	2100		·090
13	333047	–	–	–	–	–	190	1650		·115
14	333049	–	–	–	–	–	240	2250	↑ mc8	·107
15	333051	–	–	–	–	–	190	4450	mc5 ↓	·043
16	333052	–	–	–	–	–	200	4500		·044
1	333053	–	–	–	–	–	200	4700		·042
18	333054	–	–	–	–	–	180	4150		·043
19	333055	–	–	–	–	–	90	2500	* STD	·036
20	333056	–	–	–	–	–	200	4300		·046
21	333057	–	–	–	–	–	190	4000		·047
22	333058	–	–	–	–	–	170	3750		·045
23	333059	–	–	–	–	–	180	3700		·049
24	333060	–	–	–	–	–	170	3650		·046
25	333061	–	–	–	–	–	230	2800		·082

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06207	15/06/87	7587	4 OF 15

TUBE No.	SAMPLE No.	Ag	Au	Ba	As	Cr	Zr	Ti		
1	333062	–	–	–	–	–	230	2800		·082
2	333063	–	–	–	–	–	230	2350		·098
3	333064	–	–	–	–	–	230	2500		·092
4	333065	–	–	–	–	–	220	2600		·085
5	333066	–	–	–	–	–	210	2600		·075
6	333067	–	–	–	–	–	65	2500	* STD	·034
7	333068	–	–	–	–	–	200	3050		·065
8	333069	–	–	–	–	–	250	1900		·131
9	333070	–	–	–	–	–	220	1800		·122
10	333071	–	–	–	–	–	230	1800		·128
11	333073	–	–	–	–	–	230	1900		·121
12	333074	–	–	–	–	–	230	1900		·121
13	333075	–	–	–	–	–	230	1900		·121
14	333076	–	–	–	–	–	220	1650		·133
15	333077	–	–	–	–	–	210	2400		·087
16	333078	–	–	–	–	–	200	2350		·085
17	333079	–	–	–	–	–	200	2350		·085
18	333080	–	–	–	–	–	250	2400	Mc-5 ↑	·104
19	333110	–	–	–	–	–	190	3850	Mc-11 ↓	·049
20	333111	–	–	–	–	–	200	3500		·057
21	333112	–	–	–	–	–	75	2550	* STD	·029
22	333113	–	–	–	–	–	100	1500		·055
23	333114	–	–	–	–	–	170	2850		·060
24	333115	–	–	–	–	–	180	3050		·059
25	333116	–	–	–	–	–	170	3200		·05a

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
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TUBE No.	SAMPLE No.	Ag	Au	Ba	As	Cr	Zr	Ti		
1	333117	–	–	–	–	–	180	3300		·054
2	333118	–	–	–	–	–	170	2600		·065
3	333119	–	–	–	–	–	190	2400		·079
4	333120	–	–	–	–	–	200	2700		·074
5	333121	–	–	–	–	–	190	2500		·076
6	333123	–	–	–	–	–	160	2650		·060
7	333124	–	–	–	–	–	180	2750		·065
8	333125	–	–	–	–	–	150	3100		·048
(	333126	–	–	–	–	–	150	3100		·048
10	333127	–	–	–	–	–	170	2550		·067
11	333128	–	–	–	–	–	220	2750		·08
12	333129	–	–	–	–	–	210	2200		·095
13	333130	–	–	–	–	–	200	2200		·091
14	333131	–	–	–	–	–	200	2100		·095
15	333132	–	–	–	–	–	190	2050		·093
16	333134	–	–	–	–	–	200	2200		·091
1	333135	–	–	–	–	–	200	2100		·095
18	333136	–	–	–	–	–	50	2150		·023
19	333137	–	–	–	–	–	180	2000	MC-1 ↑	·09
20	333138	–	–	–	–	–	150	710	MAC-1 ↓	·211
21	333139	–	–	–	–	–	140	3350		·042
22	333140	–	–	–	–	–	110	2850		·038
23	333141	–	–	–	–	–	75	2000		·037
24	333144	–	–	–	–	–	200	3950		·051
25	333145	–	–	–	–	–	160	3600		·05

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06207	15/06/89	7587	6 OF 15

TUBE No.	SAMPLE No.	Ag	Au	Ba	As	Cr	Zr	Ti		
1	333146	–	–	–	–	–	170	3350		·051
2	333147	–	–	–	–	–	170	3300		·051
3	333148	–	–	–	–	–	180	3550		·051
4	333149	–	–	–	–	–	210	3850		·054
5	333151	–	–	–	–	–	150	2900		·052
6	333152	–	–	–	–	–	140	2600		·054
7	333154	–	–	–	–	–	130	2200		·059
8	333156	–	–	–	–	–	65	1700		·038
	333157	–	–	–	–	–	40	1600		·025
10	333159	–	–	–	–	–	180	2600		·069
11	333160	–	–	–	–	–	320	1700		·188
12	333161	–	–	–	–	–	170	2350		·072
13	333163	–	–	–	–	–	160	640		·25
14	333164	–	–	–	–	–	150	2350		·064
15	333165	–	–	–	–	–	190	2250		·084
16	333166	–	–	–	–	–	200	1750		·114
17	333168	–	–	–	–	–	180	1500		·12
18	333169	–	–	–	–	–	190	1600		·119
19	333170	–	–	–	–	–	220	2450		·090
20	333171	–	–	–	–	–	200	3650		·055
21	333172	–	–	–	–	–	200	3600		·055
22	333173	–	–	–	–	–	120	2550		·047
23	333174	–	–	–	–	–	120	2300		·052
24	333175	–	–	–	–	–	120	2750		·044
25	333176	–	–	–	–	–	85	2100	MAc-1	·040

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06207	15/06/89	7587	7 OF 15

TUBE No.	SAMPLE No	Ag	Au	Ba	As	Cr	Zr	Ti		
1	333177	–	–	–	–	–	190	3500	↓HL-80	·054
2	333178	–	–	–	–	–	140	3400		·041
3	333179	–	–	–	–	–	130	2950		·044
4	333180	–	–	–	–	–	130	2900		·045
5	333181	–	–	–	–	–	120	2650		·045
6	333182	–	–	–	–	–	140	3000		·047
7	333183	–	–	–	–	–	160	3250		·049
8	333184	–	–	–	–	–	160	3350		·048
9	333185	–	–	–	–	–	150	2900		·052
10	333186	–	–	–	–	–	140	2750		·051
11	333187	–	–	–	–	–	130	2550		·051
12	333188	–	–	–	–	–	150	2750		·054
13	333189	–	–	–	–	–	140	2650		·053
14	333190	–	–	–	–	–	130	2550		·051
15	333191	–	–	–	–	–	120	2050		·058
16	333192	–	–	–	–	–	150	2550		·059
17	333193	–	–	–	–	–	160	2800		·057
18	333194	–	–	–	–	–	140	2550		·055
19	333195	–	–	–	–	–	160	2950		·054
20	333196	–	–	–	–	–	150	2900		·052
21	333197	–	–	–	–	–	140	3150		·044
22	333198	–	–	–	–	–	130	2700		·048
23	333199	–	–	–	–	–	120	2600		·046
24	333200	–	–	–	–	–	150	3450		·043
25	333201	–	–	–	–	–	120	2500		·048

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06207	15/06/89	7587	8 OF 15

TUBE No.	SAMPLE No.	Ag	Au	Ba	As	Cr	Zr	Ti		
1	333202	–	–	–	–	–	85	2500	* std.	·034
2	333203	–	–	–	–	–	130	2450		·053
3	333204	–	–	–	–	–	160	3100		·051
4	333205	–	–	–	–	–	160	2700		·059
5	333206	–	–	–	–	–	170	3300		·051
6	333207	–	–	–	–	–	140	2700		·052
7	333208	–	–	–	–	–	150	2600		·058
8	333209	–	–	–	–	–	190	3100		·061
9	333210	–	–	–	–	–	170	4250		·04
10	333211	–	–	–	–	–	160	3950		·045
11	333212	–	–	–	–	–	160	3300		·054
12	333213	–	–	–	–	–	180	3350		·054
13	333214	–	–	–	–	–	170	3900		·043
14	333215	–	–	–	–	–	150	2600		·058
15	333216	–	–	–	–	–	170	2900		·059
16	333217	–	–	–	–	–	170	3300		·051
17	333218	–	–	–	–	–	170	3050	HG80 ↑	·056
18	333508	–	–	–	–	–	240	3800	MC-12 ↓	·063
19	333509	–	–	–	–	–	200	3150		·063
20	333510	–	–	–	–	–	170	3050		·056
21	333511	–	–	–	–	–	180	3000		·06
22	333512	–	–	–	–	–	180	2850		·063
23	333513	–	–	–	–	–	170	2800		·061
24	333514	–	–	–	–	–	180	2750		·065
25	333515	–	–	–	–	–	180	2750		·065

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06207	15/06/89	7587	9 OF 15

TUBE No	SAMPLE No.	Ag	Au	Ba	As	Cr	Zr	Ti		
1	333516	–	–	–	–	–	190	2800		·068
2	333517	–	–	–	–	–	180	2600		·069
3	333518	–	–	–	–	–	170	2600		·065
4	333519	–	–	–	–	–	190	2750		·069
5	333520	–	–	–	–	–	190	2800		·068
6	333521	–	–	–	–	–	85	2600	*STD	·033
7	333522	–	–	–	–	–	190	2700		·067
8	333524	–	–	–	–	–	190	2900		·065
9	333525	–	–	–	–	–	170	2650		·066
10	333526	–	–	–	–	–	190	2750		·069
11	333527	–	–	–	–	–	150	2800		·053
12	333529	–	–	–	–	–	130	2900		·046
13	333531	–	–	–	–	–	95	2350		·040
14	333532	–	–	–	–	–	200	2400		·083
15	333533	–	–	–	–	–	190	2100		·090
16	333534	–	–	–	–	–	200	2100	MC-12 ↑	·095
17	333536	–	–	–	–	–	250	3200	MC-6 ↓	·078
18	333537	–	–	–	–	–	320	2750		·116
19	333540	–	–	–	–	–	290	2500		·116
20	333541	–	–	–	–	–	200	1700		·118
21	333542	–	–	–	–	–	250	2150		·116
22	333543	–	–	–	7	–	–	–		·
23	333544	–	–	–	–	–	280	2550		·110
24	333545	–	–	–	–	–	260	2450		·106
25	333546	–	–	–	–	–	250	2300		·109

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06207	15/06/89	7587	10 OF 15

TUBE No.	SAMPLE No.	Ag	Au	Ba	As	Cr	Zr	Ti		
1	333547	–	–	–	–	–	240	2400		·1
2	333548	–	–	–	–	–	85	2450	* STD	·035
3	333549	–	–	–	–	–	230	2000		·115
4	333550	–	–	–	–	–	220	2150		·102
5	333552	–	–	–	–	–	180	2350		·076
6	333554	–	–	–	–	–	210	2450		·086
7	333555	–	–	–	–	–	230	2500		·092
8	333557	–	–	–	–	–	200	2650		·075
9	333559	–	–	–	–	–	200	2550	[illegible]	·078
10	333568	–	–	–	–	–	180	2500	MC-6 ↑	·072
11	333685	–	–	–	–	–	65	2100	MC-13	·031
12	333686	–	–	–	–	–	85	1950		·043
13	333687	–	–	–	–	–	170	1750		·097
14	333688	–	–	–	–	–	160	1350		·118
15	333689	–	–	–	–	–	140	1650		·085
16	333690	–	–	–	–	–	170	3700		·096
17	333691	–	–	–	–	–	90	2500	* STD	·036 ✓
18	333692	–	–	–	–	–	180	4000		·045
19	333694	–	–	–	–	–	130	2600		·05
20	333697	–	–	–	–	–	120	2500		·048
21	333700	–	–	–	–	–	130	2550		·051
22	333701	–	–	–	–	–	130	2300		·056
23	333702	–	–	–	–	–	150	2300	MC-15 ↑	·065
24	333703	<0.5	<0.008	–	–	–	–	–	MAC-3 ↓	
25	333704	<0.5	<0.008	–	–	–	–	–		

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06207	15/06/89	7587	11 OF 15

TUBE No.	SAMPLE No.	Ag	Au	Ba	As	Cr	Zr	Ti		
1	333705	<0.5	<0.008	–	–	–	–	–		
2	333706	<0.5	<0.008	–	–	–	–	–		
3	333707	<0.5	<0.008	–	–	–	–	–		
4	333708	<0.5	0.008	–	–	–	–	–		
5	333709	<0.5	<0.008	–	–	–	–	–		
6	333710	<0.5	<0.008	–	–	–	–	–		
7	333711	<0.5	<0.008	–	–	–	–	–		
8	333712	<0.5	0.010	–	–	–	–	–		
9	333713	<0.5	0.008	–	–	–	–	–		
10	333714	<0.5	<0.008	–	–	–	–	–		
11	333715	<0.5	<0.008	–	–	–	–	–		
12	333716	<0.5	<0.008	–	–	–	–	–		
13	333717	<0.5	<0.008	–	–	–	–	–		
14	333718	<0.5	<0.008	–	–	–	–	–		
15	333719	<0.5	0.010	–	–	–	–	–		
16	333720	<0.5	<0.008	–	–	–	–	–		
17	333721	<0.5	<0.008	–	–	–	–	–		
18	333722	<0.5	<0.008	–	–	–	–	–		
19	333723	<0.5	<0.008	–	–	–	–	–		
20	333724	<0.5	0.011	–	–	–	–	–		
21	333725	<0.5	<0.008	–	–	–	–	–		
22	333726	<0.5	<0.008	–	–	–	–	–		
23	333727	<0.5	<0.008	–	–	–	–	–		
24	333728	<0.5	<0.008	–	–	–	–	–		
25	333729	<0.5	<0.008	–	–	–	–	–		

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06207	15/06/89	7587	12 OF 15

TUBE No.	SAMPLE No.	Ag	Au	Ba	As	Cr	Zr	Ti		
1	333730	31.5	–	–	–	–	–	–		
2	333731	51.0	–	–	–	–	–	–		
3	333732	0.5	<0.008	–	–	–	–	–		
4	333733	<0.5	<0.008	–	–	–	–	–		
5	333734	15.0	–	–	–	–	–	–		
6	333735	–	<0.008	–	–	–	–	–		
7	333736	12.5	–	–	–	–	–	–		
8	333737	21.5	–	–	–	–	–	–		
9	333738	33.5	–	–	–	–	–	–		
10	333739	23.5	–	–	–	–	–	–		
11	333740	20.5	–	–	–	–	–	–		
12	333741	21.0	–	–	–	–	–	–		
13	333742	19.5	–	–	–	–	–	–		
14	333743	17.5	–	–	–	–	–	–		
15	333744	10.0	–	–	–	–	–	–		
16	333745	13.0	–	–	–	–	–	–		
17	333746	17.5	–	–	–	–	–	–		
18	333747	13.0	–	–	–	–	–	–		
19	333748	14.5	–	–	–	–	–	–		
20	333749	<0.5	<0.008	–	–	–	–	–		
21	333750	21.0	–	–	–	–	–	–		
22	333751	14.0	–	–	–	–	–	–		
23	333752	13.0	–	–	2	–	–	–		
24	333753	17.0	–	–	–	–	–	–		
25	333754	11.5	–	–	–	–	–	–		

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06207	15/06/89	7587	13 OF 15

TUBE No.	SAMPLE No.	Ag	Au	Ba	As	Cr	Zr	Ti		
1	333755	12.0	–	–	–	–	–	–		
2	333756	1.0	<0.008	–	–	–	–	–		
3	333757	7.0	<0.008	–	–	–	–	–		
4	333758	11.5	–	–	–	–	–	–		
5	333759	16.5	–	–	–	–	–	–		
6	333760	11.0	–	–	–	–	–	–		
7	333761	12.0	–	–	–	–	–	–		
8	333762	12.0	–	–	–	–	–	–		
9	333763	14.0	–	–	–	–	–	–		
10	333764	6.5	<0.008	–	–	–	–	–		
11	333765	5.0	<0.008	–	–	–	–	–		
12	333766	2.5	0.012	–	–	–	–	–		
13	333767	1.0	<0.008	–	–	–	–	–		
14	333768	17.0	–	–	–	–	–	–		
15	333769	10.0	–	–	–	–	–	–		
16	333770	14.5	–	–	–	–	–	–		
17	333771	9.0	–	–	–	–	–	–		
18	333772	10.5	–	–	–	–	–	–		
19	333773	9.0	–	–	–	–	–	–	MAC 13	
20	333774	1.0	<0.008	–	–	–	–	–	* STD	✓
21	427938	–	–	520	–	120	140	4050	MAC 15	·034
22	427939	–	–	500	–	120	140	4050	↓	·034
23	427940	–	–	460	–	140	140	4200		·033
24	427945	–	–	1150	–	980	85	2500	* STD	✓·034
25	427949	–	–	290	–	460	230	3100		·074

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06207	15/06/89	7587	14 OF 15

TUBE No.	SAMPLE No.	Ag	Au	Ba	As	Cr	Zr	Ti		
1	427950	–	–	260	–	520	230	2950		·078
2	427951	–	–	240	–	560	190	2600		·073
3	427952	–	–	280	–	490	200	2750		·073
4	427953	–	–	310	–	410	190	2850	Mn 15↑	·067
5	430646	–	–	–	–	25	240	1350	Mn 20 ↓	·155
6	430647	–	–	–	–	30	260	1600		·162
7	430648	–	–	–	–	10	220	1400		·157
8	430649	–	–	–	–	9	190	1150		·165
9	430650	–	–	–	–	40	200	1300		·154
10	430651	–	–	–	–	45	220	1300		·169
11	430652	–	–	–	–	20	200	1100		·182
12	430653	–	–	–	–	35	190	1100		·173
13	430654	–	–	–	–	10	190	1100		·173
14	430655	–	–	–	–	20	220	1100		·2
15	430656	–	–	–	–	<5	190	940		·202
16	430657	–	–	–	–	10	170	1000		·17
17	430658	–	–	–	–	25	190	2850		·067
18	430659	–	–	–	–	30	140	2850		·049
19	430660	–	–	–	–	95	110	6400	??	·017
20	430661	–	–	–	–	340	140	2400		·058
21	430662	–	–	–	–	970	65	2450	* STD. *	·035
22	430663	–	–	–	–	550	160	2700		·059
23	430664	–	–	–	–	440	170	2850		·060
24	430665	–	–	–	–	420	170	2750		·062
25	430666	–	–	–	–	440	160	2500		·064

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.06.06207	15/06/89	7587	15 OF 15

TUBE No.	SAMPLE No.	Ag	Au	Ba	As	Cr	Zr	Ti		
1	430667	–	–	–	–	500	160	2950		·054
2	430668	–	–	–	–	260	180	3700		·049
3	430669	–	–	–	–	450	160	3050		·052
4	430670	–	–	–	–	490	150	2650		·057
5	430671	–	–	–	–	520	130	2200		·059
6	430672	–	–	–	–	160	210	3500		·06
7	430673	–	–	–	–	170	200	3600		·055
8	430674	–	–	–	–	130	170	3100		·055
9	430675	–	–	–	–	110	200	3200		·062
10	430676	–	–	–	–	25	200	2400		·083
11	430677	–	–	–	–	35	160	3250		·049
12	430678	–	–	–	–	55	180	4400		·040
13	430679	–	–	–	–	50	160	4600		·034
14	430680	–	–	–	–	20	220	1800		·122
15	430681	–	–	–	–	960	90	2450	* STD	·037
16	430682	–	–	–	–	15	240	1000		·24
17	430683	–	–	–	–	70	360	1150		·313
18	430684	–	–	–	–	10	330	1100		·3
19	430685	–	–	–	–	<5	280	480	MAR 20↑	·58
20										
21										
22										
23	DETECTION	0.5	0.008	10	1	5	5	50		
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM		
25	METHOD	101	307	401	114	401	401	401		

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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. 23.3.08.05561

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
3846	

DATE RECEIVED	RESULTS REQUIRED
29/06/88	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
4	13/07/88	1	29

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
	65036/64	PU							Cu,Pb,Zn,Ag/101,As/114			
	265036/64	PU							Ba,Cr,Zr,Ti/401,Au,AuChk/309			

RESULTS TO

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

RESULTS TO

REMARKS

HA-1 (HAT-3)
REANALYSIS OF OLD 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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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No	PAGE
	23.3.08.05561	13/07/88	3846	1 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	AuChk	Ba	As	Cr
1	0-22.5 265036	40	20	105	<0.5	<0.008	–	640	12	35
2	22.5-25.8 265037	45	10	95	<0.5	0.010	–	620	19	40
3	25.8-30 265038	20	35	115	<0.5	<0.008	–	730	12	35
4	30-35 265039	25	75	160	<0.5	<0.008	–	760	18	35
5	35-40 265040	35	75	195	<0.5	0.008	–	890	15	55
6	40-45 265041	30	30	110	<0.5	0.008	–	860	13	35
7	45-50 265042	10	25	110	<0.5	<0.008	–	360	7	20
8	50-55 265043	20	30	95	<0.5	0.015	–	740	35	40
9	55-60 265044	10	25	80	<0.5	<0.008	<0.008	680	11	40
10	60-65 265045	5	15	80	<0.5	0.014	–	770	8	45
11	65-70 265046	15	25	95	<0.5	<0.008	–	720	13	45
12	70-75 265047	20	25	100	<0.5	0.012	–	870	17	50
13	75-80 265048	45	40	100	<0.5	0.019	–	110	26	60
14	80-85 265049	25	65	110	<0.5	0.040	–	1300	130	55
15	85-90 265050	25	100	75	0.5	0.062	–	3150	220	25
16	90-95 265051	40	50	85	<0.5	0.019	–	2850	45	40
17	95-100 265052	170	50	50	<0.5	0.031	–	3150	45	30
18	100-105 265053	250	45	85	0.5	0.040	–	2050	45	45
19	105-110 265054	15	25	70	<0.5	0.008	–	1300	8	15
20	110-115 265055	25	70	135	1.0	0.010	–	1850	22	30
21	115-120 265056	15	50	160	1.5	0.022	–	1350	35	30
22	120-125 265057	45	60	190	2.0	0.061	–	1250	95	45
23	125-130 265058	55	45	130	1.5	0.040	–	900	96	65
24	130-135 265059	40	40	140	1.0	0.028	–	830	85	60
25	135-140 265060	15	35	120	1.0	0.026	–	960	21	40

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.05561	13/07/88	3846	2 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	AuChk	Ba	As	Cr
1	140-145 265061	25	25	100	1.0	0.045	–	1250	29	40
2	145-150 265062	30	45	160	1.5	0.037	–	1000	35	20
3	150-155 265063	15	45	170	1.0	0.017	–	1250	100	4[illegible]
4	155-159.7 265064	15	30	105	1.0	0.049	–	1450	18	3[illegible]
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	0.008	0.008	10	1	5
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	101	101	309	309	401	114	40[illegible]

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.05561	13/07/88	3846	3 OF 4

TUBE No.	SAMPLE No.	Zr	Ti	Zr/Ti						
1	265036	230	2000	0.115						
2	265037	220	1850	0.119						
3	265038	220	2000	0.11						
4	265039	230	2000	0.115						
5	265040	280	2550	0.11						
6	265041	260	2450	0.106						
7	265042	250	2000	0.125						
8	265043	260	2300	0.113						
9	265044	220	2050	0.107						
10	265045	220	2100	0.105						
11	265046	210	1950	0.108						
12	265047	220	1950	0.113						
13	265048	220	2100	0.105						
14	265049	200	1750	0.114						
15	265050	190	1650	0.115						
16	265051	190	1700	0.112						
17	265052	210	1500	0.14						
18	265053	220	1850	0.119						
19	265054	220	1700	0.129						
20	265055	200	1900	0.105						
21	265056	220	2450	0.09						
22	265057	190	2150	0.088						
23	265058	160	2400	0.067						
24	265059	170	2550	0.067						
25	265060	190	2500	0.076						

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.05561	13/07/88	3846	4 OF 4

TUBE No.	SAMPLE No.	Zr	Ti	Zr/Ti						
1	265061	190	2400	0.079						
2	265062	180	2050	0.088						
3	265063	190	2400	0.079						
4	265064	180	2200	0.082						
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	50							
24	UNITS	PPM	PPM							
25	METHOD	401	401							

Results in ppm unless otherwise specified
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X = element concentration is below detection limit
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MC-8
11
12
13

PAGE OF

CORE GRIND SAMPLING - MACKINTOSH / HATFIELD

HOLE No.

DATE

NOS. START from TOP TO BOTTOM

ASSORTED SAMPLES, MAC1, MAC3 & HAT8.

	No.	SAMPLE NUMBER	INTERVAL	ELEMENTS REQUIRED	ST	SAMPLE NUMBER	INTERVAL	ELEMENTS REQUIRED	ST
MC-8	1	333045	180-190	Zr, Ti					
MC-11	2	122	116-126	Zr, Ti					
MC-12	3	333530	340.2-343.0	Zr, Ti					
MC-13	4	333693	283-288.4	Zr, Ti					
MC-1	5	333142	37.7-45.2	Zr Ti					
	6	143	45.2-50.2	Zr, Ti					
	7	150	110.2-120.2	Zr, Ti					
	8	153	140.2-150.2	Zr, Ti					
	9	155	160.2-170.2	Zr, Ti					
	10	158	190.2-202.2	Zr, Ti					
	11	162	216.0-225.2	Zr, Ti					
	12	167	259-269	Zr, Ti					
MAC3	13	333752	150.4-153.4	Ag, Ba, As, Cr, Ni, Zr, Ti					
HAT5	14	807	326.0-336.0	Ba, Cr, Pb, Zn, Sn, As, Ag, Au, Co, Ni, Ti, Zr.					
	15	333808	*Standard	5 Zr Ti					
	16								
	17								
	18								
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ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.
Phone (09) 458 7999 — 52 Murray Road, Welshpool, W.A. 6106 — Telex AA92560
FAX: 004 51 8890

ANALYTICAL REPORT No. 23.3.08.06419

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
8280	

DATE RECEIVED	RESULTS REQUIRED
14/08/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	29/08/89	1	15

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	METHO
	Various	CG	Prep: Oi						Zr,Ti/401			
	333752,333807	CG							Ag,Ni/101,As/114			
	333752,333807	CG							Ba,Cr/401			
	333807	CG							Cu,Pb,Zn/101			
	333807	CG							Au,AuChk/309			

RESULTS TO

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

RESULTS TO

REMARKS

INFILL
CORE GRINDING

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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A Division of Macdonald Hamilton & Co. Pty Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06419	29/08/89	8280	1 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	AuChk	Ba	As	Cr
1	MC-8 180-190 333045	–	–	–	–	–	–	–	–	–
2	MC-11 116-126 333122	–	–	–	–	–	–	–	–	–
3	MAC-1 37.7-45.2 333142	–	–	–	–	–	–	–	–	–
4	MAC-1 45.2-50.2 333143	–	–	–	–	–	–	–	–	–
5	MAC-1 110.2-120.2 333150	–	–	–	–	–	–	–	–	–
6	MAC-1 140.2-150.2 333153	–	–	–	–	–	–	–	–	–
7	MAC-1 160.2-170.2 333155	–	–	–	–	–	–	–	–	–
8	MAC-1 190.2-202.2 333158	–	–	–	–	–	–	–	–	–
9	MAC-1 216-225.2 333162	–	–	–	–	–	–	–	–	–
10	MAC-1 259-269 333167	–	–	–	–	–	–	–	–	–
11	MC-12 [redacted]-343 333530 283.3	–	–	–	–	–	–	–	–	–
12	MC-13 [redacted]-288.4 333693 150.4	–	–	–	–	–	–	–	–	–
13	MAC-3 [redacted]-153.4 333752	–	–	–	<0.5	–	–	590	4	6
14	MAT-5 326-336 333807	10	20	45	<0.5	<0.008	–	<10	1	5
15	STD 333808 X STD	–	–	–	–	–	–	–	–	–
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	0.008	0.008	10	1	5
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	101	101	309	309	401	114	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.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06419	29/08/89	8280	2 OF 2

TUBE No.	SAMPLE No.	Zr	Ti	Ni						
1	333045	160	1750	–						
2	333122	190	2350	–						
3	333142	85	1950	–						
4	333143	160	2200	–						
5	333150	200	3600	–						
6	333153	150	2600	–						
7	333155	150	2350	–						
8	333158	40	1550	–						
9	333162	150	2450	–						
10	333167	200	1750	–						
11	333530	130	2400	–						
12	333693	190	2800	–						
13	333752	140	3050	25						
14	333807	10	325	50						
15	333808 X	90	2300	–						
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	50	10						
24	UNITS	PPM	PPM	PPM						
25	METHOD	401	401	101						

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

CORE GRIND SAMPLING - MACKINTOSH / HATFIELD

HOLE No. HAT1.

DATE 15-6-89

No.	SAMPLE NUMBER	INTERVAL	ELEMENTS REQUIRED	ST	SAMPLE NUMBER	INTERVAL	ELEMENTS REQUIRED	ST
1	515650	0 - 10 m	Cu, Pb, Zn, Sn, As, Ag, Au					
2	651	10 - 20 m	"					
3	652	20 - 30 m	"					
4	653	30 - 40 m	"					
5	654	40 - 50 m	"					
6	655	50 - 64.7 m	"					
7	656	64.7 - 73.3 m	Cu, Pb, Zn, Sn, As, Ag, Cr, Ti, Zr, Au					
* 8	657	Standard 5	"					
9	658	73.3 - 83.3 m	"					
10	659	83.3 - 92.25	"					
X 11	660	92.25 - 93.1	scor "					
X 12	661	93.1 - 94.9	scor "					
13	662	94.9 - 104.5	"					
14	663	104.5 - 114.5	"					
15	664	114.5 - 124.5	"					
16	665	124.5 - 130	"					
17	666	130 - 140	"					
18	667	140 - 150.1	"					
19	515668	150.1 - 160	"					
20								
21								
22								
23								
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108250

ANALABS

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ANALYTICAL REPORT No. 23.3.08.06288

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
7860	

DATE RECEIVED	RESULTS REQUIRED
19/06/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	11/07/89	1	19

STATE OF SAMPLES REFER BELOW	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PUL-VERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METH
	515650/668	CG Prep: 01							Cu,Pb,Zn,Ag/101,As/114		
	515650/668	CG							Ba/401,Au,AuChk/309		
	515656/668	CG							Cr,Zr,Ti/401		

RESULTS TO
Aberfoyle Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

RESULTS TO

REMARKS

HAT-1

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 chemical 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

HAT-1

ANALABS

A Division of Macdonald Hamilton & Co. Pty Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06288	11/07/89	7860	1 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	Ba	As	Cr	Zr
1	0-10 515650	65	75	110	1.5	0.020	1600	14	–	
2	10-20 515651	75	75	110	1.0	0.016	1500	19	–	
3	20-30 515652	110	65	155	1.5	0.014	1150	21	–	
4	30-40 515653	110	100	190	1.0	0.013	900	22	–	
5	40-50 515654	100	205	15	0.5	0.024	1050	50	–	
6	50-64.7 515655	80	100	290	0.5	0.022	930	20	–	
7	64.7-73.3 515656	100	40	110	0.5	<0.008	2000	5	650	16
8	515657 #STD 5	130	215	2200	1.0	<0.008	1100	19	910	9
9	73.3-83.3 515658	100	50	110	<0.5	<0.008	1500	4	640	16
10	83.3-92.25 515659	100	45	120	<0.5	<0.008	1400	9	770	18
11	92.25-93.1 515660 SCOR	50	60	130	<0.5	0.008	2100	26	60	22
12	93.1-94.9 515661 SCOR	25	35	70	<0.5	<0.008	2100	18	35	20
13	94.9-104.5 515662	80	215	820	0.5	<0.008	1650	73	15	22
14	104.5-114.5 515663	80	100	480	<0.5	0.009	1500	19	<5	17
15	114.5-124.5 515664	85	85	240	1.0	0.011	1050	12	<5	18
16	124.5-130 515665	110	75	290	1.5	<0.008	1500	9	7	17
17	130-140 515666	130	60	180	0.5	0.009	1300	8	15	17
18	140-150.1 515667	75	60	160	0.5	0.012	1150	10	6	17
19	150.1-160 515668	60	70	185	<0.5	0.013	690	9	10	16
20										
21										
22										
23	DETECTION	5	5	5	0.5	0.008	10	1	5	[illegible]
24	UNITS	PPM	PPM	PPM	PPM	PPM	401	PPM	PPM	PPM
25	METHOD	101	101	101	101	309	401	114	401	40

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.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06288	11/07/89	7860	2 OF 2

TUBE No.	SAMPLE No	Ti	Zr/Ti							
1	515650	--								
2	515651	-								
3	515652	-								
4	515653	--								
5	515654	-								
6	515655	-								
7	515656	2300	·07							
8	515657	2450	·037							
9	515658	2250	·071							
10	515659	2800	·064							
11	515660	2450	·09							
12	515661	1800	·111							
13	515662	3150	·07							
14	515663	2800	·061							
15	515664	2900	·062							
16	515665	2600	·065							
17	515666	2350	·072							
18	515667	2350	·072							
19	515668	2650	·068							
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

CORE GRIND SAMPLING - MACKINTOSH / HATFIELD

Regrinds

HOLE No. MC-9

DATE 15-6-89

No.	SAMPLE NUMBER	INTERVAL	ELEMENTS REQUIRED	ST	SAMPLE NUMBER	INTERVAL	ELEMENTS REQUIRED	ST
1	515624	0-10	Cu, Pb, Zn, Sn, As, Ag, Cr, Ti, Zr, Au					
2	625	10-20	"					
3	626	20-30	"					
4	627	30-40	"					
5	628	40-50	"					
6	629	50-60	"					
7	630	60-70	"					
8	631	70-80	"					
9	632	80-90	"					
10	633	90-100	"					
11	634	100-110	"					
12	635	110-120	"					
13	636	120-130	"					
14	637	130-140	"					
15	638	140-150	"					
16	639	150-159.6	"					
* 17	640	Standard 5	"	*	N.B. interval	159.6-160.0	Not re-ground, use old	
18	641	160-170	"					
19	642	170-180	"					
20	643	180-190	"					
21	644	190-200	"					
22	645	200-210	"					
23	646	210-220	"					
24	647	220-230	"					
25	648	230-240	"					
26	649	240-248.7	"					
27								
28								
29								
30								
31								
32								

005263

ANALABS

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

Phone (09) 458 7999 52 Murray Road, Welshpool, W.A. 6106 Telex AA92560
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ANALYTICAL REPORT No. 23.3.08.06287

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
7859	

DATE RECEIVED	RESULTS REQUIRED
19/06/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
4	11/07/89	1	26

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	METH
	515624/649	CG	Prep: 01a						Cu,Pb,Zn,Ag/101,As/114,			
	515624/649	CG							Ba,Cr,Zr,Ti/401,Au,AuChk/309			

RESULTS TO

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

RESULTS TO

REMARKS

MC-9
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

AUTHORISED OFFICER

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06287	11/07/89	7859	1 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	Ba	As	Cr	Zr
1	0-10 515624	75	85	3200	<0.5	<0.008	800	11	440	15
2	10-20 515625	200	2550	3500	0.5	<0.008	1000	40	730	14
3	20-30 515626	200	1850	4475	<0.5	<0.008	870	24	1100	12
4	30-40 515627	145	80	4300	<0.5	<0.008	560	9	940	10
5	40-50 515628	115	35	3100	<0.5	<0.008	940	11	930	9
6	50-60 515629	160	930	1975	<0.5	<0.008	1100	8	1000	10
7	60-70 515630	120	680	1750	<0.5	<0.008	940	9	950	8
8	70-80 515631	75	50	1150	<0.5	<0.008	1050	4	990	7
9	80-90 515632	30	25	660	0.5	<0.008	580	2	840	6
10	90-100 515633	40	15	1200	<0.5	<0.008	210	4	860	7
11	100-110 515634	65	70	500	<0.5	<0.008	460	3	720	5
12	110-120 515635	70	45	435	<0.5	<0.008	420	2	930	6
13	120-130 515636	85	55	300	<0.5	<0.008	460	3	840	7
14	130-140 515637	90	145	285	<0.5	<0.008	630	1	910	8
15	140-150 515638	100	150	200	<0.5	<0.008	520	6	960	7
16	150-159.6 515639	100	30	180	<0.5	<0.008	500	6	970	7
1	515640 5 STD	120	210	2150	<0.5	<0.008	1100	15	920	9
18	160-170 515641	40	70	1450	<0.5	<0.008	840	29	35	3
19	170-180 515642	5	25	100	<0.5	<0.008	1250	2	20	24
20	180-190 515643	10	20	90	<0.5	<0.008	1850	<1	15	24
21	190-200 515644	10	15	75	<0.5	<0.008	550	<1	10	24
22	200-210 515645	<5	15	60	<0.5	<0.008	1050	<1	7	27
23	210-220 515646	60	15	100	<0.5	<0.008	1350	<1	9	26
24	220-230 515647	75	15	110	1.0	<0.008	1500	<1	15	27
25	230-240 515648	40	20	80	<0.5	<0.008	1100	<1	9	27

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

158203

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A Division of Macdonald Hamilton & Co. Pty Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06297	11/07/89	7859	2 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	Ba	As	Cr	Zr
1	240-248·7 515649	55	<5	100	0.5	<0.008	970	<1	15	27
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	0.008	10	1	5	5
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	101	101	309	401	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

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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
	23.3.08.06287	11/07/89	7859	3 OF 4

TUBE No.	SAMPLE No.	Ti								
1	515624	4600	·033							
2	515625	4000	·035							
3	515626	3000	·04							
4	515627	2600	·038							
5	515628	2600	·036							
6	515629	2750	·036							
7	515630	2350	·034							
8	515631	3250	·023							
9	515632	1800	·036							
10	515633	1800	·039							
11	515634	1450	·035							
12	515635	1750	·033							
13	515636	1850	·038							
14	515637	1900	·034							
15	515638	2000	·037							
16	515639	2100	·033							
17	515640	2500	·038							
18	515641	2550	·102							
19	515642	2150	·112							
20	515643	2050	·117							
21	515644	1700	·141							
22	515645	1300	·208							
23	515646	1250	·208							
24	515647	1300	·208							
25	515648	1300	·208							

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.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06287	11/07/89	7859	4 OF 4

TUBE No.	SAMPLE No.	Ti								
1	515649	1300	.208							
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

AUTHORISED OFFICER

CORE GRIND SAMPLING - MACKINTOSH / HATFIELD

HOLE No. MC-10

Re-grinds

DATE

No.	SAMPLE NUMBER	INTERVAL	ELEMENTS REQUIRED	ST	SAMPLE NUMBER	INTERVAL	ELEMENTS REQUIRED	ST
1	333081	0-10						
2	082	10-20						
3	083	20-30						
4	084	30-40						
5	085	40-49.8						
6	086	49.8-52.8						
7	087	52.8-60						
8	088	60-70						
9	089	70-80						
10	090	80-90						
11	091	90-100						
12	092	100-110						
13	093	110-120						
14	094	120-130						
15	095	130-140						
16	096	140-150						
17	097	150-160						
18	098	160-170						
19	099	170-180						
20	333100	180-190						
21	101	190-200						
22	102	200-210						
23	103	210-220						
24	104	220-230						
25	105	230-240						
26	106	240-246.2						
27	107	246.2-250.4						
28	108	250.4-260						
29	109	260-264.4						
30	110	Standard.						
31								
32							488269.	

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 8390

ANALYTICAL REPORT No. 23.3.08.06513

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

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

ORDER No.	PROJECT
3472	

DATE RECEIVED	RESULTS REQUIRED
14/09/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	21/11/89	1	30

STATE OF SAMPLES		PRE-TREATMENT							ANALYSIS			
REFER BELOW	SAMPLE NUMBERS	DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE		REFER TO ANALYSIS SECTION	PREPARATION	METHO
	333081/110	DB Prep: 013,016							Zr,Ti/401			
	333081/110	DB							Ti:Zr/199			

RESULTS TO
R. de Bomford
Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

RESULTS TO

REMARKS

MC-10
RE ANALYSIS
FOR Ti/Zr.

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	Mo	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
	23.3.08.06513	21/11/89	8472	1 OF 2

TUBE No.	SAMPLE No.	Zr	Ti							
1	333081	200	5600	0.036						
2	333082	180	4700	0.038						
3	333083	170	4500	0.038						
4	333084	170	4600	0.037						
5	333085	180	4550	0.04						
6	333086	95	2700	0.035						
7	333087	75	2200	0.034						
8	333088	80	2350	0.034						
9	333089	85	2150	0.039						
10	333090	65	1750	0.037						
11	333091	60	1850	0.032						
12	333092	55	1750	0.031						
13	333093	60	1950	0.031						
14	333094	60	1750	0.034						
15	333095	65	2100	0.031						
16	333096	60	2000	0.025						
17	333097	60	1750	0.031						
18	333098	50	1650	0.03						
19	333099	50	1700	0.029						
20	333100	65	2150	0.031						
21	333101	65	2100	0.031						
22	333102	60	1750	0.031						
23	333103	65	1950	0.033						
24	333104	70	2150	0.033						
25	333105	60	2050	0.029						

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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4882
71

273

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06513	21/11/89	8472	2 OF 2

TUBE No.	SAMPLE No.	Zr	Ti							
1	333106	85	2350	0.036						
2	333107	160	2750	0.058						
3	333108	290	2500	0.116						
4	333109	260	2350	0.111						
5	333110 STD	80	2450							
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	50							
24	UNITS	PPM	PPM							
25	METHOD	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 6

ATTACHMENT:

Sample No:	Drill Hole	Depth	Logged Description
315722	MC-6	44.2m	Porphyritic andesitic lava
315727	MC-6	146.1m	Porphyritic andesitic lava with irregular pink alteration
271613	MC-6	171.5m	Green andesitic lava
430850	MC-6	314.5m	Andesitic lava
315737	MC-9	199.3m	Green andesitic in pink altered matrix
315739	MC-9	246.9m	?Dacite
315770	MC-11	199.6m	Andesite
315771	MC-11	213.9m	Pink, altered andesite
383644	MC-15	154.8m	Silicified andesitic lava
383646	MC-15	182.0m	Feldspar-phyric andesite
379340	MC-17	290.3m	Feldspar-phyric andesite
396706	MAC-10	327.1	Altered andesite
396707	MAC-10	338.5	Feldspar-phyric andesitic lava

Dear Andrew:

Attached are the thin section descriptions of the 13 Charter-Hellyer samples you sent me. Without knowing what you told me, I would 100% certainly have assigned every single sample to the dacite-rhyodacite part of the Mt Read compositional spectrum. As you will gather from the sample descriptions, I suggest that a number of simple petrographic features can effectively discriminate andesites from dacites in most cases (and certainly these).

1. Andesites are usually crystal-rich (ie. high-phyric), with rather elongate and narrow plagioclase phenocrysts, and usually a notable, although not necessarily large number of fresh or chloritized mafic phenocrysts, usually augite. They usually have pilotaxitic or almost holocrystalline groundmasses, although chlorite-rich vitrophyric groundmasses are known. The amount of chlorite in the devitrified vitrophyric groundmasses of the latter samples usually significantly exceeds that in dacites.

2. Dacites are usually crystal-poor (sparsely-phyric) and the phenocryst population is dominated by plagioclase phenocrysts that are usually rather equidimensional, blocky prisms that often occur welded together and intergrown in multi-crystal clots. These are often, but not necessarily pink. Other phenocryst phases may include ***sparse*** augite and FeTi oxides. Dacites are usually highly glassy or vitrophyric, and have common perlitic cracks in really glassy samples. Mosaic- or snowflake-textured groundmasses commonly grow from devitrified glass.

I am sure all your samples are dacitic to rhyodacitic. The rather dark coloured lava breccia 271613 is strongly chloritized, but the lava fragments are nevertheless dacitic (even though a wholerock analysis might indicate an andesitic composition.....this would be meaningless given the brecciated and chloritized nature of this sample). Joe Stolz had a quick look at a few samples and agrees that these are dacitic. There's no argument. Sack the bloke that called these andesites!

Please follow up any enquiries you may have from this work, and thanks for th opportunity for the work.

Best wishes

Tony C.

PS: I'll hang on to the thinnies until you or Sven are down here, or I go up there (late Sept).

275

488276

PETROGRAPHIC REPORT

Rocks from HELLYER - MT CHARTER AREA

For ABERFOYLE RESOURCES LTD

Attn. ANDREW MCNEILL

by
Anthony J. Crawford
Geology Department
University of Tasmania
7/9/89

SAMPLE: 315722

SUMMARY:

This was originally a poorly plagioclase-phyric glassy dacite lava.

THIN SECTION DESCRIPTION:

This sample is a strongly sericitized sparsely plagioclase-phyric felsic lava. Former plagioclase phenocrysts are generally equidimensional euhedral blocky prisms that have been entirely replaced by relatively coarse-grained sericite and subordinate patches or small pools of clear calcite. These make up around 5 modal% of this sample, and are up to 2mm across. Former mafic phenocrysts are scarce, and appear to be small prismatic crystals of clinopyroxene that have been totally pseudomorphed by green chlorite.

The groundmass of this sample was almost certainly originally glassy, with sparse microlites of plagioclase and small granular FeTi oxide grains scattered throughout. The glass devitrified then crystallized as an unusual textured intergrowth of angular, often compound grains of secondary quartz, averaging around 0.05-0.1mm, and Tiny FeTi oxide or magnetite grains set in an irresolvable groundmass probably largely composed of quartz and albite. Small irregular patches of green chlorite occur scattered through the formerly glassy groundmass. The most characteristic feature of the groundmass of this sample is the intense aligned mesh of fine-grained sericite that permeates the rock, defining a very weak apparent 'foliation' (although this is unlikely to be visible in the hand specimen). An unusual feature of this sample is the relatively abundant and quite large needles and elongate prisms of apatite in the groundmass, and also included in some plagioclase phenocrysts.

In my opinion, there is little doubt that this sample was originally a glassy rhyodacitic lava. The following features serve to distinguish it from andesites (as I am familiar with them in the MRV). 1. The very sparse mafics in this sample, both as phenocrysts and in the groundmass. 2. The formerly highly glassy groundmass that crystallized abundant quartz is unlike the typically vitrophyric to almost holocrystalline groundmasses of MRV andesites. 3. In my experience, andesitic plagioclase phenocrysts are generally rather elongate prisms, and those in dacitesand more evolved magmas are equidimensional blocky prisms.

SAMPLE: 315727

SUMMARY:

This is a plagioclase-phyric formerly glassy dacitic lava with a devitrified perlitic groundmass.

THIN SECTION DESCRIPTION:

This sample is a plagioclase-phyric felsic lava that is cut by numerous subparallel calcite-quartz veins up to at least 1 cm wide. Plagioclase phenocrysts are small (generally less than 1mm long), and are equidimensional to rather elongate prisms that frequently occur in multi-crystal clots. Plagioclase phenocrysts are all sericite-free albite, and are probably produced by albitization of a more calcic plagioclase precursor. These crystals are rarely euhedral, but commonly show ragged or resorbed crystal faces, suggesting reaction with the host magma. Most crystals are full of Fe oxide (?) dust, giving them a brownish-pink colour in plane polarized light. There is no sign of the former existence of either mafic silicate or FeTi oxide phenocrysts or microphenocrysts in this rock.

The groundmass texture of this sample is quite unusual, and best shown in plane polarized light. At first glance, it resembles small lapilli that have been totally replaced by an extremely fine-grained quartz-albite mixture. However, careful examination shows that the groundmass of this sample was originally glassy, and that the it cooled and devitrified, breaking up into small domains separated by strongly curved perlitic fractures that are now picked out by very fine-grained dark green chlorite. Under crossed polars, none of this structure is visible, and the groundmass is seen to be composed of a mosaic intergrowth of quartz and albite, with subordinate but not uncommon chlorite. The distribution of chlorite is variable, and some areas of darker coloured rock to almost 1cm across reflect areas of higher modal chlorite. I am sure this is a secondary feature produced during devitrification-recrystallization.

The veins transecting this sample are composed entirely of polygonal quartz intergrown with coarsely-crystalline calcite.

Although there is not a lot of rock in this section to go on, I believe that this was a dacitic lava with perhaps around 65-67% SiO_2. Any attempt to analyze this sample should take great care in avoiding the abundant veins.

SAMPLE: 271613

SUMMARY:

This is a rather chloritized lava breccia composed of fragments of formerly glassy to pilotaxitic-textured moderately plagioclase-phyric dacite. It may well be from the same flow-unit (albeit brecciated at this level) as the preceding sample.

THIN SECTION DESCRIPTION:

This sample is a lava breccia composed of angular fragments of felsic lava to at least 1cm across, set in a matrix dominated by increasingly smaller fragments of the same material. All fragments are composed of moderately plagioclase-phyric felsic lava with variably crystalline groundmass textures. Plagioclase phenocrysts are subhedral to reacted and resorbed crystals usually much less than 1mm long, that often occur in multi-crystal clots. They show no sericitization, but are all riddled with submicroscopic Fe oxide (?) dust that imparts a pinkish colour to the albite crystals in plane polarized light. Occasional granular small crystals of yellow epidote occur as inclusions in the feldspar crystals.

The groundmass textures of the various fragments vary from formerly glassy, through vitrophyric to trachytic textured. Fragments with unusual perlitic-fractured devitrified and recrystallized glassy groundmass, identical to the previously described sample, are not uncommon. However, dominant are fragments with vitrophyric groundmasses composed of tiny plagioclase microlites in devitrifed glass that contains a significant amount of very fine-grained chlorite. Occasional fragments with trchytic (pilotaxitic) textured almost holocrystalline groundmasses composed of aligned very elongate plagioclase laths with interstitial very fine-grained chlorite are also present. Green chlorite and trains of tiny granular leucoxene (sphene and/or epidote?) are abundant in the matrix between lava fragments.

I am fairly sure that all the lava fragments in this sample come from the same lava flow, and that the petrographic variation observed (essentially restricted to groundmass textural differences) may be simply related from location within the flow. Glassy perlitic fragments are from quenched flow margins (like sample 315727), and those with increasingly crystalline textures in the groundmass come from more slowly cooled interior portions of the same flow. The sample is almost certainly dacitic, although the abundant secondary chlorite might drop SiO_2 contents to the andesite range.

SAMPLE: 430850

SUMMARY:

This is a formerly glassy, sparsely plagioclase-phyric dacitic to rhyodacitic lava in which the glassy groundmass has devitrified and crystallized as an almost snowflake-textured mosaic quartz-albite intergrowth.

THIN SECTION DESCRIPTION:

This sample is a formerly glassy dacite lava that contains about 2-5 modal% of small albite phenocrysts. The latter are generally small (<0.5mm) subhedral to slightly rounded and reacted equidimensional grains of albite flecked by minor sericite, that ofetn occur in 2- and 3-crystal clots. There is no sign of the former presence of mafic phenocrysts in this sample.

The groundmass of this sample is composed of a relatively coarse-grained mosaic intergrowth of albite and quartz with very minor pale green chlorite speckling. Boundaries between adjacent quartz-albite domains, on the scale of 0.05-0.1mm, are intimately intergrown and sutured. This texture approaches the classic snowflake texture that characterizes felsic obsidians that have devitrified. I have no doubt that this is a dacitic to rhyodacitic composition, for the same reasons as outlined for the first sample described herein.

A vein composed of ribbon quartz, polygonal calcite and minor bright green chlorite cuts the sample.

SAMPLE: 315737 and 315739

SUMMARY:

These rocks were probably dacitic lava breccias composed of largely glassy, sparsely plagioclase-phyric lava fragments. Sample 315737 is slightly foliated with stretched lava fragments; this may have occurred in a Devonian high-strain event that also strongly kinked calcite-quartz veins.

THIN SECTION DESCRIPTION:

These samples are very difficult to diagnose with certainty in thin section alone. Both are composed of lensoid domains of chlorite-rich poorly plagioclase-phyric dacitic lava separated by lighter coloured areas with rare chlorite. The texture of these samples is suggestive of a former dacitic lava breccia, with fragments probably less than a centimeter long. These include variably crystalline to glassy lava fragments that were, in turn, variably chloritized before being stretched in an event that kinked calcite veinlets and produced a weak foliation most evident in the chloritic fragments in sample 315737. All former fragments(?) were sparsely plagioclase phyric, with small (<0.5mm) plagioclase phenocrysts, now albite, forming less than about 2 modal% of the sample. These were blocky to rather elongate euhedral prisms, often occurring in multi-crystal clots, that show very minor sericite flecking. Mafic phenocrysts were not present in either sample.

The groundmass textures represented in both samples are similar to those in the previously described lava breccia (271613), although pilotaxitic almost holocrystalline areas are not present in this sample, and the strongly chloritic 'fragments' in this sample are not present in the lava breccia. Sericite meshworks and bands pervade the less chloritic areas of both rocks, but are more abundant in the more sheared sample 315737. Groundmass textures and grainsize change rapidly and apparently randomly across both samples, reflecting different lava fragments with varying initial degrees of crystallinity. Almost all groundmass variants are best interpreted as formerly glassy to vitrophyric textures, that have devitrified and crystallized to varying extents and variable grainsizes as quartz-albite (±chlorite) assemblages.

SAMPLE: 315770

SUMMARY:

This is a formerly glassy, sparsely plagioclase-phyric dacitic lava, with a strongly recrystallized quartz and (relatively) chlorite-rich groundmass.

THIN SECTION DESCRIPTION:

This is a formerly glassy sparsely plagioclase-phyric dacitic lava very similar to sample 315722 in most respects, except that the latter is more strongly sericitized. The rock is composed of around 2-5 modal% of small (<0.5mm long) blocky to tabular pinkish albite prisms that have been partially to completely altered to sericite, or sericite and calcite. There were no mafic phenocrysts in this sample.

The groundmass of this sample was definitely originally glassy. It has devitrified and crystallized to an intergrowth of anhedral relative coarse-grained quartz growing in a finer-grained quartz-albite-chlorite ± sericite ± calcite groundmass. Chlorite is relatively abundant in the groundmass, and occurs as vein fillings intergrown with quartz. Calcite veins are also common in this sample.

The large amount of secondary quartz in the groundmass, the relatively blocky and sparse plagioclase phenocrysts, the absence of mafic phenocrysts and the modally large amount of former glass all argue against this sample having been originally andesitic.

SAMPLE: 315771

SUMMARY:

This is a formerly glassy, poorly plagioclase-phyric dacitic lava strikingly similar to 315722.

THIN SECTION DESCRIPTION:

This rock in thin section is seen to be very similar to the previous sample in most respects. It is a formerly glassy plagioclase-phyric dacitic lava that contains more abundant (perhaps 7-10 modal%) small (<1mm) tabular, sericite flecked albite phenocrysts than 312770. These are set in a groundmass composed of abundant small angular anhedral quartz grains, often compound and forming tiny 'patches' rather than grains, embedded in a very fine-grained quartz-albite-sericite groundmass. I have no doubt that this was originally a highly glassy groundmass. As for sample 315722, needles of apatite are abundant in the groundmass, and as inclusions in albite in this sample.

The similarities between this sample and sample 315722 are quite striking, with differences being limited to degree of sericitization of the groundmass. I realize that these two samples are from different drillholes, but wonder whtehr they could be from the same stratigraphic unit?

SAMPLE: 383644

SUMMARY:

This is a formerly glassy to vitrophyric sparsely plagioclase-phyric vesicular dacitic lava

THIN SECTION DESCRIPTION:

This sample in thin section is clearly a vesicular formerly glassy dacitic lava with around 5 modal% of albite phenocrysts. The latter are subhedral to euhedral, sometimes slightly rounded tabular prisms flecked by minor sericite, and with a distinct pinkish colour due to submicroscopic Fe oxide (?) dust; they frequently occur in multi-crystal clots. Small euhedral FeTi oxide microphenocrysts are not uncommon in this sample, but are altered to chlorite, sphene and magnetite.

The groundmass of this sample was vesicular and probably pumiceous glassy to vitrophyric-textured. The groundmass has crystallized after devitrification to a relatively coarse-grained quartz-albite-chlorite mosaic in which tiny plagiolcase (albite) microlites are set. Zones of very fine-grained dark green chlorite occur as narrow angular areas between adjacent quartz-albite groundmass patches. Undeformed subspherical vesicles make up around 5 - 10 modal% of this sample, and are filled by relatively coarse-grained polygonal quartz and albite, fans and sheaves of coarse-grained very high-birefringent sericite, and occasionally chlorite occurs in the cores of some vesicles. The sample contains a single subrounded lithic fragment of a very fine-grained devitrified dacitic or rhyodacitic lava.

SAMPLE: 383646

SUMMARY:

This is probably a dacitic to rhyodacitic lava breccia composed of variably chloritized sparsely plagioclase (and rare quartz)-phyric fragments of formerly highly glassy lava.

THIN SECTION DESCRIPTION:

This sample in thin section is very similar to the lava breccia samples described above (315739, 315737). It is texturally more difficult to diagnose than most of the samples in this set, and like the two lava breccias described above, appears to be composed of relatively chlorite-rich, dark coloured domains and lighter coloured chlorite-poor areas. These are interpreted with caution to represent former lava fragments, although I have no immediate explanation as to why some are strongly chloritized and others are not. Boundaries of adjacent formerly glassy 'fragments' are blurred and indistinct due to recrystallization and growing together of the devitrified groundmasses. All fragments however, are sparsely albite-phyric, and at least one sample contains several small, rounded and partially resorbed quartz phenocrysts. In some chlorite-poor areas, secondary quartz-albite blebs growing in the groundmass are separated by angular areas of very fine-grained dirty epidote.

I am certain that the protolith of this sample was dacitic to rhyodacitic, even if I am less confident of the assignment of this difficult sample as a lava breccia.

SAMPLE: 379340

SUMMARY:

This is a formerly glassy to vitrophyric moderately plagioclase-phyric dacitic lava with a devitrified groundmass showing a strong patchy development of chlorite.

THIN SECTION DESCRIPTION:

This sample is a formerly glassy albite-phyric dacitic lava with relatively abundant FeTi oxide microphenocrysts and possibly several small chloritized, former mafic (cpx?) microphenocrysts. Subhedral to somewhat rounded, slightly sericitized albite phenocrysts (<1mm long) make up around 10 modal% of the sample and most commonly occur as multi-crystal aggregates. They are often dusty pink due to submicroscopic Fe oxide dust. Former FeTi oxide microphenocrysts are equidimensional grains with rims of magnetite and leucoxene.

The groundmass of this sample was formerly glassy to vitrophyric, with areas showing strong perlitic cracking well preserved; perlitic cracks are emphasized by localized growth of chlorite and very fine-grained epidote along the cracks. The most striking feature of the groundmass is the variation in chlorite abundance, reflected in the patchy appearance of the slide. This patchiness is not as pronounced as in samples described above as lava breccia. Most of the groundmass consists of a very fine-grained quartz-albite ±chlorite±sericite intergrowth containing tiny plagioclase microlites. This sample has abundant chlorite in the groundmass, and therefore might show a lower SiO_2 content (maybe around 65%) than many of the other samples described above. It is still, nevertheless, dacitic.

SAMPLE: 396706

SUMMARY:

This is a formerly glassy plagioclase-phyric dacitic or rhyodacitic lava with a micro-snowflake groundmass texture.

THIN SECTION DESCRIPTION:

In thin section, this sample is seen to be a formerly glassy feldspar+FeTi oxide +quartz-phyric rhyodacite lava. Feldspar phenocrysts are tabular albite prisms to around 1mm long, sometimes containing apatite needles, that show three distinct styles of alteration. Most albite phenocrysts are replaced either partially or totally by sericite. Occasional crystals, however, are replaced by an intergrowth of polygonal quartz grains, and still fewer are replaced by a dirty brown, almost isotropic mass of very fine-grained epidote. Several rounded and resorbed former quartz phenocrysts have also been replaced by an intergrowth of polygonal quartz. Equigranular FeTi oxide microphenocrysts are not uncommon, and appear to be largely unaltered.

The groundmass of this sample is texturally very similar to sample 430850 in that it has a well developed micro-snowflake texture defined by a mosaic intergrowth of quartz and albite that is riddled by tiny chlorite inclusions. The groundmass was undoubtedly glassy, and this sample was certainly a glassy dacitic to rhyodacitic lava.

SAMPLE: 396707

SUMMARY:

This is a formerly glassy moderately plagioclase-phyric dacitic lava with very well-developed perlitic cracks throughout the once-glassy groundmass.

THIN SECTION DESCRIPTION:

This sample is a moderately plagioclase-phyric dacitic lava with a perlitic textured formerly glassy groundmass. Plagioclase phenocrysts (albite) total around 10 modal% of the sample and are slightly rounded subhedra usually in glomeroporphyritic clots that reach about 2mm across maximum. The albite phenocrysts have the pinkish hue noted in many of these samples, probably attributable to submicroscopic Fe oxide dust. A few albite phenocrysts are partially replaced by clear pools of calcite. A number of small, elongate chlorite-quartz pseudomorphs were probably originally augite microphenocrysts. Small, equigranular and largely fresh FeTi oxide microphenocrysts are also not uncommon.

The formerly glassy groundmass of this sample exhibits beautiful perlitic cracks through a heterogeneous but fine-grained quartz-albite-chlorite matrix. Small spots and patches of calcite occur throughout the sample. This sample was also very clearly a glassy dacitic lava.

Attachment:

Sample No:	Hole	Depth	Logged Description
355132	MC-18	289.4m	Altered andesitic lava breccia
378368	MC-19	80.0m	Altered andesitic lava breccia
378374	MC-19	312.0m	Altered andesitic lava breccia
379372	HAT-8	272.2m	Andesitic lava
379375	HAT-8	361.3m	Feldspar-phyric basalt
383611	MC-14	431.4m	Silica altered basalt breccia
383613	MC-14	489.8m	Silicified basalt lava
383629	HAT-6	144.4m	Vesicular basalt
383630	HAT-6	175.1m	Basalt
383637	MC-15	36.0	Andesitic breccia
383648	MC-15	249.5m	Basalt

T.C. 23
488290
289

PETROGRAPHIC REPORT

Rocks from S of Que River Mine
For Aberfoyle Resources Ltd. 18/10/89

attn. Andrew McNeill

by
Anthony J. Crawford
Geology Department
University of Tasmania

SAMPLE: 355132

SUMMARY: This is a plagoclase-phyric meta-dacitic lava breccia, with lavas probably derived from different portions of the same flow.

THIN SECTION DESCRIPTION:

This is clearly a lava breccia. Two predominant types of lava fragments are notable. The more distinctive is composed of about 10-15 modal% of small plagioclase phenocrysts in a perlitically-cracked groundmass. Plagioclase phenocrysts are albitized blocky euhedra generally less than 0.5mm long, but sometimes reaching almost 2mm long. The larger crystals contain trains of chloritized melt inclusions, and multi-crystal clots are not uncommon. This fragment type appears to be devoid of mafic phenocrysts. The groundmass of this fragment variety is exceptionally fine-grained vitrophyric, and criss-crossed by curved perlitic cracks that have been picked out by fine-grained dull green chlorite. It contains tiny acicular plagioclase (albite) microlites set in a very fine-grained anhedral albite-dominated matrix. All albite shows minor specking by sericite.

The other dominant fragment type is also composed of around 10-15 modal% of albite phenocrysts identical in every way to those in the first-described fragment type, but the groundmass of this second variety of lava fragments is quite different. In these fragments, the groundmass is very fine-grained, and generally much finer-grained than in the first fragment type. It is not perlitically cracked, contains common calcite blotches, and shows rapid small-scale variations in groundmass grainsize through to almost isotropic devitrified glass. A simple interpretation would be that the latter fragment type represents glassy or glass-dominated material spalled of during explosive eruptions in water, whereas the former type might represent deeper portions of the same autobrecciated flow. There is no longer a jigsaw-fit between fragments, but I am fairly sure both fragment types could be derived from a single eruptive unit. The abundance and shapes of the plagioclase phenocrysts, coupled with the paucity (as in none) of mafic phases, leads me to conclude that the magma from which this sample was produced was dacitic, not andesitic.

Meandering calcite and chlorite veinlets cut the sample, and the metamorphic grade is clearly prehnite-pumpellyite facies.

SAMPLE: 378368

SUMMARY: This rock is a polymict lava breccia composed of several different varieties of dacitic lava fragments, some showing strong chloritic alteration, plus a single more mafic (andesitic?) lava fragment.

THIN SECTION DESCRIPTION:

This is a polymict lava breccia, with a rather diverse fragment population including dacitic and andesitic lava fragments. By far the dominant fragment type is a plagioclase-phyric dacite containing about 10modal% of quite large blocky plagioclase phenocrysts to 2mm long that have generally been thoroughly sercite-calcite-altered, although some less altered albite phenocrysts have persisted. Small (<0.4mm across) leucoxenized FeTi oxide phenocrysts are quite common in this sample. A few sites of possible former mafic phenocrysts are filled by an intergrowth of polycrystalline quartz, with no clear outline of the former mafic phase (?) preserved to aid in identification. The groundmass of this sample shows relic perlitic cracks, and these are highlighted by common bright green chlorite. The latter mineral also occurs abundantly through the devitrified formerly glassy groundmass that is now composed of a fine-grained mosaic intergrowth of albite, quartz and common sericite.

A second and abundant fragment variety contrasts with the previous type in being less plagioclase phenocryst-rich, and in having considerably less chlorite in the groundmass. It is also much more sericite-rich, and is composed essentially of a few totally sericitized feldspar phenocrysts in a highly altered devitrified and recrystallized (to albite-quartz mosaics) groundmass full of fine-grained sericite and possibly some extremely fine-grained epidote.

A single more mafic lava fragment is composed of a groundmass formed of a meshwork of tiny chloritized mafic phenocrysts and less abundant albite microlites. In this groundmass are a number of thoroughly sericitized former plagioclase phenocrysts, and several totally altered mafic phenocrysts. The latter are composed of an intergrowth of secondary quartz, and several apatite needles occur in each pseudomorph; these almost certainly were former augite phenocrysts.

The overall diagnosis of this sample is that it is a polymict lava breccia dominated by dacitic lava fragments, some of which show strong chloritic alteration. Calcite occurs as minor patches and narrow veinlets through the sample.

SAMPLE: 378374

SUMMARY: This rock is a complex andesitic lava breccia that contains irregular streaky interbeds of highly variable crystal tuff (including some Precambrian detrital muscovite) interpreted to represent a hot ash flow that intruded or exploded with the andesitic lava fragments.

THIN SECTION DESCRIPTION:

This rock shows a remarkable diversity of textures and rocktypes in thin section. It is dominated by lava fragments of andesitic to dacitic composition, but also contains several very fine-grained tuff fragments and narrow interbeds of epiclastic greywacke. The dominant andesitic fragments are plagioclase-phyric lavas with strongly sericitized albite phenocrysts to almost 3mm long. Probable former mafic phenocryst sites are much less abundant and filled by fine-grained quartz-chlorite intergrowths; crystal shapes are so badly preserved it is not possible to determine the former mafic phase, although augite would be a good bet. Leucoxenized FeTi phenocrysts are not uncommon in this rock. The groundmass of these andesitic fragments is quite chlorite-rich, and chlorite clearly replaces tiny mafic prisms which were intergrown with acicular albite microlites. Angular voids are filled by green chlorite.

Although it is difficult to tell without a hand specimen, it appears that a hot ash flow (?) of highly variable grainsize has intruded and flooded through the lava fragments. The dominant lithology in this section of the rock is a very fine-grained tuffaceous material containing rare broken albite crystals in a foliated sericitic groundmass. This material grades rapidly into a fine- medium-grained epiclastic greywacke containing abundant broken quartz and albite crystals, plus common large detrital muscovite crystals, implying some detrital input from the pelitic schists of the Precambrian in W Tasmania. Possibly the ash flow picked up and moved with it sedimentary material washed into the Mt Read 'graben' from the neighbouring Precambrian trough margins.

The simplest interpretation of this sample (without the hand specimen) is that it is an andesitic lava breccia broken up and transported by a hot ash flow. The metamorphic grade is prehnite-pumpellyite facies, and the dominant alteration is sericite-chlorite. I think the Ti/Zr of this sample is meaningless.

SAMPLE: 379372

SUMMARY: This is a texturally well-preserved plagioclase-phyric dacitic lava with a fair amount of chloritic alteration.

THIN SECTION DESCRIPTION:

This sample is a plagioclase-phyric lava containing around 10 modal% of small (<1mm) plagioclase phenocrysts in a devitrified glassy to vitrophyric groundmass. The plagioclase phenocrysts have been abitized, and are equidimensional blocky to rather elongate prisms often with reacted or broken margins such that euhedral crystals are the exception rather than the rule. They always contain granular epidote crystals and crystal aggregates and minor amounts of chlorite flakes, but minimal sericite flecking. These phenocrysts frequently form multi-crystal clots. There is no clear evidence for the former existence of mafic phenocrysts in this texturally well-preserved sample.

The groundmass of this sample is fairly even-textured and appears to be mainly the crystallization products of devitrified glass. Tiny albite microlites are sometimes present in the groundmass, which contains quite abundant green chlorite as dispersed lines of flakes and more angular, larger patches. Tiny leucoxenized FeTi oxide granules are common in the groundmass.

I think this sample was very clearly a dacite lava that has suffered limited chloritic alteration. The chlorite-albite-epidote quartz assemblage is prehnite-pumpellyite grade.

SAMPLE: 379375

SUMMARY: This is a very well-preserved augite+plagioclase-phyric evolved basalt or basaltic andesite lava.

THIN SECTION DESCRIPTION:

This is a texturally and minerlogically very well-preserved basaltic andesite or basalt lava. It is composed of approximately 15 modal% augite phenocrysts and 5-10modal% of plagioclase phenocrysts in a formerly vitrophyric groundmass. The plagioclase phenocrysts are large (1-3mm long) blocky to elongate prisms with abundant sericite alteration, which has been overprinted in turn by messy isotropic brown clay (or exceptionally fine-grained epidote). The augite phenocrysts are generally smaller than 1mm long, and are euhedral prisms, often twinned, that are more than 90% fresh. Occasional crystals are replaced by pale green chlorite. Many augite phenocrysts are not single crystals, but complex multi-crystal intergrowths, reaching up to 3mm across. Some augite phenocrysts contain partially leucoxenized FeTi oxide microphenocryst inclusions. There is no sign of former olivine phenocrysts in this sample.

The groundmass of this rock is an even-textured vitrophyric intergrowth of acicular plagioclase microlites and tiny augite blades making up probabaly more than 80 modal% of the groundmass, with chlorite, albite and quartz replacing the remainder, that was originally interstitial glass. Abundant tiny altered FeTi oxide grains occur scattered through the groundmass. Several large angular patches of chlorite probably represent fracture fillings.

The absence of olivine phenocrysts, the occurrence of FeTi oxide inclusions in he augite, and the abundant groundmass FeTi oxides suggest that this sample is a rather evolved basalt. It is clearly a typical Mt Read Volcanics (Hellyer-type) basalt. This excellent basaltic lava should be analyzed for the MRV data base. I'll see you about possible access to drill core when I'm in Burnie.

SAMPLE: 383611

SUMMARY: This is a chloritized very sparsely plagioclase-phyric dacitic lava or shallow intrusive that has apparently intruded and fluidized a pyritic shale.

THIN SECTION DESCRIPTION:

This rock was originally a lava breccia composed of two very different fragments populations. The dominant clasts are sparsely plagioclase-phyric andesitic to dacitic fragments with intersertal groundmass textures defined by elongate but non-acicular plagioclase microlites and slightly larger prisms in a chlorite-rich matrix. The plagioclase phenocrysts are slightly rounded albite phenocrysts less than 1mm long, and make up only a few modal% of the sample; they contain granular pale blue-pleochroic clinozoisite inclusions. Two rounded and resorbed quartz phenocrysts are also present. The entire groundmass of these fragments overprinted by abundant small semi-circular pale brown calcite patches and spots.

The second major component of this sample is composed of an exceptionally fine-grained tuff or shale, also spotted with calcite, that contains scattered pyrite euhedra about 0.5mm across.

I think the best explanation for the unusual texture of this sample is that it represents a shale intruded by, and fluidized by a dacitic lava or very shallow intrusive. Hand specimen textures would help in this diagnosis. The lava(or dyke?) is definitely not basaltic; I suggest that it is probably a chloritized dacite, and note the presence of the few quartz phenocrysts (although thee might be xenocrystal).

SAMPLE: 383613

SUMMARY: This is a vesicular, sparsely plagioclase-phyric acid andesite or dacite lava with a prehnite-pumpellyite grade metamorphic assemblage.

THIN SECTION DESCRIPTION:

This sample is a vesicular intermediate to dacitic lava composed of rare plagioclase phenocrysts set in an even-textured vitrophyric to intersertal textured groundmass. The very sparse plagioclase phenocrysts are equidimensional blocky prisms, often partially reacted and rounded, that are now composed of dusty pale brown albite that often contains granular epidote replacements to about half their volume..

The groundmass of this sample is even-textured intergrowth of albite microlites, much less abundant chloritized stubby augite(?) grains and albite-chlorite-quartz after interstitial glassy mesostasis. The groundmass is vesicular, with around 10 modal% of quite large rounded to elongate vesicles filled with radiating quartz fibres, chlorite, bundles, calcite and rare hematite. The sample is cut by several calcite veinlets.

I have serious reservations about the logging description of this sample as a silicified basalt lava. There is no way it is a basalt. I would say it is dacitic, with at the extreme case, an andesite being also possible. I don't think the sample is silicified. The silica filling the relatively sparse vesicles probably is released when the silica-rich glass in the groundmass is partially chloritized. I would argue that this sample is a vesicular dacitic to acid andesite lava.

SAMPLE: 383629

SUMMARY: This rock is a vesicular augite+plagioclase-phyric formerly glassy metabasalt.

THIN SECTION DESCRIPTION:

This sample is an augite + plagioclase-phyric vesicular intermediate to mafic lava. It is composed of subequal amounts of plagioclase and augite phenocrysts that are mainly less than 1mm long. The plagioclase phenocrysts are blocky to elongate euhedral prisms almost entirely replaced by greenish-brown pumpellyite, sericite and chlorite. They make up about 10 modal% of the sample. Augite phenocrysts are generally fresh but very finely cracked and partially oxidized.

The groundmass texture is rather unusual, being made of variably sized patchy developments of quartz, pumpellyite, pale yellow epidote, and a very fine-grained quartz-albite-sericite-chlorite mixture. The original groundmass texture was probably glassy, with sparse plagioclase microlites. Vesicles vary from 1 to at least 10mm across, and are filled by a diverse mineral assemblage, dominated by radiating fibrous quartz, with spherulitic albite, chlorite, epidote and calcite also being common filling vesicles.

The abundance of augite phenocrysts and the abundant epidote-pumpellyite in this sample suggest that it was a vesicular basalt or basaltic andesite. I would be cautious of interpreting the chemistry of this sample, however, as the large vesicles have been filled by quartz and other minerals, the components of whch are unlikely to have been entirely derived from the rock itself.

SAMPLE: 383630

SUMMARY: This rock is a fairly strongly calcite-altered plagioclase+ augite-phyric meta-andesite lava.

THIN SECTION DESCRIPTION:

This rock is a rather heterogeneous-textured plagioclase+augite-phyric andesitic to basaltic andesite lava that has been strongly altered and recrystallized. Plagioclase phenocrysts make up around 10 modal% of the rock and are albite, and range from quite large (~2mm across) equidimensional prisms to more elongate euhedra; alteration of the plagioclase phenocrysts is limited to minor pumpellyite development in some crystals. Augite phenocrysts are smaller and much less abundant than the plagioclase phenocrysts, and they are partially to completely replaced by calcite and less abundant epidote and chlorite.

The groundmass of this sample is dominated by murky, almostisotropic devitrified glass in which are scattered albite microlites and tiny altered FeTi oxide granules. Irregular patches of quartz, quartz and albite, albite and epidote and epidote and chlorite are scattered throughout the groundmass. Much of the dirty near-isotropic material in the groundmass is seen to be very fine-grained epidote.

Veinlets and patches of calcite are common in this sample, and some of the larger veins show marginal areas in which the dirty epidote-rich groundmass has been leached clean to an albite-quartz mixture.

I would argue that this rock is a meta-andesite or meta-basaltic andesite lava.

SAMPLE: 383637

SUMMARY: This sample is a lava breccia made up of plagioclase-phyric dacitic lava fragments that show variable groundmass textures and alteration assemblages (chloritic, or sericitic).

THIN SECTION DESCRIPTION:

This sample is probably a lava breccia, judging by the varying domains of quite different groundmass texture and alteration in this rock, although without a handspecimen, this assignment is made with caution. The rock is a plagioclase-phyric lava with around 5-10 modal% of euhedral albitized plagioclase prisms to about 1.5mm long, set in a variable groundmass. A few small altered former augite(?) microphenocrysts are replaced by green chlorite. Both the plagioclase phenocrysts and the groundmass are commonly show semi-rounded dark brownish-yellow spots of epidote generally around 0.2mm diameter.

The groundmass of this sample is rather unusual in that is shows gradational rather than abrupt changes in texture and alteration mineralogy. The main areas of groundmass are formerly vitrophyric, with abundant tiny albite microlites set in a chlorite-albite-quartz matrix probably after devitrified interstitial glass. LEss coomon is a texture in which interstitial chlorite is far less abundant, and is replaced by fairly intense networks of sericite. Concentrations of tiny globular Fe oxide or leucoxene blebs (insoluble?) occur long meandering contacts between the chloritic and sericitic groundmass domains.

These dacitic lava fragments were probably derived from the one flow, and the variable groundmass textures and alteration assemblages reflect primary amounts of glass (and therefore 'alteration-ability') in the fragments coming from different parts of the dacitic flow unit. Some pressure solution accompanied alteration, as evidenced by the Fe oxides along stylolitic-like planes between adjacent fragments.

SAMPLE: 383648

SUMMARY: This rock is a sparsely augite-phyric pilotaxitic-textured andesitic lava with abundant epidote in the groundmass, and calcite and epidote veining.

THIN SECTION DESCRIPTION:

This rock is an almost aphyric, pilotaxitic-textured intermediate lava cut by abundant epidote and calcite veinlets. Only two or three small subhedral augite phenocrysts were noted in this sample, embedded in a flow-textured groundmass with flowlines defined by blunt to acicular plagioclase microlites. The remainder of the groundmass is composed of abundant tiny epidote granules that are almost isotropic, and interstitial quartz, albite and minor chlorite. Larger granules of crystalline, highly birefringent epidote , and angular fracture fillings filled with radiating fibrous epidote, are common throughout the groundmass.

Vein assemblages are either calcite, or quartz-epidote. The latter appear to be crosscut by the calcite veinlets, or replaced in part by calcite.

The paucity of mafic phenocrysts suggest that this is unlikely to be a basalt. I suggest it is probably andesitic, although with all that epidote in the rock, it could analyze out in the basaltic andesite field (53-56% SiO_2).

488302

APPENDIX 7

ABERFOYLE

MEMORANDUM

Date	19 February, 1990	Ref	
To	D. B. Wallace	From	A. McNeill
At	Burnie	At	Burnie
Copies to	RJH SWR	Keep	

Subject

GEOCHEMICAL VECTORS FOR BLIND ALTERED/MINERALISED SYSTEMS

A summary of geochemical vectors, to locate alteration systems and indicate whether they are barren or mineralised, that would appear to be applicable to the Mackintosh district has been compiled. This list is probably not complete, being drawn from papers that were readily available, but hopefully will form the basis for discussion of which technique, if any, should be routinely applied to drill core in the Mackintosh district.

1) Na_2O and the Alteration Index

Studies by Ishikawa et al (1976) of the footwall to the Fukazawa deposits indicated that variation in the alteration index [AI = $(k_2O + MgO)/(k_2O + MgO + CaO + Na_2O)$] defined a primary dispersion halo in this region. This indicator has also been used by Date et al (1983) at the Ezuri deposit where an alteration halo was detected from 10-1000m from the orebodies. It has been suggested that Na_2O may be useful by itself in defining proximity to an alteration system, although at Hellyer Na_2O depletion is more restricted than CaO and Sr depletion (Jack, 1989). Gemmell (1989) has calculated the AI for footwall rocks at Hellyer and data has been compiled from several other sources for hangingwall rocks (see attached table). No detailed study on the size of the AI anomaly at Hellyer has been completed. Advantages of this technique are that a large body of data is currently available and analyses are relatively cheap (all four elements = $18) however, Green (1986) suggests that barren alteration systems such as Chester and Boco produce similar variations in AI and O or S isotopes are required to assess if the alteration system is mineralised.

2) Mercury

It has been claimed that Hg should form broader primary and secondary dispersion halo's than normally analysed elements. Two studies have been completed in the Mackintosh district, at Que River (carr et at 1986) and Hellyer (Hespe 1988). Both these studies focussed on Hg in soils with relatively little work on bedrock geochemistry since Carr et at (1986) conclude that soils are the preferred media as rock chip data tends to be noisy. Results from drilling at Hellyer indicate that Hg is depleted in the hangingwall plume and weakly elevated in a zone of stringer type alteration around the Jack fault. In neither case was Hg considered to be a better indicator than elements currently analysed for. No studies of the footwall have been completed. Current cost for Hg analysis is $7 by vapour generation/AAS.

3) Fe/Fe + Mg

Variations of Fe/(Fe + Mg) = Fe $^{\#}$ in both chlorites and whole rock from the footwall of both kuroko and Canadian archean deposits have been summarised by Urabe et al (1983). They note a decrease in Fe$^{\#}$ toward the core of the alteration system, in most cases, and indicate that these variations may extend up to 1000m from the orebody. It was considered that Fe$^{\#}$ of chlorite (determined by microprobe) is a better discriminant as the sulfide content and variation in host rock composition affect bulk rock values. Gemmell (1989) notes a similar variation at Hellyer (Fe$^{\#}$ = 0.14-0.28 in Stringer zone to 0.44-0.46 in andesite) and also notes a more qualitative method of determining Fe$^{\#}$ by chlorite interference colours in thin section (ie. green-grey (Mg) to blue [Fe rich]). Hydrothermal chlorite may also be differented from 'brown' metamorphic chlorite in the Mackintosh district (Green pers. comm.). It has also been shown that the Mn content of chlorite varies with proximity to alteration at Boco and Hercules (Green 1986) however, there is insufficient data to evaluate this indicator at Hellyer.

Costs:	whole rock (AAS)	=	$11.50	
	chlorite (probe)	=	$30.00	polished T.S. prep + $180/hr probe time (commercial rate)

4) Oxygen Isotopes

Studies of oxygen isotopes from the kuroko deposits (Green et al 1983), Hercules and Boco (Green 1986) and initial studies at Hellyer (G. Green, unpublished data) indicate that there is a decrease in $\delta^{18}O$ toward both footwall and hangingwall style alteration zones, (with apparently a much larger area extent than indicators such as the AI) in mineralised systems but no apparent $\delta^{18}O$ variation near barren low temperature systems (e.g. Boco).

Further studies to fully evaluate this technique at Hellyer have been initiated in conjunction with Geoff Green and Bruce Gemmell.

Commercial costs for $\delta^{18}O$ (whole rock) are: $200 per sample (Geoff Green also prefers to do a thin section description to check for alteration/carbonate veining etc.).

5) Sulphur/Sulphur Isotopes

It is currently considered that sulphur isotopes have no direct application to the location of ore bodies however, they may be useful once an alteration system is located to:

i) Determine if the system is mineralised. Studies by Green (1986) indicate that lower $\delta^{34}S$ values occur in barren pyritic systems (e.g. Chester, Boco) than in mineralised systems (e.g. Hercules) and concludes that $\delta^{34}S$ in combination with $\delta^{18}O$ may distinguish mineralised and non-mineralised systems.

ii) Locate position with an alteration system. Studies by Gemmell (1989) suggest a decrease in $\delta^{34}S$ from Stringer envelope to Stringer core, similiar to variations at Que River, and concludes this may be a useful exploration tool.

Green (pers. comm. 1989) has also suggested that the sulphur content of whole rocks may be a useful indicator of the amount of fluid that has passed through the rock and thus degree of alteration.

Costs are:	Sulphur (whole rock)	:	$7.75
	Sulphur Isotopes	:	$60-80 (Tas Uni Commercial Rate)

Mackintosh District

Rock Type	Alteration	Alteration Index	n	St.Dev.
Hangingwall basalt (2)		50	1	-
Core basalt (2)		55	1	-
Hangingwall basalt (2)	FuCo	22	6	9.8
Hangingwall basalt (2)	Ab	8.5	1	-
Dacite (3)		51	7	6
Andesite (1)		36	6	7
Andesite (1)	Quellite	64	33	19
Andesite (1)	Se/Ctsl	79	12	22
Andesite (1)	Cl/Co	75	5	11
Andesite (1)	Cl	95	7	4
Andesite (1)	SiSe	91	9	6

Sources:

1. Gemmell 1989 (using data from Jack 1989)
2. Jack 1989
3. Whitford, McPherson and Wallace 1989

N.B. DJJ uses 334083 as standard unaltered footwall andesite this yields AI = 35.8. Whitford et al, Quote two analyses for both unaltered basalt and andesite:

Andesite : average AI = 36.5
Basalt : average AI = 52

Aberfoyle Exploration — GEOCHEMICAL SAMPLE LEDGER

PROJECT	BSS SIEVE SIZE CODE - MESH NUMBER	SAMPLE TYPE CODE	CARD PUNCH PRINT	VERIFY	DATE	SHEET
Mackintosh - DDH HA-1 (Hart3)	A 200 D 80 G 30 B 150 E 60 H 20 C 100 F 40 T = TOTAL	OXIDIZED PRODUCTS O ☐ FRESH ROCK R ☐ STREAM SEDIMENTS S ☐ WEATHERED BEDROCK W ☐ SURFACE TRANSPORTED T ☐ RESIDUAL SOIL E ☐ MINE DUMP M	YES ☐ NO ☐	YES ☐ NO ☐	8/9/89	1 of 1.

EASTINGS	NORTHINGS	SAMPLE NUMBER	DEPTH in CMS	SIZE FRACTION	Sample Type	METAL VALUES PPM	GEOLOGICAL LOG
		517843				MgO, CaO, K_2O, Na_2O	DDH HA-1 (Hart3) 28.5m
		844					48.5m
		845					78.5m
		846					101.1m
		847					131.6m
		848					159.15m
		849					

488307

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. 23.3.08.06505

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

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

ORDER No.	PROJECT
8464	

DATE RECEIVED	RESULTS REQUIRED
11/09/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
1	20/09/89	1	7

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	METHO
	317843/849	BC	Prep: 007,016						XZO,MgO,CaO,NaZO/104		

RESULTS TO

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

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	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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308

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06505	20/09/89	8464	1 OF 1

TUBE No.	SAMPLE No.	K2O	MgO	CaO	Na2O					
1	517843	4.90	0.43	629	0.30					
2	517844	1.86	1.44	2063	6.55					
3	517845	3.99	1.89	1853	0.28					
4	517846	7.83	1.51	909	0.54					
5	517847	4.29	1.89	1538	1.23					
6	517848	5.24	1.86	1923	0.16					
7	517849	4.87	1.77	1888	0.57					
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	0.01	0.01	25	0.01					
24	UNITS	%	%	PPM	%					
25	METHOD	104	104	104	104					

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

488309

128310

APPENDIX 8

PROJECT: Manitoba - Lake road.

DATE | SHEET

| FEETINGS | NORTHINGS | | |

(15)

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. 23.3.08.05988

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
5610	

DATE RECEIVED	RESULTS REQUIRED
03/02/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	23/02/89	1	17

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
	515138/154	RC Prep: 012,013,016							Cu,Pb,Zn,Ag/101,As/114		
	515138/154	RC							Ba,Cr,Zr,Ti/401,Au/309		

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

RESULTS TO

REMARKS

LINK ROAD
CHANNEL 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
	23.3.08.05988	23/02/89	5610	1 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	Ba	As	Cr	Zr
1	515138	<5	30	45	<0.5	<0.008	780	<1	30	260
2	515139	<5	10	40	<0.5	<0.008	290	<1	<5	280
3	515140	<5	10	25	<0.5	<0.008	270	<1	<5	280
4	515141	<5	15	30	<0.5	<0.008	280	<1	5	300
5	515142	<5	20	25	<0.5	<0.008	300	<1	<5	280
6	515143	<5	20	35	<0.5	<0.008	3700	<1	<5	280
7	515144	<5	20	25	<0.5	<0.008	42200	<1	<5	250
8	515145	<5	10	20	<0.5	<0.008	26400	<1	10	230
9	515146	<5	15	20	<0.5	<0.008	4700	<1	45	240
10	515147	<5	20	20	<0.5	<0.008	740	<1	110	250
11	515148	<5	20	25	<0.5	<0.008	620	<1	190	210
12	515149	<5	5	30	<0.5	<0.008	340	<1	1000	110
13	515150	<5	15	25	<0.5	<0.008	190	<1	880	160
14	515151	<5	15	25	<0.5	<0.008	180	<1	660	200
15	515152	<5	25	20	<0.5	<0.008	280	<1	230	240
16	515153	10	55	30	<0.5	<0.008	220	<1	560	170
17	515154	15	75	50	<0.5	<0.008	260	<1	860	140
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	0.008	10	1	5	5
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	101	101	309	401	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

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.05988	23/02/89	5610	2 OF 2

TUBE No.	SAMPLE No.	Ti								
1	515138	1050								
2	515139	930								
3	515140	830								
4	515141	890								
5	515142	850								
6	515143	840								
7	515144	600								
8	515145	590								
9	515146	950								
10	515147	1050								
11	515148	1450								
12	515149	1900								
13	515150	1750								
14	515151	1800								
15	515152	1400								
16	515153	1900								
17	515154	2550								
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

(27)

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. 23.3.08.06219

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
7804	

DATE RECEIVED	RESULTS REQUIRED
23/05/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
1	31/05/89	1	11

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
	15144/54	PU	Prep: 016						CaD/104		

RESULTS TO

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

RESULTS TO

REMARKS

LINK ROAD

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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A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06219	01/06/89	7804	1 OF 1

TUBE No.	SAMPLE No.	CaO								
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2	515145	0.01								
3	515146	0.01								
4	515147	0.02								
5	515148	0.02								
6	515149	0.02								
7	515150	0.02								
8	515151	0.03								
9	515152	0.04								
10	515153	0.04								
11	515154	0.04								
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	0.01								
24	UNITS	%								
25	METHOD	104								

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

438317

APPENDIX 9

317

488318

DRAFT

ABERFOYLE RESOURCES LIMITED

EXPLORATION LICENCE 106/87

"LAKE MACKINTOSH"

TECHNICAL REPORT

Medway Grid UTEM Survey February 1990

Prepared By:

J J Read
Geophysicist

Distribution

1. Aberfoyle Resources Limited, Burnie
2. Aberfoyle Resources Limited, Hawthorn

Issued By:

J Silic
Chief Geophysicist

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1. Summary

2. Introduction

3. Aberfoyle UTEM program
   3.1 Medway Grid UTEM Interpretation

4. Conclusions and Recommendations

5. References

Appendices

Appendix 1 - January 1990 UTEM Survey Data Medway Grid

Plates

Plate No.	Title	Scale
Mac-237	Exploration Activity, February 1988-February 1989	1:25000
Mac-281	Lake Mackintosh EL 106/87, Medway UTEM Interpretation	1:5000

1. SUMMARY

In February 1990, a four loop UTEM survey was completed at the Medway grid on the Lake Mackintosh EL. This survey collected 30.4 line/km of single H_z component UTEM data, from both in-loop and out-of-loop configurations.

No UTEM responses, indicative of sulfide mineralisation occurring at depth, were interpreted from the UTEM data. An ambiguous conductor, occurs to the east of lines 15800N and 15600N. If the prospectivity of this conductive trend can be up-graded on geological grounds, then one follow-up loop of UTEM data should be obtained, to resolve the current ambiguity regarding the conductors nature. If this area is geologically unprospective, no other work can be recommended at the Medway grid on the basis of the UTEM interpretation.

2. INTRODUCTION

Lake Mackintosh, EL 106/87 covers an area of 135 square kilometres, east of the Murchison Highway, south of the Hellyer River. This area was previously covered by EL 2/70, Mackintosh and EL 15/73, Hatfield. The Hellyer Mine Agreement Ratification Act 1987, amalgamated these two EL's into El 106/87, which was granted on the 5th February 1988.

This report documents and presents the results of a four loop UTEM program that was completed at the Medway grid in the north-east of EL 106/87. Previous exploration in this area is described in McNeill (1989), sections 3.1 - 3.8 (see plate Mac 237, Southwell River- Leven River area). McNeills geological interpretation, suggested that the Medway area may have been a topographic high in the late Cambrian. This interpretation is based upon the lack of Tyndall Group volcanics overlying the late Cambrian Southwell Sub-Group, which at Medway, is directly overlain by the middle Ordovician Owen Conglomerate. The structural setting at the Medway Grid of a rhyolite dome with flanking volcanics, is prospective for Rosebery style volcanic massive sulfide deposits.

3. Aberfoyle UTEM Program

To obtain surface EM data over the area from 15600N-17400N, 6800E-8600E (AMG co-ordinates), on the Medway Grid, a four loop UTEM survey was planned. The contract for this survey was awarded to Lamontagne Geophysics Australia, of Suite 9, 859 Pacific Highway, Pymble N.S.W. The UTEM survey conducted by Lamontagne had the following specifications:

Data Collected: Single Vertical Component UTEM data
Transmitter Frequency: 26.23 Hertz
Delay Times: 0.028ms - 14.3ms (10 channels)
Data Point Spacing: 50m (nominal)
Line Spacing: 200m
Production Time: 2 days two receivers
5.5 days one receiver
Date of survey: 9/2/90 - 16/2/90

A total of 30.4 line/km of data was collected, at an average daily production rate of 3.2 line/km per receiver. This data was collected at an average contractor cost of $450 per line/km.

The energising loop configuration used for the Medway survey was designed to most efficiently energise flat lying targets on the flanks of the rhyolite dome. Consequently the Medway grid was covered with in-loop readings. As it was not possible to discount a steeply dipping target, the Medway grid was also covered with out-of-loop UTEM data. Thus, all variations of target orientations from flat lying to steeply dipping were energised. The loop locations used for the survey are given in figure Mac 281.

3.1 Medway Grid UTEM Interpretation

The interpretation of the Medway grid UTEM data is presented in plate Mac 281. No responses attributable to conductive massive sulfides occurring at depth, were identified in either the in-loop or out-of-loop UTEM Data. Numerous early to mid-time EM responses did occur on the Medway Data. In most cases these responses had decayed away by UTEM channel 4, ie 1.79 ms delay time. These responses are current-gathering in nature and hence occur dominantly in the out-of-loop UTEM data, as current gathering is severely attenuated inside the energising loop.

The early to mid-time responses exhibited on the Medway grid data, showed a significant degree of variability from short striking, laterally restricted responses (Eg. Line 16200N) to wide, long striking responses (Eg. western end of lines 15600N to 16600N). The fast decaying nature of these responses indicate there sources have poor conductivity. Using the partial derivative method of interpretation outlined in Silic (1989), the Medway grid UTEM responses were interpreted as due to shallow conductivity variations. Such variations maybe due to contacts between lithological units, weathering effects and conductive Tertiary Basalt. Such responses are termed formational responses and are not worthy of future exploration.

A conductor was interpreted to occur off the eastern end of lines 16200N-16600N. Despite only a portion of the conductors EM response being sampled from loops 1 and 2, no consistent line-to-line variations in the response amplitude could be observed. The conductor was interpreted as formational in nature, as these conductors usually exhibit irregular amplitude variations from line-to-line.

A conductor, whose nature is ambiguous, occurs east of lines 15800N and 15600N. The amplitude of this conductors response, as detected from loop two, decreases in a southerly direction. It is likely that this response is the eastern extension of a formational response interpreted on lines 16000N-15600N, and represents a conductivity variation within the Tertiary Basalts. A lower probability interpretation, is that the response is due to a bedrock conductor extending south of line 15600N. The southward decreasing amplitude of the response is due to either a southward thinning of the conductive Tertiary Basalt, or due to a southerly plunge on a bedrock conductor.

4. Conclusions and Recommendations

Interpretation of the UTEM survey, conducted at the Medway Grid in February 1990, did not identify any EM responses which could be attributed to bedrock accumulations of massive sulfides. The majority of responses detected from both the in-loop and out-of-loop data, were interpreted as due to shallow conductivity variations of formational origin. These responses require no further exploration.

An ambiguous UTEM response occurs, to the east of lines 15800N and 15600N. The most likely cause of this response is conductivity variations within the conductive Tertiary Basalt, although the response is possibly due to a deep conductor. If a conceptual geological target can be postulated for this conductor trend, then a follow-up UTEM survey should be conducted to resolve the current ambiguity existing in the interpretation. One loop of UTEM data would be required to cover the area from 15000N-16000N, 8700E to 9700E. Conversely, if this area is considered geologically unprospective then no further work on this trend warranted.

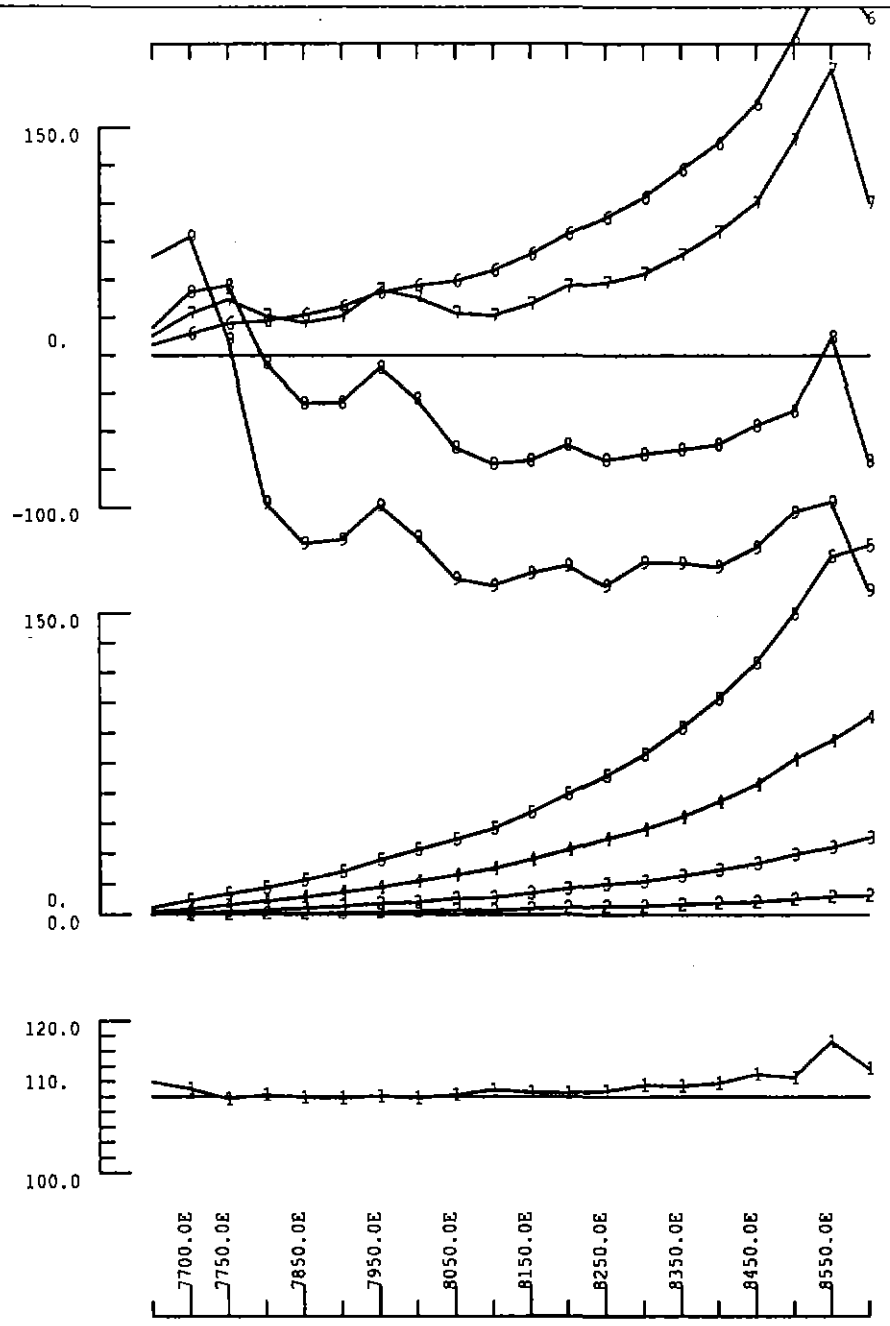
5. References

McNeill, A W (1989), Lake Mackintosh, Exploration Licence 106/87, Tasmania, Technical Progress Report For The Period February 1988 to February 1989, Aberfoyle Resources Limited Internal Report No. Mackintosh 22

Silic, J (1989), Interpretation of TDEM Data Using First and Second Spatial Derivatives and Time Decay Analysis, Explor. Geophys., Vol 20, No 1/2, 57-64

Appendix 1

January 1990 UTEM Survey Data Medway Grid



MEDWAY GRID MACKINTOSH EL

LINE 17400N LOOP 1

(out of loop data)

Continuous Normalized

UTEM Survey Febuary 1990

Secondary Magnetic Field

Hz Component

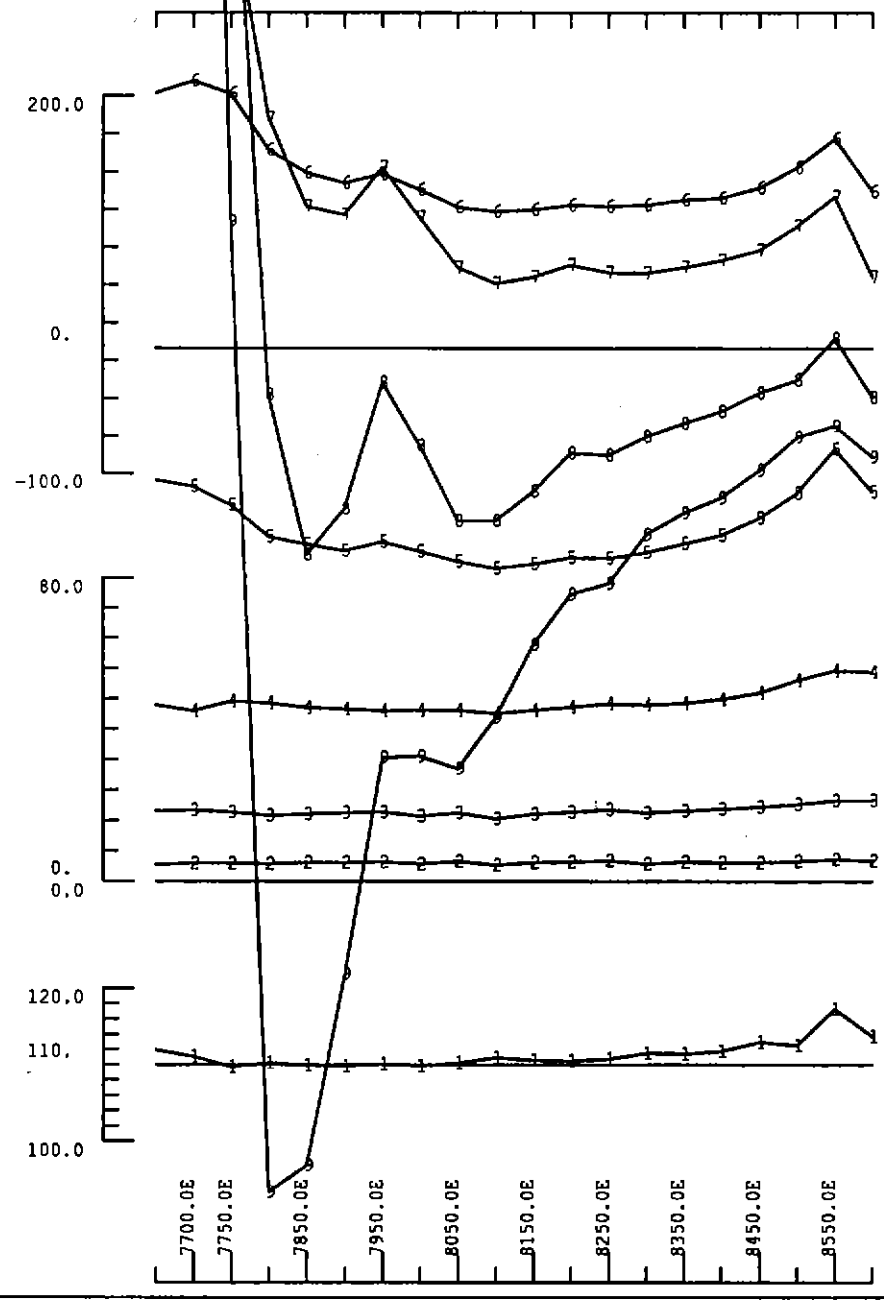
Freq. 26.23Hz

Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 13/03/90 Horiz

488326



MEDWAY GRID MACKINTOSH EL

LINE 17400N LOOP 1

(out of loop data)

Point Norm 16600N 8400E

UTEM Survey 1990

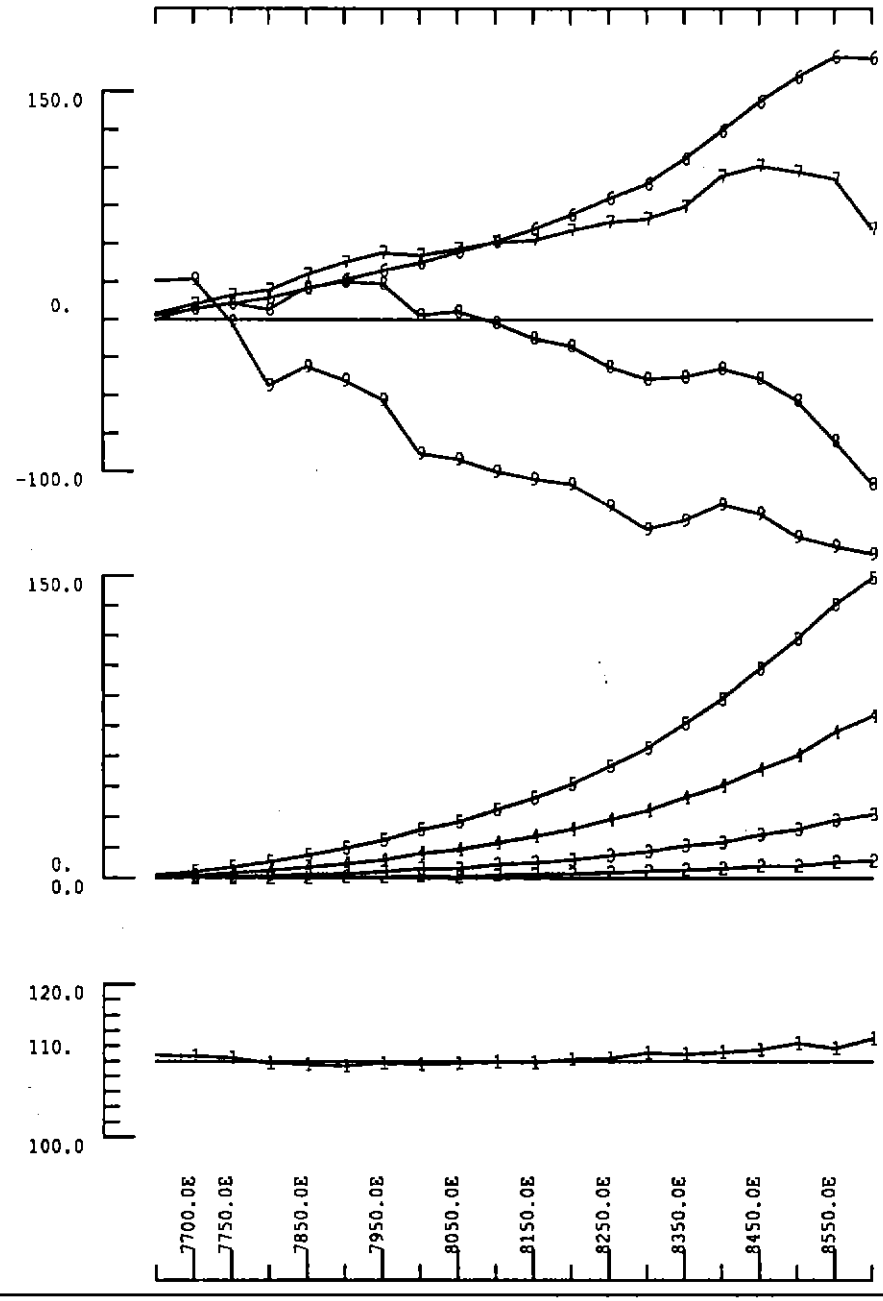
Secondary Magnetic Field Hz C

Freq. 26.23Hz

Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz



MEDWAY GRID MACKINTOSH EL

LINE 17200N LOOP 1

(out of loop data)

Continuous Normalized

UTEM Survey Febuary 1990

Secondary Magnetic Field

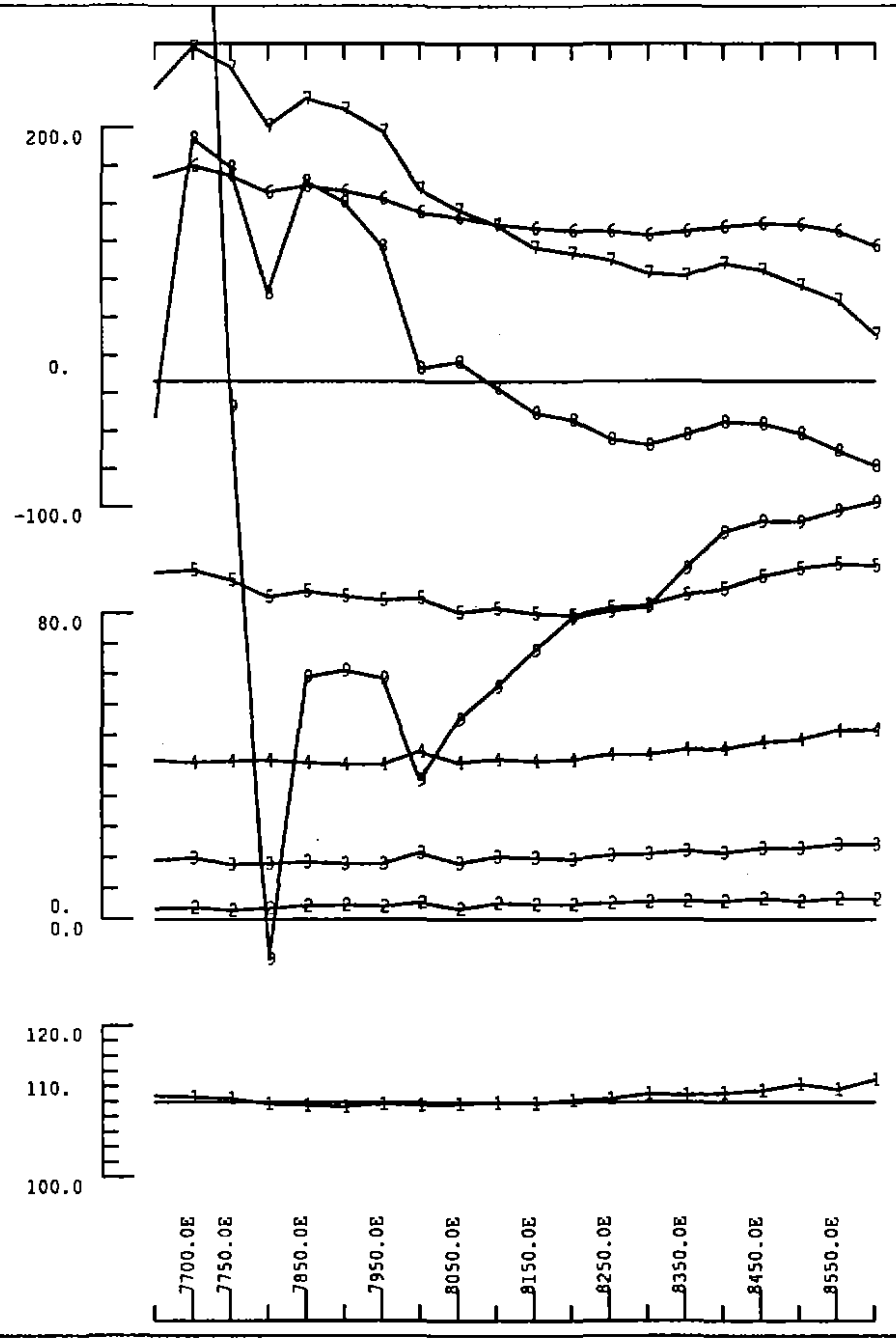
Hz Component

Freq. 26.23Hz

Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 14/03/90 Horiz



MEDWAY GRID MACKINTOSH EL

LINE 17200N LOOP 1

(out of loop data)

Point Norm 16600N 8400E

UTEM Survey 1990

Secondary Magnetic Field Hz C

Freq. 26.23Hz

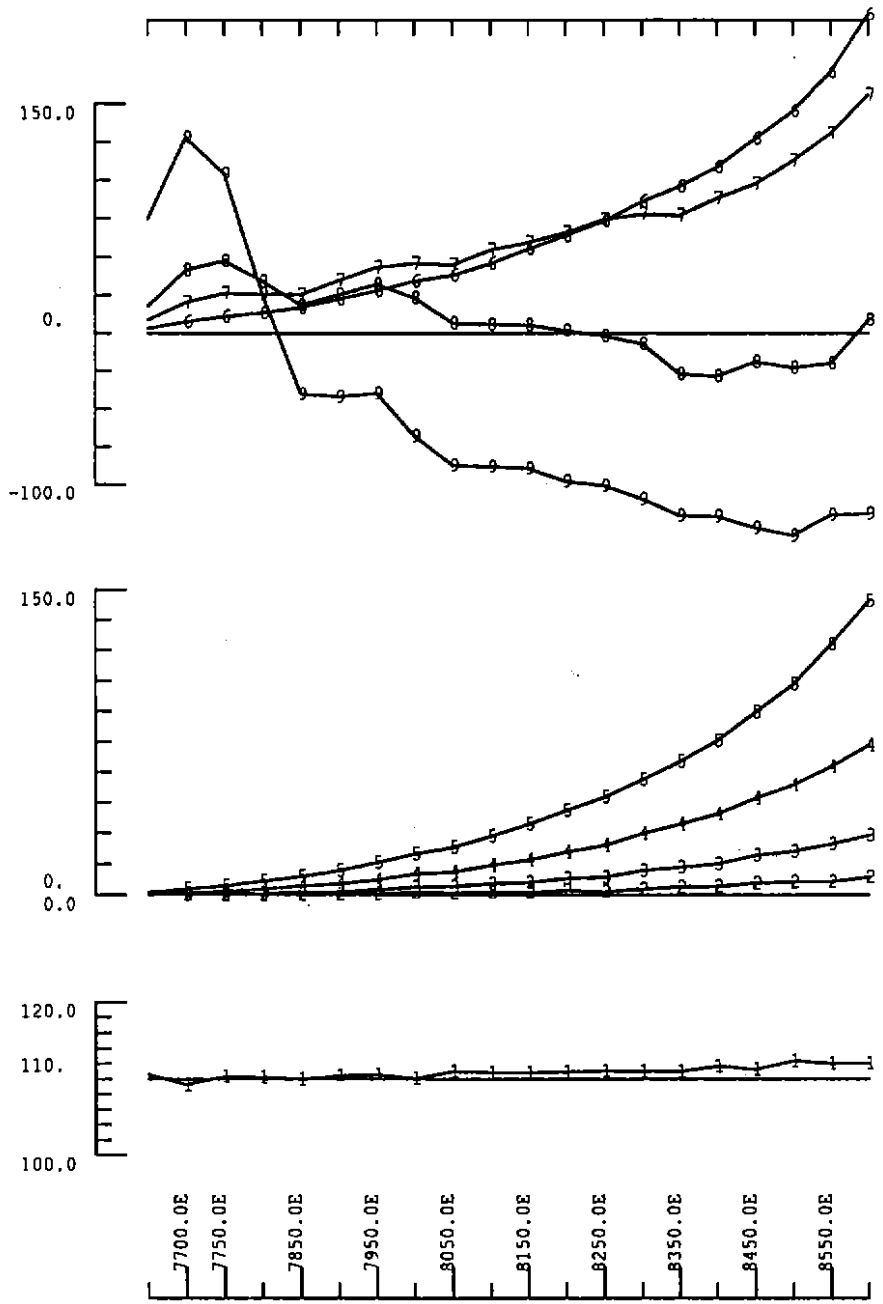
Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz

488329

327



MEDWAY GRID MACKINTOSH EL
LINE 17000N LOOP 1
(out of loop data)
Continuous Normalized
UTEM Survey Febuary 1990
Secondary Magnetic Field
Hz Component
Freq. 26.23Hz

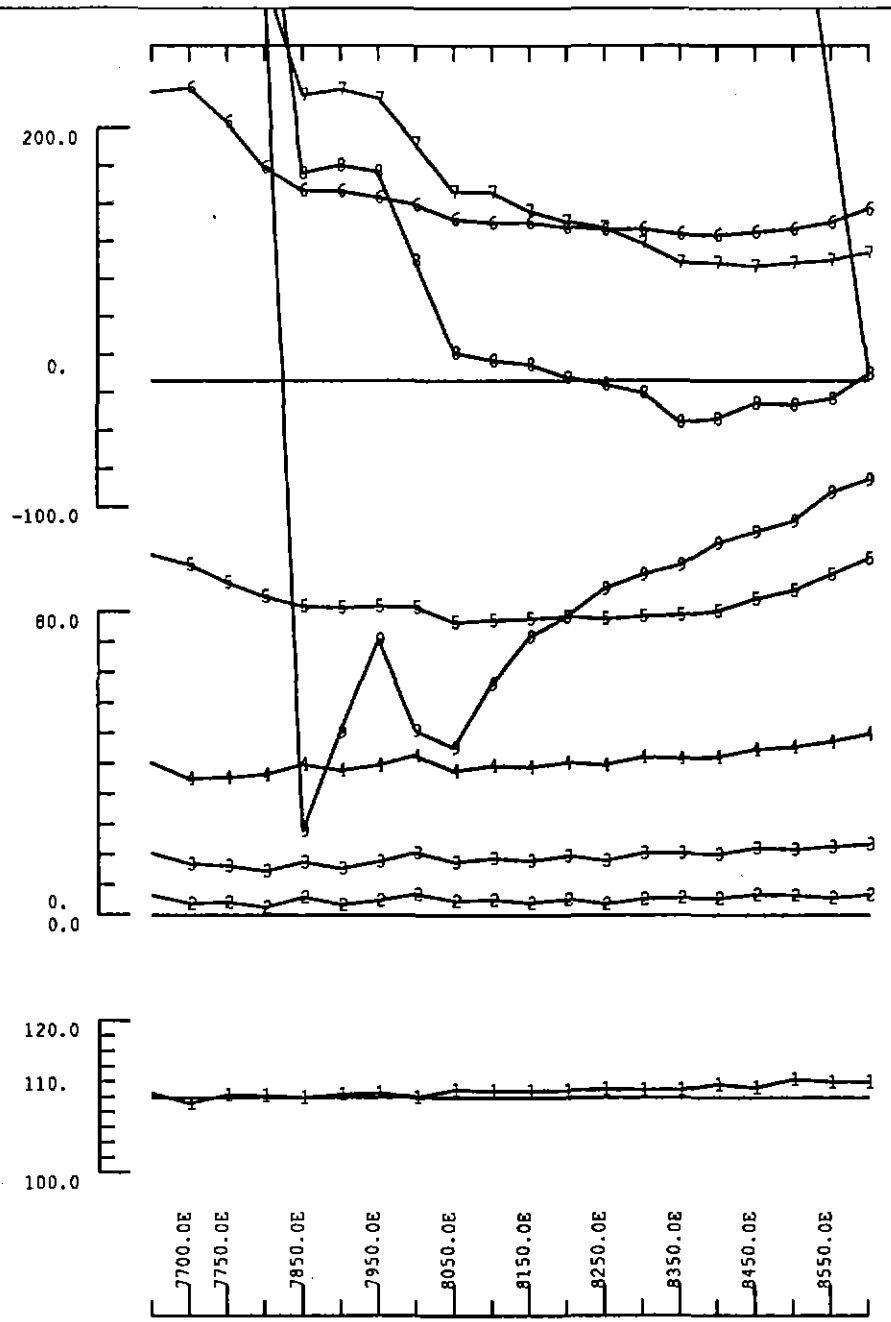
Aberfoyle Resources Ltd
March 1990 <jjr>

Plot Date : 14/03/90 Horiz

488329

328

408330



MEDWAY GRID MACKINTOSH EL

LINE 17000N LOOP 1

(out of loop data)

Point Norm 16600N 8400E

UTEM Survey 1990

Secondary Magnetic Field Hz C

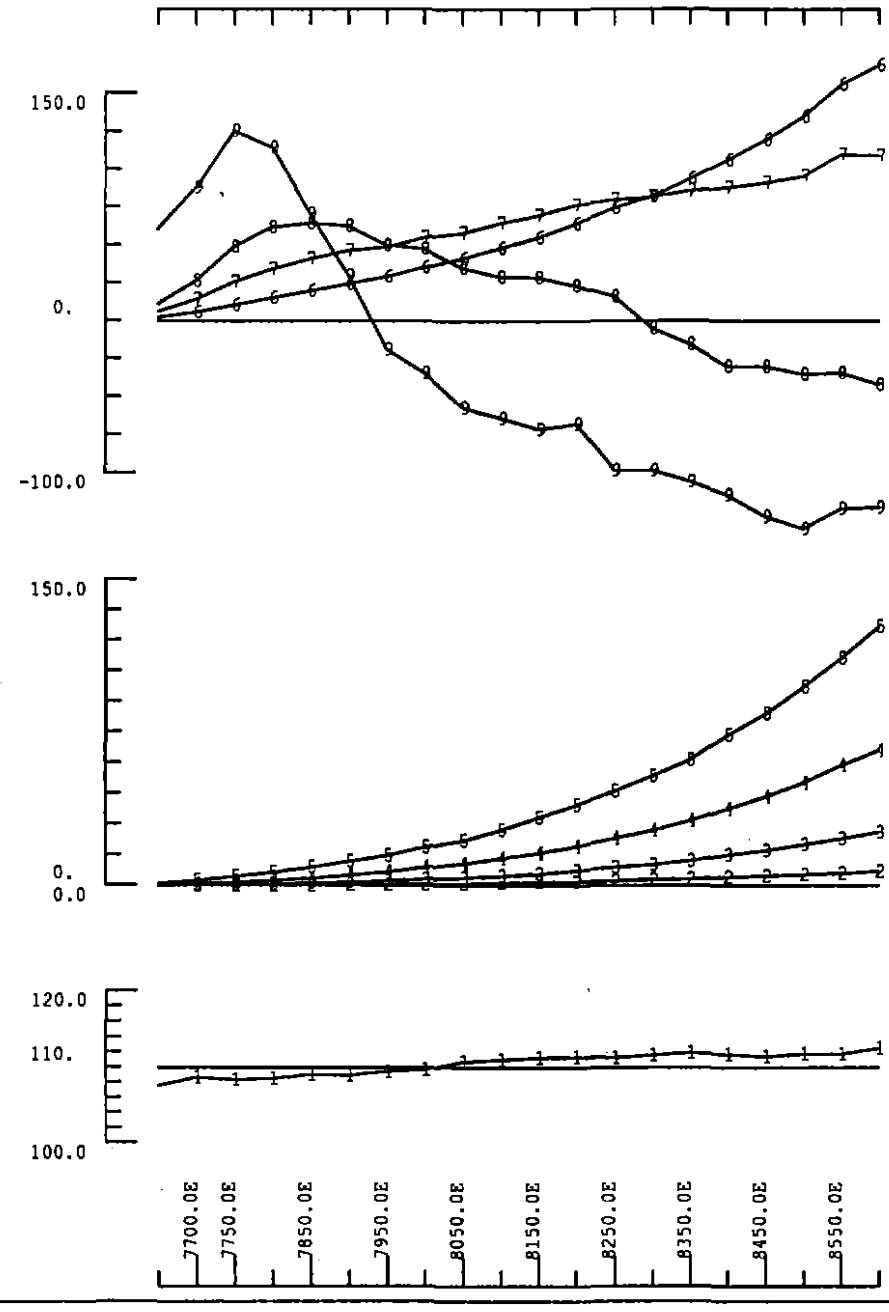
Freq. 26.23Hz

Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz

329



MEDWAY GRID MACKINTOSH EL

LINE 16800N LOOP 1

(out of loop data)

Continuous Normalized

UTEM Survey Febuary 1990

Secondary Magnetic Field

Hz Component

Freq. 26.23Hz

Aberfoyle Resources Ltd

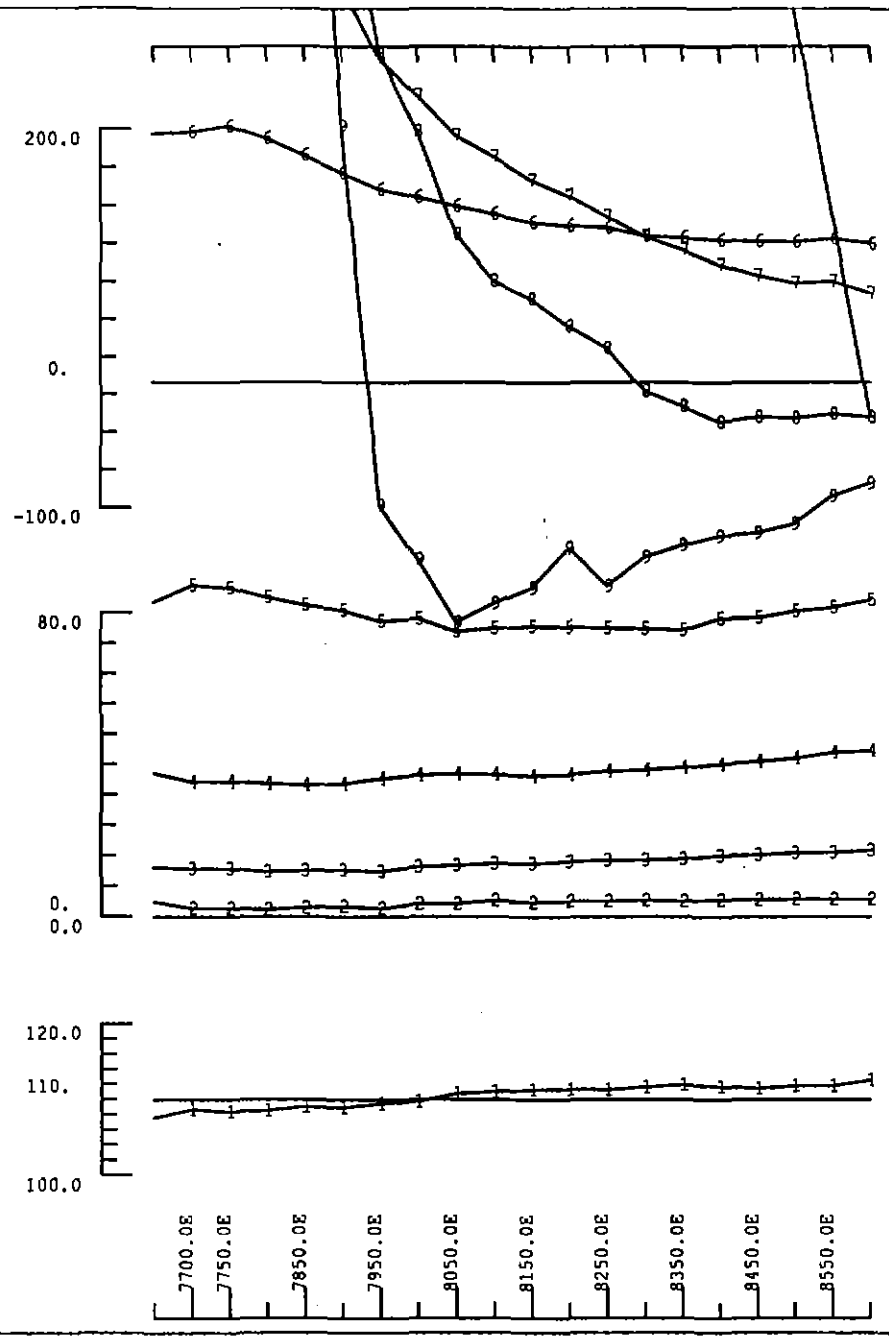
March 1990 <jjr>

Plot Date : 14/03/90 Horiz

488331

330

488332



MEDWAY GRID MACKINTOSH EL

LINE 16800N LOOP 1

(out of loop data)

Point Norm 16600N 8400E

UTEM Survey 1990

Secondary Magnetic Field Hz C

Freq. 26.23Hz

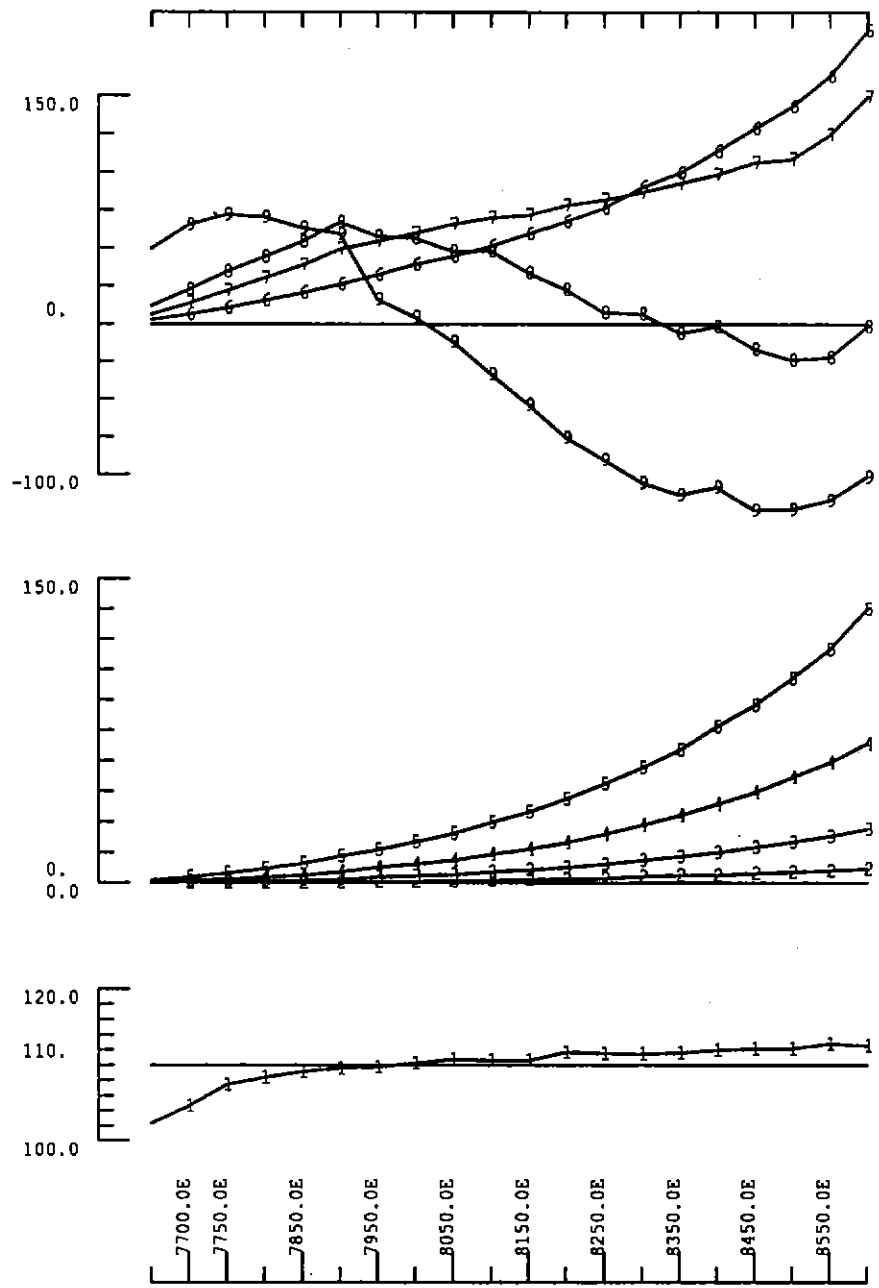
Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz

331

488333



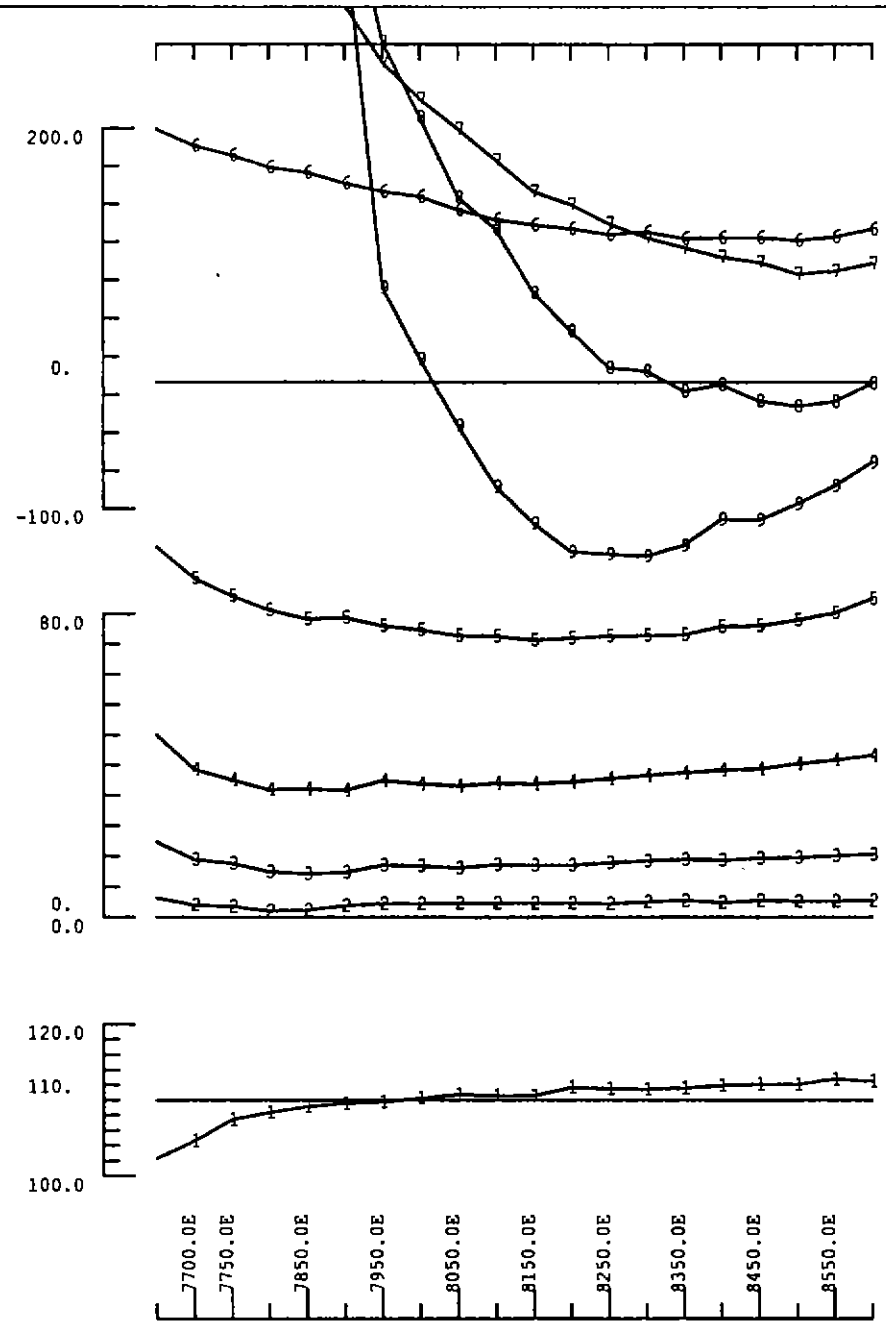
MEDWAY GRID MACKINTOSH EL
LINE 16600N LOOP 1
(out of loop data)
Continuous Normalized
UTEM Survey Febuary 1990
Secondary Magnetic Field
Hz Component
Freq. 26.23Hz

Aberfoyle Resources Ltd
March 1990 <jjr>

Plot Date : 14/03/90 Horiz

332

488334



MEDWAY GRID MACKINTOSH EL

LINE 16600N LOOP 1

(out of loop data)

Point Norm 16600N 8400E

UTEM Survey 1990

Secondary Magnetic Field Hz C

Freq. 26.23Hz

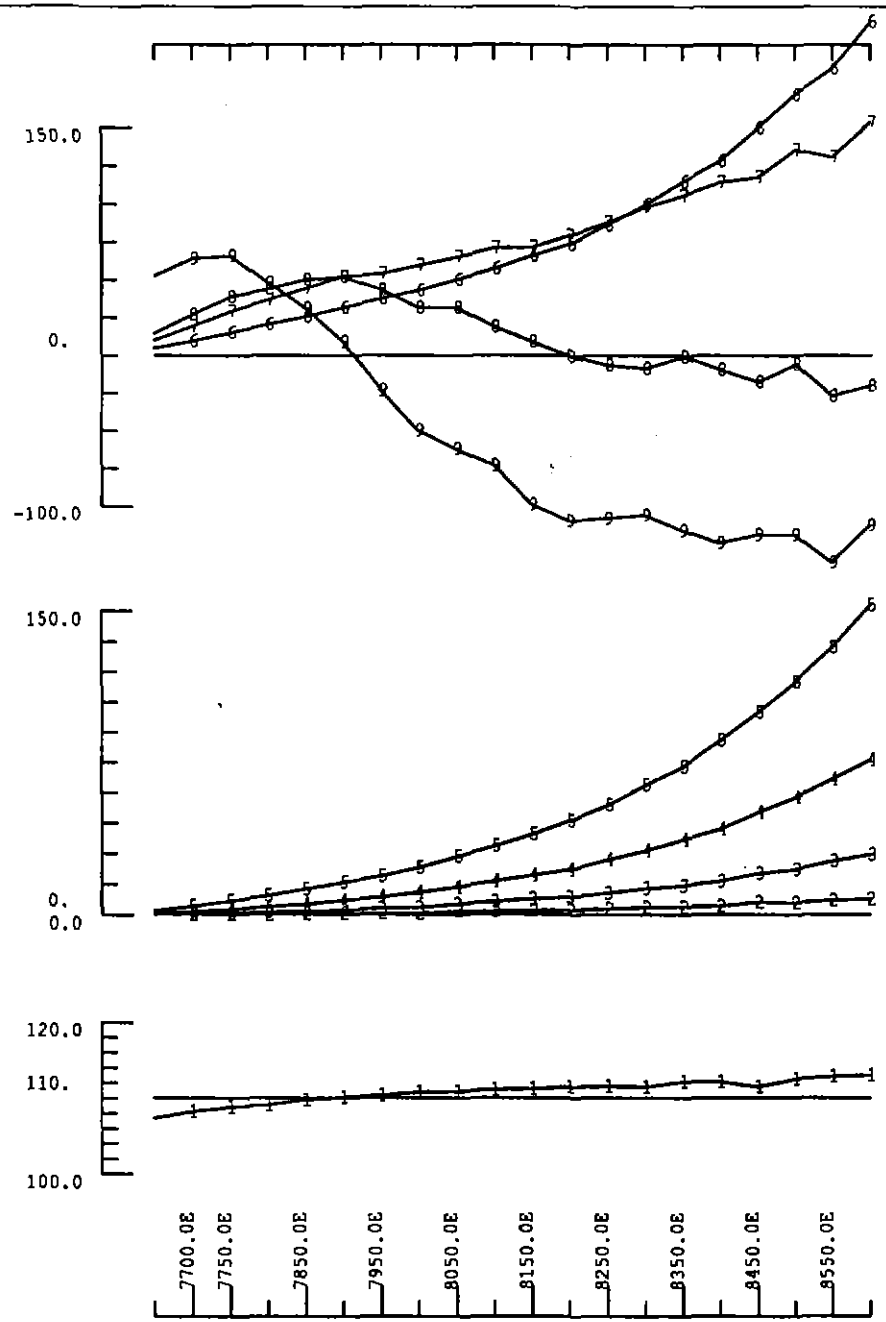
Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz

335

488335



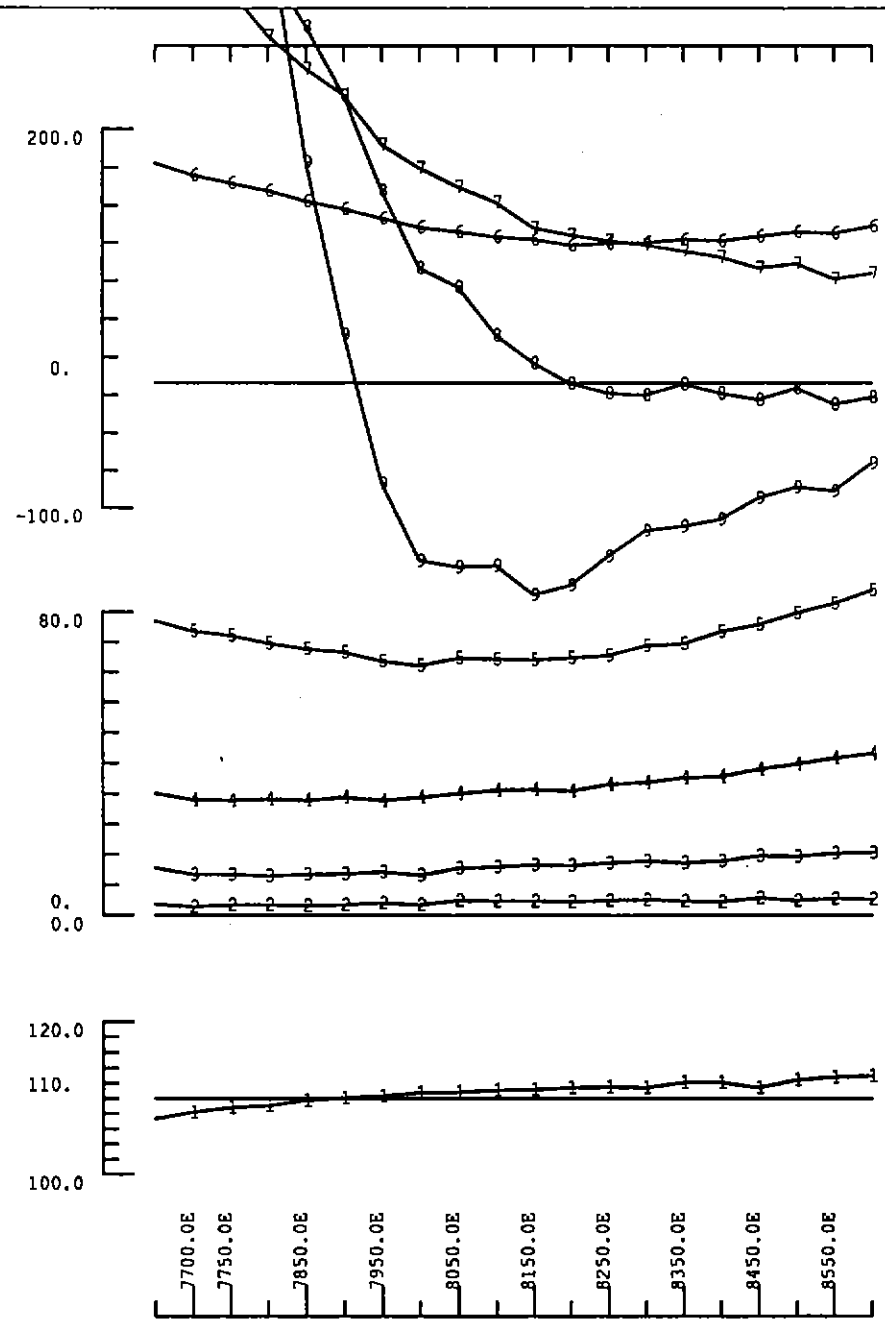
MEDWAY GRID MACKINTOSH EL
LINE 16400N LOOP 1
(out of loop data)
Continuous Normalized
UTEM Survey Febuary 1990
Secondary Magnetic Field
Hz Component
Freq. 26.23Hz

Aberfoyle Resources Ltd
March 1990 <jjr>

Plot Date : 14/03/90 Horiz

334

488336



MEDWAY GRID MACKINTOSH EL

LINE 16400N LOOP 1

(out of loop data)

Point Norm 16400N 8400E

UTEM Survey 1990

Secondary Magnetic Field Hz C

Freq. 26.23Hz

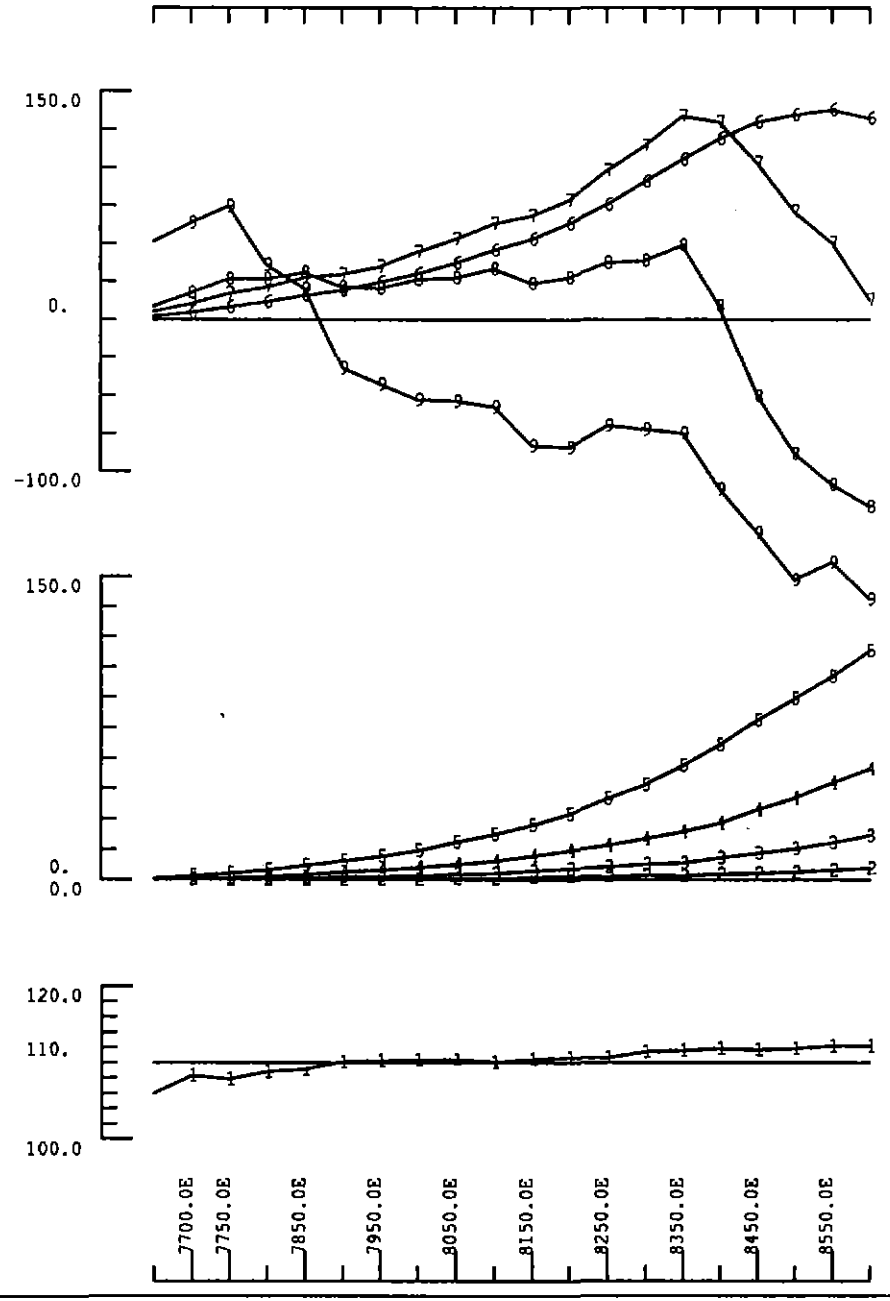
Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz

330

488337



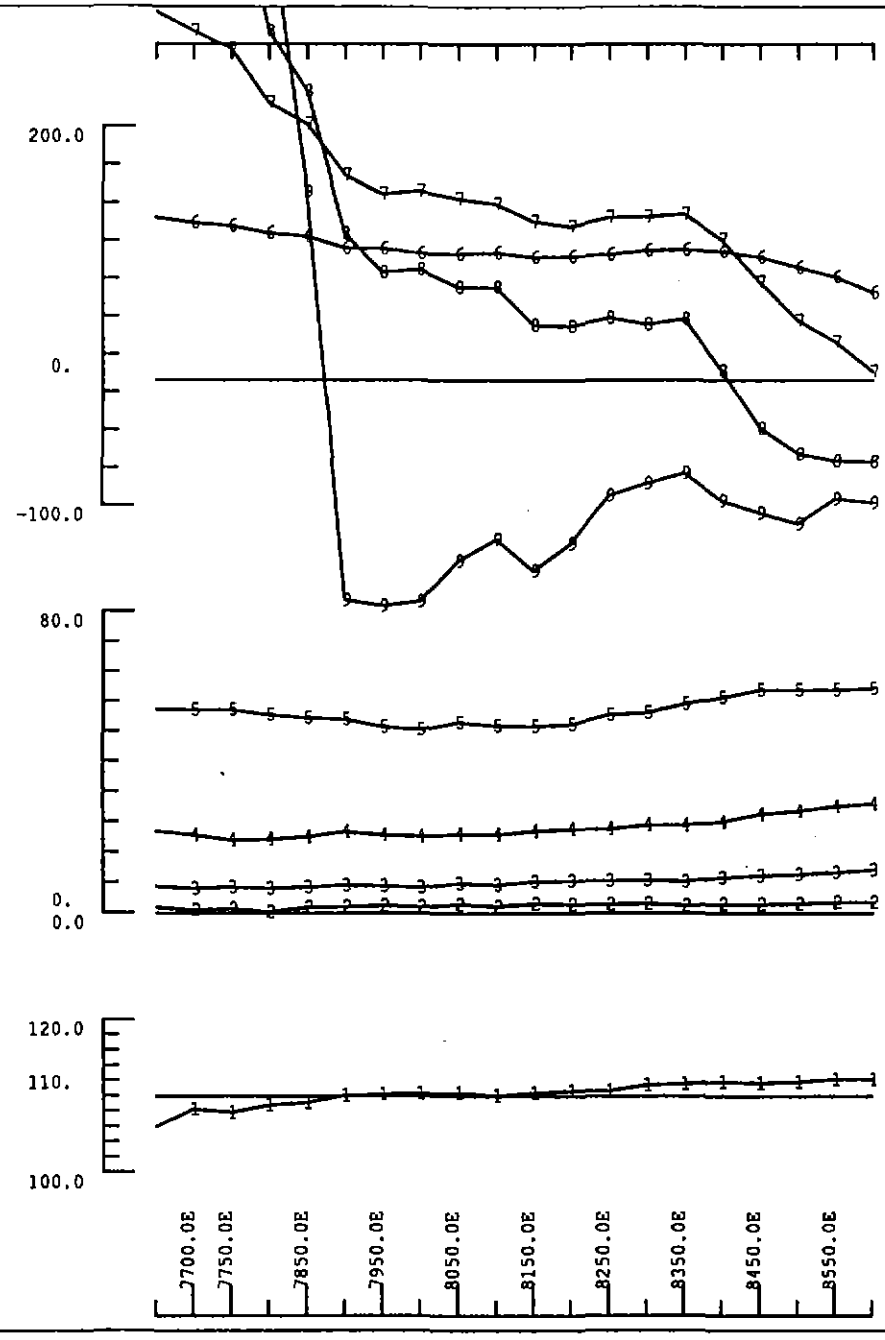
MEDWAY GRID MACKINTOSH EL
LINE 16200N LOOP 2
(out of loop data)
Continuous Normalized
UTEM Survey Febuary 1990
Secondary Magnetic Field
Hz Component
Freq. 26.23Hz

Aberfoyle Resources Ltd
March 1990 <jjr>

Plot Date : 14/03/90 Horiz

336

488338



MEDWAY GRID MACKINTOSH EL

LINE 16200N LOOP 2

(out of loop data)

Point Norm 16200N 8400E

UTEM Survey 1990

Secondary Magnetic Field Hz C

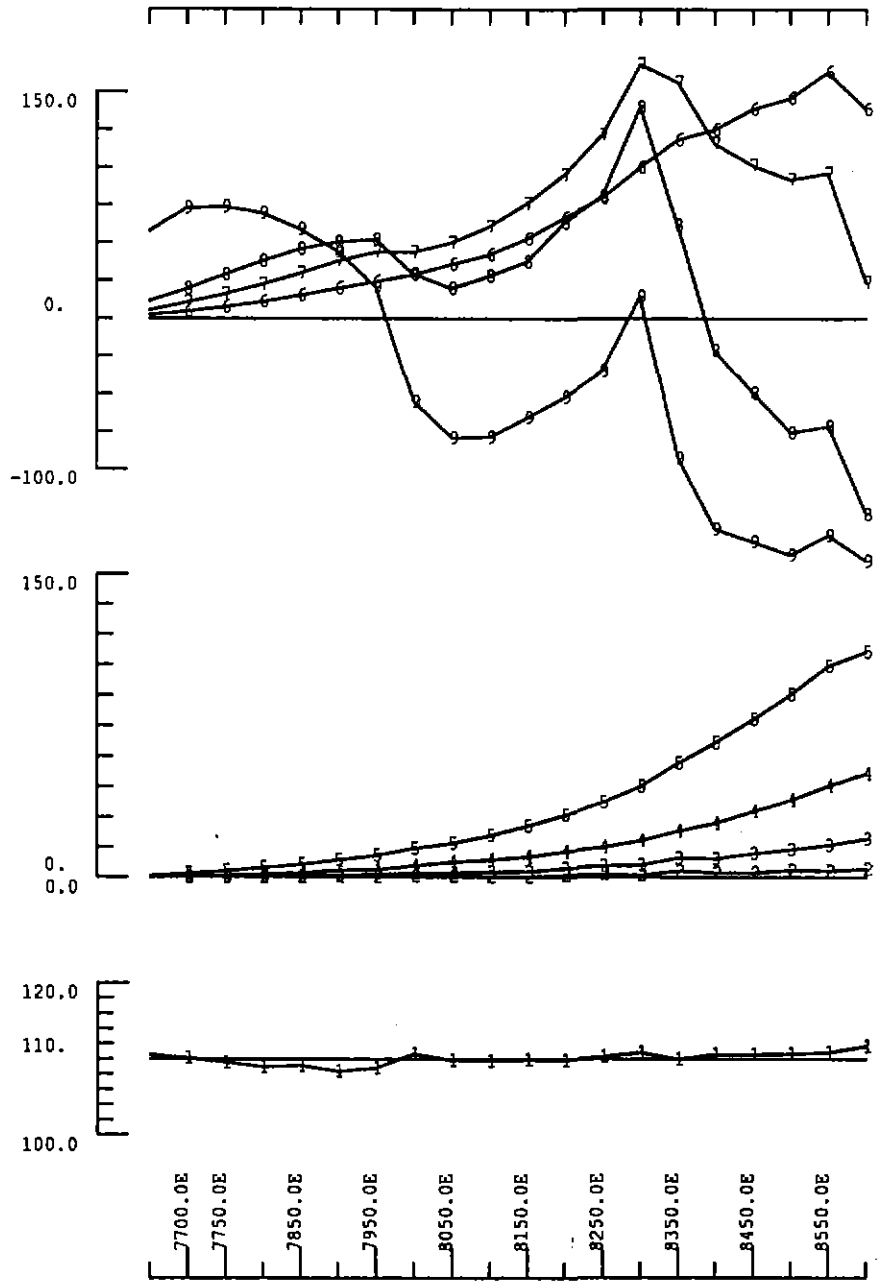
Freq. 26.23Hz

Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz

337



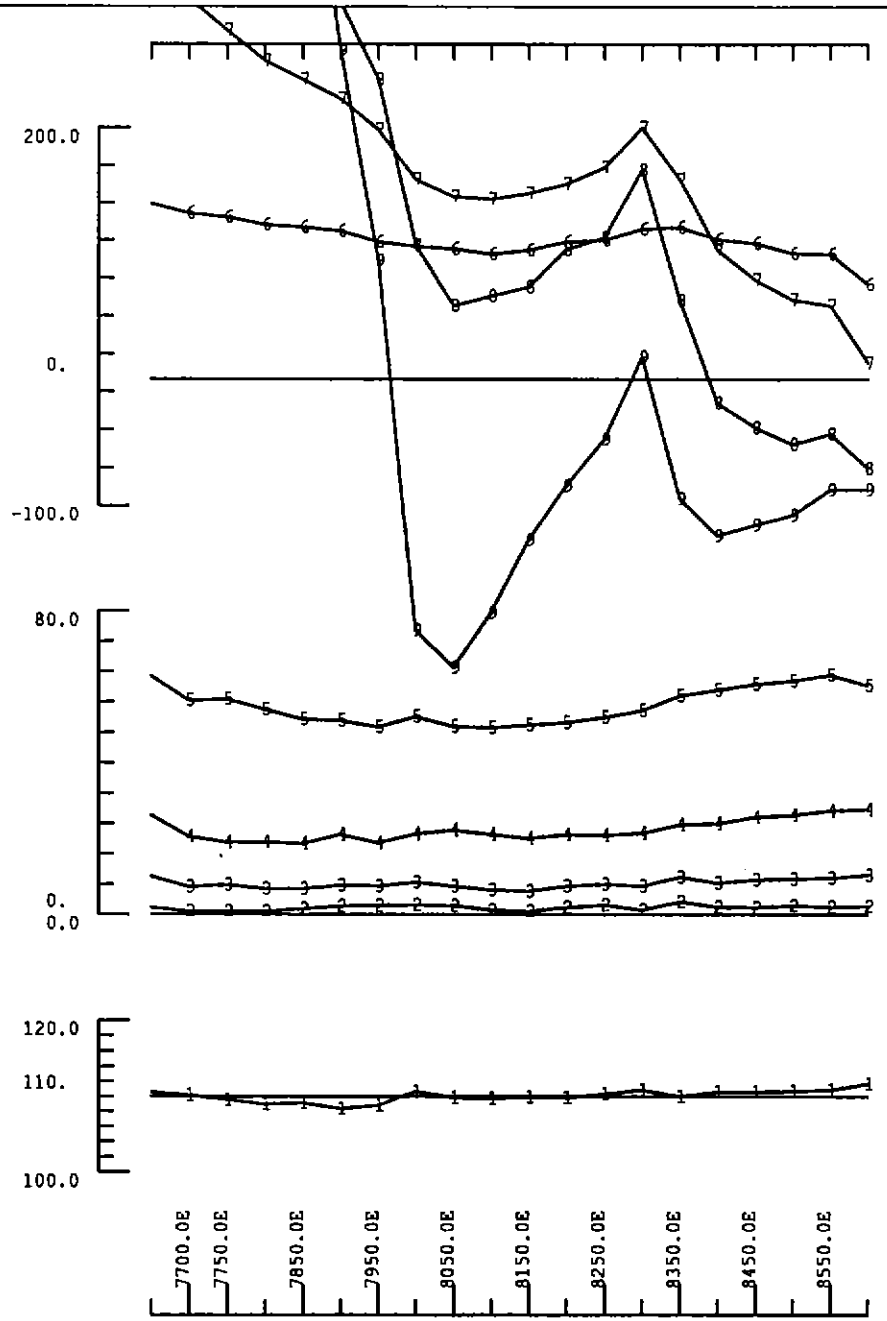
MEDWAY GRID MACKINTOSH EL
LINE 16000N LOOP 2
(out of loop data)
Continuous Normalized
UTEM Survey Febuary 1990
Secondary Magnetic Field
Hz Component
Freq. 26.23Hz

Aberfoyle Resources Ltd
March 1990 <jjr>

Plot Date : 14/03/90 Horiz

488339

338



MEDWAY GRID MACKINTOSH EL

LINE 16000N LOOP 2

(out of loop data)

Point Norm 16200N 8400E

UTEM Survey 1990

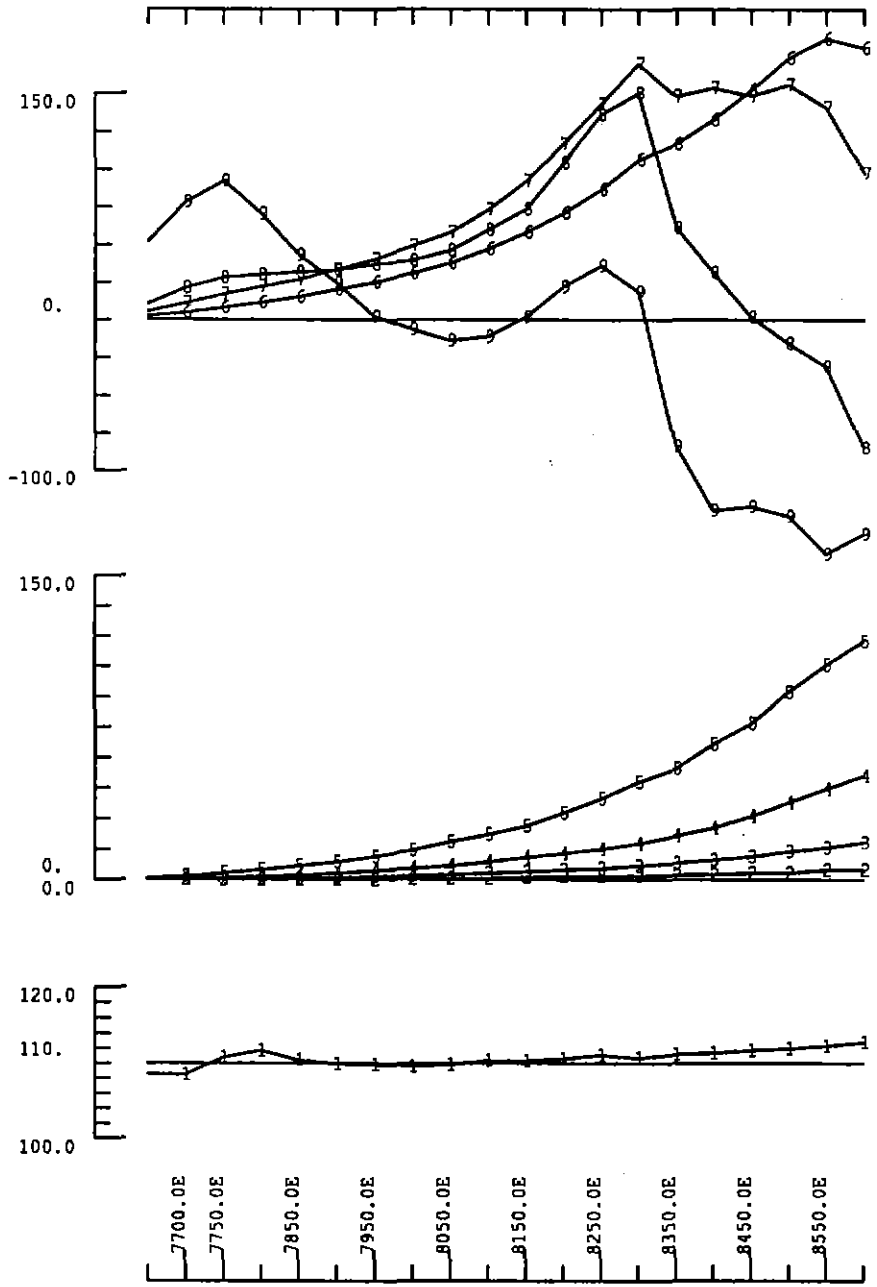
Secondary Magnetic Field Hz C

Freq. 26.23Hz

Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz



MEDWAY GRID MACKINTOSH EL

LINE 15800N LOOP 2

(out of loop data)

Continuous Normalized

UTEM Survey Febuary 1990

Secondary Magnetic Field

Hz Component

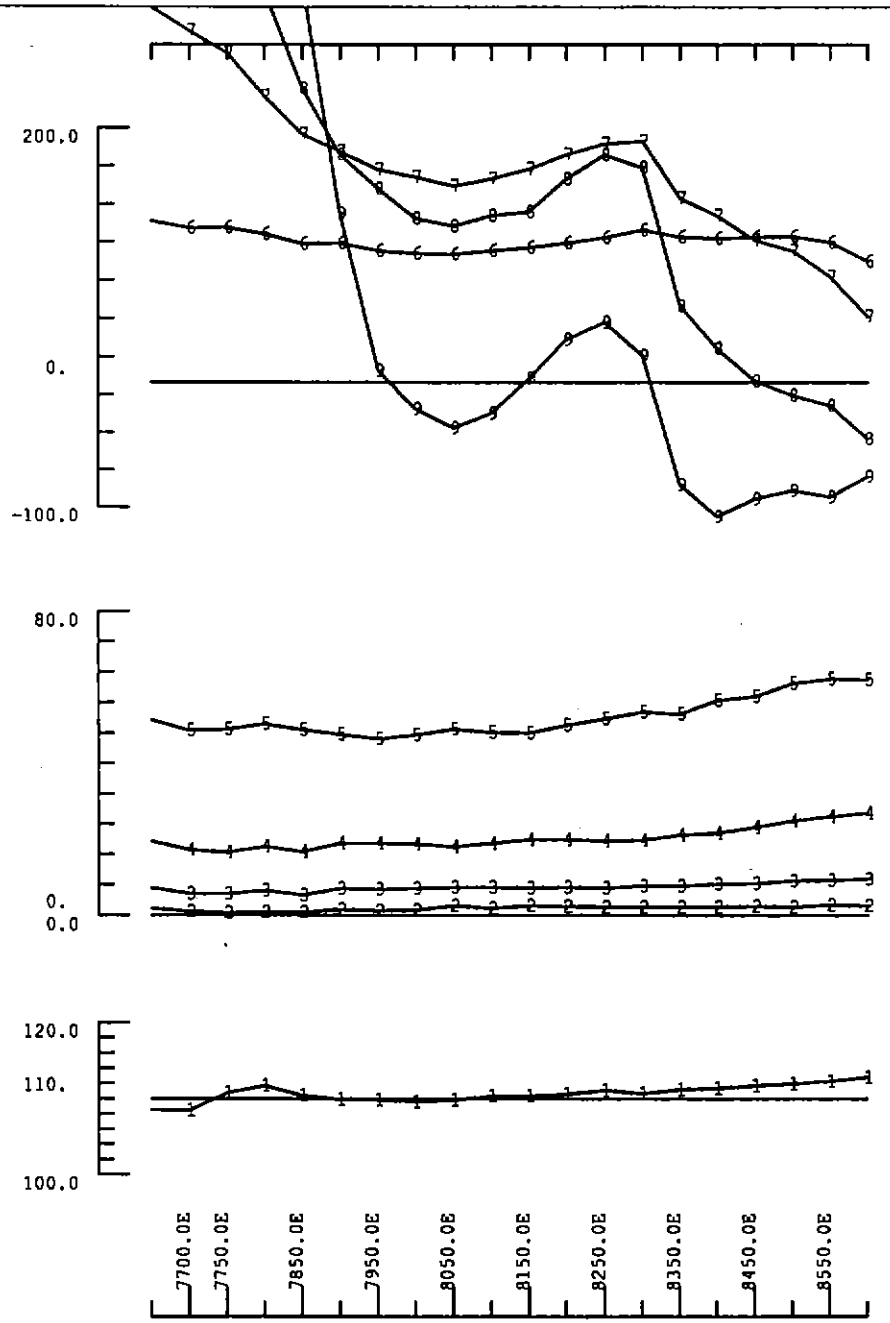
Freq. 26.23Hz

Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 14/03/90 Horiz

488342



MEDWAY GRID MACKINTOSH EL

LINE 15800N LOOP 2

(out of loop data)

Point Norm 16600N 8400E

UTEM Survey 1990

Secondary Magnetic Field Hz C

Freq. 26.23Hz

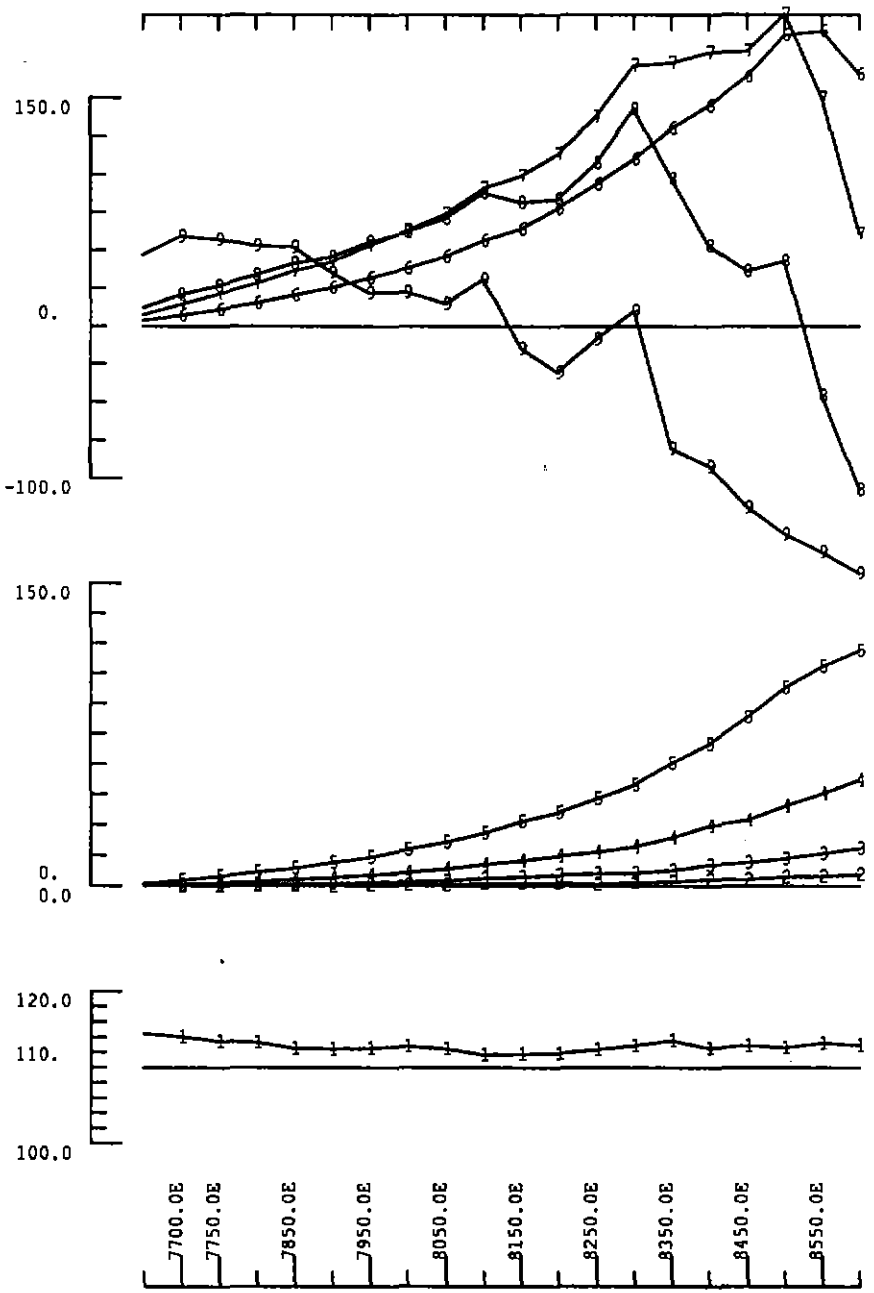
Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz

341

488343



MEDWAY GRID MACKINTOSH EL

LINE 15600N LOOP 2

(out of loop data)

Continuous Normalized

UTEM Survey Febuary 1990

Secondary Magnetic Field

Hz Component

Freq. 26.23Hz

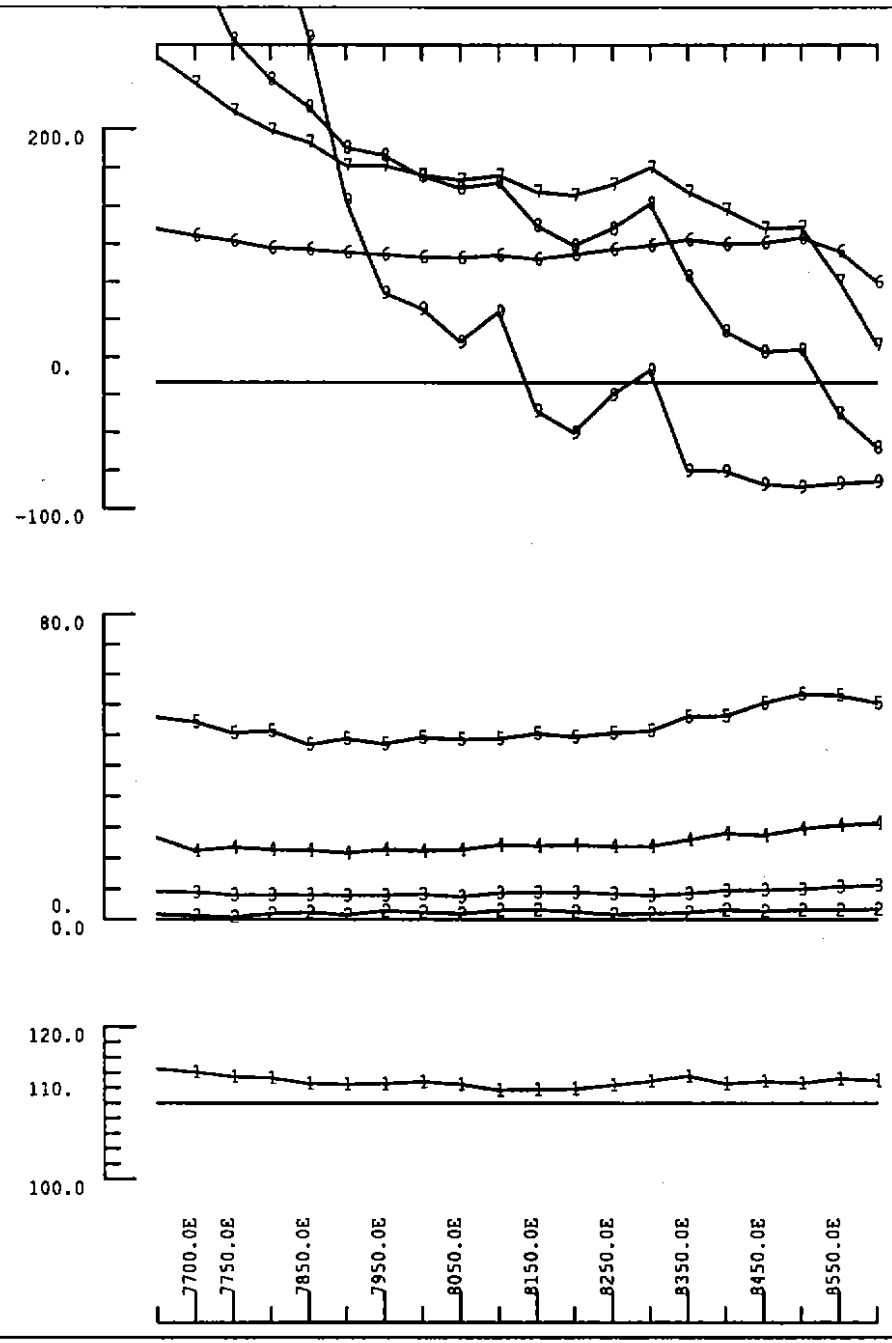
Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 14/03/90 Horiz

342

488341



MEDWAY GRID MACKINTOSH EL

LINE 15600N LOOP 2

(out of loop data)

Point Norm 16600N 8400E

UTEM Survey 1990

Secondary Magnetic Field Hz C

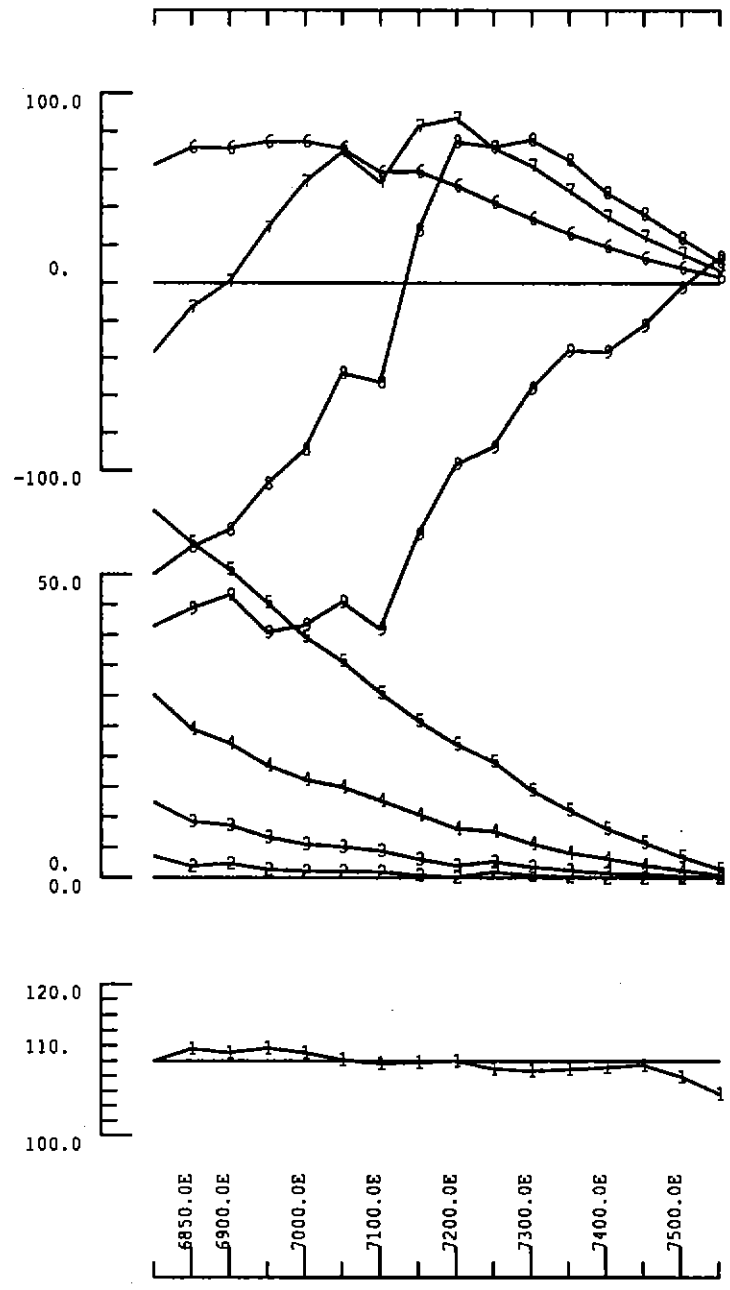
Freq. 26.23Hz

Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz

343

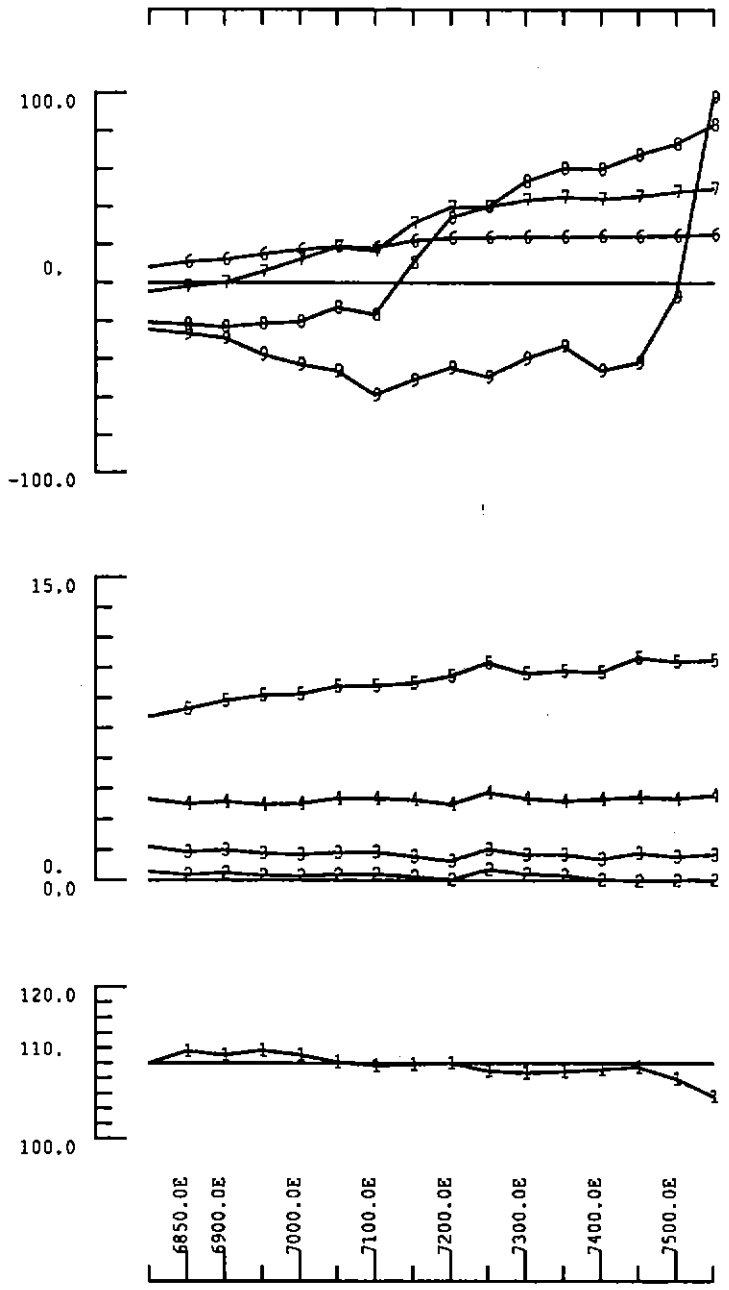


MEDWAY GRID MACKINTOSH EL
LINE 15600N LOOP 3
(out of loop data)
Continuous Normalized
UTEM Survey Febuary 1990
Secondary Magnetic Field
Hz Component
Freq. 26.23Hz

Aberfoyle Resources Ltd
March 1990 <jjr>

Plot Date : 14/03/90 Horiz

488345
344



MEDWAY GRID MACKINTOSH EL

LINE 15600N LOOP 3

(out of loop data)

Point Norm 16600N 7300E

UTEM Survey 1990

Secondary Magnetic Field

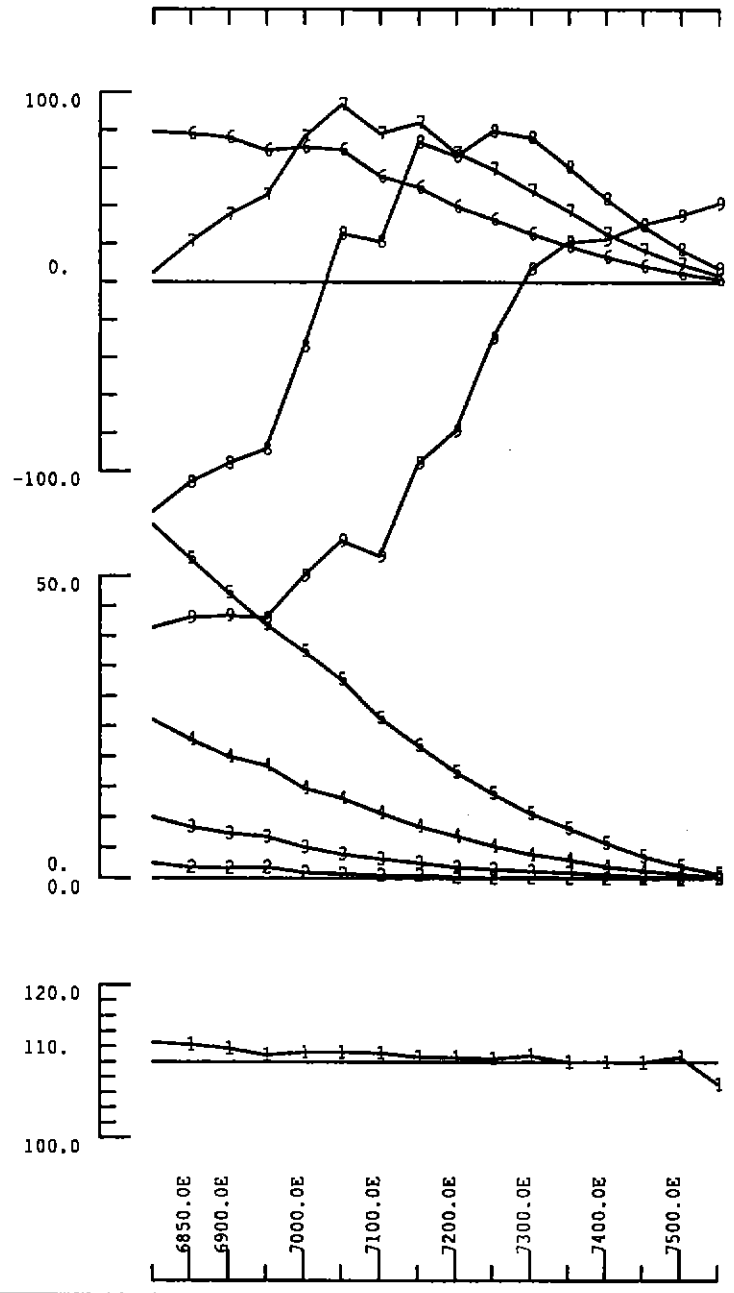
Hz Component

Freq. 26.23Hz

Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz

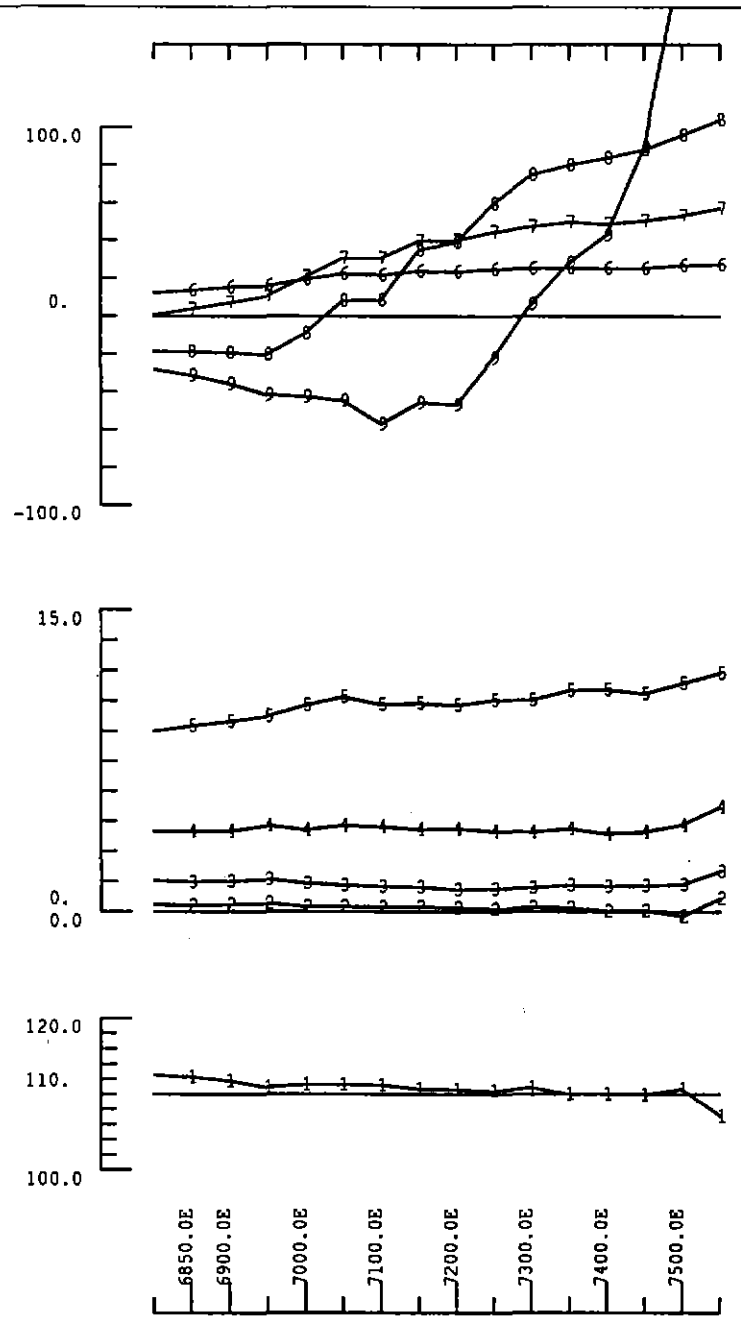


MEDWAY GRID MACKINTOSH EL
LINE 15800N LOOP 3
(out of loop data)
Continuously Normalized
UTEM Survey Febuary 1990
Secondary Magnetic Field
Hz Component
Freq. 26.23Hz

Aberfoyle Resources Ltd
March 1990 <jjr>

Plot Date : 14/03/90 Horiz

488348



MEDWAY GRID MACKINTOSH EL

LINE 15800N LOOP 3

(out of loop data)

Point Norm 16600N 7300E

UTEM Survey 1990

Secondary Magnetic Field

Hz Component

Freq. 26.23Hz

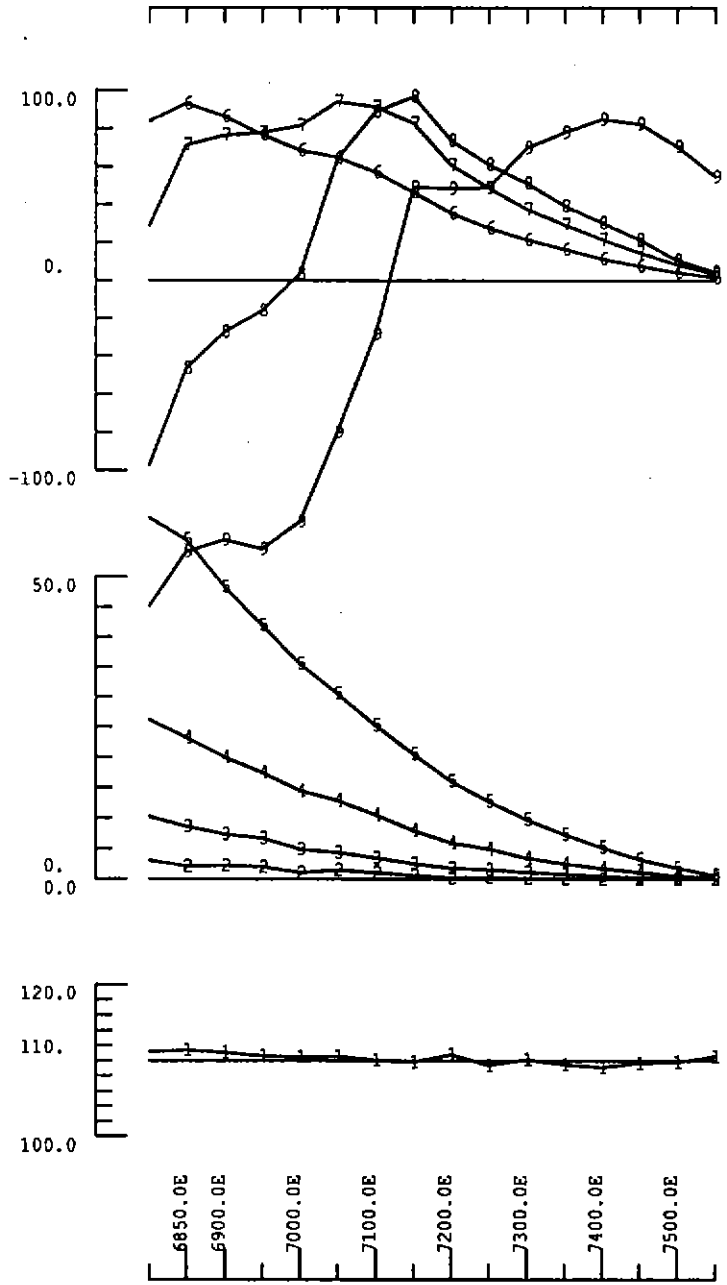
Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz

317

428349



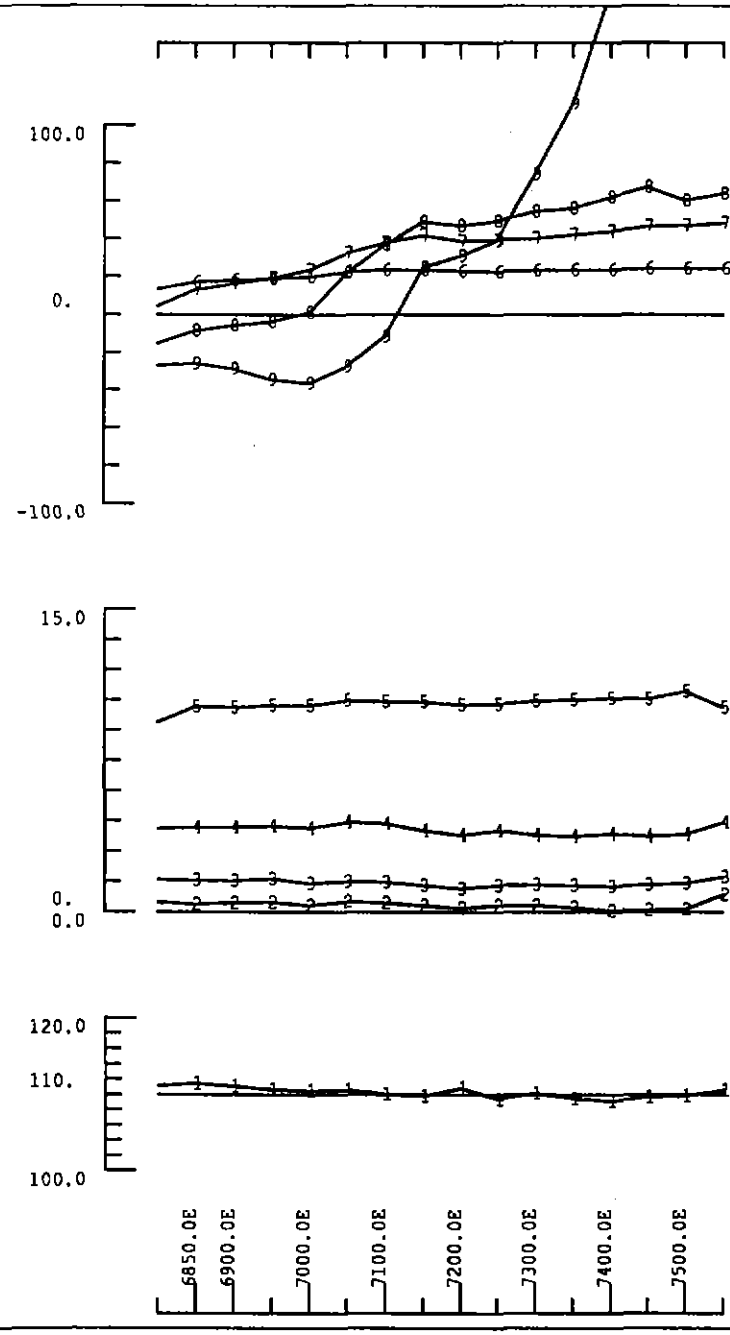
MEDWAY GRID MACKINTOSH EL
LINE 16000N LOOP 3
(out of loop data)
Continuously Normalized
UTEM Survey Febuary 1990
Secondary Magnetic Field
Hz Component
Freq. 26.23Hz

Aberfoyle Resources Ltd
March 1990 <jjr>

Plot Date : 14/03/90 Horiz

348

488350



MEDWAY GRID MACKINTOSH EL

LINE 16000N LOOP 3

(out of loop data)

Point Norm 16600N 7300E

UTEM Survey 1990

Secondary Magnetic Field

Hz Component

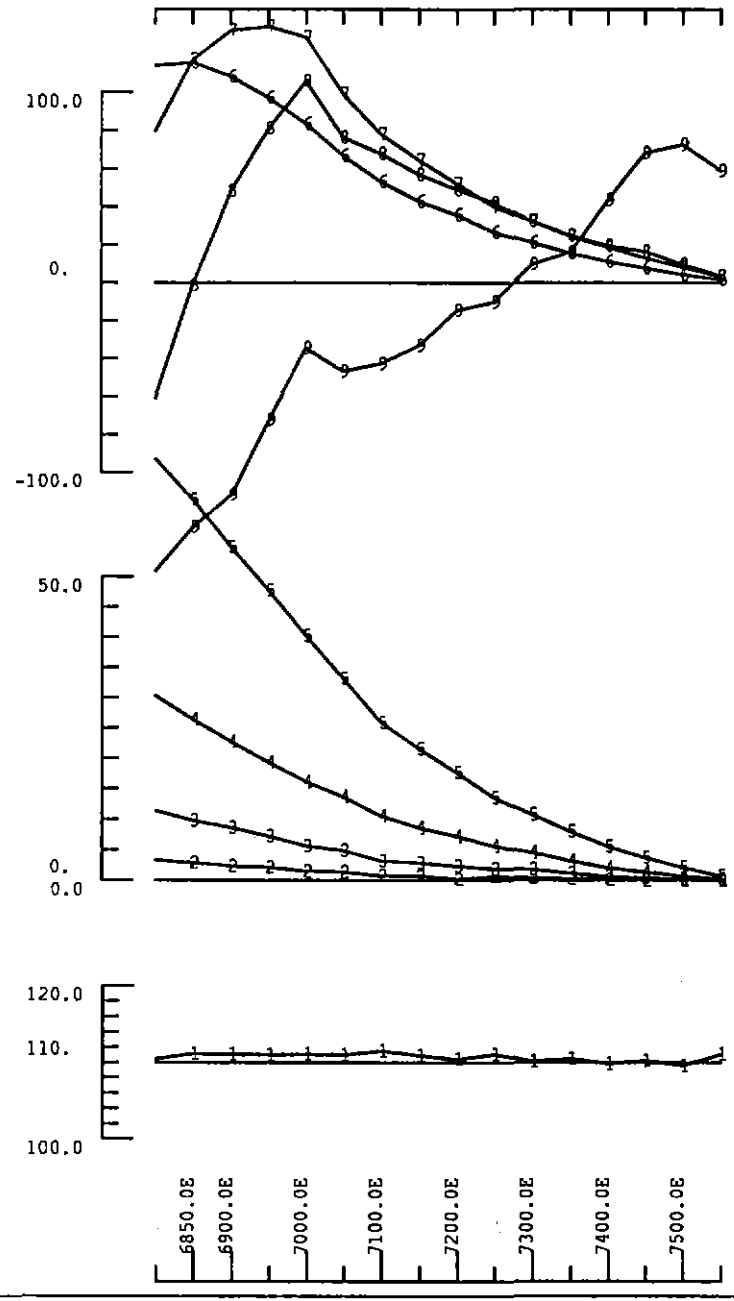
Freq. 26.23Hz

Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz

349



MEDWAY GRID MACKINTOSH EL

LINE 16200N LOOP 3

(out of loop data)

Continuously Normalized

UTEM Survey Febuary 1990

Secondary Magnetic Field

Hz Component

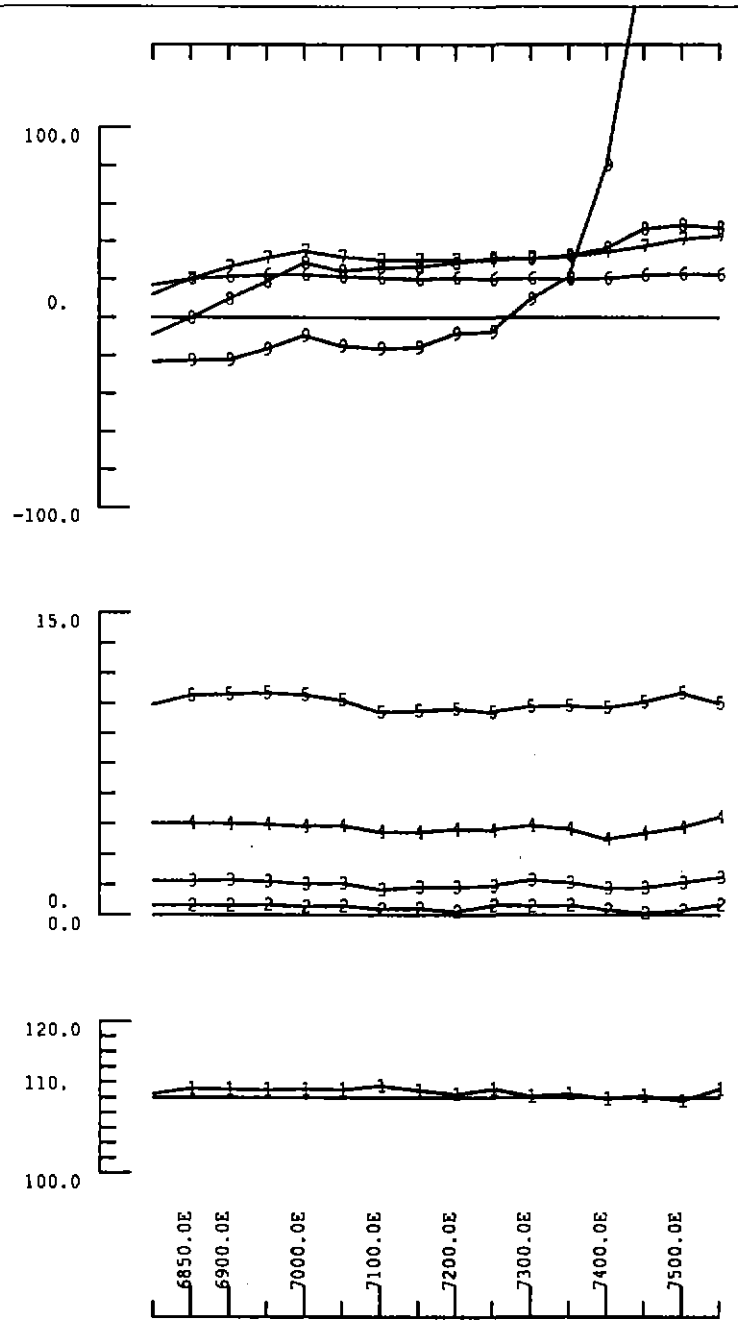
Freq. 26.23Hz

Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 14/03/90 Horiz

488352



MEDWAY GRID MACKINTOSH EL

LINE 16200N LOOP 3

(out of loop data)

Point Norm 16600N 7300E

UTEM Survey 1990

Secondary Magnetic Field

Hz Component

Freq. 26.23Hz

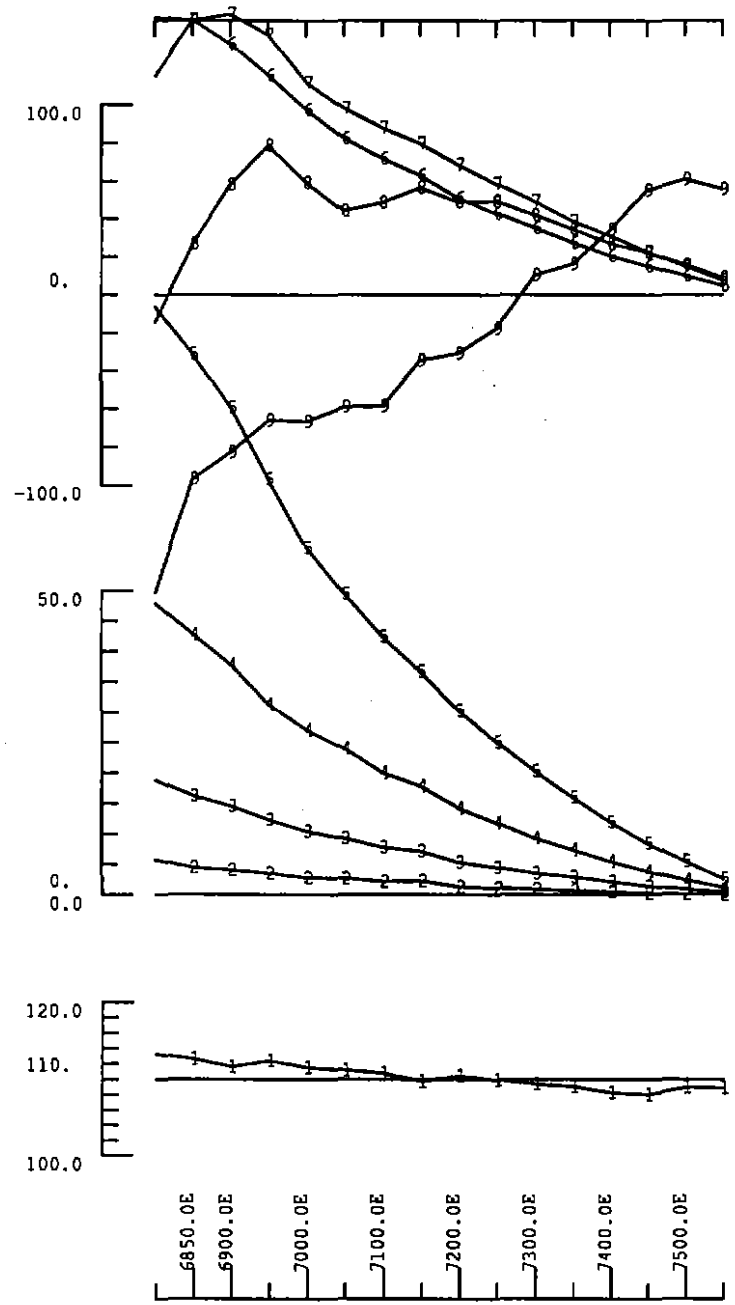
Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz

301

488353

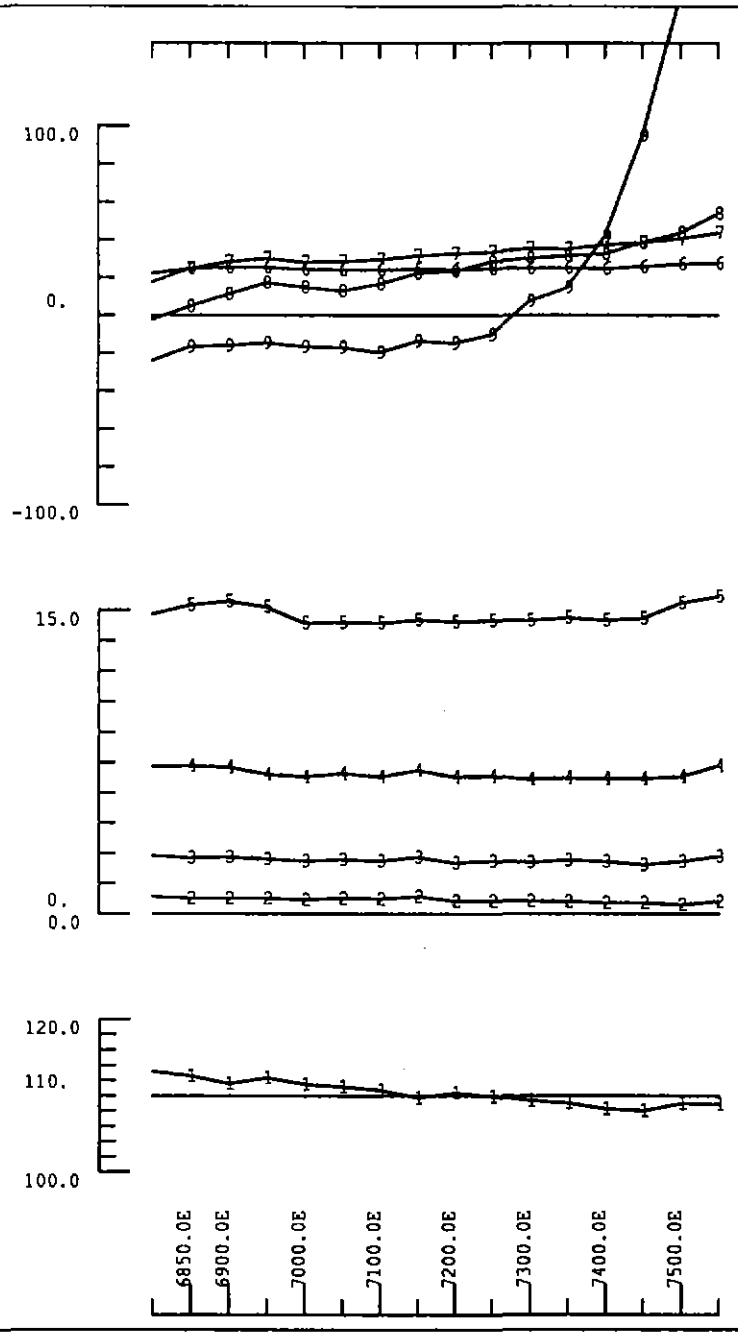


MEDWAY GRID MACKINTOSH EL
LINE 16400N LOOP 4
(out of loop data)
Continuously Normalized
UTEM Survey Febuary 1990
Secondary Magnetic Field
Hz Component
Freq. 26.23Hz

Aberfoyle Resources Ltd
March 1990 <jjr>

Plot Date : 14/03/90 Horiz

352



MEDWAY GRID MACKINTOSH EL

LINE 16400N LOOP 4

(out of loop data)

Point Norm 16600N 7300E

UTEM Survey 1990

Secondary Magnetic Field

Hz Component

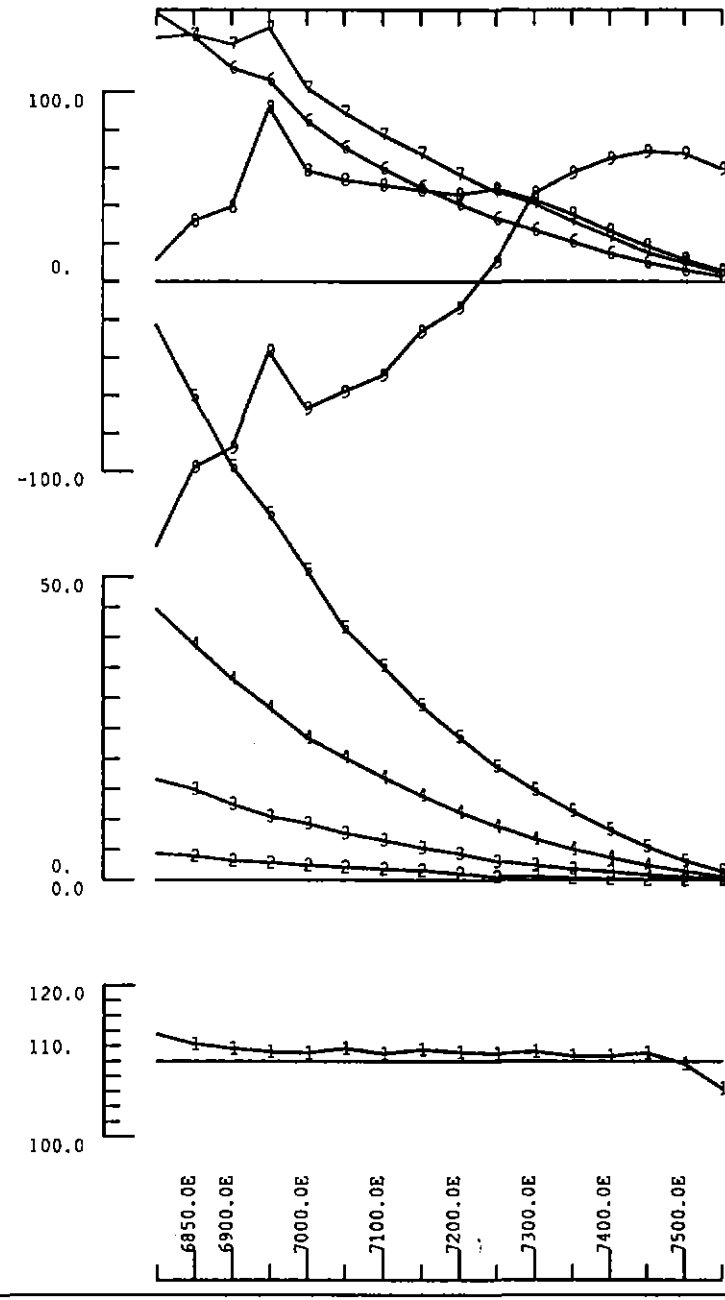
Freq. 26.23Hz

Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz

488355



MEDWAY GRID MACKINTOSH EL

LINE 16600N LOOP 4

(out of loop data)

Continuously Normalized

UTEM Survey Febuary 1990

Secondary Magnetic Field

Hz Component

Freq. 26.23Hz

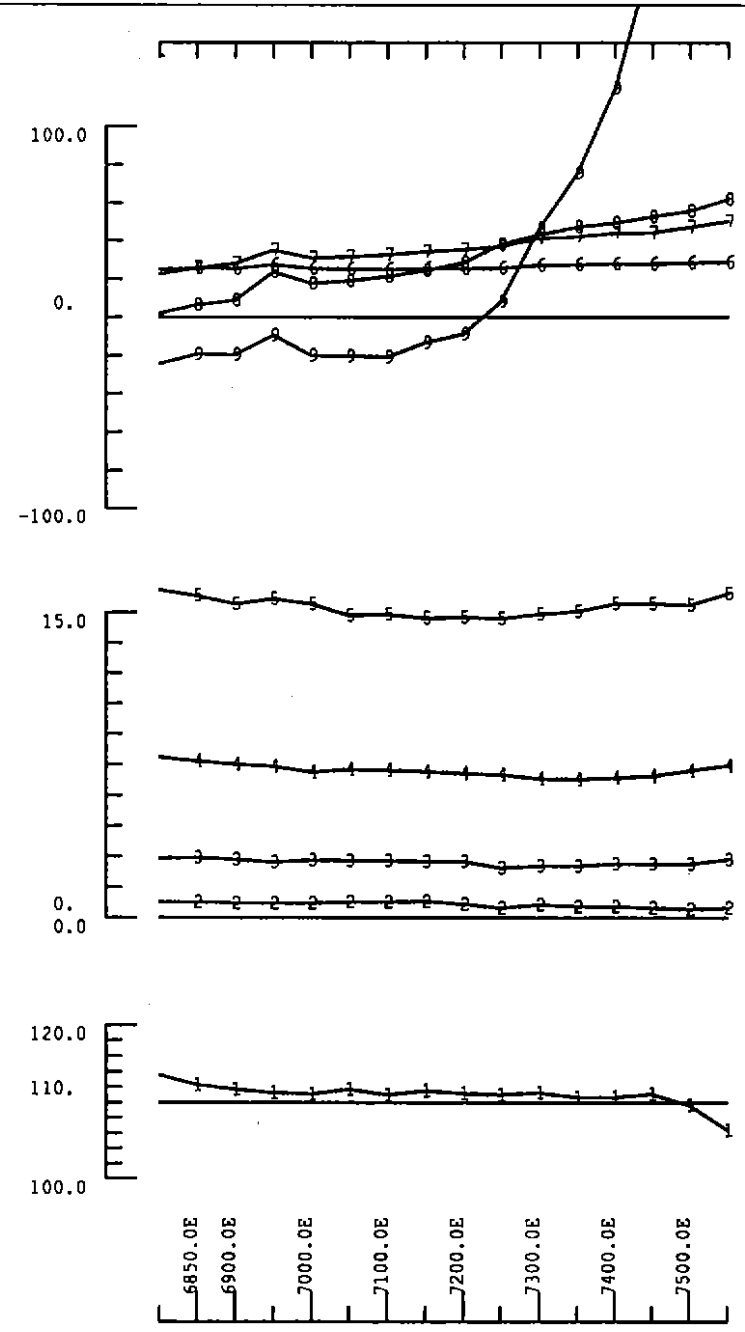
Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 14/03/90 Horiz

354

488356



MEDWAY GRID MACKINTOSH EL

LINE 16600N LOOP 4

(out of loop data)

Point Norm 16600N 7300E

UTEM Survey 1990

Secondary Magnetic Field

Hz Component

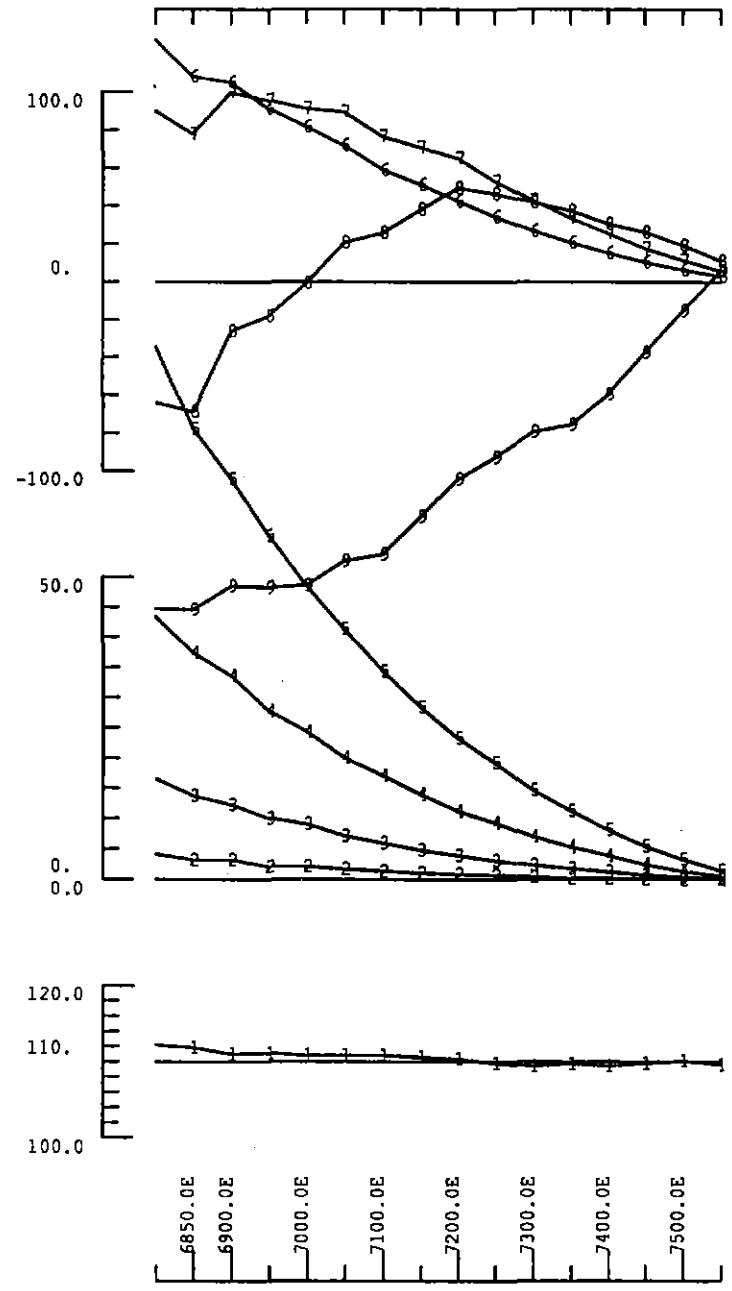
Freq. 26.23Hz

Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz

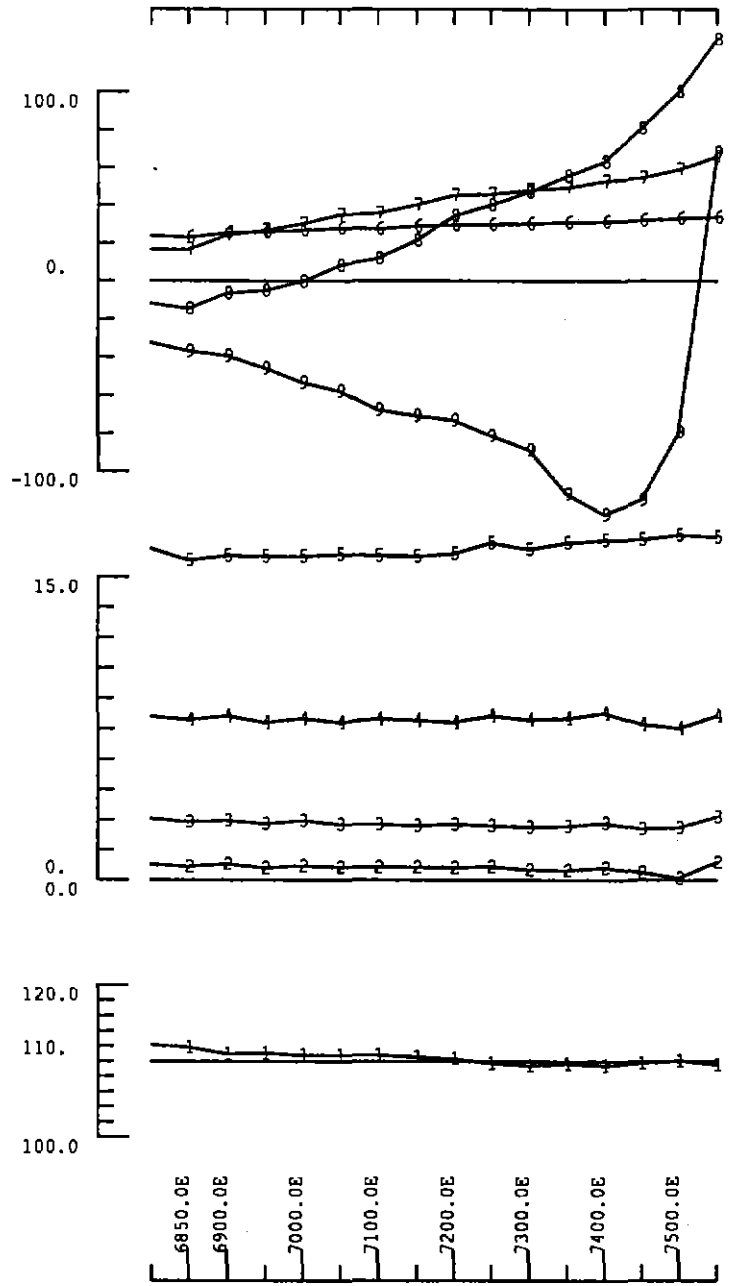
309



MEDWAY GRID MACKINTOSH EL
LINE 16800N LOOP 4
(out of loop data)
Continuously Normalized
UTEM Survey Febuary 1990
Secondary Magnetic Field
Hz Component
Freq. 26.23Hz

Aberfoyle Resources Ltd
March 1990 <jjr>

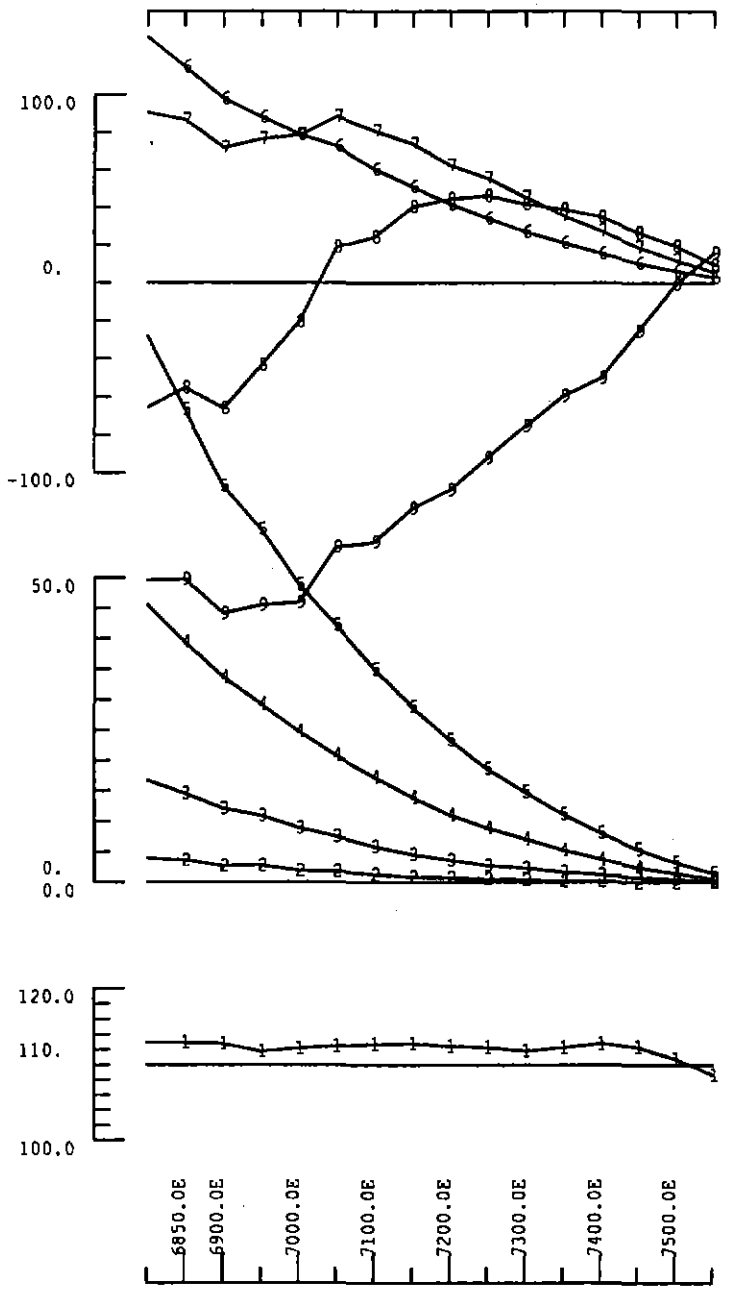
Plot Date : 14/03/90 Horiz



MEDWAY GRID MACKINTOSH EL
LINE 16800N LOOP 4
(out of loop data)
Point Norm 16600N 7300E
UTEM Survey 1990
Secondary Magnetic Field
Hz Component
Freq. 26.23Hz

Aberfoyle Resources Ltd
March 1990 <jjr>

Plot Date : 08/03/90 Horiz

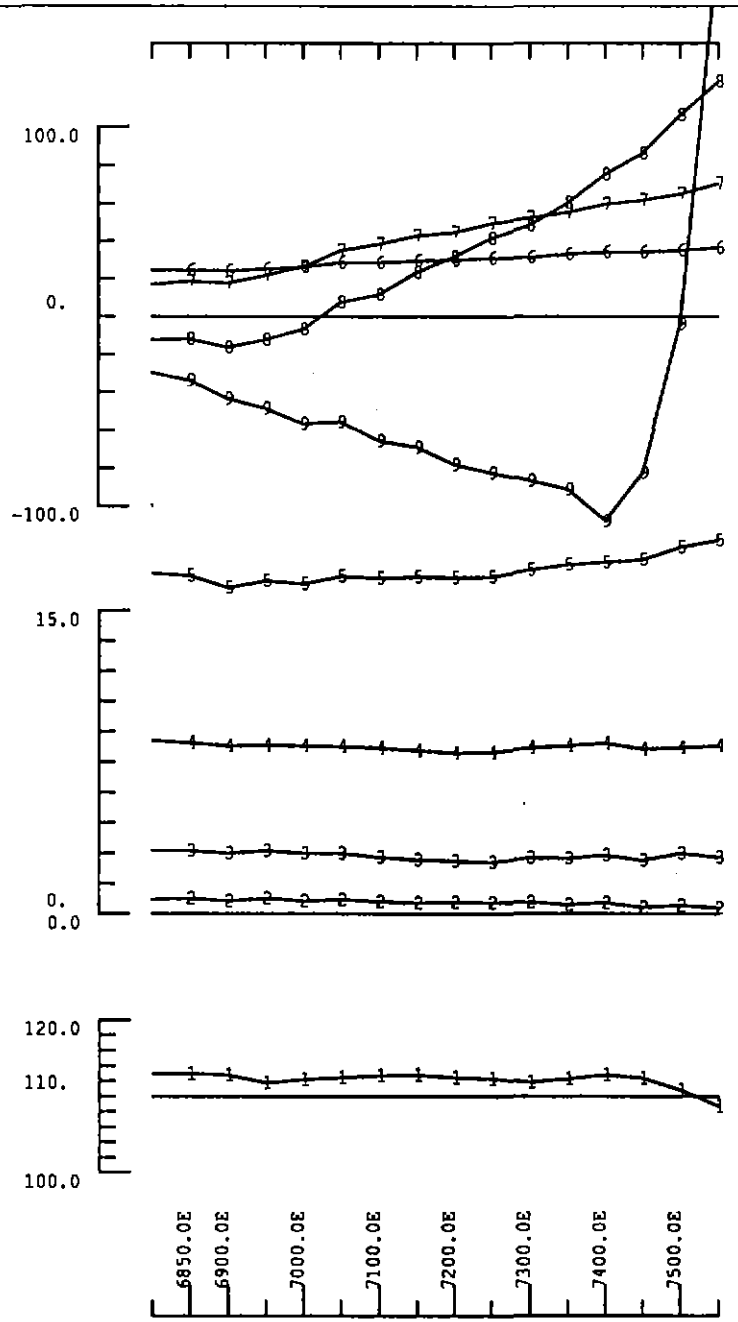


MEDWAY GRID MACKINTOSH EL
LINE 17000N LOOP 4
(out of loop data)
Continuously Normalized
UTEM Survey Febuary 1990
Secondary Magnetic Field
Hz Component
Freq. 26.23Hz

Aberfoyle Resources Ltd
March 1990 <jjr>

Plot Date : 14/03/90 Horiz

488359
358



MEDWAY GRID MACKINTOSH EL

LINE 17000N LOOP 4

(out of loop data)

Point Norm 16600N 7300E

UTEM Survey 1990

Secondary Magnetic Field

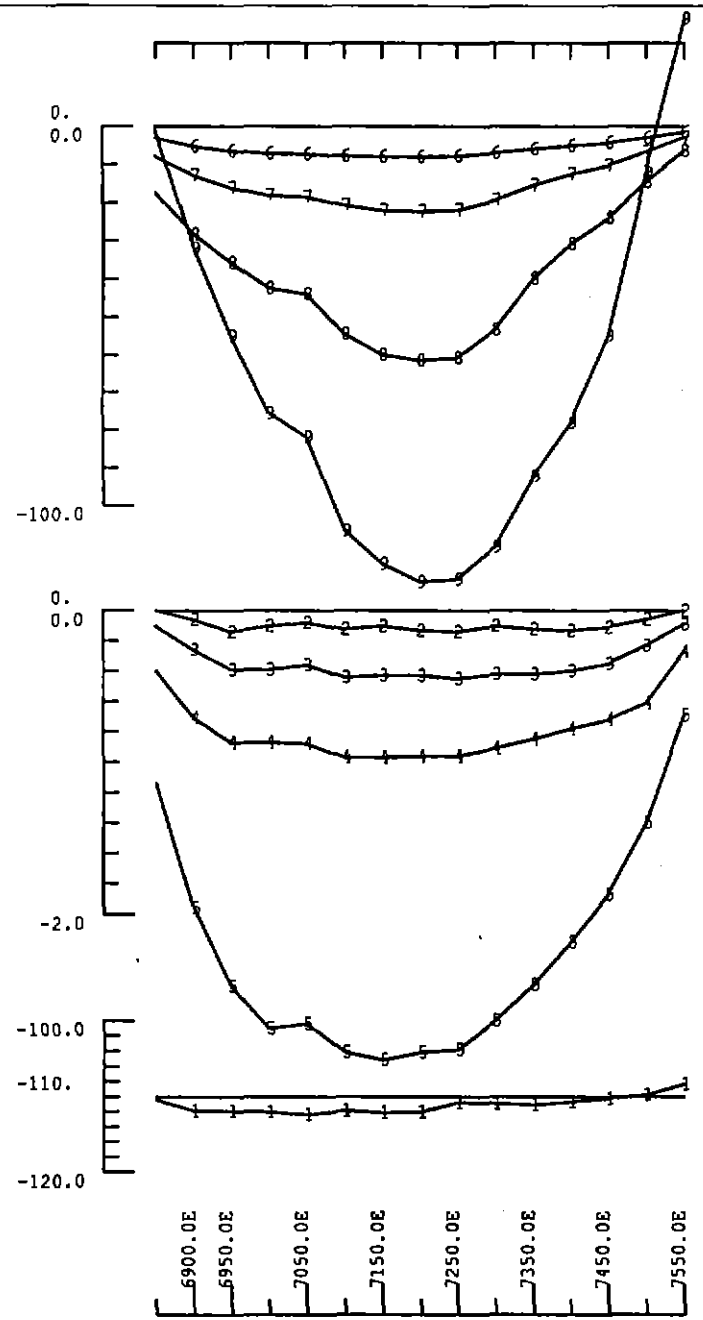
Hz Component

Freq. 26.23Hz

Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz



MEDWAY GRID MACKINTOSH EL

LINE 17200N LOOP 1

(in loop data)

Continuously Normalized

UTEM Survey Febuary 1990

Secondary Magnetic Field

Hz Component

Freq. 26.23Hz

Aberfoyle Resources Ltd

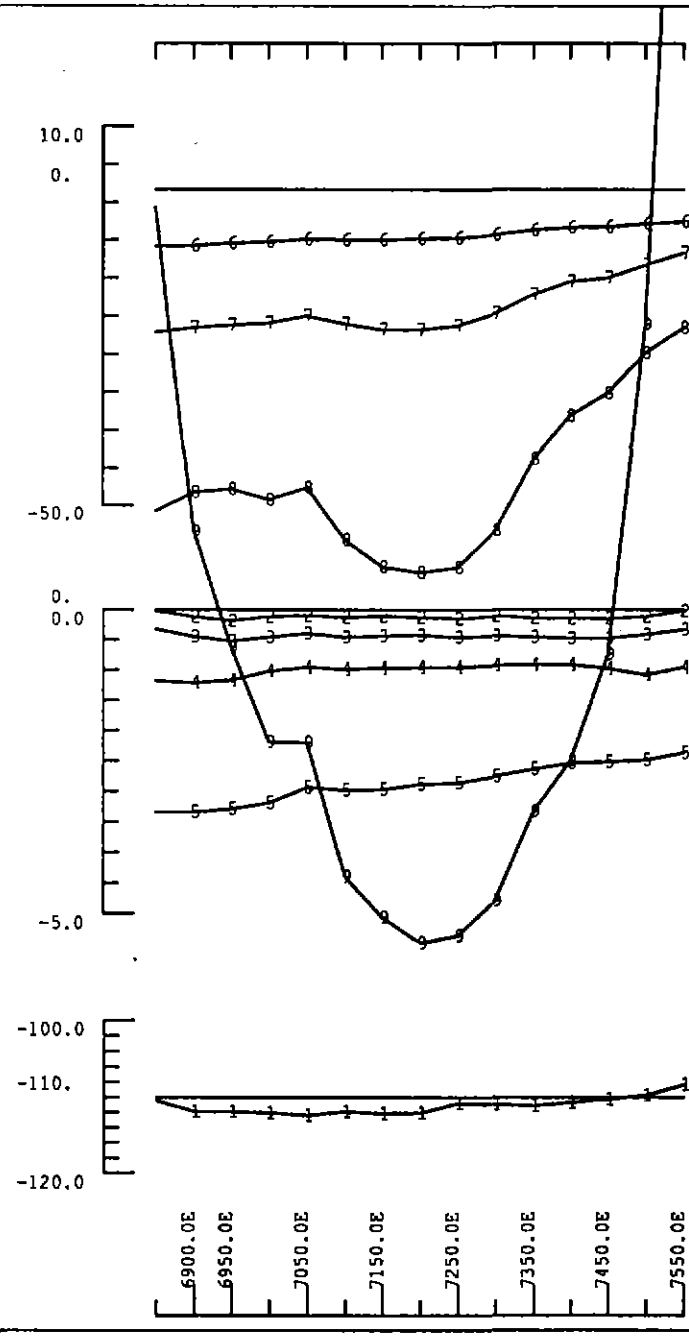
March 1990 <jjr>

Plot Date : 14/03/90 Horiz

488361

360

488362



MEDWAY GRID MACKINTOSH EL

LINE 17200N LOOP 1

(in loop data)

Point Norm 16600N 7300E

UTEM Survey 1990

Secondary Magnetic Field Hz C

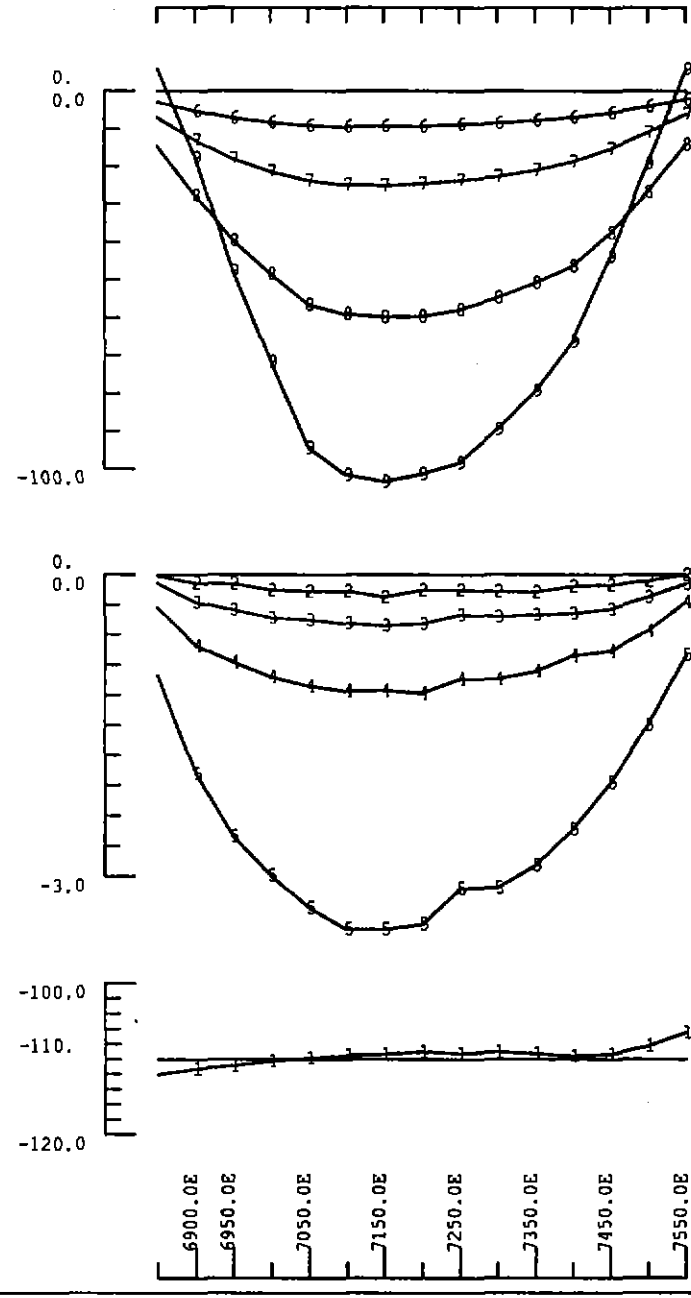
Freq. 26.23Hz

Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz

361



MEDWAY GRID MACKINTOSH EL

LINE 17000N LOOP 1

(in loop data)

Continuously Normalized

UTEM Survey Febuary 1990

Secondary Magnetic Field

Hz Component

Freq. 26.23Hz

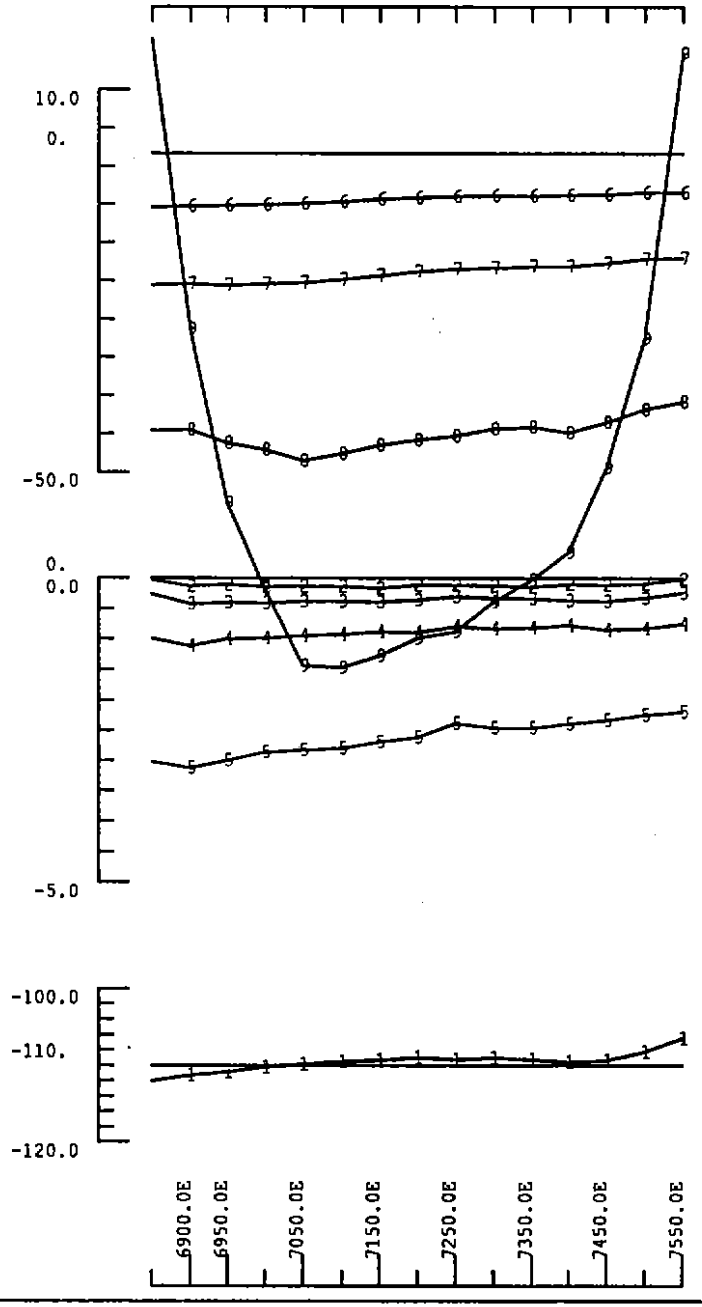
Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 14/03/90 Horiz

48363

362



MEDWAY GRID MACKINTOSH EL

LINE 17000N LOOP 1

(in loop data)

Point Norm 16600N 7300E

UTEM Survey 1990

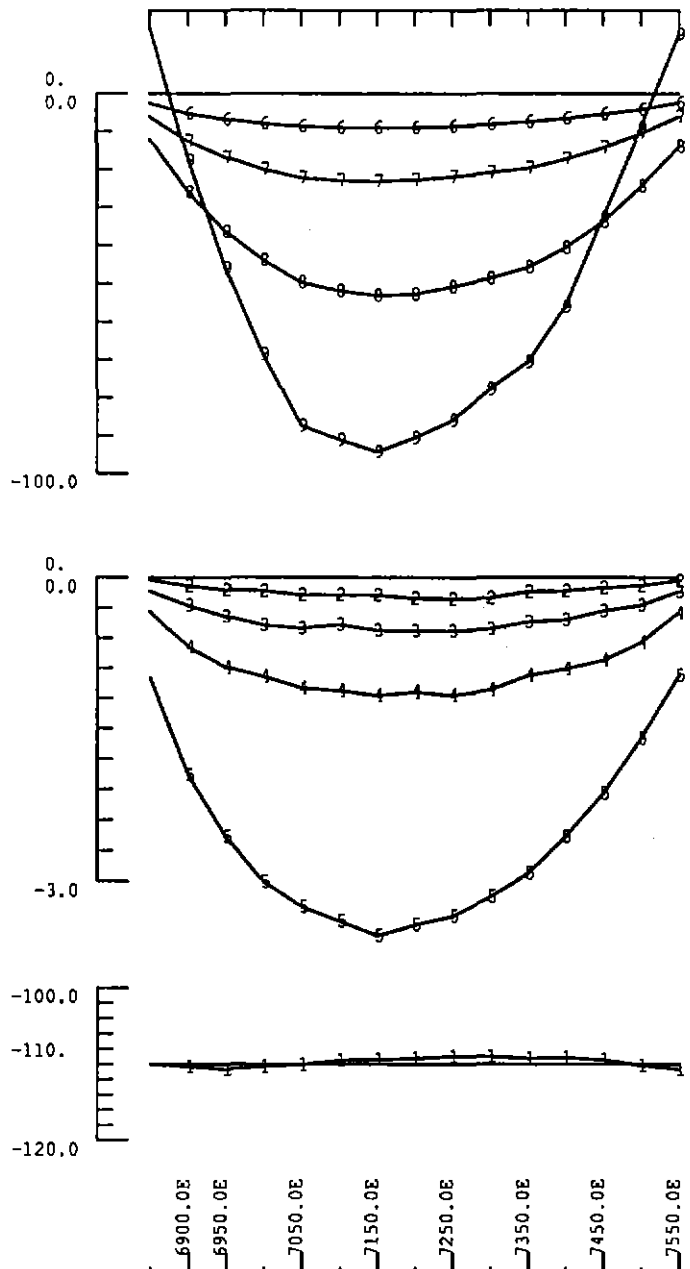
Secondary Magnetic Field Hz C

Freq. 26.23Hz

Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz



MEDWAY GRID MACKINTOSH EL

LINE 16800N LOOP 1

(in loop data)

Continuously Normalized

UTEM Survey Febuary 1990

Secondary Magnetic Field

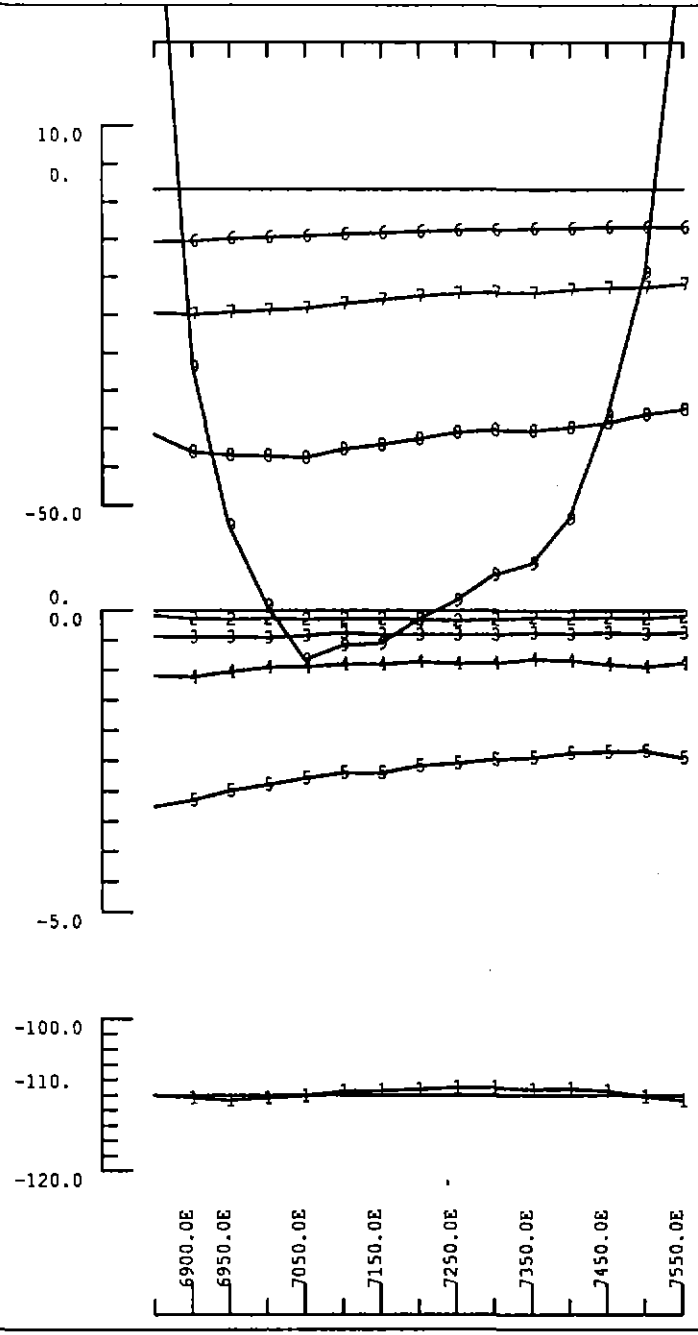
Hz Component

Freq. 26.23Hz

Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 14/03/90 Horiz



MEDWAY GRID MACKINTOSH EL

LINE 16800N LOOP 1

(in loop data)

Point Norm 16600N 7300E

UTEM Survey 1990

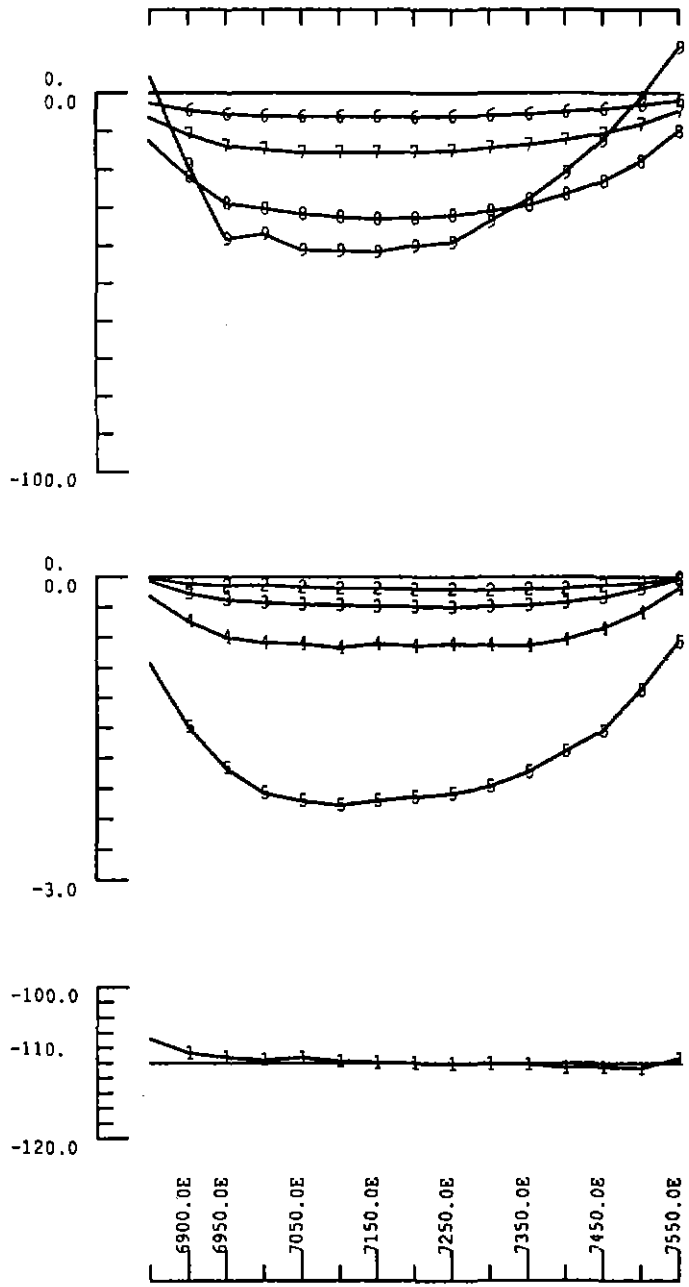
Secondary Magnetic Field Hz C

Freq. 26.23Hz

Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz



MEDWAY GRID MACKINTOSH EL

LINE 16600N LOOP 1

(in loop data)

Continuously Normalized

UTEM Survey Febuary 1990

Secondary Magnetic Field

Hz Component

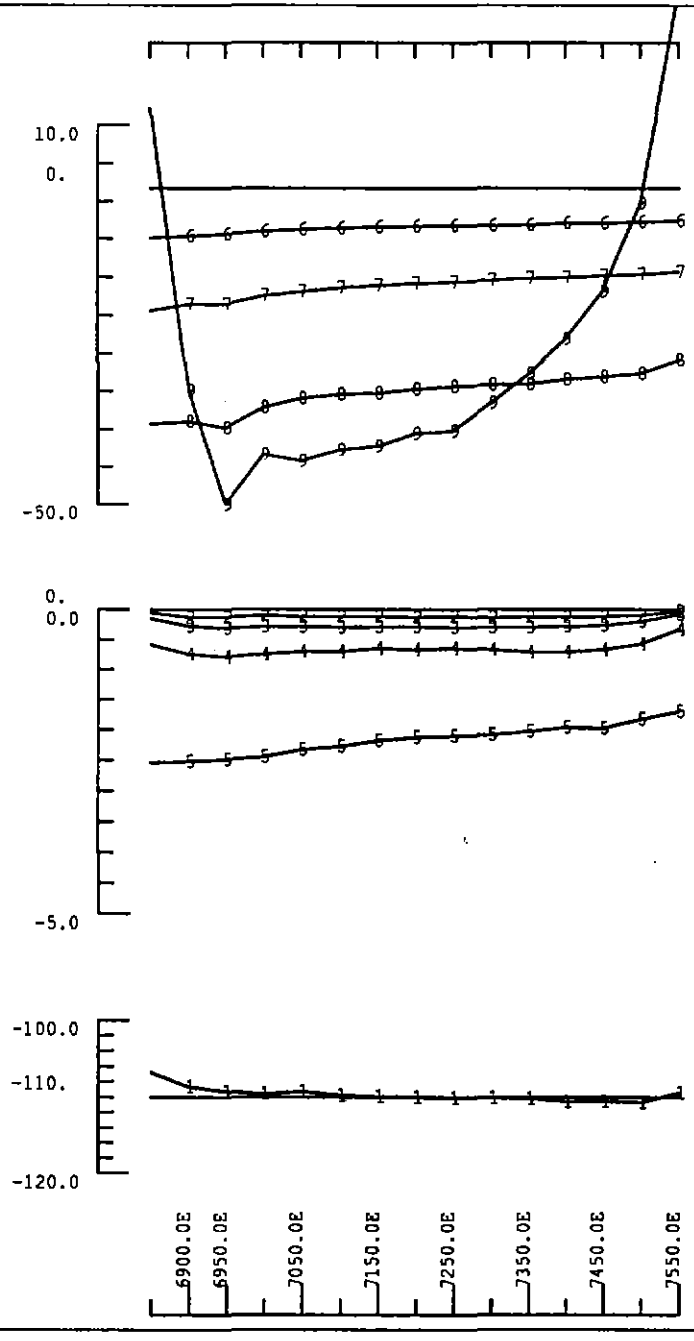
Freq. 26.23Hz

Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 14/03/90 Horiz

488368



MEDWAY GRID MACKINTOSH EL

LINE 16600N LOOP 1

(in loop data)

Point Norm 16600N 7300E

UTEM Survey 1990

Secondary Magnetic Field Hz C

Freq. 26.23Hz

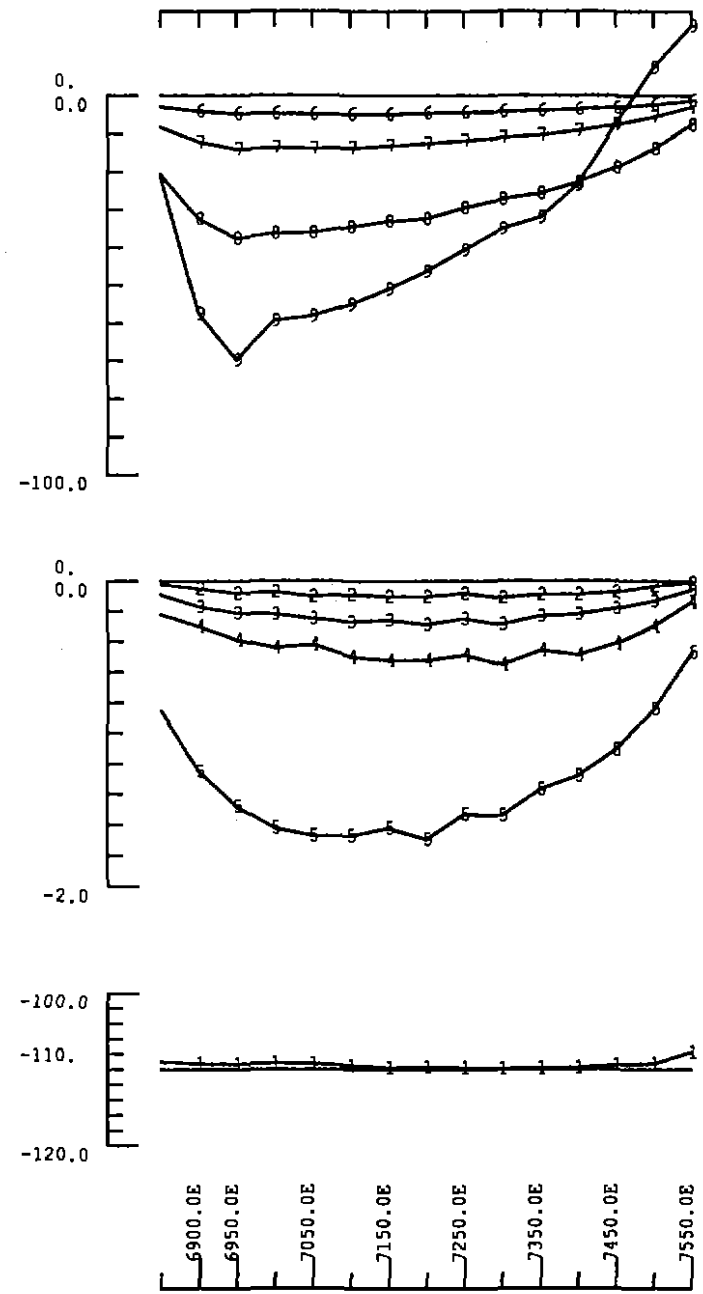
Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz

367

488369



MEDWAY GRID MACKINTOSH EL

LINE 16200N LOOP 2

(in loop data)

Continuously Normalized

UTEM Survey Febuary 1990

Secondary Magnetic Field

Hz Component

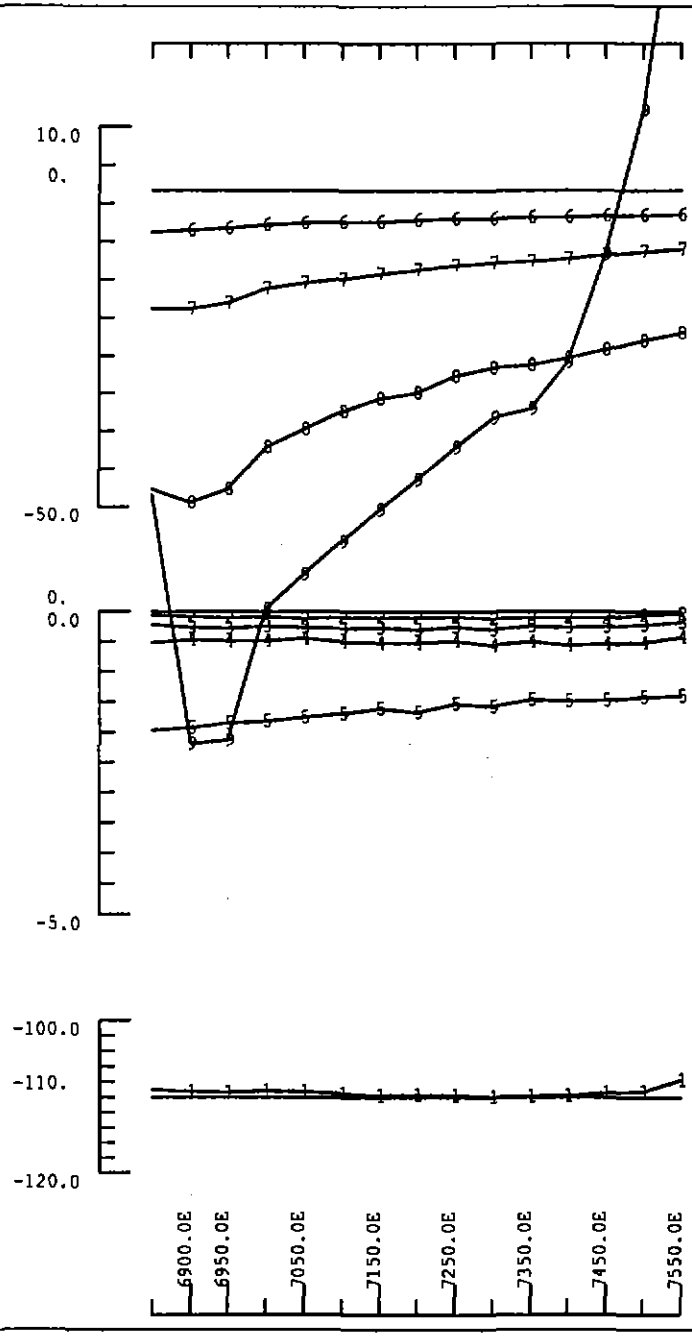
Freq. 26.23Hz

Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 14/03/90 Horiz

3b8



MEDWAY GRID MACKINTOSH EL

LINE 16200N LOOP 2

(in loop data)

Point Norm 16600N 7300E

UTEM Survey 1990

Secondary Magnetic Field Hz C

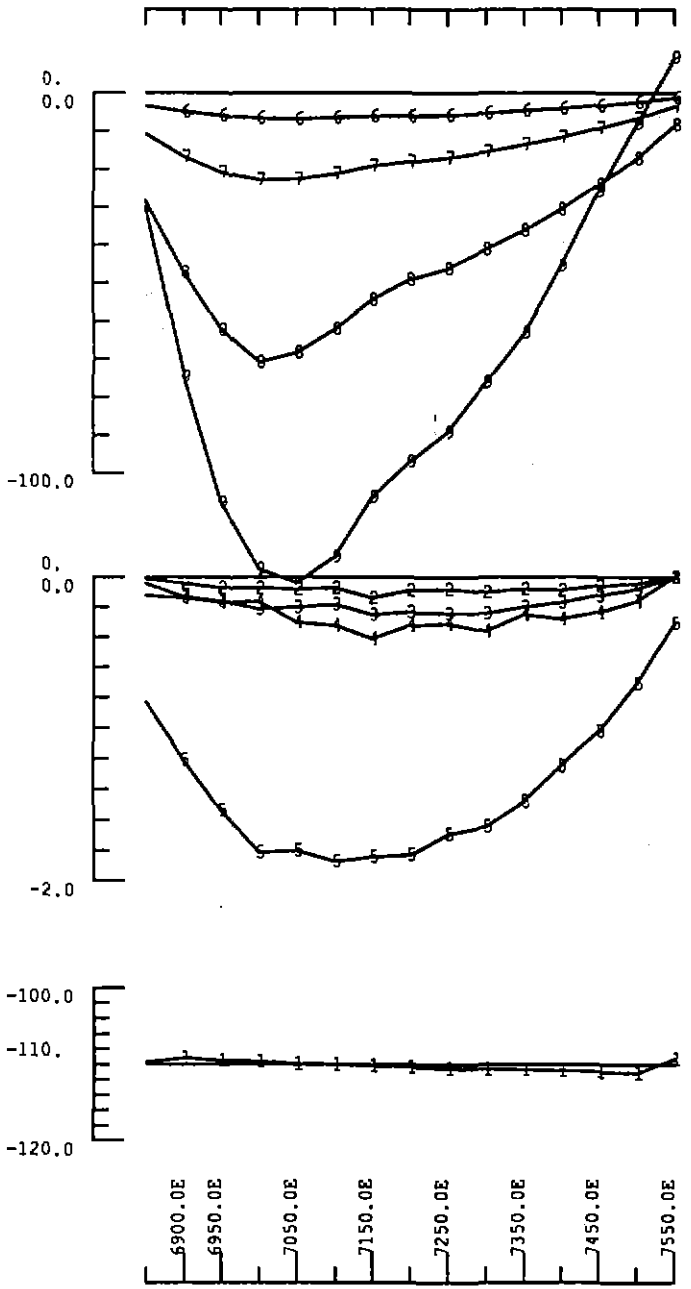
Freq. 26.23Hz

Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz

488371



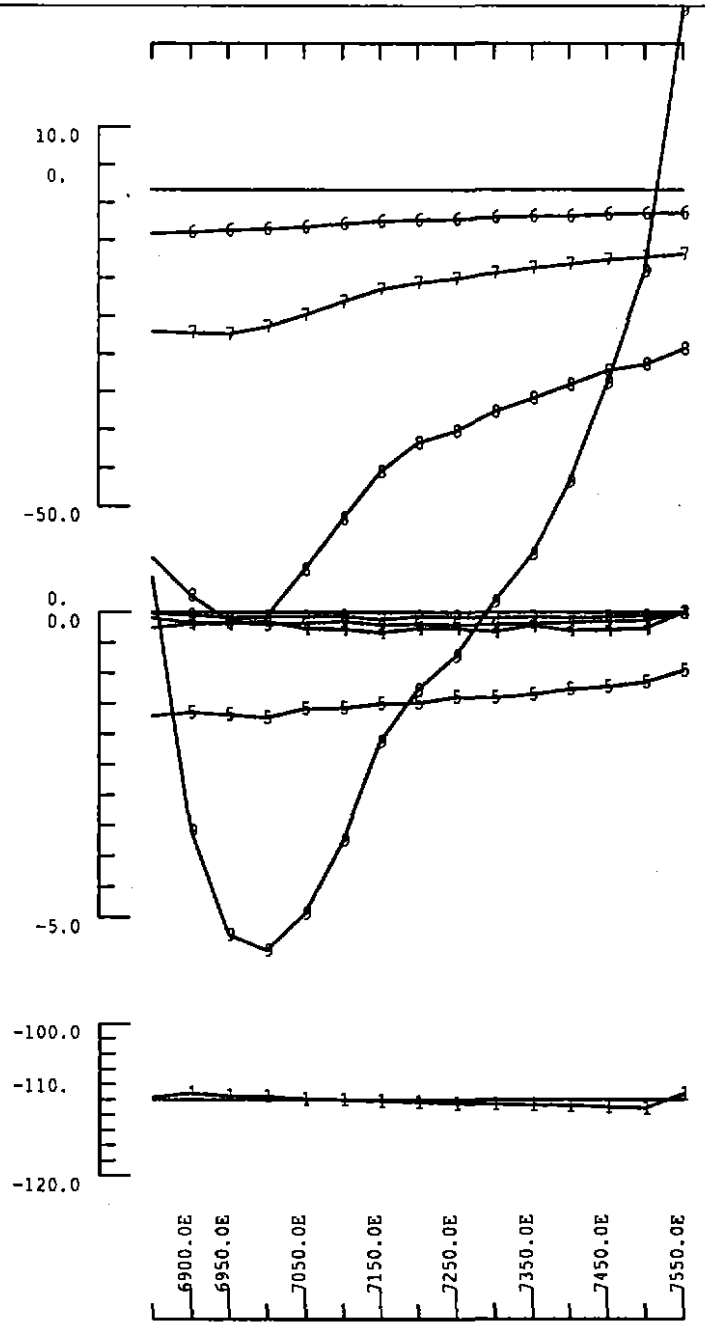
MEDWAY GRID MACKINTOSH EL
LINE 16000N LOOP 2
(in loop data)
Continuously Normalized
UTEM Survey Febuary 1990
Secondary Magnetic Field
Hz Component
Freq. 26.23Hz

Aberfoyle Resources Ltd
March 1990 <jjr>

Plot Date : 14/03/90 Horiz

370

488372



MEDWAY GRID MACKINTOSH EL

LINE 16000N LOOP 2

(in loop data)

Point Norm 16600N 7300E

UTEM Survey 1990

Secondary Magnetic Field Hz C

Freq. 26.23Hz

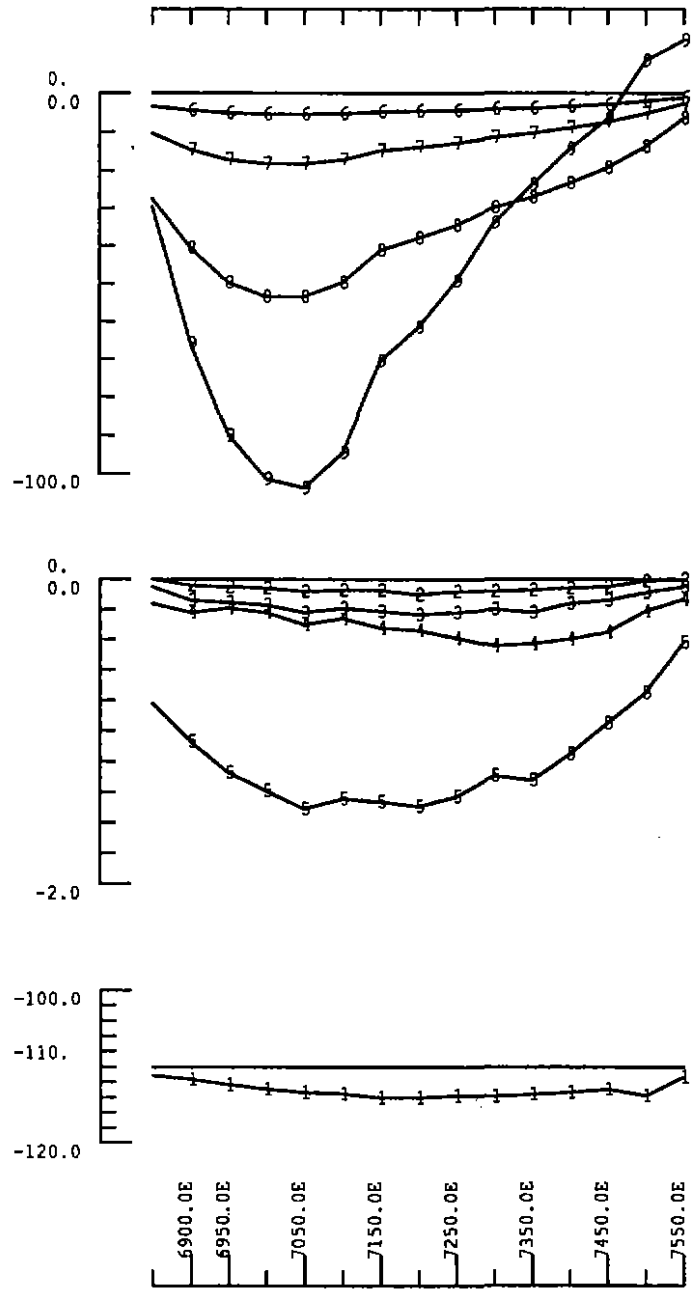
Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz

371

488373



MEDWAY GRID MACKINTOSH EL

LINE 15800N LOOP 2

(in loop data)

Continuously Normalized

UTEM Survey Febuary 1990

Secondary Magnetic Field

Hz Component

Freq. 26.23Hz

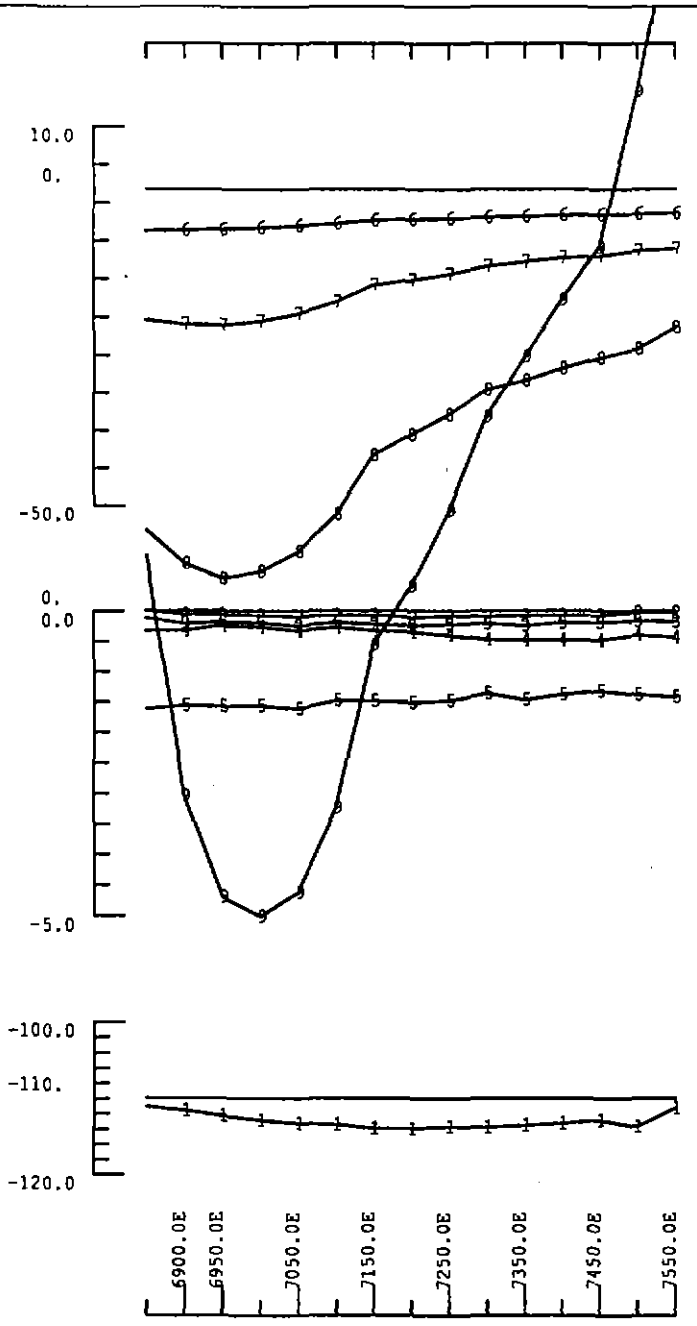
Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 14/03/90 Horiz

372

488374



MEDWAY GRID MACKINTOSH EL

LINE 15800N LOOP 2

(in loop data)

Point Norm 16600N 7300E

UTEM Survey 1990

Secondary Magnetic Field Hz C

Freq. 26.23Hz

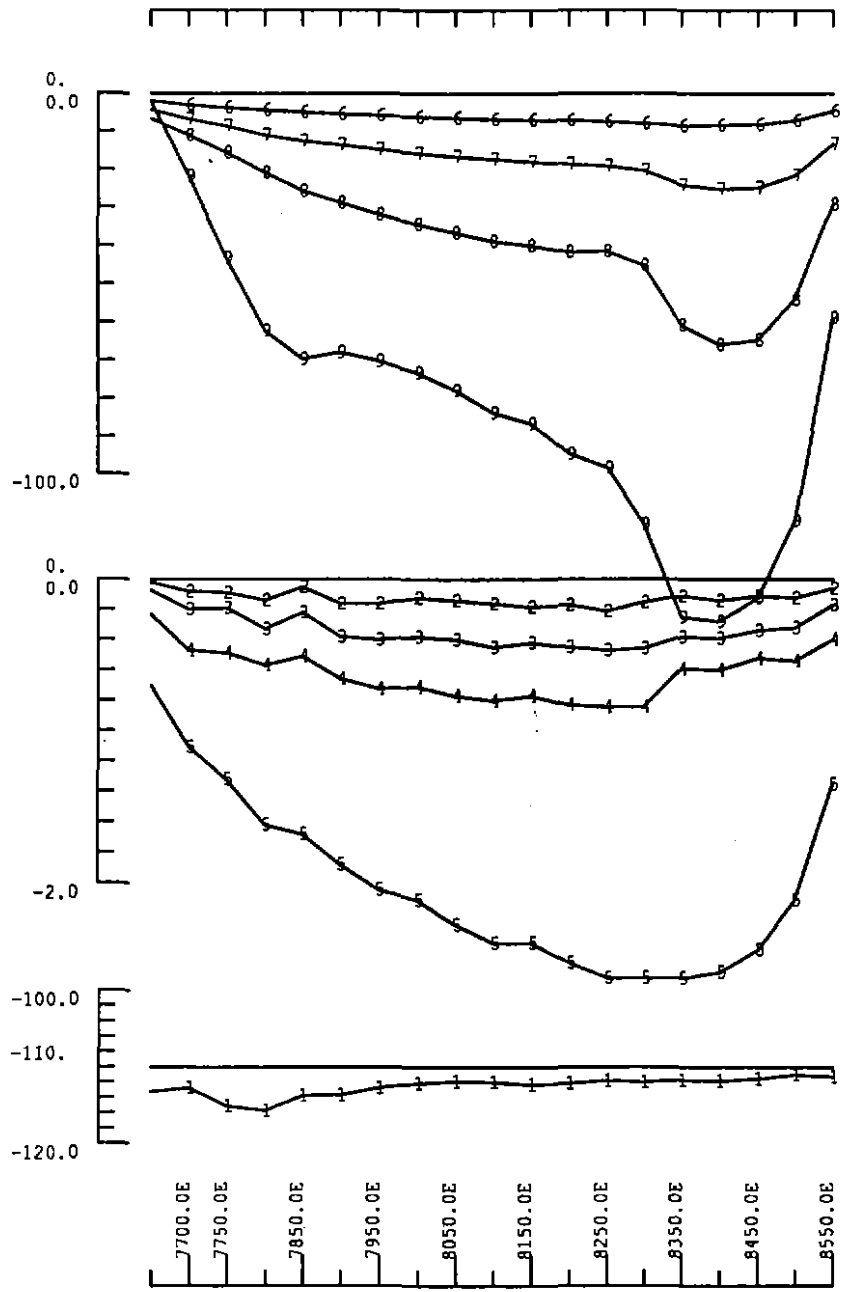
Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz

373

488375



MEDWAY GRID MACKINTOSH EL

LINE 15800N LOOP 3

(in loop data)

Continuously Normalized

UTEM Survey Febuary 1990

Secondary Magnetic Field

Hz Component

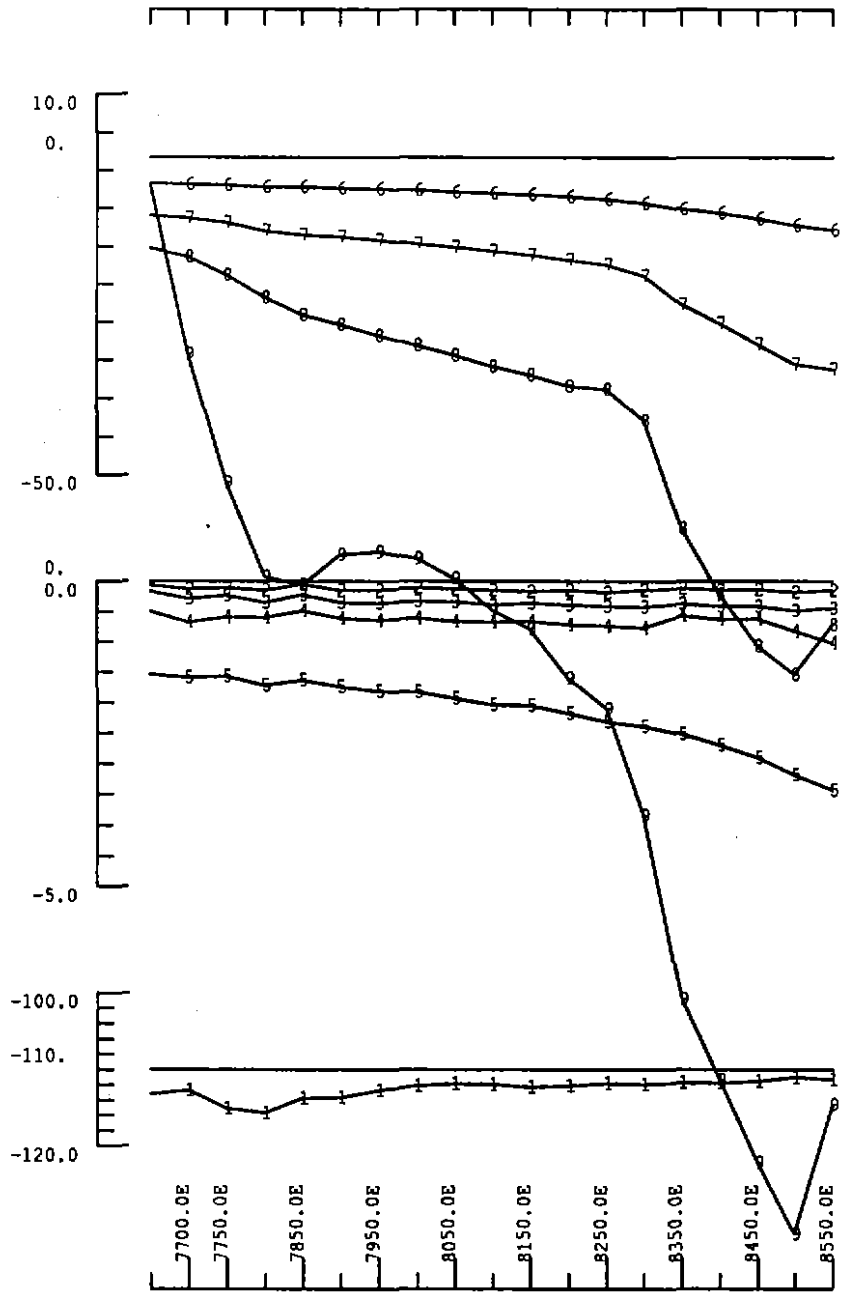
Freq. 26.23Hz

Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 14/03/90 Horiz

488376



MEDWAY GRID MACKINTOSH EL

LINE 15800N LOOP 3

(in loop data)

Point Norm 16600N 8400E

UTEM Survey 1990

Secondary Magnetic Field

Hz Component

Freq. 26.23Hz

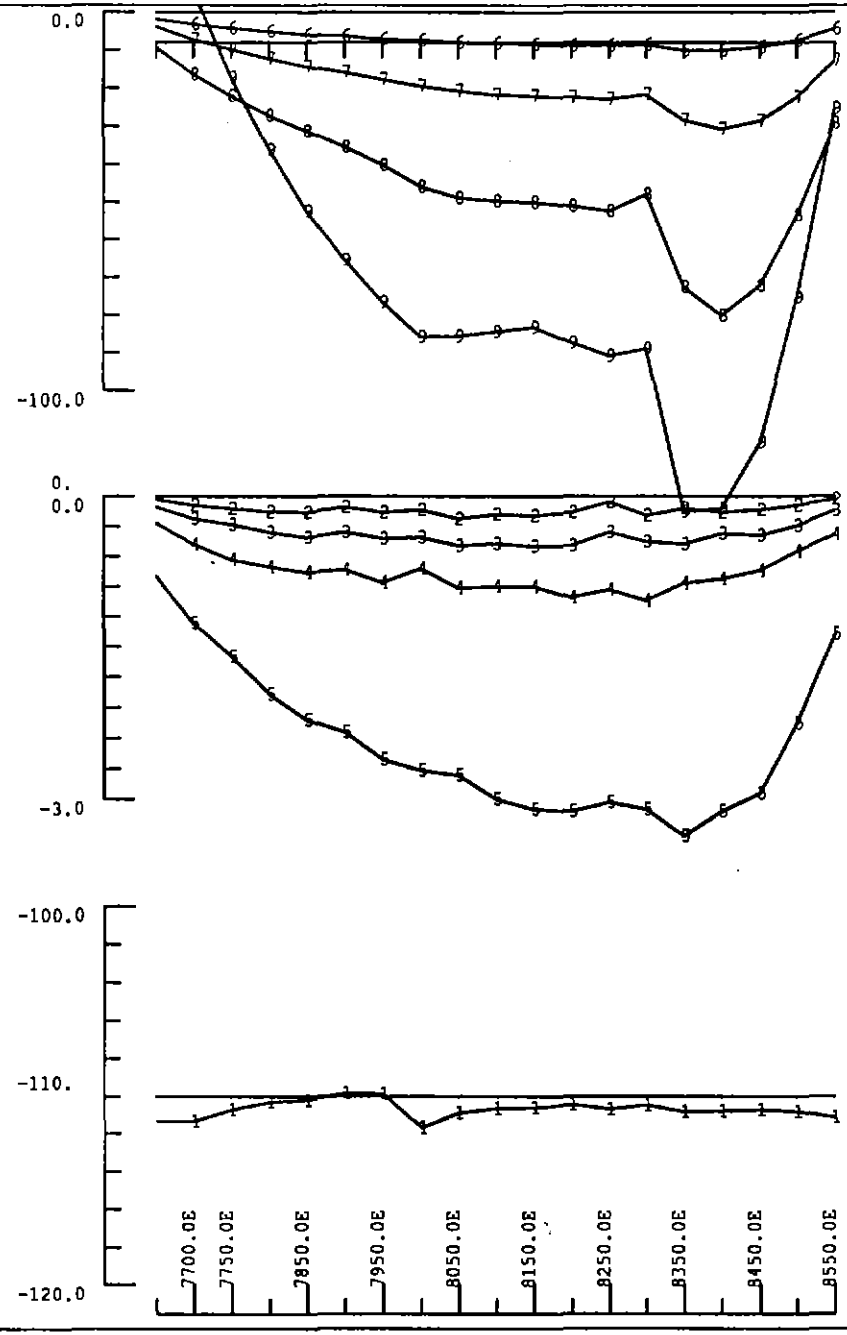
Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz

370

488377

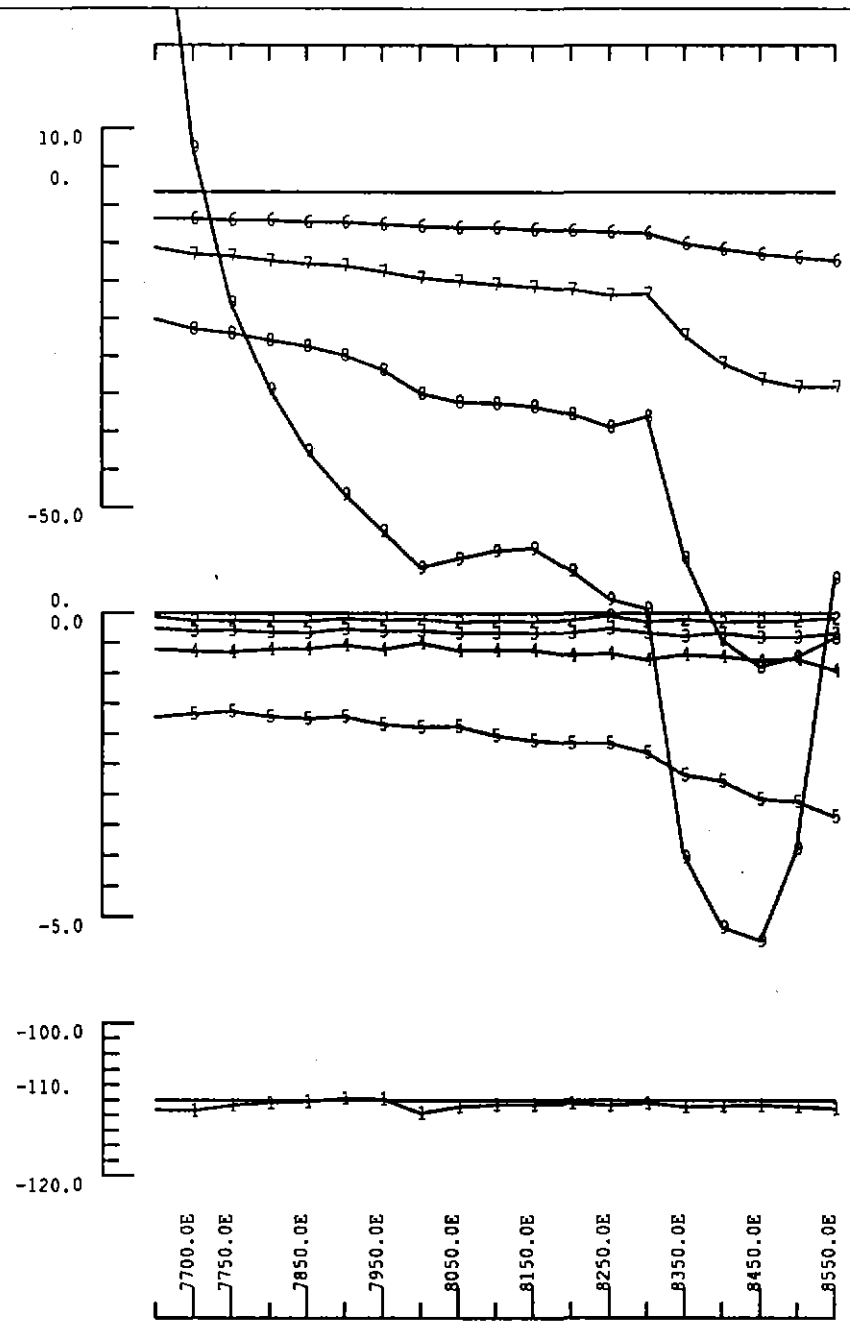


MEDWAY GRID MACKINTOSH EL
LINE 16000N LOOP 3
(in loop data)
Continuously Normalized
UTEM Survey Febuary 1990
Secondary Magnetic Field
Hz Component
Freq. 26.23Hz

Aberfoyle Resources Ltd
March 1990 <jjr>

Plot Date : 14/03/90 Horiz

376



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LINE 16000N LOOP 3

(in loop data)

Point Norm 16600N 8400E

UTEM Survey 1990

Secondary Magnetic Field

Hz Component

Freq. 26.23Hz

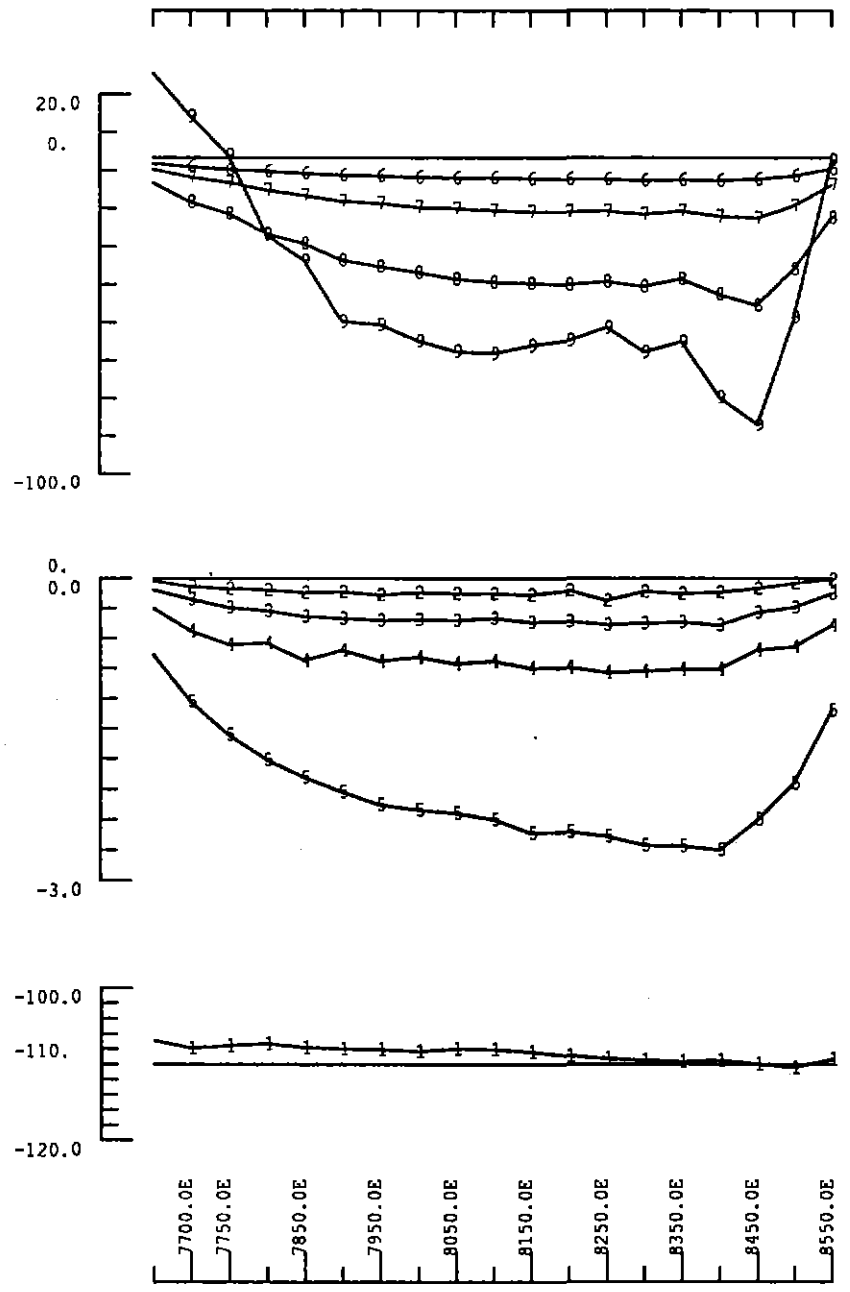
Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz

488378

377



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LINE 16200N LOOP 3

(in loop data)

Continuously Normalized

UTEM Survey Febuary 1990

Secondary Magnetic Field

Hz Component

Freq. 26.23Hz

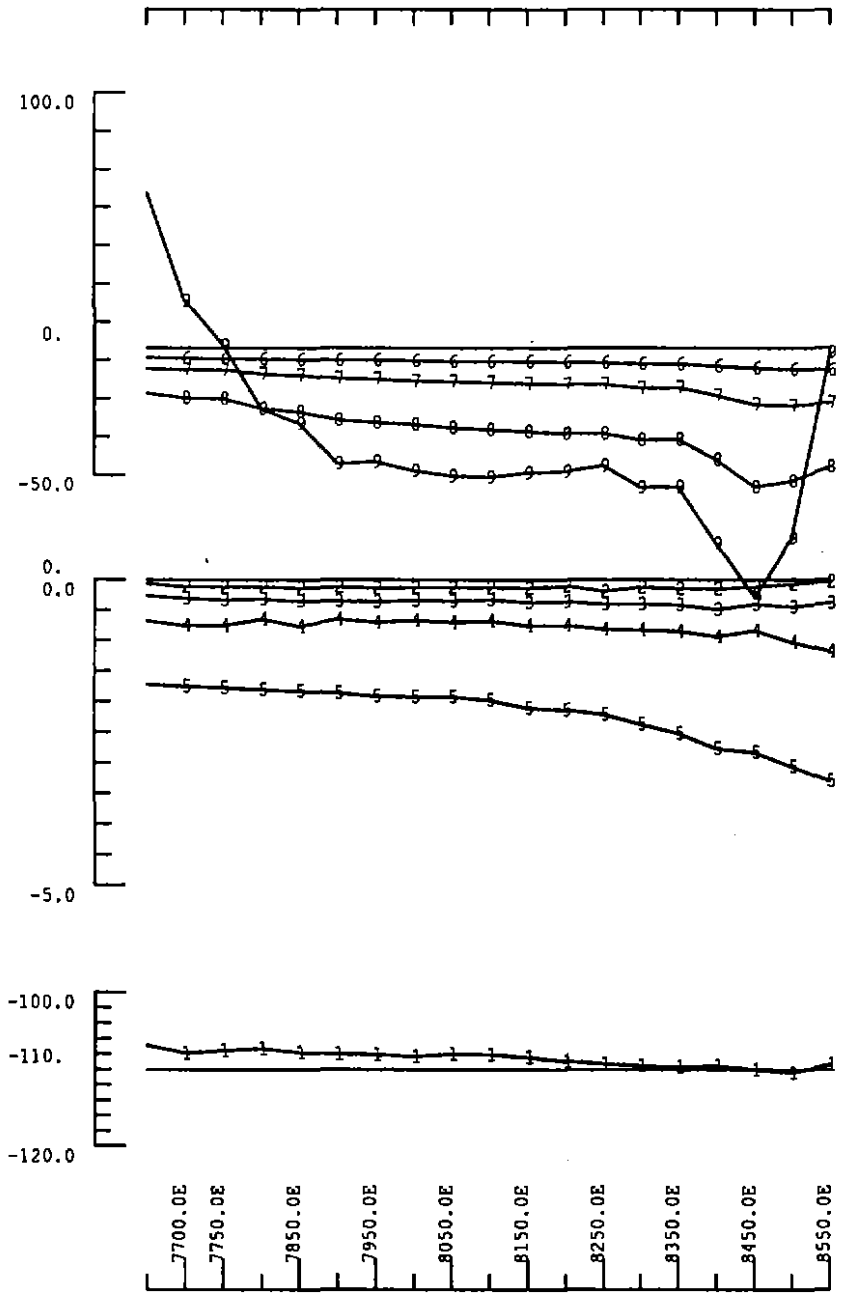
Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 14/03/90 Horiz

488379

378



MEDWAY GRID MACKINTOSH EL

LINE 16200N LOOP 3

(in loop data)

Point Norm 16600N 8400E

UTEM Survey 1990

Secondary Magnetic Field

Hz Component

Freq. 26.23Hz

Aberfoyle Resources Ltd

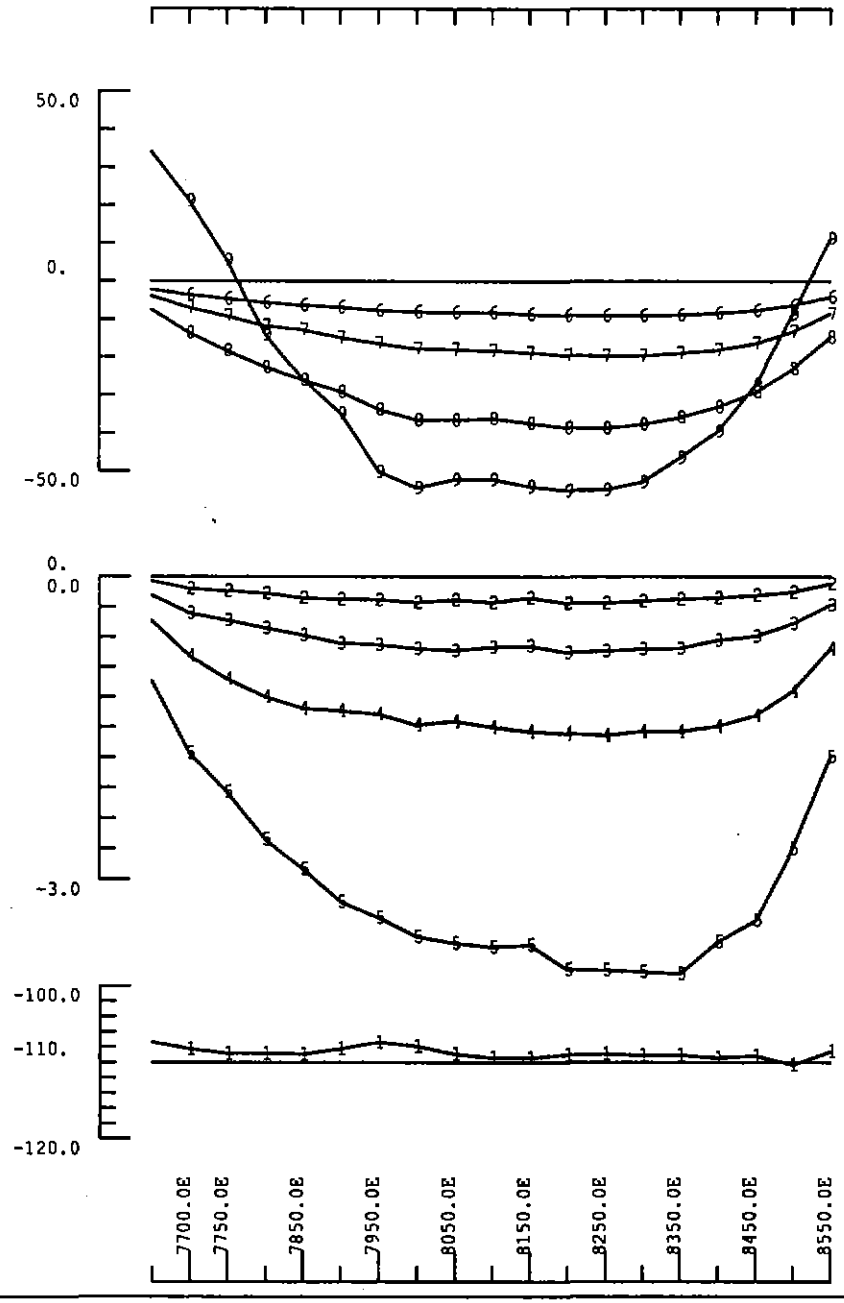
March 1990 <jjr>

Plot Date : 08/03/90 Horiz

488380

379

488381



MEDWAY GRID MACKINTOSH EL

LINE 16600N LOOP 4

(in loop data)

Continuously Normalized

UTEM Survey Febuary 1990

Secondary Magnetic Field

Hz Component

Freq. 26.23Hz

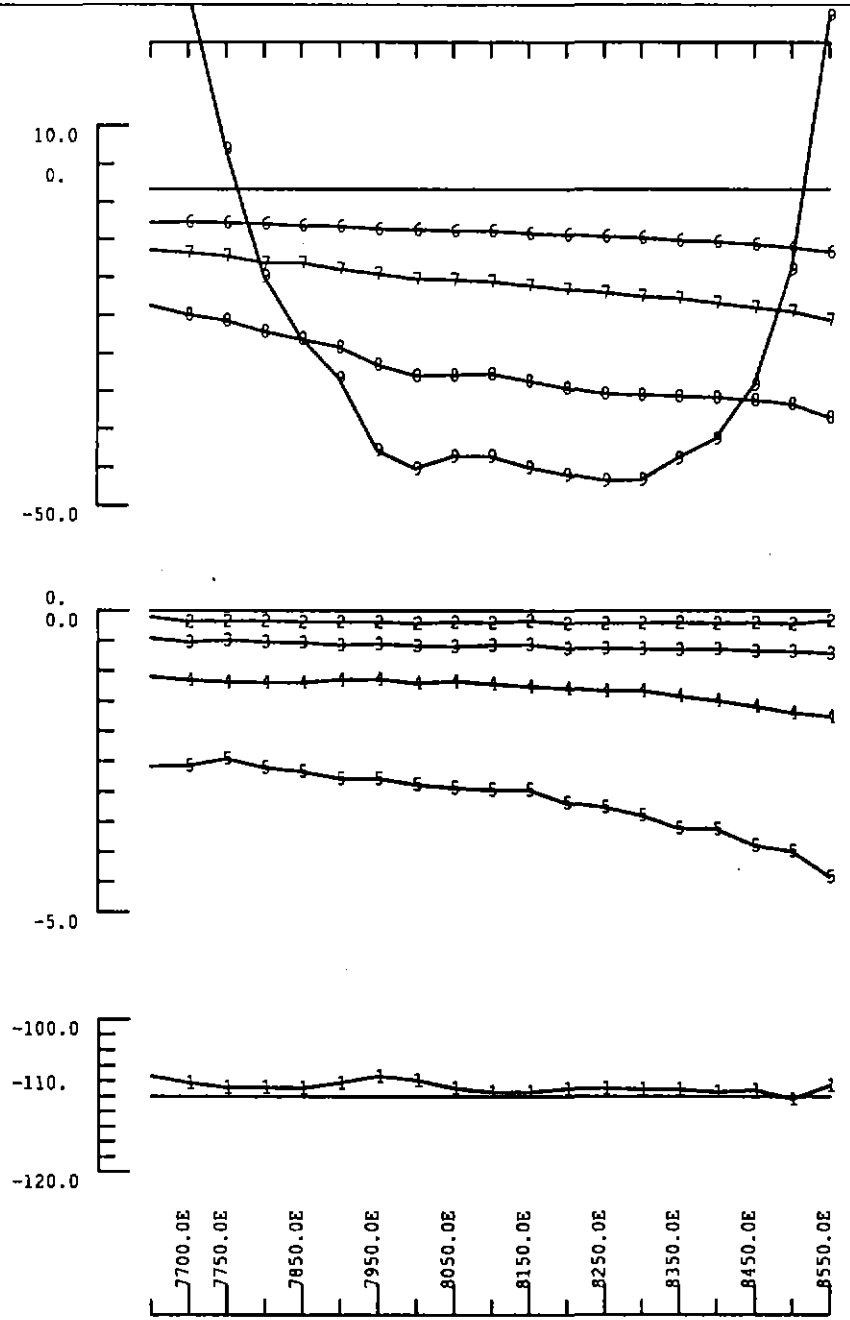
Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 14/03/90 Horiz

350

488382



MEDWAY GRID MACKINTOSH EL

LINE 16600N LOOP 4

(in loop data)

Point Norm 16600N 8400E

UTEM Survey 1990

Secondary Magnetic Field

Hz Component

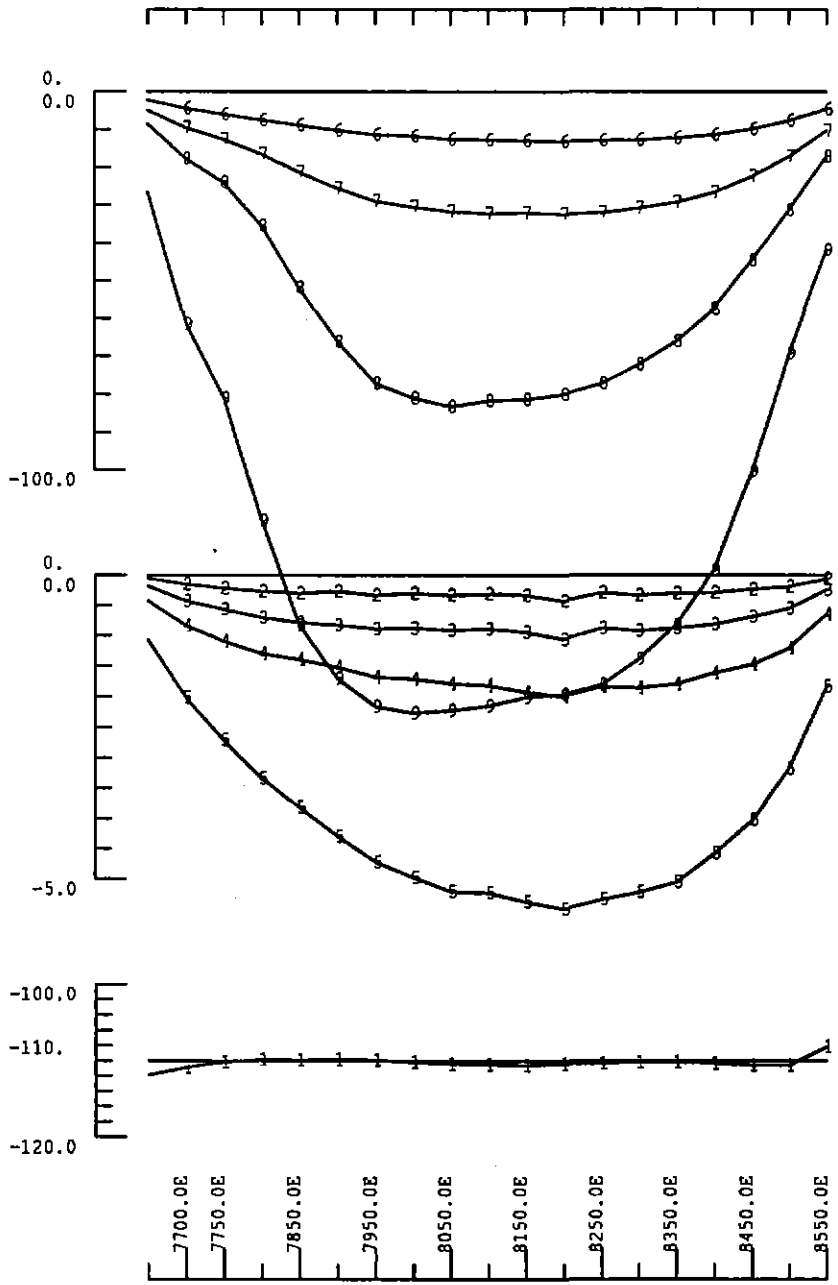
Freq. 26.23Hz

Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz

331



MEDWAY GRID MACKINTOSH EL

LINE 16800N LOOP 4

(in loop data)

Continuously Normalized

UTEM Survey Febuary 1990

Secondary Magnetic Field

Hz Component

Freq. 26.23Hz

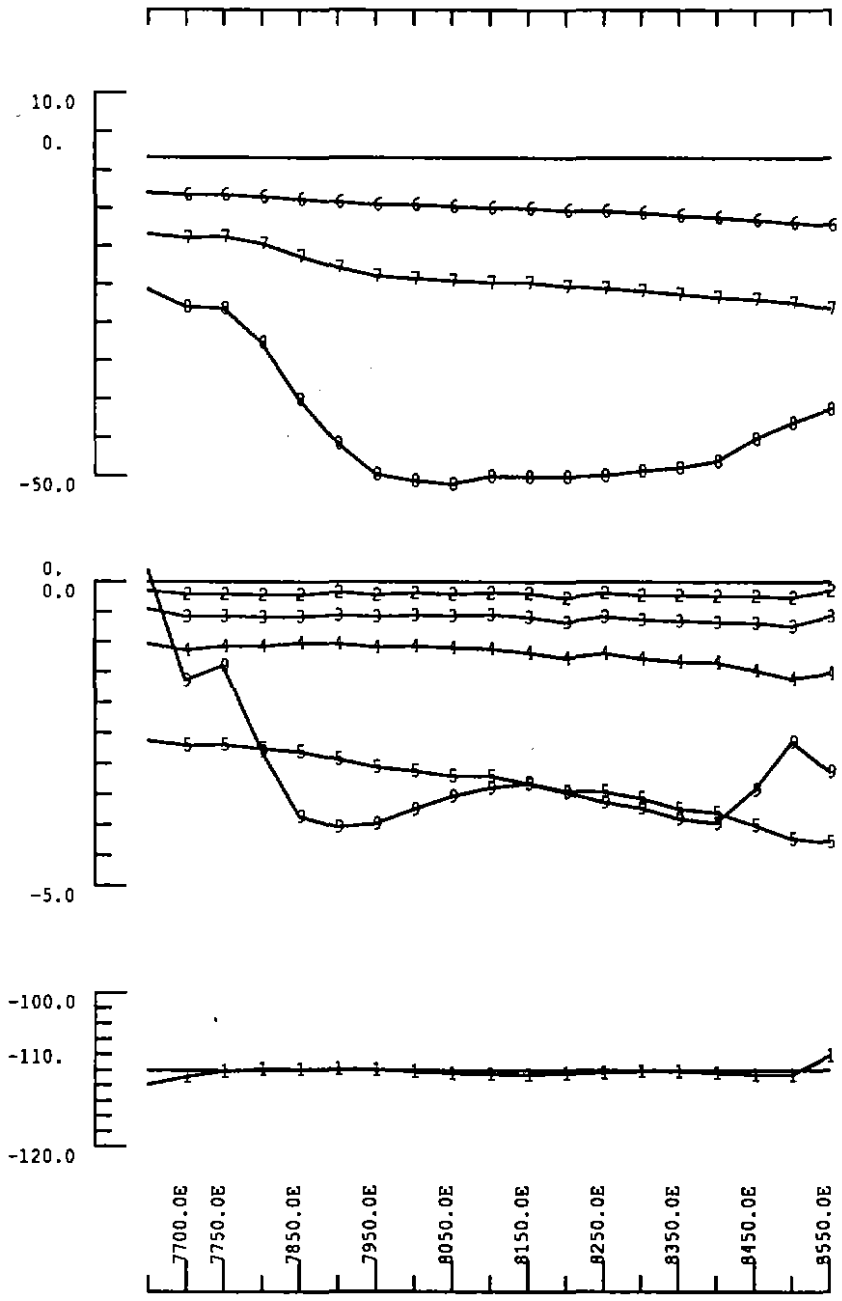
Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 14/03/90 Horiz

488383

382



MEDWAY GRID MACKINTOSH EL

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(in loop data)

Point Norm 16600N 8400E

UTEM Survey 1990

Secondary Magnetic Field

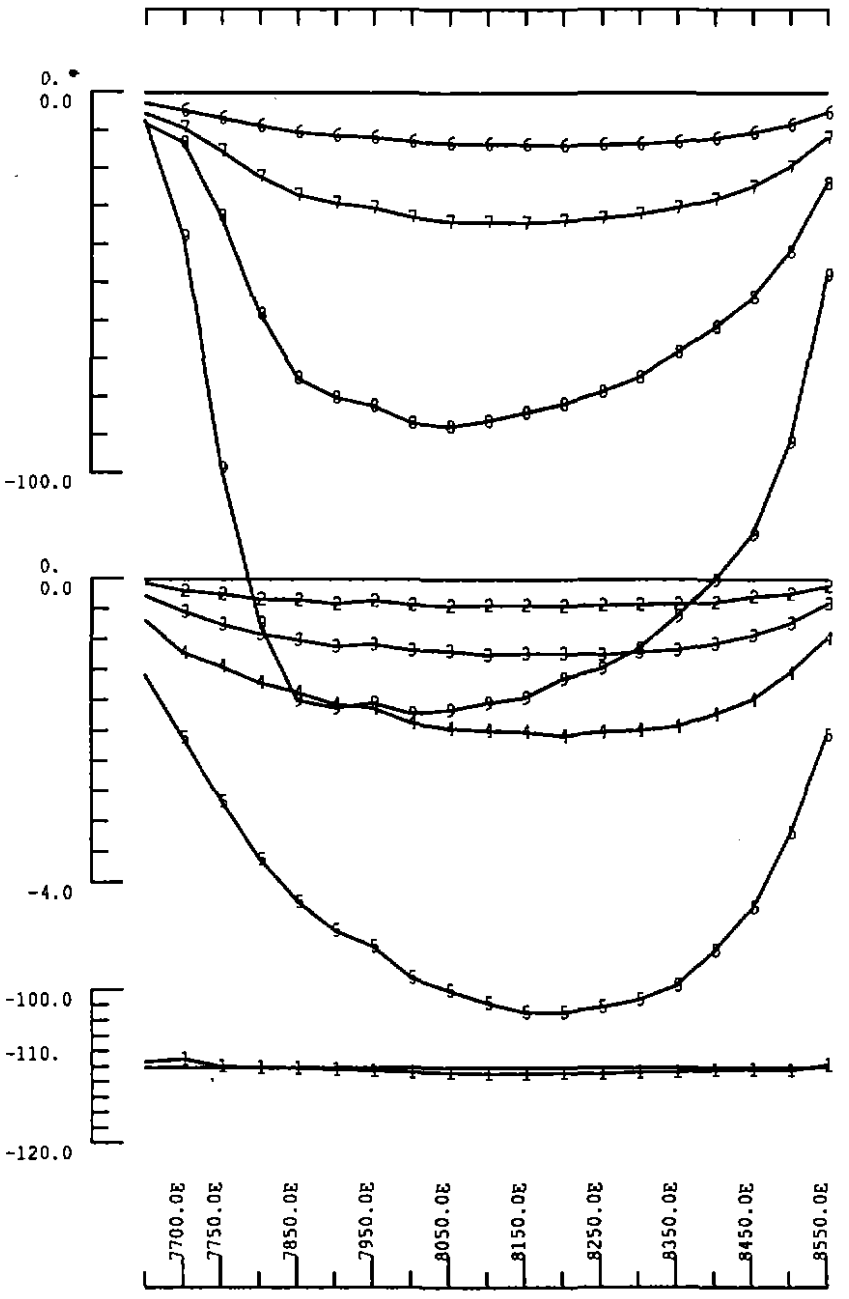
Hz Component

Freq. 26.23Hz

Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz



MEDWAY GRID MACKINTOSH EL

LINE 17000N LOOP 4

(in loop data)

Continuously Normalized

UTEM Survey Febuary 1990

Secondary Magnetic Field

Hz Component

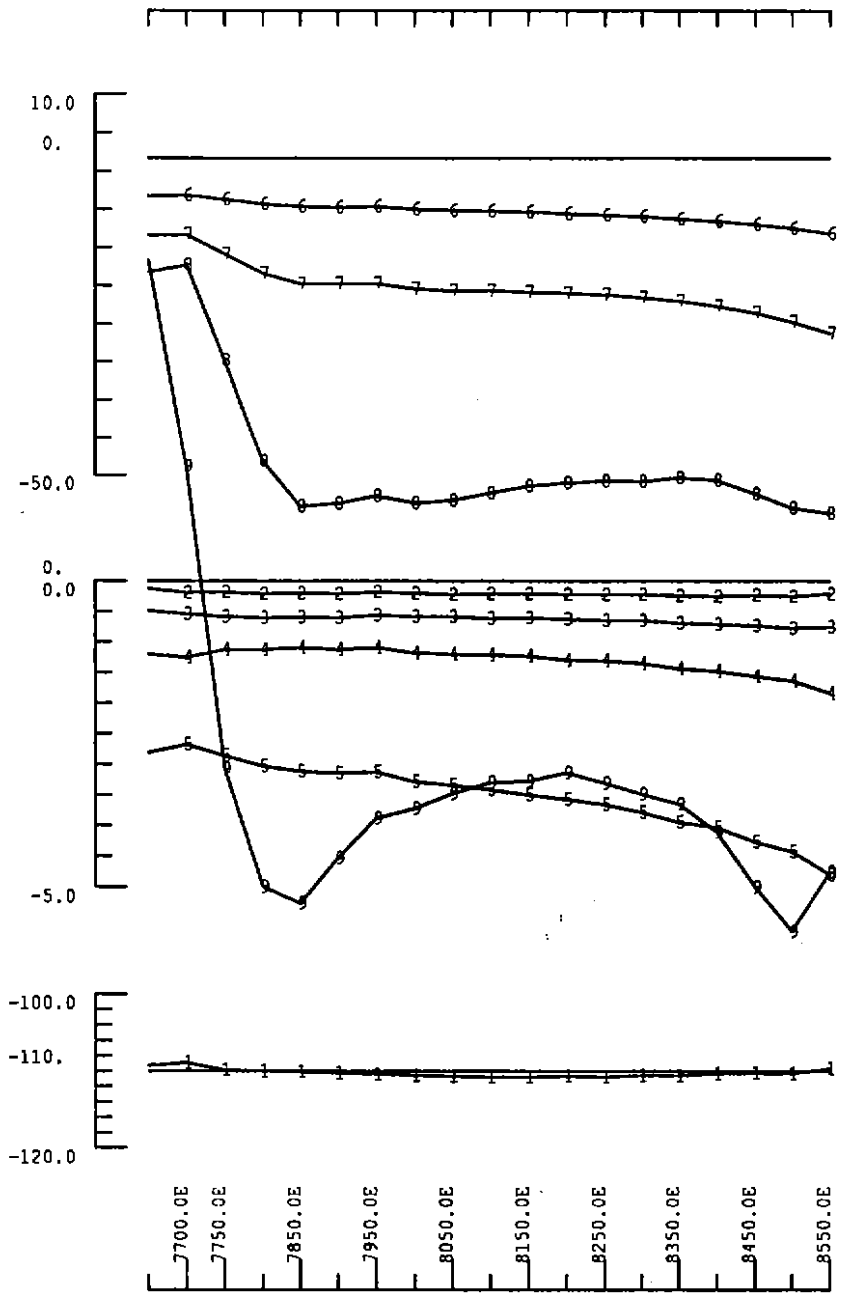
Freq. 26.23Hz

Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 14/03/90 Horiz

488386



MEDWAY GRID MACKINTOSH EL

LINE 17000N LOOP 4

(in loop data)

Point Norm 16600N 8400E

UTEM Survey 1990

Secondary Magnetic Field

Hz Component

Freq. 26.23Hz

Aberfoyle Resources Ltd

March 1990 <jjr>

Plot Date : 08/03/90 Horiz

380

485337

APPENDIX 10

APPENDIX I

UTEM DATA PLOTTING SPECIFICATIONS

NOMINAL TIME WINDOWS (for a base frequency of 26.23Hz)

CHANNEL NUMBER	START (ms)	CENTRE (ms)	END (ms)
10	.018	.027	.036
9	.036	.054	.072
8	.072	.108	.144
7	.144	.216	.288
6	.288	.432	.576
5	.576	.864	1.152
4	1.152	1.73	2.304
3	2.304	3.46	4.608
2	4.608	6.91	9.216
1	9.216	13.82	18.43

All channels are plotted as:

$$\frac{\text{Channel - Reference}}{\text{base}} \times 100\%$$

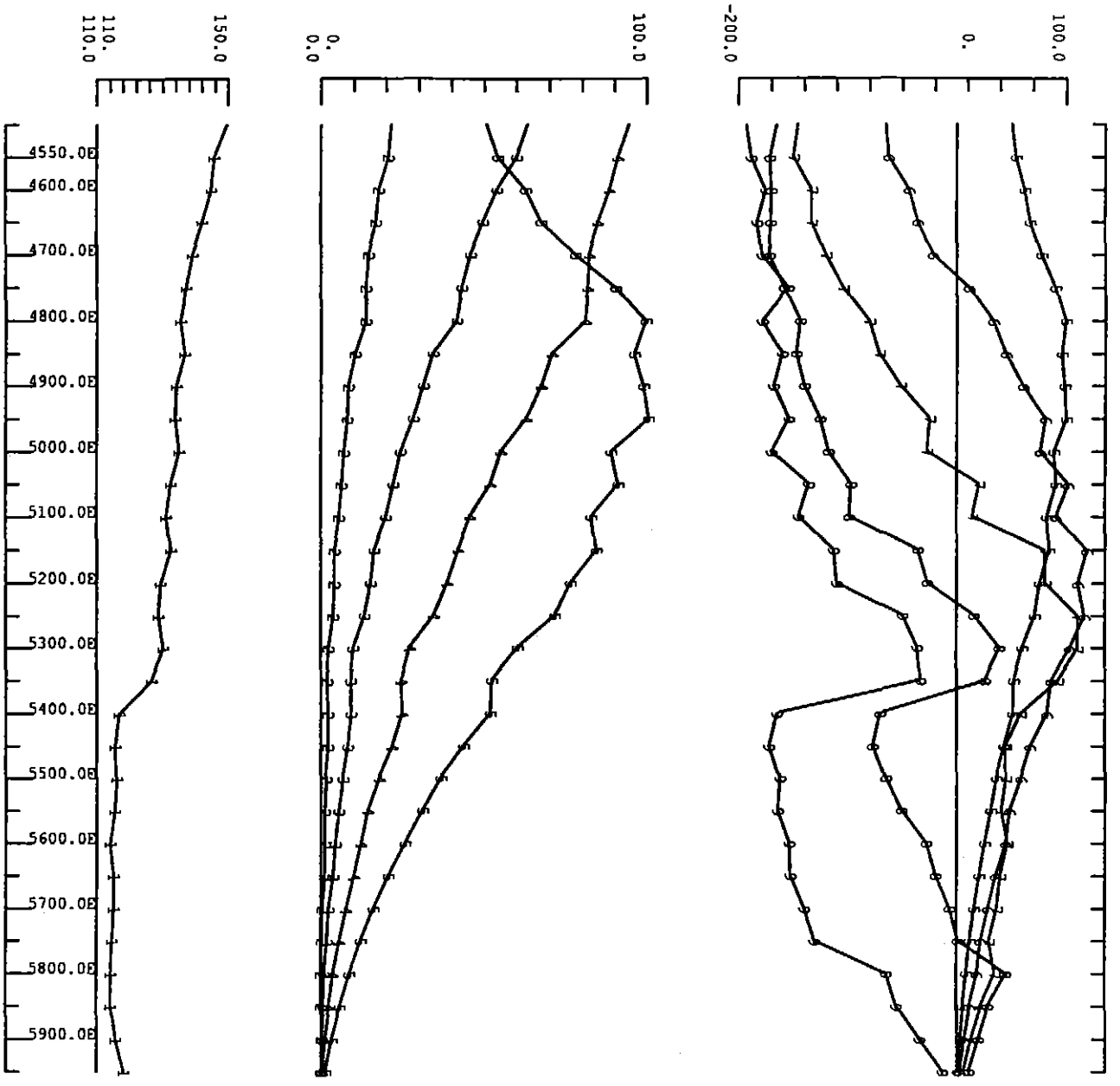
For continuously normalised plots:

reference = primary (for channel 1)
= channel 1 (for all other channels)
base = primary field (total) at reading station

For point normalised plots:

reference = primary (for channel 1)
= channel 1 (for all other channels)
base = primary field (total) at reference station

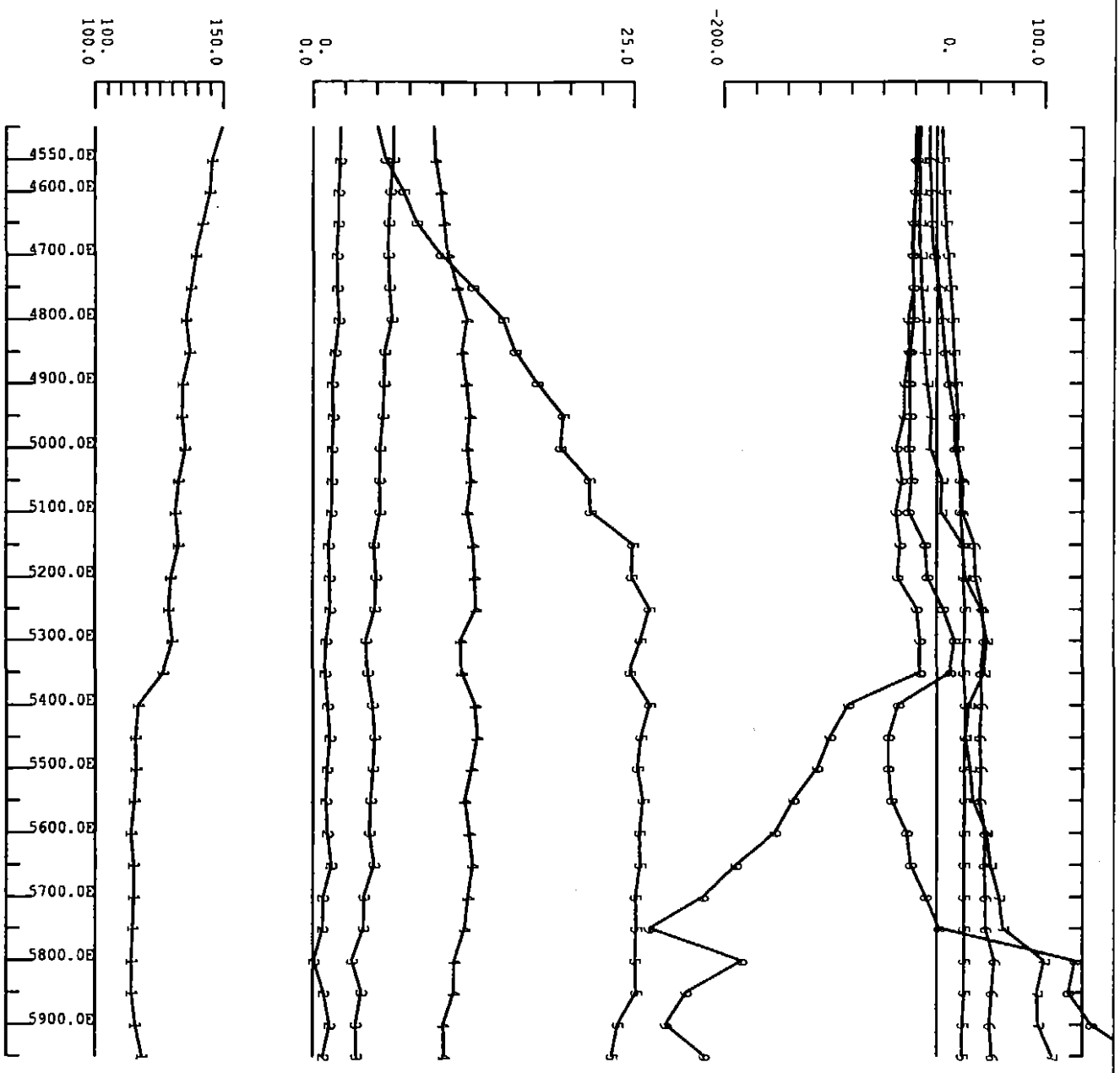
388



HELLYER JULY 1989 UTEM SURVEY
LINE 13000N LOOP #2
CH1 CONTINUOUSLY NORMALIZED
HZ COMPONENT - SECONDARY MAGNETIC FIELD
BASE FREQUENCY 26.230 Hz
Aberfoyle Resources Limited August 1989
<gbw>
Plot Date :24/08/89 Horiz scale 1:10000.0 Plot number : 50

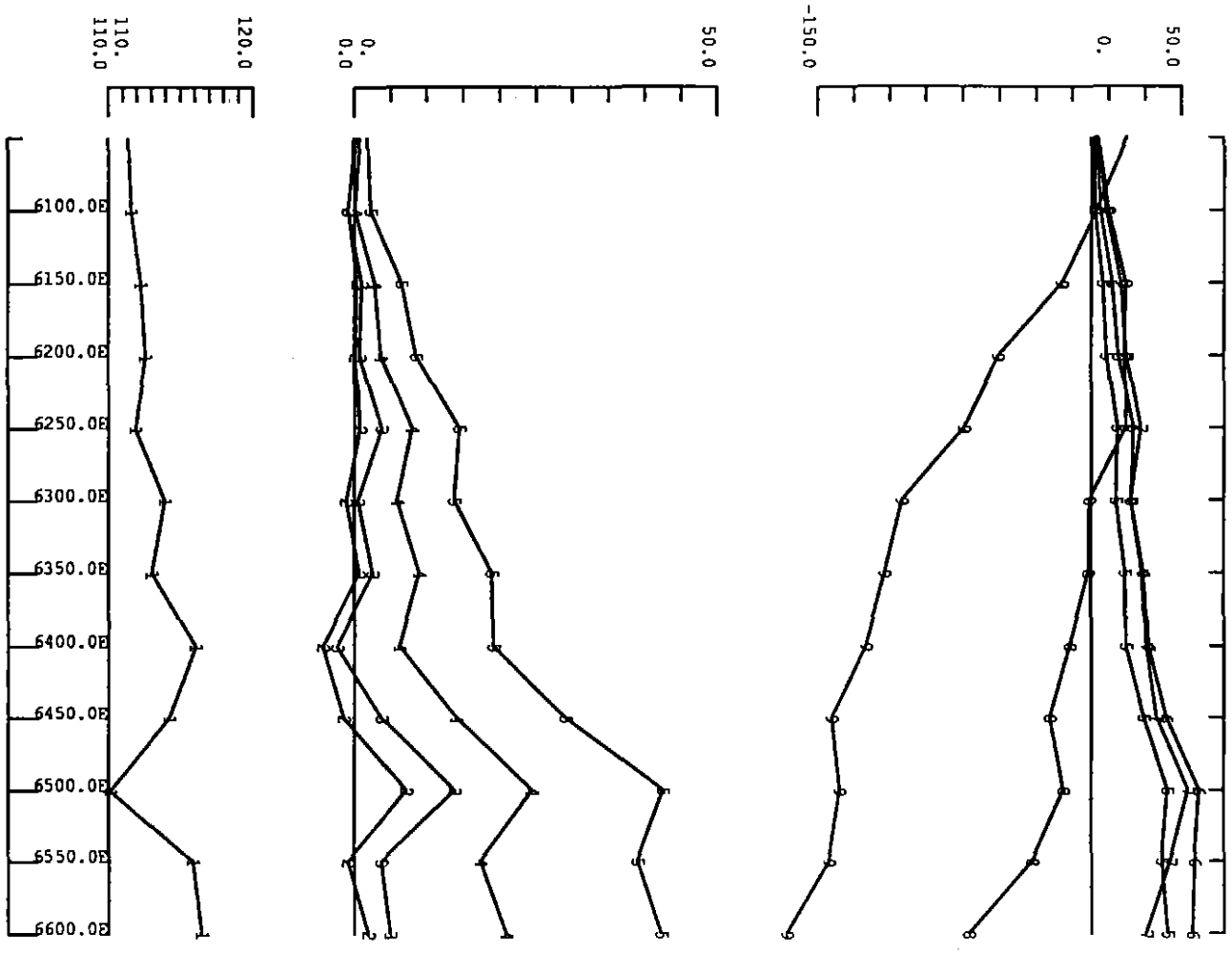
5 cm

389



HELLYER JULY 1989 UTEM SURVEY
LINE 13000N LOOP #2
POINT NORMALISED AT 5500E/12600N
HZ COMPONENT - SECONDARY MAGNETIC FIELD
BASE FREQUENCY 26.230 Hz
Aberfoyle Resources Limited August 1989
<gbw>
Plot Date :24/08/89 Horiz scale 1:10000.0 Plot number : 50

5 cm



HELLYER JULY 1989 UTEM SURVEY
LINE 13000N LOOP #4
CH1 CONTINUOUSLY NORMALIZED
HZ COMPONENT - SECONDARY MAGNETIC FIELD
BASE FREQUENCY 26.230 Hz
Aberfoyle Resources Limited August 1989
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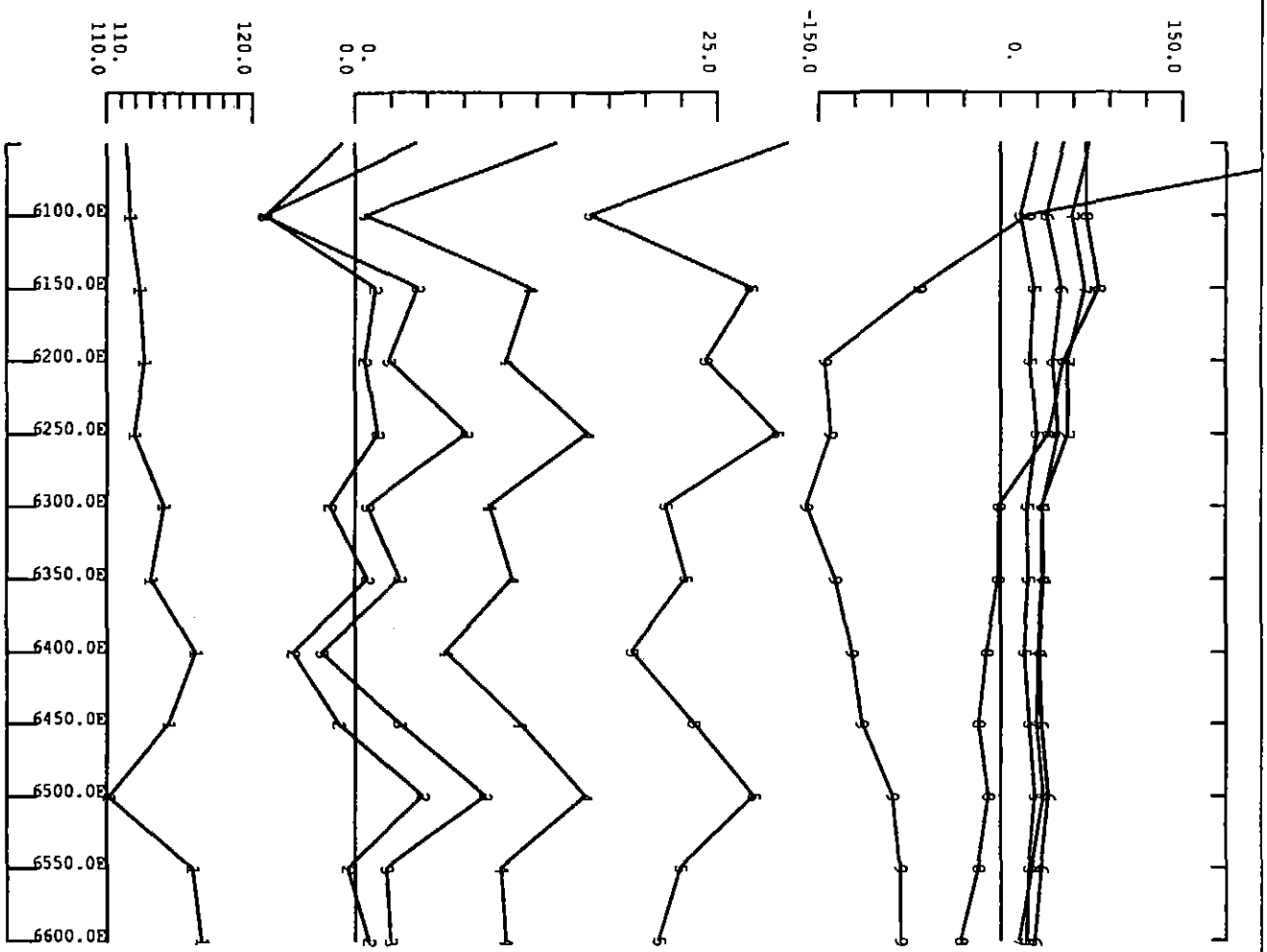
5 cm



HELLYER JULY 1989 UTEM SURVEY
LINE 13000N LOOP #4
POINT NORMALISED AT 5500E/12600N
HZ COMPONENT - SECONDARY MAGNETIC FIELD
BASE FREQUENCY 26.230 Hz
Aberfoyle Resources Limited August 1989
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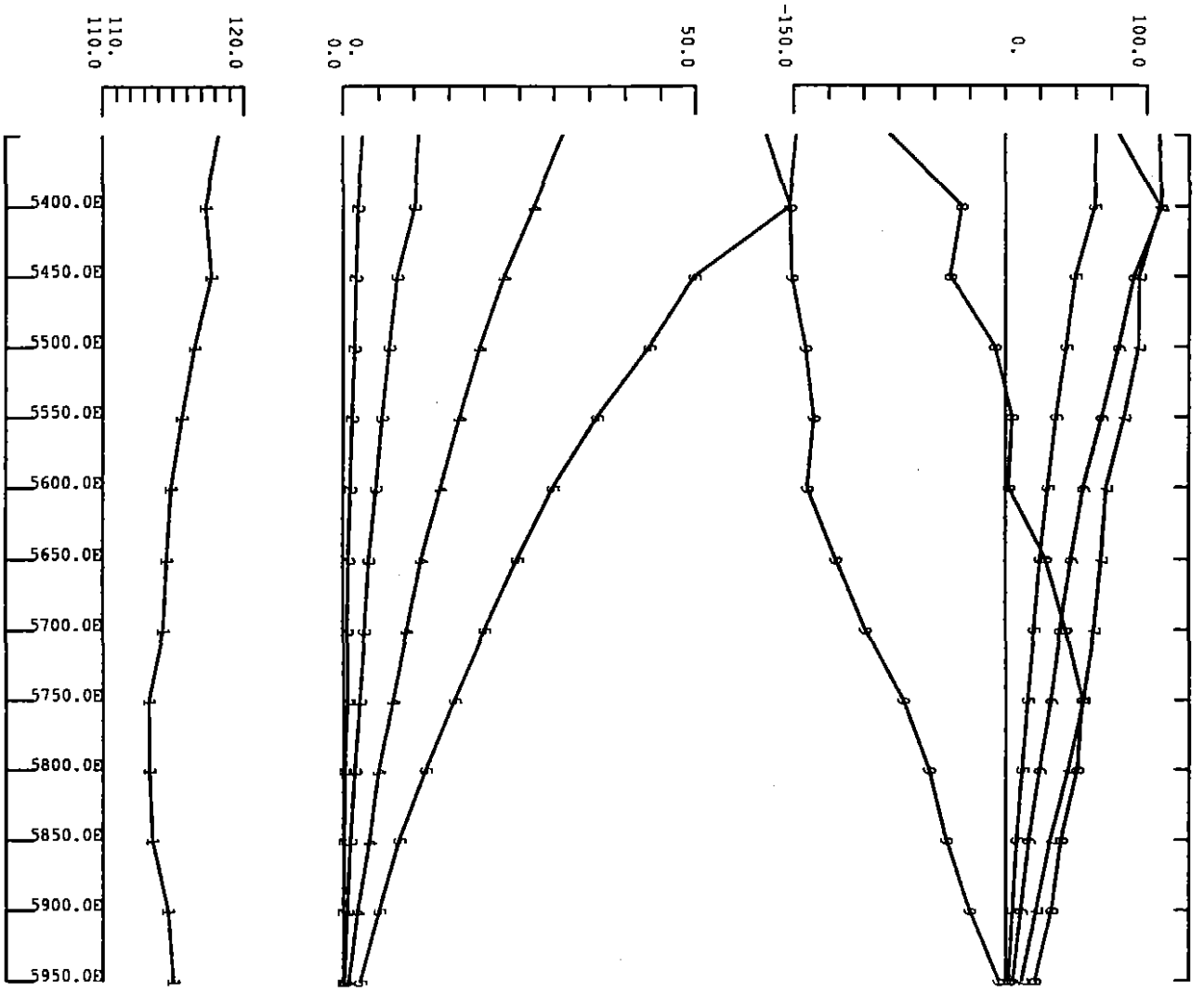
5 cm

392



HELLYER JULY 1989 UTEM SURVEY
LINE 13200N LOOP #2
CH1 CONTINUOUSLY NORMALIZED
HZ COMPONENT - SECONDARY MAGNETIC FIELD
BASE FREQUENCY 26.230 Hz
Aberfoyle Resources Limited August 1989
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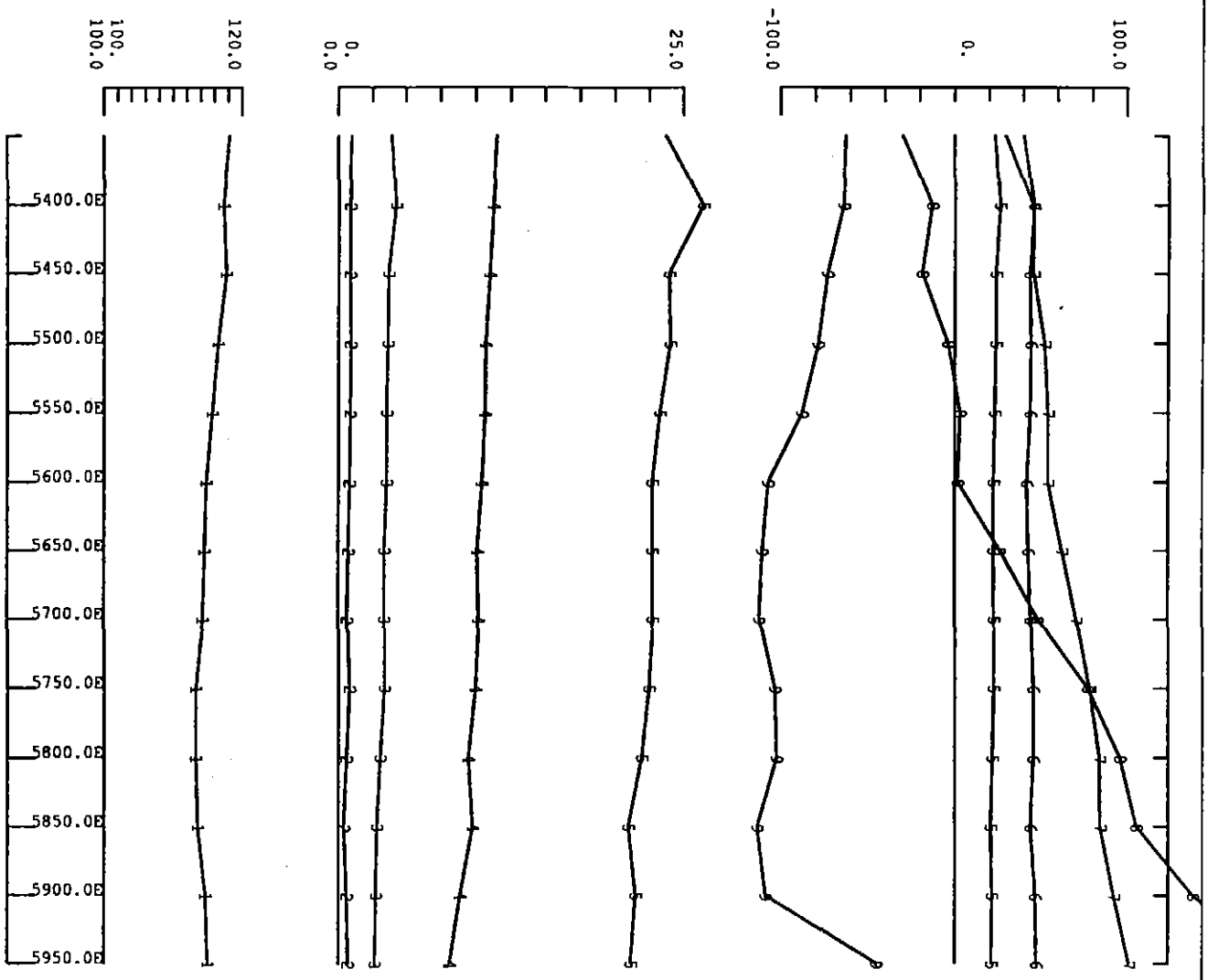
Plot Date :24/08/89 Horiz scale 1: 5000.0 Plot number : 51

5 cm



HELLYER JULY 1989 UTEM SURVEY
LINE 13200N LOOP #2
POINT NORMALISED AT 5500E/12600N
HZ COMPONENT - SECONDARY MAGNETIC FIELD
BASE FREQUENCY 26.230 Hz
Aberfoyle Resources Limited August 1989
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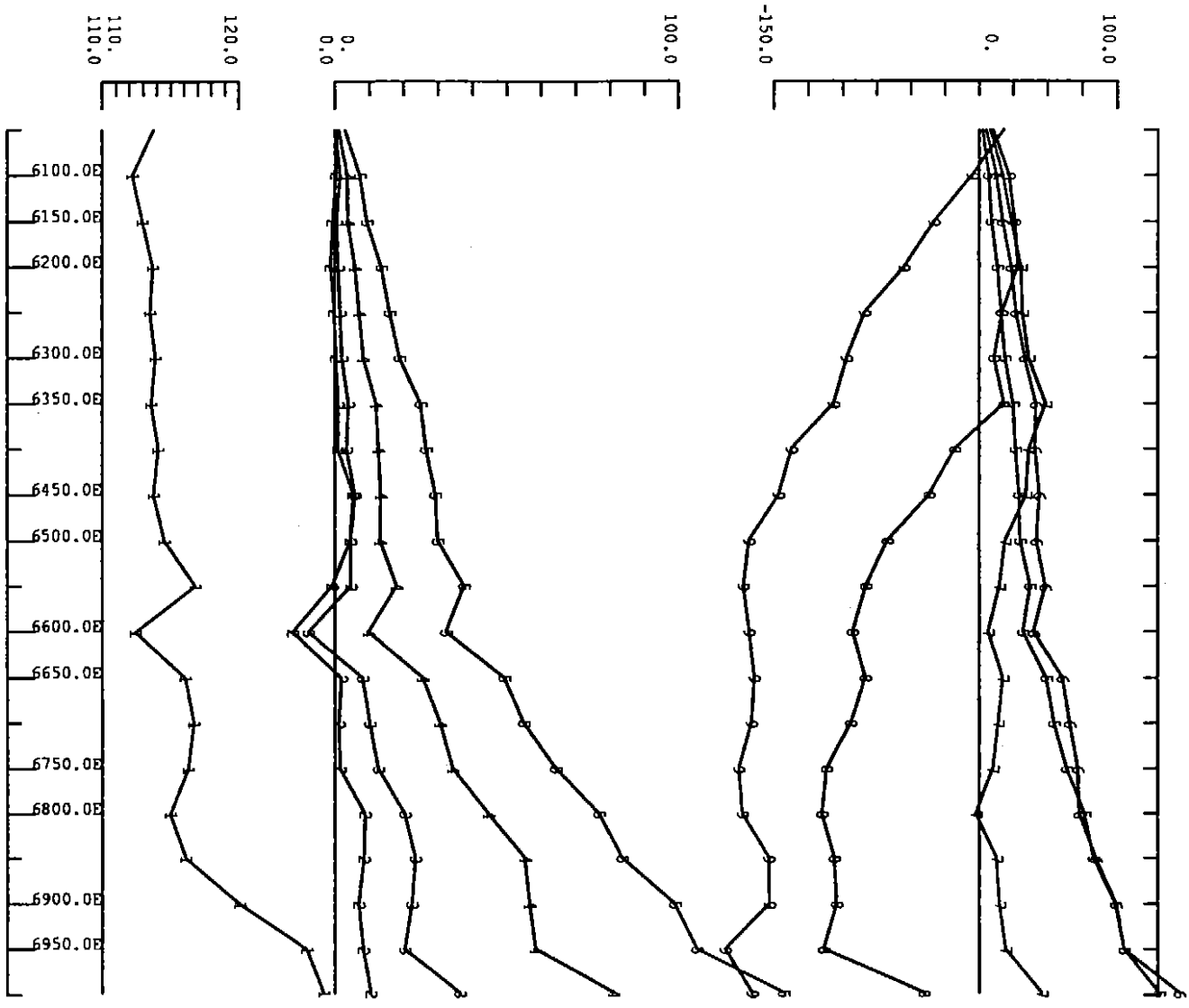
5 cm

394



HELLYER JULY 1989 UTEM SURVEY
LINE 13200N LOOP #4
CH1 CONTINUOUSLY NORMALIZED
HZ COMPONENT - SECONDARY MAGNETIC FIELD
BASE FREQUENCY 26.230 Hz
Aberfoyle Resources Limited August 1989
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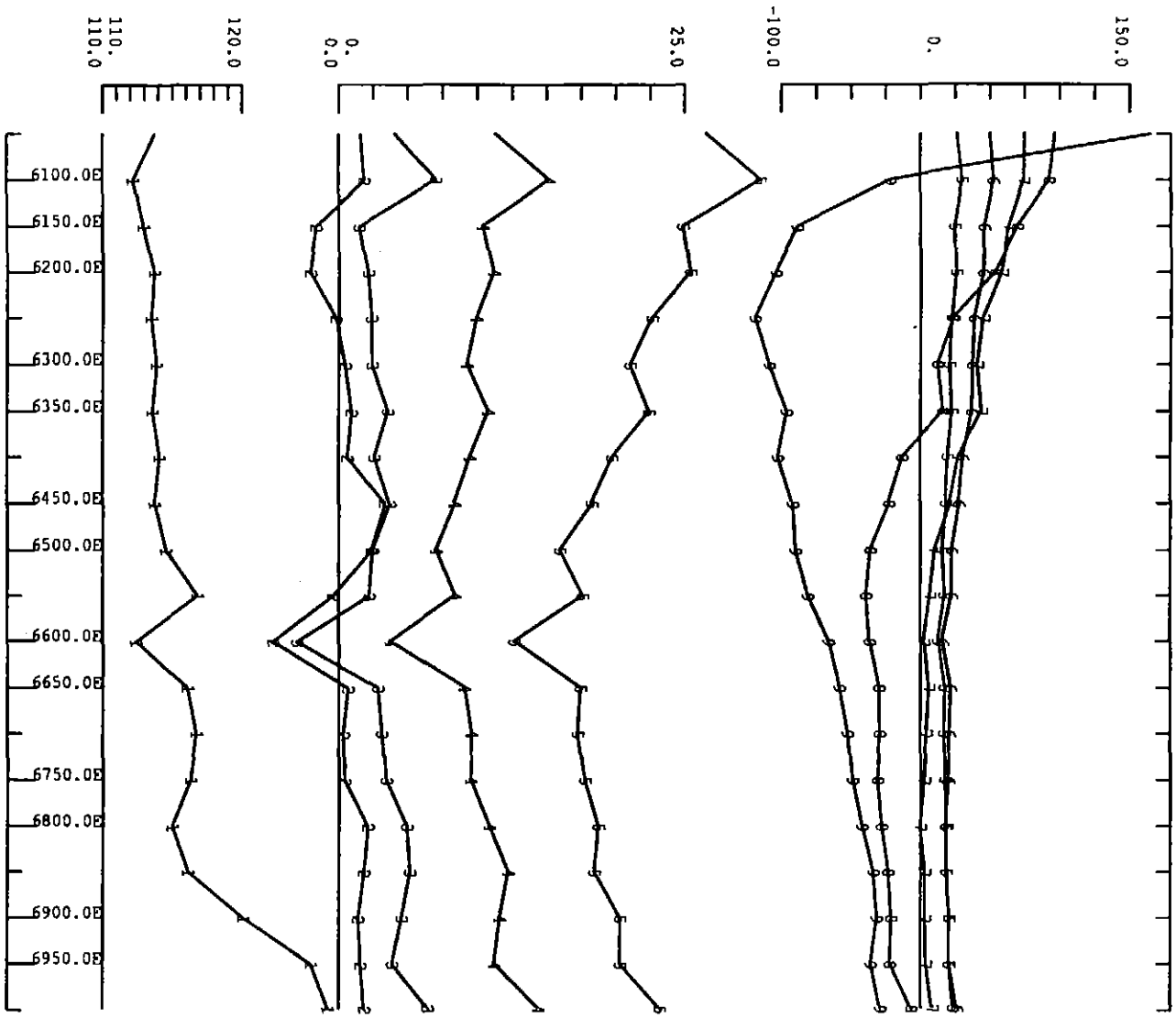
5 cm



HELLYER JULY 1989 UTEM SURVEY
LINE 13200N LOOP #4
POINT NORMALISED AT 5500E/12600N
H2 COMPONENT - SECONDARY MAGNETIC FIELD
BASE FREQUENCY 26.230 Hz
Aberfoyle Resources Limited August 1989
<gbw>
Plot Date :24/08/89 Horiz scale 1: 7500.0 Plot number : 64

5 cm

488397

APPENDIX 11

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488398

ABERFOYLE RESOURCES

Exploration Division

INTERPRETATION REPORT

DHEM SURVEY

DDH MAC22, MAC23, MAC24, AND MAC25

MACKINTOSH EL 106/87

Prepared by:

J SILIC

Issued By:

J SILIC
Chief Geophysicist

Distribution

Hawthorn (1)
Burnie (1)

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Discussion of Results

Conclusion

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DHEM: The Que-Hellyer Volcanics Experience

Appendix II

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Fig 2 : DHEM Mac 23 Loop 1
2a : DHEM Mac 23 Loop 2

Fig 3 : DHEM Mac 24 Loop 1
3a : DHEM Mac 24 Loop 2

Fig 4 : DHEM Mac 25 Loop 1
4a : DHEM Mac 25 Loop 1
4b : DHEM Mac 25 Loop 1
4c : DHEM Mac 25 Loop 2
4d : DHEM Mac 25 Loop 2
4e : DHEM Mac 25 Loop 2

Introduction

Elecromagnetic 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 22, 23, 24, and 25 on the Mackintosh EL 106/87.

Survey Specifications

All loops were designed so that their primary magnetic field would couple with targets at specified target horizons. Possible variations in 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 (Appendix II). 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 22, 23, 24, and 25.

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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., 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.

Silic J., Eadie E T., (1989), DHEM: The Que Hellyer Volcanics Experience, Explor. Geophys.720.

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.

Appendix I

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488403

7th ASEG Conference Paper No

DHEM: THE QUE-HELLYER VOLCANICS EXPERIENCE

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1st Floor
123 Camberwell Road
HAWTHORN EAST VIC 3123

Keywords

downhole electromagnetics, Que River, Hellyer, volcanics

Short title

Que Hellyer DHEM

Contact either author at (03) 882 2226 or fax (03) 813 1086

488404

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.

488405

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.

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

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-

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

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.

488410

References

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488411

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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.

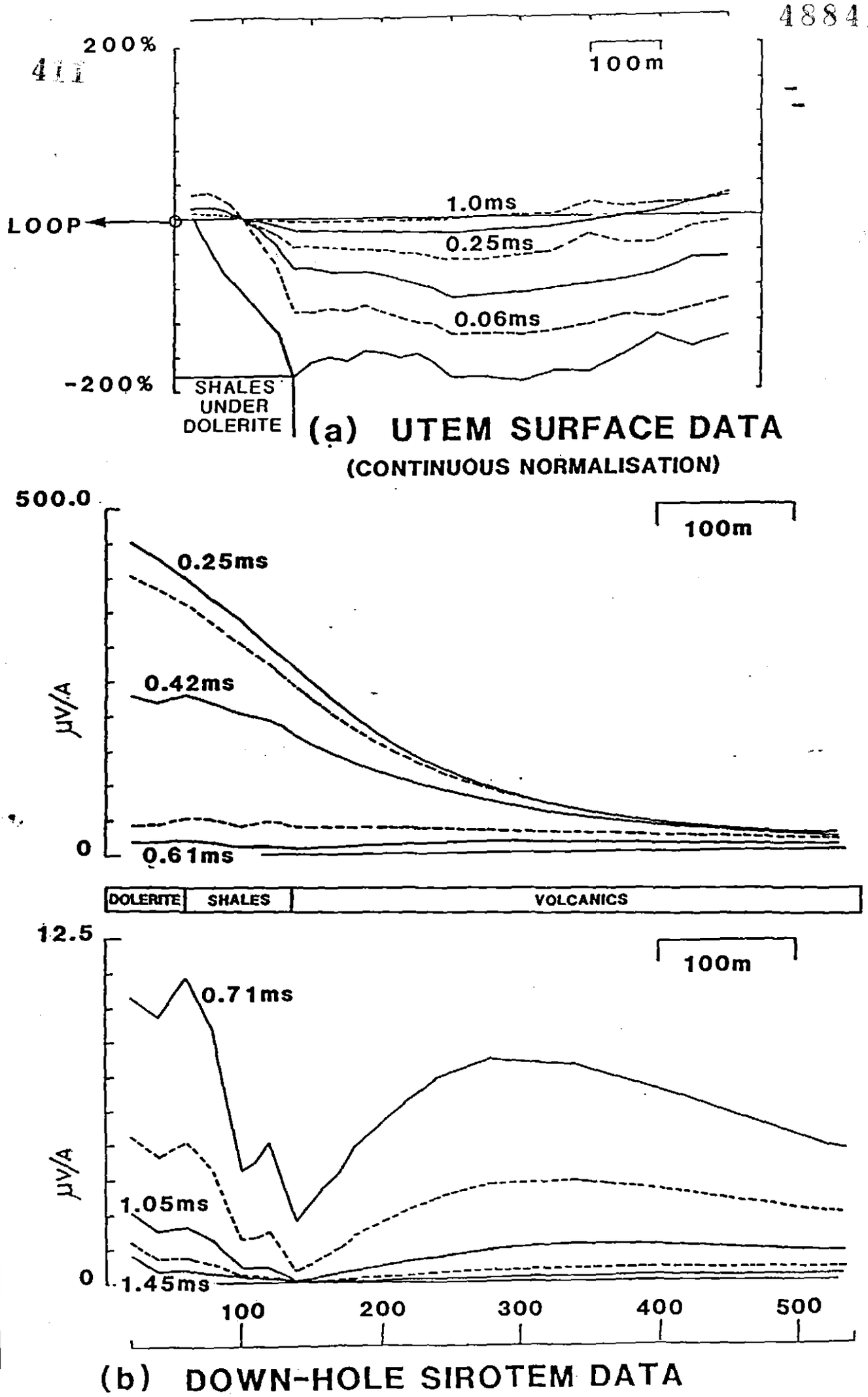
Figure 2: The Sirotem data in MAC 8 from loops 1, 2 and 3 (top) correlates with the axial component of the primary magnetic field of the transmitter loops (bottom). This instrumental response is referred to as "probe self-response".

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.

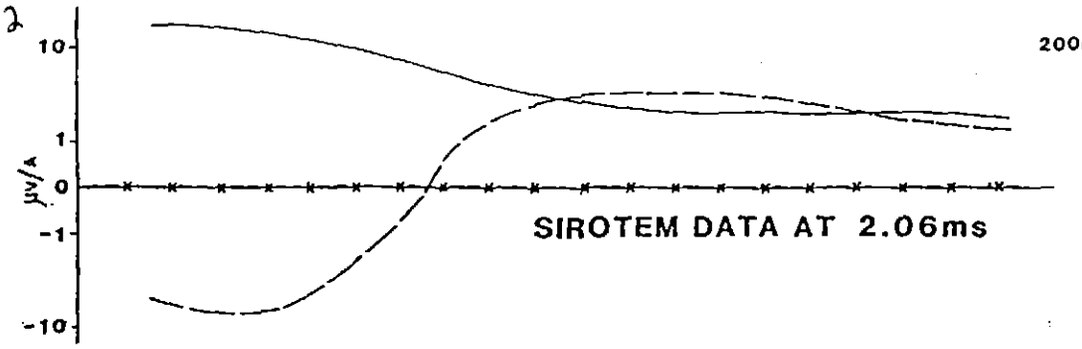
Figure 5: Downhole EM-37 responses for QR1060A, loops 2 and 7. The loop 2 response can be seen to have a very large long wavelength response strongest at shallow depths from culture near the Que River Mine, which superimposes a large background on the response to depth. The loop 7 response is initially 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).

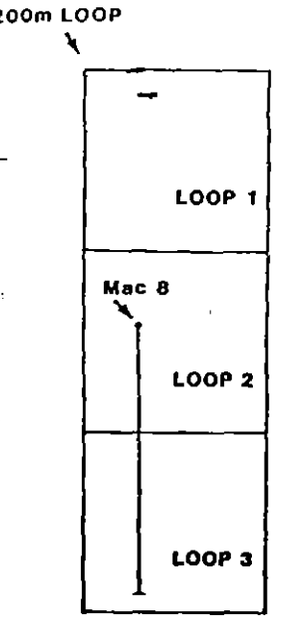
Figure 6: Location of drillhole QR1060A , transmitter loops, Que River Mine and interpreted conductor.

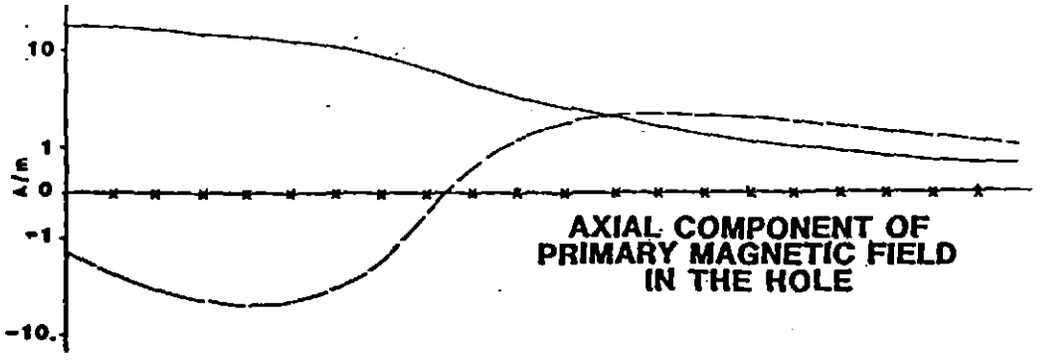

200%
100m
LOOP
1.0ms
0.25ms
0.06ms
-200%
SHALES
UNDER
DOLERITE
(a) UTEM SURFACE DATA
(CONTINUOUS NORMALISATION)
500.0
100m
0.25ms
0.42ms
µV/A
0
0.61ms
DOLERITE
SHALES
VOLCANICS
12.5
100m
0.71ms
µV/A
1.05ms
0
1.45ms
100
200
300
400
500
(b) DOWN-HOLE SIROTEM DATA

4-12

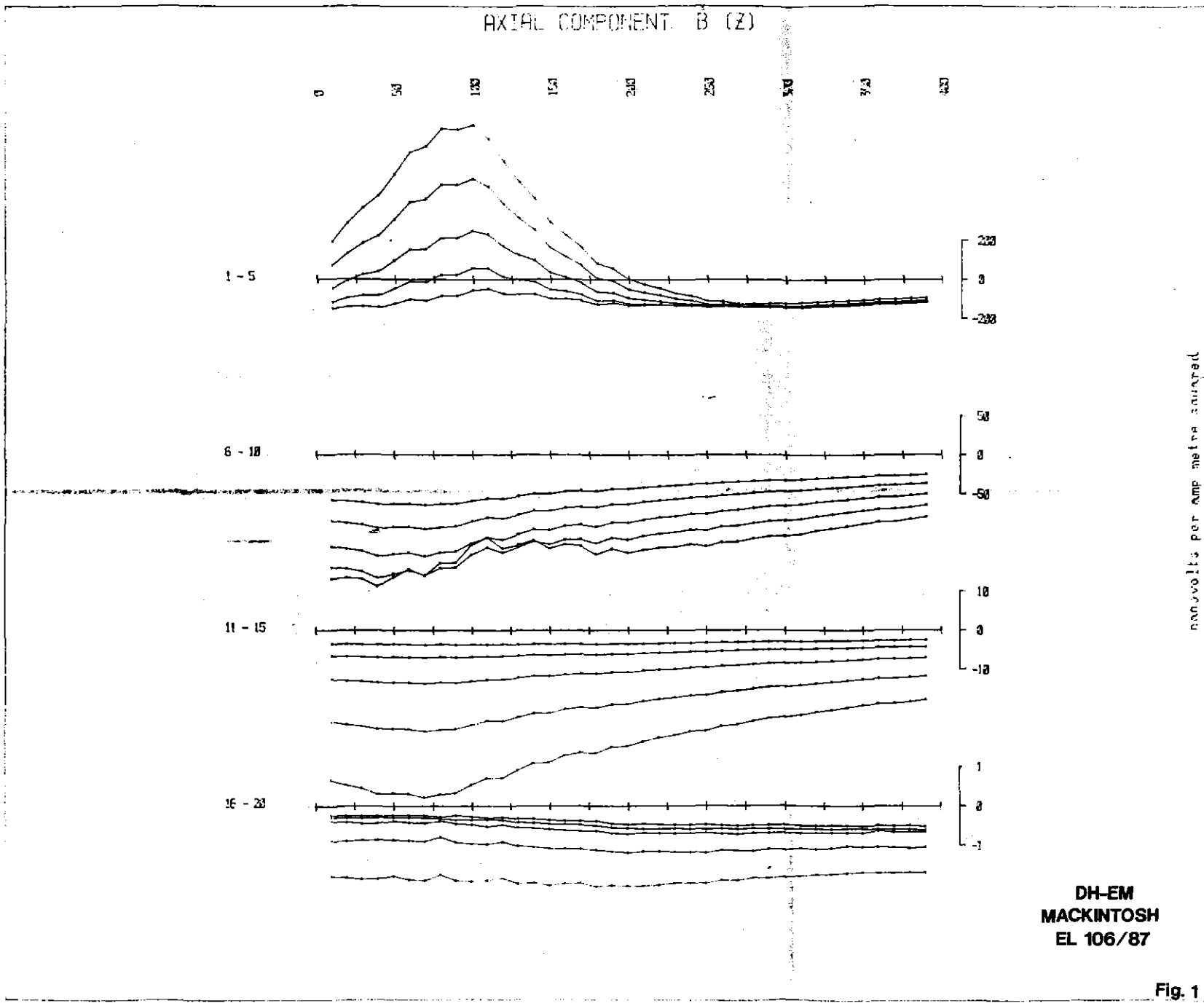
488413


10
1
0
-1
-10
μV/A
SIROTEM DATA AT 2.06ms
LOOP 1
LOOP 2
LOOP 3


200m LOOP
LOOP 1
Mac 8
LOOP 2
LOOP 3


10
1
0
-1
-10
A/m
AXIAL COMPONENT OF
PRIMARY MAGNETIC FIELD
IN THE HOLE

APPENDIX II



DH-EM
MACKINTOSH
EL 106/87

Fig. 1

EM-37

BOREHOLE SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD

TIME DERIVATIVE OF FLUX DENSITY (B)

5 cm

TX LOOP SIDES	: 19450N	00000E
	: 19700N	00250E
TX LOOP SIZE	: 350 m X 250 m	
TX TURN OFF TIME	: 235 microsecs.	
FIRST GATE TIME	: 98.5 microsecs.	
CURRENT	: 17.0 amps	
FREQUENCY	: 25 Hz.	
INTEGRATION TIME	: 1024 cycles	
SYNC MODE	: CRYSTAL	
HORIZONTAL SCALE	: 1:2500	
SURVEYED BY	: SMBG	
DATE	: 10/03/1990	

SURVEYED AND COMPILED BY GEOTERREX (PTY) LTD. | PROJECT NO. 4-134

CLIENT : [illegible]
PROJECT : MACKINTOSH
AREA : [illegible]
BOREHOLE : MAC 22 4
TX LOOP : 1

498415

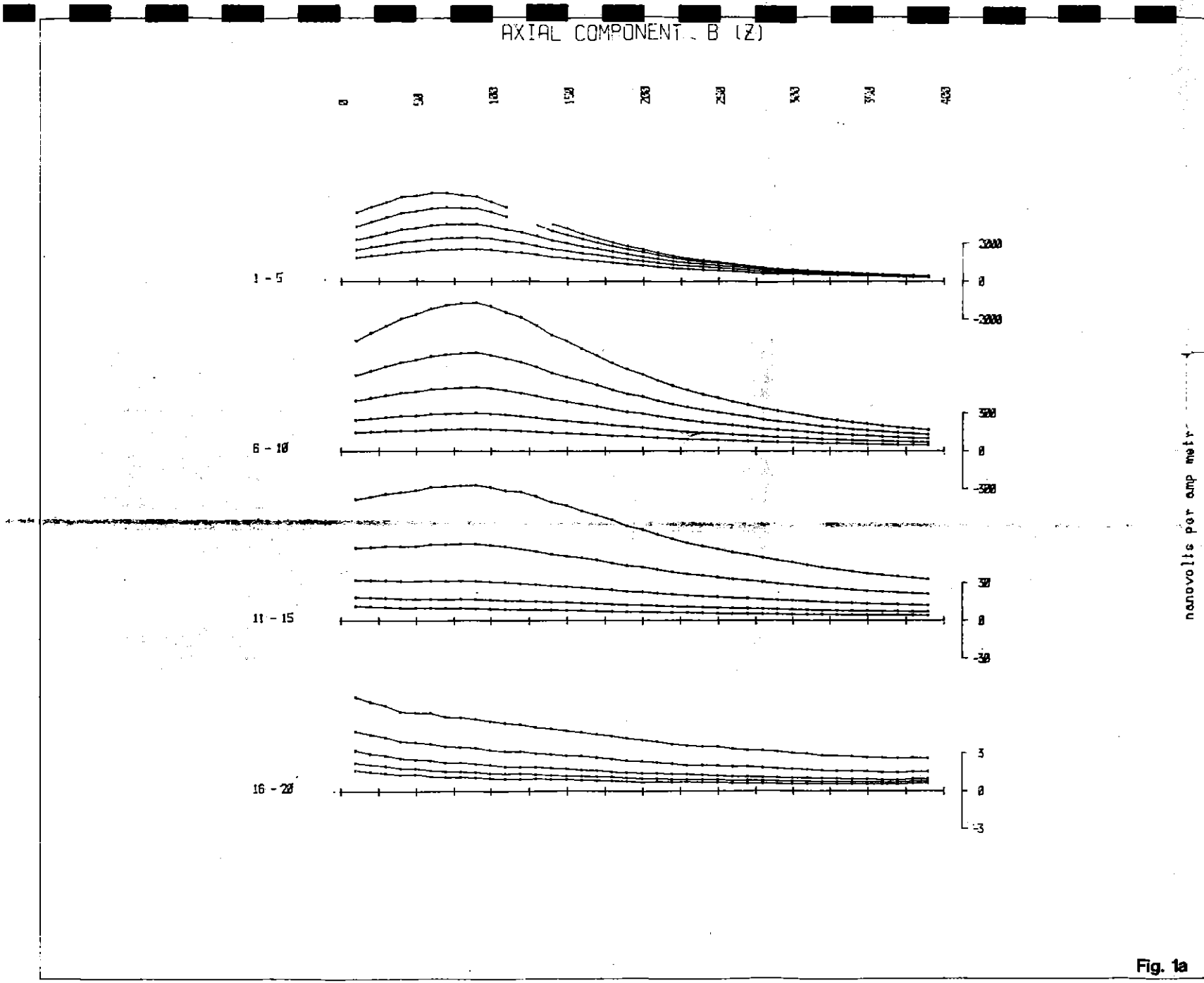


Fig. 1a

EM-37

BOREHOLE SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD

TIME DERIVATIVE OF FLUX DENSITY (B)

5 cm

TX LOOP SIDES	: 19430N 08000E
	: 19700N 07700E
TX LOOP SIZE	: 350 m X 300 m
TX TURN OFF TIME	: 200 microsecs.
FIRST GATE TIME	: 98.5 microsecs.
CURRENT	: 18.0 amps
FREQUENCY	: 25 Hz.
INTEGRATION TIME	: 1024 cycles
SYNC MODE	: CRYSTAL
HORIZONTAL SCALE	: 1:2500
SURVEYED BY	: SMBG
DATE	: 19/03/1999

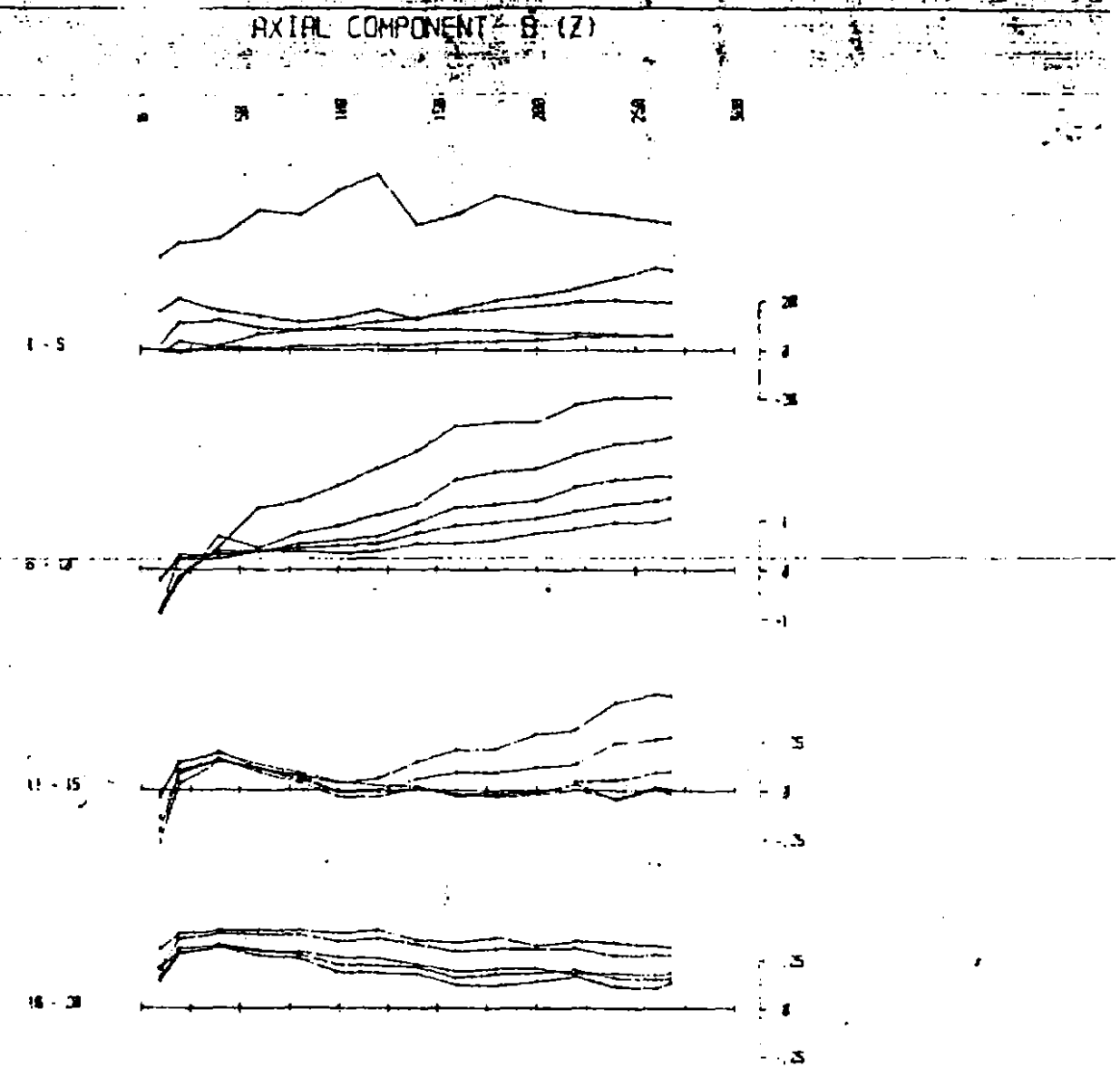
SURVEYED AND COMPILED BY GEOTERREX PTY. LTD. | PROJECT NO. 4-104

CLIENT	: ABERFOYLE EXPL
PROJECT	: MACINTOSH
AREA	: HELLYER MINE
BOREHOLE	: MAC 22 A
TX LOOP	: 2

4 C 1

4 8 8 4 1 6

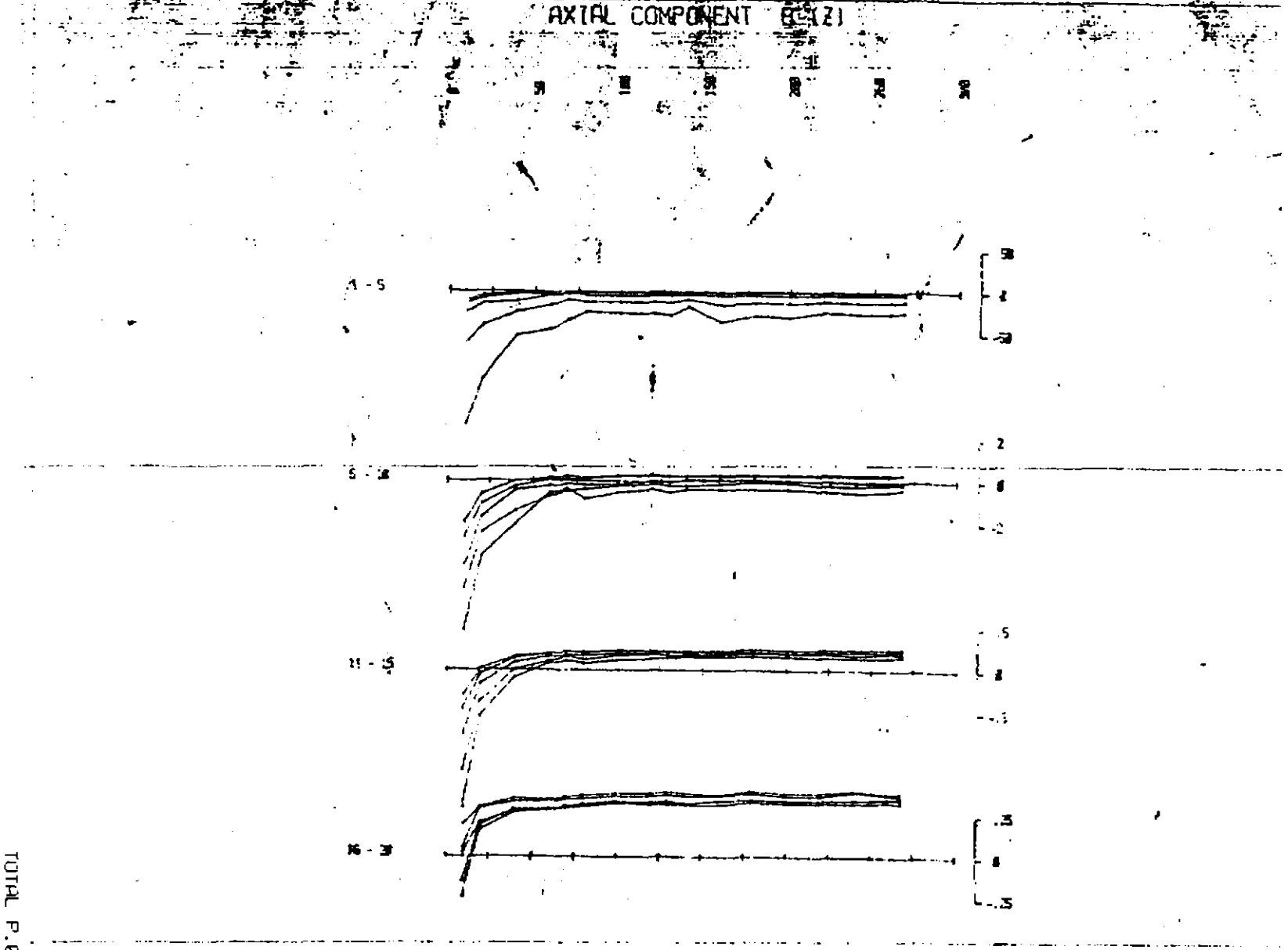
1990-04-05 16:38 GEOTERREX PTY. LTD. 61 2 437 5917 P.02/03



MAC 23
DH-EM 37
LOOP 1

7 x Loop Sides : 4700N 4100E
4900N 4300E

Fig. 2

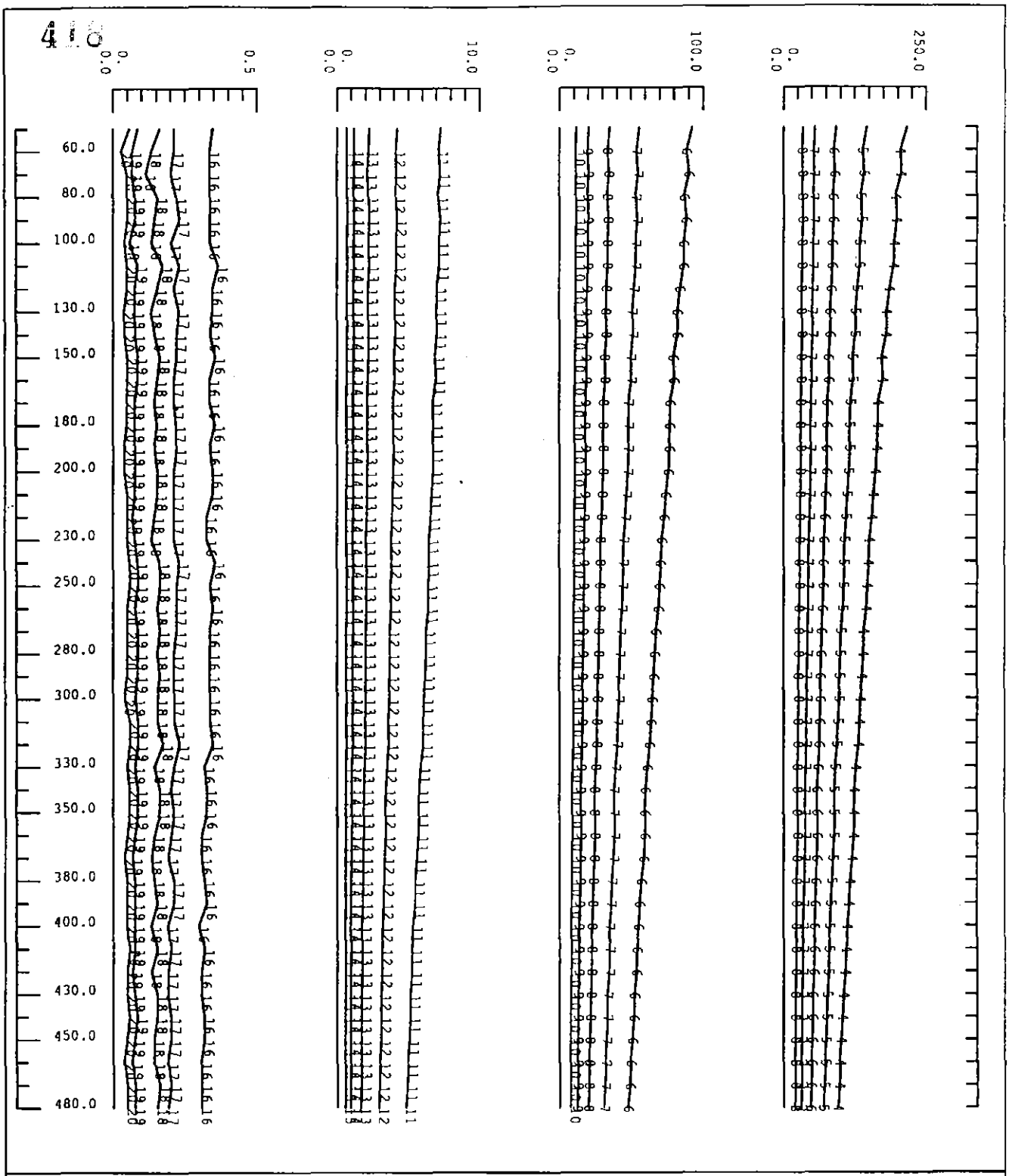


MAC 23
DH-EM 37
LOOP 2

7 x Loop Sides; 4500N 4100E
4700N 4300E

Fig. 2a

417
488418



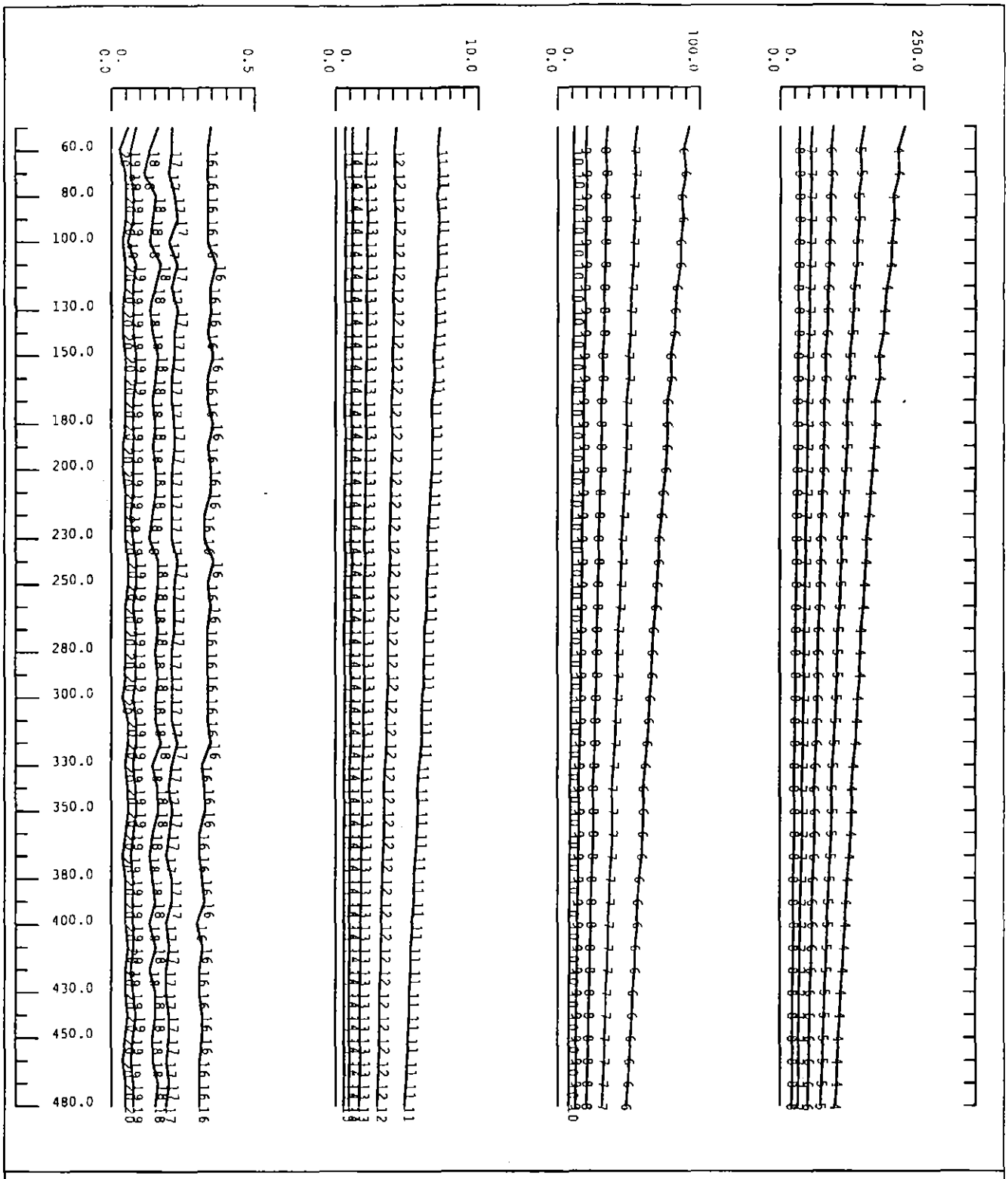
MAC24 LOOP2

300M*300M LOOP
000N_300N
300E_600E

GEOTERREX EM37 DATA

Aberfoyle Resources Limited

Fig. 2

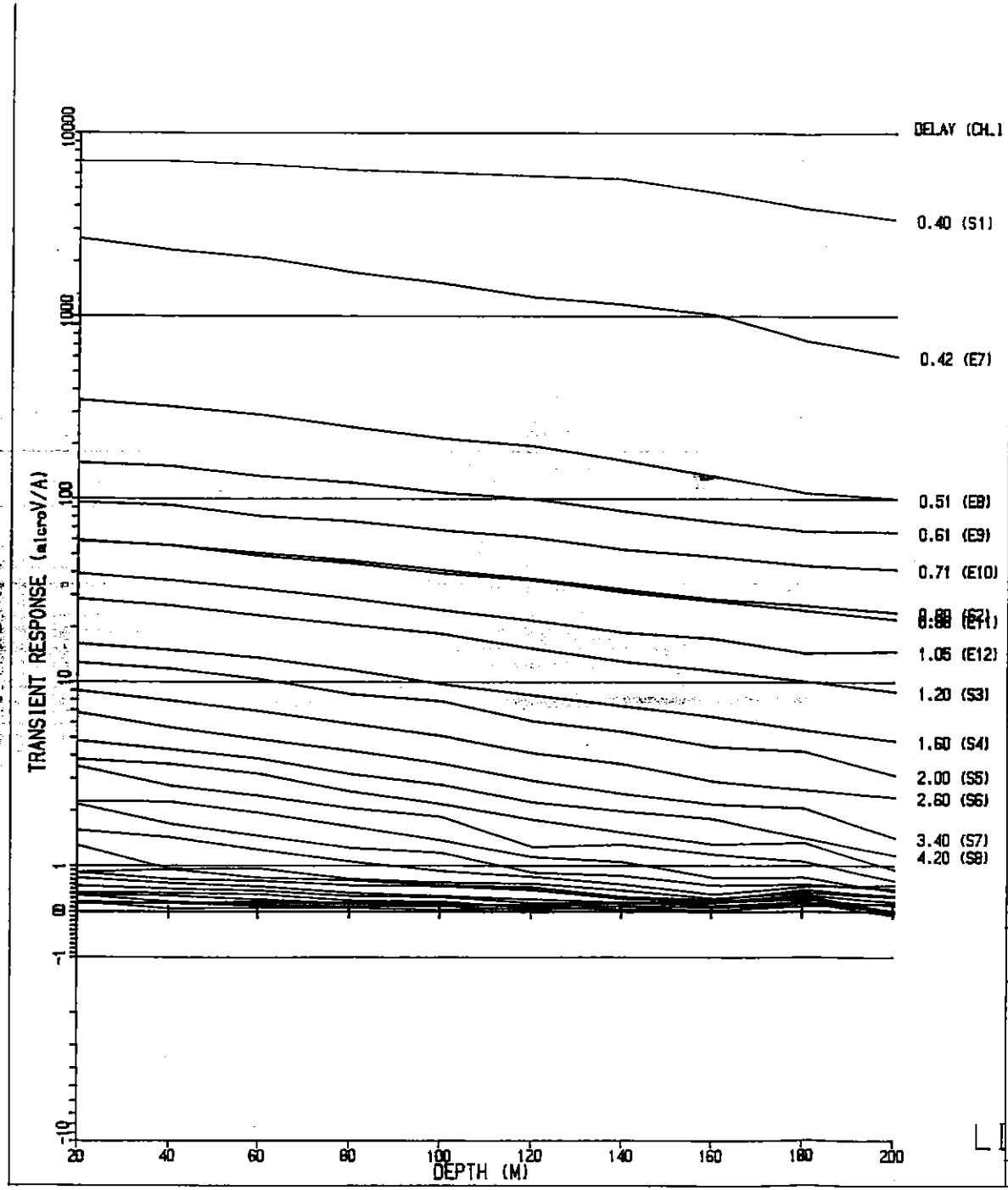


MAC24 LOOP2

300M*300M LOOP
000N_300N
300E_600E

GEOTERREX EM37 DATA

Aberfoyle Resources Limited



SURVEY SPECIFICATIONS

DATA ACQUIS'N : McSKIMMING GEOPHYSICS

SURVEY DATE : 7 3 90
CONFIGURATION : 200M SQUARE TX. LOOP, DRILL HOLE SURVEY
READING INT. : 20 METRES
NO. OF STACKS : 512
TRANSMITTER : MEDIUM POWER
RECEIVER : SIROTEM II S/N 1236
CURRENT : 14.5 AMPS
OPERATOR : MICHAEL ROSE

5 cm

PLOT SPECIFICATIONS

HORIZONTAL SCALE - 1:1000
VERTICAL SCALE - LOGARITHMIC 4CM. PER DECADE LINEAR BETWEEN -1 AND +1

TIME DELAYS IN MILLISECONDS
E - EARLY TIME WINDOW
S - STANDARD TIME WINDOW

7 x Loop Sides: 3600N 4150E
3800N 3950E

ABERFOYLE.EXPL

QUE RIVER
MACINTOSH

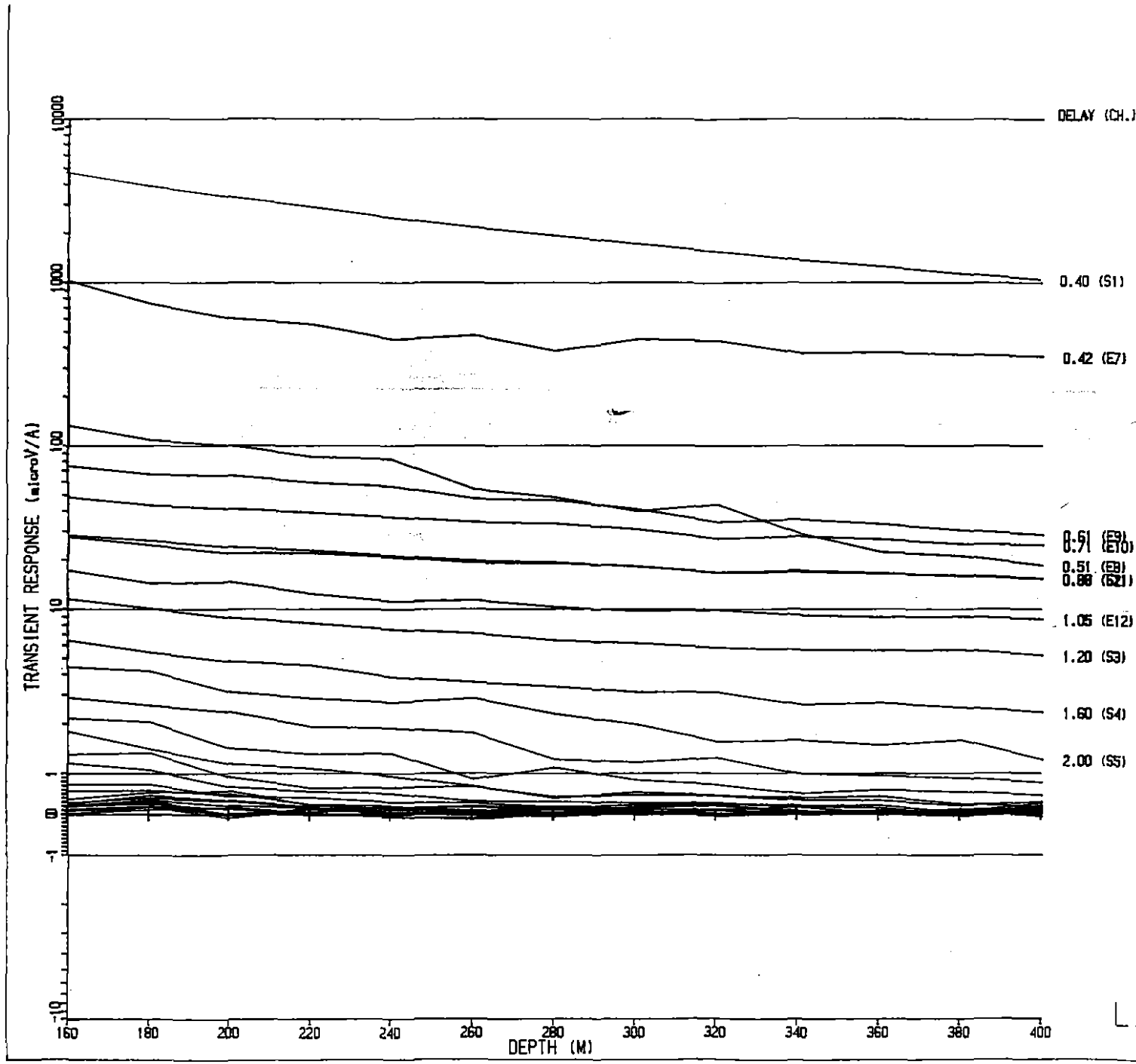
SIROTEM PROFILE

LINE HOLE MAC25 LOOP1

SCALE - 1:1000

Fig. 4

4884211



SURVEY SPECIFICATIONS

DATA ACQUIS'N : McSKIMMING GEOPHYSICS

SURVEY DATE : 7 3 90
CONFIGURATION : 200M SQUARE TX. LOOP, DRILL HOLE SURVEY
READING INT. : 20 METRES
NO. OF STACKS : 512
TRANSMITTER : MEDIUM POWER
RECEIVER : SIROTEM II S/N 1236
CURRENT : 14.5 AMPS
OPERATOR : MICHAEL ROSE

5 cm

PLOT SPECIFICATIONS

HORIZONTAL SCALE - 1:1000
VERTICAL SCALE - LOGARITHMIC 4CM. PER DECADE LINEAR BETWEEN -1 AND +1

TIME DELAYS IN MILLISECONDS
E - EARLY TIME WINDOW
S - STANDARD TIME WINDOW

ABERFOYLE.EXPL

QUE RIVER
MACINTOSH

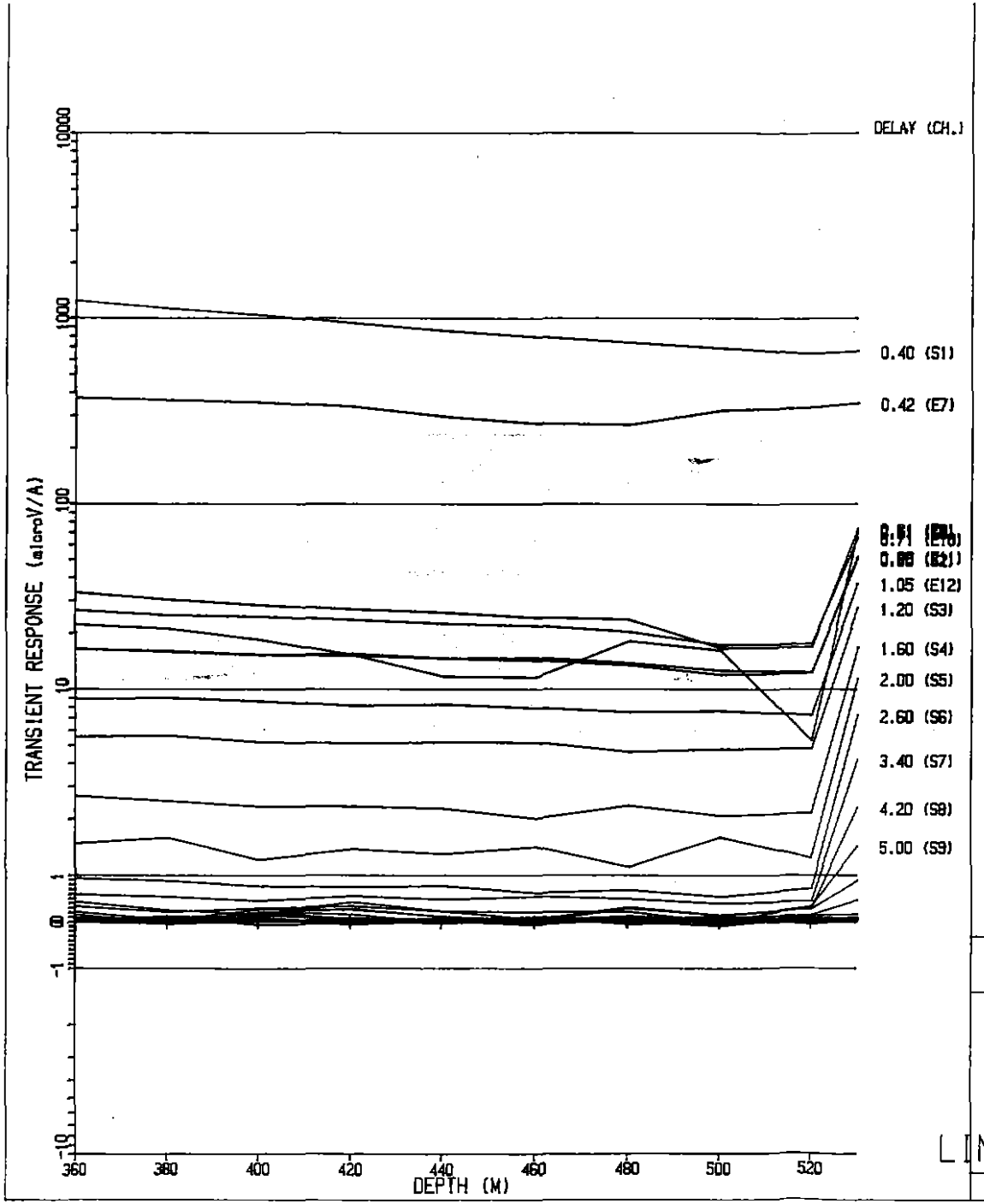
SIROTEM PROFILE
LINE HOLE MAC25 LOOP1

SCALE - 1:1000

Fig. 4a

4221

4884227



SURVEY SPECIFICATIONS

DATA ACQUIS'N : McSKIMMING GEOPHYSICS

SURVEY DATE : 7 3 90
CONFIGURATION : 200M SQUARE TX. LOOP, DRILL HOLE SURVEY
READING INT. : 20 METRES
NO. OF STACKS : 512
TRANSMITTER : MEDIUM POWER
RECEIVER : SIROTEM II S/N 1236
CURRENT : 14.5 AMPS
OPERATOR : MICHAEL ROSE

5 cm

PLOT SPECIFICATIONS

HORIZONTAL SCALE - 1:1000
VERTICAL SCALE - LOGARITHMIC 4CM. PER DECADE LINEAR BETWEEN -1 AND +1

TIME DELAYS IN MILLISECONDS
E - EARLY TIME WINDOW
S - STANDARD TIME WINDOW

ABERFOYLE.EXPL

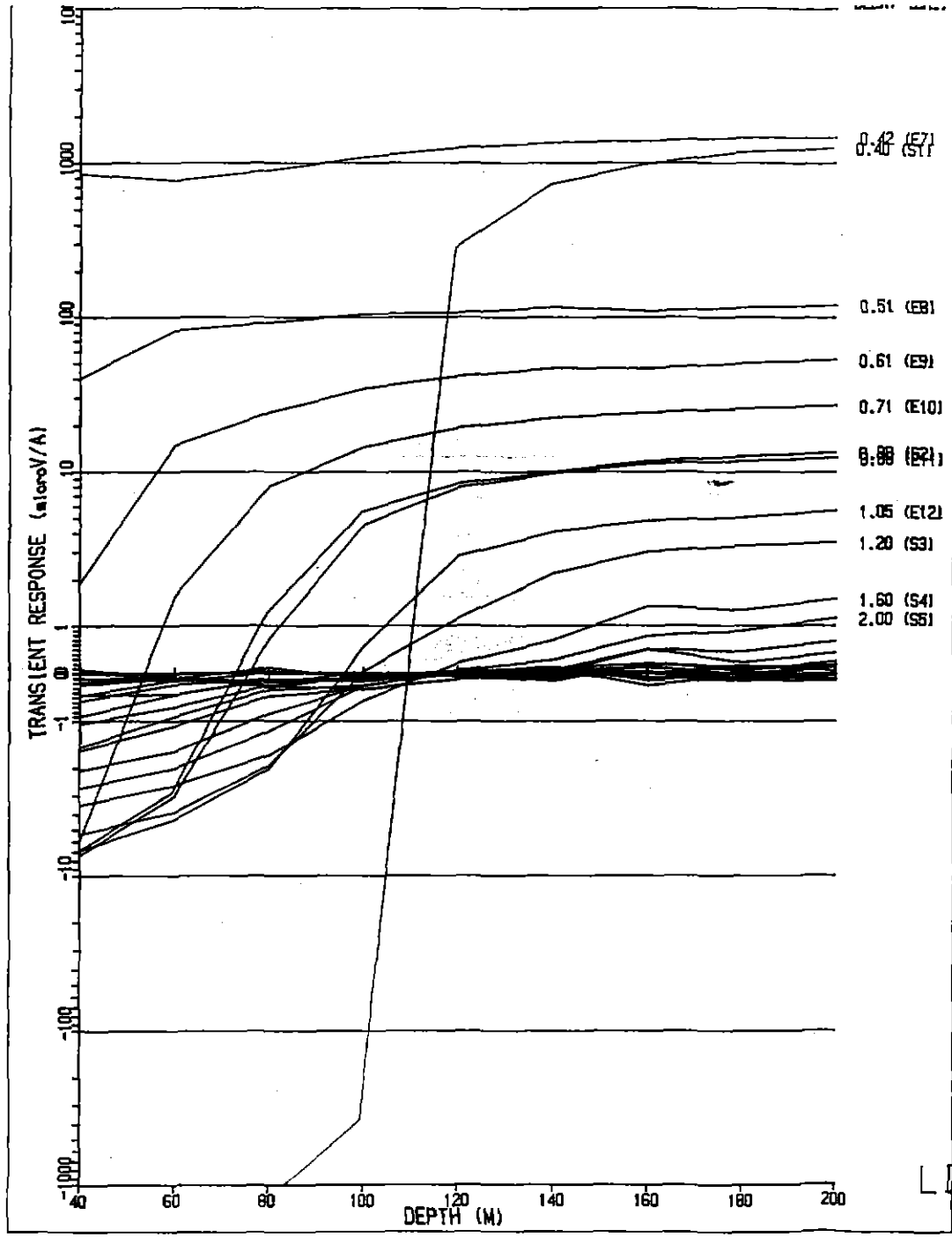
QUE RIVER
MACINTOSH

SIROTEM PROFILE
LINE HOLE MAC25 LOOP1

SCALE - 1:1000

Fig. 4b

4884223



SURVEY SPECIFICATIONS

DATA ACQUISITION : McSKIMMING GEOPHYSICS

SURVEY DATE : 7 3 90
CONFIGURATION : 200M SQUARE TX. LOOP, DRILL HOLE SURVEY
READING INT. : 20 METRES
NO. OF STACKS : 512
TRANSMITTER : MEDIUM POWER
RECEIVER : SIROTEM II S/N 1236
CURRENT : 14.6 AMPS
OPERATOR : MICHAEL ROSE

5 cm

PLOT SPECIFICATIONS

HORIZONTAL SCALE - 1:1000
VERTICAL SCALE - LOGARITHMIC 3CM. PER DECADE LINEAR BETWEEN -1 AND +1

TIME DELAYS IN MILLISECONDS
E - EARLY TIME WINDOW
S - STANDARD TIME WINDOW

7 x Loop Sides: 3800N 4150E
4000N 3950E

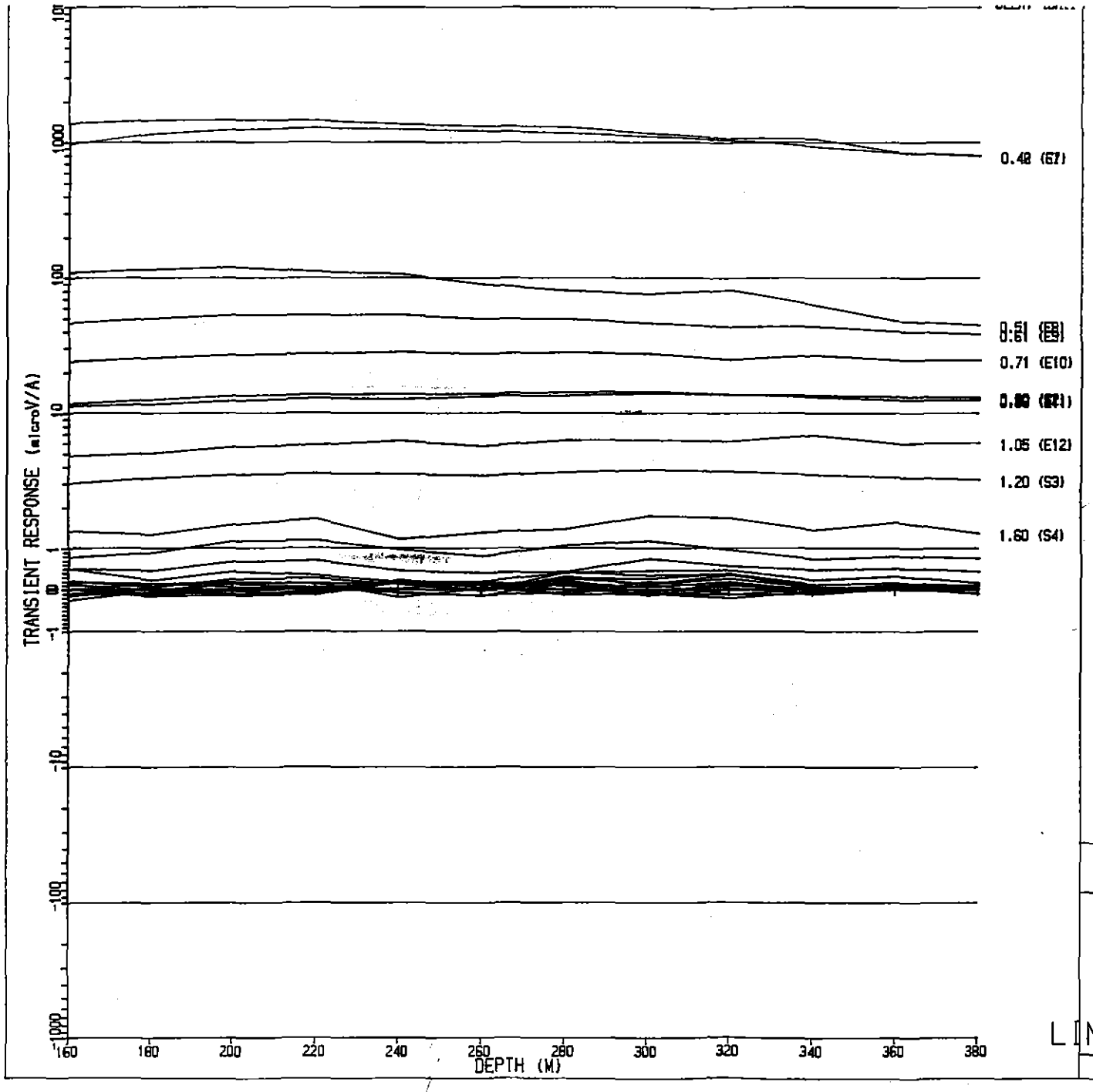
ABERFOYLE EXPL

QUE RIVER
MACINTOSH
SIROTEM PROFILE
LINE HOLE MAC25 LOOP2

SCALE - 1:1000

Fig. 4c

4223
188424



SURVEY SPECIFICATIONS

DATA ACQUIS'N : McSKIMMING GEOPHYSICS

SURVEY DATE : 7 3 90
CONFIGURATION : 200M SQUARE TX. LOOP, DRILL HOLE SURVEY
READING INT. : 20 METRES
NO. OF STACKS : 512
TRANSMITTER : MEDIUM POWER
RECEIVER : SIROTEM II S/N 1236
CURRENT : 14.6 AMPS
OPERATOR : MICHAEL ROSE

5 cm

PLOT SPECIFICATIONS

HORIZONTAL SCALE - 1:1000
VERTICAL SCALE - LOGARITHMIC 3CM. PER DECADE LINEAR BETWEEN -1 AND +1

TIME DELAYS IN MILLISECONDS
E - EARLY TIME WINDOW
S - STANDARD TIME WINDOW

ABERFOYLE EXPL

QUE RIVER
MACINTOSH

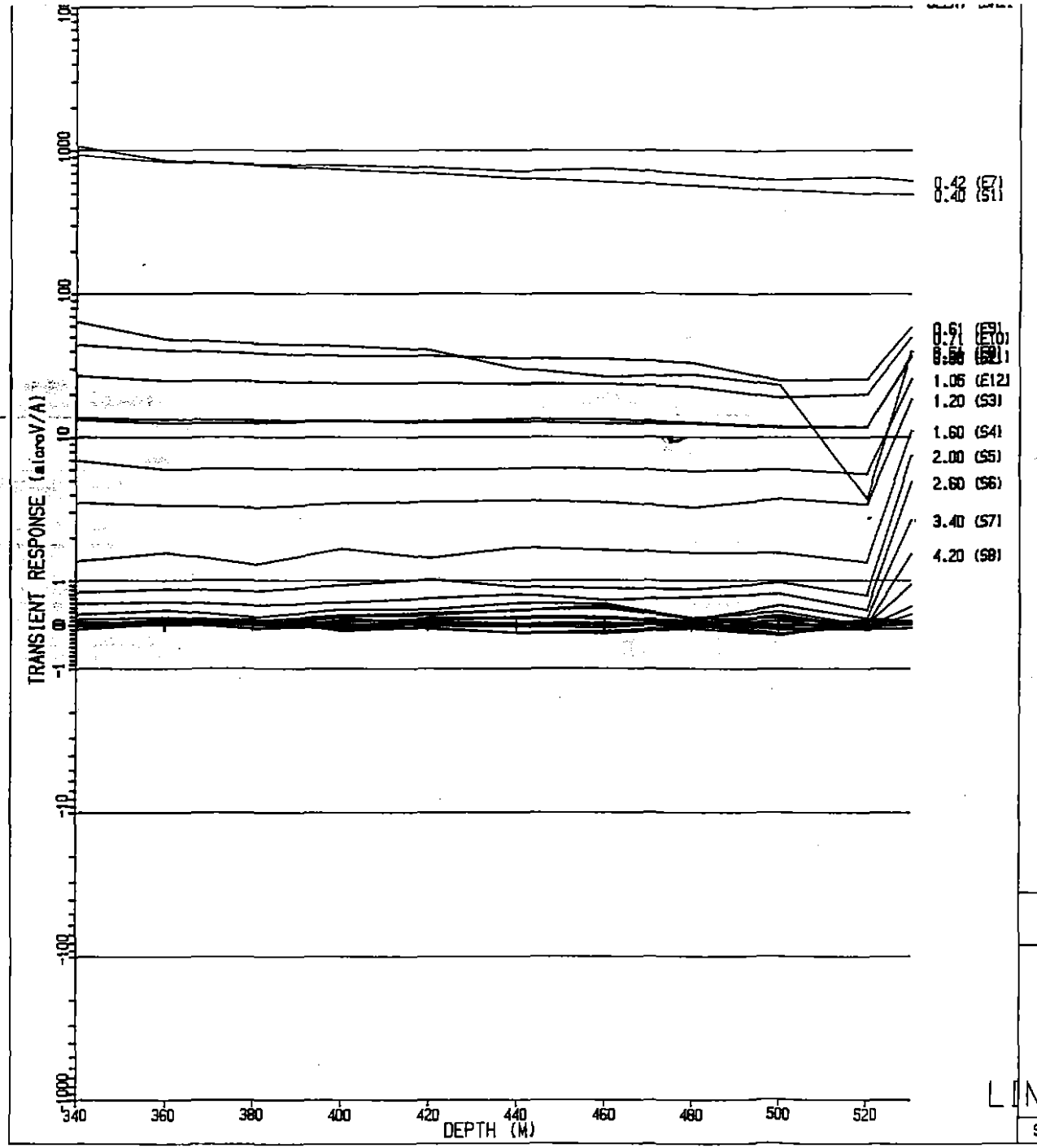
SIROTEM PROFILE
LINE HOLE MAC25 LOOP2

SCALE - 1:1000

Fig. 4d

4274

488125



SURVEY SPECIFICATIONS

DATA ACQUIS'N : McSKIMMING GEOPHYSICS

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CONFIGURATION : 200M SQUARE TX. LOOP, DRILL HOLE SURVEY
READING INT. : 20 METRES
NO. OF STACKS : 612
TRANSMITTER : MEDIUM POWER
RECEIVER : SIROTEM II S/N 1236
CURRENT : 14.6 AMPS
OPERATOR : MICHAEL ROSE

5 cm

PLOT SPECIFICATIONS

HORIZONTAL SCALE - 1:1000
VERTICAL SCALE - LOGARITHMIC 3CM. PER DECADE LINEAR BETWEEN -1 AND +1

TIME DELAYS IN MILLISECONDS
E - EARLY TIME WINDOW
S - STANDARD TIME WINDOW

ABERFOYLE EXPL

QUE RIVER
MACINTOSH

SIROTEM PROFILE
LINE HOLE MAC25 LOOP2

SCALE - 1:1000

Fig. 4e

420

488426

488427

APPENDIX 12

Palaeontology Report Sample 515242

Indurated medium-grained quartz sandstone with abundant fragmentary brachiopod moulds. None are sufficiently well preserved for exact determination but ?Eatonia, ?Cyrtia and ?Notoconchidium are possibly present. The presence of a strophic spiriterid (?Cyrtia) indicates an age no older than Silurian, and the abundance and variety suggests the Florence Formation (Early Devonian) rather than the Crotty Formation (Early Silurian) in a western Tasmanian context. A Florence Formation age is definitive if the Notochidium determination is correct.

M. J. Clarke
PALAEONTOLOGIST

488429

APPENDIX 13

Aberfoyle Exploration — GEOCHEMICAL SAMPLE LEDGER

PROJECT: Mackintosh, Black Heath Rd.

BSS SIEVE SIZE CODE - MESH NUMBER: A 200, B 150, C 100, D 80, E 60, F 40, G 30, H 20, T = TOTAL

SAMPLE TYPE CODE: [x] FRESH ROCK R; [ ] OXIDIZED PRODUCTS O; [ ] STREAM SEDIMENTS S; [ ] WEATHERED BEDROCK W; [ ] SURFACE TRANSPORTED T; [ ] RESIDUAL SOIL E; [ ] MINE DUMP M

CARD PUNCH PRINT: YES [ ] NO [ ]; VERIFY: YES [ ] NO [ ]

DATE:

SHEET:

EASTINGS	NORTHINGS	SAMPLE NUMBER	DEPTH in CMS	Assay	SIZE FRACTION	Sample Type	METAL VALUES PPM	GEOLOGICAL LOG
1570	12732	51506 0		x		RC	Cu, Pb, Zn, Ba, As, Ag, Au, Cr, Sr, Ti	Calcium (?) 13.4m Lava - trace pyrite
1570	12732	061		x		RC	"	" 15.5m Lava "
1571	12733	062		x		RC	"	" 14.4m Lava "
1571	12733	063		x		RC	"	" 14.6m Lava "
1745	12430	064		x		RC	"	Acum track - Mica Sandstone
1770	12435	065		x		RC	"	Acum track - Mica Sandstone

4229

488430

21

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. 23.3.08.06079

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
6218	

DATE RECEIVED	RESULTS REQUIRED
17/03/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	04/04/89	1	6

STATE SAMPLES REFER BELOW	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	515060/65	RO	Prep: 009,011,012,013,016						Cu,Pb,Zn,Ag/101,As/114		
	515060/65	RO							Ba,Cr,Zr,Ti/401,Au/309		

RESULTS TO

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

RESULTS TO

REMARKS

BLACK HARRY ROAD

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

431

488432

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06079	04/04/89	6218	1 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	Ba	As	Cr	Zr
1	515060	50	90	25	<0.5	<0.008	170	8	8	210
2	515061	35	200	15	<0.5	<0.008	170	10	6	210
3	515062	35	145	10	<0.5	<0.008	180	11	<5	210
4	515063	280	45	15	2.0	0.026	170	140	20	190
5	515064	<5	310	10	<0.5	<0.008	200	2	25	240
6	515065	55	95	5	<0.5	<0.008	180	1	65	210
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	0.008	10	1	5	5
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	101	101	309	401	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

4 12

488433

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06079	04/04/89	6218	2 OF 2

TUBE No.	SAMPLE No.	Ti
1	515060	1600
2	515061	1500
3	515062	1650
4	515063	1550
5	515064	1400
6	515065	1600
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

Aberfoyle Exploration — GEOCHEMICAL SAMPLE LEDGER

Collected by HSR/GC

PROJECT	BSS SIEVE SIZE CODE - MESH NUMBER	SAMPLE TYPE CODE		CARD PUNCH	PRINT	VERIFY	DATE	SHEET
Mackintosh EL Black Hawks Rd.	A 200 D 80 G 30 B 150 E 60 H 20 C 100 F 40 T = TOTAL	☐ OXIDIZED PRODUCTS O ☑ FRESH ROCK R ☐ STREAM SEDIMENTS S ☐ WEATHERED BEDROCK W ☐ SURFACE TRANSPORTED T ☐ RESIDUAL SOIL E ☐ MINE DUMP M		YES ☐ NO ☐	YES ☐ NO ☐		22/11/89	1 of 1.

EASTINGS	NORTHINGS	SAMPLE NUMBER	DEPTH in CMS	SIZE FRACTION	Sample Type	METAL VALUES PPM	GEOLOGICAL LOG	
1645	12695	563501		Chanel	Sample	Cu to 2m, Bg, Pb, Ag, Au	0-2m Dacitic tuff	Costean 1. (1645 E)
		502		"		"	2-4m "	
		503		"		"	4-6m "	
		504		"		"	6-8m "	
		505		"		"	8-10m "	
1635	12705	506		"		"	10-11.4m "	
1620	12735	507		"		"	0-2m D.I.	Costean 2. (1615 E)
		508		"		"	2-4m D.I.	
		509		"		"	4-6m D.I.	
		510		"		"	6-8m D.I.	
		511		"		"	8-10m D.I.	
		512		"		"	10-12m Mic Ss	
		513		"		"	12-14m Mic Ss/D.I.	
		514		"		"	14-16m Mic Ss	
		515		"		"	16-18m Mic Ss	
1615	12755	563516		"		"	18-20m Mic Ss.	

433

488434

33

ANALABS

108435 (33)

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. 23.3.08.66690

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

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

ORDER No.	PROJECT
7429	

DATE RECEIVED	RESULTS REQUIRED
27/11/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
1	11/12/89	1	16

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
	5635,01/16	CO Prep: 016							Cu,Pb,Zn,Ag/101		
	5635,01/16	CO							Au,AuChk/309		
	5635,01/16	CO							Ba,As/401		

RESULTS TO

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

RESULTS TO

REMARKS

BLACK HARRYS
COSTEANS.

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

435

ANALABS

A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

488436

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06690	11/12/89	7429	1 OF 1

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	AuChk	Ba	As	
1	563501	10	50	85	<0.5	<0.008	–	<2	250	
2	563502	10	45	60	0.5	<0.008	<0.008	<2	240	
3	563503	10	15	35	<0.5	<0.008	–	<2	220	
4	563504	10	20	35	<0.5	<0.008	–	<2	210	
5	563505	5	10	30	<0.5	<0.008	–	<2	220	
6	563506	5	10	35	<0.5	<0.008	<0.008	<2	220	
7	563507	20	30	40	<0.5	<0.008	–	<2	220	
8	563508	30	25	40	<0.5	<0.008	–	<2	220	
9	563509	60	25	55	<0.5	<0.008	–	6	210	
10	563510	565	30	45	0.8	<0.008	–	2	230	
11	563511	65	20	35	<0.5	<0.008	–	3	260	
12	563512	40	20	30	<0.5	<0.008	–	9	190	
13	563513	110	100	60	<0.5	<0.008	–	10	120	
14	563514	20	15	25	<0.5	0.009	–	<2	340	
15	563515	15	20	30	<0.5	<0.008	–	2	260	
16	563516	10	15	30	<0.5	<0.008	<0.008	<2	310	
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	0.008	0.008	2	10	
24	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
25	METHOD	101	101	101	101	309	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

AUTHORISED OFFICER

488437

APPENDIX 14

ATTACHMENT

Sample No:	Location	Type	Description	Pb Content	Comment
427426	155S 6080E	Rock Chip			Galena vein from Henty Fault Zone. Any similarties to farrell style mineralisation? ? Location
427814	12680N 1880E	Rock Chip (pulp)	Pyritic dacite	525 ppm	Thought to be a correlate of Central Complex i.e. younger than Que-Hellyer ? ~390000 E 5399400 N ± 500m. North Hatfield.
431546	10000N 20200E	Rock Chip (pulp)	Gossanous Sst.	3000 ppm	Both from probable Cambro-Ordovician rocks. Possibly ?Devonian mineralisation Ten Mile Ck.
516031	11000N 20275E	Soil - Pulp		470 ppm	

437

488438

436

488439

Sirotope

CSIRO
AUSTRALIA

Division of Exploration Geoscience
Delhi Road, North Ryde, NSW. Postal Address: PO Box 136, North Ryde NSW 2113
Telephone (02) 887 8666. Telex AA25817. Fax (02) 887 8909

Chief: Dr. B.J.J. Embleton

REPORT TO ABERFOYLE RESOURCES LIMITED

ON THE Pb ISOTOPIC COMPOSITIONS

AND METALLOGENIC ASSOCIATION OF EXPLORATION SAMPLES

FROM TEN MILE GRID AND THE MACKINTOSH LICENCE, N.W TASMANIA

REPORT SR 092

GRAHAM R. CARR
JUDITH A. DEAN

29/8/89

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1. AIMS OF STUDY

The aim of this study has been to determine the likely metallogenic association of exploration samples from the Ten Mile Creek grid, Mount Romulus situated about 10km ENE of Hellyer, and from two locations in the Mackintosh licence (106/87).

2. SAMPLES

TEN MILE GRID A sample of gossanous sandstone with 3000ppm Pb (431546) and a soil with an anomolous Pb content (516031) were provided by A. McNeill. Both were from probable Cambro-Ordovician rocks.

MACKINTOSH LICENCE A galena from the Henty Fault Zone (427426) and a sample of pyritic dacite (427814), thought to be a correlate of the Central Complex, were submitted by A. McNeill.

3. TARGET SIGNATURES

All major Cambrian ore deposits of western Tasmania have similar Pb isotopic compositions confirming that they formed as part of a major metallogenic event (see Gulson and Porritt, 1987). A relatively homogeneous isotopic composition over such a region suggests the hydrothermal systems were very large, leaching Pb and other elements from a significant volume of crust and thus tending to average out local variations in the Pb isotopic composition of the source rocks. The Cambrian massive sulfide ("target") signature is represented in this study by the overlapping fields for Hellyer, Que River and Rosebery(+Hercules) (Fig. 1). The fields are 95% confidence ellipses which depict the mean +/- 2 x standard deviations of data for each deposit. Despite the averaging effect of the hydrothermal systems, minor differences can be expected between deposits, as is exemplified by Rosebery/Hercules and Que River/Hellyer fields.

Minor mineralization in western Tasmania commonly consists of discontinuous pods or veins. The isotopic composition of such mineralization varies between occurrences indicating that the hydrothermal systems were probably much smaller. Most examples of this mineralization have isotopic compositions that are more radiogenic than the Cambrian target (i.e. higher $^{206}Pb/^{204}Pb$ ratios, Fig 1.) and some can be associated with Devonian plutonism (e.g. Queen Hill, Mt Farrell).

However, other examples have isotopic compositions that are less radiogenic than the Cambrian target, e.g. WOW/CAB, an old Comstaff prospect in the Oonah Formation and the Marionoak mineralization on the Pieman Dam road (Fig. 1). While the origin of such mineralization remains enigmatic, the low $^{206}Pb/^{204}$ ratios may result from leaching of Pb from nearby Precambrian source rocks. At both WOW/CAB and Marionoak both more radiogenic and less radiogenic populations are present indicating a complex

Although it is likely that Devonian thermal events were responsible for the generation of these relatively localized hydrothermal systems, it is possible they developed at other times, even during the Cambrian. Irrespective of the age, it is unlikely that such mineralization would have significant economic potential.

4. METHODS

Whole rock powders provided by Aberfoyle were leached in a mixture of 7N HNO_3 and 7N HCl acids. Lead was purified from the leachate by anion exchange in HBr solutions and by micro-electrodeposition techniques. The galena sample was dissolved in concentrated nitric acid and Pb was purified by electroplating

onto Pt electrodes as above.

Analyses were performed on an ISOMASS 54E thermal ionization mass spectrometer run in fully automated mode. Precision estimates for the ratios are depicted as error bars in the upper left hand corner of the ratio plots and are based on the analyses of over 1000 standards.

5. RESULTS

TEN MILE GRID The results are presented in Table 1 and in Figure 1. The Ten Mile Grid data show some variation, but plot within the Que River/Hellyer field.

MACKINTOSH LICENCE Whereas sample 427814 plots within the Hellyer signature, sample 427426 is slightly more radiogenic and plots outside the Target signatures for Cambrian massive sulfide mineralization (points 1-3 on Fig. 2 represent repeat analyses of 42746). It has a similar isotopic composition to the Murchison Lode (Gulson and Porritt, 1987, Table 8) but is dissimilar to the Mt Farrell mineralization.

6. DISCUSSION AND CONCLUSIONS

The Ten Mile Grid prospect samples have a high probability of representing the same Cambrian metallogenic event responsible for the Que River/Hellyer massive sulfide deposits.

Sample 427814 from the Mackintosh Licence also has a high probability of being part of this major Cambrian event. However, sample 427426 is more enigmatic because it plots between the Cambrian and Devonian signatures, but close to the Cambrian signature. The dilemma is: could this represent as yet unrecognised local variation in the Cambrian signature of a scale similar to the differences between Rosebery/Hercules and Que River/Hellyer or is it part of the broad Devonian signature?

TABLE 1. LEAD ISOTOPE RATIOS FOR TEN MILE GRID AND MACKINTOSH LICENCE.

Sample	$^{208}Pb/^{206}Pb$	$^{207}Pb/^{206}Pb$	$^{206}Pb/^{204}Pb$	$^{207}Pb/^{204}Pb$	$^{208}Pb/^{204}Pb$	Pb(ppm)
TEN MILE GRID						
1 431546	2.0824	0.8513	18.313	15.589	38.135	3,000
2 516031	2.0821	0.8502	18.359	15.608	38.225	470
MACKINTOSH LICENCE						
1 427426gl	2.0751	0.8475	18.389	15.585	38.159	870,000
2 427426glR/1	2.0770	0.8479	18.419	15.617	38.256	
3 427426glR/2	2.0751	0.8474	18.407	15.597	38.197	
4 427814	2.0795	0.8501	18.343	15.594	38.144	525

Sample No prefixes are used to plot points in Figures 2 and 3
gl denotes galena
R/1, R/2 denote repeat dissolution and analysis.

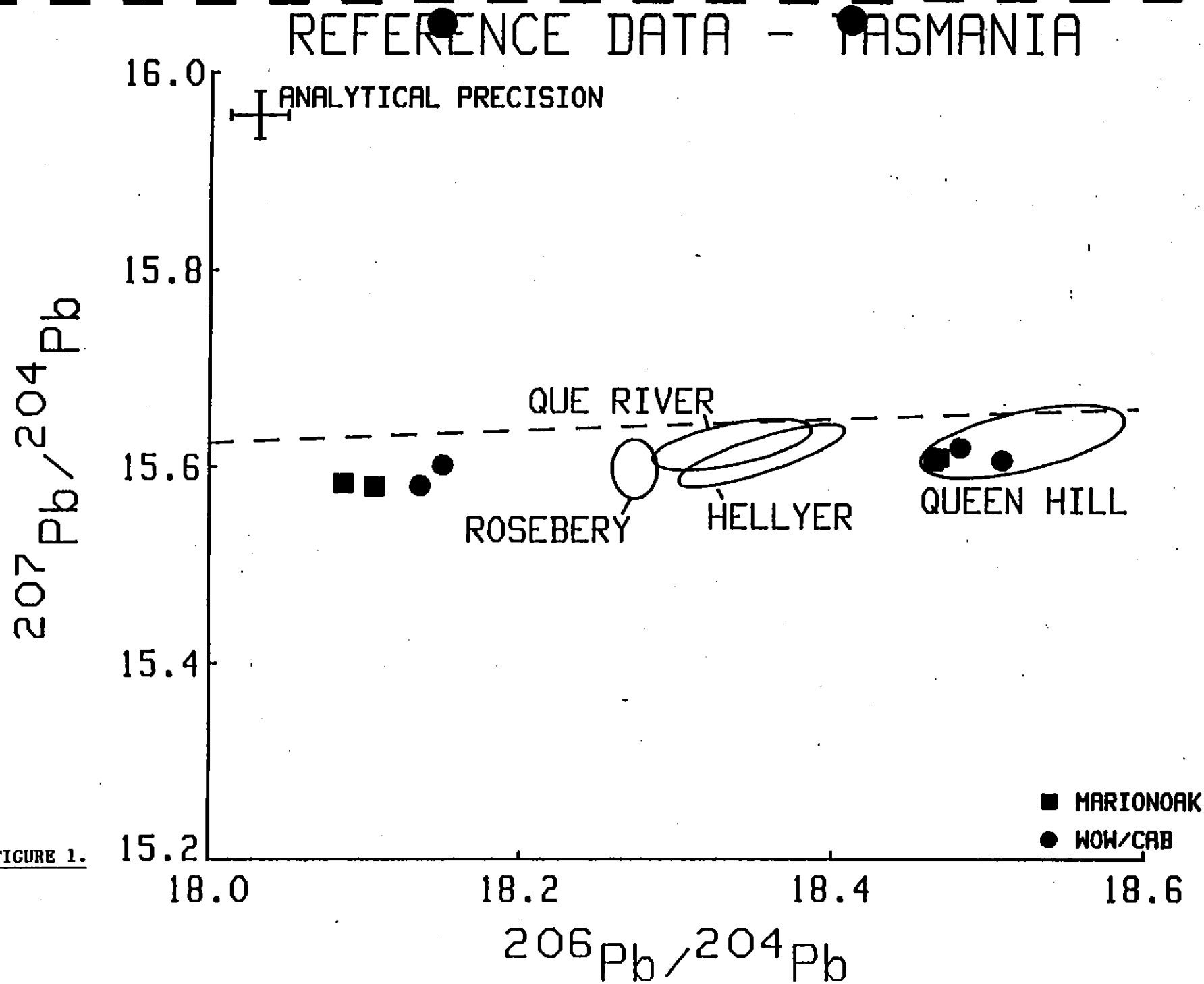

FIGURE 1.

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488444

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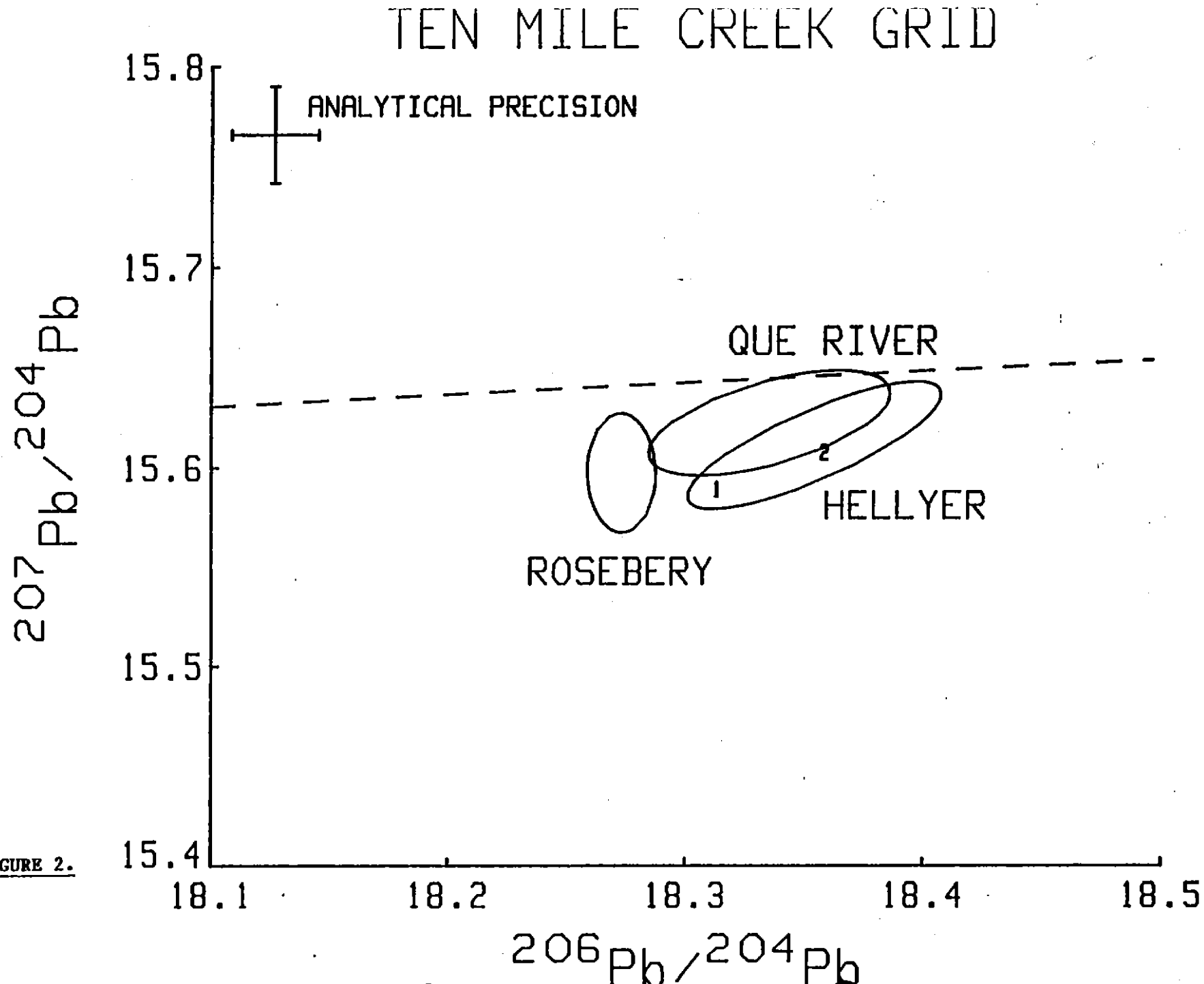

FIGURE 2.

444

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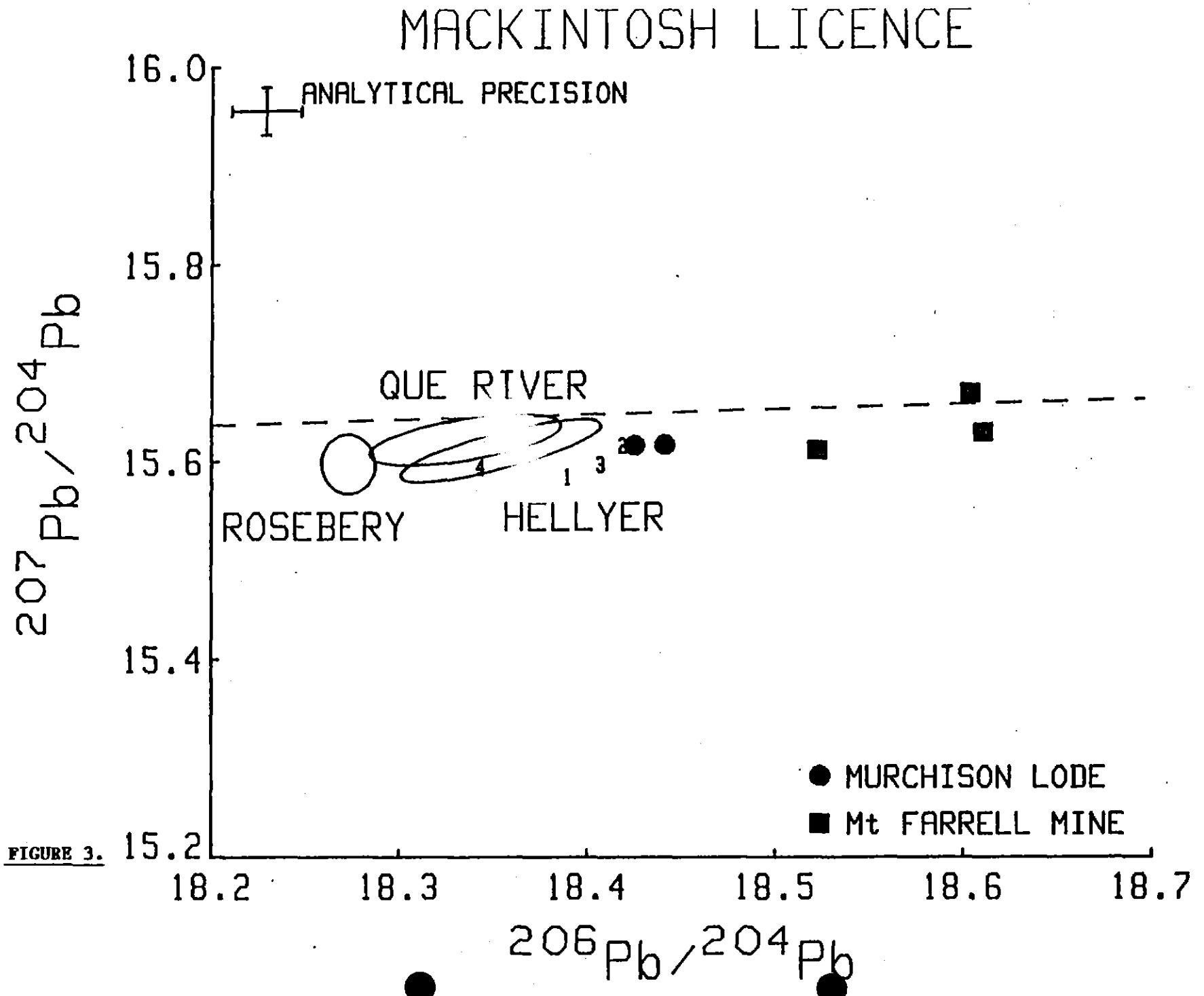

FIGURE 3.

445

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APPENDIX 15

ABERFOYLE EXPLORATION **DRILL HOLE RECORD**

Location: Black Harry Road
Property: Mackintosh
District: Tasmania
Alt./R.L.: 685.53
Hole No: MAC-24 (VLHY-1)
Commenced: 8/5/89
Completed: 1/8/89
Core size:
Co-ordinate: 12395.32 N
Date:
Bearing (M): 348° 21'
Logged: AMcN
Objective: Stratigraphic test of interpreted CVC lithologies
% Recovery:
Grid bearing (M): 338° 21'
Dip: -70°

SURVEY DATA			
DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE

GRAPH DERIVED DATA					
DEPTH	DIP	BEARING(M)	NORTHING	EASTING	ALTITUDE
0	70	348° 21'	12395.32	1822.3	685.83
150	70	335°			
488.8	59.3	334°			
		* all bearings are magnetic			

REMARKS

Collar Pick-up: A. Smith Que River. 27/7/89.
AMG Coordinates: 5399479.95 N
3903 6.46 E

0 – 43.7 HQ
43.7 – 488.8 NQ

32 mm clam 12 Rec to bottom of hole
- broken at approximately 200m
No Casing left in hole.

188448

Aberfoyle Resources Limited
EXPLORATION DIVISION

DIAMOND DRILL LOG

PROJECT : Muchinatosh

PROSPECT : North Hatfield

HOLE NO : [illegible]

PAGE : 1 of [illegible]

LOGGED : AHW

DATE : 6-6-89

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
2		87%	Tertiary Basalt	red-brown vesicular Basalt lava. One massive, brown-green, possibly feldspar-phyric interval, i.e. 4.4-7.3 m.				broken, rubbly core	Ox 1-4 ↓			
4												
6		50%										
8			Tertiary Sediments	fine grained grey-green to red siltstone.								
10		66%	Dacitic lava/intrusive	Strongly weathered to 10.6 m. green feldspar-phyric (Sericite altered) massive to brecciated lava or intrusive. breccia zones have Sericite + chlorite rich matrix. hairline and annular fractures (2nd vein) have Mn coatings.	Pot. Hnt (1-2)			10.6 fault ply	Ox 1-3			
12												
14												
16								16.6 fault - ply + Mn coat.				
18								18.8 fault - breccia zone parallel to core axis				
20				19.6 grey-green massive andesitic dacitic lava.	19.6			20.0 fault = 80° to CA.				
22				22.6	22.6			broken core ↓ 23.1 fault.				
24				light green feldspar-phyric (sericite altered) dacitic lava. Minor zones of brecciation esp. 24.7 m.	Pot / Ides. Red Hnt (1)	Co (1) + some open fractures Mn coated.						
26												
28												
30								30.7 fault = 35° to CA.				
32							32.1 Po disc + Pot. (1). Po concentrated in breccia zones.	32.7 fault, 10 cm ply & Mn + Fe oxide staining. F = 80° to CA.				
34												
36								36.6 fault.				
38								38.4 fault.				
40								39.8 fault = broken core + ply.				
42												

4 8 8 4 4 9

Aberfoyle Resources Limited
EXPLORATION DIVISION

DIAMOND DRILL LOG

PROJECT : Mackintosh

PROSPECT: NW Hatfield

HOLE NO: Mac 6 (VLHV.

PAGE: 2 of 12

LOGGED: HMcN

DATE: 6-6-89

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
			Dacite porphyritic			Cl (1) Co (1)	No Min.				HQ NQ 42.7	
45												
46												
47												
48								50.5				
49								Broken core 52.6				
50		85%										
51												
52		75%			57.6							
53		90%			disseminated chlorite (2)	Cl (2).						
54					" " (1)			62.6 fault Pug.				
55					" " (1)	Cl (1)						
56					67.0							
57												
58												
59											70.45 Petrology SM670	
60												
61												
62						73.7 Qz+Cl+Py (2)						
63												
64												
65					74.0							
66					Cl (1-2)							
67					77.5			83.8 Gal: 20% Ca.				

488450

Aberfoyle Resources Limited
EXPLORATION DIVISION

DIAMOND DRILL LOG

PROJECT : Mackintosh

PROSPECT : N^th Hatfield

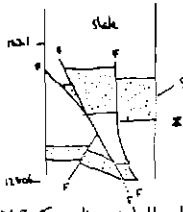
HOLE NO : Mac 20 (VCH)

PAGE : 3 of 12

LOGGED : AMcN

DATE : 6-6-89

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
86			Dacitic lava/intrusive			Q+Cl+tr.py (1)	tr py(1) on fracture surfaces.					
88		Soil										
90												
92												
94								94-95 fault = Py breccia.				
96												
98												
100												
102												
104								105.0 fol. N- 60° to CA. 106 fol. N = 10° to CA.				
106												
108												
110				breccia with exotic fragments (black shale, grey chert, green and volcaniclastic) 112.75								
112				113.0 Monomict breccia		112.5 of white clay veins observed (1)	112.75 113.0 disc. (coarse py(2)) + fg. pat. py(1) in matrix of breccia. 114.2-114.7 Py disc. (2-3)	113.0 thrust contact = 60° to CA. Conformable				
114					114 opq-white clay veins appear on sericitized feldspar xtals. Increases in intensity toward contact							
116						Chlorite (2): Co+Cl(2)						
118				Abrupt Contact.								
120			120.7 Interbedded shale, siltstone and sandstone	Interbedded light grey fg. sandstone/siltstone and black shale. Scattered lithic volcanic fragments.	120.4 Pos. avoid Si (2-3) div texture?	Co (1-2)		120.7 Contact: 30° to CA.				
122				123.5 Some olive green ash volcaniclastic interbedded, weakly developed.		Co+Cl+tr py (1) 122.0-122.1 Co+Py(3-4)		122.0 bedding = 50° to CA. 122.0-122.1 Mineralized = 0-30° to CA.				
124				125.5-126 Abrupt Contact to sandstone-shale matrix c feldspar-phyric sericitic volcanic fragments.		Co+Py (1-3): Py (1)						
126				126.5				126.5 bedding = 70° to CA.			123.45 Petrology S15675 Sandstone 126.5 Truncation of bedding layers. Downhole facing.	



48847

Aberfoyle Resources Limited
EXPLORATION DIVISION

DIAMOND DRILL LOG

PROJECT : Mackintosh

PROSPECT : North Hatfield

HOLE NO : [illegible]

PAGE : 4 of [illegible]

LOGGED : [illegible]

DATE : [illegible]

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
148				interbedded shale and sandstone. Some sandstone beds contain shale fragments.								
150				149.5 - 159.5 green-green ash volcaniclastic interbed.		Py(1): Co+Py(1-2)						
152				← Abrupt Contact		151.9 @ 45° Co+Cl+tr Sp.(1)						
			152.55									
154			Some lavas volcaniclastic ?Dacitic.	fine grained grey matrix supports lenticular feldspar-phyric euhedral fragments and cream coloured carbonate? pebbles. Minor shale interbeds. From 156.9 - 154.5 have a green-pink matrix.			dis + patt py (1)					
156												
			157.95									
158			Interbedded Shale Siltstone and Sandstone.	black to dark laminated shale and light grey siltstone interbedded with fine grained sandstone (micaceous). Shales in place with slumped + disrupted beddings.		Co+Py(2-3) · Py(1-2)						
160												
162												
164				164.7 green-grey ash volcaniclastic 164.2		164.7-164.2 Co(2) : Py(1-2) Py(1) Co+Py+tr Cp(1) 164.2 Loc. zone of Py(2) ↓ Vein on Contact: Qtz+tr Sp		164.75 fault. 164.75 fault 145° to CA. 164.2 Flow folding. Contact: 65° to CA. faulted				
166				166.95 interbedded volcaniclastic with feldspar-phyric euhedral frags.								
			167.2									
168			Dacitic lava	green-brown massive lava with sericite altered feldspar clots. Minor white clay alteration. Minor brecciation with carbonate matrix.	Si(1) Se(1-2)	Co(1-2), Cl(1-2)						
			169.15					Abrupt conformable Contact				
170			Sandstone and Shale	dominantly grey-black shale, minor sandstone and ash volcaniclastic interbeds.		Co(3) · Py(2)		169.5 fault. 55° to CA. Shd + Py				
			170.95					170.55 - 172.90 fault zone				
172			basaltic lava	green-brown massive to weakly brecciated lava. Coarse sericitized feldspar phenocrysts.	Si(1-2) Se(1)	Co(1-2)	v. fine pyrite on fractures (1-2), some rigidite on matrix to breccia zones especially at 157.55m.				157.7 Petrology S15671	
174												
176												
178												
180				180.75 light green-grey devitrified zone 181.2		180.75 Co(3) 180.2						
182						Co(1-2)						
			182.45									
184			Sandstone and Shale	interbedded fine grained light green sandstone and black-green shale, laminated. Zones of slumped beddings. 184.85-185 green-green crystal volcaniclastic (shale frags?) 186.9 - 187.2 feldspar-phyric crystal volcaniclastic + shale fr. 187.05 Sedimentary breccia - sandstone with v. + shale clasts. Some black.		Co(2) : Py(1) : Co+Py(1-2)		Zones of strong microfaulting associated with veining.			186.05 Core Orientation Radial angle = 258° CA. intersection = 62° ∴ Sol. 160° to 051°	
186												
188												

Aberfoyle Resources Limited
EXPLORATION DIVISION

DIAMOND DRILL LOG

PROJECT : Mackintosh

PROSPECT : North Halfield

HOLE NO : MAC 29 (VEIN)

PAGE : 5 of 12

LOGGED : AMSN

DATE : 6-6-89

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
170			Interbedded sandstone and shale	as above		Co(1-2) : Py(1-2) Co Hal(1) - qtz - fault associated.						
				170.65 - 170.88 coarse volcaniclastic, feldspar-phyric							171.0 Petrology SIS672	
172						172.4 Co + tr qtz. vein		172.2 bedding = 75° to CA.				
174				174.0 3cm of Sericitic carbonate clasts in sandstone								
				175.2 - 175.6 light pink-grey sub volcaniclastic with sandstone interbed.								
176				176.1 Carbonate matrix breccia - associated with faulting.				176.2 fault = 40° to CA.				
178				178.00 - 178.65 devitrified sub volcaniclastic grades into fine lapilli carbonate volcaniclastic.		178.7 Co + Hc + tr ip. vein.		178.7 fault = 50° to CA.				
180				180.0 - 180.2 breccia of black shale fragments in a fine lapilli volcaniclastic with dac lit lava frags. - also at 179.45 - 179.7								
182						Co + tr py (1-2)		181.4 bedding = 65° to CA. 181.8 fault = 55° to CA. 182.4 bedding = 75° to CA. 182.7 bedding = 60° to CA.				
	183.4		sub volcaniclastic	grey bedded sub volcaniclastic								
	183.45		Sandstone	grey fine grained sandstone								
184			Volcaniclastic	grey fine grained matrix, feldspar-phyric with bedded black shale fragments. Variable feldspar phyric "common below 184.4m". Common white-cream carbonate rich fragments - ex lava.		Py(1)					186.0 Petrology SIS673	
186												
	187.7											
188			interbedded shale and sandstone	black shale and fine grained grey micaceous sandstone		187.8 Co(1) : Py(1)	Pot. Py(1-2)	187.7 abrupt contact : bedding = 70° to CA.				
190				190.00 - 190.4m sub volcaniclastic.								
				191.3 - 191.60 grey sub volcaniclastic interbed.								
192				192.0 grey sub volcaniclastic c shale fragments.								
				192.7								
194												
196				195.5 - 195.6m polymict fine lapilli volcaniclastic c and volcaniclastic sub.		Co(1-2) : Co + Py(1-2)		195.4 bedding = 65° to CA.				
	197.0							196.5 bedding = 70° to CA. 196.9 fault = 20° to CA. 197.3 fault = 25° " " 197.8 fault = 25° " " 198.4 " = 20° " " .				
198			Polymict volcaniclastic	basaltic medium to fine lapilli volcaniclastic. Sub angular black shale, laminated shale, basaltic lava and grey sub volcaniclastic fragments. Interbedded with grey-green sub volcaniclastic. Minor carbonitic and micaceous sandstone clasts. sub volcaniclastic matrix.		Co(1-2)	Py. pot. (1).					
200						Co(2-3)					200.25 Petrology SIS674	
	200.3							201 bedding = 70° to CA. 201.3 fault = 80° to CA.				
202			sub volcaniclastic	green-grey sub volcaniclastic, devitrified in part, minor lapilli volcaniclastic and sandstone/shale interbeds.		Co + tr py (2) : Co(1)		202 - 202.5° fault = 5-10° to CA				
204						204.6 Co(2)		204.2 bedding = 65° to CA				
206											205.8 Petrology SIS676	
208												
210												

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EXPLORATION DIVISION

DIAMOND DRILL LOG

PROJECT : Mackintosh
PROSPECT: North Hatfield

HOLE NO: MAC 24 (VLHY)
PAGE: 6 of 12
LOGGED: AMEN
DATE: 4-6-89

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
212			ash volcaniclastic	green-grey patchily devitrified ash volcaniclastic		(Co(1))						
						Co(1)						
214												
216								216.6 bedding = 60° to CA.				
218											217.45 Petrology S15677	
220			220.9					220.9 fault = 30° to CA.				
222			Basaltic lava.	light pink, massive, partially devitrified feldspar-phyric lava with intrusive. weakly brecciated in part. 222 weakly brecciated : basaltic matrix.	220.9 - 221 Se(0-1)	(Co(1-2))	Dis. Py(1)					
224												
226				227 fine white leucoxene flecks obvious	clio Se+Cl (1-2)							
228												
230				229.9 lean grey fine tuff to ash volcaniclastic. 229.9 lean breccia with carbonate matrix.			229.9 clio Py(1)					
232												
234												
236												
238												
240				239.9 green fine tuff volcaniclastic - black shale, basaltic lava, 240.55 and grey ash volcaniclastic		239.9 Co(1) 240.0 Co + tr Py(1) + fine ?Cl + ?Py (1-2)	239.9 Py patch (2) 240.3	239.9 Contact = 35° to CA. 240.3 fault = 10° to CA.				
242												
244				244.4 Polymictic clastic, medium to coarse lapilli volcaniclastic 246.2 clasts to 12cm - sub rounded to angular 1cm. Sub angular to sub-rounded.		244.4 Co(1) 246.2 Co + Se (1) + Co(1).	244.4 clio Py(1). 246.2	244.4 fault = 30° to CA 244.5 fault: 25° 246.2 bedding = 60° to CA.				
246												
248												
250												
252												

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DIAMOND DRILL LOG

PROJECT : Mackintosh
PROSPECT : North Hatfield

HOLE NO : MH-24 (Kenv.
PAGE : 7 of 1
LOGGED : AMN.
DATE : 21-6-89

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
254			Dacite lava.									
256												
258					Cl+Se mot (2)			260.7 fault = 30° to CA.				
260				260.7 apparently oxidised, brown-green lava.	260.2 Ca+Cl(1) patch + spot. 260.5			260.17 fault = 45° to CA.				
262				262.4 - 262.5 Polymict (Dacite lava, shale, cut volcanic-clastic) flow top? volcaniclastic. irregular contact i brecciated dacite.				262.7 fault = 40° to CA. Hackout mag.				
264				262.4 - 263.5 volcaniclastic as above. Rock fragments May be pyritic.		263.5 Co + tr Se(1)					263.65 petrology SIS678	
266												
268				268.4 - 269.6 Dacite breccia with Carbonate matrix.		Co. vn (2)						
270												
272								272.9 fault = 45° to CA				
274						Co + Cl + tr. Py (1)						
276						276.9 Cl + Co + Py ~ fault		276.4 fault = 35° to CA. 276.9 fault = 20° to CA.				
278				278.2 "lithological change"				277.4 Iron Zone fault = 50° to CA.				
280			cut volcaniclastic.	280.0 - 280.7 breccia with carbonate filling. Gradational.		279.2 Co + py + tr. cp in (1) Co (2)		280.2 fault = 65° to CA.				
282				281.7 Sh. shale fragments & sericitic altered clasts clay alteration.				282.4 fault: broken Core				
284							284 Py (1) dis.	284.5 fault = 25° to CA. 285.5 fault = 20° to CA.				
286						Co (1)					286.95 Petrology SIS679	
288								Slight Conformable Contact = 55° to CA				
290			290.5 Gabbroic Vld.					290.6				
292			291.5 cut volcaniclastic	291.5 grey-green massive vlst + bensilli feldspar-pyrite rock fr. grey-green cut volcaniclastic + minor shale fragments		Co (2) Co (1)	Py (1) 291.5					
294												

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DIAMOND DRILL LOG

PROJECT : Mackintosh

PROSPECT : Black Hawk - North Hatfield

HOLE NO : MAC-20 (Wilhe...

PAGE : 8 of 12

LOGGED : A.M.N.

DATE : -6-89

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
296			Ash volcaniclastic	grey-green ash volcaniclastic ± minor shale fragments		Co(1)		Abrupt, slightly irregular Contact at 65° to CA.				
				298.8 grey partially devitrified ash volcaniclastic. Some large rounded devitrification textures.								
300				301.3 1.5cm dia massive pyrite clast?				Contact = fault? at 25 and 50° to CA.				
			302.2 Dacitic lava	green-brown massive dacitic lava ± irregular chlorite veinlets ± Carbonate lined vesicles.	302.6 Se(4) Cl(2)	Co+Cl(2) Co+py(1) 304 Qz+Co(1-2)	Py(1) diss. Py(1-2) diss. " "					
306						308 ↓ fine black sphalerite va.(1) 309.5 to py + Co+Co va.						
310				310 More vesicular.								
312			312.95	Strongly devitrified adjacent to Contact.	Se(1-2)		Py patch. (1-2)	Abrupt Contact = 50° to CA				
314			Ash volcaniclastic	grey ash volcaniclastic with shale partings and scattered shale clasts. large to 10cm dia grey devitrification ovoids. from 314.4-314.5 is medium lapilli volcaniclastic ± shale and dacitic lava clasts.		Qz+Co(1-2)	Py pat. (1)	314.5 bedding = 60° to CA.				
320												
322				322 scattered sericitic feldspar-phyric extrusive fragments. Matrix appears to coarsen slightly.								
324												
326												
328												
330												
332				332.95 1cm of breccia with Qz+Co matrix. 333.55 " " "				331.6 fault = 70° to CA. 333.1 fault = 65° to CA. Conformable Contact = 35° to CA.				
334			334.9 Shale	brecciated black-grey shale ± pyrite bands (also black) and very minor fine lapilli volcaniclastic interbeds.		(Co(1-2))	333.9 Py pat. (1-2) Py pat. (1-2)					
336												

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DIAMOND DRILL LOG

PROJECT : Mackintosh

PROSPECT : North Hatfield

HOLE NO : MHC 24 (VIHM)

PAGE : 9 of 12

LOGGED : AMIN

DATE : -6-89

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
358			Shale	laminated grey-black shale with minor ash volcaniclastic interbeds.		Co(1-2) : Py(1)	Py pat (1-2).					
360												
362												
364												
366								366.0 bedding = 55° to CA.				
				367.4 rounded breccia with carbonate rich matrix								
368							Py pat (2)					
370			370.1					370 fault = 70° to CA. Qz+Co+Cl veins.				
			Dacite lava	green to orange dark/light dacitic lava. feldspar-phyric feldspar altered to Sericite w/ calcite	Iron Se(2) on contact.	Co(2) Py(1) Co(1)						
374												
376			375.9	sharp irregular contact	Iron Se(1) on contact							
			Shale	laminated black-grey shale		Co(1) : Py(1)	Py pat (2-3) Py pat. (1)	378.4 bedding = 55° to CA.				
378												
380						Co(1-2)		380 fault = 60° to CA. ± some Qz+Co veins.				
382				381.7 Contorted bedding. 382 to polymict medium-coarse lapilli volcaniclastic clasts of shale, dacitic lava, and volcaniclastic and siltstone to 5cm diameter.				382 bedding = 45° to CA.				
384												
386				385.2 385.7 Dacitic lava	385.6 385.8 Se(DCo(1))							
			387					387.1 Contact = 55° to CA.				
388			ash volcaniclastic	grey-green weakly laminated ash volcaniclastic, ± thin interbedded shale (eg 388.5-389.0 m). Scattered and disintegration textures. laminae often sheared and contorted. ± possible lead cuts								
390												
392												
394												
396				396.7 breccia ± ash volcaniclastic matrix and ash to lapilli lapilli volcaniclastic fragments.		396.9-397.1 py (2-3)		397.4 fault = 10° to CA.				
398				398.4 398.8 shale in fault zone				398.1 398.7 fault zone - veined sheared ± minor py				

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DIAMOND DRILL LOG

PROJECT : Mackintosh

PROSPECT : North Halfield

HOLE NO : Mac 24 (Mac-)
PAGE : 10 of 12
LOGGED : AMcN
DATE : 7/87

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
			sch volcan clastic 379.1				379.1 sh py (1-2)					
370			Polygenic Coarse lapilli volcaniclastic	Medium to Coarse grained clasts (upto 7 cm dia) of laminated shale, sch volcaniclastic, dacite lava, grey Carbonate with lithologies and feldspar-phyric "phenocrysts" tuff. in a fine lapilli matrix. Clasts generally angular		Q+Co (1-2)						
			382.9 sch volcaniclastic 388.9	grey-green weakly laminated to massive sch volcaniclastic								
380			Polygenic volcaniclastic	green fine lapilli volcaniclastic grade over 10 cm into matrix to coarse volcaniclastic on about (379.1-382.9m)		Q+Co (1-2)		386 bedding = 65° to CA.				
			sch volcaniclastic	dominantly grey-green weakly laminated sch volcaniclastic with minor shale fragments. Some thin intervals of fine lapilli volcaniclastic (eg. 391.5m) from shale partings. intermittent light grey and grey-green units @ 394.		Q (1): Co (1): Co + Sk (1)	wl.	389.5° fault = 50° to CA. 391.0 fault, 60° to CA. 392.5 bedding = 45° to CA.				
390						Q+Co (1)						
								395.3 bedding = 65° to CA.				
				396.5 fine lapilli volcaniclastic c shale and dacite clasts. 396.7		Q+Co (1-2) +/- Q+Co+Sk (1)		396.9 fault = 25° to CA.			397.9 Petrology S15676 * Renumbered S15135	
400				Minor Carbonate ringed light-dark grey devitrification Clasts in sch volcaniclastic				401.7 hard cut/flame throughcut => facing up hole 402.25° fault = 75° to CA. Considerable micro faulting				
410						Q+Co (1)		404.6 bedding = 25-30° to CA. 410.7 fault = 50° to CA.				
				412.7 Poor sedimentary breccia, 95% sch fragments in a pink-brown sch matrix. rapid colour change to pk-brown with large dark-light colour patches. to 25 mm dia, with green rims and light grey-brown cores. 415.25° crack dia devitrification avoid.								
420												

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DIAMOND DRILL LOG

PROJECT : Mackintosh
PROSPECT : North Hatfield

HOLE NO : MNC-44 (Vert.)
PAGE : 11 of 12
LOGGED : AMcH
DATE : 7/89

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
422			coh. volcaniclastic	as above		Qtz (1)	nil					
424												
426											426.5 petrology 515677 * Remembered = 515736	
428												
430												
432								430.9 fault 431.1 fault.				
434												
436												
438												
440												
442												
444												
446												
448												
450												
452												
454			454 coh.-fine lapilli volcaniclastic	mottled pink-brown, green and light grey volcaniclastic with wispy devitrification features.			Py pat. (1)					
456												
458												
460				459.5 appearance of laminated polymict fine lapilli interbeds mostly feldspar-rhyolite c/ 'fiamme' like clasts and black shale clasts.			Py pat. (1-2) : diss Py (1-2) + ? massive pyrite clast?	459.2 fault - broken core 459.7 bedding = 50° to CA.				
462											Remembered - 515737P 462.5 petrology 515677 *	

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DIAMOND DRILL LOG

PROJECT : Mackintosh

PROSPECT: North Hatfield

HOLE NO : Mk-4 (WMY-1)

PAGE : 11 of 11

LOGGED : AMcN

DATE : 7-89

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
460			fine lapilli volcaniclastic	Polymict medium to fine lapilli volcaniclastic laminated pale green. Clasts of basaltic lava, pale volcaniclastic, shale and green basaltic "fiamme".								
466			465.9	Along? Conformable Contact				Contact = 85-90° to CA.				
			Shale	Black-grey shale		Qtz-Co (1-2)	Py patch, white carb lamy (1-2)					
468			468.4	Contact ↓				468.4 bedding = 90° to CA				
			sdy volcaniclastic	grey sdy volcaniclastic		Co (2)	469.9 Py patch (1)					
470				Olive green sdy volcaniclastic weakly laminated. Minor devitrification patches and basaltic spots.		Co (2) 472.1 Qtz-Co stringer in fault		471.7 fault = 85° to CA 472.1 fault = 60°				
472												
474								475.4 bedding = 20-25° to CA 476-476.1 Fault, broken core 476.5 fault = 60° to CA.				
476				grey-green weakly laminated sdy volcaniclastic. Some zones of monomict to weakly polymict breccia (eg 476-7m)		Qtz-Co (1-2) mainly associated with zones of brecciation						
478												
480												
482												
484												
486											484.8 Core orientation radial angle = 006 Core axis inclination = 52 ∴ So =	
488			488.8	EOH.							488.5 Core Orientation Radial angle = 355° Core axis inclination = 62 ∴ So =	
490												

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Attachment MAC 24

Sample No:	Depth	Description
515670	70.45m	Dacitic lava/intrusive
515671	158.7m	Dacitic lava/intrusive
515672	171.0m	Laminated siltstone and shale
515673	186.0m	Fine lapilli volcaniclastic
515674	200.25m	Coarse polymict lapilli volcaniclastic
515675	123.45m	Fine micaceous sandstone
515676	205.8m	Ash volcaniclastic
515677	217.45m	Ash volcaniclastic
515678	263.45m	Dacitic lava/intrusive
515679	286.95m	Fine grained volcaniclastic?

Attachment: DDH MAC 24

	Sample No:	Depth	Description
515135	~~515676~~	397.9	Shale
515136	~~515677~~	426.5	Ash volcaniclastic
515137	~~515678~~	462.5	Fine lapilli volcaniclastic

David Cowan & Associates Pty. Ltd.

PETROLOGICAL & GEOLOGICAL SERVICES

488463

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BRIDGEWATER, S.A. 5155
Telephone (08) 339 5560

Mr. A. W. McNeill,
Geologist,
Aberfoyle Resources Limited,
Exploration Division,
P.O. Box 952,
BURNIE/ TAS. 7320

24th August, 1989.

REPORT DCA 89/7/4.

YOUR REFERENCE:	Letters dated 27/6/89 and 4/8/89.
DATES RECEIVED:	28/7/89 and 9/8/89.
SAMPLE NO'S:	515670-515679 incl. and 515676A-515678A incl.
SUBMITTED BY:	A. W. McNeill.
WORK REQUESTED:	Petrology.

DAVID COWAN. M.Aus.I.M.M.

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

REPORT DCA 89/7/4.

A total of thirteen samples of drill core from DDH/ MAC-24 was received in two submissions (of ten, and subsequently three samples) for routine, petrological examination. All thirteen samples are incorporated into this report at the request of A.W. McNeill.

As the second group of three samples duplicated previously received sample numbers these samples were arbitrarily assigned the suffix-A to avoid confusion. As requested two representative thin sections were prepared from each sample. Sections are not strictly identical being prepared from separate offcuts, and the attached tabulated descriptions, summarising microscopic data, are, in a few cases, composites of the two sections examined.

SUMMARY.

As drilled and sampled the MAC-14 sequence comprises an altered felsic intermediate acid igneous "unit" (samples 515670, 515671) overlying a sequence of similarly altered sediments.

The "upper" unit exhibits leuco-andesitic/trend dacitic relict compositional characteristics and semi-chilled textural features. This unit is "amygdaloidal". Altered cavity fillings in sample 515670 were primarily quartzofeldspathic with textural features consistent with late magmatic/deuteric infilling of miarolytic vuggs. On this basis, and generally homogeneous textures this unit is interpreted as a minor intrusive.

The underlying sediments comprise a sequence of mainly altered tuffaceous, or distal-ashy, pelitic to psammopelitic rocks with intercalated coarser grained clastic sediments. Compositional detail is partly obscured by alteration and mild shearing effects but pelitic rocks typically exhibit relict "vitroclastic" microtextures. Coarser grained units are generally polymict but variably acid volcanic-derived (similarly the pelites) and include a distinctly conglomeratic unit (sample 515674) in addition to mass flow or turbiditic-textured units.

Sediments in general exhibit "intrabasinally" reworked carbonaceous-pelitic material and coarser grained units may include basement-derived clasts of low grade regional metasediment. The latter clastic assemblage is then similar to that of polymict units representing "breaks" in the dominantly volcanic QHV. However, these rocks appear devod of basic-intermediate volcanic debris and, more specifically, clastic (or detrital) chromite.

On these bases this sequence is considered as relatively "basal" and probably trending towards or flanked by a "rhyolitic" volcanic sequence.

mu : microns

488465

The sequence, as a whole, is rather uniformly altered with a sericite/Fe-carbonate assemblage locally accompanied by chlorite and/or quartz and disseminations of pyrite.

Fe-carbonate is replacive in part, presumably after a Ca-carbonate (?dolomite) as clasts and diagenetic concentrations within the sediments.

A few rocks exhibit late, partly fracture-controlled, development of kaolin as a partial replacement of sericite.

DAVID COWAN. M.AUS.I.M.M.

mu : microns

SAMPLE NO.: **515670.** (Section No. DCA 0093).

CLASSIFICATION: **Amygdaloidal Felsite.**

COMPOSITION: Frequent variably Fe-carbonate-stained sericite pseudomorphs (mean 500mu) after phenocrystal feldspar, minor similarly altered but leucoxenised opaque-stained phenocrystal ferromags. Disseminated amygdales (to 2mm) of quartz, sericite and cloudy microcrystalline sideritic carbonate. Altered groundmass of sericite and variably sericite-stained anhedral quartz (mean 100mu) with included sericitised feldspar microlites.

FABRIC: Strongly porphyritic, amygdaloidal, with evenly disseminated phenocrysts and amygdales in a felsitic ("snowflake-textured") groundmass.

ACCESSORIES: Conspicicuous very fine, minor coarser leucoxenised opaques, traces of extremely fine acicular apatite. Rare spherulitic-textured carbonate-stained sericite aggregates. Rare very fine pyrite.

COMMENTS: Amygdales are strictly altered quartzofeldspathic and on this basis reasonably interpreted as strictly miarolytic vuggs and this rock as a semi-chilled minor intrusive. Apparent primary composition was leuco-andesitic/dacitic with detail obscured by pervasive sericite-quartz-carbonate alteration. This rock is essentially unstressed.

mu : microns

SAMPLE NO.: 515671. (Section No. DCA 0094).

CLASSIFICATION: Amygdaloidal "Leuco-Andesite".

COMPOSITION: Disseminated sericite (-carbonate) pseudomorphed feldspar phenocrysts (mean 350mu, to 1mm). Subordinate leucoxene-stained quartz-carbonate-sericite pseudomorphs (mean 250 to 500mu) after lathic phenocrystal ?amphibole. Sporadic/minor quartz-carbonate micro-amygdales (mean 250mu). Altered groundmass of sericite and sericite-stained microcrystalline quartz (30mu) with pervasive clots of cloudy carbonate and minor sericite-quartz pseudomorphed feldspar micro-laths (20mu).

FABRIC: Similar to 515670. Reltively porphyritic, weakly amygdaloidal and finer grained with a felsitic/incipiently snowflake-textured groundmass.

ACCESSORIES: Semi-conspicuous more or less evenly disseminated leucoxenised opaques, rare very fine apatite. Thinly disseminated fine to ultra-fine pyrite partly concentrated in the altered ferromag. phenocrysts. Minor late discontinuous kaolin veinlets.

COMMENTS: Close compositional affinities with 515670 and similarly altered but relatively pyritic. In comparison this rock is finer grained and relatively lava-like but may represent a relatively chilled minor intrusive. Exhibits relatively abundant altered phenocrystal amphibole consistent with leuco-andesitic rather than strictly dacitic primary composition.

mu : microns

SAMPLE NO.: 515672. (Section No. DCA 0095).

CLASSIFICATION: Carbonaceous "Dolomitic" Pelite.

COMPOSITION: Semi-sericitic and abundant fine silt sized relict detrital muscovite with subordinatfe to minor silt-sized splintery to subangular detrital quartz. Semi-pervasive carbonaceous matter. More or less pervasive fine grained and coarser semi-lustre-mottled patches of Fe-carbonate, concentrated in sporadic (quartzose, micaceous) silty, semi-massive interbands (mesoscopically pale grey).

FABRIC: Intricately banded on a micro- to submillimetric scale with laminated micaceous silty shale units, sporadic relatively carbonaceous shaly and silty "dolomitic" partings/interbeds. Some relatively quartzose silty shale units are weakly graded, as are similarly the silty "dolomite" units. Very incipient concordant slaty cleavage with minor microscale high angle discordant carbonaceous microfractures.

ACCESSORIES: Rare recrystallised simple radiolaria and ?sponge spicules. Semi-conspicuous very fine clastic leucoxenic semi-opaques, rare zircons and apatite. Minor traces of ultrafine "syngenetic" pyrite.

COMMENTS: A finely banded micaceous, quartzose silty shale with silty "dolomitic" interbeds. Strongly carbonaceous, very weakly pyritic and incipiently microfossiliferous. The carbonate is a ferroan ("sideritic") variety and is interpreted as replacive, presumably after dolomite. No tangible volcanically-derived or tuffaceous features.

mu : microns

SAMPLE NO.: 515673. (Section No. DCA 0096).

CLASSIFICATION: Polymict Breccia.

COMPOSITION: Clastic framework (50%) of sericitised/variably sideritic carbonate-impregnated, poorly determinate lithic clasts, splintery angular to subangular/minor rounded quartz grains and minor composites; frequent clastic muscovite flakes and aggregates of sideritic carbonate/altered dolomite(?) rock. Matrix of silt to fine sand sized muscovite flakes, sericitised shard fragments, minor quartz and carbonate grains. Microcrystalline sericite-stained kaolinitic cement.

FABRIC: Randomly sorted, weakly bedded gritty fine to coarse sandy clastic; silt-supported and clay-cemented.

ACCESSORIES: Carbonaceous pelite and low grade regional metapelitic clasts, minor metaquartzite clasts. Clastic leucoxene, minor zircons. Minor quartz-carbonate veinlets. Thinly disseminated pyrite.

COMMENTS: Exhibit slump- or "mass flow debris" sedimentary breccia characteristics. Strongly polymict with a variety of intrabasinal sedimentary and basement-derived metasedimentary components and a partly reworked tuffaceous (fragmented-shardy in part) clastic matrix. Finer detail obscured by marked clay-carbonate alteration but no definite primary pyroclastic components.

mu : microns

SAMPLE NO.: **515674.** (Section No. DCA 0097).

CLASSIFICATION: **Polymict Breccia.**

COMPOSITION: Framework (75-80%) of quartz-sericite altered and variably carbonate-impregnated felsitic-devitrified acid (dacitic-rhyolitic) lava clasts, subordinate clasts of chert/impure (sericitic, sideritised-dolomitic(?) chert; minor quartz grains and carbonaceous pelite clasts. Cement of semi-sericitic white mica with a little sericite stained quartz and sporadic clots of sideritic carbonate.

FABRIC: Essentially lithoclastic grit/coarse sand-matrixed/sericite-cemented conglomeratic. Subangular to subround poorly sorted pebbly framework dominated by acid lava clasts.

ACCESSORIES: Altered lithoclast-hosted leucoxenised opaques. Thinly/semi-pervasively disseminated fine to ultrafine pyrite. Minor chlorite-selvedged quartz-carbonate veinlets. Rare coarse detrital muscovite.

COMMENTS: A dominantly acid volcanomict but strictly polymict sedimentary breccia, distinctly conglomeratic in comparison with 515673, relatively sericite-quartz altered, carbonate-deficient and relatively pyritic. Additionally apart from very minor coarse detrital muscovite flakes this rock is devoid of metasedimentary components.

mu : microns

SAMPLE NO.: 515675. (Section No. DCA 0098).

CLASSIFICATION: Altered Dolomitic Tuffaceous(?) Siltstone.

COMPOSITION: Aggregates of semi- to sericitic white mica with subordinate/variable proportions of silt sized splintery to subangular quartz and disseminated to conspicuous silt sized relict detrital muscovite flakes. Semi-pervasive spongy clots (mean 100mu) of cloudy sideritic carbonate, concentrated in relatively quartzose-micaceous silty bands (to 5mm wide). Semi-pervasive carbonaceous matter, partly as clastic silt-sized aggregates.

FABRIC: Planar- to lenticularly banded on a sub- to millimetric scale with minor incipient grading, scour and fill, and flaser microtextures. Essentially unsheared. Vaguely pseudomorphous sericite aggregates apparently replacive after splintery to subangular felsic (?feldspathic) debris. Rare late calcite veinlets.

ACCESSORIES: Semi-conspicuous fine silt sized clastic leucoxenic semi-opaques, rare zircons. Minor traces of pyrite.

COMMENTS: Primarily a semi-labile siltstone with clastic quartz and muscovite subordinate to feldspathic and/or ashy debris now obscured by sericitic alteration. Sideritic carbonate interpreted as secondary after dolomite. This rock is tentatively considered as primarily a composite of distal ashy, detrital, and reworked "intra-basinal" carbonaceous pelitic components.

mu : microns

SAMPLE NO.: 515676. (Section No. DCA 0099).

CLASSIFICATION: Altered Tuffaceous(?) Siltstone.

COMPOSITION: Aggregates of semi- to sericitic white mica with thinly/pervasively disseminated silt-sized relict detrital muscovite flakes, carbonaceous pelite clasts and splintery to subangular quartz grains. More or less pervasively disseminated spongy clots (mean 200mu) of cloudy Fe-carbonate. Irregular networks of variably continuous carbonate veinlets. Semi-pervasive late displacive carbonaceous microfractures.

FABRIC: Essentially similar to 515675; similarly but relatively flaser-microtextured and relatively massive/poorly banded. Mildly displacive carbonate veinlets, variably crenulated to mildly segmented by late carbonaceous microfractures.

ACCESSORIES: Conspicuous fine silt sized clastic leucoxenic semi-opaques, minor zircons, rare apatite. Rare spongy clots of pyrite in Fe-carbonate veinlets. Rare recrystallised radiolaria(?).

COMMENTS: Close affinities with 515675 and similarly interpreted as sericite-carbonate altered tuffaceous on microtextural grounds. Vague relict distal vitroclastic ashy type microstructures largely obscured by sericitisation and mild heterogeneous shearing/deformational effects.

mu : microns

SAMPLE NO.: 515677. (Section No. DCA 0100).

CLASSIFICATION: Altered Tuffaceous Pelite.

COMPOSITION: Aggregates of semi- to sericitic white mica weakly stained with ultrafine leucoxenic material partly concentrated into lensoid clots (mean 200mu diameter). Thinly disseminated silt sized clastic muscovite flakes, relatively minor quartz grains and carbonaceous pelite clasts. Sporadic spongy impregnations of sideritic carbonate (to 750mu diameter).

FABRIC: Massive to weakly banded and incipiently medium angle discordantly sheared. Exhibits essentially pervasive vague but diagnostic sericitic "ghosts" of fine silt sized vitroclastic debris.

ACCESSORIES: Fine silt sized clastic leucoxenic semi-opaques, rare zircons. Rare discontinuous microscale carbonate veinlets with minor traces of ultrafine grained galena(?).

COMMENTS: Affinities with 515675 and 515676. In comparison this rock is finer grained and exhibits relatively marked distal vitroclastic ashy characteristics. Essentially an impure pelitic ash with clastic/non-tuffaceous mica flakes and carbonaceous pelitic intraclasts. Pervasive sericitic alteration, with relatively minor associated Fe-carbonate, enhanced by incipient shearing effects.

mu : microns

SAMPLE NO.: 515678. (Section No. DCA 0101).

CLASSIFICATION: Altered Tuffaceous Pelite.

COMPOSITION: Aggregates of semi- to sericitic white mica with pervasively disseminated silt sized splintery to subangular quartz grains, subordinate carbonaceous pelite clasts and muscovite flakes. Semi-pervasive spongy clots/impregnations of sideritic carbonate with sporadic associated irregular discontinuous veinlets and minor intergrown chlorite.

FABRIC: Essentially massive (unbanded) silty clastic with sporadic carbonate (-chlorite-sericite) altered/poorly determinate sand sized lithoclasts. The sericitic matrix exhibits vague relict vitroclastic microtextures. Very incipiently sheared.

ACCESSORIES: Clastic leucoxenic semi-opaques, rare zircons and sericitised biotite flakes. Late displacive veinlets of ankeritic carbonate with disseminated blebs of chalcopyrite. Rare disseminated very fine pyrite.

COMMENTS: A sericite-carbonate (-chlorite) altered, vitroclastic ashy, slightly sandy-lithoclastic siltstone with close affinities to 515675, 515676 and 515677. "Sideritised" lithoclasts were probably initially limey (?dolomitic) in part at least, with minor selectively sericitised "volcanic" types. Carbonaceous matter virtually entirely clastic in silt-sized aggregates as in the associated (altered) ashy pelites.

mu : microns

SAMPLE NO.: 515679. (Section No. DCA 0102).

CLASSIFICATION: **Altered Dolomitic Tuffaceous Psammopelite.**

COMPOSITION: Framework (50%) of splintery to subangular silt to fine/minor medium sand-sized quartz grains and ankeritic carbonate lithoclasts with subordinate fine muscovite flakes and thinly disseminated clasts of carbonaceous shale. Microcrystalline sericite-stained kaolinitic matrix/cement with minor crypto- to microcrystalline quartz.

FABRIC: Poorly sorted weakly bedded silty to medium sandy clastic with a very vaguely relict vitroclastic-microtextured argillised matrix. Very incipiently sheared.

ACCESSORIES: Conspicuous fine clastic leucoxenic semi-opaques, minor zircons, traces of apatite. Minor discontinuous ankeritic carbonate veinlets. Minor late relatively continuous veinlets of microcrystalline kaolin and quartz.

COMMENTS: This rock exhibits certain turbiditic characteristics partly obscured by argillic alteration with kaolin apparently developing as a late partial replacement of sericite. Similarities with 515675 etc. but distinctly quartzose, micaceous and (altered) dolomitic-lithoclastic in comparison. In contrast to the broadly compositionally similar 515673 there are no definite basement (i.e. metasediment) -derived components. The vaguely tuffaceous matrix is supplemented by minor sericitised volcanic lithoclasts and embayed/fragmented volcanic quartz grains.

mu : microns

515135

SAMPLE NO.: ~~515676A~~. (Section No. DCA 0120).

CLASSIFICATION: "Cherty Argillite".

COMPOSITION: Aggreegates of semi- to sericitic white mica and crypto- to microcrystalline sericite-stained quartz with conspicuous fine silt sized clastic white mica flakes. Pervasive microscopic films and lensoid clots of carbonaceouse matter. Thinly disseminated rhombs (mean 25mu) of Fe- and minor relics of dolomitic carbonate.

FABRIC: Silty clastic and flaser-textured on a microscale with an incipient concordant slaty cleavage and sporadic late high angle discordant carbonaceous microfractures.

ACCESSORIES: Thinly disseminated silt to fine sand sized clastic quartz grains. Conspicuous fine silt sized clastic leucoxenic semi-opaques. Minor traces of ultrafine pyrite.

COMMENTS: Similarities with 515676 etc. and possibly similarly strictly a distal ashy silty pelite. Finer detail obscured by relatively fine grain-sizing and the poorly optically determinate sericitic quartz which may be primary, or alternatively, replacive.

mu : microns

515136

SAMPLE NO.: ~~515677A~~. (Section No. DCA 0121).

CLASSIFICATION: **Altered Ashy Pelite.**

COMPOSITION: Aggregates of semi- to sericitic white mica with thinly/pervasively disseminated silt-sized clastic quartz grains and muscovite flakes. More or less pervasively disseminated clots (mean 250mu) of sideritic carbonate, locally concentrated into lensoid semi-massive aggregates with minor associated discontinuous (Fe-) carbonate veinlets. Subordinate/variable proportions of cryptocrystalline quartz intergrown with sericite.

FABRIC: Weakly planar to lenticularly laminated with interspersed lenses of relatively massive carbonate. Incipiently concordantly sheared. More or less pervasively silty clastic/vaguely relict vitroclastic.

ACCESSORIES: Disseminated silt-sized clasts of carbonaceous matter/carbonaceous pelite. Fine silt sized clastic leucoxenic semi-opaques, extremely rare zircons. Rare very fine to ultrafine pyrite

COMMENTS: Close affinities with the overlying distal ashy dolomitic, carbonaceous, pelitic sediments and similarly altered with a replacive Fe-carbonate /sericiteassemblage. Relatively distinctly altered ashy-vitroclastic in comparison with 515676A although much finer detail is obscured by alteration and mild but penetrative shearing effects.

mu : microns

~~476~~
476

515137

SAMPLE NO.: ~~515678A~~. (Section No. DCA 0122).

CLASSIFICATION: **Altered Reworked Rhyolitic "Xenotuff".**

COMPOSITION: Aggregates of sericite and crypto- to micro-crystalline quartz with semi-pervasive clots and rhombs of sideritic carbonate. Minor clots of chlorite. Pervasively disseminated splintery to subangular/minor subround silt to fine-medium sand sized quartz grains. Minor sericite-stained clastic feldspar (oligoclase-albite) grains. Disseminated carbonaceous shale clasts.

FABRIC: Poorly sorted silty fine to medium sandy clastic with "furbiditic" bedding structures. Strongly lithoclastic with sericite-carbonate altered/ poorly determinate felsic lava and eutaxite-like clasts. Incipiently sheared.

ACCESSORIES: Minor clasts of chert/impure chert and low grade regional metapelite. Clastic muscovite flakes, conspicuous clastic leucoxenic semi-opaques, rare zircons, extremely rare apatite.

COMMENTS: A thoroughly altered turbidite-like sandy clastic facies dominated by altered rhyolitic debris which may be a composite of primary tuffaceous and reworked components. Xenolithic in carbonaceous pelitic, low grade regional metapelitic, chert clasts, and mica flakes. Affinities with for example 515679 but relatively tuffaceous; similarly altered.

mu : microns

ANALABS

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ANALYTICAL REPORT No. 23.3.08.06307

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ORDER No.	PROJECT
7380	

DATE RECEIVED	RESULTS REQUIRED
26/06/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	11/07/89	1	10

...ER ...OW	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PUL-VERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	515670/679	SC Prep: 006,010,011,012,013,016							Cu,Pb,Zn,Ag/101,As/114		
	515670/679	SC							Pd,Pt,Zr,Ti/401,Au/309		

RESULTS TO
Aberfoyle Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

RESULTS TO

REMARKS

MAC-24
PET.
(10)

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

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06307	11/07/89	7880	1 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	Ba	As	Cr	Zr
1	515670	<5	10	30	<0.5	<0.008	160	5	30	240
2	515671	5	115	660	<0.5	<0.008	240	4	<5	170
3	515672	55	100	165	<0.5	0.012	270	22	120	180
4	515673	15	20	45	<0.5	<0.008	280	16	80	260
5	515674	10	25	235	1.0	<0.008	210	12	20	150
6	515675	5	20	25	<0.5	<0.008	240	7	55	260
7	515676	5	20	75	<0.5	<0.008	210	11	55	140
8	515677	<5	<5	25	<0.5	<0.008	200	6	20	170
9	515678	130	<5	40	<0.5	<0.008	140	6	40	170
10	515679	100	15	425	<0.5	<0.008	140	31	60	280
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	0.008	10	1	5	5
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	101	101	309	401	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

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06307	11/07/89	7880	2 OF 2

TUBE No.	SAMPLE No.	Ti								
1	515670	1950								
2	515671	2150								
3	515672	3000								
4	515673	2450								
5	515674	2050								
6	515675	1850								
7	515676	2100								
8	515677	2000								
9	515678	2150								
10	515679	3050								
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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ANALYTICAL REPORT No. 23.3.08.06401

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8214	

DATE RECEIVED	RESULTS REQUIRED
07/08/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	16/08/89	1	3

ATE ES		PRE-TREATMENT							ANALYSIS		
EER OW	SAMPLE NUMBERS	DRY	CRUSH	SPLIT	PUL-VERISE	SIEVE	OTHER SEE REMARKS	NONE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	515676/678	DC	Prep: 006,010,011,012,013,016						Cu,Pb,Zn,Ag/101,As/114		
	515676/678	DC							Ba,Cr,Zr,Ti/401		
	515676/678	DC							Au,AuChk/309		

REMARKS

RESULTS TO

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

RESULTS TO

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

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06401	16/08/89	8214	1 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	AuChk	Ba	As	Cr
1	515676	15	90	170	<0.5	<0.008	–	320	20	20
2	515677	<5	<5	45	<0.5	<0.008	<0.008	300	5	<5
3	515678	<5	<5	40	<0.5	<0.008	–	290	7	15
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	0.008	0.008	10	1	5
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	101	101	309	309	401	114	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
	23.3.08.06401	16/08/89	8214	2 OF 2

TUBE No.	SAMPLE No.	Zr	Ti							
1	515676	240	2300							
2	515677	240	1950							
3	515678	190	3200							
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	50							
24	UNITS	PPM	PPM							
25	METHOD	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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Aberfoyle Resources Limited

EXPLORATION DIVISION

LAKE MACKINTOSH

EXPLORATION LICENCE 106/87

TASMANIA

PROGRESS REPORT FOR THE PERIOD

FEBRUARY 1989 TO APRIL 1990

VOLUME 3

APPENDICES 16-29

EL 106/87

FOLIO 94
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Aberfoyle - Burnie (1)
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VOL 3/4

188486

APPENDIX 16

Core Grinds

CORE GRIND SAMPLING - MACKINTOSH / HATFIELD

HOLE No. MAC2

DATE

No.	SAMPLE NUMBER	INTERVAL	ELEMENTS REQUIRED	ST	SAMPLE NUMBER	INTERVAL	ELEMENTS REQUIRED	ST
1	515686	0 - 9.9	Cu, Pb, Zn, Ba, As, Sb, Au, Ti3		515718	279.7-285.0	ave	
2	687	9.9 - 20.0	Cu, Ti and Zn DI.		719	285.0 -290.55	ave	
3	688	20.0 - 30	DI		720	STD		
4	689	30 - 40	DI		721	290.55-296.8	ave	
5	690	40 - 50	DI		722	296.8 - 302.15	ave	
6	691	50 - 60	DI		723	302.15-313.7	DI	
7	692	60 - 70	DI		724	313.7 - 323.9	ave	
8	693	70 - 80	DI		725	323.9 - 333.85	ave	
9	694	80 - 90	DI		726	333.85 - 343.65	shvy	
10	* 695	STD.	S		727	343.65 - 350.1	shvy	
11	696	90 - 100	DI		728	350.1 - 355.8	DI.	
12	697	100-110	DI		729	355.8 - 365.3	shvy	
13	698	110 - 120.6	DI		730	365.3 - 373.65	ave	
14	699	120.6-132.5	Ss		731	373.65 - 379.0	ave	
15	700	132.5-142.5	Ss		732	379.0 - 387.0	Dave	
16	701	142.5-147.5	Ss		733	387.0 - 397.0	ave	
17	702	147.5- 149.7	DI.		* 734	STD	S	
18	703	149.7 -150.9	Ss		735	397.0 -407.0	ave	
19	704	150.9-161.2	DI		736	407.0 - 417.0	ave	
20	705	161.2 - 171.9	Ss		737	417.0 - 427.0	ave	
21	706	171.9 - 181.9	Ss		738	427.0 - 437.0	ave	
22	707	181.9 - 187.7	Dave		739	437.0 -447.0	ave	
23	708	187.7 - 197.2	Ss		740	447.0 - 459.5	ave	
24	709	197.1 - 201.5	Dave		741	459.5 - 465.9	Dave	
25	710	201.5 - 211.5	ave		742	465.9 - 470.6	ave	
26	711	211.5 - 220.9	ave		743	470.6 - EOH	ave	
27	712	220.9 - 231.0	DI					
28	713	231 - 241	DI					
29	714	241 - 251	DI					
30	715	251 - 261	DI					
31	716	261 - 271	DI					
32	717	271 - 279.7	DI					

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ANALYTICAL REPORT No. 23.3.08.06418

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Burnie
Tasmania 7320

ORDER No.	PROJECT
8282	

DATE RECEIVED	RESULTS REQUIRED
14/08/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
6	22/08/89	1	58

STATE OF SAMPLES	PRE-TREATMENT								ANALYSIS		
SAMPLE NUMBERS	DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD
515686/743	CG	Prep: 016						Cu,Pb,Zn,Ag/101,As/114		
515686/743	CG							Au,AuChk/309		
515686/743	CG							Ba,Cr,Zr,Ti/401		

RESULTS TO
Aberfoyle Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

RESULTS TO

REMARKS

MAC-24
GRINDS.

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
le core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
ffing	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
ock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
oil	SO	nitric-perchloric	A5	volatilization	VO	chromotography	CHR
	PU	HF mixture	A6	ignition	IG	titration	TTN
er	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
issue	Tt	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
treams sediment	SS					fluorescence	FLUOR
eavy mineral	HM					inductively coupled plasma	ICP

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06418	22/08/89	8283	1 OF 6

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	AuChk	Ba	As	Cr
1	0-9.9 515686	50	30	205	<0.5	<0.008	–	200	22	350
2	9.9-20 515687	30	55	110	<0.5	<0.008	<0.008	150	8	20
3	20-30 515688	75	30	130	<0.5	0.012	–	230	26	25
4	30-40 515689	90	10	170	<0.5	<0.008	–	140	19	30
5	40-50 515690	15	5	135	<0.5	<0.008	–	130	14	15
6	50-60 515691	20	10	120	<0.5	<0.008	–	150	15	10
7	60-70 515692	10	10	60	<0.5	<0.008	–	160	17	20
8	70-80 515693	10	<5	75	<0.5	<0.008	–	160	8	<5
9	80-90 515694	15	<5	120	<0.5	<0.008	–	160	13	5
10	515695	SNR	SNR	SNR	SNR	SNR	–	SNR	SNR	SNR
11	90-100 515696	10	<5	80	<0.5	<0.008	–	190	20	15
12	100-110 515697	10	<5	55	<0.5	<0.008	–	200	15	7
13	110-120.6 515698	10	10	55	<0.5	<0.008	–	180	30	<5
14	120.6-132.5 515699	15	30	50	<0.5	<0.008	–	260	26	130
15	132.5-142.5 515700	40	20	100	<0.5	<0.008	–	280	28	60
16	142.5-147.5 515701	45	60	105	<0.5	0.009	–	320	47	90
17	147.5-149.7 515702	10	10	60	<0.5	<0.008	–	300	18	<5
18	149.7-150.9 515703	45	45	330	<0.5	<0.008	–	240	35	110
19	150.9-161.2 515704	10	25	170	<0.5	<0.008	–	230	22	9
20	161.2-171.9 515705	110	55	190	<0.5	<0.008	–	290	28	65
21	171.9-181.9 515706	65	25	70	<0.5	<0.008	–	320	35	95
22	181.9-187.7 515707	40	20	70	<0.5	<0.008	–	310	19	85
23	187.7-197.1 515708	40	50	105	<0.5	<0.008	–	250	18	45
24	197.1-201.5 515709	35	20	85	<0.5	<0.008	–	230	16	80
25	201.5-211.5 515710	20	20	100	<0.5	<0.008	–	230	14	45

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
	23.3.08.06418	22/08/89	8382	2 OF 6

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	AuChk	Ba	As	Cr
1	211.5-220.9 515711	10	15	30	<0.5	<0.008	–	230	24	35
2	220.9-231 515712	25	15	55	<0.5	<0.008	–	330	14	10
3	231-241 515713	15	10	30	<0.5	<0.008	–	360	4	10
4	241-251 515714	15	15	30	<0.5	<0.008	–	270	5	30
5	251-261 515715	15	20	45	<0.5	<0.008	–	320	3	10
6	261-271 515716	40	20	40	<0.5	<0.008	–	190	8	35
7	271-279.7 515717	25	15	35	<0.5	<0.008	–	200	6	30
8	279.7-285 515718	15	15	40	<0.5	<0.008	–	190	11	55
9	285-290.55 515719	30	15	50	<0.5	<0.008	–	190	9	60
10	515720	SNR	SNR	SNR	SNR	SNR	–	SNR	SNR	SNR
11	290.55-296.8 515721	20	20	60	<0.5	<0.008	–	210	10	80
12	296.8-302.15 515722	15	15	35	<0.5	<0.008	–	200	11	40
13	302.15-313.9 515723	15	30	110	<0.5	<0.008	–	270	14	35
14	313.9-323.9 515724	15	15	65	<0.5	<0.008	–	260	10	70
15	323.9-333.85 515725	20	15	55	<0.5	<0.008	–	230	7	85
16	333.85-343.45 515726	85	75	145	<0.5	<0.008	–	270	39	85
17	343.45-350.1 515727	90	50	115	<0.5	<0.008	–	240	31	130
18	350.1-355.8 515728	25	10	60	<0.5	<0.008	–	320	3	15
19	355.8-365.3 515729	50	45	205	<0.5	<0.008	–	310	22	65
20	365.3-373.45 515730	35	100	200	<0.5	0.013	–	320	14	25
21	373.45-379 515731	35	40	120	<0.5	<0.008	–	350	6	20
22	379-387 515732	70	50	205	<0.5	<0.008	–	360	13	20
23	387-397 515733	40	50	240	1.0	<0.008	–	270	11	10
24	515734	SNR	SNR	SNR	SNR	SNR	–	SNR	SNR	SNR
25	397-407 515735	30	35	140	1.0	<0.008	–	280	10	30

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
	23.3.08.06418	22/08/89	9262	3 OF 6

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	AuChk	Ba	As	Cr
1	407-417 515736	35	20	85	1.0	<0.008	–	240	10	20
2	417-427 515737	15	5	75	<0.5	0.011	–	220	5	6
3	427-437 515738	10	20	60	<0.5	<0.008	–	240	4	<5
4	437-447 515739	20	15	65	<0.5	<0.008	–	220	4	5
5	447-459.5 515740	20	15	70	<0.5	<0.008	–	210	6	75
6	459.5-465.9 515741	30	45	180	<0.5	0.012	–	230	12	<5
7	465.9-470.6 515742	40	55	210	<0.5	<0.008	–	220	17	25
8	470.6-488.8 515743	30	10	100	0.5	<0.008	–	180	6	8
9										
10										
11										
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14										
15										
16										
17										
18										
19										
20										
21										
22	SNR = Sample Not Received									
23	DETECTION	5	5	5	0.5	0.008	0.008	10	1	5
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	101	101	305	305	401	114	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
	23.3.08.06418	22/08/87	8262	4 OF 6

TUBE No.	SAMPLE No.	Zr	Ti	Ti/Zr						
1	515686	210	12250	58.3	TB					
2	515687	230	1650	7.2	DI					
3	515688	230	1650	7.2	DI					
4	515689	220	1500	6.8	DI					
5	515690	230	1600	6.9	DI					
6	515691	250	1700	6.8	DI					
7	515692	230	1600	6.9	DI					
8	515693	220	1550	7.0	DI					
9	515694	210	1550	7.4	DI					
10	515695	SNR	SNR							
11	515696	220	1600	7.3	DI					
12	515697	220	1600	7.3	DI					
13	515698	220	1550	7.0	DI					
14	515699	260	2100	8.1	Ss					
15	515700	270	1900	7.0	Ss					
16	515701	240	2450	10.2	Ss					
17	515702	230	2150	9.3	DI					
18	515703	190	2400	12.6	Ss					
19	515704	170	1850	10.9	DI					
20	515705	240	2350	9.8	Ss					
21	515706	250	2450	9.8	Ss					
22	515707	280	2200	7.8	Dvc					
23	515708	250	1700	6.8	Ss					
24	515709	210	1800	8.6	DYvc					
25	515710	200	1750	8.7	avc					

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
	23.3.08.06418	22/08/89	8282	5 OF 6

TUBE No.	SAMPLE No.	Zr	Ti							
1	515711	190	2050	10·8	avc					
2	515712	150	2000	13·3	DI					
3	515713	160	1900	11·9	DI					
4	515714	160	1800	11·2	DI					
5	515715	160	1850	11·6	DI					
6	515716	190	2150	11·3	DI					
7	515717	210	2350	11·2	DI					
8	515718	250	2900	11·6	avc					
9	515719	300	3050	10·2	avc					
10	515720	SNR	SNR							
11	515721	280	3100	11·1	avc					
12	515722	220	2050	9·3	avc					
13	515723	180	1950	10·8	DI					
14	515724	240	2250	9·4	avc					
15	515725	300	2750	9·2	avc					
16	515726	160	2950	18·4	Shgy					
17	515727	130	2950	22·7	Shgy					
18	515728	160	1900	11·9	DI					
19	515729	180	2950	16·4	Shgy					
20	515730	270	2950	10·9	avc					
21	515731	290	3000	10·3	avc					
22	515732	240	2950	12·3	DYvc					
23	515733	310	2900	9·4	avc					
24	515734	SNR	SNR							
25	515735	310	2900	9·0	avc					

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
	23.3.08.06418	22/08/89	8282	6 OF 6

TUBE No.	SAMPLE No.	Zr	Ti							
1	515736	300	2650	8.8	avc					
2	515737	320	2350	7.3	avc					
3	515738	300	2350	7.8	avc					
4	515739	310	2300	7.4	avc					
5	515740	290	2400	8.3	avc					
6	515741	230	3050	13.3	DYvc					
7	515742	210	1850	8.8	avc					
8	515743	230	1400	6.1	avc					
9										
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16										
17										
18										
19										
20										
21										
22	SNR = Sample Not Received									
23	DETECTION	5	50							
24	UNITS	PPM	PPM							
25	METHOD	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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485495

APPENDIX 17

Aberfoyle Exploration — GEOCHEMICAL SAMPLE LOGGER

Collected AMN.

PROJECT	BSS SIEVE SIZE CODE - MESH NUMBER	SITE TYPE CODE	CARD PUNCH	PRINT	VERIFY	DATE	SHEET
Mackintosh EL. I, Zone	A 200 D 80 G 30 B 150 E 60 H 20 C 100 F 40 Z - TOTAL	MALLEE SCRUB W KIMBERLITE PRODUCTS O FRESH ROCK R STREAM SEDIMENTS S SUBSOIL T RESIDUAL SOIL E SINGLE SURF. M	YES NO	YES NO		6/12/89	1 of 1

EASTINGS	NORTHINGS	SAMPLE NUMBER	DEPTH	SIZE FRACTION	SAMPLE TYPE	METAL VALUES PPM	GEOLOGICAL LOG
3925	6405	S17868			RC - ?o/c	Cr, Ti, Zr	Ox-s red-brown ?ductile lava.
3500	6410	869			RC - o/c	Cu, Pb, Zn, Ba, As, Ag, Cr, Ti, Zr	Massive feldspar-phyric Andesitic-Dacitic lava.
3650	6000	870			RC - fill.	" " " "	Dacitic lava breccia. ? Could be altered andesite
3765	6000	871			RC - o/c	" " " "	Andesitic lava
3855	6000	872			RC - o/c	" " " "	Dacitic lava breccia.
4080	6290	873			RC - o/c	Cr, Ti, Zr	leached/oxidised Dacitic lava
4150	6350	874			RC - o/c	"	" "
4175	6440	S17875			RC - o/c	"	? Basalt lava.

34

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

Phone (09) 458 7999 52 Murray Road, Welshpool, W.A. 6106 Telex AA92560

(34)

ANALYTICAL REPORT No. 23.3.08.06743

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

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

ORDER No.	PROJECT
9306	

DATE RECEIVED	RESULTS REQUIRED
19/12/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
1	08/01/89	1	8

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
	317,868/875	RC Prep: 008,010,011,012,013,016							Cr,Ti,Zr/401		
	(317,869/872	RC Prep: 008,010,011,012,013,016							Ba,As/401		
	(317,869/872	RC							Cu,Pb,Zn,Ag/101		

RESULTS TO

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

RESULTS TO

REMARKS

I Zone
Rock chips.

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
hole 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
ck	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
il	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
lp	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
ream sediment	SS					fluorescence	FLUOR
avy mineral	HM					inductively coupled plasma	ICP

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No	PAGE
	23.3.08.06743	08/01/89	9306	1 OF 1

TUBE No.	SAMPLE No	Cu	Pb	Zn	Ag	Ba	As	Cr	Ti	Zr
1	517868	—	—	—	—	—	—	70	3300	180
2	517869	35	20	100	<0.5	240	8	1150	4250	240
3	517870	10	<5	115	<0.5	880	<2	30	2600	210
4	517871	95	110	255	<0.5	850	5	40	2400	140
5	517872	15	5	80	<0.5	750	3	<5	1750	180
6	517873	—	—	—	—	—	—	8	2050	260
7	517874	—	—	—	—	—	—	150	2950	300
8	517875	—	—	—	—	—	—	260	4650	100
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	10	2	5	50	5
24	UNITS	PPM	PPM	PPM	PPM	ppm	ppm	ppm	ppm	ppm
25	METHOD	101	101	101	101	401	401	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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486499

APPENDIX 18

439

488500

ABERFOYLE RESOURCES LIMITED

EXPLORATION LICENCE 106/87

MACKINTOSH

Tasmania

Technical Report

I-ZONE UTEM PROGRAM

DECEMBER 1988

Prepared by:

J J Read
Geophysicist

Issued by:

J Silic
Chief Geophysicist

Distribution

1. Aberfoyle Resources Limited, Burnie
2. Aberfoyle Resources Limited, Hawthorn

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1. Abstract

2. Introduction

3. Aberfoyle UTEM Program

   3.1 Loop One
   3.2 Loop Two

4. Interpretation of the I-Zone UTEM

   4.1 Loop One
   4.2 Loop Two

5. Conclusions and Recommendations

APPENDICES

Appendix 1 - I-Zone Loop 1 UTEM Data

PLATES

	Scale
Mac 221 - I-Zone UTEM Interpretation Loop One	1:10,000
Mac 222 - I-Zone Follow-up UTEM Loop Positions Loop 2	1:10,000

488502

1. ABSTRACT

A UTEM survey was conducted at I-Zone on the Mackintosh exploration licence during December 1988. 3.5 line/km of 50 m spaced single Hz component data was collected. This data revealed a conductive feature exists from 4500E to 4800E, on all lines from 5800N to 6600N. Due to powerline interference the data collected did not allow diagnostic features of the conductive zone to be determined. An additional 800 m x 1 km loop was recommended to further define the anomaly by collecting 25 m spaced UTEM data. This data collected in January 1989 revealed this feature to be a lithological conductor of no further interest.

2. INTRODUCTION

The Mackintosh EL has had a significant proportion of the prospective Que-Hellyer volcanics covered with UTEM prior to 1988. I-Zone, situated 1 km south west of the Que River Mine, was one section of the prospective volcanics, that had not been covered with UTEM. This region consisted of a 1.2 km x 0.8 km area situated in close proximity to a HEC powerline corridor and extending 300 m into Hellyer Gorge. In order to complete the UTEM coverage south of Que River, a small one loop program was conducted at I-Zone in December 1988. A conductive feature located by this survey was further investigated, by another one loop survey conducted in January 1989.

Access to the I-Zone area is gained via a formed dirt track running off the Murchison Highway near Mt Charter, that runs north east along the HEC powerlines towards Que River. All grid lines covered by this survey transect this track.

The topography of the area varies from undulating rain forest to steep heavily wooded slopes that extend into the Southwell River.

3. ABERFOYLE UTEM PROGRAM

3.1 Loop One (December 1988)

The I-Zone program to complete the UTEM coverage south of Que River, was designed to collect 6.0 line/km of UTEM data, along five lines from 5800N to 6600N. 1.2 line/km of data was to be collected from each line, with 300 m of data collected inside loop 1 and 900 m outside the loop. In loop data was aimed at detecting flat lying targets, while the out of loop data aimed at detecting moderately to steeply dipping targets.

Substantial modification of the initial program was required after a far greater degree of powerline noise

than anticipated was detected. It was not possible to collect data for 200 m either side of the powerline corridoor. Consequently, no in loop data was collected and the region from 4100E-3800E, 5800N-6600N remains untested by UTEM.

Only 3.5 line/km of the planned 6 line/km, of 50 m spaced single Hz component data was collected. This data was collected using a single UTEM receiver, in four production days at an average daily rate of 0.875 line kilometres. The per kilometre cost of the data was $1842.

The slow production rates and consequent high per kilometre cost of the data, was entirely due to the interfering effects of the HEC transmission lines. In an effort to decrease the powerline interference, long and repeated stacks for each stations reading were required. Routinely three readings were taken per station with these readings combined to produce the final Hz value. Even with the long reading times employed (either 8K or 16K stacks), the data quality was poor, severely hampering interpretation.

3.2 Loop Two (January 1989)

Loop two was designed to investigate a conductive feature identified from loop one. Due to the poor quality of the loop one data it could not be decided if the conductive feature represented a conductor at depth or was a surficial feature. By placing loop two to the east of this zone, away from the powerlines, it was hoped that better quality data, revealing the nature of this conductive zone, would be obtained. From loop two 3.8 line/km of predominantly 25m spaced single Hz component data was obtained.

4. INTERPRETATION OF THE I-ZONE UTEM

4.1 Loop One

Due to the poor quality of the Loop 1 UTEM data, interpretation concentrated on identifying features that showed coherent line to line characteristics. If a coherency could be observed then some confidence could be placed in interpreting real EM effects.

The interpretation of the I-Zone UTEM data is shown in plate Mac 221. A conductive zone is evident on all lines from 5800N to 6600N occurring between 4500E and 4800E. On lines 5800N, 6000N and 6200N an early time response due to a weakly conductive lithological unit or differential weathering trough, overprints the conductive feature. The UTEM anomaly is best developed on line 6000N where the conductive response persists in time until UTEM channel 3. Qualitatively, this indicates the anomaly is due to a "good" conductor. Because of the poor quality of the data, few diagnostic features of the postulated conductive zone could be determined from the loop 1 data.

The powerline interference caused the secondary Hz field to not decay monotonically in time. In many instances later time channels exhibit larger amplitudes than earlier channels. Because of this erratic behaviour the decay constant of the anomaly could not be determined. Consequently whether the anomaly is current channelling or inductive in nature, could not be determined.

4.2 Loop Two

The EM data collected from loop two is of significantly higher quality relative to the loop 1 data. Because of the closer spacing of data points the true shape of the conductive response extends to UTEM channel 6, but not until channels 3 and 4 as suspected from loop one data. No other conductive late time responses were identified from loop two.

The shape and fast decay of the anomalous response, identifies it to be due to a shallow lithological conductor not a significant sulphide accumulation at depth. No further UTEM is necessary to delineate this.

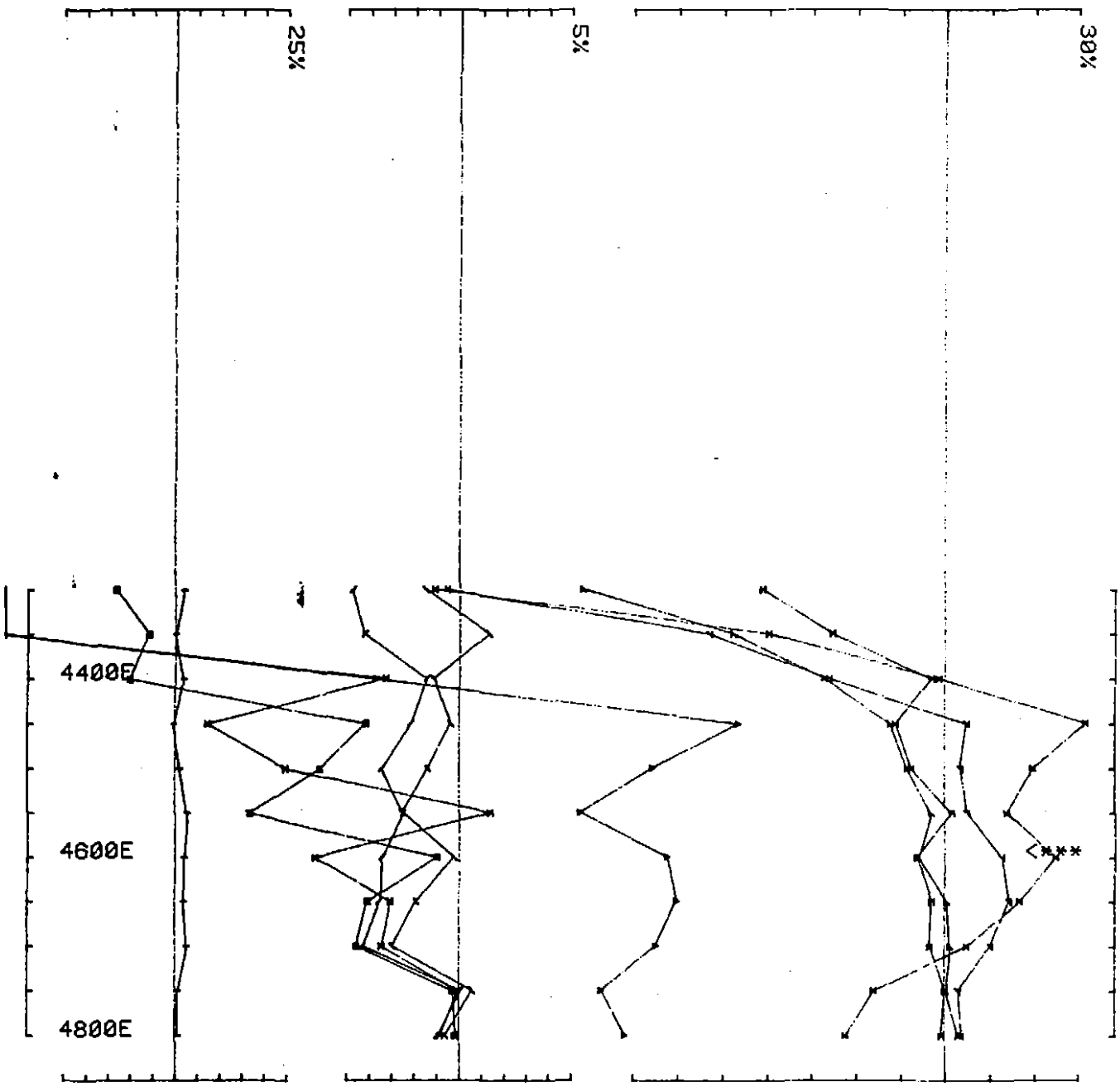
5. CONCLUSIONS AND RECOMMENDATIONS

Loop One of the I-Zone UTEM survey, despite having data strongly polluted by powerline noise, located a conductive feature, occurring between 4500E-4800E on lines 5800N-6600N. A second loop of UTEM data revealed this conductive zone to be a shallow lithological conductor. This conductor does not represent a target with significant potential and should not be investigated further.

The I-Zone area of the Mackintosh EL has now been covered with UTEM and no significant conductors were detected. The only possibility for conductors existing at depth at I-Zone is along the HEC powerline corridoor. Electrical geophysical methods can not be used to explore in this region.

Appendix 1

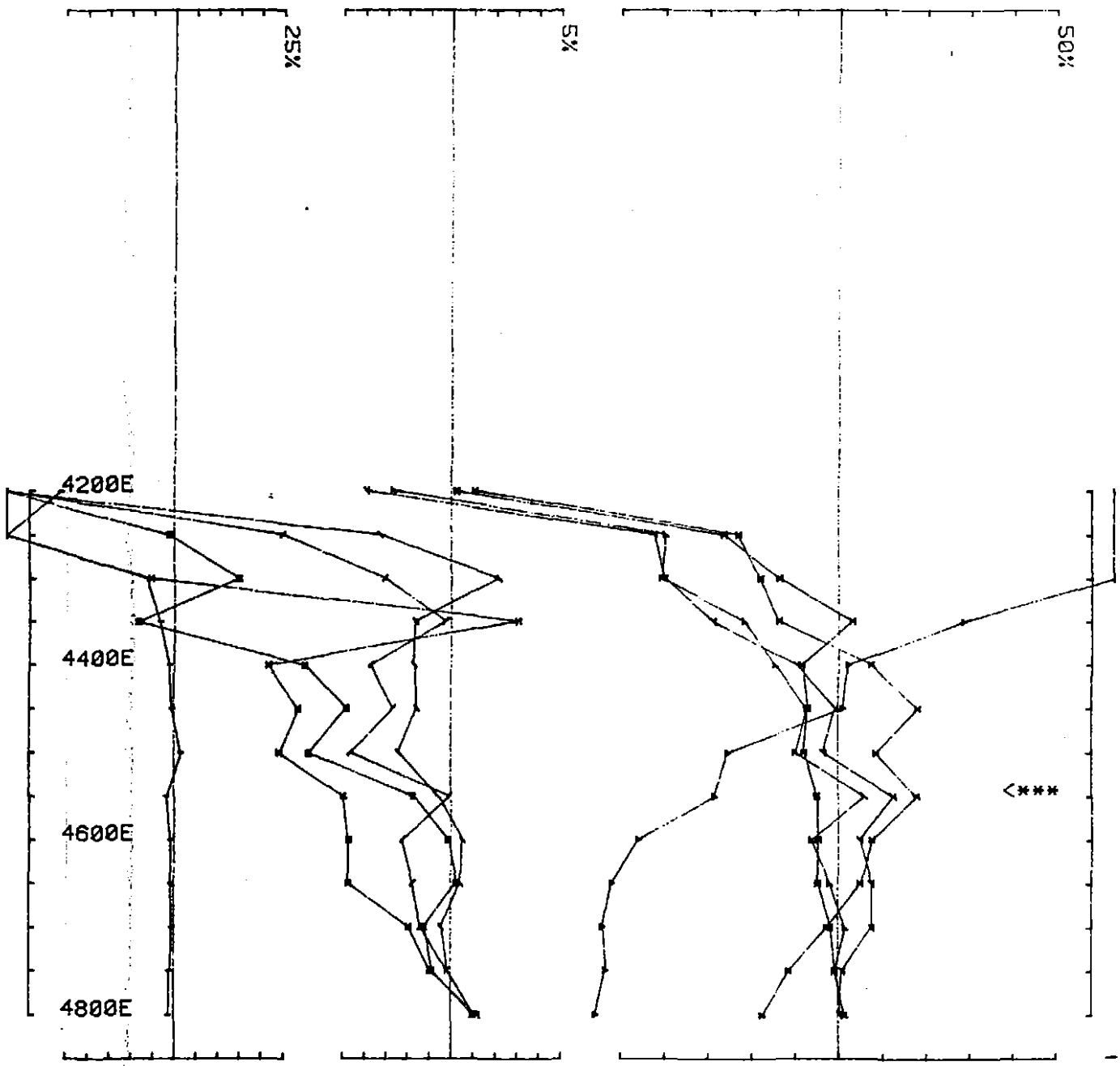
I-ZONE LOOP 1 UTEM DATA



LAMONTAGNE GEOPHYSICS LTD job 8861
client ABERFOYLE RESOURCES LTD
area MACKINTOSH
UTEM SURVEY at base freq (hz) 26.230

loop dimensions
800x800m

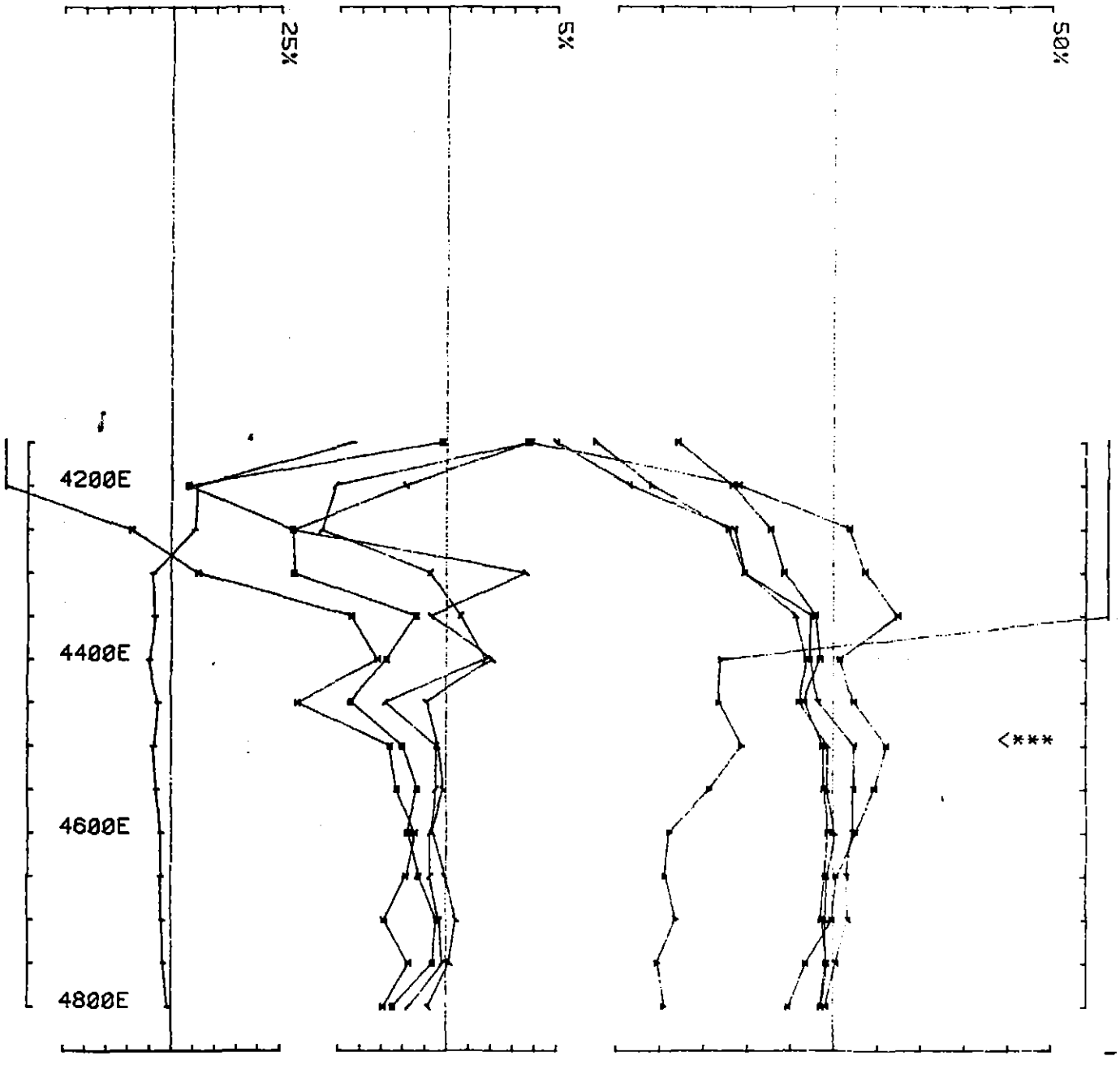
loop no 1
line 6600N
component Hz
secondary field
Ch 1 point norm.
07/12/88



LAMONTAGNE GEOPHYSICS LTD job 8861
client ABERFOYLE RESOURCES LTD
area MACKINTOSH
UTEM SURVEY at base freq (hz) 26.230

loop dimensions
800x800m

loop no 1
line 6400N
component Hz
secondary field
Ch 1 point norm.
07/12/88

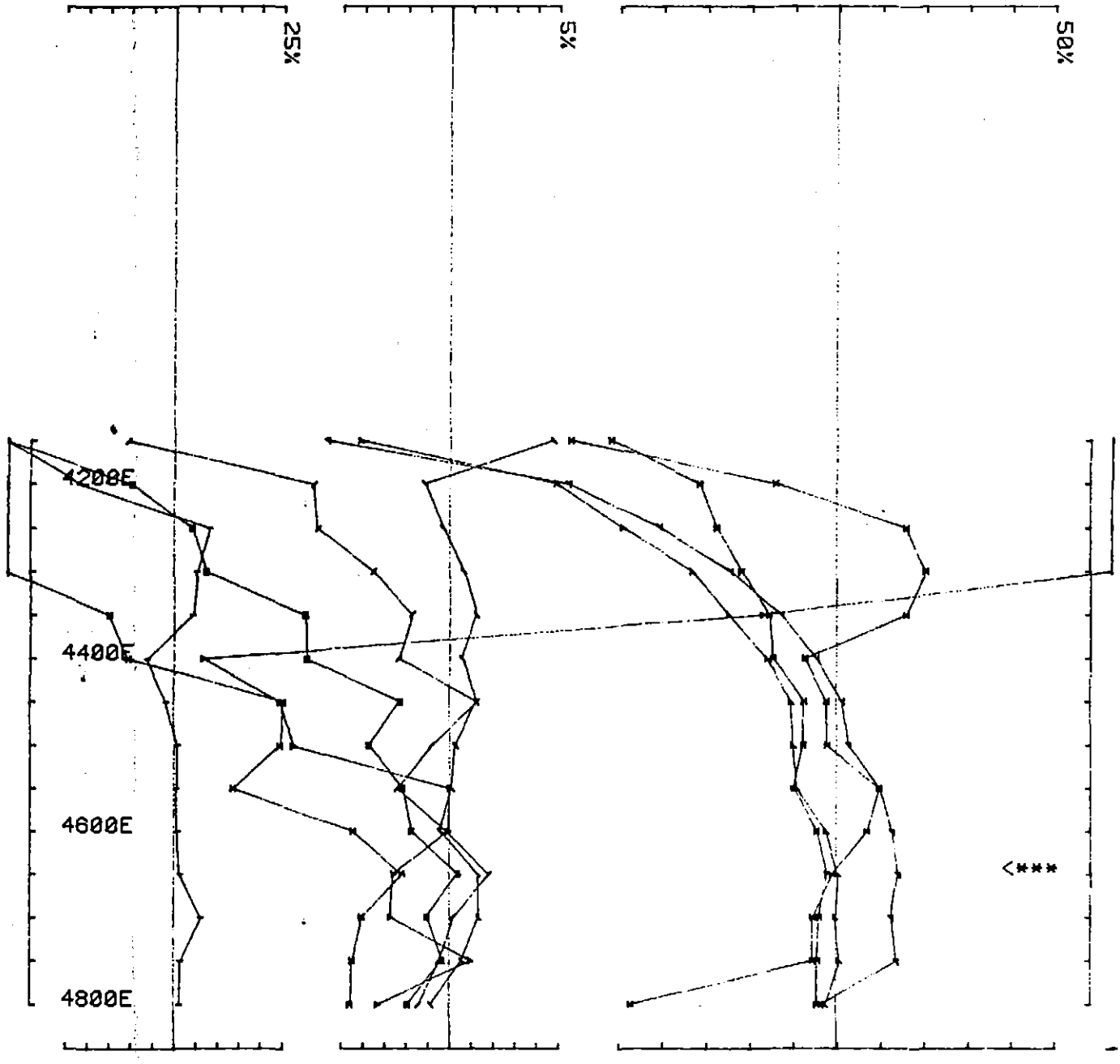


LAMONTAGNE GEOPHYSICS LTD job 8861
client ABERFOYLE RESOURCES LTD
area MACKINTOSH
UTEM SURVEY at base freq (hz) 26.230

loop dimensions
800x800m

loop no 1
line 6200N
component Hz
secondary field
Ch 1 point norm.
03/12/88

488511



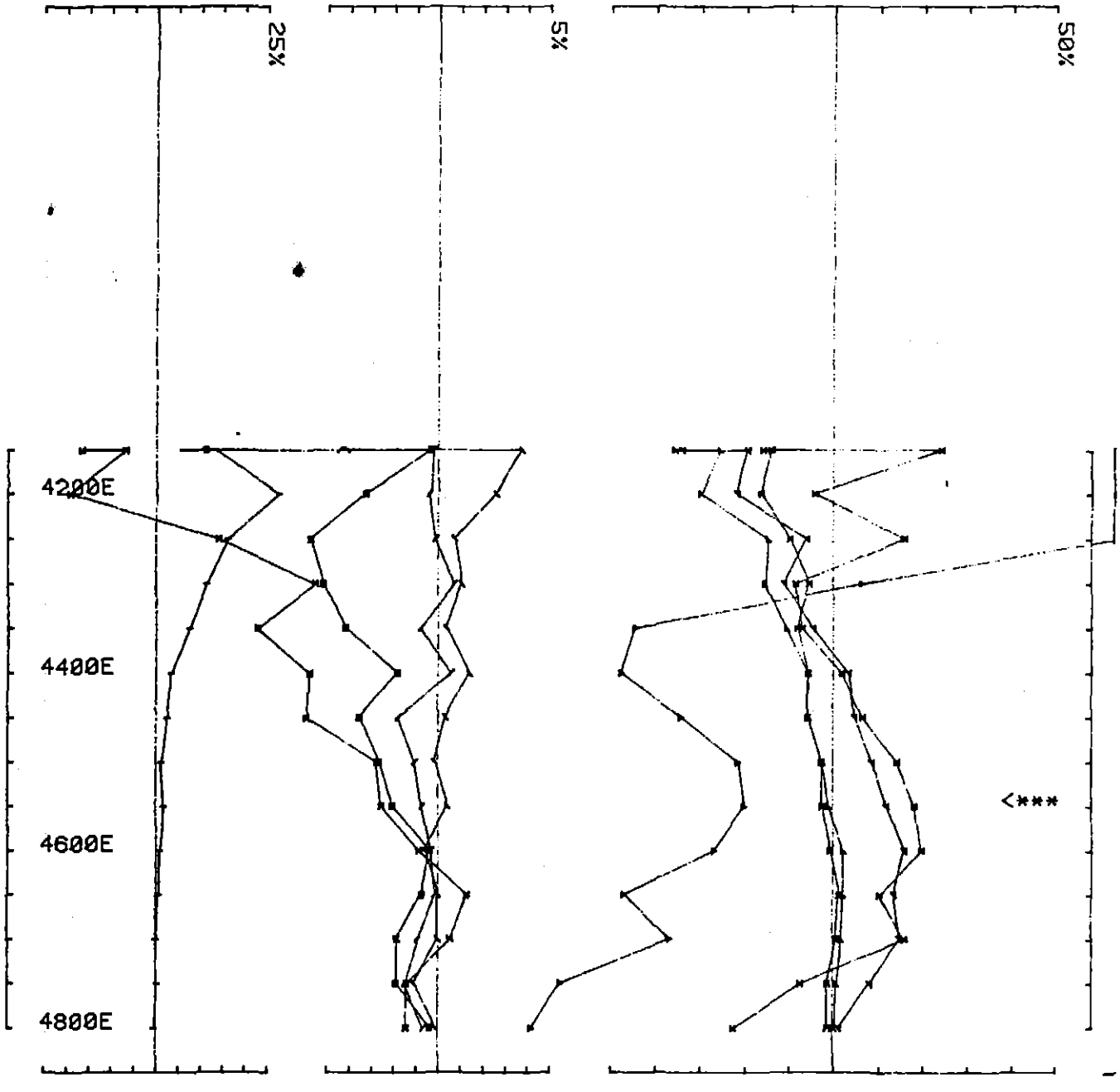
LAMONTAGNE GEOPHYSICS LTD job 8861
client ABERFOYLE RESOURCES LTD
area MACKINTOSH
UTEM SURVEY at base freq (hz) 26.230

loop dimensions
800x800m

loop no 1
line 6000N
component Hz
secondary field
Ch 1 point norm.
30/11/88

488512

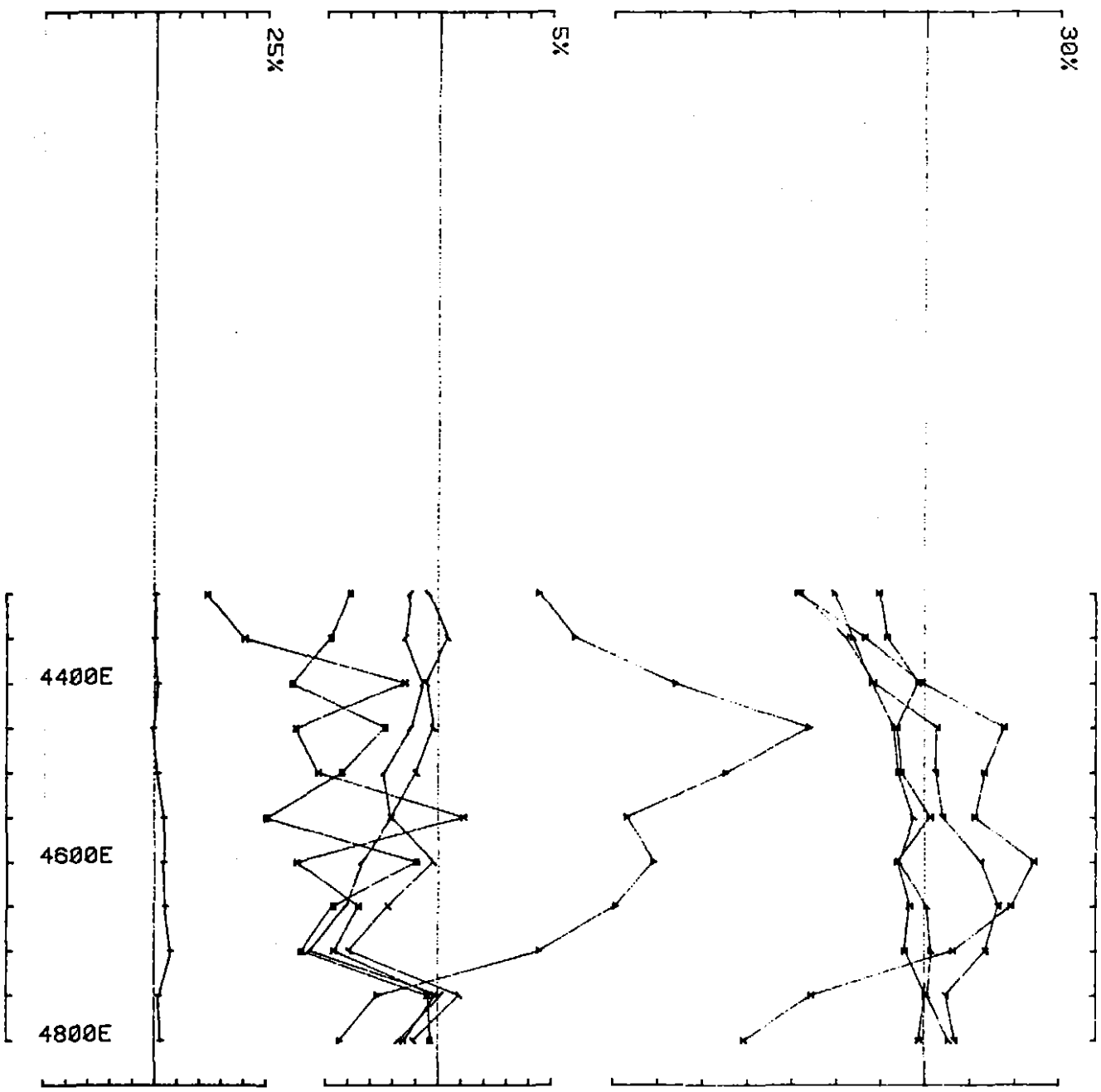
511



LAMONTAGNE GEOPHYSICS LTD job 8861
client ABERFOYLE RESOURCES LTD
area MACKINTOSH
UTEM SURVEY at base freq (hz) 26.230

loop dimensions
800x800m

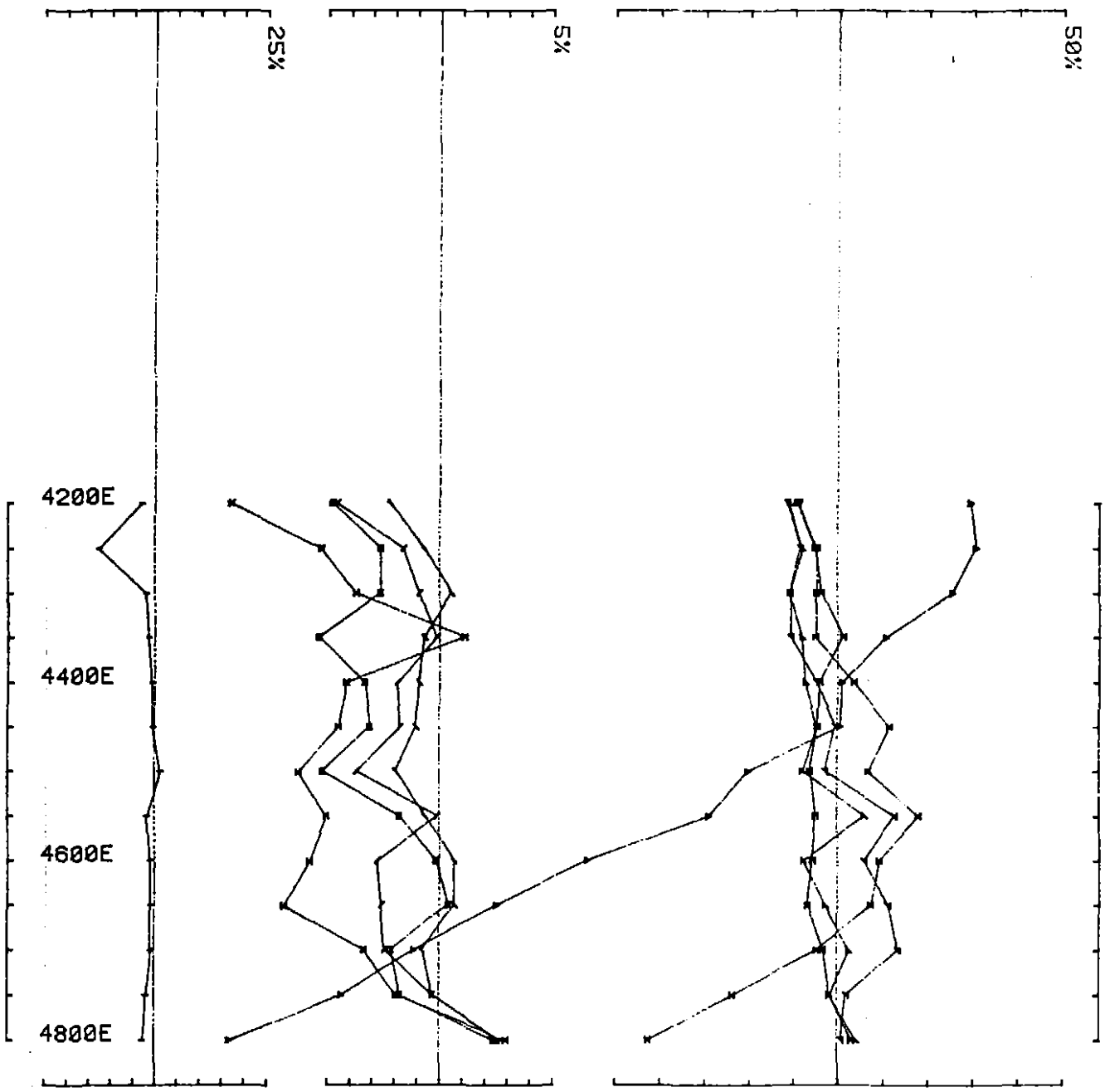
loop no 1
line 5800N
component Hz
secondary field
Ch 1 point norm.
29/11/88



LAMONTAGNE GEOPHYSICS LTD job 8861
client ABERFOYLE RESOURCES LTD
area MACKINTOSH
UTEM SURVEY at base freq (hz) 26.230

loop dimensions
800x800m

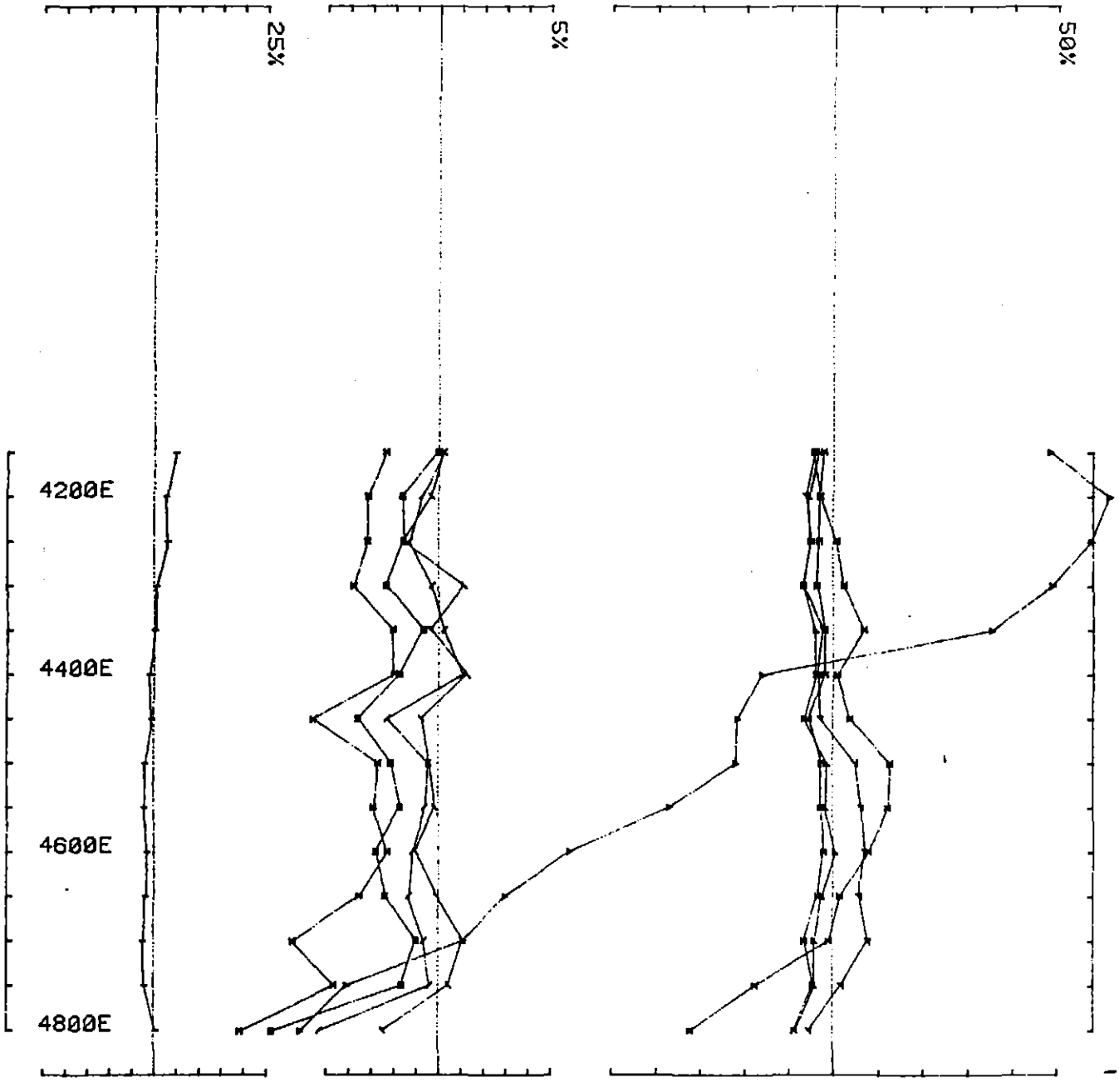
loop no 1
line 6600N
component Hz
secondary field
Chl contin norm
07/12/88



LAMONTAGNE GEOPHYSICS LTD job 8861
client ABERFOYLE RESOURCES LTD
area MACKINTOSH
UTEM SURVEY at base freq (hz) 26.230

loop dimensions
800x800m

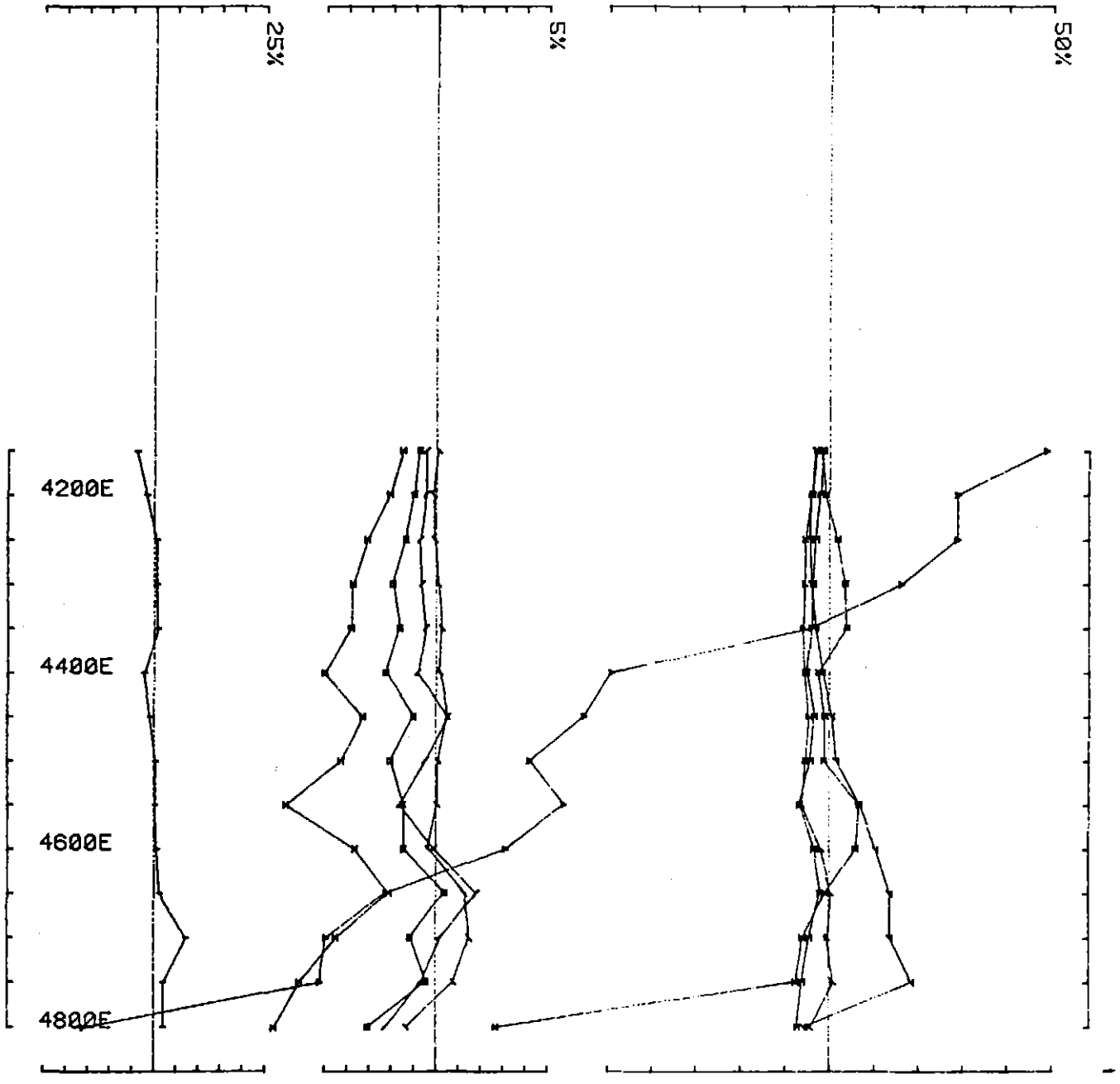
loop no 1
line 6400N
component Hz
secondary field
Ch1 contin norm.
07/12/88



LAMONTAGNE GEOPHYSICS LTD job 8861
client ABERFOYLE RESOURCES LTD
area MACKINTOSH
UTEM SURVEY at base freq (hz) 26.230

loop dimensions
600x800m

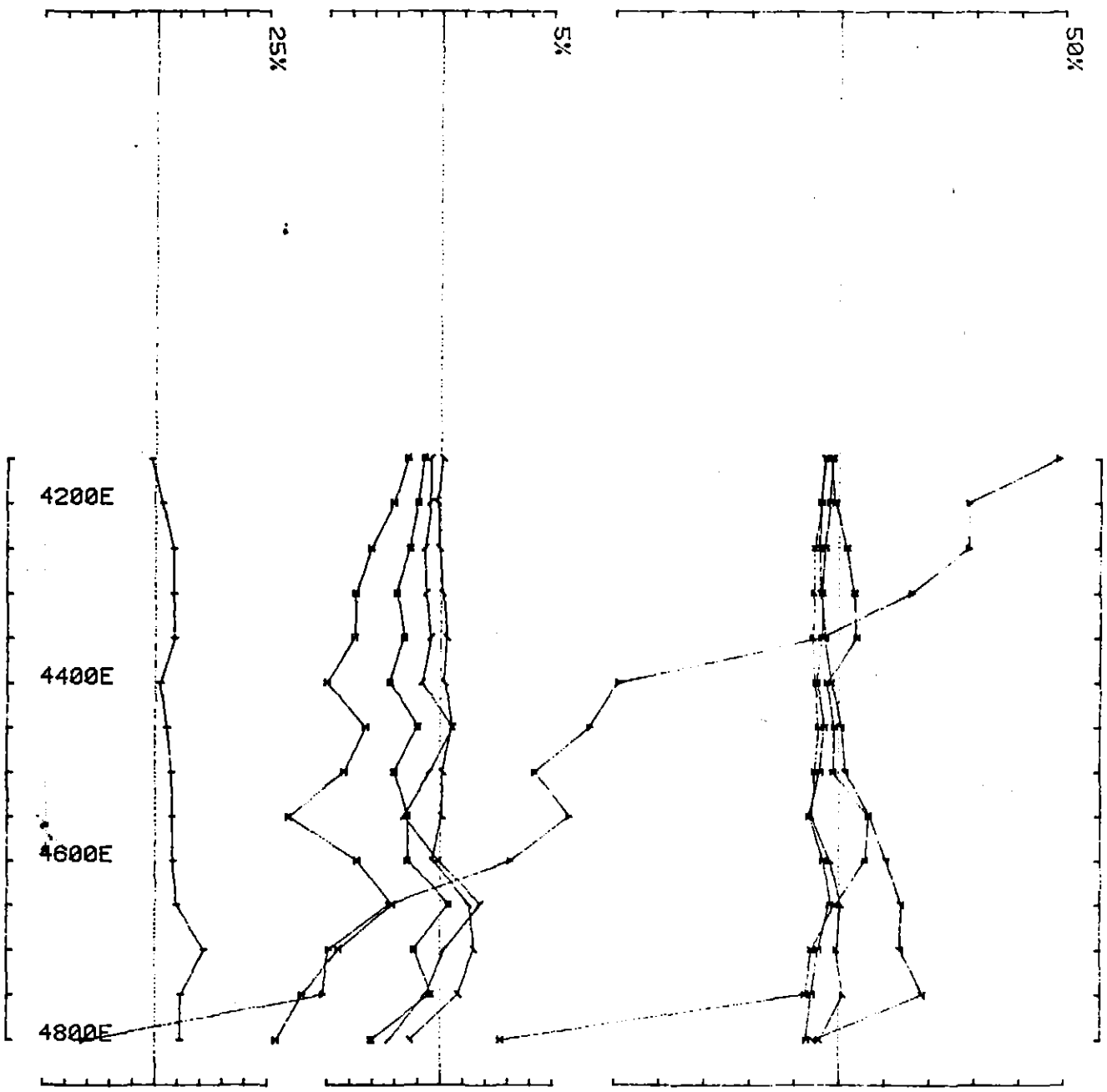
loop no 1
line 6200N
component Hz
secondary field
Chl contin norm.
03/12/88



LAMONTAGNE GEOPHYSICS LTD job 8861
client ABERFOYLE RESOURCES LTD
area MACKINTOSH
UTEM SURVEY at base freq (hz) 26.230

loop dimensions
600x800m

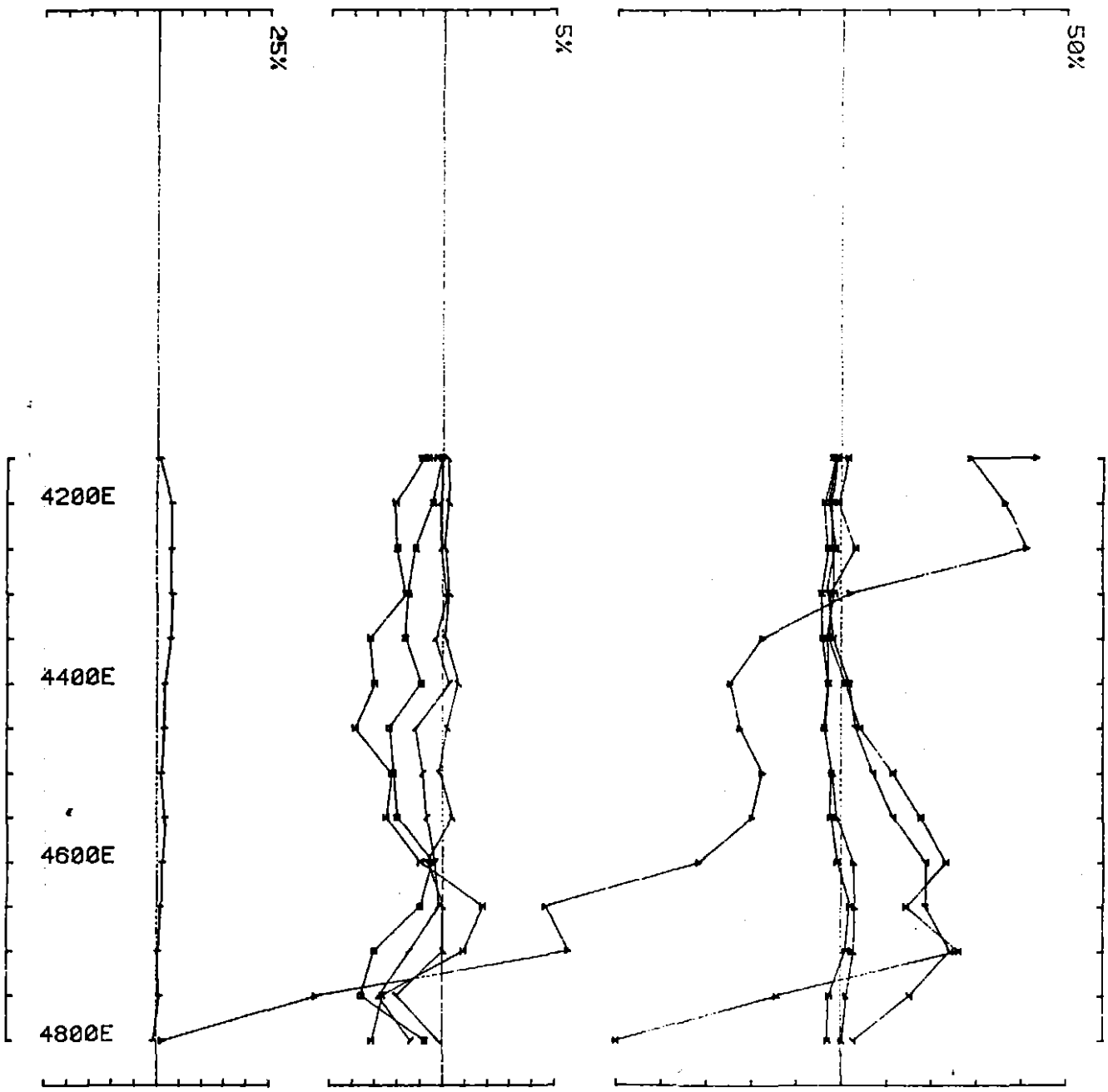
loop no 1
line 6000N
component Hz
secondary field
Chl contin norm.
30/11/88



LAMONTAGNE GEOPHYSICS LTD job 8861
client ABERFOYLE RESOURCES LTD
area MACKINTOSH
UTEM SURVEY at base freq (hz) 26.230

loop dimensions
800x800m

loop no 1
line 6000N
component Hz
secondary field
Chl contin norm
30/11/88

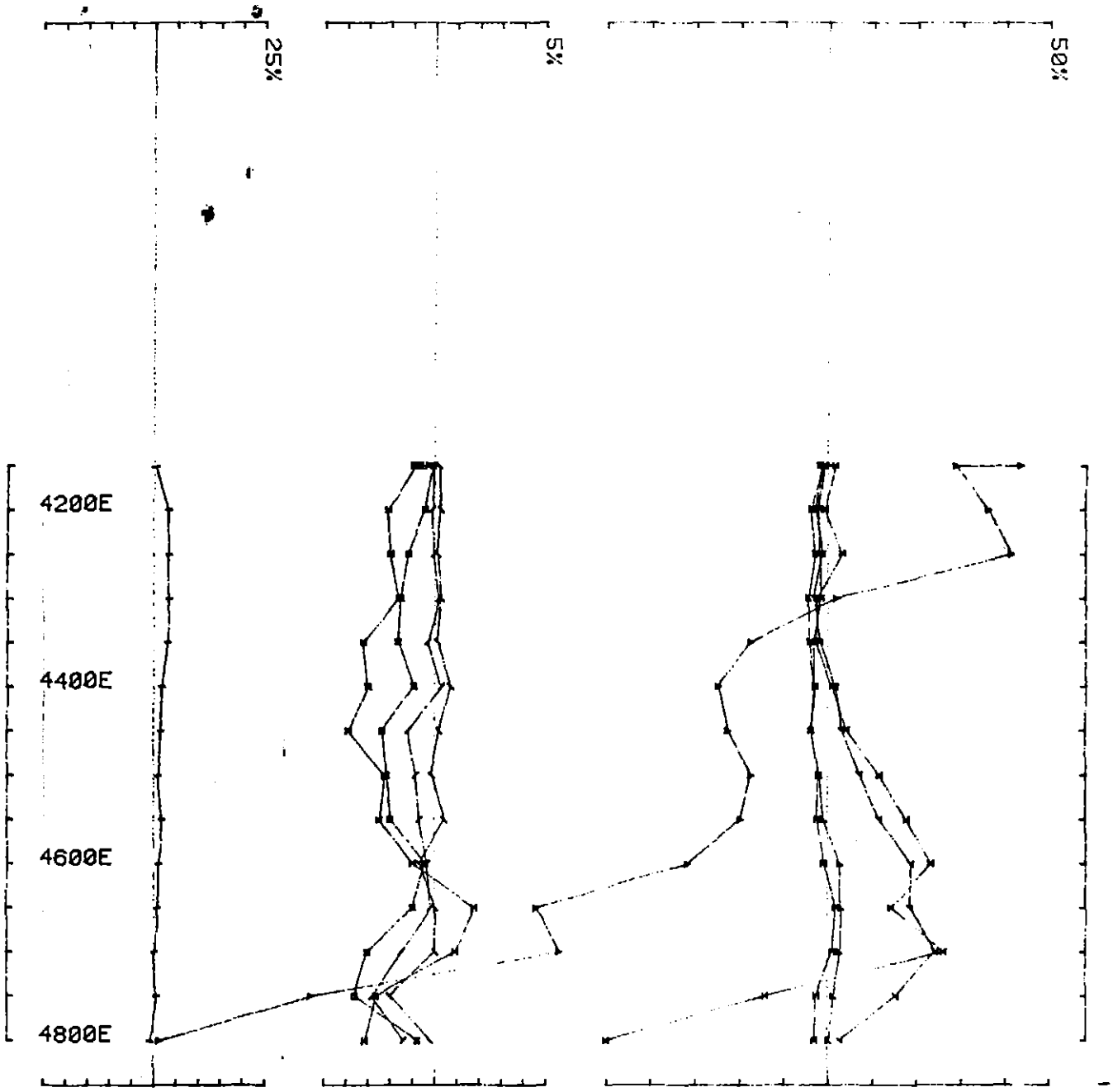


LAMONTAGNE GEOPHYSICS LTD job 8861
client ABERFOYLE RESOURCES LTD
area MACKINTOSH
UTEM SURVEY at base freq (hz) 26.230

loop dimensions
800x800m

loop no 1
line 5800N
component Hz
secondary field
Ch1 contin norm
29/11/88

488519



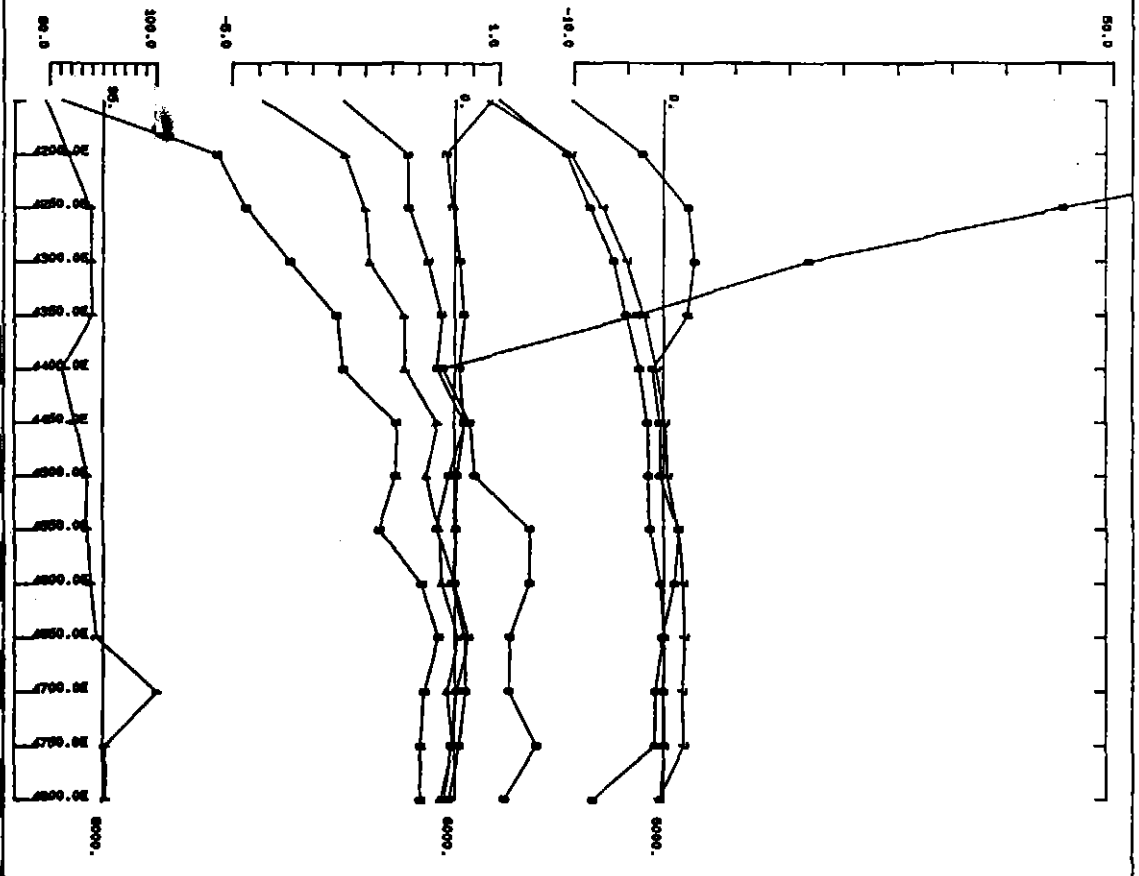
LAMONTAGNE GEOPHYSICS LTD job 8861
client ABERFOYLE RESOURCES LTD
area MACKINTOSH
UTEM SURVEY at base freq (hz) 26.230

loop dimensions
800x800m

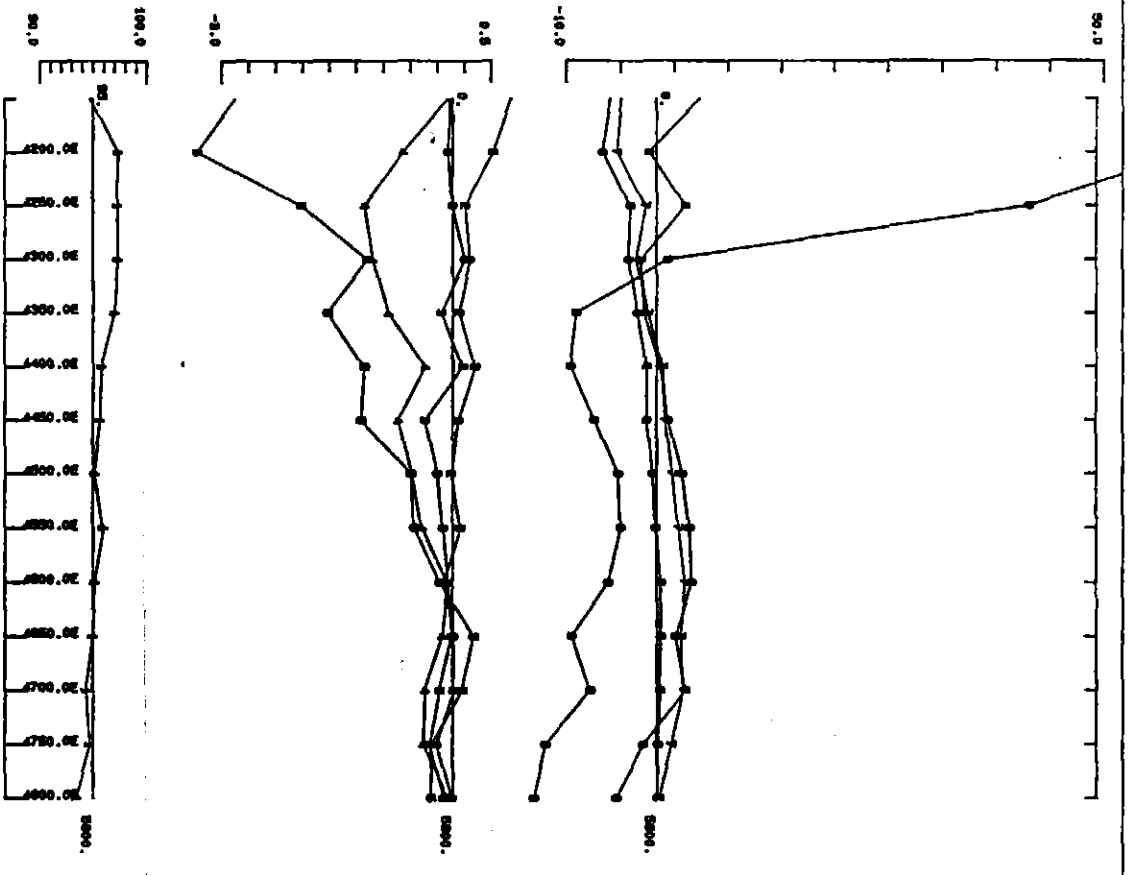
loop no 1
line 5800N
component Hz
secondary field
Ch1 contin norm.
29/11/88

488520

5/9



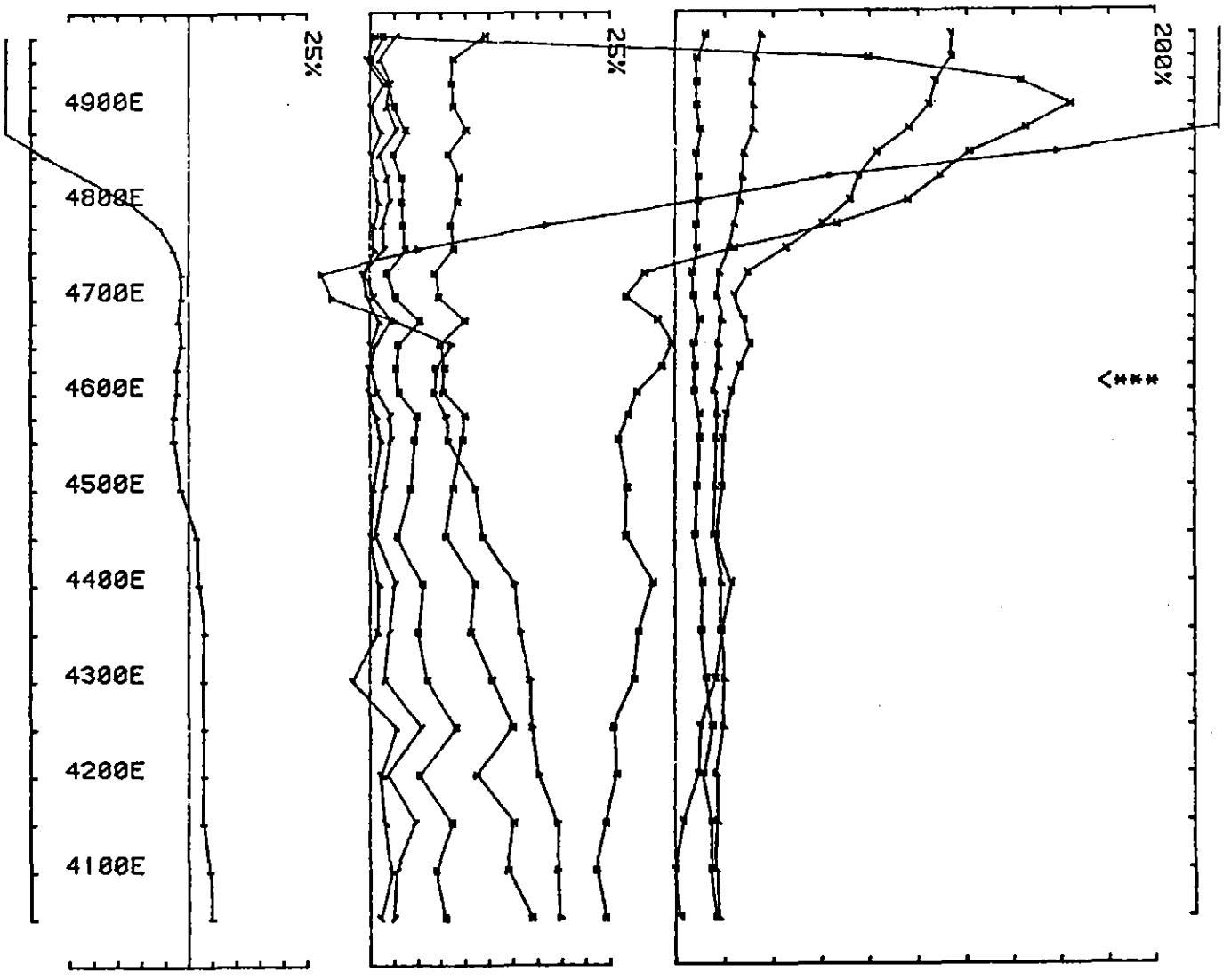
Mackintosh I-Zone
Loop 1
Line 6000N
component Hz
Secondary field
Channel 1
Point norm at 6000N 4300E
Option 4
19/12/88



Mackintosh I-Zone
Loop 1
Line 5800N
component Hz
Secondary field
Channel 1
Point norm at 6000N 4300E
Option 4
19/12/88

Appendix 2

I-ZONE LOOP 2 UTEM DATA



UTEM SURVEY at MACKINTOSH I-ZONE for ABERFOYLE RESOURCES LTD.
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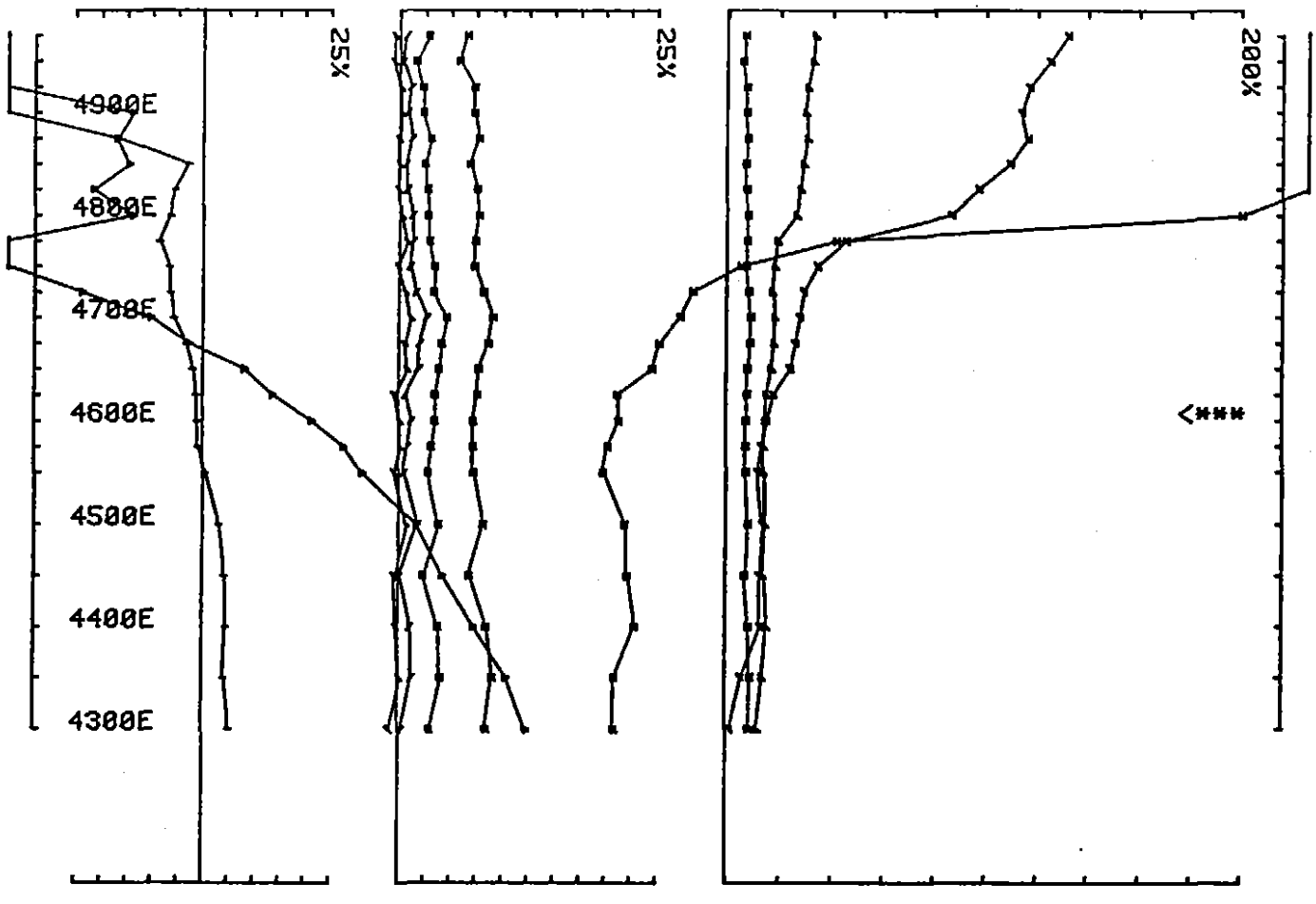
loop no 2 line 5800N component Hz secondary field Ch 1 point norm.



UTEM SURVEY at MACKINTOSH I-ZONE for ABERFOYLE RESOURCES LTD.
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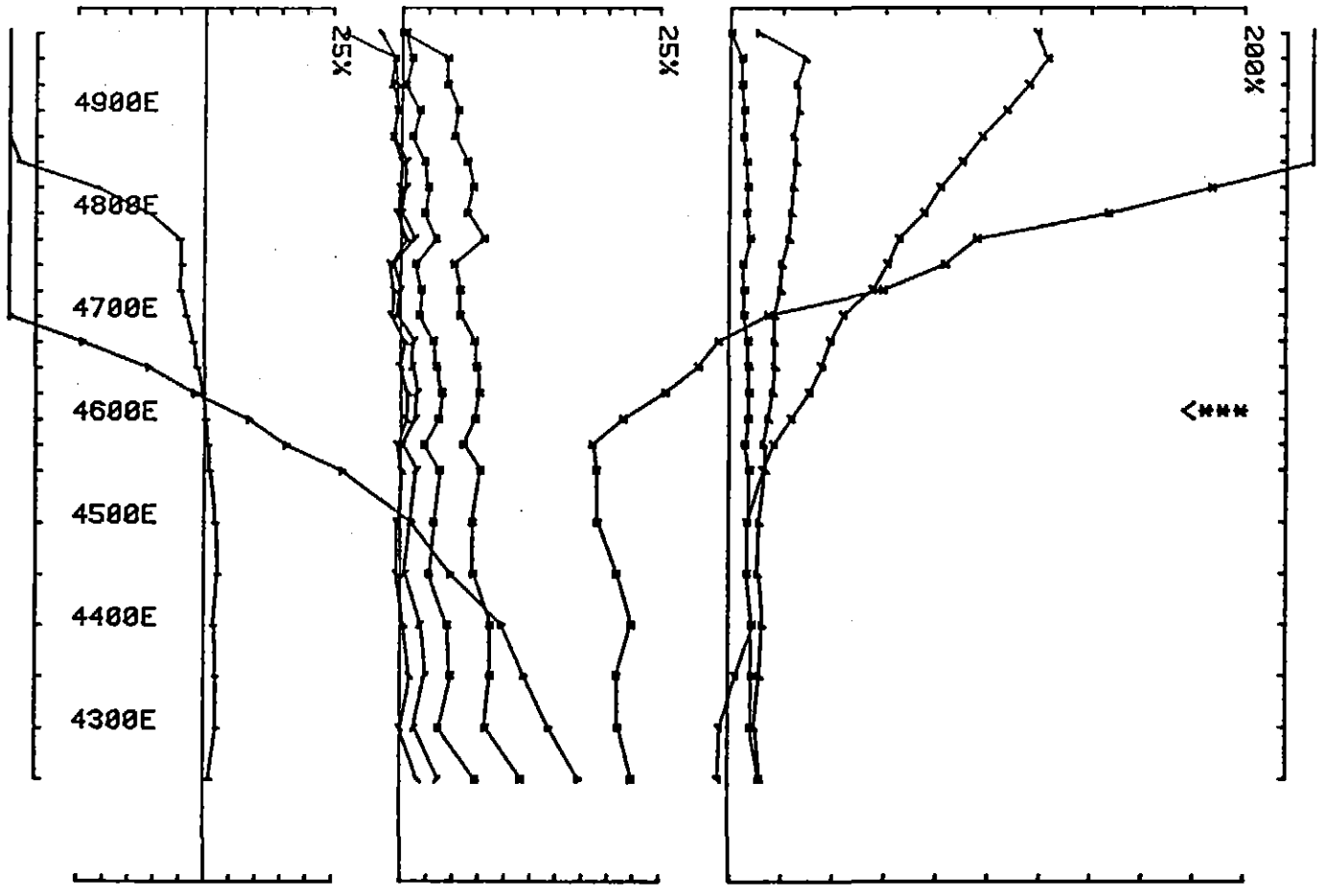
loop no 2 line 6000N component Hz secondary field Ch 1 point nora.



UTEM SURVEY at MACKINTOSH I-ZONE for ABERFOYLE RESOURCES LTD.
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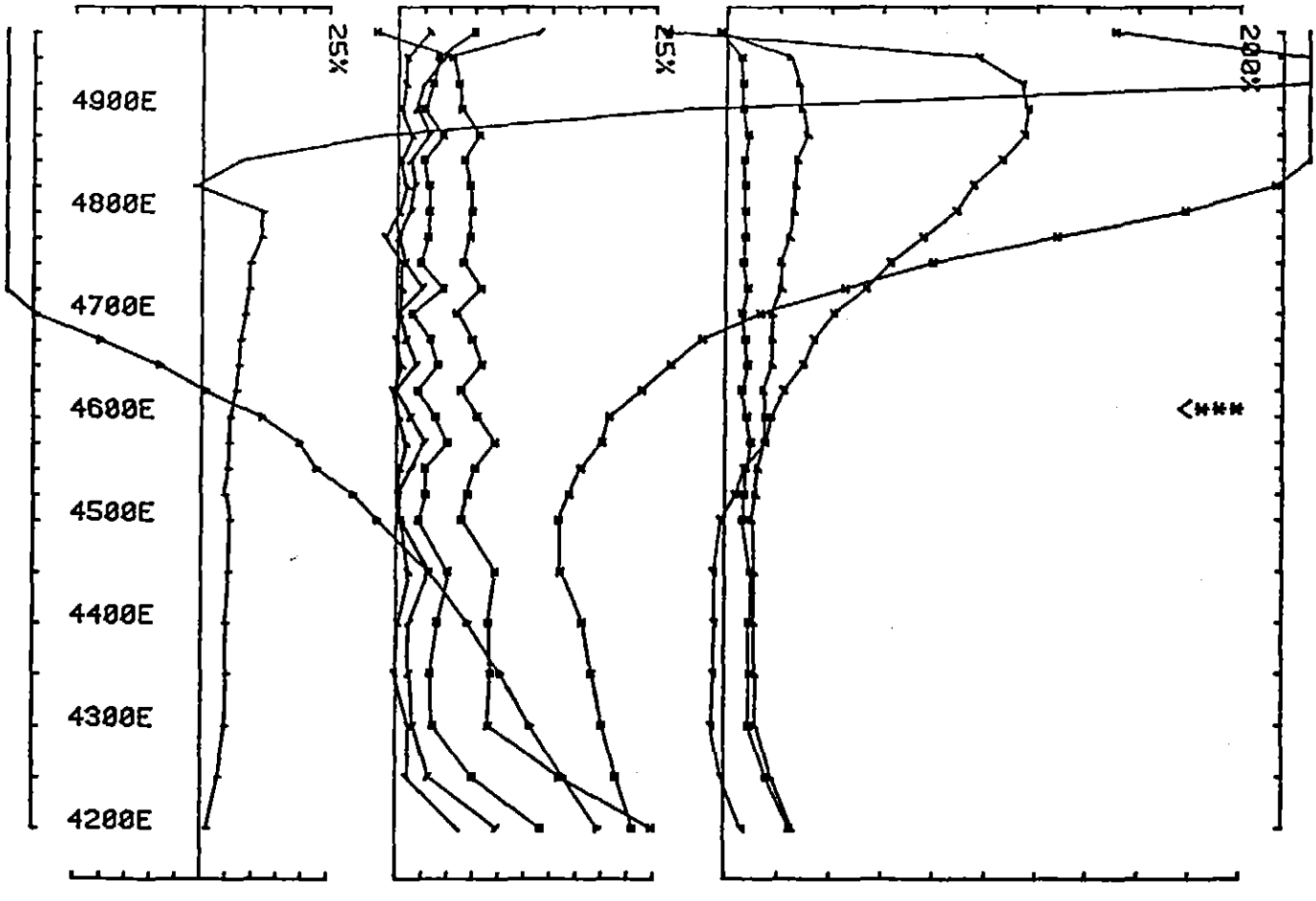
loop no 2 line 6200N component Hz secondary field Ch 1 point nors.



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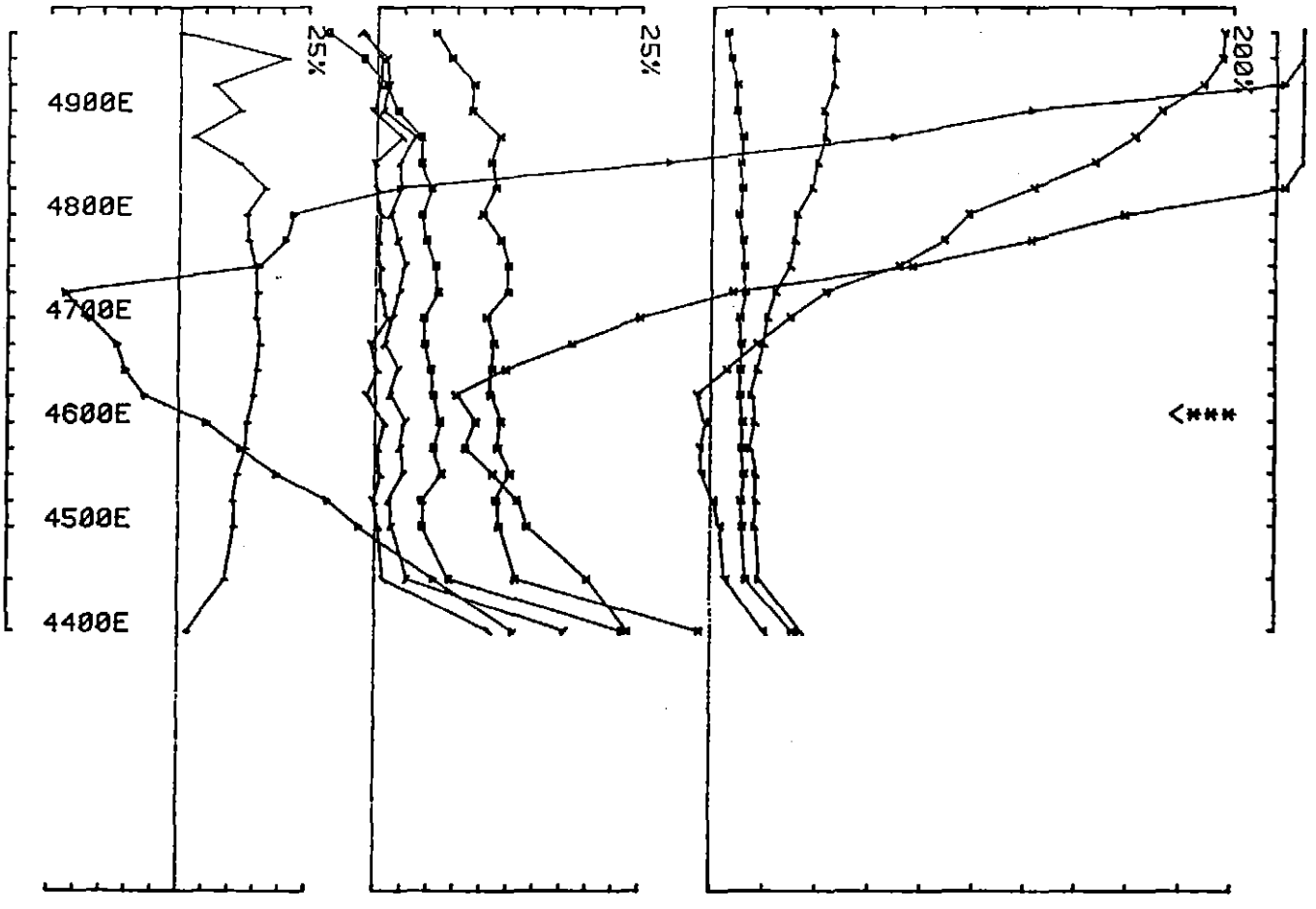

UTEM SURVEY at MACKINTOSH I-ZONE for ABERFOYLE RESOURCES LTD.
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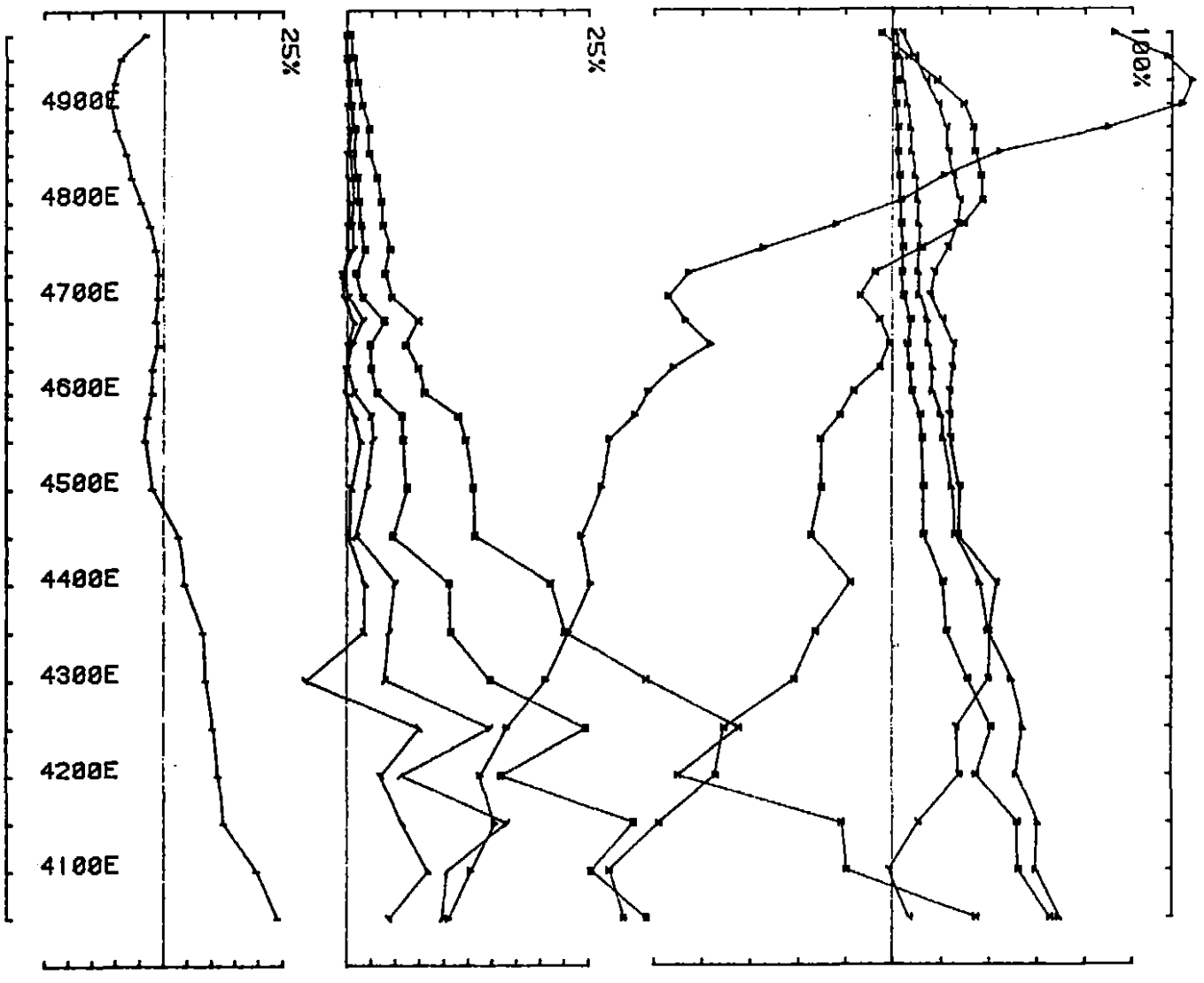
loop no 2 line 6600N component Hz secondary field Ch 1 point norm.



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conducted by SJV CONS.,LAMONTAGNE job 8901 base freq (hz) 26.230 N 1989
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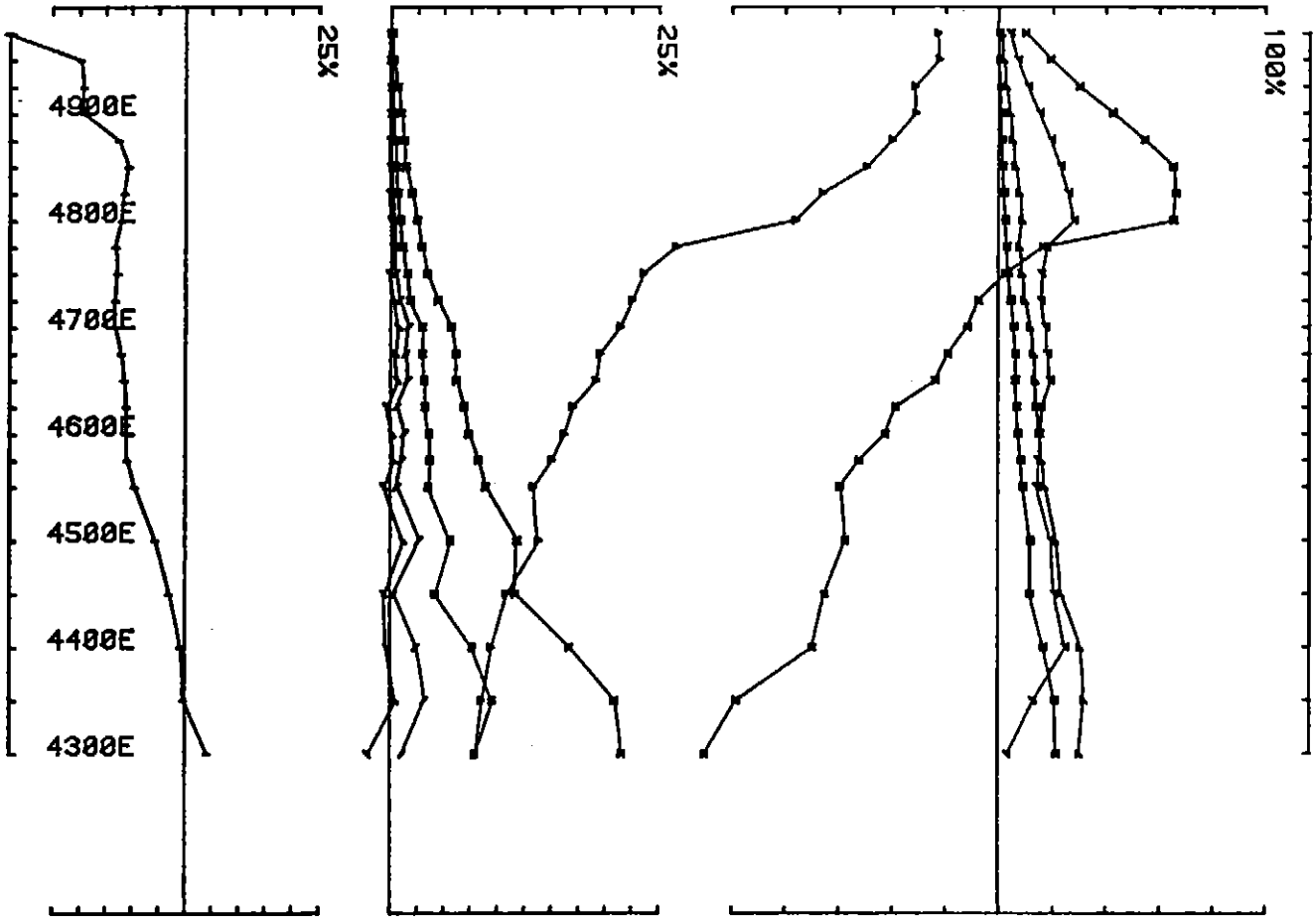
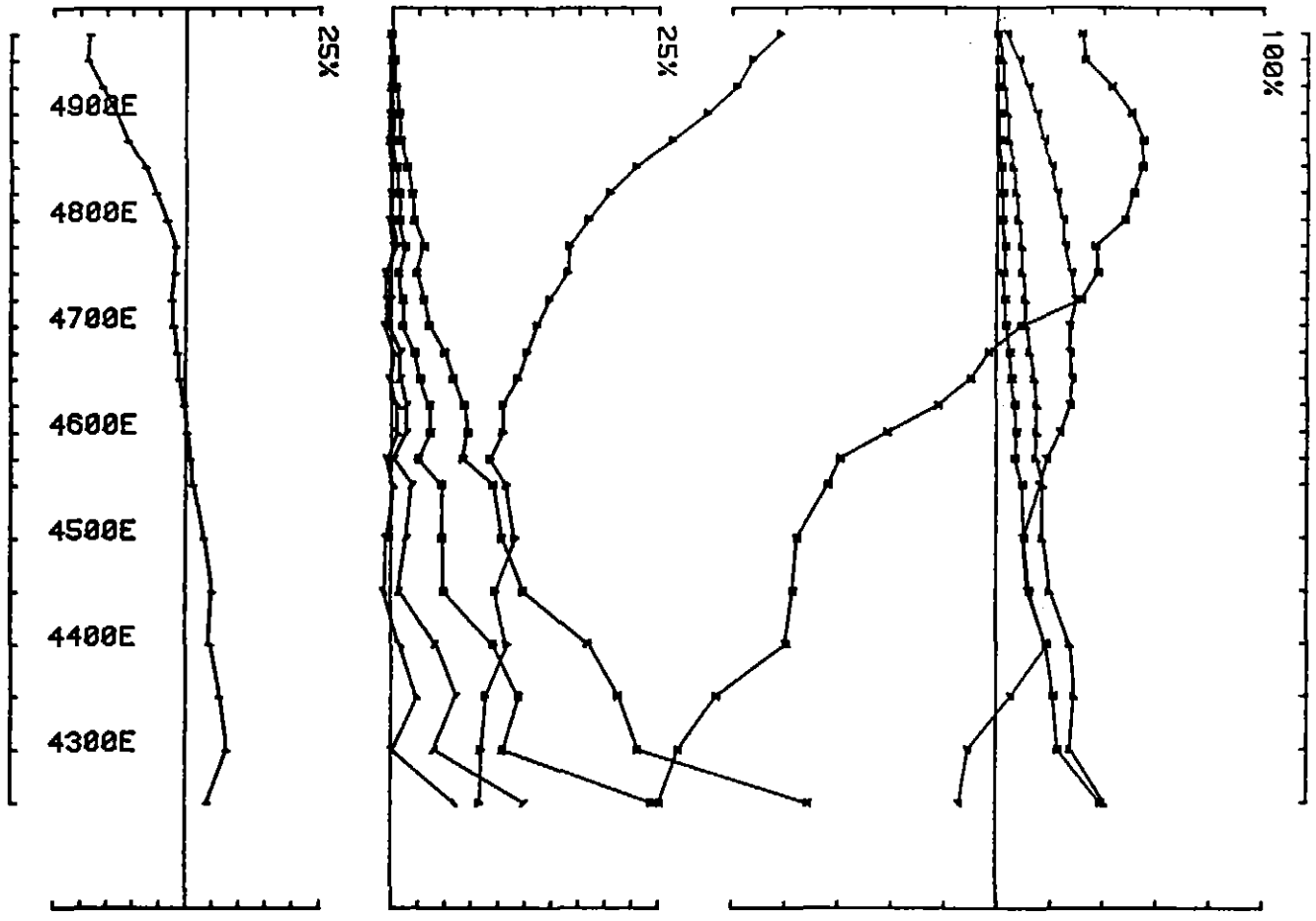


UTEM SURVEY at MACKINTOSH I-ZONE for ABERFOYLE RESOURCES LTD.

conducted by SJV CONS.,LAMONTAGNE job 8901 base freq (hz) 26.230 JAN 1989

loop no 2 line 6000N component Hz secondary field Ch 1 contin. norm.



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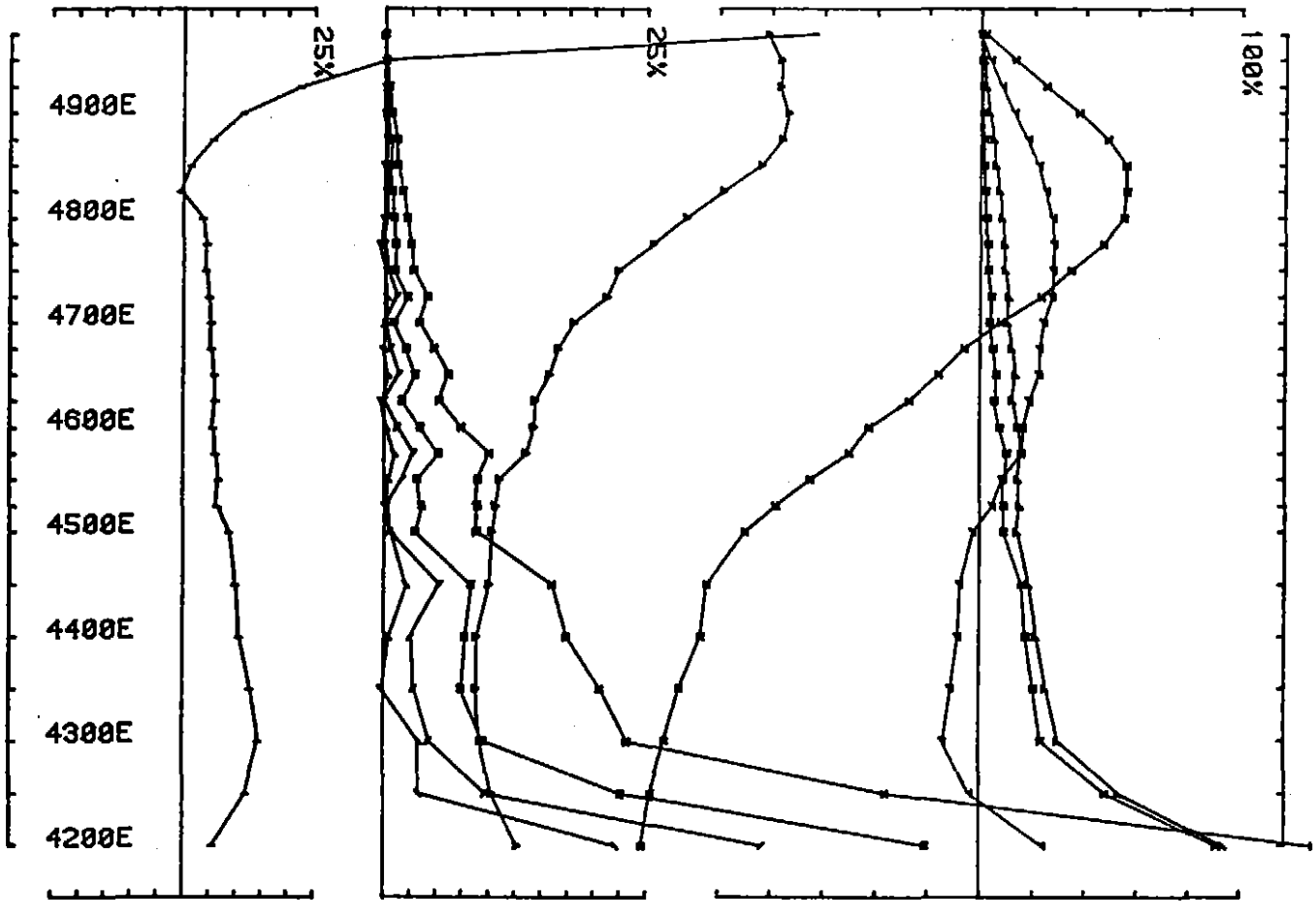
loop no 2 line 6200N component Hz secondary field Ch 1 contin. norm.



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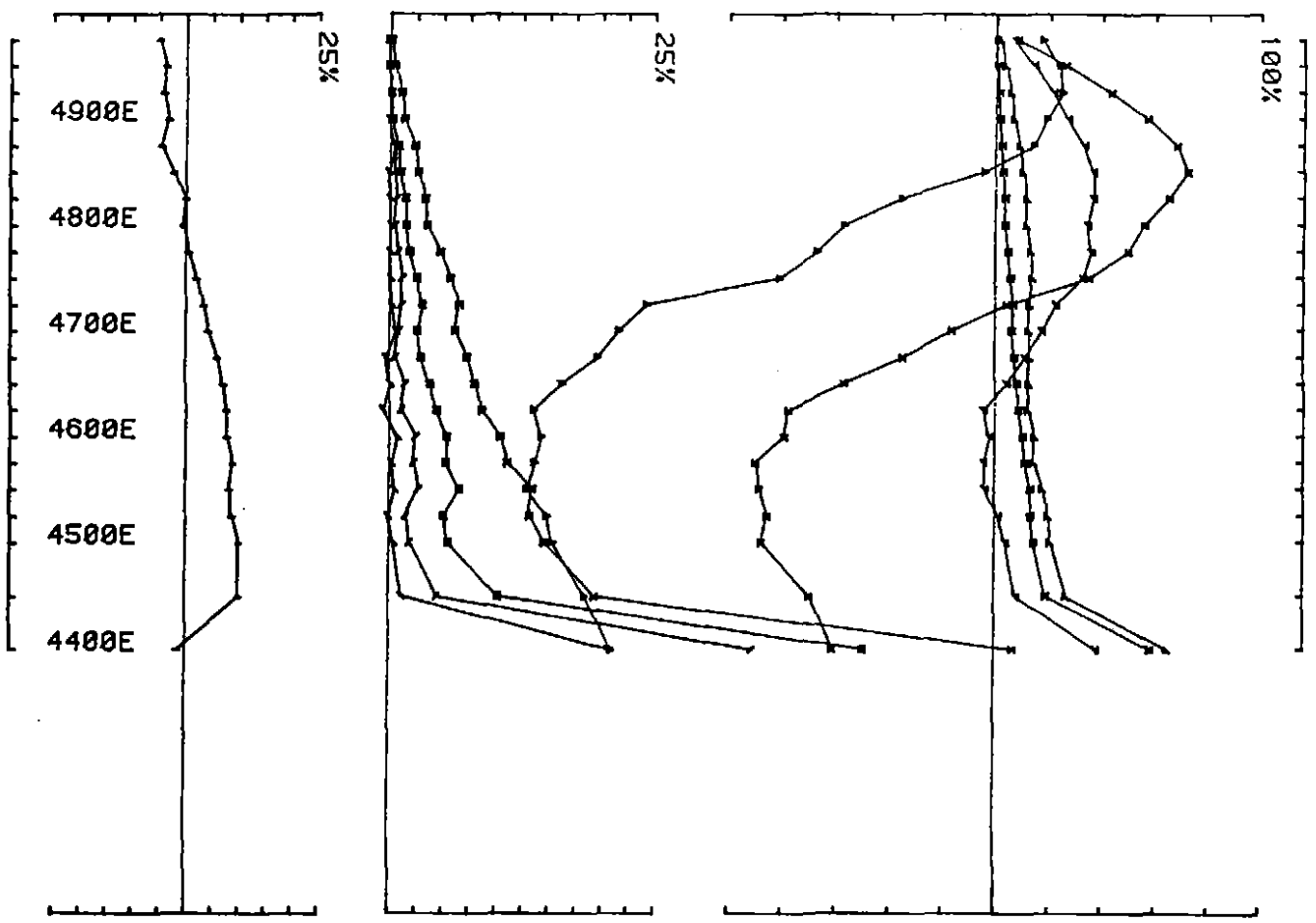

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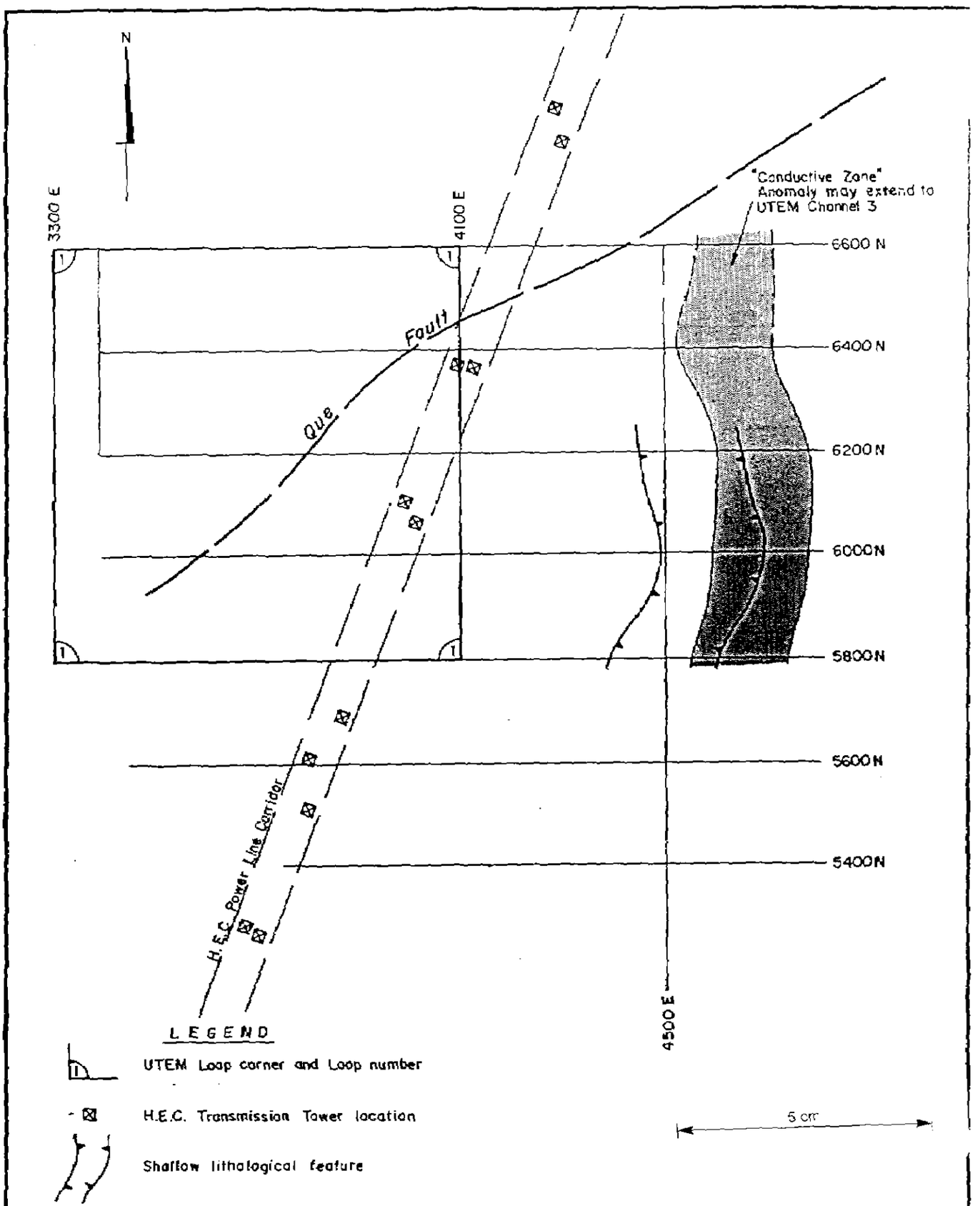
loop no 2 line 6600N component Hz secondary field Ch 1 contin. norm.



Aberfoyle Resources Limited

EXPLORATION DIVISION

REVISIONS			
Init.	Date	Init.	Date

MACKINTOSH E.L.

I - ZONE UTEM INTERPRETATION

LOOP ONE

Compiled : JJR

Drawn : JJR

Traced : Geo Drafting

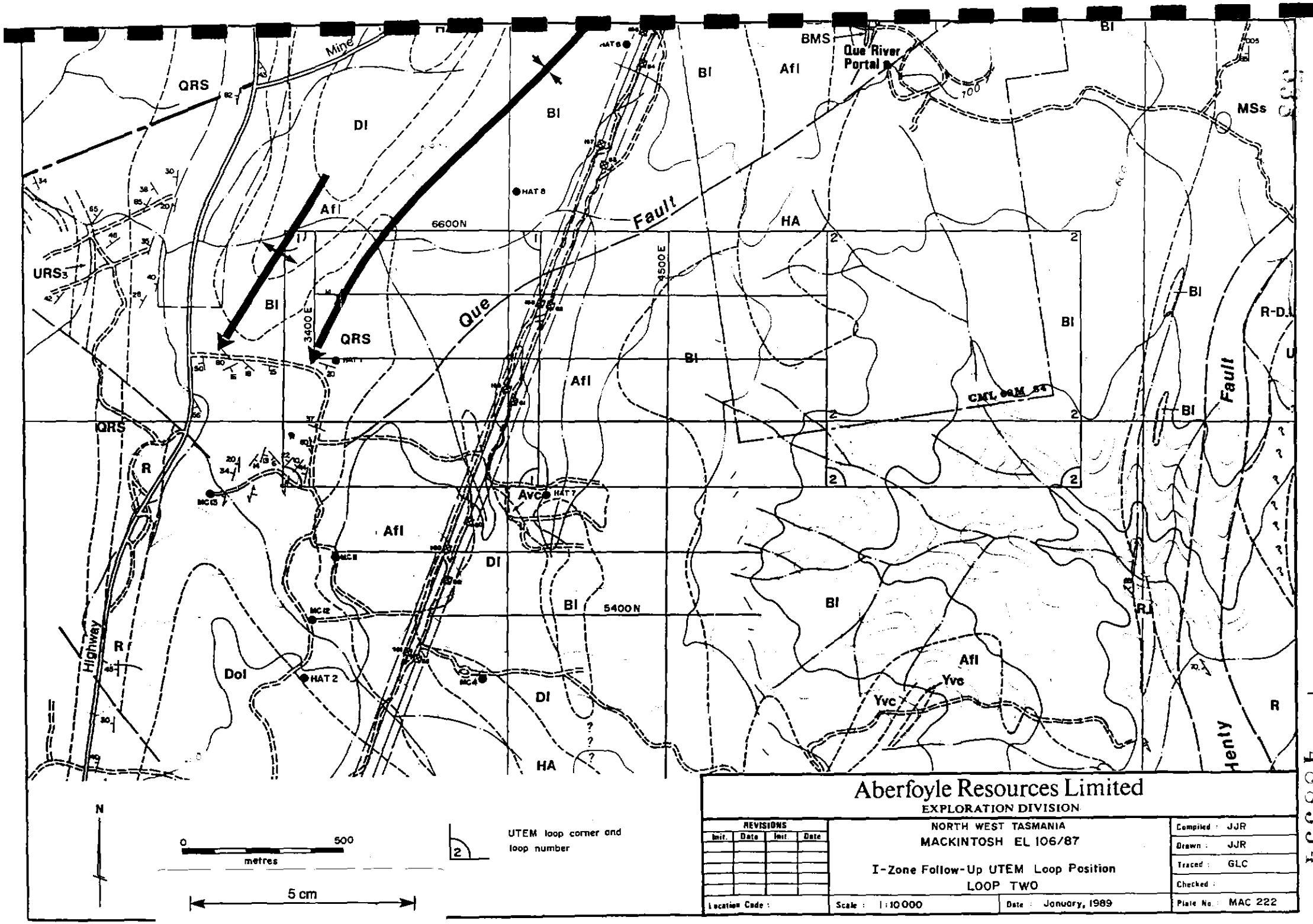
Checked : JS

Location Code :

Scale : 1 : 10 000

Date : January 1989

Plate No. : MAC 221


Aberfoyle Resources Limited
EXPLORATION DIVISION
NORTH WEST TASMANIA
MACKINTOSH EL 106/87
I-Zone Follow-Up UTEM Loop Position
LOOP TWO
Scale : 1:10000
Date : January, 1989
Compiled : JJR
Drawn : JJR
Traced : GLC
Checked :
Plate No. : MAC 222
REVISIONS
Init. Date Init. Date
Location Code :
UTEM loop corner and loop number
0 500
metres
5 cm
N
Que River Portal
Que Fault
Henly Fault
Highway
Mine
6600N
5400N
3400E
4500E
QRS
DI
BI
Afl
BMS
HA
MSs
URS3
R
Dol
Avc
Yvc
R-D
HAT 8
HAT 7
HAT 2
MC 4
MC 12
MC 13
CML 88M 54

488534

185035

APPENDIX 19

SAMPLE NUMBER: 515311 Mt Charter Costean.

SUMMARY:

This is a former andesitic to basaltic lava breccia that was invaded by quartz-barite-pyrite veinlets, and strongly sericitized, before being highly weathered during surface oxidation.

HAND SPECIMEN:

This is a highly weathered and altered pale brown and cream lava breccia, with fragments to at least 8cm of vesicular feldspar-phyric lava that appear to have been somewhat stretched, or else the rock shows a strong primary alignment of lithic clasts and a slightly foliated matrix.

THIN SECTION DESCRIPTION:

This rock in thin section is seen to be very strongly altered and weathered. Former porphyritic lava fragments constitute at least 50 modal% of the rock, and are almost totally altered to sericite and clay, that has in turn been replaced by messy brown isotropic secondary limonite. The most abundant lithic fragments are of highly porphyritic andesitic or basaltic lavas dominated by pseudomorphed and often smeared out phenocrysts of plagioclase and one or more former mafic phases. Outlines of former phenocrysts are obvious however, and most have shapes varying from elongate lath-like prisms to more blocky crystals, all indicative of a plagioclase precursor. Many such former plagioclase crystals, generally less than 1mm across, are replaced by relatively coarsely-crystalline 'sericite' that is speckled at extinction, and may well be muscovite. Subordinate former mafic phenocrysts have crystal shapes suggesting both olivine and clinopyroxene (augite) precursors, and are also totally replaced by sericite, although in these cases the sericite is generally extremely fine-grained. The groundmass of these andesitic or basaltic lava fragments has been thoroughly replaced by very fine-grained sericite and quartz, much of which has been replaced by red-brown secondary Fe-oxide-hydroxide phases. The texture of the groundmass in these fragments suggests that it was probably originally glassy.

The matrix of this lava breccia was probably composed of a more comminuted mixture of the same material constituting the fragment population (ie. an andesitic-basaltic ash). It also is extensively sericitized, and contains tiny blebs and stringers of secondary quartz; the sericite has been partially or totally ferruginized.

A major feature of this rock is the presence of vein-like fracture fillings containing abundant barite, secondary quartz, possibly K spar and also pyrite. The veins are generally less than 1mm thick, and mainly show a rim of exceptionally fine-grained Fe-stained sericite that passes inward into a thin vein of barite. Where best developed, these veins dilate out, and show large almost euhedral barite crystals surrounded by highly deformed ribbon quartz. I suggest that the ribbon quartz formed originally as pressure shadows around the larger barite grains; subsequent rotation of the big barite grains and deformation of the matrix of the rock has led to the present situation in which the ribbon quartz almost totally armours some barite crystals. In some places, a zone of polycrystalline pyrite, with crystals gnerally much smaller than 1mm, occurs intergrown with barite near the boundary with the enclosing ribbon quartz. The pyrite has been pseudomorphed by a secondary Fe oxide phase (goethite?). Deformation of some of the larger veins in the rock has led to boudinage, and the deceptive appearance that some barite-pyrite-ribbon quartz vein fragments are pseudomorphed volcanic lithic fragments.

I suggest that this sample was originally an andesitic to basaltic lava breccia that was brittle-fractured and invaded by quartz-barite-pyrite veinlets in an event that produced extensive sericitization of the rock. Later deformation subsequently fractured veinlets, generated pressure fringes and was responsible for small scale dislocation and boudinage. Surface (?) oxidation and weathering led to extensive clay-alteration and ferruginization of clay, producing the crap that it is today.

488533

APPENDIX 20

Aberfoyle Exploration — GEOCHEMICAL SAMPLE LEDGER

PROJECT: Mt Charles Stringer zone
Rock chips

BSS SIEVE SIZE CODE - MESH NUMBER: A 200, B 150, C 100, D 80, E 60, F 40, G 30, H 20, T = TOTAL

SAMPLE TYPE CODE: [ ] OXIDIZED PRODUCTS O; [ ] FRESH ROCK R; [ ] STREAM SEDIMENTS S; [ ] WEATHERED BEDROCK; [ ] SURFACE TRANSPORTED T; [ ] RESIDUAL SOIL E; [ ] MINE DUMP M

CARD PUNCH: YES [ ] NO [ ]
PRINT: YES [ ] NO [ ]
VERIFY: YES [ ] NO [ ]
DATE:
SHEET:

EASTINGS	NORTHINGS	SAMPLE NUMBER	DEPTH in CMS	SIZE FRACTION	Sample Type	METAL VALUES PPM	GEOLOGICAL LOG
4380	4590	51524 9				Cu Pb Zn Ag Au As Ba	strongly py altd D.1
4435	4590	51525 0			RC		intensely barite veined D.1
4450	4585	251				"	int py-bar altd D.1
4475	4585	252					Andesite lb z abt diss py
4440	4695	253				"	massive Barite? z some sph + Gal.
4430	4685	254					" " altd D.1 some sph Gn + Gal?
4420	4670	255				"	
4380	4640	256					
4383	4700	257				"	

488539

22

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. 23.3.08.06153

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
7512	

DATE RECEIVED	RESULTS REQUIRED
27/04/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
1	19/05/89	1	9

STATE SAMPLES REFER BELOW	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	515249/57	RC Prep: 008,009,012,013,016							Cu,Pb,Zn,Ag/101,As/114		
	515249/57	RC							Ba/401,Au/309		
	515249/57	RC Prep: 008,009,012,013,016							Cu,Pb,Zn,Ag/104		
	515249/57	RC							Ba/406		

RESULTS TO

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

RESULTS TO

REMARKS

STRINGER
Back ups

STATE OF SAMPLES	
whole core	WC
split core	SC
cutting	CU
rock	Ro
soil	SO
pulp	PU
water	WA
tissue	TI
stream sediment	SS
heavy mineral	HM

ANALYSIS — PREPARATION			
perchloric acid	A1	cold acid	CA
hydrochloric acid	A2	specific sulphide	SS
nitric acid	A3	other mixed acids	Ma
aqua regia	A4	alkaline attack	AA
nitric-perchloric	A5	volatilization	VO
HF mixture	A6	ignition	IG
HF under pressure	A7	pressed powder (XRF)	PP
fusion	A8	glass fusion (XRF)	GF

ANALYSIS — METHOD	
atomic absorbtion	AAS
x-ray fluorescence	XRF
spectrophotometry	SPEC
colorimetry	COL
chromatography	CHR
titration	TTN
other chemicals means	CHEM
miscellaneous	MISC
fluorescence	FLUOR
inductively coupled plasma	ICP

AUTHORISED OFFICER

540 488540

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06153	19/05/89	7512	1 OF 1

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	Ba	Ba	As	
1	515249	10	220	40	8.5	0.034	1.10	–	270	
2	515250	145	120	140	10.0	0.924	–	15.8	2000	
3	515251	135	5	1800	28.5	1.060	–	18.6	720	
4	515252	25	35	140	1.5	0.017	0.22	–	180	
5	515253	115	10	2550	47.5	0.925	–	49.1	110	
6	515254	470	10	4100	24.5	1.090	–	23.2	540	
7	515255	45	25	715	34.5	1.160	–	55.4	240	
8	515256	105	60	1300	23.0	0.783	–	7.3	260	
9	515257	80	20	65	53.0	1.140	–	46.2	710	
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	0.008	0.01	0.1	1	
24	UNITS	PPM	PPM	PPM	PPM	PPM	%	%	PPM	
25	METHOD	101	101	101	101	309	403	406	114	

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

541

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488542

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06153	19/05/89	7512	1 OF 1

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag					
1	515249	25	425	175	3					
2	515250	150	2600	250	6					
3	515251	150	2350	1650	33					
4	515252	—	—	—	—					
5	515253	100	350	2100	34					
6	515254	450	3300	3650	24					
7	515255	50	1525	750	32					
8	515256	125	1825	1200	23					
9	515257	80	1475	125	56					
10										
11										
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14										
15										
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17										
18										
19										
20										
21										
22										
23	DETECTION	25	25	25	2					
24	UNITS	PPM	PPM	PPM	PPM					
25	METHOD	104	104	104	104					

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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Aberfoyle Exploration — GEOCHEMICAL SAMPLE LEDGER

23

PROJECT	BSS SIEVE SIZE CODE - MESH NUMBER	SAMPLE TYPE CODE		CARD PUNCH PRINT	VERIFY	DATE	SHEET
Mt CHARTER COSTEAN 4730N 4030E	A 200 D 80 G 30 B 150 E 60 H 20 C 100 F 40 T = TOTAL	☐ OXIDIZED PRODUCTS O ☐ FRESH ROCK R ☐ STREAM SEDIMENTS S	☐ WEATHERED BEDROCK W ☐ SURFACE TRANSPORTED T ☐ RESIDUAL SOIL E ☐ MINE DUMP M	YES ☐ NO ☐	YES ☐ NO ☐	28-4-89	1

EASTINGS	NORTHINGS	SAMPLE NUMBER	DEPTH (M)	SIZE FRACTION	Sample Type	METAL VALUES PPM	GEOLOGICAL LOG
4040	4745N	51525 8			Channel sample CS	Cu, Pb, Zn, Ba, Au, Ag, As, Cr, Ti, Bi	
4035	4742	51525 9			"		
4030	4739	51526 0			"		
4025	4736	51526 1			"		

2

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. 23.3.08.06165

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
7531	

DATE RECEIVED	RESULTS REQUIRED
01/05/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	22/05/89	1	4

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
	515258/261	CH	Prep: 005,013,016						Cu,Pb,Zn,Ag/101,As/114		
	515258/261	CH							Ba,Cr,Zr,Ti/401,Au/309		
	515258/261	CH							Ba/403		

RESULTS TO

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

RESULTS TO

REMARKS

Mr. [illegible]
4030 E

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
hole 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
ck	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
il	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
ulp	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
tream sediment	SS					fluorescence	FLUOR
eavy mineral	HM					inductively coupled plasma	ICP

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06165	22/05/89	7531	1 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	As	Ba	Ba	Cr
1	515258	65	260	95	4.5	0.372	350	-	3.35	40
2	515259	65	335	110	1.5	0.137	470	-	0.85	25
3	515260	35	115	135	1.0	0.030	130	1150	-	15
4	515261	40	145	270	1.5	0.037	130	2050	-	25
5										
6										
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18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	0.008	1	10	0.01	5
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM
25	METHOD	101	101	101	101	309	114	401	403	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
	23.3.08.06165	22/05/89	7531	2 OF 2

TUBE No.	SAMPLE No.	Zr	Ti							
1	515258	240	3200							
2	515259	290	2850							
3	515260	260	3800							
4	515261	240	3800							
5										
6										
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21										
22										
23	DETECTION	5	50							
24	UNITS	PPM	PPM							
25	METHOD	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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Aberfoyle Exploration — GEOCHEMICAL SAMPLE LEDGER

PROJECT: Mt Charter Costean 4350E

BCS SIEVE SIZE CODE – EACH NUMBER: A 200, B 150, C 100, D 80, E 60, F 40, G 30, H 20, I = TRON

SAMPLE TYPE CODE: [ ] OXIDIZED PRODUCTS G; [ ] FRESH ROCK R; [ ] STREAM SEDIMENTS S; [ ] WEATHERED BEDROCK T; [ ] SURFACE TRANSPORTED F; [ ] RESIDUAL SOIL E; [ ] MINE DUMP M

CARD PUNCH: YES [ ] NO [ ] PRINT: YES [ ] NO [ ] VERIFY: DATE 28-4-89 SHEET 1

	EASTINGS	NORTHINGS	SAMPLE NUMBER	DEPTH (CMS)	SIZE FRACTION	SAMPLE TYPE	METAL VALUES PPM	GEOLOGICAL LOG
AMG	4350	4620	515262	0-5m		channelled RC	Cu, Pb, Zn, Ag, Au, As, Ba	
	4349	4625	263	5-10m		"	"	
	4348	4630	264	10-15		"	"	
	4347	4635	265	15-20		"	"	
	4346	4640	266	20-25		"	"	
	4345	4645	267	25-30		"	"	
	4340	4635	268	W. from 15-20m O/C		"	"	
	4350	4630	269			Rock chip	"	possible coelite?

(2)

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FAX: 004 31 8890

ANALYTICAL REPORT No. 23.3.00.06164

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
7532	

DATE RECEIVED	RESULTS REQUIRED
01/05/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
1	17/05/89	1	8

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
	515262/269	CO	Prep: 003,013,016						Cu,Pb,Zn,Ag/101,As/114		
	515262/269	CO							Ba/401,Au/309		
	515262/269	CO	Prep: 003,013,016						Pb,Ag/104		

RESULTS TO

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

RESULTS TO

REMARKS

4350 E
COSTEAN

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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A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06164	15/05/89	7532	1 OF 1

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	Ba	As		
1	515262	210	40	3800	74.0	2.650	48.4	520		
2	515263	280	25	3290	35.5	1.760	34.5	270		
3	515264	185	15	2400	36.0	1.250	26.6	440		
4	515265	400	20	5800	57.0	2.400	32.7	750		
5	515266	310	20	2700	35.0	1.330	27.3	940		
6	515267	330	10	3100	32.0	2.400	25.7	1580		
7	515268	225	10	5050	60.0	1.400	23.0	730		
8	515269	750	40	1600	60.0	3.260	39.2	860		
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15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	0.003	0.1	1		
24	UNITS	PPM	PPM	PPM	PPM	PPM	%	PPM		
25	METHOD	101	101	101	101	309	406	114		

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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549

488550

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06164	19/05/89	7532	1 OF 1

TUBE No.	SAMPLE No.	Pb	Ag							
1	515262	2375	89							
2	515263	2700	37							
3	515264	2050	40							
4	515265	4275	73							
5	515266	3500	38							
6	515267	4250	35							
7	515268	3675	78							
8	515269	2575	69							
9										
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16										
17										
18										
19										
20										
21										
22										
23	DETECTION	25	2							
24	UNITS	PPM	PPM							
25	METHOD	104	104							

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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Aberfoyle Exploration — GEOCHEMICAL SAMPLE LEDGER

PROJECT	BSS SIEVE SIZE CODE - MESH NUMBER	SAMPLE TYPE CODE	CARD PUNCH PRINT	VERIFY	DATE	SHEET
Mt Charter 4375E traverse	A 200 D 80 G 20 B 150 E 60 H 20 C 100 F 40 T = TOTAL	☐ OXIDIZED PRODUCTS O ☐ FRESH ROCK R ☐ STREAM SEDIMENTS S ☐ WEATHERED BEDROCK T ☐ SURFACE TRANSPORTED E ☐ RESIDUAL SOIL ☐ MINE DUMP M	YES ☐ NO ☐	YES ☐ NO ☐	28-4-89	1

EASTINGS	NORTHINGS	SAMPLE NUMBER	DEPTH IN CMS	SIZE FRACTION	Sample Type	METAL VALUES PPM	GEOLOGICAL LOG
~~3416~~ 4375 E	4610N	515301	Rock chips from pits		RC	Cu, Pb, Zn, Ag, Au, As, Bi	Ti, Zr, Cr
"	4620N	302			"		
"	4630N	303			"		
"	4640N	304	Dug at 10m intervals along 4375E N-S line		"		
"	4650N	305			"		
"	4660N	306			"		
"	4670N	307			"		
4385E	4680N	308			"		
4375E	4690N	309			"		
4375E	4700N	310			"		

based on cut grid lines

Dm d/hi.

RJ
CJ

Mack-EL (25)

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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. 23.3.08.06163

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
7533	

DATE RECEIVED	RESULTS REQUIRED
01/05/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
1	26/05/89	1	10

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
	515301/310	CO	Prep: 005,013,016						Cu,Pb,Zn,Ag/101,As/114		
	515301/310	CO							Ba,Cr,Zr,Ti/401,Au,AuChk/307		
	515301/310	CO	Prep: 005,013,016						Pb,Ag/104		

RESULTS TO

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

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	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 _____

155002

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A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06163	26/05/89	7533	1 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	Au	Ba	As
1	515301	40	475	–	75	3.0	–	1.400	3.9	250
2	515302	65	290	–	125	2.5	–	0.348	3.3	230
3	515303	<5	45	–	25	1.6	–	0.308	1.6	160
4	515304	120	–	4050	3050	–	160	2.090	50.0	650
5	515305	190	–	22750	4200	–	39	1.090	27.6	400
6	515306	45	–	1925	215	–	20	0.926	25.9	610
7	515307	65	–	1300	90	–	13	0.745	41.5	600
8	515308	170	–	3275	2400	–	20	0.845	45.0	230
9	515309	305	–	15100	170	–	76	1.080	30.4	2060
10	515310	85	–	1425	70	–	7	3.270	43.7	630
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21	NOTE: 1.	High Zn detection limit due to major Sr interference.								
22	2.	Unable to determine Ti in presence of major Ba.								
23	DETECTION	5	5	25	5	0.5	2	0.008	0.1	1
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM
25	METHOD	101	101	104	101	101	104	309	406	114

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
	23.3.08.06163	26/05/89	7533	2 OF 2

TUBE No.	SAMPLE No.	Cr	Zr							
1	515301	8	95							
2	515302	15	120							
3	515303	7	130							
4	515304	6	<50							
5	515305	7	<50							
6	515306	9	<50							
7	515307	<5	<50							
8	515308	<5	<50							
9	515309	<5	<50							
10	515310	5	<50							
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21	NOTE: 1.	High Zr detection limit due to major Sr interference.								
22	2.	Unable to determine Ti in presence of major Ba.								
23	DETECTION	5	50							
24	UNITS	PPM	PPM							
25	METHOD	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

Aberfoyle Exploration — GEOCHEMICAL SAMPLE LEDGER

PROJECT: Mt Charter Stringer Zone

BSS SIEVE SIZE CODE - MESH TYLER: A 200, B 150, C 100, D 80, E 60, F 40, G 30, H 20, T = TOTAL

SAMPLE TYPE CODE: [X] OXIDIZED PRODUCTS O; [ ] FRESH ROCK R; [ ] STREAM SEDIMENTS S; [ ] WEATHERED BEDROCK T; [ ] SURFACE TRANSPORTED E; [ ] RESIDUAL SOIL; [ ] MINE DUMP M

CARD PUNCH: YES [ ] NO [ ] PRINT: YES [ ] NO [ ] VERIFY

DATE: 15-5-89

SHEET: 1 of 1

METAL VALUES PPM: Cu, Pb, Zn, Ag, Au, As, Ba

EASTINGS	NORTHINGS	SAMPLE NUMBER	DEPTH IN CMS	SIZE FRACTION	Sample Type	GEOLOGICAL LOG
4360	4690	51531 3				
4380	4700	11 15				
4390	4700	" 16				
4400	4700	" 17				
4410	4700	" 18				
4420	4700	" 19				E-W traverse along 4700N cut line samples from pits dug every 10m
4430	4700	" 20				
4440	4700	" 21				
4460	4700	" 23				
4470	4700	" 24				
4480	4703	" 25				
4490	4700	" 26				
4500	4700	" 27				
4375	4710	" 28				
4375	4720	" 29				
4375	4730	" 30				
4375	4740	" 31				
4375	4750	" 32				N-S traverse along 4375E 4900 to 4800n samples from outcrop in pits dug every 10m.
4375	4765	" 33				
4375	4770	" 34				
4370	4780	" 35				
4365	4790	" 36				
4375	4800	" 37				
4375	4735	" 38				

(26)

Mac (26)

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FAX: 004 31 8890

ANALYTICAL REPORT No. 23.3.08.06201

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
7583	

DATE RECEIVED	RESULTS REQUIRED
17/05/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	26/05/89	1	24

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
	515313,515315/21,515323/38	RC	Prep: 008,009,012,013,016						Cu,Pb,Zn,Ag/101,As/114		
	515313,515315/21,515323/38	RC							Ba/403,Au,AuChk/309		
	515313,515315/21,515323/38	RC	Prep: 008,009,012,013,016						Pb,Ag/104		

RESULTS TO

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

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	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

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06201	26/05/89	7583	1 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	Au	Ba	As
1	515313	80	–	2050	345	–	28	0.401	18.50	490
2	515315	125	–	1775	75	–	81	1.890	43.20	1050
3	515316	5	150	–	150	3.0	–	0.240	2.95	220
4	515317	105	–	1575	595	–	11	0.659	14.40	360
5	515318	80	–	1700	1800	–	46	3.180	8.10	310
6	515319	30	–	500	95	–	12	1.520	44.70	460
7	515320	75	–	1025	850	–	31	0.708	28.80	580
8	515321	210	440	–	120	1.5	–	0.045	0.72	1100
9	515323	35	–	1750	55	–	10	1.070	50.30	400
10	515324	25	–	900	60	–	10	0.432	11.10	300
11	515325	30	210	–	45	2.0	–	0.145	12.20	34
12	515326	70	–	1550	80	–	19	1.280	36.10	810
13	515327	205	–	7750	165	–	26	1.240	23.70	1950
14	515328	55	–	675	70	–	9	1.760	48.50	320
15	515329	60	–	2150	310	–	11	1.480	26.90	470
16	515330	210	–	5000	3750	–	14	1.590	57.10	170
17	515331	10	–	1050	905	–	30	0.750	14.60	220
18	515332	60	440	–	65	1.0	–	0.420	4.50	390
19	515333	25	–	1950	65	–	12	3.700	31.40	390
20	515334	285	130	–	1350	8.5	–	2.230	15.00	590
21	515335	135	720	–	100	6.0	–	1.050	6.20	1050
22	515336	160	–	1200	1550	–	9	3.160	50.20	46
23	515337	45	25	–	45	2.0	–	0.481	35.80	280
24	515338	350	–	3375	7750	–	14	2.740	46.20	200
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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A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06201	26/05/89	7583	2 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	Au	Ba	As
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	25	5	0.5	2	0.008	0.01	1
23	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM
24	METHOD	101	101	104	101	101	104	309	406	114
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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PROJECT: MACKINTOSH
GL 106/87

12/3/90 | #1

GRID E	GRID N	SAMPLE NUMBER	DEPTH FROM TO			
MOUNT CHARLOTTE HANGINGWALL LODE ADIT						Cu, Pb, Zn, Au, Ag, As, Ba
		S622201	not of * S152580	CH.		
		202	0-5m	"		
		203	5-10m	"		
		204	10-15m	"		
		205	15-20m	"		
		206	20-25m	"		
		207	25-30m	"		
		208	30-35.4m	"		
		S622209	~25.4m	olc		out with v. Ba?
MOUNT CHARLOTTE TRACK ~62m EAST OF MC-20						Cu, Pb, Zn, Au, Ag, As, Ba
		S622209	0-5m	CH		
		210	5-10m	"		
		211	10-15m	"		
		212	15-20m	"		
		213	20-25m	"		
		214	25-30m	"		
		S622215	~30m	R. *		gn-gy massive A.1./Sil. c. vQ & disc PolPy
		216	~26.5m	olc		massive Py chest in A.1.
		217	~13m	olc		gy A.1./bk Sh. b. c. str Sp4 Py4 all.
		218	~12m	olc *		massive Py clast in fault b.
		S622242	~6.5m	olc **		"

* Thin and/or Polished Section Available
** Sulphur Isotope Analysis Available

OPERATOR | COMPUTER | CHECK | TROLLER | DATE

MACKINTOSH
Ca 1006/907

12/3/90

GRID C | GRID N | SAMPLE NUMBER

MOUNT CHARTER MAC-26 SPUR TRACK

Cu, Pb, Zn, Au, Ag, As, Ba

562220	0-10m	Ol	
221	10-20m	"	
222	20-30m	"	
223	30-40m	"	
224	40-52.2m	"	
225	0-6.5m Sth	"	
226	0-6.0m Nth	"	

MOUNT CHARTER PIT SAMPLING

Cu, Pb, Zn, Au, Ag, As, Ba (Ti, Zr, Cr on 562221-232 only)

4510	4700	562221	O/C	gn with A.I.?
4520	4700	228	O/C	or-br D.I./Qx3
4530	4710	229	O/C	gy-br with D.I./A.I.?
4540	4700	230	O/C	ow-or with D.I.
4550	4700	231	O/C?	ow-or D.I./Si3 ≈ abn vQ
4560	4700	232	O/C?	ow-or D.I./Si2-3 ≈ abn vQ & rare Fn.
4375	4810	233	O/C	gy-yw D.I./Sa2-3 Py3 Si2
4375	4820	234	O/C	gy D.I.b/Py2 Sa2 ≈ abn v.Py & Ba.
4375	4830	235	O/C	gy D.I.b/Py2 Sa2 ≈ abn mass v Ba & Py
4375	4840	236	O/C	gy D.I./Si2 Sa2 Py2
4375	4850	237	O/C	gy with D.I./Si3 Py1
4375	4860	238	O/C	gy D.I./Sa2 Py2-3 ≈ v Ba & Py
4375	4870	239	O/C	gy with D.I. ≈ mnr vQ (poor sample)
4375	4880	240	O/C	with D.I.
4355	4900	241	O/C	yw-gy D.I./Sa2. Py2 ≈ mnr vQ.

OPERATOR | COMPUTER | CHECK | FOLDER | DATE

ANALABS

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

Phone (09) 458 7999 52 Murray Road, Welshpool, W.A. 6106 Telex AA92560

(37)

ANALYTICAL REPORT No. 23.3.00.06928

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

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

ORDER No.	PROJECT
0677	Meck E.L.

DATE RECEIVED	RESULTS REQUIRED
13/03/90	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
4	03/04/90	1	42

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
	X5622,01/42	CO Prep: 018							Cu,Pb,Zn,Ag/101			
	X5622,01/42	CO							Au,AuChk/309			
	X5622,01/42	CO							Sb,As/401			
	X5622,27/32	CO							Cr,Zr,Ti/401			
	X5622,01/42	CO Prep: 018							Pb,Ag/104			

RESULTS TO

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

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	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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488562

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06928	03/04/90	8677	1 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	Au	AuChk	Ba
1	562201	75	225	–	130	2.5	–	0.131	–	>2500
2	562202	70	230	–	95	3.0	–	0.440	–	>2500
3	562203	80	205	–	130	2.0	–	0.044	0.044	>2500
4	562204	80	215	–	140	2.5	–	0.075	–	>2500
5	562205	40	145	–	95	1.0	–	0.122	–	>2500
6	562206	90	170	–	305	0.5	–	0.065	–	760
7	562207	75	145	–	400	0.5	–	0.022	–	580
8	562208	40	120	–	330	<0.5	–	0.011	–	720
9	562209	45	35	–	115	0.5	–	<0.008	–	1150
10	562210	50	140	–	70	1.0	–	<0.008	–	1200
11	562211	60	425	–	300	<0.5	–	<0.008	–	1150
12	562212	75	275	–	95	<0.5	–	<0.008	–	1350
13	562213	40	200	–	85	<0.5	–	<0.008	–	840
14	562214	55	735	–	180	<0.5	–	0.013	–	540
15	562215	40	15	–	75	<0.5	–	<0.008	<0.008	1750
16	562216	105	1000	–	635	5.0	–	0.017	–	280
	562217	60	490	–	2125	1.0	–	<0.008	–	1400
18	562218	160	–	580	65	–	19	<0.008	–	430
19	562219	70	154	–	385	<0.5	–	0.037	–	600
20	562220	45	–	935	230	–	17	0.258	–	>2500
21	562221	20	–	1100	60	–	14	0.233	–	>2500
22	562222	230	–	1650	1500	–	13	0.359	–	>2500
23	562223	30	–	1375	90	–	19	0.331	–	>2500
24	562224	40	1050	–	100	5.0	–	0.294	–	>2500
25	562225	80	–	2100	925	–	22	0.695	–	>2500

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
	23.3.08.06928	03/04/90	8677	2 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Ag	Ag	Au	AuChk	Ba
1	562226	55	–	1850	500	–	21	0.915	–	>2500
2	562227	50	640	–	120	<0.5	–	0.010	–	>2500
3	562228	20	95	–	70	0.5	–	0.020	0.008	2100
4	562229	25	95	–	115	0.5	–	0.035	–	2450
5	562230	20	55	–	40	1.0	–	<0.008	–	>2500
6	562231	20	65	–	25	0.5	–	<0.008	–	>2500
7	562232	10	25	–	25	<0.5	–	<0.008	–	>2500
8	562233	80	–	2950	2200	–	50	1.035	–	>2500
9	562234	150	–	2300	1800	–	63	0.638	–	>2500
10	562235	135	–	1275	1625	–	82	1.159	–	>2500
11	562236	30	–	130	205	–	28	0.448	–	>2500
12	562237	10	50	–	70	4.0	–	0.269	–	>2500
13	562238	55	–	1800	250	–	23	1.133	–	>2500
14	562239	15	55	–	35	<0.5	–	0.009	–	2450
15	562240	20	10	–	35	<0.5	–	0.012	0.008	2250
16	562241	15	30	–	30	1.5	–	0.197	0.215	>2500
	562242	130	50	–	80	1.0	–	<0.008	0.008	1900
18										
19										
20										
21										
22										
23	DETECTION	5	5	25	5	0.5	2	0.008	0.008	10
24	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
25	METHOD	101	101	104	101	101	104	309	309	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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488564

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06928	03/04/90	0677	3 OF 4

TUBE No.	SAMPLE No.	Ba	Ba	As	Cr	Zr	Ti			
1	562201	2.09	–	780	–	–	–			
2	562202	2.71	–	440	–	–	–			
3	562203	1.20	–	500	–	–	–			
4	562204	1.94	–	500	–	–	–			
5	562205	0.40	–	160	–	–	–			
6	562206	–	–	160	–	–	–			
7	562207	–	–	1400	–	–	–			
8	562208	–	–	65	–	–	–			
9	562209	–	–	90	–	–	–			
10	562210	–	–	110	–	–	–			
11	562211	–	–	120	–	–	–			
12	562212	–	–	120	–	–	–			
13	562213	–	–	150	–	–	–			
14	562214	–	–	160	–	–	–			
15	562215	–	–	8	–	–	–			
16	562216	–	–	490	–	–	–			
17	562217	–	–	120	–	–	–			
18	562218	–	–	560	–	–	–			
19	562219	–	–	65	–	–	–			
20	562220	>7.00	7.3	190	–	–	–			
21	562221	5.45	–	140	–	–	–			
22	562222	>7.00	14.1	250	–	–	–			
23	562223	>7.00	10.8	290	–	–	–			
24	562224	>7.00	10.2	980	–	–	–			
25	562225	>7.00	29.9	390	–	–	–			

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 Inchcape Inspection and Testing Services Australia Pty Ltd.

488565

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.93.06928	03/04/93	8677	4 OF 4

TUBE No.	SAMPLE No.	Ba	Ba	As	Cr	Zr	Ti			
1	562226	>7.00	17.6	570	—		—			
2	562227	0.32	—	8	10	250	2650			
3	562228	—	—	35	20	230	2550			
4	562229	—	—	50	9	240	2650			
5	562230	0.32	—	95	35	230	1700			
6	562231	0.36	—	50	25	190	1450			
7	562232	0.26	—	25	40	240	1950			
8	562233	>7.00	15.7	1500	—	—	—			
9	562234	>7.00	25.3	2500	—	—	—			
10	562235	>7.00	28.2	2300	—		—			
11	562236	4.70	—	210	—		—			
12	562237	4.52	—	190	—	—	—			
13	562238	>7.00	22.0	1000	—	—	—			
14	562239	—	—	180	—	—	—			
15	562240	—	—	75	—	—	—			
16	562241	0.32	—	120	—	—	—			
17	562242	—	—	370	—	—	—			
18										
19										
20										
21										
22										
23	DETECTION	0.01	0.1	2	5	5	50			
24	UNITS	%	%	ppm	ppm	ppm	ppm			
25	METHOD	405	406	401	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 21

ABERFOYLE EXPLORATION — **DRILL HOLE RECORD**

Location: Mt Charter
Property: Mackintosh EL
District: Tasmania
Alt./R.L.: 819.7
Hole No: MAC-23
Co-ordinate: 4641.52N 5285.32E
Date:
Commenced: 27/2/89
Completed: 21/3/89
Core size: HQ
Bearing (M): 42° 58'
Logged: SWR
Objective: Test of Mt. Charter gold zone
% Recovery:
Grid bearing (M): 32° 58'
Dip: 48.6°

SURVEY DATA

DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE

GRAPH DERIVED DATA

DEPTH	DIP	BEARING(M)	NORTHING	EASTING	ALTITUDE
0	-48.6	45°	4641.52	5285.32	819.7
25	-50.3	45			
50	-50.5	45			
75	-50.5	45			
100	-50.9	45			
125	-51.0	45			
150	-50.3	45			
175	-49.5	45			
200	-48.9	45.2			
225	-48.6	45.9			
250	-48.1	45			
275	-47.3	45			
280	-47.0	45			
		* Bearings are Magnetic			

REMARKS

Collar pick-up: A. Smith, Que River
AMG Coordinates: 5391382.69 N
329663.47 E

0-3m HW
3-280m HQ

32 mm class 12 Pvc to bottom of hole
3m HW casing left in hole

14835-3

Abertoyle Resources Limited
EXPLORATION DIVISION

DIAMOND DRILL LOG

PROJECT : MACKINTOSH

PROSPECT: MT CHARTER

HOLE NO: MAC 23
PAGE: 1 of 7
LOGGED: S.W.R
DATE: 30-2-89

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
2, 4, 6, 8, 10, 12, 14, 16, 18			Andesite lava breccia (A.lb.)	Very dark blue-grey homogenous fragmental rock. Fragments range in size from <1mm to ≈30cm. Some fragments show slight alignment of minor sericitised feldspars. Only weakly feldspar-phyric 15.8 weathered leached and Fe stained version of above. white strongly altered fragments (to 10cm) standout from less altered matrix.	weak - moderate silicification sil (2). moderate sericitisation ser(2) common pyrite alteration visible as disseminated grains and small clusters throughout the matrix py(3) rare fuchsite spotting traces of K feldspar - sphalerite "white" alteration. 15.8 strongly leached + Fe stained 16.7 fragments more strongly altered than matrix to ser(4) sil(2) py(2)	minor barite veining to ≈5mm every 1m. Some larger barite veins form a 'matrix' to andesitic lava fragments (eg 9.3m) pyrite veins not common veins generally ~50° to CA small barite vein with trace sphalerite and galena with pyrite at 7.2m. 15.8m removal qz veins visible in weathered core. 15.8 3mm qz vein 16.2 4mm qz vein 16.7 3mm barite vein (5mm) cuts 30° CA displaced by qz veins. 16.75 qz veins 1cm 65° CA.	Pyrite forms upto 5% of rock as disseminated 'patches' throughout both matrix (some coarse) and fragments. Barite occurs with pyrite in veins and as small porphyroblasts within the rock. Barite forms ~1% of rock. Base metal sulphides only trace. As above	massive. minor fractures in rock at irregular angles every ~10-50cm 15.8 very broken to 16.3 (weathering) massive to 19.9			9.9m 515481 Petrology and Geochemistry	2, 4, 6, 8, 10, 12, 14, 16, 18
19.9m 20, 22, 24, 26, 28, 30			Sharp contact Polymict fine ash to lapilli volcaniclastic V. dk. - lt. Bedded in part 31.8m	Distinctive yellow-green volcaniclastic rock with fragments of subrounded to subangular dacite lava, black cherty slate! Size ranges from fine ash to lapilli. Some of larger fragments show distinct flow banding. Some finer units distinctly bedded (65° to CA). Whole unit generally fining towards base. 30.6 very well bedded fine ash to fine lapilli units bedding 65° CA	mod - strong sil (2-3) fragments variably sericitised from mod - intense (2-5) matrix generally weakened (1-2). Pyrite alt^n generally only minor with rare disseminated pyrite spots py(1).	1-2mm pyrite - barite veins cut at irregular angles every ~50cm occasionally larger than to 2mm. 23.25 1.5mm 3mm py vein c very minor sphalerite. 28.20 4mm 3mm py vein 60° CA. 28.90 + minor increase in barite veining to 31.8m	Pyrite ≤ 1% predominantly within matrix (not frags) Barite slightly more common than pyrite, occurring as small veins and patches between some fragments. sphalerite roughly equiv. abundance to pyrite.	massive lt. to 30.1 fining to ash lt to 31.8.			26.10m 515482 (Pet. + Geochem) 31.40 515483 (Pet. + Geochem)	20, 22, 24, 26, 28, 30
32, 34, 36, 38, 40, 42			Dacite lava breccia	light yellow - brown Dacitic lava breccia fragments to 50cm with some fine ash between frags down to 39.0m. Many fragments have dark flow bands. Fragments contain minor sericitised feldspar phenocrysts and occasionally qz phenocrysts.	Strongly to very strongly silica altered sil(4) mod - strong sericite (3-4) Fragments only weakly pyrite altered (2), with most pyrite occurring as veins and veinlets between fragments.	pyrite veins and veinlets quite common, especially from 37.0 to 45.0 m. Barite veining only minor generally up to 1cm every 37.6m gal + sph vein qz veins (Pb). quartz veins to 5cm similar abundance to barite (containing some minor sphalerite)	pyrite upto 5% of rock predominantly as veinlets and veins between fragments (disseminated pyrite is v. minor) Barite less abundant than pyrite. disseminated sphalerite 'spotting' relatively common, but less abundant than ba. sph + gn also occur in some qz-ba and pyrite veins.	massive lb. no alignment of fractures or of banding			V. sharp contact of finely bedded ash + lc on larger fragments! Dacite lava breccia.	32, 34, 36, 38, 40, 42

A88563

Aberfoyle Resources Limited
EXPLORATION DIVISION

DIAMOND DRILL LOG

PROJECT : MACKINTOSH
PROSPECT: MT. CHARTER

HOLE NO: MAC 23
PAGE: 2 of 7
LOGGED: S.W.R
DATE: 31-3-89

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
44–50			Dacite lava Breccia D.1b. 50.2m	As above	As above	As above 45.4 2 large quartz veins (3 and 4 cm) cut across all foliation and veining (Dev F?)	As above	As above.				44–50
50–64			Dacite lava D.1. 62.65 Barite vein 63.8	massive yellow-green dacite lava with common flowbanding. Some alignment of sericitised feldspar (translucent yellow), with occassional unsericitised? white feldspars. Rare quartz phenocrysts. Rock cut by occassional dark grey sericite+pyrite veins to give a weak fragmental appearance	Strongly silicified (4) strongly sericitic (4) visible esp. on joint surfaces weak to mod pyrite alteration (1) Some large sericite? patches (+ some light green clay) 60.8 increase in sericite content 63	pyrite veining generally minor. quartz and barite veins 1-5mm every ~ 50cm. 55-55 Barite + lt green sericite? vein 2cm 60.3 10cm barite vein (5% py, 10% sp) 62.65 large barite vein 3 py, sp, garnets. + trace cpy visible 63.8 Upto 20cm Barite veins	Dam to 60.3m, massive lens are gely weakly mineralised 2 minor pyrite veins + veinlets and similar barite + qtz veins, 2 tr. disem sph + gal. 60.3 below 60.3, rock is strongly sil 2 py + lt and barite ~5% of rock (sph 60%). large barite veins contain minor pyrite 30-40%, common barite 40-60%, and common Sl. sph 10-30%. tem + cpy appear trace.	Massive lava 55.75 strong banding at 20° to CA 56.6 30° to CA 58.0 30° to CA Some veins follow banding				50–64
64–75			Dacite lava breccia D.1b. 75.0m	light brown Dacite lava breccia with angular to sub angular fragments to 50cm.	65.0 pl. dif = bigger alteration 65.8 strong sil (4) mod ser (3) weak - mod py (2-3) common sericite 'spotting' 69.8 Some chlorite patches + 'white' alteration	Common small quartz and barite veins (no ~5mm every 30cm). irregularly distributed pyrite veins	minor pyrite — 1% more common barite ~ 1-5% only very trace base metal sulphides	massive rock. slight foliation defined by alignment of 'white' spots at ~ 40° to CA			66.45 slightly rounded D.1. fragments 66.7 in a leached Fe stained matrix. 72.0m SS15181 Pot + garnetes.	64–75
75–89			Dacite lava.	light brown massive Dacite lava no obvious flow banding common to abundant sericite spotting after feldspar. 84.0 Dk green lava sl. dif to above. contact 30° CA begin	Sil (4) Ser (3) py (2)	barite and quartz veins similar to above. ~ 5mm every 30cm 77.3m 40cm pyrite vein 2 two stages of pyrite 80.0 large quartz + albite vein with a 'pink' 'potato' 82.95 v small zoned pyrite vein	pyrite ~ 1-5% of rock barite ~ 5%	massive				75–89

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DIAMOND DRILL LOG

PROJECT : MACKINTOSH
PROSPECT: MT. CHARTER

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86 88 89.4			Dacite lava	slightly green-yellow lava.	ser (3-4) sil (4) py (2-3)	common small quartz veins to 5mm every ~10cm, some with minor sphalerite and galena pyrite veinlets less abundant than quartz only minor barite	py ~1% at rock barite < pyrite (< 1%) trace base metal sulphides					
90 92 94 96 98 98.0			Fault Zone	very broken core with fragments of ?dacite lava (max = 30cm) grey green colour to 95.0 -95.0 weathered leached and iron stained	moderate sil (3) moderate ser (3) pyrite (2-3) as small veinlet networks, not as disseminations.	common pyrite veinlets and veins every 20-30cm quite common quartz and barite veins some large quartz veins are brecciated	pyrite 1-5% barite ~1% very minor bns.s/s.	No visible foliation or movement indication			Some pyrite and barite wholly encloses (forms a matrix) fragments within the fault breccia.	
100 102.0			Dacite lava	massive pale yellow lava with rare sericitised feldspars.	strongly silicified (4-5) " sericitic (4) weak py (2). some py-ser veins give dk veining through rock	Barite is quite common forming v. veins to lcm fragments in larger veins quartz veins to 5mm every 30cm pyrite veinlets veins to 1mm every 30cm	Barite 1-5% is more abundant than pyrite (~1%) some sphalerite & galena occurs barite and occasionally quartz	Massive				
102 104 106 108 108.2			Dacite lava	as above but olive green-brown coloured	mod sil (3) strong ser (4) py (2-3) as disseminated 'blobs'. 102.6 v strong sericitic? development	common quartz veinlets and slightly less barite veining to 5mm every 30cm increasing in intensity to every 10cm near 108.2. only minor pyrite	py < 1% ba ≈ 1-5% trace bns.s in pyrite and barite veins only	occassional slightly sheared joints eg 102.6 40° CA. common around 105.5m				
110 112 114 115.0				clay rich leached rock. pale green grey dacite lava? -111.75 very pyrite rich clay with some angular quartz fragments -114.2 minor breccia unit	strong ser (4-5) weak sil (2) mod py (3-4)	common v small pyrite veinlets. veins to 1cm every 30cm. minor quartz and barite veining some 'Vuggy' quartz veins	pyrite ~5% barite ≈ 1-5% trace bns in larger barite & pyrite veins	-108.6 small folded? quartz veins. V broken. weakly sheared.				
116 118 120 122 124 126			Dacite lava	massive dark grey lava with sericitised feldspars common. Feldspars visible both as olive-green sericite pseudomorphs and as white 'primary?' flecks. Common dark 'flecks' of ?pyroxene or ?pyrite. Some small quartz phenocrysts. occassional cross cutting pyrite and sericite veins cut through the rock.	mod-strong sil (4) mod-strong ser (3-4) common pyrite (4) as abundant v small disseminated 'micro-cubes' 116.8-117.7 common 'white' alteration	1 minor quartz veining rare barite veins 1-5mm every 10cm. minor pyrite veinlets ~50cm slight increase near 127.7m	py ≤ 1% increasing to ≈ 1% near 127.7 barite much less abundant than pyrite v. trace basemetal sulphides	Massive				could this be Andesite? possible qz phenocrysts visible though 117.10m 535485 Pet + geoch.	

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126												
128			V. lv	Polymict lapilli volcaniclastic, packed angular frags ed 7cm in fgr. grey matrix.	fragments variably altered. Sil (2-3) Ser (2-3) Py (2-3)	rare 'vuggy' small qz veins	qz ~1% no barite some tem & py on joints	No bedding				
130			Dacite lava	Similar to 115-127.0 but slightly more ser-py altered. Rock is slightly 'vuggy' 'leached' 129.9 rock is slightly ?brecciated with chlorite common in fgr matrix	Sericite (3-4) increasing so (4) from 139m. Sil (3-4) decreasing from 139. Pyrite (3-4). Some 'white' alteration. possible carbonate in qz veins 139.4 chlorite common	qz. veins to 5mm every 10cm. minor barite veining slightly less abundant than quartz. Pyrite veins & veinlets common to ~5mm every 20 cm. 138.9 large qz-albite vein (albite xtals to 3-4 cm)	pyrite ~ 5%. barite << pyrite. Some tennantite occurs with vuggy qz veins. only trace b.m.s's	massive. joints have slight sericite sheen and occasional chlorite				
134			Barite	Very intensely veined dacite lava fragments within large quartz-barite veins. 137 Barite vein (3m) with vuggy quartz and pyrite within. Vein is slightly leached? and 140° vuggy. V intensely veined dacite lava	Some dk fragments v silicious Sil (5), with some v sericite up to (4). Some fragments are slightly chloritic	Barite vein (3m) with slight foliation parallel to core. common small quartz and pyrite veins	Barite up to 80% of rock. Pyrite 5-10% of rock. some 'vuggy' qz-py patches contain tennantite & cpy. Sph & Gn are only minor	Massive. irregular joints every 10-40cm				
142			Dacite lava	massive grey-brown homogenous lava. common sericite-pyrite veins with grey alteration 'zoning' extending into the rock give a slightly brecciated appearance. Occassional alignment of sericitised feldspar phenocrysts	Sil (2) Ser (2-4) Py (2-4). 148.0 Sil (4) Ser (3-4) Py (2-3). 151.5 Sil (2) Ser (4) Py (3) slightly chloritic. 153.8 Sil (5) Ser (3) Py 2 Very siliceous. 156.8 Sil (3-4) Ser (3-4) Py (3) 'white' alt^n common from 160.0-169.0 especially around 161m 163-164 & 165.5m	barite-pyrite veins common. 1cm every 5-10cm only minor quartz veining. 148.0 v minor barite veins quartz 5mm every 20cm pyrite every ~60cm. 152 minor barite & orange Carb? minor pyrite (every ~40cm) " quartz. 155 barite veining relatively common. containing pyrite and some b.m.s's (every ~20cm) common pyrite to 5mm every 10cm. minor quartz	barite ~5% pyrite 1-5% v. rare b.m.s. 148.0 minor barite < 5% pyrite ≤ 5% minor b.m.s. 152.7 barite ~ 5% pyrite < 1% minor b.m.s. 155 barite ~ 1% py < 1% minor b.m.s. 158 pyrite ~1-5% to 5mm every 10cm. barite 1-5% minor b.m.s's in barite-pyrite veins and disseminated	Massive. irregular joints every 10-50cm. 153 common joints core 5mm to 30cm. 155 Massive			163.90m 515486 Petrography	
164												
166												

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DIAMOND DRILL LOG

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169 170	170.7		Dacite lava	as above	As above -169 Very sericitic	as above	as above	-168.7 broken + jointed to 2-10cm common sericite				
172 174	174.7		Dacite lava Breccia	angular flowbanded fragments within a homogeneous lava matrix fragments from <1cm to 40cm	strongly siliceous 4-5 mod-strong ser (3-4) py (2-3) minor chlorite on joints	minor 'vuggy' qz veins every ~50cm similar abundance barite -174.3 1.5cm barite + py-bns vein	py ~1% ba <1% trace bms's associated with vuggy qz veins and in 'birthy' barite veins	sl. broken <5cm to 50cm 'frags'				
176 178 180 182 184 186 188	188.2		Dacite lava	massive Dacite lava Pale brown-grey with common cross cutting pyrite-sericite veins (dark-grey). Sericite alteration extends in from these veins which commonly have pyrite in the centre.	sericite (4) sil (3) pyrite (3-4) 'white' alteration common -187.2 Very sericitic	barite to 1cm every 20cm small qz veins common to 1cm every 20cm common v small pyrite (with sericite) veins.	py ~5% Barite upto 5% quite common Bms's occurring as large grains in quartz veins and as 'birthy' patches within barite veins. Also occur as v small disseminations	Massive.			Similar to MC-1 ~120m MC-3 ~200m.	
190			Dacite lava? or lb?	subrounded flowbanded lava fragments to 4cm in homogeneous matrix	ser (4) sil (3) py (2-3) minor chlorite	minor qz minor barite + py-bns veins	py <1% ba <1% v rare bms.	Jointed <5 to 20cm			WATER LOST	
192 194 196			Dacite lava	light yellow grey massive lava = many dark grey py-ser veins some rounded 'exotic' frags at ~193.8m possibly minor V.lr.	v sil (5) ser (3-4) py (3) -193.8 -194.2 large patches of 'white' alteration.	quartz to 3mm every 20-30cm barite veins every ~20-30cm common small py-ser veins	py ~1% ba <1% minor bms	Massive				
198	198.3		Barite vein	large barite vein with occassional rock fragments within	—	pyrite rich seam 5cm at 196.7	Ba up to 60% at rock Py ~10-20% less common	weak fol'n ~30° CA			Vein rich in B.M.S.	
200 202 204 206 208	208.5		Dacite lava	as for 190 – 194m but slightly greener slightly leached and vuggy from 199.3 to 200.5	ser (3-4) upto 5 near 208.5 sil (3) py (3) some chlorite alt'n visible esp near 208.5	common quartz veins to 5cm every 40cm (occ. containing chlorite).	py ~1% ba <1% trace bms only -204 trace cpy + chlorite in qz veins	Massive				
			FAULT ZONE									

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209.5			FAULT ZONE	v. broken D.I frags no obvious shearing. some qz. vein rubble	ser, Py., qz as for previous interval	minor pyrite at 209.5	Py ~1% no Ba, tr Bms	no obvious orient^n				
210			Dacite lava	massive pale olive green dacite lava. Common sericite altered feldspars aligned at ≈ 50°.	Some Fe spotting Chl. alteration to 211m Se 4 Si 4 Py 2-4	com. – abn. Py veins every 5-10cm	quite common pyrite Py ~ 5% of rock Ba ≤ 1%	generally massive but slightly sheared weak alignment of feldspars ≈ 50° c.A.				
212						com. qz ≈ Scm every 10-30cm	Bms only with Ba ∴ trace					
214					214-214.5 v. soft & crumbly, sericitic?	abn. qz 217.6-218m						
216						minor to rare barite veins						
218					218.3 extremely siliceous 218.6 Si 5	217m Scm barite vein with common Sp Gn					218.80 S1548776 "Amygdaloidal dacite"	
220												
222					222.6m Se 3 Si 2 Py 3	Py common, minor qz						
224				224 massive homogeneous lava with common X cutting ser-Py veins to give 'crackle'. Some chlorite alteration gives dark green colour.	223.6 Chl 2 Se 3 Si 3 Py 3; 224m Chl 4 Se 3 Si 2 Py 2	minor Qz only	Pyrite 1-5% minor Barite					
226					226 typical 'crackle' Chl 3	minor Qz, com. Se Py vns minor Ba vns						
228					227.6 Se 3 Chl 3 Si 4 Py 1	rare Py rare Qz						
230					229.7 'crackle'	Qz veins ≈ Scm every 1m com barite vns every ≈ 50cm Pyrite qtz ≈ Scm every > 30cm	Py 1-5% Ba ~ 1% com. Bms & Py + Ba				231.3 2 gen^n of Py veins ie X cutting.	
232							233 abn. Py & Ba + Bms					
234						234.4 20cm Py Gn Sp vn.	235					
236				235m very massive lava, very little veining or min.	Si 4-5 Se 4 Py 2 some "white" alte around 235	v rare vns	Py 1-5% Ba < 1% tr Bms					
238												
240												
242				242 weakly flow banded 243								
244					244 – Chl 2 Se 3 Si 2 Py 2	244						
246						Qz vns minor Ba + Py vns	Py 1-5% Ba ~ 1% mod. com Bms & Ba + Py.					
248					248.8m "white" alt^n & corns							
250												

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252 254 256 258 260 262 264 266			Dacite lava	Pale yellow-green massive dacite lava. 'Crackle' texture with crosscutting sericite pyrite veins 251.8 slight foliation 40° c.a.	Mod Sil (2-3) Ser (3-4) weak chlorite (1-2) weak Py (2)	rare quartz (2cm every ~2m) common barite 1cm every ~40cm pyrite slightly less abundant than barite barite veining increases down to ~269m.	barite up to 5% Pyrite 1-5% common bms associated with barite and also disseminated	massive				
268 270 272 274 276 278 280.0			E.O.H.	massive dark green rock with common sericitised feldspars and black bms? flecks. Moderately chlorite altered to give a pervasive green colour.	mod chlorite (3) ser (3) sil (2) Py (3)	267 Abundant barite & bms+py. 269 rare quartz (containing abundant chlorite). common barite 3cm every 40 cm	Py 1-5% common barite 5% common base metals				277.70m 515488 Pb+Cu+Zn	

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ATTACHMENT - MAC 23

Sample No:	Depth	Description and comments
515481	9.90m	Pyrite-sericite altered andesite lava breccia with minor barite. Typical of 0 - 15.8m.
515482	26.10m	Altered medium to coarse lapilli volcaniclastic. Representative of 20 to ~ 30m.
515483	31.40m	?Altered finely bedded ash to fine lapilli volcaniclastic. Representative of 30 to 31.8m. Can you comment on the timing of the barite in this sample?
515484	72.0m	Altered massive dacite lava with flow banding highlighted by fine-grained white K feldspar-sphalerite patches. Typical of 71 to 74m.
515485	117.10m	Altered massive lava with disseminated sphalerite and galena, minor white K feldsparsphalerite patches. Typical of 115 to 121m.
515486	163.90m	Altered massive lava, similar to above. Some barite and pyrite veining. Typical of 144 to 170m. What is the orange material within the barite?
515487	218.80m	Altered massive ?dacite lava with minor quartz veining. Typical of 218 to 226m.
515488	277.70m	Altered massive ?dacite lava with minor pyrite-barite and ?quartz-chlorite veining. Typical of 226 to 230m and 271 to EOH.

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29th May, 1989

REPORT CMS 89/4/28

YOUR REFERENCE:	Letter dated 6.4.1989
DATE RECEIVED:	18th April, 1989
SAMPLE NOS.:	515481 - 515488
SUBMITTED BY:	S. Rand
WORK REQUESTED:	Petrology

H.W. Fander, M. Sc.

Copy to:
Mr. H. Skey
Exploration Manager
Aberfoyle Resources Ltd.
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488577

REPORT CMS 89/4/28

A suite of eight samples of split core from Mount Charter Drill Hole MAC-23 was received for routine petrological description. Representative thin-sections wer prepared, examined in transmitted light and, together with respective offcuts, in oblique incident light, with (feldspar, carbonate) stain tests performed as warranted.

Attached descriptions summarise the microscopic data, include interpretative comments, and refer to specific queries, where applicable.

Summary

As sampled, the MAC-23 sequence comprises an upper thoroughly altered and brecciated felsic ("leuco-andesitic") intermediate lava breccia overlying a volcanoclastic breccia unit and a thick "basal" sequence of altered dacitic/rhyodacitic lavas.

Alteration features are rather consistent, with typically pervasive development of sericite-quartz-pyrite assemblages. Individual rocks exhibit polystage vein development with assemblages broadly consistent with the alteration. A rather consistent feature is the temporally intermediate to late-stage barite-bearing veins, variably sulphide-mineralised and predating generally mild but semi-penetrative stress and shearing effects.

The breccia unit, represented by samples 515482 and 515483, is polymict in terms of exhibiting basic to intermediate and acid volcanic debris (515482) and, at least locally (515483), reworked tuffaceous and non-volcanic components. Fabrics reflect a sedimentary slump or "mass-flow" mode of origin, and general features are thus consistent with the so-called volcanoclastic sequences.

D. Cowan, B. Sc.

SAMPLE NO.: **515481** (T.S. 61577) 1.

CLASSIFICATION: **"Leuco-Andesitic" Breccia**

COMPOSITION: Lava clasts with frequent albitised/variably sericite-pseudomorphed feldspar phenocrysts, relatively minor quartz-pyrite-, and sericite-pyrite-pseudomorphed phenocrystal ferro-mags. and altered groundmasses of sericite and sericite-stained crypto- to microcrystallihne quartz more or less pervasively stained with very fine to ultrafine pyrite impregnations. Poorly optically defined matrix of strongly sericitic impure chert/cherty argillite. Pervasive irregular networks of sericite-quartz veinlets, films and stringers. Sporadic late irregular quartz-sericite veinlets and vugs.

FABRIC: Variable and partly obscured by secondary sericite-quartz-healed brecciation effects. Essentially a flow-structured moulded to impure chert-cemented lava breccia with variably perlitic-structured/partly devitrified "lapilli-grade" clasts. Marked secondary fracturing effects partly controlled by the perlitic structures. Weakly/variably sheared and locally sheared sandy/lensoid breccia-textured, where relatively sericitised.

ACCESSORIES: Rare corroded phenocrystal quartz. Conspicuous very fine leucoxenised opaques, rare microscopic apatite. Sporadic boudinaged/sericite-pressure-shadowed relatively pyritic sericitic stringers.

COMMENTS: Detail obscured by advanced sericite-quartz-pyrite alteration, pervasive similarly constituted veinlets and subsequent shearing effects. Interpreted as leuco-andesitic on the basis of low phenocrystal ferromag. content and presence of accessory phenocrystal quartz. No detectable barite in area sectioned.

SAMPLE NO.: **515482** (T.S. 61578)

CLASSIFICATION: **Volcanomict Breccia**

COMPOSITION: Random clastic framework of irregular to angular-subangular, thoroughly sericite-quartz-altered lava clasts supplemented by similarly altered sand-sized crystal fragments (semi-selectively sericitised feldspar, silicified ferromags.) cemented by aggregates of variably sericitic crypto- to micro-crystalline quartz. Sporadic vugs, replacements, irregular veinlets, amygdales of medium-grained vein-quartz with minor associated barite. Late crosscutting semi-planar vein (1-2 mm wide) of barite and quartz with disseminated blebs of pale sphalerite.

FABRIC: Partly obscured by alteration, but essentially poorly sorted (psammite to agglomerate grade) lithic-crystal fragmental with a corrosive/replacive hydrothermal sericitic quartz cement. Clasts include vaguely relict andesitic, leuco-andesitic/dacitic and rare ?basaltic types. Weakly stressed (post-veining) to weakly sheared/incipiently phyllitic, where relatively sericitic.

ACCESSORIES: Leucoxenised opaques and minor traces of chromite. Thinly/semi-pervasively disseminated fine to ultrafine pyrite, subordinate traces of galena and ?sulphosalt.

COMMENTS: Compositional and much textural detail obscured by intense quartz-sericite alteration. Relict features consistent with a volcanomict (rather than strictly pyroclastic) sedimentary breccia of "debris mass flow" origin, with an assortment of andesitic, leuco-andesitic/dacitic and minor ?basaltic components. Barite is temporally intermediate to late in the alteration/veining sequence. The composite barite-quartz vein is zoned with semi-lustre-mottled barite core and fine semi-comb-structurred crystal quartz margins.

SAMPLE NO.: 515483 (T.S. 61579) 3.

CLASSIFICATION: **Tuffaceous Breccia**

COMPOSITION: Random framework of sericitised and sericite-quartz-altered/ poorly determinate lava and subordinate tuffaceous lithoclasts, conspicuous sericitised shard fragments, disseminated silt- to fine sand-sized angular to subangular quartz, sericitised feldspar grains and minor quartz-sericite-pseudomorphed ferromags. Minor clasts of bleached-carbonaceous sericitic shale and impure chert. Matrix/cement of sericite and crypto- to microcrystalline quartz. Disseminated fine pyrite. Sporadic discontinuous quartz veinlets with thinly disseminated blebs of pale sphalerite. Crosscutting vein (1-1.3 cm wide) of fine to microcrystalline quartz with disseminated to clustered laths of barite, disseminations of fine-grained pyrite, minor spongy clots of sphalerite and disseminated intraclasts of the altered host rock.

FABRIC: Poorly sorted/weakly graded silty fine to medium angular sandy clastic, with finer-grained incipiently reverse-graded centimetric interbeds. The vein is weakly stressed, essentially banding-concordant, with irregular margins and disseminated angular intraclasts.

ACCESSORIES: Disseminations of very fine-grained galena, rare blebs of ?bornite in vein. Host rock exhibits leucoxenic semi-opaques, minor traces of lithoclast-hosted and clastic chromite, and very thinly disseminated clastic muscovite flakes.

COMMENTS: Affinities with the 515482 breccia and similarly interpreted. In comparison, this rock is finer-grained, distinctly polymict, and exhibits conspicuous mildly reworked and possibly a little primary ashy tuffaceous debris. Volcanic debris is dominantly "dacitic" material, on the basis of relict compositional/ microtextural features. The baritic vein is temporally late, is flanked by, and includes, disseminated spongy clots of pyrite and appears to have developed along a pre-existing pyritic fracture or veinlet.

SAMPLE NO.: **515484** (T.S. 61580) 4.

CLASSIFICATION: **Rhyodacit**

COMPOSITION: Disseminated extensively sericitised/marginally silicified to quartz-sericite-pseudomorphed plagioclase (?albite) phenocrysts, selectively silicified ?K-feldspar and leucoxene-stained quartz-pseudomorphed amphibole phenocrysts, subordinate relict variably corroded quartz phenocrysts. Altered groundmass of sericitised microcrystalline plagioclase, sericite-stained K-feldspar and subordinate quartz. Sporadic veinlets of quartz, chlorite, barite and fine-grained muscovite.

FABRIC: Porphyritic/trend glomeroporphyritic, flow-structured and -banded, with a microfelsitic/devitrified groundmass. High-angle discordant, crudely stockwork-style veinlets.

ACCESSORIES: Minor late displacive chloritic-sericitic microfractures. More or less pervasive ultrafine pyrite; thinly disseminated clots of coarser-grained pyrite partly replacive after disseminated leucoxenised opaques. Disseminated microscopic laths of leucoxenised ?ilmenite in veinlets.

COMMENTS: Primarily a "hornblende rhyodacite", flow-structured and subvitric. Exhibits sericite-quartz-pyrite alteration, with plagioclase, phenocrystal K-spar and amphibole selectively and differentially altered. This rock is unusual, in the Que-Hellyer situation, in containing relics of K-feldspar, as confirmed by staining.

SAMPLE NO.: 515485 (T.S. 61581) 5.

CLASSIFICATION: **Amygdaloidal Rhyodacite**

COMPOSITION: Frequent quartz-sericite-pseudomorphed ?K-feldspar, subordinate similarly altered ferromagnesian, and selectively sericitised ?plagioclase phenocrysts (to 1 mm), frequent micro-amygdales (mean 150 um) of quartz and sericite. Pervasively sericite-stained cryptocrystalline felsic groundmass. Irregular networks of microscale veinlets of quartz with interspersed clots of sericite, disseminated very fine to ultrafine blebs of sulphide (pyrite, galena in part) and disseminated laths of leucoxenic ?ilmenite.

FABRIC: Strongly porphyritic/weakly glomeroporphyritic, flow-structured micro-amygdaloidal, with irregular to crudely stockwork-style incipiently stressed discontinuous veinlets.

ACCESSORIES: Traces of barite, minor traces of pale sphalerite and quartz-micro-included carbonate in veinlets. Disseminated leucoxenised opaques and (primary accessory) fine acicular apatite. Pervasive ultrafine pyrite in the sericitic groundmass.

COMMENTS: Affinities with 515484, enhanced by persistence of relics of K-feldspar in the cryptocrystalline groundmasses, similarly altered, and with an essentially similar veinlet assemblage. In comparison, this rock is micro-amygdaloidal, devoid of phenocrystal quartz, and appears to have included minor microphenocrystal pyroxene supplementing the feldspar-amphibole assemblage.

SAMPLE NO.: **515486** (T.S. 61582) 6.

CLASSIFICATION: **Amygdaloidal "Rhyodacite"**

COMPOSITION: Frequent sericite- and relatively minor sericite-quartz-pseudomorphed feldspar phenocrysts, supplemented by leucoxenic quartz-sericite-pseudomorphed phenocrystal ferromags. and sporadic weakly sericitic quartz amygdales (to 2 mm), with disseminated clusters of pyrite. Altered groundmass of sericitised felsitic-anhedral plagioclase with subordinate similarly-textured quartz and sericite-stained K-feldspar, with disseminated fine to ultrafine pyrite. Sporadic pyritic sericite-quartz veinlets and crosscutting weakly pyritic quartz veinlets. Crosscutting sericite-selvedged vein of barite and quartz with spongy clusters of pyrite and minor films and clots of partly degraded/Fe-stained semi-sericitic white mica (orange in hand specimen).

FABRIC: Strongly porphyritic, weakly amygdaloidal, flow-structured and weakly banded with a finely felsitic-devitrified groundmass. Incipiently sheared, with stressed/partly recrystallised vein-barite and fractured/pressure-shadowed pyrite clusters.

ACCESSORIES: Conspicuous ultrafine leucoxenised opaques, minor traces of apatite. Traces of ?hematite in ferromag.-pseudomorphous quartz-sericite aggregates.

COMMENTS: Affinities with 515484 and 515485 and similarly altered. This rock is similarly devoid of phenocrystal quartz and is relatively deficient in K-feldspar and its alteration products, thus probably strictly "orthoclase-dacitic" in composition. Baritic veining appears temporally late with respect to the bulk of alteration.

SAMPLE NO.: **515487** (T.S. 61583) 7.

CLASSIFICATION: **Amygdaloidal Dacite**

COMPOSITION: Composite aggregates of sericite and subordinate variably sericite-stained fine anhedral quartz with disseminated sericite-pseudomorphed feldspar phenocrysts, frequent variably sericitic and disseminated-pyritic quartz amygdales, minor leucoxene-stained ferromagnesian phenocryst-pseudomorphous sericite-quartz aggregates. Sporadic pyritic quartz and crosscutting pyritic sericite-quartz veinlets. Minor late veinlets of quartz with a little partly sericitised K-feldspar.

FABRIC: Porphyritic and relatively amygdaloidal, relativele flow-structured (orientated amygdales) with a thoroughly sericitised felsitic-microtextured (devitrified) groundmass. Mildly stressed (post-veining). Weakly displacive, temporally intermediate pyritic sericite-quartz veinlets.

ACCESSORIES: Conspicuous leucoxenised opaques.

COMMENTS: Affinities with 515484, 515485 and 515486, but exhibiting relatively orthodox altered dacitic characteristics, with a relative deficiency in altered phenocrystal ferromags. parallelling the (deficient) phenocrystal quartz. Relatively amygdaloidal and flow-structured. Exhibits three generations of veinlets, with the late feldspathic quartz assemblage predating stress effects.

SAMPLE NO.: **515488** (T.S. 61584) 8.

CLASSIFICATION: **Amygdaloidal Dacite**

COMPOSITION: Frequent weakly pyritic sericite pseudomorphs after phenocrystal feldspar, relatively quite minor chloritic quartz (after pyroxene) and sericitic chlorite (amphibole) pseudomorphs after phenocrystal ferromags., disseminated weakly chloritic and sericitic quartz amygdales in pyrite-stained and extensively sericitised felsitic feldspathic/quartz-deficient groundmass. Sporadic veinlets of quartz with subordinate chlorite, barite, a little calcite, and a disseminated pyrite-galena-chalcopyrite-tetrahedrite(?) sulphide assemblage.

FABRIC: Porphyritic, amygdaloidal, weakly flow-structured and -banded. Stockwork-style mildly stressed veinlets.

ACCESSORIES: Leucoxenised opaques. Traces of pale sphalerite, minor traces of leucoxenised ?ilmenite in veinlets.

COMMENTS: Affinities with 515484 etc., and particularly 515487. Exhibits advanced sericite-quartz(-chlorite-pyrite) alteration. The vein assemblage is analogous to that in 515484, although relatively mineralised and with calcite "substituting" for muscovite.

Aberfoyle Exploration — GEOCHEMICAL SAMPLE LEDGER

PROJECT	BSS SIEVE SIZE CODE - MESH NUMBER	SAMPLE TYPE CODE	CARD PUNCH PRINT / VERIFY	DATE	SHEET
MAC 23 Petrology	A 200 D 80 G 30 B 150 E 60 H 20 C 100 F 40 T = TOTAL	☐ OXIDIZED PRODUCTS O ☐ FRESH ROCK R ☐ STREAM SEDIMENTS S ☐ WEATHERED BEDROCK W ☐ SURFACE TRANSPORTED T ☐ RESIDUAL SOIL E ☐ MINE DUMP M	PRINT YES ☐ NO ☐ VERIFY YES ☐ NO ☐	5-April	1 of 1

~~FROM~~ Depth	~~TO~~	SAMPLE NUMBER	DEPTH IN CMS	SIZE FRACTION	Sample Type	METAL VALUES PPM	GEOLOGICAL LOG
9.9m		515481		Split core		Cu, Pb, Zn, Ag, Au, As, Ba, Ti, Zr, Cr	Andesite lava breccia
26.10		515482		"	"	"	Volcaniclastic
31.40		515483		"	"	"	Volcaniclastic
72.0		515484		"	"	"	massive Dacite lava
117.10		515485		"	"	"	Dacite or ?Andesite lava
163.90		515486		"	"	"	massive Dacite lava, minor barite
218.80		515487		"	"	"	massive Dacite lava minor barite
277.70		515488		"	"	"	massive slightly chloritic Dacite lava.

Note: Samples probably have high Barium content which will affect Titanium analysis unless glass fusion XRF analysis is used.

Refer also to petrology descriptions (same sample numbers).

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. 23.3.08.06114

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
6265	

DATE RECEIVED	RESULTS REQUIRED
07/04/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	28/04/89	1	8

...E ...ES		PRE-TREATMENT							ANALYSIS			
...FER ...OW	SAMPLE NUMBERS	DRY	CRUSH	SPLIT	PUL-VERISE	SIEVE	OTHER SEE REMARKS	NONE		REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	)15481/488	CD	Prep: 005,009,012,013,016						Cu,Pb,Zn,Ag/101,As/114			
	515481/488	CD							Cr,Zr/401,Ba,Ti/406,Au/309			
	515481/488	CD							Cr/403			

RESULTS TO

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

RESULTS TO

REMARKS

MAC-23
PETROLOGY

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
...ole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
...lit core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
...tting	CU	nitric acid	A3	other mixed acids	Mq	spectrophotometry	SPEC
...ock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
...p	PU	HF mixture	A6	ignition	IG	titration	TTN
...ter	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
...issue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
...tream sediment	SS					fluorescence	FLUOR
...avy mineral	HM					inductively coupled plasma	ICP

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A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06114	28/04/89	6265	1 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	Ba	Ba	As	Cr
1	515481	35	70	160	7.0	0.311	-	0.67	390	7
2	515482	115	565	4500	6.5	0.149	-	1.51	81	40
3	515483	195	400	3350	6.0	0.421	-	1.96	160	40
4	515484	10	20	50	1.0	0.210	-	0.80	120	10
5	515485	80	230	1700	4.5	0.226	-	1.60	270	20
6	515486	75	55	1350	12.0	0.373	-	3.81	220	10
7	515487	15	50	95	1.5	0.103	1150	-	100	30
8	515488	35	280	323	2.0	0.097	-	0.34	94	<5
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	0.008	10	0.01	1	5
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM	PPM
25	METHOD	101	101	101	101	309	401	403	114	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
	23.3.08.06114	28/04/89	6265	2 OF 2

TUBE No.	SAMPLE No.	Zr	Ti							
1	515481	220	3250	14.7						
2	515482	130	1700	13.0						
3	515483	75	1500	20.0						
4	515484	110	1100	10.0						
5	515485	150	2100	14.0						
6	515486	140	1900	13.6						
7	515487	70	2450	35						
8	515488	150	2650	17.7						
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	50							
24	UNITS	PPM	PPM							
25	METHOD	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

488680

APPENDIX 22

Aberfoyle Exploration GEOCHEMICAL SAMPLE LEDGER

PROJECT	BSS SIEVE SIZE CODE (MESH NUMBER)	ROCK TYPE CODE	CARD PUNCH PRINT	VERIFY	DATE	SHEET
MAC 23 SLUDGE SAMPLES	A 200 D 80 G 30 B 150 E 60 H 20 C 100 F 40 T = TOTAL	☐ OXIDIZED PRODUCTS O ☐ FRESH ROCK R ☐ STREAM SEDIMENTS S ☐ WEATHERED BEDROCK W ☐ SURFACE TRANSPORTED T ☐ RESIDUAL SOIL E ☐ MINE DUMP M	YES ☐ NO ☐	YES ☐ NO ☐		1 of 2

~~EASTINGS~~ DEPTH	~~NORTHINGS~~ INTERVAL	SAMPLE NUMBER	DEPTH CM	SIZE FRACTION	METAL VALUES PPM	GEOLOGICAL LOG
0 – 6.8m	6.8m	5 1 5 2 1 2			Ag, Au only	A.1b.
6.8 – 15.8	6m	2 1 3				
15.8 – 19.0	3.2	1 4				Y.1v
19.0 – 25.0	6m	1 5				
25.0 – 31.0	6m	1 6				
31.0 – 40.0	9m	1 7				D.1b
40.0 – 49.0	9m	1 8				
49.0 – 61	12m	1 9				D.1.
61.0 – 64.0	3m	5 1 5 2 2 0				Massive baritevein'd (1.2m) D.1.
64.0 – 70.0	6m	2 1				D.1b.
70.0 – 76.0	6m	2 2				
76.0 – 82.0	6m	2 3				D.L.
82.0 – 88.0	6m	2 4				
88.0 – 97.0	9m	2 5				FAULTED D.L.
97.0 – 103.0	6m	2 6				D.1
STD		2 7				Core grind
103.0 – 115.0	12m	2 8				D.1
115.0 – 127.0	12m	2 9				D or ?A.L.
127.0 – 136.0	9m	5 1 5 2 3 0				D.1 c minor Y.1v
136 – 139.0	3m	3 1				D.1 c intense Barite vein
139 – 142	3m	3 2				(massive Barite vein 137–140m)
142 – 154	12m	3 3				
154 – 169	15m	3 4				D.1
169 – 175	6m	3 5				3 minor D.1b
175 – 187	12m	3 6				

Aberfoyle Exploration

GEOCHEMICAL SAMPLE LEDGER

PROJECT	BSS SIEVE SIZE CODE - MESH NUMBER	SITE TYPE CODE	CARD PUNCH	PRINT	VERIFY	DATE	SHEET
MAC 23 SLUDGE SAMPLES	A 200 D 80 G 30 B 150 E 60 H 20 C 100 F 40 T = TOTAL	☐ OXIDIZED PRODUCTS O ☐ FRESH ROCK R ☐ STREAM SEDIMENTS S ☐ WEATHERED BEDROCK W ☐ SURFACE TRANSPORTED T ☐ RESIDUAL SOIL E ☐ MINE DUMP M	YES ☐ NO ☐	YES ☐ NO ☐			2 of 2

~~EASTINGS~~ Depth	~~NORTHINGS~~ Interval	SAMPLE NUMBER	DEPTH IN CMS	SIZE FRACTION	METAL VALUES PPM	GEOLOGICAL LOG
187-190	3m	515237			Au & Ag only	Minor D.1v
S.T.D.		238				Core grind
193-196	3m	515239				D.1
196-208	12m	515240				D.1 (massive Barite vein 1.6m at 196.70m)
208-217	9m	515241				
217-223	6m	515242				
223-226	No sample					
226-235	9m	515243				D.1. variably chlorite altered
235-241	6m	515244				

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. 23.3.08.06113

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
6266	

DATE RECEIVED	RESULTS REQUIRED
07/04/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	13/04/89	1	33

ROW	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	515212/44	SL	Prep: 006,012,013,016						Ag/101		
	515212/44	SL							Au/389		

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

RESULTS TO

REMARKS

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

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06113	13/04/89	6266	1 OF 2

PULSE No.	SAMPLE No.	Ag	Au							
1	515212	36.5	0.959							
2	515213	26.5	1.015							
3	515214	15.0	0.872							
4	515215	20.0	1.129							
5	515216	12.5	0.686							
6	515217	19.0	0.633							
7	515218	10.5	0.449							
8	515219	5.0	0.315							
9	515220	9.0	0.902							
10	515221	12.5	0.944							
11	515222	8.5	0.562							
12	515223	12.0	0.499							
13	515224	8.5	0.378							
14	515225	18.0	0.277							
15	515226	9.0	0.239							
16	515227	<0.5	<0.008							
17	515228	20.0	0.593							
18	515229	9.0	0.606							
19	515230	8.5	0.845							
20	515231	28.0	2.820							
21	515232	13.5	2.440							
22	515233	9.0	1.360							
23	515234	14.5	0.679							
24	515235	19.0	0.360							
25	515236	5.5	0.311							

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.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06113	13/04/89	6266	2 OF 2

TUBE No.	SAMPLE No.	Ag	Au							
1	515237	9.0	0.637							
2	515238	<0.5	0.009							
3	515239	7.5	0.628							
4	515240	10.0	1.257							
5	515241	6.5	1.017							
6	515242	7.0	2.180							
7	515243	7.5	1.307							
8	515244	14.0	0.777							
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	0.5	0.008							
24	UNITS	PPM	PPM							
25	METHOD	101	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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MAC-23 SPLIT CORE Au CHECKS

ORIGINAL No.	CHECK No.
515496	513326
497	327
498	328
548	329
549	330
550	331
551	332
552	333
575	334
576	335
577	336
584	337
585	338
586	339

CLASSIC COMLABS LTD

Analytical Laboratories (INC. IN W.A.)

34 Buckingham Drive, Wangara Estate, Wanneroo, Western Australia 6065
Telephone: (09) 409 8898; Telex: Clasab 95452; Fax: (09) 409 6317

R. De Bomford
Aberfoyle Resources Ltd.
96 Egan Street
KALGOORLIE
WA 6430

JOB NUMBER: 9PE2161 Report: FINAL

Your Reference: 7576

Date Received: 15-MAY-1989 Turnaround 1 day
Date Relayed: 16-MAY-1989
Date Reported: 16-MAY-1989

Number of Samples: 14
Received Not Listed: 0

Report Analyte Codes
N.A. - Not Analysed.
L.N.R. - Listed But Not Received.
I.S. - Insufficient Sample for Analysis

Report Comprising: Cover Sheet
Pages 1 to 1

Comments:

Report Dist'n: Carbon Copies(CC),Electonic Media(EM),Magnetic Media(MM)

Type	Recipient	Location	Date	Copies

Approved Signature: Tony Holbrook

for

Tony Holbrook
Chief Chemist
CLASSIC COMLABS LTD

This report relates specifically to the sample(s) tested in so far as that the sample(s) is truly representative of the sample source as supplied.

CLASSIC COMLABS LTD

Job: 9PE2161
O/N: 7576

ANALYTICAL REPORT

SAMPLE	Au
513326	0.45
513327	0.23
513328	0.11
513329	1.03
513330	0.68
513331	1.53
513332	0.94
513333	0.31
513334	0.74
513335	1.04
513336	0.63
513337	0.33
513338	1.83
513339	0.43
UNITS	ppm
SCHEME	FA2

485599

Australian Laboratory Services PTY. LTD.

CONSULTING ANALYTICAL CHEMISTS

INCORPORATED IN QUEENSLAND

LABORATORY REPORT

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Bendigo Laboratory
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Phone: (054) 46 1390. Fax: (054) 46 1389

Orange Laboratory
10 Leewood Drive, Orange, N.S.W. 2800
Phone: (063) 631 722. Fax: (063) 631 189

nt: ABERFOYLE RESOURCES LIMITED
ress: PO BOX 952
BURNIE
TAS 7320

MAC-23
CHECKS.

Batch Number: E219

ntact: MR R DEBOMFORD

No. of Samples: 14
Date Received: 25/05/89
Date Completed: 26/05/89

er No. 7810 Sample Type: PULP

SAMPLE NUMBER	Element Unit Method	Au ppm PM208	Au(R) ppm CHECKS			
515548		2.70				
515549		1.75				
515550		3.50	3.58			
515551		2.40				
515552		0.71				
515575		1.50	1.68			
515576		2.04	2.00			
515577		1.46				
515584		0.69				
515585		3.80				
515586		0.97	1.05			
515496		1.10				
515497		0.58				
515498		0.26	0.28			
ction Limit:		0.01				

ments:

ESS NOTIFIED PULPS WILL BE DUMPED ON 25/11/89 AND SPLITS (IF ANY) ON 25/08/89

Signed: G. Dunn

FORM ALS O1(A

CORE GRIND SAMPLING - MACKINTOSH / HATFIELD

HOLE No. MAC 2

DATE

No.	SAMPLE NUMBER	INTERVAL	ELEMENTS REQUIRED	ST	SAMPLE NUMBER	INTERVAL	ELEMENTS REQUIRED
1	515489	0 - 30			515521	73 - 76	
2	515490	30 - 60			522	76 - 78	
3	515491	60 - 90			523	78 - 81	
4	515492	90 - 120			524	81 - 84	
5	515493	120 - 148			525	84 - 87	
6	515494	148 - 158			526	87 - 89.4	
7	515495	158 - 168			527	89.4 - 92	
8	515496	168 - 199			528	92 - 95	
9	515497	199 - 229			529	95 - 98	
10	515498	229 - 259			530	98 - 100	
11	515499	259 - 289			531	100 - 102	
12	515500	289 - 318			532	102 - 105	
13	515501	318 - 340			533	105 - 108	
14	515502	34 - 370			534	108 - 110	
15	515503	37 - 40			535	110 - 112	
16	515504	40 - 42			536	112 - 115	
17	515505	42 - 44			537	115 - 118	
18	515506	44 - 47			538	118 - 121	
19	515507	47 - 50.2			539	121 - 124	
20	515508	50.2 - 53			540	124 - 127.7	
21	515509	53 - 56			541	127.7 - 129	
22	515510	56 - 59			542	129 - 132	
23	515511	59 - 61		✗ 4	543	STD	
24	515512	61 - 62			544	132 - 134	
25	515513	62 - 63			545	134 - 135	
26	515514	63 - 64			546	135 - 136	
27	515515	64 - 65			547	136 - 137	
28	515516	65 - 68			548	137 - 138	
29	515517	68 - 70			549	138 - 139	
30	515518	70 - 72			550	139 - 140	
31	515519	72 - 73			551	140 - 141	
32	515520	STD			552	141 - 142	

4 ✗

CORE GRIND SAMPLING - MACKINTOSH / HATFIELD

HOLE No. MAC 23

DATE

No.	SAMPLE NUMBER	INTERVAL	ELEMENTS REQUIRED	ST	SAMPLE NUMBER	INTERVAL	ELEMENTS REQUIRED	ST
1	515553	142-143			515585	216-219		
2	554	143-145			586	219-222		
3	555	145-148			587	222-224		
4	556	148-150			588	224-226		
5	557	150-152			589	226-228		
6	558	152-155			590	228-230		
7	559	155-157			591	230-233		
8	560	157-160			592	233-235		
9	561	160-163			593	235-237		
10	562	163-166			594	237-239.4		
11	563	166-168			595	239.4-242		
12	564	168-170			596	242-244		
13	565	170-172			597	244-247		
14	566	172-174.7			598	247-250		
15	567	174.7-178			599	250-253		
16	568	178-181			600	253-256		
17	569	181-184		X4	601	STO		
18	570	184-186			602	256-259		
19	571	186-188.2			603	259-262		
	572	188.2-190			604	262-263		
21	573	190-193			605	263-268		
22	574	193-196			606	268-271		
23	575	196-197			607	271-274		
24	576	197-198			608	274-277		
25	577	198-199			609	277-280		
26	578	199-202				E.O.H.		
27	579	202-205						
28	580	205-208						
29	581	208-210						
30	582	210-213						
31	X4 583	STO						
32	584	213-216						

455002

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. 23.3.08.06161

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
7521	

DATE RECEIVED	RESULTS REQUIRED
01/05/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
15	16/06/89	1	121

SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
515489/609	CO	Prep: 008,010,012,013,016						Cu,Pb,Zn,Ag/101,As/114		
515489/609	CO							Fe,CaO/104		
515489/609	CO							Sb,Cr,Zr/401,Ba,Ti/406,B/613,Au,AuChk/309		
515489/609	CO	Prep: 008,010,012,013,016						Zn,Ag,Pb/104		
515489/609	CO							Ti/406,Ba/403,Ba/406		

RESULTS TO: Aberfoyle Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

RESULTS TO:

REMARKS

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

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A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06161	16/06/89	7521	1 OF 15

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Zn	Ag	Ag	Au	Ba
1	0-3 515489	125	–	1325	2450	–	–	18	0.733	3.70
2	3-6 515490	160	–	1750	3400	–	–	23	1.110	4.14
3	6-9 515491	190	–	1075	1800	–	–	20	0.854	2.66
4	9-12 515492	85	–	375	1350	–	–	15	0.624	3.91
5	12-14.8 515493	75	–	150	535	–	–	10	0.726	1.44
6	14.8-15.8 515494	220	–	11500	425	–	–	26	1.250	2.46
7	15.8-16.8 515495	155	–	17500	170	–	–	15	0.525	3.20
8	16.8-19.9 515496	205	–	625	530	–	–	10	1.120	4.17
9	19.9-22.9 515497	100	50	–	560	–	6.0	–	0.596	2.94
10	22.9-25.9 515498	90	125	–	780	–	6.0	–	0.293	2.05
11	25.9-28.9 515499	60	115	–	310	–	3.5	–	0.318	0.60
12	28.9-31.8 515500	105	65	–	1700	–	5.0	–	0.437	5.89
13	31.8-34 515501	240	135	–	740	–	5.5	–	0.233	0.76
14	34-37 515502	450	–	1050	1800	–	–	10	0.314	1.74
15	37-40 515503	100	80	–	3650	–	5.0	–	0.408	3.13
16	40-42 515504	135	30	–	910	–	5.0	–	0.255	1.50
17	42-44 515505	65	15	–	85	–	3.5	–	0.334	0.57
18	44-47 515506	110	<5	–	120	–	3.0	–	0.339	1.36
19	47-50.2 515507	60	15	–	125	–	2.5	–	0.186	0.70
20	50.2-53 515508	75	35	–	365	–	2.0	–	0.139	0.89
21	53-56 515509	45	5	–	85	–	1.5	–	0.128	1.14
22	56-59 515510	40	10	–	75	–	0.5	–	0.082	0.91
23	59-61 515511	370	30	–	1250	–	2.0	–	0.420	5.64
24	61-62 515512	225	<5	–	185	–	1.5	–	0.342	–
25	62-63 515513	3650	–	13500	–	2.46	–	12	0.854	–

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
	23.3.08.06161	16/06/89	7521	2 OF 15

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Zn	Ag	Ag	Au	Ba
1	63-64 515514	1350	-	11000	-	2.36	-	6	0.538	-
2	64-65 515515	470	55	-	8400	-	6.0	-	0.755	-
3	65-68 515516	170	40	-	355	-	5.5	-	0.373	2.21
4	68-70 515517	90	<5	-	75	-	6.0	-	1.000	2.93
5	70-72 515518	75	<5	-	125	-	2.5	-	0.435	2.31
6	72-73 515519	40	5	-	95	-	3.0	-	0.509	1.12
7	515520 * SD 4	120	185	-	2350	-	0.5	-	<0.008	0.15
8	73-76 515521	80	15	-	390	-	2.5	-	0.412	2.56
9	76-78 515522	485	-	1175	2550	-	-	18	0.578	4.30
10	78-81 515523	130	80	-	3450	-	7.5	-	0.495	2.76
11	81-84 515524	90	35	-	2550	-	4.5	-	0.188	3.88
12	84-87 515525	100	30	-	1900	-	3.0	-	0.212	2.59
13	87-89.4 515526	160	60	-	2100	-	2.5	-	0.122	1.81
14	89.4-92 515527	115	20	-	210	-	5.0	-	0.350	3.27
15	92-95 515528	150	245	-	275	-	3.5	-	0.200	0.54
16	95-98 515529	50	350	-	110	-	2.5	-	0.120	1.28
17	98-100 515530	390	60	-	3800	-	4.0	-	0.141	2.79
18	100-102 515531	300	35	-	375	-	2.0	-	0.123	1.86
19	102-105 515532	90	15	-	215	-	2.0	-	0.315	0.86
20	105-108 515533	95	15	-	1000	-	2.0	-	0.394	1.44
21	108-110 515534	170	10	-	760	-	2.5	-	0.483	1.32
22	110-112 515535	120	20	-	410	-	4.0	-	0.468	3.60
23	112-115 515536	455	75	-	2550	-	6.0	-	0.713	2.66
24	115-118 515537	70	160	-	690	-	3.0	-	0.173	1.87
25	118-121 515538	80	60	-	530	-	2.5	-	0.260	2.17

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
	23.3.06.06161	16/06/89	7521	3 OF 15

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Zn	Ag	Ag	Au	Ba
1	121-124 515539	85	245	-	830	-	4.0	-	0.414	0.91
2	124-124.7 515540	95	25	-	195	-	3.5	-	0.284	1.33
3	127.7-129 515541	160	20	-	285	-	5.0	-	0.255	5.41
4	129-132 515542	50	55	-	235	-	6.0	-	0.527	0.86
5	515543 + STD	120	200	-	2350	-	1.0	-	0.008	0.16
6	132-134 515544	55	55	-	160	-	4.0	-	0.503	0.75
7	134-135 515545	50	30	-	180	-	2.5	-	0.437	0.79
8	135-136 515546	1300	-	150	270	-	-	13	1.670	0.99
9	136-137 515547	1950	-	375	325	-	-	12	1.630	0.75
10	137-138 515548	2950	-	550	780	-	-	12	2.720	-
11	138-139 515549	1450	-	775	2450	-	-	13	1.650	-
12	139-140 515550	1050	-	250	1300	-	-	10	3.750	-
13	140-141 515551	380	-	425	270	-	-	13	2.320	-
14	141-142 515552	205	20	-	2150	-	5.5	-	0.658	-
15	142-143 515553	115	20	-	590	-	4.5	-	0.839	2.43
16	143-145 515554	65	30	-	185	-	2.5	-	0.476	2.71
17	145-148 515555	45	15	-	125	-	4.0	-	0.564	6.39
18	148-150 515556	30	15	-	150	-	2.0	-	0.236	1.27
19	150-152 515557	30	50	-	390	-	2.0	-	0.244	1.26
20	152-155 515558	55	85	-	1010	-	4.0	-	0.316	1.89
21	155-157 515559	45	145	-	1900	-	6.5	-	0.186	5.35
22	157-160 515560	75	55	-	2000	-	8.0	-	0.183	3.13
23	160-163 515561	90	-	725	1450	-	-	13	0.386	1.68
24	163-166 515562	75	-	725	1900	-	-	10	0.372	2.64
25	166-168 515563	70	30	-	385	-	5.5	-	0.316	1.56

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06161	16/06/89	7521	4 OF 15

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Zn	Ag	Ag	Au	Ba
1	168-170 515564	60	35	–	250	–	4.0	–	0.294	1.16
2	170-172 515565	60	85	–	165	–	3.0	–	0.279	0.56
3	172-174.7 515566	180	60	–	580	–	5.0	–	0.197	1.43
4	174.7-178 515567	100	65	–	1450	–	7.5	–	0.450	2.52
5	178-181 515568	140	–	1125	2650	–	–	15	0.492	1.49
6	181-184 515569	105	150	–	2350	–	7.0	–	0.574	2.32
7	184-186 515570	145	40	–	2150	–	5.5	–	0.895	2.75
8	186-188.2 515571	115	55	–	3000	–	7.5	–	0.735	4.54
9	188.2-190 515572	130	100	–	345	–	4.0	–	0.499	2.59
10	190-193 515573	105	50	–	1300	–	4.0	–	0.508	2.66
11	193-196 515574	110	125	–	315	–	2.5	–	0.276	1.29
12	196-197 515575	650	–	7600	–	1.42	–	15	2.000	–
13	197-198 515576	585	–	19500	–	3.74	–	25	2.180	–
14	198-199 515577	335	–	4100	9450	–	–	10	1.400	–
15	199-202 515578	170	60	–	630	–	2.0	–	0.717	1.44
16	202-205 515579	100	110	–	295	–	2.0	–	0.305	0.45
17	205-208 515580	80	35	–	320	–	1.5	–	0.338	1.55
18	208-210 515581	165	60	–	570	–	1.5	–	0.416	0.14
19	210-213 515582	405	60	–	225	–	1.5	–	0.755	0.15
20	515583 ~~4~~ 4 STD	115	180	–	2250	–	<0.5	–	0.013	–
21	213-216 515584	255	80	–	285	–	1.5	–	0.680	0.23
22	216-219 515585	375	40	–	3950	–	3.0	–	4.320	3.18
23	219-222 515586	400	80	–	155	–	2.5	–	1.520	0.13
24	222-224 515587	130	20	–	960	–	2.0	–	0.276	0.37
25	224-226 515588	250	50	–	255	–	2.0	–	0.348	0.17

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06161	16/06/89	7521	5 OF 15

UBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Zn	Ag	Ag	Au	Ba
1	226-228 515589	115	30	-	2050	-	2.5	-	0.150	0.87
2	228-230 515590	105	275	-	2550	-	1.5	-	0.130	0.59
3	230-233 515591	170	315	-	3550	-	2.0	-	0.238	0.98
4	233-235 515592	380	-	15600	-	1.39	-	7	0.297	1.72
5	235-237 515593	225	30	-	270	-	2.0	-	0.128	0.75
6	237-239.4 515594	70	60	-	145	-	1.0	-	0.100	0.14
7	239.4-242 515595	160	110	-	4350	-	4.0	-	0.314	1.42
8	242-244 515596	130	115	-	6450	-	3.0	-	0.164	1.08
9	244-247 515597	250	200	-	5950	-	7.0	-	0.466	2.42
10	247-250 515598	75	320	-	2700	-	3.0	-	0.120	0.63
11	250-253 515599	60	130	-	1750	-	3.0	-	0.187	1.48
12	253-256 515600	50	180	-	1850	-	2.0	-	0.140	0.91
13	515601 X STD 4	120	195	-	2450	-	0.5	-	<0.008	0.15
14	256-259 515602	75	100	-	2900	-	2.0	-	0.189	2.24
15	259-262 515603	90	205	-	3400	-	4.0	-	0.238	1.64
16	262-263 515604	195	85	-	7450	-	6.5	-	0.384	6.63
17	263-268 515605	385	-	3700	-	1.05	-	7	0.731	6.84
18	268-271 515606	265	280	-	6650	-	4.5	-	0.502	2.17
19	271-274 515607	105	195	-	2650	-	2.0	-	0.155	1.13
20	274-277 515608	215	170	-	6250	-	4.0	-	0.390	3.31
21	277-280 515609	130	115	-	3400	-	2.5	-	0.280	2.69
22										
23	DETECTION	5	5	25	5	0.05	0.5	2	0.008	0.01
24	UNITS	PPM	PPM	PPM	PPM	%	PPM	PPM	PPM	%
25	METHOD	101	101	104	101	104	101	104	309	401

Results in ppm unless otherwise specified.
T = element present, but concentration too low to measure
X = element concentration is below detection limit
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A Division of Macdonald Hamilton & Co. Pty Ltd.

BIRO = Ti/Zr

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06161	16/06/89	7521	6 OF 15

TUBE No.	SAMPLE No.	Ba	Ba	As	Cr	Zr	Ti	Ti	Sb	S
1	515489	–	–	460	15	150	2500	16.7 –	70	4.800
2	515490	–	5.93	700	15	180	2750	15.3 –	110	5.950
3	515491	–	–	480	7	180	2850	15.8 –	70	5.900
4	515492	–	–	500	5	150	2700	15.0 –	20	5.600
5	515493	–	–	680	<5	210	3100	14.8 –	30	6.000
6	515494	–	3.96	2170	20	290	3600	12.4 –	130	1.850
7	515495	–	–	2230	<5	250	2000	8.0 –	160	2.850
8	515496	–	5.92	270	5	200	1650	8.25 –	60	3.600
9	515497	–	–	150	7	140	1750	12.5 –	20	1.800
10	515498	–	–	94	10	120	1650	13.7 –	15	1.200
11	515499	–	–	120	10	160	2350	14.7 –	9	1.150
12	515500	–	8.00	120	9	90	1200	13.3 –	10	2.700
13	515501	–	–	210	20	140	1250	8.9 –	20	2.250
14	515502	–	–	560	<5	130	1000	7.7 –	90	2.950
15	515503	–	–	250	15	110	900	8.2 –	6	3.700
16	515504	1.80	–	170	<5	110	900	8.2 –	20	2.500
17	515505	–	–	240	15	110	1050	9.5 –	15	3.450
18	515506	–	–	190	<5	100	950	9.5 –	10	2.700
19	515507	–	–	140	20	120	1150	9.6 –	4	1.900
20	515508	–	–	110	<5	140	1200	8.6 –	5	1.500
21	515509	–	–	95	15	120	1150	9.6 –	4	1.300
22	515510	–	–	77	15	130	1200	9.2 –	3	0.780
23	515511	–	–	140	<5	80	700	8.7 –	6	3.350
24	515512	–	16.90	100	7	–	–	0.07	5	4.450
25	515513	–	38.10	440	<5	–	–	0.01	20	17.700

Results in ppm unless otherwise specified
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A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06161	16/06/89	7521	7 OF 15

TUBE No.	SAMPLE No.	Ba	Ba	As	Cr	Zr	Ti	Ti	Sb	S
1	515514	–	33.40	150	<5	–	–	0.03	15	11.200
2	515515	–	16.20	210	<5	–	–	0.09	25	5.450
3	515516	–	–	190	15	110	1050	9.5 –	20	2.550
4	515517	–	–	730	<5	90	900	10.0 –	15	4.750
5	515518	2.75	–	190	<5	100	950	9.5 –	8	3.450
6	515519	–	–	220	20	130	1150	8.8 –	5	4.600
7	515520	–	–	19	930	90	2450	–	<3	0.035
8	515521	–	–	210	15	120	1050	8.7 –	10	3.400
9	515522	–	–	810	<5	85	700	8.2 –	140	5.350
10	515523	–	–	390	15	120	1300	10.8 –	20	2.900
11	515524	–	–	390	<5	120	1550	12.9 –	25	3.550
12	515525	–	–	640	10	150	1950	13.0 –	80	4.200
13	515526	–	–	260	<5	150	1700	11.3 –	20	2.150
14	515527	–	–	1240	<5	120	1900	15.8 –	150	5.500
15	515528	–	–	450	<5	180	2450	13.6 –	25	3.000
16	515529	–	–	94	20	170	1550	9.1 –	20	0.890
17	515530	–	–	170	6	120	1000	8.3 –	80	2.650
18	515531	–	–	120	<5	130	1050	8.1 –	10	2.200
19	515532	–	–	320	15	150	2250	15.0 –	4	2.750
20	515533	–	–	370	<5	140	2050	14.6 –	6	2.650
21	515534	–	–	450	25	150	2050	13.7 –	15	3.250
22	515535	–	–	320	<5	100	1750	17.5 –	20	4.050
23	515536	–	–	530	15	130	2000	15.4 –	100	6.200
24	515537	–	–	150	<5	150	2150	14.3 –	10	2.300
25	515538	–	–	170	10	150	2150	14.3 –	6	2.950

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

488610

ANALABS

A Division of Macdonald Hamilton & Co. Pty Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06161	16/06/89	7521	8 OF 15

TUBE No.	SAMPLE No.	Ba	Ba	As	Cr	Zr	Ti	Ti	Sb	S
1	515539	–	–	350	<5	160	2250	14·1 –	15	4.000
2	515540	–	–	130	9	150	2250	15·0 –	15	3.300
3	515541	–	–	160	6	100	1250	12·5 –	25	3.850
4	515542	–	–	240	15	160	2300	14·4 –	15	4.050
5	515543 X/STD	4 –	–	11	960	90	2450	–	4	0.050
6	515544	–	–	290	20	160	2400	15·0 –	15	4.650
7	515545	–	–	260	5	170	2400	14·1 –	15	4.400
8	515546	–	–	680	25	90	1500	16·7 –	140	6.150
9	515547	–	–	330	7	70	1100	15·7 –	170	5.050
10	515548	–	12.10	270	<5	–	–	0.05	80	13.000
11	515549	–	34.20	290	<5	–	–	<0.01	25	14.700
12	515550	–	56.80	440	<5	–	–	<0.01	20	14.800
13	515551	–	19.20	1870	15	–	500	0.11	130	12.000
14	515552	–	19.20	250	<5	–	750	0.15	25	7.050
15	515553	–	–	470	<5	140	2050	14·6 –	20	6.050
16	515554	–	3.84	170	20	140	1900	13·6 –	9	3.000
	515555	–	–	520	10	130	1350	10·4 –	15	4.400
18	515556	–	–	120	6	140	2050	14·6 –	15	2.500
19	515557	–	–	110	7	140	2300	16·4 –	10	2.550
20	515558	–	–	160	5	150	1850	12·3 –	20	3.250
21	515559	–	7.17	120	10	120	900	7·5 –	15	2.850
22	515560	–	–	190	6	150	1700	11·3 –	15	3.000
23	515561	–	–	180	25	140	1900	13·6 –	20	3.900
24	515562	–	–	190	9	140	1950	13·9 –	25	3.750
25	515563	–	–	120	15	140	2050	14·6 –	20	3.550

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.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06161	16/06/89	7521	9 OF 15

UBE No.	SAMPLE No.	Ba	Ba	As	Cr	Zr	Ti	Ti	Sb	S
1	515564	–	–	120	7	140	1400	10.0 –	15	2.450
2	515565	–	–	190	15	140	1200	8.6 –	15	2.200
3	515566	–	–	200	6	130	1100	8.5 –	20	2.150
4	515567	–	–	410	20	140	1450	10.3 –	20	3.450
5	515568	–	–	320	4	160	2150	13.4 –	25	3.650
6	515569	–	–	410	10	150	2100	14.0 –	10	3.500
7	515570	–	–	790	10	150	2050	13.7 –	80	5.000
8	515571	–	–	730	15	130	1750	13.5 –	25	5.100
9	515572	–	–	370	<5	140	1700	12.1 –	30	3.250
10	515573	–	–	560	20	120	1000	8.3 –	20	3.800
11	515574	–	–	160	7	150	1150	7.7 –	15	1.500
12	515575	–	26.30	860	5	–	1000	0.09	95	9.750
13	515576	–	35.40	600	<5	–	1050	0.07	25	12.000
14	515577	–	18.30	340	15	–	1000	0.17	25	5.950
15	515578	–	–	300	5	120	2100	17.5 –	4	3.300
16	515579	–	–	190	6	160	2600	16.2 –	<3	2.250
[illegible]	515580	–	–	190	30	150	2300	15.3 –	8	2.900
18	515581	–	–	430	10	170	2600	15.3 –	7	4.950
19	515582	–	–	500	30	150	2450	16.3 –	15	4.950
20	515583 ~~ASTD~~ 4	–	–	37	–	–	–	–	–	0.090
21	515584	–	–	370	35	160	2500	15.6 –	<3	4.250
22	515585	–	–	550	10	120	1750	14.6 –	15	5.450
23	515586	–	–	370	<5	130	2100	16.1 –	10	4.900
24	515587	–	–	430	25	150	2300	15.3 –	15	4.000
25	515588	–	–	590	10	160	2600	16.2 –	20	5.950

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

488612

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06161	16/06/89	7521	10 OF 15

TUBE No.	SAMPLE No.	Ba	Ba	As	Cr	Zr	Ti	Ti	Sb	S
1	515589	–	–	360	<5	150	2500	16.7 –	15	3.250
2	515590	–	–	180	<5	150	2350	15.7 –	3	1.950
3	515591	–	–	270	15	160	2400	15.0 –	5	2.500
4	515592	–	–	760	15	180	2050	11.4 –	140	7.850
5	515593	–	–	340	15	160	2600	16.2 –	15	2.600
6	515594	–	–	260	30	180	2550	14.2 –	<3	2.550
7	515595	–	–	560	9	150	2300	15.3 –	30	4.500
8	515596	–	–	590	30	160	2250	14.1 –	25	4.200
9	515597	–	–	250	6	140	2300	16.4 –	90	4.450
10	515598	–	–	290	15	160	2400	15.0 –	4	2.300
11	515599	–	–	260	8	160	2300	14.4 –	7	2.600
12	515600	–	–	230	30	150	2200	14.7 –	6	1.950
13	515601 ~~A~~ 4 STD	–	–	26	930	90	2500	–	4	0.045
14	515602	–	–	310	30	140	2200	15.7 –	5	2.550
15	515603	–	–	410	9	140	2200	15.7 –	10	3.100
16	515604	–	9.62	310	15	120	1300	10.8 –	15	4.550
17	515605	–	–	270	7	130	1450	11.1 –	10	4.750
18	515606	–	–	210	25	140	1950	13.9 –	3	2.650
19	515607	–	–	160	8	140	2350	16.8 –	<3	1.800
20	515608	–	4.56	200	15	130	1950	15.0 –	<3	2.900
21	515609	–	–	200	10	130	1650	12.7 –	3	2.850
22										
23	DETECTION	0.01	0.01	1	5	5	50	0.01	3	0.005
24	UNITS	%	%	PPM	PPM	PPM	PPM	%	PPM	%
25	METHOD	403	406	114	401	401	401	406	401	413

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.

612

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	
	23.3.08 05161	26/05/89	75213

TUBE No	SAMPLE No	Fe	CaO	S					
1	515489	3.89	315	4.600					
2	515490	5.39	574	5.950					
3	515491	4.82	1364	5.900					
4	515492	4.50	1574	5.800					
5	515493	4.28	1574	6.000					
6	515494	10.06	<35	1.650					
7	515495	8.29	<35	2.850					
8	515496	2.60	<35	2.600					
9	515497	1.31	<35	1.600					
10	515498	0.99	<35	1.200					
11	515499	1.18	315	1.150					
12	515500	1.00	770	1.700					
13	515501	2.29	105	2.250					
14	515502	2.64	<35	2.250					
15	515503	3.12	70	2.700					
16	515504	2.33	35	2.500					
17	515505	3.93	140	3.450					
18	515506	2.82	105	2.700					
19	515507	2.63	105	1.900					
20	515508	1.51	140	1.500					
21	515509	1.49	35	1.400					
22	515510	1.28	105	1.450					
23	515511	2.00	<35	3.350					
24	515512	1.38	70	4.450					
25	515513	3.63	<35	13.700					

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

AUTHORISED

488613

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.
	23.3.08.06161	26/05/89	7521

TUBE No.	SAMPLE No.	Fe %	CaO	S					
1	515514	1.85	435	11.200					
2	515515	1.90	630	5.450					
3	515516	2.65	525	2.550					
4	515517	4.35	140	4.750					
5	515518	3.40	245	3.450					
6	515519	4.39	140	4.650					
7	515520	5.28	33200	0.035					
8	515521	3.09	245	3.400					
9	515522	4.73	70	8.150					
10	515523	2.82	944	2.700					
11	515524	2.33	1644	3.550					
12	515525	3.71	1364	4.200					
13	515526	1.97	1050	2.150					
14	515527	4.69	70	5.600					
15	515528	3.42	435	3.650					
16	515529	1.32	35	0.895					
17	515530	2.08	525	2.650					
18	515531	1.88	735	2.200					
19	515532	2.82	2133	2.750					
20	515533	2.50	1993	3.650					
21	515534	2.86	664	3.250					
22	515535	3.39	105	4.050					
23	515536	4.32	490	5.200					
24	515537	2.19	2413	2.300					
25	515538	2.73	1259	2.950					

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

488614

ANALABS

A Division of Macdonald Hamilton & Co (Pty) Ltd

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
614	23.3.00.06161	26/05/89	7521	6

LAB. No.	SAMPLE No.	Pt	CaO	S						
1	515539	4.42	2832	4.000						
2	515540	3.96	3008	3.300						
3	515541	3.28	1874	3.650						
4	515542	4.55	2938	4.050						
5	515543	7.46	34300	[illegible]						
6	515544	3.01	3358	[illegible]						
7	515545	4.07	2373	4.400						
8	515546	6.78	1954	[illegible]						
9	515547	5.15	767	5.050						
10	515548	4.17	245	[illegible]						
11	515549	3.45	140	[illegible]						
12	515550	3.44	175	[illegible]						
13	515551	7.30	1049	12.000						
14	515552	3.62	1434	[illegible]						
15	515553	4.66	2027	[illegible]						
16	515554	3.12	2378	[illegible]						
	515555	4.36	2203	[illegible]						
18	515556	2.90	1749	[illegible]						
19	515557	2.80	2699	[illegible]						
20	515558	3.34	1050	[illegible]						
21	515559	2.68	979	[illegible]						
22	515560	2.69	1714	[illegible]						
23	515561	3.97	1644	[illegible]						
24	515562	3.83	2273	[illegible]						
25	515563	3.52	1049	[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

488615

ANALABS

A Division of Macdonald Hamilton & Co. Pty Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER NO.
	23.3.08.00161	26/05/89	7521

TUBE No.	SAMPLE No.	Fe	CaO	S						
1	515564	2.68	385	3.450						
2	515565	2.92	140	2.200						
3	515566	2.52	140	2.150						
4	515567	3.28	769	3.450						
5	515568	3.18	1574	3.650						
6	515569	2.96	1988	3.500						
7	515570	4.01	435	5.000						
8	515571	3.95	1259	5.100						
9	515572	2.55	140	3.250						
10	515573	3.64	385	3.800						
11	515574	2.09	385	1.500						
12	515575	3.54	630	9.750						
13	515576	2.29	630	12.000						
14	515577	2.38	909	5.950						
15	515578	3.69	2064	3.150						
16	515579	3.17	1364	2.100						
17	515580	3.82	664	2.900						
18	515581	3.20	175	4.950						
19	515582	3.30	1644	4.750						
20	515583	7.65	32200	4.090						
21	515584	4.54	2306	4.250						
22	515585	4.57	2378	5.450						
23	515586	4.90	1975	4.900						
24	515587	4.14	2238	4.600						
25	515588	8.93	1434	5.750						

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

488616

ANALABS

A Division of Macdonald Hamilton & Co. (N.S.) Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
G16	23.3.06.0a151	26/05/89	7521	1 of 1

TUBE No.	SAMPLE No.	F%	CaO	S%						
1	515589	4.15	2203	3.250						
2	515590	3.43	2343	1.550						
3	515591	2.67	2378	2.500						
4	515592	9.28	1384	7.850						
5	515593	3.17	1724	2.500						
6	515594	4.06	2798	2.550						
7	515595	3.97	1923	4.500						
8	515596	3.85	1759	4.250						
9	515597	3.62	1688	4.450						
10	515598	2.48	2621	2.500						
11	515599	2.70	2516	2.500						
12	515600	2.06	2583	1.950						
13	515601	9.58	33000	0.045						
14	515602	2.04	3623	2.550						
15	515603	2.80	2586	2.[illegible]						
16	515604	2.39	1817	4.550						
17	515605	2.75	1755	4.750						
18	515606	2.76	5211	2.650						
19	515607	2.68	6340	1.[illegible]						
20	515608	2.96	2573	2.[illegible]						
21	515609	3.06	4617	2.[illegible]						
22										
23	DETECTION	0.05	25	0.005						
24	UNITS	PPM	ppm	%						
25	METHOD	104	104	311						

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

ALL HOWSE OFFICES

488617

465018

APPENDIX 23

ABERFOYLE EXPLORATION — **DRILL HOLE RECORD**

Location: SW Mt. Charles
Commenced: 31/1/90
Objective:

Property: Mackintosh
Completed: 3/3/90

District: Tasmania
Core size:
% Recovery:

Alt./R.L.: 711.89
Co-ordinate: 3702.12 N
Bearing (M): 20.5°
Grid bearing (M): 10.5°

Hole No: MAC-25
Date:
Logged: RJH
Dip: -74.7°

SURVEY DATA			
DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE

GRAPH DERIVED DATA					
DEPTH	DIP	BEARING(M)	NORTHING	EASTING	ALTITUDE
0	-74.7	20.5	3702.12	4098.76	711.89
25	75.1	22.5			
50	74.8	21			
75	74.4	19			
100	74.2	16.5			
125	74.4	14			
150	74.6	12.5			
175	74.1	12			
200	74	11.5			
225	73.9	11			
250	73.7	10			
275	73.5	11			
300	73.3	12.5			
325	73.1	13			
350	73.1	13			
375	73.5	13			
400	73.3	11			
425	73	10			
450	72.8	10.5			
475	72.5	11			
500	72.5	10			
525	72.5	006.5			
530.3	72.5	006			
		* All bearings are Magnetic			

REMARKS

Collar pick-up: A. Smith Que River
AMG coordinates: 5390572.91 N
389162.03 E

0 - 51 m HQ
51 - 530.3 NQ

36 mm (ID) PVC to bottom of hole
3 m HQ Casing left in top of hole.

Aberfoyle Resources Limited
EXPLORATION DIVISION

DIAMOND DRILL LOG

PROJECT : MACKINTOSH CL 10/6/87
PROSPECT: MT CHARLES SOUTH

HOLE NO: MAC-25
PAGE: 1 of 26
LOGGED: RSW
DATE: 21/9/90

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
1				gr-bn with vlk vesicular Cl.1. ≈ mod str Cc v.k.stwk. ≈ mnr interpillow ? chert terrace & limonite development on fracs (10 - 10.2m)	str with => Qz 3.	with Cc v.k.stwk ≈ Bl.1.6 upto 2-3 cm thick						
2												
3												
4	3.5											
5												
6	5.7											
7	6.7											
8	8.2											
9	9.6											
10	10.2			gn-bn mass to schistose vlk vesi. Bl. ≈ str limonite / haematite development on drainage surfaces. (10.2 - 19.5m)	10.2	10.2						
11												
12	11.9											
13					vlk - mod with => Qz 1-2							
14	13.9											
15						mnr Cc v.k str str FeOx development on fracs						
16												
17	16.4											
18	17.1											
19	18.1											
20	19.1			gn Bl.1.6 ≈ both Cc matrix & some mnr Cc clasts. Bl fragments mask. texture (19.5 - 21.9m)	19.5 selective Sa2Cc2 alt of some Bacatite clasts	19.5m	mnr Cpy/trace Sph as disc. mostly associated ≈ Cc vnlts. (20 - 20.5m)	19.5 Bl.1.6 ≈ cc vnlts (19.5 - 20.8m) F. 20.8 - 21.1m @ 45° to LCA (Bl.1.6 Cc)			Base of Oxidation 19.6	
21	21.9				21.9m							

A88620

Aberfoyle Resources Limited
EXPLORATION DIVISION

DIAMOND DRILL LOG

PROJECT : MACKINTOSH EL 106/87
PROSPECT: MOUNT CHARTER SOUTH

HOLE NO: MC-25
PAGE: 2 of 26
LOGGED: RSH
DATE: 22/3/90

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
22				gn Bi/Bi.lb. o str Cc v k str's k sown Cc alteration haloes around Cc veins (21.8 - 23.3m)	21.0 mnr str Cc 1-2		mnr veinlets Py mnr Py as inclusions in vcc. mnr thin alteration haloes around Py v k discr.	local lb. c Cc/mnr Py mtx.				
23					23.3 mod with ≈ Qtz 2 23.6	str Cc v k str's c mnr Py as veinlets						
24	24.1			gn-br with Bi. c Cc veins k vuggs after Cc (23.3 - 23.8m)	wk str Cc alt as haloes around some v Cc							
25				gn Bi/Bi.lb. c str Cc str's k u k mnr Py k veinlets k discr (23.8 - 25.3m)	25.5	25.3 25.5	25.3	25.3 F 25.3-25.5m @ ~10° to LCA 360 [Bi k Cc V] wk spinifexed c local lb. 27.5				
26	25.5			gn wk vcs. Bi. c mnr lb. k mod to wk Cc v k str's (25.5 - 28.5m)			mnr Py as inclusions in Cc					
27												
28				pale gn Bi.lb. c Cc mtx k mod Cc/Si alt of some clasts (28.5 - 28.9m)	wk Cc1/Si1? alteration of some clasts @ 28.6 k 30.0	mod Cc v k str's						
29	28.6											
30				PETROLOGY @ 29.8m (# 562243P)	patch. Cc2/Si1? alteration							
31				gn Bi/Bi.lb. weakly vesicular c str to mod v k str's Cc k Cc infilled ves. (28.9 - 51.0m)								
32	31.7											
33												
34												
35	34.6						str Py 1 to 30% with Cc rel b. mtx @ 32.0	mnr local lb c Cc mtx				
36												
37												
38	37.9											
39												
40												
41	40.9											
42												

418921

Aberfoyle Resources Limited
EXPLORATION DIVISION

DIAMOND DRILL LOG

PROJECT : MACLINTOSH CL 106/81
PROSPECT : Mt Charles South

HOLE NO : MAC-25
PAGE : 3 of 26
LOGGED : RSH
DATE : 22/3/90

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
43				gn mass-calc arch. Bl/Blb. ≈ mod-str Cc v k stw & patchy vesicular (-51.0)	mnr Cc/Si. k wk both Cl alteration	str - mod Cc v k stw.	mnr Py associated ≈ Cc veining. k stw.					
44	43.5			vesicles infilled with Cc. wk schistose in places				mod to str local brecciated ≈ ≈ Cc veins				
45												
46												
47	46.5											
48												
49								Schistose (48.6-49.6)				
50	49.5											
51	51.0		HQ / NQ.	gn-gy mass. Bl. weakly broc. ≈ str Cc v k stw. (51.0-51.8m)	51.0	51.0 str-mod Cc v k stw.	51.0	51.0 weakly sch. str to mod b. ≈ Cc v k stw.				
52												
53	52.5			dgn. mass Blb. ≈ str Cc v k stw k Cl development on cleavage surfaces weakly vesicular in places ≈ Cc infill of vesicles. mass to weakly schistose (51.8-56.0 m)	mnr O development on cleavage surfaces.		mnr disc Py.					
54												
55												
56	55.5			gn wk. ves mass. Bl/Blb. ≈ mod Cc v k stw (56.0-59.3m)	56.0	56.0 mod to wk. Cc		minor wk. b.				
57												
58												
59	58.5			Petrology @ 59.5m (#562244P) gn mass to wk sch. Bl/Blb./Cc 1-2 ≈ wk to mod Cc v k stw (59.3-61.7 m)	59.3 patchy Cc 1-2 alt of Bl clasts	59.3 mod to wk cc v k stw		59.3 mod b. (hydrothermal) wk local sch.				
60												
61					61.7 perv. pat Cc1 alt SoZ Cc1 alt of b clasts 62.2-62.4							
62	61.5			gn wk ves Bl ≈ mod to wk. /Cc wk local b. @ 62.2-62.8m. (61.7-68.7m)			mod Py v. k diss. @ 62.2-62.4	b. @ 62.2-62.4 ≈ Cc veins				
63												

4688629

Aberfoyle Resources Limited
EXPLORATION DIVISION

DIAMOND DRILL LOG

PROJECT : MACLINTOSH EL 106/87
PROSPECT: MT CHARTER SOUTH

HOLE NO: MC-25
PAGE: 4 of 26
LOGGED: RSH
DATE: 27/3/88

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
64												
65	64.0					mod to wk Cc v k stw.						
66												
67												
68	67.0			gn-gy vk vcs B.l. c patch wk silicification & wk to mod Cc v k stwk. vcs infilled c Cc. (66.7 - 74.2 m)	66.7	66.7 wk to mod Cc v k stw	66.7					
69												
70												
71	70.0			minor wispy veinlets lenses chert around 72.3 - 74.2 m.	wmk patch Cc2Si1-2 alteration	str Cc(Cl) v @ 70.3 m.	vmm Py/Sph as disseminations & veinlets assoc. c Cc(Si) alteration esp. 72.3 - 74.2 m.					
72												
73												
74	73.0				74.2	74.2	74.2 m	74.2				
75												
76				gn mg-cmc to vk vcs B.l (pillowed) c interpillow cherts & wk Cc v. (74.2 m - 81.2 m)			vmm disc Py/Sph throughout.	pillow lava sequence c interpillow cherts				
77	76.0					wk Cc. v.	Py & sph veinlets & dissemination in interpillow cherts & as veins to chert in B.l.					
78												
79					wmm patch Cc(Si)(C) alteral^n							
80	79.0											
81				gn B.l. c Cc wk		81.2	81.2	81.2 b c Cc wk @ 81.2 - 81.5 m.				
82				(81.2 - 81.5 m)								
83	82.0			gn mmc to wk vcs B.l c stwk Cc(Q)(C) veins (to 10 cm thick) (81.5 - 81.7)		imag spread Q(Cc)(C) stw veins (to 10 cm)						
84												

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DIAMOND DRILL LOG

PROJECT : MACINTOSH GL 106/81
PROSPECT: MT CHARGE SOUTH

HOLE NO : MAC-25
PAGE : 5 of 26
LOGGED : RJH
DATE : 4/4/90

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
85					as for Sheet A.		as for Sheet A					
86	85.0			lt. grn B.l.b. c̄ Co mtx (81.1-81.6m)	81.6 wk to mod Cc 1-2 mnr patch Cl/Sa 1.		81.6m					
87												
88												
89	89.0			grn var Co alt. mos-wk ves. B.l. c̄ local b.k interpillow chert. (86.1-89.3m)	89.8							
90												
91					wk patch Cc 1			schistose broken ground 91.1-91.3m. b.a. 92.6m.		broken core 91.1-91.3m		
92	92.0					mod to wk Cc veinlets Cc infill of vesicles.						
93					92.8 Cc 2		mnr Sph discs & veinlets as rim to interpillow chert & associated c̄ Cc veins & stwks.	strongly pillowed 93.1-97.5m				
94												
95	94.0											
96				Pillow core to 96.1m (H 56224SP) grn B.l.b. c̄ dark mtx? (93.3-97.5m)	96.0							
97												
98	97.0				97.5 pat. Cc 1-2		mnr disc Py in interpillow chert & associated B.l.					
99												
100				grn wk ves B.l. c̄ interpillow chert & part Cc all dark Cc v.k stw. (97.5-99.4m)	99.4m							
101	100.0											
102				pale grn ves B.l./Cc 1-2 c̄ interpillow chert & Cc v.k stw. (99.4-103.4m)	parv Cc 1-2							
103												
104	103.0			grn B.l.b./Cc 2 c̄ interpillow chert & Cc stw. (103.4-104.3m)	103.4m parv. Cc 2 104.3m		dis Py/Sph/Cp mnr c̄ Cc veins in breccia.	Cc alt B.l.b. c̄ Cc mtx & Py/Sph/Cp mnr 102.2-102.7m.				
105												

488624

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DIAMOND DRILL LOG

PROJECT : MACKINTOSH Co 106/87
PROSPECT: Mt CHARGER SOUTH

HOLE NO: MAC-25
PAGE: 6 of 26
LOGGED: RSH
DATE: 4/4/90

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
106				gn mac. to ult. ves. f.l. z interpillow chert & alc/cl/cl k Cc v k shv. (106.5 - 108.0m)								
107	106	D			patch Cc 1-2							
108												
109					108.0.							
110	108	D										
111												
112								locally wkly b. with Cc/por Sph wkly				
113	112	D				mod to str Cc v k shd mnr alc/cl v. (10 ≤ cm thick)	mnr Sph/Py associated with interpillow chert as disseminations on their margins.					
114				gn mass-ves f.l. z wat Cc alt k interpillow clasts. wk to str Cc v. k shv z mnr Py k Sph as diss k veinlets. locally brecciated with Cc wlx. (108.0 - 121.5m)								
115												
116	116	D			patchy Cc 1							
117												
118												
119	116	D										
120					Moderately fuchsite spotting 120.4 - 120.7m.			edistasis 120.4 - 120.7				
121			121.5m		121.5m	121.5	121.5	121.5m				
122	121.5 / 122	D / L		gn-pk Cc alt f.l. z stringer to massive "interpillow?" Py/Sph/rare Cp min (total S to 20% in places) Petrology @ 123.3m (Ut 502241.?) @ 125.2m (Ut 502247.?)	str fuc spotting 122.3 - 125.1m.	str to mod Cc veins & shv's, overprint on min.	str "interpillow stringer," veins Py/Sph/rare Cp.	patchy sch asp. z str mineralized ±				
123												
124												
125	124	D	125.38m	pale gn Z.1/2 bkb / Cc S z Cc v. (125.38 - 129.0m)	125.38 CC 2-3	125.38 mm v Cc	125.40					
126												

Core Code

486625

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DIAMOND DRILL LOG

PROJECT : MACLINTOCK CL 106/87
PROSPECT: MT CHARGER SOUTH

HOLE NO: MAC-25
PAGE: 1 of 26
LOGGED: RJH
DATE: 4/4/90

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
120				gn ves-vac Bl c wnr v Cc (127.0-141.5m)	Cc 2-3	wnr Cc v lchs.						
121	121.0				121.0 wnr tour fu spotting	121.0 wnr ex qtz's Cc Cc infill of ves.	121.0. wnr disc Py					
122												
123												
124	123.0											
125												
126					patch. Cc 1-2 alt. Cc infill of ves.							
127												
128	128.0										128.0 m orientation.	
129												
130												
131	130.0											
132												
133												
134	133.0											
135												
136					sr fu spotting 131.0 129.6 m.							
137	136.0											
138						138.5 m						
139												
140	139.0							b. 139.6-139.9				
141												
142					141.5	wk to mod Cc v lchs. wnr Qv.						
143	142.0			gy-gn wk ves Bl/Cc 1-2 c nil to mod Cc v lchs's (141.5 - 145.8 m)	Cc 1-2							
144												
145												
146	145.0			gn wk sch wk ves Bl c pat Cc alt. & Cc/Q v lchs. (145.8 - 156.2 m)	146.0 pat Cc 1-2 alt.						145.9 orientation	
147												

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DIAMOND DRILL LOG

PROJECT : MACKINTOSH CL 106/87
PROSPECT: MT CHARLES SOUTH

HOLE NO: MDC-25
PAGE: 8 of 26
LOGGED: RGH
DATE: 5/4/90

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
148												
149	148.0			gn wk sch. wk vns Bi/Cc 1-2 (patchy) ≈ Cc k calcite v k sha.								
150					Sil-2 all of sample b. clasts @ 150.3 patch. Cc 1-2 all	wk to mod Cc v k stwk						
151							minr-rare disp					
152	151.0					calcite @ 151.7 k 150.6 m. (up to 10 cm thick)		locally b.≈ Cc mtx 151.7 - 152.8 m				
153								cavos b.≈ Cc mtx 152.2 - 152.6 m				
154								b.≈ Cc mtx 154.2 - 155.0 m				
155	154.0							dk vesicular 155.0 - 155.9 m				
156			156.2 156.22	gn Bi/Di vlcl. ≈ Py as vlcl mtx (MT CHARLES HOST HORIZON) (156.2 - 156.33 m) Fe staining @ 156.2m (#5622498)	156.2	156.2 156.22	156.2 156.22 Py minr as vlcl mtx.					
157			SPLIT CORE									
158	157.0			gn minr Di. ≈ minr calc Cc veining. (156.33 - 159.0m)		minr calc v					151.0m alteration.	
159					159.0							
160				gn mass Qtz.p.l. ≈ patch sil. k minr v calc. (159.0 - 164.2m)								
161	160.0				patch. Si 1-2							
162												
163												
164	161.0				164.2	164.2						
	164.2			pale gn mass Di/Si 2.4. ≈ minr calcite veins. (164.2 - 176.2m)								
165												
166					Si 2-4	minr calc/Cc v. fine Cc stw						
167	166.0											
168												

488627

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DIAMOND DRILL LOG

PROJECT : MACKINTOSH @ 106/87
PROSPECT: MT CHARGER SOUTH

HOLE NO: MAC-25
PAGE: 2 of 26
LOGGED: RSH
DATE: 6/4/90

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
160					as for Sheet 8	as for Sheet 8		as for Sheet 8				
170	160	0			170.2	170.2		170.2				
171				gn mottled mac. D.I. c Qtz/Cb v. (170.2 - 172.2 m)	Sil.	mnr Qtz/Cb veinc.						
172												
173	172	0			173.2	173.2						
174				gn-bk mottled sl mac D.I. c std Qtz/Cb v. (172.2 - 176.7 m)	Sil-2	std Qtz/Cb veins @ 172.6 - 173.0 & 174.6.						
175												
176	175	0			176.7	176.7		176.7				
177												
178				gn mac D.I. c Qtz/Cb & Cb veins locally brecciated. (176.7 - 183.3 m)								
179	178	0										
180												
181												
182	181	0			patchy Sil.	mnr Qtz/Cb & Cb veins		locally v.f.b. (cataclastic?)				
183												
184												
185	184	0										
186												
187												
188	187	0										
189				Peridotite (D 1986 D UN 031310?)								

488623

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DIAMOND DRILL LOG

PROJECT : MACKINTOSH CU 10/6/87
PROSPECT: UK CHARGER SOUTH

HOLE NO: MAC-25
PAGE: 10 of 26
LOGGED: RSH
DATE: 6/4/90

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
190					as for sheet 9			as for sheet 9				
191	DC 10											
192												
193				gn-pk mas f.p. D.1/D1.6 ± minr v Cc (192.3 - 192.5m)	192.3 wk minr v Cc.	as for sheet 9		192.3 wk sch. wk. b				
194	192.5											
195					192.5 wk patch Si1.			192.5				
196				pk-gn D.1/D1.6. ± Qt/Cl/Cc veining and minr silicification (195.5 - 201.1m)	196.1m.	196.1					196.6m silicification	
197	DC 16											
198					wk siliceous Si1-2	mod Qt/Cl/minr Cc v 2cm 20-30° to LCA.		wk. schistose wk brecciated (mineb breccia?)				
199												
200	199.5											
201					201.1 Cl alt & dev. on stained surface.	201.1		201.1 201.1 - 201.2m @ 20° to LCA (Cl/Qt 201-2 x Cl) 201.2				
202				gn sch D1.2 mod Cc v lk sch & Cl dev on clean surf. (201.1 - 201.2m)	201.2	mod Cc v lk sch's 201.2						
203	200.5			gn mas D.1 (201.2 - 202.6m)								
204												
205												
206	202.5			gn-pk Si1. D1. ± Qt/Cl/Cc v (202.6 - 211.2m)	pard Si1-2 alt.	wk spaced Qt/Cl/Cc veins (1to 1cm thick) minr Cc v.		wk schistose in places				
207												
208												
209	206.5											
210												

RECORDED GEOL WD 201.1 - 202.2 m

488629

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DIAMOND DRILL LOG

PROJECT : MACKINTOSH EL 106/81
PROSPECT: MT CHARTER SOUTH

HOLE NO: MAC-25
PAGE: 11 of 26
LOGGED: RSH
DATE: 6/4/90

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
211					as for sheet 10	as for sheet 10		as for sheet 10				
212	211.5			gn mass wk f.p. D.1 ± pot Sil-2 & Q/Cl/Cc v. (211.5 - 221.6m)	211.5; pot. Sil; 212.0; Sil-2; 212.5	211.5; Q/Cl/Cc dtd veinlets & mnr Cc v.		211.5				
213												
214												
215	214.5											
216								wk schistose b 216 - 216.4 m				
217												
218	217.5				pot. str Sil-2	Cl/Q/Cc v. @ 217.4; str Q/Cl/Cc v (to 5 mm thick) @ 217.8 - 218.2 m.						
219												
220						220.2; str Cc/mnr Q v & veinlets	mnr Py/Sph vlm ± Cc b. mnr @ 221.0 m.	220.2; str schistose & b ± Cc veins				
221	220.5			str sil. D.1/D.lb ± Q/Cc veins/str (221.6 - 222.4 m)	221.6; pot Sil-2; 222.4	221.6; mod Q/Cc v.; 222.4		221.6 m; 222.4; schistose (str - mod.)				
222												
223				gn str D.1 ± str shd Q/Cc v. (222.4 - 224.2 m)	pot str Cl ± alt. especially on cleavage surfaces.	sheared Q/Cc veins. and some sht. Q/mnr Cc v @ 224.2 - 224.5 & 227.2						
224	223.5											
225												
226	225.5			gn mass. D.1/D vld. ± mnr 'veining' v. Cc. (224.2 - 228.2 m)	227.2; Cl. 1; 228.2	227.2; mnr Cc/Q veining (overprinted on vld. textures)		227.2; wk schistose; 228.2			226.5 m OOC ANTARCTICA	
227					selective Q/Cl or Q, Cl. alteration of some clasts.							
228	227.5			pk-gn mottled D. vld. ± schistose & massive clasts some f.p. either Cl or Q altered. (228.2 - 232.5 m)								
229												
230												
231												

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DIAMOND DRILL LOG

PROJECT : MACKINTOSH EL 1061/81
PROSPECT: MT CHARGER SOUTH

HOLE NO: MPC-25
PAGE: 12 of 26
LOGGED: RJH
DATE: 01/4/90

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
232					as for SHEET 11	as for SHEET 11		as for SHEET 11				
233	232	0		Petrology @ 233.0m (# 562249P)								
234					233.0	233.0						
235				gn-mottled pk lcl. mafic D.l & D.vlt. c mnr Qtz/Cc v. (233.0 - 239.0 m)	patchy (clast related) to pervasive Cl 1-2 alteration.							
236	237	0										
237												
238						mnr Qtz/Cc veining.		Wk to mod. schistose				
239	239	0						foliation/cleat? @ 238.0 m				
240				Petrology @ 241.2m (# 831211P)								
241												
242	241	0										
243												
244												
245	244	0				pk Cc vein (chd) @ 245.0 m.						
246												
247												
248	247	0										
249												
250					249.5m	249.5		249.5				
251	250	0		gn mnr D.l/D.vlcl. b. c str Cc str & Cc/mnr Qtz v. (249.5 - 252.7 m)	patch Cl (clast related) alteration	str Cc/mnr Qtz & Cc stringers		str. schistose to weakly foliated				
252												

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DIAMOND DRILL LOG

PROJECT : MACKINTOSH Co 106/89
PROSPECT: MK CHARLIE SOUTH

HOLE NO: MAC-25
PAGE: 13 of 26
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DATE: 10/4/90

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
253					as for sheet 12	as for sheet 12		as for sheet 12				
					253.2	253.2		253.2				
254	254.0			gn mass D/D.vfd. & Qz/Cl/Cc veins (253.2 - 261.0m)		Qz/Cl/min Cc v @ 254.0 & 255.0m up to 2 cm						
255												
256												
257	257.0				patch. Cl 1-2 alt.	min Qz & Cc v.		wk sh.			256.0 m calcination	
258												
259												
260	260.0											
261					261.0	261.0		261.0				
262												
263	263.0			pk. gn coarse D.vfd. & Cl altered ad g'mass & Qz/Cl & Cc/Qz v. dials to 30cm in ϕ wk to sth f.p. (261.0 - 267.4m)	wk Qz/Cc to Qz/min Cl veining	pat. Cl 1-2 alt. of g'mass.						
264												
265												
266	266.0				mod. Qz/Cl veining 266.0 - 268.0			min. local. b.				
267												
268												
269	269.0											
270												
271												
272	272.0											
273								?				

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DIAMOND DRILL LOG

PROJECT : MACLINKOSH GL 106/87
PROSPECT : MT CHARGER SOUTH

HOLE NO : MAC-25
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LOGGED : RSH
DATE : 10/4/90

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
214												
215	214	0										
216												
217												
218	217	0										
219												
220												
221	220	0			as for Sheet 13	as for Sheet 13		as for Sheet 13				
222												
223												
224	223	0										
225												
226												
227	226	0			281.4	281.4	281.4	281.4			286.0 m Diamond	
228				pk. grn mottled D vfcl. c. mac int fp to strong clasts in a grn fp matrix Mnr Glce v. (281.4 - 284.4m)	Cl1-2 alterational mix - g'stone							
229												
230	229	0				Mnr Glce v.	tr. disc Py.					
231												
232												
233	232	0										
234					284.4 m							

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DIAMOND DRILL LOG

PROJECT : MACKINTOSH Co 106/81
PROSPECT : Mt CHARLES SOUTH.

HOLE NO : MAC-25
PAGE : 15 of 26
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DATE : 10/4/90

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
195					194.4							
196	195.0			PETROLOGY @ 201.6m (# SL62A5P)	pam. Cl2 all^{n}	mm wk Qz/Cc v		flowband ? @ 206.2m.				
197				gn B.l.b. & Cc stk. (196.1 - 200.5m)	196.1	196.1		196.1				
198						stk Cc stk.		stk. b. & Cc mtx.				
199	198.0					200.5m		200.5				
200				gn mass wk vos. B.l. & Cc v & Cc infill & vos. (200.5 - 202.5m)		mnr Cc v.						
201				PETROLOGY @ 201.3m (# SL62A5L2P)								
202	201.0				202.5	202.5	tr disc. Py.					
203				pk mass f.p. DI. / S.2	S.2.	mnr Qz/Cc v.						
204	202.1											
205	204.0				204.0	204.0.						
206				gn - pk fp DI/DI v/cl. & lccal. b. & wk Qz/Cc/Cl & Qz/Cc v (206.0 - 209.8m)				mnr flowb.				
207												
208	207.0					wk Qz/Cc v. & mnr Qz/Cl v. @ ~213.4m.						
209					polds Cl/Qz 1-2 all^{n}							
210												
211	210.0							b. 212.7 - 213.0m.				
212												
213												
214	212.0											
215												

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DIAMOND DRILL LOG

PROJECT : MACKINNON EL 1006/89
PROSPECT: MT CHARLES SOUTH.

HOLE NO: MAC-26
PAGE: 16 of 26
LOGGED: RSH
DATE: 11/4/90

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
216												
217	216	0										
218												
219												
220	219	0		gri-pk musc f.p. D1/D1 vol. [illegible] Co veinlets (- 221.2 m)	pervasive (chlor/sericite?) C1 1-2. Q1 diff.	wk Co veins & stwk. 'messy' veinlets Co stw veins to 1a.	tr disseg.	wk local fo. & wk schistose in places				
221												
222	221	0										
223												
224												
225												
226	225	0										
227												
228												
229	228	0										
230												
231												
232	231	0										
233												
234												
235	234	0										
236												

486635

Aberfoyle Resources Limited
EXPLORATION DIVISION

DIAMOND DRILL LOG

PROJECT : MACKINTOSH EL 1061/91
PROSPECT: MT CHARLES SOUTH

HOLE NO: MAC-25
PAGE: 17 of 26
LOGGED: RSH
DATE: 1/4/96

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
331					as for sheet 16	as for sheet 16	as for sheet 16	as for sheet 16				
332	331.5	0		mass Qtz minor Cl veinl (331.5 - 336.2m)	331.5 332.2	331.5 Qtz/Cl v 332.2	331.5	331.5				
333				mod. sch B.l./R.l.b. & f.p. D. vlcl. (336.2 - 339.2m)	Cl 1-2 alt of D. vlcl. clasts	Qtz/Cl & Cc v & stw.	minor diss Py & Cl v. @ 336.2m.	B.l./frags sch &				
334					340.2	340.2		340.2				
341	340	0		gn B.l./R.l.b. & minor f.p. D. clast. & Cc v & stw. (339.2 - 340.2m)								
342					minor patch Cc alt	str Cc/minor Qtz stwk & veins.		str b. & Cc v stwk				
343				gn wk vesc B.l.b. & str Cc/minor Qtz stw. (340.2 - 342.7m)								
344	342	0			343.7	343.7		343.7				
345				pk D. clast @ 344.5m.								
346				gn vesc B.l. & minor Cc/Sa v & Cc/Sa infill of ves. (343.7 - 352.0m)								
347	346	0				wk to mod Cc/Sa v & stw.					346.0 oxidational	
348												
349												
350								348.0				
351	350	0										
352								wk bead b. & Cc/minor Qtz stwk/infill				
353	352	0		gn Cl/Qtz b. & Cl/Cc wtx. (352.0 - 353.4m)	353.4	352.0 353.4		352.0 353.4	b. & Cl wtx.			
354												
355				gn-pk mottled mass f.p. D./coarse D. vlcl. & minor Qtz/Cl v. (353.4 - 360.2m)		minor Qtz/Cl & Cc v						
356	355	0			patchy Cl 1-2 alt. minor patch Sa 2 alt.	str Qtz/Cl v @ 356.5m.						
357												

4886636

Aberfoyle Resources Limited
EXPLORATION DIVISION

DIAMOND DRILL LOG

PROJECT : MACKINNOCH Gold 106/107
PROSPECT: MT CHARTER SOUND

HOLE NO: MAC-25
PAGE: 10 of 26
LOGGED: RSH
DATE: 11/4/90

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
359					as for Sheet 11	as for Sheet 11						
360	358-3			pk-gn. fine D1 vlcl. (360.2 – 361.1 m)	360.2 patchy Cl 1-2 alt.	360.2 str Qtz Cl v 2 360.2 @ 361.1 m.						
361				Pegmatite @ 361.5 m (#5624537)	361.1 per. Cl 3 alt.							
362	361-3			gn mass D1 / Cl 3 (361.1 – 362.6 m)	362.6	362.6 m		362.6 locally bx'd.				
363												
364												
365	363-3			gn mass f.g. D1 / mnr D1 vlcl. & mnr Qtz Cc Cl veins (362.6 – 365.7 m)								
366												
367												
368												
369	367-3			Pegmatite @ 368.2 m (#5622547)	per Cl 2-3 & patch. Sil 1-2 alt.	Mk Cc Qtz v 1 vlcl mnr Qtz Cl v.	mnr disc Cpy @ 368.2 m					
370												
371	370-3											
372												
373												
374	372-3											
375												
376												
377	374-3											
378												

4 8 8 6 3 7

Aberfoyle Resources Limited
EXPLORATION DIVISION

DIAMOND DRILL LOG

PROJECT : MACKINTOSH EL 106/87
PROSPECT: MT CHARTER SOUTH

HOLE NO: MAC-25
PAGE: 10 of 26
LOGGED: RGH
DATE: 11/4/90

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
280												
281	280	0			as for Sheet 16	as for Sheet 12		as for Sheet 16				
282					380.7	380.7		380.7				
283				pale gn D.I. vfd. b. /Si 2 c Q/Cb v k Q shr. (380.7 - 384.3 m)	pav. Si 2 all n	fine Q shr's & minr Q/minr Cl v.		wk. b.				
284	382	0			384.3	384.3		384.3				
285												
286	384	0										
287				gn mass wk f.p. D.I / Cl 2. c minr Q/Cc v k shr. (384.3 - 394.5 m)								
288												
289	386	0			pav. Cl 2 all n							
290												
291						minr Q/Cc v k shr's.						
292	388	0										
293												
294												
295	390.5				394.5 m							
296												
297				gn D.I. vfd. (b?) c minr Q/Cc v k shr's (394.5 - 407.6 m)	patchy Cl 1-2 all n minr patch S. 1							
298	392	0										
299												
300												

488638

Aberfoyle Resources Limited
EXPLORATION DIVISION

DIAMOND DRILL LOG

PROJECT : MacKenzie Gl 106/81
PROSPECT: Mt Charter South.

HOLE NO: MAC-25
PAGE: 20 of 26
LOGGED: RSH
DATE: 11/8/90

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
400												
401	400.1											
402				Pebbly lost @ 402.5m (#Sk 2455 P)	as for sheet 19	as for sheet 19						
403												
404	404.4	0										
405												
406												
407	407.0										406.5m orientation	
408				pnk gn D.I. (Sil 2-3 ~ mnr Qtz v. (407.6 - 408.5m)	407.6 Sil 2-3 alt n	407.6 mnr Qtz v. str Qtz/Clz v @ 408.5m. was Qtz mnr Cl v.						
409					408.5							
410	409.9	0		gn mass f.p. D.I. (Sil 1-2. Cl 2	Par. Sil-2. Cl 2 alt n 410.1	410.1		410.1 str Sch. 410.1-412.1m @ ~50° 10 LCA [Sch D.I.]				
411				gn sh. Sch f.p. D.I. & str. Cl/Qtz Sc & Qtz mnr Cl v. (AUG ZONE (410.1 - 412.1m)	str Qtz/Cl/Sc dev'd on cleav. surfaces	dnd Qtz mnr Cl v.						
412	412.6				412.1m	412.1		412.1				
413				pk-gn f.p. mass D.I. & mnr D.I vtd & mnr Qtz Cl v. (412.1 - 424.4m)								
414												
415					par. to patchy Cl 1-2 alt n.	mnr f. Cc str & Qtz Cc v.		wk schistose				
416	415.7											
417												
418												
419	419.2											
420												

Broken Core No Mineral

188639

Aberfoyle Resources Limited
EXPLORATION DIVISION

DIAMOND DRILL LOG

PROJECT : MACKINTOSH Co 106/87
PROSPECT : MT CHARLOTTE South

HOLE NO : MAC-25
PAGE : 21 of 26
LOGGED : [illegible]
DATE : 12/4/90

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
421												
422	422.10				as for Sheet 20	as for Sheet 20		as for Sheet 20				
423												
424					424.4	424.4		424.4				
425	424.10			pale gn D.I vlcl. / Cl1.Si2 c̄ Qlcc v. (424.4 - 427.1m)	pr. Cl1.Si2	inm Qlcc v.						
426												
427					427.1	427.1						
428	427.10			gn mottled D.I vlcl. c̄ inm Qlcc v. (427.1 - 432.7)				wk locally sheared				
429												
430					pw to mdly Cl2 alt	inm c̄. Qlcc v.		430.6 - 430.8 20° to LCA. [DI vlcl/Cl2 x Cl]				
431	430.10											
432								432.7 20° to LCA. [Cl.Cl.Si x DI]				
433												
434	433.10				434.7							
435				pale gn - lt DI. / DI vlcl wk f.p c̄ Qlcl v. (434.7 - 442.7m)								
436												
437	436.10				pr Cl1-2.Si / alt ⅡⅡ			436.6 - 437.0 20° to LCA. [DI vlcl/Cl2 x Si]				
438												
439												
440	439.10											
441												

438640

Aberfoyle Resources Limited
EXPLORATION DIVISION

DIAMOND DRILL LOG

PROJECT : MACKINTOSH Kl 106/87
PROSPECT: MT CHARLOTTE SOUTH.

HOLE NO: MAC-25
PAGE: 22 of 26
LOGGED: RCH
DATE: 12/4/90

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
442					as for Sheet 21	as for Sheet 21		as for Sheet 21				
442.3	442.9			pale gn ulcrc D.I. wk fp. c mnr D.I. vld. (C11-2 S2 c Qlcc & Qlcc/cl v. c mnr sh. (442.1 - 451.4 m)	442.2	442.3		442.3			442.5m COMMITATION.	
444						mnr Calcv. & Qlcc/Cc stk veins.						
445	444.5											
446	445.6			Porphyry @ 446.6m (d 362/45L?)		Qlcv (to 3cm wide) @ 442.3, 444.2, 445.2 & 450.5 - 450.6.						
447												
448												
449	449.1				Dev. C11-2. S2 alt^n							
450												
451												
452	451.2											
453												
454												
455	455.0							455.5 str Schistose. 456.6				
456					456.4	456.6						
457				str sch. lsd. dk-gy graphitic shale, bk-gy f.g. Gn & mnr shd D1 blocks. c mnr shd Qlcv. (456.4 - 462.6m) CHARLOTTE FAULT ZONE.				sh sch. broken ground (456.4 - 462.2 @ 40° to LCA. [graphitic shale, lsd & mnr D1 & Qlcc]				
458	457.0											
459					str graphitic develop on clean surfaces mnr Qlsc alt^n of D1 dacks	shd mnr Qlcc v. & Qlcc' occupied veins.						
460	459.5											
461	461.2											
462					462.6			462.6				

BLACK DIAMOND 451.4 - 462.6 m

488641

Aberfoyle Resources Limited
EXPLORATION DIVISION

DIAMOND DRILL LOG

PROJECT : MACKINTOSH EL 106/87
PROSPECT: MT CHARGER SOUTH

HOLE NO : MAC-25
PAGE: 25 of 26
LOGGED: PGW
DATE: 12/4/90

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
505				gy-blk Qtz & mm lbd's of blk graph. Sh. k Qlcc v (503.0 - 520.0 m)								
506												
507												
508												
509												
510						as for Sheet 24		wk locally schistose				
511												
512												
513												
514												
515												
516												
517												
518												
519												
520												
521					520.0	520.0		520.0				
522				gn & l gy mm lbd Sh & Qlcc v. (520.0 - 530.2 m)		Qlcc v (to sandlinch) @ 522.1 m.		wk schistose				
523					patch: Cl1 Si1-2	mod Qlcc v k stw's						
524												
525												

488642

Aberfoyle Resources Limited
EXPLORATION DIVISION

DIAMOND DRILL LOG

PROJECT : MACKINTOSH Gr. 106/87
PROSPECT: MT CHARLES SOUTH.

HOLE NO: MAC-25
PAGE: 26 of 26
LOGGED: RSH
DATE: 12/4/90

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
S16												
S17												
S20				PETROLOGY @ S26.2m (@ S62A(S)P)	as for Sheet 25	as for Sheet 25		as for Sheet 25				
S29												
S30	S30.3M (EOH)				S30.3	S30.3		S30.3			420.0m continued	

4S8643

[redacted]

PROJECT	BSS SIEVE SIZE CODE - MESH NUMBER	SAMPLE TYPE CODE	CARD COPIED	DATE	SHEET
MACKINKOSH Cu 10/6/87	A 200 D 80 G 30 B 150 E 60 H 20 C 100 F 40 I = TOTAL	[1] PULVERIZED PRODUCTS p [✓] FRESH ROCK R [ ] STREAM SEDIMENTS S		12/2/90	#1

EASTINGS	NORTHINGS	SAMPLE NUMBER	DEPTH IN CMS	SIZE FRACTION mm	FIELD SPECIMEN LOG	GEOLOGICAL LOG
MAC 25.						
1869m		431310		SPUT CODE	Cu, Pb, Zn, Au, Ag, As, Ba, Cr, Ti, Zr,	gn D.I ≈ mnr ✓Cc
241.2m		431311		—"—	MgO, K_2O, CaO, Na_2O.	gn D.I/Cl 2-3 ≈ mnr ✓Cc

OPERATOR COMPUTER CHECK PLOTTER DATE

488644

SPLIT CORE
~~CORE GRIND~~ SAMPLING - MACKINTOSH / HATFIELD

HOLE No. MAC-25

644 Cu, Pb, Zn, Au, Ag, As, Ba.

488645 DATE 12/2/90

No.	SAMPLE NUMBER	INTERVAL	ELEMENTS REQUIRED	ST	SAMPLE NUMBER	INTERVAL	ELEMENTS REQUIRED	ST
1	431307	121.5-122.32						
2	431308	122.32-123.61						
3	431309	123.61-125.38						
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
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21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								

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. 23.3.08.08.06846

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

R DeBomford
Aberfoyle Resources Exploration Division
P O Box 952
Burnie
Tas 7320

ORDER No.	PROJECT
8622	Mackintosh

DATE RECEIVED	RESULTS REQUIRED
12/02/90	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
1	20/02/90	1	5

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	METH-
	431307/431311	SC Prep: 01B							Cu,Pb,Zn,Ag/101			
	431307/431311	SC							Au,AuChk/309			
	431307/431311	SC							Ba,As/401			
	431310/431311	SC							Cr,Zr,Ti/401			
	431310/431311	SC							K2O,MgO,CaO,Na2O/104			

RESULTS TO

R DeBomford
Aberfoyle Resources Exploration Division
P O Box 952
Burnie
Tas 7320

RESULTS TO

REMARKS

MAC-25

SPLIT CORE.

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
	23.3.08.08.06846	20/02/90	8622	1 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Zn	Ag	Ag	Au	AuCh
1	431307	130	800	–	4550	–	3.5	–	0.011	<0.00
2	431308	100	150	–	2075	–	2.0	–	<0.008	<0.00
3	431309	125	–	1000	–	2.60	–	5	0.022	
4	431310	10	15	–	310	–	0.5	–	<0.008	
5	431311	10	15	–	200	–	<0.5	–	<0.008	
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	25	5	0.01	0.5	2	0.008	0.00
24	UNITS	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	pp
25	METHOD	101	101	104	101	104	101	104	309	30

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
	23.3.08.08.06846	20/02/90	8622	1 OF 1

TUBE No.	SAMPLE No.	Ba	As	Cr	Zr	Ti	K2O	MgO	CaO	Na2O
1	431307	940	95	–	–	–	–	–	–	–
2	431308	1100	35	–	–	–	–	–	–	–
3	431309	1100	75	–	–	–	–	–	–	–
4	431310	960	<2	30	200	2400	2.07	1.99	0.81	3.5
5	431311	1700	<2	35	210	2550	3.06	1.66	0.88	5.2
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	10	2	5	5	50	0.01	0.01	0.01	0.0
24	UNITS	ppm	ppm	ppm	ppm	ppm	%	%	%	
25	METHOD	401	401	401	401	401	104	104	104	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

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488649

APPENDIX 24

Aberfoyle Exploration — GEOCHEMICAL SAMPLE LEDGER

Collected A.M.N.

A 39G40

PROJECT	BSS SIEVE SIZE CODE - MESH NUMBER	FILE TYPE CODE		CARD PUNCH PRINT	VERIFY	DATE	SHEET
Mackintosh El. North Henty Fault	A 200 B 80 G 30 B 150 E 60 H 20 C 100 F 40 T = TOTAL	[ ] OXIDIZED PRODUCTS G [✓] FRESH ROCK R [ ] STREAM SEDIMENTS S	[✓] WEATHERED BEDROCK W [ ] SURFACE TRANSPORTED T [ ] RESIDUAL SOIL E [ ] MINE DUMP M	YES [ ] NO [ ]	YES [ ] NO [ ]	22/1/90	1 of 1

EASTINGS	NORTHINGS	SAMPLE NUMBER	DEPTH in CMS	SIZE FRACTION	Sample Type		METAL VALUES PPM	GEOLOGICAL LOG
6560	7400	S17876			R/C	O/C	Cu, Pb, Zn, As, Sb, Ag, Au.	Hematite/chlorite altered volcanic - quartz, pyrite.
6555	7420	877			R/C	O/C	"	green chlorite altered volcanic - ? Dacitic lava
6630	7500	878			R/C	O/C	"	Coarse grained dacitic lava/intrusive.
6980	7820	879			R/C	O/C	" + Cr, Ti, Zr	Andesitic - Dacitic lava
6940	7770	880			R/C	O/C	" "	brown volcanic
6910	7760	881			R/C	O/C	" "	chloritically altered D.I.
6995	7740	S17882			R/C	O/C	" "	" " "
3640	9880	S17895			R/C	Slt	Cr, Ti, Zr, Y.	Basalt lava.

(36)

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(36)

ANALYTICAL REPORT No. 23.3.08.08.06363

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

R DeBomford
Aberfoyle Resources Exploration Division
P O Box 952
Burnie
Tas 7320

ORDER No.	PROJECT
9635	

DATE RECEIVED	RESULTS REQUIRED
16/02/90	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	27/02/90	1	9

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
	<5178,76/82	RC Prep: Oto							Cu,Pb,Zn/101		
	<5178,76/82	RC							Au,AuChk/309		
	<5178,76/82	RC							Ba,As/401		
	<5178,79/82,95	RC							Cr,Ti,Zr/401		
	517895	RC							Y/401		

REMARKS

RESULTS TO

R DeBomford
Aberfoyle Resources Exploration Division
P O Box 952
Burnie
Tas 7320

RESULTS TO

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
	23.3.03.08.06863	27/02/90	8635	1 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Au	AuChk	Ba	As	Cr	Zr
1	517876	10	60	30	<0.008	–	730	<2	–	–
2	517877	10	40	165	<0.008	–	230	<2	–	–
3	517878	5	45	150	<0.008	–	900	<2	–	–
4	517879	30	75	70	<0.008	–	240	7	190	300
5	517880	365	335	360	<0.008	<0.008	210	10	520	280
6	517881	20	15	80	<0.008	–	270	<2	30	260
7	517882	10	40	135	<0.008	–	170	<2	30	220
8	517895	–	–	–	–	–	–	–	1950	200
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.008	0.008	10	2	5	5
24	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
25	METHOD	101	101	101	309	309	401	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
	23.3.08.06.06363	27/02/90	8639	2 OF 2

TUBE No.	SAMPLE No.	Ti	Y							
1	517876	–	–							
2	517877	–	–							
3	517878	–	–							
4	517879	3850	–							
5	517880	6350	–							
6	517881	4700	–							
7	517882	4250	–							
8	517895	5600	23							
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	50	3							
24	UNITS	ppm	ppm							
25	METHOD	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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189654

APPENDIX 25

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

Phone (09) 458 7999 — 52 Murray Road, Welshpool, W.A. 6106 — Telex AA92560

FAX: 004 31 9890

(4)

ANALYTICAL REPORT No. [illegible]

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
	MACK

DATE RECEIVED	RESULTS REQUIRED
08/06/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	17/06/89	1	45

STATE SAMPLES REFER BELOW	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PUL-VERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	Various	So Prep: 01?							Au,AuR/309		

RESULTS TO

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

RESULTS TO

REMARKS

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
hole 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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488656

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06265	19/06/89		1 OF 2

TUBE No.	SAMPLE No.	Au	AuR							
1	375386	<0.008	<0.008							
2	375388	<0.008	–							
3	375390	<0.008	–	X STD						
4	375392	<0.008	–							
5	375394	<0.008	–							
6	375396	<0.008	–							
7	375398	<0.008	–							
8	375400	<0.008	–							
9	375402	<0.008	–							
10	375404	<0.008	–							
11	375406	0.012	–							
12	375408	<0.008	–							
13	375410	<0.008	–							
14	375412	<0.008		X STD						
15	375492	<0.008	–							
16	375494	<0.008	–							
17	375496	<0.008	–							
18	375498	<0.008	–							
19	375500	<0.008	–							
20	375502	<0.008	–							
21	375504	<0.008	–							
22	375506	<0.008	–							
23	375508	<0.008	–							
24	375510	<0.008	–							
25	375514	<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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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.02-00265	19/06/89		2 OF 2

TUBE No.	SAMPLE No.	Au	AuR							
1	375516	<0.008	–							
2	375518	<0.008	–							
3	375520	<0.008	–							
4	375522	<0.008	–							
5	375524	<0.008	–							
6	375614	<0.008	–							
7	375616	<0.008	–							
8	375618	<0.008	–							
9	375620	<0.008	–							
10	375622	<0.008	–							
11	375624	<0.008	–							
12	375626	<0.008	–							
13	375628	<0.008	–							
14	375630	<0.008	–							
15	375632	<0.008	–							
16	375634	<0.008	–							
17	375636	<0.008	–							
18	375638	<0.008	–							
19										
20										
21										
22										
23	DETECTION	0.008	0.008							
24	UNITS	ppm	ppm							
25	METHOD	309	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

458658

APPENDIX 26

Mackintosh E.L.
Charter/South Mackintosh

Collected by: AMcW + MM.

24-5-89 | 1 of 1.

6200	5235	515015	-7mm	51	Au only by B.C.L. (un-2mm fraction)
6115	5090	016	"	"	
6010	4842	017	"	"	
5940	4660	018	"	"	
5175	4570	019	"	"	
5300	4450	515100	"	"	
5145	4575	101	"	"	
4885	4535	102	"	"	

(2)

(9)

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Phone (09) 458 7999 | 52 Murray Road, Welshpool, W.A. 6106 | Telex AA92560

FAX: 004 31 8890

ANALYTICAL REPORT No. 23.3.08.06278

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
7852	

DATE RECEIVED	RESULTS REQUIRED
14/06/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
1	20/06/89	1	8

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	METH
	515095/102	BC								Au,DRYWT/340		

RESULTS TO

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

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	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	FLUO
heavy mineral	HM					inductively coupled plasma	ICP

AUTHORISED OFFICER _____

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06278	20/06/89	7852	1 OF 1

TUBE No	SAMPLE No.	Au	DRYWT	PPM						
1	515095	8.00	2275	.008						
2	515096	9.60	2590	.0096						
3	515097	8.00	2614	.008						
4	515098	8.15	2944	.00815						
5	515099	3.25	4135	.00325						
6	515100	21.40	4582	.0214						
7	515101	26.80	4247	.0268						
8	515102	3.95	4153	.00395						
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	0.05	1							
24	UNITS	PPB	GMS							
25	METHOD	340	340							

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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Collected by: [illegible], MM

Mackintosh

HF2/Chunier Orientation

22/5/89

1 of 1

						Sample weight
6010	4842	427780	-72 ft	5	Co, Pb, Zn, Ba, As, Ag, Au.	60g
5940	4660	781	"	"	"	80g
5785	4525	782	"	"	"	60g
5175	4570	783	"	"	"	80g
5460	4420	784	"	"	"	80g
5360	4450	785	"	"	"	80g
5145	4535	786	"	"	"	"
5010	4495	787	"	"	"	"
4985	4535	788	"	"	"	"
4625	4650	789		"	"	"
4585	4640	427190				80g
6200	4235	427791	-200 ft	5	Co, Pb, Zn, Ba, As, Ag, Au.	40g
6115	5090	792	"	"	"	48g
6010	4842	793	"	"	"	26g
5940	4660	794	"	"	"	55g
5785	4525	795	"	"	"	65g
5175	4570	796	"	"	"	68g
5460	4420	797	"	"	"	57g
5360	4450	798	"	"	"	62g
5145	4535	799	"	"	"	44g
5010	4495	427800	"	"	"	44g
4985	4535	427847	"	"	"	70g
4625	4650	[illegible]	"	"	"	45g
4585	4640	427841	"	"	"	40g

10

(10)

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. 23.3.08.06301

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
7871	

DATE RECEIVED	RESULTS REQUIRED
23/06/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	12/07/89	1	24

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
	427780/500,430847/49	60	Prep: 31						Cu,Pb,Zn,Ag/101,As/11A		
	427780/500,430847/49	60							Ba/401,Au,AuCN/309		
	427780/500,430847/49	60							Ba/403		

REMARKS

RESULTS TO
Aberfoyle Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

RESULTS TO

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	FLUO
heavy mineral	HM					inductively coupled plasma	ICP

AUTHORISED OFFICER

663 488664

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A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06301	12/07/89	7871	1 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	AuChk	Ba	Ba	As
1	427780	55	165	110	1.0	0.058	–	1100	–	5
2	427781	60	155	110	1.5	0.034	–	1050	–	5
3	427782	80	205	125	0.5	0.067	–	1350	–	6
4	427783	30	20	35	0.5	0.014	–	550	–	4?
5	427784	35	35	135	1.0	<0.008	–	540	–	
6	427785	35	195	60	1.5	0.153	–	–	0.88	9
7	427786	40	300	60	2.5	0.083	–	–	1.79	22
8	427787	55	230	75	2.0	0.159	–	–	2.38	25
9	427788	30	40	50	1.5	0.049	–	1800	–	2
10	427789	25	100	55	3.0	0.278	–	–	3.09	3
11	427790	50	90	80	6.0	1.150	1.280	–	5.41	24
12	427791	245	135	260	1.0	0.043	–	1300	–	
13	427792	285	130	270	<0.5	0.060	–	1450	–	
14	427793	270	280	270	1.0	0.116	–	1900	–	
15	427794	205	195	190	0.5	0.118	–	1550	–	6
16	427795	280	290	240	<0.5	0.084	–	1800	–	
17	427796	115	25	80	0.5	0.036	–	670	–	2
18	427797	245	50	215	1.0	<0.008	–	570	–	
19	427798	180	300	150	1.0	0.308	–	–	0.47	5
20	427799	160	575	145	1.5	0.373	–	–	1.28	4
21	427800	185	430	170	1.5	0.534	–	–	1.37	38
22	430847	115	50	105	0.5	0.109	0.130	1550	–	
23	430848	90	160	110	2.0	0.732	–	–	1.46	6
24	430849	225	245	195	6.5	1.830	–	–	3.91	47
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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664

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06301	12/07/89	7871	2 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	AuChk	Ba	Ba	As
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	0.008	0.008	10	0.01	
23	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	%	PP
24	METHOD	101	101	101	101	309	309	401	403	11
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

488666

APPENDIX 27

SAMPLE NO.	LOCATION	DESCRIPTION
315740	1800N 5320E	Massive fresh dolerite
315741	1800N 5680E	Silicified pale green porphyritic volcanic
315742	1800N 5740E	Dark green andesite tuff (Float)
315743	1800N 6147E	Chloritized volcanic
315744	2000N 6175E	Weathered chloritized feldsparphyric andesite lava
315745	2000N 6000E	Green feldsparphyric andesite
315746	2000N 5750E	Green feldsparphyric andesite
315747	2000N 5695E	Green andesite
315748	2400N 5890E	Silicified andesite
315749	2200N 6290E	Khaki flow banded dacite
315750	2200N 6000E	Dark green andesite
315751	2200N 5925E	White/cream porphyritic andesite
315752	2200N 5590E	Dark green andesite tuff
315753	2200N 5560E	Dark green brecciated porphyritic andesite
315754	2200N 5460E	Cream, weathered volcanic
315755	Sth Mt. Charter Access Road Peg 174	Dark green andesite tuff

488668

MACKINTOSH

Central Mineralogical Services

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

Mr. A. M. Hespe
Geologist
Aberfoyle Exploration Pty. Ltd.
P.O. Box 952
BURNIE / TAS. 7320

23rd November, 1984

REPORT CMS 84/11/3

YOUR REFERENCE:	Letter dated 29.10.1984
DATE RECEIVED:	5th November, 1984
SAMPLE NOS.:	315740 - 315755
SUBMITTED BY:	A.M.Hespe
WORK REQUESTED:	Petrology

for

H.W. Fander, M. Sc.

The Chief Geologist
Aberfoyle Exploration Pty. Ltd.
144, Camberwell Road
HAWTHORN EAST / VIC. 3123

Specimens from 1800N-2400N
order, Mackintosh Lisme

REPORT CMS 84/11/3

Sixteen rock chip samples from the Que River exploration licences were received for petrological examination. Representative thin-sections were prepared and examined together with their respective offcuts. Attached tabulated descriptions summarise the microscopic data and include interpretative comments.

Summary

This suite comprises entirely altered volcanics, ranging from basic to acid, but dominated by basic to intermediate types.

These may be categorised in two groups, with relatively fresh, strongly pyroxenic basics and relatively phyllosilicate-altered intermediate types. The former group is best categorised as basalts, although alteration negates determination of primary plagioclase composition, and the distinction between basalts and basaltic andesites is thus tenuous on strictly petrological grounds. These rocks bear strong analogy with the "hanging wall andesite" unit at Que River and the "upper andesite" at Hellyer, and locally carry minor trace accessory amounts of chromite and chromiferous magnetite.

Intermediate rocks are relatively altered but, on the basis of relict features, grade from andesitic to leucoandesitic and quartz-andesitic/dacitic, with minor rhyolitic-rhyodacitic types. These bear analogy with the "feldsparphyric andesites" at Hellyer. In common with recently examined sinter from Mount Charter this suite is dominated by lavas.

D. Cowan, B. Sc.

CENTRAL MINERALOGICAL SERVICES

Sample No.	Classification - Composition	Fabric	Accessories	Comments
315740 (T.S. 51837)	Altered Microgabbro. Fresh to chlorite-pseudomorphed augite and subordinate sericitised feldspar phenocrysts in a groundmass of saussuritic/albitised plagioclase laths. Minor mesostasis quartz.	Strongly porphyritic/ medium-grained, "doleritic".	Conspicuous fine leucoxenised Ti-magnetite.	Extensively altered porphyritic microgabbro. Minor intrusive "tholeiitic" characteristics.
315741	"Dacitic" Pitchstone. Extensively sericitised/ weakly calcite-stained plagioclase, relatively minor chloritised ?amphibole phenocrysts in a pervasively sericitic, chloritic-carbonate-stained fine felsitic groundmass.	Porphyritic, weakly calcite-quartz amygdaloidal; incipiently flow-structured.	Leucoxenised opaques, traces of fine oxidised pyrite. Minor chlorite veinlets.	Devitrified sericite-chlorite-calcit altered, weakly amygdaloidal dacitic pitchstone. Lava-type characteristic devoid of fragmental features.
315742	Amygdaloidal Basalt. Calcite-stained chlorite pseudomorphs of pyroxene phenocrysts in a groundmass of albitised, carbonate-sericite-stained plagioclase laths. Disseminated quartz amygdales.	Finely amygdaloidal, basaltic, trend medium-grained, weakly flow-structured.	Conspicuous fine leucoxenised Ti-magnetite. Traces of mesostasis quartz.	Affinities with 314740; compositiona and textural. Finer-grained, similarly but relatively extensively altered.
315743	Altered "Basalt". Sericite with corroded relics of albitised plagioclase laths. Disseminated lenses of chlorite. Disseminated fine-scale quartz amygdales; leucoxenised opaques.	Phyllitic. Relict pyroxene-porphyritic, basaltic; analogous to 314742.	Traces of chloritised biotite in chlorite lenses.	Phyllitic, altered, sheared volcanic reasonably interpreted as a relatively altered and sheared variant of 314742 or similar quartz-amygdaloidal basalt.
315744	Altered "Dacite". Sericite and fine-grained poikilitic quartz (with included sericitised feldspar microlites). Thinly disseminated extensively sericitised feldspar phenocrysts; recrystallized quartz amygdales.	Weakly porphyritic, quartz-amygdaloidal, semi-felsitic. Mildly sheared.	Leucoxenised opaques, disseminated amygdaloidal clots of chlorite (± quartz).	Leuco-andesitic/dacitic lava, extensively sericitised, mildly sheared.
315745	Altered "Andesite". Frequent sericitised feldspar, subordinate chloritised/sericitised ferromag phenocrysts in a sericitised quartzo-feldspathic groundmass similar to 314744.	Similar to 314744, strongly quartz-micro-amygdaloidal, relatively porphyritic, moderately sheared.	Leucoxenised opaques.	Affinities with 314744; relatively andesitic relict textural features.
315746	Andesite. Weakly sericitic/albitised plagioclase and relatively minor chloritised ferromag phenocrysts in a weakly/pervasively chlorite-sericite-stained fine-grained feldspathic groundmass.	Weakly glomero-porphyritic, incipiently chlorite-micro-amygdaloidal. Essentially unstressed.	Leucoxenised opaques. Traces of cloudy, microcrystalline epidote.	Relatively weakly (sericite-chlorite altered; essentially unstressed porphyritic andesite.
315747	Andesite. Variably sericitic/albitised plagioclase and subordinate chloritised ferromag phenocrysts, disseminated sericite-chlorite (±cloudy epidote) amygdales. Sericite-chlorite-stained fine quartzofeldspathic groundmass.	Closely analogous to 314746; relatively amygdaloidal. Essentially unstressed.	Leucoxenised opaques, minor traces primary apatite.	Close affinities with 314746, but with a weakly siliceous groundmass reflecting a trend to dacitic composition.

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CENTRAL MINERALOGICAL SERVICES

Sample No.	Classification - Composition	Fabric	Accessories	Comments
315748	Amygdaloidal Andesite. Disseminated sericite-pseudomorphed feldspar phenocrysts, conspicuous fine-scale quartz amygdales in a groundmass of sericitic plagioclase microlaths/felsic mesostasis.	Strongly micro-amygdaloidal, weakly glomeroporphyritic, weakly flow-structured.	Leucoxenised opaques. Minor traces of oxidised fine to ultrafine pyrite.	Strongly quartz-micro-amygdaloidal, leuco-andesitic/trend dacitic lava; extensively sericitised. Incipiently silicified/quartz-sericite=veined on microscale.
315749	Altered "Rhyolite". Frequent relict mildly resorbed quartz microphenocrysts, vaguely feldspar phenocrysts-pseudomorphous sericite lenses in a sericitised feldspar microlite/interstitial quartz groundmass. Minor chlorite, chloritic quartz veinlets.	Weakly flow-structured with a phyllitic overprint.	Leucoxenised opaques. Minor secondary limonite clots (degraded vein chlorite).	Relatively acid porphyritic lava. Conspicuous quartz microphenocrysts consistent with rhyolitic primary composition, but detail is obscured.
315750	Amygdaloidal Basalt. Disseminated fresh augite, albitised/weakly saussurite-stained plagioclase phenocrysts in a groundmass of similarly altered feldspar laths, epidote-stained chlorite mesostasis, quartz-chlorite amygdales.	Porphyritic, moderately amygdaloidal, basaltic. Essentially unstressed.	Conspicuous fine leucoxenised opaques.	Close affinities with 315740, 315742 315743. Relatively amygdaloidal.
315751	Altered "Rhyolite". Chloritic sericite-pseudomorphed feldspar phenocrysts, frequent quartz microphenocrysts in a sericitised,chlorite-stained microlitic/quartz mesostasis groundmass. Minor chloritic quartz amygdales.	Analogous to 315749, but only incipiently sheared.	Leucoxenised opaques.	Close affinities with 315749, compositional and microtextural; less extensively sericitised, mildly sheared in comparison.
315752	Amygdaloidal Basalt. Augite and relatively fine albitised plagioclase phenocrysts in a groundmass of albitised plagioclase laths with a sparse felsic to chloritic mesostasis, minor amygdales of prehnite, pumpellyite.	Weakly flow-banded, basaltic.	Leucoxenised opaques, minor traces magnetite, apatite. Minor cloudy microcrystalline epidote.	Close affinities with 315740 etc. Phenocrystal augite essentially unaltered. The sparse accessory magnetite appears to be chromiferous
315753	Amygdaloidal Basalt. Albitised plagioclase and variably chloritised augite phenocrysts in a groundmass of argillic, skeletally crystallized glass, albite laths, frequent quartz micro-amygdales.	Relatively finely porphyritic, semi-chilled basaltic. Locally weakly brecciated/quartz-healed.	Leucoxenised opaques. Sporadic clots, films of chlorite.	Finer-grained, semi-chilled basalt with amygdales/breccia healings of fine crystallized chalcedonic quartz
315754	Altered "Rhyodacite". Thinly disseminated quartz-pseudomorphed K-feldspar phenocrysts, minor quartz microphenocrysts, minor quartz-sericite amygdales; extensively sericitised quartzofeldspathic groundmass.	Weakly porphyritic, amygdaloidal, felsitic. Incipiently sheared.	Leucoxenised opaques.	Devitrified/sericitised acid pitchstone, apparently rhyodacite, but with compositional detail obscured by alteration.
315755 (T.S. 51852)	Fragmental Basalt. Augite microphenocrysts in a chloritic, epidote-stained feldspar-microlitic subvitric groundmass. Coarse amygdales, aggregates of adularia, quartz, epidote and chlorite.	Flow-brecciated, amygdaloidal, chilled-basaltic.	Leucoxenised opaques, rare microscopic primary chromite.	Flow-structured/brecciated basalt. Flow-marginal breccia characteristic Relatively altered, but with compositional affinities to 315740.

488671

Attachment

Sample No.	Location	Description
515043	6800N, 5080E	Basaltic volcaniclastic?
515048	6585N, 5090E	Andesitic volcaniclastic?
515052	5600N, 5980E	Rhyolitic volcaniclastic

488673

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Central Mineralogical Services

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Mr. A.W. McNeill
Geologist
Aberfoyle Resources Ltd.
Exploration Division
P.O. Box 952
BURNIE / TAS. 7320

28th April, 1989

REPORT CMS 89/3/22

YOUR REFERENCE:	Letter dated 15.3.1989
DATE RECEIVED:	20th March, 1989
SAMPLE NOS.:	3 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

REPORT CMS 89/3/22

A suite of three rock chip samples from an area south of the Que River mine was received for routine petrological examination. Representative thin-sections were prepared, examined in transmitted light and, together with respective offcuts, in oblique incident light.

Attached descriptions summarise the microscopic data and include interpretative comments.

Summary

Sample 515043 and 515048 represent primarily compositionally similar basaltic volcanics comprising a lithic(-crystal) tuff and a strongly porphyritic/amygdaloidal lava, respectively. Both rocks may be categorised as (altered) "two-pyroxene" basalts, with 515048 also carrying a little selectively altered phenocrystal ?olivine, represented by sheared phyllitic/lensoid masses of chlorite.

The 515043 basalt exhibits a characteristic prehnite-pumpellyite facies alteration assemblage analogous to that previously noted (CMS 88/8/2) in this area. In contrast, sample 515048 exhibits a "prograde" amphibole (tremolite-actinolite) bearing assemblage.

Sample 515052 represents a thoroughly altered and heterogeneously sheared (similarly 515048) rhyolitic breccia. Detail is obscured by alteration and deformation effects, but general features suggest a (biotite-rhyolitic) intrusive breccia mode of origin.

D. Cowan, B. Sc.

SAMPLE NO.: 515043 (T.S. 61447) 1.

CLASSIFICATION: **Basaltic Tuff**

COMPOSITION: Framework of angular to irregular lava clasts with albitised plagioclase, fresh to incipiently prehnitised augite and minor selectively quartz-prehnite-pseudomorphed ?orthopyroxene phenocrysts; varying proportions of quartz-epidote-prehnite-pumpellyite amygdales and cloudy microcrystalline epidote-prehnite-altered albitised feldspar-microlathic to microlitic subvitric groundmasses. Matrix/cement of weakly epidote-stained microcrystalline quartz aggregates with interspersed vugs of coarser quartz, prehnite, epidote and minor chlorite. Disseminated augite, altered feldspar and ?orthopyroxene crystal fragments.

FABRIC: Poorly sorted angular, psammite to lapilli grade, lithoclastic, with minor crystal fragments. Interclastic cavity filling matrix cement; marginally clast corrosive-replacive, with irregular zones of replacive prehnite.

ACCESSORIES: Sporadic spongy clots of feldspar-replacive microcrystalline epidote and pumpellyite. Extremely rare ultrafine opaques (?chromite). Minor traces of partly oxidised sulphide (pyrite, rare oxidised chalcopyrite?) partly concentrated in amygdales.

COMMENTS: A lithic tuff with accessory crystal components reflecting "prehnite-pumpellyite facies" alteration. Relict textural and compositional features are typical of a "two-pyroxene" basalt, with essentially fresh clinopyroxene accompanied by subordinate selectively altered phenocrystal (?ortho-)pyroxene.

SAMPLE NO.: 515048 (T.S. 61448) 2.

CLASSIFICATION: **Amygdaloidal Basalt**

COMPOSITION: Frequent fresh to weakly/variably tremolite-actinolite-replaced augite, chloritic microcrystalline quartz pseudomorphs after ?orthopyroxene, subordinate albitised to kaolinitic quartz-pseudomorphed feldspar phenocrysts, minor chloritised ?olivine phenocrysts and frequent chlorite amygdales with interspersed clots of carbonate (calcite). Altered groundmass of chlorite and cloudy carbonate with similarly altered ferromagnesian and feldspar microlites. Minor clots of cloudy microcrystalline allanitic epidote and microcrystalline quartz.

FABRIC: Strongly porphyritic and amygdaloidal, flow-structured and mildly flow-brecciated. Weakly sheared, with phyllitic chlorite aggregates, and mildly granulated.

ACCESSORIES: Conspicuous fine chromite, partly concentrated in altered ferromagnesian phenocrysts. Traces of leucoxenic semi-opaques. Minor secondary limonitic and Mn-oxidic stainings.

COMMENTS: A strongly porphyritic and amygdaloidal "two-pyroxene" basalt, flow-structured and mildly flow-brecciated, with mild but penetrative shearing and granulation effects. This rock exhibits minor selectively chloritised phenocrystal ferromags. interpreted as olivine on the basis of differential alteration. The alteration assemblage includes a little amphibole and appears prograde in comparison with the prehnite-pumpellyite facies assemblage in 515043.

SAMPLE NO.: 515052 (T.S. 61449)

CLASSIFICATION: **Rhyolitic Breccia**

COMPOSITION: Frequent variably corroded feldspar (dominantly albite) and quartz phenocrysts, subordinate semi-sericitic white mica pseudomorphs after phenocrystal biotite in a matrix of micro-crystalline quartz and variably kaolinitic/partly degraded feldspar with irregularly interspersed patches of chlorite and feldspar-replacive sericite.

FABRIC: Variable. Essentially a moulded, crudely flow-structured lithoclastic breccia with millimetric-scale clasts, variously featureless to "porphyry-textured". Finer detail obscured by mild but penetrative shearing and granulation effects analogous to those in 515043.

ACCESSORIES: Leucoxenised opaques and martitised/degraded magnetite. Thinly/pervasively disseminated fine to ultrafine extensively oxidised pyrite.

COMMENTS: Much finer detail obscured by alteration and heterogeneous (?fault-related) shearing effects, but general features are consistent with an intrusive breccia, rather than strictly fragmental (i.e. pyroclastic) mode of origin. Primary composition was biotite-rhyolitic. This rock exhibits partial silicification and feldspathisation, with a primarily subvitric groundmass/matrix and a phyllosilicate alteration overprint enhanced by partial weathering effects (kaolinitic). Analysis for Au may be warranted.

Attachment

Sample No:	Location	Field Description
515115	4200N 5915E	Andesitic volcaniclastic
515122	4000N 4975E	Dacitic lava
515123	4000N 5452E	Dacitic lava
515125	4000N 5585E	Dacitic lava
515126	4000N 5655E	Andesitic-dacitic lava
515130	5400N 5200E	Brecciated andesite lava

T.C. 21

488679

PETROGRAPHIC REPORT

FOR ABERFOYLE RESOURCES

Rocks from the Hellyer area (attn. Andrew McNeill)

by
Anthony J. Crawford
Geology Dept
University of Tasmania
12/10/89

SAMPLE NUMBER: 515115

SUMMARY:

This is an autobrecciated lava composed of quenched fragments of plagioclase+augite-phyric andesite.

HAND SPECIMEN:

This is a dark green lava breccia containing aphyric to porphyritic very fine-grained lava fragments to at least 3cm across set in a strongly chloritic groundmass.

THIN SECTION:

Most of this sample is composed of all or parts of about four different lava fragments, all set in a more heterogeneously textured matrix. The largest lava fragment is a sparsely plagioclase+augite-phyric quenched glassy mafic andesite. It contains elongate euhedral prisms of strongly sericitized albitized plagioclase (about 2 modal%), and somewhat less of smaller phenocrysts of fresh augite, often gathered in glomeroporphyritic clots. These are all set in an almost isotropic groundmass of devitrified glass containing abundant tiny acicular albite crystals showing flow orientation. Other lava fragments differ from the above only in the grainsize (former 'glassiness') of the groundmass, and are probably from different parts of the same explosive flow. One small lava fragment is notably vesicular, with the vesicles (<<0.5mm across) being filled by pale green chlorite.

The matrix of this sample forms only a small modal percentage of the rock, and is generally lighter coloured and more crystal-rich than the lava fragments. It is composed largely of crystal fragments and spalled-off tiny fragments of devitrified glass, with abundant interstitial secondary quartz, albite and chlorite. A few narrow epidote-quartz veins cut the sample.

The metamorphic assemblage is albite-chlorite-epidote-leucoxene (after tiny FeTi oxides in matrix)-quartz-sericite, and is prehnite-pumpellite facies(since cpxis fresh and actinolite absent. The sample is an autobrecciated andesitic lava. The absence of olivine suggests that the lava was more likely to be andesite or basaltic andesite than basalt.

SAMPLE NUMBER: 515122

SUMMARY:

This is a formerly glassy, sparsely plagioclase+augite-phyric dacitic lava.

HAND SPECIMEN:

This is a speckled pink and green very fine-grained felsic lava with abundant ferruginized pits that probably represent former pyrite sites.

THIN SECTION:

Thin section examination shows this sample to be a texturally very well preserved sparsely plagioclase+mafic-phyric dacitic lava. Plagioclase phenocrysts, constituting probably around 5 modal% of this sample, and are blocky idiomorphic prisms of albite mainly less than 2mm across. They are partially replaced by very fine-grained sericite, and occasionally contain angular grains of dirty yellow epiote. Former mafic phenocrysts are much less abundant than plagioclase phenocrysts, and are totally replaced by yellow-green chlorite. They occur as small (to 1mm long) euhedral prisms with outlines strongly suggestive of augite precursors. A few small FeTi oxide microphenocrysts are replaced by leucoxene.

The groundmass of this sample has a texture indicative of an origin via devitrification and crystallization from a former felsic glass. It is a fine-grained regular mosaic intergrowth of ragged quartz, albite, chlorite and minor sericite.

This is a well-preserved dacitic lava. I believe that the absence of quartz phenocrysts (in itself not diagnostic), and the relatively abundant mafic phenocrysts, suggest that this is unlikely to be a rhyolitic lava. I see no evidence in the texture of the groundmass to suggest that this was intrusive. It should be analyzed for the MRV data base. I kept the larger fragment for this purpose.

SAMPLE NUMBER: 515123

SUMMARY:

This sample was a highly glassy, sparsley plagioclase+ augite-phyric dacitic lava.

HAND SPECIMEN:

This is a very fine-grained sparsely plagioclase-phyric pink felsic lava.

THIN SECTION:

In thin section, this sample is seen to be a sparsely plagioclase-phyric dacitic lava with rare chloritized mafic phenocrysts set in an unusual textured groundmass. The plagioclase phenocrysts make up less than 5 modal% of the sample, and are mainly less than 1mm long. They are strongly sericitized blocky prisms, rather difficult to distinguish from the sericitic groundmass. The few small former mafic phenocrysts are euhedral shapes , probably originally augite, that have been replaced by intense olive green chlorite, that is slightly oxidized in places.

The groundmass of this sample at first looks almost granular and detrital. It is composed dominantly of tiny equidimensional quartz and sericitized feldspar grains, with common greenish-yellow chlorite. Although this texture is not the standard ragged mosaic texture produced by crystallization of devitrified felsic glass, this may be because the groundmass feldspar (albite and perhaps some K spar?) has been sericitized, which blurs the mosaic texture. There is no sign of tiny microlites of feldspar, nor is the texture like the holocrystalline groundmass textures developed in more slowly-cooled felsic lava interiors and domes and plugs. The sample was highly glassy. Again, the lack of quartz phenocrysts and the relative abundance of chlorite suggest that this sample may have been dacitic rather than rhyolitic.

SAMPLE NUMBER: 515125

SUMMARY:

This is a sparsely plagioclase-phyric dacitic lava with a vitrophyric groundmass, and relatively common chlorite in the groundmass.

HAND SPECIMEN:

This is a dark brown-green sparsely porphyritic felsic lava.

THIN SECTION:

This sample contains around 5 modal% of small (<<1mm long) blocky to elongate euhedral plagioclase phenocrysts, and uncommon chloritized mafic and leucoxenized FeTi oxide phenocrysts in a heterogeneous groundmass. The plagioclase phenocrysts have been albitized, and are partially to totally sericitized, and usually contain green chlorite flakes. Smaller, more elongate microphenocrysts of albite are not uncommon, and aresimilarly altered. The few former mafic phenocrysts present have been pseudomorphed by green chlorite, but were probably augite. Somewhat more common than the former augite phenocrysts are FeTi oxide phenocrysts that have rims of leucoxene and cores of very fine-grained murky epidote(?).

The groundmass of this sample is rather heterogeneous, and notable in that it contains abundant chlorite. It originally had a vitrophyric texture characterized by acicular plagioclase microlites randomly orientated in a quenched glassy matrix. The latter has devitrified and altered in an unusual manner, with polycrystalline quartz and albite forming small (to about 0.4mm across) subspherical patches throughout the groundmass, and initially resembling tiny amygdules. Chlorite and common wispy sericite streaks, plus trains of tiny Fe oxides, occur around these quartz-dominated patches.

The sample is transected by several very narrow quartz-chlorite veinlets, and these same minerals fill several large angular voids. The metamorphic assemblage is prehnite-pumpellyite facies.

This is a well-preserved dacite, although the textural evidence doesn't allow definitive assignment as a lava or a shallow intrusive. I favour an extrusive origin, although the smaller proportion of original glass in this sample relative to the previously described dacites suggests that this sample may come from the interior portion of a flow. This sample could be analyzed for the MRV data bank.

SAMPLE NUMBER: 515126

SUMMARY:

This is a plagioclase-phyric dacitic lava with a perlitically-cracked groundmass.

HAND SPECIMEN:

This is a dark grey-green plagioclase-phyric felsic lava cut by a diffuse band about 0.5-1cm wide of more intense alteration and recrystallization.

THIN SECTION:

This sample contains around 10-12 modal% of small plagioclase phenocrysts in a perlitically-fractured devitrified glassy groundmass. The plagioclase phenocrysts are smaller than 1mm long, and are well-formed equidimensional to slightly elongate prisms that often show marginal resorption and rounding. They often occur in multi-crystal clots, and show weak sericite spotting. There are no former mafic silicate phenocrysts in this sample, although small leucoxenized FeTi oxide phenocrysts are not uncommon.

The groundmass of this sample shows a beautifully developed perlitic texture with abundantcurved perlitic fractures. The groundmass is vitrophyric, with abundant tiny acicular quench plagioclase microlites set in a matrix of probably devitrified glass, now composed of an intergrowth of patchy anhedral quartz and albite, riddled with pale green chlorite and sericite. The acicular plagioclase (albite) microlites define a flow lineation around phenocrysts.

In a diffuse band of much more altered and recrystallized rock, it is clear that strong fluid movement through the former fracture (?) has produced local small-scale autobrecciation, with recrystallization of notably more coarse-grained quartz, albite and chlorite. The chlorite in this highly altered band occurs as bright yellow-green patches, rather than as tiny wisps (as it is through most of the groundmass. In a few places, these narrow zones of recrystallization open out into dilation fractures that are filled with radiating polycryustalline quartz aggregates.

The metamorphic assemblage in this sample is prehnite-pumpellyite facies. The sample is a dacitic lava, with an extrusive origin being strongly supported by the perlitically-cracked groundmass.

SAMPLE NUMBER: 515130

SUMMARY:

This is a hyaloclastite derived from a basaltic andesite or evolved basaltic composition.

HAND SPECIMEN:

This is a dark green autobrecciated lava or hyaloclastite composed of darker angular lava fragments from >1cm across to <1mm, set in a lighter more altered matrix.

THIN SECTION:

This sample is seen to be a basaltic or basaltic andesite lava breccia or hyaloclastite containing abundant phenocrysts of plagioclase and augite in a very heterogeneous-textured groundmass. The best preserved lava fragments are augite+plagioclase-phyric basaltic andesite with an exceptionally fine-grained, almost isotropic devitrified glassy groundmass. Alteration of the latter in small patches has produced polycrystalline quartz aggregates and streaks flecked through the groundmass. Augite phenocrysts are large euhedral crystals to 2mm long, often occurring as multicrystal clots; they vary over small distances from entirely fresh to entirely chloritized. Former plagioclase phenocrysts are smaller than augite crystals, but equally as abundant (about 10 modal% each). They are almost totally replaced by sericite and minor very fine-grained epidote in places.

The matrix of this sample is extremely heterogeneous, and is composed of a diverse array of augite and plagioclase crystal debris, devitrified glassy lapilli and tiny comminuted lava fragments. The degree of alteration of the matrix is higher than the lava fragments, clearly due to its greater porosity. Intense fluidflow through the porous matrix has led to chloritization of most of the augite, epidote-sericite alteration of the plagioclase phenocrysts, and abundant quartz-albite-chlorite-sericite-epidote alteration. Relatively coarse-grained patches of quartz-albite occur in the matrix, and dusty pale brown prehnite patches are common. Tiny bright green pumpellyite patches with characteristic purple-brown birefringence are scattered through the matrix, often in association with fluffy spherules of bright yellow epidote.

The fragmental nature of this sample is obvious in hand specimen and thin section. However, the absence of jigsaw fit between the lava fragments, and the abundant fine-grained lava and phenocryst debris between lava fragments suggests to me that this sample was a hyaloclastite or chill breccia rather than a slightly autobrecciated lava. The absence of olivine, but abundance of augite inicates that the sample is probably a basaltic andesite or evolved basalt. The metamorphic assemblage is clearly prehnite-pumpellyite facies.

188686

APPENDIX 28

Abertoyle Exploration GEOCHEMICAL SAMPLE LEDGER

PROJECT: South Mackintosh. - Mackintosh EL.

BSS SIEVE SIZE CODE / MESH NUMBER: A 200 B 80 C 150 D 60 E 100 F 40 G 30 H 20

SAMPLE TYPE CODE: [ ] WEATHERED BEDROCK [ ] DRAINAGE TRANSPORTED [ ] RESIDUAL SOIL [ ] WAVE DUST [ ] FLUVIAL SOIL [ ] STREAM SEDIMENT

CARD PUNCH: YES [ ] NO [ ] VERIFY: YES [ ] NO [ ]

DATE:

SHEET:

METAL VALUES PPM

EASTINGS	NORTHINGS	SAMPLE NUMBER	SIEVE SIZE	SAMPLE TYPE	METAL VALUES PPM	GEOLOGICAL LOG
5945	4665	515075		RC	Cu, Pb, Zn, Sn, Ag, Cr, Ti, Zr, Ag	Std A fp. l. ch. Se Alt.
5895	4580	76		"		Std fp Bl?
5830	4540	77		RC		ch. hv. A-Dl.
5655	4510	78		"		Sil Dl
5545	4470	79		"		Dl?
5405	4430	80		"		fp. Dl?
5320	4475	81		"		A-Dl?
5270	4515	82		"		A-Dl?
5190	4540	83		"		A-Dl?
5110	4655	84		"		A-Bl.?
5140	5045	85		"		Barite Creek beach - 440m Dl
5155	5055	86		"		" 400m - Dl.
5350	5105	87		"		" 666m - Dl.
5505	5105	88		"		" 852m - Dl?
5700	4510	89		"		A-Bl.? fp.

(8)

ANALABS

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

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ANALYTICAL REPORT No. 23.3.08.06054

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
5695	

DATE RECEIVED	RESULTS REQUIRED
07/03/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
1	23/03/89	1	15

STATE OF SAMPLES REFER BELOW	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PUL-VERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	515075/89	RC	Prep: 009,011,012,013,016						Cu,Pb,Zn,Ag/101,As/114		
	515075/89	RC							Ba,Cr,Zr,Ti/401		

RESULTS TO

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

RESULTS TO

REMARKS

SOUTH MACK
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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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06054	23/03/89	5695	1 OF 1

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ba	As	Cr	Zr	Ti
1	515075	45	10	85	<0.5	500	4	90	120	4250
2	515076	75	25	160	<0.5	420	4	75	130	4450
3	515077	5	10	60	<0.5	1100	7	10	190	1600
4	515078	5	<5	25	<0.5	660	5	<5	140	650
5	515079	35	15	140	<0.5	1500	8	25	160	3600
6	515080	5	5	330	<0.5	280	9	20	210	4400
7	515081	40	15	160	<0.5	950	9	60	150	3400
8	515082	5	45	130	<0.5	1200	18	30	210	1850
9	515083	35	75	145	<0.5	1300	8	120	170	3500
10	515084	10	15	75	<0.5	1350	13	15	180	3250
11	515085	30	40	45	<0.5	1450	29	45	240	2800
12	515086	10	<5	40	<0.5	900	7	<5	180	980
13	515087	10	5	50	<0.5	1200	20	<5	210	2400
14	515088	5	30	80	<0.5	500	3	<5	120	480
15	515089	15	<5	85	<0.5	980	4	20	160	3200
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	10	1	5	5	50
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	101	101	401	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

Aberfoyle Exploration — GEOCHEMICAL SAMPLE LEDGER

PROJECT: Mackintosh E.L. South Mackintosh

BOS SIEVE SIZE CODE: A 200, B 150, C 100, D 80, E 60, F 40, G 30, H 20

SAMPLE TYPE CODE: OXIDIZED PROJECTILE O; FRESH ROCK R; STREAM SEDIMENT S; WEATHERED BEDROCK; SURFACE TRANSPORTED; RESIDUAL SOIL S; MINE DUMP M

CARD PUNCH PRINT: YES / NO — VERIFY: YES / NO

DATE

SHEET

EASTINGS	NORTHINGS	SAMPLE NUMBER	SIZE FRACTION	METAL VALUES PPM	GEOLOGICAL LOG
5105	4528	515090	RC	Cu, Pb, Zn, Mo, As, Ag, Cr, T, Zr, Au	gn-qz ± Py/Py+Ba vn / Fu sst (1), se Si (2-3)
5095	4525	091	RC	"	" " " " " " "
5090	4520	092	RC	"	Di / Se Si (2-3) Py (1)
5050	4505	093	RC	"	Al sst / Ox 4.
4940	4560	094	RC	Cu, Pb, Zn, Mo, As, Ag, Au	Sugary + Crystalline Massive barite

488040

22

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. 23.3.08.06223

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
7808	

DATE RECEIVED	RESULTS REQUIRED
24/05/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	21/06/89	1	5

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
	515090/94	RO Prep: 016							Cu,Pb,Zn,Ag/101,As/114		
	515090/94	RO							Ba/401,Au/309		
	515090/93	RO							Cr,Zr,Ti/401		
	515090/94	RO Prep: 016							Ag/104		
	515090/94	RO							Ba/403,Ba/406		

RESULTS TO

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

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	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

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06223	21/06/89	7808	1 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ag	Au	Ba	Ba	Ba
1	515090	10	35	145	1.0	–	<0.008	–	0.51	–
2	515091	5	60	140	1.0	–	<0.008	–	0.41	–
3	515092	<5	45	145	0.5	–	<0.008	2200	–	–
4	515093	15	140	265	1.0	–	<0.008	1700	–	–
5	515094	<5	10	45	–	5	0.132	–	–	47.2
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	2	0.008	10	0.01	0.1
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	%	%
25	METHOD	101	101	101	101	104	309	401	403	406

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
	23.3.08.06223	21/06/89	7808	2 OF 2

TUBE No.	SAMPLE No.	As	Cr	Zr	Ti					
1	515090	54	140	180	3350					
2	515091	60	130	190	3600					
3	515092	37	130	160	3100					
4	515093	260	65	180	4000					
5	515094	9	–	–	–					
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	1	5	5	50					
24	UNITS	PPM	PPM	PPM	PPM					
25	METHOD	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

Aberfoyle Exploration — GEOCHEMICAL SAMPLE LEDGER

PROJECT	BSS SIEVE SIZE CHART TEST NUMBER	SITE TYPE	CARD PUNCH	PRINT	VERIFY	DATE	SHEET
South Mackintosh	A 200 D 80 G 30; B 150 E 60 H 20; C 100 F 40 — TOTAL	ALLUVIAL; ☑ FRESH ROCK; STREAM SEDIMENTS; ☑ WEATHERED BEDROCK; SURFACE TRANSPORTED; RESIDUAL SOIL; MINE DUMP	YES / NO	YES / NO		16/8/89	1 of 1.

EASTINGS	NORTHINGS	SAMPLE NUMBER	METRES OR CHS	SIZE FRACTION	MESH	METAL VALUES PPM	GEOLOGICAL LOG
4860	5200	515103		RC	o/c	Cu, Pb, Zn, Ni, As, Cr, Ti, Zr, Ag	Massive oxidized fp. B.I.
4980	5190	104		"	"	"	kh-br A-D.I.
5090	5190	105		"	"	"	Polymict andesitic volcaniclastic
5650	5000	106		"	"	"	Massive to brecciated andesitic / dacitic lava
5565	5000	107		"	"	"	Dacitic lava?
5135	4800	108		"	"	"	Andesitic lava - chl cpt., rare vesicular.
5315	4790	109		"	"	not submitted with the job	Andesitic lava - feldspar phyric
5760	4790	110		"	"	"	Andesitic - dacitic lava.
5650	4600	111		"	"	not submitted with the job	sh-br Andesitic? lava.
4660	4600	112		"	float		Contact of D.I. and A.I.

NB. Northings and eastings are ideal based on Cut line locations.

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FAX: 004 31 8890

ANALYTICAL REPORT No. 23.3.08.06438

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
8409	

DATE RECEIVED	RESULTS REQUIRED
23/08/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
1	04/09/89	1	7

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
	515103/108,515110	RO	Prep: 009,013,016						Cu,Pb,Zn,Ag/101,As/114		
	515103/108,515110	RO							Ba,Cr,Zr,Ti/401		

RESULTS TO

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

RESULTS TO

REMARKS

South
MAC
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 _____

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A Division of Macdonald Hamilton & Co. Pty Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06438	04/09/89	8409	1 OF 1

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ba	As	Cr	Zr	Ti
1	515103	60	5	420	<0.5	500	10	240	100	4350
2	515104	15	<5	45	<0.5	870	2	25	180	1450
3	515105	60	15	100	<0.5	1250	23	100	170	2100
4	515106	60	10	90	<0.5	930	2	10	140	2850
5	515107	20	<5	40	<0.5	1400	1	<5	190	3700
6	515108	25	<5	50	<0.5	1150	2	40	250	2600
7	515110	25	<5	50	<0.5	360	4	5	150	3950
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	50
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	101	101	401	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

Aberfoyle Exploration — GEOCHEMICAL SAMPLE LEDGER

PROJECT: Mack E.L., South Mackintosh

BSG SIEVE SIZE CODE: A 200, B 80, C 60, D 40, E 20, F 10

SAMPLE TYPE CODE: PROJECT PROBES B; FRESH ROCK R; UPSTREAM SEDIMENTS S; WEATHERED BEDROCK; SURFACE TRANSPORTED T; RESIDUAL SOIL E; MINE DUMP M

CARD PUNCH PRINT: YES / NO — VERIFY: YES / NO

DATE: 26-9-89

SHEET: 1 of 1

EASTINGS	NORTHINGS	SAMPLE NUMBER	SITE CODE	SAMPLE TYPE	METAL VALUES PPM	GEOLOGICAL LOG
5285	4400	51511 3		R C	O/C Cu, Pb, Zn, Ba, As, Ag, Cr, Ti, Zr	Siliceous and weakly pyritic Dacite
5570	4400	114		"	"	Afpl b. patchy Se-py alteration
5980	3600	117		"	"	Vesicular A-Bl b.
5950	3400	120		"	"	go-gy Afpl c cl spt.
5795	3400	121		"	"	" " "
5452	4000	123		"	"	Dl.
5655	4000	126		"	"	A-Dl. Mag.
5925	3995	127		"	"	? Bl.
5050	5400	128		"	"	wh bx A-Bl.
5150	5400	51513 129		"	"	Bl.

488 697

(59)

ANALABS

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FAX: 004 31 8890

ANALYTICAL REPORT No. 23.3.89.06544

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

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

ORDER No.	PROJECT
8495	

DATE RECEIVED	RESULTS REQUIRED
27/09/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	09/10/89	1	10

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	RC	Prep: 006,010,011,012,013,016						Cu,Pb,Zn,Ag/101		
	Various	RC							Ba,As,Cr,Zr,Ti/401		
	Various	RC							Ti:Zr/9903		

RESULTS TO

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

RESULTS TO

REMARKS

South Mink
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

A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06544	09/10/89	8495	1 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ba	As	Cr	Zr	Ti
1	515113	20	30	45	<0.5	1200	25	15	180	1750
2	515114	20	30	95	1.0	2150	2	15	170	2550
3	515119	30	30	120	1.0	1600	3	<5	180	4750
4	515120	85	35	750	<0.5	900	6	110	120	2950
5	515121	40	30	95	<0.5	490	4	60	150	3900
6	515123	35	15	70	<0.5	1050	<2	10	240	1650
7	515126	10	15	105	0.5	440	2	<5	190	3200
8	515127	140	135	270	<0.5	710	5	20	180	4450
9	515128	65	35	85	<0.5	910	3	120	110	2800
10	515129	65	15	60	<0.5	580	<2	460	60	1950
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	10	2	5	5	50
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	101	101	401	401	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
	23.3.08.06544	09/10/89	9495	2 OF 2

TUBE No.	SAMPLE No.	Ti : Zr								
1	515113	9.7								
2	515114	15.0								
3	515119	27.5								
4	515120	24.6								
5	515121	26.0								
6	515123	6.9								
7	515126	17.8								
8	515127	24.7								
9	515128	25.4								
10	515129	32.5								
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	0.1								
24	UNITS	—								
25	METHOD	9903								

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

Aberfoyle Exploration — GEOCHEMICAL SAMPLE LEDGER

PROJECT: South Mackintosh

BSS SIEVE SIZE CODE – MESH NUMBER: A 200, B 80, C 100, D 80, E 60, F 40, G 30, H 20

SAMPLE TYPE CODE: O OXIDIZED PRODUCTS, R FRESH ROCK, S STREAM SEDIMENTS, W WEATHERED BEDROCK, S SURFACE TRANSPORTED, E RESIDUAL SOIL, M MINE DUMP

CARD PUNCH: YES / NO — PRINT: YES / NO — VERIFY: YES / NO

DATE: 1/10/89

SHEET: 1 of 1

EASTINGS	NORTHINGS	SAMPLE NUMBER	DEPTH	Petology	SIZE FRACTION	Surface Type		METAL VALUES PPM			GEOLOGICAL LOG
5220	3000	51531				RC	f		Cr, Ti, Zr		A-D.I.
5320	3000	51532				RC	o/c		"		D.I.
5655	3000	51534				RC	o/c		"		?Alb.
5300	3025	51536				RC	o/c		"		A-B.I.
6060	3000	51850				RC	o/c		"		?D.I.
5835	2815	51853				RC	o/c		"		A-B.I.
5595	2800	51854				RC	o/c		"		A-D.I.
5340	1810	51855				RC	o/c		Cr, Ti, Zr + y.		B.I or Dolerite ?
5995	2000	51859				RC	o/c		Cr, Ti, Zr		A-D.I.
5750	2000	51860				RC	o/c		"		D.I.
5700	2000	51861				RC	o/c		"		D.I.

(31)

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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. 23.3.08.06560

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

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

ORDER No.	PROJECT
7305	Mack EL

DATE RECEIVED	RESULTS REQUIRED
03/10/89	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
1	17/10/89	1	11

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	Ro	Prep: 006,009,011,012,013,017						Cr,Zr,Ti/401,Ti:Zr/199		
	517855	Pu							Y/401		

RESULTS TO

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

RESULTS TO

REMARKS

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
hole 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
il	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
lp	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
eavy mineral	HM					inductively coupled plasma	ICP

AUTHORISED OFFICER

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A Division of Inchcape Inspection and Testing Services Australia Pty Ltd.

488703

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No	PAGE
	23.3.08.06560	17/10/89	7305	1 OF 1

TUBE No.	SAMPLE No.	Cr	Zr	Ti	Y	Ti : Zr				
1	515131	7	220	2200	–	10.0				
2	515132	25	230	1550	–	6.7				
3	515134	<5	180	3100	–	17.2				
4	515136	70	130	2900	–	22.3				
5	517850	190	170	3100	–	18.2				
6	517853	7	180	6000	–	33.3				
7	517854	<5	160	2700	–	16.9				
8	517855	360	100	2750	20	27.5				
9	517859	110	160	3000	–	18.8				
10	517860	25	220	1600	–	7.3				
11	517861	15	220	1800	–	8.2				
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	50	5	0.1				
24	UNITS	PPM	PPM	PPM	PPM	–				
25	METHOD	401	401	401	401	199				

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

Aberfoyle Exploration — GEOCHEMICAL SAMPLE LEDGER

Collected A.M.N.

A 39340

PROJECT: Mackintosh Ek. / South Mackintosh

BSS SIEVE SIZE CODE - MESH NUMBER: A 200, B 150, C 100, D 80, E 60, F 40, G 30, H 20, T = TOTAL

SAMPLE TYPE CODE: [x] FRESH ROCK R; [ ] OXIDIZED PRODUCTS O; [ ] STREAM SEDIMENTS S; [x] WEATHERED BEDROCK W; [ ] SURFACE TRANSPORTED T; [ ] RESIDUAL SOIL E; [ ] MINE DUMP M

CARD PUNCH: YES [ ] NO [ ] PRINT: YES [ ] NO [ ] VERIFY

DATE: 22/1/90

SHEET: 1 of 1

EASTINGS	NORTHINGS	SAMPLE NUMBER	DEPTH in CMS	SIZE FRACTION	Sample Type		METAL VALUES PPM	GEOLOGICAL LOG
4775	3190	51783			R/c	o/c	Cu, Pb, Zn, Ba, As, Ag, Cr, Zr, Ti.	feldspar phyric Andesitic - Dacitic lava.
5000	3200	8884			R/c	o/c	"	brecciated andesitic & Dacitic xenoliths.
5710	3160	8885			R/c	o/c	"	Andesitic - Dacitic lava
5545	3165	8886			R/c	o/c	"	gn Dacitic lava.
5500	3150	8887			R/c	o/c	"	green andesitic - Dacitic lava.
5405	2195	8888			R/c	o/c	"	green-brown " " "
5510	2200	8889			R/c	o/c	"	Basalt lava breccia - feldspar - pyroxene phyric
5570	2200	8890			R/c	o/c	"	Andesitic - basaltic lava
5690	2400	8891			R/c	o/c	"	Andesitic - Dacitic lava.
5540	2400	8892			R/c	o/c	"	Dacitic lava
4350	3645	8893			R/c	o/c	"	khaki brown feldspar - phyric Andesitic - Dacitic lava
4520	3430	51789			R/c	o/c	"	Andesitic - dacitic lava.

(35)

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

(35)

ANALYTICAL REPORT No. 23.3.08.08.06862

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

R DeBomford
Aberfoyle Resources Exploration Division
P O Box 952
Burnie
Tas 7320

ORDER No.	PROJECT
3634	

DATE RECEIVED	RESULTS REQUIRED
16/02/90	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
1	26/02/90	1	12

STATE SAMPLES REFER BELOW	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	5178,83/94	RC Prep: 016							Cu,Pb,Zn,Ag/101		
	5178,83/94	RC							Ba,As,Cr,Zr,Ti/401		

RESULTS TO

R DeBomford
Aberfoyle Resources Exploration Division
P O Box 952
Burnie
Tas 7320

RESULTS TO

REMARKS

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
hole 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

A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No	PAGE
	23.3.08.08.06862	26/02/90	8634	1 OF 1

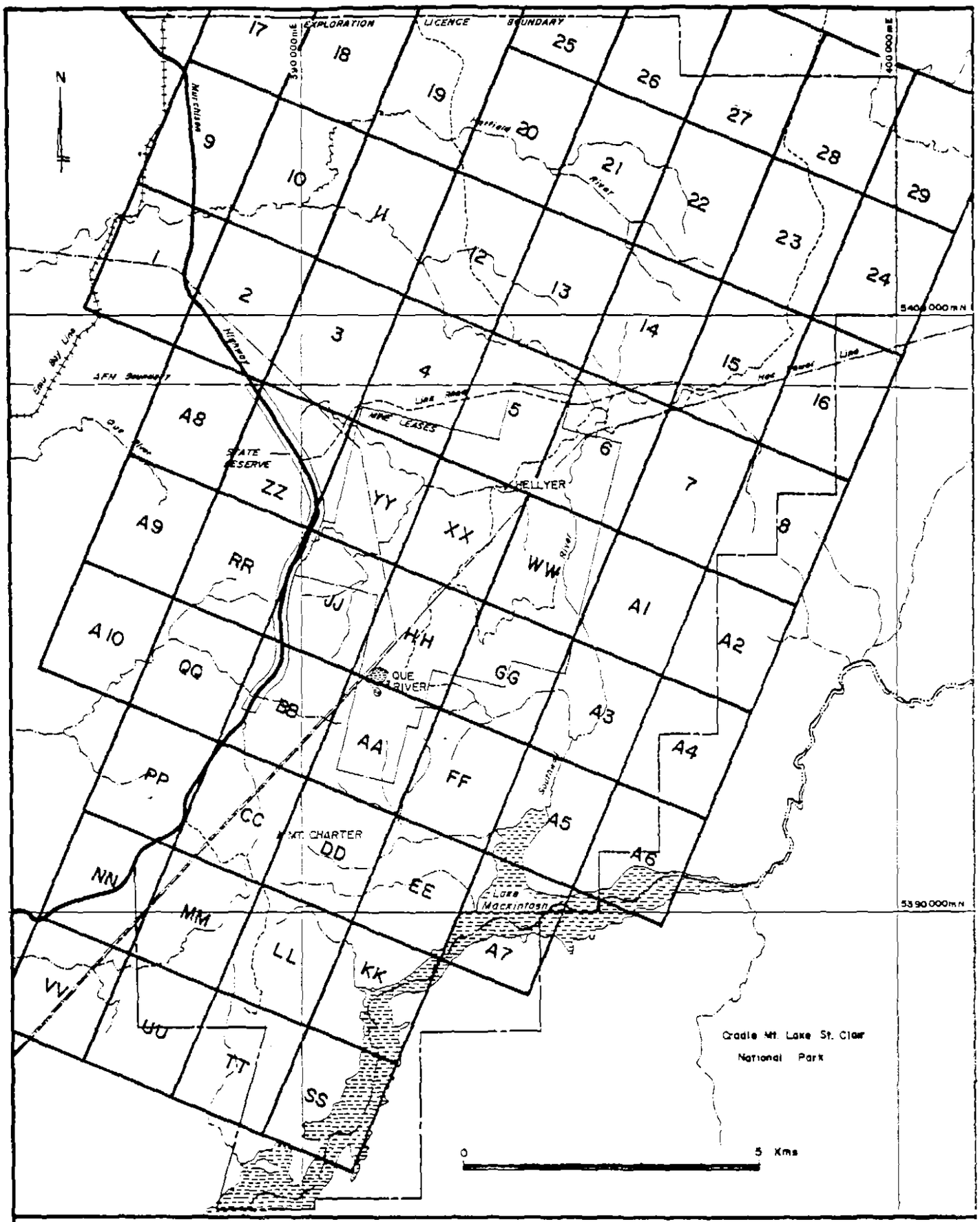
TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ba	As	Cr	Zr	Ti
1	517883	10	20	70	0.5	2050	<2	15	170	3250
2	517884	30	30	65	<0.5	1800	2	15	200	2350
3	517885	10	20	100	1.0	500	<2	8	190	3650
4	517886	10	20	95	0.5	960	<2	20	230	1500
5	517887	5	20	85	0.5	580	<2	5	220	2200
6	517888	35	5	60	0.5	1450	<2	20	180	3650
7	517889	100	65	110	1.0	1050	<2	60	140	3200
8	517890	40	40	295	1.5	1550	4	60	140	3600
9	517891	75	155	95	1.5	1500	<2	380	150	3200
10	517892	20	<5	40	<0.5	1300	<2	8	190	2450
11	517893	10	20	125	2.0	400	<2	15	320	3200
12	517894	10	5	80	0.5	420	<2	<5	240	1050
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	10	2	5	5	50
24	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
25	METHOD	101	101	101	101	401	401	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

488707

APPENDIX 29



Aberfoyle Resources Limited

EXPLORATION DIVISION

REVISIONS			
Inst.	Date	Inst.	Date

NORTH WEST TASMANIA

MACKINTOSH DISTRICT

1: 2500 MAP SHEETS — INDEX

Compiled :

Drawn : RJE

Traced :

Checked :

Location Code : K55/6/44

Scale : As shown

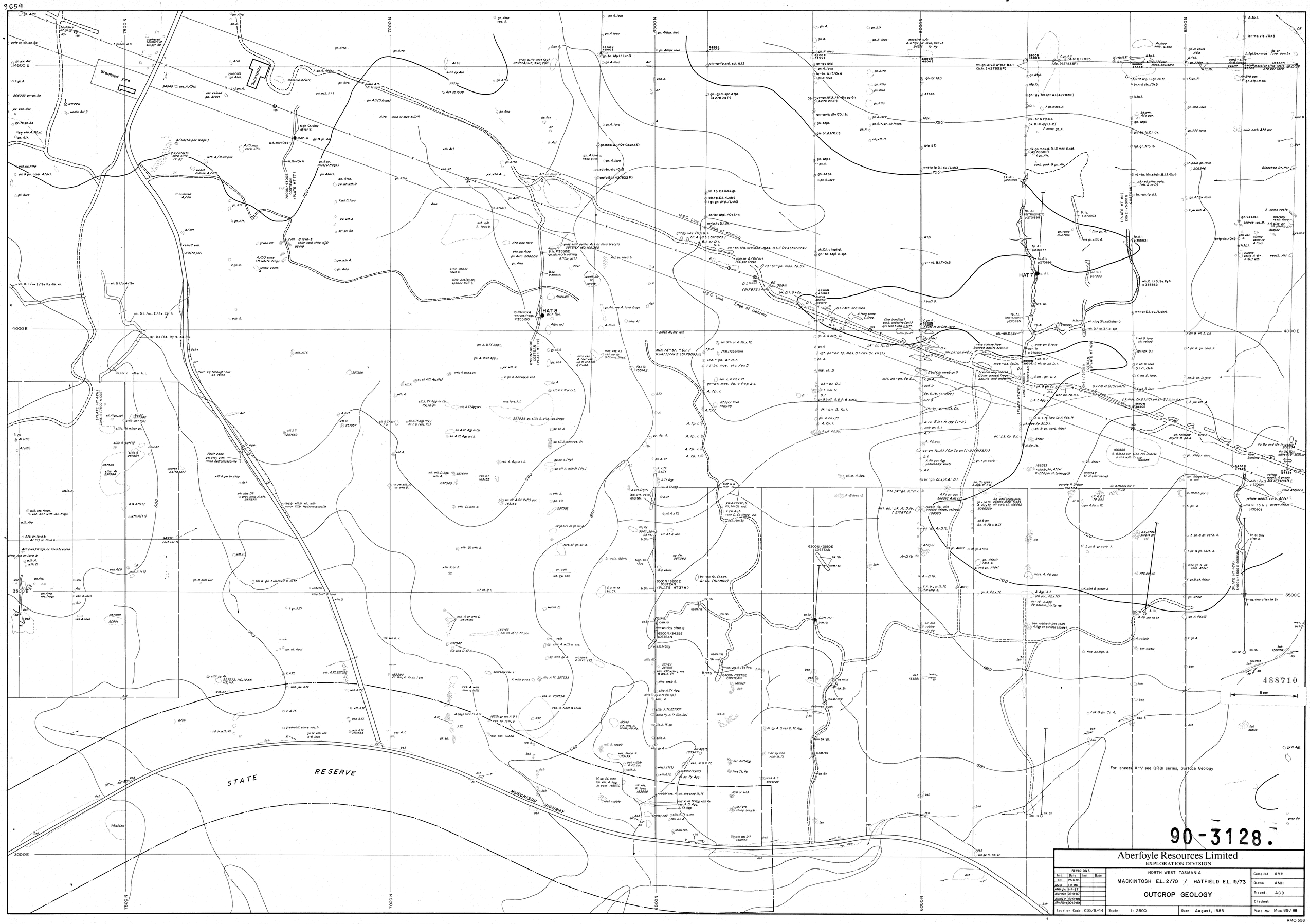
Date : February, 1988

Plate No. : MAC 181

GEOLOGICAL ABBREVIATIONS

Abundant	abn
Adularia	Adl
Agglomerate	agg
Albite	Ab
Alkali feldspar	Afd
Altered	alt
Amphibolitic	amb
Amphibole	Amb
Amygdaloidal	amg
Andalusite	An
Andesite	A
Angular	ang
Ankerite	An
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
Biotite	Bio
Black	bk
Black shale	Bsh
Blue	bl
Boulder	bld
Breccia	b
Breccia volcaniclastic	bv
Bright	brt
Brown	br
Calcareous	cc
Calcite	Cc
Carbonaceous	carb
Carbonate	Co
Cassiterite	Cass
Cavernous	cav
Cemented	cem
Chalcopyrite	Cp
Chert	Ch
Chlorite	Cl
Chromite	Cr
Chromitiferous	cr
Clay	cy
Coarse	c
Coarse grained	cg
Colloform	coll
Colour	col
Common	com
Conglomerate	Cg
Conglomeratic	cg
Crimson	cm
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
Fluorite	Fl
Foliated	fo
Fragments	fr
Fuchsite	Fu
Galena	Gn
Glass	Gl
Glassy	gl
Gossan	Gos
Granular	glr
Graphite	Gt
Graphitic	gt
Green	gn
Grey	gy
Greywacke	Gw
Groundmass	gm
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
Manganese	Mn
Massive	mas
Matrix	mtx
Matrix dominated	md
Medium	med
Medium grained	mg
Metamorphosed	meta
Mica	Mic
Micaceous	mic
Mineralised	min
Minor	mnr
Mixed	mxd
Mottled	mtl
Mudstone	Mst
Nodule	nd
Off white	ow
Olivine	Ol
Oolitic	oo
Orange	or
Ordovician	O
Oxidised	ox
Pale	pl
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
Predominantly	pred
Pumice	Pu
Pumiceous	pu
Purple	pp
Pyrite	Py
Pyritic	py
Pyroxene	Px
Pyrrhotite	Po
Quartz	Q
Quartzite	Qtz
Quellite	Qll
Questionable	?
Recrystallised	rx
Red	rd
Renealed	rhc
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
Sheeted	sht
Siderite	Sid
Silica	Si
Siliceous	sil
Siltstone	Slt
Slickenside	slk
Sphalerite	Sp
Spotted	spt
Spotty	spt
Stockwork	stw
Stratabound	stb
Strong	str
Structure controlled	stc
Syngenetic	syn
Talc	Tc
Tertiary	T
Tourmaline	Tm
Trace	tr
Trachyte	Tr
Tuff	Tf
Tuffaceous	tf
Variable	var
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

9G54



Aberfoyle Resources Limited
EXPLORATION DIVISION

REVISIONS			
Inst	Date	Inst	Date
TN	25-6-86		
AMH	1-8-86		
AMHgic	1-4-87		
AMH/ra	28-9-87		
AMD/ra	13-9-88		
DMC/ra	5-12-88		

NORTH WEST TASMANIA

MACKINTOSH E.L. 2/70 / HATFIELD E.L. 15/73

OUTCROP GEOLOGY

Location Code: K55/6/44 | Scale: 1:2500 | Date: August, 1985

Compiled: AMH
Drawn: AMH
Traced: ACD
Checked:
Plate No: Mac 89/88

RMO 556

2660

JOINS SHEET 4

JOINS SHEET 11

JOINS SHEET 22

JOINS SHEET 2

14000 N
13500 N
13000 N
12500 N
12000 N
3000 E
2500 E
2000 E
1500 E

COSTEAN 1645 E

12 695 N
1 695 E

563501
563502
563503
563504
563505
563506

mas. - wk. b.x. yw. - gn. fp. D. - RDI /
Q. + Co. vn. (1) / ?Cl. (1-2) on joints

12 705 N
1 638 E

SCALE 1 : 100

COSTEAN 1615 E

12 735 N
1 620 E

563507
563508
563509
563510
563511
563512
563513
563514
563515
563516

mas. yw. - gn. ? ves. RDI.
Co. vn. (1-2) / Cl. (1-2) on joints

gy. m - fg. Mic. Ss.
Q. vn. (1-2) mnr. ibd. Sh.

mas. wk. bx. fp. dv. RD. - D.I.

dis. Py. (1-3) (515060, 515061 G).

dis. Py. (1-2) (515062, 515063 G).

sh. sp. m. - fg. Mic. Ss.
RDI. fr. adj. to contact

WATER

12 755 N
1 615 E

72 0

700

720

680

Mic. Ss.

gy. - gn D.I. fp. / Py (2) (427614 P)

T.B.

T.B. in red-brown soil

MAC 24

gy. - br. Mic. Ss. (515065 P)

gn. - wht. Ss. & Ss. pot.

gt. gn. - gy. fg. Mic. Ss. & Mic. (515064 P)

gn. - yw. D.I.

gn. - yw. D.I. / Py. (1)

D.I.

gy. Mic. Ss.

(515060 - 515063 P)

1645 E Costean

1615 E Costean

Mic. Ss.

AFH BOUNDARY

488711

5 cm

390 000 mE

90 - 3128.

Aberfoyle Resources Limited

EXPLORATION DIVISION

REVISIONS			
Init.	Date	Init.	Date
GMcN/JF	15-8-88		
AMcN/RJE	11-5-90		

NORTH WEST TASMANIA

MACKINTOSH DISTRICT

OUTCROP GEOLOGY

Location Code : K55/6/44

Scale : 1:2500

Date : February, 1988

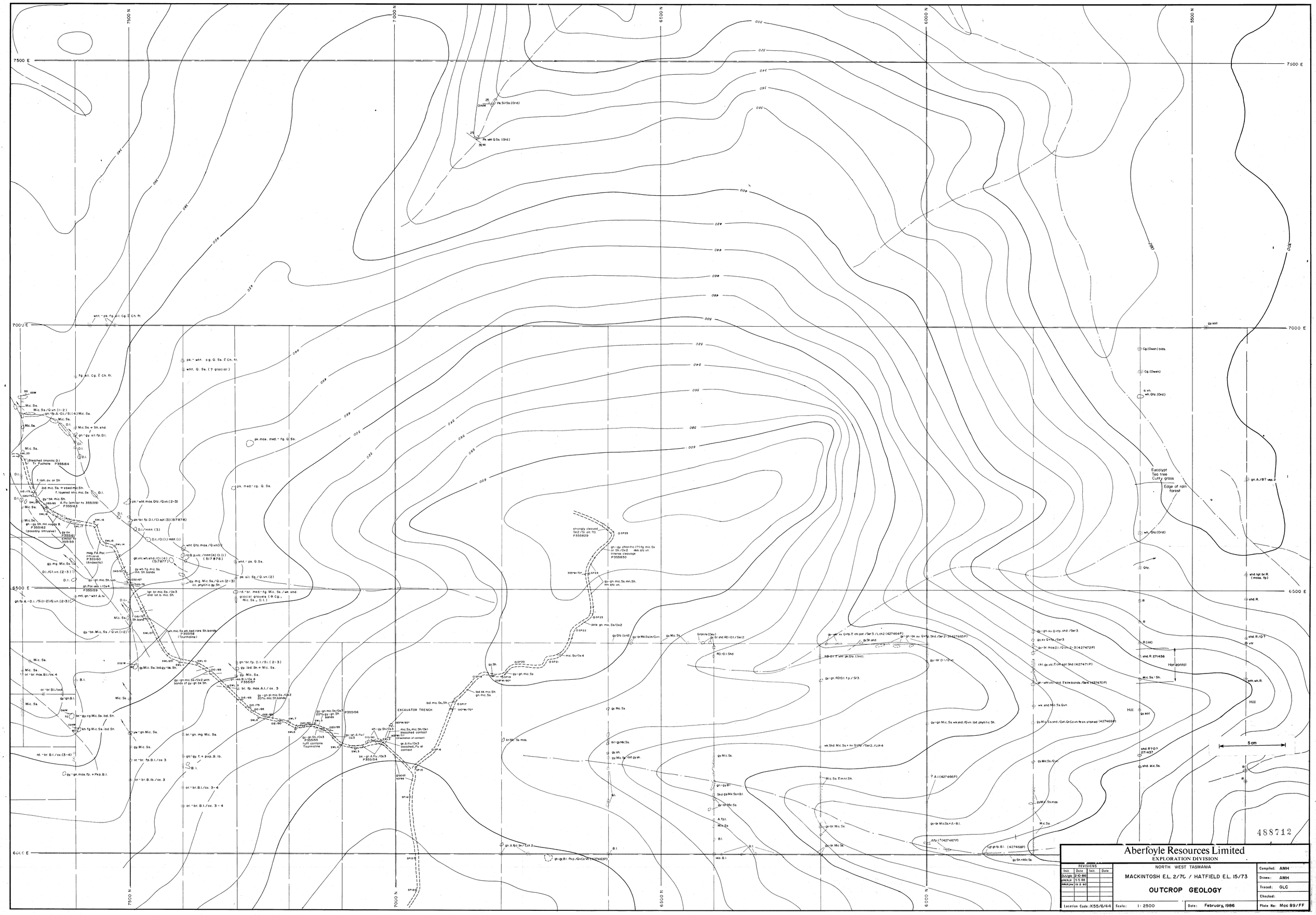
Compiled : A McN

Drawn : RJE

Traced :

Checked : A McN

Plate No : MAC89/3



Aberfoyle Resources Limited

EXPLORATION DIVISION

NORTH WEST TASMANIA

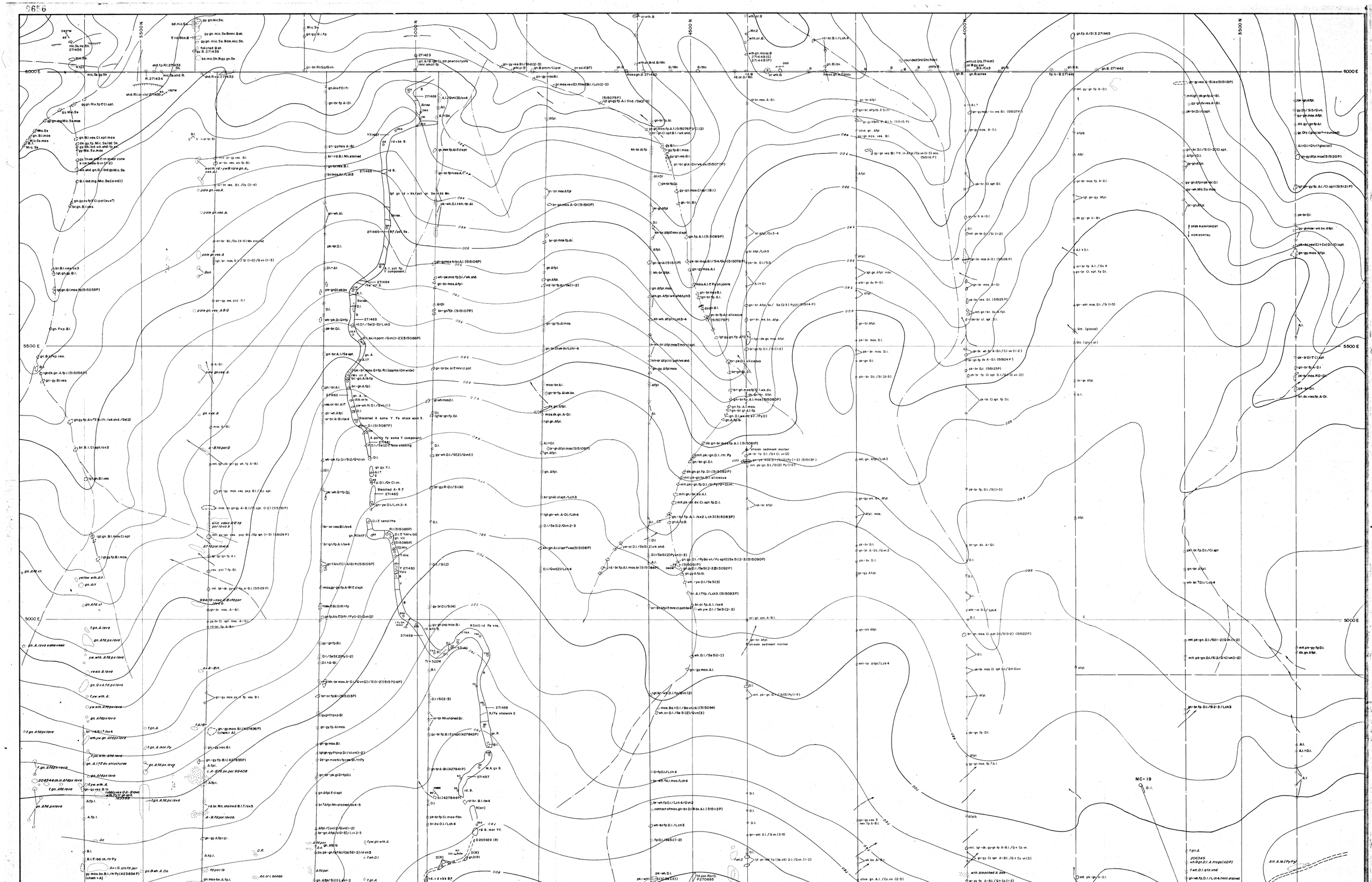
MACKINTOSH E.L. 2/76 / HATFIELD E.L. 15/73

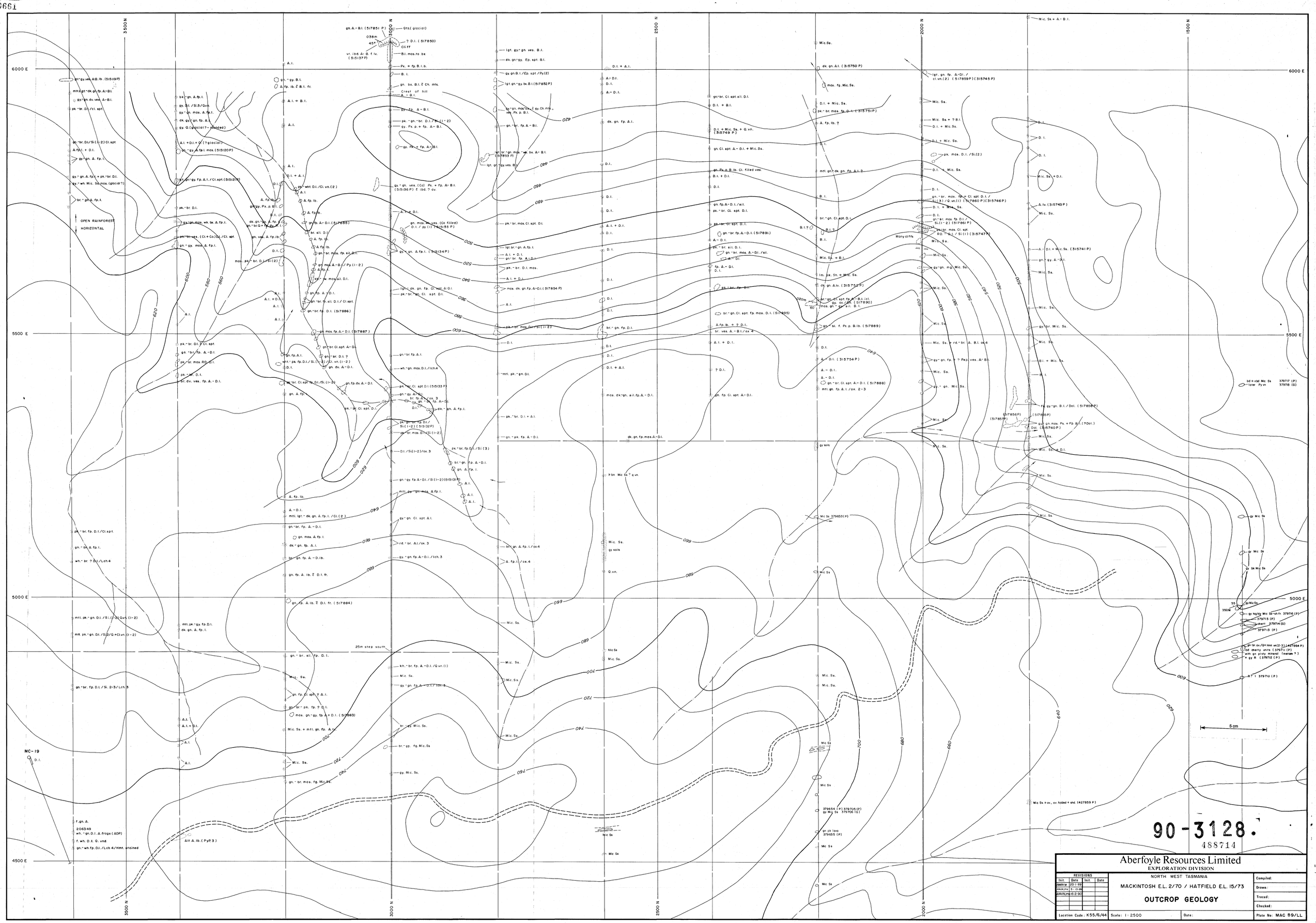
OUTCROP GEOLOGY

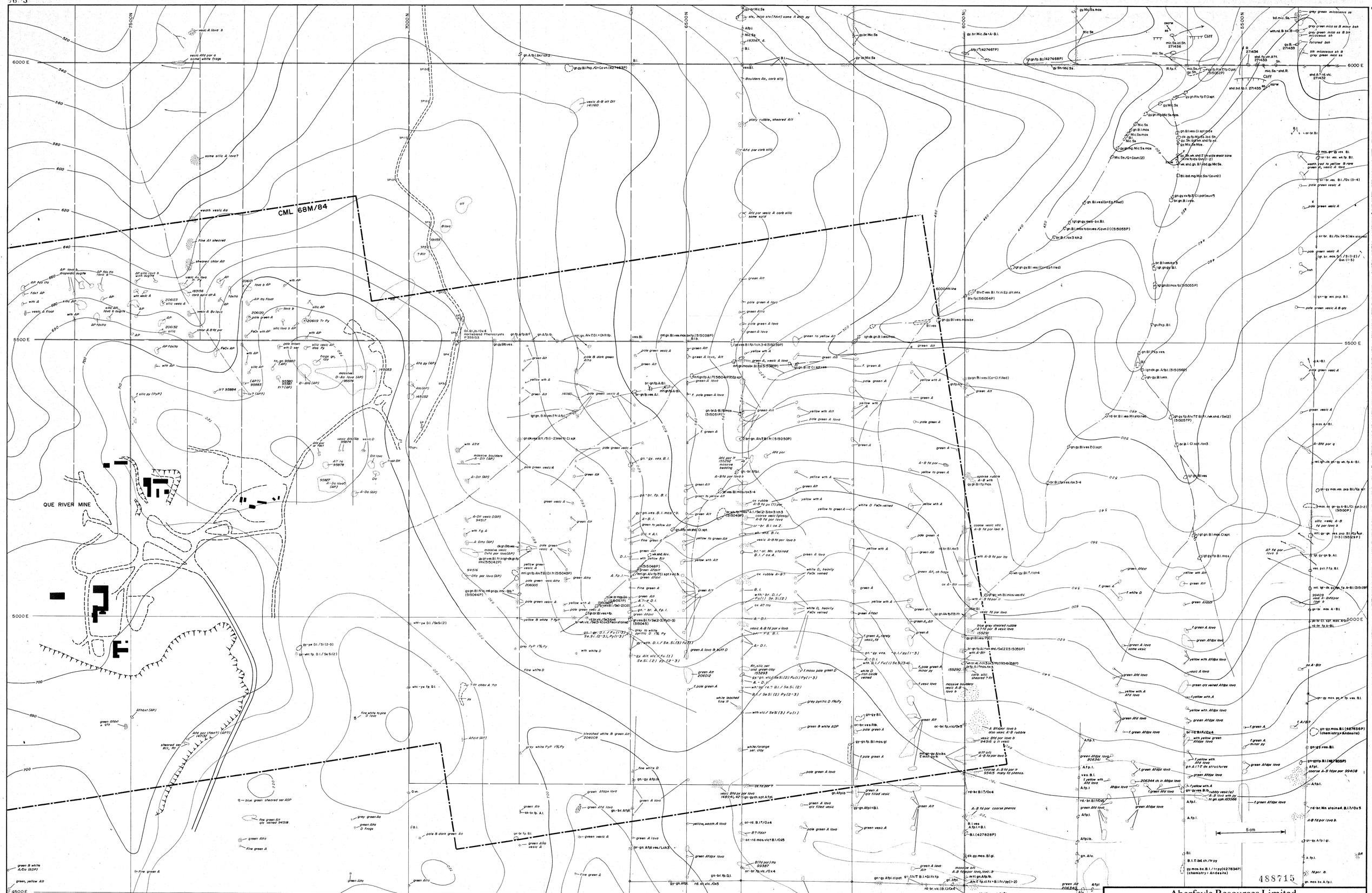
REVISIONS			
Init.	Date	Init.	Date
DJ/GC	2-10-86		
AMH/JW	15-5-89		
AMH/JW	19-2-90		

Location Code: K55/6/44 | Scale: 1:2500 | Date: February, 1986

Compiled: AMH
Drawn: AMH
Traced: GLC
Checked:
Plate No: Moc 89/FF


Aberfoyle Resources Limited
EXPLORATION DIVISION
488713
NORTH WEST TASMANIA
MACKINTOSH EL 2/70 / HATFIELD 15/73
INTERPRETIVE GEOLOGY
REVISIONS
Initl Date Inst Date
AMc/NJ 15-3-89
AMc/a 12-5-89
AMc/ma 24-9-89
AMc/ma 21-9-89
Location Code: K55/6/44
Scale: 1: 2500
Date: October, 1986
Compiled: DJJ
Drawn:
Traced: BAN
Checked:
Plate No: Mac 89/DD
RMO 568
MC-19
COSTEAN
OPEN RAINFOREST
HORIZONTAL
6000 E
5500 E
5000 E
4500 E
5500 N
5000 N
4500 N
4000 N
3500 N


3500 N
3000 N
2500 N
2000 N
1500 N
6000 E
5500 E
5000 E
4500 E
OPEN RAINFOREST HORIZONTAL
25m step south
Mongy cliffs
MC-19
5 cm
90-3128.
488714
Aberfoyle Resources Limited
EXPLORATION DIVISION
NORTH WEST TASMANIA
MACKINTOSH E.L. 2/70 / HATFIELD E.L. 15/73
OUTCROP GEOLOGY
REVISIONS
Location Code: K55/6/44
Scale: 1:2500
Date:
Compiled:
Drawn:
Traced:
Checked:
Plate No: MAC 89/LL
RMO 556



488715

Aberfoyle Resources Limited

EXPLORATION DIVISION

NORTH WEST TASMANIA

MACKINTOSH E.L. 2/70 / HATFIELD E.L.15/73

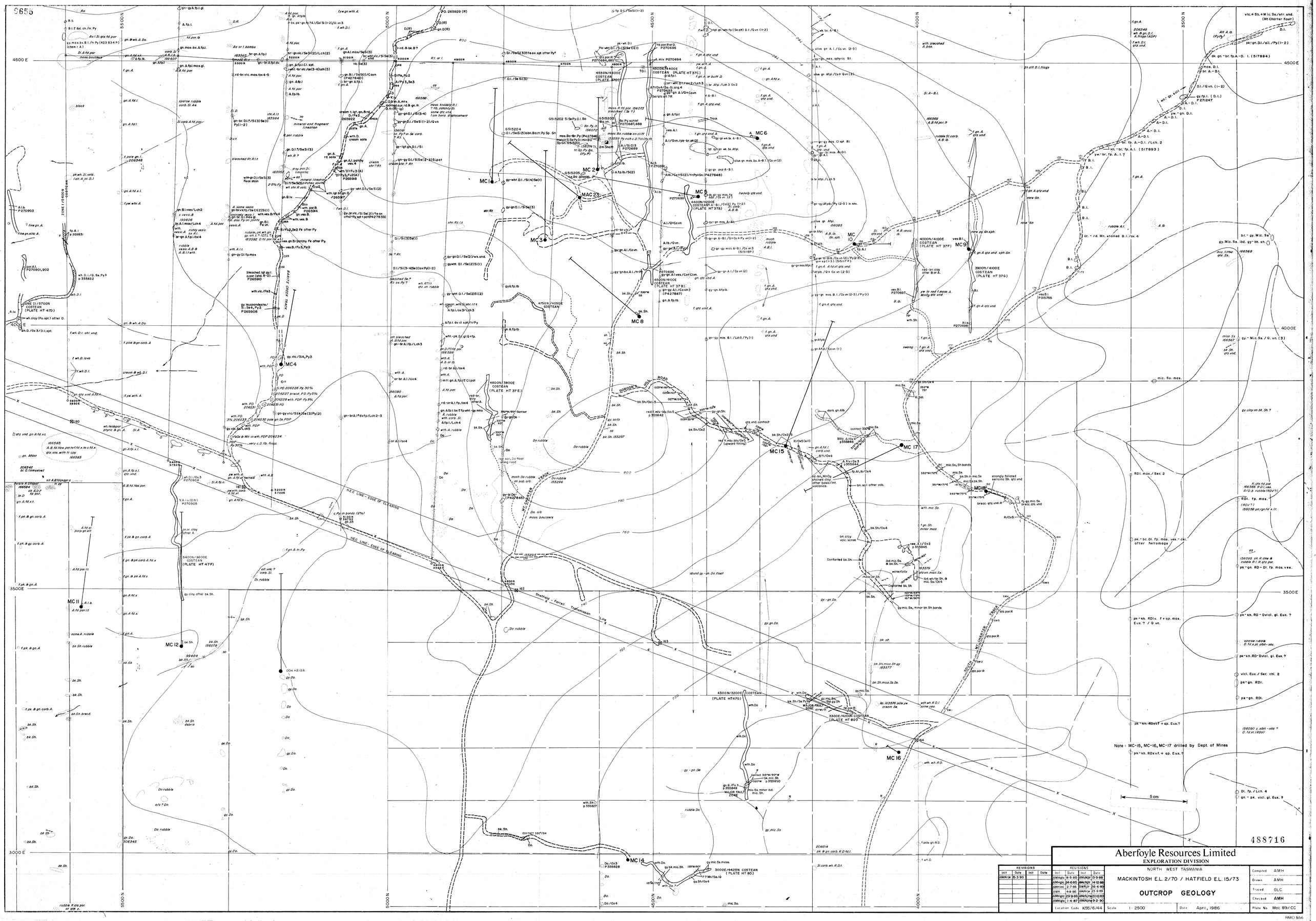
OUTCROP GEOLOGY

REVISIONS			
Inst	Date	Inst	Date
DJ/JgC	2-10-86		
AMcN/JJ	13-9-88		
AMcN/JJ	3-2-89		
AMcN/JJ	5-10-89		
AMcN/JJ	6-3-90		

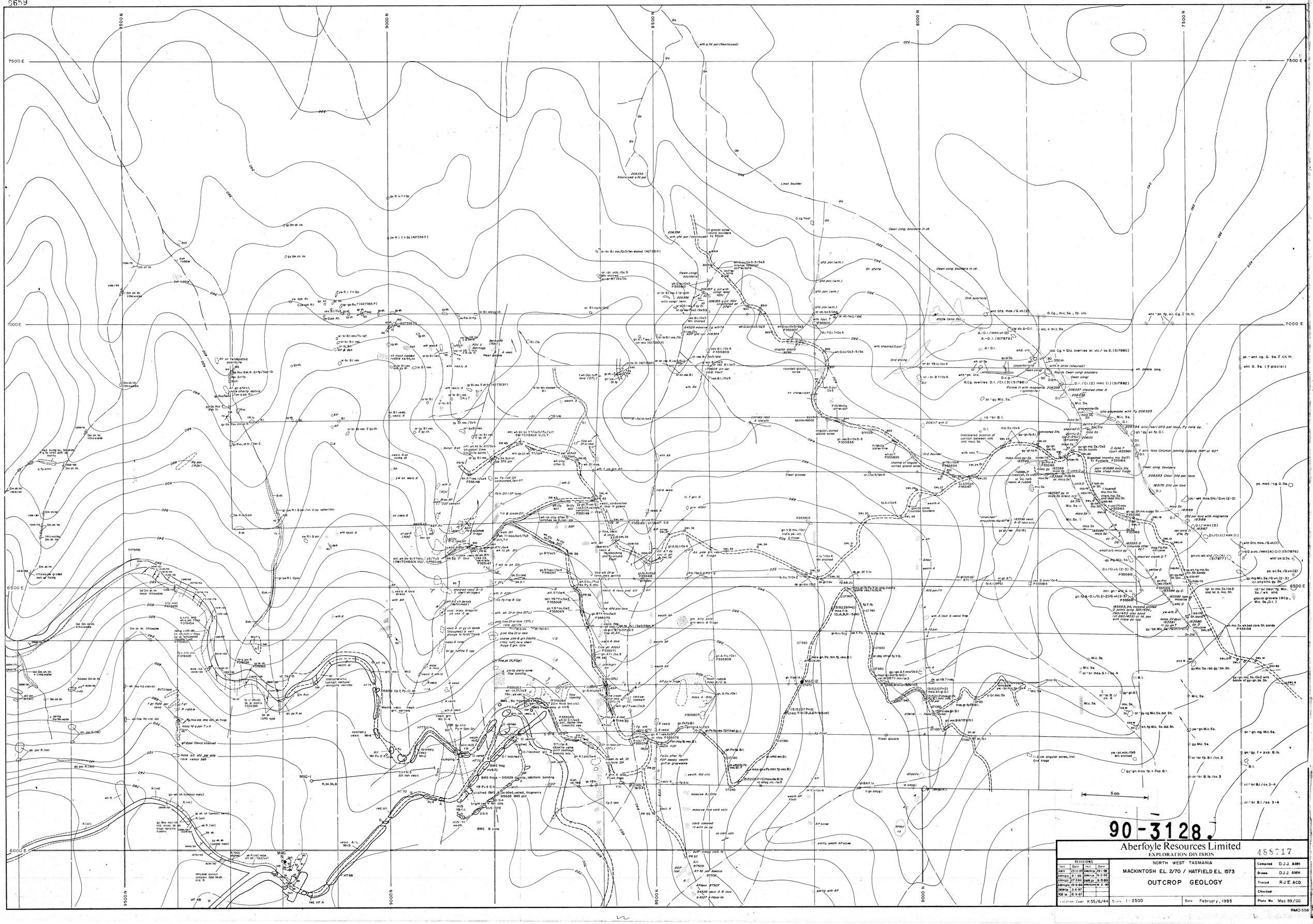
Location Code K55/6/44 | Scale 1:2500 | Date JULY 1986

Compiled AMH
Drawn
Traced JB
Checked
Plate No Moc. 89/AA

RMO 556


9655
Aberfoyle Resources Limited
EXPLORATION DIVISION
NORTH WEST TASMANIA
MACKINTOSH E.L. 2/70 / HATFIELD E.L. 15/73
OUTCROP GEOLOGY
Location Code K55/6/44
Scale 1:2500
Date April, 1986
Compiled AMH
Drawn AMH
Traced GLC
Checked AMH
Plate No Moc 89/CC
Note: MC-15, MC-16, MC-17 drilled by Dept. of Mines
5 cm
488716
RMO 556

6659


9500 N
9000 N
8500 N
8000 N
7500 N
7500 E
7000 E
6500 E
6000 E
Owen cong. boulders in ck.
Ord. quartzite
Ord. shale
Plant glacials
Unconformity
Rhyolite Owen congl. boulders
Purple rf with magnetite (pinstripe)
206337 sheared chlor. tf
206336
Mic. Ss.
greywacke/Ss
silic greywacke with Py 206335
206334 silic (ser) DFD por lava, Py rare py.
206101
Bleached limonitic mic. Ss(?) Tr Fuchsite P355564
206333 Chlor. Dfd por lava
183170 Dfd por lava
183569 mica Sts. here steep minor fr.
Dfd por lava with magnetite 183168
Dfd por lava with magnetite 183167
183596 vesic A-D lava silic
183587 py. in mica Sh. brecc. ch.
183588 py. D
183589 mica Sts.
183592 mica Sts.
183590 mica Sts.
183591 mica Sts.
183584 py. D
183582 sign of massive
183593,94, massive jointed D joints lying 325/65°E, 260/45°E also bend (at 260/45°E) at tf. por. with trace jn. dip
183580 Py. D massive SWL13
183569 Py. D massive SWL10
183568 py. D
183567 py. D
183566
183565
183564
183562
183561
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183557
183556
183555
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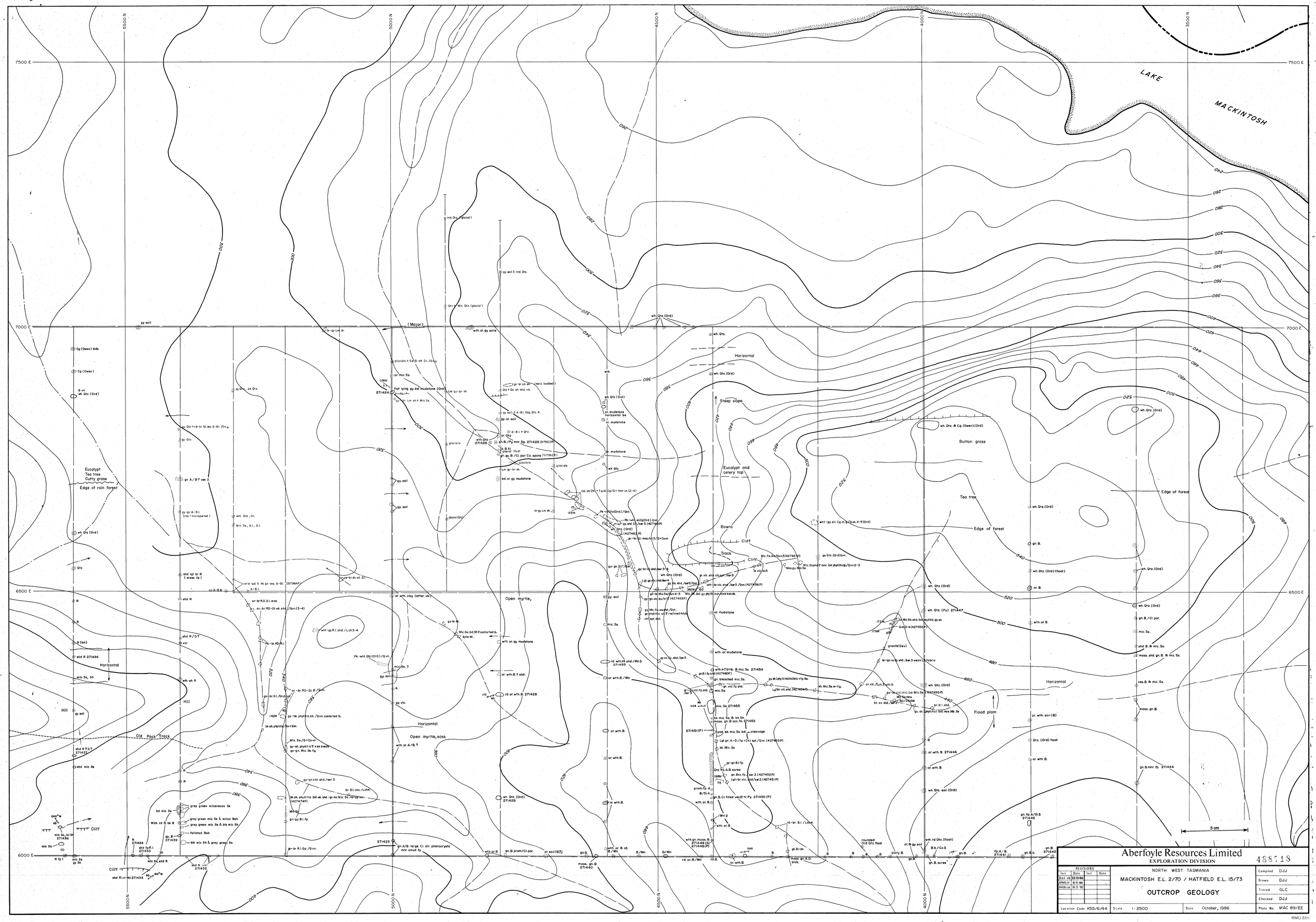
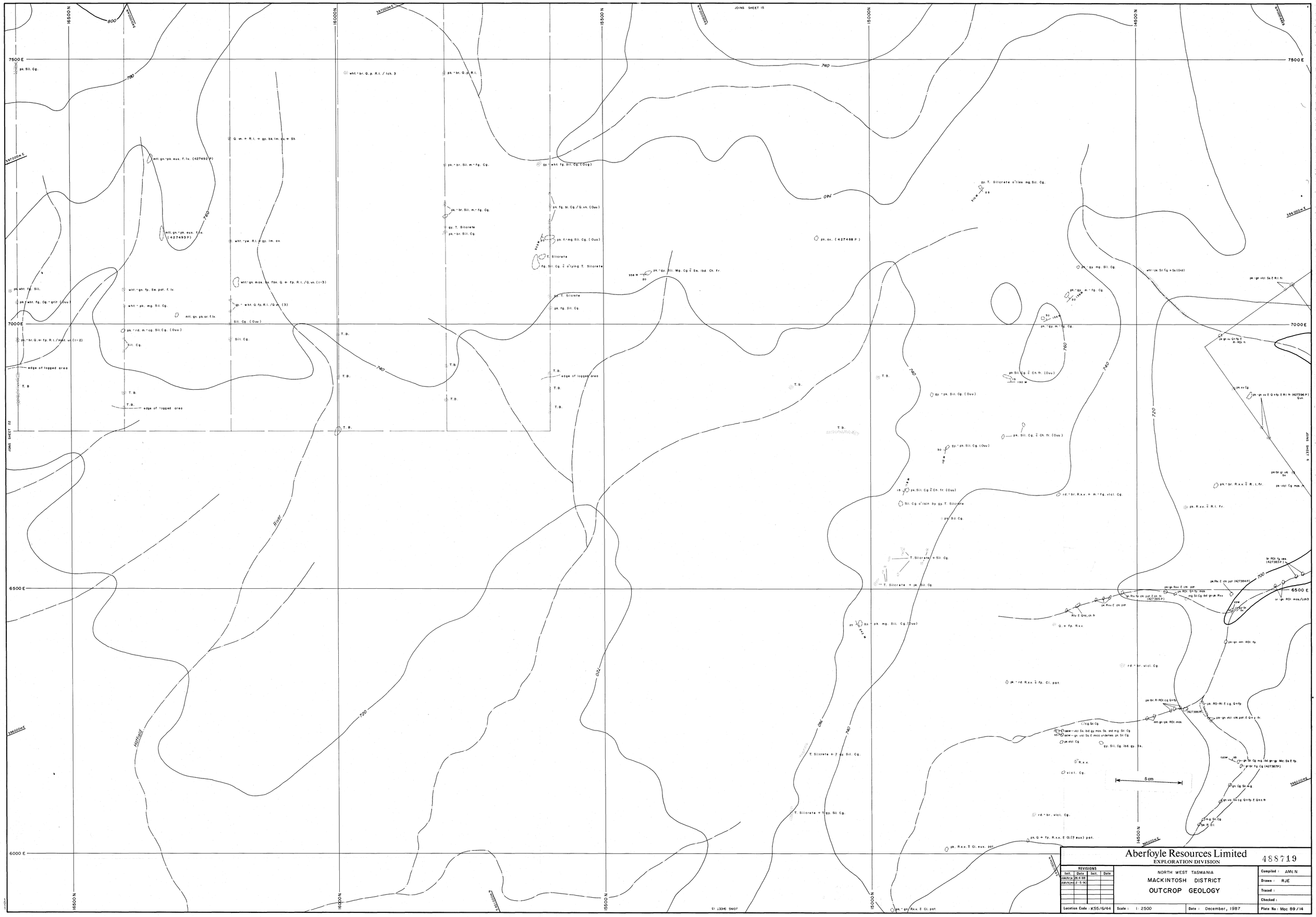
183523


LAKE MACKINTOSH
7500 E
7000 E
6500 E
6000 E
5500 N
5000 N
4500 N
4000 N
3500 N
(Major)
Horizontal
Steep slope
Button grass
Eucalypt and celery top
Tea tree
Edge of forest
Eucalypt
Tea tree
Cutty grass
Edge of rain forest
Bowra
Cliff
Track
Open myrtle,
Open myrtle, sass.
Flood plain
Hill
Old Pack Track
5 cm
Aberfoyle Resources Limited
EXPLORATION DIVISION
488:18
NORTH WEST TASMANIA
MACKINTOSH E.L. 2/70 / HATFIELD E.L. 15/73
OUTCROP GEOLOGY
REVISIONS
Inst Date Inst Date
DJJ 15 22-10-86
MNN/JH 8-5-88
DMN/JH 16-3-90
Location Code K55/6/44
Scale 1:2500
Date October, 1986
Compiled DJJ
Drawn DJJ
Traced GLC
Checked DJJ
Plate No MAC 89/EE

9662



Aberfoyle Resources Limited

EXPLORATION DIVISION

488719

REVISIONS			
Init.	Date	Init.	Date
AMcNie	26-4-88		
AMcN/ml	2-5-90		

NORTH WEST TASMANIA

MACKINTOSH DISTRICT

OUTCROP GEOLOGY

Location Code : K55/6/44

Scale : 1 : 2500

Date : December, 1987

Compiled : AMcN

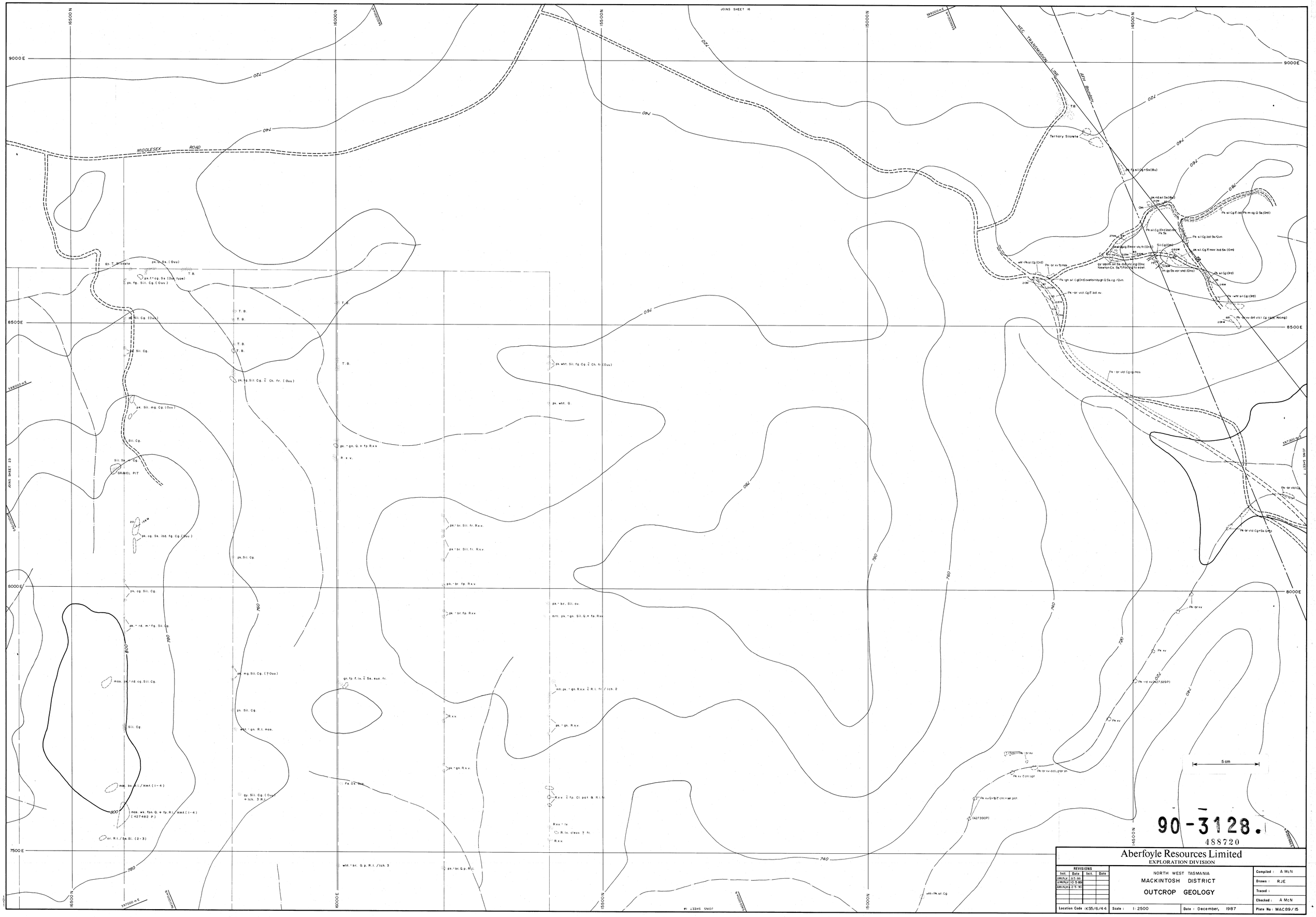
Drawn : RJE

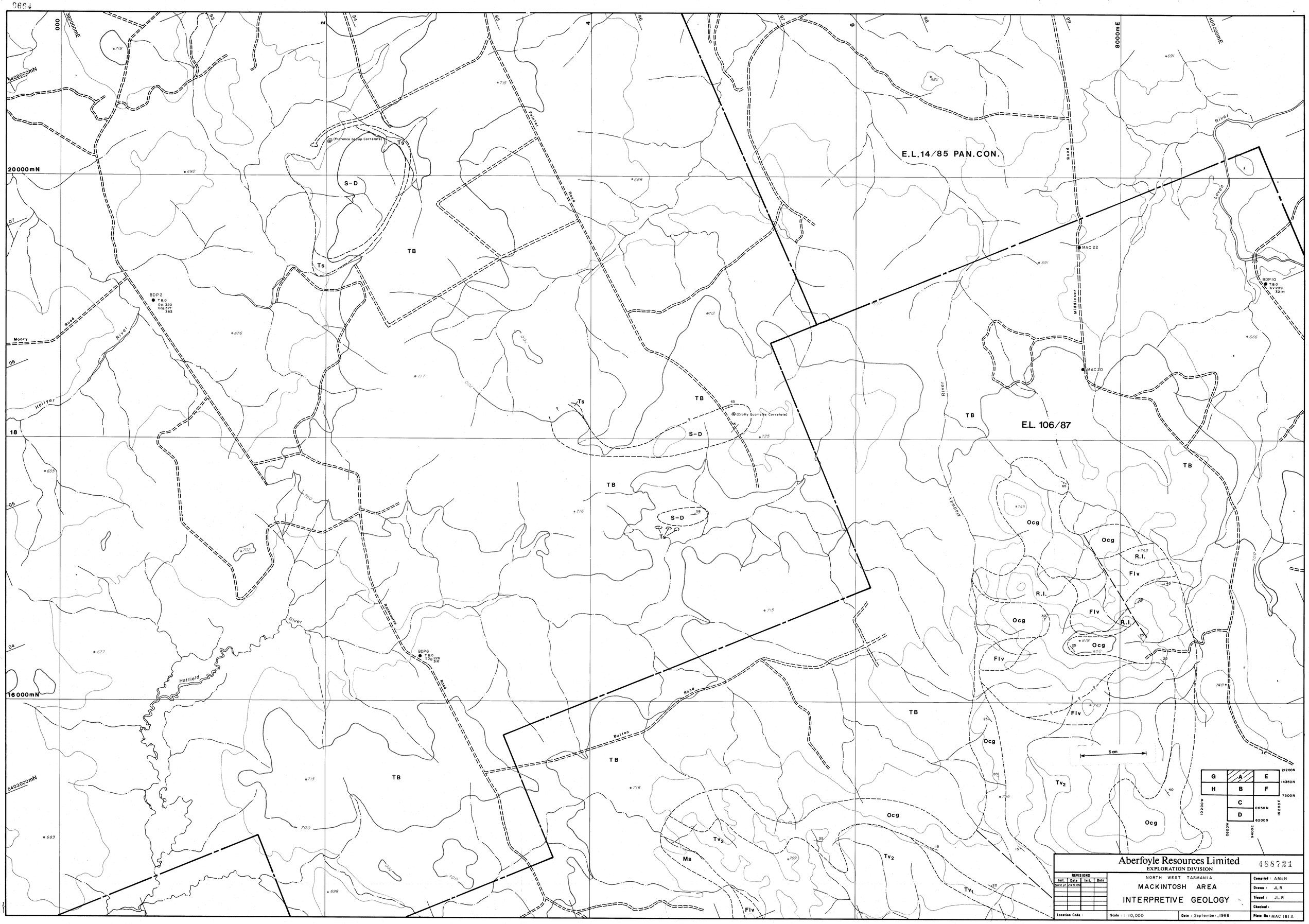
Traced :

Checked :

Plate No : Moc 89/14

0663


JOINS SHEET 16
JOINS SHEET 23
JOINS SHEET 1
16500 N
16000 N
15500 N
15000 N
14500 N
9000 E
8500 E
8000 E
7500 E
MIDDLESEX ROAD
HEC TRANSMISSION LINE
AEH Boundary
Tertiary Silcrete
GRAVEL PIT
5 cm
90-3128.
488720
Aberfoyle Resources Limited
EXPLORATION DIVISION
REVISIONS
Init. Date Init. Date
AMcN/JP 8.5.88
AMcN/JP 10.5.89
AMcN/JP 2.5.90
Location Code : K55/6/44
NORTH WEST TASMANIA
MACKINTOSH DISTRICT
OUTCROP GEOLOGY
Scale : 1:2500
Date : December, 1987
Compiled : A McN
Drawn : RJE
Traced :
Checked : A McN
Plate No : MAC89/15


E.L.14/85 PAN.CON.
E.L. 106/87
392000mE
400000mE
8000mE
5408000mN
20000mN
16000mN
5403000mN
Moory Road
Hellyer River
Hellyer Road
Hatfield River
Reservoir Road
Button Road
Middlesex Road
Levels River
McKenzie River
(Florence Group Correlate)
(Crotty Quartzite Correlate)
BDP 2
T 8.0
Ogl 320
Ogg 377
383
BDP 6
T 8.0
Sog 226
316
BDP 10
T 8.0
Ev 239
32m
MAC 22
MAC 20
S-D
TB
Ts
Ocg
R.I.
Flv
Ms
Tv2
Tv1
5cm
G
A
E
H
B
F
C
D
21200N
14350N
7500N
0650N
6200S
10200W
18200E
0600W
9400E
Aberfoyle Resources Limited
EXPLORATION DIVISION
488721
REVISIONS
Init. Date Init. Date
Date JF 24.5.89
Location Code :
NORTH WEST TASMANIA
MACKINTOSH AREA
INTERPRETIVE GEOLOGY
Scale : 1:10,000
Date : September, 1988
Compiled : AMcN
Drawn : JLR
Traced : JLR
Checked :
Plate No : MAC 161 A

E.L. 106/87
E.L.39/85
CSR
AFH Boundary
Cradle Mountain Link Road
Murchison Highway
Hellyer Portal
Que River Mine
Decimal Fault
Mt. Cripps Fault
Southwell River
CML 68M/84
CML 103M/87
TAILINGS DAM
14 000 mN
8 000 mN
395 000 mE
398 000 mE
5401 000 mN
5398 000 mN
5 cm
Aberfoyle Resources Limited
EXPLORATION DIVISION
488722
NORTH WEST TASMANIA
MACKINTOSH AREA
INTERPRETIVE GEOLOGY
REVISIONS
Location Code: K55/6/44
Scale: 1 : 10,000
Date: September, 1987
Compiled: AMH
Drawn: AMH
Traced: RJE
Checked:
Plate No: MAC 161 B

— LITHOLOGICAL LEGEND —

QUATERNARY

- Qa,g,u 2 — ALLUVIUM/SWAMP(a), GLACIAL (g) UNDIFFERENTIATED (u)

TERTIARY

- TB 8 — BASALT LAVA
- TS 7 — SILCRETE

DEVONIAN SILURIAN

- S-D 30 — ELDON GROUP SEDIMENTS (UNDIFFERENTIATED)

ORDOVICIAN

- Ogl 34 — GORDON GROUP (UNDIFFERENTIATED)
- Oms 33 — MOINA SANDSTONE

EARLY ORDOVICIAN LATE CAMBRIAN

- €Oo 20
  - €Ouu 15 — UPPER UPPER OWEN - CHERT BEARING CONGLOMERATE & SANDSTONE (PIONEER BEDS EQUIVALENT)
  - €Oul 17 — LOWER UPPER OWEN - WELL BEDDED PINK SANDSTONE
  - €Oom 14 — MIDDLE OWEN - DOMINANTLY PEBBLE CONGLOMERATE
  - €Oon 16 — NEWTON CREEK SANDSTONE MEMBER EQUIVALENT

CAMBRIAN

- Tyndall Group
  - TV1 39 — RED VOLCANICLASTIC CONGLOMERATE (? DORA CONGLOMERATE EQUIVALENT)
  - TV2 38 — RED ASH-LAPILLI VOLCANICLASTIC, MINOR CONGLOMERATE
- Dundas Group
  - Southwell Sub-Group
    - RDI 26 — RHYOLITIC-DACITIC LAVA & SHALLOW INTRUSIVE
    - Ms 29 — MICACEOUS SANDSTONE, SHALE & MINOR CONGLOMERATE
    - Flv 25 — FELSIC LAPILLI VOLCANICLASTICS, OFTEN EUTAXITIC
    - URS 65
      - 1 65 — QTZ. XTAL RICH VOLCANICLASTICS & BLACK SHALE MATRIX, BLACK VITRIC VOLCANICLASTIC & EUTAXITIC FRAGS
      - 2 69 — GREY LAMINATED SILTSTONE & LITHIC WACKE CONTAINING BLACK SHALE & CHERT FRAGMENTS
      - 3 68 — BLACK SHALE LENSES
      - 4 52 — QTZ. XTAL RICH VOLCANICLASTICS WITHOUT BLACK SHALE OR BLACK VITRIC MATRIX
  - Que River Beds
    - QRS 68 — BLACK CARBONACEOUS QTZ./MICA SHALE
  - Que-Hellyer Volcanics
    - Bpl 50 — AMYGDALOIDAL BASALT SHEET LAVA (Bl) & PILLOW LAVA (Bpl) WHICH INCLUDES HYALOCLASTITE BRECCIA & INTERPILLOW CHERT
    - Bl 45
    - Bvc 49 — BASALT VOLCANICLASTIC (& BMS SULPHIDE FRAGMENTS IN GOLDEN TRIANGLE)
    - Afpl 48 — ANDESITE FELDSPARPHYRIC LAVA, COMMONLY AUTOBRECCIATED
    - Avc 44 — ANDESITIC VOLCANICLASTIC
    - Dl 53 — DACITE LAVA MASSIVE, COMMONLY FLOW BANDED, WEAKLY FELDSPAR PORPHYRITIC
    - Dvc 54 — DACITIC VOLCANICLASTIC
    - Yvc 58 — CLAST DOMINANT, LAPILLI TO BRECCIA VOLCANICLASTICS. CONTAINS CLASTS OF ANDESITE, BASALT, DACITE & BASE METAL SULPHIDES COMMONLY IN A CHERT MATRIX.
    - HA 6 — STRONGLY SERICITE-PYRITE-QUARTZ ALTERED ROCKS ALTERATION OBLITERATES PRIMARY FEATURES
    - BMS 21 — BASE METAL SULPHIDE LENSES
    - Ba 22 — MASSIVE COARSELY CRYSTALLINE TO WEAKLY BEDDED BARITE
    - MSs 71 — MASSIVE QTZ./MICA SANDSTONE. COMMON INTERBEDS OF BLACK CARBONACEOUS QTZ./MICA SHALE
  - S.W. of Mt. Charter Fault
    - R 26 — QTZ. FELDSPAR PORPHYRY INTRUSIVES
    - Sh 68 — BLACK SHALE, SILTSTONE
    - Fl 46 — FELSIC LAVA, MOSTLY FELDSPARPHYRIC, MASSIVE TO VESICULAR
- Central Volcanic Complex
  - CV1 18 — FELSIC VOLCANICLASTIC & EUTAXITIC FRAGMENTS (IGNIMBRITE?)
  - CV2 13 — RHYODACITIC - RHYOLITIC LAVA & POSSIBLE INTRUSIVES
  - CV3 11 — ASH TO FINE LAPILLI VOLCANICLASTIC

INTRUSIVE LITHOLOGIES

- Kl 19 — ?CRETACEOUS LAMPROPHYRE DYKES
- Dol 32 — ?DEVONIAN DOLERITE SILLS
- R 26 — QTZ. (FELDSPAR) PORPHYRITIC RHYOLITE SILLS

UNASSIGNED SEQUENCE - East of Henty Fault

- RDI 26 — RHYOLITIC TO RHYODACITIC LAVA &/OR INTRUSIVE
- MSs 71 — MICACEOUS SANDSTONE & INTERBEDDED SHALE
- Dvc 54 — DACITIC VOLCANICLASTIC
- Rvc 27 — RHYOLITIC VOLCANICLASTIC
- Bl 45 — BASALTIC LAVA

- GEOLOGICAL BOUNDARY, ACCURATE/APPROXIMATE
- GEOLOGICAL BOUNDARY, INFERRED/CONCEALED
- LIMIT OF INFORMATION
- FAULT, ACCURATE/APPROXIMATE
- FAULT INFERRED
- EARLY ANTICLINE, SYNCLINE
- LATE ANTICLINE, SYNCLINE
- STRIKE & DIP OF BEDDING - FACING KNOWN, OVERTURNED, FACING UNKNOWN, VERTICAL
- STRIKE & DIP OF CLEAVAGE, VERTICAL CLEAVAGE
- FLOW BANDING IN INTRUSIVE OR EXTRUSIVE ROCKS, VERTICAL FLOW BANDING
- DIAMOND DRILLHOLE COLLAR
- TB 0 SD 200 210 — DDH & THICKNESS OF TERTIARY BASALT & BASEMENT ROCK TYPE
- MACROFOSSIL LOCALITY

90-3128

Aberfoyle Resources Limited

EXPLORATION DIVISION

488723

REVISIONS			
Init.	Date	Init.	Date

NORTH WEST TASMANIA
MACKINTOSH E.L. 106/87
GEOLOGICAL LEGEND
1:10 000 INTERPRETIVE GEOLOGY

Compiled : AMcN
Drawn : JLR
Traced :
Checked :

Location Code :
Scale : N/S
Date : June, 1989
Plate No. : MAC 247

0650

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
fv	fine lapilli volcaniclastic
mv	medium " "
cv	coarse " "
bv	breccia "
xv	crystal "
ves	vesicular
por	porphyritic
aux	autoxitic
fbn	flowbanded
gnlr	granular
ibd	interbedded
mtd	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

pv	pervasive
dis	disseminated
pch	patchy
spy	spotty
sf	selected fragments
sw	stockwork
sc	structure controlled
vn	vein
mx	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
sk	slickenside
rh	rehealed
rb	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 — colour. composition. form. texture — WEATHERING — intensity / composition. intensity. form. texture — ALTERATION

example gy-gn. YA. flv / Ox 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	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	68	Shale, black (carbonaceous, pyritic)
Slt	69	Siltstone, tuffaceous Siltstone

SULPHIDES, SULPHATES

BMS	21	Base Metal Sulphide rock
MPy	29	Massive pyrite rock
GSP	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, Serecite, Illite, Feldspar, Pyrite, Silica

SYMBOLS MAC79,110 AND MAC89,111 SERIES

(SYMBOLS AS SHOWN IN ABEX "STANDARDS FOR GEOLOGICAL DRAWINGS", JAN. 1983)

LINE THINESS / 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	20 350	Bedding, strike, dip
·25/50	20 350	Foliation, strike, dip
·25/50	20 350	Joint, strike, dip
·5/50,100	F 9 200 70	Fault, definite, strike, dip, mineralogy
·5/100	F ?	Fault, inferred
·35		Shear zone
·35/60	A.lv	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

488724

90-3128.

Aberfoyle Exploration Pty Ltd

REVISIONS			
Init.	Date	Init.	Date
GLC	12·85		
GLC	1·86		

Location Code: K55/6/44

NORTH WEST TASMANIA

MACKINTOSH E.L.2/70, HATFIELD E.L.15/73

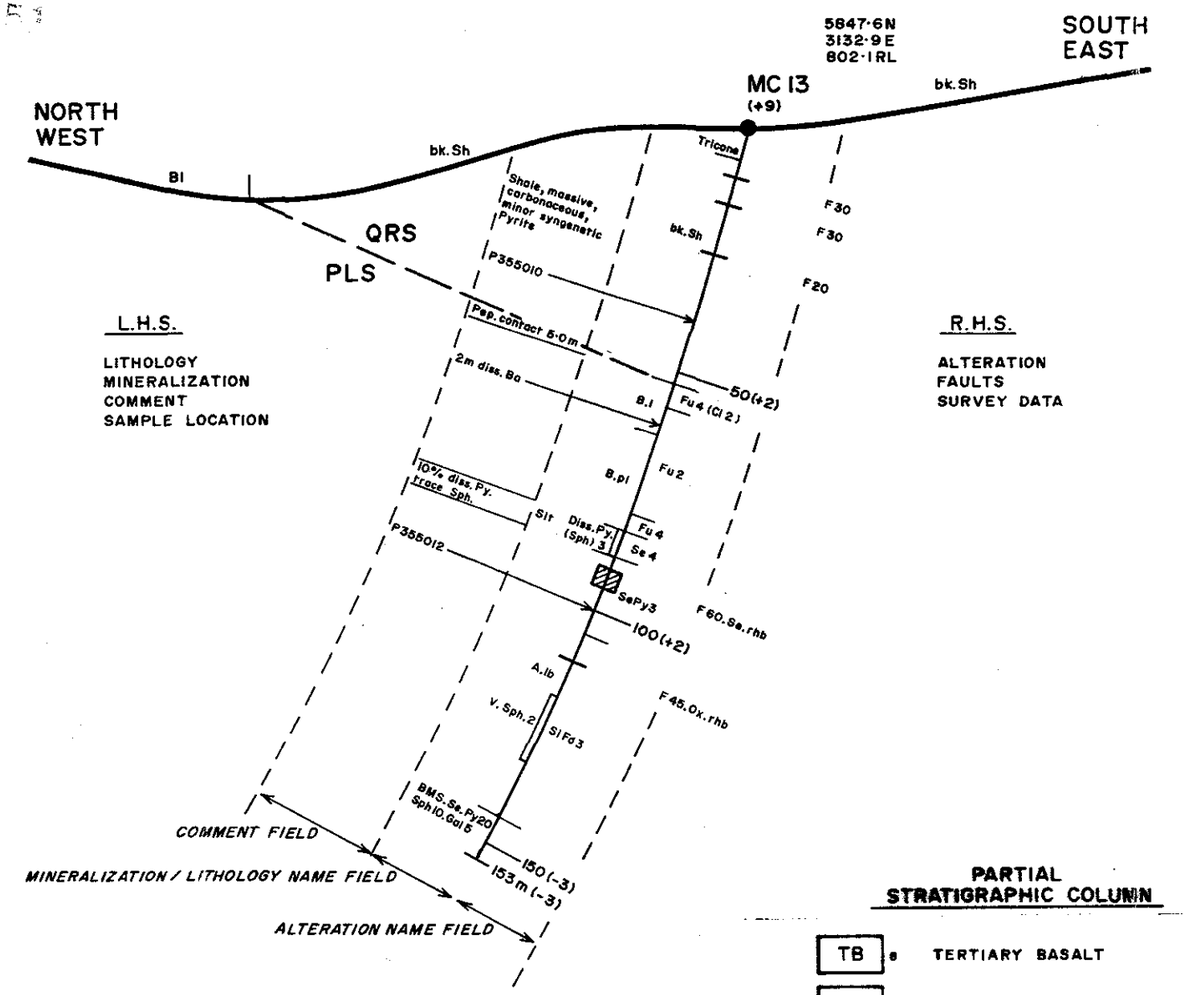
SURFACE GEOLOGICAL MAPPING LEGEND

Scale: ———

Date: November, 1985

Compiled:	AMH
Drawn:	AMH
Traced:	GLC
Checked:	AMH
Plate No:	MAC 114

RMO 554



L.H.S.

LITHOLOGY
MINERALIZATION
COMMENT
SAMPLE LOCATION

R.H.S.

ALTERATION
FAULTS
SURVEY DATA

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

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

VOLCANICS

R.I, R.Ib	26	Rhyolite lava, lava breccia
R.av, R.iv, R.bv, R.xv	25	Rhyolite volcaniclastic
YR.av, YR.iv, YR.bv	65	Rhyolitic Polymict volcaniclastic
D.I, D.I.b	63	Dacite lava, lava breccia
D.av, D.iv, D.bv, D.xv	64	Dacite volcaniclastic
YD.av, YD.iv, YD.bv	56	Dacitic Polymict volcaniclastic
A.fp.I, A.fp.Ib	48	Andesite feldsparphyric lava, lava breccia
A.I, A.Ib	41	Andesite lava, lava breccia
A.av, A.iv, A.bv, A.xv	44	Andesite volcaniclastic
YA.av, YA.iv, YA.bv	40	Andesitic Polymict volcaniclastic
B.I, B.iv	45	Basalt lava, lava breccia
B.pl	50	Basalt pillow lava
B.av, B.iv, B.bv, B.xv	49	Basalt volcaniclastic
YB.av, YB.iv, YB.bv	42	Basaltic Polymict volcaniclastic
Y.av, Y.iv, 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-iv, Q-bv	17	Quellite fragmental

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

488725

90-3128.

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

9667

5412000mN
10000mW
389000mE
20000mN
16000mN
5406000mN
2000mW
391000mE
Fossey River
Hellyer River
Murchison Highway
Trackham Road
Stafford's Road
Stocks Road
Moory Road
Pearsfield Road
Mt Pearse
Moory Mt
TB
Ts
S-D
€Ouu
700
800
900
5 cm
G
A
E
H
B
F
C
D
213000N
143000N
75000N
062000E
102000E
142000E
182000E
222000E
Aberfoyle Resources Limited
EXPLORATION DIVISION
488726
NORTH WEST TASMANIA
MACKINTOSH AREA
INTERPRETIVE GEOLOGY
REVISIONS
Init. Date Init. Date
SWR JL 26-5-89
Location Code :
Scale : 1:10,000
Date : May, 1989
Compiled : S W R
Drawn :
Traced : J L R
Checked :
Plate No : M A C 161G

0666

E.L.39/85
PLACER

E.L. 37/89
PASMINCO

E.L.106/87

E.L.2/90
BILLITON

E.L.42/85
PAN CON

Mt. Charter Fault

Que Fault

Henty Fault

Mackintosh Lake

Mt. Murchison Highway

Mine Access Road

Que River Portal

Mt. Charter

The Shark's Fin

Sock Creek

CONFIDENTIAL
WESTERN LIMIT
OF TERTIARY
VOLCANICS

398000 mE

395000 mE

5395000 mN

5390000 mN

6000 mN

2000 mN

5 cm

Aberfoyle Resources Limited
EXPLORATION DIVISION

488727

REVISIONS			
Init.	Date	Init.	Date
AMcN/JF	15-5-88		
AMcN/JF	21-5-89		
AMcN/JF	4-10-89		
RJE	21-2-90		
AMcN/JF	2-4-90		

NORTH WEST TASMANIA

MACKINTOSH AREA

INTERPRETIVE GEOLOGY

Location Code: K55/6/44

Scale: 1:10,000

Date: September, 1987

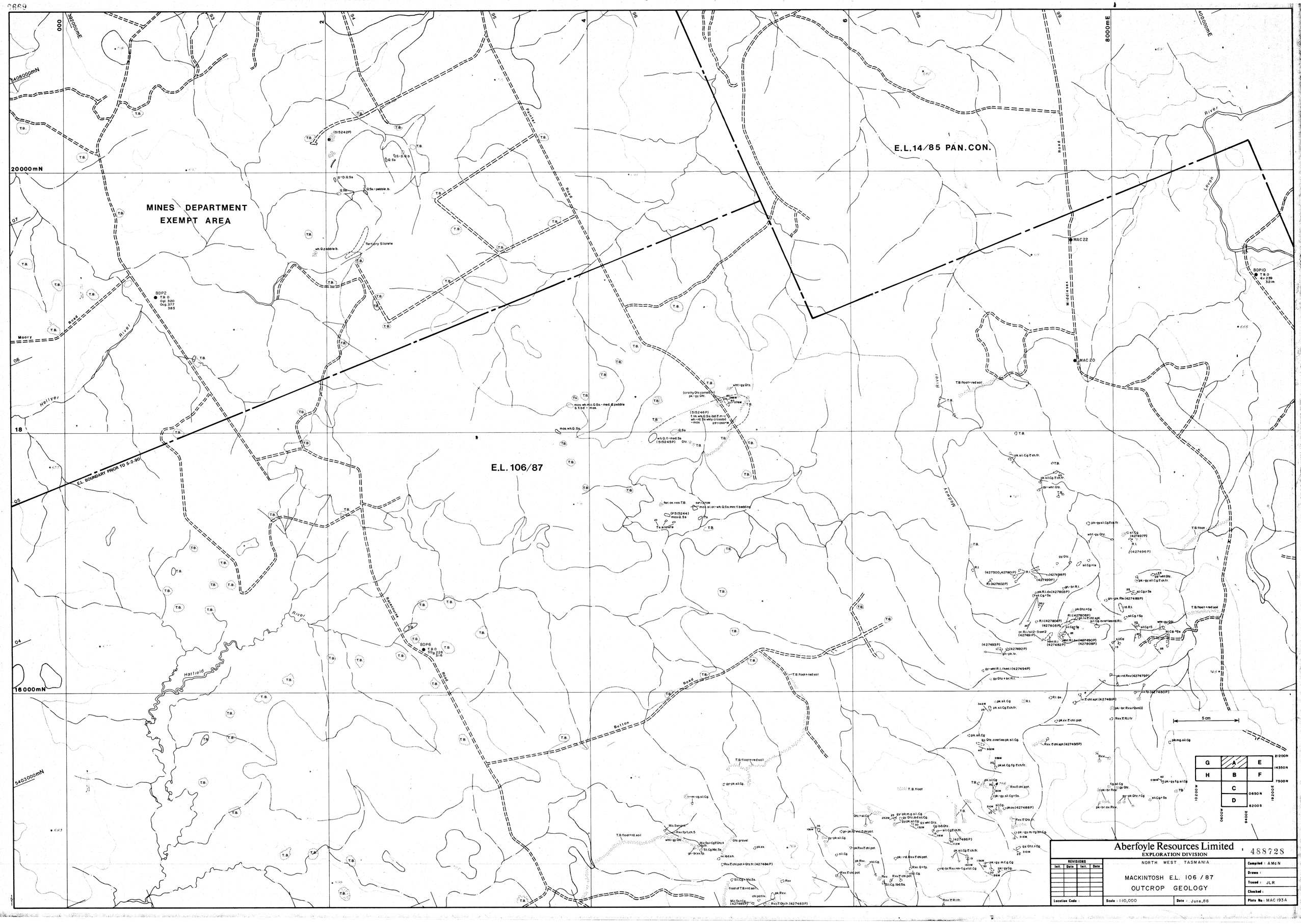
Compiled: AMH, AMcN

Drawn: AMH, AMcN

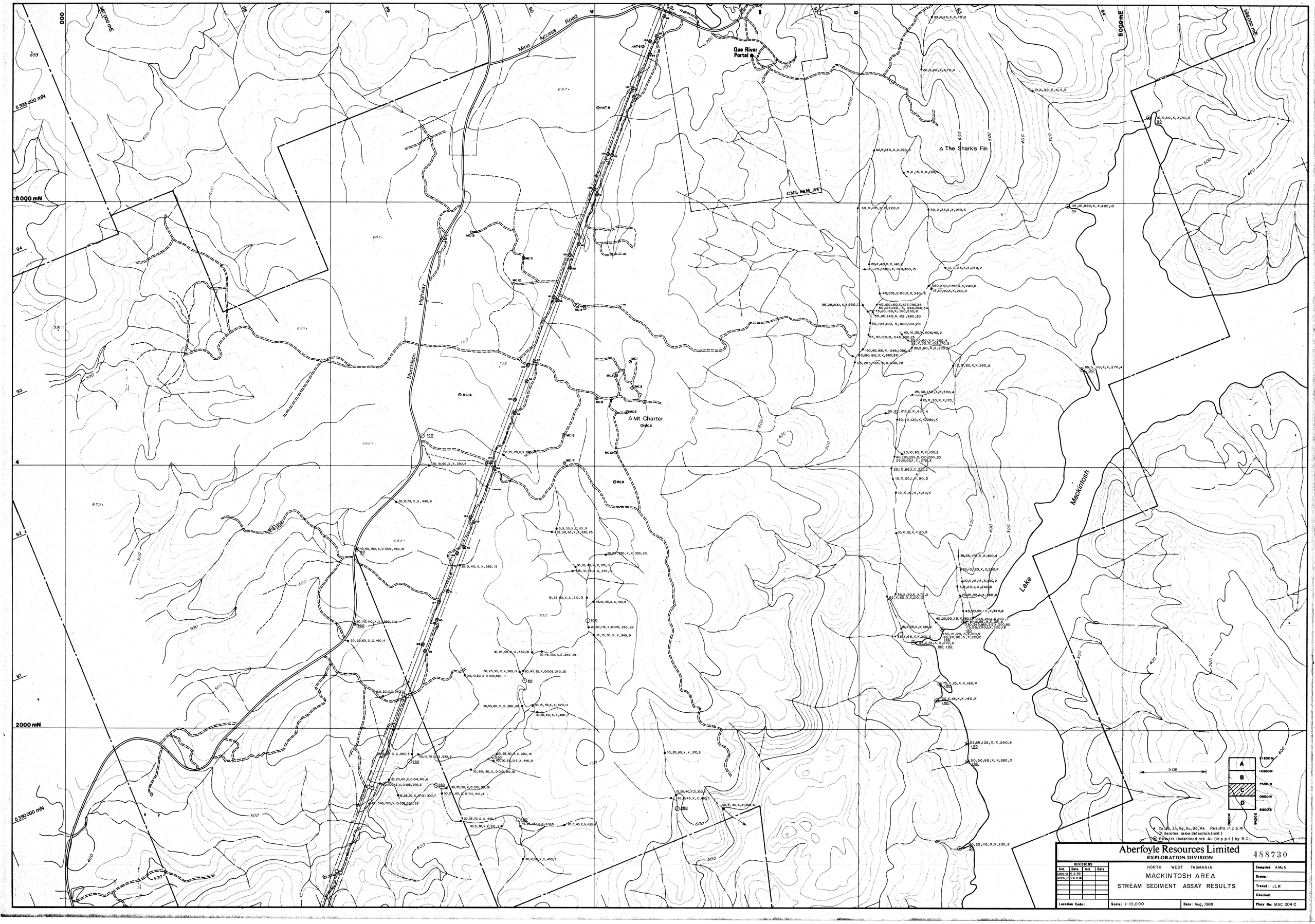
Traced: RJE

Checked:

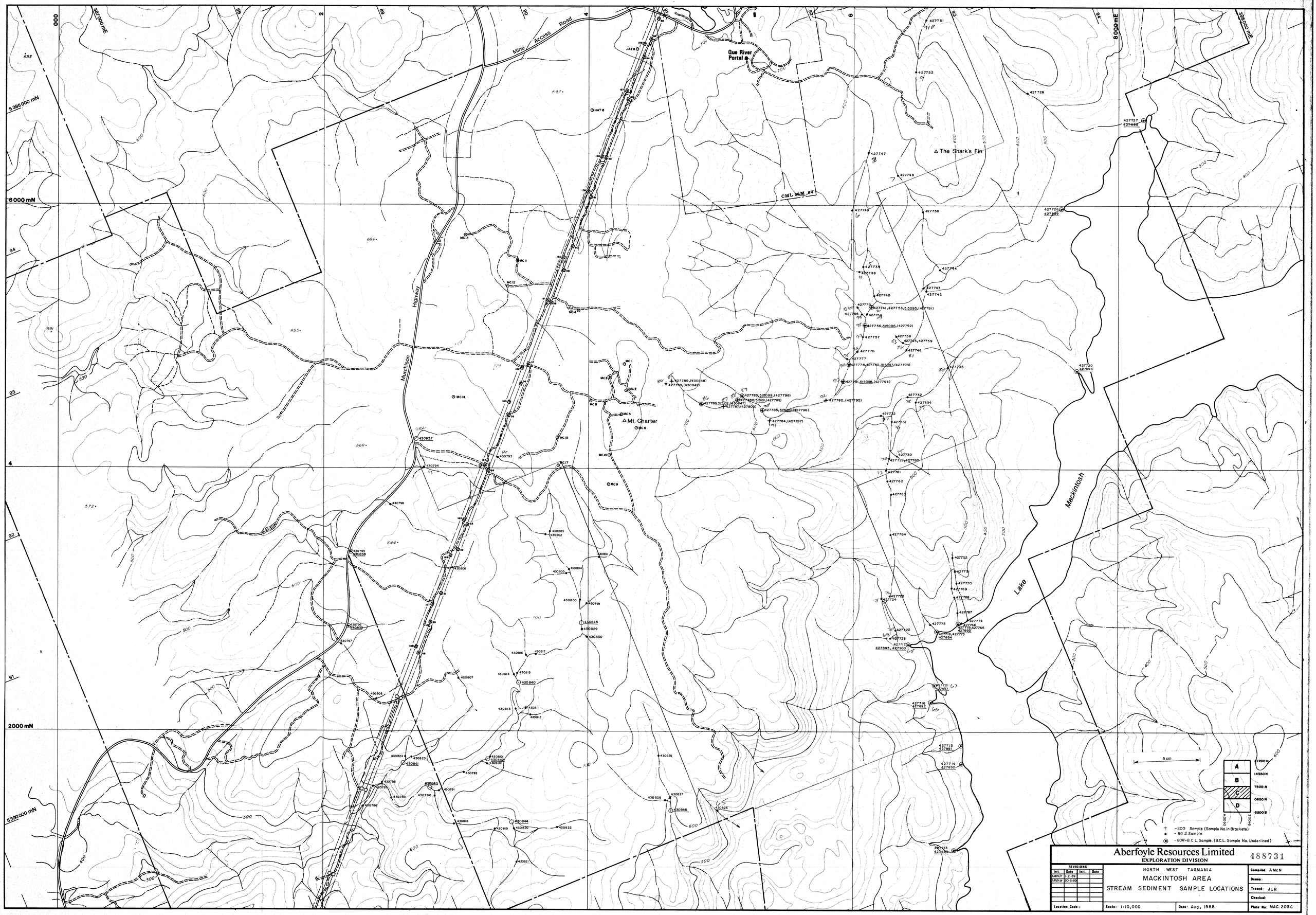
Plate No: MAC 161C

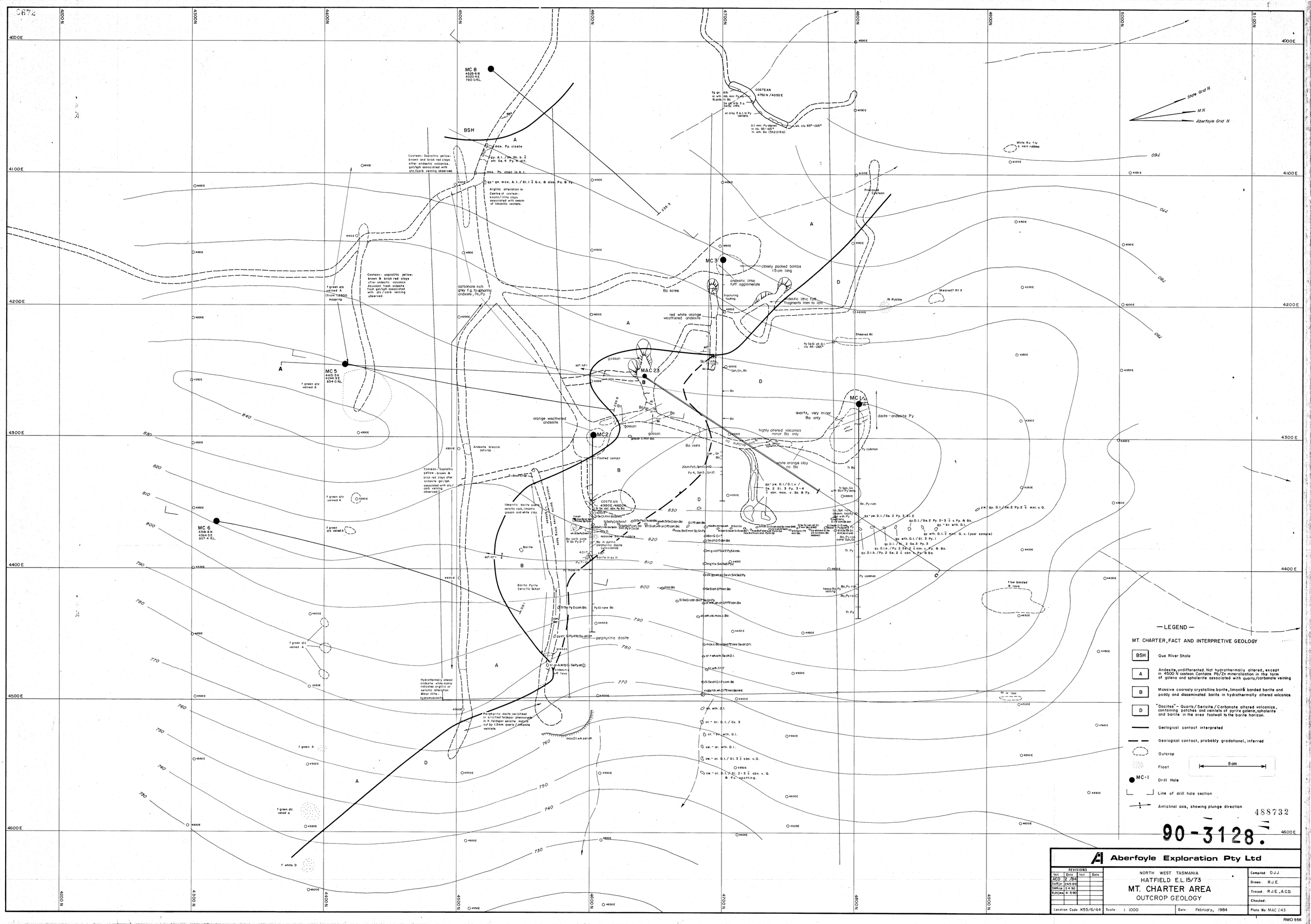

MINES DEPARTMENT
EXEMPT AREA
E.L.14/85 PAN.CON.
E.L. 106/87
E.L. BOUNDARY PRIOR TO 5-2-90
20000mN
16000mN
5403000mN
8000mE
400000mE
392000mE
5408000mN
Moorry Road
Hellyer River
Hatfield River
Pipers River
Bass Hwy
Button Road
Middlesex Road
Leven River
Mackway River
BDP2
BDP6
BDP10
MAC22
MAC20
5 cm
Aberfoyle Resources Limited
EXPLORATION DIVISION
488728
NORTH WEST TASMANIA
MACKINTOSH E.L. 106 / 87
OUTCROP GEOLOGY
Scale : 1:10,000
Date : June, 88
Compiled : AMcN
Drawn :
Traced : JLR
Checked :
Plate No : MAC 193 A
Location Code :
REVISIONS

Aberfoyle Resources Limited
EXPLORATION DIVISION
488729
NORTH WEST TASMANIA
MACKINTOSH AREA
OUTCROP GEOLOGY
REVISIONS
Init. Date Init. Date
Location Code :
Scale : 1:10000
Date : May, 1989
Compiled : SWR
Drawn :
Traced : JLR
Checked :
Plate No : MAC 193 G
MINES DEPARTMENT EXEMPT AREA
E.L. 106/87
E.L. BOUNDARY PRIOR TO 5-2-90
Fossey River
Hellyer River
Murchison Highway
Tasmania Road
Stanleys Road
Shorts Road
Moore's Road
Pearsling Road
Moore Mt
Mt Pearse
5412000mN
20000mN
16000mN
5406000mN
10000m W
2000m W
383000mE
391000mE
5cm


Mine Access Road
Que River Portal
The Shark's Fin
Mt. Charter
Mackintosh Highway
Mackintosh Lake
387000 mE
385000 mE
8000 mE
5395000 mN
5390000 mN
8000 mN
2000 mN
5 cm
A
B
C
D
12800 N
14350 N
7500 N
0850 N
6200 S
CROW
SNOWS
Cu, Pb, Zn, Ag, Au, Bd, As Results in p.p.m
(X denotes below detection limit)
Results Underlined are Au (in p.p.t.) by B.C.L.
Aberfoyle Resources Limited
EXPLORATION DIVISION
488730
NORTH WEST TASMANIA
MACKINTOSH AREA
STREAM SEDIMENT ASSAY RESULTS
REVISIONS
Location Code:
Scale: 1:10,000
Date: Aug. 1968
Compiled: AMcN
Drawn:
Traced: JLR
Checked:
Plate No: MAC 204 C

3670


Mine Access Road
Que River Portal
Murchison Highway
Mt. Charter
The Shark's Fin
Mackintosh Lake
CML 04M 84
397000 mE
398000 mE
8000 mE
5395000 mN
6000 mN
2000 mN
5390000 mN
5 cm
A
B
C
D
11200 N
14350 N
7500 N
0650 N
6200 S
+ - 200 Sample (Sample No. in Brackets)
• - 80 # Sample
⊙ - 80#+B.C.L. Sample. (B.C.L. Sample No. Underlined)
Aberfoyle Resources Limited
EXPLORATION DIVISION
488731
REVISIONS
Initl. Date Initl. Date
AMcN/JF 5-2-88
AMcN/JF 20-6-88
Location Code:
NORTH WEST TASMANIA
MACKINTOSH AREA
STREAM SEDIMENT SAMPLE LOCATIONS
Scale: 1:10,000
Date: Aug, 1988
Compiled: A McN
Drawn:
Traced: JLR
Checked:
Plate No: MAC 203C



— LEGEND —

MT. CHARTER, FACT AND INTERPRETIVE GEOLOGY

BSH	Que River Shale
A	Andesite, undifferented. Not hydrothermally altered, except in 4500 N costean. Contains Pb/Zn mineralization in the form of galena and sphalerite associated with quartz/carbonate veining
B	Massive coarsely crystalline barite, limonite banded barite and poddy and disseminated barite in hydrothermally altered volcanics.
D	"Dacites" - Quartz/Sericite/Carbonate altered volcanics, containing patches and veinlets of pyrite galena, sphalerite and barite in the area footwall to the barite horizon.

Geological contact interpreted

Geological contact, probably gradational, inferred

Outcrop

Float

5 cm

MC-1 Drill Hole

Line of drill hole section

Anticlinal axis, showing plunge direction

488732

90-3128.

Aberfoyle Exploration Pty Ltd

REVISIONS			
Init	Date	Init	Date
ACD	2/84		
SWRjr	2-5-88		
SWRrje	3-4-90		
RJHjma	4-5-90		

NORTH WEST TASMANIA

HATFIELD E.L. 15/73

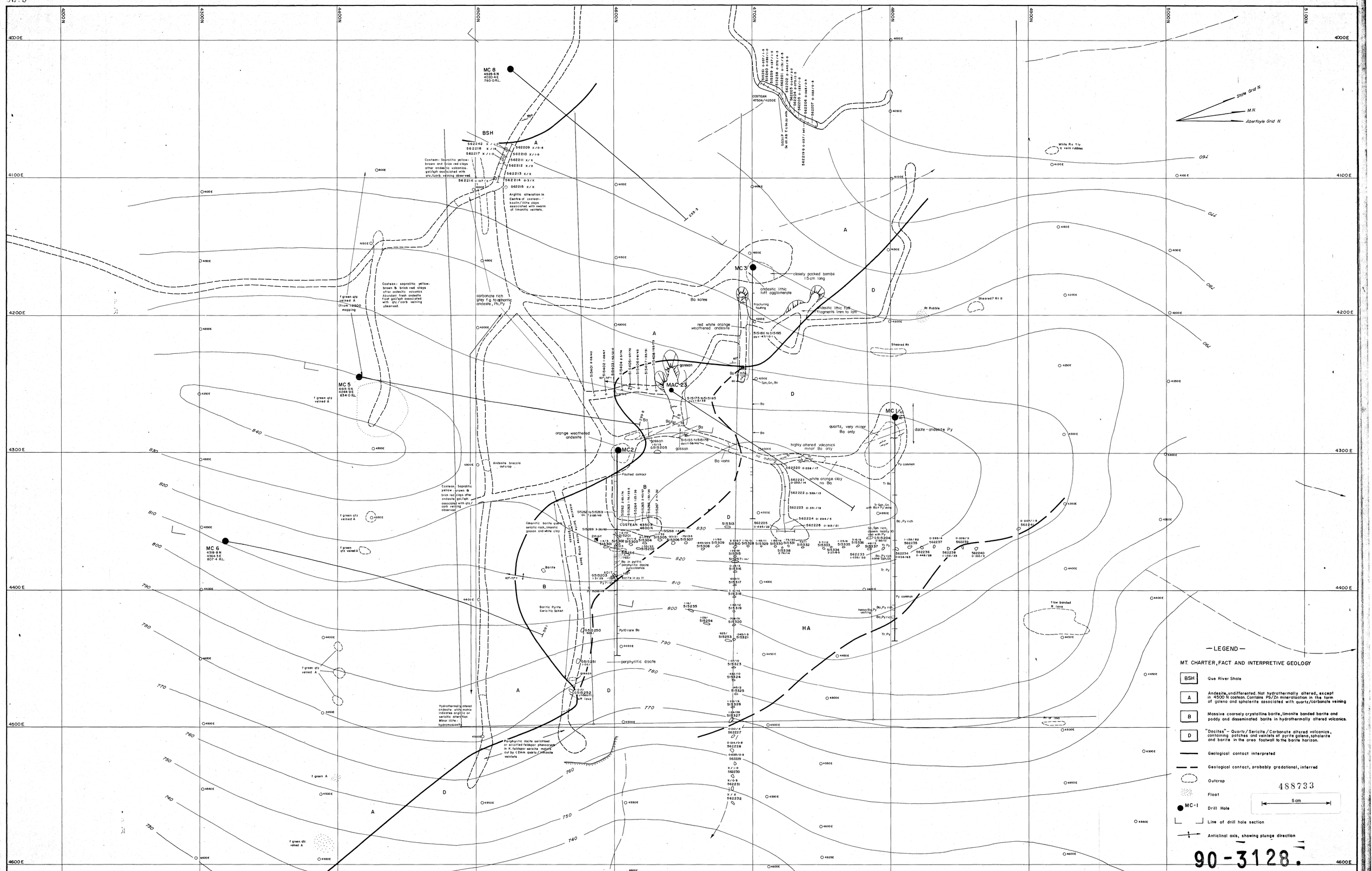
MT. CHARTER AREA

OUTCROP GEOLOGY

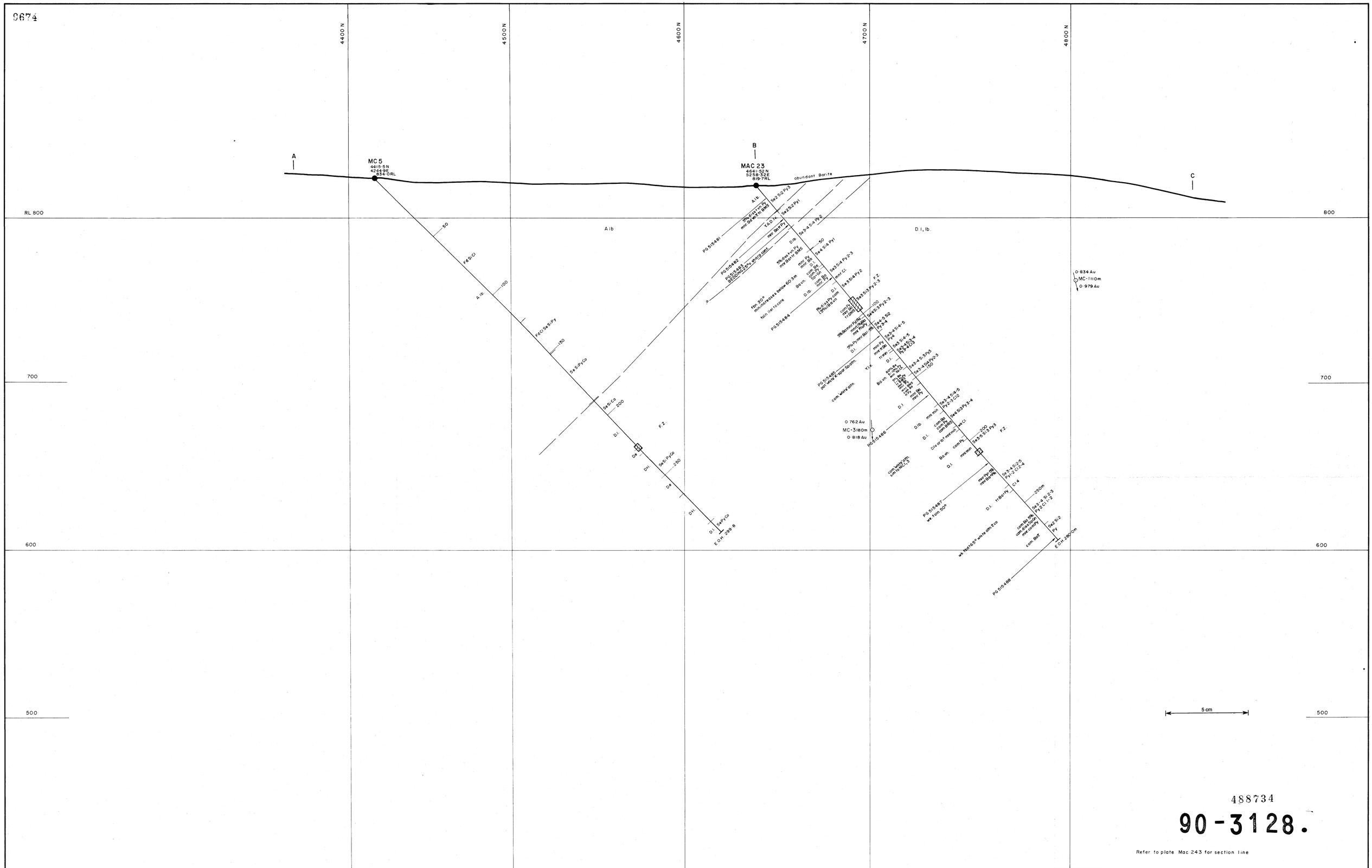
Location Code: K55/6/44 | Scale: 1:1000 | Date: February, 1984

Compiled: D.J.J.
Drawn: R.J.E.
Traced: R.J.E., A.C.D.
Checked:
Plate No: MAC 243

RMO 556


State Grid N.
M.N.
Aberfoyle Grid N.
MC 8
4525·6 N
4020·4 E
780·0 RL.
BSH
MC 5
4410·5 N
4346·9 E
834·0 RL.
MC 6
4519·8 N
4304·5 E
807·4 RL.
MC 3
MAC 23
MC 2
MC 1
COSTEAN 4350N/4600N
COSTEAN 4750N/4050E
Costean- Saprolitic yellow-brown and brick red clays after andesitic volcanics. gal/sph associated with qtz/carb. veining observed.
Argillic alteration in Centre of costean- kaolin/clay clays associated with swarm of limonitic veinlets.
carbonate rich grey f.g to aphanitic andesite, Py, Py
f green qtz veined A (from 1984 mapping)
Ba scree
closely packed bombs 15cm long
andesitic lithic tuff agglomerate
Fracturing faulting
andesitic lithic tuff fragments 1mm to 1cm
red white orange weathered andesite
gossan
orange weathered andesite
Ba vein
quartz, very minor Ba only
highly altered volcanics minor Ba only
dacite-andesite Py
white orange clay no Ba
Faulted contact
Andesite breccia outcrop
limonitic barite veins, sericitic rock, limonitic gossan and white clay
Barite
Barite Pyrite Sericitic Schist
porphyritic dacite
Hydrothermally altered andesite, white matrix indicates argillic or sericitic alteration. Minor illite-hydromuscovite
Porphyritic dacite sericitised or silicified feldspar phenocrysts in K. feldspar sericite matrix cut by 1-2mm quartz/limonite veinlets
flow banded R. lava
White R.L. Tiv & vein rubbles
Rr Rubble
Sheared Rt
Sheared? Rt lt
Rr or lava
HA
— LEGEND —
MT. CHARTER, FACT AND INTERPRETIVE GEOLOGY
BSH Que River Shale
A Andesite, undifferented. Not hydrothermally altered, except in 4500 N costean. Contains Pb/Zn mineralization in the form of galena and sphalerite associated with quartz/carbonate veining
B Massive coarsely crystalline barite, limonite banded barite and poddy and disseminated barite in hydrothermally altered volcanics.
D "Dacites" – Quartz/Sericite/Carbonate altered volcanics, containing patches and veinlets of pyrite galena, sphalerite and barite in the area footwall to the barite horizon.
Geological contact interpreted
Geological contact, probably gradational, inferred
Outcrop
Float
MC-1 Drill Hole
Line of drill hole section
Anticlinal axis, showing plunge direction
488733
5 cm
90-3128.
Aberfoyle Exploration Pty Ltd
REVISIONS
Location Code: K55/6/44
NORTH WEST TASMANIA
HATFIELD E.L. 15/73
MT. CHARTER AREA
ROCK CHIP SAMPLES – Au Ag GRADES
Scale: 1:1000
Date: February, 1984
Compiled: D.J.J.
Drawn: R.J.E.
Traced: R.J.E., A.C.D.
Checked:
Plate No: MAC 244
RMO 666

9674



488734

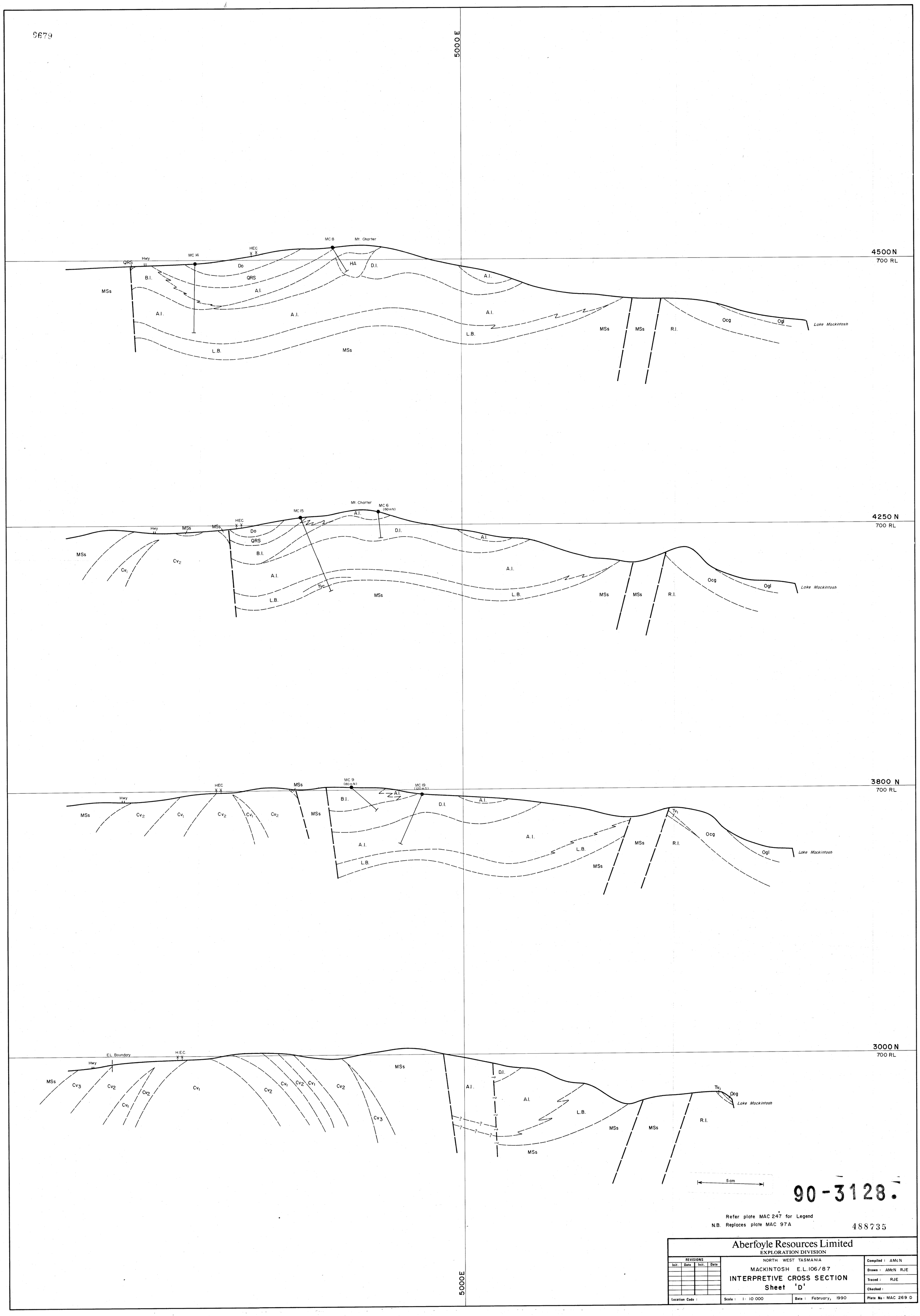
90-3128.

Refer to plate Mac 243 for section line

Aberfoyle Resources Limited
EXPLORATION DIVISION

REVISIONS					
Init.	Date	Init.	Date	NORTH WEST TASMANIA	Compiled : SWR
				MACKINTOSH E.L. 106/87	Drawn :
					Traced : JLR
				DDH - MAC - 23	Checked :
Location Code :				Scale : 1:1000 / Date : August, 1989	Plate No : MAC 261

9679



90-3128.

Refer plate MAC 247 for Legend

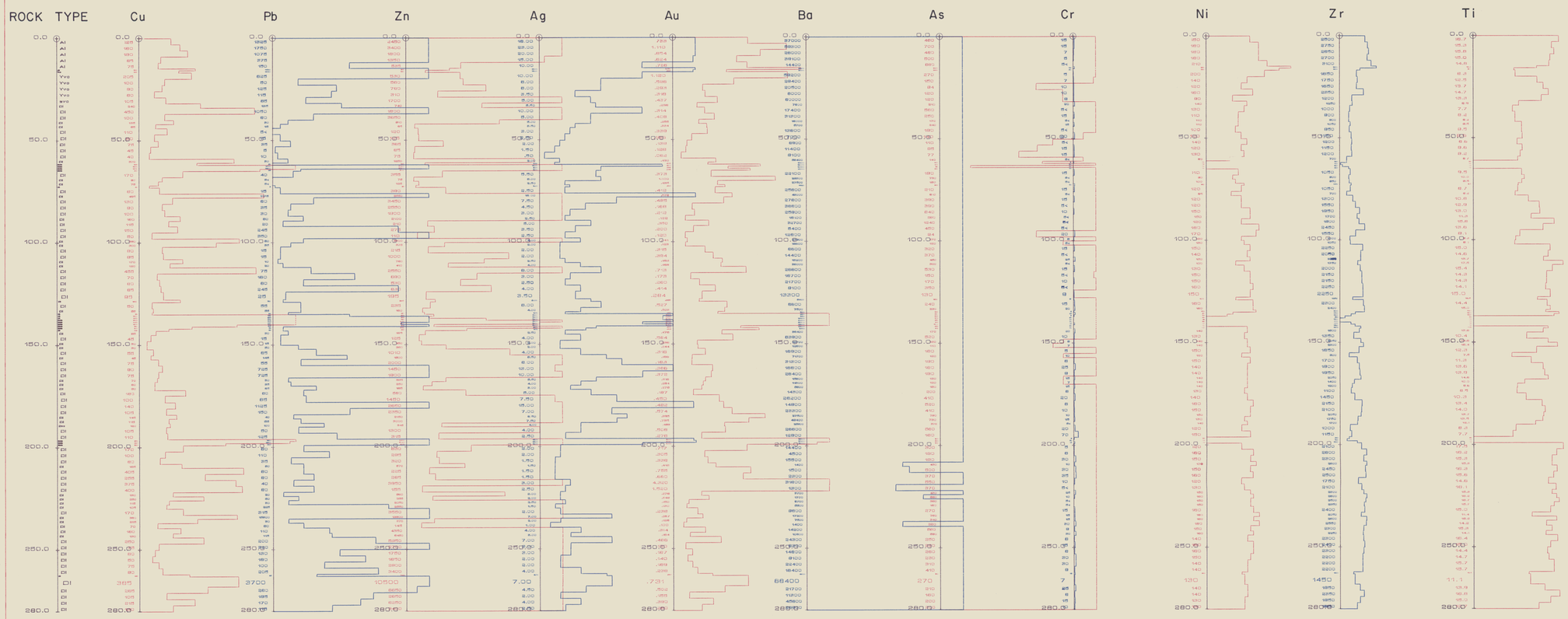
N.B. Replaces plate MAC 97A

488735

Aberfoyle Resources Limited
EXPLORATION DIVISION

REVISIONS					
Init.	Date	Init.	Date	NORTH WEST TASMANIA	Compiled : AMcN
				MACKINTOSH E.L.106/87	Drawn : AMcN RJE
				INTERPRETIVE CROSS SECTION	Traced : RJE
				Sheet 'D'	Checked :
Location Code :				Scale : 1: 10 000 / Date : February, 1990	Plate No : MAC 269 D

5675



488736

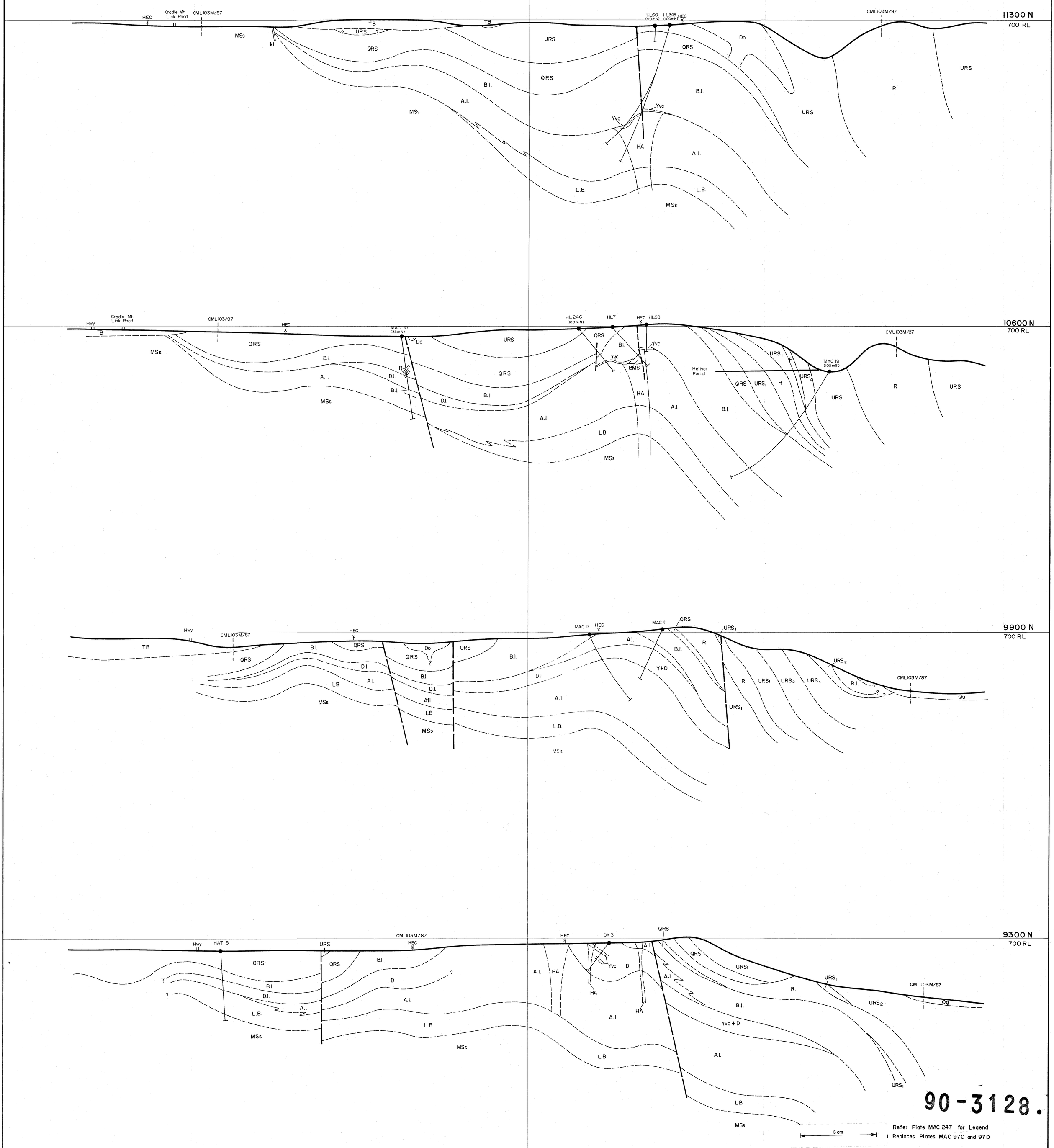
5 cm

90-3128.

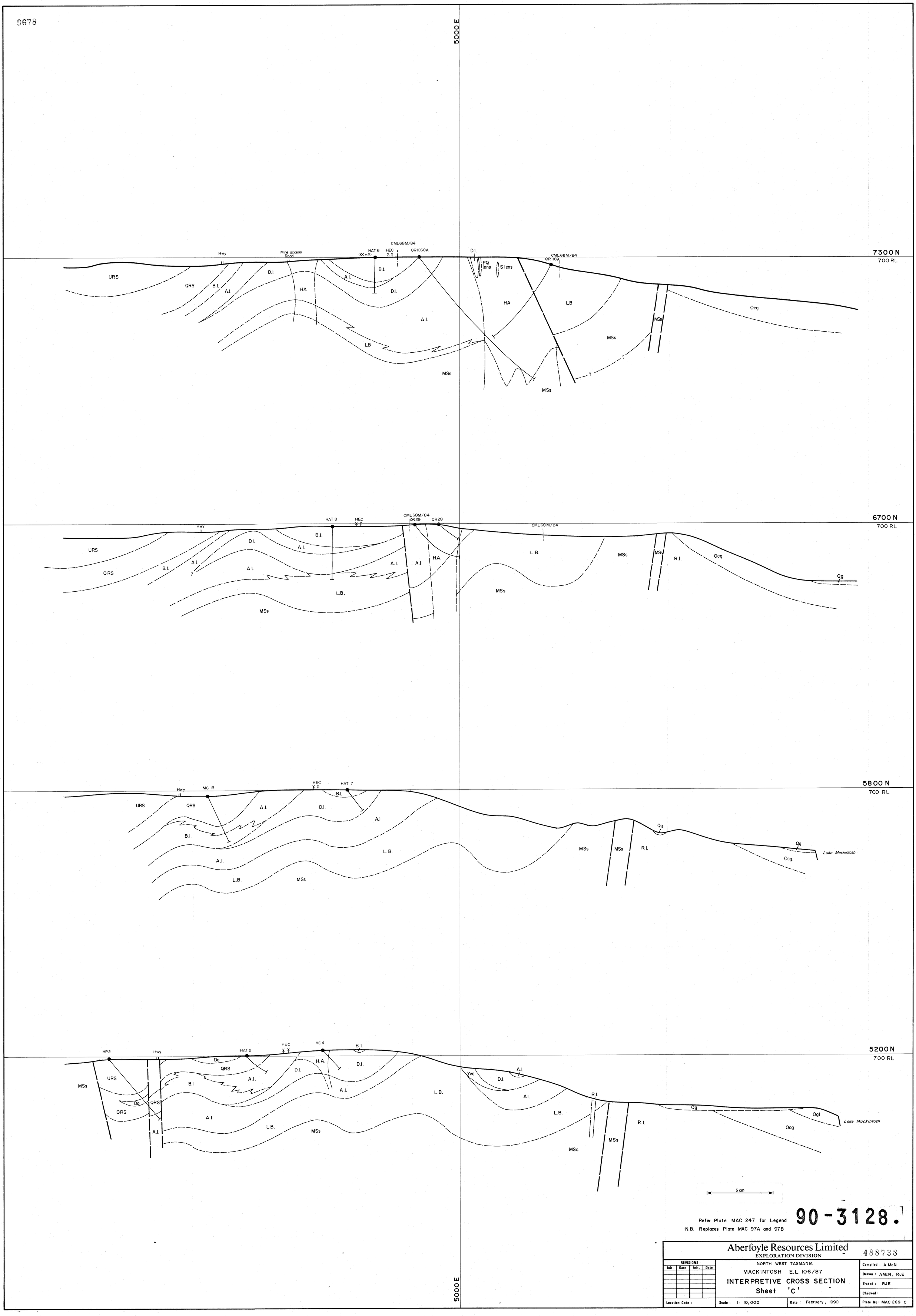
SCALE 1: 1000		Aberfoyle Expl. P.L.
DRAWN	RDB	SECTION : MAC 23
CHECKED		
DESIGNED		DRAWING No. MAC 261a
DESIGN CKD		
DESIGN APP		REVISION
PROJECT APP		23 AUG., 1989

9676

5000 E


11300 N
700 RL
HEC
Cradle Mt. Link Road
CML103M/87
TB
MSs
kl
URS
QRS
B.I.
A.I.
HL60 (90mN)
HL345 (100mN)
Do
Yvc
HA
L.B.
R
10600 N
700 RL
Hwy
HL246 (100mN)
HL7
HL68
MAC 10 (35mN)
D.I.
BMS
Hellyer Portal
URS1
URS2
MAC 19 (100mS)
9900 N
700 RL
MAC 17
MAC 4
Y+D
URS4
R.I.
Qu
9300 N
700 RL
HAT 5
DA 3
Qg
Yvc + D
5 cm
90-3128.
Refer Plate MAC 247 for Legend
Replaces Plates MAC 97C and 97D
Aberfoyle Resources Limited
EXPLORATION DIVISION
488737
REVISIONS
Init. Date Init. Date
NORTH WEST TASMANIA
MACKINTOSH - E.L. 106/87
INTERPRETIVE CROSS SECTION
Sheet 'A'
Location Code :
Scale : 1: 10,000
Date : April, 1990
Compiled : AMc N
Drawn : AMc N, RJE
Traced : RJE
Checked :
Plate No : MAC 269 A

0678



Refer Plate MAC 247 for Legend

N.B. Replaces Plate MAC 97A and 97B

90-3128.

Aberfoyle Resources Limited
EXPLORATION DIVISION

488738

REVISIONS			
Init.	Date	Init.	Date
Location Code :			

NORTH WEST TASMANIA

MACKINTOSH E.L. 106/87

INTERPRETIVE CROSS SECTION

Sheet 'C'

Scale : 1: 10,000

Date : February, 1990

Compiled : A McN

Drawn : AMcN, RJE

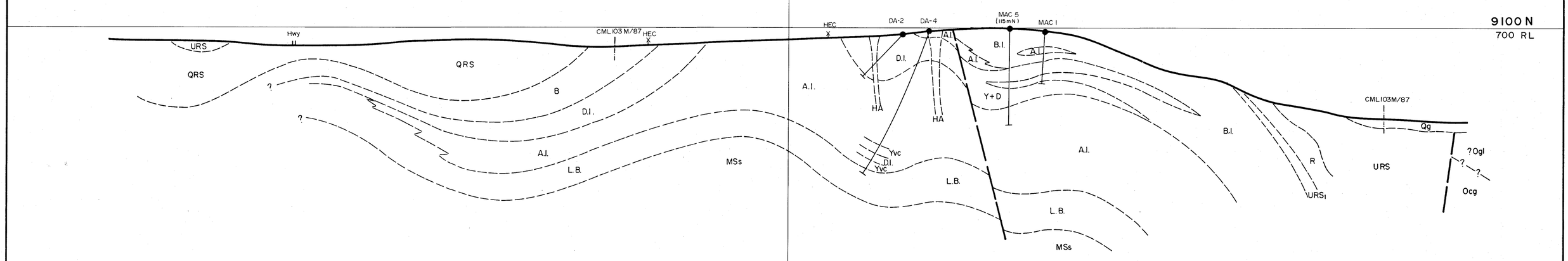
Traced : RJE

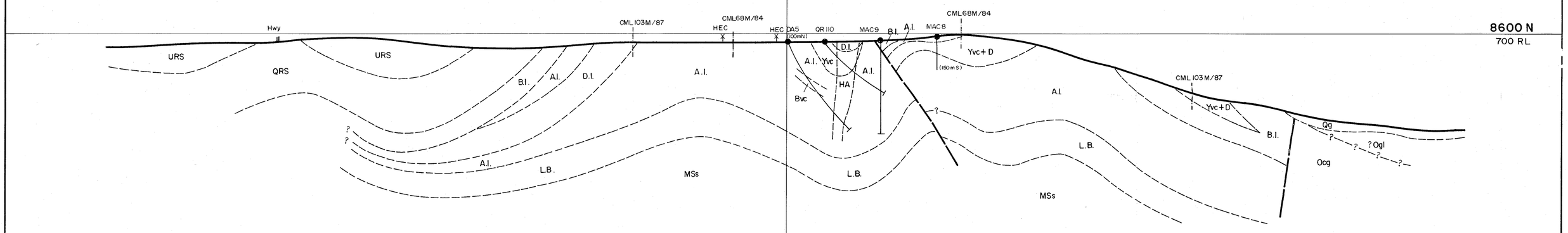
Checked :

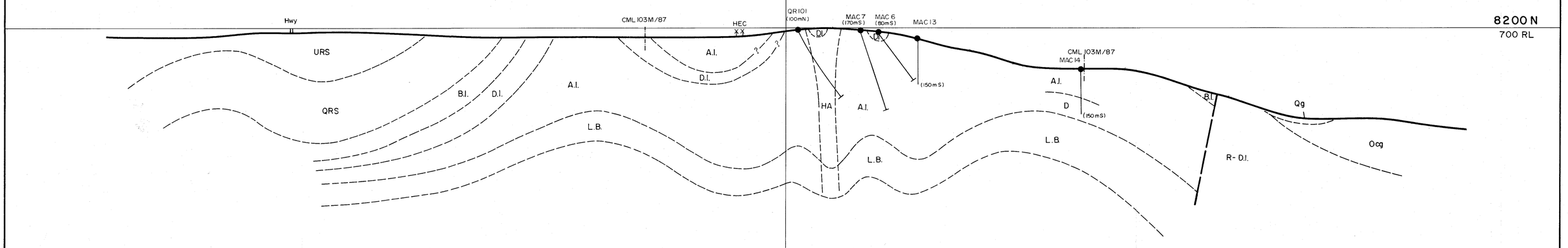
Plate No : MAC 269 C

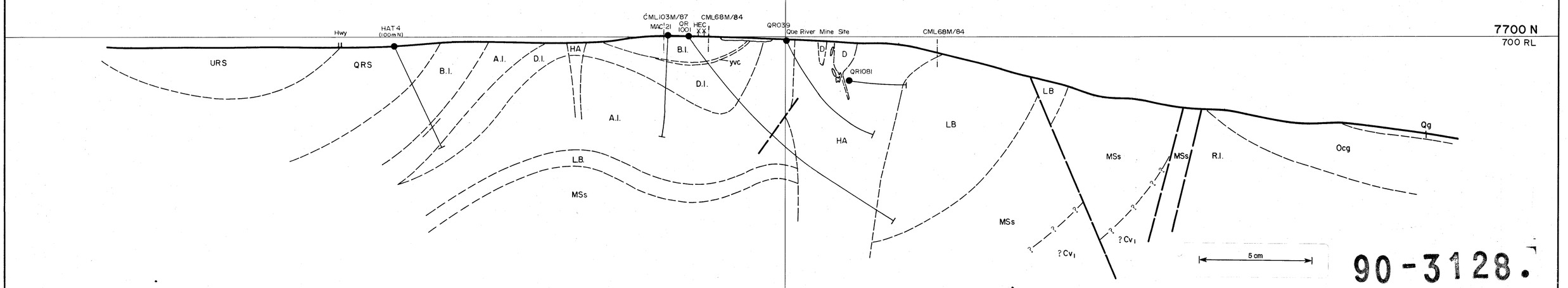
9677

5000 E









5000 E

90-3128.

Refer Plate MAC 247 for Legend

NB. Replaces Plate MAC 97A and 97B

488739

Aberfoyle Resources Limited
EXPLORATION DIVISION

REVISIONS			
Init.	Date	Init.	Date

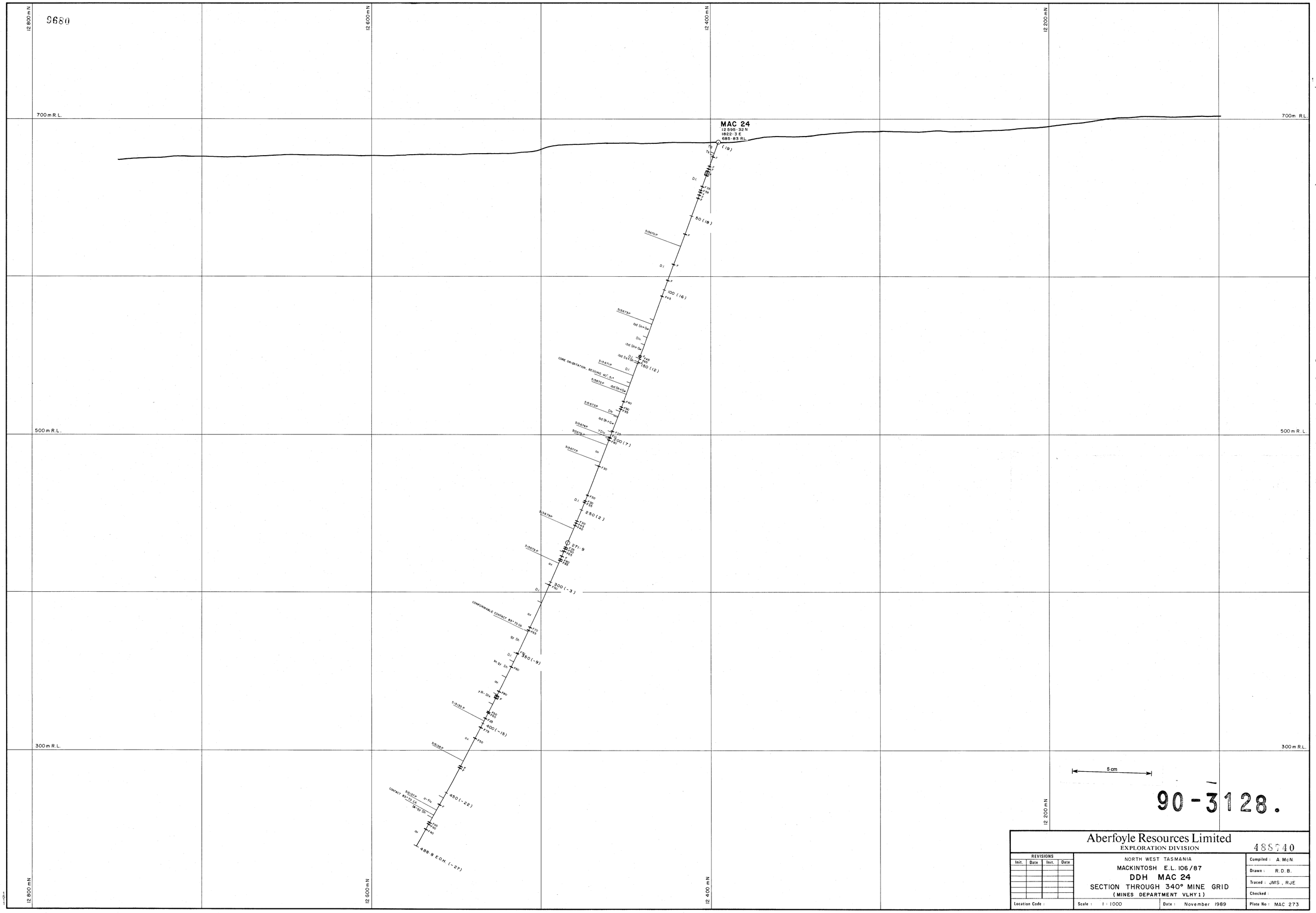
Location Code : *

NORTH WEST TASMANIA
MACKINTOSH E.L.106/87
INTERPRETIVE CROSS SECTIONS
Sheet 'B'

Scale : 1:10,000 | Date : September, 1989

Compiled : AMcN
Drawn : AMcN / RJE
Traced : RJE
Checked :
Plate No : MAC 269 B

9680



90-3128.

Aberfoyle Resources Limited
EXPLORATION DIVISION

488740

REVISIONS			
Init.	Date	Init.	Date

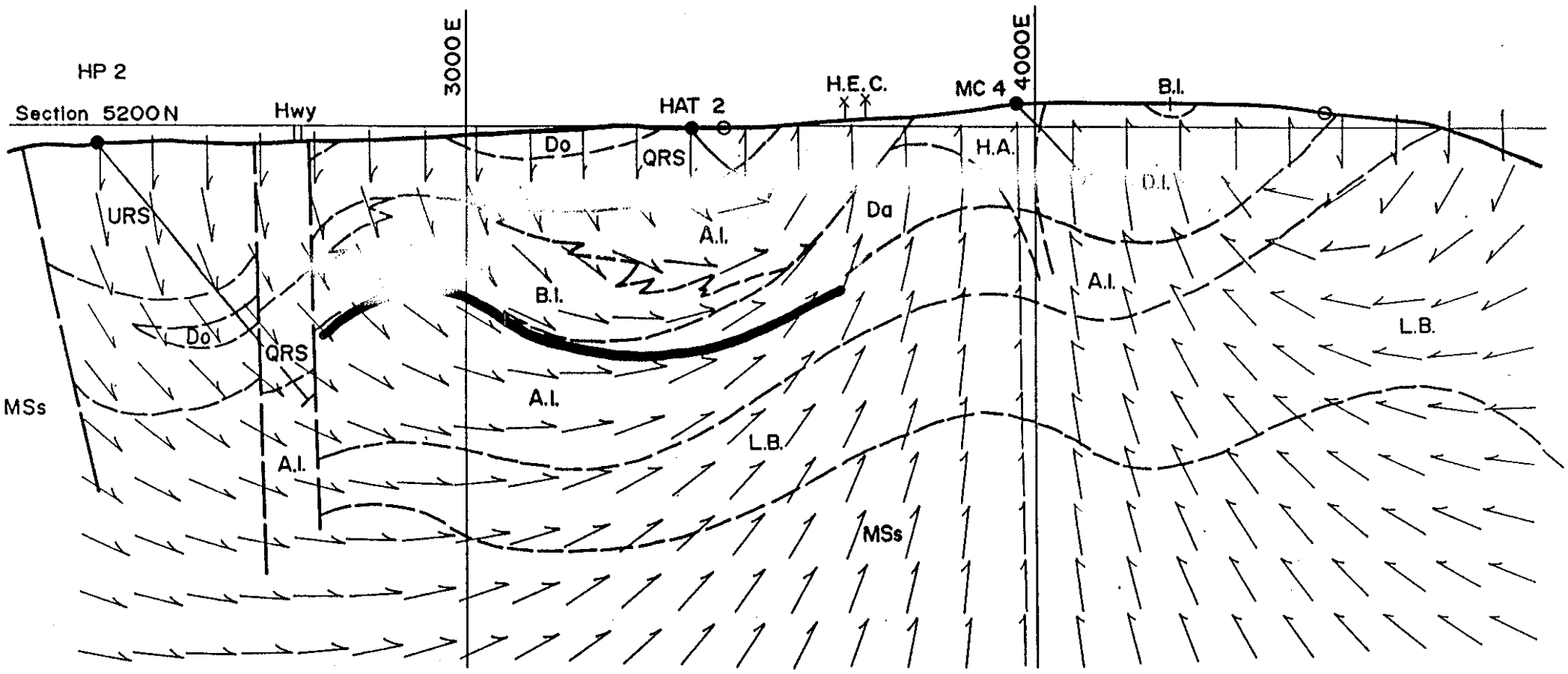
NORTH WEST TASMANIA
MACKINTOSH E.L. 106/87
DDH MAC 24
SECTION THROUGH 340° MINE GRID
(MINES DEPARTMENT VLHY1)

Location Code :
Scale : 1 : 1000
Date : November 1989

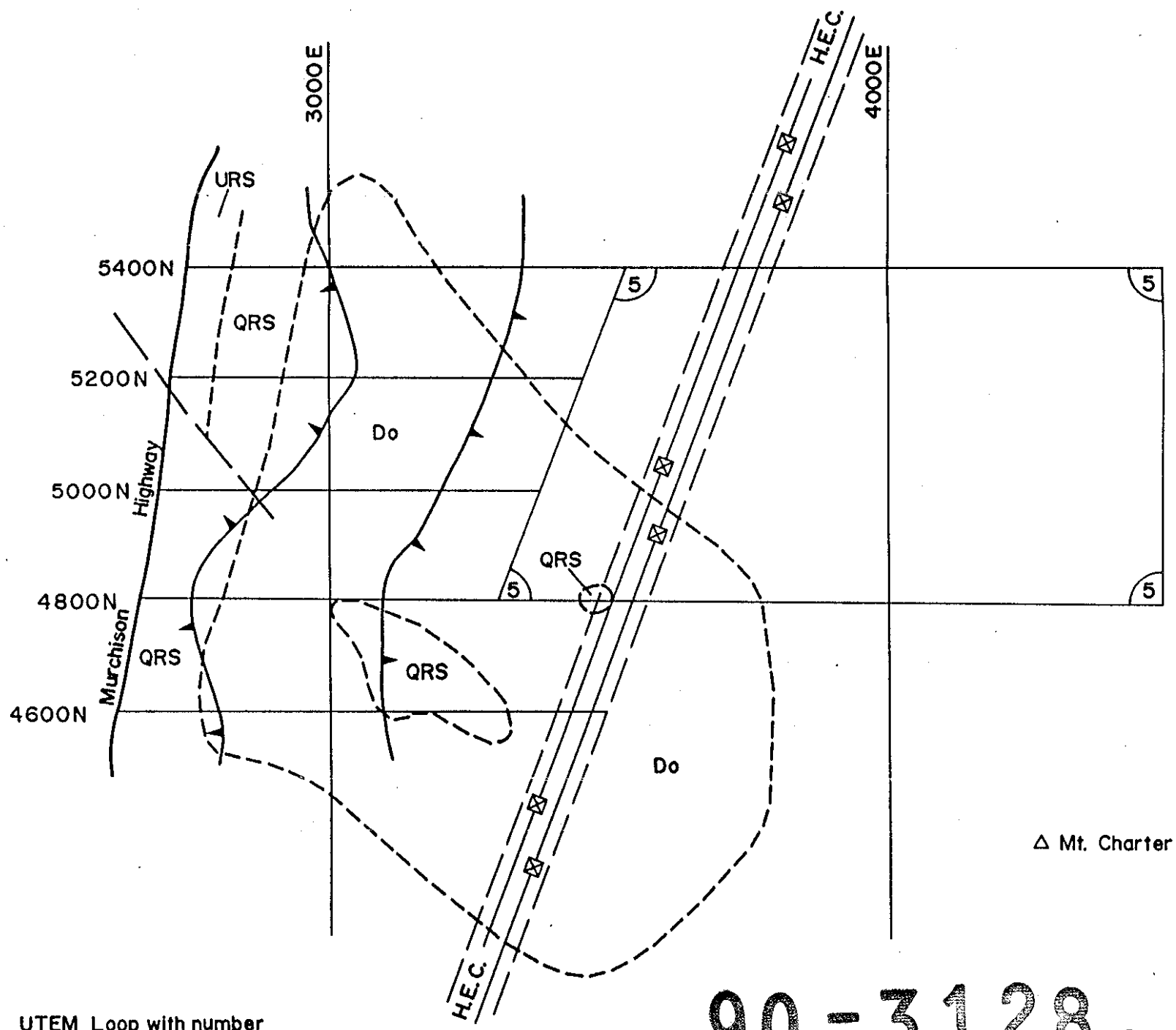
Compiled : A. McN.
Drawn : R.D.B.
Traced : JMS, RJE
Checked :
Plate No : MAC 273

0684

a) Geological Section 5200N with Target Horizon and Primary Energising Field



b) UTEM Survey Geometry with Conductive Sources



UTEM Loop with number

Anomalous Unit
-positions accurate to ±25m

5 cm

90-3128.

488741

Plate 1

Aberfoyle Resources Limited
EXPLORATION DIVISION

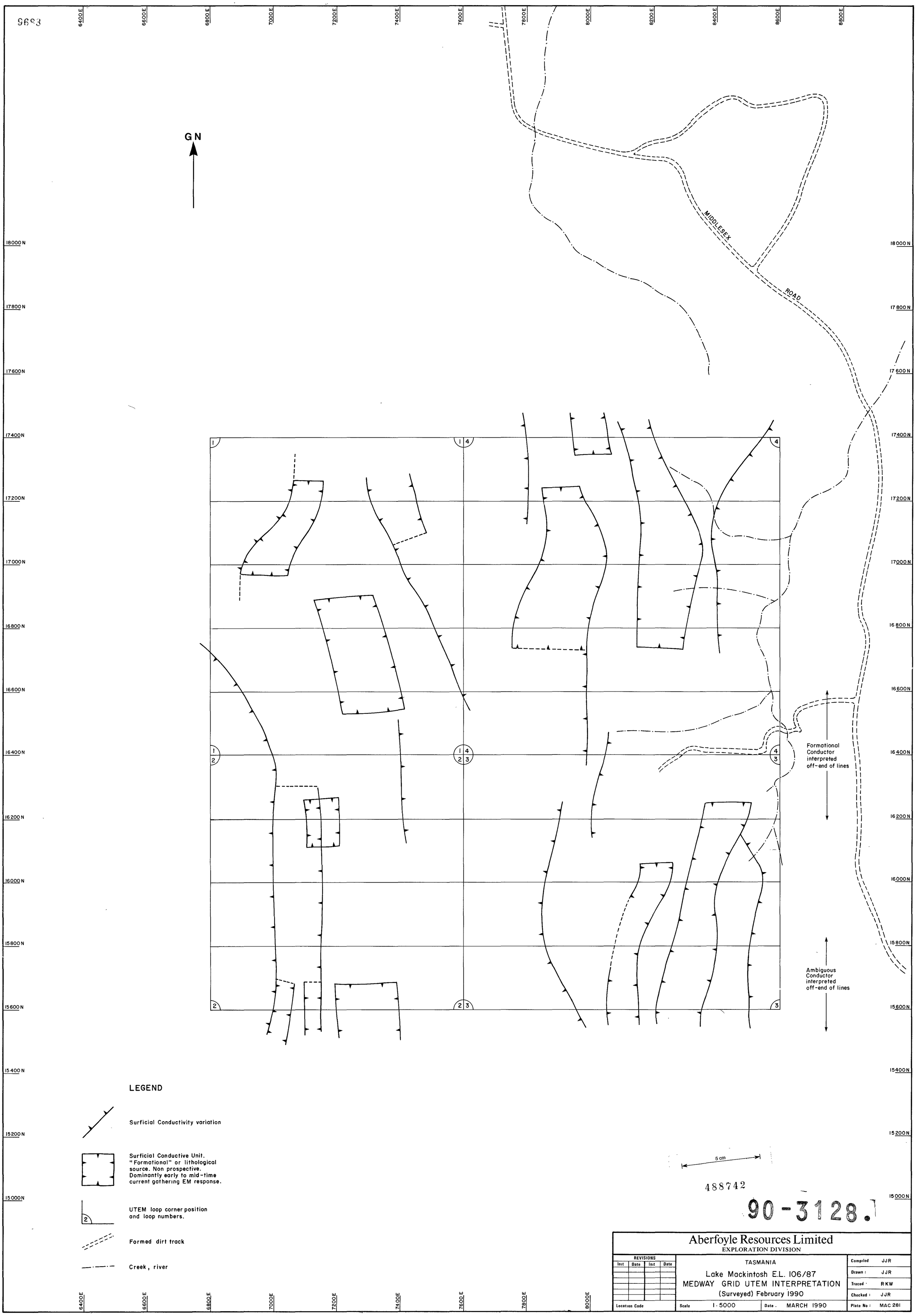
REVISIONS			
Init.	Date	Init.	Date
Location Code :			

Northwest Tasmania
CHARTER DOLERITE UTEM SURVEY
Mackintosh E.L. 106/87

Scale : 1:10 000 | Date : APRIL 1990

Compiled :	GBW
Drawn :	GBW
Traced :	JAB
Checked :	GBW
Plate No. :	MAC 282

9693



488742

90-3128.

Aberfoyle Resources Limited

EXPLORATION DIVISION

REVISIONS					
Init	Date	Init	Date		
Location Code					

TASMANIA

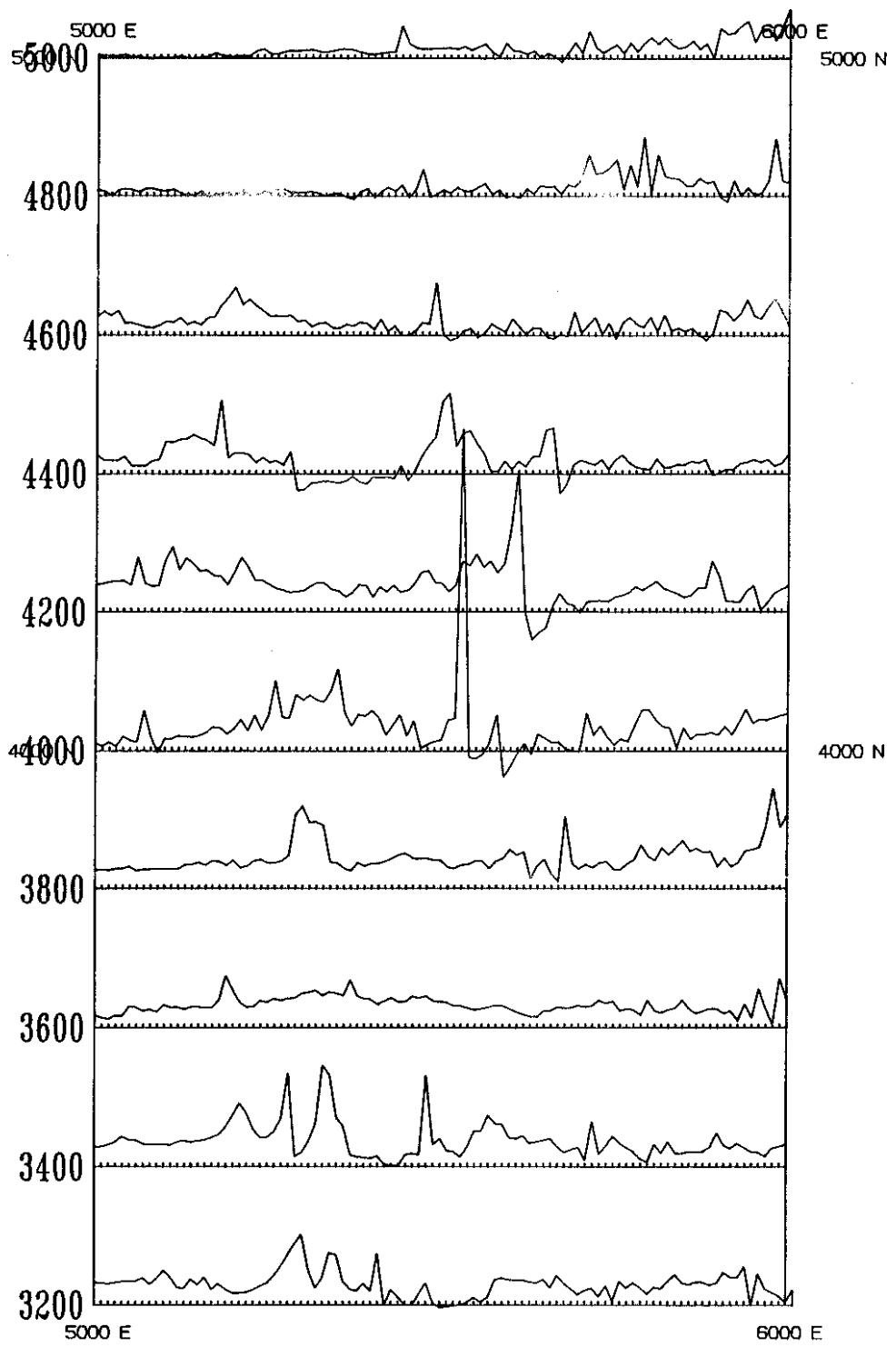
Lake Mackintosh E.L. 106/87

MEDWAY GRID UTEM INTERPRETATION

(Surveyed) February 1990

Scale	1:5000	Date.	MARCH 1990

Compiled	JJR
Drawn:	JJR
Traced:	RKW
Checked:	JJR
Plate No:	MAC 281



PROFILE SCALE 100 nT/cm
BASE LEVEL 100 nT

200 0 200 400 600 metres

AUSTRALIAN MAP GRID

90-3128.

488743

ABERFOYLE RESOURCES LIMITED

EXPLORATION DIVISION

REVISIONS			
Init.	Date	Init.	Date

MACKINTOSH
= ''

GROUND MAGNETIC PROFILES

MT. CHARTER

Compiled: jjr
Drawn: Apollo
Traced:
Checked: jjr

Location Code:
Scale: 10000
Date: January 1990
Plate No: MAC 276

PROSPECT: %s:
SECTION: definition:
EL 0 795.0
N 0 0
RL -542.0 0
Forward extent : 10.0
Backward extent: 10.0
Section Strike: 90.0
PDF file: %s:24pm.pdf
PDF file: %s:24pm.pdf

DRILL HOLE LEGEND - RHS.
= HISTOGRAM =
Cu [ppm]
Base in %m: 000
Units per %m: 2.000
Max plot in %m: 50

Pb [ppm]
Base in %m: 000
Units per %m: 2.000
Max plot in %m: 50

Zn [ppm]
Base in %m: 000
Units per %m: 5.000
Max plot in %m: 50

Ag [ppm]
Base in %m: 000
Units per %m: .200
Max plot in %m: 50

Au [ppm]
Base in %m: 000
Units per %m: .100
Max plot in %m: 50

Ba [ppm]
Base in %m: 000
Units per %m: 8.000
Max plot in %m: 50

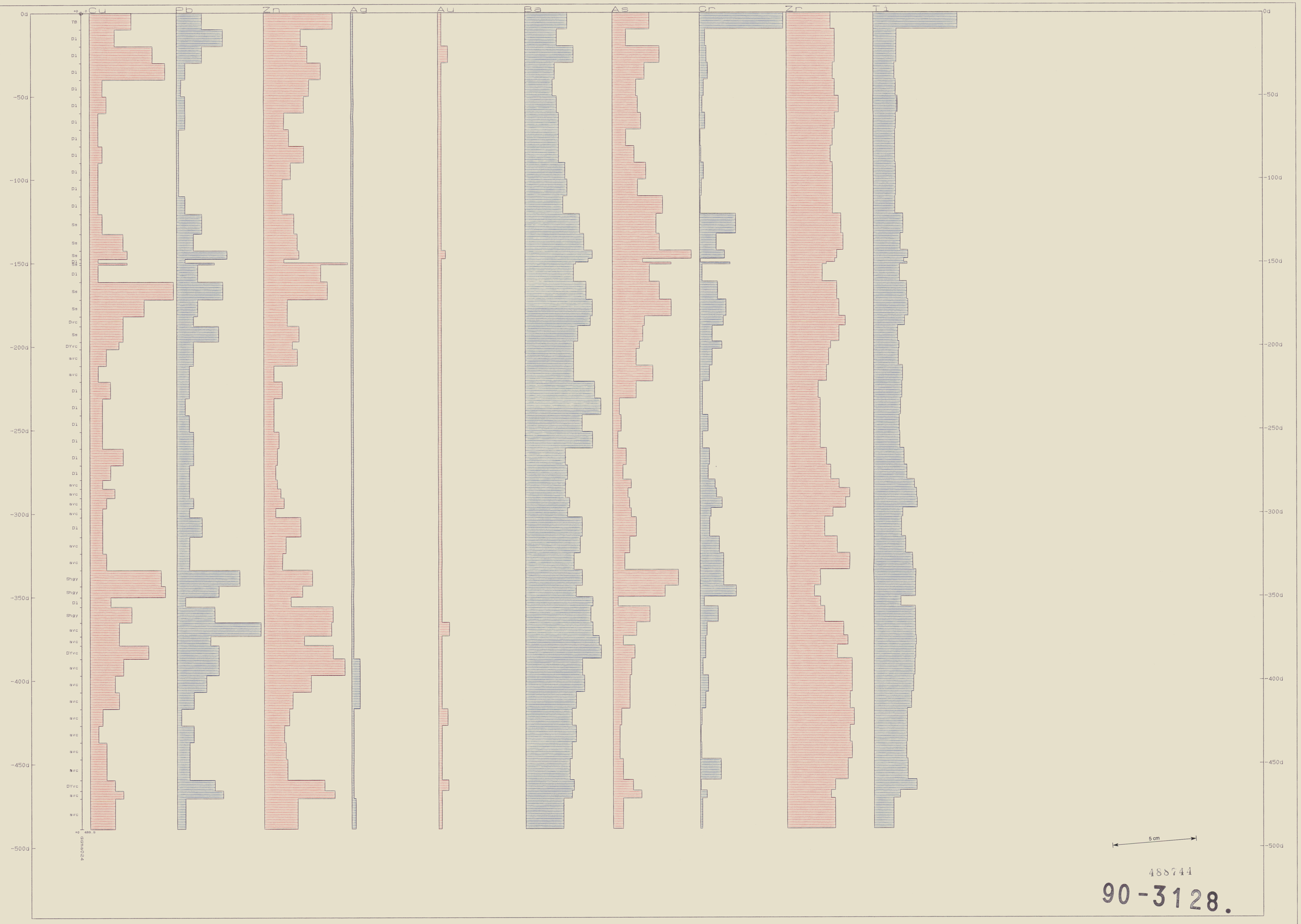
As [ppm]
Base in %m: 000
Units per %m: 1.000
Max plot in %m: 50

Cr [ppm]
Base in %m: 000
Units per %m: 6.000
Max plot in %m: 50

Zr [ppm]
Base in %m: 000
Units per %m: 8.000
Max plot in %m: 50

Ti [ppm]
Base in %m: 000
Units per %m: 120.000
Max plot in %m: 50

DRILL HOLE LEGEND - LHS.
= ANNOTATION =
Rock

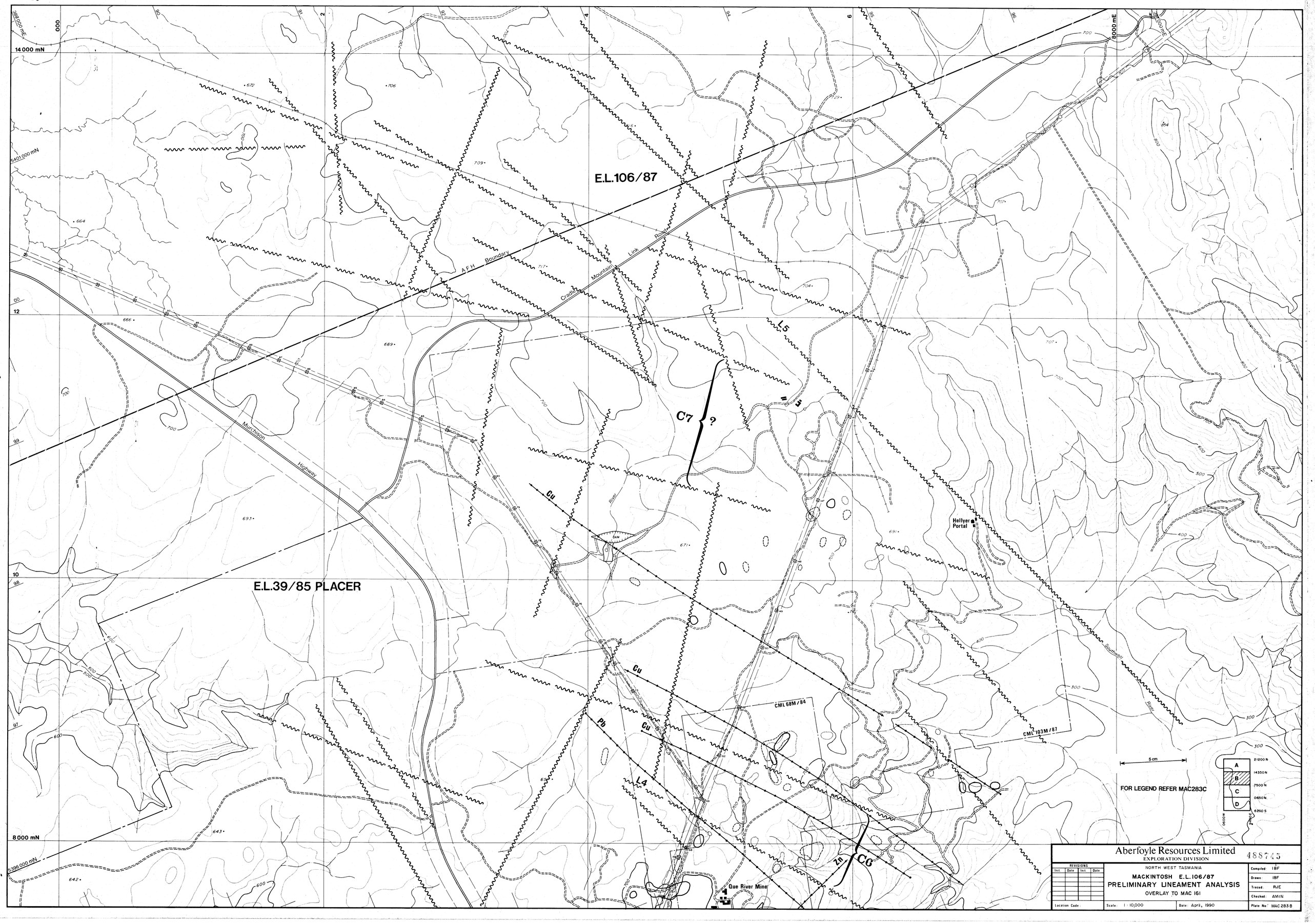


488744

90-3128.

Aberfoyle Resources Limited
EXPLORATION DIVISION

REVISIONS				TASMANIA	Compiled:
Init.	Date	Init.	Date	MACKINTOSH E.L. 106/87	Drawn:
				DDH MAC 24	Traced:
				GEOCHEMICAL PROFILES	Checked:
Location Code: "				Scale: 1 : 1000 Date: 19/07/90	Plate No: MAC 273A


E.L.106/87
E.L.39/85 PLACER
A.F.H. Boundary
Cradle Mountain Link Road
Murchison Highway
Hellyer River
Hellyer Portal
Southwell River
Que River Mine
CML 68M/84
CML 103M/87
C7
L5
L4
Cu
Pb
Zn
CG
14 000 mN
8000 mE
5401 000 mN
5396 000 mN
5 cm
FOR LEGEND REFER MAC283C
Aberfoyle Resources Limited
EXPLORATION DIVISION
488745
NORTH WEST TASMANIA
MACKINTOSH E.L.106/87
PRELIMINARY LINEAMENT ANALYSIS
OVERLAY TO MAC 161
Scale: 1:10,000
Date: April, 1990
Compiled: IBF
Drawn: IBF
Traced: RJE
Checked: AMcN
Plate No: MAC 283B

2696

E.L.39/85 PLACER

E.L.37/89 PASMINCO

E.L.42/85 PANCON

E.L.106/87

Mine Access Road

Que River Portal

The Shark's Fin

Murchison Highway

Mt. Charter

Mackintosh Lake

A1

A2

A3

C1

C2

C3

C4

L1

L2

L3

L6

L7

L8

Cu

Pb

Zn

387000 mE

395000 mE

8000 mE

5395000 mN

5390000 mN

6000 mN

2000 mN

— LEGEND —

Cu SOIL ANOMALIES

Pb SOIL ANOMALIES

Zn SOIL ANOMALIES

LINEAR BREAKS IN SOIL GEOCHEMISTRY

STRONG (PROBABLE FAULT)

CLEAR TO SUBTLE (POSSIBLE FAULT)

5 cm

A 21200 N

B 14350 N

C 7500 N

D 0650 N

6200 S

0600E

8600E

Aberfoyle Resources Limited

EXPLORATION DIVISION

488776

NORTH WEST TASMANIA

MACKINTOSH E.L.106/87

PRELIMINARY LINEAMENT ANALYSIS

OVERLAY TO MAC 161

REVISIONS			
Init.	Date	Init.	Date

Location Code:

Scale: 1:10000

Date: April, 1990

Compiled: IBF

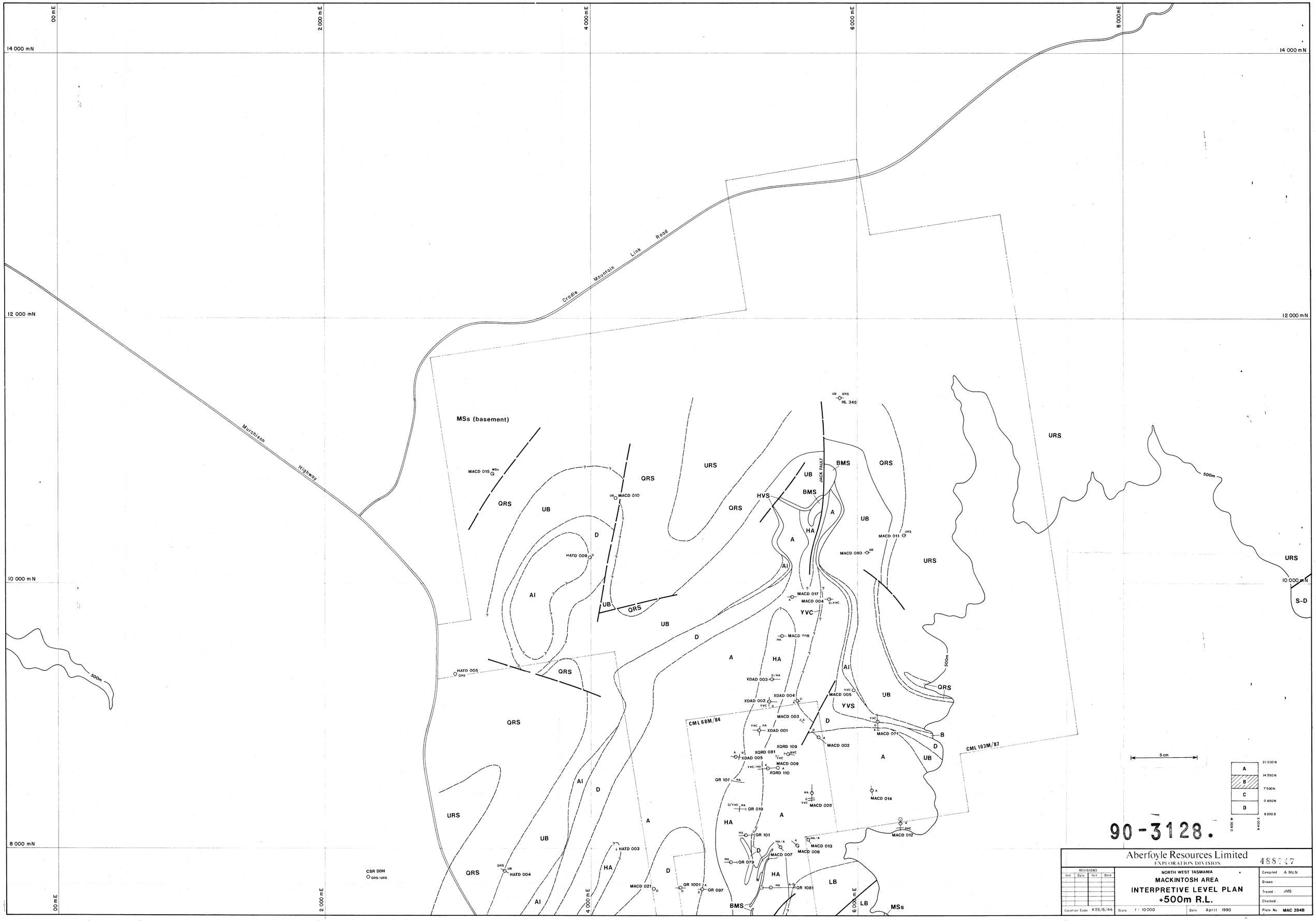
Drawn: IBF

Traced: RJE

Checked: AMcN

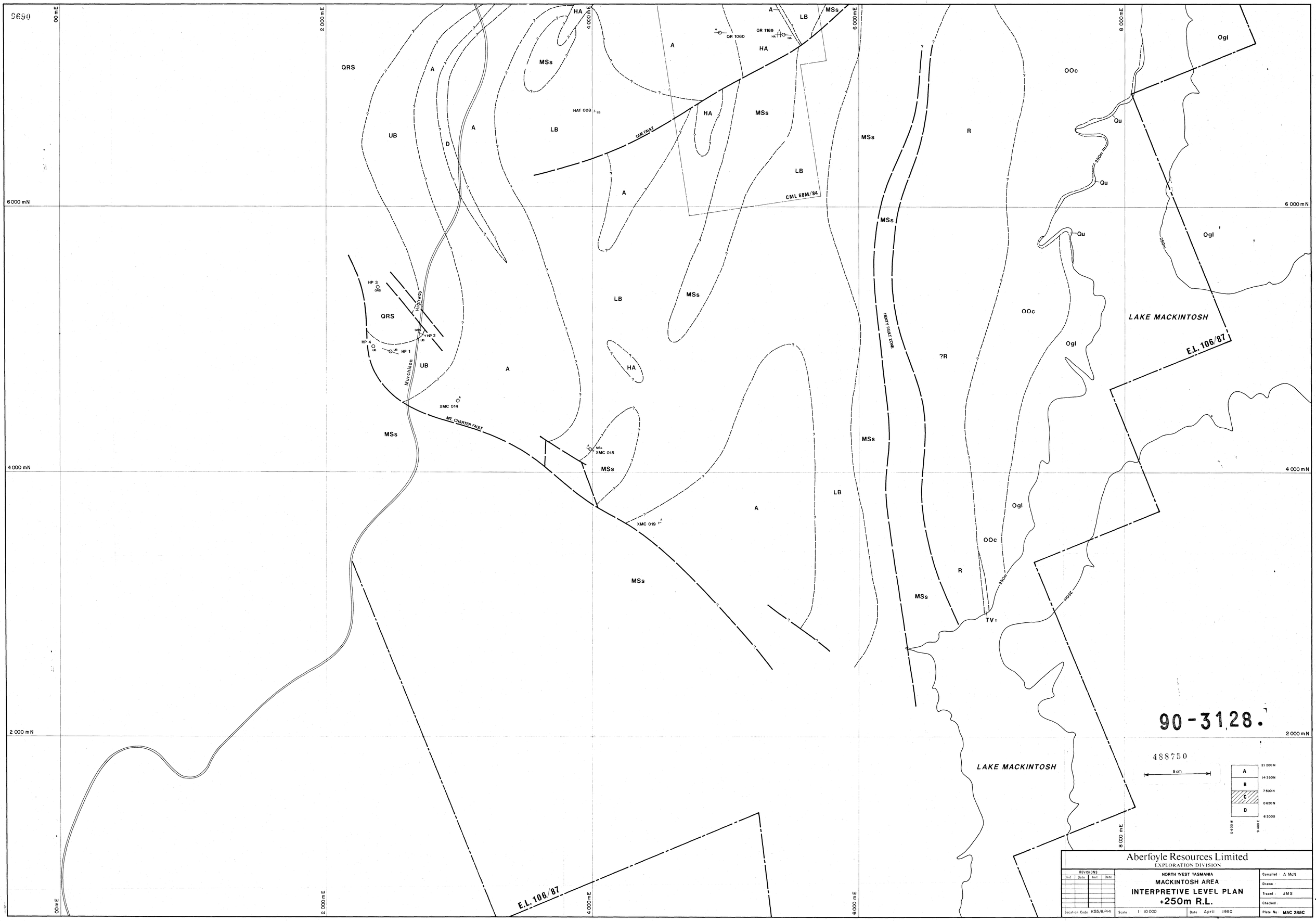
Plate No: MAC 283 C

9687

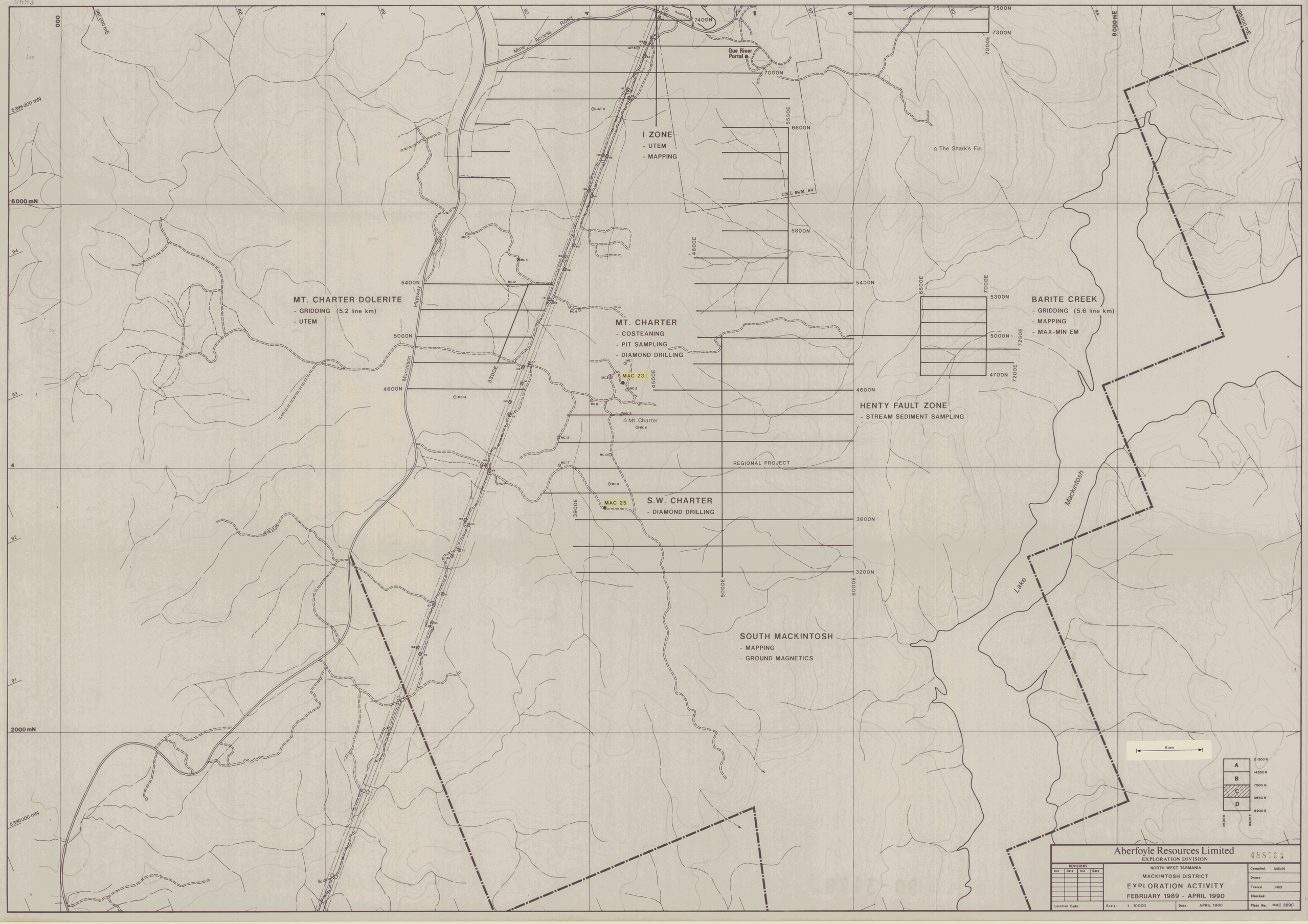

00 mE
2 000 mE
4 000 mE
6 000 mE
8 000 mE
14 000 mN
12 000 mN
10 000 mN
8 000 mN
Cradle Mountain Link Road
Murchison Highway
MSs (basement)
URS
QRS
UB
D
A
HA
AI
HVS
BMS
JACK FAULT
YVC
YVS
LB
S-D
500m
CML 68M/84
CML 103M/87
MACD 015
MACD 010
HATD 009
HATD 005
HATD 004
HATD 003
MACD 021
QR 1001
QR 097
QR 079
QR 101
QR 019
QR 107
QR 1081
MACD 007
MACD 006
MACD 013
MACD 012
MACD 014
MACD 008
MACD 009
XORD 110
XORD 109
XORD 081
XDAD 005
XDAD 001
XDAD 002
XDAD 003
XDAD 004
MACD 003
MACD 002
MACD 001
MACD 005
MACD 018
MACD 017
MACD 004
MACD 080
MACD 011
HL 345
CSR DDH
QRS/URS
5 cm
A 21 200 N
B 14 350 N
C 7 500 N
D 0 650 N
6 200 S
0 600 W
9 400 E
90-3128.
Aberfoyle Resources Limited
EXPLORATION DIVISION
488547
REVISIONS
Initial Date Initial Date
NORTH WEST TASMANIA
MACKINTOSH AREA
INTERPRETIVE LEVEL PLAN
+500m R.L.
Location Code K55/6/44
Scale 1 : 10000
Date April 1990
Compiled A McN
Drawn :
Traced : JMS
Checked :
Plate No. MAC 284B

00 m E
2 000 m E
4 000 m E
6 000 m E
8 000 m E
6 000 m N
4 000 m N
2 000 m N
QRS
UB
A
HA
D
URS
LB
BMS
MSs
OOc
RVC
R
YVC
DO
HAT 006
HAT 008
HAT 1
HAT 007
QR 1060
QR 1169
QR 082
QR 029
OUE FAULT
DECLINE FAULT
75°
CML 68M/84
HENTY FAULT ZONE
500m
XMC 013
XMC 011
XMC 012
XMC 014
XMC 017
XMC 015
XMC 010
XMC 019
HP 3
HP 2
HP 1
HP 4
Murchison Highway
MT. CHARTER FAULT
E.L. 106/87
90-3128.
5 cm
21 200 N
14 350 N
7 500 N
0 650 N
6 200 S
0 500 W
9 400 E
Aberfoyle Resources Limited
EXPLORATION DIVISION
488748
REVISIONS
Inst Date Inst Date
NORTH WEST TASMANIA
MACKINTOSH AREA
INTERPRETIVE LEVEL PLAN
+500m R.L.
Location Code K55/6/44
Scale 1:10 000
Date April 1990
Compiled A McN
Drawn
Traced J M S
Checked
Plate No MAC 284C

00 mE
2 000 mE
4 000 mE
6 000 mE
8 000 mE
14 000 mN
12 000 mN
10 000 mN
8 000 mN
Cradle Mountain Link Road
Murchison Highway
MSs(basement)
MSs
UB
YVC
HVS
BMS
HA
A
D
LB
QRS
URS
R
OOc
Ogl
Qu
JACK FAULT
DIE CRIPPS FAULT
CML 68M/84
CML 103M/87
HL 745
HL 306
MAC 010
MAC 011
MAC 012
MAC 013
MAC 014
MAC 017
MAC 018
MAC 019
MAC 005
MAC 009
MAC 021
XDA 004
XDA 005
HAT 005
HAT 004
QR 1001
QR 097
CSR DDH
URS/QRS?
5 cm
250m
21 200 N
14 350 N
7 500 N
0 650 N
6 200 S
0 600 W
8 400 E
90-3128.
Aberfoyle Resources Limited
EXPLORATION DIVISION
488749
REVISIONS
Inst Date Inst Date
NORTH WEST TASMANIA
MACKINTOSH AREA
INTERPRETIVE LEVEL PLAN
+250m R.L.
Compiled : A McN
Drawn :
Traced : JMS
Checked :
Location Code K55/6/44
Scale : 1 : 10 000
Date : April 1990
Plate No : MAC 285B


0690
00 mE
2 000 mE
4 000 mE
6 000 mE
8 000 mE
6 000 mN
4 000 mN
2 000 mN
QRS
UB
A
D
MSs
HA
LB
HAT 008
QR 1060
QR 1169
OLE FAULT
CML 68M/84
R
OOc
Ogl
Qu
250m
HENTY FAULT ZONE
?R
LAKE MACKINTOSH
E.L. 106/87
HP 3
HP 4
HP 1
HP 2
Murchison Highway
XMC 014
MT CHARTER FAULT
XMC 015
XMC 019
TV2
90-3128.
488750
5 cm
21 200 N
14 350N
7 500N
0 650N
6 200S
0 650W
9 400 E
Aberfoyle Resources Limited
EXPLORATION DIVISION
REVISIONS
Inst Date Inst Date
Location Code K55/6/44
NORTH WEST TASMANIA
MACKINTOSH AREA
INTERPRETIVE LEVEL PLAN
+250m R.L.
Scale 1 : 10 000
Date April 1990
Compiled : A McN
Drawn :
Traced : JMS
Checked :
Plate No : MAC 285C

9693



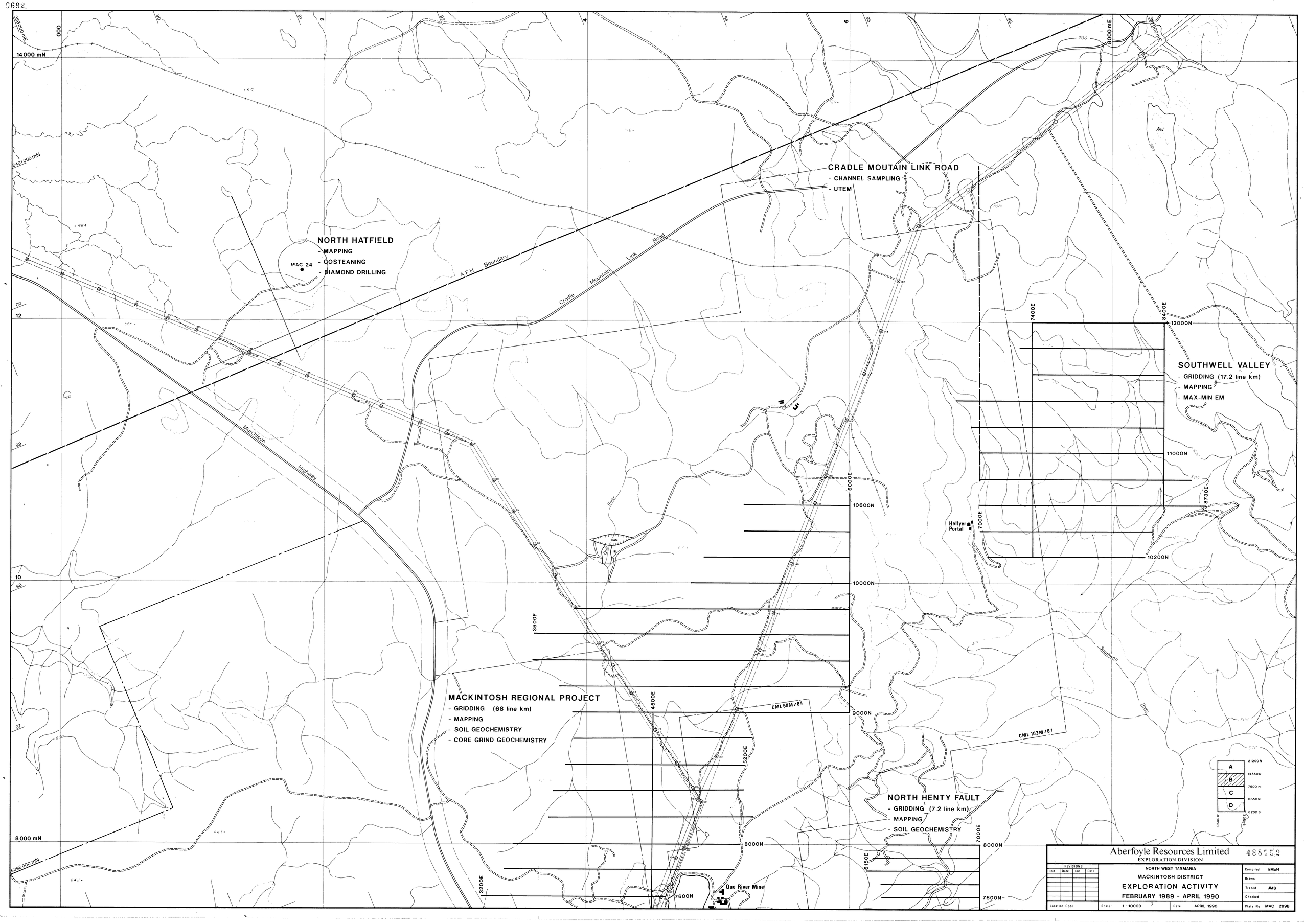
Aberfoyle Resources Limited
EXPLORATION DIVISION
488751

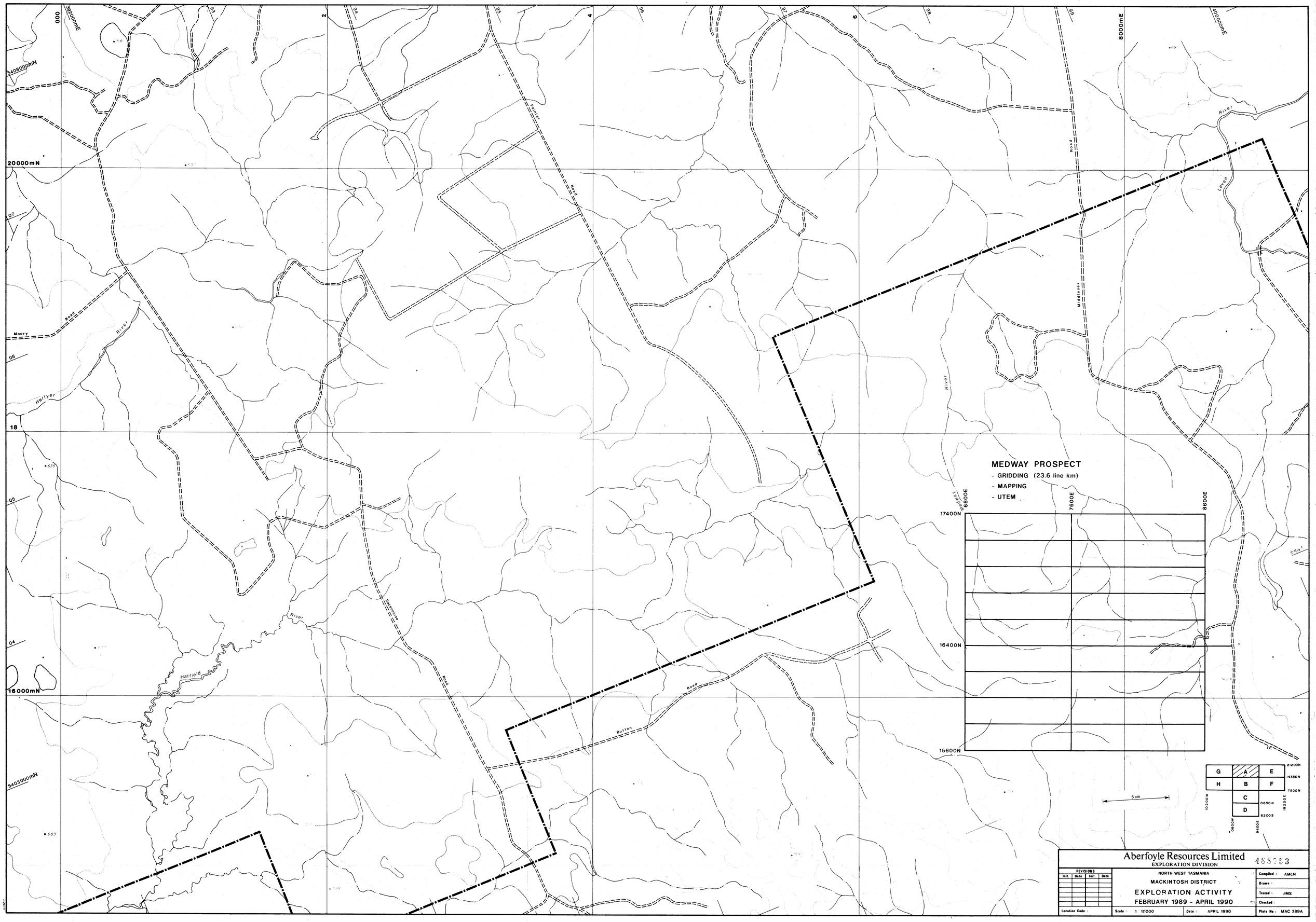
REVISIONS			
Init.	Date	Init.	Date
Location Code:			

NORTH WEST TASMANIA
MACKINTOSH DISTRICT
EXPLORATION ACTIVITY
FEBRUARY 1989 - APRIL 1990

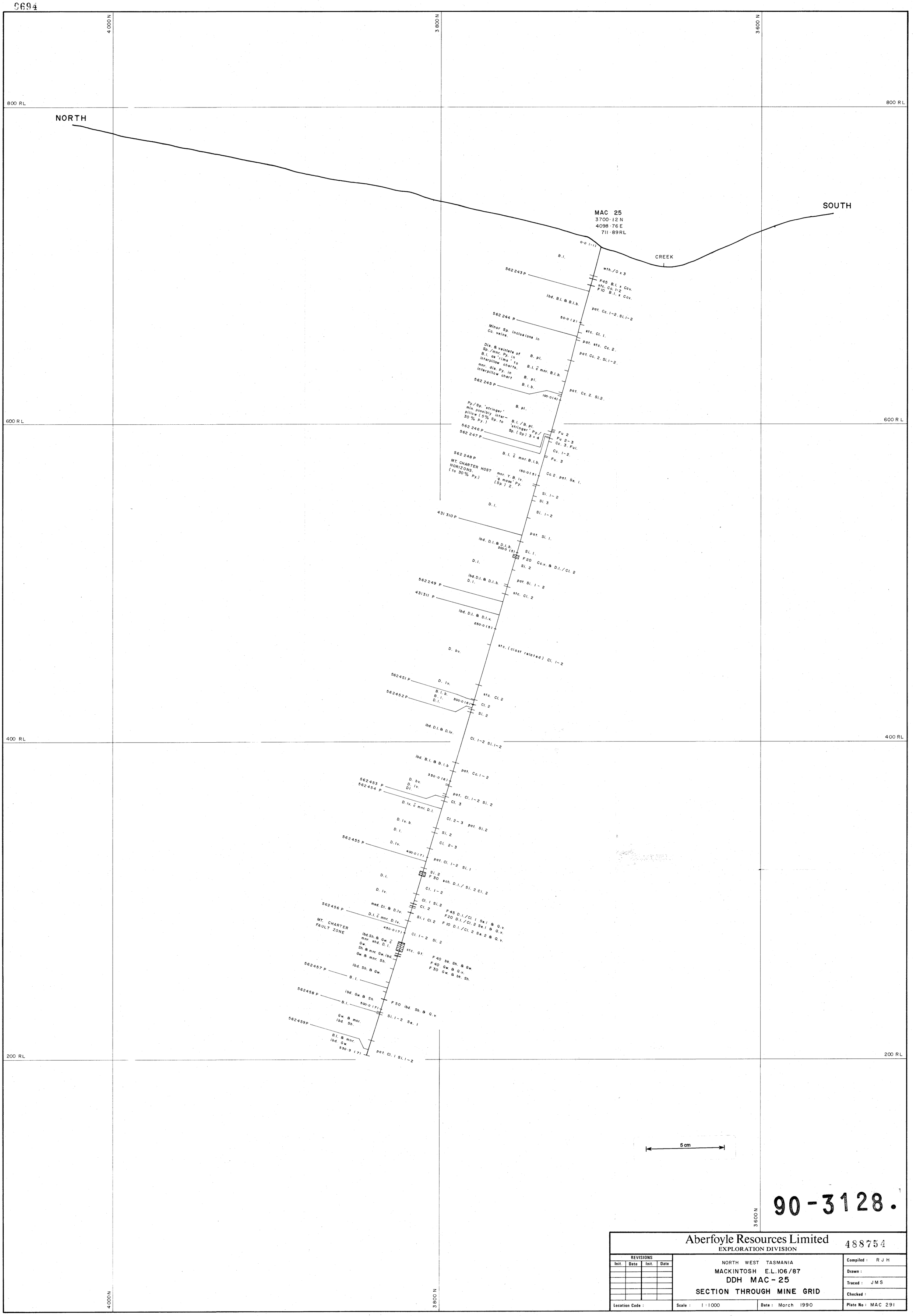
Scale: 1 : 10000 | Date: APRIL 1990

Compiled: AMcN
Drawn:
Traced: JMS
Checked:
Plate No: MAC 289C


CRADLE MOUTAIN LINK ROAD
- CHANNEL SAMPLING
- UTEM
NORTH HATFIELD
- MAPPING
- COSTEANING
- DIAMOND DRILLING
MAC 24
A F H Boundary
Cradle Mountain Link Road
Murchison Highway
SOUTHWELL VALLEY
- GRIDDING (17.2 line km)
- MAPPING
- MAX-MIN EM
Hellyer Portal
MACKINTOSH REGIONAL PROJECT
- GRIDDING (68 line km)
- MAPPING
- SOIL GEOCHEMISTRY
- CORE GRIND GEOCHEMISTRY
CML 68M/84
CML 103M/87
NORTH HENTY FAULT
- GRIDDING (7.2 line km)
- MAPPING
- SOIL GEOCHEMISTRY
Que River Mine
Southwell River
14000 mN
8000 mN
7400E
8400E
12000N
11000N
10200N
10600N
10000N
9000N
8000N
7600N
6000E
7000E
8730E
3600E
4500E
5200E
6150E
3200E
Aberfoyle Resources Limited
EXPLORATION DIVISION
NORTH WEST TASMANIA
MACKINTOSH DISTRICT
EXPLORATION ACTIVITY
FEBRUARY 1989 - APRIL 1990
Scale: 1 10000
Date APRIL 1990
Compiled AMcN
Traced JMS
Plate No MAC 289B


MEDWAY PROSPECT
- GRIDDING (23.6 line km)
- MAPPING
- UTEM
17400N
16400N
15600N
6800E
7600E
8600E
Medway
Panter
Road
Middleses
Road
River
Leven
Moory
Road
River
Hellyer
River
Hatfield
River
Bacchus
Road
Button
Road
20000mN
16000mN
5403000mN
5408000mN
392000mE
410000mE
8000mE
5 cm
G
A
E
H
B
F
C
D
21200N
14350N
7500N
0650N
6200S
10200W
19200E
0600W
9400E
Aberfoyle Resources Limited
EXPLORATION DIVISION
488753
REVISIONS
Init. Date Init. Date
Location Code :
NORTH WEST TASMANIA
MACKINTOSH DISTRICT
EXPLORATION ACTIVITY
FEBRUARY 1989 - APRIL 1990
Scale : 1 : 10000
Date : APRIL 1990
Compiled : AMcN
Drawn :
Traced : JMS
Checked :
Plate No : MAC 289A

0694



90-3128.

Aberfoyle Resources Limited
EXPLORATION DIVISION

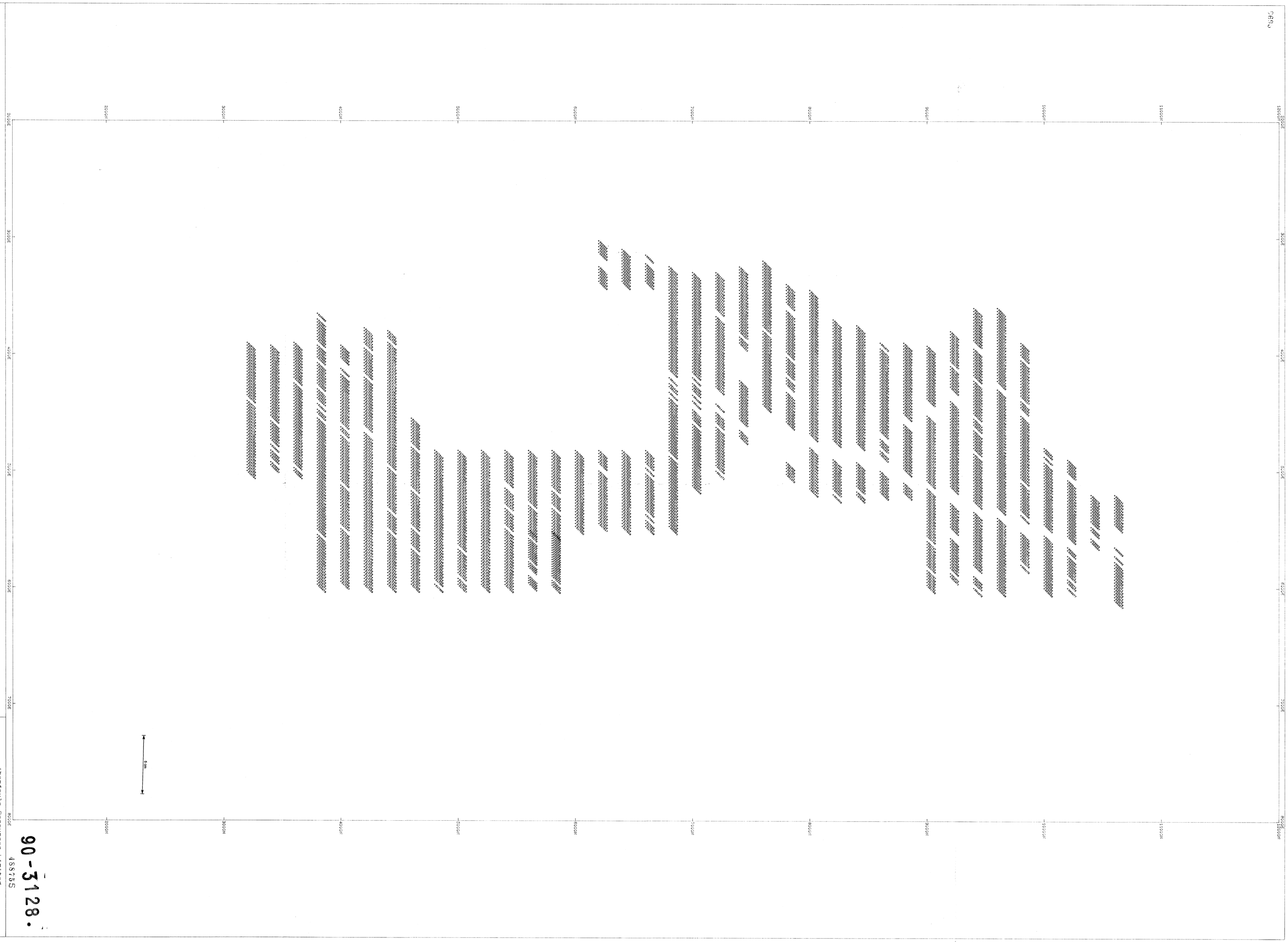
488754

REVISIONS			
Init.	Date	Init.	Date

NORTH WEST TASMANIA
MACKINTOSH E.L.106/87
DDH MAC-25
SECTION THROUGH MINE GRID

Location Code :
Scale : 1 : 1000
Date : March 1990

Compiled : R J H
Drawn :
Traced : J M S
Checked :
Plate No : MAC 291


2000E
3000E
4000E
5000E
6000E
7000E
8000E
9000E
10000E
11000E
12000E
2000N
3000N
4000N
5000N
6000N
7000N
8000N
9000N
10000N
11000N
12000N
5m
Aberfoyle Resources Limited
EXPLORATION DIVISION
TASMANIA
MACKINTOSH
SOIL SAMPLE LOCATIONS
1989 REGIONAL PROJECT
REVISIONS
Scale 1 : 10000
26/04/90
90-3128.
48755