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THE SHELL COMPANY OF AUSTRALIA LIMITED

METALS DIVISION

E.L. 7/74 - MOINA

Progress Report on Exploration During the Period

1/7/83 to 30/6/84

**MICROFILMED**

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3. Head Office, Melbourne  
4. Regional Office Devonport

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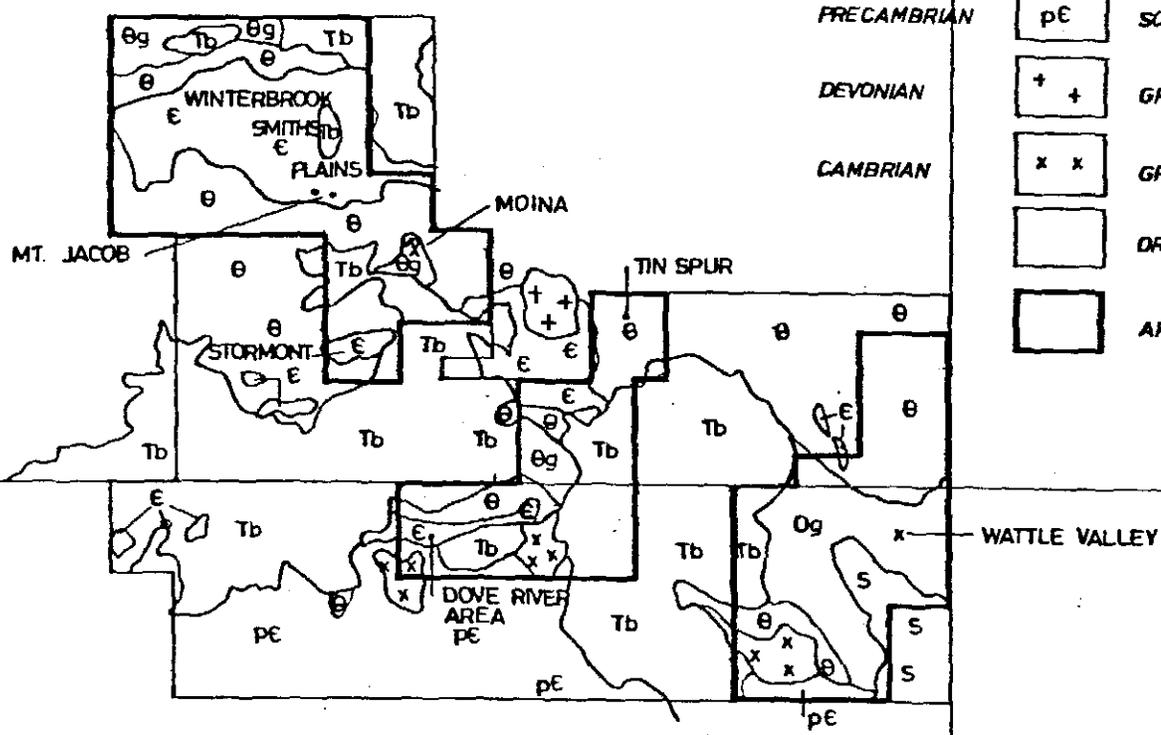
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<u>DRAWING NO.</u>	<u>TITLE</u>	<u>SCALE</u>
Comalco Plan TAS - 77 - 103	E.L. 7/74 Tasmania. Mt. Jacob Grid - Geology & TEM Survey Grid	1:2 500

DEVONPORT

**LEGEND**

- TERTIARY Tb BASALT
- S POST SLURIAN
- ORDOVICIAN θg GORDON LIMESTONES
- θ MOINA SANDSTONE / ROLAND CONGLOMERATE
- CAMBRIAN ε VOLCANICS AND SEDIMENTS
- PRECAMBRIAN pε SCHISTS PHYLLITE
- DEVONIAN + + GRANITE
- CAMBRIAN x x GRANITE
- ORIGINAL E.L. BOUNDARY
- AREA RETAINED



The Shell Company of Australia Limited METALS DIVISION	
<b>E.L. 7/74 MOINA REDUCED LICENCE</b>	
Scale 1:250 000	
FIG No <b>1</b>	REPORT No
ENCL No	DRG No <b>D/MZ01/302</b>
DATE <b>29-7-83</b>	AUTHOR <b>W.D.S.</b>
DRAWN <b>J.L.L.</b>	OFFICE <b>D'PORT</b>

440 000 E

004

SUMMARY

A review of data, particularly within the areas of exposed Cambrian volcanics, highlighted Mt. Jacob as an area with basemetal potential.

A UTEM survey was completed over and along strike of the area where minor Pb-Zn mineralization had previously been intersected in drill core.

While results from this survey proved negative, the licence is still considered to have potential for the occurrence of significant base-metal accumulations.

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## 1.0 INTRODUCTION

The licence, originally consisting of three separate portions, is situated about 40 km SW from Devonport in northern Tasmania (Refer Fig. 1).

The licence is held in JV partnership with Comalco Ltd. This company has ceased contributing to exploration expenditure and its equity in the licence, as at the 29th February, 1984 was 18.26%.

The 60 sq km area over Gordon Limestone at Wattle Valley and Liena was relinquished as from the 18th July, 1984.

The two remaining areas, over Winterbrook - Smith Plains and Tin Spur - Dove River, total the maximum allowable size of 125 sq km for ground over 5 years old.

## 2.0 PREVIOUS INVESTIGATIONS

Previous Shell investigations are recorded in Smyth, 1981, 1982 and 1983 and Wright & Smyth, 1984.

## 3.0 REGIONAL GEOLOGY

The NW block covers the Winterbrook - Smith Plains Cambrian volcanics and sediments exposed in an EW window through the overlying Ordovician Roland Conglomerate, Moina Sandstone and Gordon Limestone.

The Moina magnetite-fluorite skarn deposit occurs within this block adjacent to the Bismuth Creek Fault in a small EW synclinal remnant of Gordon Limestone. This area is underlain by the shallow, EW trending Devonian Dalcoath granite.

006

The central block covers further, poorly-exposed Cambrian volcanics obscured by Tertiary basalt cover.

Granites of ?Cambrian - ?Ordovician age intrude the Precambrian basement to the south in the Dove River area. Prospects of interest on this block include the Tin Spur - Devonian Sn, Au basemetal deposit and the Five Mile Rise Au, basemetal veins.

The eastern block, now relinquished, consists of ?Cambrian granite intruding into Precambrian basement later overlain by Moina Sandstone and Gordon Limestone. A number of Pb, Zn anomalies hosted by the limestone were investigated by Shell at Liena and Wattle Valley. Results were discouraging so the area was dropped. (Refer Wright & Smyth, 1984).

#### 4.0 INVESTIGATIONS COMPLETED

##### 4.1 Mt. Jacob Basemetal Prospect

The Mt. Jacob prospect was originally located by Comalco Limited from anomalous Pb, Zn in streams and soils over an area of altered Cambrian intermediate-acid volcanics.

Two drill holes were completed by Comalco to test coincident geochemical/geophysical targets. One of the holes intersected a 16.5m section averaging 2% combined Pb, Zn in altered rhyolite. (Refer Comalco Plan TAS - 77 - 103).

A problem with the locality is the cover of Roland Conglomerate which thickens markedly to the S and W to cover the extensions of the mineralized volcanics.

007

#### 4.1.1 UTEM Survey

To explore for the possibility of massive volcanogenic sulphides at depth it was decided to run a UTEM survey over the re-established Mt. Jacob grid. (Refer Comalco Plan TAS - 77 - 103).

Five lines, 900 m long were surveyed: 9100E, 9300E, 9500E, 9700E, 9900E, 10100E from 900S to 0S. The Tx loop was along 900S, 910E, 1400S, 10100E and a frequency of 26.23 Hz was used. The Tx loop was put on the southern side of the grid on top of the hill in order to maximise coupling with any south-dipping conductors beneath the northern flank of hill. The Tx loop therefore lies over a considerable (2-300 m) thickness of Moina sandstone and Roland Conglomerate on top of the prospective Cambrian volcanics. Any mineralization at depth would therefore have a weak anomaly at late UTEM delay times. Since the zero level calibration on the UTEM receiver was not set properly the plots are also not on the zero level but this does not effect the results.

Most of the profiles (Refer Figs. 2-7 inc.) show a fairly resistive half space response with some near-surface conductors on the early channels. Line 9700E is an example which shows weak conductors at 675S and 375S. The former may be caused either by weathered Ordovician basalt mapped to lie between the Moina sandstone and Owen conglomerate, or even steel drill casing from MTJ.D18 drill hole. The latter conductor has no obvious correlation but is over Cambrian volcanics. The minor galena and sphalerite intersected by the drill hole does not appear to be extensive or massive enough to cause an anomaly.

On none of the UTEM lines surveyed does there appear to be an anomaly worth further consideration. This conclusion is verified by a check of the previous gradient array IP carried out by Comalco in 1977 which showed no anomalies of interest either.

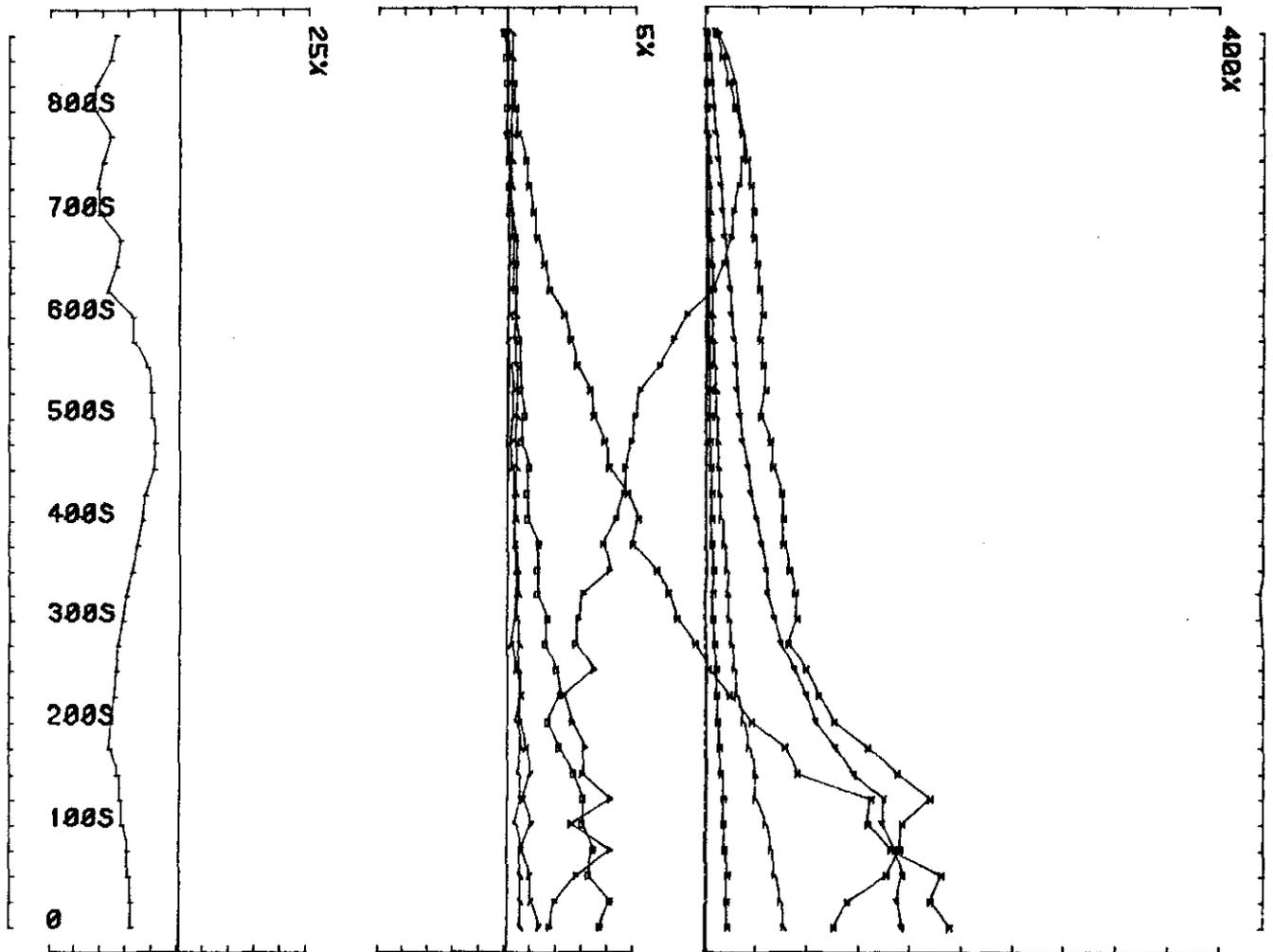
The results do not encourage further work on the prospect.

#### 5.0 CONCLUSIONS & RECOMMENDATIONS

The UTEM survey suggests that no massive sulphide accumulations are present at Mt. Jacob. However, other zones of Cambrian Volcanism within the two remaining licence areas have not been fully evaluated. These areas require further investigation.

REFERENCES

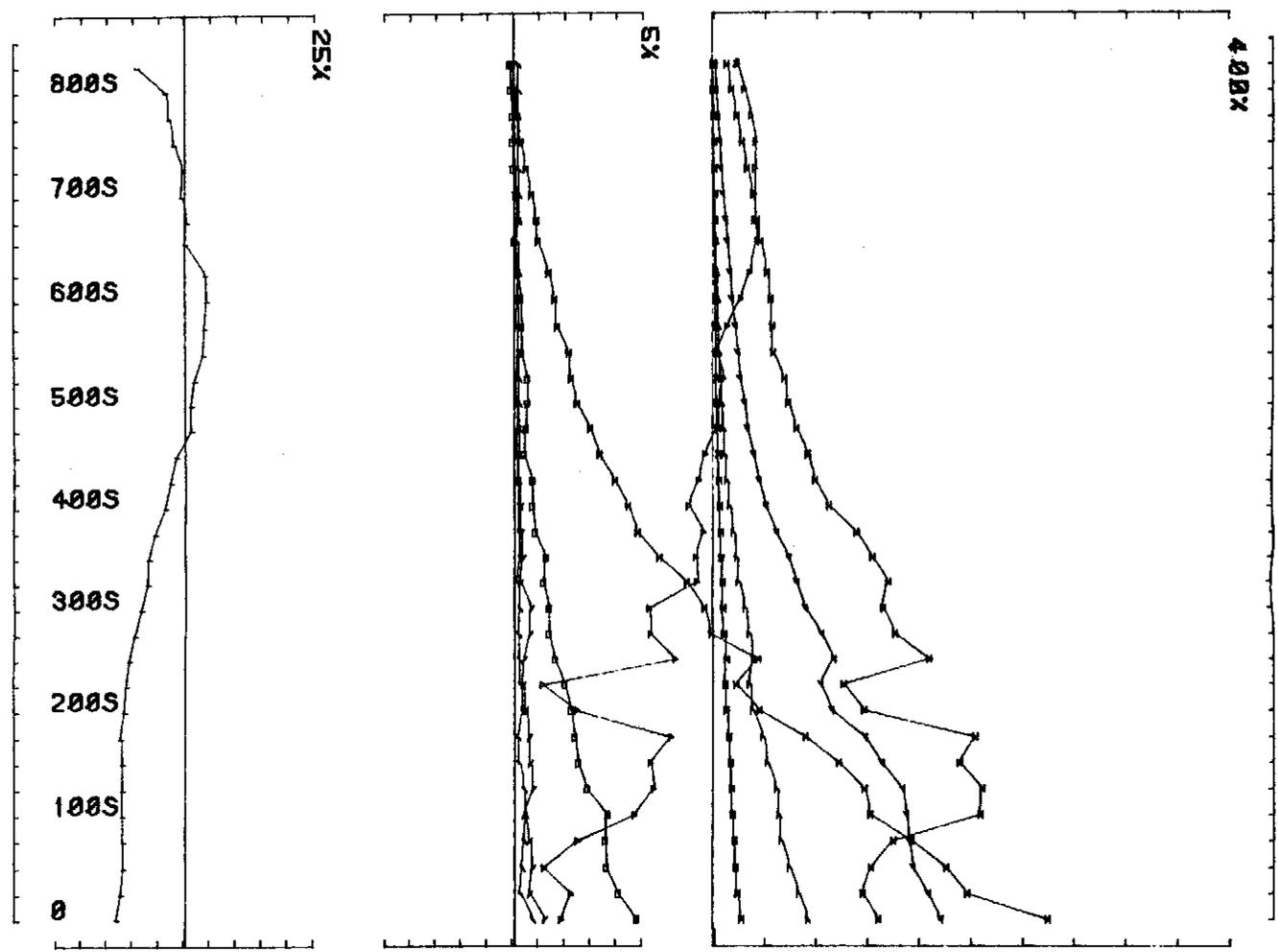
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UTEM SURVEY conducted by PMM BJS Job 1501  
 Project Area Mt. Jacob Survey for Shell Metals freq(hz) 26.230  
 Loopno 0001 Line 9100E component Hz secondary Ch 1.

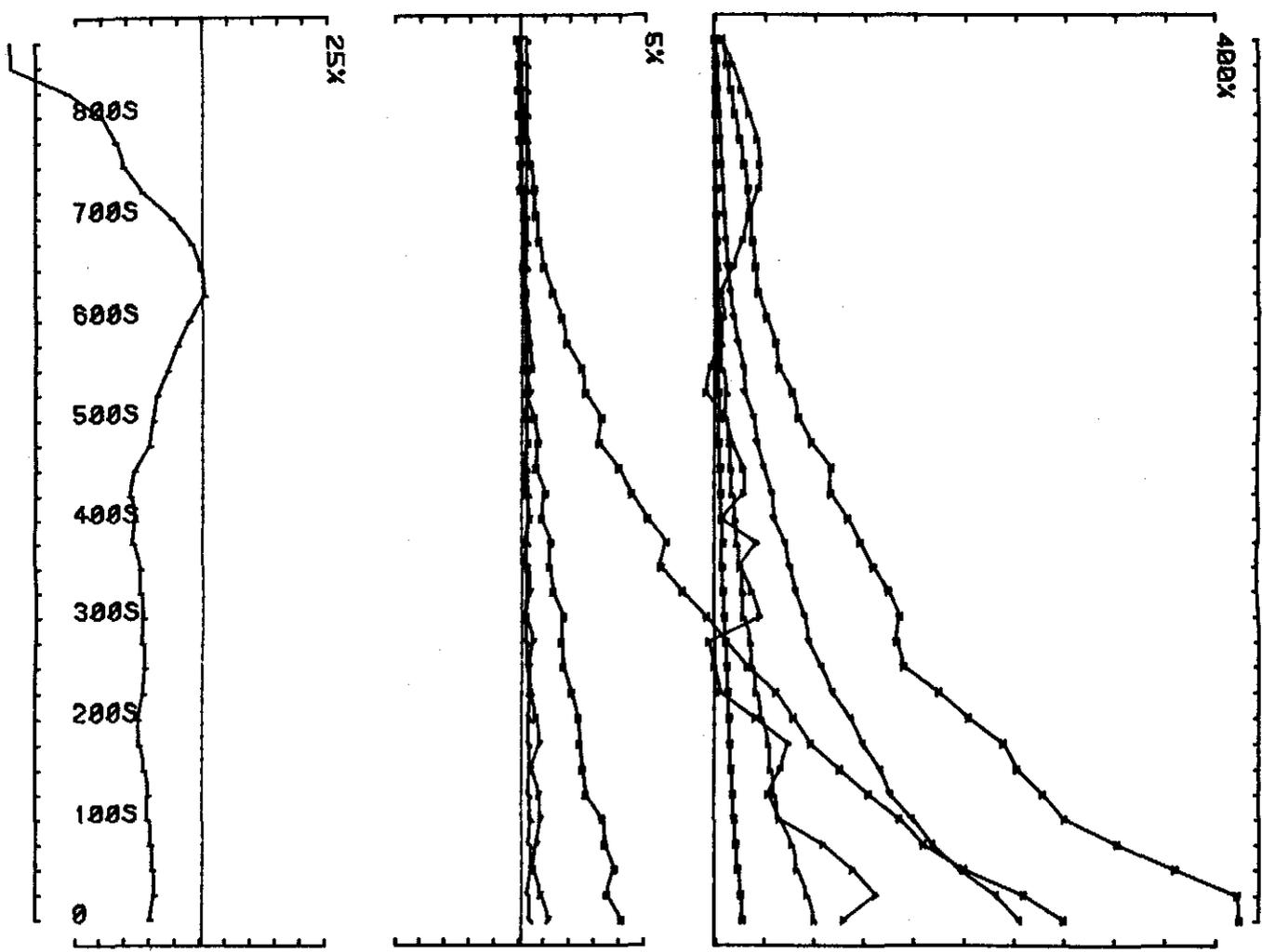
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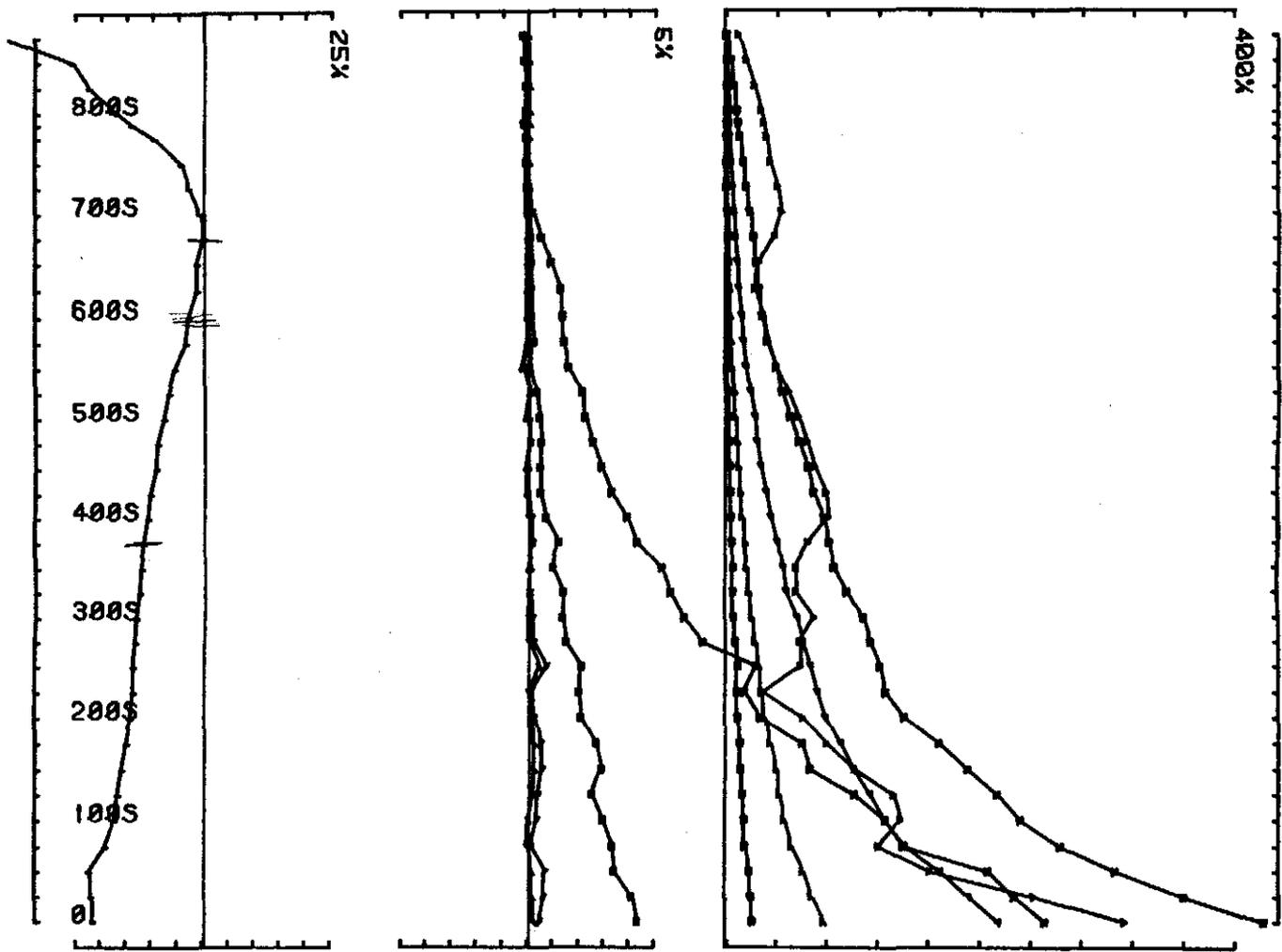


UTEM SURVEY conducted by PMM BJS Job 1501  
 Project Area Mt. Jacob Survey for Shell Metals freq(hz) 26.230  
 Loopno 0001 Line 9300E component Hz secondary Ch 1.

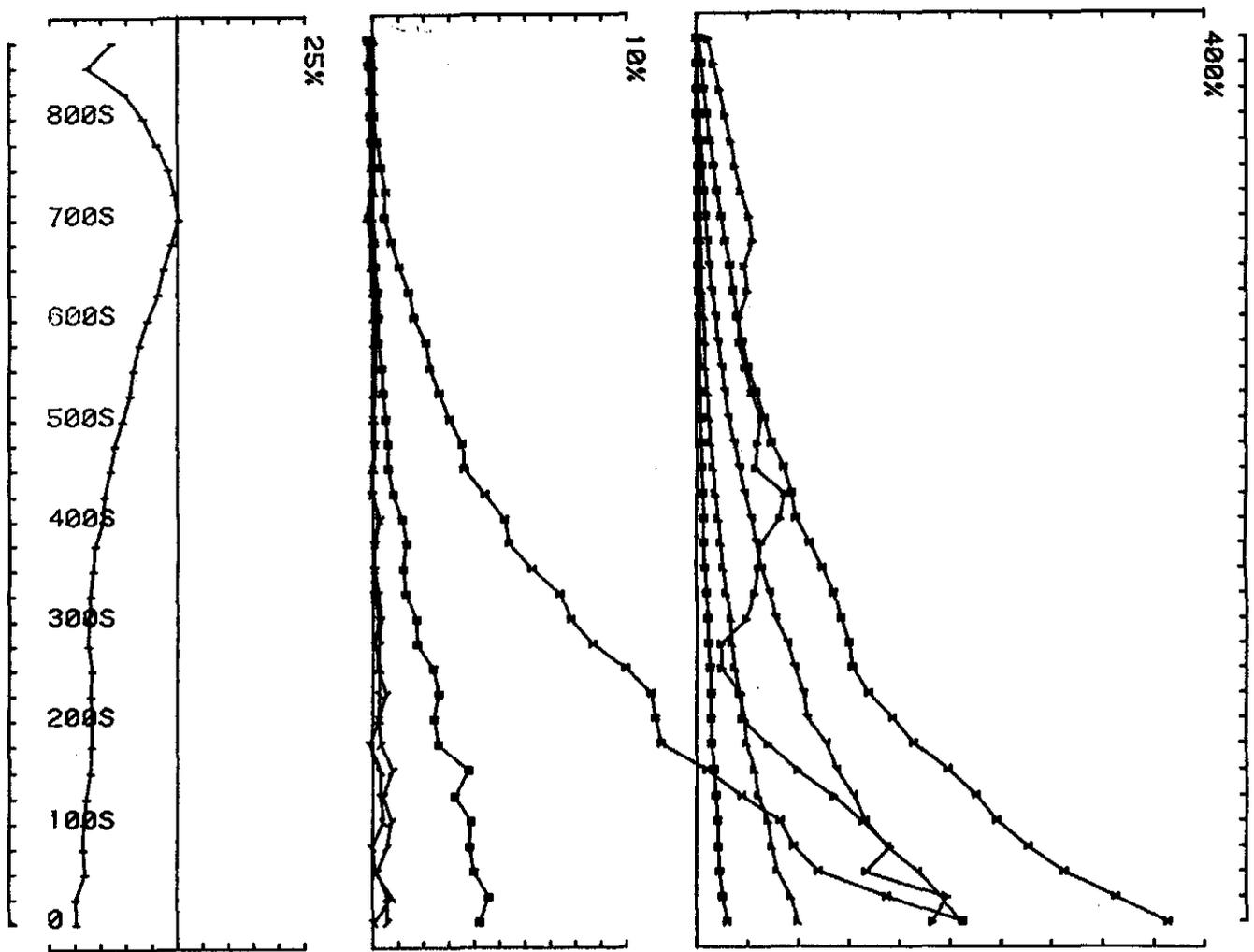
FIG. 3



UTEM SURVEY conducted by PMM BJS Job 1501  
 Project Area Mt. Jacob Survey for Shell Metals freq(hz) 26.230  
 Loopno 0001 Line 9500E component Hz secondary Ch 1.



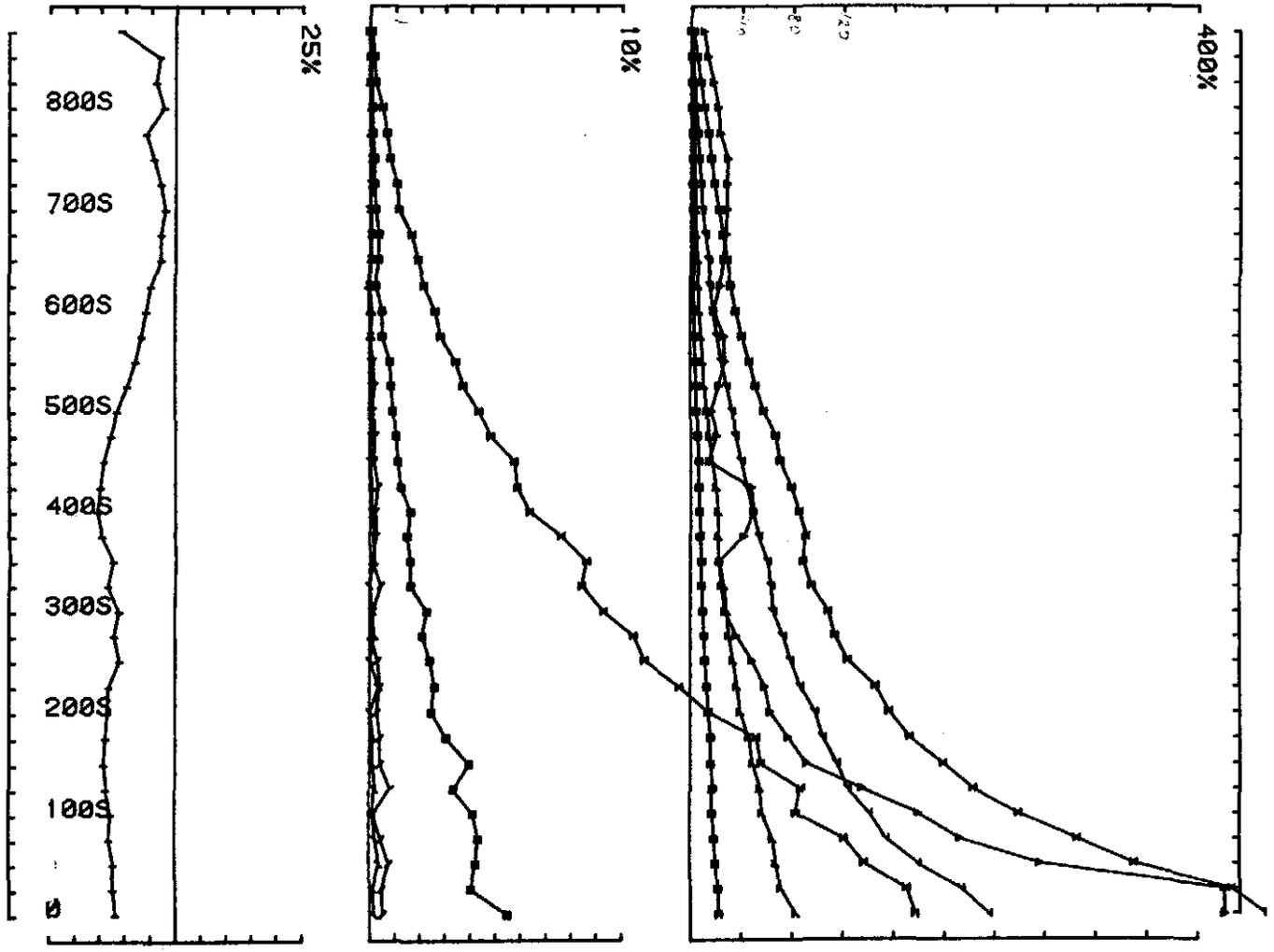
UTEM SURVEY conducted by PMM BJS Job 1501  
 Project Area Mt. Jacob Survey for Shell Metals freq(hz) 26.230  
 Loopno 0001 Line 9700E component Hz secondary ch 1



UTEM SUR VEY conducted by PMM BJS Job 1501  
 Project Area Mt. Jacob Survey for Shell Metals freq(hz) 26.230  
 Loopno 0001 Line 9900E component Hz secondary Ch 1

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299016

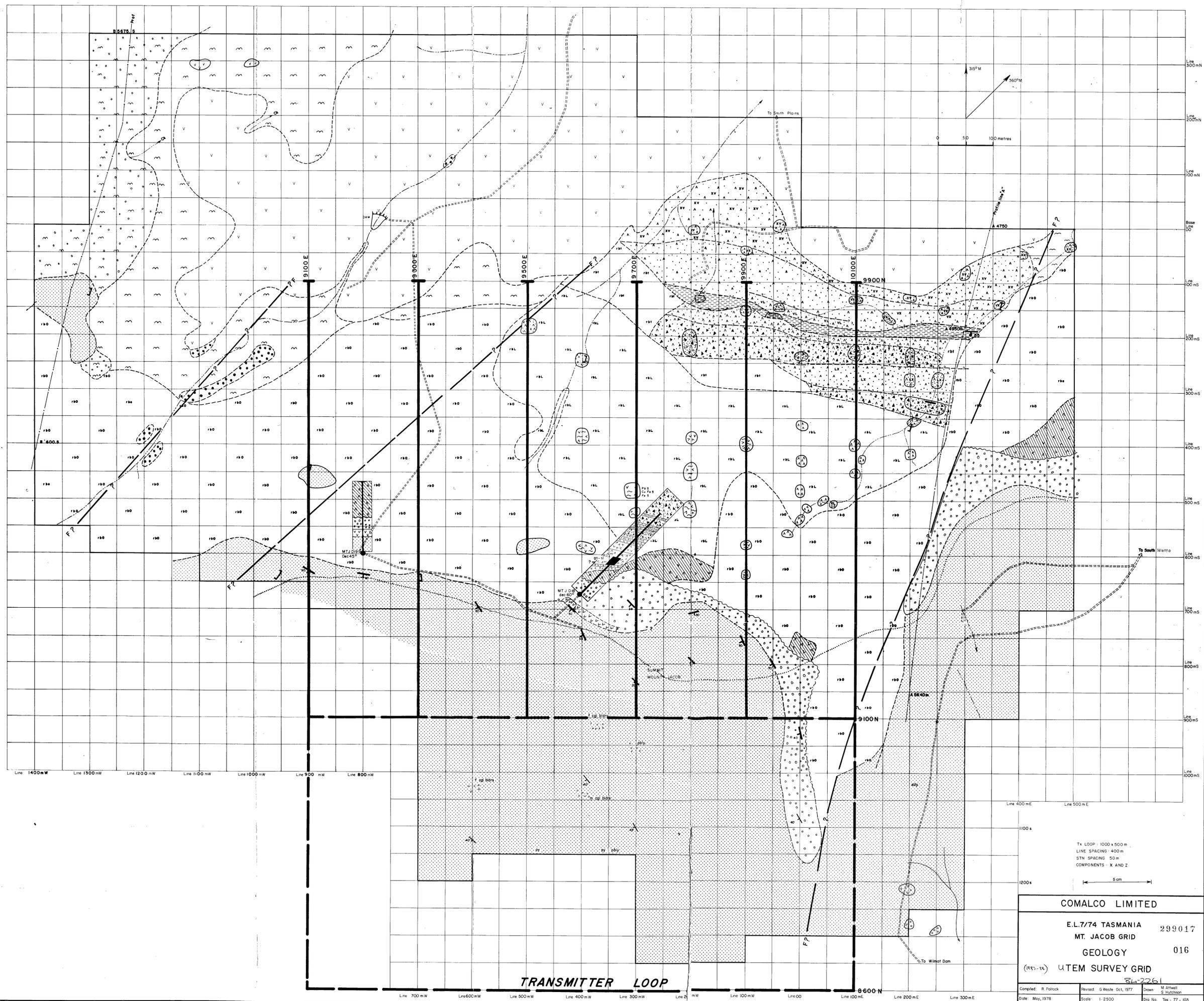


UTEM SURVEY conducted by PMM BJS Job 1501  
Project Area Mt. Jacob Survey for Shell Metals freq(hz) 26.230  
Loopno 0001 Line 10100E component Hz secondary Ch 1

FIG. 7

- RECENT
  - talus and rubble of Ordovician sandstone and conglomerate (rba), of Cambrian lava (rbl), of Cambrian tuffs (rt)
- PLEISTOCENE
  - glacial moraine
- TERTIARY
  - olivine basalt
  - greybill
  - sandstone
- ORDOVICIAN
  - altered vesicular basalt
  - conglomerate
  - acid volcanics
  - intrusive/extrusive rhyolite and rhyodacite
  - flow banded rhyolite (lava)
  - airfall agglomerate
  - crystal tuff
  - crystal vitric tuff
  - vitric crystal tuff
  - vitric lithic tuff
  - lithic crystal tuff
- CAMBRIAN
  - altered dacite
  - intermediate volcanics
  - intrusive/extrusive andesite
  - flow banded andesite lava
  - tuff
  - agglomeratic tuff
  - altered andesite
  - sediments
  - shale with limestone pebbles
  - limestone
  - tuff/shale

- approximate geological boundary
- inferred geological boundary
- ridge top
- four wheel drive track
- outcrop boundary
- inferred fault
- cleavage
- strike and dip
- strike, dip and facing
- strike, dip unknown
- diamond drill hole
- regional profile line and distance in metres
- surface projection DDH core log from section diag nos. 77/87B & 88B



TX LOOP 1000 x 500 m  
 LINE SPACING 400 m  
 STN SPACING 50 m  
 COMPONENTS X AND Z  
 5 cm

**COMALCO LIMITED**  
 E.L.774 TASMANIA 299017  
 MT. JACOB GRID  
 GEOLOGY 016  
 (R5) UTEM SURVEY GRID  
 81-2261

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