EXPLORATION LICENCE 15/73

HATFIELD

TASMANIA

REPORT ON EXPLORATION

28 MAY 1984 - 25 DECEMBER 1984

DISTRIBUTION

HAWTHORN (1/4)

BURNIE (2/4)

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DEPARTMENT OF MINES (4/4)

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1. SUMMARY

Exploration activity on the Hatfield exploration licence (15/73) during the period 27 May, 1984 to 25 December, 1984 is located and annotated on Plate MAC 86

Work completed included:-

- Drilling and geophysical logging of holes MC-5, MC-6, MC-8 at the Mt. Charter prospect. No further drilling is recommended in this area.
- Drilling and geophysical logging of holes MC-9 and MC-10 at the south-west Mt. Charter prospect. A probable ore horizon was intersected in MC-9 and further drilling is recommended.
- A detailed UTEM survey at the N.W. Mt. Charter prospect. An anomaly was detected (Anomaly "L") and tested by DDH MC-11. Further work is recommended.
- Development of the Murchison Highway prospect for drilling.
- The updating of the 1:10,000 regional geological map and the recognition of a property wide ore stratigraphic position.
- Planning of an extensive UTEM survey to test the ore stratigraphic position - to be completed during the 1984 - 85 summer season.
- Filtering and contouring of all available geophysical data at 1:10,000 scale.

2. INTRODUCTION

The Hatfield Exploration Licence 15/73 was pegged on May 5, 1973, by Cominco Exploration Pty. Ltd. (Figure 1). The Exploration Licence was transferred from Cominco to Abminco N.L. on April 10, 1978; to Cleveland Tin Limited on March 28, 1979; and most recently to Aberfoyle Exploration Pty. Ltd. The Licence is partly over private land owned by Associated Forest Holdings Pty. Ltd., who have a timber concession covering the entire licence area.

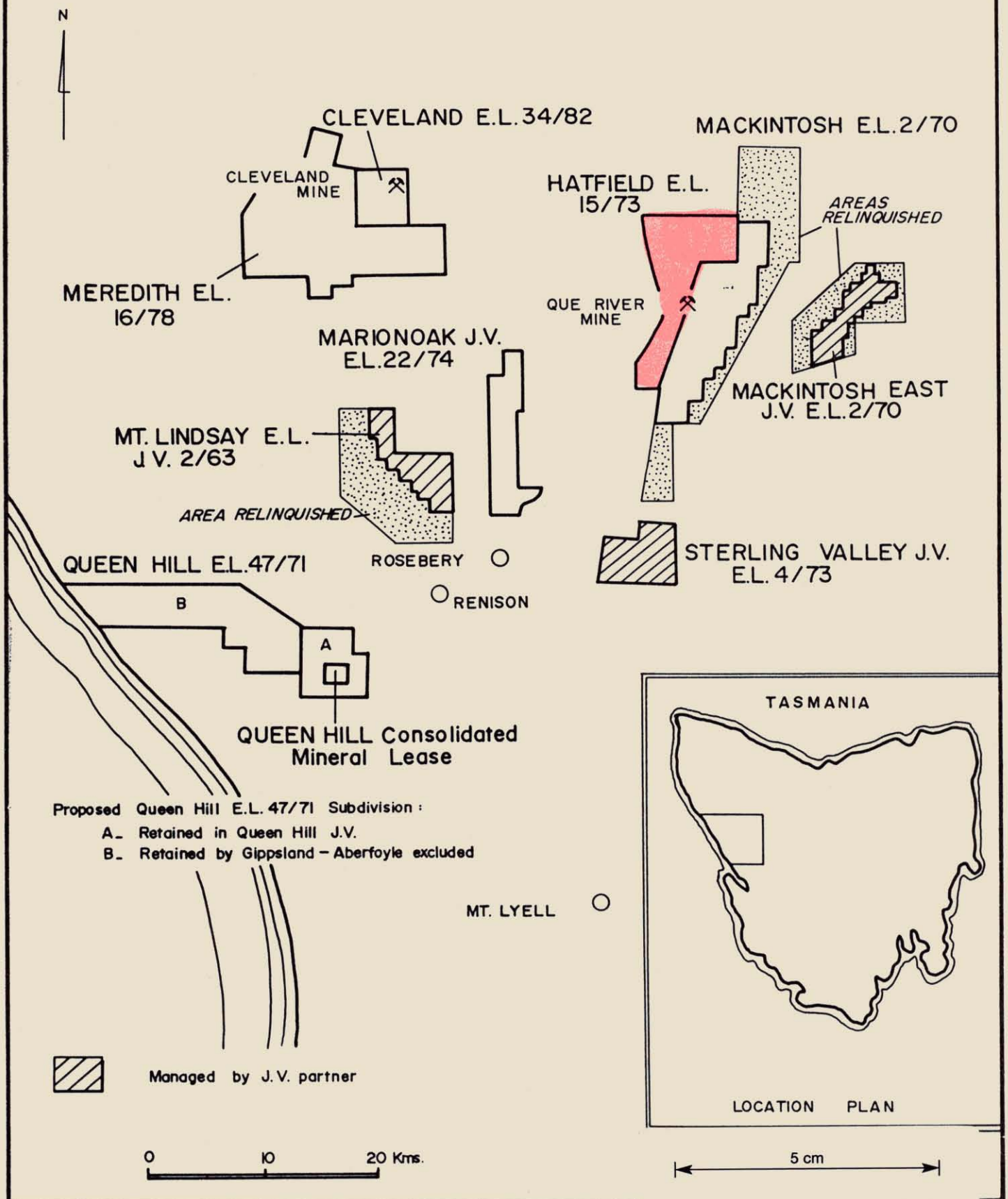
Revised conditions governing exploration licences applied by the Department of Mines from July 1, 1982, now require that exploration be completed on the Hatfield Licence by June 25, 1988. However, since the current licence area is only 65 sq. km., that is less than the maximum area permitted for a five year licence (125 sq. km.), then no reduction in area is required during this period.

The Hatfield Licence currently attracts an annual expenditure rate of $500 per square kilometre and an annual fee fixed at $25 per square kilometre.

This report describes exploration activity on the licence during the period May 28, 1984 to December 25, 1984.

009

142010



Aberfoyle Exploration Pty Ltd

Drawn: JRS	NORTH WEST TASMANIA	Location code:
Traced: RJE	EXPLORATION LICENCES	Date: OCT. 1984
Checked:		Scale: As shown
Revised by: Date:		Plate No FIG. 1

3. MT. CHARTER PROSPECT DRILLING PROGRAMME

i Introduction

The geology and exploration potential of the Mt. Charter prospect were described in detail in the previous Hatfield six monthly report (Hespe, 1984). The report proposed three holes to test the Mt. Charter barite outcrop which was thought to mark a stratigraphic hangingwall to a position suitable for the development of massive Pb/Zn sulphides.

The holes, MC-5, MC-6, MC-8, were completed as planned and logged with borehole Sirotem. Detailed geological logging and petrological examination of the holes has been completed. Core grinding was completed on MC-8 and is planned for MC-5 and MC-6. MC-7 , on the site of MC-8, was abandoned at 43.Ø m due to deviation.

ii Diamond Drill Hole MC-5

Geology

MC-5 (Plate HT 39, HT 61a), was designed to test the centre of the strike extent of the barite horizon at around 175 m below surface. The detailed log is included in Appendix I and a petrological report in Appendix II.

The sequence drilled can be summarised as:-

Ø - 18Ø.8	Andesite lava breccia, minor lava. Clastic lava clasts are chloritized, with breccia matrix of white to pink albite/quartz/ adularia (photo 315703). From 15Ø.Ø matrix and clasts increasingly pyrite sericite altered (photo 315705).
18Ø.8 - 299.8 (EOH)	Dacitic/rhyolitic lava, pitchstones, minor epiclastics, variably pyrite/silica/sericite altered.

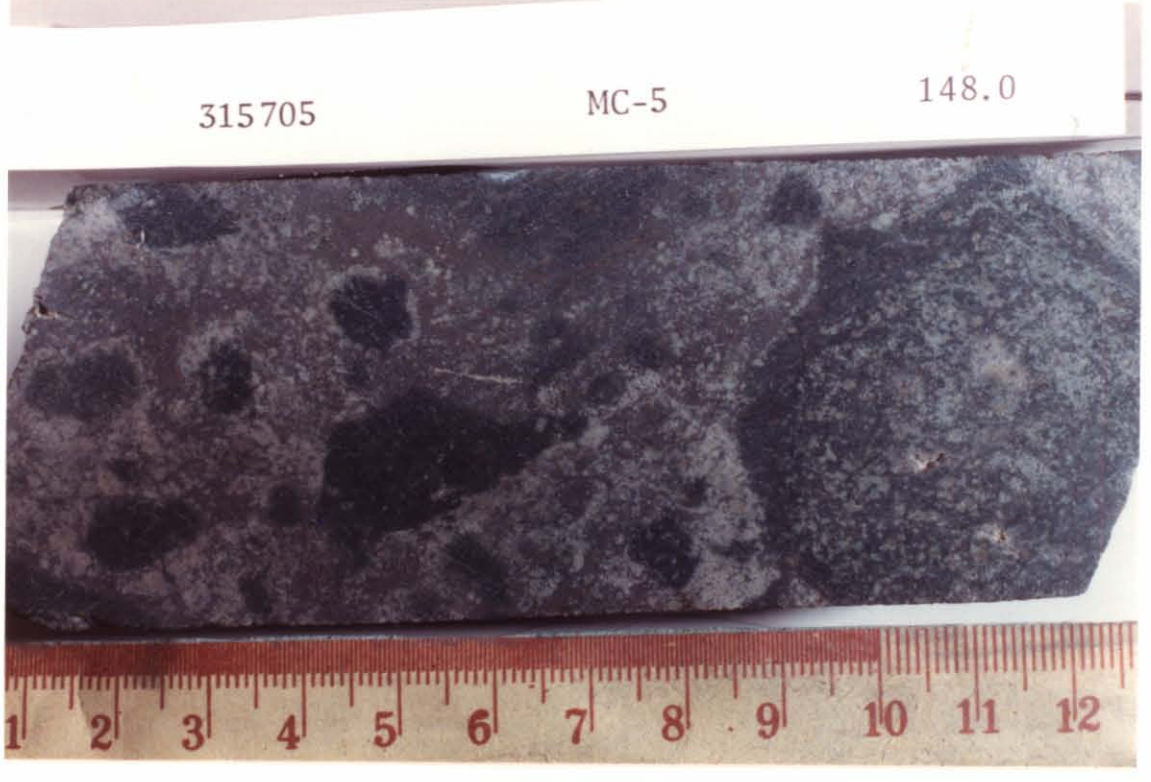
011

142012

315703 MC-5 95.2

CHLORITISED ANDESITE LAVA CLASTS IN PINK ALBITE/ QUARTZ/ADULARIA MATRIX.

315705 MC-5 148.0



TEXTURE AS ABOVE, BUT SERICITE/PYRITE ALTERED.

5 cm

The andesite/dacite contact at 180.8 is correlated with the positions of the barite on the andesite/dacite contact at surface (see section, Plate HT 61a). The contact at 180.8 m is strongly pyrite sericite altered, but no barite was logged. Planned core grind analyses will check for enrichment of barium in this zone.

The sequence is dominated by lava breccias and lavas. Poorly sorted epiclastics occur within the dacite lavas but no lithology indicating a period of quiet water sedimentation suitable for the accumulation of massive sulphides was encountered.

The contact at 180.8 is obscured by alteration but is probably conformable.

Microlitic and perlitic textures, and the development of flow banding and interbedded epiclastics indicate that the dacite/rhyolite sequence is extrusive.

The original breccia texture of the andesite lavas has been enhanced by a later phase of albite/quartz/adularia alteration which also corrodes the clasts. This alteration is usually pink due to Fe-oxide inclusions in the secondary feldspars. This phase of alteration does not occur in the dacite/rhyolite sequence.

Minor sphalerite, pyrite, and traces of chalcopyrite and galena occur in feldspar/silica veinlets in the andesite lavas implying an association of the sulphide mineralisation with the late phase albite/quartz/adularia alteration.

Geochemistry

Core grinding is planned for MC-5.

Geophysics

MC-5 was surveyed with the borehole Sirotem system in September 1984. Results are included in Appendix III. No anomalous responses were recorded and the survey indicates that no conductive massive sulphides occur within 100 m of the hole.

iii Diamond Drill Hole MC-6

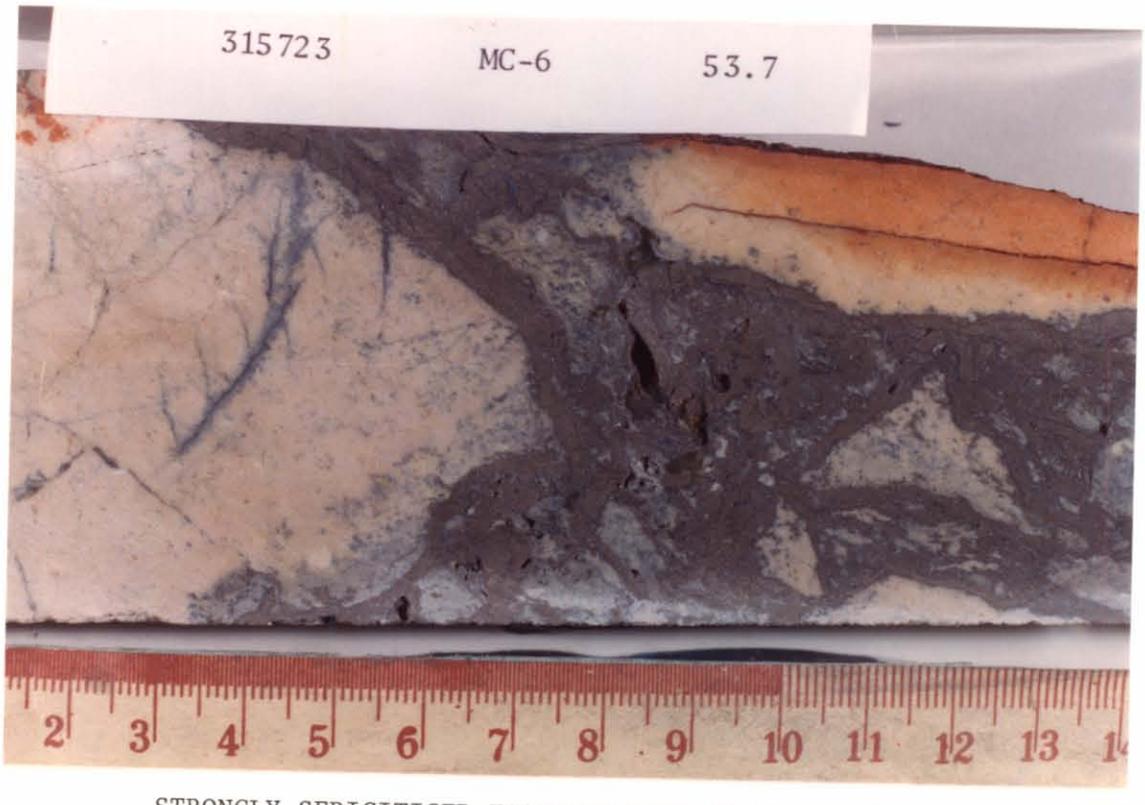
Geology

MC-6 (Plates HT 39, HT 61b), was designed to test the south eastern end of the barite horizon below strongly anomalous geochemistry in the 4550N/4400E costean (HT 37d). The detailed log is included in Appendix I and a petrological report in Appendix II.

The sequence drilled can be summarised as:-

0 - 62.6	Strongly sericite/pyrite altered trachyte lava, lava breccia (photo 315723).
62.6 - 73.4	Volcanic-sedimentary breccia of trachyte fragments in a black shaley matrix (photo 315724).
73.4 - 319.1 (EOH)	Andesitic lava breccia/lava with minor dacite and epiclastic units.

The hole failed to reach the target zone at the andesite-dacite contact as mapped on surface and encountered in MC-5, MC-8. The hole remained in andesite for most of its length. The dacite unit at 199.7 - 204.8 is considered to be a minor flow within the andesite and not correlatable to surface. The occurrence of a possible intrusive andesite phase between 155.0 - 181.0 may have affected the simple structural picture proposed prior to drilling. Although logged as a lava breccia, this interval is distinguished by a lack of glass in the groundmass, a very weak breccia texture and the occurrence of primary magnetite.



STRONGLY SERICITISED TRACHYTE LAVA FRAGMENTS IN A PYRITE/SERICITE MATRIX.

VOLCANIC-SEDIMENTARY BRECCIA. TRACHYTE FRAGMENTS IN A BLACK SHALEY MATRIX.

5 cm

The volcanic sedimentary breccia at 62.6 - 73.4 is interpreted to be due to a lava flow onto an unconsolidated pyritic pelite. Units of similar origin occur in MC-11 (142.6 - 146.8) and MC-10 (49.8 - 52.8). This unit is the only indication of a period of quiet water sedimentation at Mt. Charter.

The predominant alteration type is pink alkali feldspar/silica which variably affects phenocrysts and breccia matrix. The trachyte unit (0 - 62.6) is intensely sericite pyrite altered, but it may be a localised occurrence as similar alteration could not be located on surface around the area cleared for a drill site.

Geochemistry

Core grinding is planned for MC-6.

Geophysics

MC-6 was surveyed with the borehole Sirotem system in September 1984. Results are included in Appendix III. No anomalous responses were recorded and the survey indicates that no conductive massive sulphides occur within 100 m of the hole.

iv Diamond Drill Hole MC-8

Geology

MC-8, (Plate HT 39, HT 61c) was principally designed to test beneath a lead soil anomaly striking N.W. along the andesite/dacite contact adjacent to the Mt. Charter barite horizon. It would also pass through a broad Pb soil anomaly sub-parallel to and centred 150 m SW of the target anomaly. The detailed log is included in Appendix I and a petrological report in Appendix II. The sequence drilled can be summarised as:-

0	- 24.8	Black shale, sharp conformable contact with;
24.8	- 80.8	Strongly sericite/pyrite altered andesite lava breccia.

80.8 - 215.2	Strongly pyrite/sericite and/or silica altered dacitic lavas and rhyolitic pitchstone. Possible altered andesite 114.0 - 127.6. Barite logged 94.3 - 104.3, 130.0 - 152.3.
215.2 - 235.3 (EOH)	Trachyte lava.

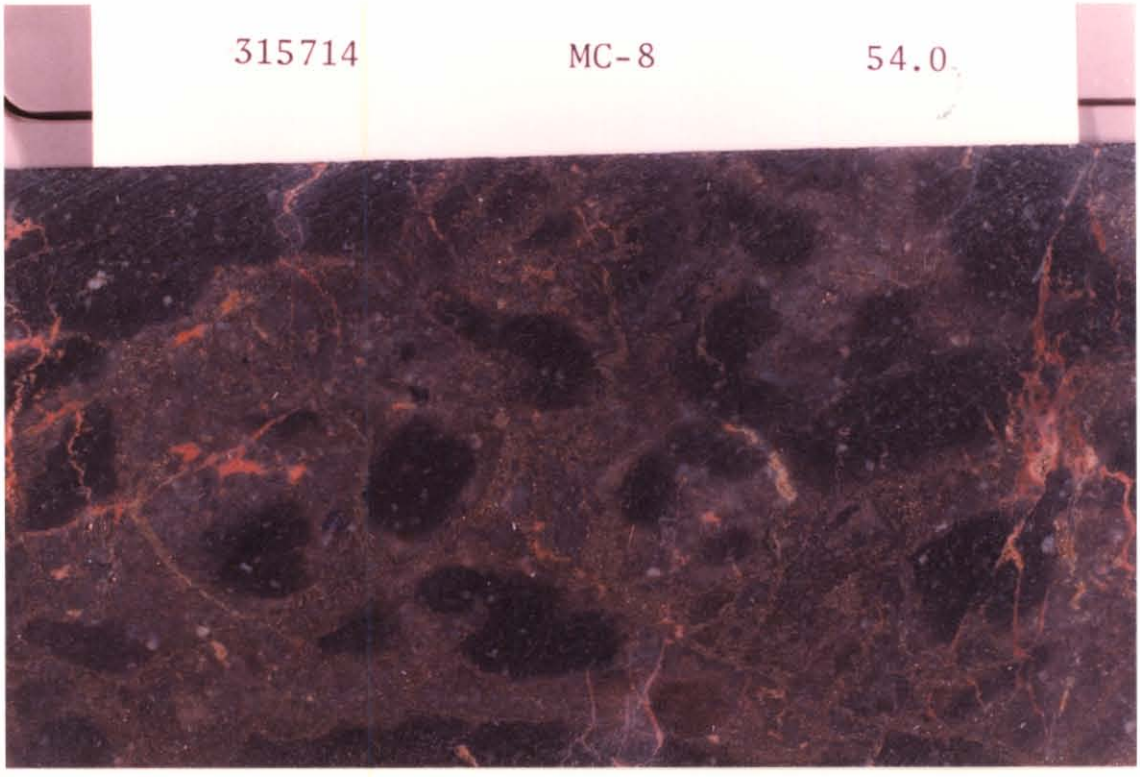
Contacts between black shale/andesite (24.8) and andesite/dacite -rhyolite (80.8) are correlated with contacts at surface (see section, Plate HT 61c). Apparent dips of 20 - 30 degrees to the south-west are indicated, but the structure of area is not well enough known to calculate a true dip.

At the stratigraphic position of the barite horizon, barite occurs as irregular vugs and discontinuous veinlets in a breccia matrix (photo 315715). Core grind analyses show an enrichment in barium in this zone and throughout the dacite-rhyolite lavas. Where examined in thin section, the barite is unexpectedly associated with flourite and muscovite suggesting a relationship with Devonian igneous activity.

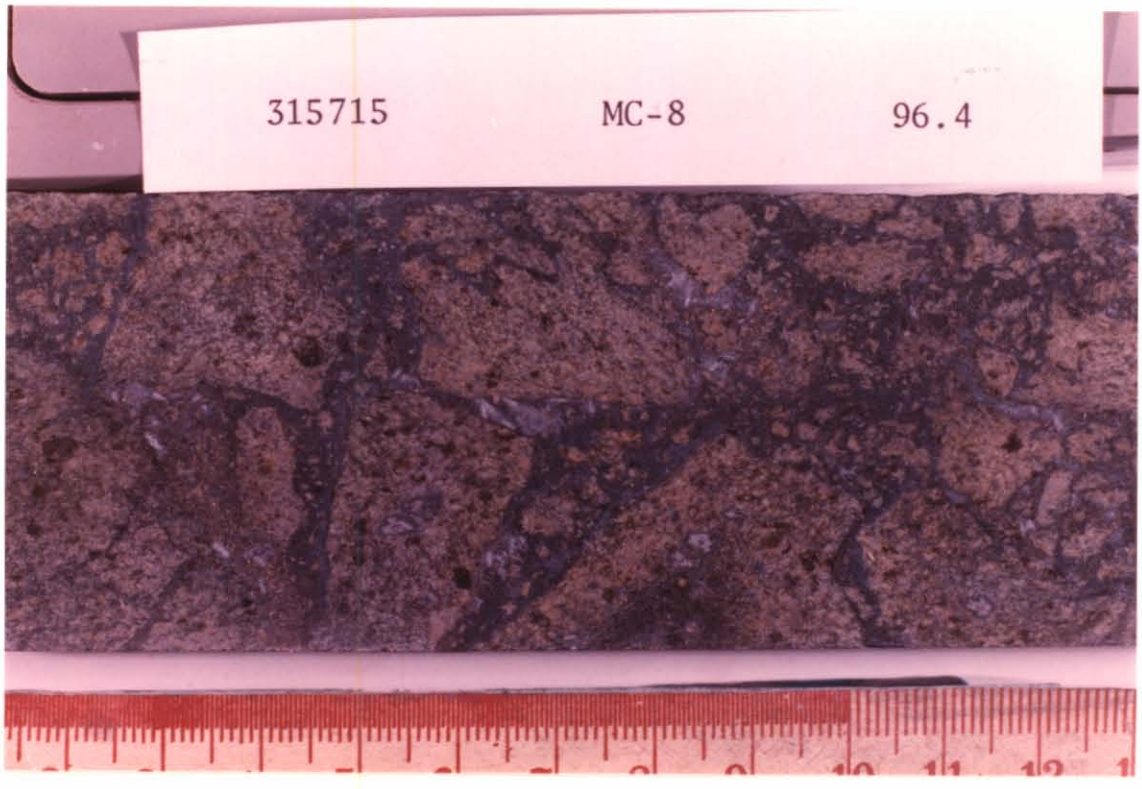
Pervasive sericite/pyrite is the dominant alteration type in both the andesitic and dacitic-rhyolitic lavas. The pink alteration so common in the andesites in MC-5 and MC-6 is represented by sporadic 1 - 5 mm cross cutting quartz albite veinlets, (photo 315714). This is further evidence that the ubiquitous quartz/albite/adularia alteration at Mt. Charter is late stage.

Geochemistry

Selected elements from analyses of core grind samples are plotted on Plate HT 59, and complete results are tabulated on the drill hole section (HT 61c).



ALBITE VEINLETS IN STRONGLY SERICITE/PYRITE ALTERED PORPHYRITIC ANDESITE LAVA BRECCIA.



BARITE IN MATRIX OF STRONGLY SERICITE ALTERED DACITE LAVA BRECCIAS.

5 cm

Two anomalous populations are interpreted. In the pyrite/sericite altered rocks below 80.8 m anomalous Pb and Zn values are associated with anomalous Au, As and Ba. In the andesites above 80.8 m, Pb and Zn values are anomalous but Ag, As and Ba values are low. These two populations were recognized from sampling done on the Mt. Charter costeans (Hespe, 1984). It is suggested that the anomalies in the andesites are related to the late phase of pink feldspar/silica alteration.

Geophysics

MC-8 was surveyed with the borehole Sirotem system in September 1984. Results are included as Appendix III. No anomalous responses were recorded and the survey indicates that no conductive massive sulphides occur within 100 m of the hole.

v Conclusions and Recommendations

Approximately 450 m strike of the prospective horizon was tested to a depth of 175 m below surface by the combined drilling and borehole geophysical programme.

The gross structure as predicted from surface mapping was confirmed. The sequence dips at 30 to 50 degrees to the south west and consists of black shale conformably overlying andesite lava breccias/minor lavas, which conformably overlie dacitic and rhyolitic lava breccias and lavas. Pyroclastics are conspicuously absent. The dacite/rhyolite lithologies are strongly and pervasively sericite/pyrite altered. This alteration type also occurs in the overlying andesites but the dominant alteration type in this lithology is a late, albite/quartz/adularia phase.

No massive or banded equivalent of the Mt. Charter barite and no unit which could be interpreted as an ore horizon were intersected. The stratigraphic position of both was drilled in MC-8 and MC-5.

It is concluded that the Mt. Charter barite horizon represents a Cambrian hydrothermal system which deposited barite on the sea floor for a short time and was then buried by andesite lavas. The layering in some of the barite at surface indicates a period of submarine deposition, but this must have been brief as no bedded barite or stratigraphic equivalent was encountered in MC-5 and MC-6. The persistence of the hydrothermal system after a brief eruption onto the sea floor is indicated by the occurrence of the pervasive sericite/pyrite alteration style into parts of the overlying andesite lavas, and the elevated base metal levels in the lavas as shown by soil geochemistry. Work at S.W. Mt. Charter prospect and elsewhere (see sections 4 and 7) shows that the stratigraphic position equivalent to Hellyer is higher in the sequence than the Mt. Charter barite horizon. It is not yet understood how the quartz/ablite/adularia style of alteration fits into this model or why the system produced predominantly barite and only minor amounts of base metals.

No further drilling is recommended at this stage because of the thorough coverage by the combined drilling and borehole geophysics programme.

4. S.W. MT. CHARTER PROSPECT

i Introduction

The south west Mt. Charter prospect is a Pb/Zn soil and UTEM anomaly within andesite/basalt lavas about 400 m south west of Mt.Charter. The previous Hatfield progress report (Hespe, 1984) discussed the geochemical and geophysical anomalies and proposed two holes to test the zone. Since that report was written, a report was received on a detailed UTEM survey over the zone, and two diamond drill holes MC-9 and MC-10 were completed. MC-9 was logged with borehole Sirotem, and sampled for chemical analysis.

ii Surface Geophysics

At the time the previous Hatfield progress report was written, a detailed UTEM survey over the S.W. Mt. Charter anomalies (J1 and J3) had been completed but no report issued. The report is included as Appendix IV. The survey downgraded the potential of the J1 anomaly. The J3 anomaly was interpreted as a response to a weakly conductive body, dipping west with an increasing depth to top to the north. (See Fig 2 of Appendix IV). The hole recommended in the report to test the zone was drilled as MC-9.

The report also re-examined the J2 anomaly (see Fig 1 of Appendix IV). The response on Line 4200N is significant because the interpreted conductivity is anomalously high when compared with other anomalies under black shale. Further UTEM coverage is planned to close off this anomaly to the south.

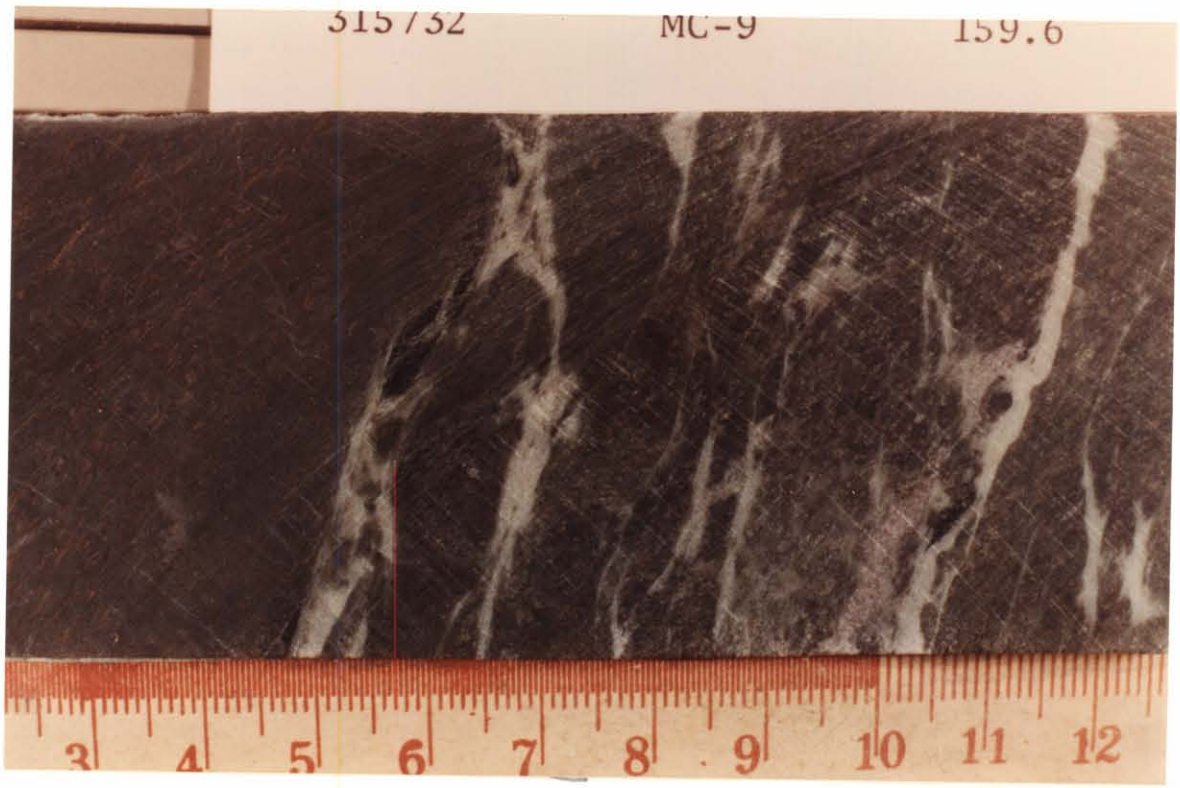
iii Diamond Drill Hole MC-9

Geology

MC-9 (Plate HT 55, HT 61d) was designed principally to test the J3 UTEM anomaly. It was also expected to provide information on the source of the major Pb/Zn soil anomaly, and the local stratigraphy. A detailed geologic log is included in Appendix I and a petrological report in Appendix II.

The sequence drilled was:-

Ø - 159.6 m	Vesicular chromite bearing basalt lava. Abundant pale purple calcite in vesicles and veins; minor pinic alkali feldspar/silica in veins. Weakly sheared contact to:
159.6 - 160.Ø m	Finely bedded tuffaceous pelite, with diagenetically recrystallised syngenetic, sphalerite and pyrite. (Photo 315732) Conformable contact to



CONTACT BETWEEN BASALT AND INTERPRETED ORE HORIZON.

5 cm

160.0 - 238.7 (EOH) Pink feldspar silica altered porphyritic andesite lava and lava breccia.

By analogy with Hellyer the pelite is interpreted as a distal ore horizon because of its base metal sulphide content and its stratigraphic position - below distinctive chromite bearing basalts (the "pillow lava" and "upper andesite" sequences at Hellyer) and above feldspar porphyritic andesite lavas (feldsparphyric sequence at Hellyer). Pale purple colouration, probably due to manganese, in carbonate vesicles and veins is also characteristic of the Hellyer hangingwall.

Core orientation was carried out in the hole but was not successful in orienting the pelite horizon because of faulting and broken core. However, assuming the local strike to be 345 deg. mag., parallel to the shale-volcanic contact, the angle to core axis of the pelite layer was used to calculate a unique dip of 4 deg. west. This dip influenced the design of MC-10.

Geophysics

MC-9 was surveyed with the borehole Sirotem system. A report on the survey is included in Appendix III. Weak in-hole anomalies between 150 and 180 m are attributed to the J3 anomaly and may be due to a combination of sulphides developed in the pelite horizon and faulting. No off hole conductors indicating blind massive sulphide mineralisation within approximately 100 m of the hole were detected.

Geochemistry

The complete length of MC-9 was core ground in 10 metre intervals, except for the pelite horizon which was quarter sawn. Samples were analysed for Cu, Pb, Zn, Ag, As, Ba, Cr and Au. Selected element are plotted in Plate HT 59 and complete results are tabulated on the drill hole section (Plate HT 61d).

The hangingwall basalts average about 1000 ppm chromium, reflecting the primary chromite content observed in thin section. The pelite and andesites have Cr contents below the limit of detection. Because of the empirical association of basalts with ore forming conditions their identification by soil analysis for Cr could be an important exploration tool.

The pelite horizon is strongly anomalous in Pb (0.4%) and Zn (1.17%) and weakly anomalous in Ag, As and Ba. This supports the interpretation of the unit as a distal ore horizon.

The hangingwall basalts are strongly anomalous in Pb and Zn, which must contribute to the soil anomaly. No Pb/Zn sulphides were logged in core but in the 3900N/4100E costean aggregates of sphalerite, galena, minor pyrite and chalcopyrite, are associated with quartz/feldspar/carbonate veinlets.

Pb/Zn soil anomalies at SW Mt. Charter and elsewhere were proposed (Hespe 1984) as enrichments in base metals hangingwall to massive sulphides. The MC-9 intersection shows that this may be the case and that conversely the Pb/Zn anomalies may outline the extent of the hangingwall basalt. Samples of the interpreted ore horizon in MC-9 and of Pb/Zn mineralised veins from the 3900N/4100E costean have been taken for Pb isotope analyses to see if the two are related and if they have a Cambrian signature.

The weathered zone of MC-9 is strongly enriched in Pb and Zn. The reason for this is not yet known.

iv Diamond Drill Hole MC-10

Geology

MC-10 (Fig. HT 55, HT 65) was designed to follow up the intersection of an interpreted ore horizon in MC-9. The assumptions made in planning MC-10 were:-

i the ore horizon in MC-9 dips at 4 deg. to the west {see 4 (iii)}.

ii MC-9 borehole Sirotem had downgraded the J3 anomaly and shown that no conductive massive sulphides occurred within a 100 m radius of the hole

iii the centre of hydrothermal activity in the region was towards the Mt. Charter prospect.

iv massive sulphides were most likely to occur below the strongest base metal haloe in the hangingwall as expressed by soil geochemistry.

Therefore MC-10 was collared as a sub-vertical hole in the plane of a Pb soil geochemical high between MC-9 and Mt. Charter. The hole was collared sub-vertically rather than vertically to allow use of the core orientation tool.

A detailed log of the hole is included in Appendix I and a petrological report in Appendix II. A summary log is as follows:-

0 - 49.8	Andesite lava breccia
49.8 - 52.8	Basalt/shale breccia (photo 315757)
52.8 - 246.2	Vesicular chromite bearing basalt lava (photo 315759)
246.2 - 264.4	Andesite lava breccia, strongly sericitised, patchy pink feldspar/silica altered. Includes thin trachyte lava just below basalt.

A unit correlatable with the MC-9 ore horizon was not intersected, but the equivalent position occurs at 246.2 and is marked by strong sericite pyrite alteration. The stratigraphic sequence differs from MC-9 in that a feldsparphyric andesite lava overlies the basalt, within the contact being marked by a mixed shale/basalt breccia. The shale fragments are mineralised

BASALT/SHALE BRECCIA. SHALE CONTAINS FINE VEINLETS OF BROWN SPHALERITE.

TYPICAL CHROME BEARING BASALT. NOTE PURPLE TINT OF CARBONATE IN VEINLETS AND VESICLES, AND INCIPIENT PINK FELDSPAR/SILICA ALTERATION IN CENTRE OF CARBONATE VEINS.

5 cm

with fine grained red brown sphalerite. Because the volcanic fragments of the breccia are from the underlying basalt, it seems that the mineralised sediment was deposited amongst the fragments on the scoriaceous top of a basalt flow and then covered by andesite lavas. Irregular chert zones in the basalt between 89.Ø and 105.Ø indicate the development of a pillow facies.

The drill hole section (Plate HT 65) shows the ore horizon stratigraphic position in MC-1Ø to be about 8Ø m lower and 12Ø m grid west of the intersection in MC-9. This suggests a steeper dip than calculated in section 4(iii).

Geochemistry

Core grinding is underway on MC-1Ø.

Geophysics

Borehole Sirotem is planned for MC-1Ø.

v Surface Geology

The surface geology of the prospect as it is currently understood is shown on Plate HT 55. The sequence consists of andesite lavas and lava breccias dipping west of 4Ø - 7Ødeg. and conformably overlain by black shales or their facies equivalents, mica sandstone. The location of the volcanic/sediment contact has been located by logging of weathered rock fragments in hand auger cuttings on lines 35ØØN - 43ØØN and by mapping of sub-outcrop and weathered rock in bulldozer tracks around 4Ø5ØN/385ØE.

The basalts intersected in MC-9 and MC-1Ø were not previously mapped on surface. After drilling they were located at the collar of MC-9 and by a petrological sample (27Ø698) at 3775N/4Ø7ØE. Re-analysis for chromium of channel samples from the 39ØØN/41ØØE costean (Plate HT 37g) indicates that the

costean exposes basalt over its complete length and not weathered andesite as originally mapped. Further sampling is planned to close off the chromium anomaly to the east and locate the basalt andesite contact. The extent of the basalts is not known and not shown on Plate 55. Because the high vein carbonate content of the basalts causes them weather completely, it is proposed to trace their extent by analysing for chromium in soils rather than by geological mapping.

vi Conclusions and Recommendations

Drilling and borehole Sirotem have tested the J3 UTEM anomaly and downgraded it as a response to massive sulphide mineralisation.

A potential ore horizon in stratigraphy very similar to that at Hellyer has been intersected in MC-9. The ore horizon is overlain by a basalt which can be distinguished by its high chromium content. The ore horizon is interpreted to have a moderate dip to the west.

It is recommended that the ore horizon be tested down dip by a drill hole collared at 4000N/3960E and drilling grid east at minus 55 deg. (the hole is to be cased for borehole Sirotem). It is also recommended that the extent of the basalt unit be determined by re-analysing previous soil samples for chromium, followed up with costeaning.

In section 12, further UTEM coverage is recommended to close off the J2 UTEM anomaly immediately west of the SW Mt. Charter prospect.

5. NW MT. CHARTER PROSPECT

i Introduction

The NW Mt. Charter prospect lies along strike about 600 m north west of Mt. Charter. It was originally defined by a strong Pb/Zn soil anomaly due to sphalerite/galena aggregates in quartz/carbonate veinlets in an andesite lava breccia, analagous to the SW Mt. Charter prospect. In 1976 DDH H-2/2A was drilled to test an IP anomaly immediately south west of the prospect. The anomaly was attributed to graphitic black shale. During the current reporting period the prospect was covered by a UTEM survey and an anomaly detected was drilled by hole MC-11.

ii Surface Geophysics

In August 1984, at UTEM survey was completed over the prospect. A detailed report on the survey is included as Appendix V. The results were affected by nearby 110 kv and 220 kv powerlines, but careful processing delineated a channel four anomaly (Anomaly "L") at 5700N/3550E and extending north out of the survey area. The source was interpreted to be a body of strike length greater than 100 m, with a shallow dip to the west and possibly plunging north.

iii Diamond Drill Hole MC-11

DDH MC-11 (Plate HT 55, HT 56) was designed to test UTEM anomaly L. The anomaly is adjacent to the shale contact in the unit which contains the inferred Hellyer ore position, and is close to but not co-incident with the major Pb/Zn soil anomaly at NW Mt. Charter.

A detailed log of MC-11 is included as Appendix I. A summary log is as follows:-

0	-	6 m	Tricone
6	-	142.6	Andesite lava breccia

142.6 - 146.8	Volcanic sedimentary breccia of pink altered andesite in a cherty black shale matrix. (Photo 315767).
146.8 - 154.6	Polymict andesite dacite lava breccia
154.6 - 170.5	Strongly pink feldspar silica altered andesite(?) breccia with 2 - 10% pyrite as matrix veinlets. (Photo 315769)
170.5 - 239.1	Andesite lava and lava breccia
239.1 - 240.6	Chromite bearing vesicular glassy basalt lava (Photo 315772)
240.6 - 252.0	Andesite lava breccia.

The pyritic interval below 154.6 m was tested with a multimeter and showed electrical connection in the pyrite veinlets over intervals of 0.5 m. This zone may be the source of the UTEM anomaly . Pyritization of this type and associated intense pink alteration have not previously been encountered in drilling around Mt. Charter.

The occurrence of a thin unit of chromite bearing basalt at 239.1 - 240.6 m is anomalous as far as present knowledge of this rock type goes. It usually occurs between shale and underlying andesite lavas. In this hole it occurs within the andesite lava pile.

Geochemistry

Core grinding is planned for MC-11.

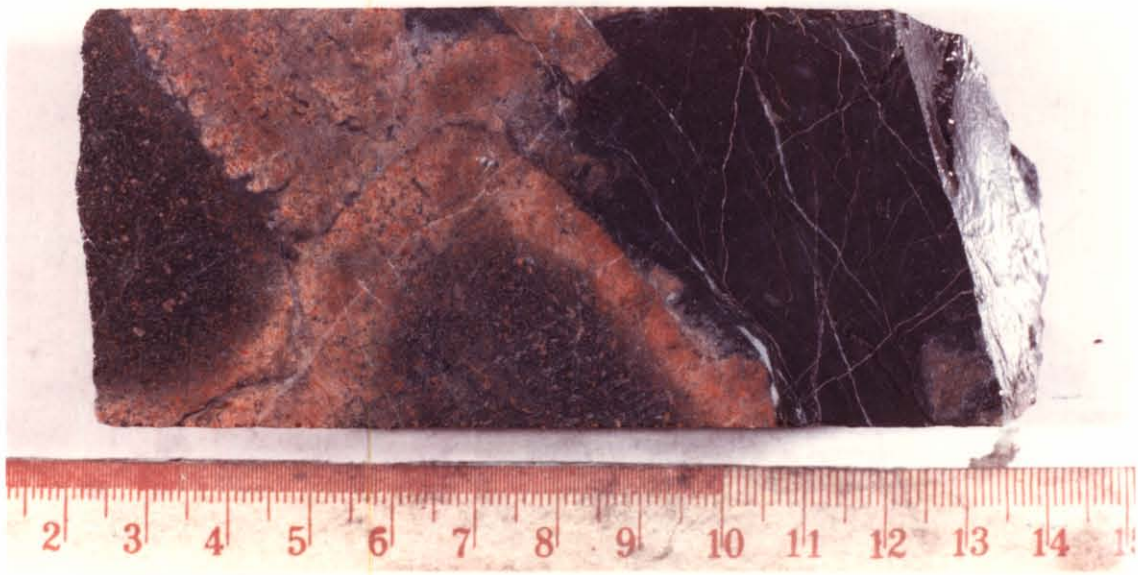
Geophysics

Borehole Sirotem is planned for MC-11.

iv Conclusions and Recommendations

The target UTEM anomaly (L) appears to be explained by the pyritic zone below 154.6. Borehole Sirotem is planned to check

315767 MC-11 143.5 m



PINK FELDSPAR/SILICA ALTERED PORPHYRITIC ANDESITE IN A CHERTY BLACK SHALE MATRIX.

315769 MC-11 159.5 m

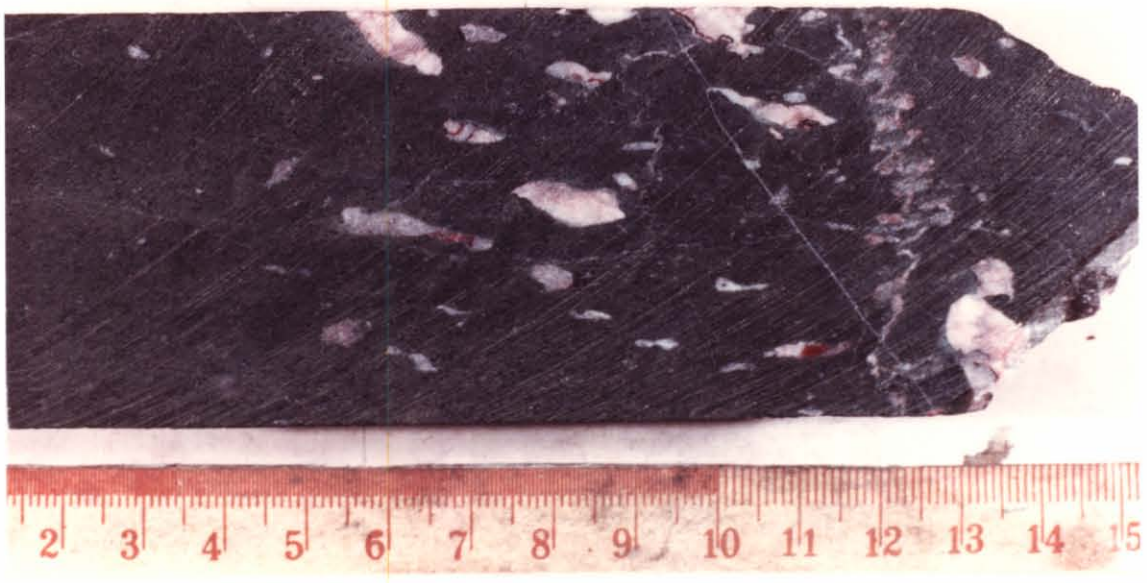
STRONGLY PINK FLEDSPAR/SILICA ALTERED PORPHYRITIC ANDESITE LAVA BRECCIA WITH PYRITE VEINLETS IN MATRIX.

5 cm

031

142032

315772 MC-11 239.6 m



VESICULAR GLASSY BASALT LAVA. NOTE PURPLE TINT TO CARBONATE IN VESICLES.

5 cm

this interpretation. The exploration significance (if any) of the pyritic zone is not understood.

MC-11 did not test the geochemical anomaly at NW Mt. Charter. A drill hole collared at 5400N/3380E drilling grid east at minus 52 deg. is recommended to test beneath the geochemical anomaly in the expectation that it represents a base metal haloe in a basalt hangingwall to an ore horizon. Such a hole would test the postulated ore horizon at around 160 m below surface. Massive sulphides at that depth would be difficult to detect with UTEM when the interference generated by the adjacent power lines is considered. The hole would also be well sited to test the complete stratigraphic interval containing the inferred Hellyer ore position.

6. MURCHISON HIGHWAY PROSPECT

i Introduction

The Murchison Highway Prospect is centred at 6100N, 3500E. Previous exploration had identified the contact of the Que River shales with underlying volcanics as a prospective horizon and in 1976 DDH H-1 was drilled to test an IP anomaly at that horizon. The anomaly was attributed to pyrite and graphite in the shales.

Interest in the area revived because the shape of the shale contact suggested folding which, by analogy with Hellyer, may be localised by alteration and mineralisation. Work continues to develop a drilling target.

ii Geology

The geological setting is shown in Plate HT 62 and Plat MAC 86. Outcrop in the area is poor, but the form of the shale contact has been confirmed by work to date. The fold form suggests a syncline plunging shallowly to the southwest, with a corresponding anticline to the west. To test this idea the

access track to DDH H-1 was cleared as indicated in Plate HT 62 and structures in the shale measured. The only reliable measurements on bedding were made at the collar of H-1 and around 6150N, 3330E. At other locations the shales are irregularly jointed and cleaved and bedding cannot be identified. The structural measurements support the interpretation of a narrow syncline plunging at 20 - 30 deg. to the south west. The anticlinal structure could not be confirmed, despite good exposure along the cleared track, because of the complex jointing and cleavage.

To obtain further geological information and expose the G2 UTEM anomaly axis a costean was excavated around 6500N/3600E (Plate HT 371). The costean was mapped at 1:250 scale and channel samples at 10 m intervals. Samples were analysed for Cu, Pb, Zn, Ag, As, Cu and Ba. The costean exposed weathered interbedded finely vesicular volcanics (lavas?), their weathering products and weathered shales. The style of the contacts is obscured by weathering, but is interpreted to be conformable on the evidence of the mixture of shale and volcanics on a contact between pegs 6 and 7 (Plate HT 371). Cr values from costean channel samples are anomalous in the volcanics suggesting that they are equivalent to the chrome basalts of at Hellyer and Mt. Charter. The exposure in the costean is interpreted to be of the shallow dipping interbedded contact between shales and underlying basalt.

DDH H-1 passed through the shale volcanic contact. Descriptions in the log suggested that the hole has passed through a pillowed chrome basalt and a potential ore horizon between 92.25 m and 94.86 m. The hole was re-examined and this was found to be the case. The unit between 64.65 m and 92.25 m is a typical pale green pillowed chrome basalt with carbonate filled vesicles and diagnostic interpillow chert. A finely laminated sediment was intersected between 92.25 and 94.86 which is readily

distinguished from the massive matt black shales uphole above the basalt. This unit represents a potential ore horizon because of its similar stratigraphic position to Hellyer. Two samples of this unit were examined in thin section (report, Appendix VII) and described as argillaceous/tuffaceous siltstone. The two samples were also analysed with the following results:-

	Cu	Pb	Zn	Ag	As	Ba	Cr	(all in ppm)
270991	10	10	70	X	X	2760	65	
270792	15	15	50	0.5	19	2700	150	

Below 94.86m the hole intersected sericite/pyrite altered feldsparphyric andesite lava breccia and massive lava. The sericite/pyrite alteration is not found in the overlying ore horizon or basalts.

The sequence of lithology and alteration intersected in DDH H-1 is clearly analagous to Hellyer and strongly supports the interpretation of the siltstone unit as a potential ore horizon despite its low levels of base metals. Further mapping and Cr geochemistry is needed to determine the extent of the basalt.

iii Geochemistry

Previous surveys detected low level Pb and Zn soil geochemical anomalies around the folded shale contact. On plate HT62 the Pb analysed have been re-contoured using a lower threshold of 100ppm so that the contours follow the stratigraphy around the fold. Channel sampling of the 6500/3600E costean (plate HT37h) confirms the soil sampling. Low Ag, As and Ba values in the channel samples indicate that the Pb/Zn anomalies are hangingwall to the ore position (see Hespe, 1984). On this evidence it is assumed that the ore horizon is unmineralised at

its outcrop position as shown in plate HT62 and that the exploration potential is down the plunge of the syncline.

iv Geophysics

The G2 UTEM anomaly is semi-coincident with the axis of the Murchison Highway Prospect syncline. The anomaly is weak shallow and discontinuous and is unlikely to be a response to massive sulphides. From 6600N to 6200N it is probably a response to shales along the axis of the syncline. The filtered IP/Resistivity values (* show a strong resistivity contrast between volcanics and shale. This contrast has been used to outline the shale contact on plate HT 62. UTEM planned for the 1984-1985 summer season (section 12) will cover the Murchison Highway Prospect to 6500N.

v Conclusions and Recommendations

Surface mapping has identified a fold structure at the Murchison Highway Prospect. Such structures may be localised by the phyllosilicate alteration developed around volcanogenic mineralising systems. DDH H-1 which penetrated this structure has intersected a probable distal ore horizon below chromite bearing pillow basalts and above felsdparphyric pyrite/sericite altered andesite lavas, a position identical to that at Hellyer. Surface geochemistry is of the hangingwall type. Potential for massive sulphide mineralisation lies down plunge from DDH H-1. Drilling awaits completion of a UTEM survey planned for the area.

7. STRATIGRAPHIC RELATIONSHIPS, SW MT. CHARTER PROSPECT TO MURCHISON HIGHWAY PROSPECT

Information from drilling and surface mapping discussed in section 3, 4,5 and 6 of this report is summarised in Plate HT 67. This is in the form of a longitudinal section looking west, before folding.

The Que River black shales are shown as conformably overlying the volcanics and interfingering with a micaceous greywacke facies to the south.

Basalts are shown as localized bodies because of their absence in MC-8 and H-2. The diagram implies that the basalts have filled undulations in the surface of the andesite lavas which may have been sea floor traps for sulphides venting from hydrothermal springs.

Andesite lavas are the predominant rock type. They are almost invariably brecciated and would have formed a suitably porous medium for the circulation of hydrothermal fluids.

No pyroclastics have been logged in drill holes through the andesite sequence.

Dacites are shown as sill like bodies, but all evidence to date is that they are flows. Zones within the dacites are strongly pyrite/sericite altered - these have been mapped and are well defined by IP contours. There maybe a connection between these zones and the overlying ore horizon position.

8. SUMMARY TABLE OF UTEM ANOMALIES, HATFIELD LICENCE

A summary of the status of the Hatfield UTEM anomalies as of December 1984, is presented in Table 1. The anomalies are rated on a scale of 1 to 4 which takes into account geophysical and geochemical response, geology and stratigraphic position. One anomaly, "L", has been

TABLE 1: RATING OF UTEM ANOMALIES ON THE HATFIELD LICENCE AS AT DECEMBER, 1984

PROSPECT/ ANOMALY	GEOLOGY	GEOCHEMISTRY	GEOPHYSICS	WORK COMPLETED DURING TERM OF THIS REPORT	FURTHER WORK PLANNED		RATING AND COMMENTS (RATING BY NUMBER)
UTEM E	.No outcrop .HAI intersected quartz/ sericite/pyrite altered volcanic - drilled into IP target .Dacites and typical Que River mine footwall alteration exposed in recent costeans .Major pyritic fault at 7700N/4000E in costean	.Soil geochem not anomalous .Weak base metal anomalies in recent costeaning .No significant gold anomalies (7 rock chip samples)	.Weak EM response with possible north plunge .Large intense IP anomaly to east of EM trend between 7800N - 8100N	None	Monitor. Determine relationship to inferred Hellyer ore position.	2	Regional Geology indicates that this zone is an area of alteration footwall to the inferred Hellyer ore position
UTEM F	.Shale-volcanic contact. .Trenched and mapped in 1976 to show sed. and volcanic conformable. Trench did not cross UTEM axis	Not anomalous	.Weak shallow EM response. .Partial IP coverage suggests strong response	None	Area of UTEM coverage around this anomaly will be extended by survey planned for summer 1984-1985	2	Probably an EM response to volcanic/shale contact, but is close to interpreted Hellyer ore position.
Gl Old Mill Site Geochem Trend	Predominantly green unaltered andesite with patches of GN/SPH/PY min. Pyritic dacite reported at 7200N/4300E (in trench) QE72, drilled for engineering purposes, not a true test of the zone-intersected unaltered andesite with GAL/SPH/QTZ aggregates	.Trend is strongly anomalous in Pb and Zn	.Single line weak EM response .Weak diffuse chargeability anomaly over Gl but zone is not fully covered by IP.	None	Further trenching planned. Requires multi-element and Pb isotope assessment of geochemistry	2	Previous suggestion that geochem. is a base metal hangingwall lateration haloe not yet tested here.

PROSPECT/ ANOMALY	GEOLOGY	GEOCHEMISTRY	GEOPHYSICS	WORK COMPLETED DURING TERM OF THIS REPORT	FURTHER WORK PLANNED		RATING AND COMMENTS
UTEM G2	.UTEM axis crosses obliquely from shales into unaltered andesite. .Trend of axis parallel to regional faulting. .Hole H1 passed through axis of UTEM anomaly on 6200N - at shallow depth	Not anomalous on UTEM trend, but scattered anomalies to south	.Weak, suspect EM anomalies. Trend is 750m long .IP on southern lines suggests shale	6500N/3600E costean. Contouring of IP/ Resistivity data.	None	4	UTEM response probably due to shales - resistivity of shales show good contrast with volcanics. Area being explored further south as Murchison Highway Prospect.
UTEM G3	Unknown-swamp	Not anomalous	.Good single line EM conductor, but could be noise .No IP coverage	None	None	4	No further interest
UTEM I1	Unaltered andesites, trachytes	.Weakly anomalous Pb/Zn soil geochem .Confirmed by sampling of recent costean	.Complex zone of multiple conductors- best anomalies on 5600N and 5800N axis almost as conductive as Hellyer .Weak IP anomaly coincides	None	One more trench planned	2	Source of conductive zones not explained by previous trenching
UTEM I2	Costean (1977) on 5600N-wthd Mn stained clay after andesite. Carbonate veining with SPH/GN/PY mapped	.Soil geochem to 1450 ppm Pb .Confirmed by costean sampling	Weak EM response-difficult to interpret because of position with respect to loop	None	Further trenching geochemical sampling	2	Geochemically similar to G1 - requires similar assessment

PROSPECT/ ANOMALY	GEOLOGY	GEOCHEMISTRY	GEOPHYSICS	WORK COMPLETED DURING TERM OF THIS REPORT	FURTHER WORK PLANNED		RATING AND COMMENTS
UTEM 13, 14 MT CHARTER				.Diamond drilling MC-5, MC-6, MC-8 .Downhole SIROTEM	None	4	Mt Charter Prospect anomalies. No further interest because of uniform lack of bore-hole SIROTEM response
UTEM J1, J3 SW Mt Charter Soil Anomaly	Andesites, unaltered with aggregates of SPH and G/N associated with QTZ/Carb veining	Large intense Pb/Zn soil anomaly con-firmed by costean sampling	.Definite but weak EM trends. Suggest west dip Idea of two edges of flat lying conductor to be tested .IP anomaly at J1/ 4200N South plunge?	Diamond drilling MC-9, MC-10 Borehole SIROTEM MC-9	Further Drilling	1	J1 anomaly downgraded by Feb/84 detailed UTEM survey J3 downgraded by MC-9/ borehole EM Follow-up is of mineralised ore horizon encountered by MC-9.
J2	Well into black shales Trend exposed on Mt Charter access road-nothing but black shale	Not anomalous	.Strong EM anomaly complicated by proximity to loop .No IP coverage	None	To be closed off to south by proposed UTEM for summer 1984/85	2	Strong EM anomaly in direction of dip of MC-9 ore horizon
L	Within volcanic stratigraphy which includes inferred Hellyer ore position	Close to but not co-incident with NW Mt Charter prospect soil geochem anomaly	.Survey affected by powerline. Process-ing resolved a channel 4 anomaly	.UTEM Survey .Drilling, MC-11 .Borehole SIROTEM	.Await report on borehole SIROTEM	2	Further drilling planned in area to test NW Mt Charter soil anomaly

added to the table since the first version of May, 1984. Anomaly locations are shown on Plate MAC 86.

9. SOUTH HATFIELD SOIL GEOCHEMISTRY RESULTS

In the previous 6 monthly report (Hespe 1984) soil sampling on the Feb. 1984 UTEM grid was mentioned. Only a small part of that grid is on the Hatfield Licence (See Plate HT 54). Samples were taken at 25 m intervals and analysed for Cu, Pb, Zn, As, Ba. Lines samples were 3200N (3900E - 5100E), 2800N (3900E - 5100E), 1800N (4300E - 4200E). Results are now to hand - no anomalous values were recorded. Values have been plotted on the Hatfield 1:2500 soil geochemical map series.

10. PROPOSED UTEM COVERAGE, 1984 - 1985 SUMMER SEASON

A further 26 line km. of UTEM surveying is proposed for the Hatfield Licence for the 1984 - 1985 summer season (plate MAC 93). Loops have been planned to cover the recently defined interpreted Hellyer ore position (Plate MAC 86) and its extensions under the shale. Reading lines are designed to be inside the loop to promote better coupling with shallow dipping conductors.

Prepared by : _____

A M HESPE

Issued by: _____

I R RISE

041

142042

REFERENCES

Hespe, A.M., 1984 — Exploration Licence 15/73, Hatfield, Tasmania. Report on Exploration December 26, 1983 to May 27, 1984.

APPENDIX I

DIAMOND DRILL HOLE LOGS

MC-5, MC-6, MC-8, MC-9, MC-10, MC-11

MC-5

043

ABERFOYLE EXPLORATION

DRILL HOLE RECORD

142044

Location TASMANIA Property HATFIELD EL 15/73 District Mt CHARTER Bearing (M) 018° MAG Hole No MC-5

Commenced 6-6-84 Completed 24-6-84 % Recovery Grid bearing (M) 009°GRID Date

Objective Mt CHARTER BARITE HORIZON Core size 0-5.1 TRIGNÉ 5.1-38.0 HQ, 38.0-299.8 NQ Logged A.M.H.

Co-ordinates 4415.5N 4244.9E 834.0RL Dip -45° Alt./R.L. 834.0

SURVEY PICK UP

SURVEY DATA				GRAPH DERIVED DATA			CALCULATED CO-ORDINATES			REMARKS
DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE	DEPTH	DIP	BEARING(M)	NORTHING	EASTING	ALTITUDE	
0	-44.75°	018°	SURVEY P.U.							
49.0	-45	020	EASTMAN CAMERA	DEPTH			NORTH	EAST	R.L	HOLE CASED TO BOTTOM WITH 42mm CLASS TWELVE PVC PIPE
79.0	-46	019	"							
109.4	-46	019	"	0.00			0.00	0.00	0.00	
139.1	-47	018	"	24.50			17.32	0.18	-17.32	
174.9		017.5	"	49.00			34.64	0.67	-34.65	NOTE:
199.0	-46.5	018	"	64.00			45.19	1.03	-45.30	R.L'S TO BE SUBTRACTED FROM
235.0	-45	018	"	79.00			55.65	1.34	-56.04	COLLAR R.L.
265.0	-44	018	"	94.20			66.21	1.62	-66.98	NORTHINGS ARE DISTANCE ALONG LINE
298.0	-48	016	"	109.40			76.76	1.84	-77.91	OF SECTION NORTH OF THE COLLAR.
				124.25			87.03	2.00	-88.64	EASTINGS ARE DISTANCES EAST (-VE)
				139.10			97.20	2.06	-99.46	OR WEST (+VE) OF LINE OF SECTION
				157.00			109.38	2.05	-112.57	SHOWN ON PLAN MS 29.
				174.90			121.51	1.99	-125.74	
				186.95			129.68	1.96	-134.59	
				199.00			137.94	1.95	-143.37	
				217.00			150.42	1.97	-156.34	
				235.00			163.06	2.00	-169.15	
				250.00			173.71	2.01	-179.71	
				265.00			184.46	2.03	-190.18	
				281.50			196.12	1.96	-201.84	
				298.00			207.36	1.69	-213.90	

044

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142045

PROJECT : HATFIELD EL15/73 TASMANIA

PROSPECT: MT CHANTER

HOLE NO: MC-5

PAGE: 1 of 8

LOGGED: AMH

DATE: 15·6·84

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
2			TRICONE										2
4													4
5·1													
6	1·6	0·1	ANDESITIC LAVA BRECCIA	DARK GREEN FELDSPAR PHYRIC LAVA BRECCIA. ORIGINAL FLOW(?) BRECCIA TEXTURE ENHANCED BY ALBITE/QUARTZ ALTERATION AROUND CLASTS. AMYGDULES CONTAIN CHLORITE LESSER QUARTZ AND PYRITE. HYDRAULIC BRECCIATION BY ALBITE/QUARTZ COMMON.	CHLORITE ALTERATION OF CLASTS, STRONG K/Na Fd AND SILICA ALTERATION OF MATRIX.	1–10mm Fd, Si, (Ca, Py, CPY, Gn, SPH)	4	← AS NOTED IN VEINS		TOOLE			6
8	1·5	0·1				"	"	"					8
10	1·6	0				"	"	"					10
12	1·4	0				"	"	"					12
14	0·7	0·1				"	"	"					14
16	1·6	0				"	"	"	F @ 17– 0·3m @ 45° to TCA				16
18	1·3	0				"	"	"					18
18·4	1·4	0				"	"	"					
18·4	0·8	0		NOT BRECCIATED IN THIS INTERVAL - COMPOSITION AS ABOVE. PALE GREEN.	PALE GREEN COLOUR INDICATES PERVASIVE K-Na Fd/Si ALTERATION	1–10mm Fd, Si.	1						18·4
20	1·6	0·1				"	"						20
22	1·4	0	ANDESITIC LAVA			"	"					AMYGDALOIDAL PORPHYRITIC TRACHY-ANDESITE LAVA. MODERATELY SAUSSURITE CHLORITE ALTERED. SPORADIC QUARTZ-PRENNITE VEINLETS CONTAIN TRACES OF PY/PO/SPH.	22
23·7	1·5	0				"	"						23·7
24	1·1	0				"	"						24
26	1·6	0	ANDESITIC LAVA BRECCIA		CHLORITE ALTERATION OF CLASTS, STRONG K-Na Fd/Si ALTERATION OF MATRIX	1–10mm Fd, Si, (Ca, Py, CPY, gn, sph)	4	← AS NOTED IN VEINS					26
28	3·2	0				"	"		F @ 26·4 0·3m				28
30	1·4	0				"	"						30
32	1·6	0				"	"						32
34	1·6	0·1				"	"		F @ 32·4 0·5m				34
36	1·4	0				"	"						36
38	1·4	0				"	"						38
40	1·6	0·3				"	"		F @ 37·1 CORE LOSS			HQ NQ	40
42	0·9	0				"	"						42
	1·2	0·3											
	1·2	0											
	1·5	0											

045

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142046

PROJECT : Hatfield EL 16/73 Tasmania

PROSPECT : Mt Charter

HOLE NO : MC-5

PAGE : 2 of 8

LOGGED : AMH

DATE : 15.6.84

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY ROCK NAME	LITHOLOGY DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
44	1.1	0	ANDESITIC LAVA BRECCIA		CHLORITE ALTERATION OF CLASTS, STRONG K-Na. Fd/Si ALTERATION OF MATRIX	1-10mm Fd, Si (Cp, Py, cpy, gyp, sph)	← AS ABOVE IN VEINS	F 44.0 0.1m 10° A Fd/Si stain	MOD			44
46	1.6	0.1										46
	2.3	0.4						F 46.5 0.1m 5° A Fd/Si stain	48.2			
48	1.7	0										48
50	3.1	0.2										50
52	2.4	0									Pet 315702 @ 51.4m REF. 51-62.2	52
54	3.1	0.2						F 51.8 0.3m 80° A Fd/Si stain	51.1 Intense 52.1		Amygdaloidal trachyandesite lava breccia, chloritised, albitised, K-feldspathised. Matrix/veinlets of microcrystalline feldspar, chlorite. Rare fine cpy in matrix	54
56	3.1	0.2										56
58	2.9	0		58.1 Not brecciated in this interval - composition as for lava breccia fragments. Pale green.				F 58.8 0.45m 45° A Fd/Si stain			60.3 Po replacing pyrite in Q/Fd vein.	58
60			ANDESITIC LAVA		PALE GREEN COLOUR SUGGESTS PERVASIVE K-Na. Fd/Si ALTERATION	1-2mm Fd, Si.	1					60
62	2.6	0		62.0	62.0							62
64	3.1	0.2	ANDESITIC LAVA BRECCIA		CHLORITE ALTERATION OF CLASTS, STRONG K-Na. Fd/Si ALTERATION OF MATRIX.	1-10mm Fd, Si.	4					64
66	0.8	0.1							66.0 Fd/Si stain			66
	1.3	0.1						F 66.4 0.05m 35° A Fd/Si stain. Cavernous.				
68	0.9	0.4										68
	1.0	0.2						F 69.0 1.0m, Cavernous, Fd/Si stain.				
70	0.7	0										70
	1.0	0.4										
72	2.6	0.9							MOD.			72
74	1.6	0.3						F 73.4 0.1m 25° A Cavernous Fd/Si stain 73.2 0.4m				74
76	3.1	0.2		76.8	76.0							76
78												78
80	2.0	0	ANDESITIC LAVA	As above 58.1-62.0	As above 58.1-62.0	1mm Fd, Si.	3					80
82	2.0	0		83.2	83.2			F 82.4 0.1m 45° A 82.6 0.1m 20° A Cavernous, Fd/Si stain	81.2			82
84			ANDESITIC LAVA BRECCIA					F 83.1 0.2m 45° A stain.				84

SEE OVER

SEE OVER

SEE OVER

046

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142047

PROJECT : Hatfield EL 15/73 Tasmania

PROSPECT: Mt Charter

HOLE NO: MC-5

PAGE: 3 of 8

LOGGED: AMH

DATE: 15.6.84

DEPTH	DRILL RUNS	CORE LOSS	ROCK NAME	DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
86	2.2	0	ANDESITIC LAVA BRECCIA	BRECCIA FRAGMENTS BECOMING MORE DIFFUSE	CHLORITE ALTERATION OF CLASTS, STRONG PINK Na-K-Fe/Si ALTERATION OF MATRIX. NOTE THAT MATRIX ALTERATION IS NOW PINK - WAS WHITE UPHOLE	NO FURTHER VEINING UNTIL 150.8 - ALL Fe/Si ALTERATION CONFINED TO BRECCIA MATRIX.						86
88	1.3	0										88
	2.0	0										
90	3.0	0										90
92	1.7	0.7										92
94	2.4	0.5		95.0 NO FURTHER CHLORITE FILLED VESICLES DOWNHOLE							PET 35703 @ 95.2 REP 83.2 - 116.5	94
96	2.3	0.9									ANDESITIC TRACHYANDESITE LAVA BRECCIA. CHLORITISED, FELDSPATHISED TRACHYANDESITE CLASTS IN A MATRIX OF ALBITE/QTZ/ADULARIA. PINK COLOUR DUE TO Fe IN SECONDARY FELDSPAR. MINOR SPHALERITE IN QUARTZ VEINS.	96
98	2.4	0										98
100	1.1	0										100
	1.1	0.7										
102	0.7	0.2										102
	0.9	0.1										
104	1.5	0.6										104
	0.4	0.2										
106	0.8	0.1										106
	1.0	0										
108	1.0	0.5										108
	0.9	0										
110	1.2	0.4										110
	0.7	0.3										
112	0.7	0.4										112
	1.2	0.2										
114	0.8	0.1										114
	0.9	0.1										
116	1.8	0.1			116.5 PINK K-Na-Fe/Si ALTERATION MORE PERVASIVE AND AFFECTING CLASTS							116
118	1.5	0.1										118
120	2.3	0.3										120
	1.4	0.2										
122	1.2	0.4			123.7 CHLORITE ALTERATION OF CLASTS AND PINK K-Na-Fe/Si ALTERATION OF MATRIX CONTINUES, BUT BECOMING TO BE OVERPRINTED BY PYRITE/SERICITE ALTERATION.		123.7 DISSEMINATED, MINOR VEINLETS PYRITE ~ 2%					122
124	0.9	0.1										124
126												126

106.0 — VERY BROKEN, FOX STAINED — 116.5

F @ 106.0 — 0.2m 10% CARBONOUS FOX STAIN

F @ 107 — 10m 0.5% CARBONOUS FOX STAIN

106.0 MOR 109 STRONG 116.5

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142048

PROJECT : Hatfield EL 15/78 Tasmania

PROSPECT : Mt Charter

HOLE NO : MC-5

PAGE : 4 of 8

LOGGED : AMH

DATE : 15.6.84

DEPTH	DRILL RUNS	CORE LOSS	ROCK NAME	DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
128	2.2	0-3	ANDESITIC LAVA BRECCIA		"		"					128
	1.2	0-2		129.0	124.0 PERVASIVE CHLORITISATION, OVERPRINTING (?) BY PYRITE / SERICITE ALTERATION.		129.0 VEINLET PYRITE <<1%					
130	1.0	0-1	ANDESITIC LAVA	SEE ABOVE 581-62.0							PET 315704 @ 131.5m REP. 129.0 - 133.8	130
	1.4	0									ANDESITE LAVA. SERICITE/CHLORITE ALTERED PLAGIOCLASE PHENOCRYSTS IN CHLORITIC GROUNDMASS OF MINERALITIC FELDSPAR.	
132	0.2	0-1										132
	0.7	0-4										
	0.8	0-2		133.8			133.8					
134	0.9	0-2	ANDESITIC LAVA BRECCIA		CHLORITE ALTERATION OF CLASTS, PINK K-Na Fe/Si ALTERATION OF MATRIX OVERPRINTED (?) BY SERICITE / PYRITE ALTERATION		DISSEMINATED, MINOR VEINLET PYRITE 2-5%					134
136	2.0	0-2										136
138	2.9	0-2										138
140	1.4	0-1										140
142	1.6	0-15										142
	1.4	0-15										
144	1.1	0-2										144
146	0.9	0										146
148	1.8	0					145.5				PET 315705 @ 148.0m REP 133.8 - 149.8	148
150	2.8	0					DISSEMINATED, MINOR VEINLET PYRITE 5-10%				ANDESITE LAVA BRECCIA. CLASTS CHLORITISED, WEAKLY SILICIFIED, SERICITISED. PERVASIVE VERY FINE PYRITE IN MATRIX. MATRIX STRONGLY SILICIFIED.	150
152	1.5	0-1										152
	0.7	0									149.8 DOWNHOLE LIMIT OF K-Na Fe/Si ALTERATION.	
154	2.0	0										154
156	1.3	0										156
158	1.9	0-2										158
160	2.1	0										160
162	3.1	0									PET 315706 @ 163.2m REP 149.8 - 179.8	162
164											TUFF LAVA. THOROUGHLY SERICITISED PORPHYRITIC ANDESITE CLASTS IN A SILICA (SERICITE CHLORITE) ALTERED DEVITRIFIED PITCHSTONE MATRIX. PERVASIVE VERY FINE PYRITE.	164
166	2.9	0										166
168												168

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ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142049

PROJECT : Hatfield EL 15/78 Tasmania

PROSPECT: Mt Charter

HOLE NO: MC-5

PAGE: 5 of 8

LOGGED: AMH

DATE: 15.6.84

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
170	2.9	0	ANDESITIC LAVA BRECCIA		STRONG PERVASIVE SERICITE/PYRITE ALTERATION							170
172	1.3	0										172
	1.8	0										
174	1.2	0.2		175.8	175.8							174
176	2.5	0		ANGULAR, THOROUGHLY SERICITISED PORPHYRITIC ANDESITE FRAGMENTS IN A MATRIX OF PYRITE, SERICITE	EXTREME SERICITE / PYRITE ALTERATION						PET. 315701 @ 177.2m REP. 175.8 - 180.8	176
178	2.5	0.2		CONTACT IRREGULAR OVER 1cm							PITCHSTONE. STRONGLY SERICITISED DACITIC(?) PITCHSTONE WITH PYRITE CONCENTRATED IN BOUDINAGED QUARTZ-SERICITE LENSES. SHEARED.	178
180	2.4	0	DACITE LAVA	180.8 GREY TO KHAKI, NON-PORPHYRITIC, FLOW BANDED DACITE LAVA. INCLUDES LAVA BRECCIA OF SAME COMPOSITION	180.8 PERVASIVE, MODERATELY INTENSE SERICITE SILICA ALTERATION	180.0 1-2mm QTZ/CARB VEINS 2	180.0 DISSEMINATED PYRITE, 1-2%					180
182	3.0	0										182
184	3.1	0.06										184
186	1.7	0.1										186
188	1.9	0.1										188
190	2.7	0.1										190
192	1.6	0										192
194	3.1	0									PET. 315703 @ 198.1m REP. 180.8 - 227.3	194
196	3.0	0									WEAKLY FLOW BANDED PITCHSTONE. SERICITISED, WEAKLY SILICIFIED. PERVASIVE DISSEMINATED FINE PYRITE.	196
198	3.0	0.4										198
200	1.3	0										200
202	3.4	0										202
204												204
206												206
208												208
210												210

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ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142050

PROJECT : Hatfield EL 15/73 Tasmania

PROSPECT: Mt Charter

HOLE NO: MC-5
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LOGGED: AMH
DATE: 15-6-84

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
212	3-1	0	DACITE LAVA	FROM 210 TO 227.3, LAVA BRECCIA PREDOMINATES	PERVASIVE PREDOMINATELY INTENSE SERICITE | SILICA | PYRITE ALTERATION	1-2mm QTZ/CARB VEIN INTENSITY 2	DISSEMINATED PY, 1-2%					212
214	3-1	0.2			"	"	"					214
216	3	0.1			"	"	"					216
218					"	"	"					218
220	3-1	0.1			"	"	"					220
222	2-9	0			"	"	"					222
224					"	225.0 STRONG 1-2mm QTZ/CO VEINING 4	"					224
226	3-0	0		CONTACT IRREGULAR OVER 1-2m								226
228	1-2	0.2	DACITIC EPICLASTIC	3m TO 50mm; POORLY SORTED, SUB-ROUNDED TO ELONGATE, SERICITISED, SILICIFIED DACITIC CLASTS IN QUARTZ-SERICITE | PYRITE MATRIX. CLAST: MATRIX = 90:10	PERVASIVE STRONG SERICITIC (SPOTTED) (SILICA) ALTERATION			F 227.8 0.2m 15° B.A., BRECCIATED REHEALED			MORE INTENSE VEINING AROUND FAULT.	228
230	3-1	0.1		CONTACT CONFORMABLE, GRADATIONAL OVER 50cm		230.0 WEAK 1-2mm QTZ/CO VEINING 2, TRACE SPY	SOME STRINGER PY.				PBT. 315709 @ 230.6m REP 227.3 – 230.7	230
232	3-1	0.1	DACITIC TUFF-LAVA	BLACK OR CREAM | WHITE PORPHYRITIC DACITE, 10-20cm LONG IN A STRONGLY SERICITISED DARK GREY FRAGMENTAL MATRIX. DACITE PHENOCRYSTS ARE WIDELY SPACED, 1-2mm LONG, USUALLY PYRITISED. DACITE FRAGMENTS SHOW OCCASIONAL FUCHSITE SPOTS. MATRIX FRAGMENTS ARE VERY ANGULAR AND CLOSE PACKED	PERVASIVE MODERATELY INTENSE SERICITE | SILICA | PYRITE ALTERATION RARE FUCHSITE						RHYOLITIC EPICLASTIC. RHYOLITIC PITCHSTONE FRAGMENTS, STRONGLY SERICITE, VARIABLY SILICA ALTERED, IN MATRIX OF SERICITE, QUARTZ, PYRITE. SHEARED.	232
234	3-1	0.1			"	"	"					234
236	3-0	0			"	"	"					236
238	3-0	0			"	"	"					238
240	3-0	0			"	"	"					240
242	3-0	0			"	"	"					242
244	3-0	0			"	"	"					244
246	0-7	0.1		CONTACT CONFORMABLE, GRADATIONAL OVER 30cm								246
248	2-4	0	DACITIC EPICLASTIC	CHAOTIC ARRANGEMENT OF SUB-ROUNDED TO ANGULAR FRAGMENTS, 0.5 - 3cm DIA.	247.7 NO FUCHSITE		247.4 STRINGERS AND PATCHES PYRITE 2-5%; REPLACING SOME FRAGMENTS					248
250												250
252	1-3	0										252

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ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142051

PROJECT : Hatfield EL 15/73 Tasmania

PROSPECT : Mt Charter

HOLE NO : MC 6

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DATE : 15-6-84

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
254	3-1	0	DACITIC EPICLASTIC		PERVASIVE, MODERATELY INTENSE SERICITE ± SILICA ± PYRITE ALTERATION.	1-2 mm QTZ±Cb VEINING INTENSITY 2						254
256	3-1	0				"						256
258	3-1	0				"						258
260	3-1	0				(261.6 - 3mm QTZ±Cb VEIN, TR. SPY)						260
262	3-1	0	261.4 DACITIC TUFF-LAVA	AS FOR 230.7 - 241.7	261.4 AS ABOVE WITH RARE RHYOLITE SPOTS IN CLASTS.	TRACE 1-2mm QTZ±Cb VEINS 1	(PYRITE ALSO AS 2mm PATCHES (REPLACEMENT OF PHENOCRYSTS) IN PORPHYRITIC DACITE.					262
264	3-1	0				"						264
266	3-1	0				"						266
268	3-1	0				"						268
270	3-1	0				"						270
272	3-1	0				"						272
274	3-1	0				"						274
276	3-1	0				"						276
278	3-1	0				"						278
280	2-9	0				"						280
282	3-1	0				(282.6 - 35mm pink FEL/QTZ VEIN)						282
284	3-1	0				"						284
286	3-1	0				"						286
288	2-4	0	290.4 FAULT CONTACT.		290.4		290.4	F 289.4 1.5m - MAJOR FAULT. ROCK FRAGMENTS IN WHITE CLAY GOUGE.				288
290	2-8	0	DACITE LAVA	CHLORITE TO PALE GREEN SPARSELY PORPHYRITIC FLOW BANDED DACITE LAVA.	STRONG SERICITE PYRITE ALTERATION	291.2	PERVASIVE VERY FINE PYRITE				Pet. 315710 @ 272.9m REP. 261.4 - 290.4 RHYODACITE LAVA. STRONGLY SERICITISED. BOUDINAGED PATCHES OF PYRITE (QUARTZ) SERICITE.	290
292	2-8	0				292.9 100mm WHITE QTZ, PINK FEL VEIN						292
294												294

051

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142052

PROJECT : Hatfield EL 15/73 Tasmania

PROSPECT: Mt Charter

HOLE NO : MC-5

PAGE : 2 of 2

LOGGED : AMH

DATE : 15-6-84

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
290	3.1	0	Dacite Lava		Strong sericite pyrite alteration	296.0 2mm 295.3 2mm 294.1 2mm 293.5 100mm } Quartz ± pyrite veins	Pervasive very fine pyrite				Pet 315711 @ 294.2m. Rep 293.5 - 296.0 Dacite lava. - devitrified sericitised pitchstone. Strongly sericitised, pervasive fine pyrite.	290
295	3.0	0									299.8 EOH	295
300											Pet 315713 @ 299.5. Rep. 296.0 - 299.8 As for previous sample, with more pyrite	300

MC-6

052

ABERFOYLE EXPLORATION

DRILL HOLE RECORD

142053

Location TASMANIA | Property HATFIELD EL 15/73 | District MT CHARTER | Bearing (M) 017° MAG | Hole No MC-6

Commenced 26-6-84 | Completed 17-7-84 | % Recovery | Grid bearing (M) 8.5° GRID | Date

Objective MT CHARTER BARITE HORIZON | Core size 0-2.2 TRUCORE, 2.2-56.5 HQ, 56.5-319.1 NQ | Logged A.M.H.

Co-ordinates 4318.8N, 4364.3E, 807.4RL SURVEY PICK UP | Dip -42° | Alt./R.L. 807.4 RL

SURVEY DATA				GRAPH DERIVED DATA			CALCULATED CO-ORDINATES			REMARKS
DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE	DEPTH	DIP	BEARING(M)	NORTHING	EASTING	ALTITUDE	
0	-42	017	SURVEY P.U.	DEPTH			NORTH	EAST	R.L	HOLE CASED TO BOTTOM WITH 42mm CLASS 12 PVC PIPE
24.2	-43	022	EASTMAN CAMERA	0.00			0.00	0.00	807.40	
51.1	-43.5	020.5	"	12.10			8.92	0.29	799.24	
76.0	-43	022	"	24.20			17.78	0.80	791.01	
113.0	-42.5	024	"	37.65			27.58	1.44	781.82	
151.0	-41	024	"	51.10			37.34	1.95	772.58	NOTE: NORTHINGS ARE DISTANCE ALONG
182.0	-40	100	" *	63.55			46.38	2.42	764.03	LINE OF SECTION NORTH OF THE
224.0	-40	027	"	76.00			55.44	3.01	755.52	COLLAR.
259.5	-39	029	"	94.50			68.96	4.10	742.93	EASTINGS ARE DISTANCES EAST
298.5	-38.5	030	"	113.00			82.50	5.43	730.40	(-VE) OR WEST (+VE) OF LINE
				132.00			96.51	6.93	717.66	OF SECTION SHOWN ON PLAN
				151.00			110.69	8.44	705.10	HT 39
				187.50			138.13	11.74	681.28	
				224.00			165.69	15.79	657.70	
				241.75			179.14	18.07	646.35	
				259.50			192.65	20.60	635.12	
				279.00			207.53	23.58	622.88	
				298.50			222.44	26.71	610.70	
				308.80			230.32	28.40	604.29	
				319.10			238.21	30.09	597.88	
* DISREGARD - MAGNETITE IN CORE										

053

142054

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

PROJECT : HATFIELD EL 15/73 TASMANIA

PROSPECT: MT CHANTER

HOLE NO: MC-6

PAGE: 1 of 3

LOGGED: AMH

DATE: 20-7-84

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION
2			TRICONE	
2.2	1.9	0.2	VESICULAR TRACHYTE LAVA.	DARK GREEN FINE GRAINED LAVA. SPARSE 2-5mm CHLORITE FILLED VESICLES. RARE CONTORTED DARK GREY CHERTY VEINS SUGGEST PILLOW LAVA.
4	2.6	1.0		
6				
8	4.8	4.7		
10				
12				VOLCANIC, COMPLETELY WEATHERED TO A BRIGHT ORANGE MANGANESE STAINED CLAY
14	9.2	8.1		
16				
18				
20				
22	1.4	0.5		
24	1.4	0.6		
24.6	0.4	0.1		
26	1.6	1.2		
28	2.1	1.5		ARGILLIC CONTACT - PLACED AT BOTTOM OF ZONE OF EXTREME WEATHERING
30.0				
30	1.9	0.4	TRACHYTE LAVA BRECCIA	STRONGLY WEATHERED VOLCANIC. REMNANT BRECCIA TEXTURE INDICATES CORRELATION WITH DESCRIPTIONS AT 42-44m.
32	1.9	0.2		
34	3.1	0.6		
36	1.5	0		
38	3.1	0		
40				
42	1.9	0.1		
42.0				

ALTERATION: TYPE	ALTERATION: INTENSITY	VEINING: TYPE	VEINING: INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG
						VERY STRONG OXID. RARE HEMATITE FILLING.	
						30.0 EXTREME OXID.	
						30.0 VERY STRONG OXID.	
42.0 PERVASIVE SERICITE ALTERATION				42.0 2% FINE DISSEMINATED PYRITE		42.0	

REMARKS	DEPTH
0 - 2.0m - MAJOR CORE LOSS	2
	4
	6
	8
	10
	12
	14
	16
	18
	20
	22
	24
	26
	28
	30
	32
	34
	36
	38
	40
2m 5mm calcite vein joint surface at 42.2m.	42

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142055

PROJECT : HATFIELD EL 15/73 TASMANIA

PROSPECT: MT CHANTER

HOLE NO: MC-6

PAGE: 2 of 8

LOGGED: AMN

DATE: 20-7-84

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION: TYPE	ALTERATION: INTENSITY	VEINING: TYPE	VEINING: INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
44	3.2	0	TRACHYTE LAVA BRECCIA	DARK GREEN PORPHYRITIC LAVA BRECCIA. PHENOCRYSTS 20% BY VOLUME, AVERAGE 0.5-1mm, SUB-SERICITISED. MATRIX AND FRAGMENTS OF SIMILAR COMPOSITION.	"		"		"				PET. 315722; 44.2m; REP 42.0-47.0	44
46	3.0	0											AMYGDALOIDAL TRACHYTE. PHENOCRYSTS OF SERICITISED FELDSPAR, MINOR CHLORITISED AMPHIBOLE PHENOCRYSTS IN SERICITISED MICROCRYSTALLINE FELDSPATHIC GROUNDMASS. ABUNDANT QUARTZ MICROAMYGDULES. TRACE SPHALERITE IN MINOR CHERTY QUARTZ VEINLETS ON MARGINS OF FLOW BRECCIA FRAGMENTS.	46
48	1.5	0												48
50	1.6	0												50
52	1.6	0.1												52
54	1.6	0											PET. 315723; 53.7m; REP. 47.0-62.6	54
56	1.5	0											BRECCIATED AMYGDALOIDAL TRACHYTE. STRONGLY SERICITISED BRECCIA FRAGMENTS IN A CROSSTHORN MATRIX OF PYRITE/SERICITE/QUARTZ. MORE STRONGLY ALTERED VERSION OF 315722.	56
	1.0	0.2												
58	0.9	0												58
60	3.0	0												60
62	0.7	0		62.6										62
64	2.3	0.1	VOLCANIC/SEDIMENT ARY BRECCIA	DARK GREEN PORPHYRITIC TRACHYTE FRAGMENTS IN A GREY/BLACK CHERTY MATRIX.	INCIPIENT PINK FELDSPAR/SILICA ALTERATION OF PHENOCRYSTS, PATCHES OF PERVASIVE (PINK FELDSPAR) SILICA ALTERATION OF CLASTS.	3								64
66	1.9	0											PET. 315724, 66.2m, REP. 62.6-70.6	66
68	2.2	0.3												68
70	1.1	0									59.0			70
72	1.9	0		FROM 70.6, CLASTS PALER (SERICITISED/SILICIFIED) AND PINK ALTERED.									HYBRID BRECCIA. SERICITISED QUARTZ AMYGDALOIDAL TRACHYTE (SIM. TO 315722, 723) IN MATRIX OF TUFFACEOUS PYRITE, SERICITIC CHERTY BLACK ARGILLITE. LAVA FLOW ONTO PYRITIC PELITE?	72
	1.3	1.0												
	0.5	0.2		73.4										
74	1.1	0.1	ANDESITIC LAVA BRECCIA	FRAGMENTS OF DARK GREEN PORPHYRITIC ANDESITE IN MATRIX OF GREEN TO PINK FELDSPAR/SILICA ALTERATION. FRAGMENTS COMMONLY SHOW RIPPLE (RE-SORBED) OUTLINES. PHENOCRYSTS CAN BE SEEN IN MATRIX. THE TEXTURE IS INTERPRETED TO REPRESENT AN EPICLASTIC BRECCIA TEXTURE ENHANCED BY FELDSPAR/SILICA ALTERATION.	PERVASIVE PINK FELDSPAR/SILICA ALTERATION OF MATRIX; CHLORITIZATION AND PATCHY PINK PHENOCRYST ALTERATION OF CLASTS.	3								74
76	2.3	0.3												76
	0.3	0												
78	0.6	0												78
	1.4	0												
80	1.4	0												80
	0.5	0												
82	1.0	0												82
	1.9	0												
84														84

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ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142056

PROJECT : Hatfield EL 15/73 Tasmania

PROSPECT: Mt Charter

HOLE NO: MC-6

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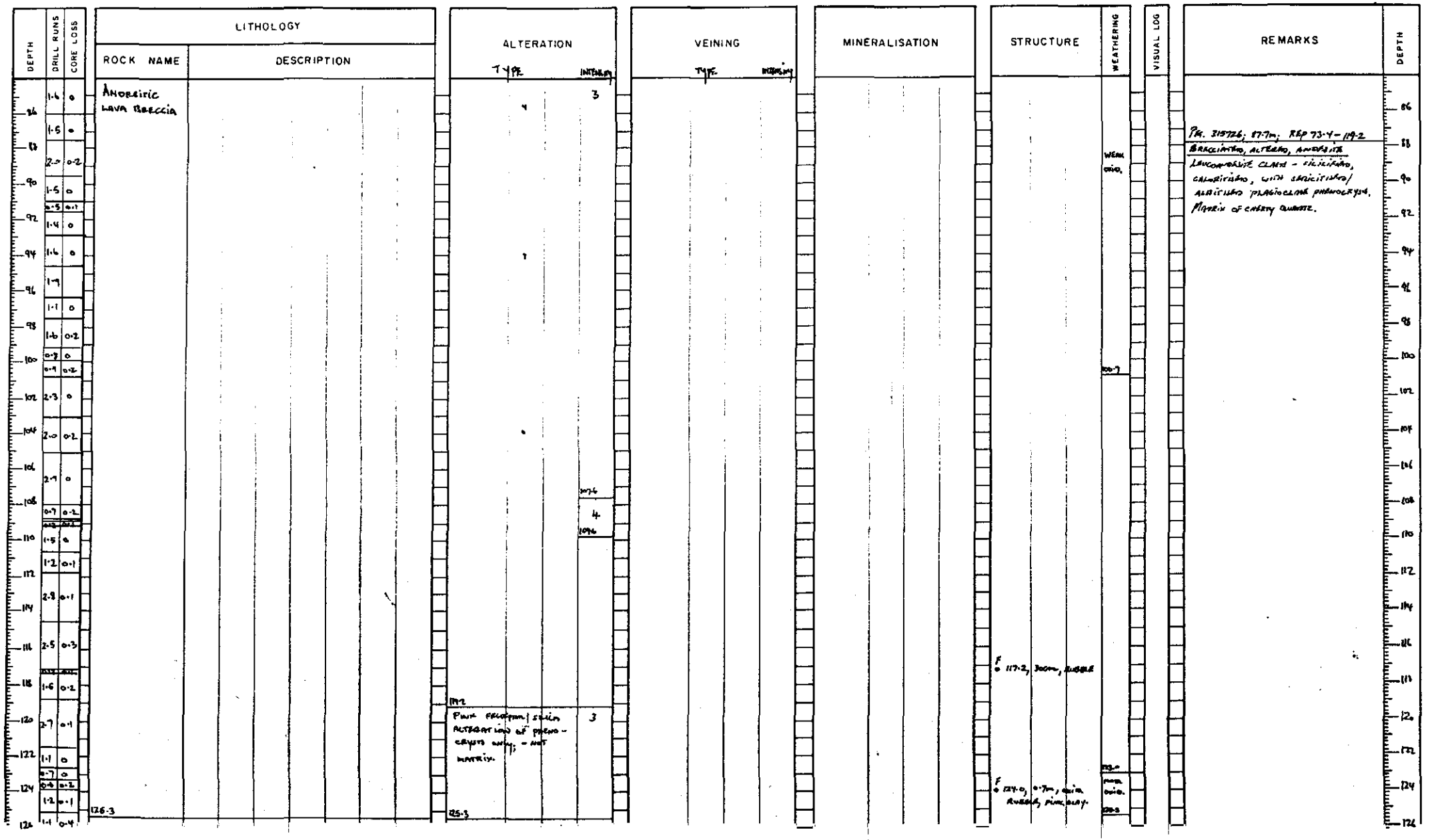

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ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142057

PROJECT : Hatfield EL 15/73 Tasmania

PROSPECT: Mt Charlton

HOLE NO : MC-6

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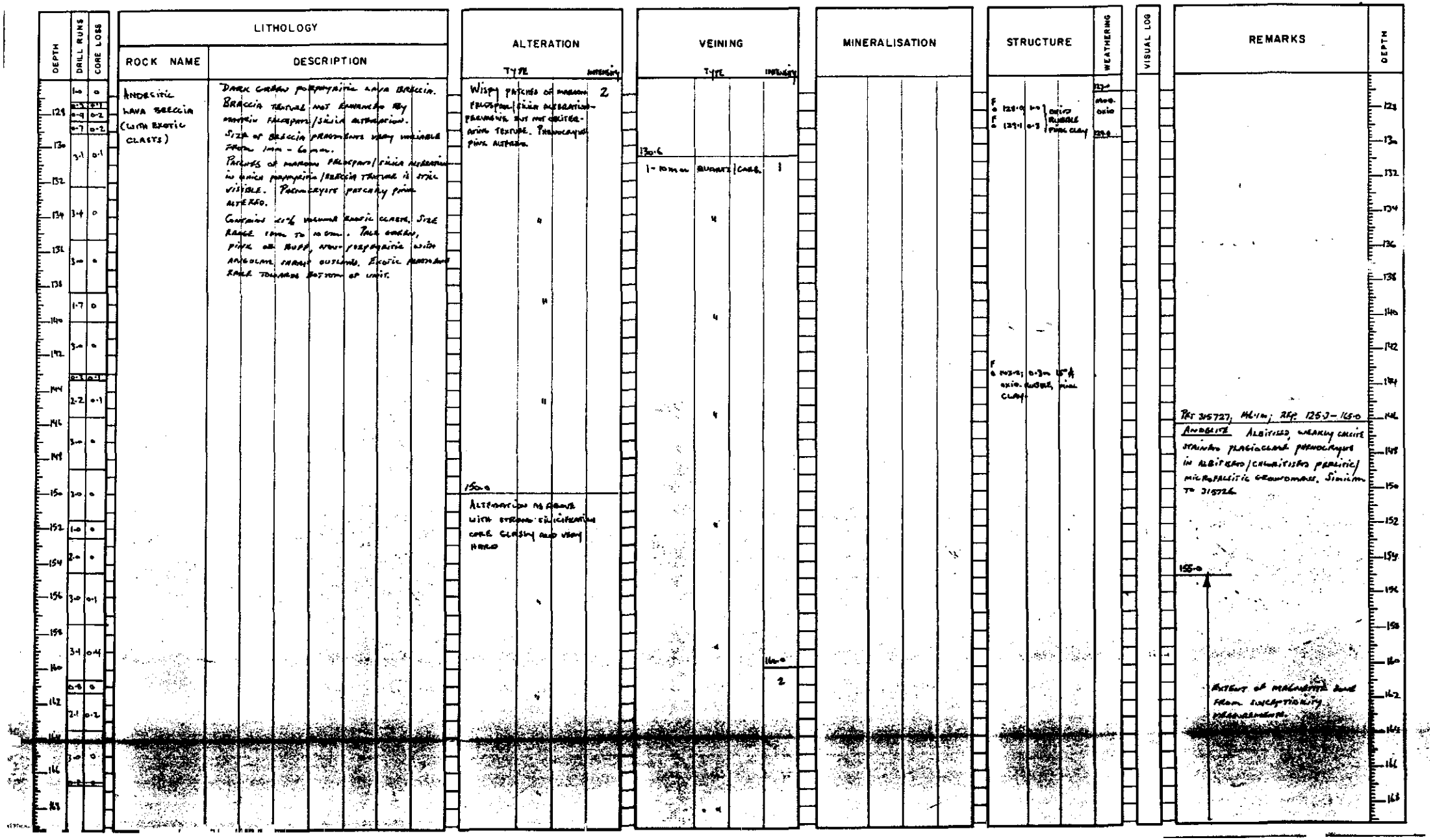

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ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142058

PROJECT : Hatfield EL 15/73 Tasmania

PROSPECT: Mt Charter

HOLE NO : MC-6

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LOGGED : AMH

DATE : 20-7-84

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION: TYPE / INTENSITY	VEINING: TYPE / INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
170	2.8	0	Andesitic lava breccia (with exotic clasts)								Ref. 315728, 170.9, Rep. 165.0-181.0. Andesite. Albitised, chloritised, epidote stained plagioclase phenocrysts in feldspar microlitic groundmass. Non-clastic flow structured, flow brecciated, conspicuous primary hornblende.	170
172	3.0	0										172
174	3.0	0										174
176	1.3	0										176
	1.4	0										
178	3.1	0										178
180				Gradational contact	Gradational						180.0	180
182	3.1	0.2	Andesitic lava breccia	Dark green, occasionally pale green, sparsely porphyritic lava breccia. Breccia fragments < 10cm and closely packed.	Trending sericitisation, weak chloritisation of phenocrysts and groundmass							182
184	2.0	0										184
186												186
188	3.1	0			As above with zone wispy patches of pink alteration.							188
190												190
192	3.1	0										192
194	3.1	0										194
196					196.6						Ref. 315729, 194.6m, Rep. 180-196. Brecciated andesite. Sericitised, weakly chloritised plagioclase porphyritic lava. Pervasively brecciated, quartz healed.	196
198	2.3	0.2	Transition zone	Mixture of andesitic / dacitic lavas.	Patchy pervasive sericite alteration, disseminated pyrite.							198
200	2.8	0	Dacitic lava breccia	Fine grained, glassy, quite chloritised dacite breccia. Non porphyritic except for rare spots of pink kaolin (sericite) after feldspar. Matrix composition similar to clasts.								200
202	2.3	0.3										202
204	3.1	0			204.8							204
206			Transition zone	As above.	Pervasive fine filamentous chlorite alteration.							206
208	1.8	0.2			208.4							208
210	1.1	0.2	Andesitic lava breccia, lava (with exotic clasts)	Dark green porphyritic lava, weakly developed breccia texture. Rare pink exotic clasts.	Strong chlorite alteration associated with fractures							210
	1.2	0.7										

058

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142059

PROJECT : Hatfield EL 15/73 Tasmania

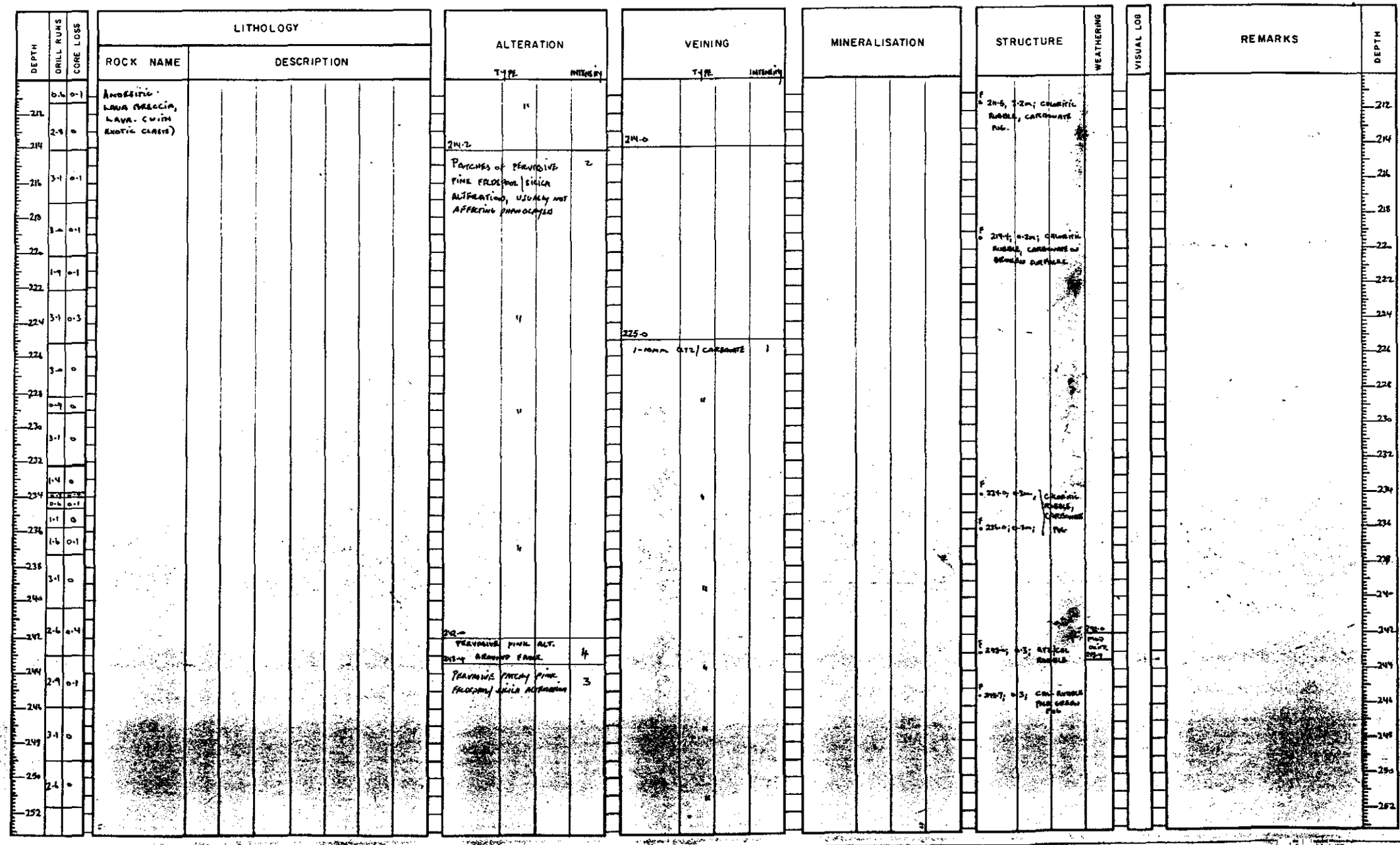
PROSPECT: Mt Charter

HOLE NO: MC-6

PAGE: 6 of 8

LOGGED: AMH

DATE: 20-7-84



059

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142060

PROJECT : Hatfield EL 15/73 Tasmania

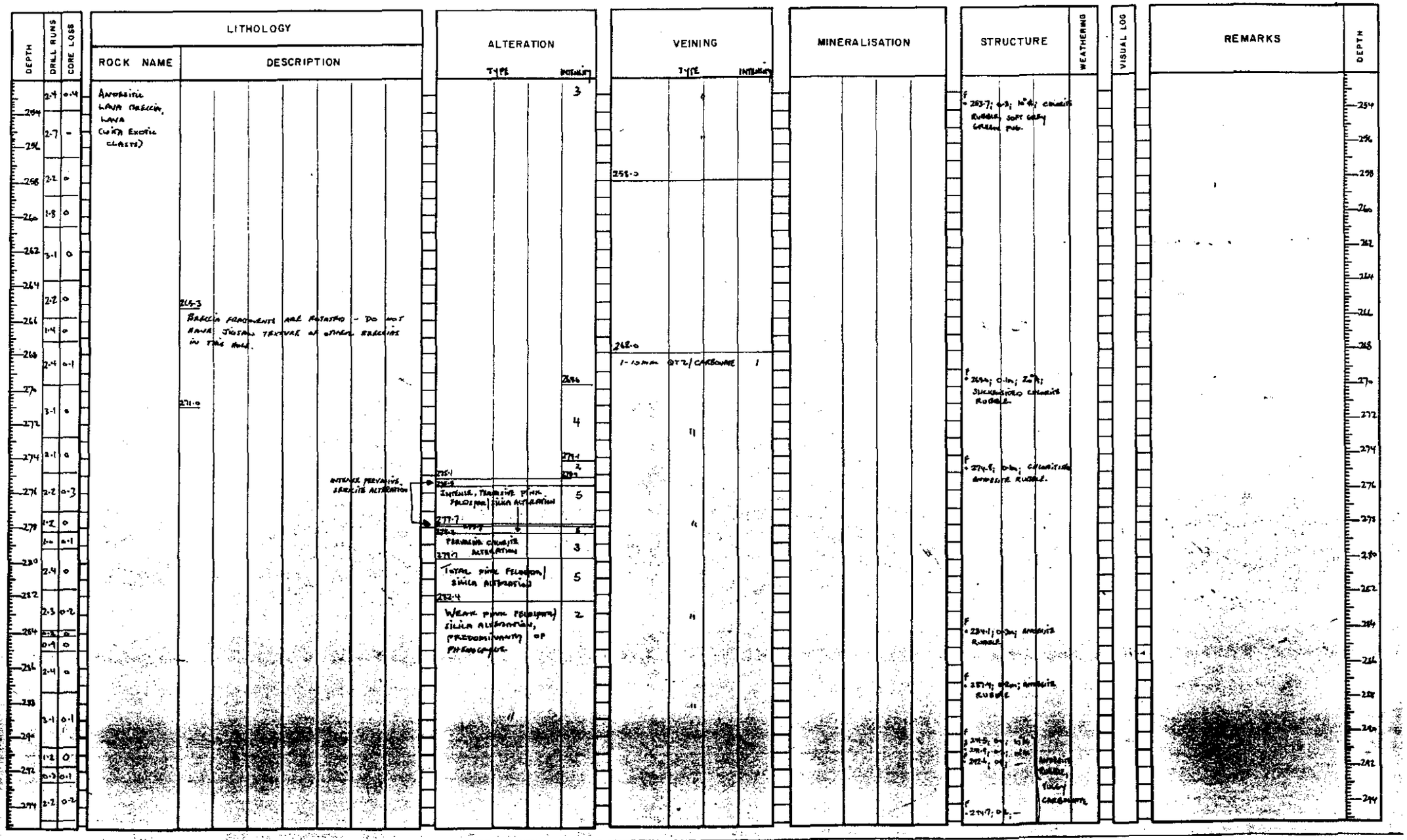
PROSPECT: Mt Charter

HOLE NO: MC-6

PAGE: 7 of 8

LOGGED: AmH

DATE: 20-7-84



ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

PROJECT : Hatfield EL 15/73 Tasmania

PROSPECT: Mt Charter

142061

HOLE NO: MC-6

PAGE: 5 of 5

LOGGED: AmH

DATE: 30-7-84

060

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION: TYPE	ALTERATION: INTENSITY	VEINING: TYPE	VEINING: INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
296	1.9	0	ANDESITIC LAVA BRECCIA, LAVA (WITH EXOTIC CLASTS)											296
298	2.1	0.1			Complete pink feldspar/silica alteration	5								298
300	2.1	0												300
302	3.0	0												302
304					304.1 Weak patchy pervasive pink alt.	1								304
306	3.0	0			306.8									306
308	3.0	0			307.4		Total pink alteration							308
			308.9 EPICLASTIC 310.4	EPICLASTIC - OPEN FRAMEWORK; 1-30mm PINK, BLACK, CARBON, BROWN FRAGMENTS; SUB-ANGULAR, SPIKEY OUTLINES; FINE GRAINED GREEN MATRIX.	308.8 Patchy pink feldspar/silica alteration	2								310
312	2.7	0												312
314	2.3	1.1			313.2 Total pink feldspar/silica alteration	5								314
316	2.4	0												316
	0.8	0												
318	1.7	0											319.1 EOH.	318
320														320

MC-8

061

ABERFOYLE EXPLORATION

DRILL HOLE RECORD

142062

Location Tasmania | Property Hatfields EL 15/73 | District Mt Charter | Bearing (M) 049 | Hole No MC-8

Commenced 21-7-84 | Completed 30-7-84 | % Recovery | Grid bearing (M) 040 | Date

Objective Mt Charter Barite Horizon | Core size 0-59.9 HQ, 59.9-235.3 NQ | Logged AMH

Co-ordinates 4525.6N 4020.4E 780.0RL Dip -44° Alt./R.L.

SURVEY PICK UP

SURVEY DATA				GRAPH DERIVED DATA			CALCULATED CO-ORDINATES			REMARKS
DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE	DEPTH	DIP	BEARING(M)	NORTHING	EASTING	ALTITUDE	
0	-44°	049°	SURVEY P.U.	0			0	0	780.0	
18.0	-45°	055°	EASTMAN CAMERA	9			6.5	0	773.7	MC-7 WAS ABANDONED BECAUSE
41.0	-45.5°	054°	"	18.0			12.8	0	767.4	DOWNHOLE SURVEY CAMERA BEARINGS SHOWED
77.0	-45°	052°	"	29.5			21.0	0	759.0	A NINE DEGREE DIFFERENCE IN BEARING
77.0	-45°	055°	"	41.0			29.0	-0.1	751.0	WITH SURFACE SET OUT OF THE HOLE
145.0	-44.5°	056°	"	59.0			41.7	-0.3	738.2	A SIX DEGREE DIFFERENCE OCCURRED IN
176.0	-44°	057°	"	77.0			54.4	-0.4	725.5	MC-8 AND REMAINS UNEXPLAINED.
211.5	-42°	057°	"	111.0			78.5	-0.3	701.5	
				145.0			102.6	0	677.6	HOLE CASED TO BOTTOM WITH 42mm
				160.5			113.7	+0.3	666.8	CLASS 12 PVC PIPE.
				176.0			124.9	+0.6	656.0	
				193.7			137.7	+1.2	643.0	
				211.5			150.8	+1.8	631.0	NOTE NORTHINGS ARE DISTANCE ALONG
				223.4			159.6	+2.2	623.0	LINE OF SECTION NORTH OF THE COLLAR.
				235.3			168.5	+2.7	615.0	EASTINGS ARE DISTANCES EAST (-VE)
										OR WEST (+VE) OF LINE OF
										SECTION SHOWN ON PLAN HT39

062

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142063

PROJECT : HATFIELD EL 15/72 TASMANIA

PROSPECT: MT CHANTER

HOLE NO: MC-8

PAGE: 1 of 6

LOGGED: AMH

DATE: 29-7-84

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION: TYPE	ALTERATION: INTENSITY	VEINING: TYPE	VEINING: INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
2	2.0	1.3	BLACK SHALE.	BLACK SHALE. No PRIMARY LAMINATION VISIBLE			1-3mm PYRITE (LIMONITE) VEINS	3	PYRITE (LIMONITE) IN VEINS AND AS JOINT COATINGS.	STRONGLY JOINTED THROUGHOUT - PREDOMINANT DIRECTION 40° to CA	FRESH AT BASE		CORED FROM SURFACE.	2
4	2.0	0.9												4
6	1.3	0.1												6
	1.1	0												
8	1.5	0												8
	1.4	0												
10	1.6	0												10
12	1.5	0												12
14	1.4	0												14
16	1.5	0								16:2 F, 20cm, RUBBLE				16
	1.2	0												
18	1.5	0												18
20	1.6	0												20
	1.2	0												
22	1.4	0.1												22
24	1.2	0	24.8 SHARP CONTACT								24.8			24
	1.7	0	ANDESITE LAVA BRECCIA.	PALE GREY GREEN FRIABLE PORPHYRITIC ANDESITE FRAGMENTS IN A PUGGY PYRITIC MATRIX. FRAGMENTS OF DARKER GREEN ANDESITE ALSO OCCUR.	PERVASIVE SERICITE (PYRITE)	4	1-5mm VEINLETS AND PATCHES OF SILICA, SERICITE, SIDERITE, SPH)	2	RARE CLOTS OF GRANULAR BROWN SPHALERITE IN ← VEINS. PERVASIVE ULTRAFINE PYRITE		STRONG		→ CORE NOT OXIDISED, BUT SOFT AND PUGGY, FRIABLE - LEACHED?	26
28	1.7	0.1												28
	1.5	0												
30	1.4	0												30
32	3.0	0												32
34														34
	1.4	0											24.8 - 49.5m PER. 315/13 36.8m; REP. 38.1 - 59.9m	
36	1.6	0.1												36
38	1.4	0.5											"PORPHYRITIC ANDESITE LAVA BRECCIA. STRONGLY SERICITISED, WEAKLY SILICIFIED, PYRITISED. MINOR LATE STAGE ALBITE VEINLETS.	38
40	1.6	0.1												40
42	1.4	0.2												42

063

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142064

PROJECT : Hatfield EL 15/77 Tasmania

PROSPECT : Mt Charlotte

HOLE NO : MC-8

PAGE : 2 of 6

LOGGED : RMH

DATE : 29.7.84

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION: TYPE	ALTERATION: INTENSITY	VEINING: TYPE	VEINING: INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
44	1.6	0	Andesite lava breccia		Pervasive sericite, pyrite	4					4			44
46	1.4	0.3												46
	1.6	0.1												
48	1.4	0.3												48
	1.4	0.6												
50	1.4	0.1		49.5 Non-leached equivalent of 24.8-49.5. Dark green porphyritic andesite clasts in a matrix of brown/grey translucent silica and patchy veinlets of pyrite. Pyrite veinlets in matrix only. Clasts are rounded with diffuse boundaries. Texture interpreted to be an original lava breccia texture enhanced by alteration. All cut by irregular veinlets and patches of silica, feldspar?, siderite?;	49.5 Sericite alteration of clasts / Strong silica and pyrite alteration of matrix	3 / 4	49.5 1-5mm late pink / grey albite / quartz veinlets	2	49.5 Rare py, spy, cpy as patchy +/- in veins. 2-5% pyrite in wispy veinlets and disseminations through andesite clasts.		49.5			50
52	1.6	0.1												52
54	1.4	0											Per 31571H 54.0m; Rep. 49.5-80.8 Porphyritic andesite lava breccia. Strongly sericitised. Matrix silicified, pyritised. Late stage albite veinlets.	54
	1.6	0												
56	1.4	0												56
	1.6	0.1												
58	1.4	0		58.1 Leached zone as for 24.8-49.5	58.1									58
60	1.4	0		59.1 As for 49.5-58.8	59 Pervasive sericite / pyrite	4							59.1 Mo NR	60
62	2.0	0.1			Sericite alteration of clasts / Strong silica / pyrite alteration of matrix	3 / 4								62
64	2.6	0												64
66	3.0	0												66
68	2.0	0												68
70	2.0	0.1												70
72	1.9	0							(72.1 - 4mm of calcite in vein)					72
74	1.8	0												74
76	3.0	0												76
78														78
80				Gradational contact over 1.0m										80
82	3.1	0	Pyrite sericite rock	80.8 Dull grey rock of scattered 1mm sericitised phenocrysts in fine grained pyrite-sericite matrix. Pyrite in contact, re-crystallised matrix after 87.7	80.8 Pervasive sericite pyrite alteration. Pyrite disseminated and stringers	4	82.0						Per. 31572H 83.3m Rep. 80.8-91.2 Strongly sericitised and pyritised dacitic lava. Incipiently silicified. Similar to 31571H.	82
84														84

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142065

PROJECT : Hatfield EL15/73 Tasmania

PROSPECT : Mt Charter

HOLE NO: MC-8

PAGE: 3 of 6

LOGGED: AMH

DATE: 29-7-84

Drill runs	Core loss
1.6	0.2
1.1	0.1
1.4	0
3.0	0
1.8	0.1
1.7	0
3.0	0
3.0	0
0.6	0
2.4	0.3
2.9	0
3.1	0
0.7	0
2.3	0
[illegible]	[illegible]
1.6	0.2
2.9	0
1.9	0
1.9	0
3.0	0

LITHOLOGY

Depth	Rock name	Description
to 91.2	Pyrite sericite Rock.	Gradational contact over 0.5m
91.2 – 114.0	Dacite breccia	Clasts – pale green-cream-grey porphyritic dacite. <1-5mm phenocrysts replaced by dirty green waxy illite or pyrite. Clasts have sharp, ragged to diffuse outlines. Matrix – soft dull grey sericite and fine pyrite with patches of barite in some places. Clasts and matrix are cut by stringers pyrite veinlets. Gradational contact over 4.0m
114.0 –	Altered andesite	1mm diffuse white/pink phenocrysts in a glassy brown/grey matrix. Hard, glassy – silicified or albitised.

ALTERATION

Depth	Type	Intensity
to 91.2	"	
91.2	Pervasive intense sericite/pyrite alteration of matrix, sericite (illite?) alt. of phenocrysts.	4
114.0	Pervasive grey/brown silicification/feldspathisation	Gradual ↕ 4

VEINING

MINERALISATION

Depth	Description
94.3	1-5% barite as patches associated with pyrite between dacite fragments
104.3	2-10% patches and veinlets of pyrite, some recrystallized, in matrix
109.7	2-5% veinlets and patches of pyrite, some vuggy and recrystallised. Some associated with brown carbonate.
117.5	1-2% pyrite as patches and veinlets

STRUCTURE

85.5 F, gouge, rubble. Sericite alteration on fault margins.

WEATHERING

VISUAL LOG

REMARKS

Pet. 315716; 96.4m; Rep. 94.3-104.3 130.0-136.0

Brecciated dacite, incipiently sheared. Strongly sericitised pyritic clasts in pyrite/sericite/chert matrix. Contains irregular vugs, patches of barite +(quartz + muscovite + flourite) in matrix.

Pet. 315716; [illegible] Rep. [illegible]

Similar [illegible], [illegible] altered sericite, [illegible] altered plagioclase phenocrysts in a sericite/pyrite/silica altered feldspar microlitic groundmass. Late albite/pyrite/sphalerite veinlets. Weak flow structure. Incipiently sheared.

Depth
86
88
90
92
94
96
98
100
102
104
106
108
110
112
114
116
118
120
122
124
126

065

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142066

PROJECT : Hatfield EL 15/77 Tasmania

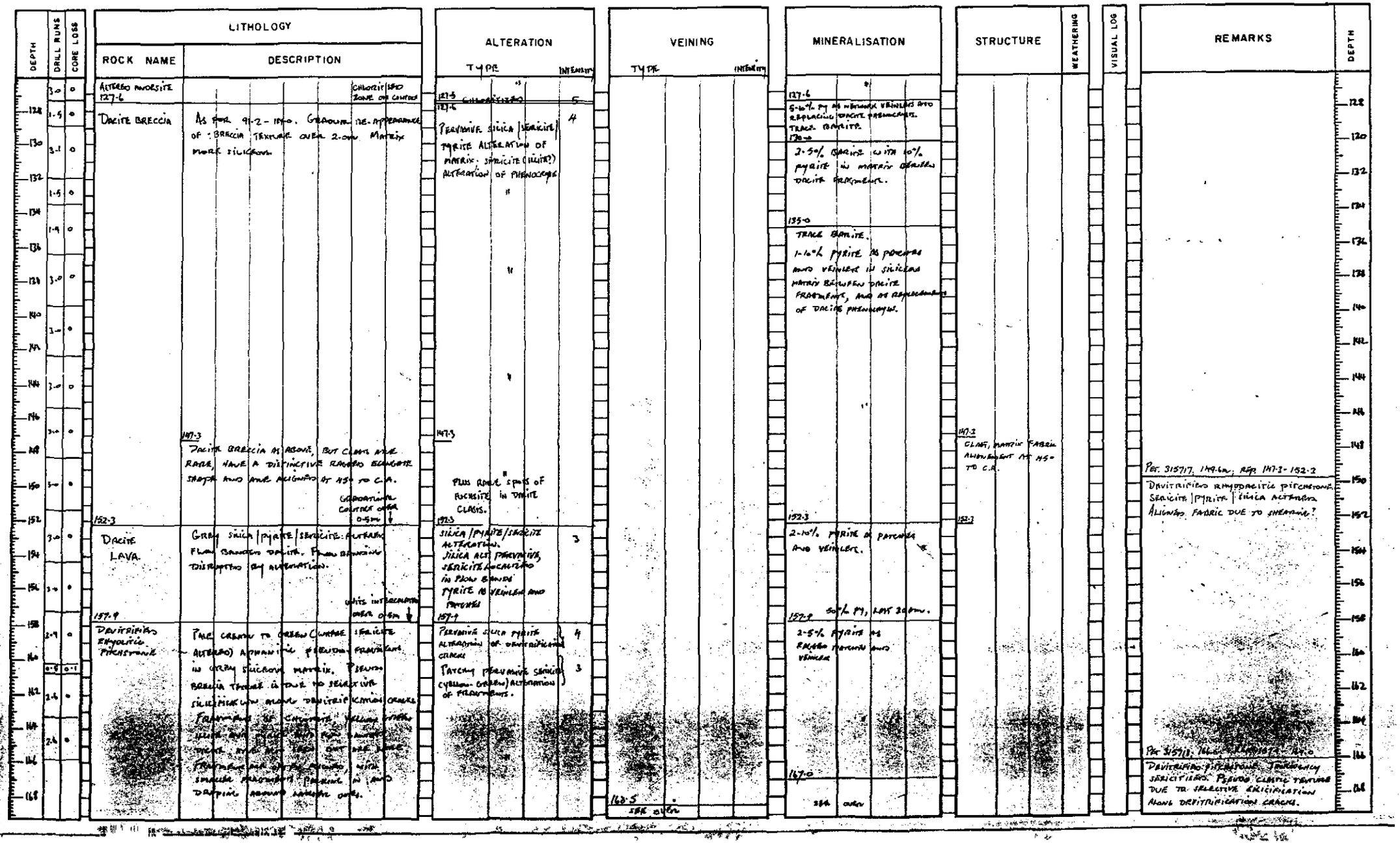
PROSPECT: Mt Carleton

HOLE NO: MC-8

PAGE: 4 of 6

LOGGED: AMH

DATE: 29.7.84



066

ABERFOYLE EXPLORATION

PROJECT : HATFIELD EL 15/73 TASMANIA

PROSPECT: MT CHARTER

DIAMOND DRILL LOG

142067

HOLE NO: MC-8

PAGE: 5 of 6

LOGGED: BMH

DATE: 29.7.84

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION: TYPE	ALTERATION: INTENSITY	VEINING: TYPE	VEINING: INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
170	3.1	0.1	DEVITRIFIED RHYOLITIC PITCHSTONE		169.0 INTENSE SERICITE (YELLOW GREEN) ALTERATION OF FRAGMENTS; GREY SILICA, RARE PYRITE IN DEVITRIFIED MATRIX	4	1-10mm TIGHT TO VUGGY MILKY QUARTZ VEINS WITH (PINK FELDSPAR, WHITE CARB, GALENA, SPHALERITE (BLACK-YELLOW) PYRITE, SERICITE, CHLORITE) IN APPROX. ORDER OF ABUNDANCE		RARE RACKED PATCHES/VEINLETS OF PYRITE. RARE DISSEMINATED PYRITE. PY. NOT GRAINY ASSEMBLAGE IN ZONES OF MOST INTENSE SERICITISATION				PER. 315719. 169.4, REP. 169.0 - 173.7. DEVITRIFIED PITCHSTONE. THOROUGHLY SERICITISED. SIMILAR TO 315718.	170
172	3.1	0.1												172
174	2.2	0			173.7 WEAK SERICITE ALTERATION OF GREY SILICA IN DEVIT. MATRIX NO PYRITE	2								174
176	3.0	0			176.0 EXTREME YELLOW-GREEN SERICITE ALT. OF MATRIX	5				176.6 VERY BROKEN FRIABLE SERICITISED ZONE				176
178	1.0	0			179.1 YELLOW-GREEN SERICITE ALTERATION OF FRAGMENTS; GREY SILICA IN DEVIT. MATRIX RARE PYRITE	4				179.0				178
180	0.7	0.2												180
	0.9	0												
182	1.4	0.2								181.2 CAVITY, CRACKLE ZONE IN CHLORITIC VEIN				182
	1.1	0.3								181.9				
184	1.0	0												184
	1.9	0.1												
186	1.4	0.3												186
	0.6	0												
188	3.0	0												188
190					190.3 PERVASIVE YELLOW GREEN SERICITE ALTERATION OF FRAGMENTS. PATCHY GREY SILICA IN DEVIT. MATRIX. PYRITE DIMMING SOME FRAGMENTS AND M VEINLETS	3								190
192	3.0	0												192
194	3.0	0.1												194
196	2.7	0												196
198														198
200	3.1	0.4												200
202	0.4	0												202
204	2.3	0												204
206	2.1	0.1								205.6 F. ZONE WEATHERED RUBBLY				206
208	2.2	0								205.5 VERY BROKEN FRIABLE SERICITE ZONE				208
210	0.9	0.2												210

067

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142068

PROJECT : Hartfield EL15/79 Tasmania

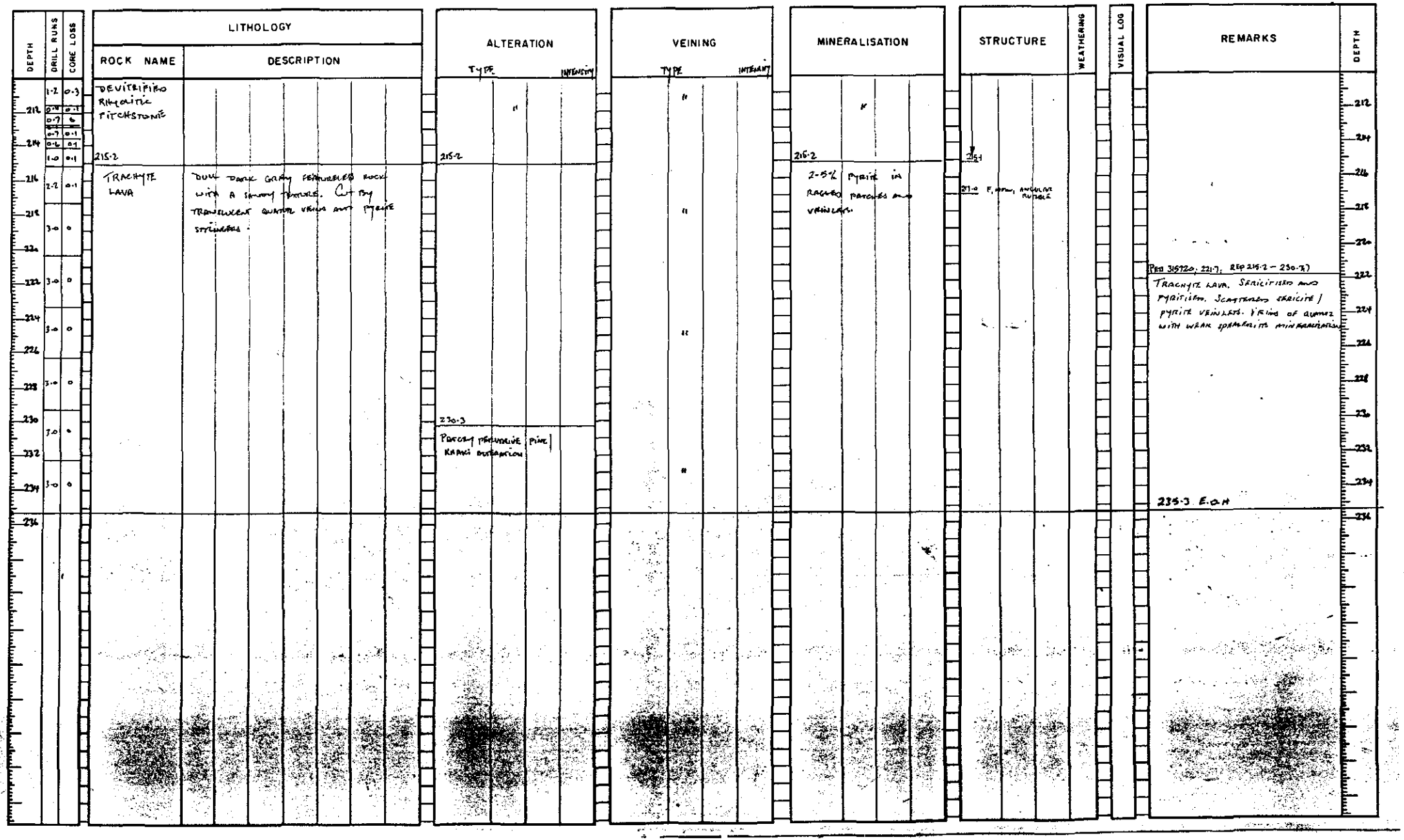
PROSPECT: Mt Charlotte

HOLE NO: MC-8

PAGE: 6 of 6

LOGGED: RMH

DATE: 29.7.84



MC-9

068

ABERFOYLE EXPLORATION

DRILL HOLE RECORD

142069

Location Tasmania | Property Hatfield EL 15/73 | District S.W. Mt Charter | Bearing (M) 099° | Hole No MC-9

Commenced 2-8-84 | Completed 13-8-84 | % Recovery | Grid bearing (M) 090° | Date

Objective J_3 ITEM ANOMALY | Core size 0-75.0m HQ, 75.0-248.7 NQ; | Logged

Co-ordinates 3899.6N, 4153.9E, 746.7 R.L Dip -42° | Alt./R.L. 746.7

SURVEY DATA				GRAPH DERIVED DATA			CALCULATED CO-ORDINATES			REMARKS
DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE	DEPTH	DIP	BEARING(M)	NORTHING	EASTING	ALTITUDE	
0	-42°	099°	Survey P.U.	0			3899.6	4153.9	746.7	
34.0	-42.5°	100°	Eastman Camera	17			3899.7	4166.5		
91.0	-43°	100°		34			3899.8	4179.0	723.8	
148.0	-43°	101°		62.5			3899.7	4200.0	704.5	
191.3	-42°	102°		91			3899.7	4220.9	685.1	
248.0	-39°	102°		119.5			3899.6	4241.8	665.7	
				148			3899.3	4262.6	646.3	
				169.5			3898.9	4278.5	631.6	
				191.3			3898.4	4294.5	617.0	
				219.5			3897.6	4315.8	598.3	
				248			3896.8	4337.6	580.2	

069

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142070

PROJECT : HATFIELD EL 15/73 TASMANIA

PROSPECT: S.W. MT CHAMPION

HOLE NO: MC-9
PAGE: 1 of 6
LOGGED: GMH
DATE: 9-8-84

DEPTH	DRILL RUNS	CORE LOSS	ROCK NAME	DESCRIPTION	ALTERATION TYPE	ALTERATION INTENSITY	VEINING TYPE	VEINING INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
2	3.0	2.2	VESICULAR BASALT LAVA	YELLOW BROWN MANGANESE STAINED CLAY AFTER BASALT.						VERY BROKEN DUE TO WEATHERING. CAVERNOUS DUE TO WEATHERING OUT OF CARBONATE VEINS, AMYGDULES.	TOTAL OXIDISED		ALL BRECCIA TEXTURES RECAIRED ARE EITHER WHOLLY OR IN PART DUE TO ALTERATION	2
4	1.6	0.4												4
6	1.4	0.5												6
8	1.6	1.0												8
10	1.4	0.5												10
12	1.6	0.3												12
14	1.4	0.3												14
16	1.6	0.4												16
18	1.4	0.1												18
20	1.6	0.3												20
22	1.4	0.5												22
24	1.6	0.2												24
26	1.4	0.4												26
28	1.6	0.3												28
30	1.4	0.1												30
32	1.6	1.2												32
34	1.4	0.2												34
36	1.6	0												36
38	1.4	0.1												38
40	1.6	0.3												40
42	1.4	0												42
	1.4	0												
	1.4	0												
	1.6	0												
	1.4	0												

21.5

YELLOW BROWN CLAY AS ABOVE WITH PATCHES OF DULL GREEN WEATHERED BASALT

"

30.0

WEATHERED DULL GREEN VESICULAR BASALT, MANGANESE STAINED VUGS, SURFACES AFTER CARBONATE VESICLES, VEINS.

"

(PATCH OF GREY/PURPLE CHERT AT 36.7)

35.2

NO CORE FOR 21.5 - 30.0

21.5

VERY STRONG, OXIDISED

30.0

STRONG

35.2

VERY STRONG, OXIDISED

070

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142071

PROJECT : Hatfield EL 15/73 Tasmania

PROSPECT: S.W. Mt Chamaeis

HOLE NO: MC-4

PAGE: 2 of 6

LOGGED: A.M.H

DATE: 9-8-84

DEPTH	DRILL RUNS	CORE LOSS	ROCK NAME	DESCRIPTION	ALTERATION TYPE	ALTERATION INTENSITY	VEINING TYPE	VEINING INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
44	1.4	0	Vesicular Basalt Lava.	44.0 As for 30.0 - 39.3										44
46	1.4	0												46
	1.6	0.1												
48	1.4	0												48
	1.4	0												
50	1.5	0.1												50
	1.5	0.7												
52	1.3	0.3												52
	1.6	0.2												
54	1.4	0.4												54
	1.4	0												
56	1.7	0.3												56
	1.2	0.2												
58	1.6	0												58
	1.6	0												
60	3.2	0.1												60
				61.5 Fresh basalt - description as 30.0			67.5 2-10mm white/purple carbonate	3			67.5			
62	1.6	0												62
	1.4	0.1		70.0 Dark brown weathered basalt			70.0				70.0			
64	1.5	0.2								Very broken due to weathering, leaching of carbonate veins, angular.	Very strong			64
	1.6	0.3												
66	1.5	0.2												66
	0.8	0.2		72.7 Fresh basalt - description as 30.0							72.7			
68	1.5	0.1		73.3 As for 70.0 - 72.7							73.3			68
	0.7	0.4								Very broken as above.	Very strong			
70	0.6	0.3												70
	0.8	0.3		80.0 A 10cm grained vesicular basalt vesicles 2-15mm, filled with white/pale purple carbonate. Rare 1-3mm calcite veinlets. 5-10cm calcite zones at 0.6-2.0m intervals. Core broken on these			80.0 1-10mm irregular white/purple carbonate veins	3			80.0		75.0 Base of basalt	70
72	2.0	0												72
74	3.0	0												74
76														76
78														78
80														80
82														82
84														84

071

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142072

PROJECT : Hatfield EL 15/73 Tasmania

PROSPECT: S.W. Mt Charter

HOLE NO: MC-9

PAGE: 2 of 6

LOGGED: AMH

DATE: 9-8-84

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
86	3.1	0	Vesicular basalt lava	Consistently veined with white/purple carbonate, with associated pink/white feldspar/quartz. Rare waxy yellow-green illite veins always at high angle to core axis (@ 82.6)		(87.1 pink feldspar/calc in vein						86
88	3.1	0										88
90	1.1	0.6							89.6 strong oxid			90
92	0.4	0.1						very broken as above	strong oxid 92.9			92
	1.9	0.3				94.7						
94	3.1	0				As above 4						94
96	3.1	0										96
98	3.1	0				100.8						98
100	3.1	0				As above with common pink feldspar/silica in centre of veins; as circular patches and along short length of carbonate veins. 4						100
102	3.1	0										102
104	3.1	0				106.1						104
106						As above 3						106
108	3.0	0						108.5 chloritic fault, (100%) 30° to c.a. 109.2 chloritic fault, 50% 25° to c.a.				108
110	3.1	0										110
112	3.1	0										112
114	1.6	1.4							112.4			114
	0.5	0.1						cavity, weathered fault, rubble.	oxid 114.4			
	1.8	0.1						117.6 fault, 100%, rubble				116
118	2.9	0.1							117.6 oxid 118.3			118
120	3.0	0.5						cavity, broken rubble				120
122	2.5	0.1						121.4 broken zone cavity				122
124	3.0	0										124
126												126

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142073

PROJECT : Hatfield EL15/73 Tasmania

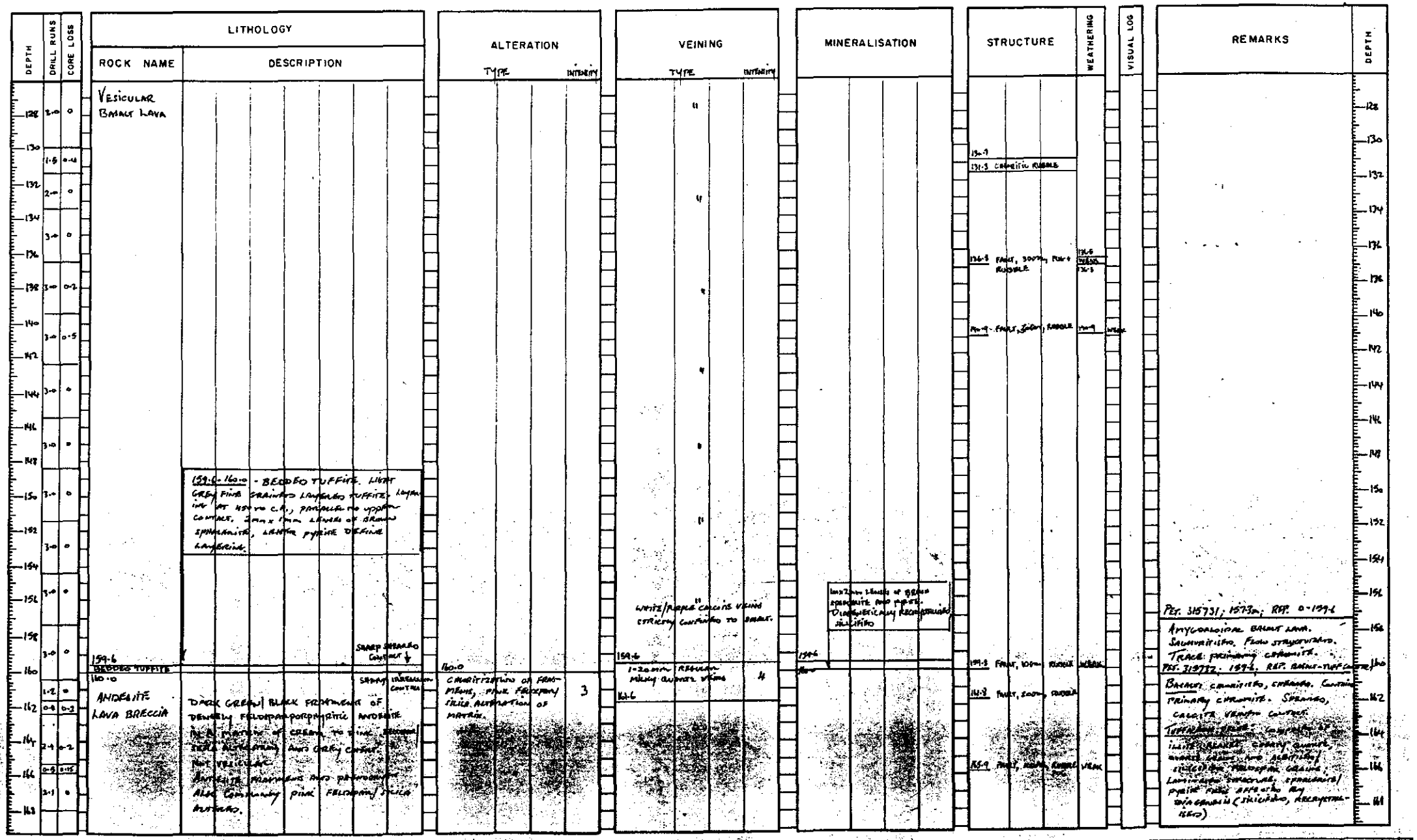
PROSPECT: S.W. Mt Charter

HOLE NO : MC-9

PAGE: 4 of 6

LOGGED : A.M.H

DATE : 9-8-84



ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

PROJECT : HATFIELD EL15/73 TASMANIA

PROSPECT : S.W. MT CHANTRY

142074

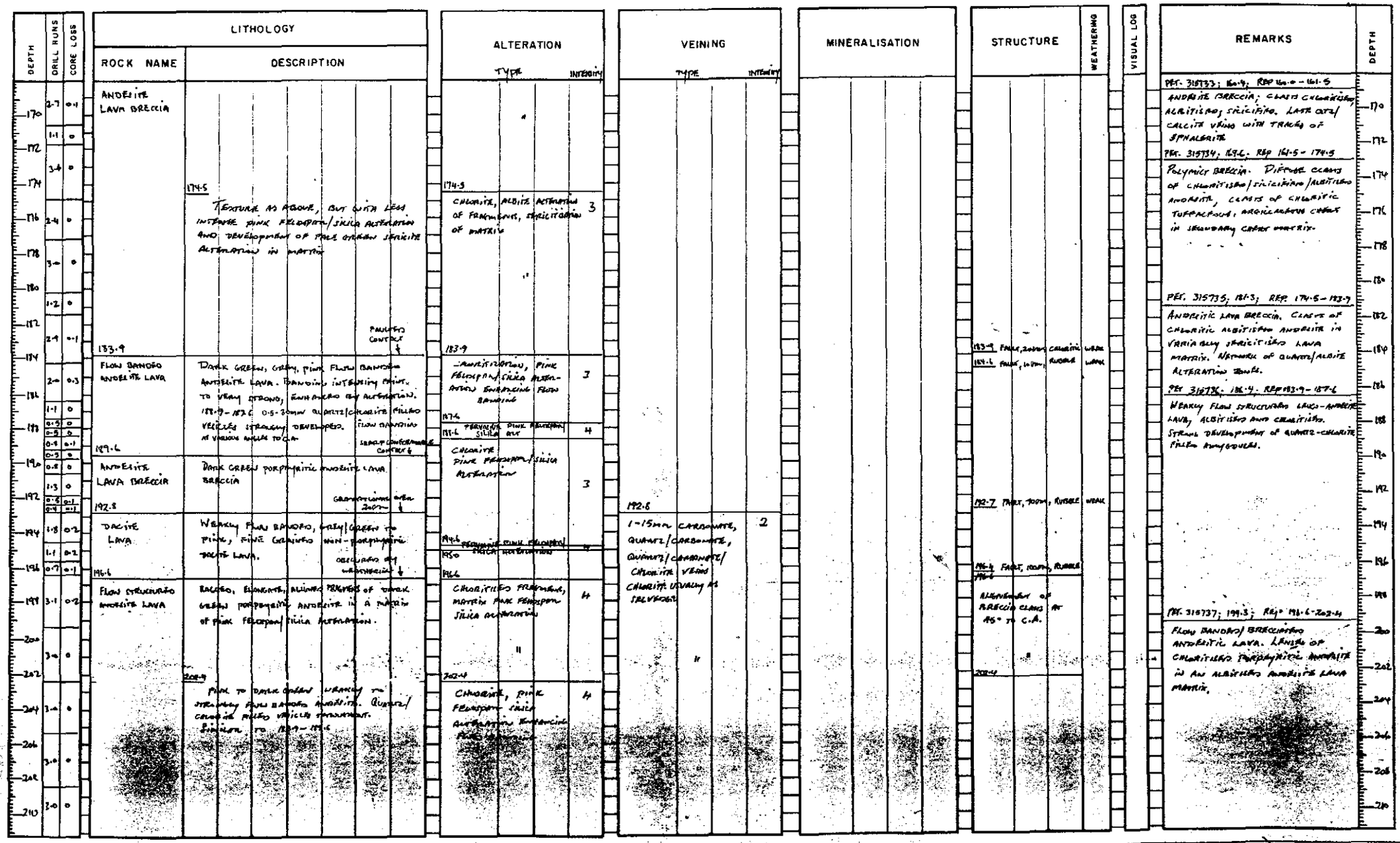
HOLE NO : MC-7

PAGE : 5 of 6

LOGGED : ATH

DATE : 9-8-84

073



074

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142075

PROJECT : Hatfield EL15/73 Tasmania

PROSPECT: S.W. Mt Charlton

HOLE NO: MC-9
PAGE: 6 of 6
LOGGED: AmH
DATE: 9-8-84

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION: TYPE	ALTERATION: INTENSITY	VEINING: TYPE	VEINING: INTENSITY	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
212	1.2	0	Flow structured rhyolite lava.		"		"							212
214	1.8	0			"		"						PEC 315738; 214.5; RBP 202.4 - 227.3	214
	0.6	0			"		"						Flow structured rhyolite lava. Albitised, chloritised, plagioclase phenocrysts in an albitised, chloritised weakly chloritised plagioclase microlite groundmass. Abundant quartz filled amygdules. Alteration enhances flow banding.	
216	1.2	0			"		"							216
218	3.1	0			"		"							218
220	1.4	0			"		"							220
	1.1	0.1			"		"							
222	0.9	0			"		"							222
224	2.5	0			"		"							224
226	1.2	0		Granophyric quartz veins	"		"							226
227.3					227.0		227.3							
228	3.0	0	Andesite lava breccia	10cm - 50cm fragments of dark green porphyritic andesite in a pink to light brown/grey matrix. Fragment outlines range to weakly diffuse	Chlorite alteration of fragments, pink feldspar, silica alteration of matrix. Some fragments completely pink altered, some with only phenocrysts affected	3								228
230	3.0	0												230
232														232
234	3.0	0		234.4 Similar to above, but with a much more granular texture. Felsitic/felsitic texture described in this section suggest it was originally a more massive, glassy rock than most above.										234
236	3.0	0												236
238														238
240	3.0	0												240
242	3.0	0												242
244														244
246	3.0	0								245.0 Fault, 60°, Rusty			PEC 315739; 244.9; RBP 234.4 - 245.9	246
248	0.7	0											Felsitic andesite lava. Albitised plagioclase phenocrysts in a chloritised / albitised / sericitic felsic groundmass	248
	0.4	0												
250													248.7 EOH	250

MC-10

075

ABERFOYLE EXPLORATION

DRILL HOLE RECORD

142076

Location TASMANIA Property HATFIELDS EL 15/73 District S.W. MT CHARTER Bearing (M) Hole No MC-10

Commenced 31 - OCT - 1984 Completed 11 - NOV - 1984 % Recovery Grid bearing (M) Date

Objective INTERPRETED ORE HORIZON INTERSECTED IN MC-9 Core size HQ TO 36.0, NQ TO 264.4 EOH Logged A.M.H.

Co-ordinates Dip Alt./R.L.

SURVEY DATA				GRAPH DERIVED DATA			CALCULATED CO-ORDINATES			REMARKS
DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE	DEPTH	DIP	BEARING(M)	NORTHING	EASTING	ALTITUDE	
0	-74½	185	Survey P.U.	0			4117.3	4156.4	800.9	
30.4	-74½	185	Eastman Coming	15.2			4113.2	4156.7	786.2	HOLE CAPPED TO BOTTOM WITH
74.0	-74½	187	" "	30.4			4109.2	4157.0	771.6	CLMA 12 P.V.C.
127.2	-74½	191	" "	52.2			4103.4	4157.3	750.6	
178.6	-74	193	" "	74.0			4097.6	4157.6	729.6	
232.8	-75	192	" "	100.6			4090.4	4157.7	704.0	
264.0	-75	194	" "	127.2			4083.3	4157.6	678.3	
				152.9			4076.4	4157.3	653.6	
				178.6			4069.4	4156.9	628.8	
				205.7			4062.1	4156.3	602.7	
				232.8			4054.9	4155.9	576.6	
				248.4			4050.9	4155.7	561.5	
				264.0			4046.9	4155.3	546.4	

076

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142077

PROJECT : HATFIELD TH

PROSPECT : MT CHARTRES

HOLE NO : MC-10

PAGE : 1 of 7

LOGGED : ATH

DATE : 13-NOV-84

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS
0	0.5	0	ANDESITE LAVA BRECCIA.	DARK GREEN; FELDSPAR PORPHYRITIC; BRECCIA FRAGMENTS ANGULAR, JIGSAW TEXTURE, 90% FRAGMENTS 10% MATRIX, LIMY CHLORITE FILLED VEINLETS COMMON; INTENSE PHYRIC TO BECOME A BRECCIATED LAVA WITH TEXTURE ENHANCED BY LATER INVASION OF MATRIX BY QTZ/FELDSPAR CARB.	SOME BRECCIA FRAGMENTS ALTERED TO A PALE GREEN BY MATRIX MINERALS	QTZ/WHITE FELDSPAR OCCURS IN VOIDS BETWEEN ANDESITE FRAGMENTS AND AS THIN (1-5mm) SHORT IRREGULAR VEINLETS. FELDSPAR (CHALKY WHITE) OCCURS IN CENTRE OF VEINLETS, QUARTZ (TRANSLUCENT WHITE) ON MARGINS. RARE DARK WHITE CAVERNOUS CARBONATE ASSOCIATED WITH ABOVE.	DARK BROWN CRYSTALLINE SPHALERITE, PYRRHOTITE WITH BLEBS OF CHALCOPYRITE, GALENA. CHALCOPYRITE OCCURS ALWAYS ASSOCIATED WITH SILICA/FELDSPAR VEINING		OX 3		BROKEN, RUBBLE IN WEATHERED SECTIONS. THIN ZONES OF OXIDATION ON JOINT, FAULT SURFACES IN BETWEEN AREAS LOGGED AS WEATHERED. 21.0 DENDRITIC MANGANESE GROWTH ON WEATHERED SURFACE. OX 4
2	0.6	0.3									
	0.8	0.3									
	0.9	0									
4	1.6	0									
	1.4	0.1									
6	1.2	0									
	1.7	0.1									
8	1.6	0.1									
	1.6	0									
10	1.6	0.1									
	1.5	0									
12	1.6	0									
	1.4	0									
14	1.6	0									
	1.4	0.2									
16	1.4	0									
	1.4	0									
18	1.6	0									
	2.3	0									
20	2.1	0									
	1.4	0									
22	0.2	0.2									
	1.6	0									
24	1.6	0									
	2.9	0									
26	2.1	0									
28											
30											
32											
34											
36											
38											
40											
42											

HQ
NQ 36.0

MC-10

077

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142078

ROJECT : HATFIELD TASMANIA

ROSPECT : S.W. MT CHARTER

HOLE NO : MC-10

PAGE : 2 of 7

LOGGED : AMH

DATE : 13-NOV-84

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
44	1.8	0	ANDESITE LAVA BRECCIA								42.6 - 46.2 UNUSUAL TEXTURE. BRECCIA FRAGMENTS (CHLOR, EPIDOTE, SILICEOUS MATRIX IN	44
46	2.7	0									PET: 315756, 43.8m; REP 42.6 - 46.2 AMYGDALOIDAL TRACHYTE. MINOR ALBITE PHENOCRYST IN CHLORITE - EPIDOTE STAINED ALKALI FELDSPAR MICROLITIC GROUNDMASS. QUARTZ AMYGDULES. VEINLETS OF QTZ, CHL, ALBITE, ADULARIA	46
48	3.9	0.5										48
50	49.8		BASALT FLOW TOP BRECCIA.	IRREGULAR FRAGMENTS OF PALE GREEN BASALT IN A CONCRETIONARY DARK GREEN SILICEOUS SHALE OR CHERT MATRIX. CONTACT IRREGULAR.	49.8 CHLORITIZATION IN DIFFUSE 1 TO 5 cm WIDE ZONES AT 0.5m OR GREATER INTERVALS THROUGHOUT. COMMONLY SITE OF MINOR FAULTING.	49.8 WHITE TO PALE PURPLE CARBONATE, VEINS 1 - 10 mm VERY IRREGULAR. VEIN MATERIAL ALSO AS MATRIX TO BRECCIA. RARE PINK/WHITE K-FELDSPAR IN CENTRE OF VEINS	49.8 1% BRONZE SPH + PYRITE PY CPY IN MATRIX; SPH COMMONLY RIMMING ZARAH FRAGMENTS. MINOR SPH + PY IN DARK MATRIX				PET: 315757, 49.9m RSD 49.8 - 52.8 TRACHYANDESITE/TRACHYTE BRECCIA. PORPHYRITIC TRACHYANDESITE (QTZ/ADULARIA EPIDOTE AMYGDULES) IN CHILLED MARGIN CONTACT WITH SERICITE/CHLORITE/PREHNITE STAINED TRACHYTIC BRECCIA. CHLORITE IN TRACHYANDESITE. BRECCIA WITH LAVA AND JUBLE MATRIX.	50
52	0.1	0							50.5			52
	1.3	0.5							OX 3			
	1.0	0.1							57.7			
54	52.8		VESICULAR BASALT LAVA.	MID-GREEN VESICULAR BASALT. ZONES OF MASSIVE BASALT INTERSPERSED WITH BRECCIATED ZONES (LAVA BRECCIA OR PSEUDOBRECCIA AS IN ANDESITE ABOVE) STRONGLY VESICULAR - VESICLES PREDOMINANTLY ELLIPTICAL, SIZE RANGE FROM 1 - 10 mm. ALL LARGE VESICLES ARE FILLED WITH CARBONATE, SMALLER VESICLES MAY BE CHLORITE OR CARBONATE FILLED					62.9				54
	1.4	0							OX 2			
56	1.5	0							64.3			56
	0.6	0.1										
58	0.9	0						FAULT 56.6 - 58m OVID 40% RUBBLE	OXAG			58
	3.0	0							68.3			
60												60
62	0.9	0										62
	1.9	0							OX 3			
64	0.6	0.2										64
	1.7	0										
66	1.4	0										66
	2.9	0						FAULT 68.2 - 69.1 C. OVID RUBBLE	67.7			
70									OX 2			70
72	2.4	0.9						70.5 VERY FRACTURED	70.6			72
	0.4	0.2										
74	0.9	0.5										74
	1.0	0.7										
76	0.5	0.2										76
	0.3	0.3										
	1.1	0.4										
78	0.4	0.1										78
	0.5	0.1										
	1.1	0.9										
80	0.3	0.1						80.9			73.3 WEATHERING OUT OF CARBONATE IN VEIN LEAVES REMNANT PINK K-FELDSPAR/SILICA VEIN MATERIAL	80
	2.0	0									PET: 315758, 83.2m; REP 82.8 - 84.2 PHYRIC ANDESITE. PHENOCRYSTS 40% PLAGIOCLASE, ALTERED K-FELDSPAR IN CHLORITE/EPIDOTE STAINED MICROLITIC GROUNDMASS. RELICT PRIMARY CLINOPYX. CHLORITE, PYRITE, CALCITE	
82												82
84												84

MC-10

078

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142079

PROJECT : HATFIELD TASMANIA

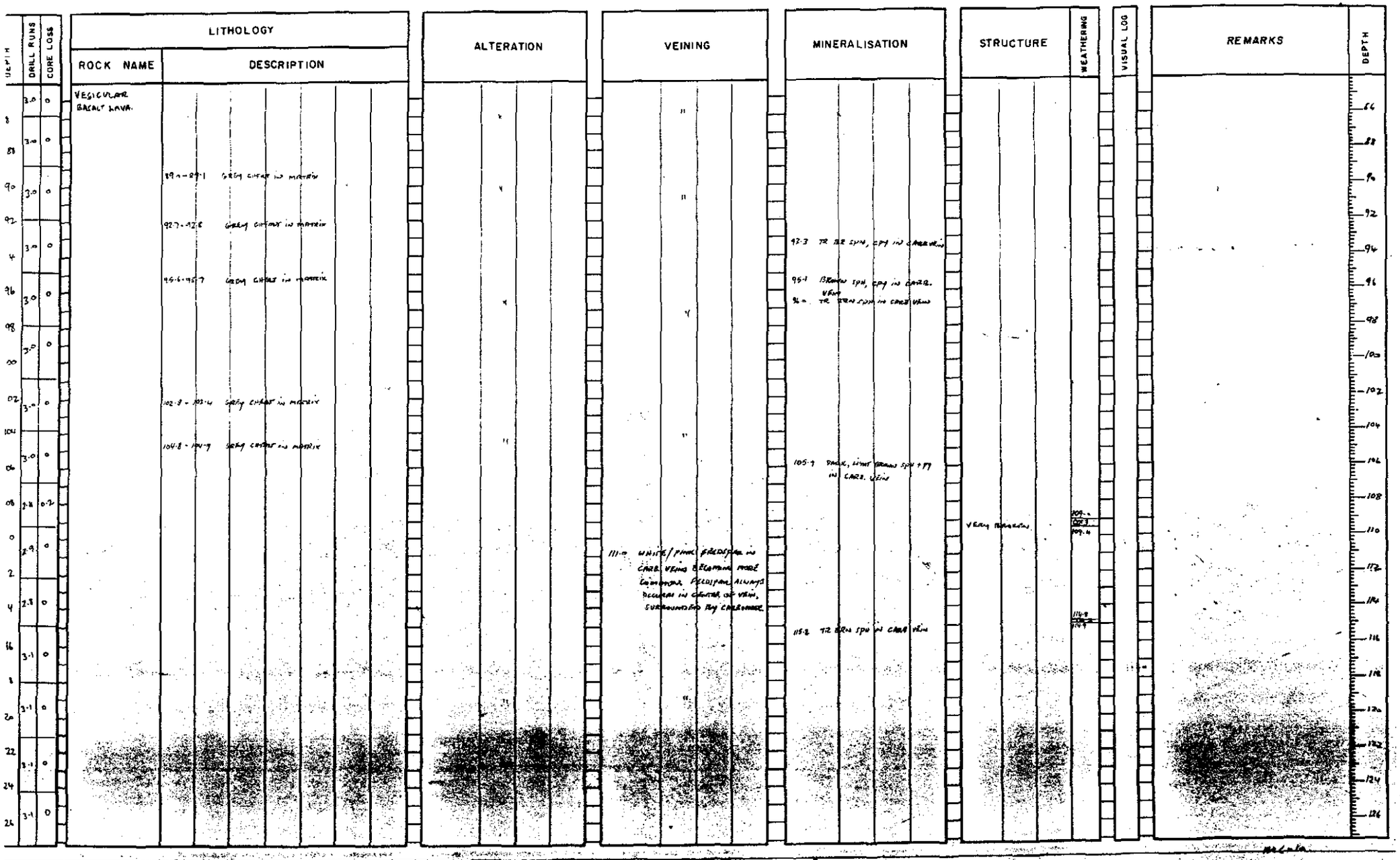
PROSPECT: S.W. MT CHARTER

HOLE NO: MC-10

PAGE: 3 of 7

LOGGED: AJMH

DATE: 13-NOV-87



079

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142080

PROJECT : HATFIELD TASMANIA

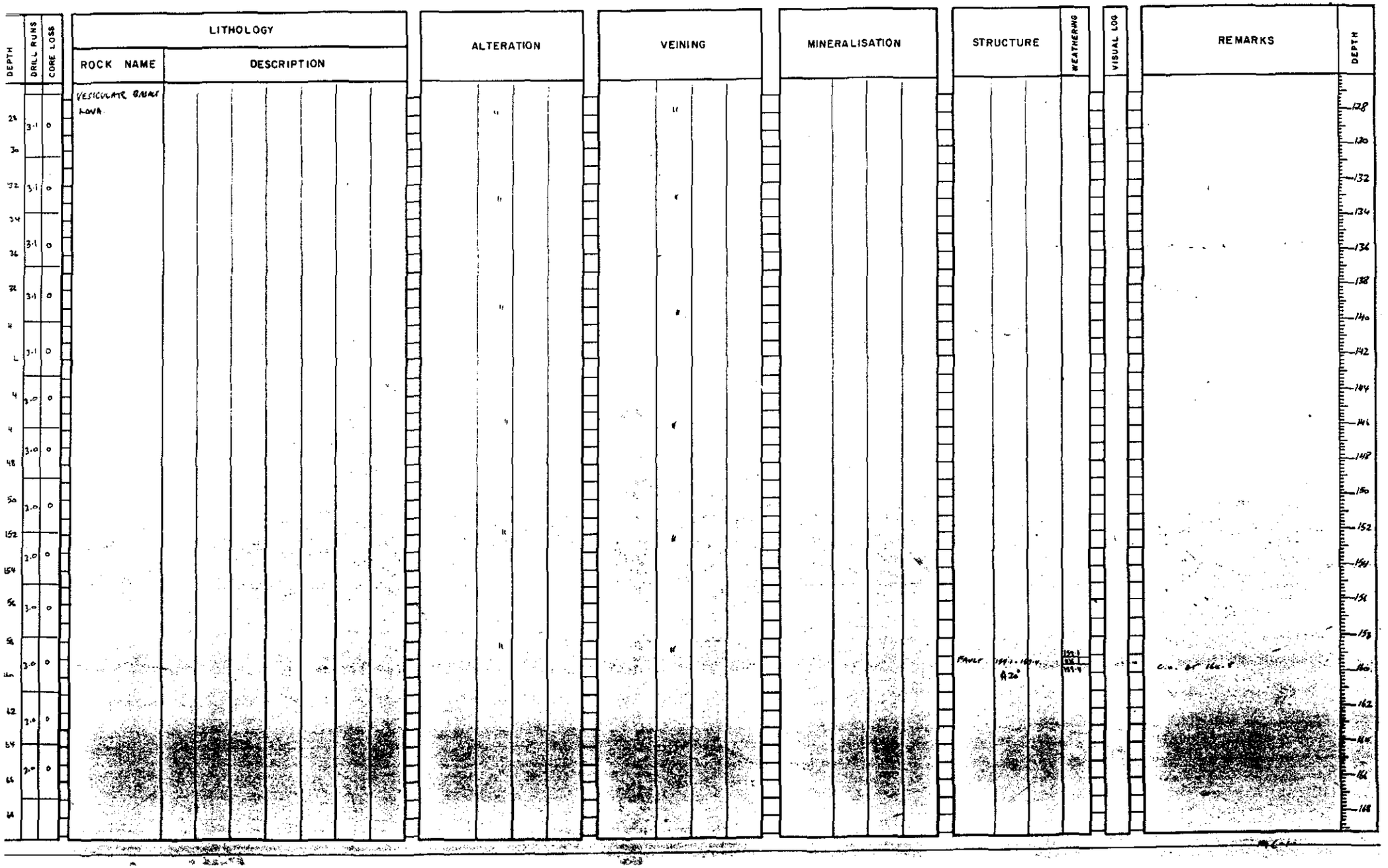
PROSPECT : S.W. MT CHARTER

HOLE NO : MC-10

PAGE : 4 of 7

LOGGED : AMH

DATE : 13-NOV-84



080

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142081

PROJECT : Hatfield Tasmania

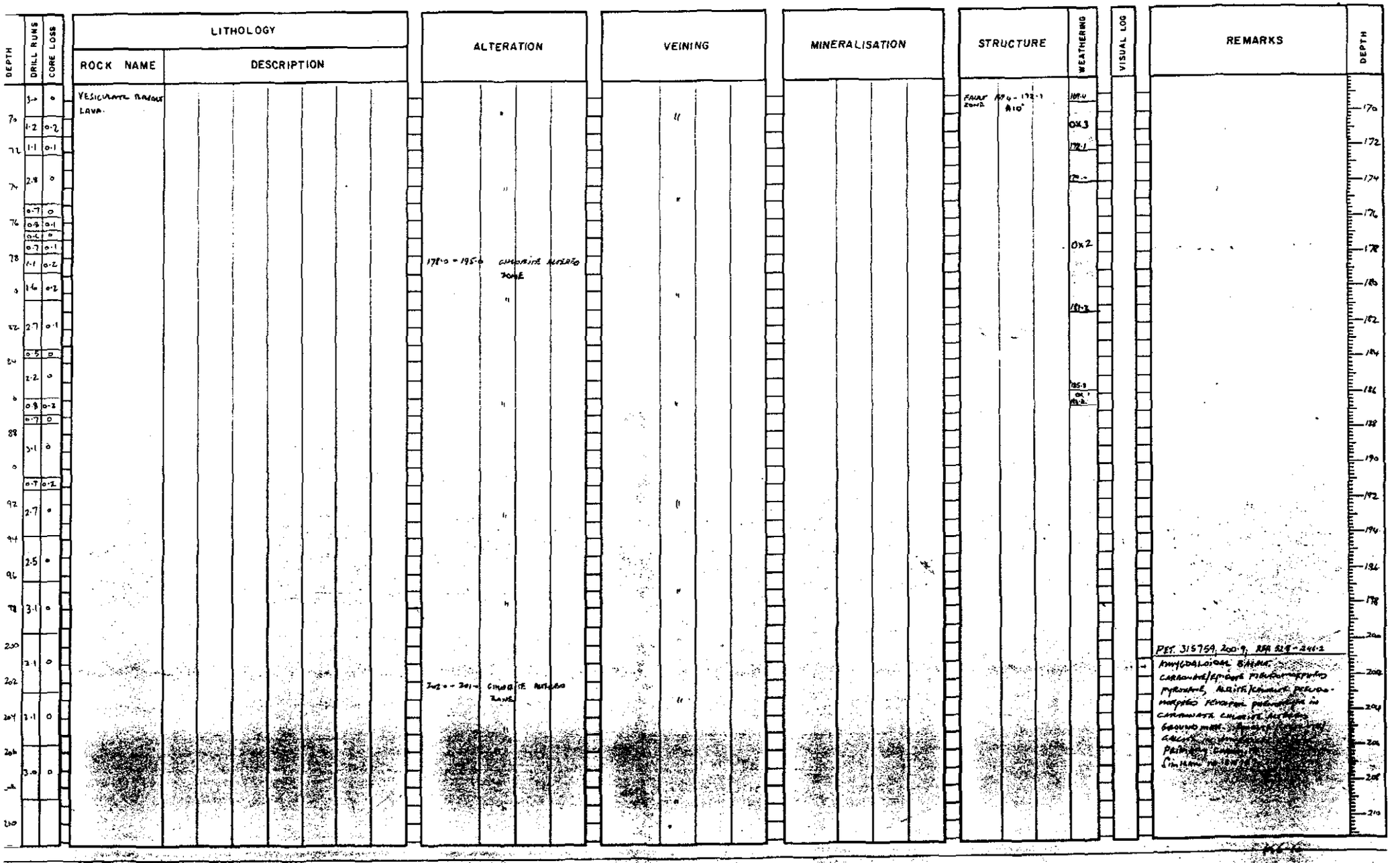
PROSPECT: S.W. Mt Charter

HOLE NO: MC-10

PAGE: 5 of 7

LOGGED: AM H

DATE: 13 NOV 84



081

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142082

PROJECT : Hatfield Tasmania

PROSPECT : S.W. Mt Charter

HOLE NO: MC-10

PAGE: 6 of 7

LOGGED: AMH

DATE: 12-Nov-84

Depth	Drill Runs	Core Loss
	3.1	0
22	3.0	0
24		
2	3.1	0
28	1.2	0
220	3.1	0
222	1.7	0
224	3.0	0
226		
228	3.0	0
230	3.0	0
232		
234	3.0	0
236		
238	3.0	0
240	3.0	0
242		
244	3.0	0
246	2.4	0.2
248	1.9	0
250	3.0	0.1
252		

Interval	Rock Name	Description	Alteration	Veining	Mineralisation	Structure
to 246.2	Basalt Lava	Very irregular dark grey green andesite with fragment of 1-3mm pink felspar phenocrysts, <1mm chlorite filled vesicles (ferromag phenocrysts?) in pale grey sericite quartz matrix. Irregular 10cm zone of brecciated "dirty" fragment on contact				
246.2 – 247.1	Sericitised Breccia	Yellow brown mono polymict breccia	Intensely sericitised. Intensely sericite altered fragments	[illegible] with black chlorite/[illegible] & galena; minor pink felspar/[illegible] and core [illegible]	2-4% disseminated pyrite	Fault 247.1 – 247.4; Pot [illegible]
247.1 – 248.4	Andesitic Breccia	[illegible]	Faulted contact	Strongly sericitised [illegible] & [illegible] ...	Strong disseminated [illegible]	1-2% disseminated py in [illegible]
248.4 – 250.4	Trachyte Breccia	Light grey trachyte [illegible] intense [illegible] & carbonate veining	Contact strongly [illegible]	Silicified	Intense white carbonate veining	<1% [illegible] py
250.4 –	Andesitic Lava Breccia		Sharp, irregular interfingering contact			

Remarks

217.8 Core orientation

PET. 315760; 246.8. REP 246.2 – 247.1.
Intensely sericite/pyrite altered volcanic breccia – possibly an andesite

PET. 315761; 248.3. REP. 247.1 – 248.4
Strongly sericitised amygdaloidal ?andesite. Trace pyrite, galena in amygdules.

PET. 315762; 249.3. REP. 248.4 – 250.4
Amygdaloidal trachyte(?) lava. Minor albitised plagioclase in felspar microlite groundmass. Chlorite/epidote/quartz altered.

244.8 Core orientation

[illegible] fragments on [illegible] [illegible] of [illegible] [illegible] transition contact at 246.2.

N.B. No carbonate veining below 250.4

Depth
212
214
216
218
220
222
224
226
228
230
232
234
236
238
240
242
244
246
248
250
252

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

PROJECT : HATFIELD TALMANA

PROSPECT : S.W. MT CHARTER

142083

HOLE NO : MC-10

PAGE : 7 of 7

LOGGED : AJM H

DATE : 13-NOV-84

082

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
	0-2	0-1	ANDESITE LAVA BRECCIA	YELLOW BROWN INDISTINCTLY BRECCIATED PORPHYRITIC ANDESITE	INTENSELY SERICITISED (CHLORITISED) PINK K-FELDSPAR/SILICA ALTERED PHENOCRYSTS.		1-2% 1-2mm PATCHES OF GRANULAR PYRITE		253.0		0×3	
254	1-0	0		GRADATIONAL CONTACT					253.1		REF 315763; 254.2; REP 254.4 - 255.8; SERICITISED TRACHYTE. SERICITISED SANIDINE, ALBITE PHENOCRYSTS IN SERICITE/PYRITE STAINED FELSPAR MICROLITIC GROUNDMASS. SIMILAR TO 315764	254
	1-8	0		255.8								
256	1-0	0-2		DARK GREEN IRREGULAR FRAGMENTS OF PORPHYRITIC ANDESITE IN KNOTTY SILICIFIED MATRIX	SPARSE PATCHES OF PINK K-FELDSPAR/SILICA ALTERATION. SOME SERICITE FRACTURES STRONGLY CHLORITISED.		RARE PATCHES OF GRANULAR PYRITE					256
	1-1	0										
258	1-3	0										258
260	3-1	0									REF 315764; 259.6; REP 255.5 - 264.4	260
									264.5		ANDESITE "PSEUDOBRECCIA". LEUCOANDESITE FRAGMENTS IN SERICITE STAINED MICROGRANULAR QUARTZ MATRIX. AN ALTERATION TEXTURE.	
262	1-3	0-1							8× 1			262
264	1-2	0-2							264.4		END OF HOLE 264.4	264

MC-11

083

ABERFOYLE EXPLORATION

DRILL HOLE RECORD

142084

Location TASMANIA Property EL 15/73 HATFIELD District N.W. MT CHARTER Bearing (M) Hole No MC-11

Commenced 20-NOV-1984 Completed 3-DEC-1984 % Recovery Grid bearing (M) Date

Objective UTEM ANOMALY "L" Core size HQ TO 48.0, NQ TO 250.0 EOH Logged A.M.H.

Co-ordinates 5577.6N 3463.0E, 702.8 RL Dip Alt./R.L.

SURVEY DATA				GRAPH DERIVED DATA			CALCULATED CO-ORDINATES			REMARKS
DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE	DEPTH	DIP	BEARING(M)	NORTHING	EASTING	ALTITUDE	
0	-45°	103°	SURVEY P.U.	0			5577.6	3463.0	702.8	
33.0	-46	105½	EASTMAN CONRAD	16.5			5576.6	3474.6	691.1	
70.5	-46½	106	" "	33.0			5559.5	3486.0	679.3	
112.5	-46½	106½	" "	51.7			5573.0	3499.0	665.7	
148.5	-46½	107	" "	70.5			5572.4	3511.7	652.2	HOLE CASED WITH CLASS 12 PVC
184.5	-46	108	" "	91.5			5570.6	3526.1	639.9	TO BOTTOM.
250.0	-45	109	" "	112.5			5568.8	3540.4	621.7	
				130.5			5567.1	3552.7	608.6	
				148.5			5565.4	3565.0	595.6	
				166.5			5565.5	3577.1	582.6	
				184.5			5563.8	3589.9	569.6	
				210.0			5561.2	3607.5	551.3	
				235.5			5558.4	3625.2	533.2	
				242.75			5557.6	3630.2	528.1	
				250.0			5556.8	3635.3	522.9	

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

PROJECT : Hatfield EL 15/73 Tasmania

PROSPECT: N.W. Mt Charlton

142085

HOLE NO: MC-11

PAGE: 1 of 6

LOGGED: AmH

DATE: 23-11-84

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
2			TRICONE									2
4												4
6			ANDESITE LAVA BRECCIA	FAINT WEATHERED GREEN BRECCIA, PORPHYRITIC ANDESITE FRAGMENTS IN GREEN MATRIX					2 OXID			6
7.6				STRONGLY WEATHERED ANDESITE LAVA BRECCIA. YELLOW BROWN CLAY WITH SOME GREENISH PORPHYRITIC ANDESITE FRAGMENTS DISCERNIBLE MANGANESE STAINED JOINT SURFACES.					7.6			8
10												10
12									4 OXID			12
14												14
16												16
18												18
20												20
21.1									21.1			
22				AS ABOVE, MORE WEATHERED. MORE DISTINCT ANDESITE FRAGMENTS IN CREAM/PINK MATRIX.								22
24									3 OXID			24
26												26
28												28
30												30
32								FAINT, TOCAL OXID RUBBLE. 5° TO C.A.	32.2			32
32.2				AS FOR 0-7.6					2 OXID			
34						34.5			34.1			34
34.2				FAINT BRECCIA, REHEALING, REACTIVATED, IRREGULAR BETWEEN FRAGMENTS OF PALE GREEN ANDESITE IN LIGHT GREY MATRIX		35.4 (WEATHERED) ILLITE 3		RUBBLE ADJACENT TO FAULT	OXID 3			
36									37.1			36
37.9				PALE GREEN (CHLORITIZED) AND PINK FELDSPAR/SILICA ALTERED FRAGMENTS OF PORPHYRITIC ANDESITE IN A PINK FELDSPAR/SILICA OR LIGHT GREEN MATRIX	37.9 CHLORITE ALTERATION OF FRAGMENTS: PINK FELDSPAR/SILICA ALTERATION OF FRAGMENTS AND MATRIX INCIPIENT PROPYLITE WITH GREEN SERICITE ALTERATION 3	37.9 IRREGULAR FRACTURES AND VEINLETS OF LIGHT YELLOW WAXY ILLITE AND THIN RUNNEL BROWN BRECCIA FRAGMENTS 3 42.3		FAINT, LIMONITIC, OXID RUBBLE. SUBPARALLEL TO C.A.				38
40												40
42												42

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142086

PROJECT : HATFIELD ELISHTS TASMANIA

PROSPECT : N.W. MT CHARTER

HOLE NO : MC-11

PAGE : 2 of 6

LOGGED : AMH

DATE : 30-11-84

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY – ROCK NAME	LITHOLOGY – DESCRIPTION	ALTERATION (TYPE / INTENSITY)	VEINING (TYPE / INTENSITY)	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS
44–84			ANDESITE LAVA BRECCIA	45.8 – 46.2 BLACK CHERT SHARD IN BRECCIA MATRIX	45.8 – 46.2 PINK FELD/SI ALT FRAGMENTS; 46.2 – 50.8 MOSTLY YELLOW GREEN SERICITE ALT. – NO PINK ALT. (3); 50.8 – CHLORITISATION OF ANDESITE FRAGMENTS, PINK FELDSPAR/SILICA ALT. OF MATRIX (3)	47.7 – QUARTZ WITH CREAM CARBONATE, GREEN/YELLOW ILLITE AND TRACE BROWN SPHALERITE AS VEINLETS AND MATRIX PATCHES; 53.5 – QUARTZ, WHITE OR FAINTLY PINK FELDSPAR, MINOR ILLITE AND TRACE SPHALERITE AS MATRIX VEINLETS (NOT TRUE VEINS); 77.0 – MILKY QUARTZ, DARK GREEN YELLOW ILLITE IN 'VEINS' IN CENTRE OF BRECCIA MATRIX, RARELY AS TRUE VEINS		47.7 FAULT, 150mm, CHLORITIC RUB, CALCITE SUB-PARALLEL TO C.A.; 54.1 FAULT, 300mm, CHLORITIC RUBBLE; VERY BROKEN ALONG FRACT. WEATHERED ILLITE VEINS			ILLITE-SERICITE ALTERATION IN ASSOCIATION WITH FAULTING. BRANCHED 34.1 – 47.8. PET 315765, 47.9, XRD 46.2 – 50.8. ANDESITIC (DACITIC?) BRECCIA, ANGULAR FRAGMENTS OF ANDESITE (DACITE?), STRONGLY SER/CHL/SI ALTERED, IN FINE GRAINED MATRIX. LEUCOXENE AFTER MAGNETITE

Depth scale: 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84

086

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142087

PROJECT : HATFIELD EL 15/73 TASMANIA

PROSPECT: N.W. MT CHARTER

HOLE NO: MC-11

PAGE: 3 of 6

LOGGED: AMH

DATE: 7-12-84

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
86–126			ANDESITE LAVA BRECCIA		119-10 CHLORITIZATION over 5 metres. OVERPRINT OF SERICITE ALTERATION ON CHLORITIZED ANDESITE BRECCIA FRAGMENTS. PINK ALTERATION IS INTENSIVE 3% IN THIS INTERVAL	" " " " "					PST. 315766. 97-2; REP. 503 - 119-10 AGGLOMERATE. FRAGMENTS OF CHLORITIZED/EPIDOTIZED ANDESITE, PINK RHYOLITE IN MATRIX CONTAINING ADULARIA, CALCITE, CHLORITE, HYDROMUSCOVITE	86–126

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142088

PROJECT : HATFIELD EL 15/73 TASMANIA

PROSPECT: N.W. MT CHANTER

HOLE NO: MC-11
PAGE: 4 of 6
LOGGED: AMH
DATE: 7-12-84

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
128			ANDESITE LAVA BRECCIA		"							12
130												13
132												13
134												13
136												13
138					137.0 GRADATIONAL OVER 2 METRES. VARIABLE EPIDOTE CHLORITISATION, SERICITISATION, FINE FELDSPATHIC SILICA ALTERATION 3	138.0 MILKY QUARTZ VEINS, UP TO 20cm BUT PREDOMINANTLY 1-5mm, WITH MINOR CREAMY CARBONATE AND DARK GREEN/YELLOW ILLITE. ONLY RARELY IN BRECCIA MATRIX. 2						13
140												14
142				GRADATIONAL CONTACT OVER 2cm								14
144			VOLCANIC SEDIMENTARY BRECCIA ?	142.6 1-10cm CLASTS OF PINK ALTERED PORPHYRITIC ANDESITE CLOSELY PACKED IN CHERT/BLACK SHALE MATRIX. MATRIX MORE VOLCANIC TOWARDS LOWER CONTACT. GRADATIONAL CONTACT OVER 1m							PET. 316767; 143.6. REP. 142.6 - 146.8	14
146				144.8							ANDESITE/TRACHYTE. (LAVA?). PALE TRACHYTE FRAGMENTS IN K-FELDSPAR GROUNDMASS. BANDS OF PINK GRAINED ANDESITE. PET 316768; 147.2, REP. 146.8 - 154.6	14
148			POLYMICT BRECCIA ? (OR LAVA BRECCIA WITH RARE EXOTIC FRAGMENTS)	PREDOMINANTLY GREEN ROCK 2-10cm ANDESITE FRAGMENTS, VARIABLY PINK ALTERED IN A SIMILAR MATRIX. 2-5% PYRITE FRAGMENTS AND PYRITE FRAGMENTS.								14
150												15
152												15
154				GRADATIONAL CONTACT OVER 1m								15
156			PINK ALTERED BRECCIA ? (ALTERATION ROCK TYPE)	TOTALLY PINK ALTERED ? ANDESITE, HYDRAULICALLY FRACTURED, WITH A NETWORK ANASTIM OF FINE GRAINED PYRITE VEINS (2-10%)	155.5 VERY STRONG PINK FELDSPATHIC SILICA ALTERATION 5	"						15
158												15
160											PET. 315769; 159.5, REP. 154.6 - 170.5	16
162					"	"					PORPHYRITIC TRACHYTE. ALBITE PHENOCRYSTS IN GROUNDMASS OF ALBITE, K-FELDSPAR, PATCHY SERICITE ALTERATION. PYRITE INTRODUCED.	16
164												16
166				FROM 167.0 GRADING INTO A LESS BRECCIATED ROCK WITH WEAK FLOW STRUCTURE. PYRITE DECREASES TO <1% AND PINK ALTERATION ALSO DECREASES.	4							16
168												16

088

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142089

PROJECT : HATFIELD EL 15/73 TASMANIA

PROSPECT: MT CHARTER

HOLE NO: MC-1

PAGE: 5 of 6

LOGGED: AMH.

DATE: 7-12-84

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
170			PINK ALTERED BRECCIA	GRADATIONAL		" 2						
170.5				CONTACT OVER 5cm								
172			ANDESITIC LAVA & BRECCIA, LAVA (WEAKLY PORPHYRITIC)	GREY GREEN ANDESITIC FRAGMENTS 1-5cm, IN PINK FELDSPAR SILICA ALTERED MATRIX, INTERPRETATION WITH MASSIVE NON-BRECCIATED ZONE. ROCK TYPE DISTINGUISHED FROM 0-142.6 BY NOTABLY WEAK DEVELOPMENT OF PHENOCRYSTS		172.0 Competition as above	3					
174					176.5 GRADATIONAL OVER 5 METRES. DECREASE IN INTENSITY OF PINK ALTERATION — IN THIS INTERVAL BRECCIA FRAGMENTS ARE SERICITISED AND WEAKLY CHLORITISED AND MATRIX IS SIMILARLY ALTERED. PINK FELDSPAR/SILICA ALTERATION OCCURS AS COMPLETELY PERVASIVE ZONES AS NOTED BELOW						
176												
178												
180												
182												
184												
186												
188												
190						190.0 Competition as above	2					
192												
194												
196												
198												
200												
202					202.0 ZONE OF PERVASIVE PINK FELDSPATHIC SILICA ALTERATION							
204					204.0 AS FOR 176.5-202.0							
206								206.5 F.Z. 3.5m; CHLORITIC RUBBLE				
208												
210					209.3 ZONE OF PERVASIVE PINK FELDSPATHIC SILICA ALTERATION							
											PET. 216770; 199.6, REQ. PART 190.5 - 202.0 PORPHYRITIC DACITE/RHYOLITE. PINK ANDESITE PHENOCRYSTS IN A GROUNDMASS OF PRIMARY(?) QUARTZ, ALBITE, CHLORITE/SERICITE (MINOR POSSIBLE DEVITRIFICATION TEXTURE.	

089

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

142090

PROJECT : HATFIELD EL 15/73 TASMANIA

PROSPECT: N.W. MT CHARTER

HOLE NO: MC-11

PAGE: 6 of 6

LOGGED: AMN

DATE: 7-12-84

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
			ANDESITE LAVA, LAVA BRECCIA		211.7 As for 176.5-202.0 213.2 ZONE OF PERVASIVE PINK FELDSPAR/SILICA ALTERATION 5 219.2 As for 176.5-202.0 224.0 ZONE OF PERVASIVE PINK FELDSPAR/SILICA ALT. 4 225.4 As for 176.5-202.0 233.3 ZONE OF PERVASIVE PINK FELDSPAR/SILICA ALTERATION 4 5 238.9 STRONGLY CHLORITIZED 240.6 As for 176.5-202.0	212.0 Comparisons As Above 3 (PETROLOGY IDENTIFIES CARBONATE As SIDERITE) " " " 239.1 239.6-240.2 1-5cm wisp QTZ, CARBONATE VEINS 3 240.6 TRACE 1-2mm wispy QUARTZ VEINS 1 "					PET 315771; 218.9m, REP 212.2-219.8 PORPHYRITIC TRACHYTE. ANBITE PHENOCRYSTS IN GROUNDMASS OF ALBITE, (DEVITRIFICATION?) QUARTZ, KAOLINITE/ILLITE (ALTERED GLASS?) PET 315772, 239.6; REP 239.1-240.6 ALTERED ?TRACHYTE. DEVITRIFIED CHLORITE/ILLITE ALTERED BASIC CRYSTALLINE GLASS. MINUTE CHROMITE CRYSTALS THROUGHOUT.	2 21 2 22 22 22 22 23 23 23 24 2 2 2 2
239.1			VESICULAR BASIC LAVA	VESICULAR BASIC LAVA DARK GREEN, FINE GRAINED, MASSIVE, VESICULAR BASIC LAVA. VESICLES IRREGULARLY DISTRIBUTED IN PATCHES AND FILLED WITH PURPLE STAINED CARBONATE. VESICLES ARE ELONGATED.							
240.6			LAVA									
			ANDESITE LAVA BRECCIA (WEAKLY PROPHYRITIC)	As for 176.5-239.1 DARK GREEN FRAGMENTS OF ANDESITE, DIFFUSE MARGINS, IN A PINK FELDSPAR SILICA ALTERED MATRIX								

VERY SHARP MARGIN TO CONTACT

V. SHARP IRREGULAR CONTACT

090

142091

APPENDIX II

PETROLOGY REPORTS,

HATFIELD DIAMOND DRILL HOLES

091

142092

MC-5

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22nd August, 1984

REPORT CMS 84/8/11

YOUR REFERENCE:	Letter dated 2.8.1984
DATE RECEIVED:	8th August, 1984
SAMPLE NOS.:	315701 - 315712
SUBMITTED BY:	A.M. Hespe
WORK REQUESTED:	Petrology

H.W. Fander, M. Sc.

Copy to:
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144, Camberwell Road
HAWTHORN EAST / VIC. 3123

REPORT CMS 84/8/11

Twelve drill core samples, from drill hole MC-5, were received for petrological examination. Representative thin-sections were prepared, examined in transmitted light and, together with the respective offcuts, in oblique incident light. Attached tabulated descriptions summarise the microscopic data and include interpretative comments.

Summary

With the single exception of sample 315709, an altered rhyolitic pitchstone-derived sedimentary breccia which may represent a mass flow breccia, this suite comprises entirely altered lavas ranging from leuco-andesitic to trachy-andesitic and dacitic to rhyodacitic. Andesitic rocks characterise the shallower sections, with apparently massive acid lavas at depth. The drilled sequence thus appears closely analogous to that intersected in drill hole MC-8 (refer CMS 84/8/12).

Some andesitic (strictly trachyandesitic) rocks include essentially fresh phenocrystal clinopyroxene and may be compared with similar types developed in the Que River mine sequence. This group includes differentially silicified clastic lavas, although this phenomenon is not as marked as in the MC-8 sequence. Samples 315702 and 315703 represent ?hydrothermally brecciated andesitic rocks characterised by feldspathisation as the major alteration feature. This phase may be correlated with the temporally intermediate to late, but pretectonic feldspathic veinlets in the MC-8 suite and appears to overprint the more or less ubiquitous chloritic assemblages.

The acid volcanics are mainly pitchstones (i.e. primarily weakly porphyritic glassy types) and exhibit relatively simple sericitic alteration assemblages, in part a reflection of their relatively felsic characteristics in comparison with the relatively chloritic andesites.

In common with the MC-8 sequence, this suite carries essentially ubiquitous fine to ultrafine pyrite, with local concentrations in siliceous "stringers". Variations in the proportions of fine pyrite present are partly reflected in subtle mesoscopic colour contrasts between individual samples.

Minor sphalerite disseminations, generally veinlet-controlled, appear in the andesitic rocks and may be compared with those in MC-8. This disseminated zinc mineralisation appears analogous to the marginal "subore" haloes around typical "Rosebery-type" volcanogenic ore zones.

D. Cowan, B. Sc.

Sample No.	Classification - Composition	Fabric	Accessories	Comments
315-701 (T.S. 51096) R65m	Amygdaloidal Trachyandesite. Phenocrysts of saussuritic/albitised plagioclase, clinopyroxene, minor sanidine in a weakly/pervasively chlorite-epidote-stained alkali feldspar microlitic groundmass. Disseminated quartz-chlorite amygdales.	Finely porphyritic, with a sub- to trachytic groundmass; flow-orientated amygdales.	Sporadic irregular quartz-prehnite-chlorite veinlets with traces of pyrite, pyrrhotite, rare sphalerite.	Moderately saussurite-chlorite-alter quartz-chlorite amygdaloidal trachyandesite. Includes rare corroded quartz ?xenocrysts. Amygdales are incipiently pyritic.
315-702 51.4m	Brecciated, Altered Trachyandesite. Clasts of weakly chlorite-amygdaloidal trachyandesite (sim. 315701, relatively chloritised), marginally to semi-pervasively albitised/K-feldspathised. Matrix/veinlets of microcrystalline feldspar, chlorite, Late coarse vugs of albite, prehnite.	Randomly sorted angular to irregular clasts; corrosive matrix grading into late albite-prehnite veinlets/vugs.	Rare ultrafine chalcopyrite, oxidised pyrite, in matrix. Rare late films of prehnite, albite, siderite.	Brecciated, chloritised/marginally feldspathised trachyandesite with close affinities to 315701. Albite-prehnite veinlets, vugs include minor colourless pumpellyite.
315-703 95.2m	Brecciated, Altered Trachyandesite. Clasts of weakly chlorite-amygdaloidal trachyandesite (sim. 315701, 702, relatively pyroxenic); marginally to pervasively feldspathised. Matrix of albite, quartz, adularia. Sporadic late veinlets of quartz, epidote.	Analogous to 315702, but with coarse chloritic clasts interspersed with zones of finer-grained feldspathised breccia.	Minor cloudy poikilitic clots of pale sphalerite in ill-defined temporally intermediate quartz veinlets, impregnations.	Affinities with 315701 and particularly 702. The pinkish matrix/impregnations reflect subtle Fe-pigmentation of the secondary alkali feldspars.
315-704	Altered Andesite. Frequent sericitic/chlorite-stained plagioclase phenocrysts in a chloritic groundmass of felsitic and microlitic feldspar. Sporadic pyritic microfractures. Frequent late chlorite-quartz veinlets.	"Andesitic" with a perlitic to locally subtrachytic groundmass. Locally brecciated, albitised; quartz-albite-veined.	Rare sericitic quartz amygdales. Disseminated leucoxenic opaques. Late discontinuous quartz veinlets.	Textural, compositional affinities with 315713, 714 (CMS 84/8/12). Alteration is chlorite(-sericite-pyrite)/albite-quartz veinlets/chlorite-quar veinlets/late quartz veinlets.
315-705	Altered Andesite. Zones of chloritic/weakly silicified/sericitised andesite (sim. 315704) in a "matrix" of relatively strongly cherty-silicified andesite. Semi-pervasive fine to ultrafine pyrite (concentrated in matrix).	Breccia-like on micro- to macroscale, with perlitic andesitic clasts, relatively altered microlitic andesitic matrix.	Leucoxenised opaques. Minor cloudy sideritic carbonate in silicified zones.	Coarsely clastic leuco-andesitic lav ("agglomerate lava") with semi-selectively silicified microlitic matrix; chloritic, perlitic clasts. Affinities with 315713, 714.
315-706	Altered Tuff Lava. Clasts of thoroughly sericitised porphyritic ?leuco-andesite. Matrix of thoroughly silicified/sericite-chlorite-stained felsitic (devitrified) pitchstone with thinly disseminated sericitic quartz-pseudomorphed feldspar phenocrysts.	Random angular to irregular, millimetric to centimetric clasts; coarsely perlitic felsite matrix.	Pervasive fine to ultrafine pyrite. Disseminated leucoxenised opaques, apatite. Minor late chlorite veinlets.	Differentially altered clastic lav with sericitised "andesitic" clast. selectively silicified pitchstone matrix. Possibly hybrid (?dacitic matrix), but critical detail obscure
315-707	Altered Pitchstone. Sericite with thinly disseminated to conspicuous semi- to sericitic white mica-pseudomorphed feldspar phenocrysts, minor relict quartz phenocrysts. Conspicuous fine pyrite concentrated in crude lenses of fine-grained quartz, sericite.	Resheared sericitic slate (sim. 315718), vaguely relict perlitic-textured.	Conspicuous evenly disseminated leucoxenised opaques, apatite. Minor clots of sideritic carbonate.	Thoroughly sericitised, relatively sheared acid pitchstone (?dacitic) with affinities to 315718, 719 (CMS 84/8/12). Pyrite concentrated in boudinaged siliceous "stringers".
315-708	Altered Pitchstone. Sericite with pervasive felsitic-textured quartz, thinly disseminated quartz, variably sericitised albite phenocrysts. Thinly, pervasively disseminated fine pyrite, leucoxenic semi-opaques.	Weakly banded, felsitic, locally vaguely flow-brecciated.	Rare late quartz-calcite veinlets. Rare relict sanidine microphenocrysts.	Sericitised/mildly silicified dacitic-rhyodacitic pitchstone. Affinities with 315707, 315718, 315719; similarly altered.

Sample No.	Classification - Composition	Fabric	Accessories	Comments
315-709	Altered "Breccia". Framework of angular to subround pervasively sericitic/variably silicified rhyolitic lava (pitchstone) clasts. Matrix of sericite and subordinate to minor microcrystalline quartz. Disseminated fine to ultrafine pyrite.	Poorly sorted (sandy to pebbly), weakly dimensionally orientated framework. Sheared, with secondary fracturing of clasts.	Minor leucoxenised opaques, sericitised ferromags in clasts. Patchy vague relict shardy microtextures in matrix.	Sericitised/silicified "sedimentary" breccia composite of rhyolitic lava, minor tuff components. Reflects shearing-related secondary brecciatio "Mass" or "debris" flow-type characteristics.
315-710	Altered "Rhyodacite". Sericite with corroded relics of microfelsitic to microlitic alkali feldspar; disseminated sericitised feldspar, leucoxenic sericite-pseudomorphed ?amphibole microphenocrysts. Sporadic irregular clots of pyrite, quartz, semi-sericitic muscovite.	Relict microporphyritic massive lava-like, with a semi-felsitic groundmass. Mildly sheared.	Leucoxenised opaques, minor traces apatite. Minor clots, films ankeritic carbonate (white in hand specimen). veinlets, impregnations.	"Skeletally" crystallized microporphyritic acid lava. The dark "clasts" are semi-boudinaged/pressure shadowed pyritic quartz-sericite veinlets.
315-711	Altered "Dacite". Sericite and sericite-stained microfelsitic quartz with thinly disseminated sericitised feldspar and leucoxenic sericitised amphibole microphenocrysts, minor relict corroded quartz phenocrysts. Pervasive fine pyrite.	Analogous to 315710, relatively microfelsitic, relatively sheared.	Conspicuous leucoxenised opaques. Minor ill-defined sheared pyritic sericite veinlets.	Close affinities with 315710. Appears slightly relatively "basic" in comparison (hence dacitic). Strictly devitrified, sericitised pitchstone. No pyroclastic features.
315-712 (T.S. 51107)	Altered "Dacite". Sericite and microfelsitic quartz with disseminated sericitised feldspar leucoxenic sericite-pseudomorphed amphibole, minor relict corroded quartz microphenocrysts. Pervasive fine to ultrafine pyrite.	Near-identical with 315711, weakly flow-banded.	Conspicuous leucoxenised opaques. Minor discontinuous sheared pyritic, sericitic "stringers".	This rock is near-identical with 315711 and similarly altered (sericitised)/mildly sheared. Subtle contrast in colouration reflects enhanced pyrite content.

095

142096

MC-8

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22nd August, 1984

REPORT CMS 84/8/12

YOUR REFERENCE:	Letter dated 7.8.1984
DATE RECEIVED:	8th August, 1984
SAMPLE NOS.:	315713 - 315721
SUBMITTED BY:	A.M. Hespe
WORK REQUESTED:	Petrology

for

H.W. Fander, M. Sc.

Copy to:
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HAWTHORN EAST / VIC. 3123

REPORT CMS 84/8/12

Nine drill core samples from drill hole MC-8 were received for petrological examination. Representative thin-sections were prepared, examined in transmitted light and, together with their respective cobaltinitrite-stained offcuts, in oblique incident light. Attached tabulated descriptions summarise the microscopic data and include interpretative comments.

Summary

All nine samples represent extensively altered volcanics and are interpreted as lavas in the absence of pyroclastic features. The drilled sequence as sampled comprises leuco-andesitic and dacitic rocks, overlying relatively felsic (rhyodacitic-rhyolitic) types with a "basal" sodi-potassic trachyte. As is typical in altered volcanic sequences, the primary composition variations are largely extrapolated from relict features and, to a lesser degree, alteration trends.

The leuco-andesitic rocks are flow-brecciated types and could be classified as clastic lavas ("tuff lavas"). Differential alteration of matrix and clast lava components, with the matrix typically relatively altered and (pyrite-) mineralised, enhances these rather subtle breccia textures on a mesoscopic scale. "Rhyolites" are in part similarly flow-brecciated, but elsewhere the mesoscopic breccia-like appearance of these rocks reflects the alteration pattern which is partly controlled by devitrification-induced cracking patterns. Dacitic rocks and the trachyte are relatively texturally massive homogeneous types.

Sericitisation and partial silicification are the major alteration effects, with more or less ubiquitously associated very fine pyrite. Accessory phases include cloudy epidote, sideritic carbonate and chlorite, with localised concentrations of barite and fluorite. Sphalerite appears in a few rocks variously associated with quartz-muscovite or quartz-albite veinlets and elsewhere, possibly as a result of remobilisation, in late (but pretectonic) quartz veinlets. Quartzo-feldspathic veinlets grade locally into sulphide-barren albitic types.

The observed sulphide assemblage in these rocks is simple, at least as defined by stereobinocular examination of the thin-sections. Individual samples may warrant mineragraphic examination on the basis of assay data.

D. Cowan, B. Sc.

Sample No.	Classification - Composition	Fabric	Accessories	Comments
315-713 (T.S. 51108)	Altered Andesite. Frequent sericitised plagioclase, minor chlorite-quartz-pseudomorphed amphibole phenocrysts in a thoroughly sericitised/weakly silicified felsitic groundmass. Minor amygdales, veinlets of fine muscovite, quartz with disseminated sphalerite.	Weakly flow-structured "andesitic". Groundmass variously perlitic-felsitic to microlitic-subtrachytic.	Conspicuous fine leucoxenised opaques, ultrafine pyrite in groundmass. Patchy chlorite intergrown with sericite. matrix. Minor late albite veinlets.	Strictly a flow-breccia with perlitic felsitic, millimetric-scale lensoid clasts (pale in hand specimen) in a microlitic/relatively chloritic lava
315-714	Altered Andesitic Breccia. Clasts, zones of extensively sericitised perlitic porphyritic (leuco-)andesite. Matrix of silicified/sericitised microlitic andesite, impregnated with stringers of fine pyrite, cloudy microcrystalline epidote. Sporadic late albite veinlets.	Analogous to 315713, but with coarser random irregular clasts. Incipiently sheared.	Leucoxenic fine pyrite in clasts. Sporadic siderite-quartz-pyrite veinlets. Minor muscovite-quartz amygdales.	Close affinities with 315713. Relatly coarse, weakly flow-structured la breccia with the matrix lava semi-selectively silicified/pyritised marginal to the pyritic stringers.
315-715	Altered "Dacite". Clasts, zones of thoroughly sericitised, sideritic carbonate-stained porphyritic lava. Ill-defined pyritic, sericitic cherty quartz matrix grading into irregular vugs, discontinuous veinlets of barite with marginal films of siderite, conspicuous pyrite.	Randomly sorted, weakly dimensionally orientated irregular clasts; corrosive matrix. Incipiently sheared.	Minor clots, films of quartz, fine muscovite, fluorite in baritic vugs, veinlets. Semi-pervasive fine pyrite in clasts.	Brecciated/thoroughly altered dacit or quartz-andesitic lava. Alteration trend is sericitisation/brecciation-silicification/barite(-pyrite-fluor muscovite-quartz) veining/siderite/ stress
315-716	Altered Andesite. Frequent albitised/sericite-chlorite-stained plagioclase phenocrysts; pervasively sericitic-pyritic/weakly silicified feldspar-microlitic groundmass. Sporadic pyritic albite veinlets with disseminated patches of sphalerite.	Analogous to the "matrix" lava in 315-713, 714. Weakly flow-structured, incipiently sheared; weakly stressed veinlets.	Leucoxenic semi-opaques. Traces chlorite, semi-sericitic white mica, apatite in mineralised quartz-albite veinlets.	Moderately sericitised/silicified/albitised leuco-andesite, pervasively pyritic, but relatively so in vein-marginal zones. Textural/compositional affinities with 315713 714
315-717	Altered "Rhyodacite". Sericite and generally subordinate microcrystalline quartz with pervasive fine pyrite. Abundant sericitised plagioclase, minor quartz, silicified K-spar phenocrysts. Patchy relics of perlitic-felsitic	Strongly porphyritic, perlitic devitrified pitchstone; vaguely ?flow-brecciated, relatively sheared.	Leucoxenised opaques.	Sericitised-silicified-pyritised "rhyodacitic" volcanic. Detail obscured by shearing, but brecciatio may reflect devitrification rather than flow-brecciation.
315-718	Altered Pitchstone. Sericite with K-feldspar subordinate to minor closely intergrown microcrystalline quartz; thinly disseminated sericitised feldspar, minor relict quartz phenocrysts. Conspicuous fine pyrite, concentrated in relatively sericitic films, "stringers".	Resheared sericitic ? slate. Relict felsitic-perlitic pitchstone-like ts. with sporadic millimetric "clasts".	Disseminated leucoxenised opaques.	Devitrified, thoroughly sericitised acid pitchstone. Reflects devitrification, cracking-controlled alteration, with "pseudoclasts" represent ing semi-selectively silicified zone
315-719	Altered Pitchstone. Sericite with relatively minor microcrystalline quartz, disseminated to conspicuous fine pyrite. Minor sericite-pseudomorphed feldspar, relict quartz phenocrysts.	Analogous to 315718, but with sporadic millimetric to centimetric microtexturally heterogeneous clasts.	Leucoxenised opaques; rare apatite.	Close affinities with 315718. In contrast, the "pseudoclasts" are supplemented by subtly texturally contrasting intraclasts, reflecting flow-brecciation.
315-720	Altered Trachyte. Frequent phenocrysts of weakly sericitic sanidine, sericite-pseudomorphed ?albite in a weakly sericitic/kaolinitic, pervasively pyrite-stained alkali feldspathic microlathic groundmass. Sporadic pyritic stringers, late quartz veinlets.	Porphyritic, incipiently flow-banded, locally subtrachytic. Weakly displacive, mildly stressed veinlets.	Leucoxenised opaques, trace primary apatite. Traces epidote, apatite, sphene, sphalerite in quartz veinlets.	Moderately argillised-pyritised sodi potassic trachyte with sporadic sericitic pyritic veinlets, stringer and late mildly stressed, weakly sphalerite-mineralised quartz veinle

Sample No.	Classification - Composition	Fabric	Accessories	Comments
315-721 (T.S. 51116)	Altered ?Dacite. Frequent fine-grained muscovite-pseudomorphed feldspar phenocrysts, minor quartz microphenocrysts in a thoroughly sericitised feldspar-microlitic groundmass. Conspicuous disseminated fine to ultrafine pyrite.	"Andesitic", with a weakly subtrachytic groundmass. Incipiently sheared.	Traces feldspar-replacive cloudy epidote, sideritic carbonate. Leucoxenic opaques. Minor discontinuous sericitic quartz veinlets.	Relict textural/compositional affinities with 315715. Thoroughly sericitised/pyritised; weakly quartz veined; incipiently sheared.

142100

29 AUG 1984

MC-6

Central Mineralogical Services

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27th August, 1984

REPORT CMS 84/8/15

YOUR REFERENCE:	Letter dated 8.8.1984
DATE RECEIVED:	10th August, 1984
SAMPLE NOS.:	315722 - 315729
SUBMITTED BY:	A.M. Hespe
WORK REQUESTED:	Petrology

for

H.W. Fander, M. Sc.

Copy to:
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100

142101

REPORT CMS 84/8/15

Eight drill core samples from DDH/MC-6 were received for petrological examination. Representative thin-sections were prepared, examined in transmitted light and, together with respective cobaltinitrite-stained offcuts, in oblique incident light. Attached tabulated descriptions summarise the microscopic data and include interpretative comments.

Summary

This suite comprises entirely altered felsic intermediate volcanics, ranging from leuco-andesitic to trachytic in terms of inferred primary composition. In detail, the drilled sequence comprises amygdaloidal trachytes overlying andesites. Finer details are obscured by alteration, but the apparent contact zone is represented by two samples (315724, 315725) of hybrid breccia comprising clasts of altered "trachytic" lava with an interclast matrix of pyritic pelite, and interpreted as resulting from flow on, or into, unconsolidated sediment.

Andesites are perlitic in part, include flow-brecciated types, and may thus be compared with the leuco-andesitic lavas intersected in DDH/MC-5 and MC-8. In contrast, the "underlying" acid volcanics are not represented in this suite. Typically, however, this suite comprises entirely lavas and clastic (flow-brecciated) lavas and, in common with the MC-5 and MC-8 suites, pyroclastics are conspicuous by their absence. In this context, the Mount Charter sequence contrasts with the composite lava/pyroclastic sequences developed at Que River and at Hellyer.

Alteration features are essentially similar to those noted in the MC-5 and MC-8 suites. A generalised trend may be summarised as chlorite and/or sericite and quartz with fine to ultrafine pyrite (locally concentrated in quartzose-sericitic "stringers"), followed by locally marked brecciation or veinlet -controlled silicification. This latter phase correlates with the composite silicification/ feldspathisation noted in previous suites. A variety of temporally intermediate to late veinlet assemblages appears in individual samples.

One feature noted in this suite, but inconspicuous elsewhere, is Fe-pigmentation of primary (typically phenocrystal) feldspars. The ultrafine Fe-oxide particles tend to be inherited by metasomatic phases (e.g. quartz, albite) and may be obscured, mesoscopically, by "dark" (chloritic and/or relatively pyritic) alteration assemblages. Where present, this pigmentation is pervasive. Mesoscopically it may be confused with secondary, weakly Fe-pigmented feldspars, for example the vein and metasomatic albite (and locally adularia) noted in MC-5 and MC-8.

D. Cowan, B. Sc.

MC-6

Sample No.	Classification - Composition	Fabric	Accessories	Comments
315-722 (T.S. 51125)	Amygdaloidal Trachyte. Sericitised feldspar, minor chloritised ?amphibole phenocrysts in a pervasively sericitic microcrystalline feldspathic groundmass with abundant quartz micro-amygdales (mean 75 μ).	Essentially "andesitic", but relatively weakly porphyritic; strongly micro-amygdaloidal. Weakly flow-brecciated.	Conspicuous leucoxenised opaques, minor trace apatite. Traces ankeritic carbonate, mino fine pyrite, rare sphalerite.	Weakly flow-brecciated micro-amygdaloidal felsic intermediate lava. Extensively sericitised. Includes mi clast-marginal cherty quartz veinlet with associated traces of sphalerite
315-723	Brecciated Amygdaloidal Trachyte. Clasts of extensively sericitised quartz-microamygdaloidal trachyte (sim. 315722), veined/matrixed with massive to crudely "crustiform" banded aggregates of pyrite, sericite, microcrystalline quartz.	Random angular clasts, texturally closely analogous to 315722. Stressed to crudely phyllitic matrix.	Leucoxenised opaques, corroded relics of phenocrystal albite, microcrystalline (groundmass) K-feldspar in clasts.	Essentially a brecciated pyrite-sericite-quartz-healed variant of 315722. Corroded relics of alkali feldspar confirm trachytic affinitie Pale clasts reflect low pyrite conte
315-724	"Hybrid Breccia". Clasts of quartz-microamygdaloidal sericitic trachyte (sim. 315722, 723). Matrix of pervasively ultrafinely pyritic, sericitic, massive to vaguely tuffaceous (splintery feldspathic) cherty argillite. Minor Minor quartz-calcite(-sphalerite) veinlets.	Random sub- to millimetric, irregularly-shaped clasts; contorted shaly matrix.	Leucoxenic opaques, relics phenocrystal groundmass alkali feldspar, partly degraded siderite, traces pyrite in clasts.	Interpreted as a "quench" breccia resulting from lava flow on, or into unconsolidated pyritic pelite. Incipient pinkish pigmentation of phenocrysts reflects carbonate stainings.
315-725	"Hybrid Breccia". Clasts of sericitic/variably cherty-silicified quartz micro-amygdaloidal lava (sim. 315722 etc.). Sparse matrix of (variably oxidised) pyritic pelite (sim. 315724). Minor quartz-ferruginised carbonate veinlets.	Analogous to 315724, relatively coarse clasts, relatively sparse matrix.	Leucoxenised opaques, minor traces chlorite in clasts. Traces carbonaceous matter in matrix shale.	Close affinities with 315724; similarly interpreted. Relict feldspar in clasts is incipiently Fe-pigmented (primary).
315-726 87·7	Brecciated, Altered "Andesite". Zones, clasts of marginally to semi-pervasively silicified chloritic, sericitic albitised plagioclase-porphyritic perlitic leucoandesite. Matrix of cherty (crystallized chalcedonic) quartz.	Massive to sub-millimetric-scale fragmented perlitic lava. Quartz-veined on micro-scale, with silicified selvedges.	Leucoxenised opaques. Minor traces ultrafine pyrite. Sparse quartz micro-amygdales.	Primary compositional detail obscure but this rock is andesitic in comparison with 315722-725. Feldspar phenocrysts are pervasively Fe-pigmented. Late crackle fracture-style silicification.
315-727 146·1	Altered, Veined "Andesite". Albitised/weakly calcite-stained plagioclase phenocrysts in a chlorite-stained/albitised, finely perlitic microfelsitic groundmass. Frequent late veins/veinlets of quartz and calcite with minor vermiform chlorite.	Relict features closely analogous to 315726.	Leucoxenised opaques. Rare pyrite, minor clots cloudy rutile in veins.	Albitised, chlorite-stained perlitic "leuco-andesite", texturally very similar to 315726. Phenocrysts, groundmass weakly pervasively Fe-pigmented.
315-728 170·9	Altered "Andesite". Albitised/incipiently epidote-stained plagioclase phenocrysts, pervasively chlorite-stained; feldspar-microlitic groundmass. Sporadic chloritic cloudy carbonate-stained microfractures.	Weakly glomeroporphyritic; sub- to trachytic groundmass. Flow-brecciated.	Conspicuous fine to ultrafine primary magnetite, subordinate leucoxenised opaques.	Flow-structured/flow-brecciated leuco-andesitic lava. Groundmass is incipiently Fe-pigmented. Conspicuou accessory magnetite in contrast to the "glassy" (perlitic) lavas.
315-729 (T.S. 51132)	Brecciated, Altered "Andesite". Clasts of extensively sericitised/weakly chloritic, weakly quartz microamygdaloidal sericitic plagioclase-porphyritic lava. Matrix, discontinuous veinlets, marginal replacements of microcrystalline quartz.	Analogous to 315726, but pervasively brecciated/quartz-healed on submillimetric to centimetric scale.	Leucoxenised opaques, rare pyrite, minor chlorite veinlets in clasts. Minor late calcite veinlets.	Relatively sericitised/brecciated-silicified "leuco-andesitic" lava. Greenish colouration of clasts reflects minor but essentially pervasive chlorite supplementing serici

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MC-9

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2nd October, 1984

AMS REC'D 08 OCT 1984
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ATTENTION

CJB	NEM	✓
EJB	AP	
BHC	RTQ	
JMF	DJS	
KCG	CS	
ACG	GCT	✓
AJH	AMH	✓
DCK	RdeB	✓
JAK	KFL	✓
SAH	GDR	✓

REPORT CMS 84/8/33

YOUR REFERENCE: Letter dated 22.8.1984

DATE RECEIVED: 28th August, 1984

SAMPLE NOS.: 315731 - 315739

SUBMITTED BY: A.M. Hespe

WORK REQUESTED: Petrology

for

H.W. Fander, M. Sc.

Copy to:
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HAWTHORN EAST / VIC. 3123

REPORT CMS 84/8/33

Nine core samples from Mt. Charter drill hole MC-9 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, in common with previous suites of Mt. Charter drill cores, comprises entirely variably altered volcanic rocks with minor intercalated tuffaceous sediments.

Samples 315731 and 315732 represent clinopyroxenic basaltic volcanics with disseminated relict primary chromite and may be closely compared with the Hellyer Upper Andesite unit, as recently described in a report to D. Jack.

The remainder of this suite consists essentially of altered leuco-andesitic volcanics. Texturally, this group ranges from massive to flow-brecciated (tuff) lava and volcanic breccias. Alteration features are typical, with chloritic assemblages (greenish mesoscopically) complexed to varying degrees by fine-grained albite-quartz replacements (grey to locally mottled pinkish).

Tuffaceous sediments are represented by a "diagenetically" pyrite-sphalerite-mineralised psammopelite in contact with the 315732 basalt and an impure chert as intraclasts in a composite (volcanic/sediment) breccia (315734).

This suite appears relatively weakly mineralised in comparison with previously described Mt. Charter drill core samples. In comparison, alteration features, while complexes of chloritic and quartzofeldspathic assemblages, are relatively homogeneous.

D. Cowan, B. Sc.

Mineralization in tuff in 315732 can be interpreted as syngenetic mineralization affected by diagenetic silicification and recrystallization

phone conversation with D. Cowan 11/10/84

No.	Classification - Composition	Fabric	Accessories	Comments
315731 (T.S. 51325) 159.3	Amygdaloidal Basalt. Frequent phenocrysts/microphenocrysts of diopsidic augite, minor calcite (+ epidote, albite) in a groundmass of saussuritic plagioclase microlaths, albitic mesostasis. Sporadic calcite-chlorite veinlets.	Flow-structured, basaltic. Mildly sheared veinlets.	Cherty silicified/albitised to pumpellyite-pseudomorphed feldspar phenocrysts. Traces primary chromite, secondary chalcopyrite.	Typical Hellyer sequence "Upper Andesite" characteristics. Chalcopyrite concentrated in amygdales and altered feldspar phenocrysts. Veinlets locally Fe-pigmented.
315732 159.6	Altered Basalt/Tuffaceous Pelite. Relatively chloritised/calcite-stained, marginally chilled quartz-xenocrystal basalt in calcite-veined contact with pelite composed of illite flakes, cherty quartz, frequent albitised/silicified feldspar, subordinate quartz grains.	Sheared, microporphyritic, basaltic-textured lava. Laminated, silty fine sandy slaty pelite. Sheared vein contact.	Relict primary chromite in basalt. Pressure-shadowed pyrite; boudinaged quartz-pyrite-sphalerite films in pelite.	Semi-chilled basalt in contact with arkosic (mildly reworked "dacitic"-tuffaceous) pelite reflecting "diagenetic" quartz veinlet-related pyrite/pale sphalerite dissemination
315733 160.4	"Breccia". Random moulded clasts of albitised plagioclase-porphyritic "leuco-andesite", variously chlorite-stained to cherty/silicified/albitised and then weakly pyritic. Sporadic quartz(-albite) and chloritic quartz veinlets.	Sub- to millimetric, moulded, sub- to trachytic-textured clasts; variably sheared veinlets.	Leucoxenised opaques. Minor late unstressed quartz-calcite veinlets with traces of red sphalerite.	"Leuco-andesitic" lava breccia with interspersed clast-transgressive zones of chloritic (green) and microcrystalline quartz-albite alteration/veining.
315734 169.6	Breccia. Interspersed zones, ill-defined clasts of chloritic to silicified/albitised andesitic lava (sim. 315733) and impure (chloritic, weakly tuffaceous, argillaceous) chert. Sporadic discontinuous quartz-albite veinlets, pyritic chlorite films.	Flow-banded to brecciated lava with intraclasts of chert. Patchy secondary cherty matrix.	Leucoxenic semi-opaques. Minor rhombs, discontinuous films of calcite.	Flow-breccia composite of banded/semi- to chilled leuco-andesite and impure chert. Differentially chloritic to albitised/silicified, analogous to 315733.
315735 181.3	Breccia. Interspersed clasts of chloritic/variably albitised leuco-andesitic lava, locally sericitic quartz-microamygdaloidal lava-matrixed. Pervasive irregular replacive albite-quartz films.	Moulded to locally lava-matrixed, irregular sub- to millimetric, variously felsitic to weakly perlitic clasts.	Leucoxenised opaques. Minor straight-walled zones of albitisation. Minor late clots of calcite.	?Flow-marginal breccia composite of leuco-andesitic lava types. Devitrified, albitised-chloritised with a network of late albitic replacement zones.
315736 186.4	Amygdaloidal Andesite. Albitised/chlorite-stained plagioclase phenocrysts, frequent variably chloritic quartz amygdales in a weakly chlorite-stained, albitised plagioclase-microlitic groundmass. Minor calcite-quartz veinlets.	Weakly glomeroporphyritic, strongly amygdaloidal, weakly flow-structured; incipiently subtrachytic groundmass.	Leucoxenised opaques. Sporadic clots of sericite in calcite-quartz veinlets.	Weakly flow-banded/structured, strongly quartz-amygdaloidal leuco-andesitic lava. Typical "chloritic" alteration pattern.
315737 199.3	Andesitic Tuff Lava. Lenses, rafted bands of chloritic, porphyritic leuco-andesite with a selectively albitised/sericite-stained, weakly porphyritic (leuco-andesitic) lava matrix.	Flow-brecciated, banded lava. Weakly sheared perlitic clasts; weakly porphyritic felsitic matrix.	Leucoxenised opaques.	Flow-banded/flow-brecciated sub-vitric leuco-andesitic lava with the relatively weakly porphyritic matrix lava selectively albitised.
315738 214.5	Amygdaloidal Andesite. Albitised chlorite (-sericite)-stained plagioclase phenocrysts, abundant quartz micro-amygdales, in a weakly sericitic, chlorite-stained albitised plagioclase-microlitic groundmass.	Closely analogous to 315736, relatively flow-structured (banded), slightly finer-grained.	Minor leucoxenised opaques, sparse calcite-quartz veinlets.	Close affinities with 315736. Reflects subtle differential albitisation/chloritisation of groundmass, enhancing the flow-banding.

Sample No.	Classification - Composition	Fabric	Accessories	Comments
315739 (T.S. 51333) 246·9	Perlitic Andesite. Disseminated albitised plagioclase phenocrysts in a variably chloritic to albitised/silicified felsitic groundmass. Minor late poikilitic clots of calcite.	Weakly flow-banded, vaguely brecciated, pervasively perlitic on fine scale.	Leucoxenised opaques.	Extensively albitised/silicified, chloritic, perlitic leuco-andesitic lava. Ill-defined brecciation is secondary. Primarily a relatively massive lava.

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17 DEC 1984

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11th December, 1984

REPORT CMS 84/11/39

YOUR REFERENCE:	Letter dated 23.11.1984
DATE RECEIVED:	26th November, 1984
SAMPLE NOS.:	315756 - 315764
SUBMITTED BY:	A.M. Hespe
WORK REQUESTED:	Petrology

H.W. Fander, M. Sc.

Copy to:
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MC-10

REPORT CMS 84/11/39

Nine drill core samples from MC-10 in the Mount Charter area were received for petrological examination. Representative thin-sections were prepared and examined together with the respective offcuts, with carbonate- and feldspar staining tests performed as warranted. Attached tabulated descriptions summarise the microscopic data and include interpretative comments.

Summary

This suite comprises entirely altered basic to felsic intermediate lavas, with the drilled sequence, as sampled, reflecting a basic unit (basaltic to trachyandesitic, phenocrystal pyroxene-rich), flanked by relatively felsic (leuco-andesitic to trachytic) units.

The pyroxenic unit is represented by samples MC-10/49.9 m, 83.8 m and 200.9 m, and carries accessory chromite. A similar differentiation trend from basaltic to andesitic and trachyandesitic has previously been noted in the Que River pyroxenic basaltic andesites.

The underlying relatively altered felsic volcanics include minor flow-breccias and a typical multiply altered perlitic "pseudofragmental" andesite analogous to those previously described from Mount Charter and Hellyer. Strictly pyroclastic and sedimentary facies appear absent from this sequence,as sampled and examined petrologically.

D. Cowan, B. Sc.

Sample No.	Classification - Composition	Fabric	Accessories	Comments
315756 (T.S. 52171) MC-10/43-2	Veined Trachyte. Minor albite phenocrysts, frequent quartz amygdales in a pervasively chlorite-epidote-stained alkali feldspar-microlitic groundmass. Frequent irregular veinlets of quartz, chlorite, albite, adularia.	Weakly porphyritic, finely amygdaloidal, subtrachytic. Mildly displacive, crudely crustiform veinlets.	Minor epidote, traces of prehnite in veinlets.	Extensively veined/moderately altere amygdaloidal trachyte. Vein-quartz is crystallized chalcedonic in part.
315757 MC-10 49-9	Amygdaloidal Trachyandesite/Trachyte Breccia. Weakly silicified/quartz-adularia-epidote-amygdaloidal porphyritic trachyandesite in chilled marginal contact with a sericite-chlorite-prehnite-stained trachytic breccia.	Weakly flow-structured, marginally chilled andesitic. Lava-matrixed/locally shale-matrixed breccia.	Fine red sphalerite, chromite, traces galena, chalcocite in trachy-andesite; pyrite, carbonaceous matter in	Trachyandesite is strongly augite-porphyritic, with minor silicified K-feldspar phenocrysts. Chilled sub-planar contact with ashy pelite-breccia. xenolithic trachytic breccia
315758 MC-10 83-8	Amygdaloidal Trachyandesite. Frequent augite-, minor albitised plagioclase, silicified K-feldspar phenocrysts, sporadic chlorite amygdales in a chlorite-epidote-stained subtrachytic groundmass. Minor albite-adularia-prehnite veinlets.	Flow-banded, weakly flow-brecciated amygdaloidal subtrachytic.	Relict primary chromite. Traces of pyrite, calcite, pumpellyite in amygdales, veinlets.	Close affinities with the 315757 trachyandesite. Accessory chromite is dark red, characteristic, consistent with differentiates of th basalt/basaltic andesite unit.
315759 MC-10 200-9	Amygdaloidal Basalt. Extensively cloudy carbonate-epidote-pseudomorphed pyroxene, minor albite-chlorite-pseudomorphed feldspar phenocrysts in an extensively carbonate-chlorite-altered groundmass. Sporadic epidote-chlorite-calcite amygdales.	Porphyritic/weakly amygdaloidal basaltic.	Chromite. Sporadic re-crystallized calcite veins with discontinuous films, selvedges of quartz, epidote.	Relatively altered amygdaloidal basic lava with relict primary chromite, confirming petrographic affinities with 315757, 315758.
315760 MC-10 246-2	Sericitised ?Andesite. Conspicuous semi- to sericitic white mica-pseudomorphed feldspar phenocrysts in a sericitised groundmass with disseminations, clusters of fine-grained pyrite.	Flow-banded/brecciated "andesitic". Moderately sheared (fine-grained phyllitic).	Leucoxenised opaques, minor ill-defined kaolin-chlorite-pseudomorphed phenocrystal ferromags.	Primary compositional and some textural detail obscured by relatively marked alteration. Relict feature consistent with an andesitic flow-breccia.
315761 MC-10 248-3	Amygdaloidal ?Andesite. Fine-grained muscovite-pseudomorphed feldspar, minor similarly altered ferromag phenocrysts in a sericitised feldspar microlath/chloritic mesostasis groundmass. Sporadic calcite veinlets.	Flow-structured/vaguely flow-brecciated. Incipiently sheared.	Conspicuous leucoxenised opaques. Minor chloritic amygdales with rare microscopic pyrite, galena.	Possibly strictly trachytic, but reasonably correlated with the leuco-andesite-trachyte sequence. Alteration analogous to 315760.
315762 MC-10 249-3	Amygdaloidal "Trachyte". Frequent quartz micro-amygdales, minor albitised plagioclase phenocrysts in a feldspar-microlitic groundmass with a cloudy epidote-chlorite-stained glassy mesostasis. Patchy calcite impregnations, veinlets.	Strongly amygdaloidal, weakly porphyritic, weakly flow-brecciated.	Leucoxenised opaques. Rare quartz micro-phenocrysts. Minor cherty quartz veinlets, impregnations. Rare pyrite.	Reflects quartz-chlorite-epidote alteration, supplemented by late calcite veinlets. Felsic intermediate with finer compositional detail obscured.
315763 MC-10 254-2	Sericitised Trachyte. Weakly sericitised sanidine and minor albite phenocrysts in a sericitised pyrite-stained, weakly feldspar-microlitic groundmass with conspicuous fine leucoxenised opaques.	Glomeroporphyritic, vaguely flow-brecciated. Similar to 315761, moderately sheared.	Minor recrystallized pyritic quartz amygdales.	Close relict textural affinities with 315761; similarly, but less extensively altered. Relict phenocrystal sanidine confirms these lavas as trachytic.

Sample No.	Classification - Composition	Fabric	Accessories	Comments
315764 (T.S. 52179) MC-10 259-8	Altered Andesite. Sericite-stained micro-granular quartz with interspersed relics of chlorite-stained perlitic leuco-andesite carrying albitised phenocrystal plagioclase.	Relict perlitic andesitic, with corrosive silicification in irregular zones.	Leucoxenised opaques. Rare ultrafine pyrite.	Typical Mount Charter leuco-andesit perlitic "pseudobreccia". Fragmental features reflect corrosive silicification zones.

142111

110

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

4th January, 1985

AMS REC'D 08 JAN 1985
ANS ..... FILE .....
ATTENTION

CJB		NEM	✓
EJB		AP	
BHC		RTQ	
JMF		DJS	
KCG		CS	
ACG		GCT	✓
AJH		AMH	✓
[illegible]K			
JWK			
GSM			

REPORT CMS 84/12/20

YOUR REFERENCE: Letter dated 18.12.1984

DATE RECEIVED: 19th December, 1984

SAMPLE NOS.: 315765 - 315772

SUBMITTED BY: A.M. Hespe

WORK REQUESTED: Petrology

for H.W. Fander, M. Sc.

Copy to:
The Chief Geologist
Aberfoyle Exploration Pty. Ltd.
144, Camberwell Road
HAWTHORN EAST / VIC. 3123

MC-11

REPORT CMS 84/12/20

Mt. Charter (MC-11) Core Samples

Eight core samples from DDH MC-11 were received for petrographic study; thin-sections were prepared, and offcuts were subjected to K-feldspar stain tests. The rocks are described in the attached table.

Summary

All the rocks are volcanics, and include a range of types from basaltic glass to sodic rhyolite. The rocks classified as breccias and agglomerate are coarse-grained, and are therefore inadequately represented by single thin-sections; for instance, in sample 766, the thin-section was prepared specifically to show the pink patches, though the whole core length is predominantly green and thus mainly andesitic.

In general, light-coloured rocks (or fragments) can be equated with dominantly alkali-feldspathic types, i.e. sodic and sodi-potassic trachytes, ranging into rhyolite - though there is uncertainty whether the quartz in sample 770 is in fact primary. These trachytes contain cognate xenoliths of a coarser phase, referred to here as microsyenite, but possibly representing accumulations or aggregates of coarser alkali feldspar crystals.

Sample 772, which is strongly altered but appears to have been an amygdaloidal glassy basalt, is noteworthy in containing appreciable chromite, and in this respect is correlatable with previously described chromite-bearing basalts.

H.W. Fander, M. Sc.

Sample No.	Rock Type - Composition	Fabric	Minor Minerals	Comments
315-765 (T.S. 52350)	Altered ?Andesite Breccia. Angular fragments of sericitised-chloritised-silicified andesite and ?dacite, with relict oligoclase phenocrysts, fine-grained groundmass. Carbonate veins.	Variable, fine-grained textures; some flow-banding, but most details obliterated.	Leucoxenised magnetite. Accessory apatite. Fine scattered pyrite.	Severe alteration of groundmass (and preservation of phenocrysts) suggests that rock was originally glassy. Possibly more dacitic than andesitic.
315-766	Agglomerate. Large fragments of pinkish porphyritic rhyodacite and dark chloritised/epidotised andesite; patches of coarse adularia-calcite with chlorite and hydromuscovite flakes.	Largest fragments up to 30 mm in T.S. Andesite shows relict flow-banding.	Accessory apatite, leucoxene. Coarser epidote needles in adularia patches.	Pink areas are rhyodacite (with quartz-oligoclase phenocrysts). Yellowish mica is hydromuscovite. Augite occurs in andesite blocks.
315-767	Andesite/Trachyte. Mainly a pale trachyte with albite phenocrysts in K-feldspar groundmass and a few chloritised amphiboles, microsyenite xenoliths. Bands of dark, fine-grained andesite(?).	The two rock types are intermingled, believed contemporaneously extruded.	Accessory apatite, leucoxene. Carbonate patches, veins. Fine pyrite throughout.	Dark andesite streaks thought to be incorporated during flow. Host rock is sodi-potassic and incorporates some microsyenite xenoliths (?cognate).
315-768	Lava Breccia. Small and larger fragments of sodi-potassic microsyenite, with chloritised amphibole, in a lava matrix of small albite crystals in an epidotised, chloritised groundmass.	Extensive flow-brecciation on a small scale. Later fracturing and veining.	Chlorite-carbonate veins. Clusters of pyrite crystals and scattered fine grains.	Essentially a trachytic lava with xenoliths, showing flow-brecciation. Pyrite is part of deuteric alteration phase.
315-769	Porphyritic Trachyte. Subparallel small albite phenocrysts in a felted mass of albite laths and K-feldspar, patchily sericitised. Clusters, veins of fine pyrite.	Well-developed flow fabric ("trachytic" fabric) with minor blocky flow-brecciation.	Fibrous quartz and sericite accompany pyrite in fractures. Accessory apatite.	Pyrite is definitely younger than host rock. The trachyte is similar to 767 and 768, but is "purer".
315-770	Porphyritic Sodic Rhyolite. Scattered pink albite phenocrysts in a groundmass of abundant apparently primary quartz, fine albite laths and chlorite/sericite shreds.	Uniform, with weak preferred orientation. Possible devitrification textures in groundmass.	Dark chlorite patches and quartz-chlorite veins. Also carbonate veins.	Quartz may be late primary, perhaps related to devitrification of glassy groundmass; rock may verge on quartz-trachyte.
315-771	Altered Porphyritic Trachyte. Stubby prismatic albite phenocrysts (pink) in a groundmass of albite laths, secondary quartz and fine kaolinite-illite (?altered glass).	Uniform, micro-granular, weakly orientated fabric. Probably devitrified.	Conspicuous parallel veins of coarse quartz-siderite. Fine leucoxene grains in rock. Accessory apatite.	Similar to 770, but chlorite is absent and quartz appears introduced though it may be a product of devitrification.
315-772 (T.S. 52357)	Altered ?Trachyte. Thin parallel streaks of chlorite (penninite), matted ?illite, microgranular carbonate. Conspicuous large amygdales of coarse carbonate.	Strong preferred orientation, due to flow of low-viscosity glass. Relict lath textures.	Minute chromite crystals throughout. Fine pyrite. Leucoxene grains.	Believed to have been basic or even ultramafic glass with some crystallites, and large amygdales. Note chromite.

APPENDIX III

BOREHOLE SIROTEM SURVEY,

MC-5, MC-6, MC-8, MC-9

RESULTS OF THE DOWNHOLE SIROTEM SURVEY AT MT. CHARTER AND ZONE J3

DISTRIBUTION

A M HESPE
J R SISE
ABERFOYLE, HAWTHORN

E T EADIE
GEOPHYSICIST
17 OCTOBER 1984

INTRODUCTION

Between September 6 and 9, 1984, diamond drill holes MC5, MC6, MC8 and MC9 were surveyed with downhole Sirotem. The first three holes had been drilled to test the depth extension of a lead-zinc rich barite zone at the andesite-dacite contact that outcrops on Mt. Charter. No massive sulphides were intersected in the holes. The Sirotem was testing for sulphide lenses that may have been missed by the drilling but no massive sulphides were detected.

MC9 was drilled to intersect the weak J3 UTEM anomaly which is associated with a zone of high soil geochemistry. Clay and graphite in small fractures along with some sulphides in a tuff unit were intersected at approximately the target depth. These are thought to be the cause of the UTEM anomaly. The downhole Sirotem was conducted to test this hypothesis and search for a possible downdip increase in sulphide content. A very weak in-hole response possibly explains the UTEM anomaly but no interesting off-hole responses were noted.

INTERPRETATION

MT CHARTER

The locations of drillholes MC5, 6, and 8 are shown in Figure 1 along with the location of the Sirotem transmitter loop. This is a revision of Plate HT 44. The Sirotem data for these three holes is shown on Plates HT 56A, B, and C. The only response is that due to the fairly resistive host rocks. It is clear that there are no conductive massive sulphides within 100 metres of any of these holes.

ZONE J3

Figure 2 shows the location of DDH MC9, the axis of the UTEM conductor and the Sirotem transmitter loops. The Sirotem data from the two loops is shown on Plates HT 56D and E.

A close examination of the core by the author, including tests with an ohmmeter, has revealed several weakly conductive features at approximately the target depth of 160 metres. There are several clay and graphitic zones in fractures from 133 metres to 164 metres. In addition, there is a small amount of pyrite in a tuff unit at a depth of 159 metres. A combination of these features explain the weak, channel 7 UTEM anomaly.

The Sirotem results (Plates HT 56D and E) are almost totally expressionless except for two possible very weak in-hole anomalies in the first channel between 150 metres and 180 metres. It is not surprising that downhole Sirotem has only a very weak anomaly because Sirotem does not start measuring until 0.4 milliseconds whereas a channel 7 UTEM anomaly has decayed away by this time. It was expected that because the downhole probe passes right through the conductor, Sirotem would detect it anyway, but no strong anomaly was expected.

The more important reason for doing the downhole work was to search for deeper, massive sulphide conductors. It is clear from the results

that there are no conductive massive sulphide bodies within 100 metres of the drillhole.

CONCLUSIONS

The Sirotem has proven that there are no conductive massive sulphide bodies in the immediate vicinity of the recent drilling at Mt. Charter.

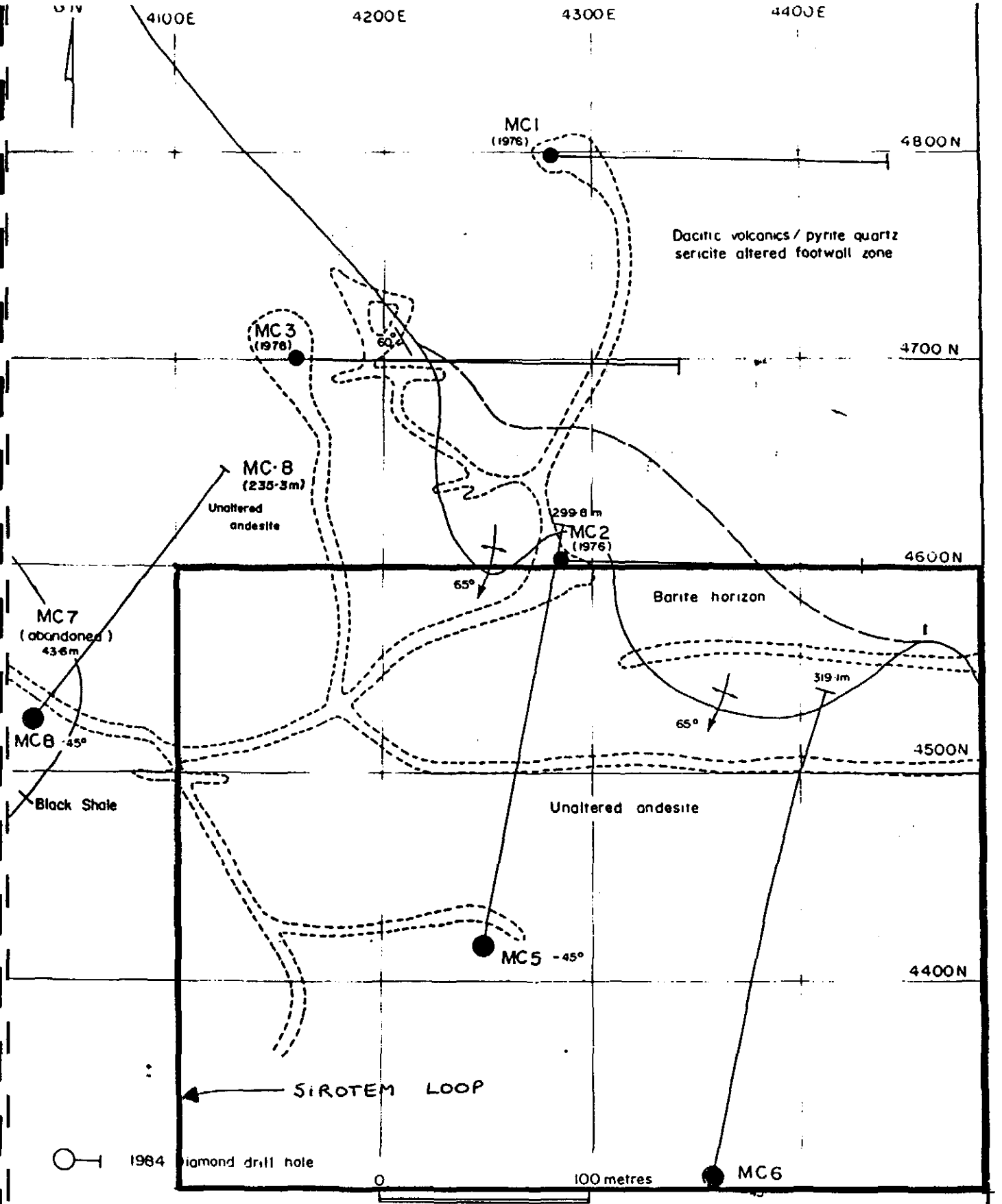
At Zone J3, the drilling of the UTEM anomaly and the subsequent downhole Sirotem has shown that there is no conductive massive sulphide body within 100 metres of DDH MC9. Any further drilling in this area should be significantly more than 100 metres down dip or along strike from MC9.

In addition, this work may be a good lesson that drilling weak UTEM responses may be on a par with drilling I.P. anomalies. They can be caused by many thing other than massive sulphides. This lesson may have implications for further work on other zones in the area, particularly Zone E.

ETE:WB
17/10/84

118

142119



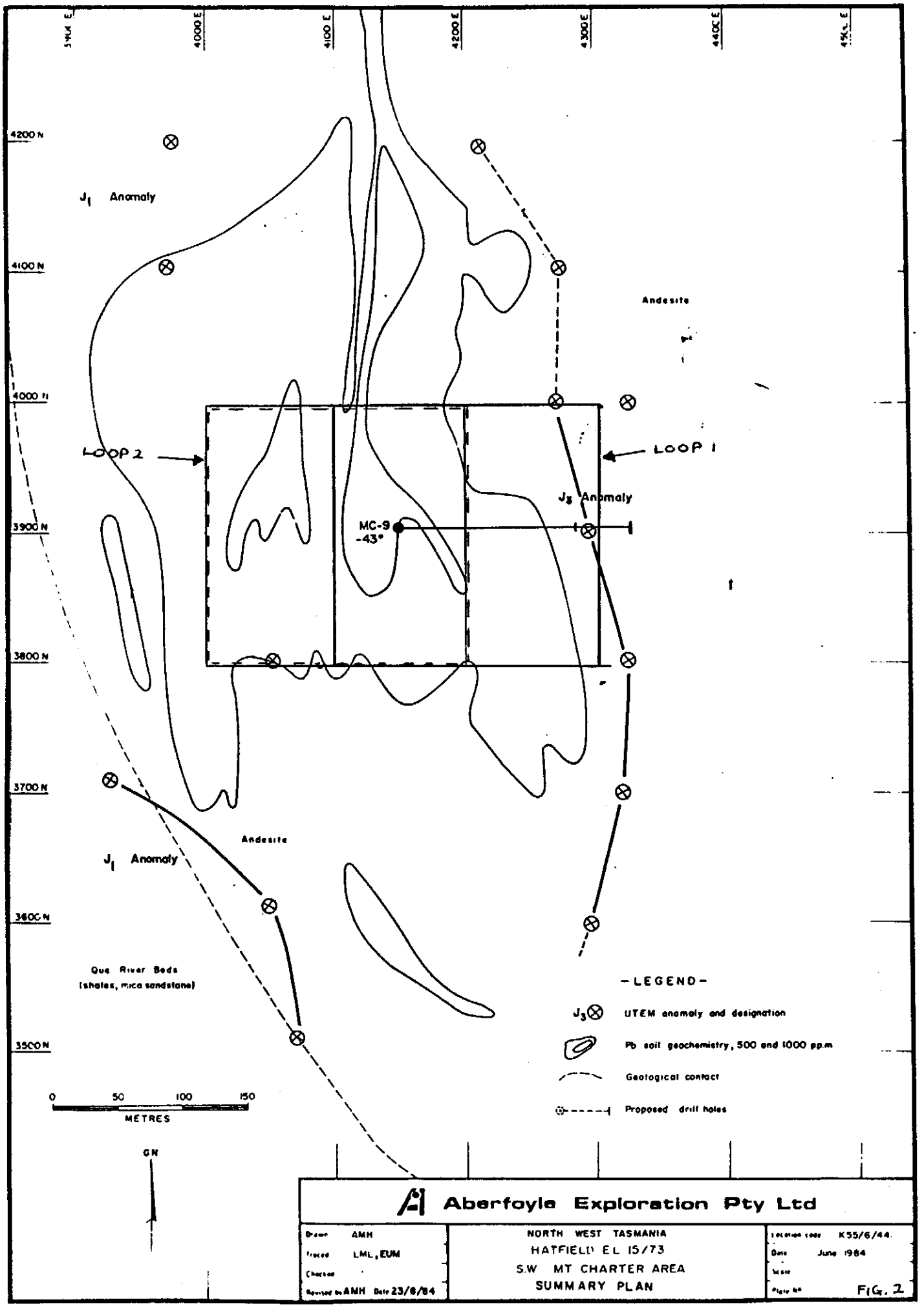
Aberfoyle Exploration Pty Ltd

Drawn	A M H	NORTH WEST TASMANIA	Location code K 55/6/44
Traced	R J E , EUM	HATFIELD E.L. 15/73	Date June, 1984
Checked		MT. CHARTER PROSPECT	Scale
Revised by AMH Date 23·8·84		DRILLING SUMMARY	Plate No Fig 1

119

5 cm

142120



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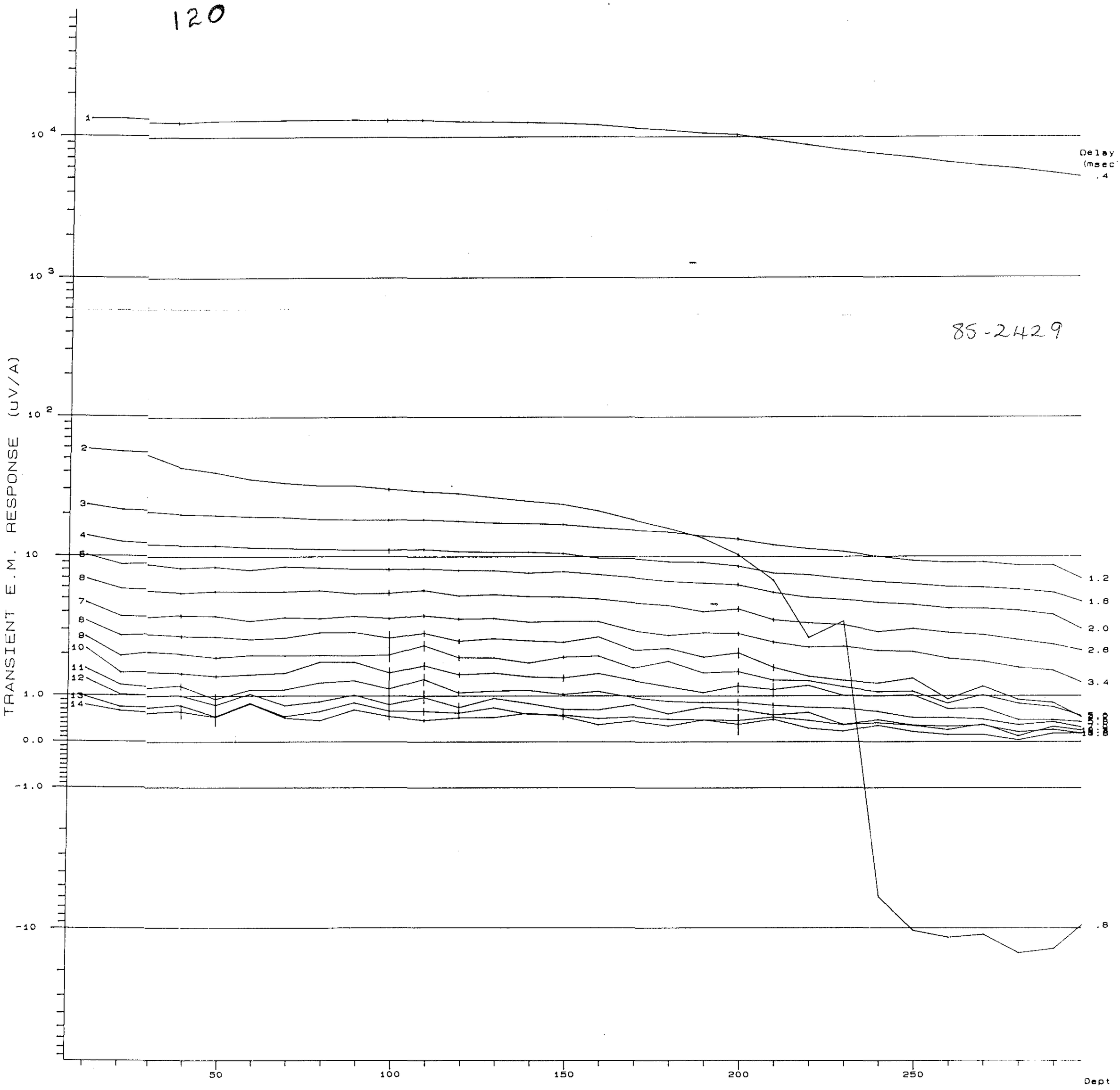
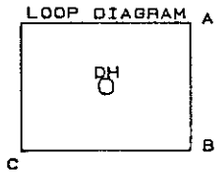


85-2429

120

ABERFOYLE EXPLORATION PTY. LTD.
QUE RIVER TASMANIA
MT. CHARTER PROSPECT (JOB NO. 546A)
DRILL HOLE MC5 LOOP 1
SIROTEM Survey by SOLO Geophysics & Co. 7/ 9/84
SOLO hole ref.303 Reading interval 8.0 m
SCALE 1 : 1000 Loop size : 400 x 300 m
LOOP configuration : Drill hole
Plotted : 10:10 AM 21/ 9/84

LOOP DIAGRAM



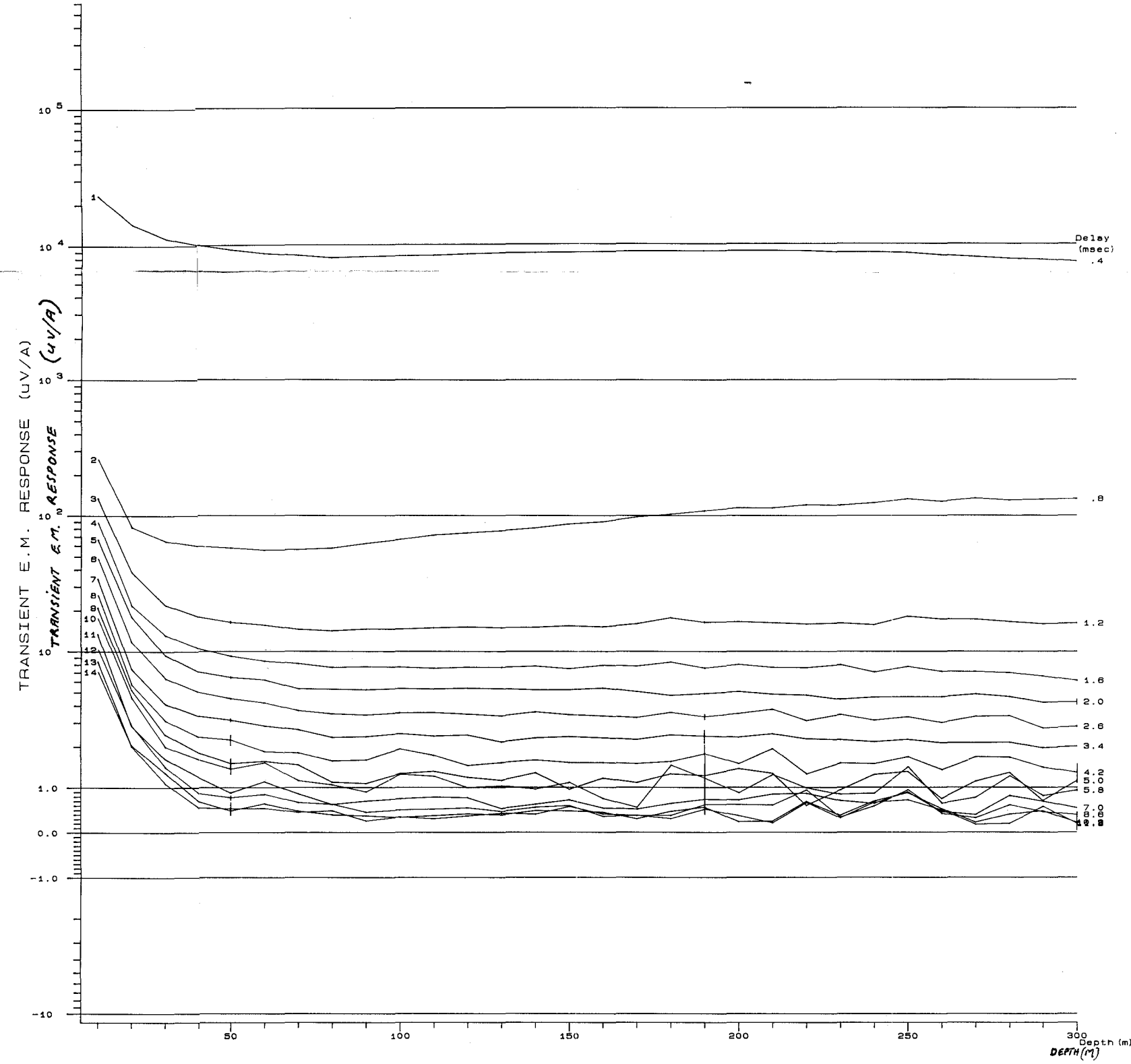
A = (4800N, 4500E)
B = (4300N, 4500E)
C = (4300N, 4100E)
DH= (4415N, 4244E)

SOLO

PLATE No. HT 56A

5 cm

142121



121

142122

ABERFOYLE EXPLORATION PTY. LTD.
QUE RIVER TASMANIA
MT. CHARTER PROSPECT (JOB NO. 546A)
DRILL HOLE MCE LOOP 1
SIROTEM Survey by SOLO Geophysics & Co. 8/ 9/84
SOLO hole ref.305 Reading interval 10.0 m
SCALE 1 : 1000 Loop size : 400 x 300 m
LOOP configuration : Drill hole
Plotted : 10:16 AM 21/ 9/84

LOOP DIAGRAM

A = (4800N, 4500E)
B = (4300N, 4500E)
C = (4300N, 4100E)
DH= (4315N, 4365E)

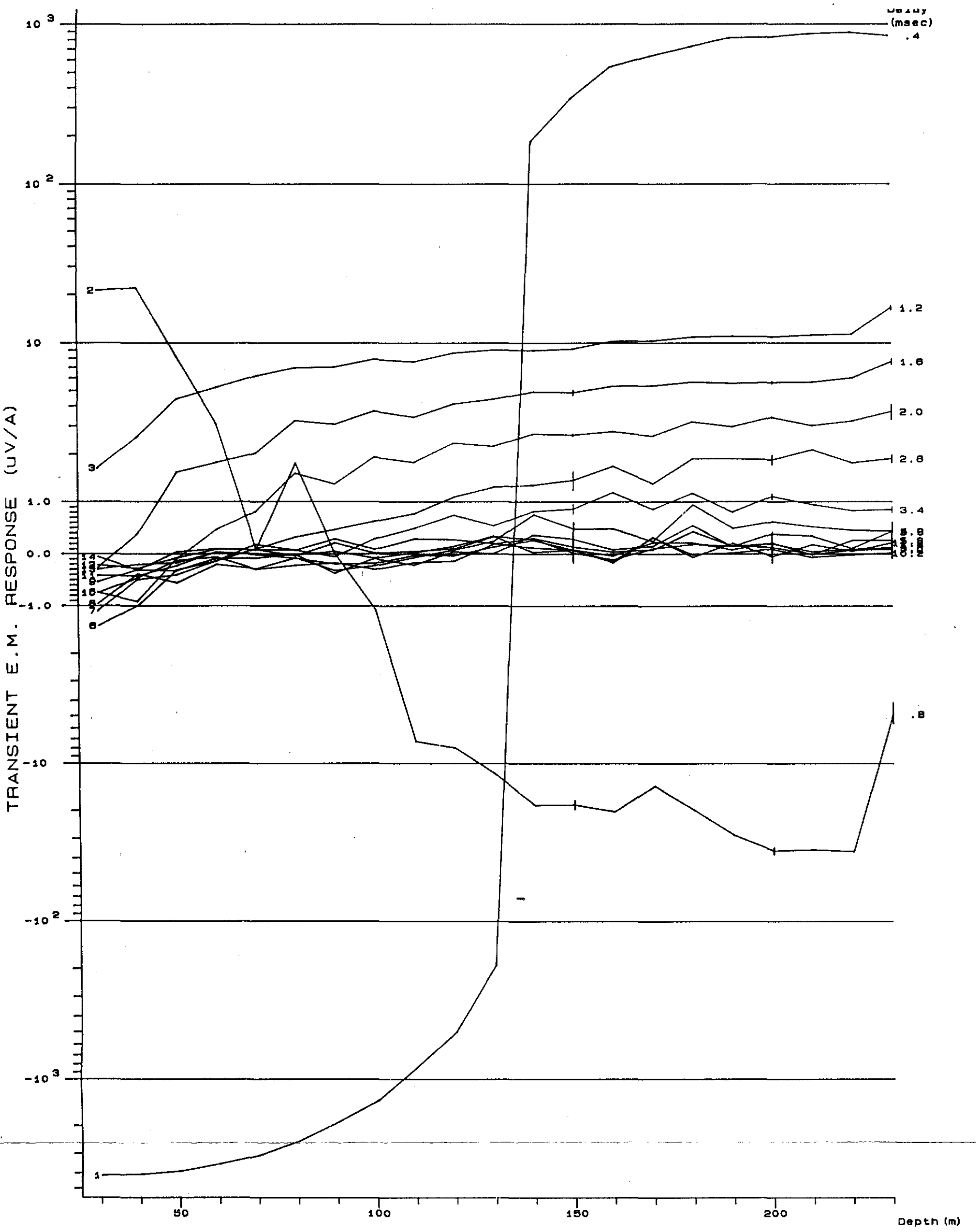
SOLO

PLATE No. HT 56B

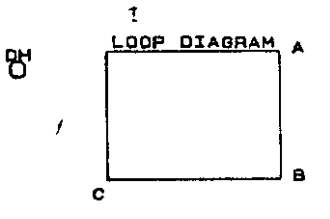
5 cm

85-2429

142123



ABERFOYLE EXPLORATION PTY. LTD.
QUE RIVER TASMANIA
MT. CHARTER PROSPECT (JOB NO. 546A)
DRILL HOLE MC8 LOOP 1
SIROTEM Survey by SOLO Geophysics & Co. 6/ 9/84
SOLO hole ref.302 Reading interval 10.0 m
SCALE 1 : 1000 Loop size : 400 x 300 m
LOOP configuration : Drill hole
Plotted : 10:06 AM 21/ 9/84

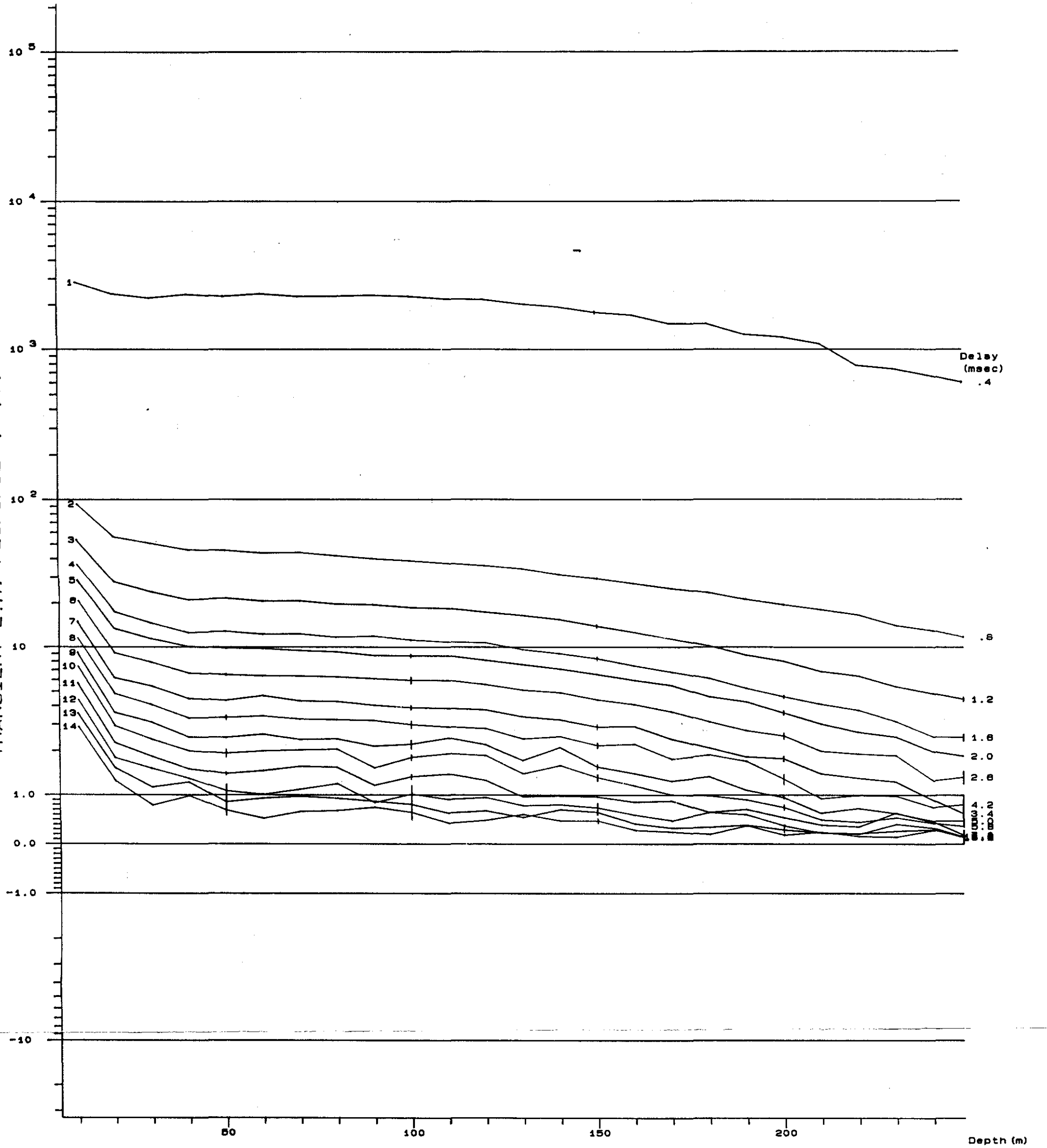


SOLO

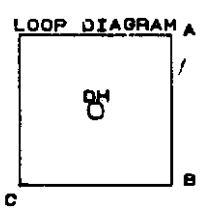
PLATE No. HT 56C

5 cm

142124



ABERFOYLE EXPLORATION PTY. LTD.
QUE RIVER TASMANIA
MT. CHARTER PROSPECT (JOB NO. 548A)
DRILL HOLE MC9 LOOP 1
SIROTEM Survey by SOLO Geophysics & Co. 9/ 9/84
SOLO hole ref.308 Reading interval 8.0 m
SCALE 1 : 1000 Loop size : 200 x 200 m
LOOP configuration : Drill hole
Plotted : 10:20 AM 21/ 9/84



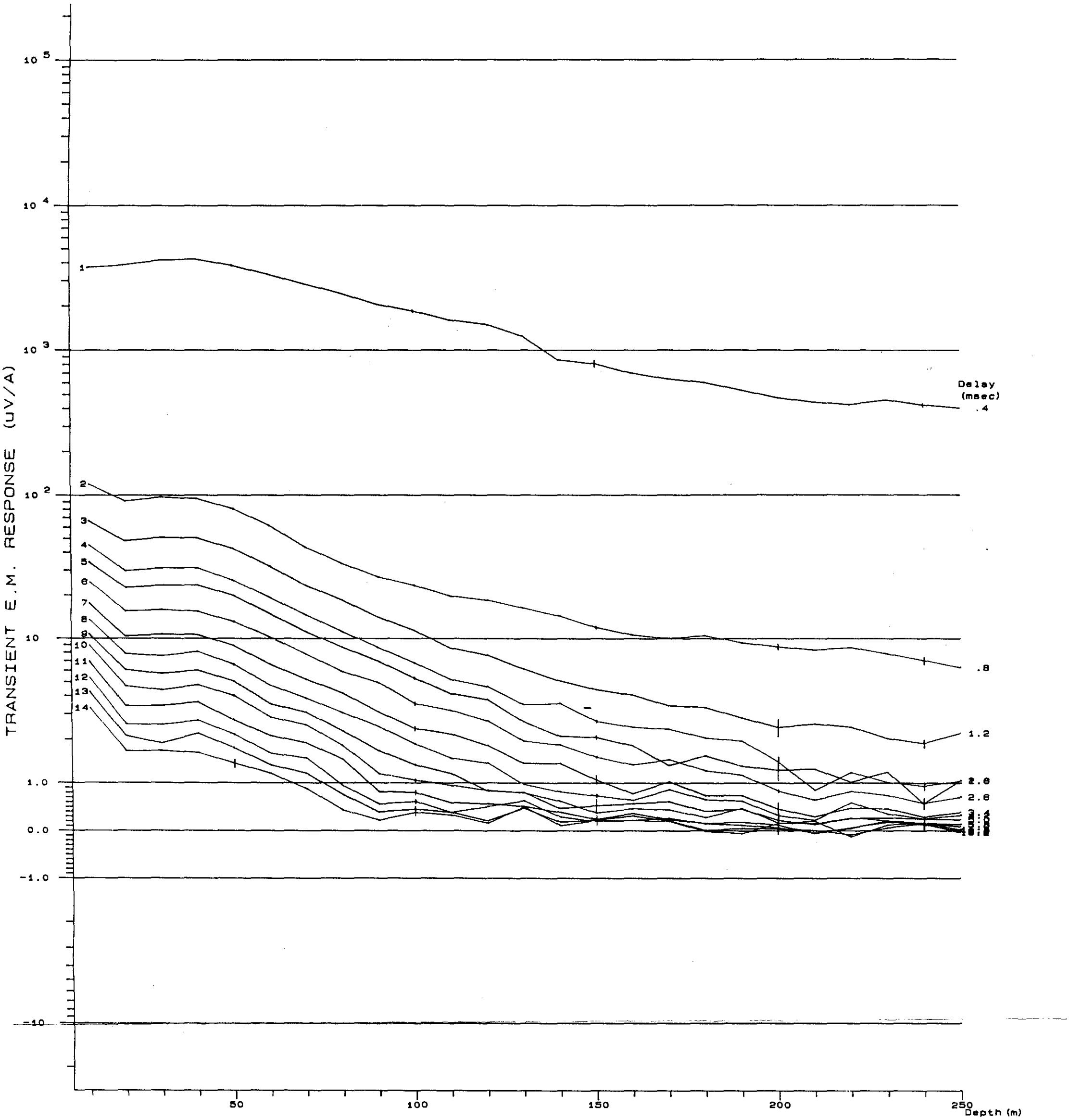
A = (4000N, 4300E)
B = (3800N, 4300E)
C = (3800N, 4100E)
DH= (3900N, 4150E)

SOLO

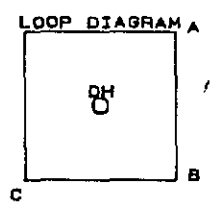
PLATE No. HT 560

5 cm

142125



ABERFOYLE EXPLORATION PTY. LTD.
QUE RIVER TASMANIA
MT. CHARTER PROSPECT (JOB NO. 546A)
DRILL HOLE MC9 LOOP 2
SIROTEM Survey by SOLO Geophysics & Co. 9/ 9/84
SOLO hole ref.307 Reading interval 10.0 m
SCALE 1 : 1000 Loop size : 200 x 200 m
LOOP configuration : Drill hole
Plotted : 10:29 AM 21/ 9/84



A = (4000N, 4200E)
B = (3800N, 4200E)
C = (3800N, 4000E)
DH= (3800N, 4150E)

SOLO

PLATE No. HT 56E

5 cm

85-2419

APPENDIX IV

SW MT. CHARTER PROSPECT,

DETAILED UTEM SURVEY

126

14212

03 AUG 1984

Aberfoyle Exploration Pty Ltd

(Incorporated in Victoria)

144 Camberwell Road, Hawthorn East, Victoria 3123 Australia

Telephone: (03) 82 2226 Telex: AA38646

REPORT ON THE
DETAILED UTEM WORK ON
THE ZONE (J3) SOUTH
OF MT. CHARTER

DISTRIBUTION

A M HESPE - BURNIE
J R SISE - BURNIE
ABERFOYLE HAWTHORN

E T EADIE
GEOPHYSICIST

19 JULY 1984

12'

142128

19 JULY 1984

REPORT ON THE DETAILED UTEM WORK ON THE ZONE (J3) SOUTH OF MT. CHARTER

INTRODUCTION

An earlier report (Report on the UTEM Survey South of Mt. Charter and Recommendations for Further Work) contained the initial interpretation of Zone J3. Subsequently, more detailed UTEM survey from the opposite direction has been completed at 100 metre line spacing on the anomaly, allowing a more complete and accurate interpretation.

No major changes in the geometry have been made to the weakly conductive, westerly-dipping plate that was originally envisaged. However it can now be determined that the size of the body on Lines 3900N and 4000N is slightly larger than on Line 3800N. Therefore drilling is recommended on one of these two lines, preferrably on Line 3900N because of the shallower depth to the top of the conductor.

The extra work has reinforced the opinion that the conductivity of this target is not as high as Que River or Hellyer, and appears to be more like the D1 body (15 metres of up to 50% sulphides), in conductance.

In the process of interpretation of the J3 data, other UTEM anomalies in the immediate vicinity were reviewed. The most interesting of these is the most conductive part of J2, which is not closed off to the south. This was originally considered to be a shale anomaly, but now can be seen to be stronger than any other shale effects. Further work must be done to better understand this zone.

INTERPRETATION

The location of the three UTEM loops (1979, 1984 original, 1984 detail) and the position of the anomalies are shown in plan in Figure 1. The shale contact is also sketched in. For the relationship of these conductors to other anomalies and the Que River Mine, see Plate MAC 77.

With the aid of the detailed UTEM work, preliminary drill results from Mt. Charter, and an increase in the understanding of the geology of this vicinity, the interpretation of all of the zones shown in Figure 1 can be advanced.

Zone J1, which earlier appeared to be one continuous feature, can now be better understood. The weak southern crossovers (Lines 3400N, 3600N, 3700N) correspond very well with the shale - andesite contact. In the detailed survey, the shale - andesite contact gave a weak response on both of the lines on which it was traversed (3600N, 3700N). The weaker and apparently discontinuous anomalies to the north (L3800N, ~4075E; L4100N, 4000E; L4200N, 4020E) do not appear to be very interesting because they are all extremely weak and surficial.

Zone J2 is a very interesting anomaly and should be fully explained by future work even if drilling or further geophysics is necessary. The zone is particularly conductive on its southern end (L4200N) and is completely open to the south. This anomaly has been somewhat neglected in the past because it falls within the shales, which have been considered to be the cause of the response. Therefore no geophysical work has been done on the anomaly since the 1979 UTEM, which did not properly cover it.

Although it may be true that the shales in this area are abnormally conductive, possibly due to the metamorphic effects of the dolerite, it must be noted hat nowhere else at Que River are the shales as conductive as this. With the new model inspired by Hellyer that the vicinity of the shale - andesite contact may be a favourable site for mineralisation, this conductor becomes much more important. Follow up by a UTEM loop directly over the area of interest, or by immediate drilling, is strongly recommended.

Zone J3 is a weakly conductive body dipping to the west. A full section is devoted to the interpretation of this trend.

Zone I3 correlates with the sulphide veining encountered in the earlier Mt. Charter drilling. The lack of massive sulphide accounts for the low intensity of the anomalies.

Zone I4 is another very poorly conductive trend that is not well understood. It possibly represents the shale - volcanic contact or it could be the western edge of the sulphide veining that causes anomaly I3.

Of all of these trends, only Zone J3 requires further elucidation at this point.

ZONE J3

An updated sketch of the interpretation of Zone J3 is shown in Figure 2. The shale contact can be seen in the southwest corner, marked by two very weak anomalies.

From the detailed data on Zone J3 itself, it is clear that the body is very small to the south (L3600N), steeply dipping to the west with a depth extent of less than 100 metres and a depth to top of about 25 m. The body is also depth limited on Lines 3700N, 3800N, with the dip flattening to about 45 degrees W. By Line 3900N the body has attained its maximum depth extent of several hundred metres, and the dip begins

to steepen again. The depth has increased to about 75 metres. The geometry is similar on Line 4000N but the body is deeper (100 m?) and the dip slightly steeper.

The body continues to deepen on Line 4100N (not shown) and appears to have similar properties to Line 4000N. It is barely detectible on Line 4200N because of its great depth (>200 m?) and because there are shallower features obscuring the anomaly. However, it is quite clear that this body does extend at least to 4200N and probably significantly further. This is suggested by large amplitudes, particularly on Lines 3900N and 4000N, which indicate that the strike length of the body is larger than 600 metres. This deeper northern section would be an interesting target if significant, but uneconomic, mineralisation were encountered in the first hole.

The old frequency domain I.P. data (a = 50 m, n = 1 to 4) is included with the EM sections in the Appendix of the report. There is generally a resistivity low which is offset to the west of the EM anomalies. This offset is probably due to the moderate dip of the body. No chargeability anomaly is detected above the noise level of the data. This is due to a combination of the following factors:

1) the body is relatively deep compared to the "a" spacing of the IP configuration - where it is quite shallow, it is also quite small.
2) the system used does not have a very good signal to noise ratio.
3) the background chargeability in the area is relatively high.

In spite of all of these reasons, there would have been a detectible anomaly if the inherent chargeability of the body had been outstandingly high. This lack of a chargeability anomaly is definitely a negative feature of the prospect.

The model, as presented in Figure 2, fits the data fairly well but there are interpretation problems that enlarge the error bars in depth (±25 m or more), dip (± 20 deg.) and even position (± 25 m). These are due to the following factors:

1) the body is very poorly conductive; because of this, much of the current flowing in the body has come via the host rock which is very difficult to take into account in interpretation.
2) the body appears to thicken, thin and charge dip both along strike and down dip.

CONCLUSIONS

Zone J3 is a weakly conductive but well-defined body in a very interesting geological and geochemical environment. Its conductance is much less than either the Hellyer or the Que River ore deposits but this is not a major problem. After all, Hellyer contains much more pyrite than Que River - perhaps the next deposit will have very little pyrite and therefore very little conductivity or chargeability. Another possibility is that this weak feature is an up-dip or up-plunge extension of a more massive body.

The geophysical model is fairly well constrained because of the large amount of UTEM data. Therefore, one hole will probably suffice to test it. This should be drilled to the east at 45 degrees from L3900N, 4150E. The hole should be cased in preparation for downhole EM in case there has been a mistake with depth or dip interpretation and to look for deeper conductors. The results of this hole will undoubtedly help to locate further holes.

Another, separate target for a drill hole would be to test Zone J2 on Line 4200N. This hole would have the added advantage of helping to understand the dolerite. If desired, this hole could be extended to test Zone J3 at depth.

Instead of drilling, it would be more cautious to extend UTEM coverage on Zone J2 to the south, and to obtain a more detailed and proper look at it. The 1979 UTEM loop was in a terrible position to focus on this conductor.

This detailed work would be part of a larger UTEM survey which is now being formulated. The objective of this survey will be to cover in detail the shale - andesite contact plus several hundred metres either side of it by placing loops directly over the contact and reading inside the loops. This method has proved itself to be very effective by a test over the Hellyer deposit.

133

142134

INCLUDES:

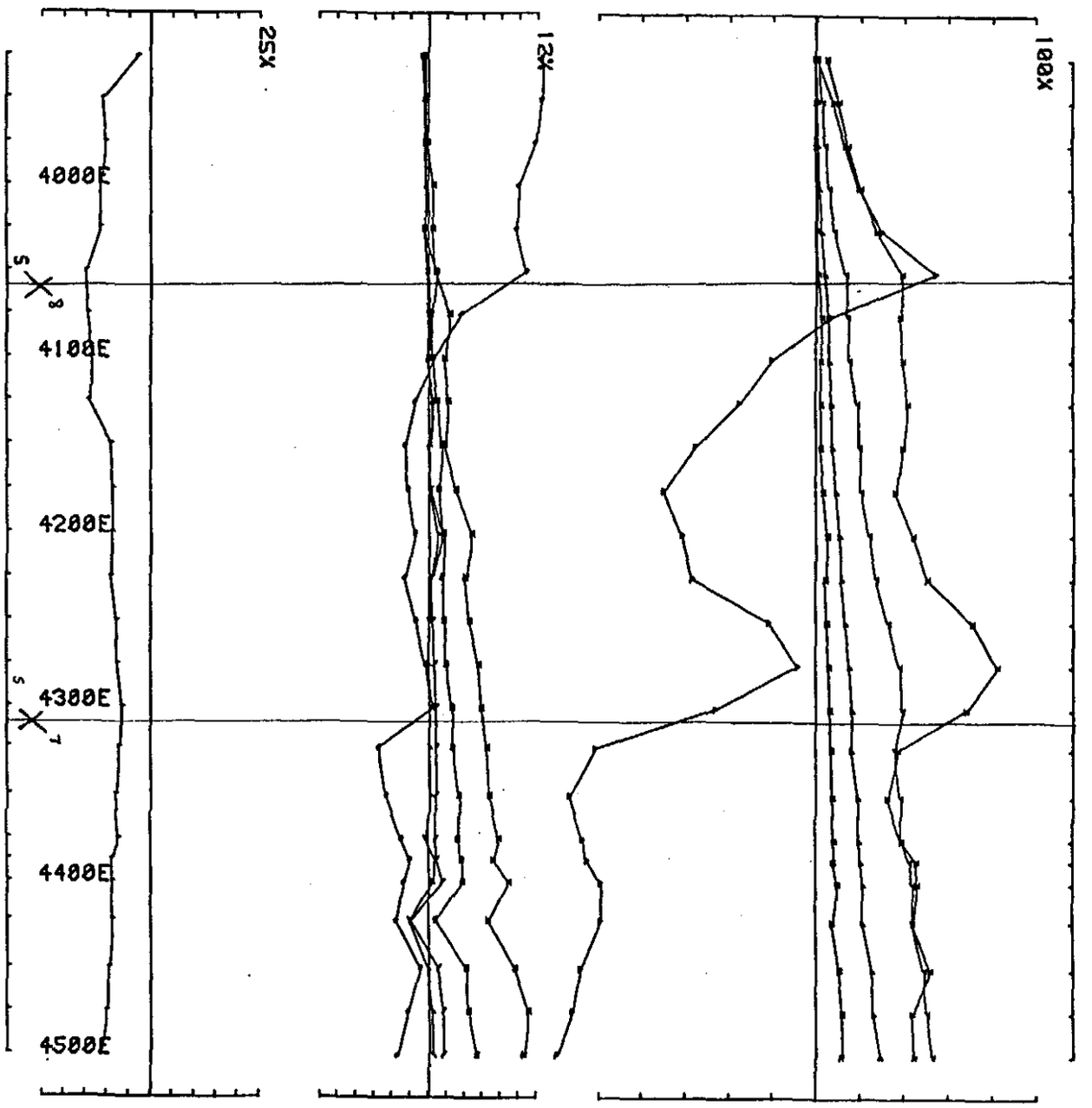
UTEM LOOP 2: 1984 DETAIL WORK

LOOP 14: 1984 ORIGINAL WORK

FOR 1979 WORK (LOOP 865) SEE RESULTS OF UTEM SURVEY TASMANIA (TAS GEN3)

IP DATA - 50 METRE DIPOLES

142135



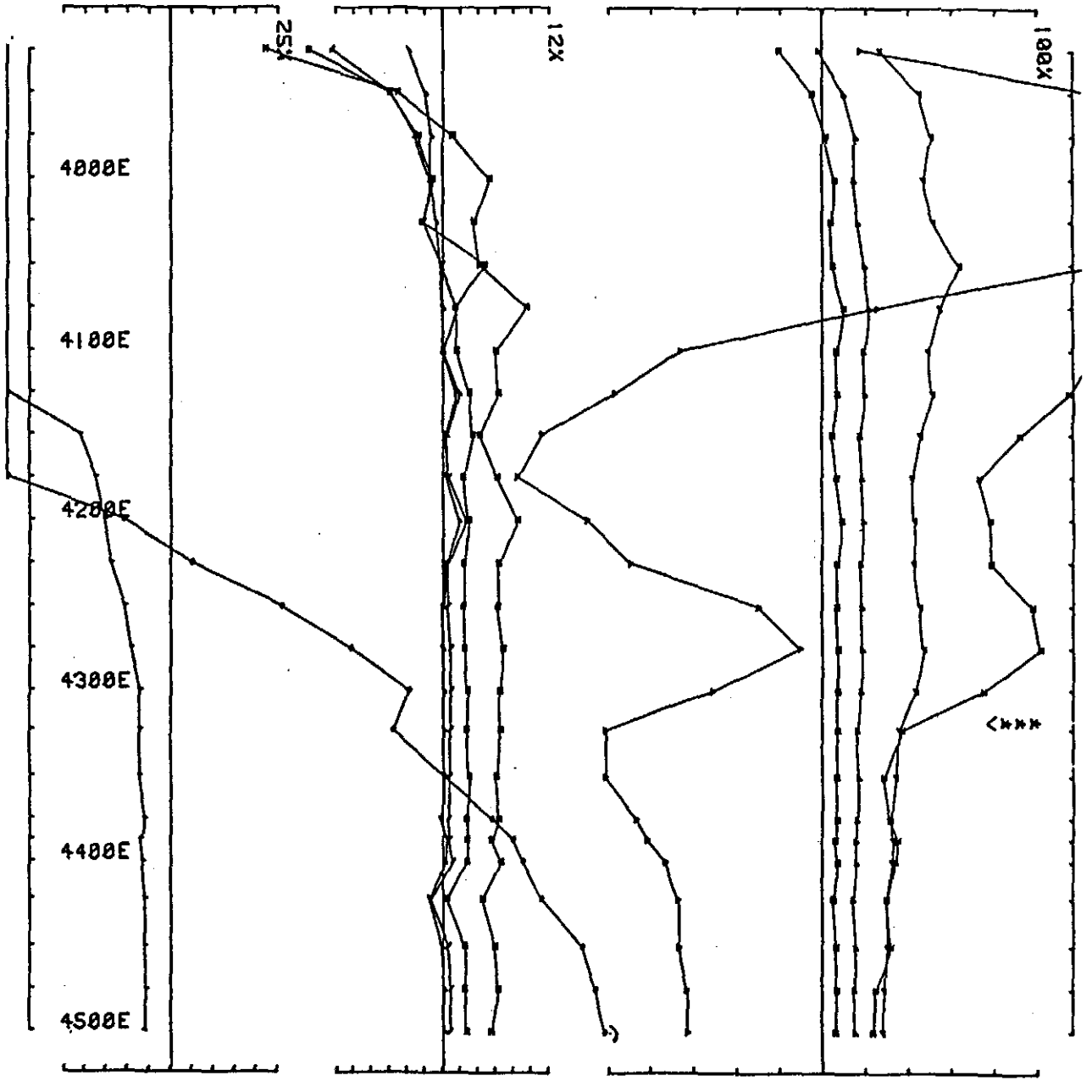
UTEM SURVEY conducted by PMM BM Job 8420

Project Area South Charter Survey for Aberfoyle freq(hz) 26.230

Loopno 8002 Line 3600N component Hz secondary Ch 1 .

135

142136



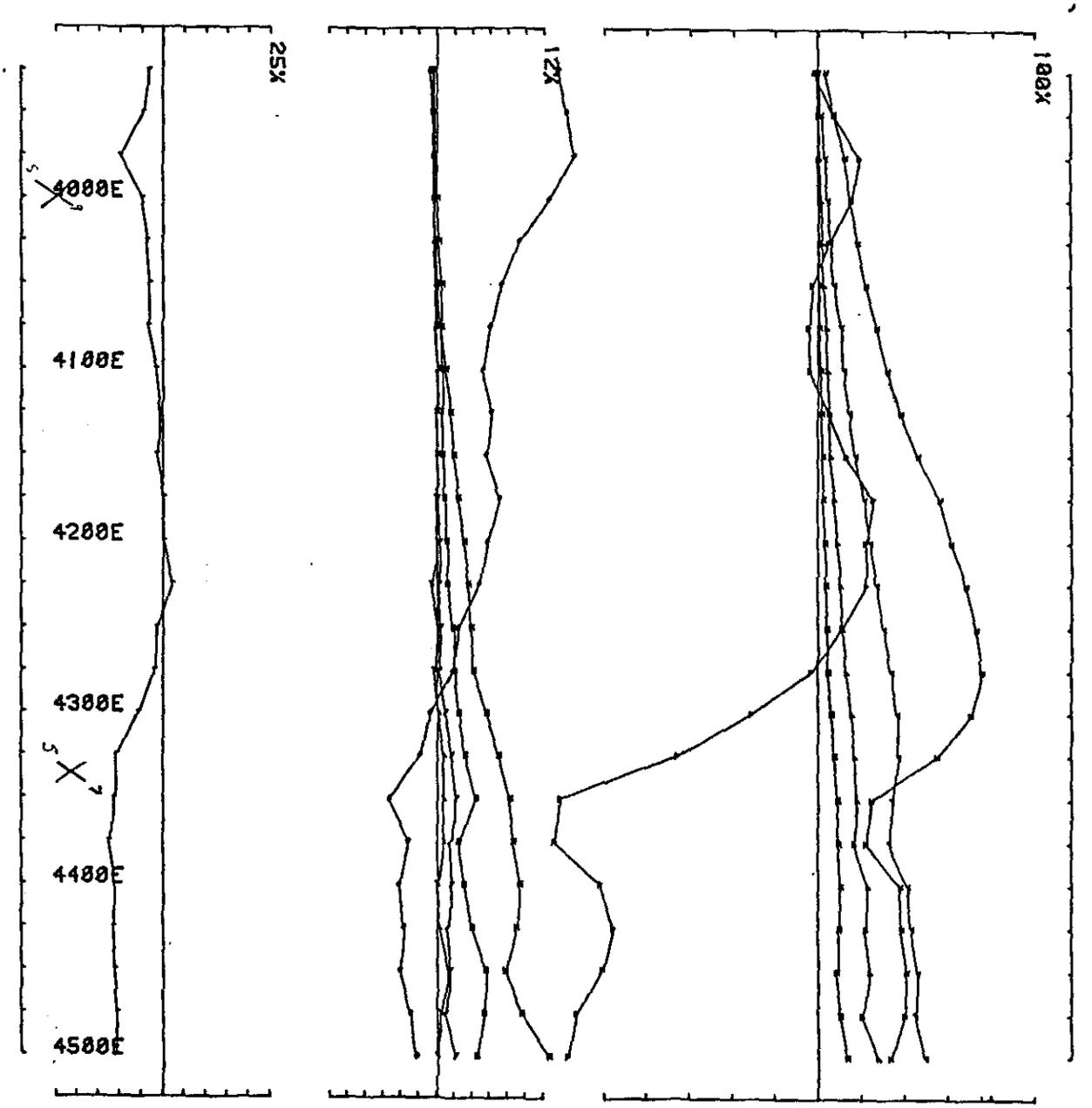
UTEM SURVEY conducted by PMM BM Job 8420

Project Area South Charter Survey for Aberfoyle Freq(hz) 26.230

Loopno 8002 Line 3600N component Hz secondary Ch 1 .

136

142137



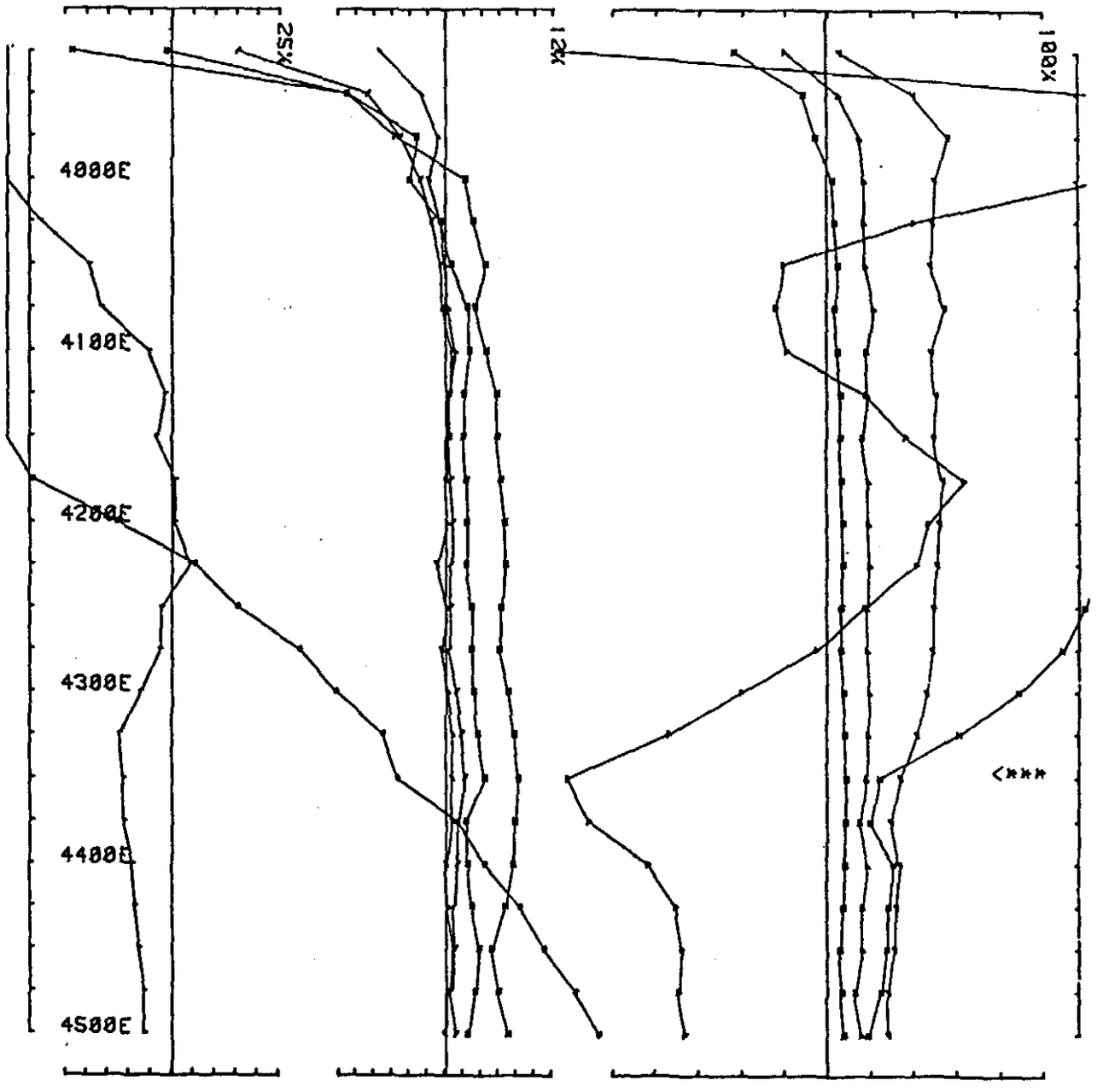
UTEM SURVEY conducted by PMM BM Job 8420

Project Area South Charter Survey for Aberfoyle freq(hz) 26.230

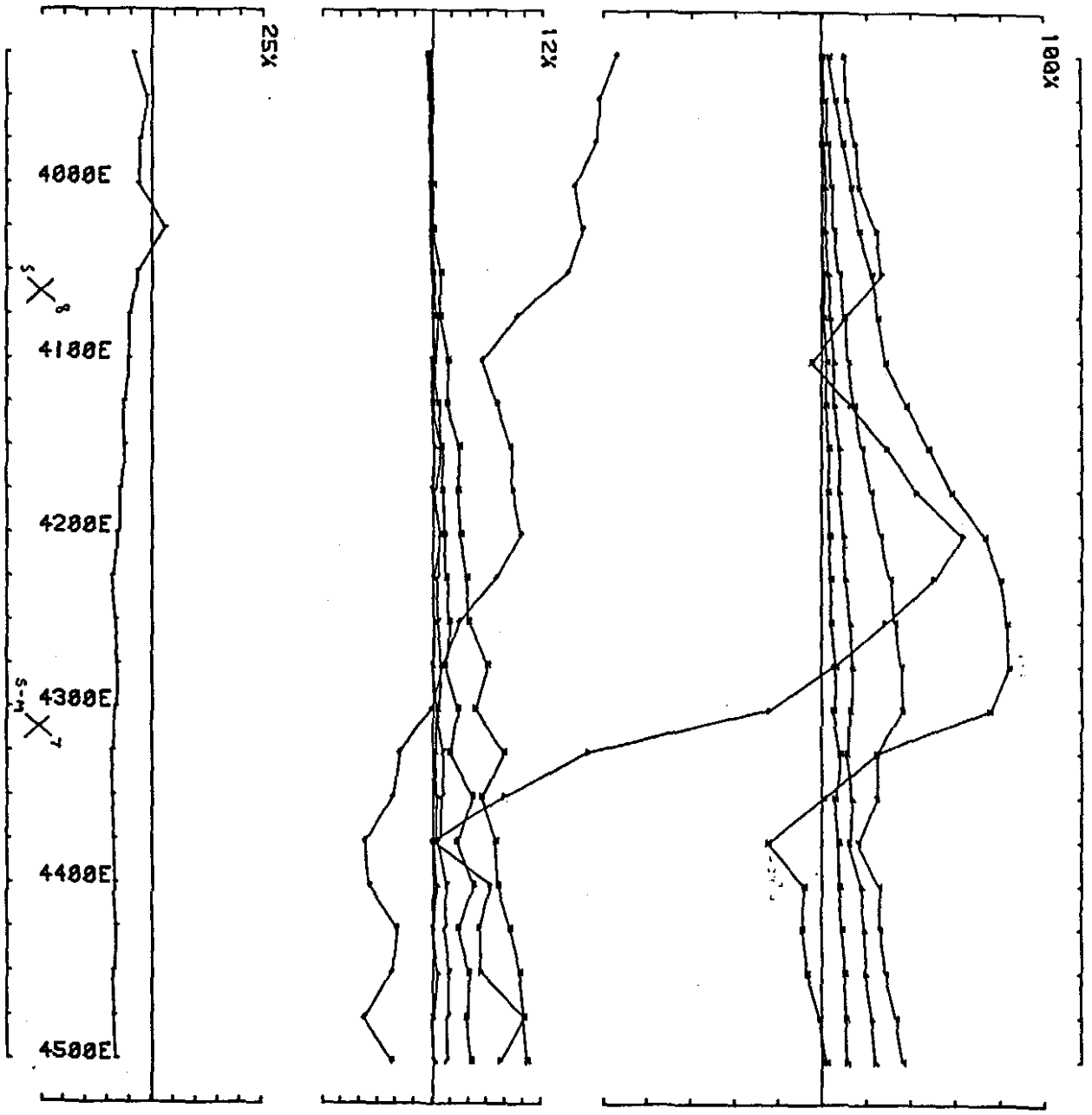
Loopno 0002 Line 3700N component Hz secondary Ch 1 .

137

142138



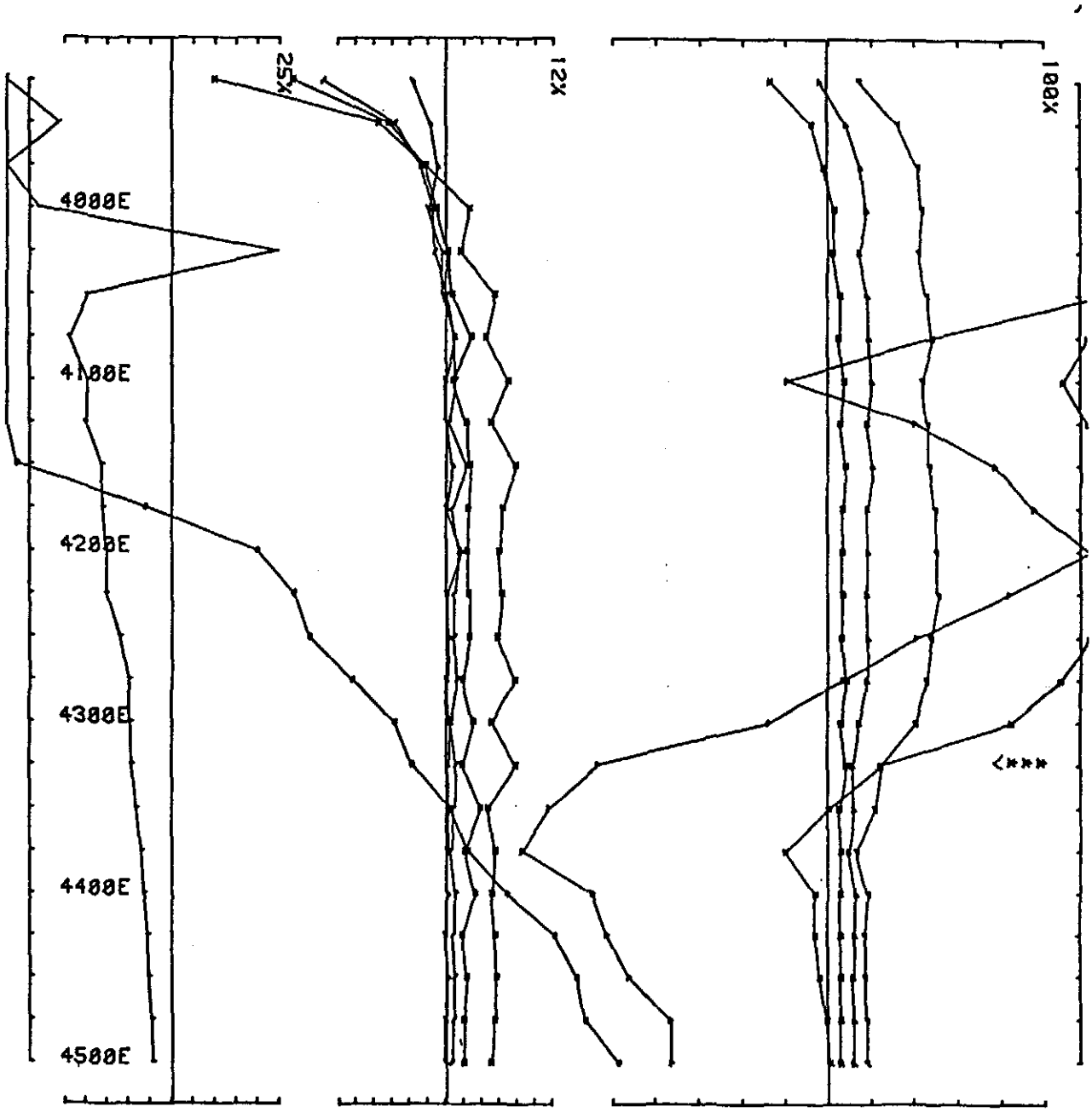
UTEM SURVEY conducted by PMM BM Job 8420
Project Area South Charter Survey for Aberfoyle freq(hz) 26.230
Loopno 0002 Line 3700N component Hz secondary Ch 1 .



UTEM SURVEY conducted by PMM BM Job 8420

Project Area South Charlier Survey for Aberfoyle freq(hz) 26.230

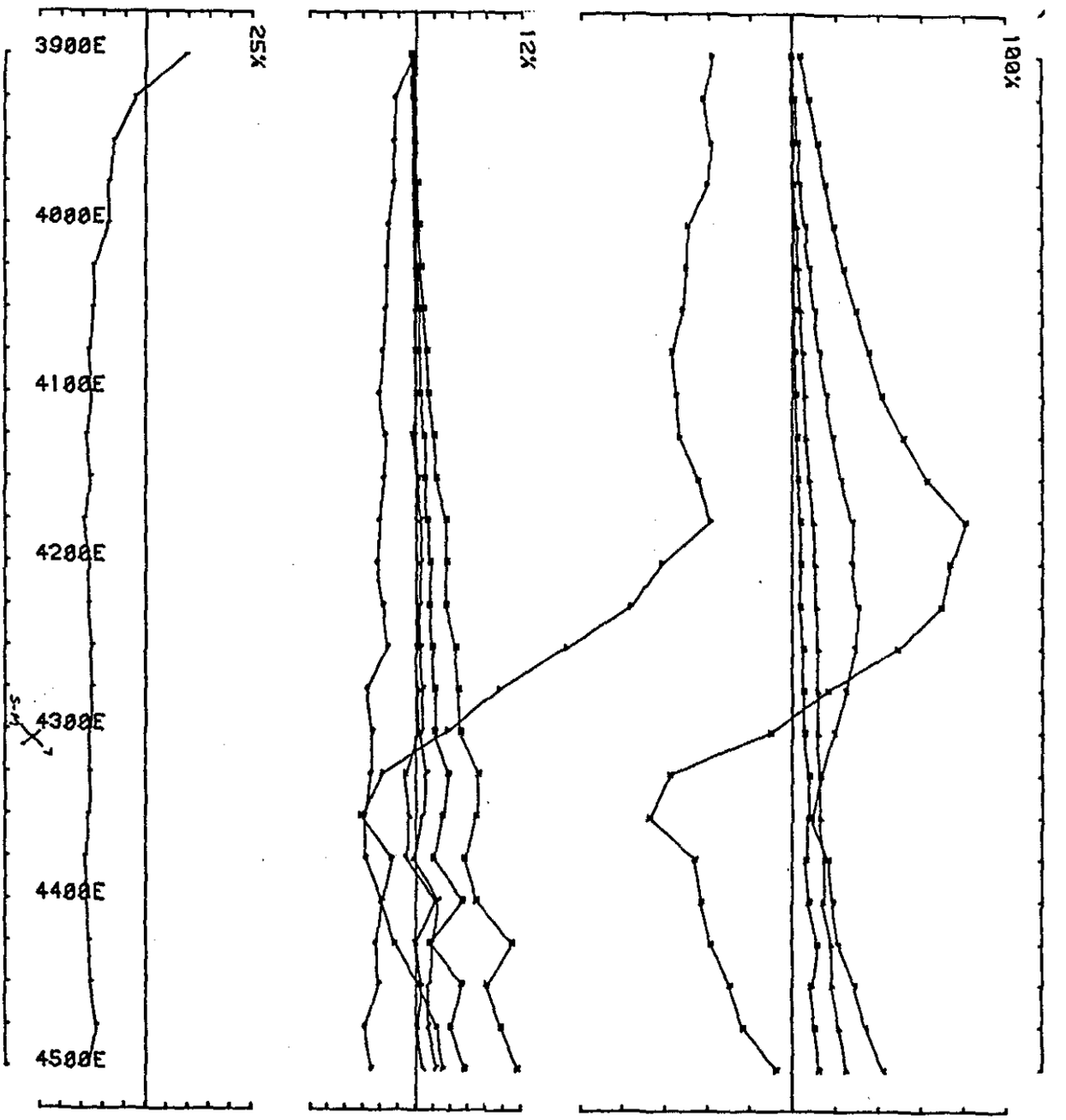
Loopno 0002 Line 3800N component Hz secondary Ch 1 .



UTEM SURVEY conducted by PMM BM Job 8420

Project Area South Charter Survey for Aberfoyle freq(hz) 26.230

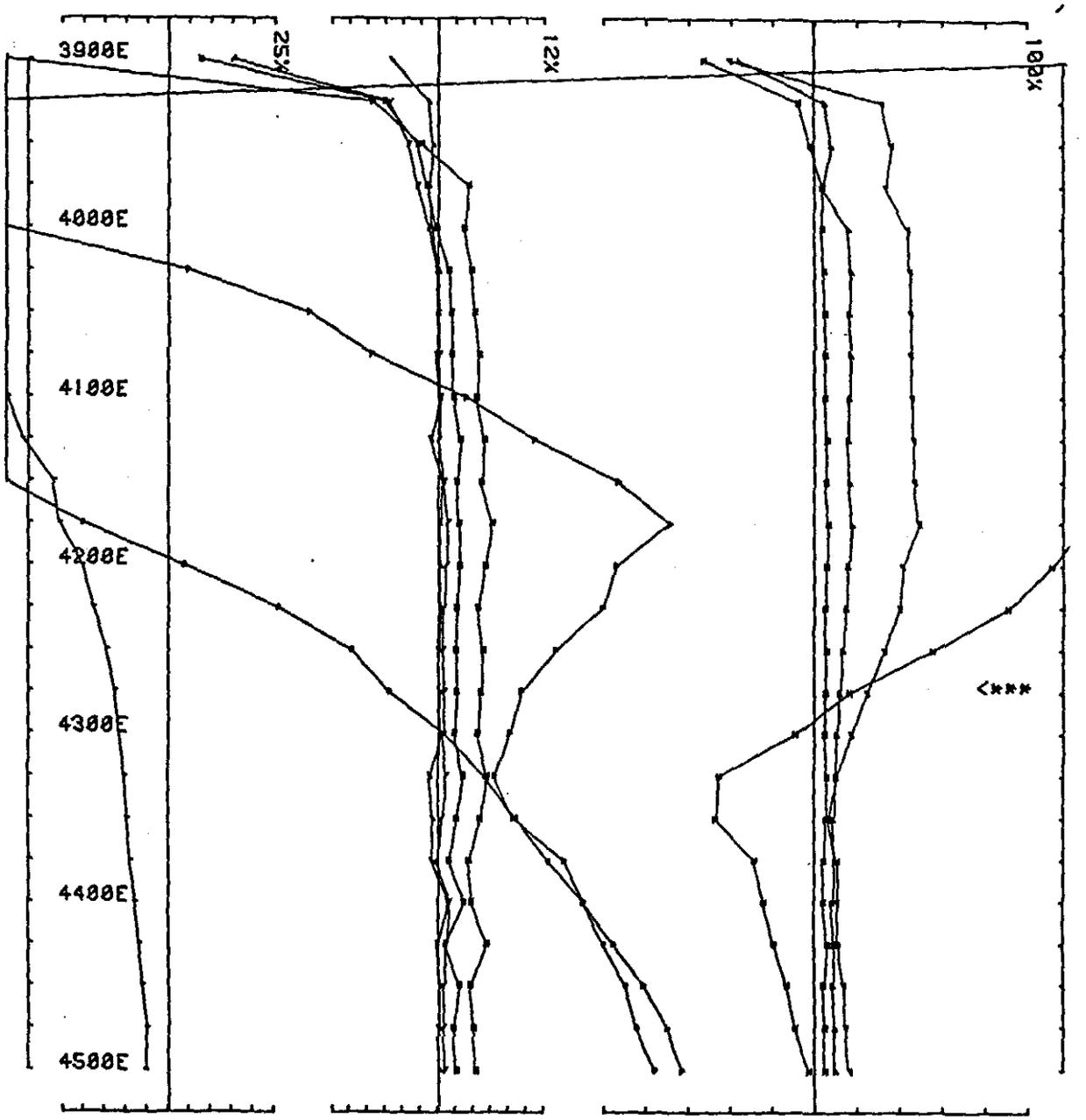
Loopno 0002 Line 3800N component Hz secondary Ch 1 .



UTEM SURVEY conducted by PMM BM Job 8420

Project Area South Charter Survey for Aberfoyle freq(hz) 26.230

Loopno 0002 Line 3900N component Hz secondary Ch 1 ,



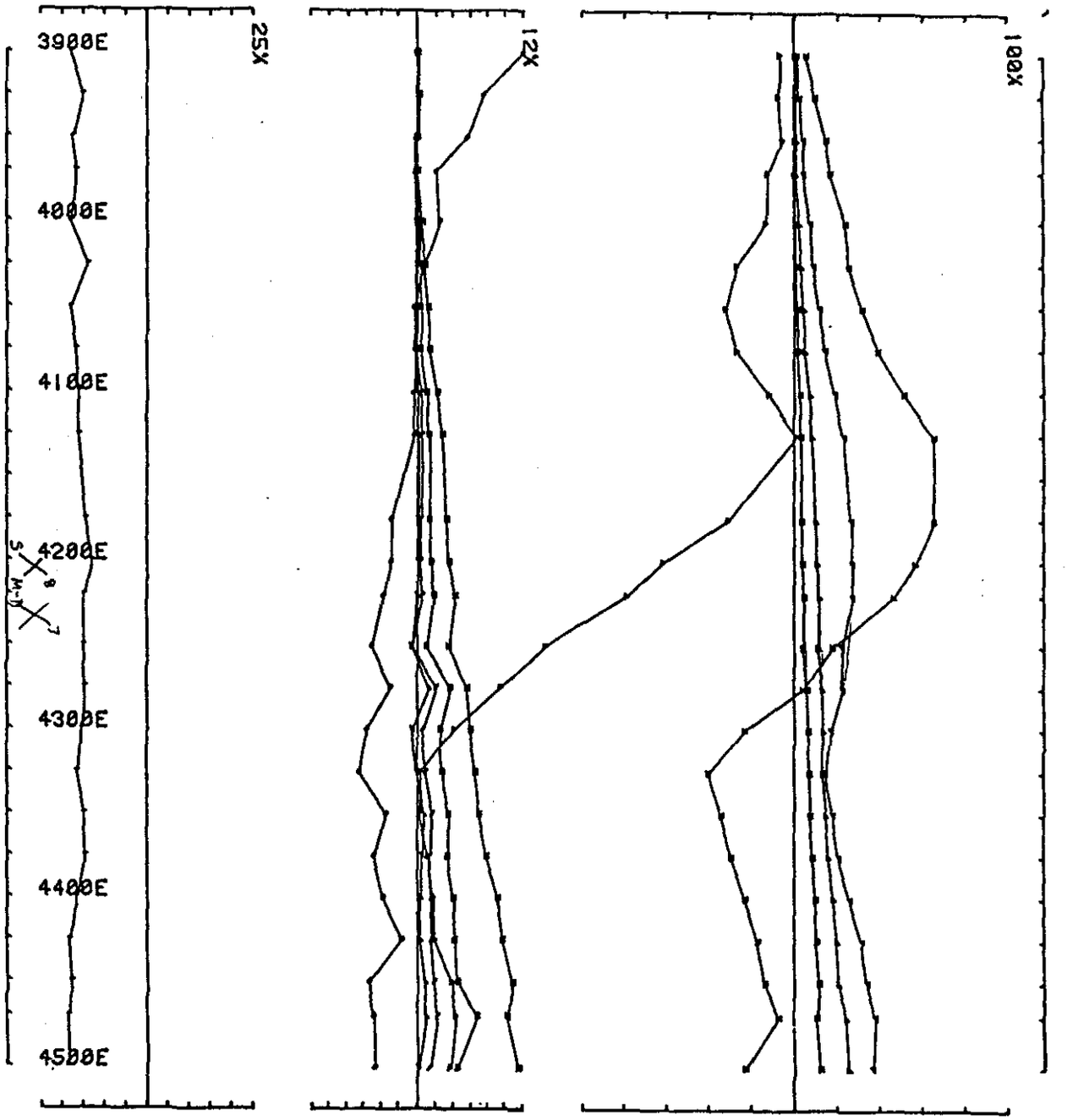
UTEM SURVEY conducted by PMM BM Job 8420

Project Area South Charter Survey for Aberfoyle freq(hz) 26.230

Loopno 0002 Line 3900N component Hz secondary Ch 1 .

142

142143



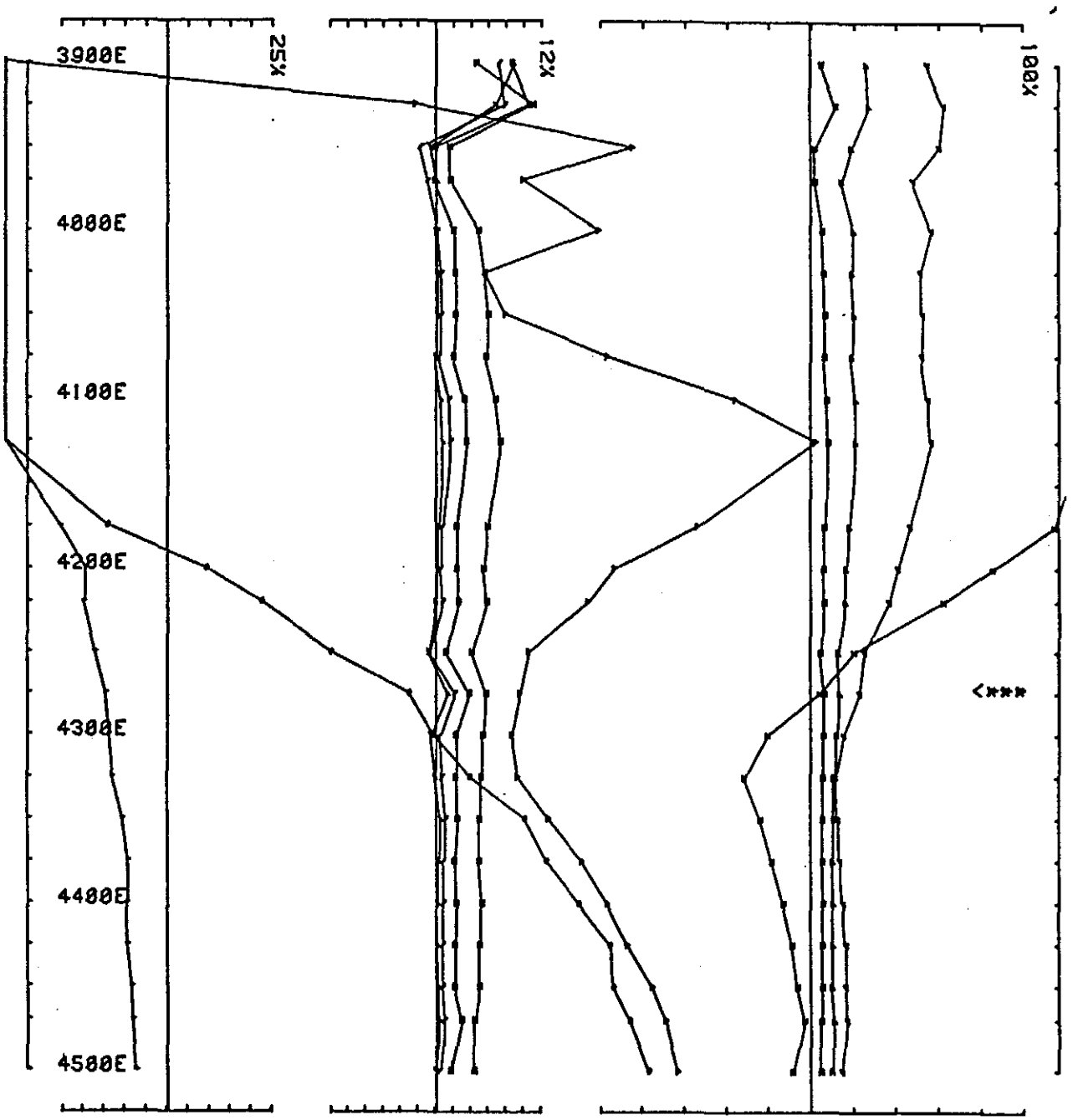
UTEM SURVEY conducted by PMM BM Job 8420

Project Area South Charter Survey for Aberfoyle freq(hz) 26.230

Loopno 8002 Line 4000N component Hz secondary Ch 1

143

142144



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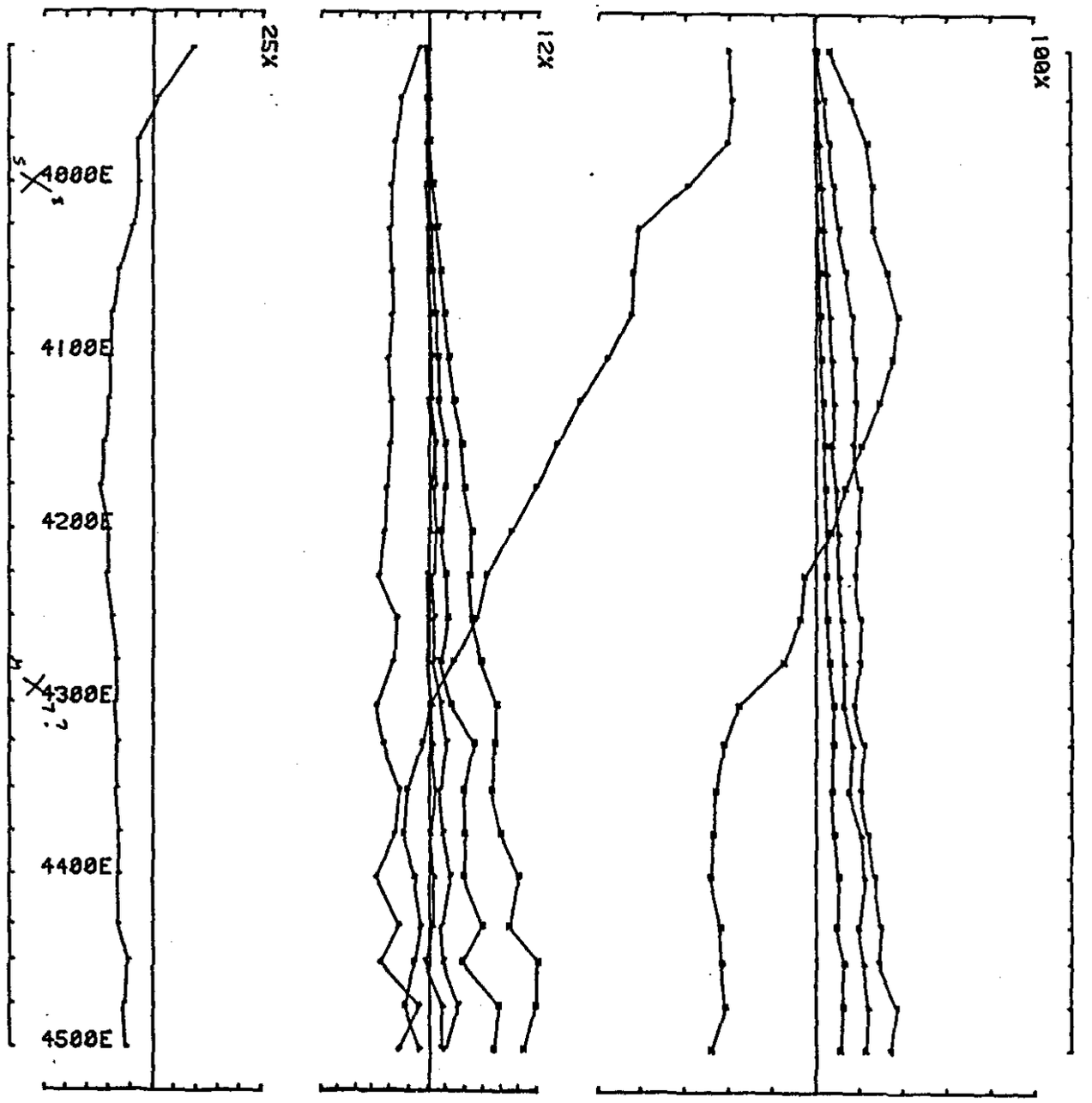
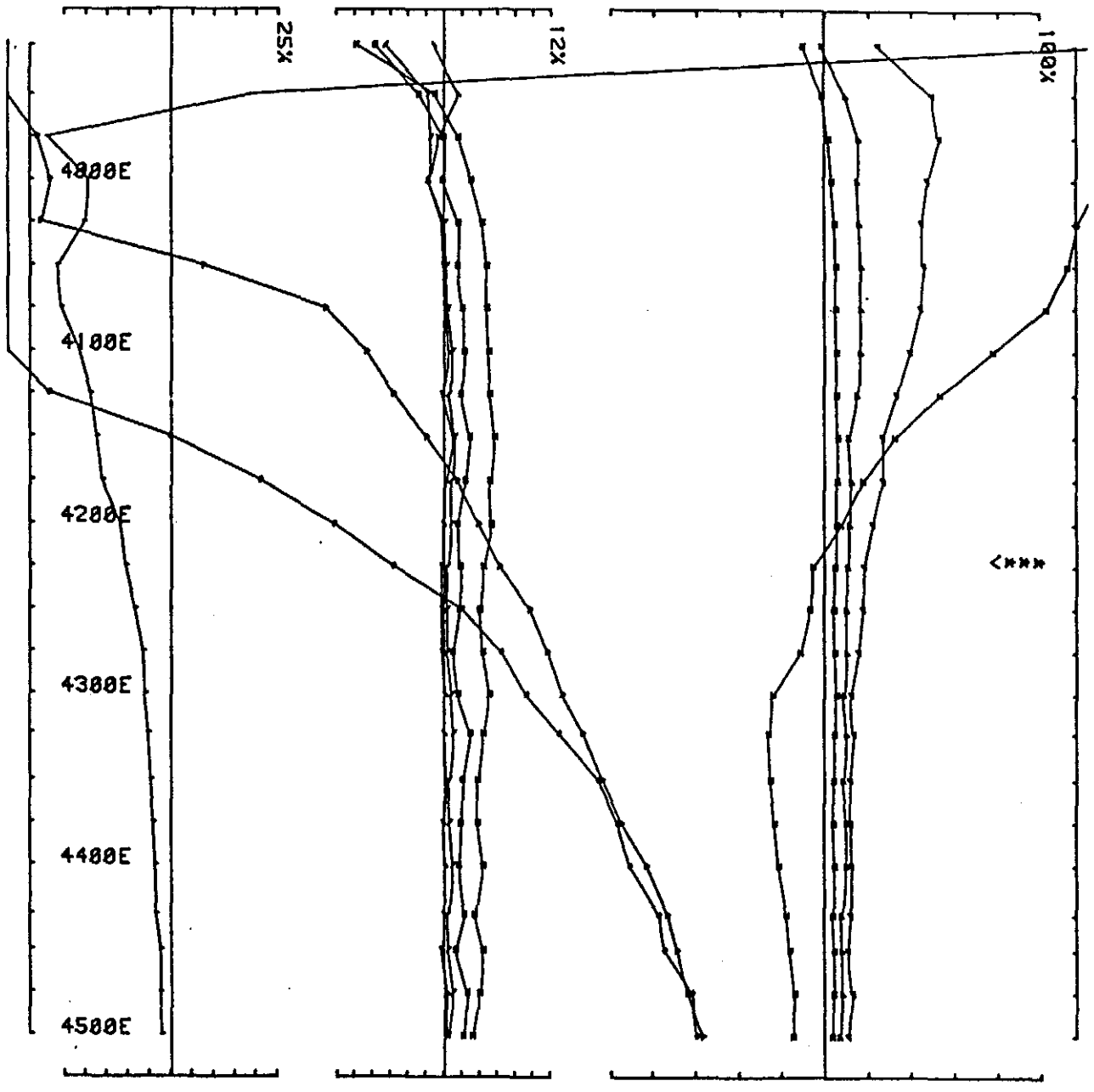


UTEM SURVEY conducted by PMM SM Job 8420

Project Area South Charter Survey for Aberfoyle freq(hz) 26.230

Loopno 0002 Line 4100N component Hz secondary Ch 1



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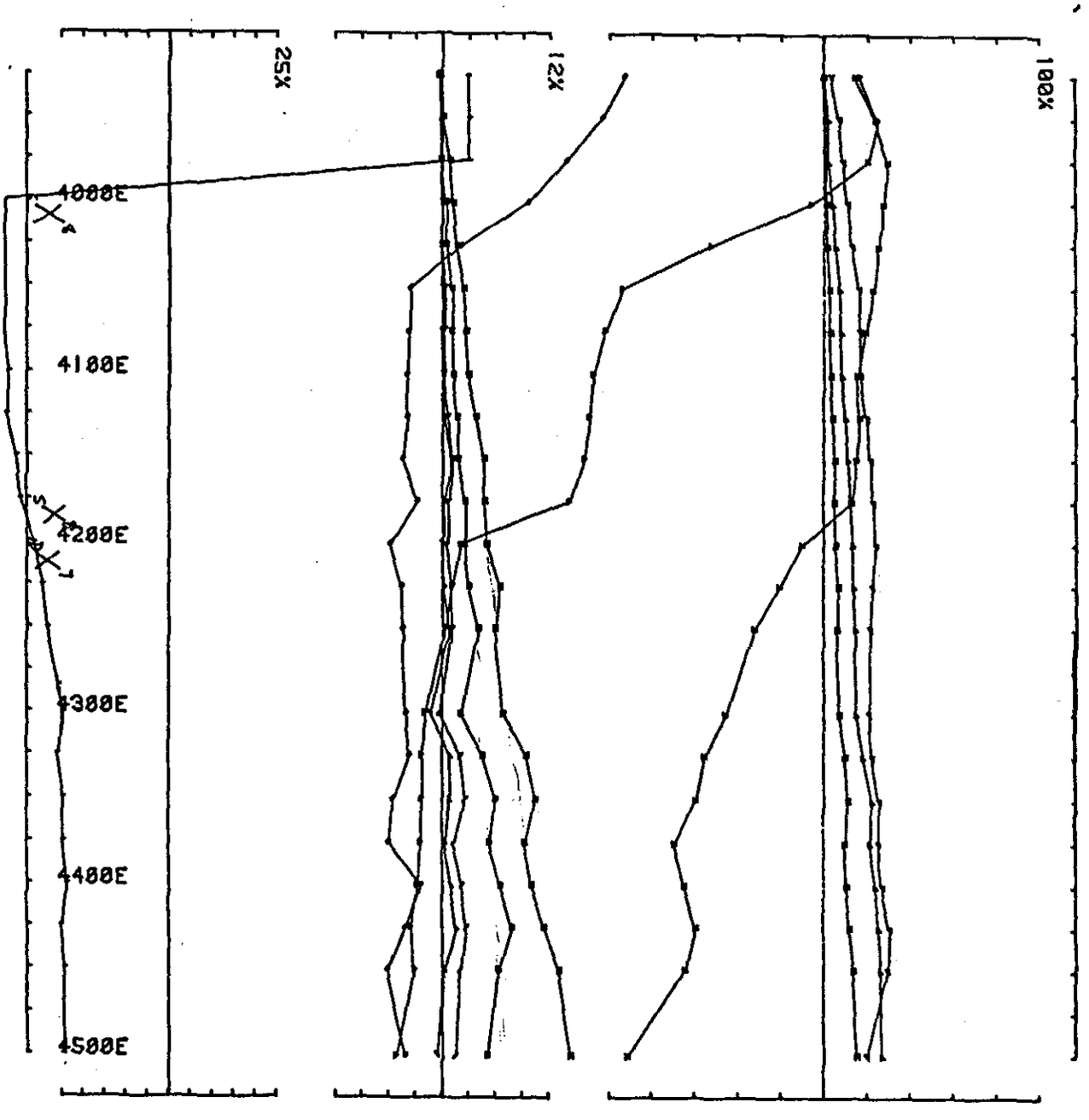

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Project Area South Charter Survey for Aberfoyle freq(hz) 26.230

Loopno 0002 Line 4200N component Hz secondary Ch 1 .

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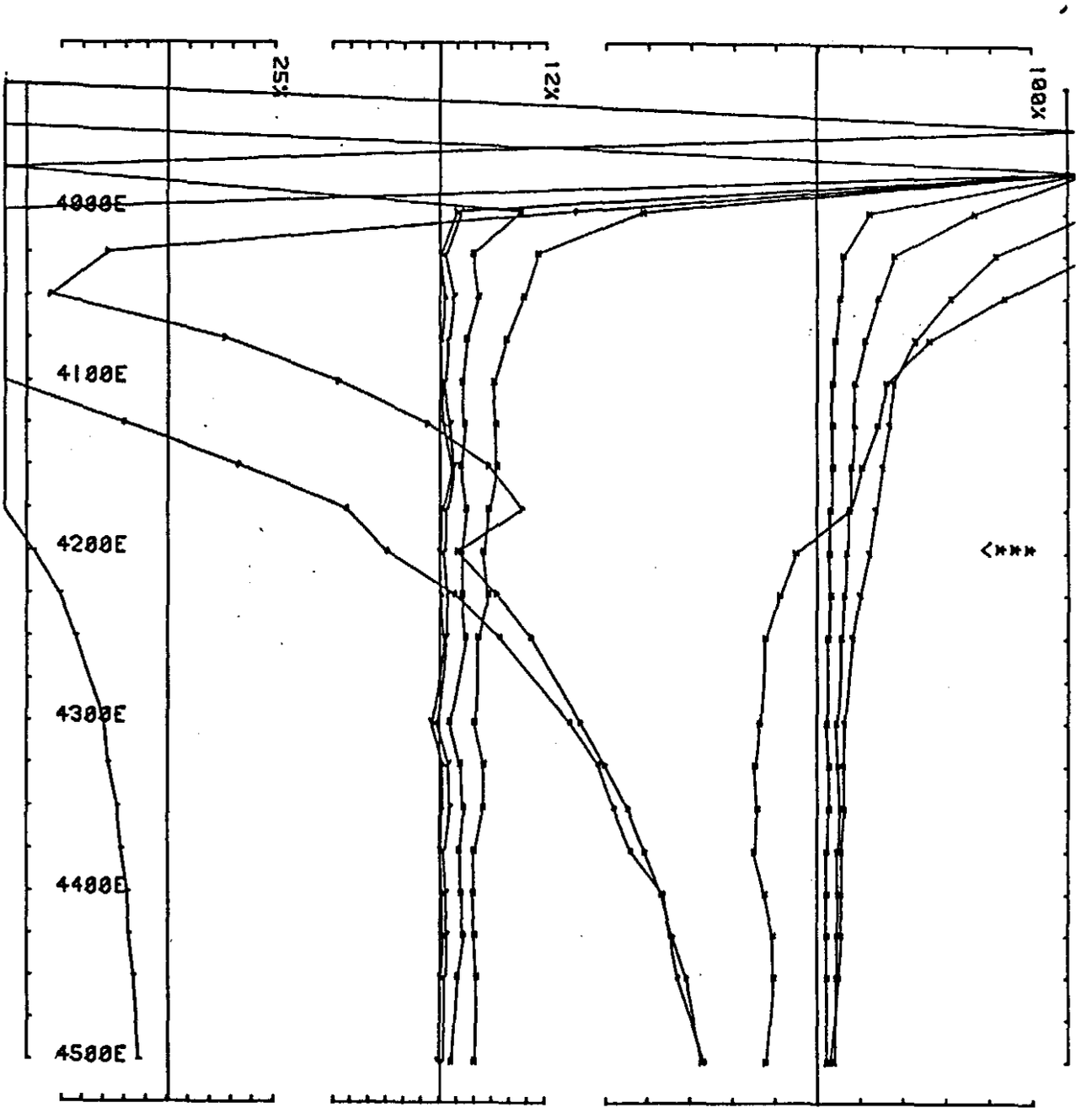

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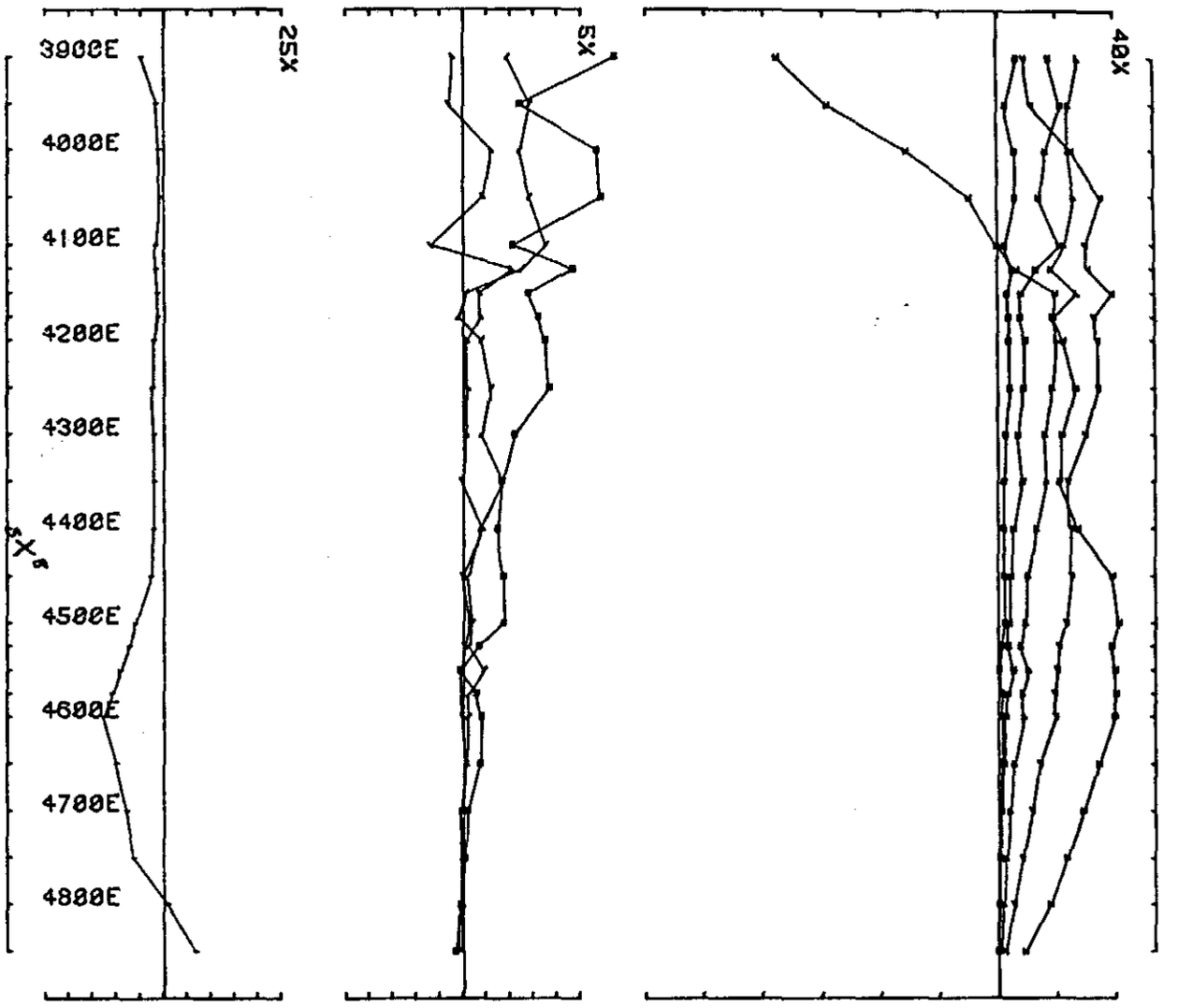
Loopno 8002 Line 4200N component Hz secondary Ch 1 .

148

142149

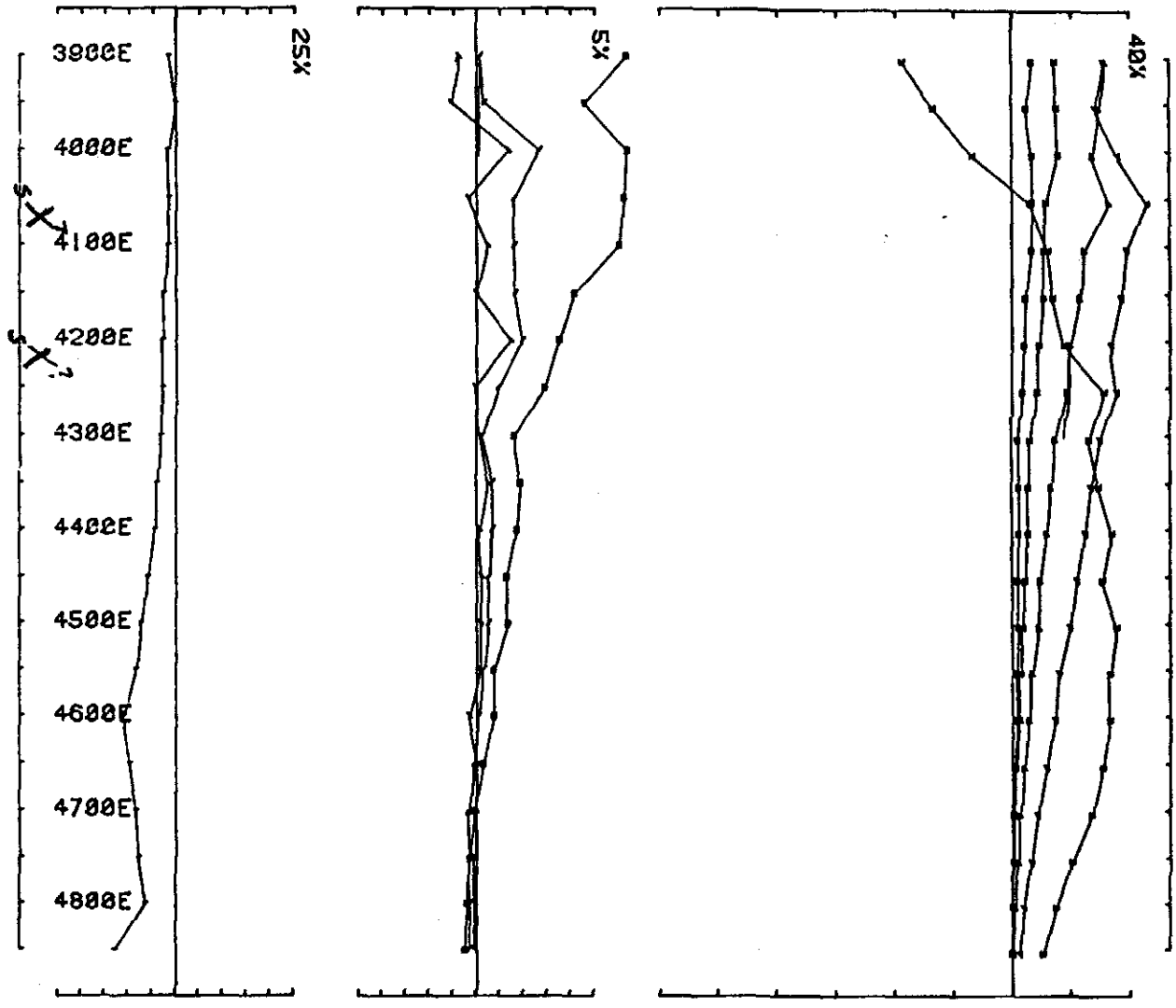


UTEM SURVEY conducted by PMM GJL Job 1201

Project Area South Mt. Charter Survey for Aberfoyle freq(hz) 26.230

Loopno 0014 Line 3200N component Hz secondary Ch 1

142150



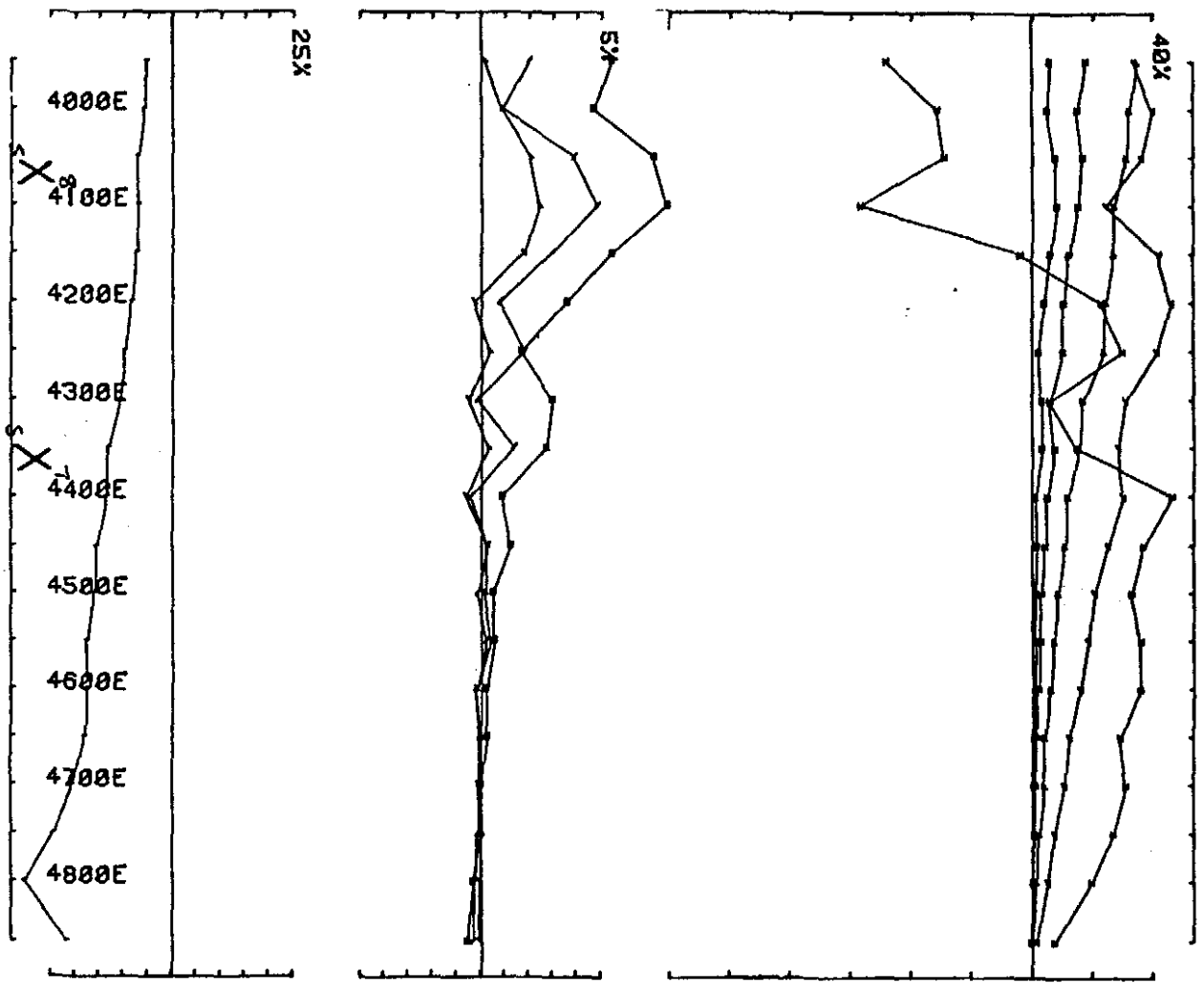
UTEM SURVEY conducted by PMM GJL Job 1201

Project Area South Mt. Charter Survey for Aberfoyle freq(hz) 26.230

Loopno 8014 Line 3400N component Hz secondary Ch 1

150

142151

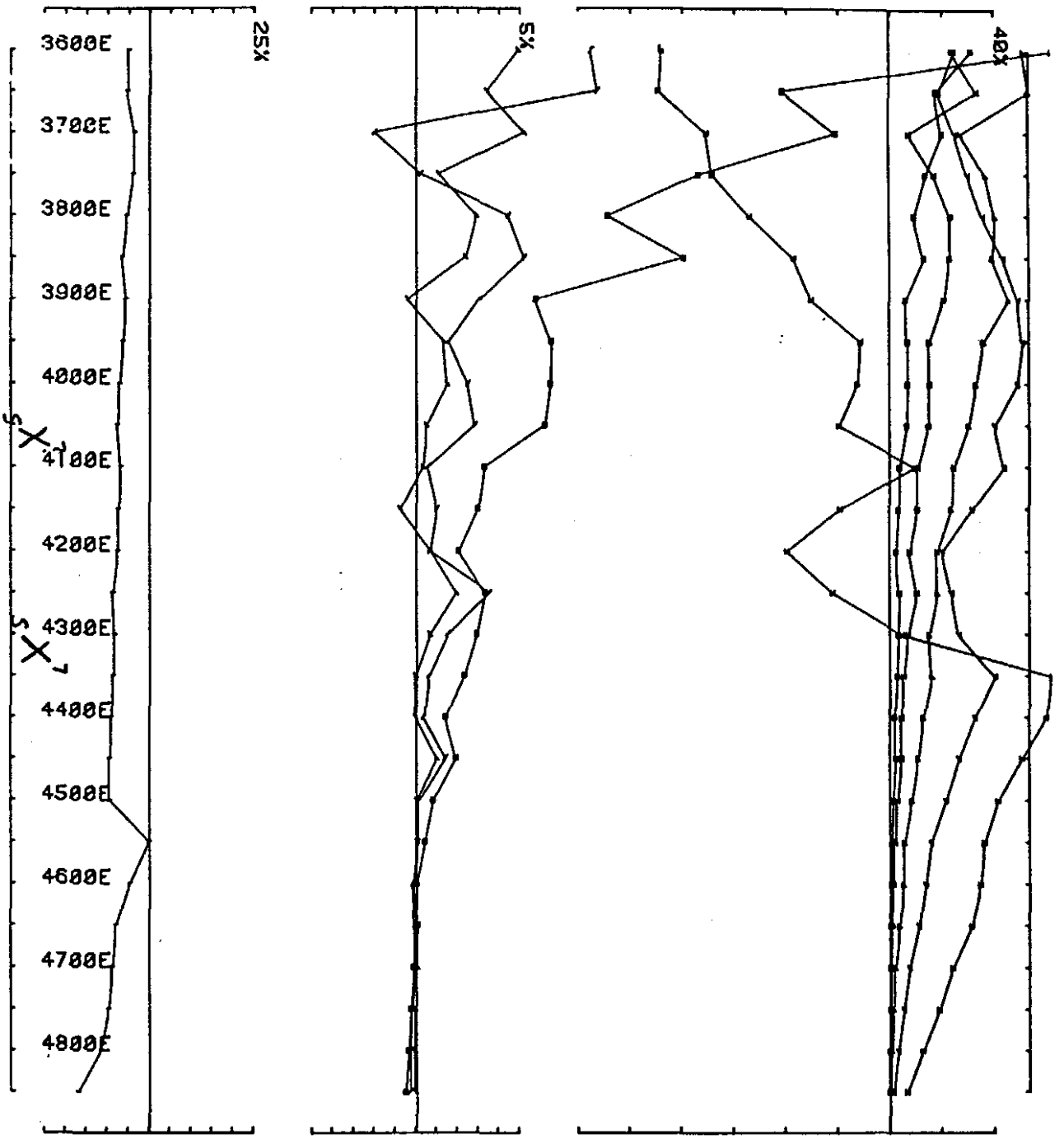


NUMBERING WRONG ?

UTEM SURVEY conducted by PMM GJL Job 1201
Project Area South Mt. Charter Survey for Aberfoyle freq(hz) 26.230
Loopno 0014 Line 3600N component Hz secondary Ch 1.

151

142152



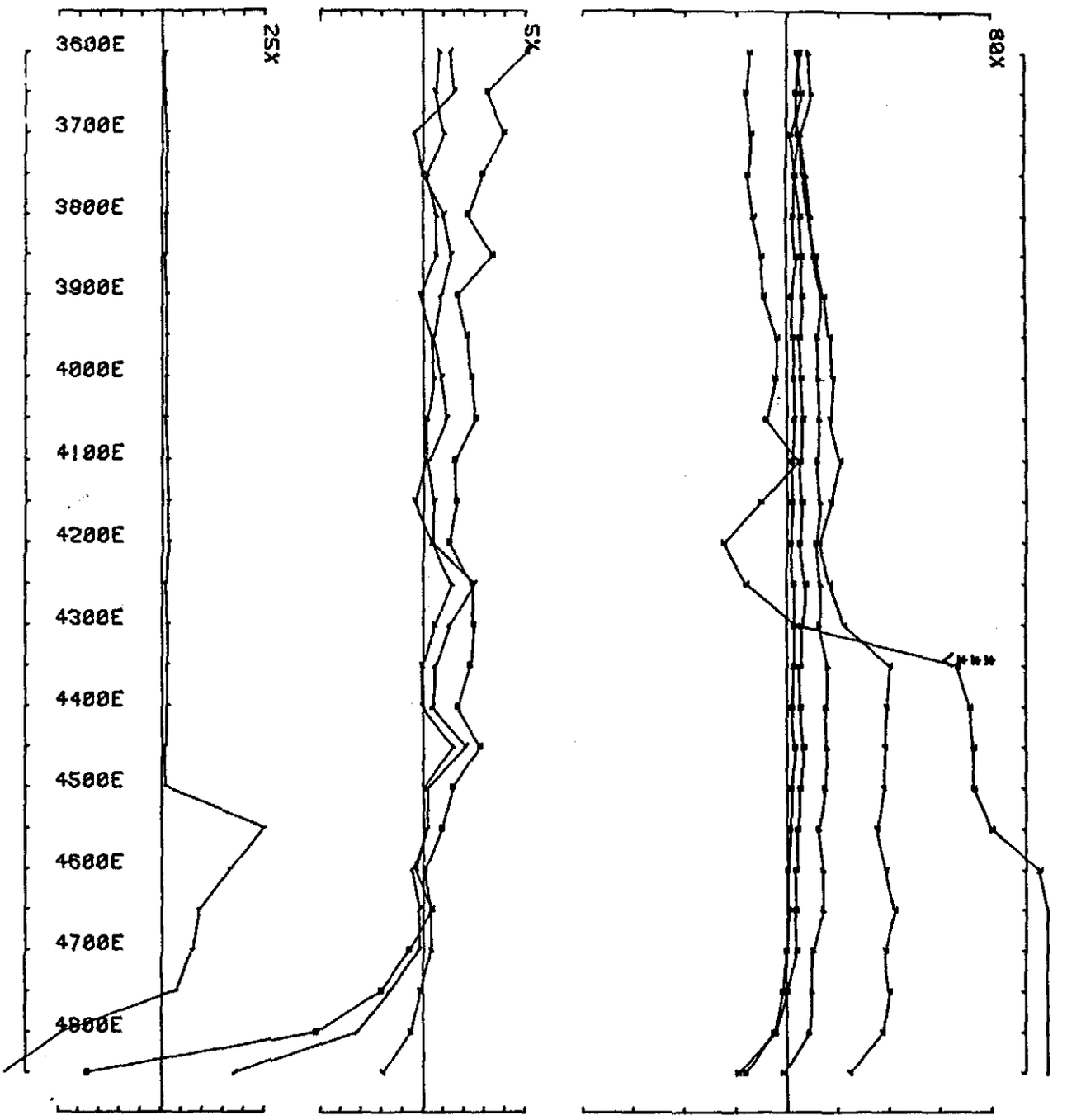
UTEM SURVEY conducted by PMM GJL Job 1201

Project Area South Mt. Charter Survey for Aberfoyle freq(hz) 26.230

Loopno 0014 Line 3800N component Hz secondary Ch 1

152

142153



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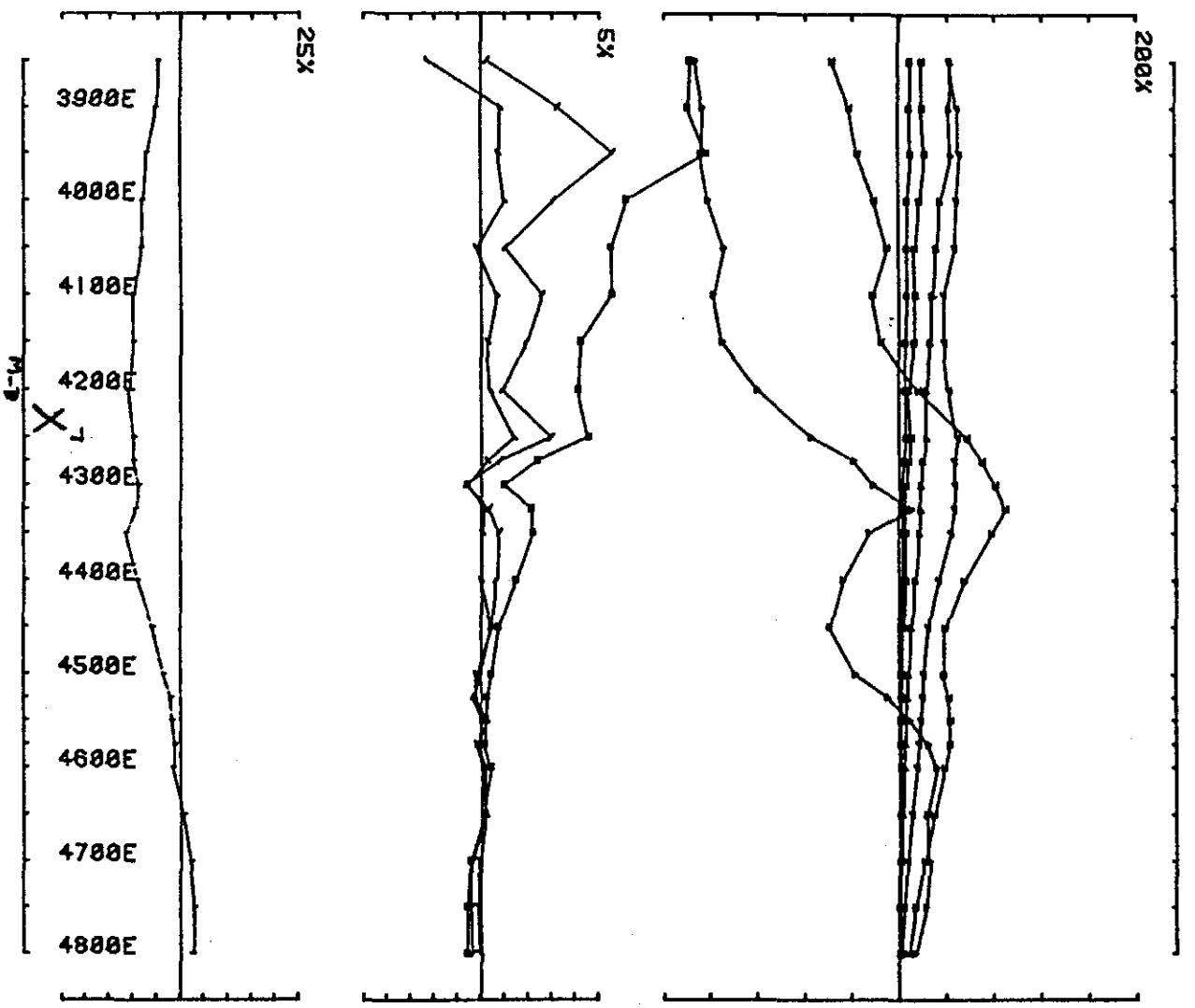
Project Area South Mt. Charter Survey for Aberfoyle freq(hz) 26.230

Loopno 0014 Line 3800N component Hz secondary Ch 1

153

142154



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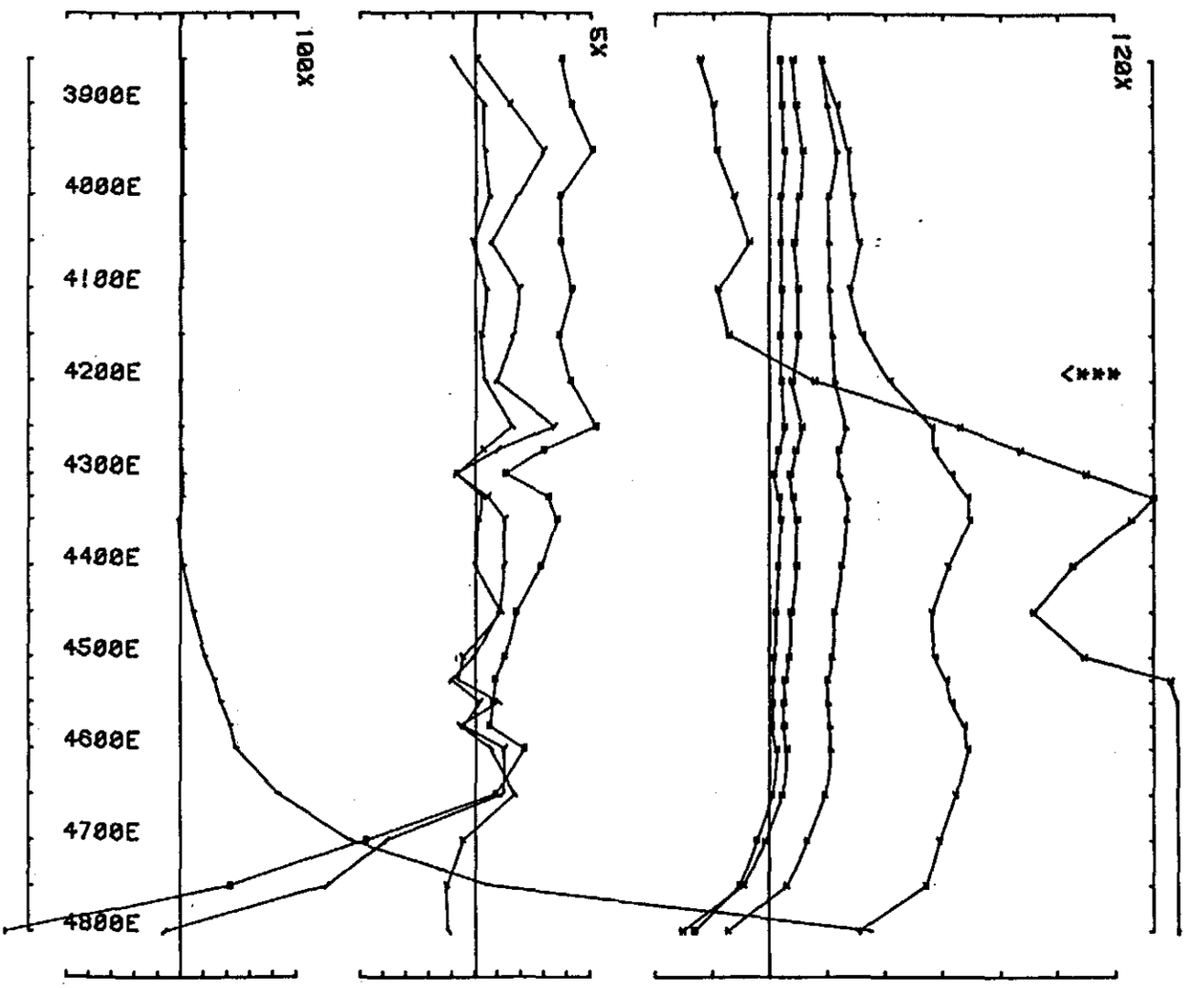
Project Area South Mt. Charter Survey for Aberfoyle freq(hz) 26.230

Loopno 14 Line 4000N component Hz secondary Ch 1 .

154

142155



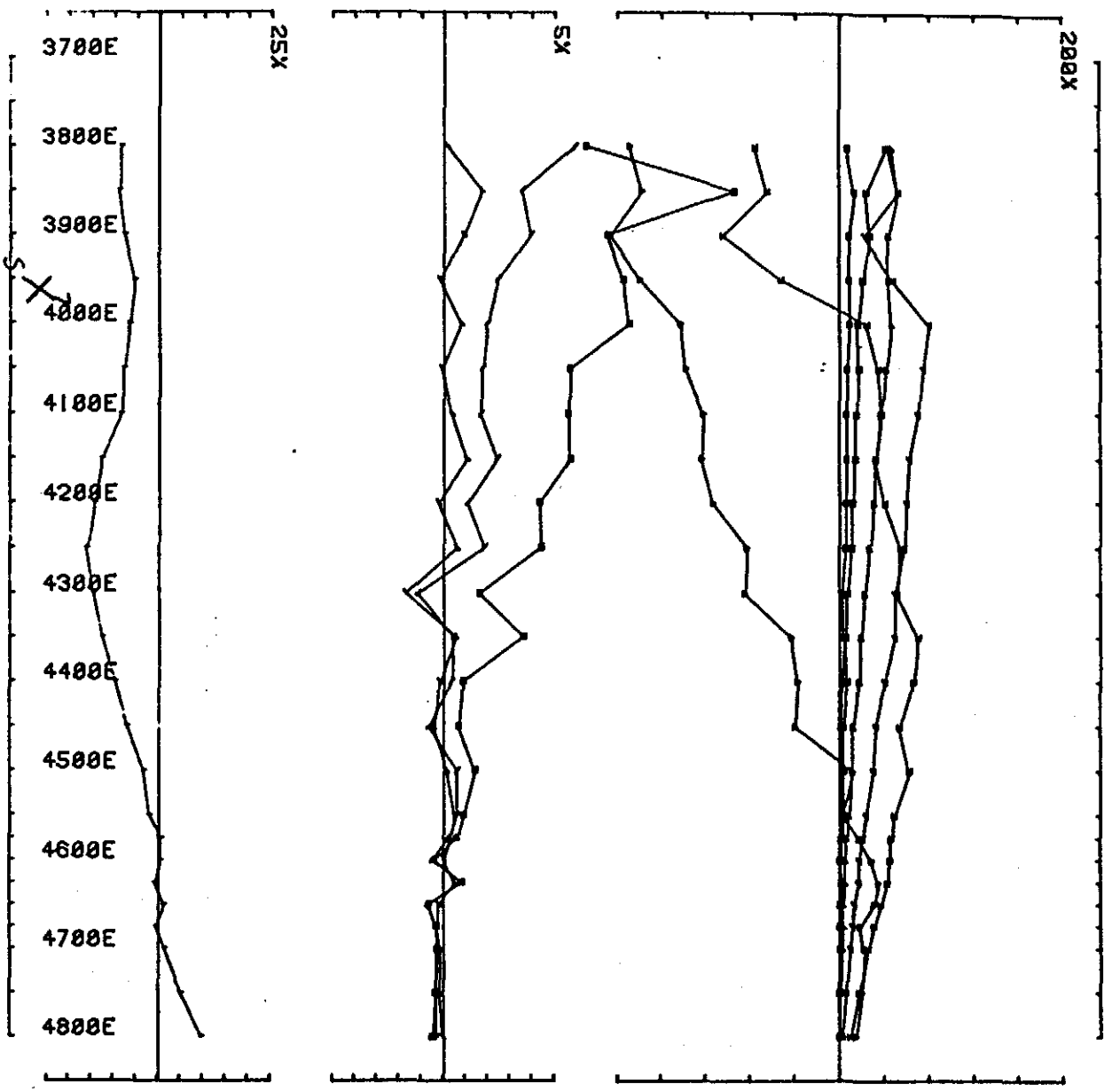
UTEM SURVEY conducted by PMM GJL Job 1201

Project Area South Mt. Charter Survey for Aberfoyle freq(hz) 26.230

Loopno 8014 Line 4000N component Hz secondary Ch 1

155

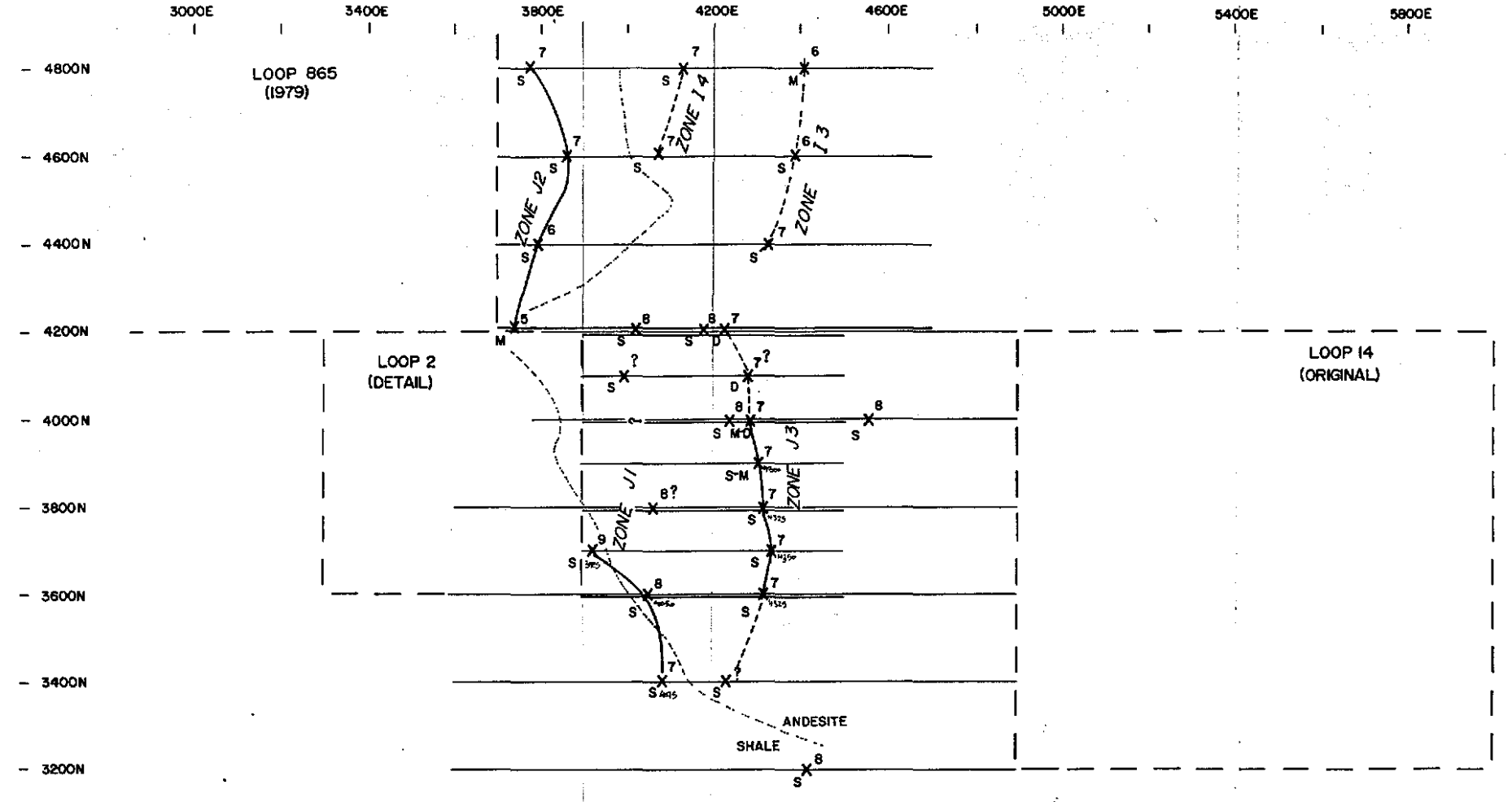
142156



UTEM SURVEY conducted by PMM GJL Job 1201

Project Area South Mt. Charter Survey for Aberfoyle freq(hz) 26.230

Loopno 14 Line 4200N component Hz secondary Ch 1



LEGEND

- LOOP EDGE
- LINE COVERED ONCE
- LINE COVERED TWICE
- LINE COVERED THREE TIMES
- DEFINITE CORRELATION
- POSSIBLE CORRELATION
- Number of latest channel affected
- UTEM CROSSOVER
- Depth to top where S : SHALLOW (50m; M : MEDIUM 50 - 100m; D : DEEP > 100m
- GEOLOGICAL CONTACT

5 cm

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Int.	Date	Init.	Date

SOUTH MT. CHARTER

UTEM ANOMALIES

Compiled: E.T.E

Drawn: E.T.E

Traced: E.U.M.

Checked:

Location Code:

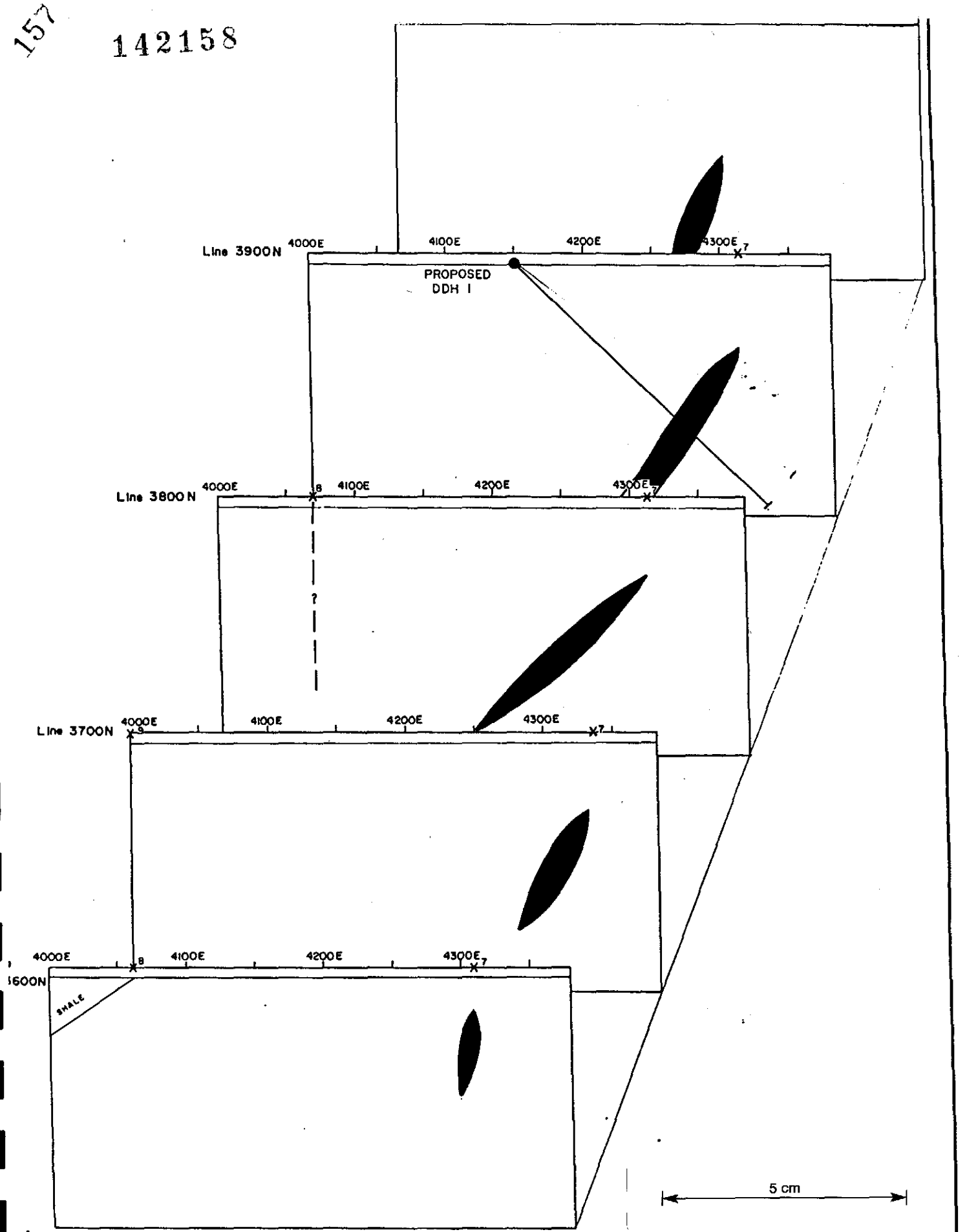
Scale: 1:10 000

Date: 26th July 1984

Plate No: Fig 1

157

142158



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REVISIONS			
Init.	Date	Init.	Date

Location Code:

INTERPRETATION OF ZONE J 3
WITH PROPOSED DRILL HOLE

Scale: 1: 2500 REDUCED

Date: 26th July 1984

Compiled: E T E
Drawn: E T E
Traced: E.J.M.
Checked:
Plate No- Figure 2

158

142159

APPENDIX V

NW MT. CHARTER PROSPECT,

UTEM SURVEY

159

142160
29 OCT 1984

REPORT ON THE DETAILED UTEM SURVEY ON THE NORTHWEST MT. CHARTER GEOCHEMICAL ANOMALY

DISTRIBUTION

A M Hespe
J R Sise
Aberfoyle Hawthorn

E T EADIE
Geophysicist
17 October 1984

I INTRODUCTION

A detailed UTEM survey covered the Northwest Mt. Charter soil geochemical anomaly during August 1984. This small area was missed in the blanket UTEM coverage of the Mackintosh-Hatfield licences because of its proximity to HEC transmission lines.

One moderately conductive body was detected close to the soil geochemical anomaly. The body is associated with a shallow IP anomaly (25 metre dipole frequency domain). There is an indication that this feature may be open to the north.

II INTERPRETATION

The UTEM transmitter loop was positioned to surround the area of interesting geochemistry, with the survey taking place on 100 metre spaced lines inside the loop. This procedure was optimum to maximise signal in the expected shallow dipping target and to overcome power line noise.

The continuously normalised UTEM data is included in Figures 1 to 6. A more effective presentation when surveying inside the loop is to normalize the data to the primary field at one point in the centre of the loop. This gives a much better representation of what is happening to the important secondary field. After this process, the data from any channel can be plotted on a plan, and contoured. The most subtle features can then be detected.

Figure 7 is the channel 8 (0.1 millisecond) data presented in this manner. At this early time, the shales on the western part of the grid dominate the response. There is also an anomaly to the east which is interpreted to be caused by the transmission line.

A similar pattern is evident on the channel 6 (0.4 millisecond) data in Figure 8.

A totally different pattern is seen in Figure 9 with the channel 4 (1.6 millisecond) data. The response due to the shales has died away while that due to the power line is relatively stronger. A third anomaly can now be seen, with its maximum amplitude on Lines 5600N and 5700N at about 3575E.

There are thus three anomalies on the grid; the shales, the power line and the third anomaly which will be referred to as the N.W. Mt Charter anomaly or Zone L.

Shale Anomaly

This anomaly is typical of the shale response that is observed elsewhere on the licence in that it has a very high amplitude at early times but decays rapidly leaving no response by later times (channel 5 to 4).

An examination of the regional IP and resistivity data (overlays to MAC 71) shows that this anomaly corresponds well with a large PFE and resistivity anomaly long assumed to be caused by the shales. On a more detailed scale, Figure 11 shows the pseudosection for line 5600N. The very broad PFE high and resistivity low that extends from west of 3000E to about 3400E (thickness of >400 metres) is typical of the overlying shale unit.

Power Line Anomaly

This large, long time constant anomaly is more difficult to dismiss than the shale anomaly because it is the most conductive body on the grid. However, the fact that the anomaly closely follows the transmission line for the whole strike length of the survey does suggest that the anomaly is due to the line itself. Support for this suggestion comes from the fact that a close analysis of the anomaly's decay curve indicates that the body has a very large strike length (>1 km). Therefore the anomaly is very unlikely to be caused by a bedrock conductor.

The N.W. Mt Charge Anomaly (Zone L)

This third conductor is much more complicated and is therefore more difficult to interpret than the other two. The response from this anomaly only begins to be detectible above background on the channel 4 (Figure 9) data. It is also seen in the later, channel 3 data (Figure 10). The largest amplitudes are on Lines 5600N and 5700N at about 3575E. To the ~~east~~ WEST of this, the amplitudes drop off slowly, suggesting a dip in this direction. To the west, the EAST

results are impossible to analysis because of the superposition of the strong power line response. The zone is open to the north.

From this information, the body appears to be a moderate to strong conductor (> 15 Siemens) with a strike length of > 100 metres and a gentle dip to the west. The shallowest point is somewhere to the east of 3575E on Line 5600N; the exact location and depth are unknown because of the dominance of the power line anomaly in the vicinity. At 3575E, the depth to the top of the body is estimated to be less than 100 metres but this is little better than a guess.

The accuracy of the preceding interpretation is severely limited because:

1) there is a large anomalous effect from the nearby powerline

2) the anomaly has not been closed off to the north

3) the geophysical community does not yet have much experience in interpreting inside-the-loop data

4) the amplitude of the anomaly is very small - barely above noise level.

A review of the frequency domain I.P. data in the area, aids the interpretation. On the licence scale (overlays to Plate MAC 71), it is clear that there is a strong PFE anomaly and a weak resistivity low in the general area of the UTEM anomaly. The strongest part of the I.P. anomaly (Line 5600N - Figure 11) is offset from the UTEM to the east. This is in the area where the power line dominates the UTEM response.

The best joint interpretation is that the anomalous body comes very close to surface at about 3700E (depth to top < 20 metres) and that it has a shallow dip to the west. The fact that there is not much I.P. response on Line 5700N, where there is a UTEM anomaly,

suggests that the body plunges to the north and is too deep for the 25 metre I.P. data to detect.

An alternate interpretation of the I.P. data is that it is just detecting stringer mineralisation that may be closely associated with more massive ore, but that it is not seeing the good conductor, because it may be too deep, even on L5600N. This hypothesis is supported by the fact that there is very little resistivity anomaly associated with the PFE anomaly.

III CONCLUSIONS

The interpretation of the Northwest Mt Charter UTEM anomaly is clearly not very exact at this time. Some test work with a smaller scale EM unit, the Genie, may help to solve a few of the problems in the immediate future and this summers UTEM programme will extend the coverage of the zone to the north. However, because of the HEC transmission line, there will always be interpretation problems.

With the present data, I am confident that the target could be intersected by drilling a hole steeply inclined to the east from 5600N, 3525E. Because this is presently the best drill target on the Hatfield licence (close to or within Hellyer stratigraphy, good geochemistry, UTEM, I.P.), a drill hole is warranted to test this zone, even before extending the UTEM coverage. The hole should be cased in preparation for downhole EM in the event that the conductor is missed because of the possible short strike length of the body.

ETE:WB

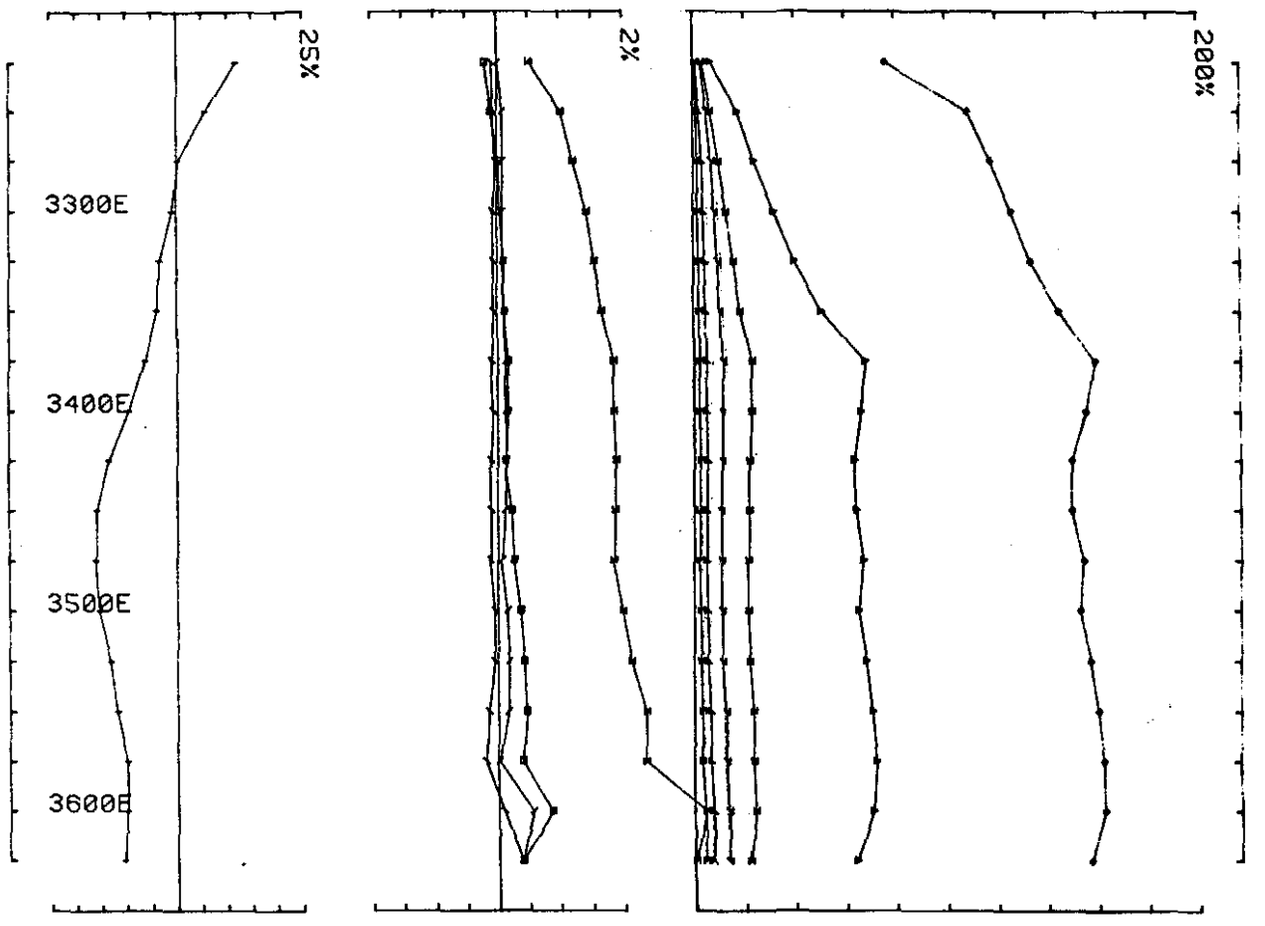


FIGURE 1

UTEM SURVEY conducted by PMM BJS Job 844901

Project Area Mt. Charter Survey for Aberfoyle Exploration freq(hz) 26.230

Loopno 0001 Line 5200N component Hz secondary Ch 1

142167

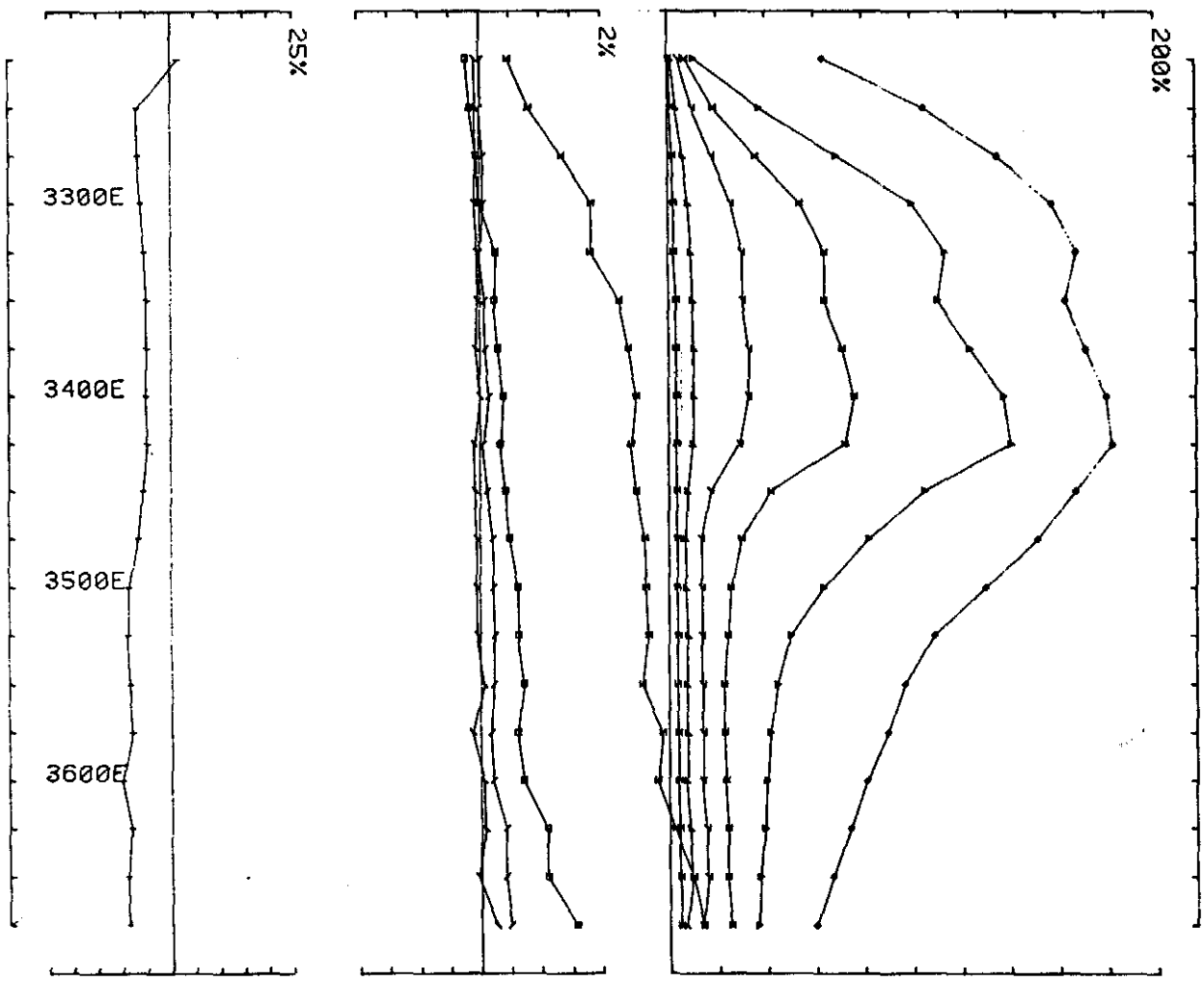
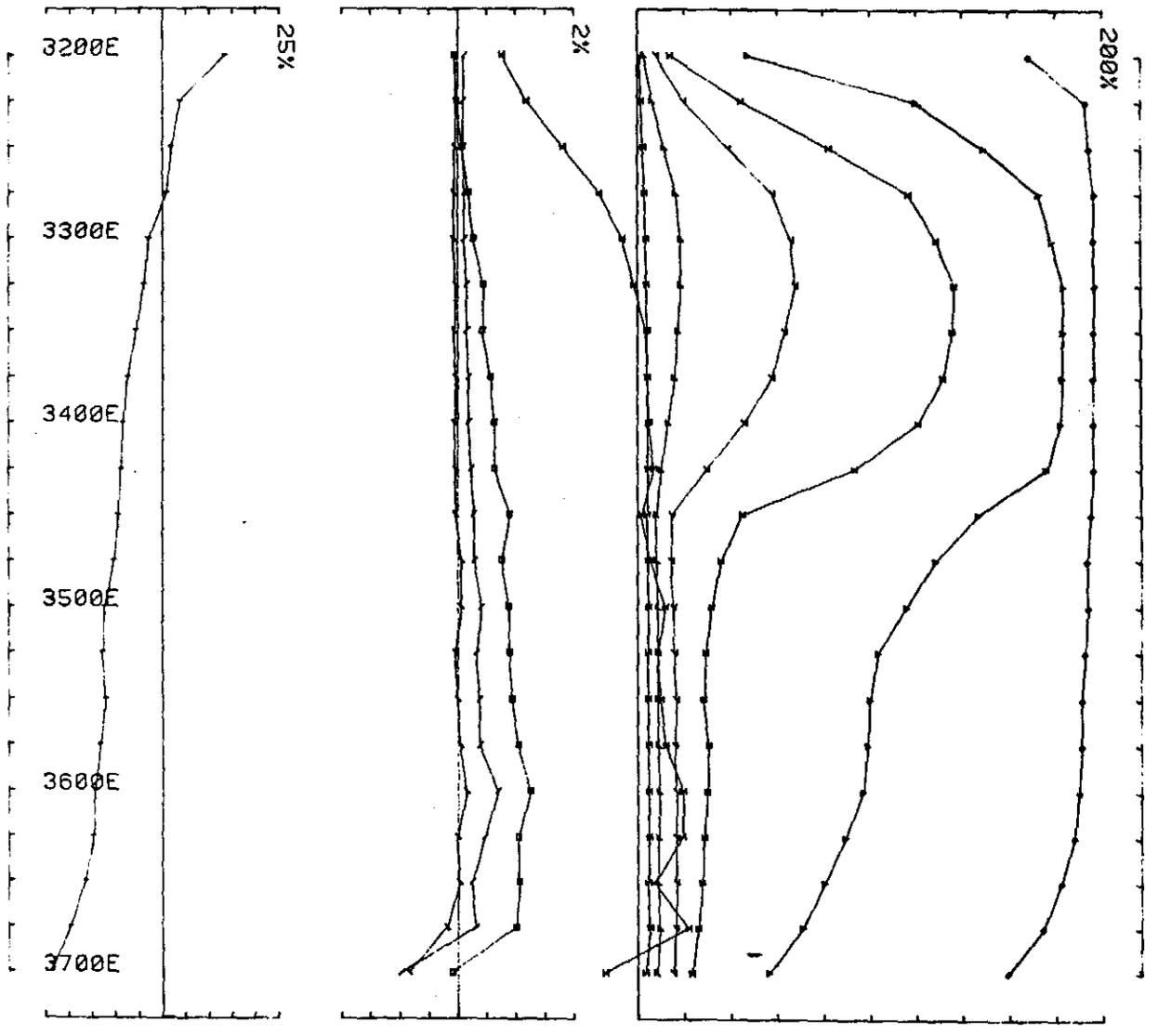


FIGURE 2

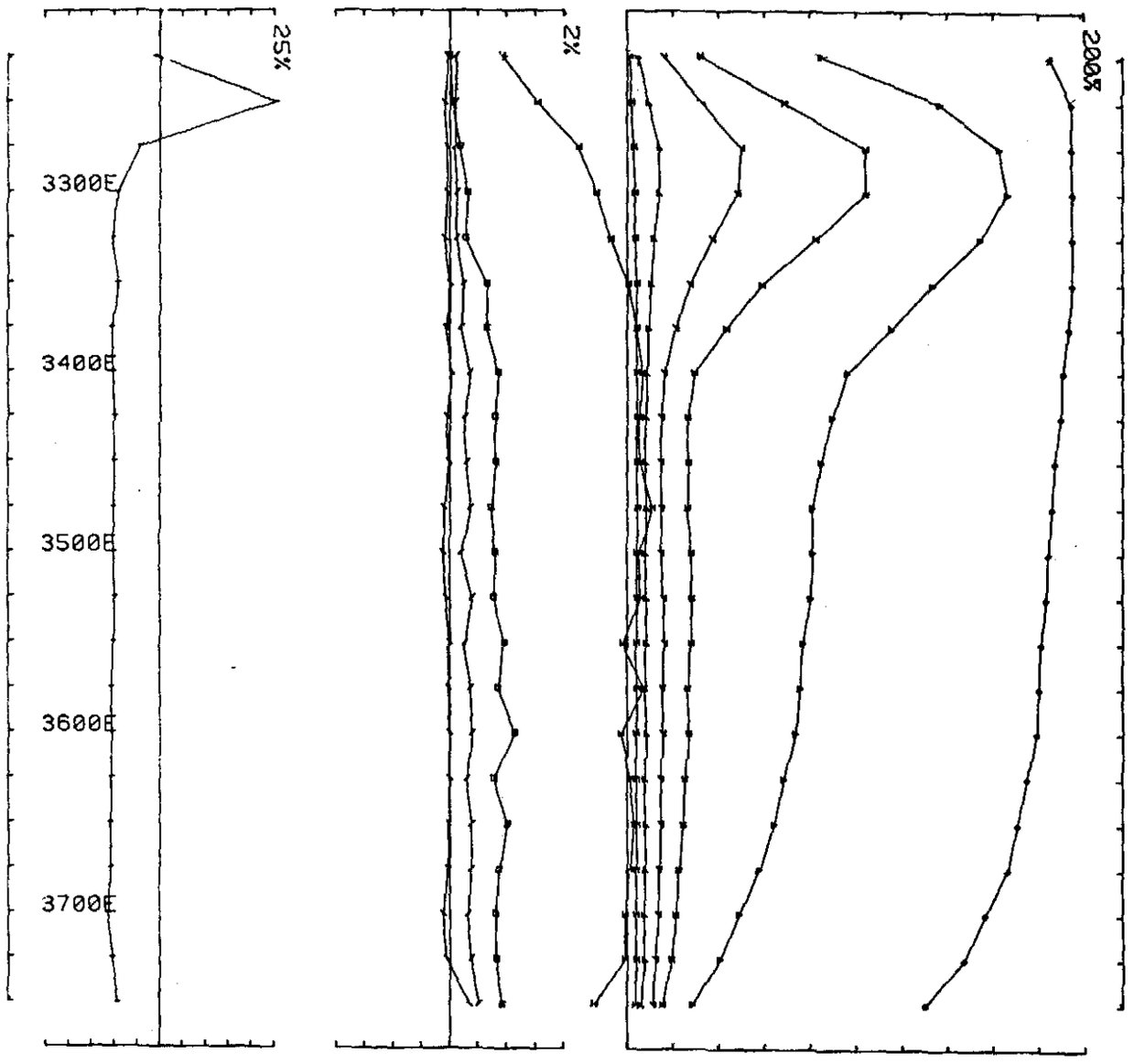
UTEM SURVEY conducted by PMM BJS Job 844901

Project Area Mt. Charter Survey for Aberfoyle Exploration freq(hz) 26.230

Loopno 0001 Line 5300N component Hz secondary Ch 1


3200E
3300E
3400E
3500E
3600E
3700E
25%
2%
200%

142169



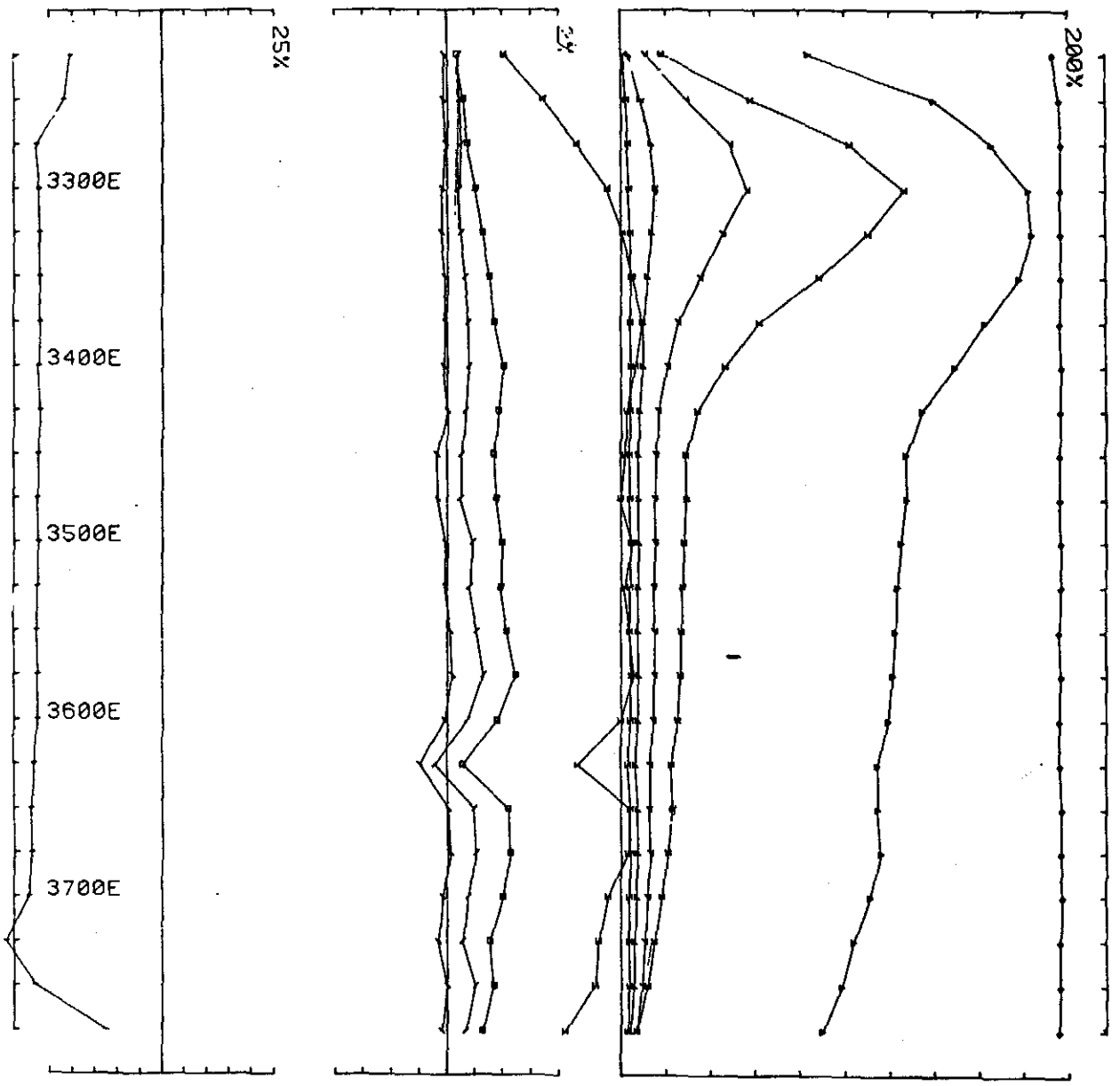


FIGURE 5

UTEM SURVEY conducted by PMM BJS Job 844901

Project Area Mt. Charter Survey for Aberfoyle Exploration freq(hz) 26./230

Loopno 0001 Line 5600N component Hz secondary Ch 1

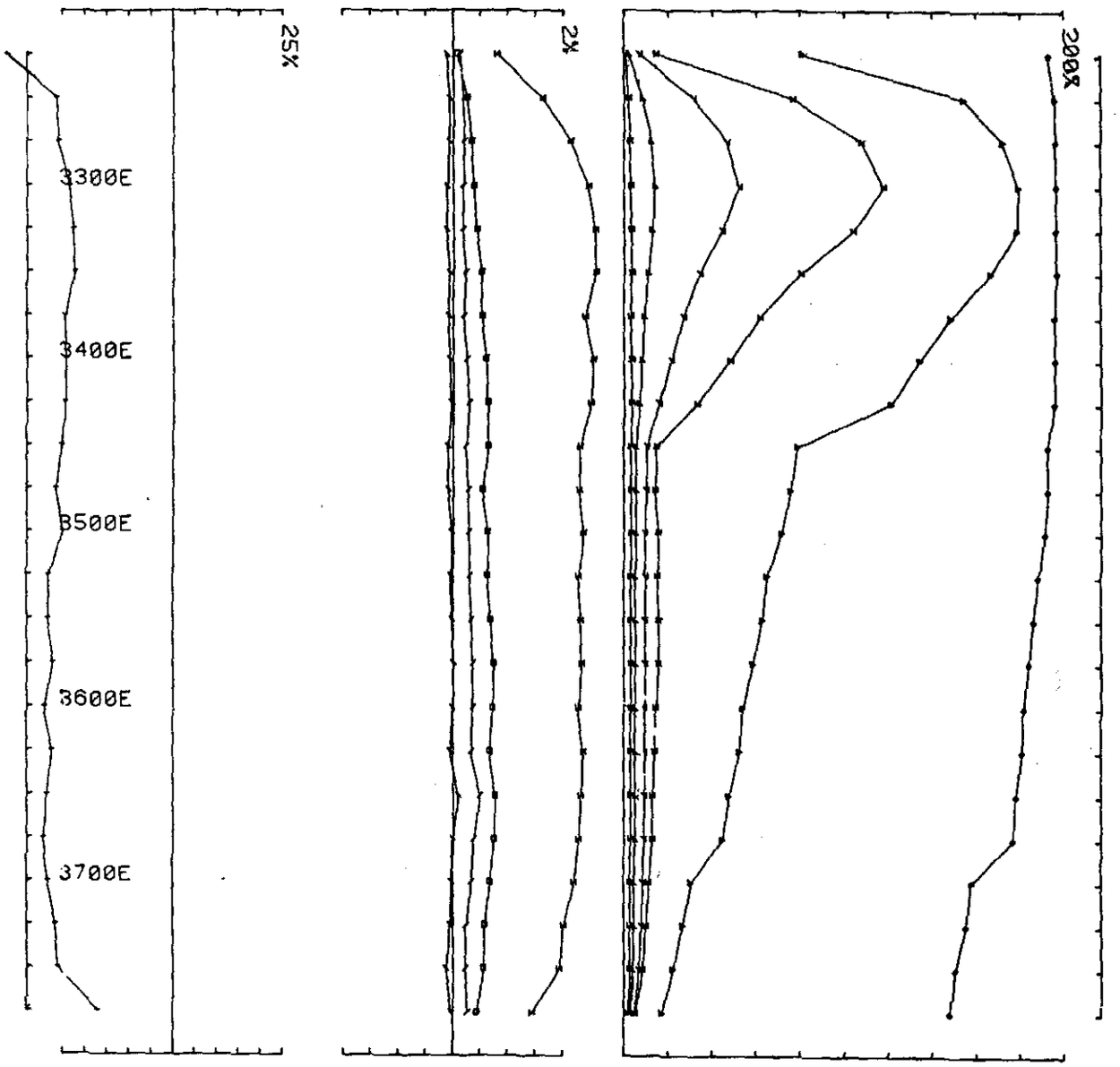


FIGURE 6

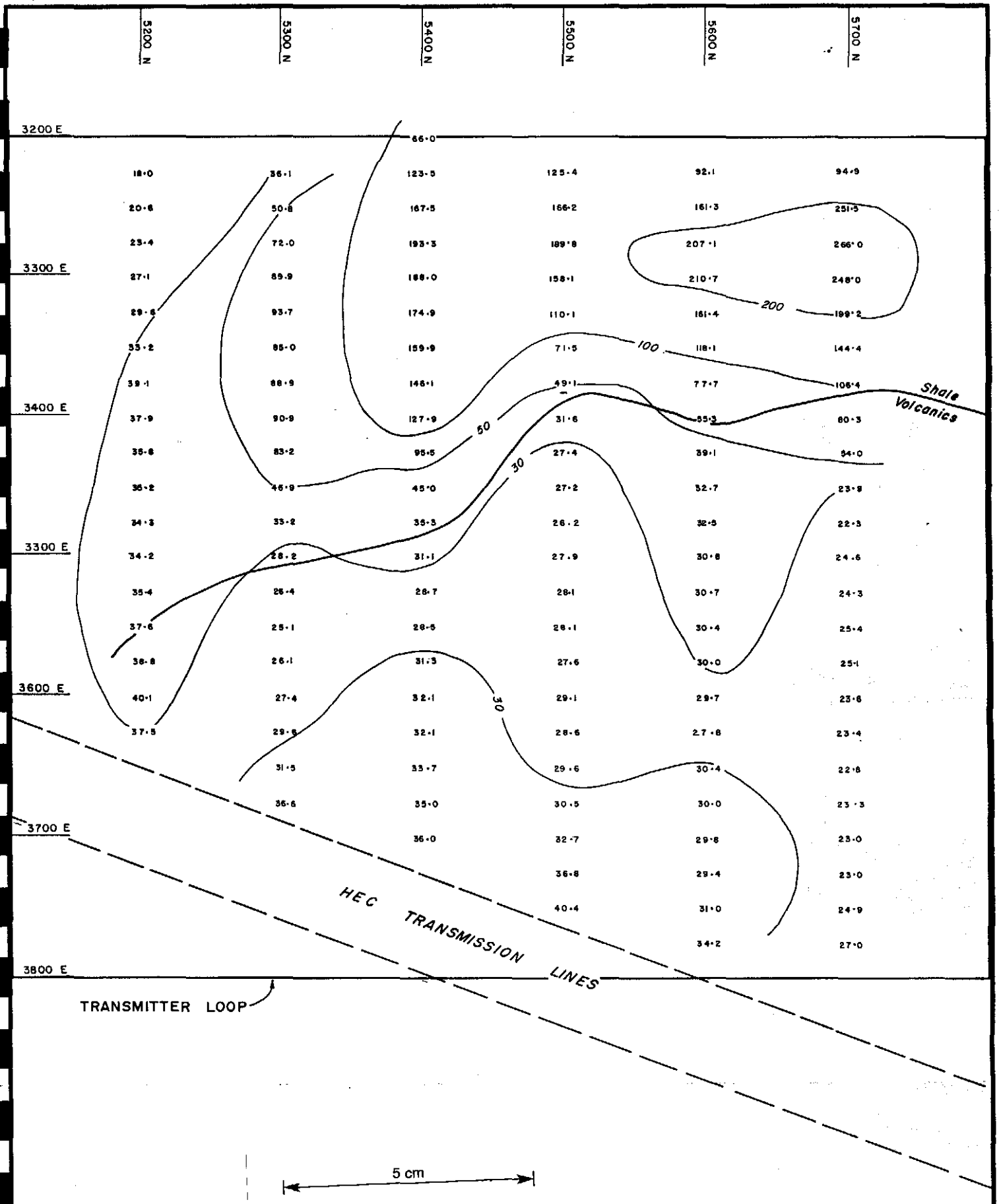
UTEM SURVEY conducted by PMM BJS Job 844901

Project Area Mt. Charter Survey for Aberfoyle Exploration freq(hz) 26,230

Loopno ~~000~~1 Line 5700N component Hz secondary Ch 1

171

142172



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TASMANIA

N.W. MT. CHARTER UTEM

POINT NORMALIZED CHANNEL 6 DATA

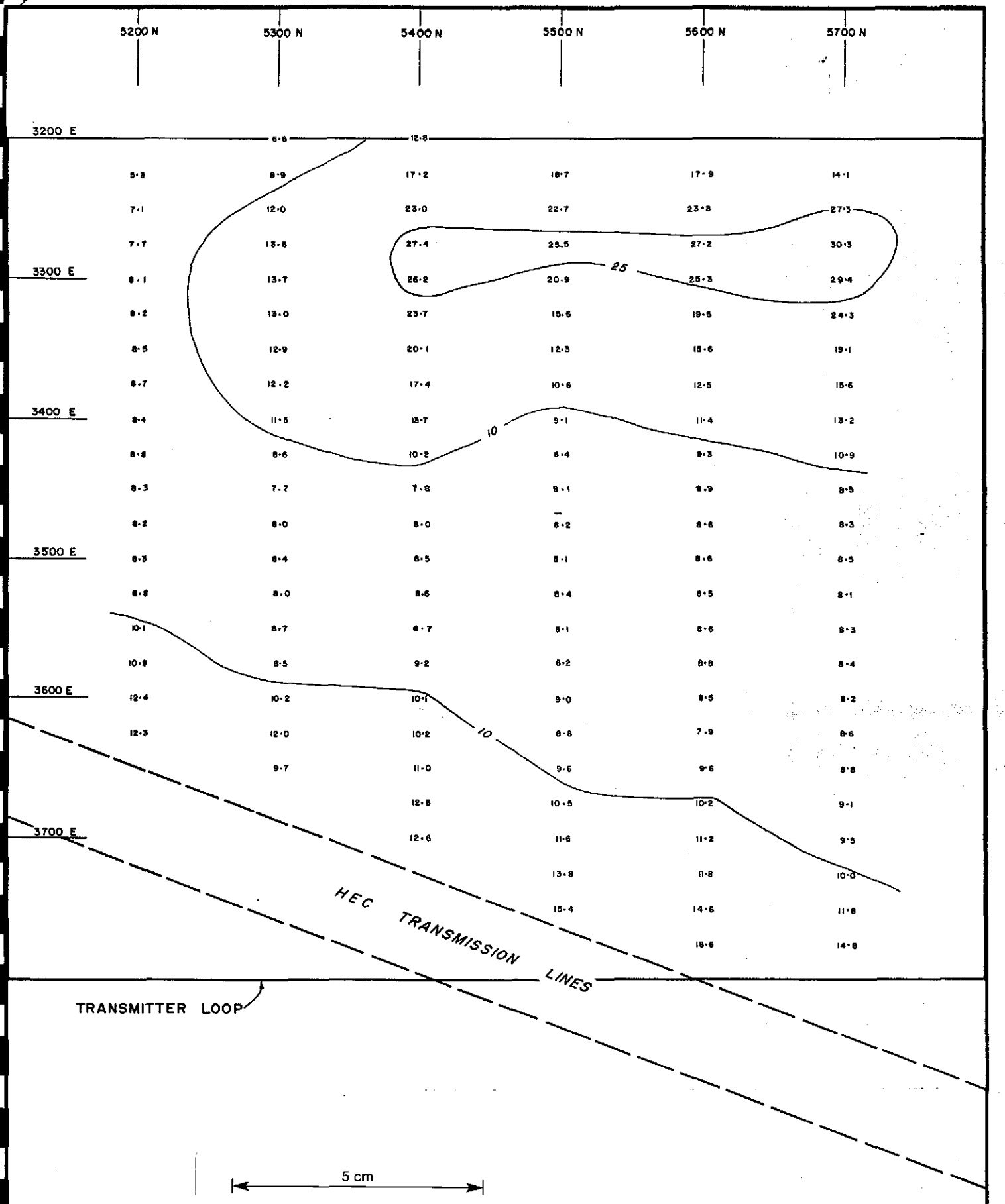
Figure 7

Compiled: ETE
Drawn: ETE
Traced: ACD
Checked:

Location Code: K55/6/44 Scale: 1:2500 Date: October 1984 Plate No: HAT 57 A

172

142173



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TASMANIA

N.W. MT. CHARTER UTEM

POINT NORMALIZED CHANNEL 6 DATA

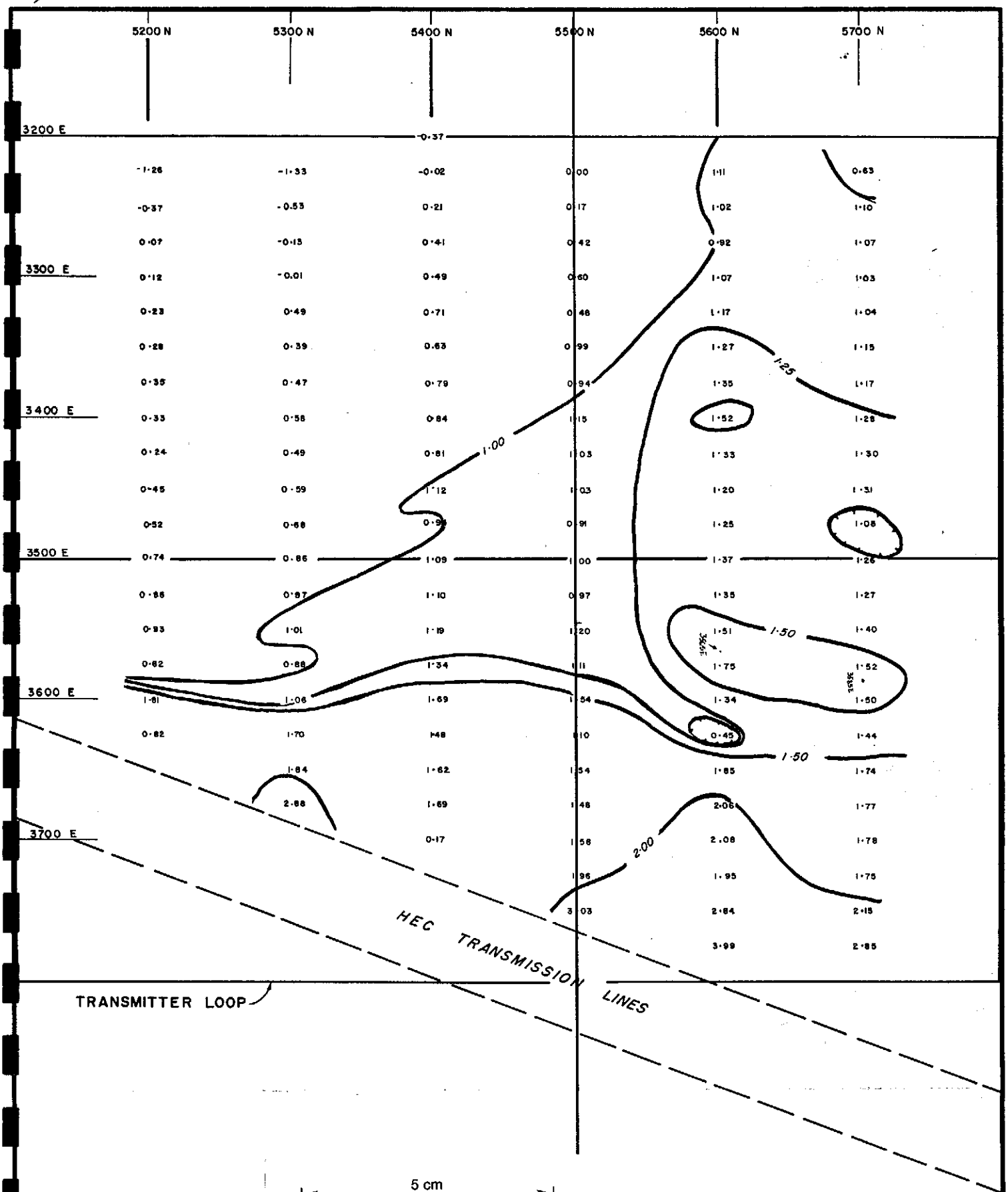
Figure 8

Compiled: ETE
Drawn: ETE
Traced: ACD
Checked:

Location Code: K55/6/44 Scale: 1:2,500 Date: October 1984 Plate No. HAT 57 B

173

142174



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Init.	Date	Init.	Date

TASMANIA

N.W. MT. CHARTER UTEM

POINT NORMALIZED CHANNEL 4 DATA

Figure 9

Compiled: ETE

Drawn: ETE

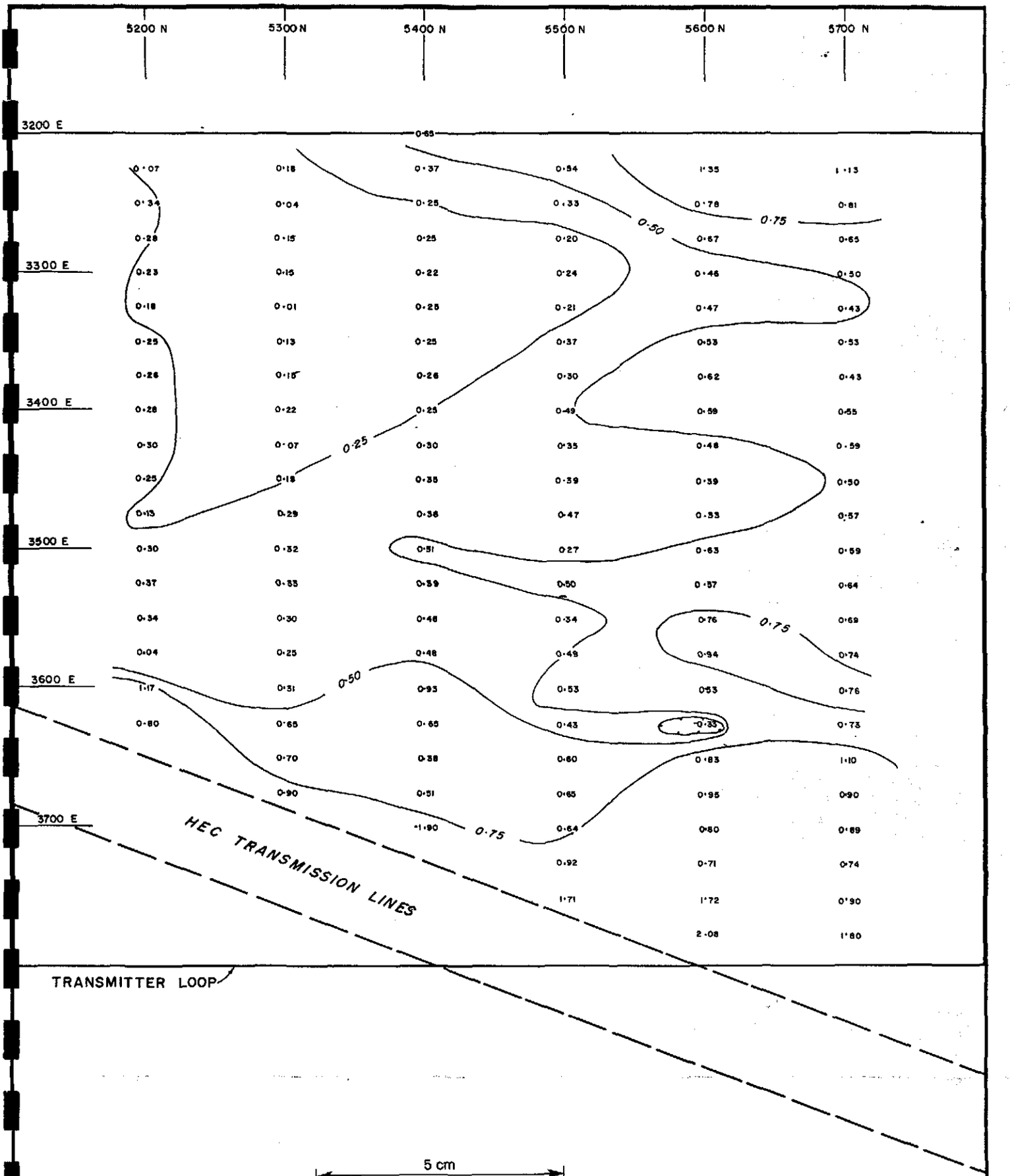
Traced: ACD

Checked:

Location Code: K55/6/44 Scale: 1:2,500 Date: October 1984 Plate No: HAT 57 C

174

142175



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Init.	Date	Init.	Date

TASMANIA

N.W. MT. CHARTER UTEM

POINT NORMALIZED CHANNEL 3 DATA

Figure 10

Compiled:	ETE
Drawn:	ETE
Traced:	ACD
Checked:	

Location Code: K55/6/44 | Scale: 1:2500 | Date: October 1984 | Plate No: HAT 57 D

175

142176

APPENDIX VI

DRILL PERFORMANCE SUMMARY

HATFIELD DIAMOND DRILL HOLES

APPENDIX VI

DRILLING PERFORMANCE SUMMARY; MC-5 TO MC-11

	NO. OF 10 HOUR SHIFTS	METERAGE	AVERAGE METRES/SHIFT
All holes	98	1614.4	16.66
MC-5	20	294.1	14.78
MC-6	23	319.1	14.00
MC-8	12	235.6	19.63
MC-9	13	248.7	19.13
MC-10	15	264.9	17.90
MC-11	15	252.0	17.50
NQ drilling	76	1380.1	18.28
HQ drilling	17	234.3	14.07
0 - 100 m drilling	41	601.3	14.92
100 - 200 m drilling	31	588.0	18.97
200 - 300 m drilling	24	402.6	17.06

Note: Average drilling rate includes all delays, chargeable or not. Therefore rate includes time for set up, tear down, moving, breakdowns etc. as well as being affected by ground conditions.

Low rates in MC-5 and MC-6 due to difficult access and poor ground (hard and wedging).

All drilling by Longyear using LY-38 machine between June and November, 1984.

APPENDIX VII

PETROLOGY REPORT, DDH H-1

178

142179

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 January, 1985

REPORT CMS 85/1/6

YOUR REFERENCE:	Letter dated 11.1.1985
DATE RECEIVED:	15th January, 1985
SAMPLE NOS.:	270991, 270992
SUBMITTED BY:	A.M. Hespe
WORK REQUESTED:	Petrology

H.W. Fander, M. Sc.

Copy to:
The Chief Geologist
Aberfoyle Exploration Pty. Ltd.
144, Camberwell Road
HAWTHORN EAST / VIC. 3123

179

142180

CENTRAL MINERALOGICAL SERVICES

Date 23rd January, 1985

SAMPLE REPORT (Mineralogy, Petrology, Ore Microscopy)

IDENTIFICATION
H I @ ~~91.3~~ 93.35 m (270991)
Banded Argillaceous Siltstone

Job No. CMS 85/1/6 Date Received: 15.1.1985

Reference Letter dated 11.1.1985 - A.M. Hespe

Sample No. H I @ ~~91.3~~ 93.35 m (270991) .

Nature of Sample: D.D. Core

DESCRIPTION **SECTION No.** 52500

a. Hand Specimen:

Light/dark, well-banded, fine compact sediment

b. Microscopic:

This is a banded, well-indurated and incipiently metamorphosed argillaceous siltstone, in which crude slaty cleavage has developed more or less perpendicularly to the bedding/banding.

The individual bands, defined by light and dark colours, show some graded bedding, and the lighter bands tend to be coarser, with a greater amount of clastic quartz, as small angular silt-sized grains as well as occasional feldspar splinters. The lighter layers consist mainly of illite-sericite, representing recrystallized kaolinitic clays; coarser sericite has developed in subparallel streaks across the bands.

The darker bands consist mainly of pale, poorly defined chlorite, with minor illite-sericite and embedded detrital quartz and micas; dark subparallel streaks of chlorite/carbonaceous matter at right angles to the bands define a crude slaty cleavage and are aligned with the sericite streaks in the light bands. Ultrafine pyrite (?framboids) occurs throughout, but is more abundant in the dark layers.

Veinlets of hydromuscovite-carbonate-quartz-sulphide (pyrrhotite) occur at contacts between light and dark bands and elsewhere; they post-date all other features.

The incipient slaty cleavage may have developed before complete lithification.

H.W. Fander, M. Sc.

180

142181

CENTRAL MINERALOGICAL SERVICES

Date 23rd January, 1985

SAMPLE REPORT (Mineralogy, Petrology, Ore Microscopy)

IDENTIFICATION
H 1 @ ~~92.0~~ 93.9 m (270992)
Tuffaceous Siltstone

Job No. CMS 85/1/6 Date Received: 15.1.1985

Reference Letter dated 11.1.1985 - A.M. Hespe

Sample No. H 1 @ ~~92.0~~ 93.9 m (270992).

Nature of Sample: D.D. Core

DESCRIPTION **SECTION No.** 52501

a. Hand Specimen:

Dark, finely banded or laminated fine compact sediment.

b. Microscopic:

This is an indurated and perhaps incipiently metamorphosed tuffaceous siltstone whose lithology is broadly similar to that at 91.3 m, but containing much less clay; there is also some evidence of the presence of primary volcaniclastic components, especially shards of devitrified glass.

The fine banding is more subtle, on a smaller and less obvious scale than at 91.3 m, and is mainly due to thin intercalations of carbonaceous-chloritic material in an otherwise uniform rock. This consists of splintery quartz grains (silt size), feldspar fragments, devitrified shards, clastic mica flakes, and a matrix/cement of quartz, illite and fine pale chlorite. There are irregular patches of pyrrhotite scattered through the rock, post-dating all other minerals.

A crude slaty cleavage has developed at an angle of about 45° to the bedding/banding, and the pyrrhotite patches are elongate in the same direction.

H.W. Fander, M. Sc.

142182

EXPLORATION LICENCE 15/73

HATFIELD

TASMANIA

REPORT ON EXPLORATION

28 MAY 1984 - 25 DECEMBER 1984

PLATES

DISTRIBUTION

HAWTHORN (1/4)

BURNIE (2/4)

A M HESPE (3/4)

DEPARTMENT OF MINES (4/4)

Prepared by A M Hespe
Project Geologist

Endorsed by J R Sise
Assistant Manager

001

E.L.15/73

Proposed Cradle Mt Road survey

QUE RIVER

BULGOBAC

MURCHISON

COMSTAFF COSTEANS

6500N / 3600E COSTEAN

HAI (1982)

QR72 (1975)

QR29 (1975)

MC11 (1984)

MC4 (1978)

MC3 (1978)

MC1 (1976)

MC8 (1984)

MC2 (1976)

MC5 (1984)

MC6 (1984)

MC10 (1984)

MC9 (1984)

H2 (1977)

H1 (1976)

MT CHARTER

QRS

UES

PLS

D

OP

LAKE MACKINTOSH

Costean completed during reporting period

Drillhole completed during reporting period

UTEM coverage completed during reporting period

Area covered by "Exploration Summary Plans"

Mt Charter area (HT 55)

Murchison Hwy Prospect Zone E (HT)

STRATIGRAPHY

5 cm

colour 10	Tb	Tertiary Basalt
		Jurassic Dolerite
		Ordovician Owen Conglomerate
65	UES	Upper Epiclastic Sequence (massive Rhyolite lavas and crystal tuffs intercalated Epiclastics (EPI) & black shale (bsh)
/68	QRS	Mica sandstone / Que River Shale
50/48	PLS > L	Andesitic / Basaltic Pillow lavas (PLS), lavas (L)
	OP	Inferred Hellyer Ore position
		BMS Que River D Zone
33	Ba	Ba Mt Charter
		Shallow dip
		Steep dip
		Andesitic Lavas often Feldspar Phyric (FPS), Pyroclastics, Epiclastics
18	D	Dacites. Massive jointed Dacitic tuff lava, dacite breccia

Below Andesitic / Basaltic Pillow Lavas / Lavas Above Feldspar Phyric Lavas closely defined by Hangingwall Volcaniclastics (Hellyer area)

- ALTERATION -

Stringer Zone (STZ) Type. Pyritized / silicified / sericitized units Black chlorite veins 'Porphyritic Dacite' P.D.

Hangingwall alteration I) Fu Fuchsite

Intensity I trace — 5 extreme

Contact established

Contact inferred

Fault

Fault inferred

dip

anticline

syncline

Road / track

costean

River / creek

Diamond drill hole

Grid lines

142183

Aberfoyle Exploration Pty Ltd

REVISIONS			
Init	Date	Init	Date
AMH/GC	1-2-84		

NORTH WEST TASMANIA

HATFIELD E.L.15/73

EXPLORATION ACTIVITY

28/5/84 - 25/12/84

001

Compiled DJJ, AMH

Drawn DJJ, RJE

Traced RJE

Checked

Plate No. Mac 86

Location Code K55/6/44

Scale 1:10,000

Date October, 1984

85-2429 v.2/2

MC 8
4535·6 N
4520·4 E
780 O RL.

MC 3

MC 5
4415·5 N
4244·9 E
834·0 RL

MC 6
4368·8 N
4364·3 E
807·4 R.L.

MC 1

MC2

BSH

A

B

D

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 / clite clays associated with swarm of limonitic veinlets.

Costean - saprolitic yellow-brown & brick red clays after andesitic volcanics Abundant fresh andesite float gal/sph associated with qtz / carb veining observed.

f green qtz veined A (from 1980 mapping

carbonate rich grey f.g. to aphanitic andesite, Py, Py

Ba scree

closely packed bombs 15 cm long

andesitic lithic tuff agglomerate

fracturing faulting

andesitic lithic tuff fragments 1mm to 1cm

red white orange weathered andesite

gossan

Ba

Sph, Gn, Ba

orange weathered andesite

gossan

Ba veins

Faulted contact

Andesite breccia outcrop

Subcrop

Py common

Py5-20 network of vein

TRENCH

Porphyritic dacite Cyrstalclastics Tr Sph, Py, Ba

Py 7-30

Py D

massive Barite rubble

Ba carb zone tr Gn Py 3-7

Ba in pyritic porphyritic dacite cyrstalclastics

ADIT

Barite in py lt

Py 7-10

py moderate

Limonitic barite quartz sericitic rock, limonitic gossan and white clay

massive barite zones

Barite

Baritic Pyrite Sericitic Schist

Py10 rare Ba

porphyritic dacite

gossan

andesitic lith lava

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 <2mm quartz / limonite veinlets

f green A

f white D

f green qtz veined A

quartz, very minor Ba only

dacite - andesite Py

highly altered volcanics minor Ba only

no Outcrop

white orange clay no Ba

Py common

Tr Ba

Tr Sph, Gn with Ba> Py veins

Ba, Py rich

Gn, Sph rich, drawn locally to veinlets

Tr Py

Ba, Py rich some Sph, Gn

Py common

heavy Ba, Py veining

Ba, Py rich

Ba, Py rich

Tr Py

20cm Py5, Sph2, Gn10

Py 4, Sph5, Gn 10

Sph, Gn Ba

Rt Rubble

Sheared Rt

Sheared? Rt ?

White Rt + Py ± vein rubbles

flow banded R. lava

Rh or lava

Proposed costean

State Grid N.

M N

Aberfoyle Grid N.

760

770

780

790

800

810

820

830

840

850

740

750

730

4000E

4100E

4200E

4300E

4400E

4500E

4600E

4300 N

4400 N

4500 N

4600 N

4700 N

4800 N

4900 N

5000 N

5100 N

— 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 mineralisation in the form of galena and sphalerite associated with quartz/carbonate veining
- B — Massive coarsely crystalline barite, limonite banded barite and paddy 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

142184

Aberfoyle Exploration Pty Ltd

REVISIONS			
Init.	Date	Init.	Date
ACD	2/84		

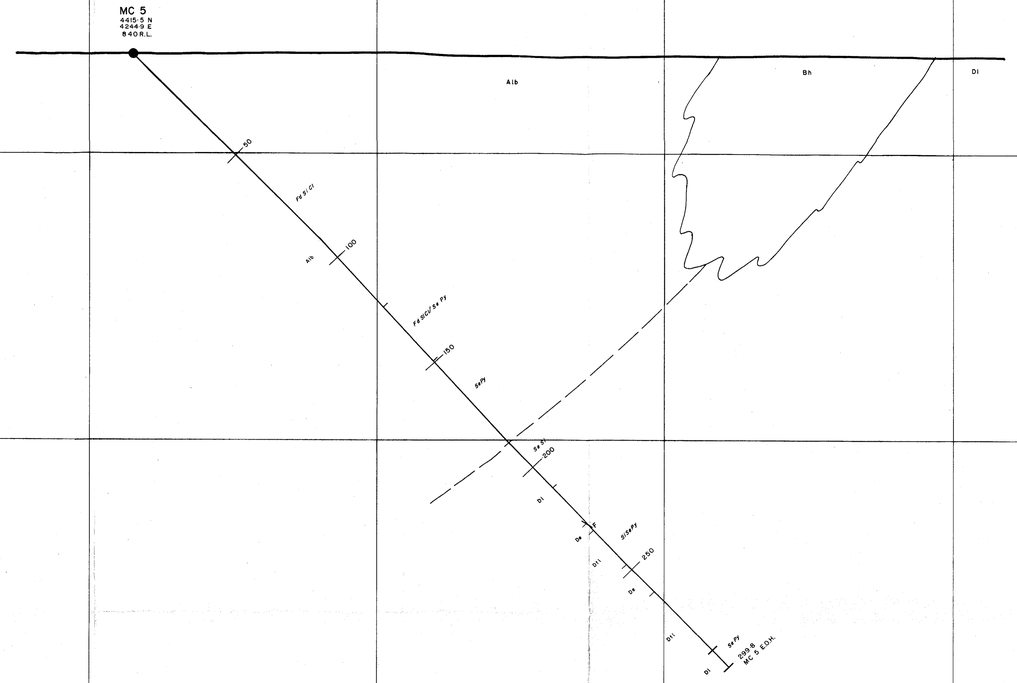
NORTH WEST TASMANIA
HATFIELD E.L. 15/73 002
MT. CHARTER AREA
SUMMARY MAP

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: H.T. 39

85-2429 V. 2/2

RMO 556



PLAN PROJECTION

ELEMENT	LABORATORY	METHOD
Pb	ANALABS	101 PERCHLORIC DIGEST/AAS
Zn	"	101 " " "
Ag	"	101 " " "
As	"	401 PRESSED POWDER XRF
Ba	"	401 " " "
Cr	"	401 " " "
Sn	"	309 FIRE ASSAY FUSION/AAS

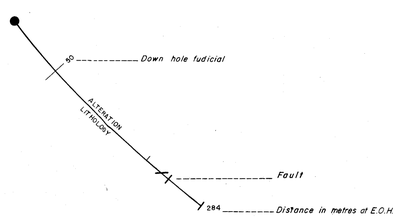
LITHOLOGY

Alb	Andesite lava, lava breccia
Ale	Andesite lava, lava breccia with exotic clasts
Alf	Flow structured andesite lava
Bh	Barite horizon
B	Basalt
Bs	Black shale
Db	Dacite breccia
Dl	Dacite lava
Dlb	Dacite lava breccia
Dlt	Dacite lava tuff
De	Dacitic epiclastic
E	Epiclastic
Rp	Rhyolitic pitchstone
Tl	Trachyte lava
VTl	Vesicular trachyte lava, lava breccia
Vsb	Volcanic/Sedimentary breccia

ALTERATION

Se Py	Pervasive sericite pyrite
Si Se Py	Pervasive silica sericite pyrite
Si Se	Pervasive silica sericite
Fdsi	Pervasive feldspar silica
Cl	Chlorite
Fd Si Cl	Feldspar silica chloritization; later (?) pink to white feldspar/ silica alteration generally as a matrix in an alteration enhanced breccia texture

LEGEND



142185

NB. See plan HT 39 for orientation of line of section

5 cm

Aberfoyle Exploration Pty Ltd

REVISIONS			
Init.	Date	Init.	Date
AMHacd	3-85		

TASMANIA
HATFIELD EL 15/73
MT. CHARTER AREA
SECTION MC5

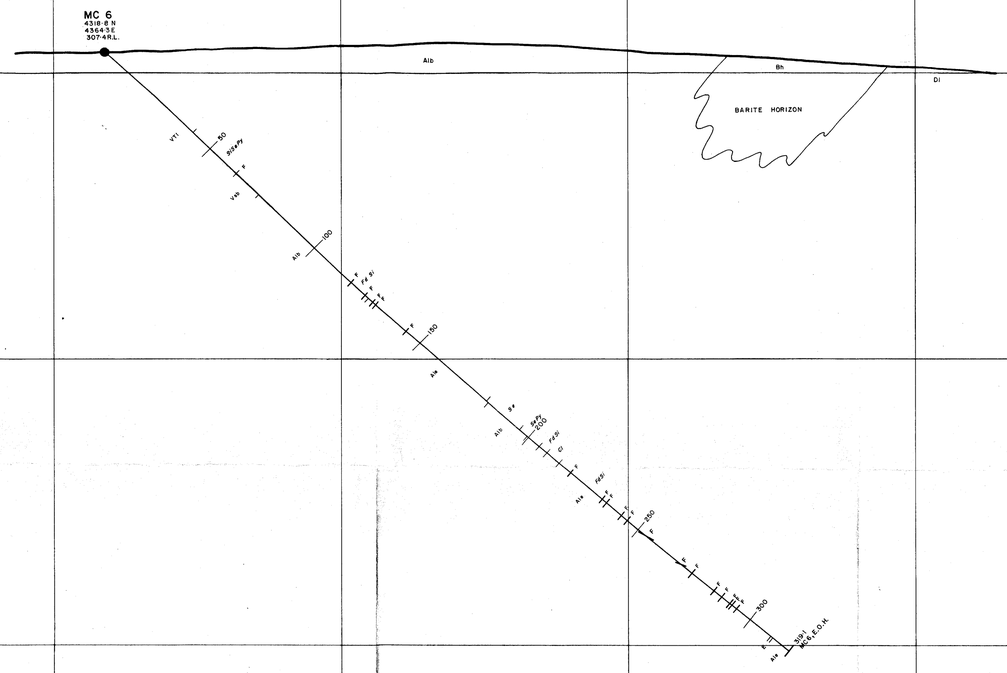
003

Location Code: K55/6/44 | Scale: 1:1000 | Date: February, 1985

Compiled: AMH
Drawn: AMH
Traced: ACD
Checked:
Plate No: HT 61 A

RMO 554

85-2429 v.2/2



RL 900

800

700

600

500

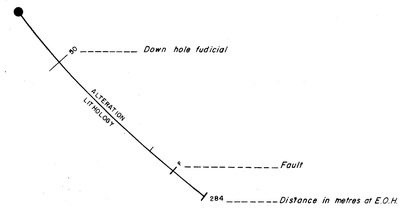
LITHOLOGY

Alb	Andesite lava, lava breccia
Ala	Andesite lava, lava breccia with exotic clasts
Alf	Flow structured andesite lava
Bh	Barite horizon
B	Basalt
Bs	Black shale
Db	Dacite breccia
Dl	Dacite lava
Dlb	Dacite lava breccia
Dtl	Dacite lava tuff
Da	Dacitic epiclastic
E	Epiclastic
Rp	Rhyolitic pitchstone
Tl	Trachyte lava
VTl	Vesicular trachyte lava, lava breccia
Vsb	Volcanic/Sedimentary breccia

ALTERATION

Se Py	Pervasive sericite pyrite
Si Se Py	Pervasive silica sericite pyrite
Si Se	Pervasive silica sericite
Fd Si	Pervasive feldspar silica
Cl	Chlorite
Fd Sl	Pink feldspar/silica alteration of varying intensity and type eg. Phenocrysts only breccia matrix only or both.

LEGEND



142186

NB. See plan HT 39 for orientation of line of section

Aberfoyle Exploration Pty Ltd

REVISIONS			
Init	Date	Init	Date
AMHaco	3·'85		

TASMANIA
HATFIELD EL 15/73
MT. CHARTER AREA
SECTION MC 6
004

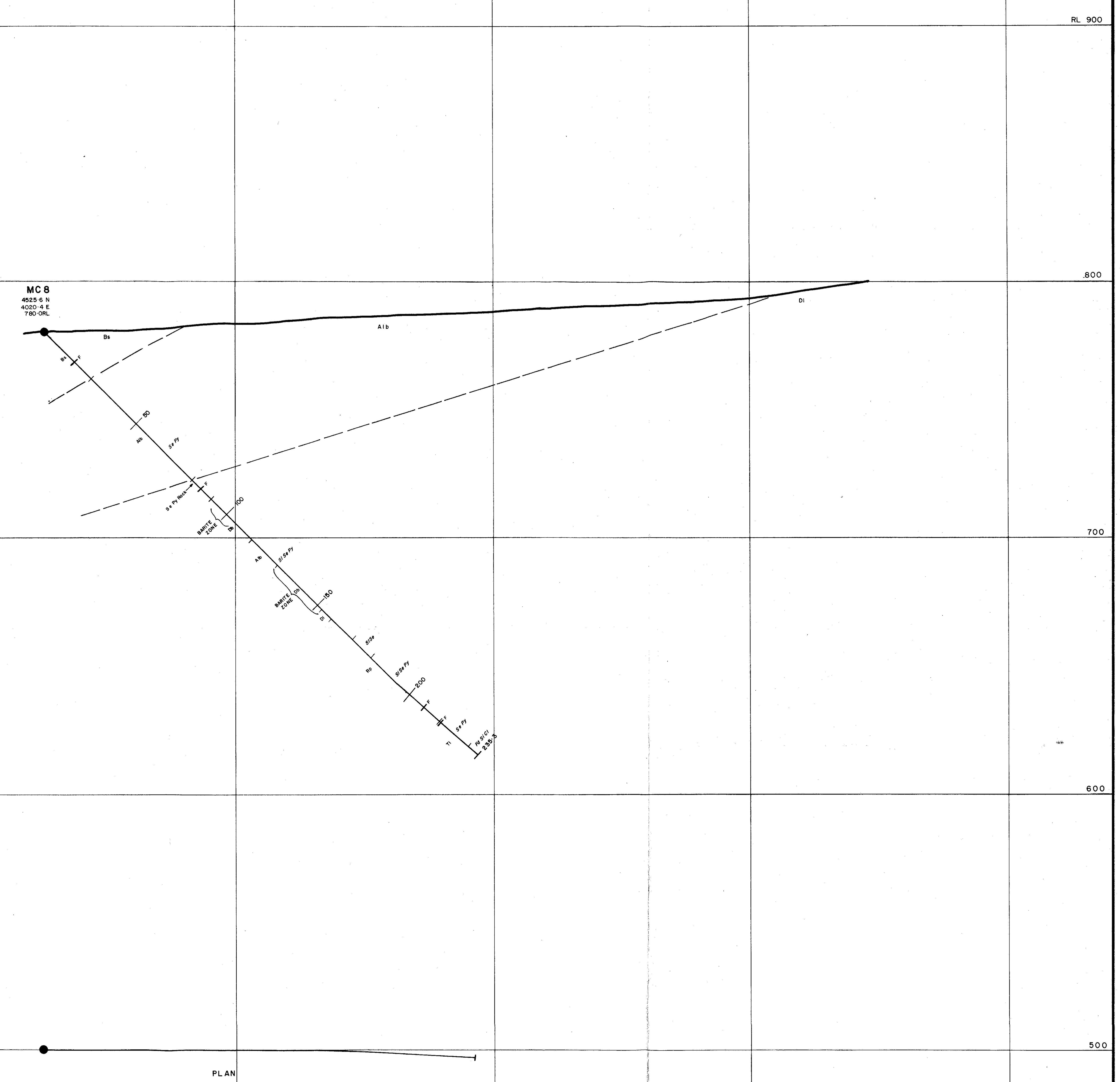
Compiled:	AMH
Drawn:	AMH
Traced:	ACD
Checked:	
Plate No:	HT 61B

Location Code: K55/6/44 | Scale: 1:1000 | Date: February, 1985

RMO 554

5 cm

85-2429 v.2/2



ELEMENT	LABORATORY	METHOD
Pb	ANALABS	101 PERCHLORIC DIGEST/AAS
Zn	"	101 " " "
Ag	"	101 " " "
As	"	401 PRESSED POWDER XRF
Ba	"	401 " " "
Cr	"	401 " " "
Sn	"	309 FIRE ASSAY FUSION/AAS

MC-8 , CORE GRIND ANLAYSES

SAMPLE NO	DEPTH	Cu	Pb	Zn	Ag	As	Ba	Cr	Au
333027	0-10	140	115	70	1.5	15	740	120	I/S
333028	10-20	110	65	60	1.5	40	690	120	I/S
333029	20-30	80	535	1650	2.0	130	1300	40	X
333030	30-40	40	225	475	2.5	95	1000	5	X
333031	40-50	45	465	1300	2.5	70	1950	X	X
333032	50-60	50	460	1250	2.5	75	5800	20	X
333033	60-70	35	860	1200	3.0	75	2500	10	X
333034	70-80	30	700	710	4.0	120	1550	X	X
333035	80-90	45	100	280	8.0	1550	2400	X	0.042
333036	90-100	60	250	325	20	1600	12500	7	0.108
333037	100-110	30	35	65	11.5	550	5500	X	0.133
333038	110-120	70	70	685	3.5	990	3400	X	0.025
333039	120-130	90	45	675	2.0	630	4200	9	X
333040	130-140	40	125	230	2.5	55	3400	50	0.093
333041	140-150	30	90	175	3.0	420	6000	X	0.217
333042	150-160	95	495	480	13.5	550	6100	X	0.183
333043	160-170	65	480	1400	4.5	170	3400	25	0.092
333044	170-180	40	125	230	2.5	55	3400	50	0.093
333045	180-190	410	1450	2400	3.0	95	7400	120	0.633
333046	190-200	70	265	585		70	4700	100	0.067
333047	200-210	95	85	235	1.5	130	4900	30	0.108
333048	210-220	55	220	370	2.5	430	5500	30	0.242
333049	220-230	100	135	80	3.0	680	6800	9	0.167
333050	230-240	145	265	1100	3.5	450	7900	10	0.167

X = Element concentration is below detection limit   — = Element not determined

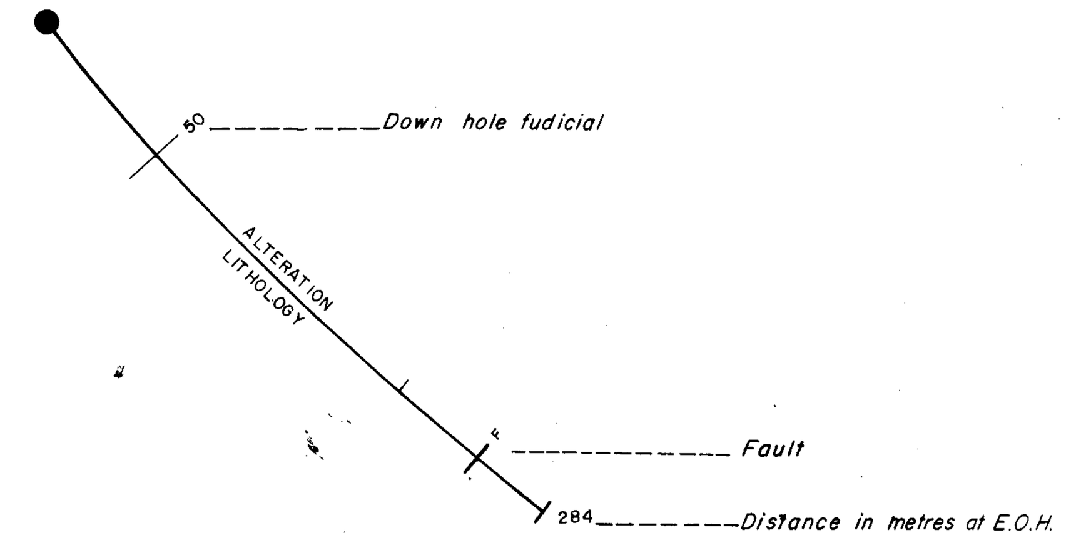
LITHOLOGY

Alb	Andesite lava, lava breccia
Ale	Andesite lava, lava breccia with exotic clasts
Alf	Flow structured ndesite lava
Bh	Barite horizon
B	Basalt
Bs	Black shale
Db	Dacite breccia
Dl	Dacite lava
Dlb	Dacite lava breccia
Dtl	Dacite lava tuff
De	Dacitic epiclastic
E	Epiclastic
Rp	Rhyolitic pitchstone
Tl	Trachyte lava
VTl	Vesicular trachyte lava, lava breccia
Vsb	Volcanic/Sedimentary breccia

ALTERATION

Se Py	Pervasive sericite pyrite
Si Se Py	Pervasive silica sericite pyrite
Si Se	Pervasive silica sericite
Fd Si	Pervasive feldspar silica
Cl	Chlorite
Fd Si Cl	Feldspar silica chloritization; later(?) pink to white feldspar/silica alteration generally as a matrix in an alteration enhanced breccia texture

LEGEND



142187

NB. See plan HT 39 for orientation of line of section

5 cm

Aberfoyle Exploration Pty Ltd

REVISIONS			
Init	Date	Init	Date
AMH acd	3·85		

TASMANIA
HATFIELD EL 15/73
MT. CHARTER AREA
SECTION MC 8

005

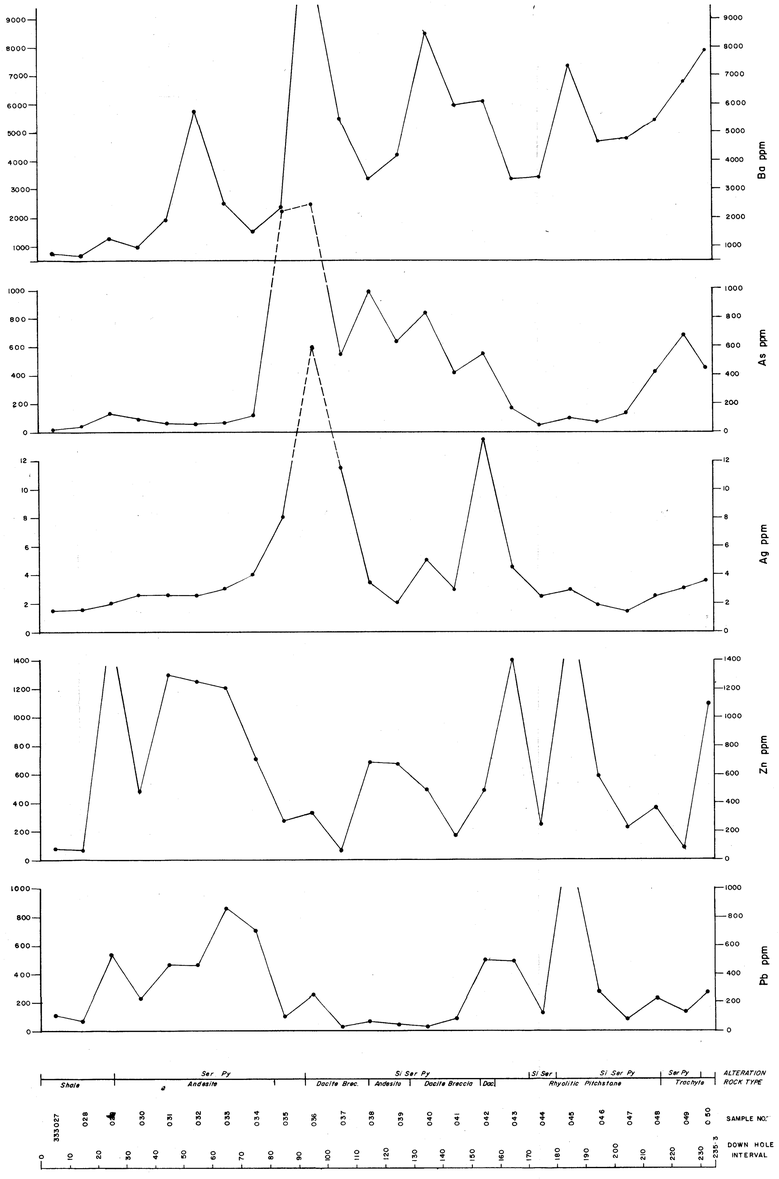
Compiled: AMH
Drawn: AMH
Traced: ACD
Checked:

Location Code: K55/6/44
Scale 1:1000
Date February, 1985
Plate No: HT 61 C

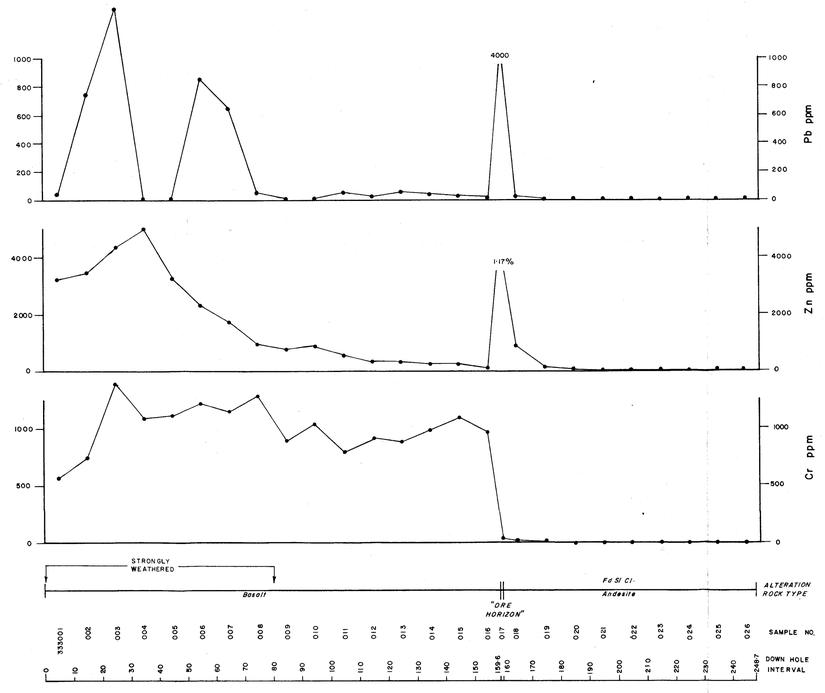
RMO 554

85-2429 v2/2

MC-8



MC-9



ELEMENT	LABORATORY	METHOD
Pb	ANALABS	101 PERCHLORIC DIGEST/AAS
Zn	"	101 " " "
Ag	"	101 " " "
As	"	401 PRESSED POWDER XRF
Ba	"	401 " " "
Cr	"	401 " " "

NOTE: See tabulation of complete analysis results on drill hole section

142188

5 cm

Aberfoyle Exploration Pty Ltd

REVISIONS			
Init.	Date	Init.	Date
AMH-ACD	14.5.85		

Location Code:

TASMANIA 006

HATFIELD EL 15/73

CORE GRIND ANALYSES MC8 & MC9

Scale: 1:1000 | Date: February 1985

Compiled: AMH
Drawn: AMH
Traced: ACD
Checked:
Plate No: HT 59

RMO 554

85-2429 v2/2

MC - 9 CORE GRIND ANALYSES

SAMPLE NO.	DEPTH	Cu	Pb	Zn	Ag	As	Ba	Cr	Au
333001	0-10	90	45	3250	X	-	-	555	
333002	10-20	210	735	3450	X	-	-	731	
333003	20-30	170	1350	4350	0.5	-	-	1406	
333004	30-40	165	45	5000	0.5	-	-	1090	
333005	40-50	135	35	3250	1.0	-	-	1110	
333006	50-60	220	860	2300	1.0	-	-	1210	
333007	60-70	155	655	1750	0.5	-	-	1150	
333008	70-80	80	45	960	0.5	-	-	1280	
333009	80-90	40	15	740	1.0	-	-	899	
333010	90-100	35	15	850	1.0	-	-	1030	
333011	100-110	80	50	575	1.0	-	-	777	
333012	110-120	70	30	345	0.5	-	-	916	
333013	120-130	85	50	370	0.5	-	-	878	
333014	130-140	100	45	280	0.5	X	602	985	0.035
333015	140-150	175	30	245	0.5	7	559	1090	0.020
333016	150-160	95	15	175	0.5	X	503	951	0.055
333017	160-170	120	0.40%	1.17%	13	72	1330	29	0.060
333018	170-180	40	30	850	1.0	9	950	20	0.050
333019	180-190	35	10	105	0.5	X	1190	X	X
333020	190-200	40	5	90	0.5	X	1850	X	X
333021	200-210	40	X	70	X	-	-	X	
333022	210-220	20	X	45	0.5	-	-	X	
333023	220-230	40	X	60	0.5	-	-	X	
333024	230-240	40	5	65	0.5	-	-	X	
333025	240-250	35	X	70	0.5	-	-	X	
333026	250-260	30	10	75	0.5	-	-	X	

X = Element concentration below detection limit - = Element not determined

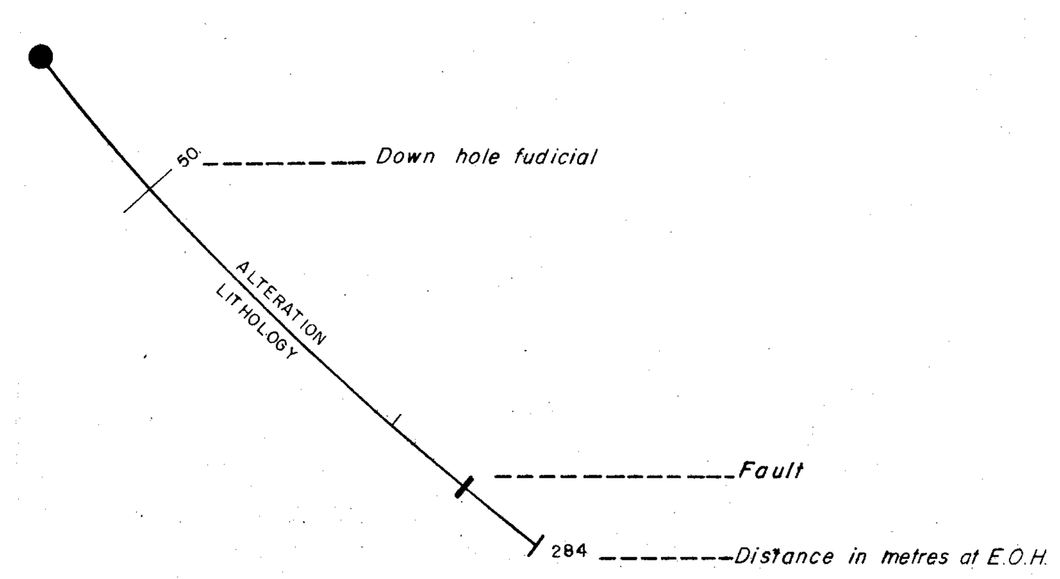
LITHOLOGY

Alb	Andesite lava, lava breccia
Ale	Andesite lava, lava breccia with exotic clasts
Alf	Flow structured andesite lava
Bh	Barite horizon
B	Basalt
Bs	Black shale
Db	Dacite breccia
Dl	Dacite lava
Dlb	Dacite lava breccia
Dtl	Dacite lava tuff
De	Dacitic epiclastic
E	Epiclastic
Rp	Rhyolitic pitchstone
Tl	Trachyte lava
VTl	Vesicular trachyte lava, lava breccia
Vsb	Volcanic / Sedimentary breccia

ALTERATION

Se Py	Pervasive sericite pyrite
Si Se Py	Pervasive silica sericite pyrite
Si Se	Pervasive silica sericite
FdSi	Pervasive feldspar silica
Cl	Chlorite
Fd SiCl	Chloritization of breccia fragments pink/white feldspar/silica infill of breccia matrix

LEGEND



142189

5 cm

Aberfoyle Exploration Pty Ltd

REVISIONS			
Init	Date	Init	Date
AMHacd	3·'85		
AMHacd	4·'85		

TASMANIA
HATFIELD EL 15/73
MT. CHARTER AREA
SECTION MC9

007

Compiled AMH
Drawn AMH
Traced ACD
Checked

Location Code: K55/6/44 | Scale: 1:1000 | Date: February, 1985 | Plate No: HT 61 D

RMO 554

85-2429 V. 2/2

4400 N | 4300 N | 4200 N | 4100 N | 4000 N | 3900 N | 3800 N | 3700 N | 3600 N

RL 900

800

700

600

500

MC 10
4117·3 N
4156·4 E
800·9 RL

SURFACE (INFERRED)

MC-9
3899·6 N
4153·9 E
746·7 RL

Alb
50
F
F
100
Vbl
150
F
F
200
Sericite pyrite altered breccia
Se Py
250
Se Py
Fd Si Cl
264·4 m

B
Tuffaceous Pelite (Interpreted Depth Ore horizon)
Alb
Alf
Di
Fd Si Cl
Alf
Alb
248·7m (187·6m East of Section)

LITHOLOGY

Alb	Andesite lava, lava breccia
Alx	Andesite lava, lava breccia with exotic clasts
Alf	Flow structured andesite lava
Bh	Barite horizon
B	Basalt
Bs	Black shale
Db	Dacite breccia
Di	Dacite lava
Dib	Dacite lava breccia
Dit	Dacite lava tuff
Dx	Dacitic epiclastic
E	Epiclastic
Rp	Rhyolitic pitchstone
Tl	Trachyte lava
Vtl	Vesicular trachyte lava, lava breccia
Vsb	Volcanic / Sedimentary breccia
Vbl	Vesicular basalt lava

ALTERATION

Se Py	Pervasive sericite pyrite
Si Se Py	Pervasive silica sericite pyrite
Si Se	Pervasive silica sericite
Fd Si	Pervasive feldspar silica
Cl	Chlorite
Fd Si Cl	Chloritization of breccia fragments, pink / white feldspar/silica infill of breccia matrix.

LEGEND

50 ——— Down hole fudicial

ALTERATION / LITHOLOGY

——— Fault

284 ——— Distance in metres at E.O.H

142190

5 cm

Aberfoyle Exploration Pty Ltd

REVISIONS			
Init	Date	Init	Date
AMHood	29-4-85		

TASMANIA
HATFIELD E.L. 15/73
MT. CHARTER AREA
SECTION MC 10

008

Location Code: K55/6/44 | Scale: 1 : 1000 | Date: April, 1985

Compiled: AMH
Drawn: AMH
Traced: ACD
Checked:
Plate No: HT 61E

RMO 554

85-2429 2/2

3100 E | 3200 E | 3300 E | 3400 E | 3500 E | 3600 E | 3700 E | 3800 E | 3900 E

RL 900

800

700

600

500

MC II
5577·6 N
3463·0 E
702·8 RL

UTEM ANOMALY "L" AT SURFACE

Alb | Alb | Alb

weathered

Fe Si O

Alb

Fe Si O

100

UTEM TARGET ZONE

Fe Si Cl Py

150

Vab

Alb

Stringer pyrite Alb

Fe Si O

100

B

Alb

250m E.O.H.

5580 N

5560 N

142191

LITHOLOGY

Alb	Andesite lava, lava breccia
Ale	Andesite lava, lava breccia with exotic clasts
AH	Flow structured andesite lava
Bh	Barite horizon
B	Basalt
Bs	Black shale
Db	Dacite breccia
Dl	Dacite lava
Dlb	Dacite lava breccia
Dtl	Dacite lava tuff
De	Dacitic epiclastic
E	Epiclastic
Rp	Rhyolitic pitchstone
Tl	Trachyte lava
VTl	Vesicular trachyte lava, lava breccia
Vsb	Volcanic/Sedimentary breccia

ALTERATION

Se Py	Pervasive sericite pyrite
Si Se Py	Pervasive silica sericite pyrite
Si Se	Pervasive silica sericite
Fd Si	Pervasive feldspar silica
Cl	Chlorite
Fd Si Cl	Chloritization of breccia fragments, pink/white feldspar/ silica infill of breccia matrix.

50 ——— Down hole fudicial

ALTERATION LITHOLOGY

——— Fault

284 ——— Distance in metres at E.O.H.

Aberfoyle Exploration Pty Ltd

REVISIONS			
Init.	Date	Init.	Date
AMH ocd	29-4-85		

TASMANIA
HATFIELD E.L. 15/73
MT. CHARTER AREA
SECTION MC II
009

Location Code: K55/6/44

Scale: 1:1000

Date: April, 1985

Compiled: AMH
Drawn: AMH
Traced: ACD
Checked:
Plate No: HT 61F

RMO 554

85-2429 2/2

010

3000 E 3500 E 4000 E 4500 E

5500 N 5000 N 4500 N 4000 N 3500 N

GN

QRS A D A

ZONE L

MC II 702·8 RL

?

250 1000

N.W. MT. CHARTER

5400N/3600E COSTEAN

H2/2A

QRS Dp

MC4

Dol. A

4800N/3800E COSTEAN

MC I 820·0 RL

Dp D

ZONE I4

791·4 RL MC3

ZONE I3

MC2 827·2 RL

Ba A

4550N/4400E COSTEAN

4500N/4400E COSTEAN

HEC POWER LINE

Dol. J2 ZONE

780·0 RL MC8

4600N/4100E COSTEAN

QRS

MT. CHARTER

4400N/4200E COSTEAN

MC5 834·0 RL

807·4 RL MC6

QRms A

ZONE J1

R-D A

MC 10 800·9 RL

QRS S.W. MT. CHARTER

4000N/4100E COSTEAN

Weathered shale

Weathered vesicular basalt lava

3900N/4100E COSTEAN

MC 9 746·7 RL

Cr Analyses > 300 ppm

ZONE J3

315755 Flow brecciated amygdaloidal basalt

142192

HT 62

HT 55

5 cm

Aberfoyle Exploration Pty Ltd

REVISIONS			
Init.	Date	Init.	Date
AMH	2-10-84		

NORTH WEST TASMANIA

HATFIELD E.L.15/73

MT. CHARTER AREA

EXPLORATION SUMMARY MAP

010

Location Code: K55/6/44 | Scale: 1:2500 | Date: October, 1984

Compiled: AMH
Drawn: AMH
Traced: RJE
Checked: AMH
Plate No: HAT 55

RMO 557

85-2429 2/2

CAMBRIAN

Jurassic ?

Dol.	48	Dolerite
R-D	20	Rhyolitic - Dacitic Volcanics - Quartz - feldspar porphyritic intrusives, lavas, pyroclastics interbedded with Que River slates, sandstones
QRS	68	Que River Slates - Black finely laminated slates, containing very fine graphite and pyrite in places. Conformable on underlying volcanics
QRms	26	Que River Micaceous Sandstone - Olive - Khaki quartz / musscovite sandstone. Massive. Probably facies equivalent of black slates
A	45	Andesite - Andesitic lavas and lava breccias. Dark green, commonly feldspar porphyritic. Aggregates of galena and sphalerite associated with qtz./carb. veining in areas of high Pb-Zn :soil geochem. — Includes vesicular basalt lavas and pillow lavas (containing primary chromite). Extent not yet known. Proposed ore horizon occurs at contact between basalt and underlying andesites.
Ba	32	Barite Horizon - Limonitic, pyritic banded barite; coarse crystalline barite; poddy and disseminated barite in sericitic schist.
D / Dp	6 / 10	Dacite(D) - Dacitic - trachytic intrusives, lavas, pyroclastics, tuffs. Pyritic Dacite (Dp) - Strongly silicified, sericitised, pyritised! in Mt. Charter area around MC4 and in Zone E costeans. Extent interpreted from I.P. frequency effect contours.

Geological contact, interpreted

Trend and dip at surface of proposed ore horizon

UTEM conductor axis, definite correlation

UTEM conductor axis, possible correlation

Pb Soil geochemistry, contours at 250, 1000 ppm (Mt. Charter area) 100, 250 ppm (Murchison Hwy. prospect area)

Diamond drill hole

Anticlinal axis with plunge

Synclinal axis with plunge

Strike and dip of bedding

Strike and dip of cleavage

Strike and dip of jointing

Stream or creek

Track, costean

Cut grid line

-LEGEND-

IP/RESISTIVITY
IP/RESISTIVITY VALUES

Apparent resistivity in OHM metres
Frequency effect (%)
Time Domain (milliseconds) at underlined

FILTER TYPE
n = 1
n = 2

Pole Point
Survey Point

25m SPACE
50m SPACE
100m SPACE

N.S. READING IS AVERAGE OF 4 SURVEY POINT VALUES

5 cm

For Sheets A-Z, see QR81 series, Surface Geology

142193

Aberfoyle Exploration Pty Ltd

REVISIONS			
Init	Date	Init	Date

TASMANIA

HATFIELD EL 15/73 011

MT. CHARTER AREA

FILTERED I.P. & RESISTIVITY VALUES

Location Code: K55/6/44

Scale: 1:2500

Date: April, 1985

Compiled: AMH
Drawn: AMH
Traced: ACD
Checked:
Plate No: Mac. 90/ CC

85-2429 v2/2

RMO 556

012

3000 E
3500 E
4000 E
4500 E
8000 N
7500 N
7000 N
6500 N
6000 N

GN

QRS
A
D
Dp

EL 5/63
COMSTAFF

UTEM ZONE E
COSTEANS

DDH-HA1

MURCHISON HWY.
PROSPECT

ZONE G2

DDH H-1

Weathered volcanic
anomalous Cr content

Interbedded
weathered volcanic
and shale

6500N/3600E
COSTEAN

BSH

250
100

?

X

Jurassic ?

Dol.	48	Dolerite
R-D	20	Rhyolitic - Dacitic Volcanics — Quartz - feldspar porphyritic intrusives, lavas, pyroclastics interbedded with Que River slates, sandstones.
QRS	68	Que River Slates — Black finely laminated slates, containing very fine graphite and pyrite in places. Conformable on underlying volcanics.
QRms	26	Que River Micaceous Sandstone — Olive - Khaki quartz / muscovite sandstone. Massive. Probably facies equivalent of black slates.
A	45	Andesite Andesitic lavas and lava breccias. Dark green, commonly feldspar porphyritic. Aggregates of galena and sphalerite associated with qtz./carb. veining in areas of high Pb - Zn soil geochem. Includes vesicular basalt lavas and pillow lavas (containing primary chromite). Extent not yet known. Proposed ore horizon occurs at contact between basalt and underlying andesites.
Ba	32	Barite Horizon Limonitic, pyritic banded barite ; coarse crystalline barite ; poddy and disseminated barite in sericitic schist.
D / Dp	6 / 10	Dacite (D) - Dacitic trachytic intrusives, lavas, pyroclastics, tuffs. Pyritic Dacite (Dp) - Strongly silicified, sericitised, pyritised in Mt. Charter area around MC4 and in Zone E costeans. Extent interpreted from I.P. frequency effect contours.

CAMBRIAN

- Geological contact, interpreted
- Trend and dip at surface of proposed ore horizon
- UTEM conductor axis, definite correlation
- UTEM conductor axis, possible correlation
- Pb soil geochemistry contours at 100, 250 ppm (Murchison Hwy. prospect area) 250, 1000 ppm (Mt. Charter area)
- Diamond drill hole
- Anticlinal axis with plunge
- Synclinal axis with plunge
- Strike and dip of bedding
- Strike and dip of cleavage
- Strike and dip of jointing
- Stream or creek
- Track, costean
- Cut grid line

HT 62
HT 55

142194

5 cm

Aberfoyle Exploration Pty Ltd

REVISIONS			
Init.	Date	Init.	Date
AMH/ACD	14-3-85		

NORTH WEST TASMANIA
HATFIELD E.L. 15/73
012

MURCHISON HIGHWAY PROSPECT
EXPLORATION SUMMARY MAP

Location Code: K55/6/44 | Scale: 1:2500 | Date: February, 1985

Compiled: AMH
Drawn: AMH
Traced: GLC
Checked:
Plate No. HT 62

RMO 557

85-2429 2/2

7500 N | 7000 N | 6500 N | 6000 N | 5500 N

4500 E | 4000 E | 3500 E | 3000 E

- LEGEND -

I.P./RESISTIVITY
I.P. EFFECTS / RESISTIVITY VALUES

Apparent resistivity in ohm metres — x.x / x.x / x.x

Frequency effect (%) — x.x / x.x / x.x

Time domain milliseconds if underlined

FILTER TYPE — n = 1 / n = 2

Pole Point

Survey Point

... N.B. READING IS AVERAGE OF 4 GRIDDED POINT VALUES

25m DIPOLE — x

50m DIPOLE — •

100m DIPOLE — □

"Shale / Volcanic contact interpreted from filtered I.P./Resistivity data."

5 cm

For Sheets A-Z, see ORBI series, Surface Geology.

	WW	G	F	E	K	S	7500 E
	XX	HH	AA	DD	LL	T	6000 E
MACK HAT	YY	JJ	BB	CC	MM	U	4500 E
	ZZ	RR	Q	P	N	V	3000 E
							1500 E

15500 | 13500 | 9500 | 7500 N | 5500 | 3500 | 1500 | 500

Aberfoyle Exploration Pty Ltd

REVISIONS			
Init.	Date	Init.	Date
AMH	10.5.88		

TASMANIA
HATFIELD E.L. 15/73
MT CHARTER AREA
FILTERED I.P. & RESISTIVITY VALUES

013

Location Code K55/6/44 | Scale: 1:2500 | Date: April, 1995

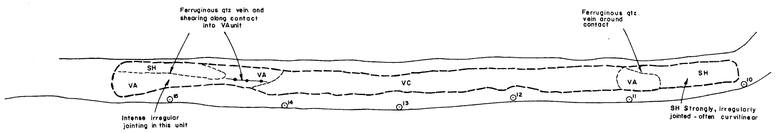
Compiled: AMH
Drawn: AMH
Traced: ACD
Checked:
Plate No: Moc 90/88

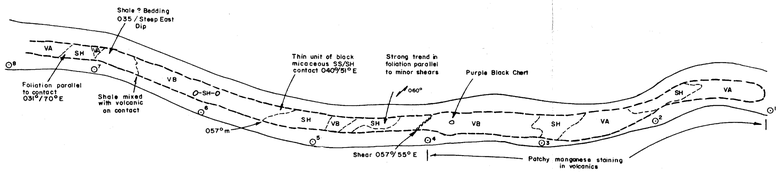
RMO 556

85-24239 2/2

142195

385	205	235	100	75	115	85	75	80	95	50	40	Cu
310	195	185	90	25	325	95	240	405	470	260	595	Pb
100	130	140	170	170	340	250	225	340	415	200	220	Zn
X	0·5	0·5	X	X	0·5	0·5	X	X	0·5	0·5	X	Ag
35	30	25	25	35	30	35	30	40	55	100	130	As
340	500	590	510	780	440	720	840	440	450	790	1000	Ba
960	1250	1150	570	270	840	700	480	910	810	40	40	Cr
270990	270989	270988	270987	270986	270985	270984	270982	270982	270981	270984	270979	





LEGEND

- Limit of outcrop in costean
- Geological contact
- Shear

VA	Weathered yellow/brown/purple saprolitic volcanic
SH	Strongly weathered grey/white/yellow/brown/purple shale
VB	Dull green fine grained volcanic with abundant 1mm quartz filled vesicles
VC	Yellow/brown clay after volcanic - non saprolitic

GN

(Costean not surveyed).

3725 E

5 cm

142196

3500 E | 3575 E | 3600 E | 3625 E | 3650 E | 3675 E | 3700 E

Aberfoyle Exploration Pty Ltd

REVISIONS			
Init.	Date	Init.	Date
AMH/ACD	4·3·85		

TASMANIA

MURCHISON HIGHWAY PROSPECT 014

6500 N / 3600 E COSTEAN

Location Code: K55/6/44 | Scale: 1:250 | Date: February 1985

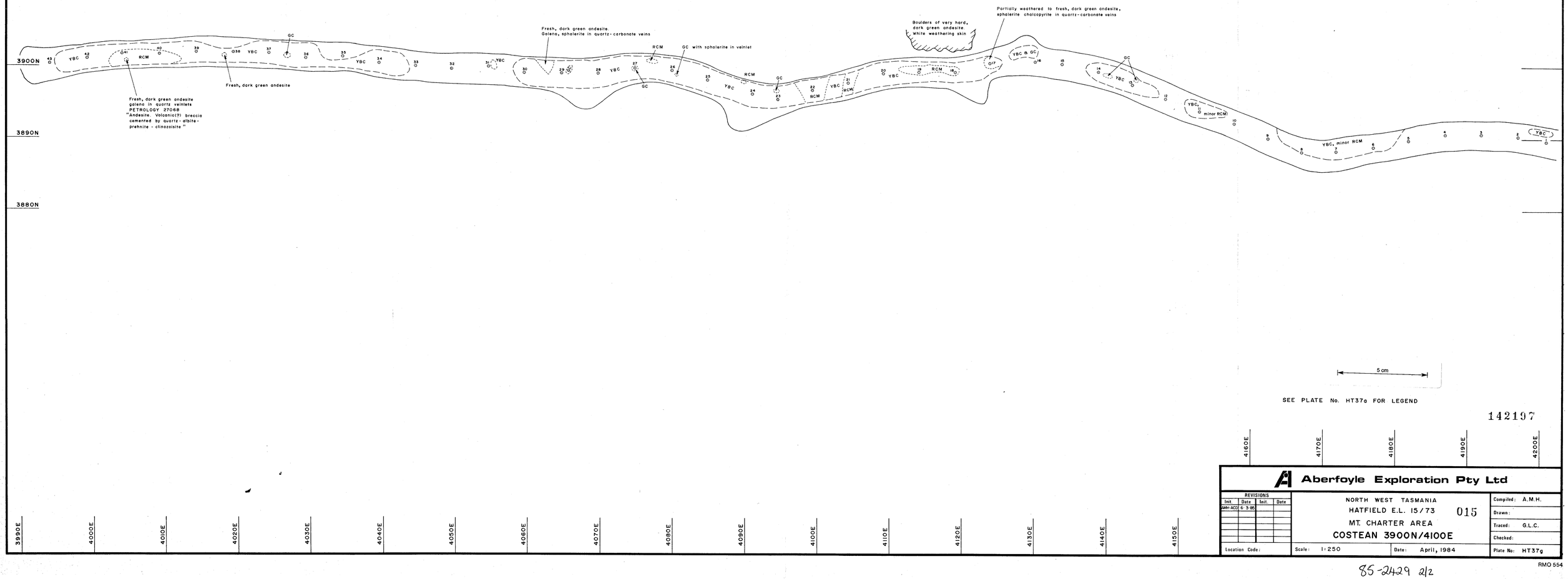
Compiled: AMH
Drawn: AMH
Traced: ACD
Checked:
Plate No: HT 37h

RMO 554

~~84~~ 85-2429 2/2

5m channel samples

	270683	270682	270681	270680	270679	270678	270677	270676	270675	270674	270673	270672	270671	270670	270669	270668	270667	270666	270665	270664	270663	270662	270661	270660	270659	270658	270657	270656	270655	270654	270653	270652	270651	270650	270649	270648	270647	270646	270645	270644	270643	270642
Cr	568	691	626	672	847	767	683	478	625	625	512	520	490	535	592	637	595	568	563	559	452	420	497	362	373	497	572	668	517	565	527	561	475	484	935	501	520	931	650	955	669	1100
Ba	183	169	236	246	436	919	275	309	253	507	1100	444	297	744	733	671	795	891	508	1480	512	497	701	687	429	661	1600	801	507	896	825	644	551	203	579	277	265	567	721	673	640	472
Bs	17	15	15	31	20	11	20	21	21	22	22	27	35	22	22	22	26	22	25	21	25	21	11	20	20	12	12	15	29	19	20	19	17	29	14	26	20	51	29	38	29	31
Ag	-	-	-	0·5	-	-	-	1·0	-	0·5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zn	355	465	470	555	590	625	575	980	900	1050	840	990	1450	990	1800	1550	1900	2050	2300	2350	2250	1250	2050	1900	1750	2050	1600	2300	2250	2650	2950	2350	2250	1750	1800	1850	3000	3450	1800	2150	1400	2250
Pb	1700	1800	1750	2775	1000	845	1500	2650	1850	2450	975	1350	2050	1250	2450	1000	1800	1550	1650	1450	320	445	665	1550	320	210	265	490	235	120	2050	1550	115	220	80	130	270	750	1250	1675	780	335
Cu	65	60	75	70	55	50	55	70	70	65	65	60	70	60	115	85	60	65	115	80	120	125	50	75	70	30	30	40	105	80	110	110	185	85	130	80	110	165	135	140	135	185



SEE PLATE No. HT37a FOR LEGEND

142197

Aberfoyle Exploration Pty Ltd

REVISIONS			
Init.	Date	Init.	Date
AMH-ACD	6·3·85		

Location Code:

NORTH WEST TASMANIA
HATFIELD E.L. 15/73 015
MT. CHARTER AREA
COSTEAN 3900N/4100E

Scale: 1:250 Date: April, 1984

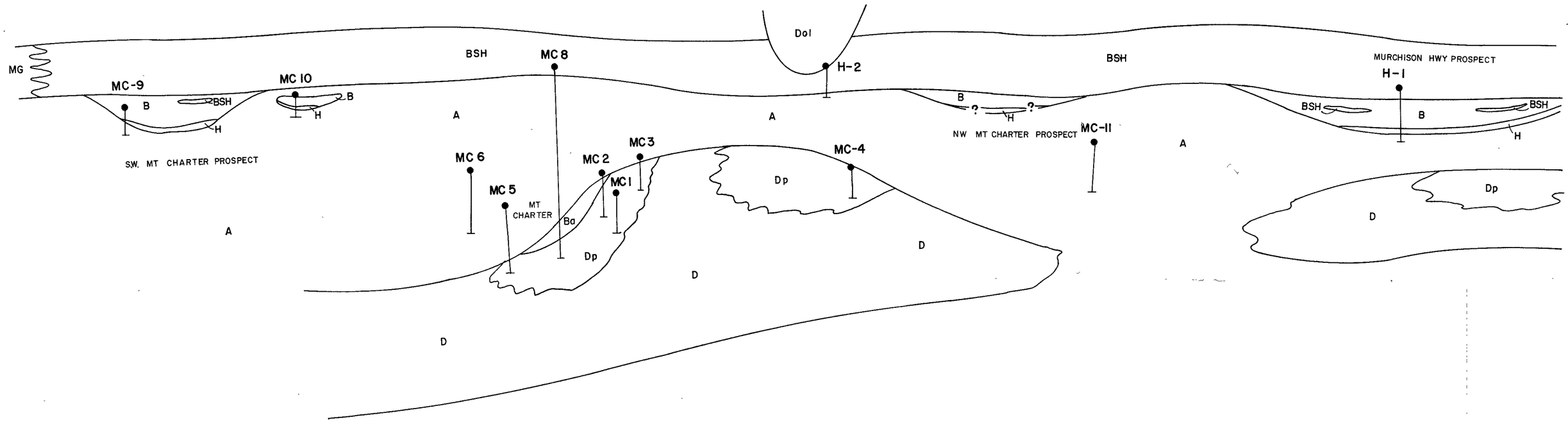
Compiled: A.M.H.
Drawn:
Traced: G.L.C.
Checked:
Plate No: HT37g

RMO 554

85-2429 2/2

S

N



LEGEND

Dol	JURASSIC (?) DOLERITE
BSH / MG	QUE RIVER BLACK SHALES AND INTERCALATIONS OF BLACK SHALES WITHIN BASALT MG- MICACEOUS GREYWACKE- FACIES EQUIVALENT OF BSH
B	VESICULAR CHROMITE BEARING BASALT LAVA AND PILLOW LAVA
H	INTERPRETED ORE HORIZON
A	FELDSPAR PORPHYRITIC ANDESITE LAVA BRECCIA , LAVA
Ba	BARITE HORIZON, MT CHARTER
D / Dp	(D) DACITIC LAVAS D(p) SERICITE/ PYRITE / SILICA ALTERED DACITE LAVAS

142198

5 cm

Aberfoyle Exploration Pty Ltd

REVISIONS			
Init	Date	Init	Date
AMHocd	24 4 85		

Location Code

TASMANIA
HATFIELD E.L. 15/73 016
STRATIGRAPHIC RELATIONSHIPS
S.W. MT CHARTER TO MURCHISON HWY PROSPECT

Scale ARBITRARY | Date April, 1985

Compiled. AMH
Drawn AMH
Traced ACD
Checked
Plate No HT 67

RMO 555

85-2429 2/2

E.L.15/73

E.L. 2/70

Proposed Cradle Mt. Road Survey

Core Shed

Site Office

90M/84

88M/84

89M/84

86M/84

87M/84

CML 68M/84

L 22

L 23

L 24

L 25

L 26

L 21

L 20

L 19

L 18

L 16

L 17

MG1 (1982)

MG2 (1982)

DA1 (1984)

DA2 (1984)

QR8 (1976)

QR109 (1977)

QR72 (1975)

HA1 (1982)

H1 (1976)

H2 (1977)

MC4 (1978)

MC3 (1978)

MC1 (1976)

MC8 (1984)

MC2 (1976)

MC5 (1984)

MC6 (1984)

MC9 (1984)

MT CHARTER

TAILINGS DAM

Store

Admin

HEC Substation

MAIN QUE RIVER SHAFT

Decline Portal

Magazine

Mine Access Road

Proposed Road to Kelly

PROPOSED NELLYER ADIT ACCESS ROAD

BASELINE

HEC Power Line

Exploration Licence Boundary

ZONES OF PROSPECTIVE VOLCANICS NOT YET COVERED BY UTEM

LAKE MACKINTOSH

QUE RIVER

BULGOBAC

MURCHISON HIGHWAY

STATE G.N. 13°52' | M.N. | MINE G.N. 8°13'

Magnetic north as at 1982 – annual change easterly by 04'

	LOOP	LINE CUTTING KM	UTEM SURVEYING	FLAGGING COLOUR CODE: READING LINE	FLAGGING COLOUR CODE: LOOP LINE
HATFIELD	L 17	5·2	4·2	Orange	Blue
	L 18	6·9	6·45	Yellow	Red
	L 19	6·9	3·6	Orange	Blue
	L 20	5·8	3·6	Yellow	Red
	L 21	5·3	3·6	Orange	Blue
	L 22	6·9	4·4	Yellow	Red
	TOTAL	37·0	25·85		
MACKINTOSH	L 23	7·0	4·2		
	L 24	8·8	5·6		
	L 25	13·6	10·2		
	L 26	5·1	4·0		
	TOTAL	34·5	24·0		

142199

LEGEND

LOOP LINE

LINE CUT 1984

PREVIOUS SOIL SAMPLING

5 cm

Aberfoyle Exploration Pty. Ltd.

Geology:	NORTH WEST TASMANIA	Location code: K55/6/44
Drawn: R.J.E., A.M.H.	Mackintosh E.L.2/70 – Hatfield E.L.15/73	Date February, 1985
Traced: A.C.D.	PROPOSED LINE CUTTING AND UTEM COVERAGE	Scale 1:10,000
Checked:	SUMMER 1984 – 85	Plate No. Mac 93
Revised by: A.C.D. Date 6-3-85	017	

85-2429 2/2