EXPLORATION LICENCE 740

FINAL REPORT TO 23RD NOVEMBER, 1974

On behalf of the Joint Venture between

Petrocarb Exploration N.L.

Petrocarb Mineral Exploration (S.A.) Pty. Ltd.

Attutra Mining Co. Pty. Ltd.

Wilstone (Pty) Limited

Union Corporation (Australia) Pty. Limited

Manager:-

Union Corporation (Australia)
Pty. Limited

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Union Corporation (Australia) Pty. Limited

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UNION CORPORATION (AUSTRALIA) PTY. LIMITED J.F.W. 17.10.74

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ATTACHED PLANS

		SCALE
PLAN NO. 1	Huckitta Geological Sheet	1:250,000
" " 2	Regional Geological Map (Sheet 1)	1:25,000
" " 3	Regional Geological Map (Sheet 2)	1:25,000
" " 4	Regional Geological Map (Sheet 3)	1:25,000
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1. INTRODUCTION

Exploration Licence 740 held by Attutra Mining Co. Pty. Ltd., a subsidiary of Petrocarb Exploration N.L., is due for 50% reduction on 23rd November 1974. This report is the final report for EL 740 as required by the Northern Territory Mining Ordinance.

A joint venture agreement between Petrocarb Exploration N.L. and Wilstone (Pty) Limited (a subsidiary of Union Corporation Limited of South Africa) was signed on 2nd November, 1973. Wilstone (Pty) Limited agreed to investigate EL 584, EL 740 and a number of mineral leases within the same general area. Details of the joint venture agreement have been outlined in Section 4.

As EL 584 expired on 29th August 1974, initial exploration was concentrated on this licence and the major exploration effort on EL 740 commenced in early August 1974. The exploration programme was designed to determine whether any part of EL 740 should be retained for a further period after the expiry date.

2. LOCATION, ACCESS, CLIMATE AND VEGETATION

Exploration Licence 740 is situated approximately 200 kilometres north-east of Alice Springs in the Northern Territory. There is one major road in the area, the Alice Springs-Mt. Isa road which passes through the centre of the area. The road distance to Alice Springs is 370 kilometres and approximately 560 kilometres to Mt. Isa (see Figure 1).

The average annual rainfall is 254 mm, most of which falls in the summer months from November to March. Temperatures are normally above 38^{o}C in the summer with warm to cool days in the winter months.

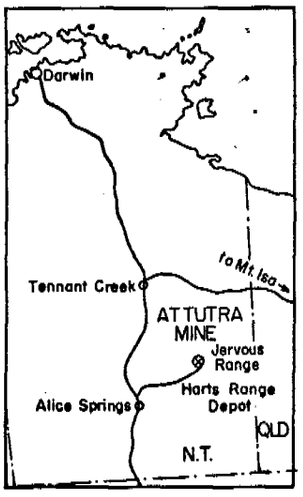
Vegetation is usually sparse throughout the northern half of the area where it consists of various grasses, spinifex and scattered small eucalyptus trees. In the southern part of the area spinifex predominates and tree growth is concentrated in the drainage channels.

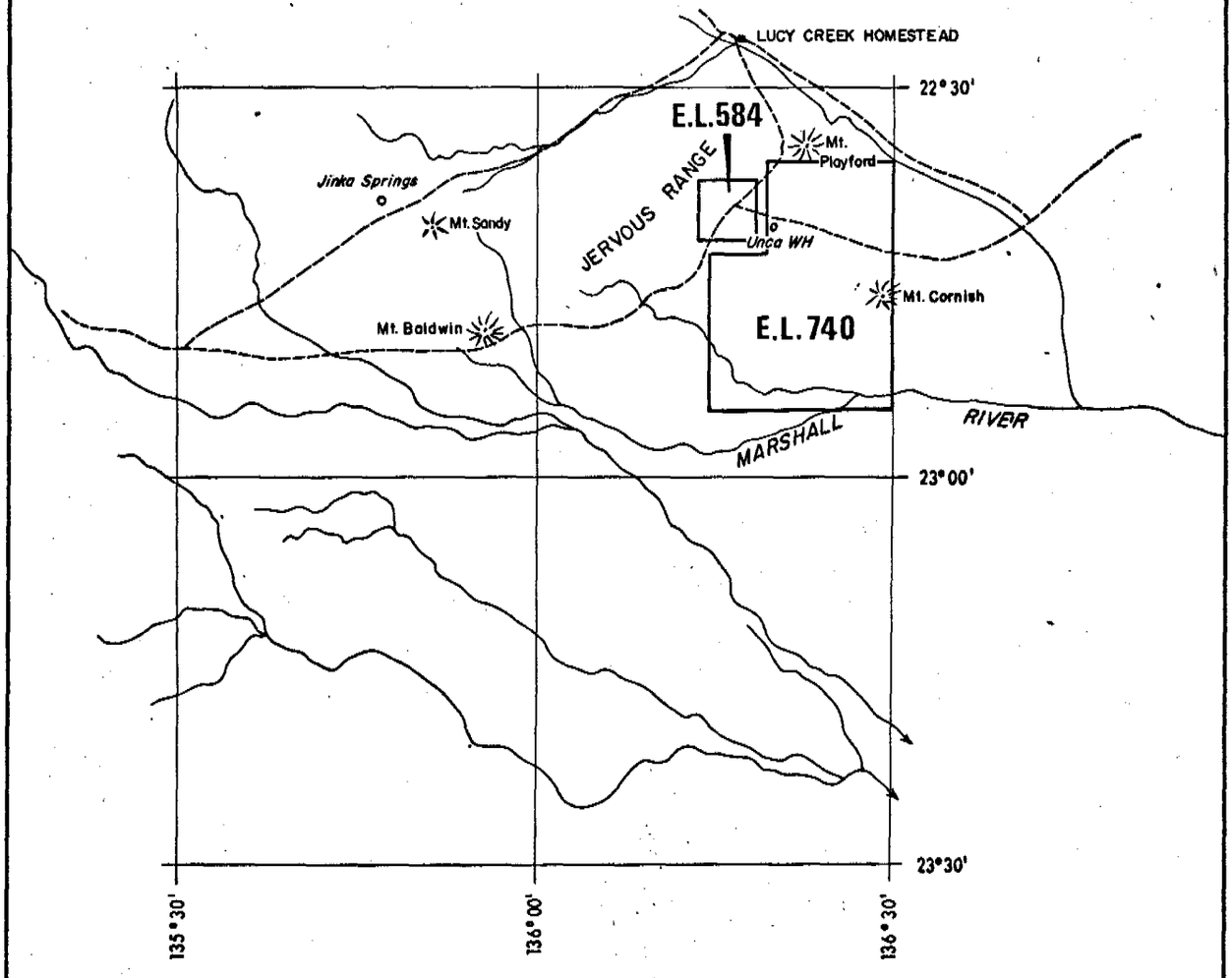
3. TENEMENT DETAILS

Exploration Licence 740 (previously Prospecting Authority 3161) is held by Attutra Mining Co. Pty. Ltd. and was initially granted for a period of twelve months from 24th November 1972. The licence was renewed in full for a further twelve months and is current until 23rd November 1974. The minimum expenditure stipulated by the Northern Territory Administration for the twelve months to 23rd November 1974 is $25,000.

Exploration Licence 740 covers an area of approximately 860.5 square kilometres. An outline of the area is shown on Plan 1 and Figure 1.

../2.





UNION CORPORATION (AUST.) PTY. LTD.

FIGURE 1

LOCATION MAP OF E.L. 740

J.F.W	SCALE = 1:1,000,000	October 1974

4. JOINT VENTURE AGREEMENT

A joint venture agreement between Petrocarb Exploration N.L. and Petrocarb Mineral Exploration (S.A.) Pty. Ltd, Attutra Mining Co. Pty. Ltd., Wilstone (Pty) Limited and Union Corporation (Australia) Pty. Limited was signed on 28th December 1973. Wilstone (Pty) Limited is a wholly-owned subsidiary of Union Corporation Limited of South Africa. The joint venture aggrement covers EL 584 and a number of mineral leases in the general area as well as EL 740 and two other mineral leases in the Bonya area.

The terms of the joint venture agreement are briefly that:-

a) Wilstone (Pty) Limited agrees to spend $200,000 in the first 12 months of the agreement without earning any beneficial interest.

b) If a further expenditure of $200,000 is undertaken Wilstone (Pty) Limited will be credited with a 10% beneficial interest in the joint venture.

c) Further expenditure will increase this interest at a rate of 1% for each $20,000 expended.

d) After Wilstone (Pty) Limited has acquired a 20% interest in the venture, it may at its discretion continue its interest, up to a maximum of 50% at the same rate of $20,000 for 1% interest.

e) After acquiring a 50% interest in the venture Wilstone (Pty) Limited has the right to purchase a further 5% interest for $100,000 within six months. Union Corporation (Australia) Pty. Limited has been appointed manager of the joint venture.

5. PREVIOUS WORK

i) The Jervois Mineral Field was discovered by Hanlon and Mudge in 1929 and later in that same year T. Hodge Smith mapped selected portions of the Jervois area on a regional scale.

ii) New Consolidated Goldfields (A'Asia) Pty. Ltd. investigated the Jervois area from 1961 to 1964. Work was concentrated in the area now covered by Exploration Licence 584 with limited exploration within the area covered by Exploration Licence 740.

iii) A number of regional geological investigations have been carried out by the Bureau of Mineral Resources from 1957 up to 1964. The 1:250,000 regional geological map of the Huckitta area was published in 1964 (see Plan 1).

iv) Between 1972 and 1973 Petrocarb Exploration (S.A.) Pty. Ltd. carried out exploration on Prospecting Authority 3161 - now EL 740 as well as EL 584 and the mineral claims.

../3.

6. REGIONAL GEOLOGY

Exploration Licence 740 occurs in the eastern portion of the Huckitta 1:250,000 geological sheet (see Plan 1). The rocks consist of schists, metaquartzites and hornflesic rocks belonging to the Archaean Arunta Complex. The Jervois Granite of Lower Proterozoic age intrudes a large area to the far east and south of the Jervois Ranges. Basic intrusives of a similar age to the granites also intrude the Archaean Arunta Complex. The Archaean rocks forming a "J" structure in E.L. 584 appear to represent a north-plunging synclinal fold. A similar "J" shaped fold pattern is repeated in the north-west region of E.L. 740.

Upper Proterozoic green siltstones and glacial beds of the Mt. Cornish Formation unconformably overlie the Archaean Complex. These beds are unconformably overlain by siltstones and sandstones of the Mopunga Group. Disconformably above this sequence a succession of multicoloured shales, siltstones, sandstones, greywackes, dolomites, oolitic limestones occur ranging in age from Lower Cambrian to Lower Ordovician. These beds are overlain unconformably by sandstones and conglomerates of Upper Devonian Age. Scattered outcrops of silicified limestone, chert and calcrete belonging to the Tertiary Artlunga Beds unconformably overlie the older sequences.

7. CURRENT PROGRAMME

7.1 Introduction

Prior to the commencement of the field programme all available technical information was gathered and assessed. Field work commenced in the areas in May 1974 with the major effort on EL 740 taking place in the months of August and September. Details of the work programme and results are given below.

7.2 Personnel Employed

The exploration crew consisted of three geologists and four field assistants, a prospector and camp maintenance manager and a cook.

7.3 Airphotography

EL 740 was flown with colour negative air photography at a scale of 1:25,000 by Kevron Photographics Pty. Ltd. of Perth. Flight line spacing was 4.75 kilometres and a 60% forward and aft overlap and a 25% overlap between adjacent runs was obtained. Flight lines were orientated in an east-west direction.

7.4 Geology

Regional geological traverses were carried out to locate all major outcrops within EL 740. Colour 1:25,000 air photographs assisted in the location and interpretation of geological outcrops. Denuded Archaean and granitic rocks outcrop as low ridges and as extensive soil-covered areas. Lower Proterozoic granite and Upper Proterozoic sediments of the Mt. Cornish Formation occur as prominent relief features in the north-western, central and far southern sections of the licence. Four regional geological sheets have been prepared to cover the licence area (see Plans 2,3,4 and 5).

../4.

i) Archaean

All significant outcrops of Archaean metamorphic rocks occur in the north-west part of the licence as a strongly folded synclinal belt paralleling the "J" structure present in EL 584. The Archaean has been subdivided into two groups. The first consists essentially of a number of pelitic schists including quartz-sericite, quartz-muscovite and andalusite schists while the second consists predominantly of calcareous and siliceous hornfelses.

On the eastern limb of the syncline the rocks strike approximately north-south and dips range from 55° to 70° to the west. There is a schistosity parallel to bedding.

In the north of Sheet 1 (Plan 2) the interbedded Archaean rocks consist of quartz-sericite schists, metaquartzite (in part calcareous), calc-silicate hornfelses, including quartz-epidote rocks and quartz-tourmaline rocks. Thick units of strongly jointed and folded metaquartzite are common in the northern part of the area. To the south of Unca Creek in the southern central section of Sheet 1 (Plan 2) the Archaean occurs as a belt two to three kilometres wide bounded by basic intrusives on both the east and western side. The Archaean rocks are similar to those further north; however, quartzites are no longer abundant and banded iron formations are present.

In the "nose" section of the "J" fold structure sericite schists, impure marbles and quartz-garnet-epidote rocks containing scheelite mineralisation in places, predominate. The scheelite mineralisation locally known as "Wards Prospect" extends discontinuously along strike for approximately 0.4 kilometres. Lower Proterozoic intrusives including minor granite, pegmatite and quartz-tourmaline dykes are present throughout the Archaean belt.

The Archaean shown on the Huckitta 1:250,000 geological sheet (Plan 1) in the central western, southern and south-western sections of the licence area were found to consist of small and insignificant roof pendants of schist within the Lower Proterozoic granite.

ii) Lower Proterozoic

a) Acid Intrusives - A well-jointed felspar-muscovite granite of Lower Proterozoic age occurs predominantly in the east, south and west of EL 740 (see Plans 2, 3, 4 and 5) and has been age-dated by the Department of Minerals & Energy at 1440 million years. Minor associated intrusives of granodiorite and diorite composition are present in the northern and central portions of the licence. In the south-west of the area (see Plans 2 & 5) the granite is well-jointed and in part gneissose.

Lower Proterozoic massive vein quartz and pegmatite dykes intrude the granite complex on a regional scale and the quartz veins may occur along regional patterns of faulting and shearing.

../5.

b) Basic Intrusives - Metabasic rocks are abundantly developed within the north-western section of the licence area (see Plan 2). There may be more than one phase of basic intrusive within this area, at least one of which may be Archaean. However, for convenience they have been mapped as one unit and tentatively placed in the Lower Proterozoic. South of Unca Creek the amphibolites appear conformable with the Archaean metasediments and tend to occur as relatively thin lenses. They range from very fine-grained varieties in the western central section of Sheet 1 (see Plan 2) to a coarser-grained porphyritic variety in the eastern section of this sheet.

North of Unca Creek the amphibolite is coarse-grained and layered in character and contains small massive magnetite lenses. Detailed mapping and petrological work would be required to determine whether there are in fact two separate basic phases present.

Six small magnetite lenses have been delineated in the amphibolites north of Unca Creek and these have been geochemically chip sampled. The results of this work are discussed in Section 7.5.

iii) Upper Proterozoic

Upper Proterozoic glacial sediments of the Mt. Cornish Formation unconformably overlie the Lower Proterozoic granite in the central, south and east portions of the licenced area (see Sheet 4, Plan 5). The Mt. Cornish Formation is arkosic at the base overlain by an alternating sequence of quartzite, green shale, and cross-bedded tillitic siltstones. Towards the top of the Mt. Cornish Formation boulder beds of tillite interbedded with green glacial siltstones occur. The Mt. Cornish Formation appears to represent a block of glacial sediments dipping gently to the south.

iv) Tertiary

The Artlunga beds of Tertiary age consist of siliceous limestone, calcrete and chert. In the south-west corner of Exploration Licence 740 relatively thin cappings of chert unconformably overlie the Lower Proterozoic granite. Minor outcrops of siliceous limestone, calcrete and chert occur within the drainage areas of Bonya and Unca Creeks.

7.5 Geochemistry

Six magnetite lenses within amphibolite three to four kilometres north-east of the Attutra mine camp (see Plan 2) were chip sampled. Samples were taken along east-west lines and the sample interval was largely determined by the size and irregularity of the outcrop. All samples were analysed for copper, vanadium and gold and samples from bodies 1, 5 and 6 were also analysed for lead, zinc and silver (see Plans 6, 7 and 8). A brief description of the bodies and the results of the geochemical sampling is given below.

../6.

a) Prospect No. 1 (see Plan 6)

This is an isolated magnetite lens bordered by minor amphibolite on the west (not shown on Plan 2). Granite occurs some distance to the east. The lens is lenticular in shape orientated in a north-south direction with approximate outcrop dimensions of 75 metres by 25 metres.

As can be seen from Plan 6, copper is anomalously high throughout the lens, the highest value obtained being 2000 ppm. Vanadium values vary from 0.87% to 1.11% V_2O_5. Lead and zinc values are also anomalously high compared to the values obtained from prospect Nos. 5 & 6. All samples contained silver and gold values below the limit of detection of the analytical method employed.

b) Prospects 2, 3 and 4.

These prospects occur as three small outcrops and appear to lie along a north-south trend line and all occur within outcropping amphibolite (see Plans 2 and 7).

Copper values for prospects 2 and 3 generally varies from 20 to 40 ppm with one sample in the northern part of the No. 2 body containing 95 ppm Cu. Vanadium values ranged from 0.12% to 0.44% V_2O_5. No significant gold values were obtained.

Prospect No. 4 consists of two very small adjacent pods of magnetite approximately one kilometre north of prospect No. 3 (see Plan 7). The two samples collected from this prospect contained slightly higher copper values than prospect Nos. 2 and 3 (100 and 110 ppm Cu) and the vanadium content was also higher at 1.02% and 0.57% V_2O_5.

c) Prospect No. 5

This prospect occurs on the western extremity of the amphibolite complex. Copper values from this lens were consistently below 0.01% and vanadium values ranged from 0.02% to 0.11% V_2O_5 which is much lower than those obtained from the other magnetite lenses. Silver and gold values were all below the limit of detection of the analytical method employed.

d) Prospect No. 6

Magnetite prospect No. 6 is located 1.2 kilometres south of body No. 1 (Plan 2 and Plan 6). The elongate magnetite lens is 50 metres by 25 metres in size and is orientated in an east-west direction. Two samples collected from this prospect contained less than 0.1% Cu with vanadium contents of 1.27% and 1.28% V_2O_5. Silver and gold values were below the limit of detection of the analytical method employed.

../7.

8. EXPENDITURE

The expenditure for EL 740 to 30th September 1974 is as follows:

	Prior to 1.1.1974	1.1.74 to 31.3.1974	1.4.74 to 31.7.1974	1.8.74 to 30.9.1974
Geologists	$5,940.00	$3,735.00	$4,300.00	$4,600.00
Field Assistant			480.00	480.00
Travelling	637.02	44.91	316.31	325.36
Food/Accommodation	61.94	32.39	487.38	494.68
Entertainment	29.19		2.30	4.00
Postage/Freight			41.06	100.82
Maps/Publications/ Drafting	590.06	47.31	195.65	132.46
Telecommunications	259.59	10.80	60.65	20.03
Field Expenses			308.34	23.23
Motor Vehicle Expenses			179.50	369.04
Petty Cash			17.03	24.82
Wages			658.91	702.24
Stationery			98.91	12.82
Aircraft Charters			84.46	130.55
Hire of Motor Vehicles			11.36	-
Consulting Fees			3,650.33	-
Sample Treatment			173.03	994.66
Advertising			14.01	-
Gas & Camp Equipment			19.63	-
Transfer Fees			1.67	-
Legal Fees	1,642.50		319.72	19.59
Bank Charges			.36	.24
Replacement of Field Equipment			14.26	184.80
Repairs & Maintenance			4.41	-
Camp Hire			720.00	770.00
Air Photography			3,809.30	-
	$9,160.30	$3,870.41	$15,968.58	$9,389.34
	Total to 30th September, 1974			$38,388.63

Further expenditure has been incurred during the month of October.

9. CONCLUSIONS

a) The Archaean Arunta Complex is restricted to the north-western portion of EL 740 apart from small insignificant roof pendants within the granite in the remainder of the area. In the north-western section of the licence area the Archaean metasediments are folded into a synclinal structure paralleling the "J" shaped structure in EL 584.

b) There is no evidence of base metal mineralisation similar to that which occurs at the Jervois mine prospect within EL 584.

../8.

c) Minor scheelite mineralisation occurs within the Archaean calc-silicate rocks in the north-western section of EL 740. There is limited potential for the discovery of further small scheelite occurrences within the Arunta Complex in this part of the licence.

d) Five of the six magnetite lenses within the amphibolites contain erratic but low-grade vanadium values. Magnetite prospect No. 1 contains anomalous copper values; however, these are not considered sufficiently promising to warrant further follow-up investigation. No significant gold or silver values were present.

J.F. Wright

J.F. Wright
17.10.1974

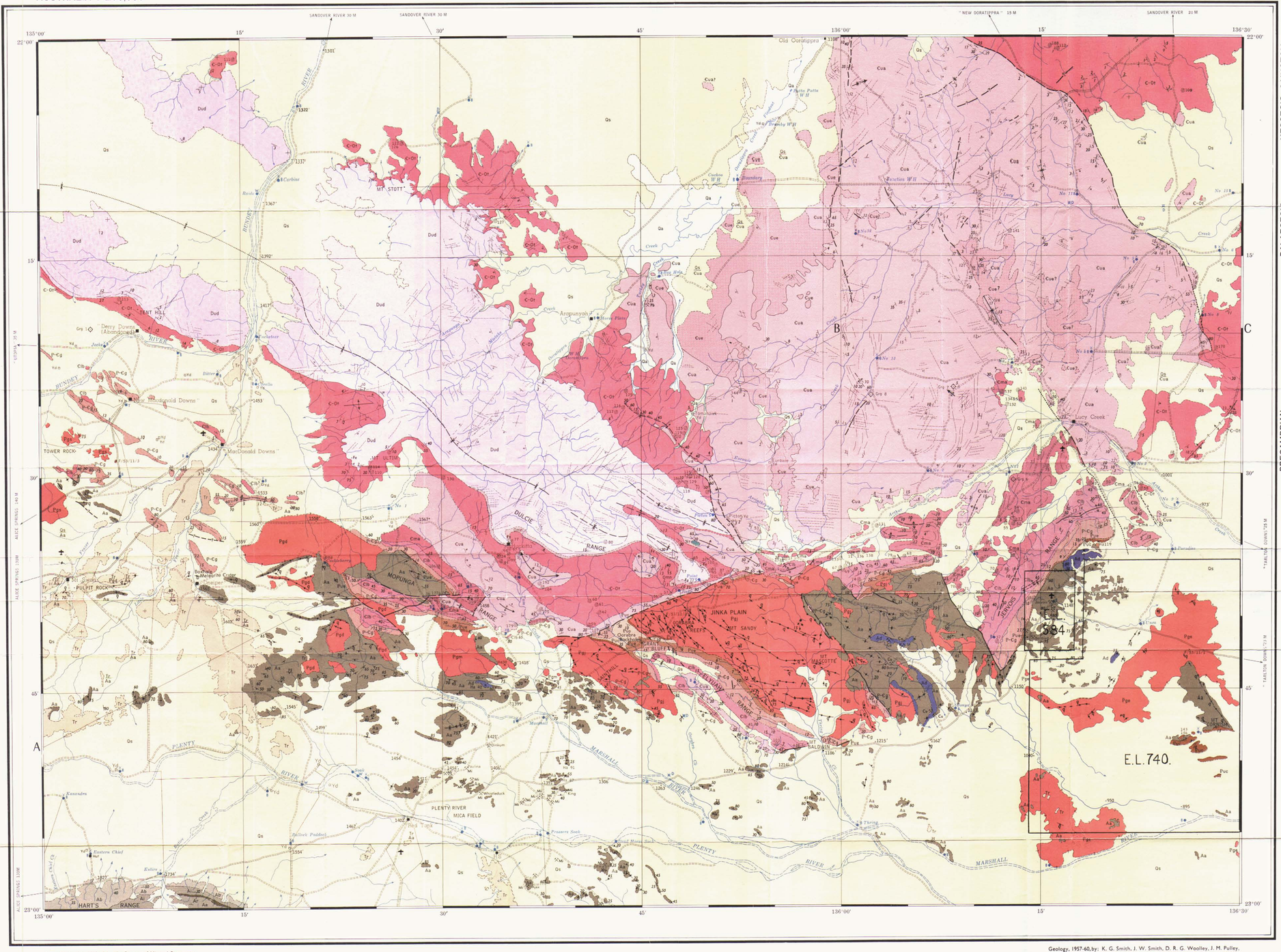
AUSTRALIA 1:250,000

HUCKITTA

NORTHERN TERRITORY

1:250,000 GEOLOGICAL SERIES SHEET SF 53 — 11

FIRST EDITION 1964



Reference

CAINOZOIC	QUATERNARY		Qs — *Sand, soil and alluvium*; Qa — *Alluvium*
CAINOZOIC	TERTIARY	Arltunga Beds	Tr — *Silicified limestone, sandstone, siltstone*
MESOZOIC	TRIASSIC?	Tarlton Formation	TrT — *Silty quartz sandstone with numerous boulders of quartzite*
PALAEOZOIC	UPPER DEVONIAN	Dulcie Sandstone	Dud — *Quartz sandstone with interbedded silty calcareous sandstone, pebble conglomerate*
PALAEOZOIC	MIDDLE ORDOVICIAN	Nora Formation	Omn — *Siltstone, dolomite, ironstone, sandstone*
PALAEOZOIC	LOWER ORDOVICIAN TO UPPER CAMBRIAN	Tomahawk Beds	C-Ot — *Calcareous sandstone, green siltstone, brown dolomite, grey limestone, sandy dolomite, glauconitic sandstone*
PALAEOZOIC	UPPER CAMBRIAN	Arrinthrunga Formation	Cua — *Brown massive dolomite, yellow flaggy dolomite, blue and purple oolitic limestone. Thin interbeds of siltstone and sandstone*
PALAEOZOIC	UPPER CAMBRIAN	Eurowie Sandstone Member	Cue — *Brown quartz sandstone with halite pseudomorphs*
PALAEOZOIC	MIDDLE CAMBRIAN	Arthur Creek Beds	Cma — *Buff shale, laminated blue-black limestone with lenses of calcareous sandstone; ferruginous shale, brown and purple dolomite, yellow siltstone*
? PROTEROZOIC	LOWER CAMBRIAN TO UPPER PROTEROZOIC — Mopunga Group	Mt Baldwin Formation	Clb — *Red glauconitic quartz sandstone, red and grey quartz greywacke, red dolomitic siltstone, dolomite*
? PROTEROZOIC	LOWER CAMBRIAN TO UPPER PROTEROZOIC — Mopunga Group	Grant Bluff Formation	P-Cg — *Grey quartz sandstone, gypsiferous siltstone, dolomite*
? PROTEROZOIC	LOWER CAMBRIAN TO UPPER PROTEROZOIC — Mopunga Group	Elyuah Formation	Pue — *Arkose, green and red shale*
? PROTEROZOIC	LOWER CAMBRIAN TO UPPER PROTEROZOIC — Mopunga Group	Oorabra Arkose Member	Puo — *Arkose*
PRECAMBRIAN	UPPER PROTEROZOIC	Mt Cornish Formation	Puc — *Boulder beds, green siltstone with "tillitic" texture, cyclic green siltstone and fine sandstone*
PRECAMBRIAN	LOWER PROTEROZOIC	Dneiper Granite	Pgd — *Quartz-feldspar-muscovite granite*
PRECAMBRIAN	LOWER PROTEROZOIC	Jervois Granite	Pge — *Quartz-feldspar-muscovite granite*
PRECAMBRIAN	LOWER PROTEROZOIC	Jinka Granite	Pgi — *Quartz-feldspar-muscovite granite*
PRECAMBRIAN	LOWER PROTEROZOIC	Marshall Granite	Pgm — *Quartz-microcline granite with graphic intergrowths*
PRECAMBRIAN	LOWER PROTEROZOIC	Mt Swan Granite	Pgs — *Quartz-feldspar-biotite granite, feldsparphyric*
PRECAMBRIAN	ARCHAEAN		Aa — *Basic intrusives*
PRECAMBRIAN	ARCHAEAN — Arunta Complex Harts Range Group	Brady Gneiss	Ab — *Garnet-mica-feldspar gneiss*
PRECAMBRIAN	ARCHAEAN — Arunta Complex Harts Range Group	Irindina Gneiss	Ai — *Garnet-mica-feldspar gneiss*
PRECAMBRIAN	ARCHAEAN — Arunta Complex Harts Range Group	Bruna Gneiss	Ar — *Gneiss with porphyroblastic feldspar*
PRECAMBRIAN	ARCHAEAN — Arunta Complex Harts Range Group	Entia Gneiss	Ae — *Mica-quartz-feldspar gneiss*
PRECAMBRIAN	ARCHAEAN — Arunta Complex Harts Range Group	Undifferentiated	Aa — *Gneiss, schist, metaquartzite*

- Geological boundary
- Anticline, showing plunge
- Syncline
- Monocline
- Fault (D, U indicate relative movement down and up)
- Where location of boundaries, folds and faults is approximate, line is broken; where inferred or indefinite, queried; where concealed, boundaries and folds are dotted, faults are shown by short dashes
- Strike and dip of strata
- Vertical strata
- Horizontal strata
- Overturned strata
- Dip < 15° (air-photo interpretation)
- Dip 15–45° (air-photo interpretation)
- Trend of bedding (air-photo interpretation)
- Joint pattern (air-photo interpretation)
- Strike and dip of foliation
- Vertical foliation
- Strike and dip of joints
- Vertical joints
- Macrofossil locality
- Rock specimen locality
- Age determination sample locality
- Stratigraphic cored bore
- Quartz reef
- Mine
- Minor mineral occurrence
- Barytes
- Copper
- Iron
- Mica
- Lead
- Bore
- Abandoned bore, dry
- Well
- Spring
- Waterhole
- Tank
- Windpump
- Road
- Vehicle track
- Fence
- Homestead
- Landing ground
- Yard
- Height in feet, instrument levelled; datum: mean sea level

Compiled and published by the Bureau of Mineral Resources, Geology and Geophysics, Department of National Development
Topographic base compiled by the Division of National Mapping, Department of National Development
Transverse Mercator Projection

Printed by Mercury Press, Hobart

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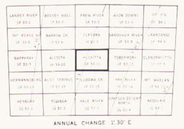
Showing Magnetic Declination



ANNUAL CHANGE 2.30' E

Scale 1 : 250,000

5 0 5 10 15 MILES
5 0 5 10 15 20 25 KILOMETRES

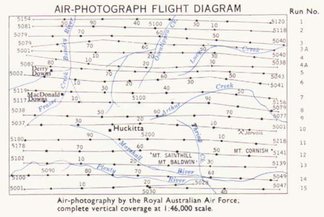
Section
SCALE: $\frac{V}{H} = 1$
(Quaternary sediments omitted from section)

GEOLOGICAL RELIABILITY DIAGRAM

B — *Detailed reconnaissance—numerous traverses with air-photo interpretation*

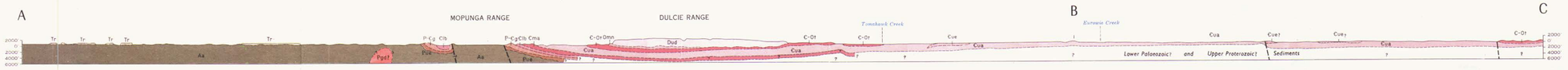
Geology, 1957-60, by: K. G. Smith, J. W. Smith, D. R. G. Woolley, J. M. Pulley, R. R. Vine, K. Gough, E. N. Milligan, G. F. Joklik (1955)
Compiled, 1959-60, by: K. G. Smith, R. R. Vine, D. R. G. Woolley, E. N. Milligan
Drawn, 1963, by: Mercury Press Pty Ltd

AIR-PHOTOGRAPH FLIGHT DIAGRAM



Air-photography by the Royal Australian Air Force; complete vertical coverage at 1:46,000 scale.

A



B

C

HUCKITTA
SF 53 — 11

Copies of this map may be obtained from the Bureau of Mineral Resources, Geology and Geophysics, Canberra, A.C.T., or Darwin, N.T.

UNION CORPORATION (AUST) PTY. LTD.		
FINAL REPORT FOR EL. 740 HUCKITTA GEOLOGICAL SHEET		
J.F.W.	PLAN 1	Oct. 1974

136°-13'-40" 14'-00" 15'-00" 16'-00" 17'-00" 18'-00" 19'-00" 20'-00" 21'-00" 136°-22'-00"

22°-36'-00" 37'-00" 38'-00" 39'-00" 40'-00" 41'-00" 42'-00" 43'-00" 44'-00" 22°-45'-00"

E.L.584.

DAM

ATTUTRA MINE

UNCA CREEK

Alice Springs

Lucy Creek

Minor Archaean

Marble

Minor Amphibolite

Minor Archaean Schists

Minor Archaean Schists

peg

pegmatite

N°4

N°3

N°2

N°5

Minor Archaean

Archaean metaquartzite, calc-silicate and hornsfelsic rocks, mica schist

pegmatite dykes

Amphibolite dyke swarm

pegmatite

N°1

granodiorite

Minor Archaean metaquartzites & hornsfelsics rocks

Minor Epidote hornsfelsic rocks

N°6

55°/o

Marble

Minor banded iron formation

Minor Archaean

Minor Archaean schist and hornsfelsic rocks

Minor Archaean

Porphyritic Amphibolite

Minor Archaean sericite schist

Quartz-Epidote hornsfelsic rocks

Minor Amphibolite

SHEET LAYOUT

1	2
3	4

QUATERNARY — Alluvium, Colluvium

TERTIARY — ARTLUNGA BEDS — Siliceous limestone, chert

UPPER PROTEROZOIC — MT. CORNISH FORMATION — Green Tillitic Siltstone, Arkose, Quartzites, Boulder beds of Tillite, Minor Green Shales

LOWER PROTEROZOIC — Acid intrusive, Jervois granite, Gneissose granite

LOWER PROTEROZOIC — Basic intrusive, Amphibolite

Magnetite bodies

Amphibolite dykes

LOWER PROTEROZOIC — Pegmatite Dykes

LOWER PROTEROZOIC — Intrusive Quartz Reef

ARCHAEAN — Quartz, Sericite and/or Muscovite Schist; Knotted Andalusite Schist; Metaquartzites; Quartz-Edidote Hornfels; Magnetite Hornfels; Calc Silicate Hornfels; Marble

Road

Drainage

Bore

Vertical Strata

Bedding Attitude

Foliation Attitude

Fault

Cu,S — Copper, Scheelite Occurrence

N

UNION CORPORATION (AUSTRALIA) PTY. LTD.

FINAL REPORT FOR E.L. 740

REGIONAL GEOLOGY OF EXPLORATION LICENCE 740

SHEET No. 1 — PLAN No. 2

P.T.G. - J.F.W.	DATE SEPT '74	SCALE - 1:25,000

22° 36' 00"
37'-00"
38'-00"
39'-00"
40'-00"
41'-00"
42'-00"
43'-00"
44'-00"
22°-45'-00"
136°-22'-00"
23'-00"
24'-00"
25'-00"
26'-00"
27'-00"
28'-00"
29'-00"
136°-30'-00"

UNCA BORE

Mt Isa

SHEET LAYOUT

1	2
3	4

QUATERNARY — Alluvium Colluvium

TERTIARY — ARTLUNGA BEDS
Siliceous limestone, chert

UPPER PROTEROZOIC — MT. CORNISH FORMATION
Green Tillitic Siltstone, Arkose, Quartzites, Boulder beds of Tillite, Minor Green Shales

LOWER PROTEROZOIC — Acid intrusive, Jervois granite, Gneissose granite

LOWER PROTEROZOIC — Basic intrusive, Amphibolite

LOWER PROTEROZOIC — Pegmatite Dykes

LOWER PROTEROZOIC — Intrusive Quartz Reef

ARCHAEAN — Quartz, Sericite and/or Muscovite Schist
Knotted Andalusite Schist
Metaquartzites
Quartz - Edidote Hornfels
Magnetite Hornfels
Calc Silicate Hornfels

Road
Drainage
Bore
Vertical Strata
Bedding Attitude
Foliation Attitude
Fault
Cu, S — Copper, Scheelite Occurrence

N

UNION CORPORATION (AUSTRALIA) PTY. LTD.

FINAL REPORT FOR E.L. 740

REGIONAL GEOLOGY OF EXPLORATION LICENCE 740

SHEET No. 2 — PLAN No. 3

J.F.W. – A.T.T.	DATE : SEPT. '74	SCALE - 1:25,000

22°-45'-00"
46'-00"
47'-00"
48'-00"
49'-00"
50'-00"
51'-00"
52'-00"
53'-00"
54'-00"
22°-55'-00"
14'-00"
15'-00"
16'-00"
17'-00"
18'-00"
19'-00"
20'-00"
21'-00"
136-22'-00"

Minor Archaean

To Jervois Mine

To Mt Isa

Alice Springs

Minor Archaean

Minor Archaean

BONYA CREEK

Minor Archaean (metaquartzite)

Minor Archaean

Minor Archaean mica schist

gneissose granite

SHEET LAYOUT

1	2
3	4

QUATERNARY — Alluvium, Colluvium

TERTIARY — ARTLUNGA BEDS
Siliceous limestone, chert

UPPER PROTEROZOIC — MT. CORNISH FORMATION
Green Tillitic Siltstone, Arkose, Quartzites, Boulder beds of Tillite, Minor Green Shales

LOWER PROTEROZOIC — Acid intrusive, Jervois granite, Gneissose granite

LOWER PROTEROZOIC — Basic intrusive, Amphibolite

LOWER PROTEROZOIC — Pegmatite Dykes (peg)

LOWER PROTEROZOIC — Intrusive Quartz Reef

ARCHAEAN — Quartz, Sericite and/or Muscovite Schist
Knotted Andalusite Schist

ARCHAEAN — Metaquartzites
Quartz - Edidote Hornfels
Magnetite Hornfels
Calc Silicate Hornfels

Road

Drainage

Bore

Vertical Strata

Bedding Attitude

Foliation Attitude

Fault

Cu, S — Copper, Scheelite Occurrence

N

UNION CORPORATION (AUSTRALIA) PTY. LTD.

FINAL REPORT FOR E.L. 740

REGIONAL GEOLOGY OF EXPLORATION LICENCE 740

SHEET No. 3 — PLAN No. 4

J.F.W. - A.T.T.	DATE SEPT '74	SCALE - 1:25,000

22°-45'-00"
46'-00"
47'-00"
48'-00"
49'-00"
50'-00"
51'-00"
52'-00"
53'-00"
54'-00"
22°-55'-00"
136°-22'-00"
23'-00"
24'-00"
25'-00"
26'-00"
27'-00"
28'-00"
29'-00"
136°-30'-00"

To Mt Isa

Minor Archaean

Minor Amphibolite

Minor Archaean

MT. CORNISH

MT. CORNISH BORE

Minor Archaean

Minor Archaean biotite Schist

Minor Archaean

BONYA CREEK

RIVER

MARSHALL

MARSHALL BAR BORE

Minor outcrops of L. Proterozoic Granite

SHEET LAYOUT

1	2
3	4

QUATERNARY — Alluvium, Colluvium

TERTIARY — ARTLUNGA BEDS: Siliceous limestone, chert

UPPER PROTEROZOIC — MT. CORNISH FORMATION: Green Tillitic Siltstone, Arkose, Quartzites, Boulder beds of Tillite, Minor Green Shales

LOWER PROTEROZOIC — Acid intrusive, Jervois granite, Gneissose granite

LOWER PROTEROZOIC — Basic intrusive, Amphibolite

LOWER PROTEROZOIC — Pegmatite Dykes

LOWER PROTEROZOIC — Intrusive Quartz Reef

ARCHAEAN — Quartz, Sericite and/or Muscovite Schist; Knotted Andalusite Schist

ARCHAEAN — Metaquartzites; Quartz-Edidote Hornfels; Magnetite Hornfels; Calc Silicate Hornfels

Road

Drainage

Bore

Vertical Strata

Bedding Attitude

Foliation Attitude

Fault

Cu, S — Copper, Scheelite Occurrence

N

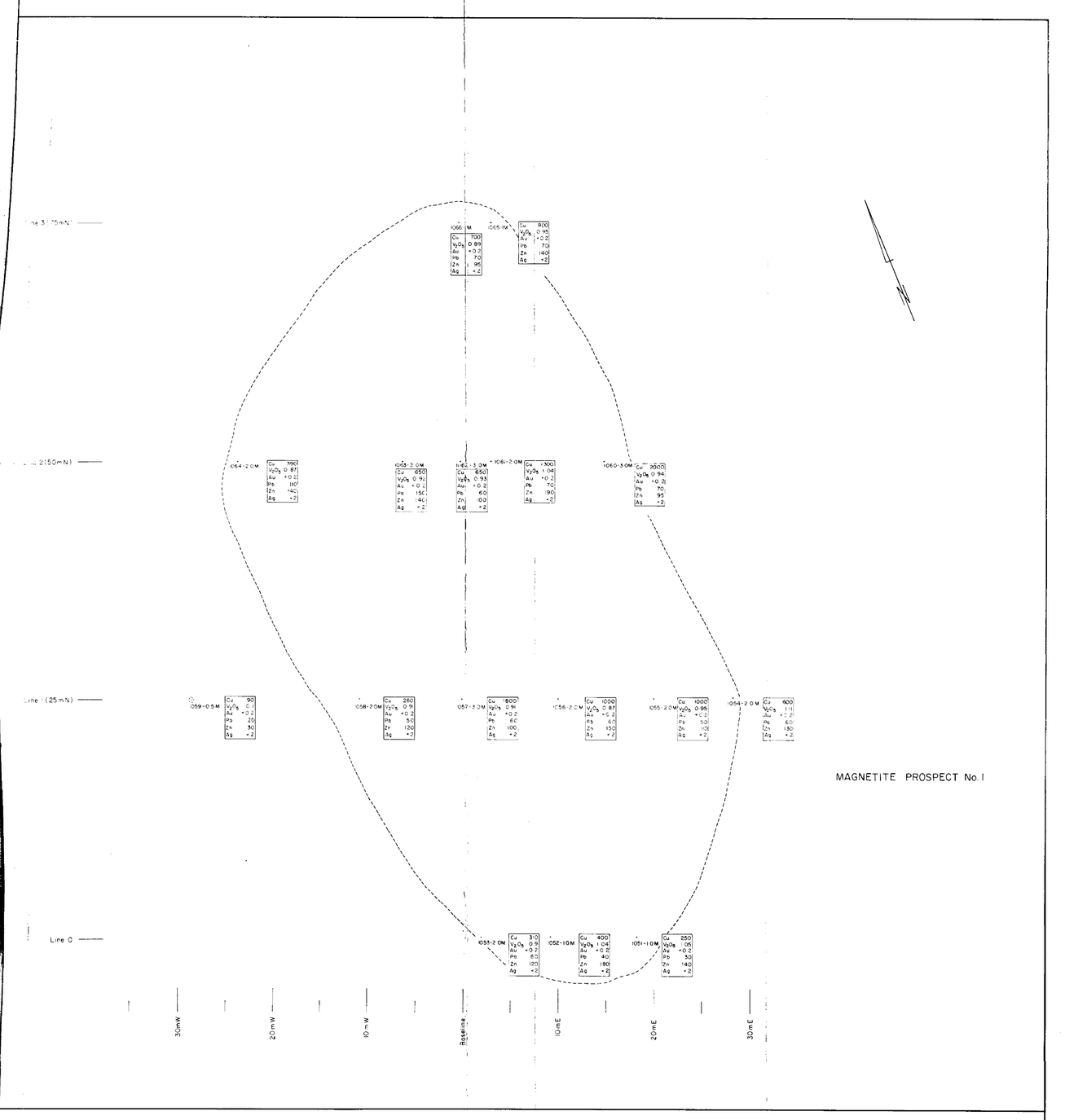
UNION CORPORATION (AUSTRALIA) PTY. LTD.

FINAL REPORT FOR E.L. 740

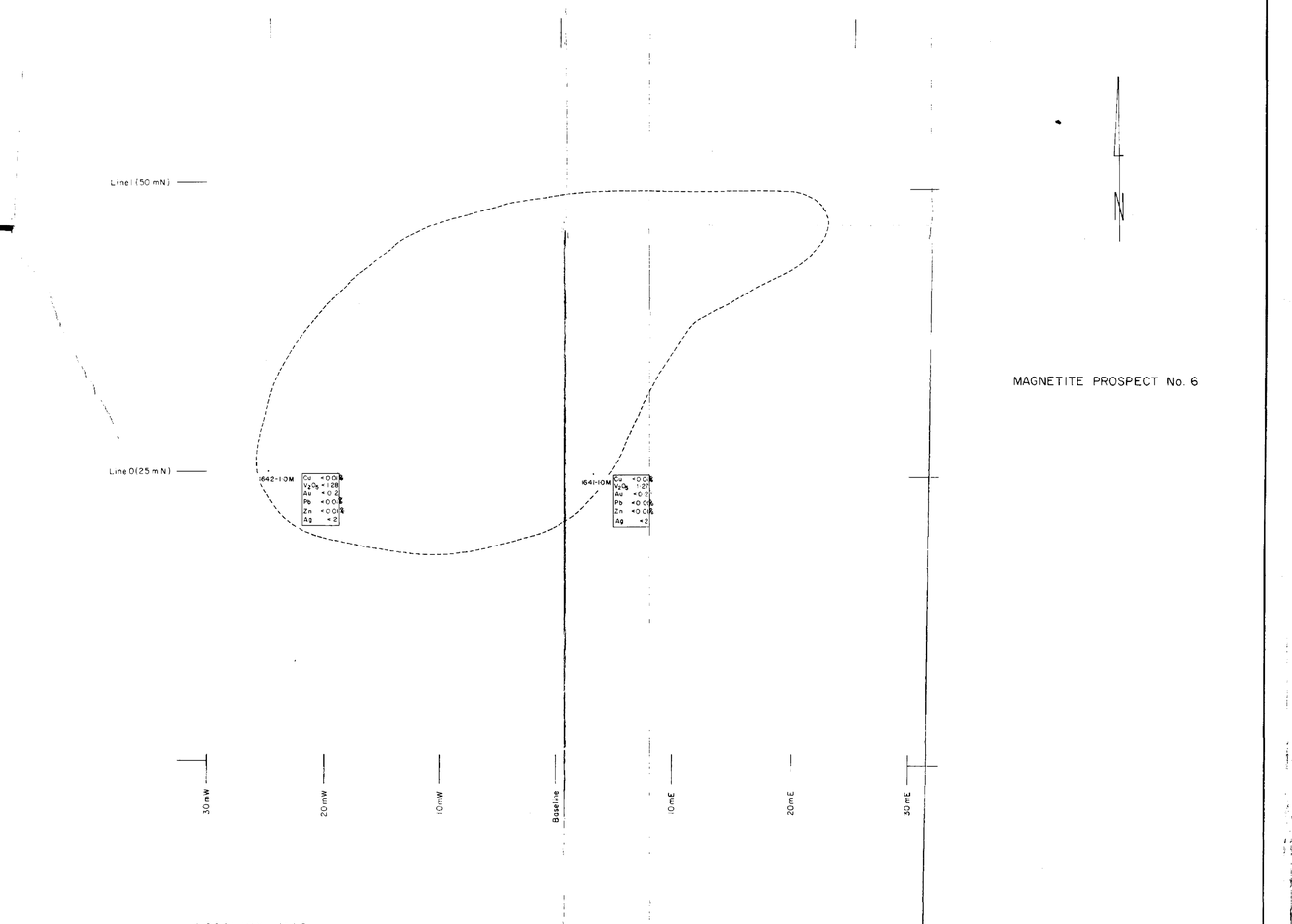
REGIONAL GEOLOGY OF EXPLORATION LICENCE 740

SHEET No. 4 — PLAN No. 5

J.F.W. - A.T.T.	DATE SEPT. '74	SCALE - 1:25,000

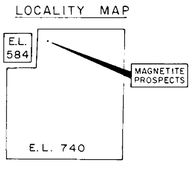


MAGNETITE PROSPECT No. 1



MAGNETITE PROSPECT No. 6

LOCALITY MAP



LEGEND

1641-1.0M	Rock Sample Location, Sample Number, Sample Width in Metres
Cu	ppm copper in rock
V_2O_5	Percent Vanadium oxide in rock
Au	Grams/metric ton gold in rock
Pb	ppm lead in rock
Zn	ppm zinc in rock
Ag	ppm silver in rock
	Outcrop boundary of magnetite

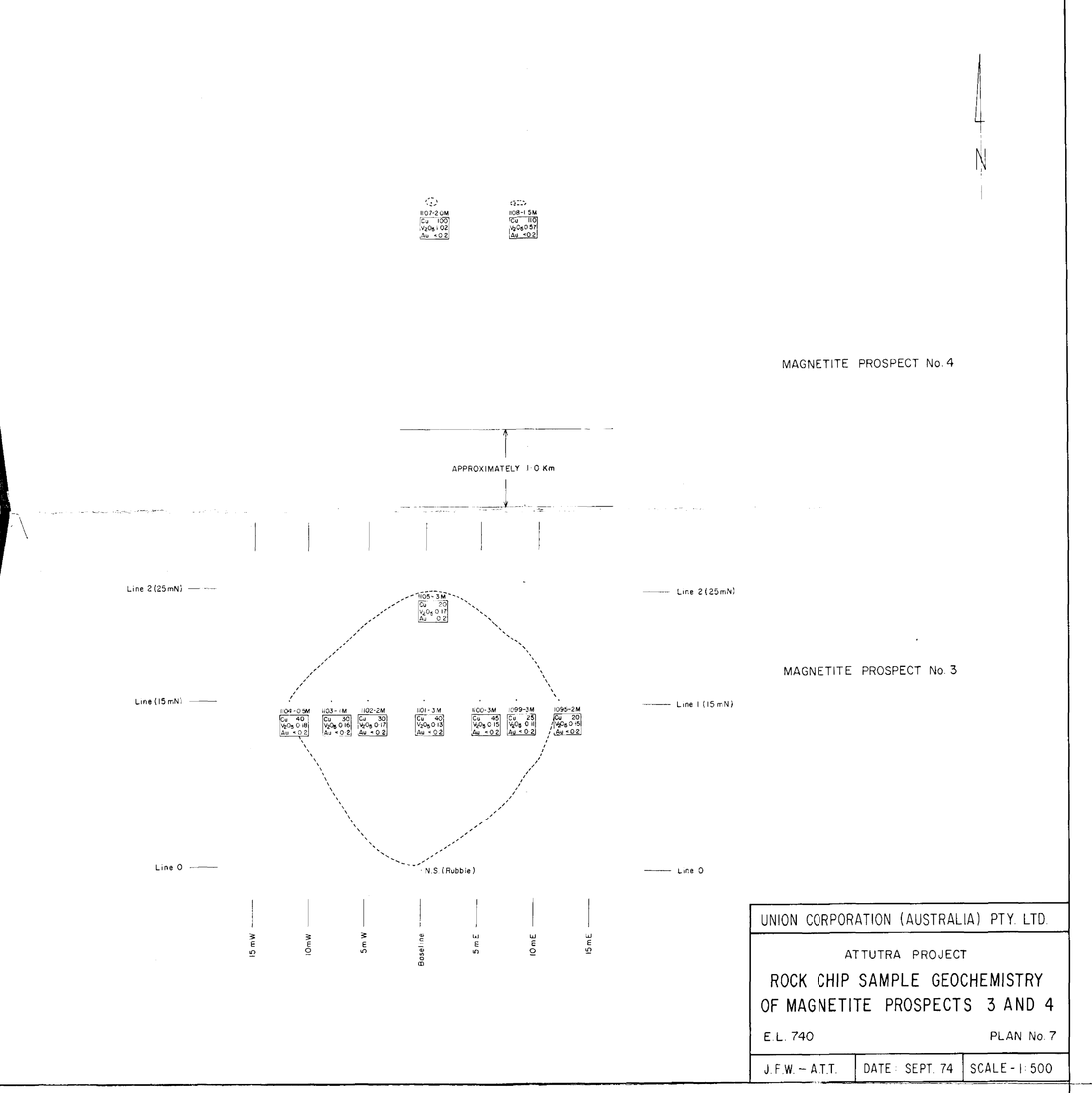
UNION CORPORATION (AUSTRALIA) PTY. LTD.

ATTUTRA PROJECT

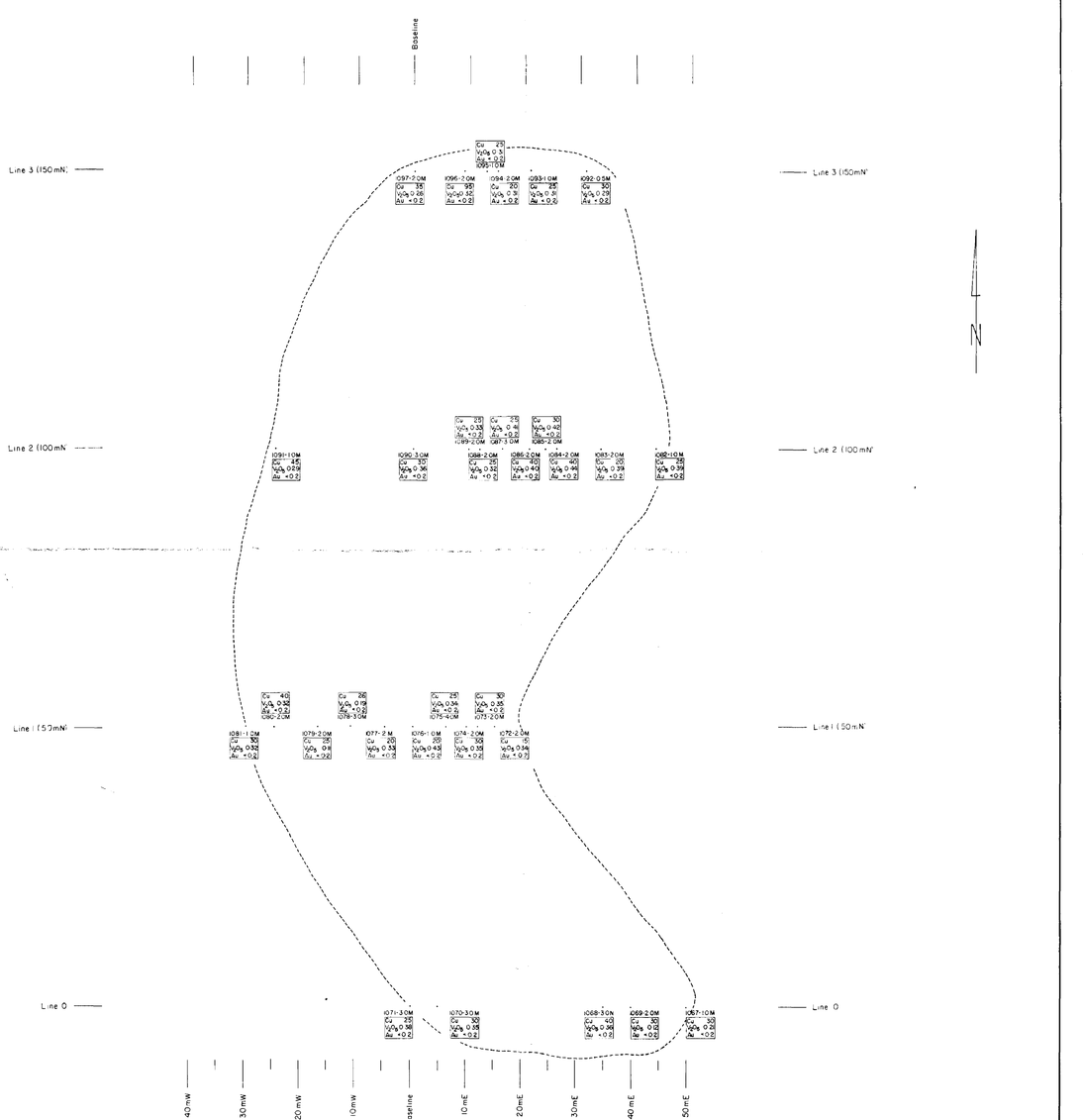
ROCK CHIP SAMPLE GEOCHEMISTRY OF MAGNETITE PROSPECT Nos. 1 AND 6

E.L. 740 — PLAN No. 6

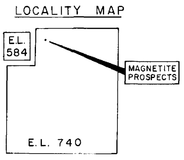
J.F.W. – A.T.T.	DATE : SEPT. 74	SCALE – 1:250



UNION CORPORATION (AUSTRALIA) PTY. LTD.		
ATTUTRA PROJECT ROCK CHIP SAMPLE GEOCHEMISTRY OF MAGNETITE PROSPECTS 3 AND 4		
E.L. 740		PLAN No. 7
J.F.W. – A.T.T.	DATE : SEPT. 74	SCALE - 1:500



LOCALITY MAP



LEGEND

1082-2·0M	Rock Sample Location, Sample Number, Sample Width in Metres
Cu	ppm copper in rock
V_2O_5	Percent Vanadium oxide in rock
Au	Grams/metric ton gold in rock
	Outcrop boundary of magnetite

UNION CORPORATION (AUSTRALIA) PTY. LTD.		
ATTUTRA PROJECT ROCK CHIP SAMPLE GEOCHEMISTRY OF MAGNETITE PROSPECT No. 2		
E.L. 740		PLAN No. 7
J.F.W. – A.T.T.	DATE : SEPT. 74	SCALE - 1:500

Line 5 (125 mN)

Line 4 (100m N)

Line 3 (75mN)

Line 2 (50m N)

Line 1 (25m N)

Line 0 (00m N)

1636-1·0M	
Cu	<0·01
V_2O_5	0·025
Au	<0·2
Pb	<0·01
Zn	<0·01
Ag	<2

1637-2·0M	
Cu	<0·01
V_2O_5	0·084
Au	<0·2
Pb	<0·01
Zn	<0·01
Ag	<2

1638-1·0M	
Cu	<0·01
V_2O_5	0·020
Au	<0·2
Pb	<0·01
Zn	<0·01
Ag	<2

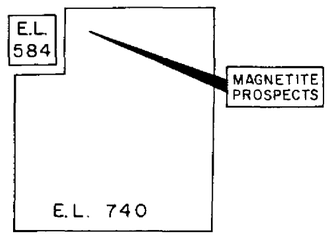
1639-1·0M	
Cu	<0·01
V_2O_5	0·029
Au	<0·2
Pb	<0·01
Zn	<0·01
Ag	<2

1640-3·0M	
Cu	<0·01
V_2O_5	0·11
Au	<0·2
Pb	<0·01
Zn	<0·01
Ag	<2

BASIC INTRUSIVE

225 mW | 200 mW | 175 mW | 150 mW | 125 mW | 100 mW | 75 mW | 50 mW | 25 mW | 00

LOCALITY MAP



LEGEND

1638-1·0M	Rock Sample Location, Sample Number, Sample Width in Metres
Cu	% copper in rock
V_2O_5	Percent Vanadium oxide in rock
Au	Grams/metric ton gold in rock
Pb	% lead in rock
Zn	% zinc in rock
Ag	ppm silver in rock

- Approximate boundary of magnetic body
- Approximate boundary of basic intrusive
- Outcrop limit of magnetite lens
- Magnetite outcrop boundary
- Basic intrusive outcrop boundary

UNION CORPORATION (AUSTRALIA) PTY. LTD.

ATTUTRA PROJECT

ROCK CHIP SAMPLE GEOCHEMISTRY OF MAGNETITE PROSPECT No. 5

E.L. 740 — PLAN No. 8

J.F.W. – A.T.T.	DATE : SEPT. 74	SCALE – 1:500