

COMSTAFF PROPRIETARY LIMITED
FINAL REPORTS ON AREAS SURRENDERED TO THE
DEPARTMENT OF MINES TASMANIA (JUNE 1985)

EXPLORATION LICENCE 5/63

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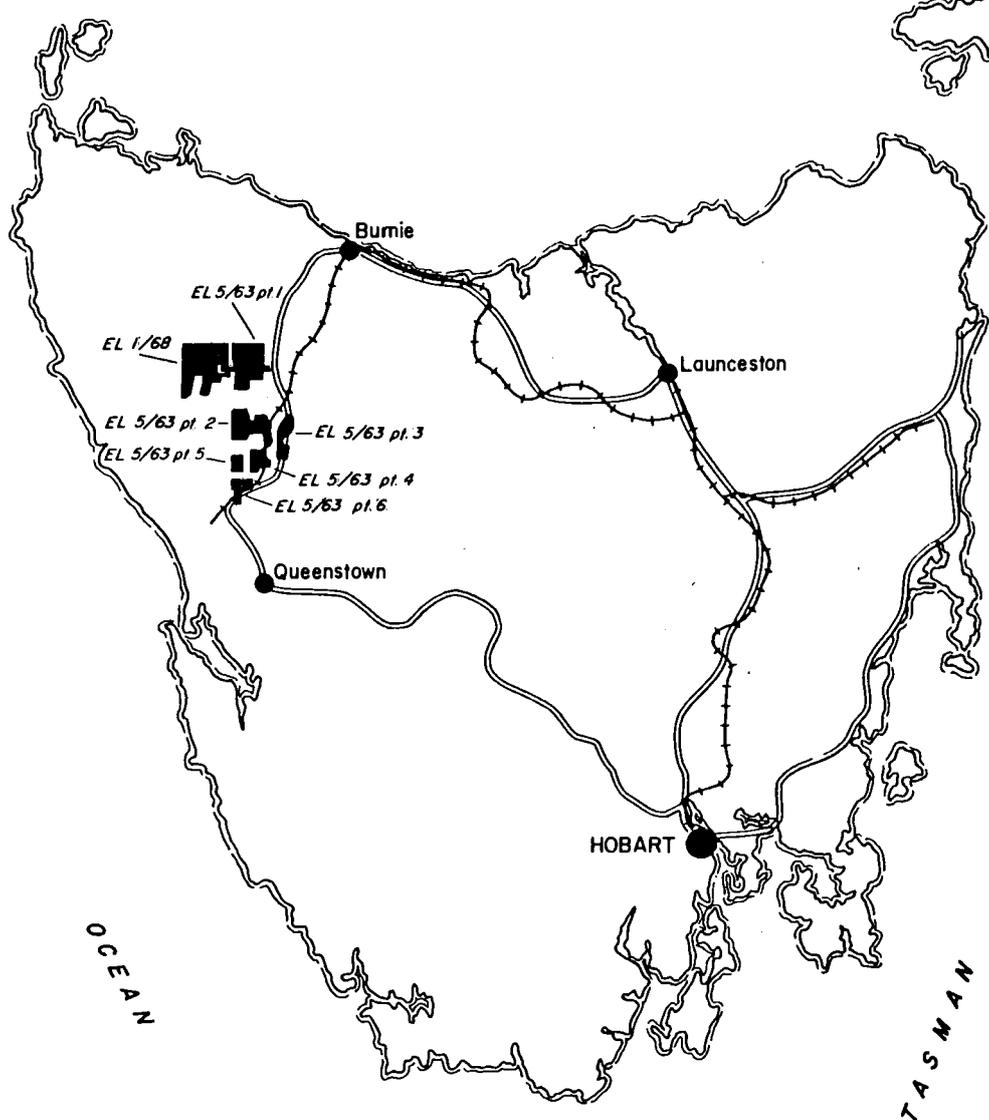
39° 30'

KING ISLAND

BASS

STRAIT

FLINDERS ISLAND



144°

SOUTHERN

OCEAN

149°

SEA

TASMAN

HOBART

Burnie

Launceston

Queenstown

EL 5/63 pt 1

EL 1/68

EL 5/63 pt 2

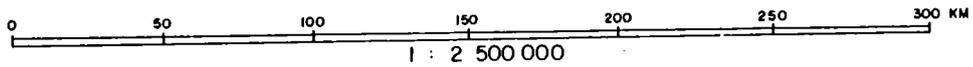
EL 5/63 pt 5

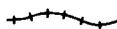
EL 5/63 pt 3

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44°



-  Major roads
-  Major railways
-  Major towns
-  Comstaff lease areas

COMSTAFF PROPRIETARY LIMITED

LOCATION OF COMSTAFF LEASES
IN TASMANIA

DRAWN
GEODRAFT 7/78

COMPILED

SCALE
1 : 2 500 000

TAS/2/1586

12_6421A

Final report on areas surrendered to the Department of Mines Tasr
Comstaff Pty Ltd*
Everett, M.P.; Shaw, R.W.L. EL5/1963



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| AM | A.O. | C.G. | E.O. |
| MAY 1985 | | | |
| DEPT. OF MINES | | | |
| 5658/85 | | | |

PROJECT NAME: COMSTAFF PROPRIETARY LIMITED

TITLE: FINAL REPORT ON AREAS SURRENDERED TO THE
DEPARTMENT OF MINES TASMANIA (JUNE 1985)

EXPLORATION LICENCE 5/63 AREA 1

ARTHUR RIVER

Discussion to Follow *open*

AREA NAME/S, STATE 1 : 250,000 SHEET NO/S & COORDINATES: 1:250 000 sheets K55 03 (Burnie)
K55 05 (Queenstown)

COMMODITY/IES: Cu, Pb, Zn, Ag, Au, Ba

TEXT PACES NO: 4
PLAN NOS: See List of Plans

TABLE NOS: -

APPENDICES: 4

AUTHOR/S: R W L SHAW, M P EVERETT

DATE: MAY, 1985

AUSTRALIAN ANGLO AMERICAN LIMITED

Incorporated in the State of Victoria

LIST OF PLANS

- ✓ TAS/2/4237/38 Plan to Accompany Surrender Report EL 5/63 Area 1
✓ TAS/2/3073/74 Geology

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- APPENDIX 1 DIGHEM 111 Survey of the Arthur River area, August 1983.
- APPENDIX 2 Report A 12 D.B.TRUSSELL Interpretation of Arthur River Area - DIGHEM Survey Nov 1983.
- 80-1415
APPENDIX 3 I.G.P.Wilding and G.F. Washausen, Report on the Arthur River Alluvials EL 5/63. 1980.
- 80-1509 vol 2/3
APPENDIX 4 Preliminary Economic Assessment of the Arthur River Alluvial Prospect

APPENDIX 1 - To follow
" 2 - Herewith (to follow)
" 3 - } CHECK FILE ✓
" 4 - } Already forwarded
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COMSTAFF PROPRIETARY LIMITED

FINAL REPORT ON AREAS SURRENDERED TO THE
DEPARTMENT OF MINES TASMANIA (JUNE 1985)

EXPLORATION LICENCE 5/63 AREA 1

ARTHUR RIVER

INTRODUCTION

In accordance with the requirements of the Department of Mines, Tasmania, EL 5/63 has been reduced from 364 square kilometres to 125 square kilometres. In this reduction, a substantial section of Area 1 has been shed. The following text and accompanying maps summarise the programmes and results achieved in the area to be relinquished. Details of the work done up to 1979 are already on open file at the Department of Mines. Work done since has included programmes which covered both the areas dropped and retained. These programmes are selectively described in this document in order that the data bank for the dropped area is complete.

SUMMARY OF WORK DONE AND RESULTS ACHIEVED TO 1979

1970/71 Stream sediment sampling in the drainages between Magnet Mine and Bischoff and south to the Corinna Rd was completed. Geological mapping was also carried out in selected drainages. The principal anomalies obtained were from the Magnet Mine - contamination - and from Tinstone Creek. The latter indicated that extensions to the Bischoff system were possible.

The above phase of work was followed by a regional TURAM EM survey conducted by Compagnie Generale de Geophysique. They reported eight anomalous responses and recommended follow up of three, A6, A4 and A1.

The above mentioned anomalies were gridded and subjected to TURAM EM surveys by Layton and Associates. Only grid 4 provided geophysical encouragement and further work was recommended.

The previous stream sediment sampling yielded anomalies in the Tinstone Creek area for Ag, Cu, Zn, Pb, Sn and Ba. The area was gridded and six discrete anomalies were identified from the soil sample results.

Most are related to old workings or extensions to the Mt Bischoff body. Follow up recommendations from the EM survey coincided with the requirements for the soil anomalies.

1972 An exercise to identify the source of an 800 ppm Sn anomaly in Mine Creek (Magnet Creek), including additional stream sediment sampling and dump material sampling, showed that the tin source was not the Mine.

Additional work did not take place in this target area until 1975.

1972/73 A reconnaissance geochemical sampling programme was completed over the central and northern sections of the Arthur River area. The geology was comprehensively reported identifying the regional stratigraphy from the ?lower Cambrian Bischoff sequences of dolomites, shales and cherty sediments through mudstones and greywackes of the Cambrian to ?Permian sediments and Tertiary basalt cover in the NE of the licence. In this context the geochemical results were statistically treated after removal of the highly contaminated results from the samples in the Arthur River. Prominent anomalies for Sn were reported from Deep Gully Creek and from Rollins (nee Horizontal Creek) and Dalco's Creek and follow up was recommended. A number of anomalies for Cu/Zn with some associated Ni were recognised, particularly one in the central western part of the area from "Happy Day Creek". It was considered that at least some of these anomalies are due to higher background levels in Tertiary basalts and basic/ultrabasic intrusives in the Cambrian sequence. The principal thrust of follow up recommendations was to investigate the Deep Gully Creek tin anomalism and secondly to grid the Happy Day Creek anomaly. It should be noted that no sulphide mineralisation was observed other than pyrite.

1973 In the Magnet area, two grids were cut over Turam anomalies A5, and 2, and the A4 grid was re-surveyed. Crone EM and magnetic surveys were carried out. No significant anomalies were produced.

1973/74 This summer season saw the gridding of five geochemical anomalies in the north central part of the licence. They were designated Grids A to E and focus on the Cu/Zn anomalies identified in the 1972/73 regional geochemical stream sediment sampling exercise.

The grids were soil sampled and analysed for Cu, Pb, Zn, Ni and Ba. All lines and access tracks as well as drainages were geologically mapped.

No anomalies indicative of the presence of mineralisation were recorded. Anomalous patterns were derived which were largely lithologically controlled. Grid E however was contoured in such a way that the anomalies did not coincide with the observed geological trends and some further work was recommended to reconcile this discrepancy. The level of geochemical values in the soils, and the geological environment indicated by the mapping did not encourage resolution of this 'academic' point.

1974/75 Two costeans were cut across anomalous portions of grid E. They were mapped and sampled but failed to provide any evidence of mineralisation, or shed any light on the apparent discrepancy between the geochemical and geological trends confusing interpretation of the area.

1975/78 A 5 km long grid was cut over the Magnet-Bischoff 'line' and superceeded the previous smaller grids in the area. This was subjected to geological mapping, soil sampling, ground magnetic and EM surveys. Only one EM anomaly was found which was tested by infill lines and drilled (hole BAB 1). This hole passed through basalt before intersecting basement lithologies. It contained no evidence that the anomaly was a result of mineralisation. During this period, the geology of the Magnet Mine was reviewed and two holes were drilled to test the Magnet Lode at depth (MAG 1, MAG 2). Old workings were intersected and only selvages of the mineralised pipe were recovered.

No further work in the Magnet grid area was recommended.

1980 A programme to investigate the alluvial tin potential of the Arthur River was initiated. Stimulus to do this was provided by the highly anomalous tin values reported from earlier drainage sampling results. The details of the work done, results and conclusions are contained in the appended document:-

"Report on the Arthur River Alluvials EL 5/63 Section 1" GFAW and IGPW 1980".

1983/85 In 1983 DIGHEM carried out a survey of the whole of the Arthur area using flight lines with a NW - SE direction. Numerous anomalies were identified and many were recommended for follow up. In the relinquished portion of Arthur River no follow up work was done on any of the anomalies resulting from the DIGHEM survey, apart from background data search of previous work and an assessment of the geological likelihood that they represent accumulations of metal.

The detailed results of the DIGHEM survey for the area relinquished are appended in edited copies of reports by DIGHEM and our company geophysicist. Five anomalies were recommended for further work 2190B, 2200B, 2280B, 2290C and 2400A and B. Our review of each is as follows:-

2190B The anomaly lies within Tertiary basalt terrain. It coincides with a depression in the basalt and may be related to Quarternary alluvium. No geochemical anomalies are recorded in the area and in view of the geology none would be expected. The anomaly was accorded a low priority follow up.

- 2200B Geologically the area is close to the edge of Tertiary basalts where it is in contact with Cambrian aged Waratah River sequence beds. A single weak Sn anomaly is recorded from a north bank tributary of Robinson's Rivulet (35 ppm). Like the previous anomaly a low priority was assigned to the DIGHEM response and work elsewhere in the licence has not changed this ranking.
- 2280B This anomaly plots within a large mass of Tertiary basalt. The anomaly is reported as deep. In this geological context no geochemical response would be anticipated and indeed none is apparent in the results of the 1972 survey. This anomaly had a very low priority ranking for follow up.
- 2290C The anomaly is a linear feature paralleling the contact of the Tertiary basalt with the Cambrian formations to the east. It actually plots within the basalt terrain. Grid E (1973/74) lies immediately east of the anomaly. The stream sediment anomalies which stimulated the cutting and sampling of grid E could well be said to derive from further west than the grid and therefore be related to the DIGHEM anomaly. No follow up of the anomaly was undertaken.
- 2400AB This anomaly lies near the edge of an extensive area of Tertiary basalt cover. It is well west of any geochemical surveys. No follow up has been done.

It is clear that a common theme of Tertiary basalt runs through the list of recommended DIGHEM targets. The basalts are known to generate false anomalies from variations in the nature of the basalt and from gravel aquifers between the flows.

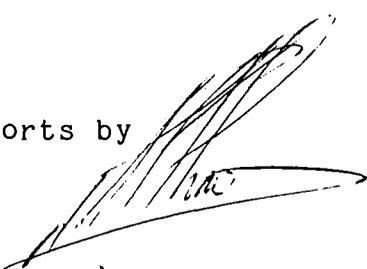
However it is also recognised that in the right geological environment the basalt may mask mineral deposits. It remains to determine a method of screening the anomalies such that drilling through the basalt becomes less of a "wildcat" exercise.

CONCLUSIONS

In the area of Arthur River being surrendered no field work has been done on the DIGHEM anomalies recommended for follow up. They were accorded a lower priority than others, and consequently are being surrendered without input beyond background research.

There has been no recent work on the Magnet area so the data already on open file covers not only the area relinquished but that part around the Magnet Mine which is being retained. There are no new results to add to the work reported from the 1978 season.

Compiled from Comstaff Reports by
R W L SHAW
M P EVERETT
May 1985



12_6421B

Final report on areas surrendered to the Department of Mines Tasm
Comstaff Pty Ltd*
Everett, M.P.: Shaw, R.W.L. EL5/1963



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| FORM | A.O. | C.G. | E.O. |
| DIR. | MAY 1985 | | |
| DEPT. OF MINES | | | |
| REF. No. 5658/85 | | | |

PROJECT NAME: COMSTAFF PROPRIETARY LIMITED

TITLE: FINAL REPORT ON AREAS SURRENDERED
TO THE DEPARTMENT OF MINES TASMANIA (JUNE, 1985)

EXPLORATION LICENCE 5/63 AREA 2 RAMSAY

Open

AREA NAME/S, STATE 1:250,000 SHEET NO/S & COORDINATES: 1:250 000 sheets K55 03 (Burnie)
K55 05 (Queenstown)

COMMODITY/IES: Cu, Pb, Zn, Ag, Au, Ba

TEXT PAGES NO: 4

PLAN NOS: TAS/2/4239, 4240, 3076, 3077

TABLE NOS: -

APPENDICES: 12

AUTHOR/S: R W L SHAW, M P EVERETT

DATE: May, 1985

AUSTRALIAN ANGLO AMERICAN LIMITED

Incorporated in the State of Victoria

LIST OF PLANS

TAS/2/4239, 4240 Plans to Accompany Surrender Report
TAS/2/3076, 3077 Geology

APPENDICES

83-1899
* GREEN 1982 Stage Report on the Ramsay Grids (CA1 and CAG EL 5/63 Part 2)

80-1426
* PIGOTT 1980 Interim Report on the Ramsay Area

83-1898
* GREEN 1982 Interim Report on the Ramsay Grid CAF

83-1900
* GREEN 1982 " " " " Diamond Drilling

83-1984
* GREEN 1983 " " " " Ramsay Grid CAM

83-1985
* PIGOTT 1983 " " " " Mt Ramsay
Tin Tungsten Project

* PIGOTT 1980 Interim Report on the Ramsay Area EL 5/63 Part 2

* GREEN 1981 Preliminary Report on the South Bischoff Mine Area (CSB) in EL 5/63 Part 2

83-1991
* GREEN 1983 Stage Report on the South Bischoff Mine Area (CSB) EL 5/63

* LEVINGS 1983 Final Report on the South Bischoff Prospect (CSB) EL 5/63 Area 2

* LEVINGS 1984 Interim Report on the West Ramsay grids CAI, CAM, L30, L80, L211, L250 and CKC

85 2384
EVERETT 1985 Hatfield Zinc Anomaly, Interim Report

[* - to be released from closed file at Department of Mines] ✓

COMSTAFF PROPRIETARY LIMITED
FINAL REPORT ON AREAS SURRENDERED
TO THE DEPARTMENT OF MINES TASMANIA (JUNE, 1985)

EXPLORATION LICENCE 5/63 AREA 2 RAMSAY

INTRODUCTION

In accordance with the instructions by the Department of Mines, EL 5/63 is reduced from 364 square kilometres to 125 square kilometres. The greater part of Area 2, Ramsay, has been surrendered to achieve this objective. This report summarises the work done to 1979, which is now on open file at the Department, and collates the work done to 1984. The final years work is reported in detail in the appended documents which also cover the details of the work done in the last five years.

SUMMARY OF WORK DONE AND RESULTS

- 1969/70 A programme of pitting, augering and heavy mineral concentrate sampling was done focussing on the alluvial flats of Webb Creek. The objective was to assess their potential as hosts to alluvial deposits of tin, gold and/or osmiridium, shedding and concentrating from the Meredith granite contact zone and serpentinite bodies in the vicinity. Although tin was panned in one heavy concentrate sample from a tributary of Webb Creek the alluvials proved essentially barren.
- 1969/70 A stream sediment and reconnaissance mapping programme was conducted in the Coldstream and Ramsay drainages. Four geochemical anomalies, R1 - 4 were obtained in various combinations of Ag, Cu, Sn and Zn.
- 1971/72 The regional programme continued with follow up by detailed sampling of anomalies R1 to 4, heavy concentrate sampling in the Ramsay and Huskisson rivers backed up by geological mapping and rock chip sampling. The geochemical anomalies derived were dubbed R5 to 10. These anomalies were for Pb/Zn, Cu, Zn, Ni, Sn, Zn and Sn. The programme was expanded with sampling of the Hatfield-Que drainages. Four anomalies, C1 - 4 were defined from the results. The anomalous metals were various combinations of Cu, Zn and Ni with one anomalous value for Sb.

Anomalies R2 and R5 led to the Will O'Wisp target area, which was subsequently drilled (open file) but this area is being retained and will not be reported further here.

A regional stream sediment sampling and mapping programme took place in the Bulgobac/Que River area. Four geochemical anomalies were identified in the vicinity of the Emu Bay railway line at Bulgobac (Bui.1-4). These were followed up by additional sampling and some gridding (Bui.4). The anomalies were traced to the soil ballast of the railway line which provided assays of at least 0.1% Cu, and 2% Pb and Zn. No mineralisation was discovered. The anomalous zone is underlain by the contact zone between a large body of quartz porphyry and black shales and sediments of the western series of the Mt Read Volcanics.

- 1973 Detailed follow up of the drainage anomalies commenced. Anomalies R1, R6, R9 and R10 were covered by a single grid known as the Ott Creek Grid. The grid was subjected to soil sampling with analyses for Cu, Pb and Zn with some parts of the grid additionally analysed for Sn. Geological mapping was completed. No final report was written on the work done but the results are presented in the appended document:-

"Stage Report on the Ramsay Grids CAI & CAG in EL 5/63 Part 2" Green 1982.

- 1974 Three soil grids were planned to follow up the more promising portions of anomalies C2 and 3 (Hatfield R area). Grid 1, 4 x 300m lines, was cut and sampled but never mapped. Low order, semicoincident responses, which repeat poorly, were recorded for Cu, Zn and Ni. The original programme was abandoned at this stage.

- 1975 An INPUT survey utilising a 400m line spacing on an E-W flight track was flown. Eight target areas were interpreted from the results in the area now being surrendered. They are known as CAG, CAI, CAM, CAJ, CAF, CAL, CAE and Bulgobac (CAH). The first seven mentioned were followed up by establishment of grids, collection of soil samples and ground EM and magnetic surveys. Geological mapping was done. Comprehensive reporting of the results achieved are contained in the following documents:-

CAG and CAI in the above mentioned report.
 CAE, CAL, CAF and CAJ - "Interim Report on the Ramsay Area" Pigott 1980.
 CAF - "Interim Report on Ramsay Grid CAF" Green 1982.
 CAL - "Interim Report on Diamond Drilling" Green 1982.
 CAM - "Interim Report on Ramsay Grid CAM" Green 1983.
 CAJ - "Interim Report on the Mount Rasmsay Tin Tungsten Project" Pigott 1983.

- 1978 A reassessment of the 1971 Hatfield/Que geochemical survey was conducted. It redefined the original anomalies and drew attention to the coincidence of the INPUT effect, dubbed CAH, at Bulgobac.
- 1979 The Bulgobac area was reinvestigated following recognition that an INPUT anomaly coincided with the original geochemical anomaly. This new phase of work again failed to see encouragement in the lithotypes present or the alteration effects. It was concluded after restudy of the INPUT data that the prominence of the anomaly was due to a low traverse by the "bird" over the railway line.
- 1979/80 A regional stream sediment and geological mapping programme was conducted in the northern part of the West Ramsay area. This is reported in;
- "Interim Report on the Ramsay Area EL 5/63 Part 2" Pigott 1980.
- 1980 The above mentioned programme led to follow up in an area known as CSB - the old South Bischoff Mine area. Successive phases of gridding, leading to drilling programmes, were conducted. Intersections of subeconomic levels and widths of greisen vein style mineralisation in granite were achieved. Details of the work done and the results are documented in the following reports:-
- "Preliminary Report on the South Bischoff Mine Area (CSB) in EL 5/63 Part 2" Green 1981.
 "Stage Report on the South Bischoff Mine Area (CSB) EL 5/63" Green 1983.
 Final Report on the South Bischoff Prospect (CSB) EL 5/63 Area 2" Levings 1983.
- 1982 Geoex conducted a detailed airborne magnetic survey over the whole Ramsay area. This generated four targets for follow up:- L30, L80, L211 and L250. Details of the results achieved are recorded in:-
- "Interim Report on the West Ramsay Grids CAI, CAM, L30, L80, L211, L250 and CKC" Levings 1984.
- It should be noted that drilling was done in the CAI and CAM grids, without economic success.
- The CKC project was an attempt to assess the prospective Cambrian/Precambrian boundary in the area by a soil sampling programme. The above mentioned report documents the exploration in the western section of the Ramsay area. No further work was done after this date.

1984/85 The abandoned intent to follow up the C2 anomaly in the Hatfield drainage was corrected. The area became known as the "Hatfield Zinc" anomaly and a programme to verify the anomalism was drafted. The work done and results of the exploration programme are recorded in the following document:-

"Hatfield 'Zinc' Anomaly, Interim Report" Everett 1985.

CONCLUSIONS

The fifteen years of exploration in the Ramsay area have permitted the classification of the region into three prospective provinces. The western area - where the emphasis has been on the emanations from the Meredith granite; the central portion dominated by huge thicknesses of Cambrian sediments has yielded anomalies which may suggest distal massive sulphides as a target, and the eastern salient of the licence block where elements of the Mt Read volcanic pile occur and have stimulated work on volcanogenetic targets sensu stricto. Technical success has been greatest in the western province where drill holes have intersected massive to near massive sulphides in INPUT anomaly targets. Without exception however economic minerals have not accompanied the accumulations of pyrrhotite. CSB, the South Bischoff Mine, can be regarded as a classical occurrence of minor greisen vein style mineralisation hosted with granite. Its economic potential is very low and historical production from the mine probably relied on easily won, residually enhanced, near surface accumulations of cassiterite.

In the central portion of the licence anomalism has been attributable to enhanced metal levels in the pyritic black shales which are essential members of the sequence.

The eastern salient provided greatest encouragement in the Bulgobac area. Unfortunately the targets being tested were proven to derive from contamination along the Emu Bay railway line.



Compiled from Comstaff Reports by
R W L SHAW
M P EVERETT
MAY 1985

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Final report to the Department of Mines, Tasmania on the surrender
Comstaff Pty Ltd*
Everett, M.P.; Shaw, R.W.L. EL5/1963



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| DATE | 20 JUN 1985 | | |
| | DEPT. OF MINES | | |
| FILE NO. | 6323/85 | | |

PROJECT NAME: COMSTAFF PROPRIETARY LIMITED

TITLE: FINAL REPORT TO THE DEPARTMENT OF MINES, TASMANIA
ON THE SURRENDERED PORTION OF EL 5/63 AREA 5

MT BLOCK

AREA NAME/S, STATE 1:250,000 SHEET NO/S & COORDINATES: 1:250 000 sheets K55 03 (Burnie)
K55 05 (Queenstown)

COMMODITY/IES: Sn, Cu, Pb, Zn, Ag, Au

TEXT PAGES NO: 3

PLAN NOS: See List of Plans

TABLE NOS: -

APPENDICES: 1

AUTHOR/S: R W L SHAW, M P EVERETT

DATE: MAY 1985

AUSTRALIAN ANGLO AMERICAN LIMITED

Incorporated in the State of Victoria

APPENDIX 1

Interim Report on Debussey Creek EL 5/63
Area 3; Mt Block CRM 1985.

LIST OF PLANS

| | | |
|--------------|---|----------|
| ✓ TAS/2/4241 | Locality - Work Done | 1:50 000 |
| ✓ TAS/2/3077 | Geology | 1:50 000 |
| ✓ TAS/2/2974 | Fork Creek - Geology and Geochemistry. | |

COMSTAFF PROPRIETARY LIMITED

FINAL REPORT TO THE DEPARTMENT OF MINES, TASMANIA,
ON THE SURRENDERED PORTION OF EL 5/63 AREA 3

MT BLOCK

INTRODUCTION

In accordance with the instructions of the Department of Mines, EL 5/63 has been reduced from 364 to 125 square kilometres. In order to achieve this objective two portions of Area 3 have been selected for surrender. The report which follows summarises the work done and results achieved to 1979; detailed reports are already on open file. Details of the work done since that date are reported as appendices to this document.

SUMMARY OF WORK DONE AND RESULTS TO 1979

- 1970-71 Two regional geochemical sampling exercises were conducted, the Mackintosh and the Bulgobac programmes. Both stream sediment samples and heavy mineral concentrates were collected and reconnaissance mapping established the geological context of the results. The stream sediment samples were sieved and the -80# fraction was analysed for Cu, Zn, Ag and Ni by AAS and Sn by colorimetry.
- The heavy concentrates were separated in tetrabromide, microscopically examined and multielement spectrographically scanned. Anomalies for follow up were located at Debussey Creek, the Bulgobac/Mt Charter/Animal Creek triangle and Pink Creek (Southern Sock Creek grid area) in the north and Mullabadine and Tullabadine Creeks in the south east.
- 1972 Follow up took place at Debussey Creek where the target was a heavy mineral concentrate result of 500 ppm gold with anomalous lead and zinc. A closed loop and a small grid was A^o soil sampled. Analyses for Cu, Pb and Zn failed to provide a target for further work. Peak values recorded for these elements were 20, 360 and 130 ppm respectively. Tullabadine and Mullabadine Creek anomalies were gridded, soil sampled and geologically mapped. Old adits were discovered in the Mullabadine grid area. They were checked and up to 0.5% Cu in quartz, sericite schists on the mullock heaps was reported. One of the grid lines crossing the swampy flats of Tullabadine Creek was trial banka drilled.

The objective in this project was to investigate an 8000 ppm Zn value in silt. The highest follow up result achieved was 1200 ppm Zn in siliceous 'quartzite' from rock adjacent to the swamp. It was concluded that the original anomaly was a result of hydromorphic dispersion and concentration.

The core from HEC holes at Tullabadine was inspected - no significant sulphide mineralisation was observed.

Initial soil sampling took place at Sock Creek. Gridding and routine follow up techniques led to a drilling programme. This area lies within the part of Mt Block being retained so details of the programmes conducted are omitted from this report.

1975/76

The Mt Block area was covered with the INPUT EM system. A sizeable anomaly was identified in the northern part of the licence - it was attributed to the presence of shale units. A segment of the anomaly was followed up with the DAB grid where coincident anomalism was recorded from the earlier stream sediment sampling programmes.

Three grid lines were cut, soil sampled, subjected to Crone EM and magnetic surveys and were geologically mapped. The geochemistry was not anomalous, peaking at 20 ppm Cu, 360 ppm Pb and 130 ppm Zn. However three costeans were excavated over the Crone EM anomaly which proved to be the results of carbonaceous and pyritic shales.

The Animal Creek grid was commenced to infill the sparse geochemical coverage down the centre of the Mt Block area commencing at the Murchison Highway. This falls within the area retained.

1977/78

Access track construction towards the DAC grid was commenced. A nine line grid was established which was soil sampled, mapped and in part was magnetically surveyed. No anomalous patterns were returned from the geochemical results and magnetic features represented lithological changes. Geologically the area straddles the contact zone between the Central and Eastern Sequence of the Mt Read Volcanics. No mineralisation or geological features were recognised which encouraged further exploration in the area.

A major review of all pre-existing stream geochemical sampling data was undertaken providing the anomalous zones SI- 4 and M1- 3 as illustrated on the accompanying map. They largely coincide with areas followed up and described in the foregoing. The most important finding was that the data base in the south of the Mt Block area was inadequate to assess the mineral potential conclusively.

A P P E N D I X 1

Interim Report on Debussey Creek
EL 5/63, Area 3
Mt Block



PROJECT NAME: COMSTAFF PROPRIETARY LIMITED

TITLE: INTERIM REPORT ON DEBUSSEY CREEK

EL 5/63, AREA 3

MT BLOCK

AREA NAME/S, STATE 1:250,000 SHEET NO/S & COORDINATES:

COMMODITY/IES: Au

TEXT PAGES NO: 3

PLAN NOS: TAS/2/4139, 4179

TABLE NOS: -

APPENDICES: -

AUTHOR/S: C R MROCZEK

DATE: January 1985

AUSTRALIAN ANGLO AMERICAN LIMITED

Incorporated in the State of Victoria

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 - 1.2 LOCATION
 - 1.3 PREVIOUS WORK
 - 1.4 WORK COMPLETED
 - 1.5 GEOLOGY
 - 1.6 HEAVY CONCENTRATE RESULTS
 - 1.6.1 Method of Collection
 - 1.6.2 Results
 - 1.7 CONCLUSIONS/RECOMMENDATIONS
- REFERENCES

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- ✓ TAS/2/4139 General Location
- ✓ TAS/2/4179 Mt Block area. Debussey Creek Geology and Geochemistry.

COMSTAFF PROPRIETARY LIMITED

INTERIM REPORT ON DEBUSSEY CREEK EL 5/63 AREA 3

MOUNT BLOCK

1.1 INTRODUCTION

This report outlines the follow-up exploration carried out on Debussey Creek.

Debussey Creek occurs in the northern part of the Mt Block tenement, EL 5/63, Area 3 (Plan TAS/2/4139) within the Western Sequence of the Mount Read Volcanics.

The objective was to try and determine the source of previously reported detectable gold occurring in stream sediments and heavy concentrates (Thynne, 1984) and to see if a geological setting was present that could host volcanogenic base metal gold mineralisation.

1.2 LOCATION

The Debussey Creek area is situated approximately 20 km south along the Murchison Highway from the Fingerpost junction.

Debussey Creek is a minor tributary of the Que River flowing in from the true left, 1180m downstream from where the Murchison Highway crosses the Que River.

1.3 PREVIOUS WORK

D Thynne in his assessment report on Mt Block (Thynne, 1984) provides a detailed account of previous work carried out in this area. The following is a brief summary from this report.

The Debussey Creek area was covered during a regional stream sediment and heavy concentrate sampling programme carried out in 1969/71 over the Mount Block tenement.

A heavy concentrate sample collected in Debussey Creek indicated the presence of gold. Spectrographic scan analysis returned a 500 ppm Au value, 10000 ppm Pb and 1000 ppm Zn values. In 1972 follow-up heavy concentrates were collected in the creek at 30m intervals. Minor gold colours were recorded, spectrographic analysis showed that the gold values were below the level of detection (3 ppm). In late 1972 a small grid-closed traverse was established over Debussey Creek.

Soil samples were collected and analysed only for Cu, Pb and Zn. Results were not encouraging. Apart from the spectrographic scan analysis of heavy mineral concentrates no further gold assays were reported, and no further work was done on the area.

1.4 WORK COMPLETED

Geological mapping was restricted to stream and track traverses using tape and compass survey points for control. In total 1.94 km of stream and 700m of track survey was completed. Mapping was carried out on a 1:5000 scale (Plan TAS/2/4179).

Five heavy concentrates were collected for Au analysis (Plan TAS/2/4179). Three in Debussey Creek at 40m, 240m and 360m respectively and two in minor creeks to the west and east of Debussey Creek.

1.5 GEOLOGY

The Debussey Creek area occurs towards the eastern edge of the Western Sequence of the Mt Read Volcanics, about 2 km from the inferred contact of Western Sequence and Central Sequence (Plan TAS/2/4139).

The area is underlain by dark grey argillites /shales/ greywackes and pale grey siltstones of the late middle Cambrian Que River beds. These beds are interpreted to be the basal unit of the Western Sequence (Collins et. al. 1981). Rocks of the Que River beds were observed in places outcropping from the Que River Bridge down the Que River to the junction with Debussey Creek, then up Debussey Creek for a distance of 300m. Cleavage of the Que River beds strikes NE with dips to the SE and E of 18° to 70°. Bedding observed in only one outcrop of greywacke in Debussey Creek had an ENE strike and 20° dip to the south.

Minor pyrite was observed occurring in the shales as small (1-2mm) nodules and cubes.

Between 180m and 220m in Debussey Creek a fine grained pale brecciated rock was observed. A specimen submitted for a petrological description in 1972, was classified as a rhyolitic flow breccia. The setting of this unit in the field is that of a dyke.

In the headwaters of Debussey Creek, observed outcrops were of a pale green lapilli sized volcanic tuff. The contact between the Que River beds and the tuff unit is said to be conformable (Collins et.al. 1981).

The contact was not observed in the field. The tuff is composed essentially of quartz and feldspar crystals and shaley fragments. The fragments and crystals are randomly orientated and no lamination was observed (Collins et.al 1981) suggest that this unit was formed by airfall and deposition was in an aqueous environment rather than a subaerial environment.

Minor insitu quartz veins were observed in this unit, infilling fractures. Predominant strike directions were E-W and NE-SW, dips were generally vertical. Abundant large boulders of milky white quartz float were observed in the headwaters, and the ridge leading to the main highway, no large veins were observed in outcrop. The quartz veins looked barren.

Apart from minor secondary pyrite associated with the Que River beds, no evidence of base metals was observed.

1.6 HEAVY CONCENTRATE RESULTS

1.6.1 Method of Collection

A 10 l bucket of gravel was collected at each site and sieved through an 0.5 cm sieve. The resulting concentrate was concentrated further using a prospecting dish at the Waratah office.

Each sample was carefully panned down till enough material remained to fill a 100 ml bottle. The samples were sent off to Amdel for gold analysis by fire assay.

1.6.2 Results

Gold results for the five heavy concentrates are as follows:-

| <u>Sample No</u> | <u>Location</u> | <u>Au(g/t)</u> |
|------------------|-----------------------------|----------------|
| Z 4636 | Debussey Creek 40m | < 0.01 |
| Z 4637 | " " 240m | < 0.01 |
| Z 4638 | " " 360m | 1.2 |
| Z 3601 | Ck west side of Debussey Ck | < 0.01 |
| Z 3602 | Ck east side of " " | < 0.01 |

The results are low. The 1.2 g/t value in the headwaters of Debussey Creek indicates that the gold is most likely being shed from the tuff unit, probably from the quartz veins associated with it. It is unlikely these quartz veins would contain economic quantities of Au.

1.7 CONCLUSIONS/RECOMMENDATIONS

From geological mapping at Debussey Creek no basemetal or Au mineralisation was observed; but Que River beds are associated with mineralisation in other areas. At Sock Creek to the south of Debussey Creek base metal mineralisation is associated with quartz porphyry/Que River bed contacts. At Hellyer, to the east of Debussey Creek, Que River beds occur. However they overlie a sequence of andesites of the Central Volcanic Sequence which are the host to massive sulphides. From surface geological evidence no porphyries or andesites are present in the Debussey Creek area, and with the poor geochemical results (past and present) it is unlikely that volcanogenic base metal or Au mineralisation is present at Debussey Creek and no further work is recommended.

REFERENCES

Collins P L F, Gulline A B, Williams E, 1981. Sheet 44
Mackintosh Geological Survey Explanatory Report. Tasmania
Department of Mines.

Thynne D, 1984. EL 5/63 Mt Block. An Assessment. "In House"
company report for Comstaff Pty Ltd.

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| DEPT. OF MINES | | |
| FILE No. | 5/58/85 | |

PROJECT NAME: COMSTAFF PROPRIETARY LIMITED

TITLE: FINAL REPORT ON AREAS SURRENDERED
TO THE DEPARTMENT OF MINES, TASMANIA (JUNE, 1985)

EL 5/63 AREA 5

OPEN

AREA NAME/S, STATE 1:250,000 SHEET NO/S & COORDINATES: 1:250 000 sheets K55 03 (Burnie)
K55 05 (Queenstown)

COMMODITY/IES: Cu, Pb, Zn, Ag, Au, Ba, Ni

TEXT PACES NO: 3
PLAN NOS: TAS/2/4242, 3076

TABLE NOS: -

APPENDICES: -

AUTHOR/S: R W L SHAW, M P EVERETT

DATE: May, 1985

AUSTRALIAN ANGLO AMERICAN LIMITED

Incorporated in the State of Victoria

LIST OF PLANS

- ✓ TAS/2/4242 Plan to Accompany Surrender Report EL 5/63 AREA 5
- ✓ TAS/2/3076 Geology

COMSTAFF PROPRIETARY LIMITED
FINAL REPORT ON AREAS SURRENDERED
TO THE DEPARTMENT OF MINES, TASMANIA (JUNE, 1985)
EL 5/63 AREA 5

INTRODUCTION

In accordance with the instructions of the Department of Mines EL 5/63 has been reduced from 364 square kilometres to 125 square kilometres. In this reduction the whole of Area 5, Huskisson, is being dropped. This report summarises the work done in the area to 1979, details are already on open file in the Department. No field work has been done since that date - the area has remained on a "watching brief" status only.

SUMMARY OF WORK DONE

- 1968/69 The Huskisson Serpentinite was chosen as a target and three lines of C zone soil samples were collected across the body. Nickel values peaked at 1.6% in the soil.
- 1969/70 An eleven line grid (Huskisson Nickel grid) was cut to follow up the results of the previous year and two additional reconnaissance lines were cut across the serpentinite north of Lynch Creek. The follow up grid provided nickel results which were contoured at the 8000 ppm level - a coincident cobalt anomaly was recorded at over 600 ppm. The reconnaissance lines north of Lynch Creek gave anomalies, though of a lower order than those reported above. Two trenches were excavated in the main grid area and chip samples provided an average of 0.25% Ni and 100 ppm Co in serpentinite.
- 1970/71 The Ni target was drilled with hole HUS 1 to 182.9m. Serpentinite was intersected in the drill hole which gave an average analytical value of Cu less than 5 ppm, Co 60 ppm and Ni 2000 ppm. Black siltstones which preceded the serpentinite in the hole were anomalous in Cu (1000 ppm). Track construction exposed chrysotile asbestos fibres in the northern sector of the grid. Mapping and fibre measurement led to the identification of asbestos mineralisation grading 3.1% fibre with a maximum length of 3/16" patchily developed in an area some 20 - 40 metres by 600m.

The Huskisson regional programme included stream sediment, heavy mineral concentrate sampling and reconnaissance mapping. The area covered extended north from the Pieman River to the Coldstream/Ramsay Rivers.

- 1971/72 Follow up of anomalies generated in the previous year's reconnaissance sampling was done. Three grids were cut testing Zn, Cu, Pb anomalies with associated Ni, Co, Ag and Hg values. The grids (1, 2 and 3) were analysed for various combinations of these elements and the results were disappointing; they prompted no further work. The greater parts of Grids 2 and 3 are now outside the area. A ground EM survey was conducted over the Huskisson Nickel Grid which delineated an anomaly coincident with the geochemical responses. Interpretations suggested a reverse dip to that tested by HUS 1.
- 1973 A second hole, HUS 2, was drilled to test the EM anomaly. It drilled to 182m, in serpentinite for its whole length. It was chip sampled and analysed without providing evidence of mineralisation as the cause of the EM effect.
- 1975 Interest in the area was revitalised by an INPUT airborne EM survey. This provided anomaly FAH which was linked with anomalies FAG and FAF, and anomalies FAC, FAD and FAE.
- 1975/76 Follow up work commenced on the FAH group of anomalies with a three line grid. Similar grids were cut over FAC, FAD, and FAE. Each was subjected to soil sampling, ground magnetic and EM surveys and geological mapping. No further work was done on FAC, FAD and FAE.
- 1976/77 The FAH grid was expanded to nine lines which were surveyed as above with the addition of SP traverses. Two trenches were excavated. Geochemical anomalies on the grid coincided with EM and SP responses. The trenches showed these to be due to black shales in contact with amphibolite. Channel sampling of this zone of interest provided a 1.3m zone with 580 ppm lead and over 0.6% copper. The proposal to drill test this target was rejected.
- Post 1979 No field work has been done. Previous results have been reviewed at regular intervals without changing the conclusion that additional work was not required.

CONCLUSION

Successive phases of work, with differing target concepts, have not discovered evidence of significant mineralisation in the area. The early nickel search did not show the presence of sulphides as the cause of the nickel anomalies - they were caused by residual accumulations of silicate and oxide nickel bearing minerals. The development of asbestos is of academic interest only. A switch to Cu, Pb, Zn commodities provided marginal success in the location of anomalous shales in the FAH grid area. The decision not to drill test this occurrence need not be reversed.

The whole of Area 5 is relinquished and detailed reports of the work done as summarised above are already on open file.

A handwritten signature in black ink, appearing to be 'R W L SHAW', written over a large, stylized, scribbled-out shape.

Compiled from reports by Comstaff P/L

by:

R W L SHAW

M P EVERETT

MAY, 1985

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| | A.G. | U.G. | E.O. |
| DIR. | 21 JUN 1985 | | |
| DEPT. OF MINES | | | |
| No. 6385/85 | | | |

PROJECT NAME: COMSTAFF PROPRIETARY LIMITED

TITLE: EAST RENISON (EL 5/63), PART 6

INTERIM REPORT

OPEN FILE

AREA NAME/S, STATE 1:250,000 SHEET NO/S & COORDINATES: 1:250 000 sheet Burnie SK 55-03
1:250 000 sheet Queenstown SK 55-05

COMMODITY/IES: Sn, Cu, Pb, Zn, Ag, Au

TEXT PACES NO: 7

PLAN NOS: See List of Plans

TABLE NOS: -

APPENDICES: 4

AUTHOR/S: M P EVERETT

DATE: APRIL 1985

AUSTRALIAN ANGLO AMERICAN LIMITED

Incorporated in the State of Victoria

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| TAS/2/4227 | " " DDH 180H/1 Geological Interpret |
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COMSTAFF PROPRIETARY LIMITED

EAST RENISON (EL 5/63, PART 6) INTERIM REPORT

APRIL 1985

1. INTRODUCTION

This report describes the work carried out in the East Renison area of EL 5/63 (Part 6) in the period August '84 to March '85. More specifically it describes the drill testing of geophysical anomalies '180H' and '120AX' as a culmination of a long period of regional exploration, much of it based on the follow up of airborne EM and ground EM responses. The positions of grids 180H and 120AX are shown on location plan TAS/2/1802.

2. SUMMARY OF PREVIOUS WORK

The first use of airborne geophysics by Comstaff in this area was an INPUT EM survey flown in 1975. Ten anomalies were selected for field testing, all of these were later downgraded.

A DIGHEM EM survey was flown over the East Renison area in 1983 and a large number of conductors were located, including the re-location of the original ten selected INPUT anomalies.

For a detailed summary of the exploration of those DIGHEM anomalies to July '84, refer to:

"Ground Follow Up of Airborne Input and DIGHEM EM Anomalies, Progress and Conclusions Attained by July 1984", D.S. Thynne, Comstaff report, July 1984.

3. WORK ACHIEVED

Thynne's report recommended further work on DIGHEM anomalies 120AX (also a UTEM anomaly), 180H, 230H and 60D. Thynne's recommendations for work at 230H and 60D were rejected, largely on geological grounds; recommendations for a GENIE EM survey at 180H were accepted and for 120AX re-interpretation of the geophysical data led to the decision to test drill without further ground work.

3.1 Genie Survey (180H)

In September 1984, a GENIE EM survey was completed by Scintrex at DIGHEM anomaly 180H. Definite conductors were located on all five grid lines. The location of these responses and the varying interpretation of Scintrex and Comstaff's consulting geophysicist, Dr D B Trussell, are shown on plan TAS/2/4174. Following from this variance in interpretation, Scintrex were given the airborne EM data and asked to re-evaluate the 180H GENIE data. Their revised document forms Appendix 1 of this report. In brief, Scintrex's Zone H 1 was unaffected by this reappraisal but the previously confusing interpretation of Zone H₂ was refined and expanded and zones H₃ and H₄ added. Zone H₄ corresponds to an anomaly³, picked by Trussell but not previously by Scintrex, and is described by Scintrex as probably being produced on line 5480N by a minor, horizontal to spherical, conductive source, possibly 50-100m deep at 5670E. Further north on line 5640N, Zone H₄ was revealed as a possible semi-vertical conductor at 5690E adjacent to a surface conductor west of about 5560E. For Zone H₃, the GENIE ground survey on line 5000N showed a negative anomaly at 5530E. This was possibly due to a near vertical conductor centred at 5530E and was seen on lines 5160N and 5320N at 5540E and 5510E respectively. This zone appeared to correspond with DIGHEM anomaly 180H.

3.2 Reinterpretation of UTEM Responses (120AX)

In order to get a better understanding of the UTEM anomaly at 120AX, Lamontagne Geophysics were asked to re-interpret the data and clarify their previous brief report. Lamontagne confirmed that the best response along feature B occurred on line 5425N (see TAS/2/4176) and advised that a broad, weak conductive zone lay between feature A and B and was 'formational' in character. This broad zone imitated the geology by following the same changes of strike from NW-SE in the north to NNW-SSE in the south. While feature A may reflect only the 'edge effect' of this broad zone, there were recognisable 'overprinted' extra conductivity responses associated with feature B. These were especially pronounced on the three southern lines of the grid and best developed on line 5325N. For various reasons, Lamontagne stated that it was not possible to predict the geometry of this overprinted conductive feature except that it appeared to be 'steep' and its exact line position was open to a lateral error of 25m.

3.3 Diamond Drilling Proposals

It was decided to test two of the DIGHEM anomalies which had both positive follow-up ground geophysical responses and were broadly representative of many of the local DIGHEM responses. Additionally the anomalies selected were blind to geological and geochemical evaluation through a thick glacial cover. Further, it was required to either quickly upgrade or to downgrade this area prior to the necessity to relinquish parts of EL 5/63 by June '85.

Anomalies 180H and 120AX were selected for drill testing.

3.3.1 180H

The 180H grid covered INPUT anomaly GAO and DIGHEM anomalies 190K, 170F-180H and 160E-170E-180G (see TAS/2/4174).

By extrapolation from exposures to the south in the Pieman River, the grid appeared to be underlain by rocks of the Rosebery Group (Stitt Quartzite, Westcott Argillite, Salisbury Conglomerate, Natone Volcanics, Munro Creek Slates, etc) which have been prospected in other areas for base-metal deposits of a volcano-sedimentary style.

Locally, the 180H grid was covered by glacial deposits and thus geological, geochemical and magnetic data were of restricted use in helping to assess the economic potential of the area.

It was likely that the GENIE responses were 'formational' and represented conductive geological strata. However, in the absence of direct supporting geological and geochemical evidence, drilling was required in order to resolve the matter and consequently short drill holes were proposed to test both the western and eastern conductive GENIE zones.

The western conductor (H₁) was well defined (by both the Trussell and Scintrex interpretations) on all five grid lines. Scintrex commented that line 5000N was the probable southern extent of the anomaly while the northern limits were as yet undefined.

Also "the form of the data fits the shape generated by a moderate to resistive surface layer underlain by a body with a near vertical dip in the south at about 5160N, changing to a steep westerly dipping body fairly close to the surface at 5320N". Trussell's interpretation agreed closely but he noted the change of strike of the conductive body south of line 5320N and attributed this to the possibility of faulting.

To test this western conductor, the following hole was proposed to intersect a conductive body that dipped somewhere between 60° to the west and vertical:

Hole No: 180H/1
 Collar: 5170E 5480N (180H grid)
 Declination: 45°
 Azimuth: 090° mag (grid east)
 Length: 100m
 Target intersection: Between 65m and 95m
 down-hole is most likely
 since the exact dip of
 the conductive body is
 not known.

The eastern conductor (H₂) showed a far more confused pattern than the western and consequently may have been more difficult to test drill satisfactorily. Geophysical interpretation by Trussell and Scintrex were at variance for this zone (see plan TAS/2/4174).

Trussell recommended a hole to test responses (possibly horizontal) located at 5670E 5480N northwards through to 5630E 5640N (depth 50-60m). Scintrex did not pick these responses in their initial interpretation. On balance, it was decided to test the eastern conductor at 5750E (Trussell) 5770E (Scintrex) on line 5320N. Scintrex commented that this anomaly is 'steep, easterly and plate-like' while Trussell commented on the anomaly as '20m deep, horizontal or two adjacent vertical'. This anomaly (line 5230N) appeared to be related to a response at 5750E (Trussell and Scintrex) on line 5160N and 5700E on line 5000N (Scintrex only). On line 5000N, Scintrex described the anomaly as 'broad, near surface' appearing to have 'narrowed and plunged' on line 5160N.

The following hole was proposed to check the possibility of a horizontal to steep easterly dipping through to vertical conductive zone:

Hole No: 180H/2
 Collar: 5820E 5320N (180H grid)
 Declination: 50°
 Azimuth: 270° mag (grid west)
 Length: 120m
 Target intersection: 70m to 110m down-hole is
 most likely.

3.3.2 120AX

There was no INPUT anomaly within this grid area; however, DIGHEM located conductors 120AX-130CX (see plan TAS/2/4176) which were interpreted by Trussell as being of 'substantial depth'.

Glacial cover prevented satisfactory geological and geochemical appraisal of the locality. However, the rocks underlying the grid area appeared mainly to be those belonging to the Huskisson (Dundas) Group. Sediments belonging to the Crimson Creek Formation become more apparent on the north-eastern corner of the grid. The regional strike was NW-SE swinging to NNW-SSE in the south. Geological mapping of the access track by D Thynne revealed vitric crystal tuffs and ignimbrites interbedded with NW-SE striking sandstones and conglomerates of the Huskisson Group.

Soil sampling did not reveal anomalous patterns that could be attributed to mineralisation or to an association with the DIGHEM responses.

In order to investigate the DIGHEM anomalies, and since these responses were believed to be deep and beyond the resolution of GENIE EM techniques, a UTEM survey was commissioned (April/May, 1984) with anomalous responses being duly obtained.

The interpretation of the UTEM results by the operators, Lamontagne, revealed a number of conductors (see TAS/2/4176), the most interesting of which was considered to be associated with feature B. Verbal communication with Jim McNae of Lamontagne Geophysics confirmed that the best response along feature B occurred on line 5425N.

McNae advised that there was a broad, weak conductive zone between feature A and B which was 'formational' in character. This broad zone imitated the geology by following the same change of strike from NW-SE in the north to NNW-SSE in the south. While feature A reflected only the edge effect of this broad zone, there were recognisable overprinted 'extra' conductivity responses associated with feature B. These were especially recognisable on the three southern lines of the grid and best developed on line 5425N. For various reasons, McNae stated that it was not possible to predict the geometry of this conductive feature except that it appeared to be 'steep', its exact line position was open to an error of up to 25m and that any drill-testing should be aimed to intersect the conductive body at close to 100m sub-surface.

Thus, the following drill hole was proposed (see TAS/2/4175).

| | |
|--------------|---|
| Collar: | 90m from grid position 4550E 5425N on a bearing of 835° mag. |
| Declination: | 45° |
| Azimuth: | 215° mag |
| Length: | 170m (0-60m, open hole) |

Essentially, the hole as proposed was a compromise between a reasonable hole length (and therefore cost) and intersecting the conductive body of feature B whilst allowing for possible errors in interpretation.

3.4 Diamond Drilling Results

Two holes were drilled at 180H and one at 120AX, all three in accordance with the proposals. Overland Drilling completed the work in the period December '84 to January '85.

Geochemical samples were either split sludge samples (open-hole) taken every 3m or chip samples (core) taken every 5 -10 cms over 5m intervals.

3.4.1 180H

Hole 180H/1 was drilled on an easterly azimuth at a collar declination of 45° to test a GENIE anomaly (zone H₁) on gridline 5480N. Non coring was to 17.10m with NQ coring to 101m (EOH).

It is considered that the carbonaceous/graphitic content of the pelites intersected from 12m onwards was sufficient to cause the geophysical responses. Geochemical encouragement, and the level of mineralisation from the core, was insufficient to warrant further testwork.

The hole is shown in sections TAS/2/4227 (Geology) and TAS/2/4228 (Geochem results). A summary drill log forms Appendix 2 of this report.

Hole 180H/2 was drilled on a westerly azimuth at a 50° collar declination to test a GENIE anomaly on line 5320N (zone H₂). Non coring was to 19.80m with NQ coring to the end of the hole at 117.50m.

Similarly to the first hole, 180H/2 intersected black laminated carbonaceous pelites thought to be the source of the geophysical anomalies. From 6m - 37.10m, however, the hole revealed a fuchsitic, tuffaceous breccia in association with an altered gabbro. Once again, mineralisation was limited to traces of pyrite and the geochemical results were insufficiently encouraging to warrant further work.

The hole is shown in sections TAS/2/4230 (Geology) and TAS/2/4231 (Geochem results). A summary drill log forms Appendix 3 of this report.

3.4.2 120AX

This hole was positioned 90m at a bearing of 035° (mag) from grid position 4550E 5425N; collar declination was 45° and the hole azimuth was 215° (mag). The hole was to test overprinted geophysical responses forming part of 'feature B' of the UTEM response.

Non coring was to 30.50m with NQ coring to 103.30m and BQ coring to the end of the hole at 167.0m.

Once again the cause of the geophysical anomaly has been ascribed to non-calcareous and calcareous carbonaceous slates and shales first intersected at 121.70m, possibly at a faulted contact.

Only low levels of pyrite mineralisation were observed and although levels of Ba, especially in the black slates and shales, are considerably higher in the 180H holes, the overall geochemical response was not considered sufficient to warrant further work.

The hole is shown in sections TAS/2/4224 (Geology) and TAS/2/4225 (Geochem results). A summary drill log forms Appendix 4 of this report.

4. CONCLUSIONS

The objectives of this short drilling programme were achieved in that they confirmed the geophysical responses at anomalies 180H and 120AX as being of formational origin and not related to mineralisation.

No further work can be justified on these two grids and this part of EL 5/63 may be considered for relinquishment.



for
M P EVERETT
APRIL 1985

INTRODUCTION

During the past few years, the... of the... of the... of the... of the...

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APPENDIX 1

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SCINTREX

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180H GRID

DISCUSSION

At this location, five lines each about 900 metres long and spaced at 160 metre intervals were read at a station interval of 20 metres, with a coil separation of 100 metres at the frequency pair of 112Hz-3037Hz.

This survey was a ground follow-up to an airborne Dighem survey which produced anomaly '180H'.

Zone HI This zone is most clearly seen on lines 5640N, 5480N , 5320N and 5160N at 5230E, 5230E, 5210E and 5260E respectively.

It is also discernible on line 5000N at about 5290E which indicates the probable southerly extent of the anomaly. The northern limits are as yet undefined.

The form of the data fits the shape generated by a moderate to resistive surface layer underlain by a body with a near vertical dip in the south at about 5160N, changing to a steep westerly dipping body fairly close to the surface at 5320N. However, for proper interpretation the zone must be detailed using say 150 metre coil separation, and depending on the results, it should be read again at 70 metres or 200 metres. Once the optimum spacing has been determined, then using this spacing the process should be repeated at two different frequency pairs. It is not necessary to do this on all the lines, only on say line 5160N to establish the nature of the

SCINTREX

Page - three

source. Further reconnaissance lines to the north would adequately delineate the strike extent of the zone (which at present is some 600 metres), and subject to favourable geochemical or geological input, perhaps intermediate lines to locate an optimum drill target.

This zone is approximately 50 metres west of the plotted position of Dighem anomalies 170E and 160E, but 20 metres east of 180G. It can therefore be assumed that anomaly H1 from the ground survey is generated by the same source as the Dighem anomalies, but that the ground locations are more accurate.

Zone H2 The data from this zone represents a far more complex structure since the characteristics of the profile change from line to line. On line 5000N the appearance is that of a broad near surface conductor centred at about 5700E with some additional feature at about 5650E. Further north on line 5160N centred at 5750E, the 'broad' conductor appears to have narrowed and perhaps plunged. On line 5320N, however, the source could be more like a steep easterly dipping plate type conductor centred at 5770E.

At 5160N/5630E a feature, perhaps a minor semi-vertical conductor, occurs. This shows a continuation of the feature seen on line 5000N at 5650E.

The northernmost lines (5640N and 5480N) show little response along the projected source, and it appears to have pinched out completely or plunged below detection depth. While this interpretation is a solution, geological confirmation is required.

SCINTREX

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The Dighem anomaly 190K lies on the projection of the H2 anomaly at 5100N/5710E. It can also be seen faintly on Dighem line 180 at 528E (on the Dighem data) adjacent to 180H.

Zone H3 The Genie ground survey line 5000N shows a negative anomaly at 5530E. This could be due to a near vertical conductor centred at 5530E and can be seen on lines 5160N and 5320N at 5540E and 5510E respectively. The Dighem anomaly 180H has been plotted about 35 metres to the east of the H3 zone at about 5220N/5580E.

The GAO (Input) anomaly at 5480N/5580E and the Dighem anomaly 170F at 5470N/5620E are not readily apparent on line 5480N in the Genie data. However, if we assume a possible Dighem displacement of 50 metres to the east (as observed on line 5480N over anomaly HI), then the minor Genie anomaly at 5480N/5530E may be significant. This also implies that the anomaly between 5600E and 5740E on line 5480N is not a continuation of the H3 anomaly.

Zone H4 On line 5480N two near zero values occur in the data at 5630E and 5710E. These do not appear to be indications of two 'semi-vertical' type conductors since the depressed regions are only 20 metres across, where one would expect the similar distance as the instrument separation used (in this case 100 metres).

However, the two anomalies taken together are similar to that produced by a minor horizontal to spherical shaped conductive source, possibly 50 to 100 metres deep, at 5670E.

SCINTREX

Page - five

Further north on line 5640N a similar reduced amplitude anomaly occurs in the data centred at 5630E which could also be attributed to a semi-vertical conductor at 5690E adjacent to a surface conductor west of about 5560E.

South of H4 on line 5320N the anomaly H2 is so large that any adjacent minor anomaly in the region 5600E to 5700E could be completely obscured.

CONCLUSIONS AND RECOMMENDATIONS

The airborne Dighem data indicates a deep conductive source at 180H (about 10 ohm-metres and 60 metres depth).

The maximum penetration of the Genie is about 70% of the coil separation, and therefore a separation of at least 100 metres is necessary to energise the source. Any detailing with a coil separation of 50 metres or 70 metres is unlikely to pick up anomaly 180H, although it will respond to shallower conductors.

Zone H1 ... Further reconnaissance work to the north to delineate the strike extent of the source, followed by detailing work on the 'best' or most anomalous line, perhaps line 5320N, is recommended. Dighem anomalies 180G, 170E and 160E are approximately on the line of H1.

Zone H2 ... Further reconnaissance work in conjunction with zone H1, but to the south of line 5000N from about 5400E to 5900E is recommended. The Dighem anomaly 190K and the unspecified anomaly on line 180 at 528E (Dighem grid), approximate to this source.

SCINTREX

Page - six

Zone H3 ... This zone locates 180H and implies a moderate source on lines 5000N at 5530E and 5160N at 5540E. To the north the source diminishes or perhaps plunges to about the detection limit, but is observed weakly on 5320N at 5510E and can be interpreted on 5480N at 5580E. Should further work be done, a larger instrument spacing is recommended, say 140 metres.

Zone H4 ... This deep source, about 50 to 100 metres, is weakly observed on the data at 5480N/5670E and 5640N/5630E. Further work should be at an increased spacing to determine any extension of strike length, with detailing to determine depth.

Drill Targets:

- H1 5160N/5260E - near surface source, steep, perhaps west dipping.
- H2 5320N/5770E - near surface source, steep, probably east, dipping.
- H3 5160N/5530E - near surface source probably east dipping.
- H4 No drill target recommended until detailed Genie work has been done.

A P P E N D I X 2

APPENDIX 3

AUSTRALIAN ANGLO AMERICAN LIMITED DRILLHOLE LOG

Page 1
of 1

Summary Sheet

| | | | | | | | |
|-----------------------------------|--------------------------|--------------------|---------|-----------------------|------------|-------------|--------------|
| PROJECT | COMSTAFF | AREA | EL 5/63 | DRILLHOLE TYPE DDH | | | |
| CO-ORDS | 180H Grid 5820E 5320N | DECL ^{LN} | -50° | AZIMUTH | 270° magRL | DH No. | 180H/2 |
| DATE COMMENCED | 2/1/85 | DATE COMPLETED | 11/1/85 | DRILLED BY | OVERLAND | DRILL RIG | Warman Scout |
| Non Coring to: 19.80m HQ Core to: | | NQ Core to: EOH | | BQ Core to: | | EOH 117.50m | |

| SURVEY DATA | | | Instrument: | | | |
|-------------|-------------|------|-------------|-------|-------------|------|
| DEPTH | DECLINATION | | AZIMUTH | DEPTH | DECLINATION | |
| | Uncorr | Corr | | | Uncorr | Corr |
| 50m | | 44° | 263° mag | | | |
| 100m | | 45° | 246° mag | | | |

| LOG SUMMARY | | | |
|--------------|--|--|-------|
| DEPTH | ROCK TYPE | MINERALIZATION | |
| | | Style | Grade |
| 0 - 6m | Glacial overburden | | |
| 6 - 23m | Vitric-Crystal Tuff, | Trace pyrite only (dissem. possibly ignimbritic grains & crystals) | |
| 23 - 27.50m | Lithic-Vitric Crystal Tuff, intensely fuchsitic | " | |
| 27.50-29.70 | Lithic-Vitric-Tuff, also fuchsitic | " | |
| 29.70-32.90 | Breccia of dk. grey carbonaceous shales, with fuchsitic & volcanic clasts | (Chromite crystals evident) | |
| 32.90-35.70 | Fuchsitic breccia with clasts of carbonaceous shales, Carbonate matrix | Trace pyrite only | |
| 35.70-37.10 | Pale buff, altered gabbro - fuchsitic and sheared | " | |
| 37.10 to EOH | Black laminated pelites, carbonaceous, minor dolomite, qtz. veinlets. Minor sandier interbeds (Prob. Munro Slate of G.Green) | Minor syngenetic pyrite only | |

Signature

Date 12/2/85

A P P E N D I X 4

12_6421D

Final report on areas surrendered to the Department of Mines, Tasr
Comstaff Pty Ltd*
Everett, M.P.; Shaw, R.W.L. EL5/1963

AAE

| | | |
|----------------|-----|-----|
| AD. | CD. | EO. |
| 21 JUN 1985 | | |
| DEPT. OF MINES | | |
| 6385/85 | | |

PROJECT NAME: COMSTAFF PROPRIETARY LIMITED

TITLE: FINAL REPORT ON AREAS SURRENDERED
TO THE DEPARTMENT OF MINES, TASMANIA
EXPLORATION LICENCE 5/63 AREA 6 EAST RENISON

AREA NAME/S, STATE 1:250,000 SHEET NO/S & COORDINATES: 1:250 000 sheets K55 03 (Burnie)
K55 05 (Queenstown)

COMMODITY/IES: Cu, Pb, Zn, Ag, Au, Ba, Ni

TEXT PACES NO: 4
PLAN NOS: See List of Plans

TABLE NOS: -
APPENDICES: 5

AUTHOR/S: R W L SHAW, M P EVERETT

DATE: June, 1985.

AUSTRALIAN ANGLO AMERICAN LIMITED

Incorporated in the State of Victoria

APPENDIX

- APPENDIX 1 East Renison (EL 5/63), Part 6, Interim ^{sheet} Report, Comstaff, M.P. Everett, 1985.
- APPENDIX 2 Report A14 Interpretation Renison East DIGHEM Survey 1984, D. B. Trussell.
- APPENDIX 3 Report A18 Status of Input Anomalies EL 5/63, Part 6, 1984, D.B. Trussell.
- APPENDIX 4 "Survey of the North Pieman Area, Tasmania for Comstaff P/L" DIGHEM LTD. ^{where}
- APPENDIX 5 UTEM - report and profiles.

LIST OF PLANS

- ✓ TAS/2/4243,44 EL 5/63 Area 6 - East Renison. Plan to accompany surrender report.
- ✓ TAS/2/3078,79 Regional Geological Interpretation, Zeehan and Rosebery sheets
- For grid 120AX
- ✓ TAS/2/3932 Ground Magnetic Contour Plan
✓ TAS/2/4028 Summary of Stream Sediment and Rock Sample Results, 1984
✓ TAS/2/4075-78 Geology, Soil Geochemistry, Ground Mag., Topo.
✓ TAS/2/3934 Stream Sediment and Rock Geochemistry
✓ TAS/2/4253 Geology Detail and Interpretation.
- For Grid 60D
- ✓ TAS/2/3856 Geological Interpretation Plan
✓ TAS/2/3857 Geochemical Grid Auger Sampling - Cu, Pb, Zn results.
✓ TAS/2/3859 Ground Magnetic Contour Plan.
- For grid 180H
- ✓ TAS/2/4153-57 Topo., Mag., Genie, Geochem.

COMSTAFF PROPRIETARY LIMITED

FINAL REPORT ON AREAS SURRENDERED
TO THE DEPARTMENT OF MINES, TASMANIA

EXPLORATION LICENCE 5/63 AREA 6 EAST RENISON

INTRODUCTION

In accordance with the directives from the Department of Mines, Tasmania, EL 5/63 has been reduced from 364 square kilometres to 125 square kilometres. A portion of Area 6, East Renison, has been selected for relinquishment in order to achieve the objective. The following report summarises the work done to 1979, details of which are already on open file in the Department. Details of the work done since that date are included and appended.

SUMMARY OF WORK DONE TO 1979

- 1970 The licence area south of the Pieman River was drainage sampled and reconnaissance mapped. Samples were analysed for Sn, Cu, As, Ni, Zn, Ag, Bi and Sb. The samples included both silt and heavy mineral concentrates. They provided anomalous responses in Sn, Cu, Zn, Ni and Bi.
- 1971 The above programme was completed by sampling and mapping the Ring River. As a result of contamination it proved anomalous in all the above elements. Five anomalies were delineated south of the Pieman River for follow-up work.
- 1971/72 The area north of the Pieman River was drainage sampled and reconnaissance mapped. This constituted an extension of the work done to the north in the Huskisson Grid area (EL 5/63 Area 5). The ultramafic belt was successfully traced south to the Pieman River and was found to be set in a sequence of Cambrian sediments. No mineralisation was observed apart from the ubiquitous presence of pyrite in black shales. The geochemical results were disappointing and failed to provide anomalies worthy of substantial follow up. However, slight enhancement of values in Ag, Zn, Cu and As occurred in the north bank tributaries of the Pieman on strike from the old Fenton's/Salmon mineral shows to the south. The anomalies do not extend on strike as far north as the Huskisson River.
- 1972/74 The five anomalies designated from the reconnaissance work south of the Pieman River were followed up. Detailed work included grid extensions, additional mapping and costeaning accompanied by IP geophysical surveys. Drilling of RBE 1 was principally targeted at an IP anomaly. It failed to intersect mineralisation.

Attention towards this area waned for some time but it still remains in the portion of East Renison being retained. Considerable additional work including drilling took place - but in view of the fact that this ground is being renewed further reference to results will be omitted.

North of the Pieman River, an area known as the Pieman South project, was gridded and mapped. Owing to extensive glacial cover the results failed to provide either geological or geochemical encouragement. An extensive grid to the west of the Pieman South grid was partly cut and was known as the Pieman West grid.

1975/79 An INPUT EM survey was flown over the whole of the East Renison block. The data were interpreted and ground follow up of the anomalies commenced. Anomalies in the area being relinquished are GAG, GAJ, GAH, GAI, GAO and GAN. All except GAJ, and GAN were gridded, mapped and subjected to ground EM and magnetic surveys. Costeans were excavated at CAG without intersecting mineralisation. None of the anomalies were tested by drilling as all failed to provide evidence that mineralisation was the cause of the EM effect. The INPUT anomaly GAP immediately south of the licence area stimulated cutting and exploration of a large grid known as grid GAP. The eastern selvedge of this grid falls within the area being surrendered. Work done and results obtained from this grid are already on open file in the Department of Mines and are therefore not repeated with this surrender document.

A number of extensions to and infillings of the GAP grid were done as grids X Proprietary, GAP West, GAS, GAT and GAR or the Fenton's grid. These in fact supercede the previous grids of the early 1970's. All these activities and the drilling they later engendered are in the part of Area 6 being retained and therefore will not be detailed here.

POST 1979 - SOUTH OF THE PIEMAN RIVER

No work took place in the area selected for surrender until the DIGHEM survey of 1983. The detailed results of the airborne geophysical survey are appended in the following reports:-

D. B. Trussell 1984 - A14 Interpretation of Renison East Area DIGHEM survey (Appendix 2).

D.B. Trussell - Report A18 Status of Input Anomalies in EL 5/63 Area 6 (Appendix 3).

"Survey of the North Pieman Area, Tasmania for Comstaff Pty. Ltd." by DIGHEM Ltd (Appendix 4).

Only one anomaly was selected for follow up work (1140B). It is located under the Pieman River adjacent to the Emu Bay Railway line. The former INPUT anomaly GAN was manifested in a number of DIGHEM effects as can be seen in the raw data. No work was done on these targets before surrender date.

POST 1979 NORTH OF THE PIEMAN RIVER

In the area to be surrendered north of the Pieman River no work was done additional to that reported above until the DIGHEM survey of 1983. The results of the survey are appended in the documents listed above.

Many of the DIGHEM responses coincide with former INPUT anomalies - though the definition of the targets appears to be sharper in the DIGHEM data. In view of the lack of success in the work done on the INPUT targets a fairly coarse selection method was used for determination of a short list of targets from the multitude of conductors recognised in the DIGHEM results. These targets were anomalies 120AX, 60D and 180H. They were all gridded, geologically mapped, and geochemically sampled. 120AX and 180H were subjected to ground magnetic and EM surveys. Two of the anomalies provided geophysical results which were tested by drilling. Three holes were completed and each provided intersections of conductive black shales which are regarded as the source of the EM effects. No evidence of mineralisation was identified in the geochemical results from the soils or the core.

Ground work done on these grids is as follows:-

- a) 120AX - Four lines, each approximately 1 km long and 160m apart were cut with station intervals at 20m. Soil samples were collected by auger at 20m intervals and analysed for Cu, Pb, Zn, Ag, As and Sn (see attached profiles TAS/2/4075-4078). A 1 km² UTEM transmitter loop was cut on the eastern end of the lines.

Grid lines were surveyed with a magnetometer (see TAS/2/3932) and stream sediment samples were collected from creeks wherever they crossed lines (see Plans TAS/2/4028, 4253 and 3934). All lines were geologically mapped.

DIGHEM anomalies 120AX and 110XA, 140XA (covered by the 120AX grid) are "poorly defined but broad which tends to suggest their possible deep bedrock origin." Because of this comment and the location of the anomalies close to the axis of the Huskisson Syncline, it was decided that the anomalies had to be followed up by use of a deep penetrating EM system. A UTEM survey was done by Lamontagne Geophysics on the four lines, (see attached UTEM profiles - Appendix 5).

- b) 60D - Three lines varying in length from 560m to 638m and 160m apart were cut with station intervals at 20m. Auger samples were collected at 20m intervals and analysed for Cu, Pb, Zn, Ag, As and Ni. A magnetometer survey was done. The 60D group are part of a 5.6 km linear belt of conductors on the eastern flanks of a prominent magnetic trend. DIGHEM 60D was chosen because of the objective criterion of width. 60D occurs east of Input GAG.

The conductor lies to the east of a serpentinite belt and on the western margin of a silicified unit (silicified serpentinite). Ground magnetics indicate the conductor to lie in a trough. Gabbro dykes intrude undifferentiated sediments in this trough. A geochemical pattern high for Cu, Pb, Zn from soil auger samples occurs to the west of the conductor and lies in the magnetic trough zone. Refer to TAS/2/3856 (Geology), TAS/2/3859 (Magnetics) and TAS/2/3857 (Geochemistry). Rock sample results are shown on TAS/2/4028. A costean excavated during the follow up of Input GAG (1977) extended across the zone of gabbros, sediments, magnetic trough and the Cu, Pb, Zn geochemical highs but does not extend to the east far enough to expose the conductive zone.

- c) 180H - Five lines, 1 km long and 160m apart were cut with stations at 20m intervals. Soil samples were collected only on the southern two lines (overlaps old GAO grid lines, 1979) and analysed for Cu, Pb, Zn, Ag, As and Sn (see attached profiles TAS/2/4153 and 4157). A magnetometer survey was completed. Within the area of the 180H grid, three groups of DIGHEM conductors exist. It appeared that the DIGHEM survey provided greater resolution than the previous INPUT survey.

The preceding data extracted from a comprehensive report on DIGHEM follow-up for the whole of Area 6 (Thynne 1984), indicate a reliance on geophysics for target definition. The results of the GENIE and the UTEM surveys are discussed in detail and the results of the drilling that was done are described in the appended report:-

Everett M.P. East Renison (EL 5/63), PART 6, INTERIM REPORT (Appendix 1).

CONCLUSION

The above data present a summary of the work done prior to 1979 in Area 6 (EL 5/63). All the results are on open file at the Department of Mines. Since 1979 exploration has been reliant on geophysics as a lead-in to targets in this area, especially in view of the large percentage of the ground which is masked to geological and geochemical observation by thick glacial cover. Although the ground follow up is not total it is concluded that a sufficient spectrum of geological environments has been tested to cause belief that the bulk of the geophysical anomalies are attributable to conductive black shales or contact effects. There has been a singular lack of encouragement from geochemistry and mapping - despite the saturation gridding prior to 1979 - and no targets have accrued from this approach. The geophysical targets which were drilled failed to provide further encouragement either to proceed or to retain the ground. They contained no geochemically anomalous core values, no evidence of alteration effects attributable to mineralising systems and no lithotypes which would suggest a host or mineraliser exists in the sequence. The eastern selvedge of the area being surrendered appears to be equally lacking in potential despite the known mineralisation of Colebrook Hill across the boundary.

No further work was planned for the area surrendered.

A P P E N D I X 2

REPORT A14

INTERPRETATION OF RENISON EAST DIGHEM SURVEY

By: D B Trussell
1984

REPORT A14

INTERPRETATION OF RENISON EAST DIGHEM SURVEY

INTRODUCTION

In April 1983 DIGHEM carried out an airborne EM survey over the EL 5/63 area 6. The line spacing was 200m. The EM bird height was 35m. The magnetometer altitude was 50m. The DIGHEM EM system consisted of 3 coil pairs - one operating at 900Hz, with the axis in the direction of flight and the other two operating at 900Hz and 385Hz with vertical axis. The coil separation was 9m. The EM data were recorded with a sensitivity of .25 ppm. The magnetic data were recorded with a sensitivity of 1nT.

The contractor has prepared a report on the DIGHEM work. All significant anomalies were selected using objective criteria. The depth and conductivity width of horizontal and vertical sources which would generate the observed anomalies are presented in tabular form in the DIGHEM report. In addition the contractor has given descriptive comments on those anomalies believed to be due to genuine bedrock conductors. Accompanying the DIGHEM report are five 1:10 000 scale plans - Electromagnetic anomalies, probable bedrock conductors, resistivity, and two magnetic plans. All except one of the magnetic plans are plotted showing both the flight lines and the topographic base.

WORK DONE

The DIGHEM survey was carried out over an area which in 1975 had been covered by the Input EM method. The DIGHEM survey, it was hoped, would detect small conductors missed by the Input survey. Where relevant the Input follow up programme is referred to in this report.

Much of the area was flown with north south oriented lines as well as east west lines. This was done to better delineate possible east west striking conductors. Previous geological work indicated that east west structures may be interesting.

Considerable ground geophysics has been carried out south of the Pieman River. The whole area has been covered by a ground magnetic survey. The interpretation of this data will be the subject of a separate report. A substantial amount of dipole dipole IP has also been done. The results of this work are summarised in "Geophysics of the Renison Grid" by D Trussell, June 1978. The IP information will not be covered again here except as it directly relates to DIGHEM follow up targets.

The DIGHEM magnetic and resistivity plans were used to prepare a geological interpretation of the DIGHEM survey results.

DISCUSSION

A. Geology Interpreted from Geophysical Information

The aeromagnetic contour map and the resistivity contour plan were studied to obtain geological information. Faults, major magnetic bodies, formational conductors and the conductors discussed in the following section have been marked on the base plans for the area.

North of the Pieman River

North of the Pieman River the dominant feature are two ultrabasics. These delineate the Huskisson syncline. They are semi-continuous magnetic anomalies striking NNW in the western and central eastern part of the area. They are generally quite conductive as well as being highly magnetic. East of the eastern ultrabasic body is a formational conductor which is continuous (except for fault off-sets) from the Pieman River to the northern boundary of the survey. From the Pieman River to halfway to the northern boundary there is another conductor 150m to the east of the first. There is also a conductor on the western flank of the eastern ultrabasic from the Pieman River halfway to the northern boundary. South of the Pieman River Electrolytic Zinc has intensively explored the eastern conductors. For this reason this conductor merits serious examination.

East of the eastern ultrabasic there is a north-south striking magnetic anomaly which is due to a weakly magnetic marker horizon.

South of the Pieman River

The Pieman River coincides with a major interruption in the continuity of magnetic anomalies.

B. Geophysical Targets

The Renison East area records contain an unusually large number of conductors. In the following discussion the DIGHEM anomalies of possible economic interest are described. The anomaly labelling used in the DIGHEM report is used.

1. Anomalies North of the Pieman River

60D. This anomaly is part of the major conductor flanking the east side of the eastern ultrabasic located north of the Pieman River. This conductor which stretches from line 300 north to line 10 (where it is open to the north) is undoubtedly due to conductive sediments. However, carbonaceous shales are excellent hosts for economic sulphides. It is therefore recommended that this major conductor be carefully investigated. The southern portion of the conductor has been extensively tested by Electrolytic Zinc. On line 60 the conductor is atypical in character. DIGHEM interprets it to be a thick conductor on this line. The conductivity width product is 15 Siemens. The depth of burial is 16m. A Genie EM survey is recommended over this anomaly.

90xB. This anomaly is in the vicinity of Input anomaly GAG. The follow up of GAG was inconclusive. A complete report on the GAG work is contained in "Interim Report on Ground Follow Up Work on Input Anomaly GAG" by G F Pigott, April 14, 1977. The DIGHEM analysis indicates the conductor comes to surface. However, the amplitude of the anomaly is very small so this calculation can be in serious error. A Genie ground EM survey is recommended to pin point the anomaly location.

90B, 100C. This anomaly lies within serpentinite. DIGHEM analysis indicates the conductor comes to surface. Previous regional geochemical work should have responded if the conductor was of interest. The most probable cause of the anomaly is a conductive shear within the serpentinite. However, a field inspection of the area by a geologist is recommended.

130E, 1140D, (130F, 130G). These anomalies are the most promising ones in the formational conductor located on the western flank of the major eastern ultrabasic. Input anomaly GAI is located 400m south of the selected DIGHEM target. Ground EM was done at GAI and it was written off as a surface conductor. The DIGHEM analysis places the conductor at a depth of 12m and gives it a conductivity width of 30 Siemens. If work is done on this anomaly the grid lines should be extended sufficiently far east so that anomalies 130F and 130G are also covered. These anomalies are coincident with Input anomaly GAH. Follow up on GAH was never carried out. It remains a "low priority" INPUT anomaly. DIGHEM places the source of 130F and 130G at a depth of 40m.

A Genie survey of the area is recommended. One kilometer long lines are necessary to cover both 130E and 130G.

160E, 170E, 180G, 170F, 180H and 190K. There are three separate conductors in this area which is in the vicinity of Input anomaly GAO. In the Input follow up a conductor was not found. There is considerable doubt that the grid was correctly located. The area has substantial glacial cover. Anomaly 190K is likely due to an outcropping conductor and it is this which was probably thought to be the source of GAO. Anomalies 170F and 180H are ascribed to a source which is at a depth of 27m and therefore unlikely to have any obvious surface manifestation. Finally, a conductor formed by anomalies 160E, 170E and 180G is at a depth of 20m. It is recommended the area be covered with a large grid and surveyed with Genie EM method.

190H. This response is in the same general position as 60D. That is, it is on the east flank of the eastern ultrabasic. It is selected for further work on the basis of the response is due to a thick conductor. The predicted depth of burial is 20m. A Genie survey would therefore accurately locate the position of the conductor.

2. Anomalies South of the Pieman River

190G, 1140B, and 200C. This isolated conductor crosses the Pieman River. It is best examined south of the River where the 1140B response indicates a thick source. EM methods will not be effective in the area since the HEC power line is nearby.

The anomalies in the far south eastern corner of the licence area coincide with graphitic sediments. These gave strong IP and SP anomalies. Further work is therefore not recommended.

SUMMARY OF RECOMMENDATIONS

Genie EM follow up (7 total)

60D*
90xB*
130E - 130G group*
160E - 190K group*
190H*

Deep Penetration EM (5 total)

120xA* and magnetic anomaly

Field Inspection or Review (4 total)

100C*

Anomalies adjacent to power line (3 total)

1140B

Anomalies marked * are north of the Pieman River.

The above anomalies have been plotted on the 1:50,000 plan of the EL 5/63 Area 6.

A P P E N D I X 3

REPORT A18

STATUS OF INPUT ANOMALIES IN

EL 5/63 AREA 6

By: Devin Trussell
February 1984

REPORT A18

STATUS OF INPUT ANOMALIES IN
EL 5/63 Area

The Comstaff Monthly Reports for 1976-1982 have been studied to determine the present status of the EM anomalies obtained in the 1975 INPUT survey of EL 5/63.

Ten INPUT anomalies were originally selected for follow up. They were: GAG, GAH, GAI, GAK, GAL, GAM, GAN, GAO, and GAP. GAJ is in the Rosebery rubbish tip and confidently rejected as being caused by surface culture. The status of the other anomalies is as follows:-

- GAG - No cause for the anomaly was discovered by the ground EM surveys. The INPUT response is low amplitude. Crone EM may not have been sensitive enough to detect it. The anomaly is the subject of a report by G Pigott (14/4/77).
- GAH - Remains in the Comstaff files as a low priority target. Crone EM work was done. INPUT anomaly is due to a source of intermediate conductivity.
- GAI - Written off as a surface conductor. Crone EM has been carried out. No geochem response was found. INPUT response results from a source of low conductivity so it is reasonable to believe the anomaly is due to a surface conductor.

- GAN - No field work was done. INPUT response is due to a source of intermediate conductivity.
- GAO - No conductor was found by ground EM work. The grid was possibly mislocated. The INPUT response is due to a source of intermediate conductivity.
- GAP - No conductor was found. The anomaly is located at the south end of the East Renison grid and may actually lie outside the EL. EM and IP have been done. The INPUT response is low amplitude. Consequently the Crone EM method may not have had sufficient sensitivity to detect the source.

DISCUSSION

Anomalies GAI and GAL have been adequately explained and no further work is necessary on them. Anomalies GAK and GAP have been thoroughly investigated by the routine East Renison exploration programme and so further work on them is also not merited.

Anomalies GAG, GAH, GAM and GAO all require further work. Recommendations given in Report A14 (Interpretation of Renison East Area DIGHEM Survey) cover the areas in which these anomalies are located.

A P P E N D I X

5

APPENDIX 5 UTEM INTERPRETATION

GRID 120H

120A X

Notes on North Piegan

1. Conductors picked on profiles.
2. Line spacing somewhat wide to be sure, but strike appears to be at $\sim 45^\circ$ to grid?

If so, a broad, weak conductive feature is interpreted to lie between zones A and B on nap. Hardest to correlate between L5740 and L5540.

"Targets"

- a. around line 5740N, depth ~ 30 m to top. Moderate conductor, considerable strike/depth extent.
- b. Conductor at a contact? Extensive size, depth to conductor 30-100m, best developed on 3 southern lines. *more specific? Dip?*
- c. limited anomaly extent - small size or end of larger conductor.
- d. small size, depth ~ 20 m.
- e. small, poor conductor, interpreted to be flat lying.
- f. small, near surface feature, poor conductor.
- g. small, poor conductor near surface.
- b. near surface poor conductor with some evidence of width-correlated with e?
- i. small near surface - same as f?

by J. McNae
Lamontagne Geophysics

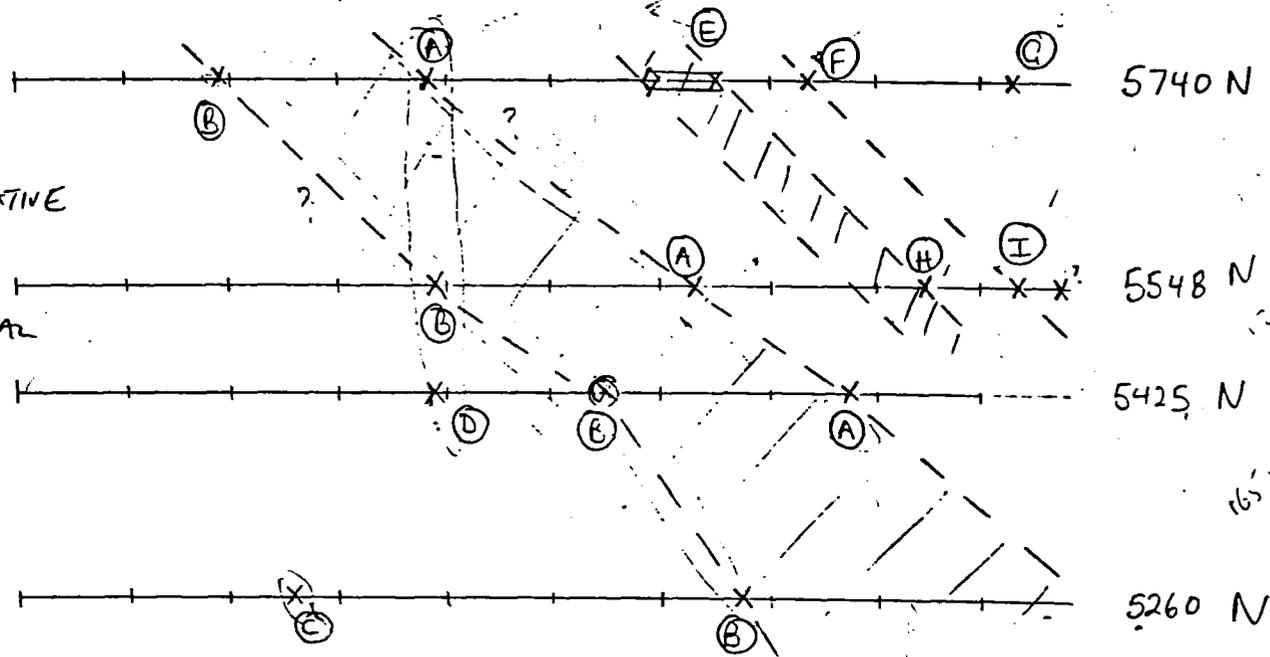
- *Finaly* before 10 am

1100

Jim McNae

40E 42E 44E 46E 48E

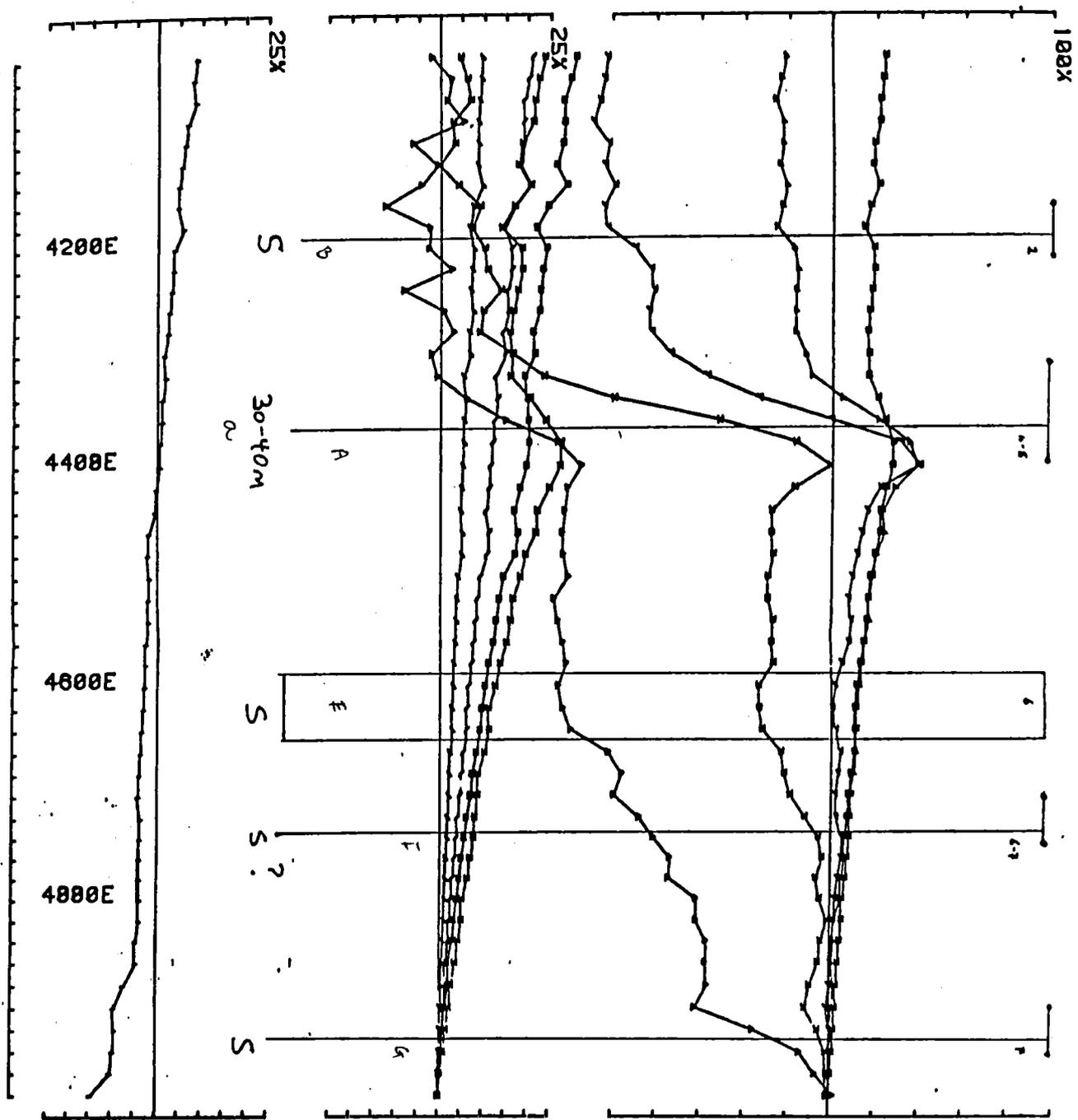
CORRELATIONS TENTATIVE
 BASED SOLELY OF
 EM RESPONSE
 WITHOUT GEOLOGICAL
 KNOWLEDGE



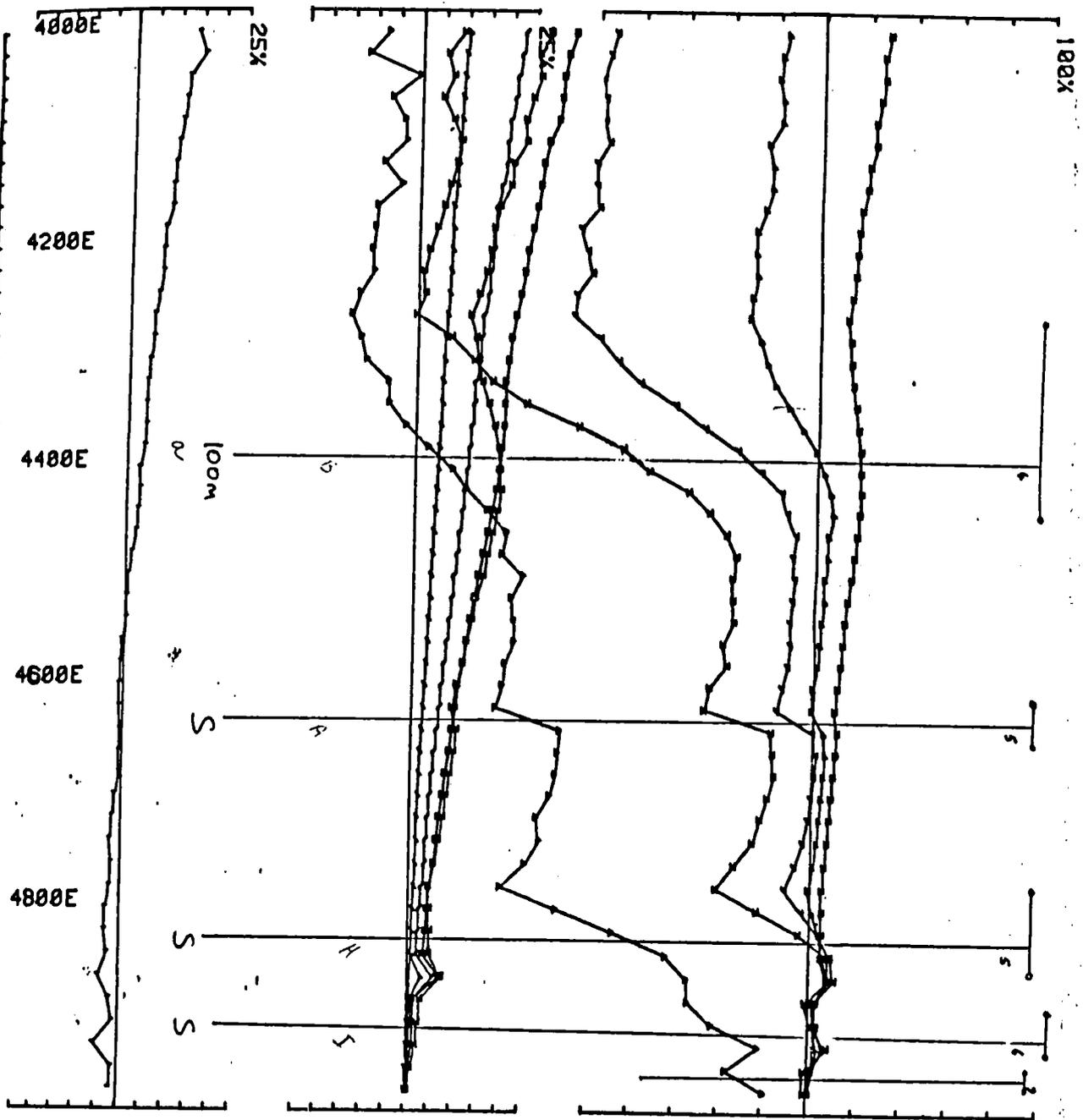
APPENDIX 1 UTEM INTERPRETATION BY J MCNAE
 GRID 180M
 120A x

For estimated depths to
 source see profiles

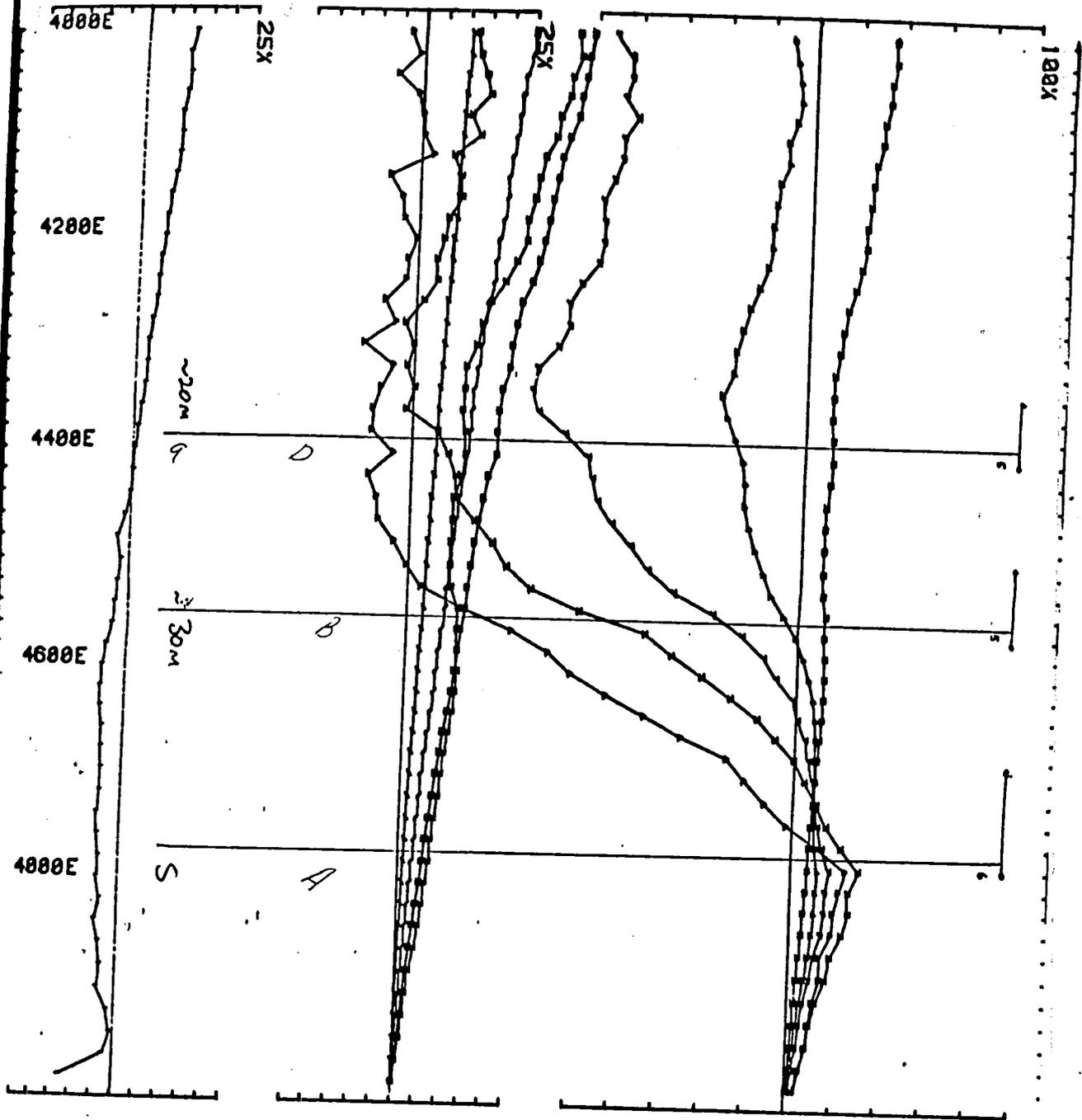
NORTH PLEMAN
 COMPILATION



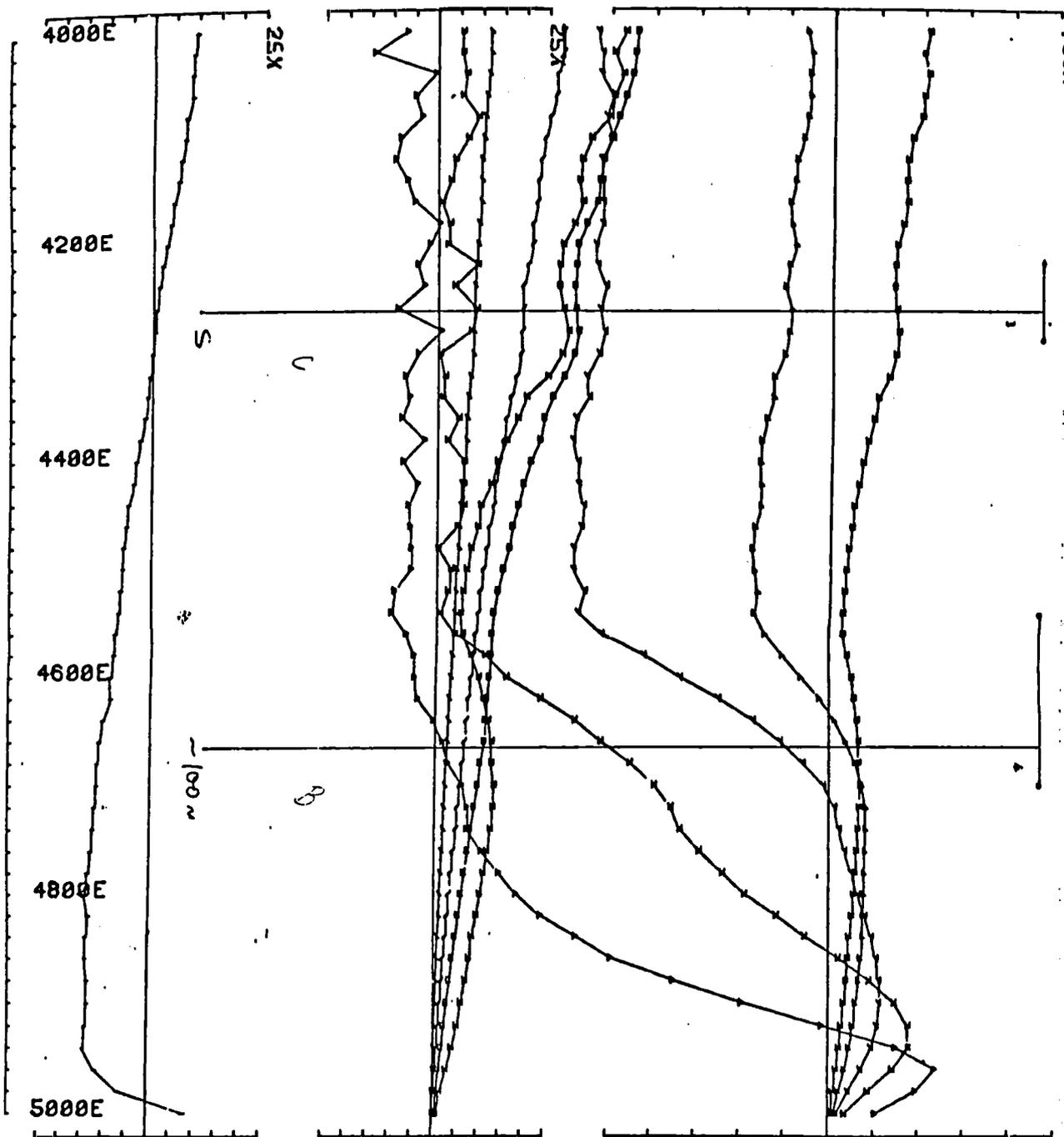
UTEM SURVEY conducted by PMM BM Job 8410
 Project Area North Pieman - 120AX Survey for Comatiff Pty. Ltd. freq(hz) 26.
 Loopno 0001 Line 5740N component Hz secondary Ch 1.



UTEM SURVEY conducted by PMM BM Job 8410
 Project Area North Plaman - 120AX Survey for Comstiff Pty. Ltd. freq(hz) 26.2
 Loopno 0001 Line 5548N component Hz secondary Ch 1.



UTEM SURVEY conducted by PMM BM Job 8416
 Project Area North Plaman - 120AX Survey for Comstaff Pty. Ltd. freq(hz) 26.2
 Loop no 8001 Line 5452N component Hz secondary Ch 1.



UTEM SURVEY conducted by PMM BM Job 8410

Project Area North Plaman - 120AX Survey for Comstaff Pty. Ltd. freq(hz) 26.

Loopno 0001 Line 5260N component Hz secondary Ch 1.