

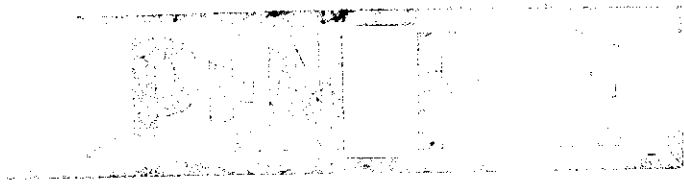


Cyprus Minerals Australia Company

PROJECT A-85-121

| MINES | |
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| File Ref. | |
| 12 FEB 1987 | |
| Proj. Ref. 596 | |
| Action Officer | In charge |
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PROGRESS REPORT



SIX MONTHS TO NOVEMBER 1986

MACKINTOSH EASH

EXPLORATION LICENCE 2/70

TASMANIA

P A JONES
CONSULTANT TO CYPRUS MINERALS

DECEMBER 1986

REPORT 513

DISTRIBUTION

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- 1 DRILL LOG MT-86-1
- 2 ANALYTICAL RESULT SHEETS
- 3 DOWNHOLE ELECTROMAGNETIC SURVEY DDH MT-86-1 SPEELER CREEK
by Mitre Geophysics

FIGURE

- | | After Page |
|---------------------------|------------|
| 1 MT-86-1 • DRILL SECTION | 13 |

ENCLOSURE

- | | Scale |
|---|---------|
| 1 Mackintosh East EL 2/70 • REGIONAL BASEMAP AND GEOLOGY | 1:25000 |

004

146° E

949005

TASMANIA

BASS STRAIT



Project Location

SUMMARY AND CONCLUSIONS

The primary exploration target on the Mackintosh East tenement is a volcanic hosted massive sulfide deposit of the Rosebery or Hellyer style. A belt of prospective Cambrian Mount Read Volcanics which had previously been subject to Dighem airborne EM surveying, regional mapping, stream and soil sampling surveys by Aberfoyle-Paringa and Geopeko, was further detailed using large loop TEM surveys by Cyprus to locate mineralization at depths greater than 50 meters.

Three areas were cut and gridded prior to the commencement of an EM-37 survey which produced numerous weak anomalies from which Mitre Geophysics extracted four responses worth of follow-up survey. Of these responses, three have associated moderate soil geochemical anomalies, the fourth is blanketed by Tertiary basalt and has therefore not been geochemically assessed.

One drillhole of 150 meters depth was drilled to test the blind EM response intersecting weak lead-zinc mineralization within weakly altered pyroclastic tuffs, lavas and minor epiclastics. No responses were forthcoming from a downhole EM survey.

No further work on the property is recommended.

TARGET CONCEPT AND OBJECTIVES

The Cambrian Mount Read Volcanics within the tenement have potential for hosting large tonnage exhal^{iv}ative volcanogenic massive sulfide deposit grading +20% lead/zinc with highly significant gold and silver credits.

Detailed EM-37 surveys were conducted over previously defined (Paringa-Geopeko) prospective volcanic sequences with numerous very weak responses being delineated. Three such responses were associated with moderately anomalous base metal geochemistry and a fourth was blanketed by Tertiary basalts. Of these four anomalies Cyprus drilled the zone covered by Tertiary basalt. Two zones of trace to minor lead-zinc was intersected in weakly altered pyroclastics, lavas and minor volcanoclastic sediments.

RECOMMENDATIONS

Cyprus' drilling has shown weakly disseminated and veinlet lead-zinc mineralization occurs throughout the prospective volcanic sequence. A downhole EM survey has shown no large conductive body lies 'off-hole' and no further drilling is recommended. Check assaying and sampling for gold over Heap of Rocks, Carters and the Speeler Creek grids failed to reproduce the original high values. Poor assay laboratory techniques have resulted in erroneous values.

No further exploration surveys are recommended for the property.

DESCRIPTION OF THE PROPERTY AND OWNERSHIP

Cyprus Minerals Australia Company (formerly Amoco Minerals Australia Company) was approached by Geopeko in June 1984 with a farm-in proposal for part EL 2/70 Mackintosh East, which embraces potential host rocks for volcanogenic massive sulfide type deposits. A joint venture was negotiated whereby Cyprus could earn up to a 51% interest in the property. This interest was earned during 1986.

One pre-existing mining lease 38M/78 is present within the tenement. It occupies a square block of 49 hectares and encompasses lead/silver bearing quartz veinlets in a major fracture zone within Precambrian gneisses and schists (Tyennan Block).

LOCATION AND ACCESS

The Mackintosh East area is located in the central northwest of Tasmania approximately 55 kilometers south of the sea port of Burnie and 35 kilometers southeast of Waratah.

A formed gravel road to Waldheim in the Cradle Mountain - Lake St Clair National Park passes through the eastern portion of the tenement. This allows near to all-weather access to Pencil Pine Lodge which has been used in the past for accommodation for field crews. A new all-weather road the Cradle Mountain Link Road, which will connect the West Coast Highway with the Cradle Mountain Road has been commissioned. The eastern section commences at Leary's Corner and traverses the northern portion of the licence in the vicinity of the Speeler Creek grid. A four-wheel drive track heading southwest from a junction approximately one kilometer east of the Speeler Creek grid leads into the

cleared baseline of the extensive survey grid established during the early 1970's.

No difficulties would be anticipated with respect to power, water and transport should a mine be developed. The area has an annual rainfall of 250 centimeters, a large proportion of which falls as snow during the winter months due to the average elevation of 800 to 1100 meters above sea level. This necessitates fieldwork being completed where possible during the summer season.

HISTORY AND EXPLORATION TO DATE _____

See Cyprus Minerals Progress Report No 470 - December 1984 to November 1985, Mackintosh East EL 2/70, Tasmania.

REGIONAL SETTING

See Cyprus Minerals Progress Report No 470 - December 1984 to November 1985, Mackintosh East EL 2/70, Tasmania.

GEOLOGY OF THE PROPERTY _____

See Cyprus Minerals Progress Report No 470 - December 1984 to November 1985, Mackintosh East EL 2/70, Tasmania.

MINERALIZATION

See Cyprus Minerals Progress Report No 470 - December 1984 to November 1985, Mackintosh East EL 2/70, Tasmania.

016

WORK CONDUCTED BY CYPRUS

One diamond hole was drilled on the Speeler Creek prospect during the period which was followed up with a downhole EM-37 survey. Other holes at Heap of Rocks, Carters and at Speeler Creek proposed earlier in the year were dropped from the drilling program as check assaying and sampling for gold over these prospects failed to reproduce high values originally obtained. Poor assay laboratory techniques by Amdel had resulted in erroneous values.

Drilling

FL Ortner Diamond Drilling was contracted to drill a 150 meter diamond hole on the Speeler Creek grid during September of 1986. Diamond hole MT-86-1 was drilled grid south at 50° declination, collared on line 11700E at 9935N. Drillhole location is shown on

017

Enclosure 1, drill section included as Figure 1, drill log as Appendix 1 and analytical result sheets as Appendix 2.

A Mindrill F52 rig was used and the hole was substantially completed in NQ sized core - HQ to 15 meters, NQ 15 to 150 meters. The hole was completed to test an EM-37 response, delineated during previous surveys but blanketed by Tertiary basaltic volcanics. Prospective ignimbritic and altered fine pyritic tuffs were observed within a quarry some 350 meters to the northeast beneath the same Tertiary basalt cover.

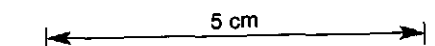
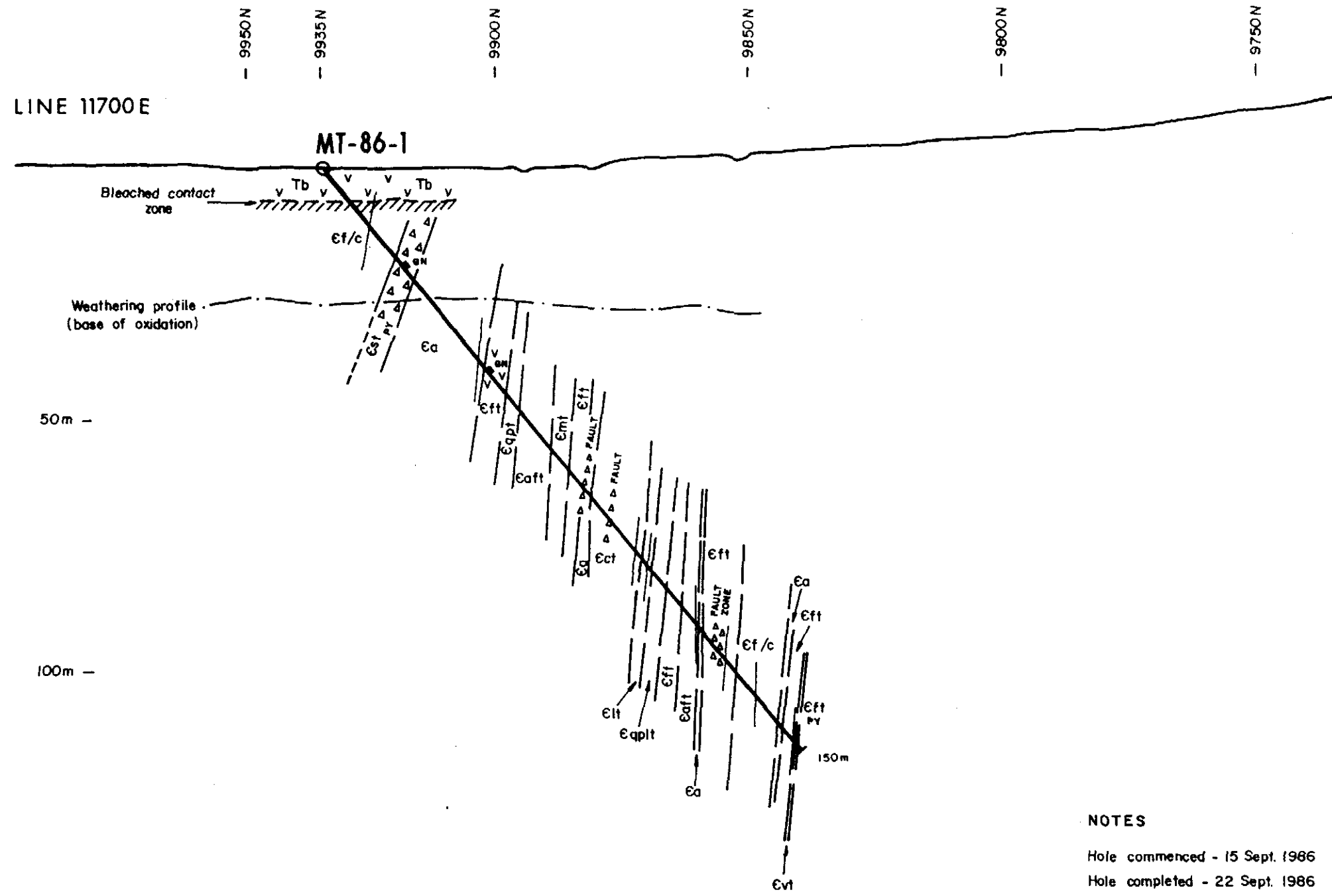
The drill rig was positioned on site and supplied with a water sump by a Kato HD 750G hydraulic excavator. This was also used to remove the rig at the completion of the hole and rehabilitate the drill site.

Vesicular Tertiary basalt was encountered to 8.5 meters following which a baked zone of clay altered acid volcanics was intersected prior to a large thickness of weakly altered ignimbritic to phyrlic tuffaceous volcanics. Agglomeratic (fiamme rich, very altered) lapilli and other ignimbritic rocks were predominant early on in the hole, however these units became progressively thinner downhole. Quartz phyrlic, quartz phyrlic lithic, vitric, fine tuffs and rhyolitic lavas progressively dominated the sequence downhole. At the very base of the hole minor volcanoclastic sediments and pyritic fine tuffs were encountered. Pyrite content within the hole varied, however sections of core contained up to 5-7% pyrite.

Trace lead-zinc mineralization was encountered in two zones:

25.00 to 25.60 meters (fillet assay 25 to 28 = 3 meters of 0.08% copper, 0.26% lead, 0.03% zinc, 2.5 ppm silver).

51.20 to 51.70 meters (fillet assay 49 to 52 = 3 meters of 0.04% lead, 0.02% zinc)



DRILL HOLE LEGEND
GEOLOGY

- Tb Tertiary basalt, vesicular, clay lenses
- Et/c Fine and coarse tuffs
- Ca Cherty tuff
- Ea Agglomerate.
- Caft Agglomerate, fine tuff matrix
- Eft Fine tuff
- Eqpt Quartz pyritic tuff
- Emt Medium grained tuff
- Ect Coarse grained tuff
- Elt Lapilli tuff
- Eqplt Quartz pyritic lithic tuff
- Evt Volcaniclastic tuff

- GN Galena
PY Pyritic
- Bedding to c.a. attitude
- Fault
- Brecciated

NOTES

Hole commenced - 15 Sept. 1986
 Hole completed - 22 Sept. 1986
 Rig - Mindrill - F 52
 Operator - F. Ortnier
 HW casing to 6 m
 HQ core to 15 m
 NQ core to 150 m
 PVC casing to 150 m
 Decl'n - 50°eS
 Azimuth - 090GM

| CYPRUS MINERALS | |
|---|--------------------|
| MACKINTOSH EAST - E.L. 2/70 | DRAWN BY P.J. |
| SECTION OF D.D.H. MT-86-1 LINE 11700-E | DRAFTSMAN T.G.D.S. |
| | DATE Jan '87 |
| | REVISIONS |
| | FILE NO. |
| SCALE 1:100 | 0 2 Metres |
| | FIG. 1 |

Both zones were associated with brecciated glassy rholitic lavas and fine tuffs. The lead-zinc mineralization encountered was of a disseminated, blebby and stringer nature with no evidence of any bedded sulfide other than for some of the pyrite observed elsewhere within the hole.

No mineralization was observed at the proposed EM source approximately 100 meters downhole. However at this interval the core showed severe brecciation, fracturing, leaching (fiamme partially weathered out) and iron staining all of which indicate a probable high water zone indicative of a fault with probably high permeability. Such a zone may have given rise to the original EM response.

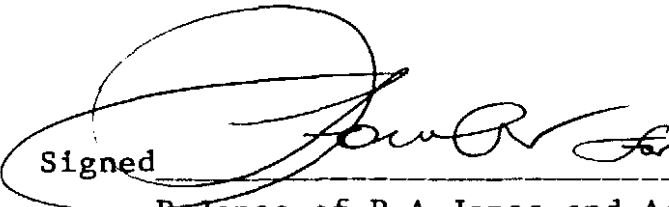
Downhole Geophysics

Mitre Geophysics contracted Solo Geophysics to conduct a downhole EM-37 survey within MT-86-1. A report by Mitre outlining the program is appended (Appendix 3). No anomalous responses were delineated and the minor 'blip' at the last station in the hole (150 meters) is thought to be due to sludge build-up.

EXPLORATION POTENTIAL

Cyprus consider the EM surveys conducted to date have adequately assessed the volcanic sequence for volcanogenic massive sulfide despoits. The drilling of one hole showed the prospective sequence contains weak lead-zinc mineralization in the form of disseminations and veinlets.

Regional studies for gold show the licence has also been adequately assessed for this metal.

Signed 

P Jones of P A Jones and Associates

CYPRUS MINERALS AUSTRALIA COMPANY

EXPENDITURE FOR THE 12 MONTHS ENDED 30 NOVEMBER 1986

EXPLORATION ON MACKINTOSH EAST EL 2/70

| | |
|-----------------------------------|-------------|
| Salaries and Wages | \$ 4,869.64 |
| Benefits | 49.31 |
| Drafting | 3,924.14 |
| Cookery | 835.76 |
| Field Supplies | 207.99 |
| Freight | 532.84 |
| Entertainment | 20.00 |
| Travel | 643.97 |
| Communications | 257.03 |
| Geophysics | 343.11 |
| Consultants/Contractors | 11,718.14 |
| Drilling | 9,833.55 |
| Assays | 3,288.22 |
| Equipment Operation & Maintenance | 1,362.06 |
| Property Payments | 1,036.85 |
| | ----- |
| | 38,922.61 |
| Overhead | 3,892.26 |
| | ----- |
| | 42,814.87 |
| | ===== |



T J CONQUEST
ACCOUNTANT

022

949023

ENCLOSURES

APPENDICES

APPENDIX 1

DRILL LOG MT-86-1

drill log cover sheet

Project MACKINTOSH EAST Prospect SPEELER CREEK Hole MT-86-1

Co-ordinates 9935 mN 11700 mE

Logged by P.A. JONES

AMG reference 408440 m E, 5398240 m N.

County KENTISH SI

Parish WILMOT

Portion -

Elevation 880 m.

Declination 50°

Direction 90° G M T

Commenced 15 September 1986

Completed 22 September 1986

Total depth 150 metres.

Drilling company F ORTNER

Rig type MINDRILL F 52

Drilling type DIAMOND

Hole size } HQ, NQ

Core size }

Depth of casing HW-6 m, HQ-15 m

Assay sample type Fillet - 3 metre interval.

Water table depth Surface.

Water yields -

Bore Hole Survey Type Not surveyed.

| Depth | Dip | Brg. | Depth | Dip | Brg. | Depth | Dip | Brg. | Depth | Dip | Brg. |
|-------|-----|------|-------|-----|------|-------|-----|------|-------|-----|------|
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Notes

Drilled to test an EM response within prospective Cambrian Acid Volcanics covered by Tertiary Basalt.

geological log

Project MACKINTOSH Prospect SPEELER CK Hole MT-86-1 Page ONE

| From | To | Code | Description | mineralization in bold type |
|-------|-------|------|--|-----------------------------|
| 0.00 | 8.50 | | VESICULAR BASALT, HW, orange grey, white to cream filled vesicles. | |
| 8.50 | 10.50 | | FINE TUFF, fine grained, bleached (contact metamorphosed) and minor clay altered @ contact. Minor coarse grained phytic tuff. | |
| 10.50 | 23.20 | | INTERBEDDED FINE / COARSE TUFFS, Interbedded fine tuffs and coarse grained quartz phytic tuffs. Core SW to MW, hematite stained (oxidised!) moderately to strongly broken. | |
| 23.20 | 29.00 | | FINE TUFF / BRECCIATED RHYOLITE, Fine grained massive to well bedded grey cream tuffs interbedded with massive autobrecciated, moderately pyritic cherty rhyolites. Minor sections of coarse grained quartz phytic tuff. Disseminated GALENA / SPHALERITE mineralization associated with vuggy, siliceous brecciated zone from 25.00 to 25.60 estimated to average $\approx 0.5\%$ Pb. Sections of core still oxidised orange and yellow (after pyrite!) Bedding 60° to c.a @ 23.2 metres. | |
| 29.00 | 51.20 | | AGGLOMERATE, Pyroclastic rocks with large sericitic and chloritic, green, coarse grained phytic tuff flame in a finer grained beige-grey bedded tuff matrix. Bedding 45° to ca @ 49.6m, Minor bedding disruption, minor PYRITE , core moderately to strongly broken. Flame generally $> 10\text{cm}$ in length. Minor thin elongate (squashed) ones. | |

geological log

Project MACKINTOSH Prospect SPEELER CK Hole MT-86-1 Page Two

| From | To | Code | Description | mineralization in bold type |
|-------|-------|------|---|-----------------------------|
| 51.20 | 58.10 | | VITRIC TUFF, Fine grained glassy vitric tuffs containing minor sphenulites to 1-2 mm and minor coarser grained sections. Core weakly chlorite altered, weakly to moderately pyritic (as stringers and bedding parallel veins and disseminations) Minor GALENA from 51.20 to 51.70 \approx 0.2%. | |
| 58.10 | 61.90 | | QUARTZ PHYRIC TUFF, medium to coarse grained massive, grey, quartz phyric tuffs, trace PYRITE, rock quite featureless, minor vitric sections (cherty!) | |
| 61.90 | 71.40 | | AGGLOMERATIC FINE TUFF, Weakly agglomeratic fine tuff, lapilli with very ghosted edges comprised mainly of coarse grained and PYRITIC very dark grey coarse tuffs set in a cherty to fine tuff matrix of light grey beige colour. | |
| 71.40 | 77.90 | | TUFF, medium to coarse grained, spherulitic (calcite filled) chloritic massive tuffs, Minor calcite veining, minor cherty sections and minor chloritic bombs. | |
| 77.90 | 82.10 | | TUFF Fine to medium grained massive to weakly bedded tuff, minor jasperoidal laminae, minor fine lapilli in fine matrix. Core weakly chlorite altered. Minor clay pugh zone 82.00 to 82.10 (FAULT BRECCIA) Moderate amount of open fractures, possibly leached and later coated with iron oxides. | |

geological log

Project MACKINTOSH Prospect SPEELER CK Hole MT-86-1 Page THREE

| From | To | Code | Description | mineralization in bold type |
|--------|--------|------|---|-----------------------------|
| 82.10 | 84.00 | | LAPILLI TUFF / FINE AGGLOMERATE, polymict angular fragments, altered to sericite, set in a cherty, fine, beige gray siliceous? matrix. Gradationally passes into following unit. | |
| 84.00 | 100.70 | | QUARTZ PHYRIC TUFF, Massive, medium grained, quartz phyric tuff with light gray fine grained matrix, containing numerous ghosted dark gray green chloritic clots? some containing PYRITE. Core weakly to moderately (generally ~ 3mm width) calcite veined. Bedding 40-50° @ 97.00 metres. Fault zone, quartz filled, porous, oxidised, iron/manganese stained, fractured from 89.5 to 90.3 metres. Minor agglomeratic fragments in with tuff (87.5 metres) again ghosted. Minor zones showing porous/permeable fractures (possibly leached of CaCO ₃). | |
| 100.70 | 102.70 | | QUARTZ PHYRIC TUFF, Fiamme rich (coarse grained) chloritic altered fine grained matrixed fine tuff. Minor sericitic alteration, colour varies from dark green to beige green. Core moderately fractured, minor open spaces, minor PYRITE, minor silicification. General layering in sequence ± 45° to ea @ 101.4 metres. | |
| 102.70 | 107.00 | | QUARTZ PHYRIC LITHIC TUFF, highly fractured, broken, permeable, weakly oxidised, beige to brown, minor manganese stained veinlets. Moderate to strong bleaching. Possible major FAULT ZONE. Lithic fragments preferentially being weathered out - being softer. Weak infilling by quartz. | |

geological log

Project MACKINTOSH Prospect SPEELER CK Hole MT-86-1 Page Four

| From | To | Code | Description | mineralization in bold type |
|--------|--------|------|--|-----------------------------|
| 107.00 | 113.40 | | FINE TUFF Fine grained quartz phytic tuffs, grey-beige, moderately calcite minor quartz veined, minor ghosted lithic fragments generally < 0.5 cm. Minor to moderate manganese staining (akin to moss agate) Minor bleached zones up to 10 cm width associated with major fractures! | |
| 113.40 | 118.30 | | AGGLOMERATIC FINE TUFF, weakly agglomeratic beige quartz phytic fine tuff. Fine tuff matrix beige-honey with quartz phenocrysts ranging up to 2.5 mm. Core shows open fractures, quite permeable, some of open spaces due to weathering out of scoraceous material some of which are highly PYRITIC . Minor reddish (hematite) iron staining. Minor saussuritization. Lapilli's generally dark grey to black - chloritic! Layering 40° to ca @ 117.40 metres. | |
| 118.30 | 118.90 | | AGGLOMERATE. Dark grey-green to black chloritic (talcy?) coarse grained, quartz phytic tuff friable set in grey beige medium grained quartz crystal tuff matrix. Minor saussuritization. | |
| 118.90 | 129.50 | | FINE TUFF. Grey, massive, fine grained, weakly lithic tuff; lithic fragments are dark grey to black with ghosted edges, trace PYRITE , Minor fault zones quartz/chlorite filled @ 123 m and 124.8 m Layering 45° to ca @ 126 m. Minor fractures show bleaching up to 0.5 cm outward from source. | |

geological log

Project MACKINTOSH Prospect SPEELER CK Hole MT-86-1 Page FIVE

| From | To | Code | Description mineralization in bold type |
|--------|--------|------|---|
| 129.50 | 143.00 | | INTERBEDDED LITHIC AND PHYRIC TUFFS. Sequence of beige/cream and grey crudely layered, moderately PYRITIC, saussuritized, lithic (flamme being very chloritic, pyritic, coarse grained, altered) fine to coarse tuffs and phyric tuffs. Layering 40° to ca @ 135.30m. Minor pinkish sections due to hematite content. Minor permeable open space fractures. Weak to moderate carbonate veining. |
| 143.00 | 144.00 | | AGGLOMERATE, heavily saussuritized quartz phyric matrixed, with fragments varying in size from <1cm to >5 cm, generally they are chloritic, some appear to be brecciated host rocks (non chloritic fragments) Core again permeable due to open space fractures |
| 144.00 | 147.40 | | FINE TUFF, Massive grey brown chlorite veined fine tuff, textureless, core moderately to strongly broken. |
| 147.40 | 148.00 | | VOLCANICLASTIC TUFF, coarse grained bedded volcaniclastic tuff, bedding 45° to ca @ 147.7m, grey in colour, lithic fragments sub angular and still contains abundant quartz crystals. Weakly PYRITIC. |
| 148.00 | 150.00 | | PYRITIC FINE TUFF, Very pyritic fine tuff, grey to dark grey foliated tuff, massive, textureless. |
| E.O.H. | | | |
| | | | DOWNHOLE EM-37 CONDUCTED - MITRE GEOPHYSICS. |
| | | | |
| | | | |

032

APPENDIX 2

ANALYTICAL RESULT SHEETS

ANALABS

7 OCT 1986

Phone (09) 458 7999

A division of MacDonald Hamilton & Co. Pty. Ltd.
52 Murray Road, Wetherpool, W.A. 6106

Telex AA99560

ANALYTICAL REPORT No. **7.5.08.03915**

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

B. Roxburgh
 Cyprus Minerals
 P.O. Box 493
 North Sydney
 N.S.W. 2060

ORDER No. **E 18763** PROJECT **DET No. 2347**
 DATE RECEIVED **13/10/86** RESULTS REQUIRED **ASAP**

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|-------------------------|---------------|---------------|----------------------|
| 2 | 16/10/86 | 1 | 29 |

169529/57
 169529/57

SO Prep: 006,016
 SO

Cu,Pb,Zn,Ag/101,As/114
 Au/329

RESULTS TO

B. Roxburgh
 Cyprus Minerals
 P.O. Box 493
 North Sydney
 N.S.W. 2060

RESULTS TO

P. Jones
 Cyprus Minerals
 "Ocean View"
 Saddle Rd.,
 Kettering 7155

REMARKS

MACKINTOSH EAST

LOCATIONS NOT GIVEN
 ~ drill hole samples - see previous appendix emh

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

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16/10/86

E 18763

1 OF 2

| TUBE No. | SAMPLE No. | Cu | Pb | Zn | Ag | As | Au | | | |
|----------|------------|-----|------|-----|------|-----|-------|--|--|--|
| 1 | 169529 | 35 | 105 | 220 | <0.5 | 4 | 0.11 | | | |
| 2 | 169530 | 65 | 165 | 200 | <0.5 | 6 | 0.06 | | | |
| 3 | 169531 | 50 | 270 | 80 | <0.5 | 5 | 0.05 | | | |
| 4 | 169532 | 55 | 335 | 125 | <0.5 | 4 | 0.04 | | | |
| 5 | 169533 | 250 | 425 | 170 | 0.5 | 12 | 0.05 | | | |
| 6 | 169534 | 785 | 2600 | 260 | 2.5 | 63 | 0.09 | | | |
| 7 | 169535 | 135 | 95 | 195 | <0.5 | 20 | 0.07 | | | |
| 8 | 169536 | 95 | 155 | 165 | 0.5 | 14 | 0.07 | | | |
| 9 | 169537 | 70 | 270 | 150 | <0.5 | 6 | 0.02 | | | |
| 10 | 169538 | 55 | 115 | 150 | 0.5 | 7 | 0.05 | | | |
| 11 | 169539 | 115 | 295 | 245 | <0.5 | 22 | 0.04 | | | |
| 12 | 169540 | 30 | 45 | 165 | <0.5 | 6 | 0.02 | | | |
| 13 | 169541 | 35 | 15 | 165 | <0.5 | 4 | 0.02 | | | |
| 14 | 169542 | 40 | 440 | 160 | <0.5 | 9 | 0.01 | | | |
| 15 | 169543 | 550 | 240 | 270 | 0.5 | 240 | 0.03 | | | |
| 16 | 169544 | 260 | 50 | 130 | 0.5 | 71 | 0.03 | | | |
| 17 | 169545 | 55 | 75 | 165 | <0.5 | 11 | 0.03 | | | |
| 18 | 169546 | 50 | 25 | 160 | <0.5 | 7 | 0.03 | | | |
| 19 | 169547 | 45 | 25 | 145 | <0.5 | 9 | 0.02 | | | |
| 20 | 169548 | 35 | 75 | 105 | <0.5 | 5 | 0.02 | | | |
| 21 | 169549 | 25 | 25 | 120 | <0.5 | 5 | <0.01 | | | |
| 22 | 169550 | 25 | 20 | 190 | <0.5 | 4 | 0.01 | | | |
| 23 | 169551 | 30 | 35 | 150 | <0.5 | 5 | 0.01 | | | |
| 24 | 169552 | 80 | 45 | 200 | <0.5 | 11 | 0.02 | | | |
| 25 | 169553 | 70 | 60 | 185 | <0.5 | 14 | 0.02 | | | |

Results in ppm unless otherwise specified

T = element present; but concentration too low to measure

X = element concentration is below detection limit

- = element not determined

AUTHORISED OFFICER

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

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16/10/86

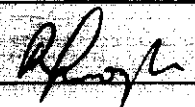
E 18763

2 OF 2

| TUBE No. | SAMPLE No. | Cu | Pb | Zn | Ag | As | Au | | |
|----------|------------|-----|-----|-----|------|-----|------|--|--|
| 1 | 169554 | 65 | 55 | 180 | <0.5 | 15 | 0.01 | | |
| 2 | 169555 | 45 | 160 | 185 | <0.5 | 7 | 0.02 | | |
| 3 | 169556 | 45 | 85 | 130 | <0.5 | 6 | 0.04 | | |
| 4 | 169557 | 35 | 10 | 185 | <0.5 | 22 | 0.08 | | |
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| 22 | | | | | | | | | |
| 23 | DETECTION | 5 | 5 | 5 | 0.5 | 1 | 0.01 | | |
| 24 | UNITS | PPM | PPM | PPM | PPM | PPM | PPM | | |
| 25 | METHOD | 101 | 101 | 101 | 101 | 114 | 329 | | |

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

AUTHORISED OFFICER



APPENDIX 3

DOWNHOLE ELECTROMAGNETIC SURVEY DDH MT-86-1 SPEELER CREEK
by Mitre Geophysics



MITRE GEOPHYSICS PTY LTD

MINERAL EXPLORATION AND ENGINEERING CONSULTANTS

BUGGS LANE ELLIOTT TASMANIA 7325 PHONE 004-363143

DOWN-HOLE ELECTROMAGNETIC SURVEY DDH MT-86-1
SPEELER CREEK GRID, MACKINTOSH EAST, E.L. 2/70.

-
- Figure 1. Loop location plan for DHEM survey of DDH MT-86-1
(1:10,000 scale).
- Figure 2. DHEM profile of DDH MT-86-1 (1:1,000 scale).



INTERPRETATION

A down-hole electromagnetic (DHEM) survey was carried out down DDH MT-86-1 in November, 1986. No conductors were detected.

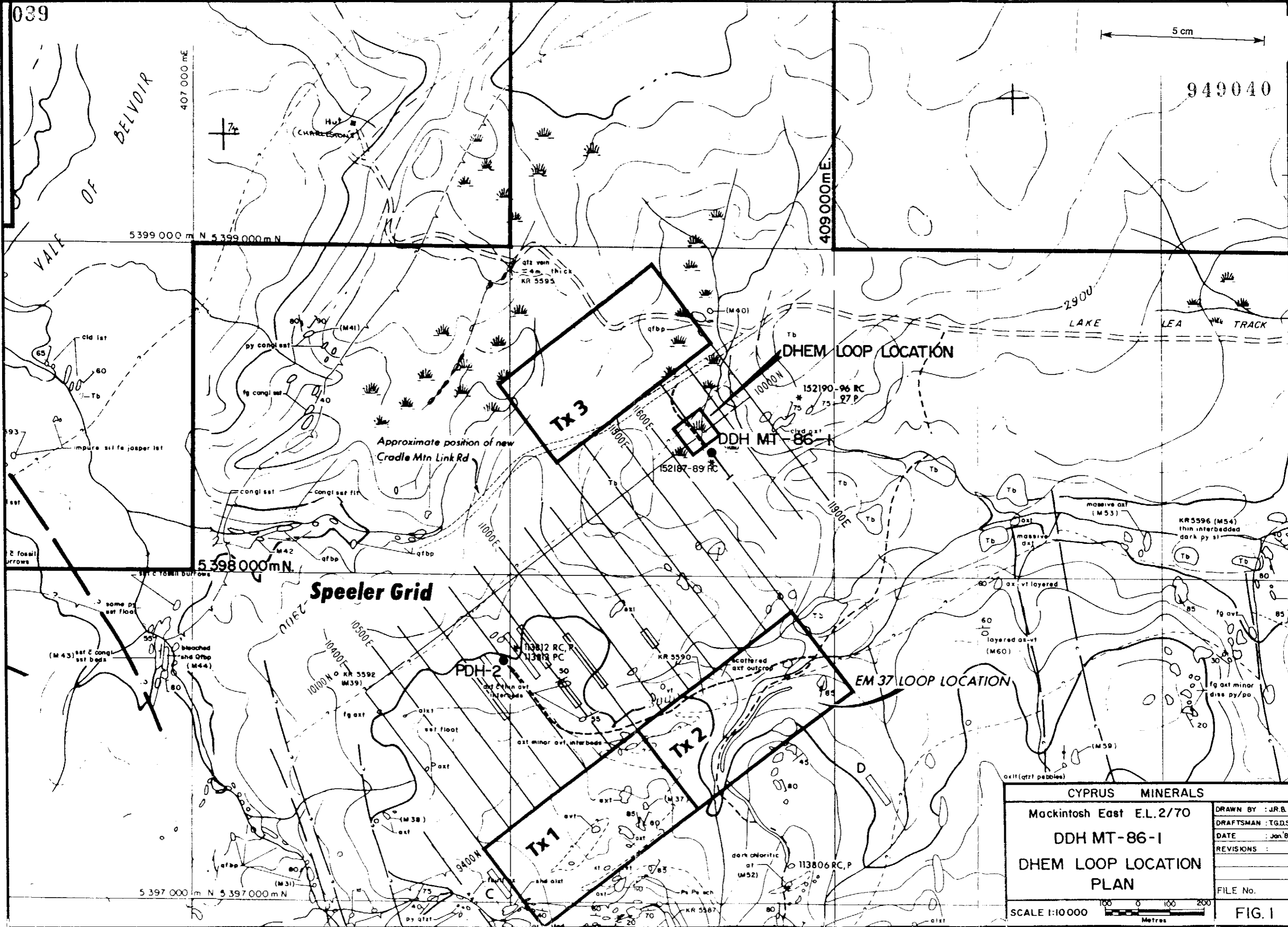
The DHEM survey was carried out by Solo Geophysics using Sirotem equipment with the standard time base. A single 100m x 100m loop was placed 'behind' the drill collar (see Figure 1). The hole was logged at 10m intervals to the end of hole at 150m. The results of the survey are given in Figure 2 and are indicative of near-surface conductive conditions. The sign change between 30 and 50 metres reflects the change in sign of the 'primary' field. The late-time channels are noisy, but the data contains no features of potential interest.

DDH MT-86-1 was drilled to test an EM37 anomaly located beneath Tertiary basalt on the Speeler Creek grid in E.L. 2/70 (Mackintosh East). The hole passed very close to the interpreted source of the anomaly at 60m below 11700E/9875N (Bishop, 1985). However, no conductor was intersected and the cause of the EM37 anomaly is presumed to be induction and current gathering in the faults logged between 80m and 90m down the hole (Jones, 1986). Where such formational sources are suspected, it is recommended that in future, a traverse of moving loop TEM be carried out, since this technique is less sensitive to these types of conductors. (The initial large, fixed-loop survey is needed for depth penetration and higher productivity.)

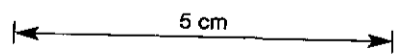
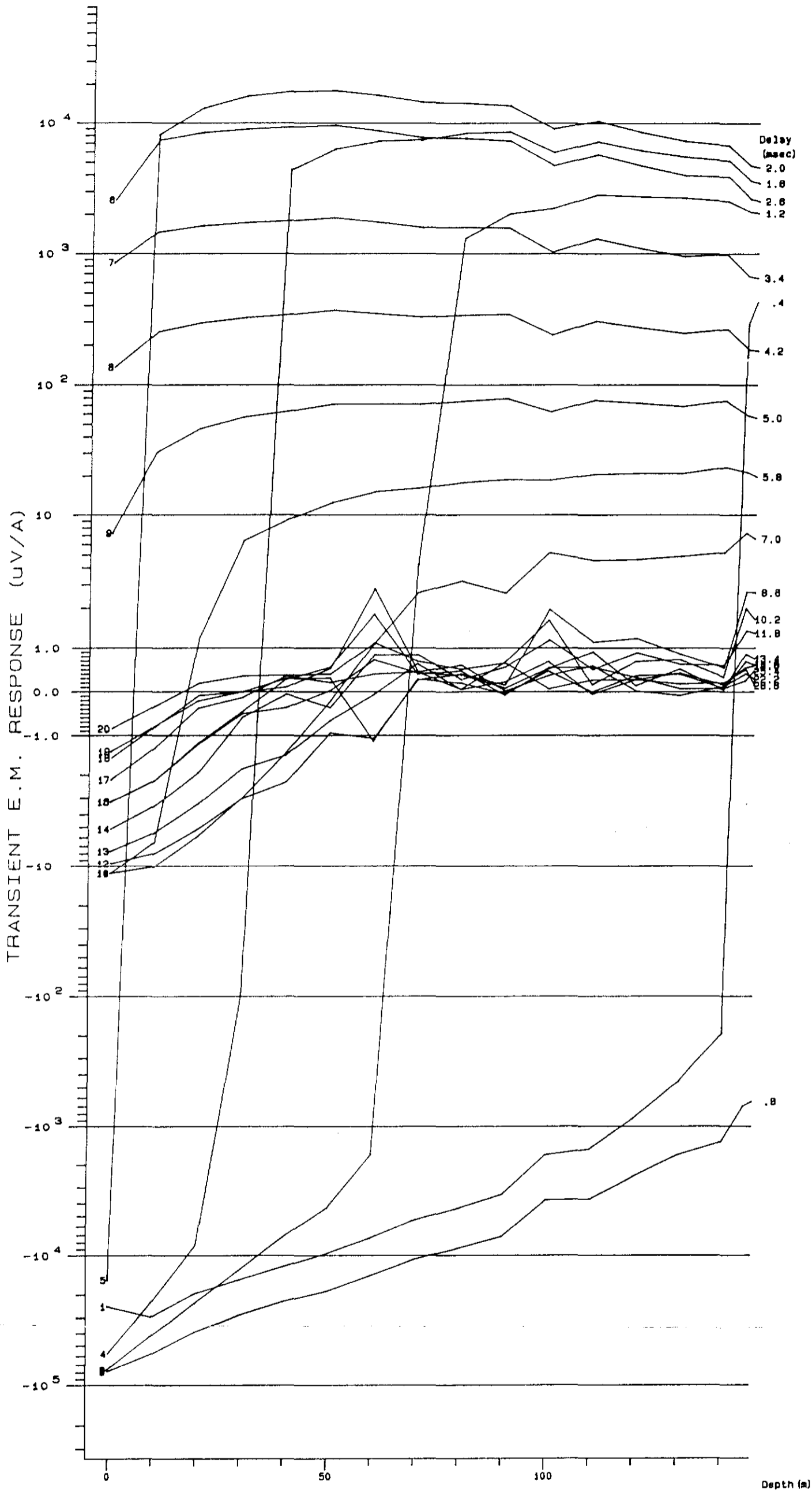
J.R. Bishop
Jan., 1987.

REFERENCES

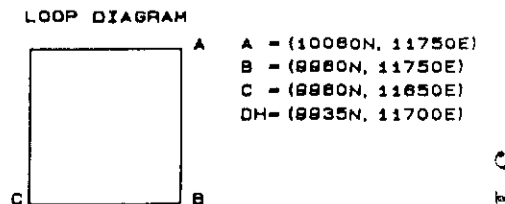
- Bishop, J.R., 1986. Interpretation of the EM37 surveys over the Speeler Creek, Carter's & Heap of Rocks grids, Mackintosh East (E.L. 2/70). Mitre geophysics report 85/15 for Cyprus Minerals.
- Jones, P.A., 1986. Progress report, Mackintosh East, E.L. 2/72, Dec. 1985 to Nov. 1986. Cyprus Minerals report.



| | |
|--------------------------|----------------|
| CYPRUS MINERALS | |
| Mackintosh East E.L.2/70 | |
| DDH MT-86-1 | |
| DHEM LOOP LOCATION PLAN | |
| SCALE 1:10000 | |
| DRAWN BY : J.R.B. | DATE : Jan '87 |
| DRAFTSMAN : T.G.D.S. | REVISIONS : |
| FILE NO. | FIG. 1 |



CYPRESS MINES
 TASMANIA EL 2/70 JOB 0849
 MACKINTOSH EAST DH. MT-86-1
 STANDARD TIMES
 SIROTEM Survey by SOLO Geophysics & Co.
 SOLO hole ref.501
 SCALE 1 : 1000 Loop size : 100 x 100 m
 LOOP configuration : Drill hole
 Plotted : 4:32 PM 16/12/86



51

FIG.2

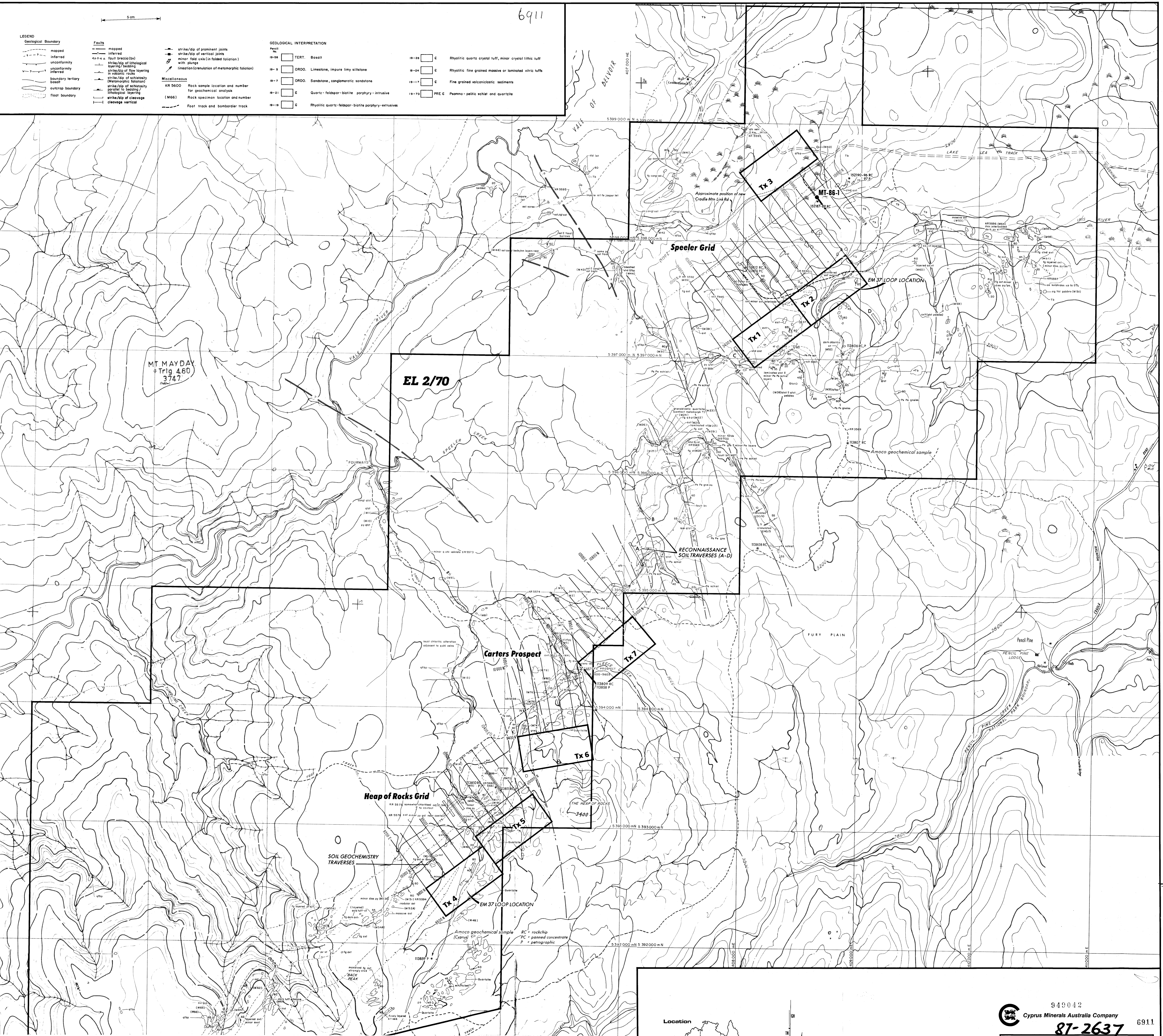
949041

6911

5 cm

| LEGEND | |
|--------|--|
| | Geological Boundary |
| | Faults |
| | strike/dip of prominent joints |
| | strike/dip of vertical joints with plunge |
| | lineation (renovation of metamorphic foliation) |
| | Miscellaneous |
| | Rock sample location and number for geochemical analysis |
| | Rock specimen location and number |
| | Foot track and bombardier track |

| GEOLOGICAL INTERPRETATION | |
|---------------------------|--|
| 19-28 | C Rhyolitic quartz crystal tuff, minor crystal lithic tuff |
| 19-24 | C Rhyolitic fine grained massive or laminated vitric tuffs |
| 19-17 | C Fine grained volcanoclastic sediments |
| 19-70 | PRE C Psammo-pelitic schist and quartzite |
| 19-18 | C Rhyolitic quartz-feldspar-biotite porphyry-extrusives |
| 19-5 | ORDD. Limestone, impure limy siltstone |
| 19-7 | ORDD. Sandstone, conglomeratic sandstone |
| 19-21 | C Quartz-feldspar-biotite porphyry-intrusive |
| 19-18 | C Rhyolitic quartz-feldspar-biotite porphyry-extrusives |



MT MAYDAY
Trig 460
3747

EL 2/70

Speeler Grid

Tx 3

MT-85-1

EM 37 LOOP LOCATION

Tx 1

Tx 2

RECONNAISSANCE
SOIL TRAVERSES (A-D)

Carters Prospect

Tx 7

Tx 6

Heap of Rocks Grid

Tx 5

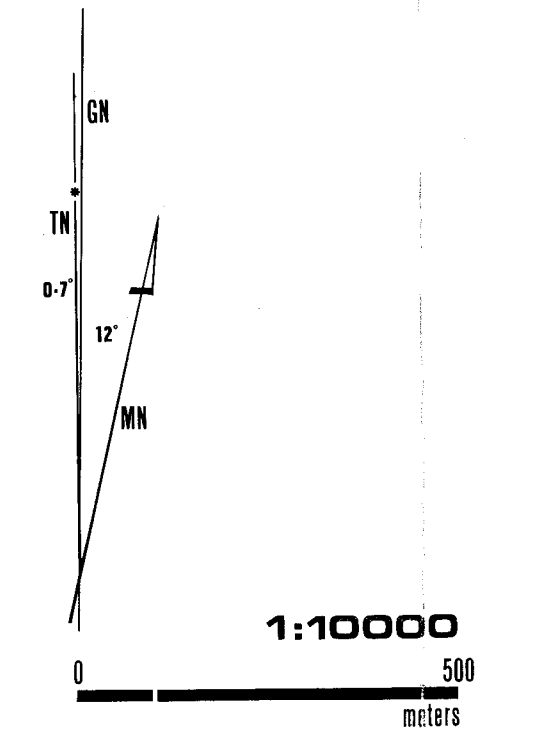
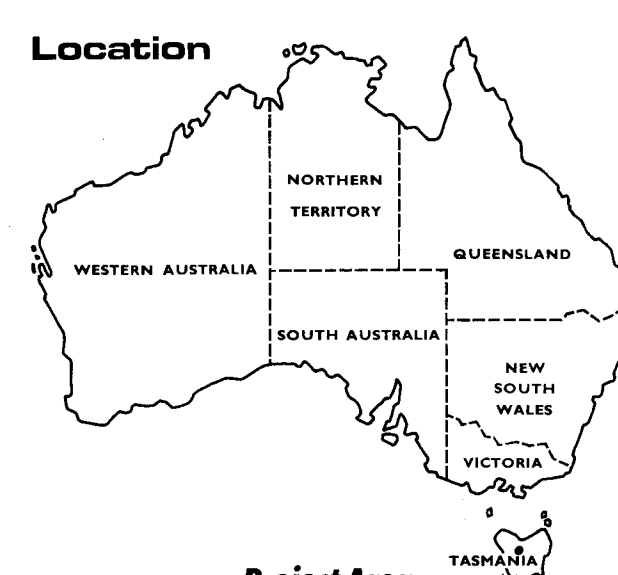
Tx 4

EM 37 LOOP LOCATION

SOIL GEOCHEMISTRY
TRAVERSES

Amoco geochemical sample
(Cyanal)

RC = rockchip
PC = assayed concentrate
P = petrographic



949042
Cyprus Minerals Australia Company 6911

87-2637

Project **MACKINTOSH EAST N° A-85-121**
Project Partner **GEOPEKO**

Mackintosh East EL 2/70
REGIONAL BASEMAP AND
GEOLOGY

Map Ref. ANG K-55-3 Latitude 41°30' Longitude 145°50'E
Surveyed Geopeko, Cyprus Date 1980, 85 Scale 1:10000
Drawn Geopeko, SF Date 1980, 85 Drawing N° M85-2314
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