Open File Envelope No. 4589

EL 946

WATSON SIDING (SOUTH)

PROGRESS AND FINAL REPORTS TO LICENCE SURRENDER FOR THE PERIOD 11/12/81 TO 10/10/82

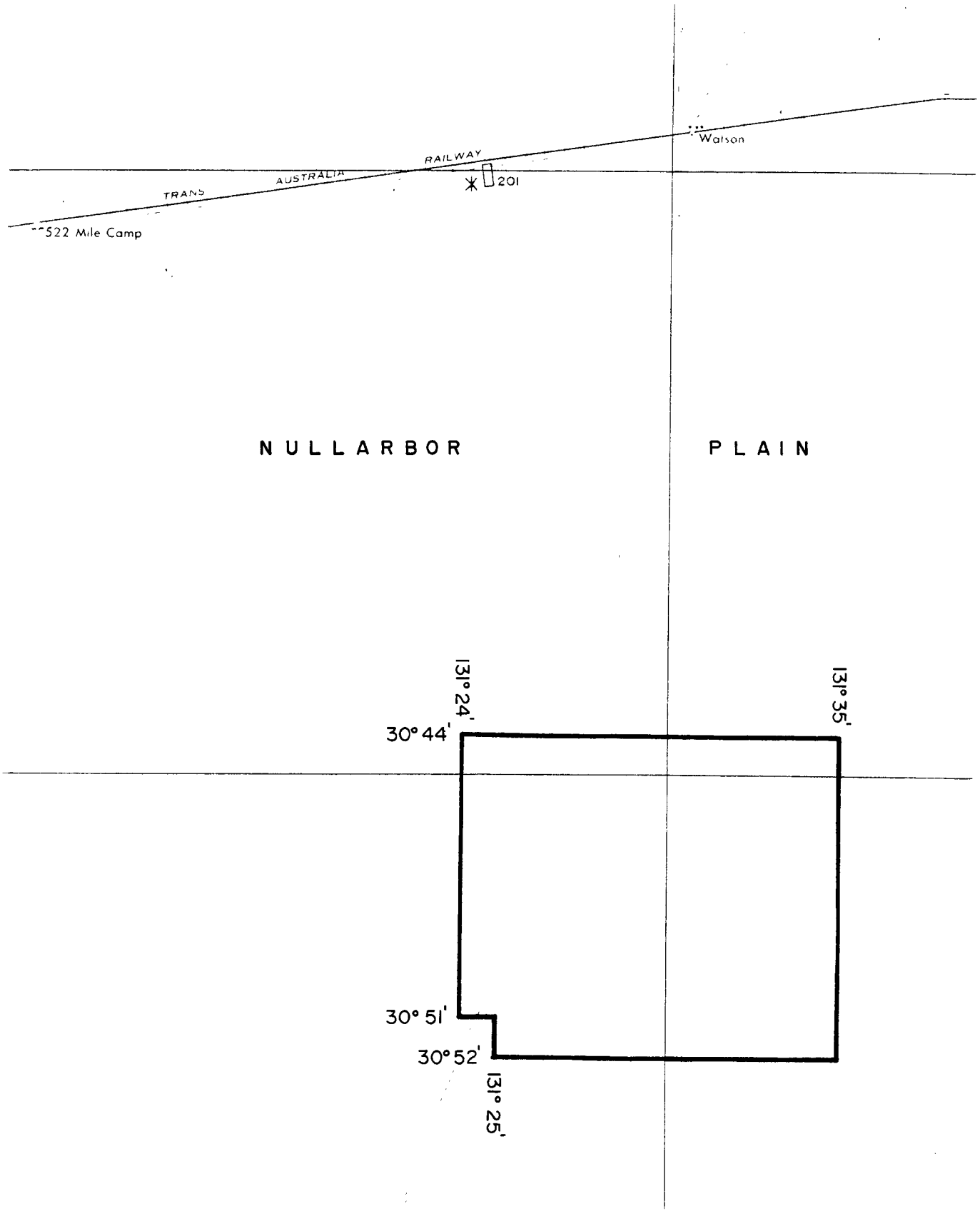
Submitted by
Endeavour Resources Ltd
1982

Enquiries: Customer Services
Ground Floor
101 Grenfell Street, Adelaide 5000

Telephone: (08) 8463 3000
Facsimile: (08) 8204 1880

PRIMARY INDUSTRIES AND RESOURCES SA

SCHEDULE A



SCALE 1:250,000

KILOMETRES 5 0 5 10 15 20 25 KILOMETRES

EXPIRED

APPLICANT: **ENDEAVOUR RESOURCES LIMITED**

DM: **411/81** AREA: **256** square kilometres

1:250000 PLANS: **OOLDEA**

LOCALITY: **WATSON SIDING SOUTH AREA – Approx. 35km S.W. of Ooldea**

DATE GRANTED: 11·12·81 DATE EXPIRED: 10·12·82 EL No: **946**

ENDEAVOUR RESOURCES LIMITED

136-144 Exhibition Street Melbourne 3000 GPO Box 524 J Melbourne Australia 3001
Cables "Cookoil" Melbourne Telex 31859 Telephone 654 3377

22nd. April 1982

The Director,
Dept. of Mines & Energy,
P.O. Box 151,
EASTWOOD, S.A., 5063

Dear Sir,

Quarterly Report to 30/3/82
EL 946 Watson Siding

This area was granted to Endeavour Resources Limited on the 5th. November 1981.

To date our preliminary work on the EL consisted of literature search and review of data of previous explorers in the area. Results of this work indicated that follow-up geophysical work was required to locate the magnetic and gravity peaks in the anomalous areas.

This ground work was done and a drilling site has physically been outlined and marked with a star picket.

We also made contact with the Aboriginal and Historic Relics unit of the Department for the Environment, 43 Fullarton Road, Kent Town.

They informed us that our Licence does not lie in environmentally sacred ground and that we could proceed with our Exploration Programme.

We intend to carry out a drilling programme in the near future and will be using existing tracks to locate the drilling rig.

Attached please find a report on the geophysical survey that was carried out on the area.

Yours faithfully,

George Tahan
Senior Geologist

I. J. JONES & ASSOCIATES PTY. LIMITED

Tel: (03) 221-8150

5 Rothbury Court
Wantirna Vic. 3152

061

20 October 1981

Endeavour Resources,
136 Exhibition Street,
MELBOURNE 3000

Attention: Mr. G. Tahan

Dear Sirs,

Re: Interpretation of Watson Siding Geophysical Data

This letter report summarizes the findings of the interpretation of the Watson Siding gravity/magnetic data. The first part of the report deals specifically with the three magnetic anomalies whilst in the latter of the report comments will be made regarding the regional setting.

For the purposes of discussion, the three anomalies delineated in the B.H.P. report are labelled A to C (see figure).

The data coverage is not in all cases adequate as additional traversing at the margins would have enabled a more accurate determination of the background values. Despite this there is sufficient coverage such that depth determination can be made with reasonable confidence.

The interpretation has been made using computer calculated standard curves and traditional rule of thumb estimates. There is reasonable agreement between the estimates for individual anomalies and these are tabulated below:

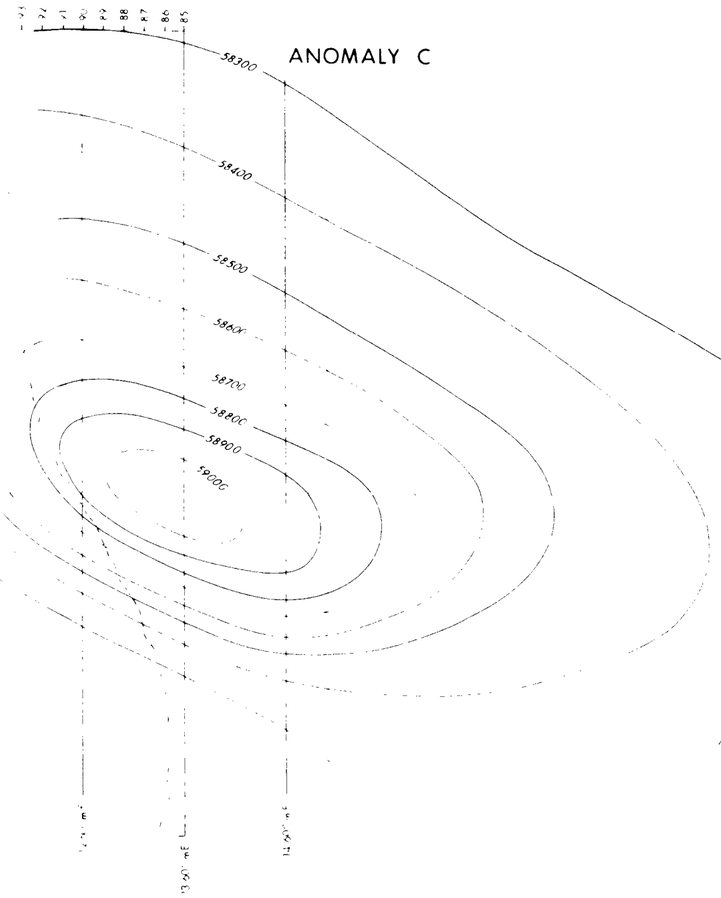
Anomaly Ref.	Estimated depth to top of body
A	360 - 400 m
B	600m
C	450m

For drilling estimates percentage errors in the depth estimates should be assumed to be within 20%.

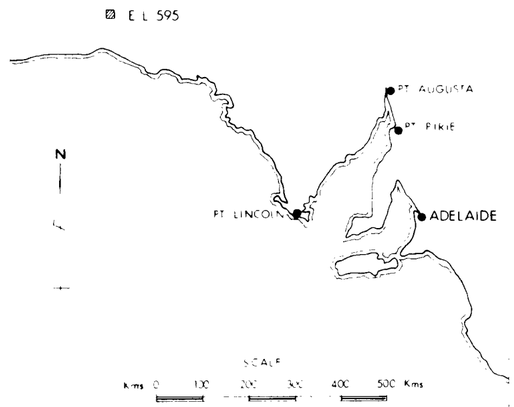
If the assumption is made that the bodies are vertically dipping and prismatic in shape, the calculated susceptibilities are in the range 3000-7500 x 10-6 cgs units. The higher value is equivalent to about 10% magnetite by volume. This calculation assumes an infinite depth extent, if however the body has a limited depth extent then the volume% magnetite would be higher.

/2 ...

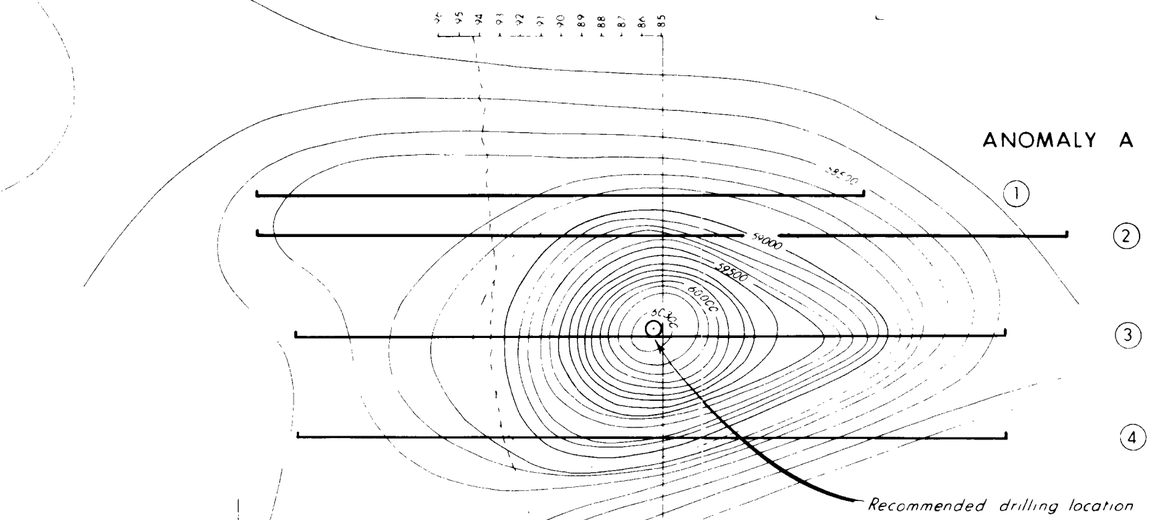
ANOMALY C



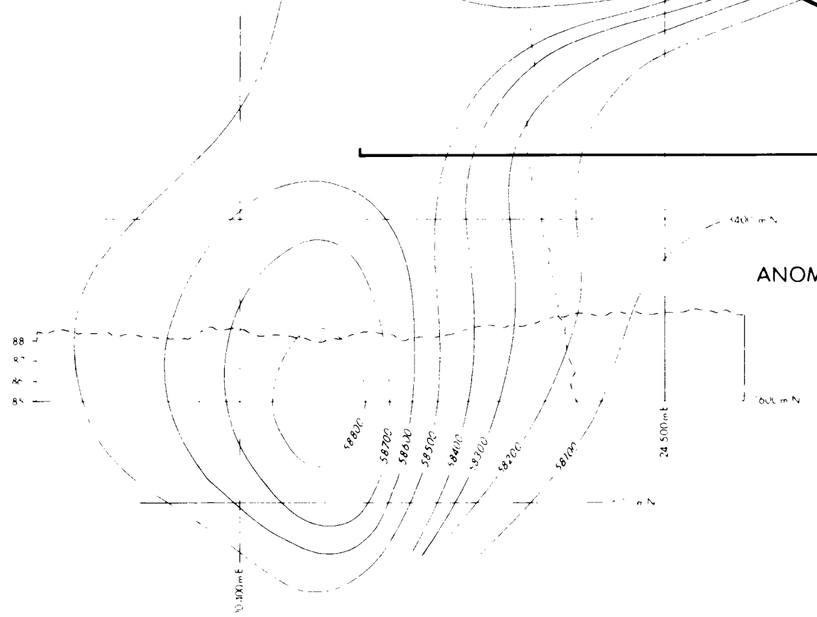
LOCATION MAP



ANOMALY A



ANOMALY B



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The magnetic survey was read using Geometrics Unimag Proton Magnetometer.

No drift corrections were made Readings were every 50 m.

Gravity stations were spaced at 100 m intervals

Surface geology consists of wide spread limestone outcrops of Mid Eocene - Mid Miocene Pt. Willunga formation

Units for gravity profile are in milligals

① ——— *Follow up gravity survey completed Dec. 1981*

FIGURE № 2

ENDEAVOUR RESOURCES LIMITED
SOUTH AUSTRALIA
E.L. 946 WATSON SIDING

GROUND MAGNETIC CONTOURS AND GRAVITY PROFILES

(FROM B.H.P. REPORT PROJECT Nº 6-B600-1)

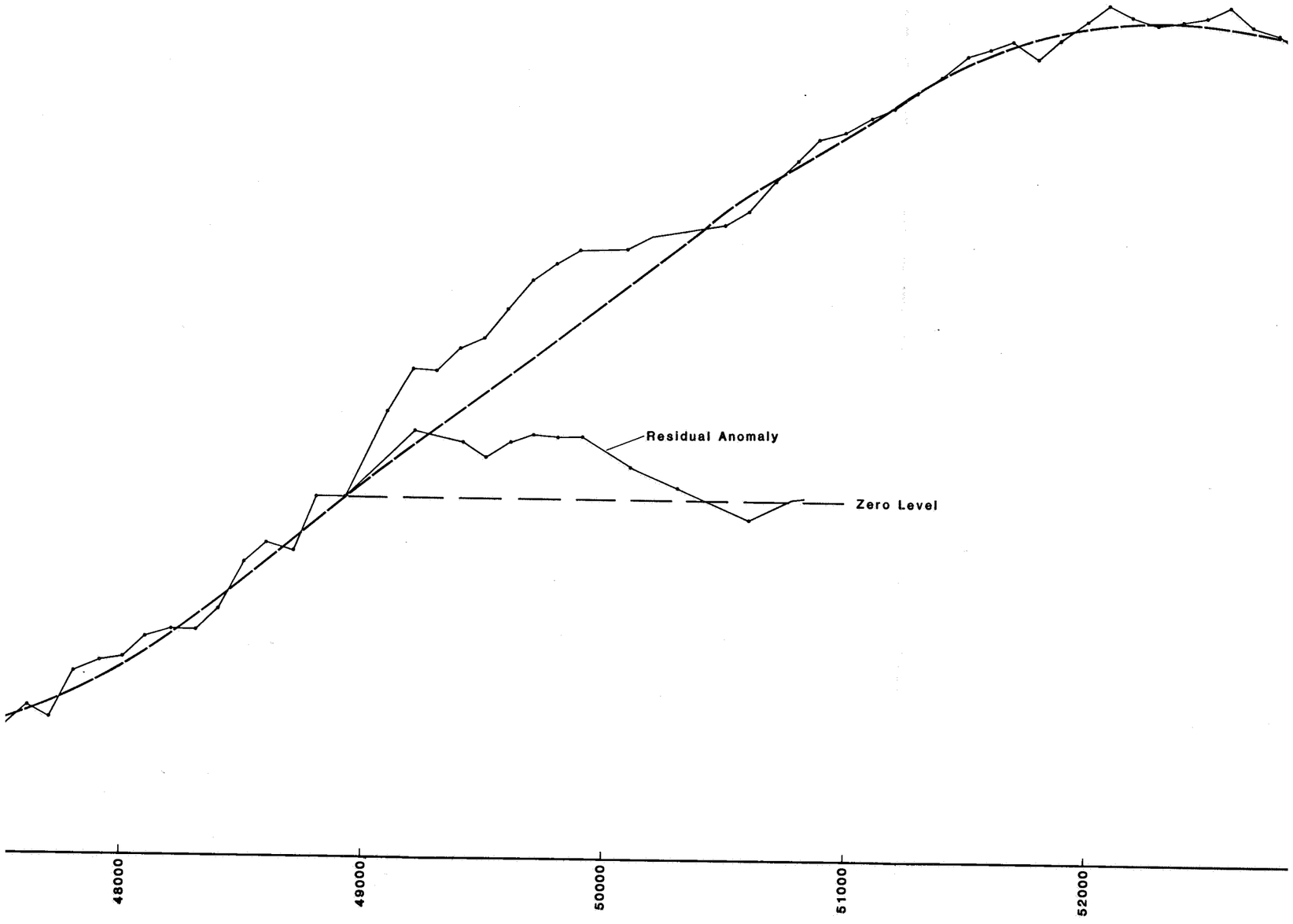
SCALE 1:50,000

Km 0 1 2 3 4 Km.

AUTHOR G. Taylor DRAWN March, 1982

DRAWING NUMBER A-1206

4589-6



ENDEAVOUR RESOURCES LIMITED
SOUTH AUSTRALIA
EL 946

WATSON SIDING PROJECT

BOUGUER ANOMALY PROFILES

SCALE: 10,000

500 0 500 1000 Metres

AUTHOR: R K. JONES & ASSOCIATES

DATE: AUGUST, 1982

DRAWING NUMBER: A01327

NOTE: Bougue

The gravity profiles across anomalies B and C do not show a coincident gravity/magnetic anomaly. The level change at C is typical of a lateral change in the basement density or a step in the basement floor.

A weak 0.8 milligal residual anomaly is however associated with anomaly A (see figure). As there is only one gravity N-S profile across the body, it is not possible to interpret the anomaly fully; there is no indication of its east-west dimensions.

As the main interest is in the possibility of an Olympic Dam type of target it is possible to do some crude calculations if various assumptions are made. Assuming a thin horizontal circular disc as a model, as this approximates crudely to a mineralised haematite rich flow, then depth estimates place the body at a depth of 165 metres with a density/thickness factor of 20. For a calculated radius of 1 kilometre and assuming a density contrast of 1gm/cc the estimated thickness is 20 metres.

This calculation is included simply to show the possibilities if we assume an Olympic Dam type model. At the present time there is insufficient data to place much reliance on these figures. The significance of the association of the gravity high with anomaly A is not clear as there is a lower amplitude gravity high immediately to the south which does not have a coincident magnetic high.

To test the anomaly by drilling, it is recommended that initial work be undertaken at Anomaly A. It is at this point that the depth estimates are shallowest and where there is a coincident gravity high associated with the magnetic anomaly.

The following comments discuss very briefly the setting of the anomalies in a regional sense. Attached is a 1:2,500,000 gravity plan of the area which outlines features including major lineaments. Quite clearly the anomalies are located in a highly complex area being marginal to a regional gravity high and extremely close or on a major WNW-ESE trending lineament. The interpretation of the gravity zone is based on similarities with other cratonic areas such as the Pilbara.

As indicated in our earlier discussions, there is potential for Cu-Pb-Zn massive sulphide deposits of the Broken Hill type as age wise and lithologically the rocks are comparable. The magnetic expression is not far removed from that which occurs over the Aggeneys-Gamsberg Cu-Pb-Zn in South Africa which occur in similar rock types and where there is approximately 400 mT of ore associated with iron formations and amphibolites.

The outer gravity boundary also as indicated, marks the boundary between the Proterozoic and younger rocks which

/3 ...

are believed to be prospective for coal. Marginal to basement highs is possibly prospective for coal deposits and particular attention should be given to the WNW trending lineament which possibly represents a basement warp or arch.

Yours faithfully,

Keith Jones

REPORT ON EXPLORATION

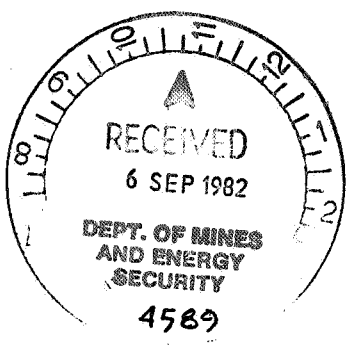
of

EXPLORATION LICENCE 946

WATSON SIDING

SOUTH AUSTRALIA

For the Period 11/3/82 to 10/6/82



B. Pertzel
Endeavour Resources Limited
August 1982

INTRODUCTION

The Exploration Licence 946 (Watson Siding) was granted to Endeavour Resources Limited on 11 December, 1981.

Preliminary reconnaissance, orientation ground geophysical surveys and literature research were completed in the previous three month period.

This report documents activities within the licence area for the current three month period (11 March to 10 June) and summarizes results to date.

EXPLORATION ACTIVITIES

A visit to the proposed drill site by the Project Geologist and Drilling Contractors' representative was made in late March to assess the logistics of the proposed drilling programme.

Following clearance from the Department, it was decided to utilize Ooldea No. 1 Bore for water supplies for the drilling programme rather than bring water supplies from Port Augusta by rail.

A rapid ground magnetometer traverse was conducted to determine the peak of the major of the three magnetic anomalies within the area of EL 946. The local peak was located and pegged as the site for ensuing deep diamond drill hole.

Drilling commenced on 26 April following mobilization to the site on 24 April by the contractors Longyear (Australia).

The initial hole WS-WB was drilled to 100.5 metres and converted to a water bore as the carting of water from Ooldea No. 1 bore some 40 kilometres north of the drill site could not keep water up to the rig. This was due to the excessive turnaround time for the water trucks on the progressively deteriorating tracks.

A new hole WS-1, sited adjacent to WS-WB, had advanced to 364 metres by the end of May. At this depth the rods became stuck and all efforts to free them were unsuccessful. Attempts to retrieve the hole and drill ahead were thwarted and consequently the hole was abandoned at 364 metres.

Drilling operations and further exploration within EL 946 were temporarily suspended in early June, pending the mobilization of an alternate drill rig to the site and an appraisal of the programme.

STRATIGRAPHIC SECTION

The lithologies intersected in WS-WB and WS-1 are consistent with the interpreted section and are as follows.

Depth (m)	
0-2	Alluvium
2-31.7	Nullarbor Limestone - shelly calcarenite
31.7-49.1	Wilson Bluff Limestone - Bryozoal calcilutite.
49.1-57.0	Hampton Sandstone - muddy carbonaceous, glauconitic pebby quartz sandstone.
57.0-76.5	Pidinga Formation - interbedded black lignite, carbonaceous silts and quartz grits.
76.5-82.5	Madura Formation - grey sandy silts and shale

Depth (m)	
82.5-96.9	Loongana Sandstone - gradational, cyclic red-bed conglomerates, feldspathic sandstones, clayey siltstones.
96.9-100.5	? Loongana Sandstone
100.5-100.8	? - unconsolidated pebble band containing mineralized basic volcanics and granitic chips.
100.8-115.0	? Observatory Hill Beds Equivalent - green cross bedded and cross laminated feldspathic, micaceous and chloritic coarse quartz sandstones, local argillite (interclast) pebble bands.
115.0-282.0	? Observatory Hill Beds Equivalent - Unit 1 - Includes: sequence as above plus: varve like, plane laminated red haematitic feldspathic and green chloritic argillites. Laminated red and green feldspathic and chloritic medium-coarse quartz sandstones.
282.0-332.1	? Observatory Hill Beds Equivalent - Unit 2 - Red-orange and grey-green feldspathic and chloritic, coarse matrix rich quartz sandstones and fine pebbly conglomerates. Locally cross bedded and laminated.
321.1-364.0	? Wilpena Group Equivalent - cream, buff current bedded clean, medium quartz sandstone with laminated red-brown feldspathic argillite bands.

A tentative interpretation places the base of the Tertiary at 76.5 metres depth (this is reasonably assured), the base of the Mesozoic at 100.8 metres depth and the base of the Paleozoic at 332.1 metres depth.

This interpretation is subjective and requires further clarification. Core recovery in WS-WB in the interval 96.9 to 100.5 metres and in WS-1 in the interval 99.0 to 115.0 was poor.

FORWARD PROGRAMME

It is proposed to mobilize an alternate drill rig to the site in early July and drill a new hole sited away from WS-1 but still on the major magnetic/gravity anomaly to our target depth of 600 metres.

It is anticipated the programme will commence in early July and be completed in 3 to 4 weeks. Drill hole WS-WB will be utilized to supply water for the new hole.

131° 15'

131°30'

131°45'

Ooldea

132°00'

Watson

To Immarna 10 MI

30° 30'

30°30'

522 Mile Camp

TRANS – AUSTRALIA RAILWAY

EL 616

Amoco

NULLARBOR PLAIN

Vacant

To Colona Homestead 79 MI

555/81 (Appl'n)

Amoco

30°45'

EL 716

Getty Oil

EL 946

ENDEAVOUR

RESOURCES LTD.

EL 601

Kumunga

Lease Applied for

by Endeavour Resources Dec.81

EL 878

Tannadice

31°00'

To White Well

Homestead 37 MI

131° 15'

131°30'

131°45'

FIGURE 1

ENDEAVOUR RESOURCES LIMITED

SOUTH AUSTRALIA

WATSON SIDING

LOCATION MAP

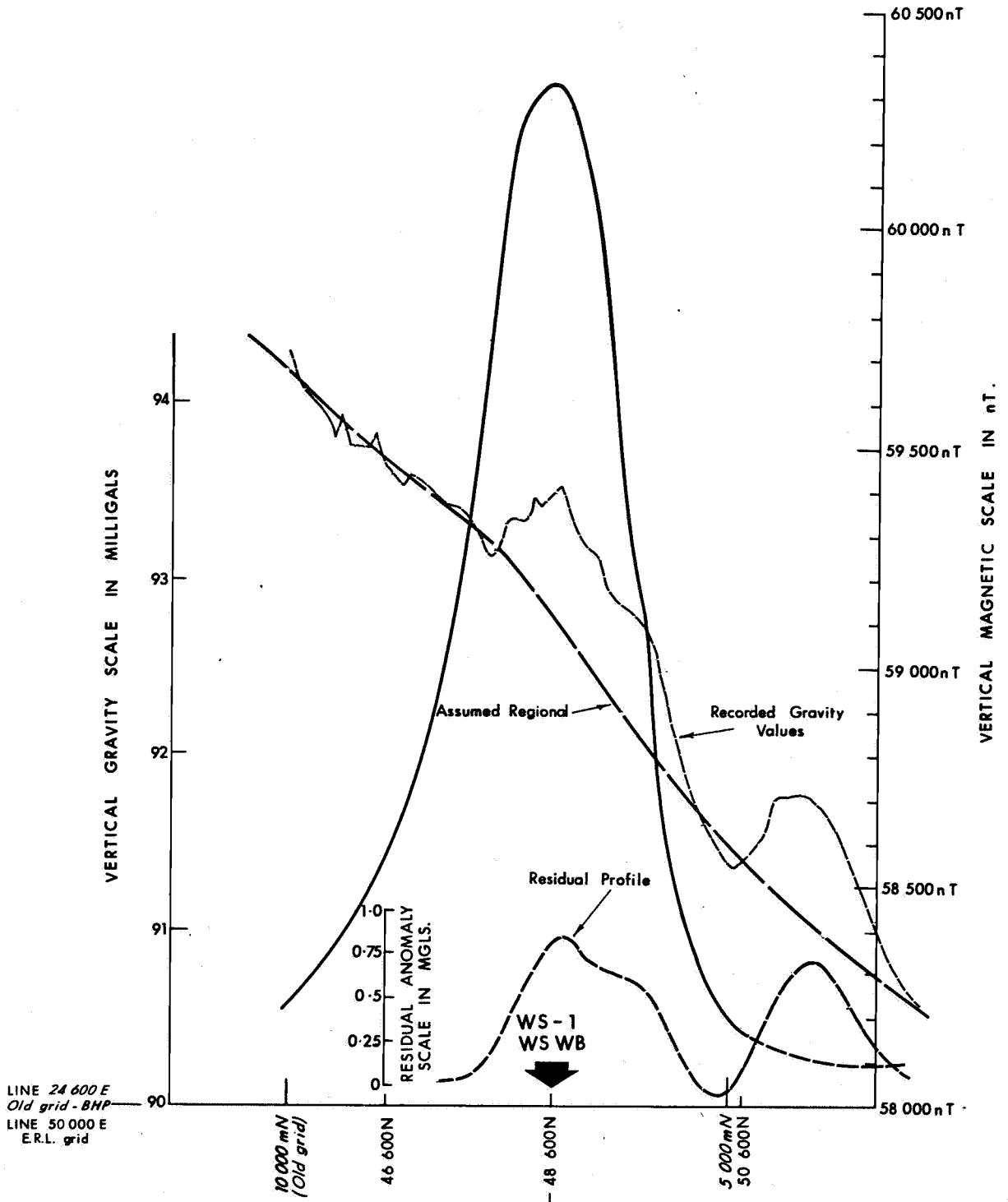
SCALE 1:250,000

Kms. 5 0 5 10 Kms.

AUTHOR G Tatar

DRAWN March, 1982

DRAWING NUMBER A 01201



ENDEAVOUR RESOURCES LIMITED
SOUTH AUSTRALIA – E.L. 946
WATSON SIDING PROJECT

GRAVITY - MAGNETIC PROFILE
ANOMALY 'A'

SCALE : 1:50,000

0 1000 2000 3000 4000M.

AUTHOR: R.K. Jones & Assoc. - DRAWN: August, 1982

DRAWING NUMBER: A0 1331

PROGRESS REPORT ON EXPLORATION

EXPLORATION LICENCE 946

WATSON SIDING

SOUTH AUSTRALIA

G. Tahan
Endeavour Resources Limited
August 1982

SUMMARY

Exploration Licence 946 was taken up by Endeavour Resources Limited to explore for a large scale metalliferous ore body of the Olympic Dam style.

Regional ground geophysics had delineated three major magnetic anomalies within the Exploration Licence. One anomaly was interpreted to emanate from a major magnetic source some 360-420 metres below the surface. A coincident gravity anomaly was interpreted to emanate from a depth of 160-170 metres. It was decided to test these anomalies in a single diamond drill hole.

A diamond drilling programme was completed on the 3rd August, 1982. Disseminated pyrite was intersected in the interval between 484 and 550 metres. No economic mineralization was found and a chloritic-mica schist, interpreted as regional basement, was intersected at 592 metres. The hole was abandoned in the schist at 597 metres.

CONCLUSIONS

A long diamond drill hole to 597 metres penetrated a stratigraphic column which included Tertiary limestones, Mesozoic, Permian ? Cambrian and upper Proterozoic sediments. It bottomed in a dark greyish-green chlorite-mica schist, thought to be of lower Proterozoic age or older.

No reason can be given for the cause of the gravity anomaly - originally interpreted to emanate from a depth of 160-170 metres - and similarly there was no magnetic signature in the core derived from the interval 360-420 metres - the level interpreted to cause a geophysical anomaly.

No sulphide mineralization of economic significance was intersected in the hole, however, a thick (19 metres) - though a poor quality - lignite carbonaceous sequence was intersected between 56.7 and 76.5 metres.

A dark greyish-green chloritic schist was intersected at 592 metres and interpreted as lower Proterozoic basement or older. It is possible that this schist is the top unit of an Archaean or lower Proterozoic sequence which may contain some banded iron formations, if a BIF exists below 597 metres, the true depth of the hole, then the magnetic anomaly may have a deeper source than the depth interpreted. Alternatively, the source might be in rocks adjacent to WS-1A. This would open a complete new stratigraphic realm in the region with the possibility of associated economic sulphides with depth or laterally.

Ideally, WS-1A should be drilled ahead a further 300 or 400 metres, in an effort to intersect the Archaean basement granite which was recorded in other holes in the region (see figure 7), thereby obtaining a complete stratigraphic section in the property.

RECOMMENDATIONS

It is recommended that:-

1. Personnel from ERL discuss results of hole WS-1A with personnel from the South Australian Department of Minerals and Energy (SADME).

2. Compare results of the stratigraphy and lithology in WS-1A with other holes drilled in the region by competitor groups and SADME.

3. Subsequent to such discussions decide whether deepening WS-1A is warranted to hopefully explain the cause of the magnetic anomaly.

4. Dependent on results, propose a more extensive programme to include more geophysics and detailed ground follow-up drilling to further explore the region.

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131° 15'
131° 30'
131°45'
132°00'
Ooldea
Watson
To Immarna 10 Mi.
30° 30'
522 Mile Camp
TRANS – AUSTRALIA RAILWAY
To Colona Homestead 79 Mi.
NULLARBOR PLAIN
Potential Embayment
of Younger Sediments
30°45'
EL 946
WS.1
Potential Basement
fold
Outline of Magnetic Anomalies
EL 996
31°00'
To White Well
Homestead 37 Mi.
Major lineament
Marginal areas
potential for coal

FIGURE 1

ENDEAVOUR RESOURCES LIMITED
SOUTH AUSTRALIA
WATSON SIDING

LOCATION MAP

SCALE 1:250,000

Kms. 5 0 5 10 Kms.

AUTHOR : G Tahan DRAWN : March, 1982

DRAWING NUMBER : A 01201

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1.0 INTRODUCTION

1.1 Location & Access

Exploration Licence 946 is located on the eastern end of the Eucla Basin about 70 kilometres due north of the Nullarbor Roadhouse on the Eyre Highway and some 40 kilometres south of the Indian Pacific Railway line and Watson Siding. (Figure 1)

Access is from Adelaide to Ceduna by road or air transport then about 300 kilometres west on the Eyre Highway to a turn-off some 12 kilometres east of the Nullarbor Roadhouse, then north on a dirt track for about 70 kilometres towards Watson Siding via No. 6 Bore and Disappointment Cave on the Nullarbor Plain.

1.2 Land Tenure

EL 946, Watson Siding, was granted to Endeavour Resources Limited on the 11th. December 1981 for a period of 1 year and is renewable at the Minister of Mines discretion, with reduction in area every twelve months. It covers an area of some 300 square kilometres and is essentially rectangular in shape.

Endeavour Resources Limited has 100 percent equity in EL 946. ERL has entered into an agreement with Hardrock Exploration Pty. Ltd. whereby Hardrock have the right to subscribe to 15 percent equity (by shares) in any development company formed to develop any resources discovered within EL 946. Hardrock is to receive 3 per cent Net Smelter Return Royalty from any production.

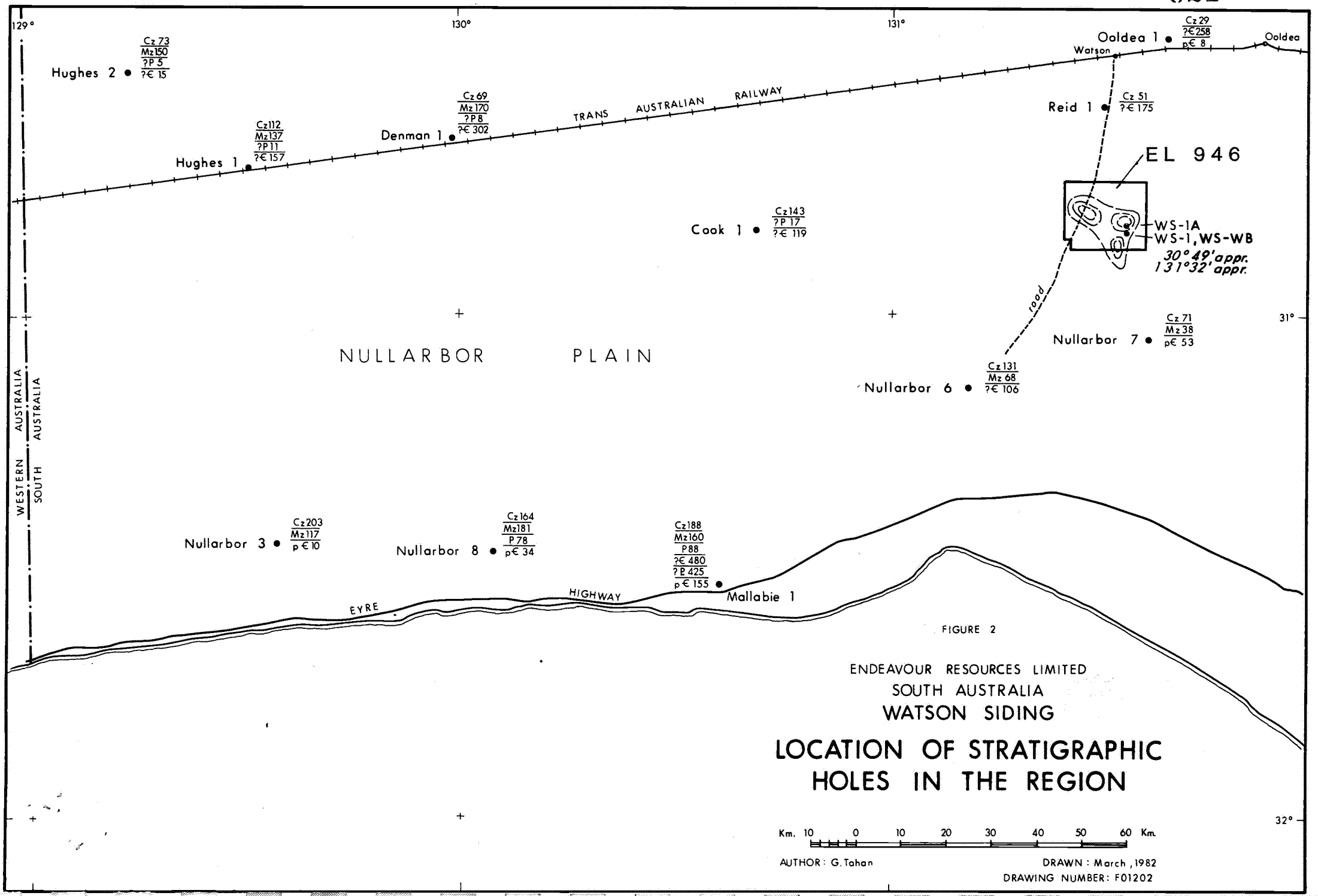


FIGURE 2

ENDEAVOUR RESOURCES LIMITED
SOUTH AUSTRALIA
WATSON SIDING

LOCATION OF STRATIGRAPHIC HOLES IN THE REGION

AUTHOR : G. Tahan

DRAWN : March , 1982
DRAWING NUMBER: F01202

1.3 Topography & Climate

The topography of the area forms part of the featureless Nullarbor Plain. It is essentially flat apart for occassional depressions and widely scattered sinkholes in the Nullarbor Limestone, which forms the only rocky outcrop in the area.

The climate is dry with a precipitation of about 175mm per annum falling mainly in winter and in occasional thunderstorms in summer. Coupled with this, evaporation has a factor of about 10. The winter temperatures consist of cool to mild usually cloudless days with temperatures between 10 and 14^{o}C. At night the temperature drops to as low as -5^{o}C. In summer the days are hot between 35 and 50^{o}C in the shade, and between 15-30^{o}C at night. There is no surface accumulation of water apart from some water accumulating in salt lakes peripheral to the eastern edge of the Plain during some winter seasons.

Water is available from bores which tap the sediments underlying the Nullarbor Limestone. These bores are widespread (see figure 2). The water is of very poor quality, highly saline and unpottable.

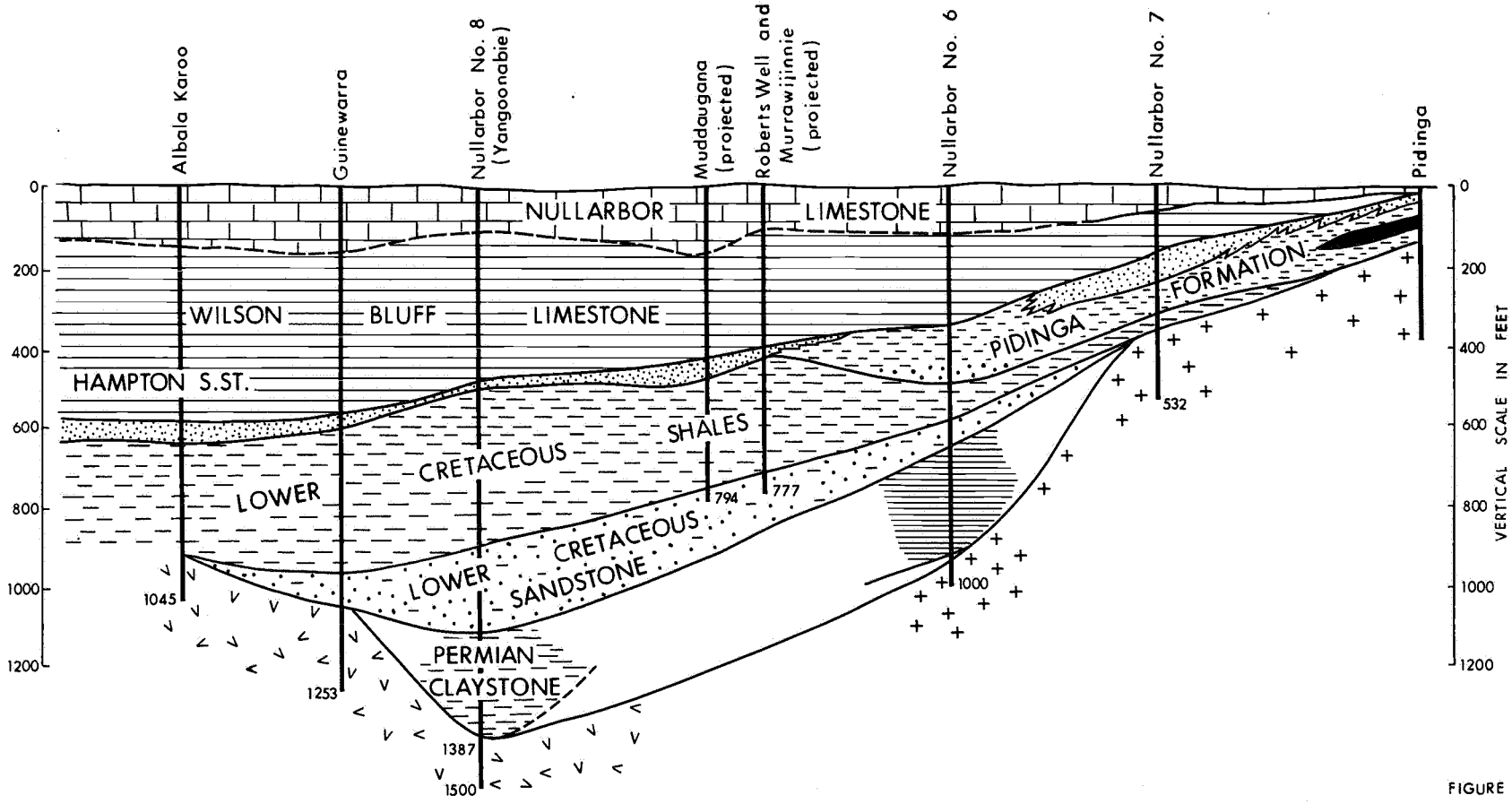
Vegetation consists of below knee high salt bush. Some grass grows on the soily patches of the Plain but only after heavy rainfall.

1.4 Previous Exploration

Because of its remoteness, poor geological exposure and the large blanket of limestone in the area, the Nullarbor Plain has had little attention with respect to mineral exploration in the past.

Some exploration for uranium and brown coal has taken place on the eastern edge of the Plain during the last fifteen years. More recently, with the discovery of the Olympic Dam deposit at Roxby Downs in the eastern central part of the state, attention has focussed on the margins of the Gawler Platform and the basement cratonic environment marginal to the Platform. Companies relied on scant available information from regional geophysics and widely scattered drilling to take up exploration tenements.

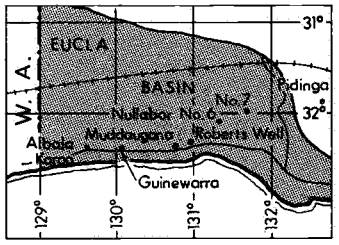
The regional total magnetic intensity maps show three strong magnetic anomalies south of Watson Siding. BHP took up that ground in 1980 and after a modest ground geophysical survey they decided to relinquish the tenement.



REFERENCE
NULLARBOR LIMESTONE (LOWER MIOCENE)
WILSON BLUFF LIMESTONE (MIDDLE TO UPPER EOCENE)
HAMPTON SANDSTONE (EOCENE)
PIDINGA FORMATION (EOCENE)
LOWER CRETACEOUS SHALES (APTIAN)
LOWER CRETACEOUS SANDSTONE, GRIT and SILT
LOWER PERMIAN CLAYSTONE
LAMINATED ARGILLITE ? PROTEROZOIC
GRANITE PRECAMBRIAN
FELDSPAR PORPHYRY PRECAMBRIAN

FIGURE 3

LOCATION MAP



ENDEAVOUR RESOURCES LIMITED
SOUTH AUSTRALIA

GEOLOGICAL SECTION FROM ALBALA KAROO WELL TO PIDINGA ROCK HOLE – EUCLA BASIN

(FROM HANDBOOK OF SOUTH AUSTRALIAN GEOLOGY)

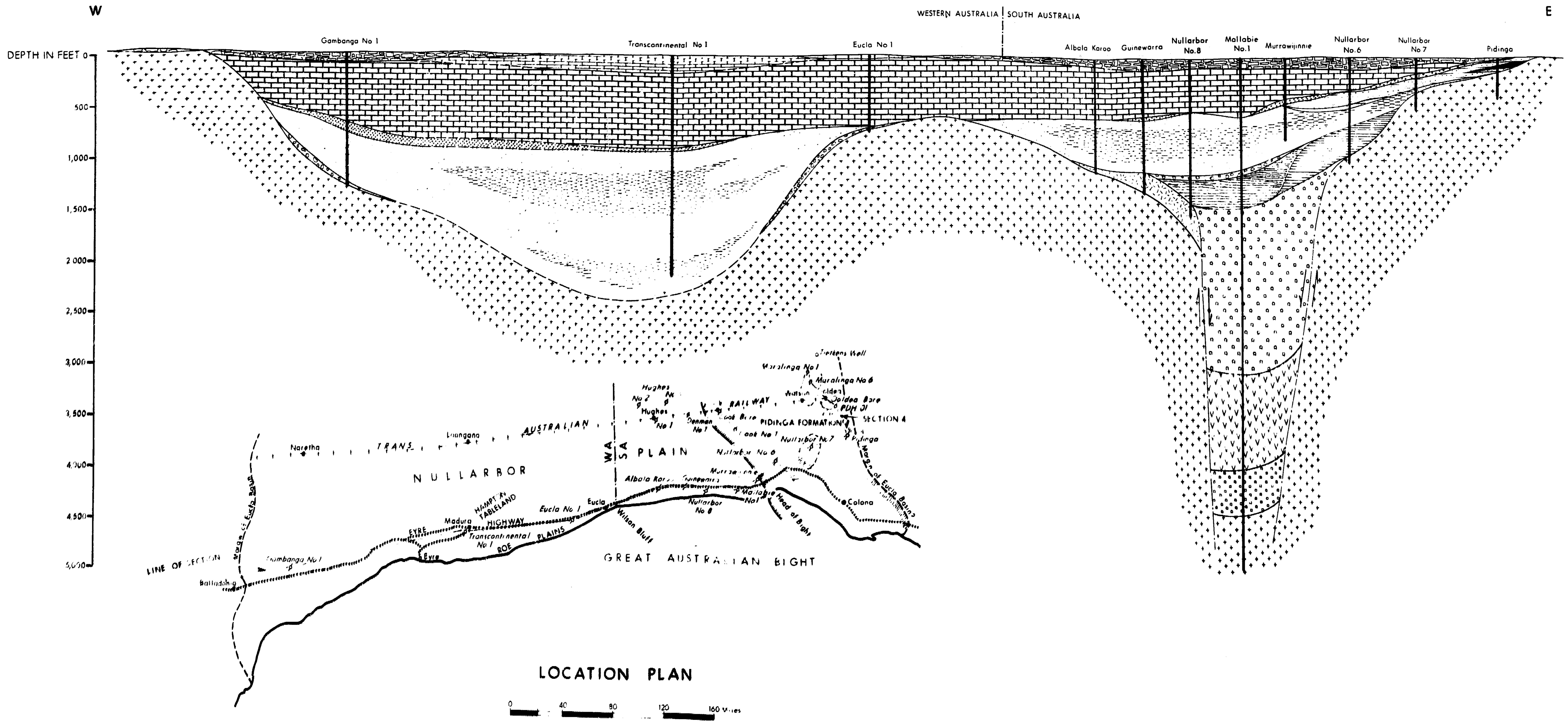
HORIZONTAL SCALE

Miles 0 5 10 20 30 40 50 Miles

AUTHOR: N.H. Ludbrook, 1968
Handbook of S.A. Geology Fig. 97.

DRAWN: March, 1982

DRAWING NUMBER : F01203



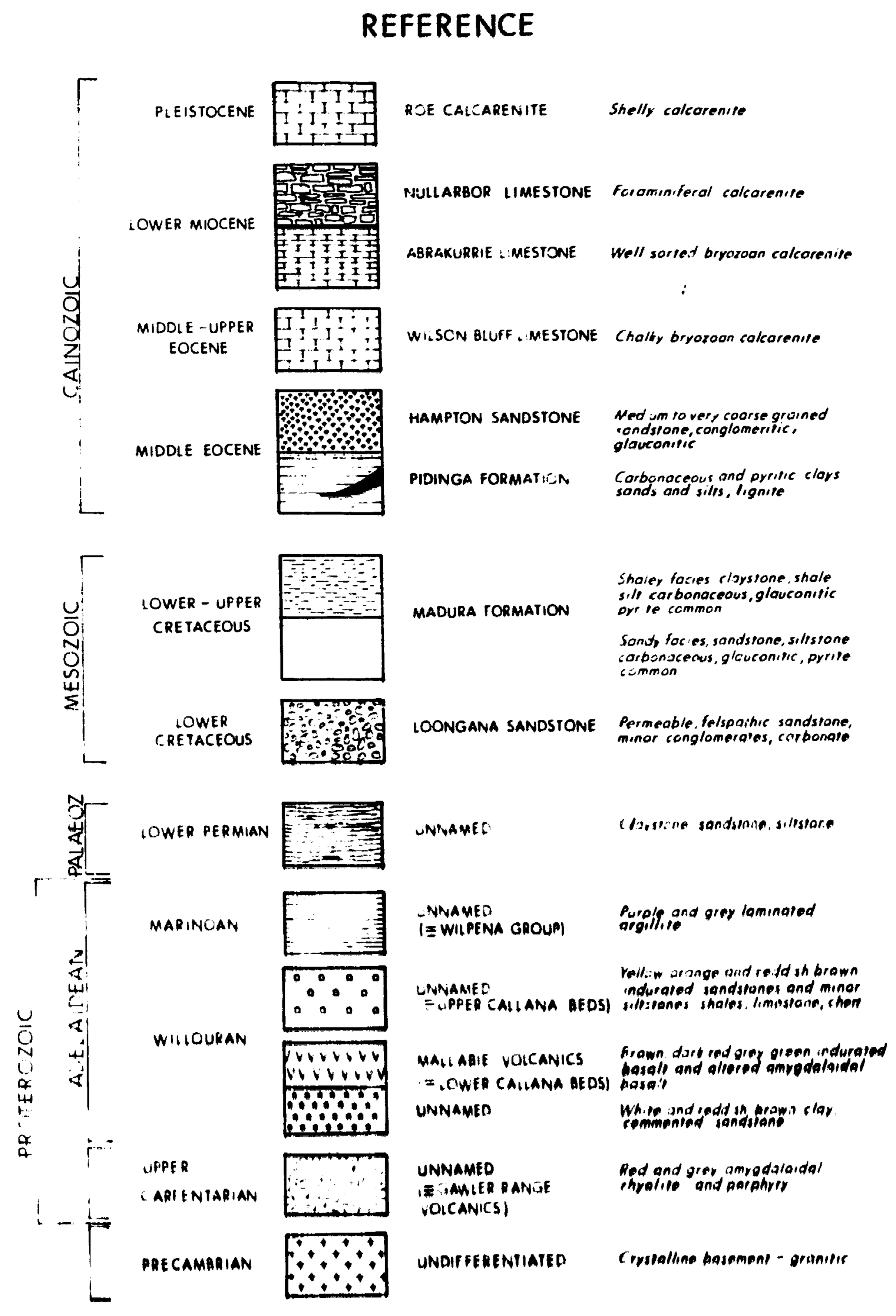


FIGURE 4

ENDEAVOUR RESOURCES LIMITED
SOUTH AUSTRALIA

EUCLA BASIN

GENERALISED GEOLOGICAL CROSS SECTION

SCALE

10 0 10 30 50 70 Miles

AUTHOR G Tahan after Chevron Exploration Corp
REVISED

DRAWN March, 1982
DRAWING NUMBER A01204

11589 - 1

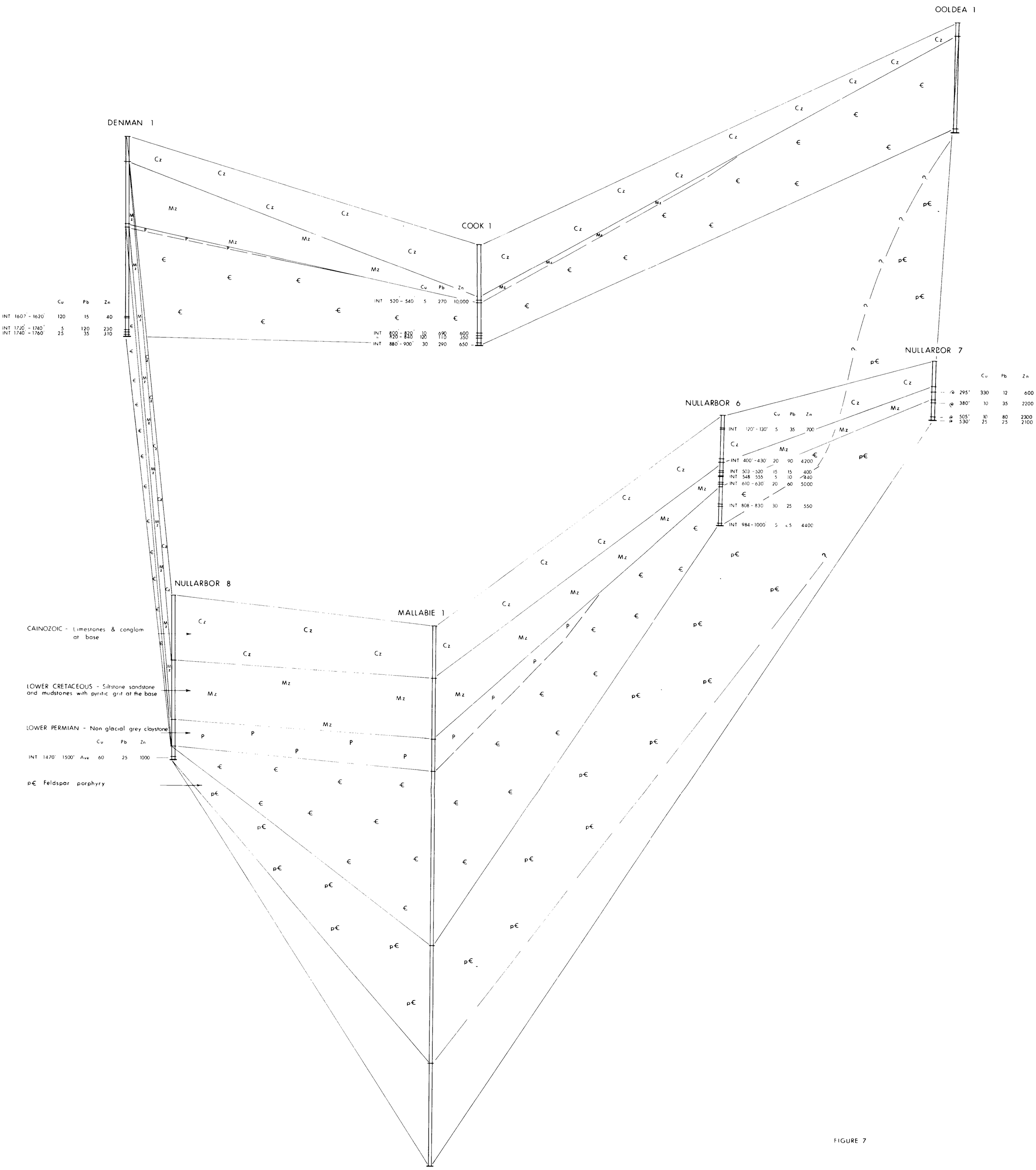


FIGURE 7

ENDEAVOUR RESOURCES LIMITED

SOUTH AUSTRALIA
WATSON SIDING

THREE DIMENSIONAL DIAGRAM OF STRATIGRAPHIC BORES PERIPHERAL TO EL 946

SCALE 1:500,000

Km. 0 10 20 30 40 50 Km.

AUTHOR: G. Tahan

DRAWN : March, 1982

DRAWING NUMBER : A01207

4589-4

2.0 GEOLOGY

2.1 Regional Setting

The Nullarbor Plain forms part of the Eucla Basin which opens onto the Great Australian Bight. The Plain is of featureless relief and almost entirely covered by Tertiary limestone and recent eolian deposits. A section of a two generation limestone is exposed in the vertical section on the coast. Widespread drill hole data show that the basin consists of two moderately thick accumulations of undisturbed upper Proterozoic to recent sediments in the central parts of the basin, gradually thinning and wedging out to the east and west on the Gawler Platform and the Western Australian Shield respectively.

Some of the widespread drill holes have penetrated through lower Proterozoic metasediments and volcanics into Archaean granite basement, ie Pidinga No. 1; Nullarbor No. 6 and 7; Nullarbor No. 1 and others. (See figures 3 & 7)

It has indeed been difficult to break up the lithologies found in WS-1A into a stratigraphic age sequence. When referring to the types of sedimentation that took place over South Australia during the Adelaidean and Cambrian times one can see a very wide distribution and widely scattered sedimentation that varies little in lithology both in time and space, and has a large number of time equivalents.

East of the Gawler Platform where exposure is afforded by the Adelaide Geosyncline a reliable picture has been built over the years through extensive mapping and age dating. West of the Platform however, where exposure is poor and subsurface data is from very widespread areas it is difficult to be convinced that the stratigraphic positions assigned to some of the lithologies seen in

WS-1A are consistent with current interpretations. Ages assigned to the sequence intersected in WS-1A are based on lithological similarities described in the available published data. There is insufficient evidence for assigning the Cambrian where it is and not making it thicker or extending the upper Adelaidean higher to include the sedimentation described as the "Observatory Hill Beds". Certainly this unit has argillaceous lithologies which bear strong similarities to the "Yarloo Shale" which underlies the Cambrian "Andamooka Limestone" on the Stuart Shelf, an equivalent to the "Bunyeroo Formation". Furthermore, doubt exists that the unit marked as the Tent Hill equivalent is really that, or is part of the lower Cambrian, i.e. the Parachilna Formation equivalent or the Bunkers Sandstone further east.

Because the available data are lacking, the stratigraphic breakdown in this report is subject to conjecture. We have attempted however to give as accurate an account as possible on lithology.

Suffice to say that there is the need for a lot more work to be done west of the Gawler Platform supported by extensive age dating on core as it becomes available from the extensive work currently underway,.

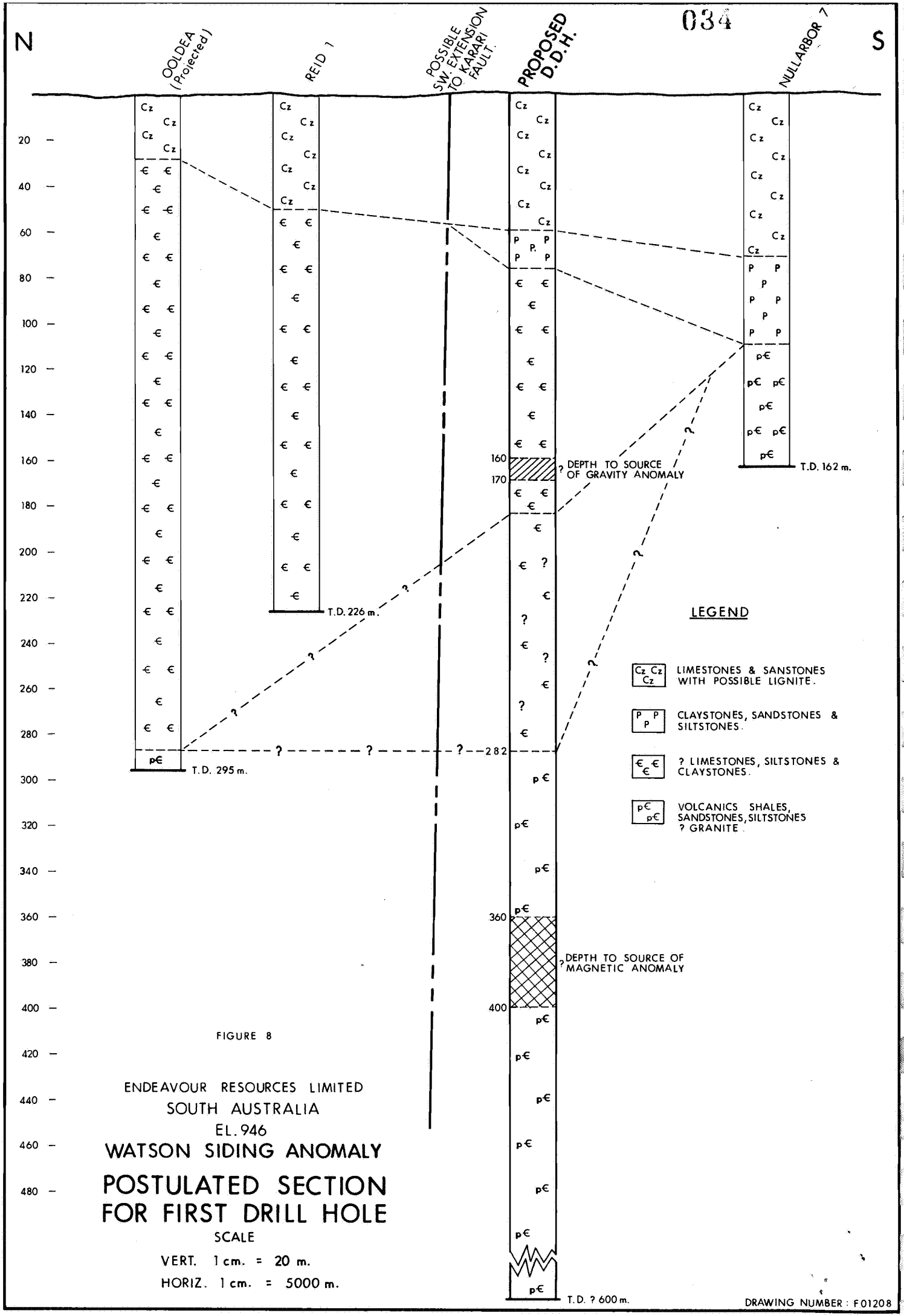


FIGURE 8

ENDEAVOUR RESOURCES LIMITED
SOUTH AUSTRALIA
EL. 946

WATSON SIDING ANOMALY

POSTULATED SECTION FOR FIRST DRILL HOLE

SCALE

VERT. 1 cm. = 20 m.

HORIZ. 1 cm. = 5000 m.

DRAWING NUMBER : F01208

VERTICAL SCALE
1:500

WS - 1A
(APPROX 30m NNW OF WS-1)

m

FROM 360

473 8

530 5

573·2

Sand

E O H 597

TRICONE OPEN HOLE TO 222 m.

222

NQ ⟶ END OF HOLE

SAME AS SHOWN ON WS-1 TO 364·7

360

WS-WB

m.

0
2

31·7

49·1

57

WS-1
WS-2
WS-3
WS-4
WS-5

76·5

82·5

96·9

100·5

99
100·8

OOLITES

UNIT 1

282·0

UNIT 2

332·1

364 7

HOLE ABANDONED DUE TO STUCK DRILLING STRING

WS-1

m.

0
1·2

19·5

TRICONE 19·5 - 99·0m.

VERTICAL SCALE
1:100

m.

96·9

100·5
100·8

UNCONSOLIDATED PEBBLE BAND CONTAINING MINERALIZED BASIC VOLCANIC & GRANITE CHIPS

	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3
	TOP OF DIFFERENT FACIES	TOP OF	TOP OF UPPERMOST FACIES
	LOONGANA SANDSTONE	UN - NAMED PERMIAN SEQUENCE	OBSERVATORY HILL BEDS
	BASE OF LOONGANA SS.	BASE	BASE OF UPPERMOST FACIES

PREFERRED ALTERNATIVES:

(i) ALTERNATIVE 1
(ii) ALTERNATIVE 3
(iii) ALTERNATIVE 2

REFERENCE

PHANEROZOIC

RECENT — Alluvium

TERTIARY
- LOWER MIOCENE — NULLARBOR LIMESTONE — Shelly calcarenite.
- MIDDLE-UPPER EOCENE — WILSON BLUFF LIMESTONE — Bryozoal calcilutite
- MIDDLE EOCENE — HAMPTON SANDSTONE — Muddy carbonaceous, glauconitic pebbly quartz sandstone.
- LOWER EOCENE — PIDINGA FORMATION — Interbedded black lignite, carbonaceous silts and quartz grits.

MESOZOIC
- UPPER CRETACEOUS — MADURA FORMATION — Grey sandy silts and shale
- LOWER CRETACEOUS — LOONGANA SANDSTONE — Gradational, cyclic red - bed conglomerates, feldspathic sandstones, clayey siltstones

PART OF UPPER PROTEROZOIC ?
WILPENA GROUP EQUIVALENT
(See Stratigraphic Discussion in the Report)

PART OF CAMBRIAN ?

PALAEOZOIC
- CAMBRIAN — OBSERVATORY HILL BEDS
  - Green cross - bedded and cross laminated feldspathic, micaceous and chloritic coarse quartz sandstones
  - UNIT 1: Local argillite (intraclast) pebble bands
  - Varve - like plane - laminated red hematitic, feldspathic and green chloritic argillites
  - Wavily - laminated red and green feldspathic and chloritic medium - coarse quartz sandstones
  - Wavily - laminated red hematitic, feldspathic and green chloritic argillites.
  - UNIT 2: Red, orange and grey - green feldspathic and chloritic very - coarse matrix - rich quartz sandstones and fine pebbly conglomerates. Locally cross - bedded and wavily laminated.

ADELAIDEAN
- PRECAMBRIAN ?
- MARINOAN — WILPENA GROUP EQUIVALENT ? — Cream / buff current bedded, clean, medium quartz sandstone, with laminated red - brown feldspathic argillite bands
- UPPER PRECAMBRIAN ?
  - Buff to creamy white - pink, fine - medium grained well sorted sandstone in a siliceous and partly clayey matrix with fine mudstone laminations towards the base. Pyrite is scattered throughout the section.
  - Creamy buff to light grey fine to medium grained well sorted, well rounded sandstone, locally pinky, ferruginous with fine laminations of greyish mudstone. Pyrite is scattered throughout the section.
  - Alternating cream - pink to red - pink ferruginous bands of fine - coarse almost pebbly sandstone with a feldspathic matrix. This alternates with bands of greyish and greenish argillites. Pyrite features throughout the section in discs and blebby form.

DISCONFORMITY

CALLANA BEDS
Purple - brown and grey coarse angular conglomerate constituting ferruginous and chloritic shale fragments in a fine sandstone matrix.

Greyish green chloritic and ferruginous hematic locally scoured and filled and contorted argillites which are conglomeratic at the base. The conglomeratic fragments are angular and derived predominantly from basement

UNCONFORMITY

CARPENTARIAN ?
ARCHAEAN ?

Very dark grey to greenish chlorite biotite ? mica schist — sub vertical schistosity (+80°) with occasional stringers of quartz and iron along the schist planes

Rock Classification

(i) Rudaceous, arenaceous and argillaceous sediments :
Wentworth - Udden grainsize scale, qualified by composition and sedimentary structures.

(ii) Limestones:
Grabau - Wentworth grainsize scale, qualified by composition.

FIGURE 11

ENDEAVOUR RESOURCES LIMITED
SOUTH AUSTRALIA
EL 946
WATSON SIDING PROSPECT

DDH STRATIGRAPHIC COLUMN

VERTICAL SCALE 1:500

AUTHOR : M. Podolsky, G. Tahan

DATE : June, 1982

DRAWING NUMBER: B01315

4589-2

2.2 Detailed Geology

2.2.1 Techniques Used

The detailed geology can only be discussed from the results of the drilling. Because of the absence of outcrop in EL 946, and to support the geophysical interpretation an anticipated geological section was compiled from regional drill hole data prior to commencement of the drilling programme. A fence diagram of the regional setting was also produced. (See figures 7 & 8)

2.2.2 Lithology

The core has been lithologically logged in detail as shown in Appendix 1 and, the following discussion is a summary of the stratigraphic units:

(i) Tertiary

Nullarbor Limestone (Lower Miocene): This units consists of about 31 metres of dense crystalline limestone. It is a warm water shallow marine deposit and contains a rich accumulation of molluscan casts and fossils. It is well fractured and proved difficult to drill by rotary techniques.

Wilson Bluff Limestone (Upper Miocene): Possibly disconformably underlying the Nullarbor Limestone. This unit consists of a soft rich bryzoan limestone or chalk with occasional hard crystalline bands. It is about 18 metres thick in the drilled section and apart from the bryzoan fauna it also contains a rich brachiopod and molluscan fauna. It is glauconitic in places and like the overlying Nullarbor Limestone it is of a shallow shelf environment.

Hampton Sandstone (Eocene): Possibly disconformably underlying the Wilson Bluff Limestone. In the hole it is an 8 metre thick band of transgressive marine sediments consisting of greenish-grey-yellowish glauconitic limonitic, poorly consolidated to loose flat lying sands, varying in grain size from fine to coarse and because of the loose nature this proved rather difficult to core. It is porous and possibly the first acquifer below the capping limestones.

Pidinga Formation (Lower Eocene ?): It is not known whether this formation is of the same age as the Hampton Sandstone. In the section drilled it comprises about 19.5 metres of interbedded black lignite with carbonaceous silts and quartz grit bands. It proved soft and difficult to core in places.

A selection of five lignitic samples were analysed by AMDEL. Results revealed a high ash and low carbon content. The table below shows the full analysis results. (See Appendix III)

ANALYSIS

Moisture Free Basis

Sample Mark	Ash	Volatile Matter	Fixed Carbon	Specific Energy
	- - - - - % - - - - -			MJ/kg
WS 1	82.1	10.6	7.3	3.52
WS 2	90.7	6.6	2.7	1.34
WS 3	66.2	18.8	15.0	7.62
WS 4	76.8	13.3	9.9	4.80
WS 5	79.7	11.7	8.6	4.02

The position and sample intervals from this lignitic section are shown on the lithological log.

The nature of the carbonaceous silts etc. suggest a quiet lagoonal/swampy depositional environment. It is conceivable that in a closed environment the quality and thickness of the lignite might improve. An embayment, or enclosure is indicated some 25 kilometres east of hole WS-1A. It is recommended that the coal potential in this region be investigated, particularly as ERL hold the tenement to the east of EL 946.

It is also recommended that further analysis be carried out on the existing samples to determine the wax content and other similar elements that might be present in the lignites.

(ii) Mesozoic

Madura Formation (Upper Cretaceous): The Madura Formation disconformably underlies the Pidinga Formation and in this section it comprises a 6 metre thickness of inter-tidal grey sandy silts which are carbonaceous in the top half metre with some shale interclasts, greenish grey shale bands lower in the section gradually becoming sandier and ferruginous towards the base.

Loongana Sandstone (Lower Cretaceous): This essentially sandstone member, disconformably underlies the Madura Formation. It has a thickness of about 18.3 metres consisting of a fluviatile continental deposition. It includes light grey to dark red ferruginous gradational, cyclically deposited conglomerates, sandstones through to fine clayey silts. The conglomeratic parts predominantly contain angular shale clasts. The coarser portions are feldspathic and cross bedded.

A coarse (+7mm) unconsolidated pebble band rests on what is thought to be the base of the Loongana Sandstone or the top of the underlying ?Observatory Hill Beds. These pebbles are essentially pyrite or marcasite cemented sand or quartz grains, with some colloform banding on the pyrite (see report by Pontifex Appendix II).

(iii) Paleozoic

Observatory Hill Beds (Cambrian): Although the type locality and outcrop occurs some 200 kilometres to the north, for lack of other evidence, nomenclature and based on compostional characteristics, the unit disconformably underlying the Loongana Sandstone has been assigned to the Cambrian ?Observatory Hill Beds.

In the core we have recognized two distinct lithologies which have been divided into units 1 and 2. The top unit contains an abundance of laminated argillite bands whereas the bottom unit represents a much coarser type of lithology with several conglomeratic bands.

The question arises whether we are dealing with two separate units of the same age or of different ages. A large part of the upper Proterozoic like most of the Cambrian sedimentation in South Australia, has been relatively undisturbed, to distinguish between the two is difficult without age dating. Nevertheless, if we are to abide by the information available from previous drilling in the region and compare the section in WS-1A it was found that the base of unit 1 is at the limit of depth of the Cambrian in the region generally, and the sediments of unit 2 belong to the upper Proterozoic Wilpena Group Equivalents. However, if as suspected we have drilled in a graben structure afforded by the south west extension of the Karari Fault and the adjacent Gawler Craton (figures 4 & 8) then unit 2 may represent a rapid thick accumulation of coarse sedimentation in the lower Cambrian, particularly if movement on the fault was active during deposition.

Because we suspect that the latter is the case, ie. a filled depression or a graben, we include unit 2 as part of the Observatory Hill Beds. The lithologies of these units are as follows:

Unit 1: Consists of green cross bedded and laminated feldspathic, micaceous and chloritic coarse quartz sandstone with (i) local argillite intraclast pebble bands. These sandstones are intercalated with varve like plane-laminated red haematitic, feldspathic and green chloritic locally dolomitic argillites; and (ii) laminated red and green feldspathic and chloritic medium-coarse quartz sandstones; and (iii) laminated red haematitic, feldspathic and green chloritic argillites, which are locally dolomitic. This unit is about 181 metres thick.

Unit 2: Consists of about 50 metres of red-orange and grey-green feldspathic and chloritic very coarse matrix rich quartz sandstones, and fine pebbly conglomerates. These are locally cross bedded and wavily laminated. In general the entire pile of sediments is a mixture of fluviatile lacustrine, and maybe some fluvioglacial continental deposition.

(iv) Pre-Cambrian

Wilpena Group? (Upper Adelaidean) (Marinoan) ?Unnamed: The sediments disconformably underlying the Observatory Hill Beds are thought to belong to the top of the upper Adelaidean Marinoan period and possibly time equivalents of the Wilpena Group. In the section at about 322 metres a cream to buff current bedded, very clean well sorted, medium grained quartz sandstone, with laminated red-brown feldspathic argillic locally dolomitic bands was intersected. The formation is about 141.7 metres thick and represent shallow paralic and/or deltaic continental shoreline deposition. It may be the time equivalent to the A.B.C. quartzite or the time equivalent to the sandstone units in the Tent Hill Formation which spreads extensively over the Stuart Shelf.

Callana Beds Equivalent (Unnamed): The sediments disconformably underlying the Wilpena Group ? have been designated as the Callana Beds Equivalent because of lithologic similarities to that and equivalent group sediments in the eastern and southern parts of the state, and because other workers have intersected similar sediments in the region and assigned them to the upper Callana Beds. The best lithological comparison for the intersected section in WS-1A is with the Pandurra Formation of the Stuart Shelf where, the unit in WS-1A shows a very coarse grain to almost conglomeratic creamy-grey to pink arkosic sandstone. This grades upwards to finer sandstone and ultimately changes to a series of flaggy alternating sandstones with medium to greenish-grey chloritic bands of shales and siltstones. The section is locally pyritic with pyrite appearing in disseminating form along the shale cleavage planes and disseminated and blebby nodular in the the sandstone portions. Pyrite varies in quality from traces up to about 1 volume percent. Some scour and fill is also evident in the argillaceous parts of the unit. The unit is about 100 metres thick and as all the overlying units has a high proportion of secondary iron staining. However, the very small basal 13 metres section of the unit in WS-1A consists of a three metre band of well laminated flat lying shales with occasional specks of pyrite and mica. Followed by a highly contorted band of ? dolomitic or siliceous shale which gives the appearance of a slumped breccia that has recemented with more muds and shales and dolomitic material. The bottom 2 metres of this band is conglomeratic with very sharp angular fragments predominantly comprising schists, gneisses, quartz and argillites. The matrix is a chocolate-brown to purplish mud. This rests on a very fine silty ferruginous, slightly feldspathic and micaceous sandstone. The contact between this sandstone and the overlying conglomerate is very sharp and there is a faint suggestion of a dip in the bedding, thus possibly indicating an unconformity ?

This silty sandstone is about 4 metres thick. The top half is dark red to brownish ferruginous and clean, then gradually changes to a creamy pink colour; two small conglomeratic bands appear towards the very base of this unit. Fragments comprise angular schist derived from eroded material of the underlying basement.

These three types of lithology described above, rest below the sediments that are described as the upper Callana Bed Equivalent. Yet, nowhere in the eastern sections of the Callana Beds and equivalents has this type of fine sedimentation been encountered below the fluviatile units.

Again, if we are dealing with a graben situation it is possible that the presence of the silts and slumped shales is an indication of deposition due to tectonism. Therefore an early stage of the upper Callana sediments. If however, there is an unconformity between the sandstone and the conglomerate described above, then these basal sediments might represent the top of the lower Callana Beds Equivalent, eg. the Humanity Seat Formation of the Mt. Painter region.

Basement - Lower Proterozoic ? Archaean ?: A very sharp unconformity occurs at 591.3 metres in WS-1A. Here the basal silty sandstone of the Callana Beds ? rests on a vertically dipping greyish green chloritic mica schist which occasional thin quartz stringers and red ferruginous bands along the schistosity. The origin is probably sedimentary but it certainly doesn't fit the anticipated lithologic picture where either volcanics or a granite basement was expected. If it is sedimentary it could represent a Carpentarian age formation which rests on an Archaean basement. If it is Archaean it could represent part of a greenstone sequence with possible adjacent banded iron formations.

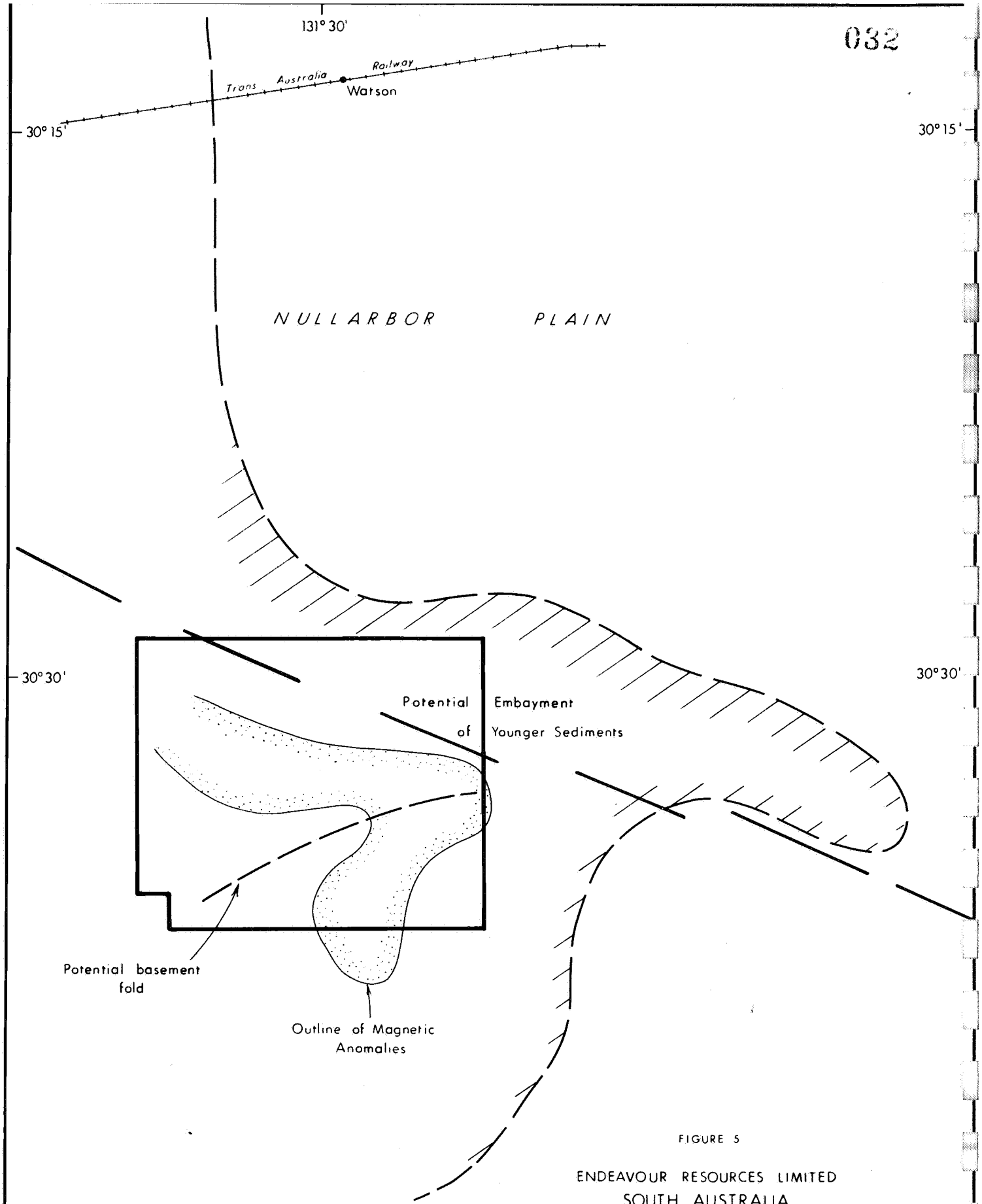


FIGURE 5

ENDEAVOUR RESOURCES LIMITED

SOUTH AUSTRALIA

WATSON SIDING SOUTH

REGIONAL GEOPHYSICAL DATA

SCALE 1 : 250,000

Km 5 0 5 10 15 Km

AUTHOR : G Tahan

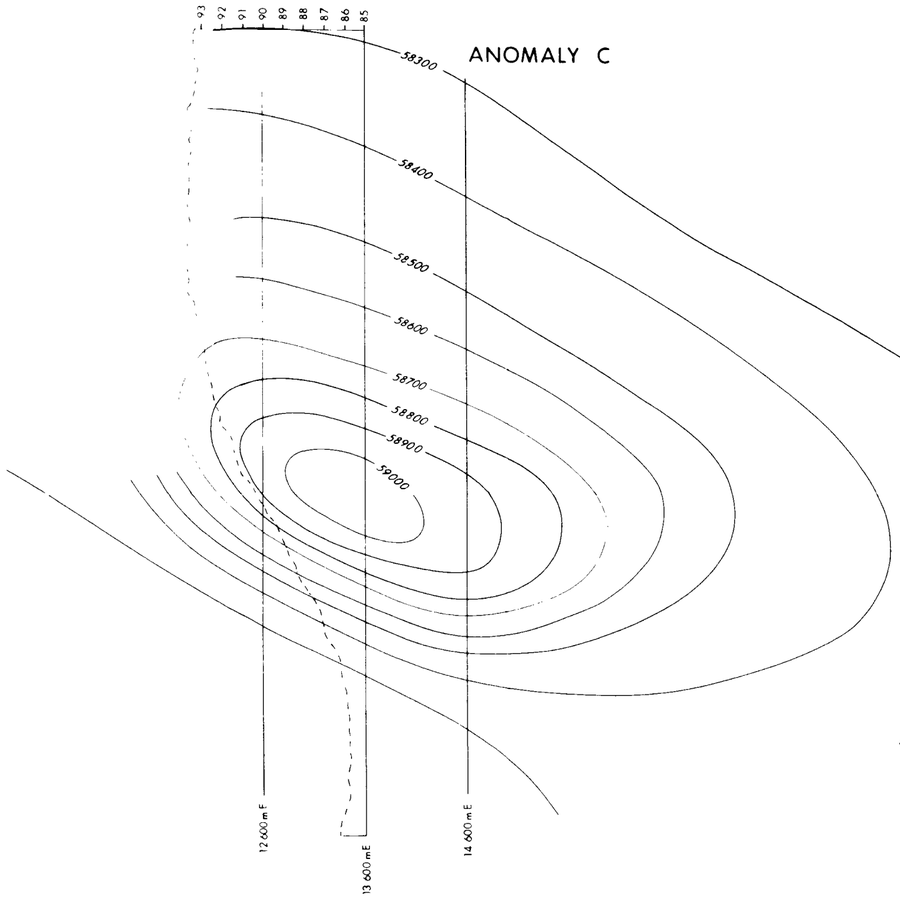
DRAWN : March, 1982

DRAWING NUMBER : F01205

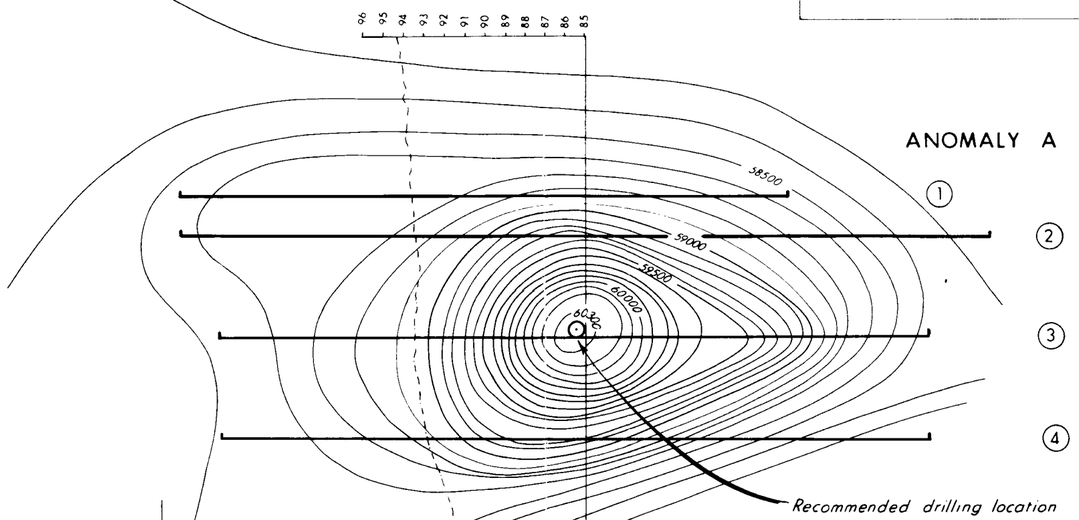
10 000 mE
15 000 mE
20 000 mE
25 000 mE
30 000 mE

15 000 mN
10 000 mN
5000 mN

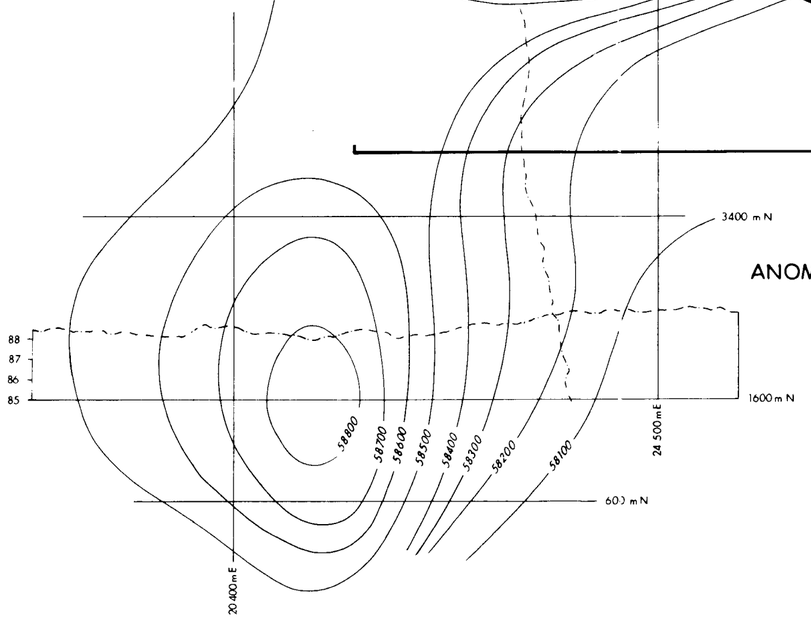
ANOMALY C



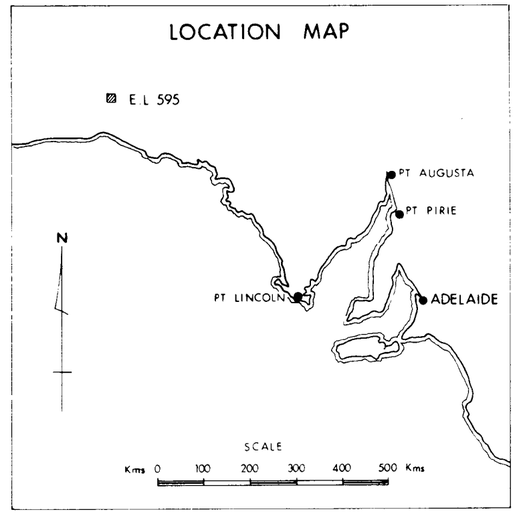
ANOMALY A



ANOMALY B



LOCATION MAP



N

The magnetic survey was read using Geometrics Unimag Proton Magnetometer.

No drift corrections were made. Readings were every 50 m.

Gravity stations were spaced at 100 m intervals

Surface geology consists of wide spread limestone outcrops of Mid Eocene - Mid Miocene Pt. Willunga formation.

Units for gravity profile are in milligals.

① ——— *Follow up gravity survey completed Dec. 1981*

FIGURE 6

ENDEAVOUR RESOURCES LIMITED
SOUTH AUSTRALIA
E.L. 946 WATSON SIDING

GROUND MAGNETIC CONTOURS AND GRAVITY PROFILES

(FROM B.H.P. REPORT PROJECT Nº 6-B600-1)

SCALE 1:50,000

Km. 0 1 2 3 4 Km.

AUTHOR : G Tahan

DRAWN March, 1982

DRAWING NUMBER A01206

4589-5

3.0 GEOPHYSICS

3.1 Techniques Used

The BHP Company had conducted follow-up ground magnetic and gravity surveys of the three major magnetic anomalies within EL 946 during their tenancy of the licence area in 1980.

The available geophysical data generated by BHP was subjected to interpretation by our consultant geophysicist R.K. Jones and Associates Pty. Ltd. An overview of the regional geophysical setting was also made. The results of these are presented in Appendix IV.

Additional gravity traverses were recommended and this programme comprised the surveying of five east-west trending lines, 400-500 metres apart. Readings were taken every 100 metres using a La Coste-Romberg Gravity unit. The data was reduced by R.K. Jones and Associates and is presented in Appendix IV.

A rapid ground magnetometer reconnaissance was conducted in the area of anomaly A, to define the peak of this anomaly to enable the drill site to be located.

3.2 Results

Results of Previous Data

An interpretation of the three major anomalies detected in the regional aeromagnetic survey of the region and followed up on the ground by BHP yielded the following results.

46 000 E
50 000 N

47 000 E

48 000 E

49 000 E

Spike placed

Old Grid peg
24 600 E
8 600 N

50 000 E
50 000 N

GRAVITY BASE STATION
3 00 SW

128° 20'
39 75

52 000 E
50 000 N

46 000 E
49 600 N

47 000 E

48 000 E

49 000 E

Spike placed

Old Grid peg
24 600 E
8 000 N

86° 30' 10·45

51 000 E

52 000 E

53 000 E

54 000 E
49 600 N

Old Grid peg
20 600 E
8 000 N

188° 11' 10"
20 161

50 000 E
49 600 N

50 000 E
49 100 N

355° M

46 400 E
48 600 N

47 000 E

48 000 E

49 000 E

Spike placed

Old Grid peg
24 600 E
7 000 N

51 000 E

52 000 E

53 000 E

53 400 E
48 600 N

50 000 E
48 600 N

113° 20'
32 38

240° 11'
36 15

Old Grid peg
27 600 E
7 000 N

L I N E

50 000 E
48 100 N

46 400 E
47 600 N

47 000 E

48 000 E

49 000 E

Spike placed

51 000 E

52 000 E

53 000 E

53 400 E
47 600 N

50 000 E
47 600 N

50 000 E
47 100 N

B A S E

50 000 E
46 600 N

50 000 E
46 100 N

MN 355°

47 000 E
45 600 N

48 000 E

49 000 E

Spike placed

51 000 E

52 000 E

52 800 E
45 600 N

50 000 E
45 600 N

No	AMENDMENTS	DATE	BY

COMPILED G.R.B.
DRAWN Q.C.B.
CHECKED
SCALE 10 000

Bradford Exploration Services
73 STATION STREET SUNBURY VICTORIA
TEL. (03) 744 4106

ENDEVOUR RESOURCES LIMITED

WATSON SIDING S.A.
PLAN OF GRID
ESTABLISHED NOV '81

DRAWING No: A01325
REF No M 66
DATED 9 DEC '81

4589-3

The major anomaly (designated A), of around 2500nT above regional background, is interpreted to emanate from a body, the top of which lies at between 360 to 420 metres below the surface. A A weak residual gravity anomaly (0.8 milligals) is interpreted to coincide with this anomaly on BHP's data.

The other two anomalies, B and C, are interpreted to emanate from bodies buried at 600 and 450 metres below the surface respectively. There were no residual gravity anomalies interpreted to be associated with these.

In the regional sense the anomalies are located in a complex geophysical area. They are marginal to the gravity high, interpreted as being similar to other cratonic areas (eg. the Pilbara), and are located on a major WNW-ESE trending lineament (see Appendix IV).

Gravity Survey

The results of the reduced data collected by Endeavour during the gravity survey, are shown on contour plan and profiles within Appendix IV.

The residual anomaly centred on anomaly A, as interpreted from the BHP data (single line traverse) was confirmed. The amplitude is approximately 0.75 milligal and the anomaly is elongated east-west.

The depth to source for this anomaly was interpreted to be 350-400 metres and it was indicated that the source could be common with the magnetic anomaly A.

The anomalies are interpreted to be related to the linear high amplitude magnetic anomalies along the Karari Fault which have estimated depths of burial of 500 metres.

4.0 DRILLING

4.1 Techniques Used

A diamond drilling programme was carried out on EL 946. Longyear Australia were retained to carry out the programme. They supplied a Longyear 44 drilling rig with all support equipment, including trucks for water carting. Our requirements were as follows:

1. To drill a pre-collar rotary hole as deep as could be taken, then continue by diamond drilling to about 600 metres.

2. Water for diamond coring operations was to be procured from Ooldea No. 1 bore.

4.2 Results of Drilling

Mobilization commenced on 20 April, and drilling commenced on 26 April. Coring started at 2 metres because the limestone proved hard for the rotary cone bits. Coring progressed satisfactorily to about 100.5 metres. Meanwhile water carting from Ooldea No.1 bore proved very slow and tedious, with major disrepair to tracks and vehicles. We therefore converted this hole to a water bore, and redrilled a new hole about 3 metres to the east. The first hole was thus designated (Watson Siding Water Bore) WS-WB. The new hole was designated (Watson Siding No. 1) WS-1. This hole was precollared with tricone bit to 99.5 metres and coring proceeded to 364.7 metres, when the rods became stuck. Several attempts to resume drilling failed. The hole was ultimately abandoned on 3 June pending a complete re-assessment of the programme and the re-location of a second rig, as the one which was on site was overdue for another job.

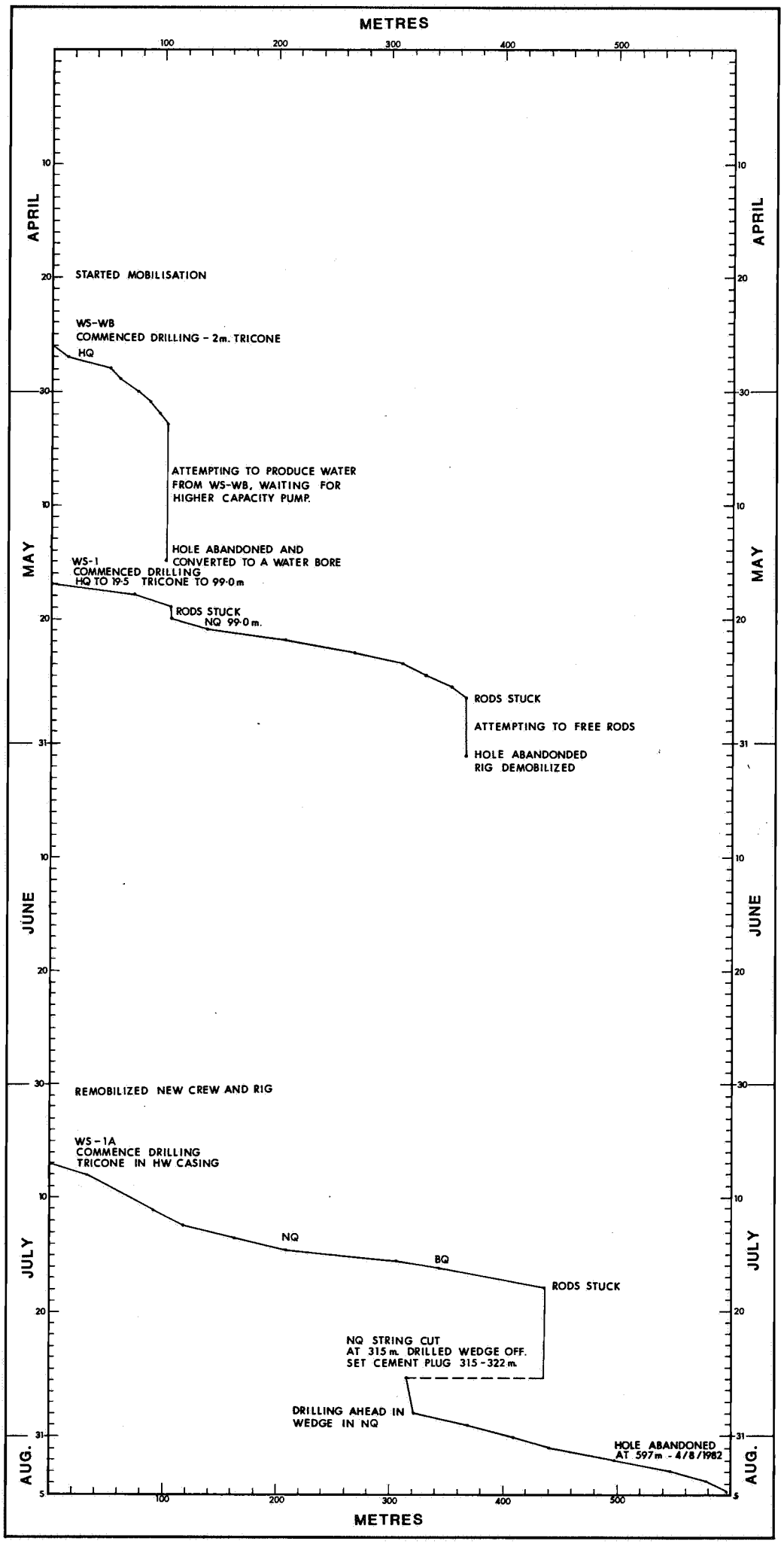


FIGURE 9

ENDEAVOUR RESOURCES LIMITED
SOUTH AUSTRALIA - E.L 946
WATSON SIDING PROJECT

DAILY DRILLING PROGRESS

AUTHOR: G. Tahan

DRAWN: August, 1982

DRAWING NUMBER: A 01326

A truck mounted Lomgyear 44 was relocated on site on 4 July and a new hole (Watson Siding 1A) WS-1A was spudded about 30 metres north of the previous two holes. Again the hole was rotary cone drilled to 222 metres, cased and proceeded by coring.

The rods became stuck at 436.7 metres and considerable delays were experienced in an attempt to free rods. After several attempts failed the hole was wedged off at 315 metres, and drilled to completion at 597 metres.

To reach our ultimate target proved a slow and costly exercise both to E.R.L but more particularly to Longyear Australia. A graph showing time versus progress of the drilling programme is attached. (Figure 9)

5.0 REFERENCES

Handbook of South Australian Geology -
Geological Survey of South Australia.

Company Quarterly Report by Chevron Exploration
Corporation on E.L. 23 (DMESA Envelope No. 2183).

Teluk, J.A. January 1974.
Completion Report Exploration Licence 23,
Ooldea Area, South Australia.

Asarco, (Australia) Pty. Ltd.,
Bore-sample Analysis (DMESA Envelope No. 1880)

6.0 EXPENDITURE

A total of $141,606 has been expended on the exploration of EL 946 in the period from granting to 30/6/82.

This amount is categorized as follows:

	$	$
Salaries/Wages:		24,930
Contracted Services:		91,406
Geophysics	11,512	
Drilling	72,412	
Consultants	7,482	
Field Costs:		16,884
Travel & Accommodation	6,288	
Vehicle Operating	2,308	
Equipment & Supplies	8,288	
Survey & Lease Costs:		360
Drafting (Printing & Stationary):		385
Freight:		1,699
Communications:		119
Miscellaneous:		5,813
Total		$ 141,606

APPENDIX I: DRILL LOGS

DRILL CORE LOG

D. Frith

HOLE I.D. WS - WB

CO-ORDS 50 000N 47 950E — PLAN-MAP REF: M66 D.No. A01325/1 — DRILLER T. Petts — START 27/4/82 — DEPTH 0 - 100.5M — PAGE 1 OF 2

AZIMUTH Not Measured VANGLE: Vertical — LEVEL: Not Surveyed — DRILL Longyear 44 Heavy Duty Skid Mounted. — QUIT 13/5 CASING 90m HW — LOGGED BY G.Jahan, M.Padolsky

(DOWN HOLE SURVEY DETAIL IN LOG)

SAMPLE SHEET No.: 624 — ANALYST AMDEL — DATE: 28/4/82

RUN LOG FROM (m)	TO (m)	LEN (m)	REC (m)	SIZE	LITHOLOGY FROM (m)	DESCRIPTION	STRUCTURE DEPTH (m)	ANGLES TO C. AXIS BED / CLEAV.	OTHER	FACE	ADDITIONAL DESCRIPTION	VEINS & MINERALIZATION DEPTH (m)	DESCRIPTION
0	2	-	-	-	0-2	Alluvium							
				HQ		Creamy/buff shelly cal.							
2	3	1	65		2	→ terra rossa locally					Cavernous (locally)		Sparry cal. in cavities,
3	4.5	1.5	100			(Molluscan fossils/casts predom.)					(accounting for core loss)		vugs
4.5	6	1.5	100										
6	7.5	1.5	100										
7.5	9	1.5	94										
9	10.5	1.5	100										
10.5	12	1.5	100										
12	13.5	1.5	100										
13.5	14.6	1.1	40			Terra Rossa (loc.)					Large Cavity		Sparry Calcite
14.6	16.5	1.9	58			Locally puggy							
19.5	21.9	2.4	75			Sandy cal. clay (loc.)							
21.9	25	3.1	97										
25	25.8	0.8	82										
25.8	28.5	2.7	94										
28.5	31.5	3	97			Terra Rossa (loc.)							
31.5						Nullabor Limestone base					Disconformity surface?		
					31.7	at 31.7m.					end of hiatus Wilson Bluff?		
						Light greenish-grey med. fine							Locally glauconitic.
					31.7	calcilutite; bryozoal ls.c̄							
31.5	34.5	3	100			brachiopod fauna							
34.5	37.5	3	100										
37.5	40.5	3	100			10% glauc. Loc. gritty							
40.5	43.5	3	100			glauc. to 30%							
43.5	46.5	3	93			" " "							
46.5						" " "							Limonitic b/n 46.5 & 47.5m
					49.1	Wilson Bluff Limestone base at 49.1m					Disconformity: start Hampton Sandstone		
						Dark brownish green pebbly/gritty med-cs.grd. carbonaceous, glauconitic					Unconsolidated sediment		
46.5	49.5	3	78			qz ss							
49.5	56.7	7.2	N.R.										
56.7						Hampton Sandstone base					Disconformity: start		
					57	at 57m					Pidinga formation		
						Black lignite							V.f.g. pyrite & marcasite bl.
56.7	58.5	1.7	94		57	Sample taken b/n 57.75 & 57.9m							
						Interbedded lignite & carbonaceous silt. & qz grit, c̄ well rounded pebs. (to 7m. across) loc - most core loss in carbonaceous silt.							
58.5	62.9	4.4	6										
62.9	67.5	4.6	9										
						- entire section contains v.f.g. pyrite							
67.5	70.5	3	50										
70.5	73.5	3	8										

SAMPLE No	FROM (m)	TO (m)	LEN (m)	REC (m)
WS-1	57	58.5	1.7	94
WS-2	58.5	62.9	4.4	6
WS-3	62.9	67.5	4.6	9
WS-4	67.5	70.5	3	50
WS-5	70.5	73.5	3	8

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DRILL CORE LOG

D. Frith

HOLE I.D. W.S.-W.B

CO-ORDS: _____ PLAN-MAP REF: _____

DRILLER: T. Betts START: 27/4/82 DEPTH: 0-100.5m PAGE: 2 OF 2

AZIMUTH _____ VANGLE: VERTICAL LEVEL: _____

(DOWN HOLE SURVEY DETAIL IN LOG)

DRILL: LY 44 HD Skid Mounted QUIT: 13/5 CASING: 90 m HW LOGGED BY G.Tahan, M.Podolsky

RUN LOG					LITHOLOGY		STRUCTURE					VEINS & MINERALIZATION				SAMPLE SHEET No.: ANALYST					DATE:
FROM (m)	TO (m)	LEN (m)	REC (m)	SIZE	FROM (m)	DESCRIPTION	DEPTH (m)	ANGLES TO C. AXIS: BED / CLEAV.	ANGLES TO C. AXIS: OTHER	FACE	ADDITIONAL DESCRIPTION	DEPTH (m)			DESCRIPTION	SAMPLE No	FROM (m)	TO (m)	LEN (m)	REC (m)	
73.5	76.5	3	2	HQ		Pidinga Formation base					Disconformable contact										
					76.5	at 76.5m															
						Light grey/buff sandy															
						silt - carbonaceous @					Cross laminations of										
76.5	82.5	6	52		76.5	top 0.5m, contain green					carbonaceous mtl & shale										
						ish gray shale intraclasts															
						& shale bands															
						-sandier & ferrug.tobase															
						Madura Formation base					Gradational contact										
					82.5	at 82.5M					into ferrug.silts & grits										
											of Loongana Formation										
						Light grey dark red															
82.5	85.5	3	90		82.5	(ferrug)gradational															
						cyclic seq.of loc. congl					Imbricated clasts in cgl.										
						→cs felds.ss→fine															
85.5	88.5	3	81			clayey siltsones					Prominent x-bedding in										
						- predom. ss/sltst					coarser felds.ss's										
						- Cal clasts predom.															
88.5	91.5	3	100			shale frags.															
91.5	94.5	3	85																		
94.5	97.5	3	98			Loongana Sandstone					Disconformable contact										
					96.9	base at 96.9m															
97.5	100.5	3	98		96.9	Light grey/cream loc.					Top of Observatory Hill										
						pink gen. massive calc?					Beds? or variant of										
						ss, containing med-cs					Loongana Ss?										
						qz sand lenses (loc.															
						feldspathic to 2%)															
					100.5																
						END OF HOLE 100.5m															

044

DRILL CORE LOG

CO-ORDS. 3m. EAST OF WS - WB PLAN - MAP REF: _____
AZIMUTH _____ VANGLE: VERTICAL LEVEL: _____
(DOWN HOLE SURVEY DETAIL IN LOG)

D. Frith
DRILLER P.Bouth START: 14/5/82 DEPTH: 90.0 - 361.5 m
DRILL LY/44 H.D. SKID MOUNTED QUIT: 6/6 CASING 102.5 m, HQ

HOLE I.D. WS - 1
PAGE 1 OF 4
LOGGED BY M. Podolsky
DATE: 23/5/82
SAMPLE SHEET No.:
ANALYST

RUN LOG FROM (m)	TO (m)	LEN (m)	REC (m) %	SIZE	LITHOLOGY FROM (m)	DESCRIPTION	STRUCTURE DEPTH (m)	ANGLES TO C. AXIS BED / CLEAV	OTHER	FACE	ADDITIONAL DESCRIPTION	VEINS & MINERALIZATION DEPTH (m)	DESCRIPTION	SAMPLE SHEET / ANALYST SAMPLE No	FROM (m)	TO (m)	LEN (m)	REC (m)
0	1.2		-			Tricone 1.2m												
1.2	19.5		-	HQ	18.3	HQ core Nullarbor ls.												
19.5	99		-			Tricone 79.5m												
				NQ														
						START LOG @ 99m												
99	100.5	1.5	67		99	Light green/grey (pink @ top 40cm) f.calcar? c cs-v cs qz sand bands (feldspar to 2%); coarsening up					At top of Observatory Hill Beds? x-laminations of sand @ 99.3m							
100.5	103.5	3	100			100.5 - 100.8 loose fine - cs pebbles; qz, chert, basic ign.rk (sample taken)					Unconsolidated pebble band 100.5-100.8m: BASE LOONGANA SS??		Basic igneous rk (hypabyssal v.f.g.py to 15% cpy? loc. - loc. qz-ser altn.					
					102.	start dk-light green grey, red & pink alternating x-beds & x-lam feldspathic micaceous, chloritic qz v. cs - fine ss's & argill's					Appear to be 'cyclic' units grad. from v. cs & granular ss's often culminating in thin (~2cm) red & green laminated argillites		f.g. py @ ~102m (<1%)					
103.5	106.5	3	98			~104m red mud band												
					~106	dk green chlor? granules												
106.5	109.5	3	100			Oolitic/pisalitic?? sedt. @ 107.7m & 109.2m					Cavities to 2cm dev. in oolitic bands							
109.5	112.5	3	100		~111.6	red argillite bands					115.2m vugs dev. in v. cs. ss (appears 115.8m fossiliferous) 118m vugs in f. calc ss		py lining vug @ 115.2m					
112.5	115.5	3	99		~113.1	114.8m red arg. bands												
115.5	118.5	3	100															
118.5	121.5	3	100		119.4	red argillic bands												
					119.8	red arg. intraclasts cobb.												
					120.6	red argillic bands					Red-pink ss's appear to show weathering &/or sol'n effects							
121.5	124.5	3	98		121.8	122.6, 123.4m red & green argillite bands												
124.5	127.5	3	100		124.5	red & green arg. intraclasts med pebbles												
					124.7	125 - 125.7m, red & green argillites.												
127.5	129.3	1.8	94															
129.3	130.5	1.2	96		129.5	start predom. lam. red @ green argillites (varve-like), Minor ss's					Wavy laminations (slump features?) Loc. contorted c intraformational "micro-faults"							
130.5	133.5	3	95															
133.5	136.5	3	100															
136.5	139.5	3	100		137.9	Start cs - med gnd ss units					137 - 137.4 intraformational breccia							
				~	138 -	138.6m feld?/calc? bx unit c red argillite intraclast cobbles					138 - 138.6 intraformational breccia		~138.2m f.g. py. loc. (<1%) ~139m glauconite					
139.5	142.5	3	100		140.8m	Start lam. argillites as above c minor light grey												
142.5	145.5	3	99			Predom. red argillites												
145.5	148.5	3	97			" " "												
148.5	151.5	3	97			" " "												
151.5	154.5	3	100			" " "					-		locally x-bedded					
154.5	157.5	3	100			" " "												

045

DRILL CORE LOG

CO-ORDS: 3m EAST OF WS-WB PLAN-MAP REF:
AZIMUTH: VANGLE: VERTICAL LEVEL:
(DOWN HOLE SURVEY DETAIL IN LOG)

D. Frith
DRILLER P. Bouth START: DEPTH: 99·0 - 361·5m
DRILL LY/44 HD Skid Mounted QUIT: CASING 102·5m HQ

HOLE I.D. WS-1
PAGE 2 OF 4
LOGGED BY M. Podolsky

SAMPLE SHEET No.:
ANALYST
DATE: 24/5/82

RUN LOG FROM (m)	TO (m)	LEN (m)	REC (m) %	SIZE	LITHOLOGY FROM (m)	DESCRIPTION	STRUCTURE DEPTH (m)	ANGLES TO C AXIS BED / CLEAV.	OTHER	FACE	ADDITIONAL DESCRIPTION	VEINS & MINERALIZATION DEPTH (m)	DESCRIPTION
				NQ									
157.5	160.5	3	100		159.6	Start predom. red, l. grey & l. green cs-f.g. wavily lam. feldspathic ss's c red oxid. arg.'s							
160.5	163.5	3	99										
163.5	166.5	3	99										
166.5	169.5	3	100										
169.5	172.5	3	100		172.5	Start predom. wavily lam. red l. grey & l. green arg: hem & Chlor.							
172.5	175.5	3	99										
175.5	178.5	3	100										
178.5	181.5	3	71			Intercalated cs. ss's							
181.5	182.7	1.2	99			Predom. cs.ss's							178.8m py ball in calc.ss
182.7	184.5	1.8	96										
184.5	187.5	3	99			Predom. cs. red wavily lam. feld ss's lesser							
187.5	190.5	3	100			red, grey & green wavily							
190.5	193.5	3	97			lam. arg. 's - Loc. arg.							
193.5	196.5	3	100			Loc. green ss							
196.5	199.5	3	100			Loc. arg. & green ss							
199.5	202.5	3	100			Loc. arg.; green argillite cs pebble intraclasts in ss loc.							
202.5	205.5	3	100			" "							
205.5	208.5	3	100			" "							
208.5	211.5	3	100		208.4	Finely lam. varve like red purple, grey & green clays & muds.							
211.5	214.5	3	100		211	Predom. green chlor.							
214.5	217.5	3	100			med-cs wavily lam. ss's							
217.5	220.5	3	100		217.6	Varved muds (as above) to 221.4m					local intraformational slumps & "micro" faults		~219.75 loc. glauconite
220.5	223.5	3	100		221.4	intercalated calcareous ss's (as above)							
223.5	226.5	3	100		223.5	Green red & grey wavily lam, feld. ss's often c green* & red** pebbles of argil. interclasts. minor purple clay & red & green micaceous arg. bands							
226.5	229.5	3	100										Isolated py ball, 3mm ϕ @~226.8m
229.5	232.5	3	100			*chloritic **hematitic							
232.5	235.5	3	100										
235.5	238.5	3	100										
238.5	241.5	3	100										
241.5	244.5	3	100										py balls~3mm ϕ to~2% in pink calc.ss @~243.1m.
244.5	247.5	3	100										
247.5	250.5	3	100			Loc. granular bands							
250.5	253.5	3	100			(~3cm) of qz & feldspar							

SAMPLE No	FROM (m)	TO (m)	LEN (m)	REC (m)

046

DRILL CORE LOG

COORDS. 3m EAST OF WS-WB | PLAN-MAP REF: | DRILLER P. Bouth | START 14/5/82 | DEPTH 99·0 - 361·5 m | HOLE I.D. WS-1

AZIMUTH | VANGLE VERTICAL | LEVEL | DRILL LY/44 HD SKID MOUNTED | QUIT 6/6 | CASING 102·5 m HQ | LOGGED BY M. Podolsky | PAGE 3 OF 4

(DOWN HOLE SURVEY DETAIL IN LOG)

D. Frith

RUN LOG FROM (m)	TO (m)	LEN (m)	REC (m) %	SIZE	LITHOLOGY FROM (m)	DESCRIPTION	STRUCTURE DEPTH (m)	ANGLES TO C. AXIS BED / CLEAV.	ANGLES TO C. AXIS OTHER	FACE	ADDITIONAL DESCRIPTION
				NQ							
						Loc. granular & v.cs sand					
253.5	256.5	3	100			bands of qz & feldspar					
256.5	259.5	3	100			& red hematite argillite					
259.5	262.5	3	100			" "					
262.5	265.5	3	100			" "					
265.5	268.5	3	98			" "					
268.5	271.5	3	100			" "					
271.5	274.5	3	100			" "					
274.5	277.5	3	99			" "					
277.5	280.5	3	100			" "					
280.5	283.5	3	100			" "					
					282	Start orange, red, grey/ buff & grey/green cs - v.cs granular mtx rich ss's & fine pebbly cgl's; alternating qz. felds. & ox.(Fe)bands 0.1 - 3m					Locally 1-2mm laminations. Loc. x-bedded sands Often loose, friable & unconsolidated
283.5	286.5	3	100			Mtx predom f.qz sand c					
286.5	288.5	2	100			feld/chlor. argill mtl.					
288.5	291.2	2.7	97								
291.2	294.4	3.2	100								
294.4	297.5	3.1	100			Loc. buff med gnd felds ss & red & buff lam. hem. feldspathic argillite					
297.5	299.1	1.6	97			Loc. med pebbly congl					
299.1	299.5	0.4	95								
299.5	301.5	2	94			Loc. med, pebbly cgl. & med ss.					
301.5	304.5	3	100			Loc. lam. fine ss & slt					
304.5	307.5	3	99			" " " "					
307.5	310.5	3	100			" " " "					
310.5	311.7	1.2	99								
311.7	314.8	3.1	97			Loc. red x-bedded argill					
314.8	317.9	3.1	100			" " " "					
317.9	321.0	3.1	100								
					319.4	Start buff med-cs qz ss c̄ v.fine-fine qz sand mtx; wavily lam.					Generally well sorted Locally x-bedded sands
321.0	324.1	3.1	100			buff/green & red argill					
324.1	327.2	3.1	100			up to 20cm thick, Diss bi					
327.2	330.3	3.1	100			-loc. bands loosely con					
330.3	332.2	1.9	100			v.cs g. feld ss up to 10cm					
					332.1	Start cream/buff well sorted & rounded clean f-med-cs g. qz ss c̄ interc					Current bedded (broad scale) Monotonous sequence suspect purple mudstone band missing
332.2	334.5	2.3	76			bands of red brown feld					
334.5	337.5	3.1	100			laminated argillite					
337.5	340.5	3	100								

VEINS & MINERALIZATION DEPTH (m)			DESCRIPTION
294.4m			cgl. mtx. feldspathic ~3% - feld pervasive down sequence
			Felds.mtx locally 10-15%
			v.fine dissem.py sand <1%
			Loc. glauconitic?

SAMPLE SHEET No.: DATE: ANALYST

SAMPLE No	FROM (m)	TO (m)	LEN (m)	REC (m)

047

DRILL CORE LOG

HOLE I.D. WS-1

COORDS. 3m EAST OF WS-WB | PLAN-MAP REF: | DRILLER D. Frith P. Bouth | START: 14/5/82 | DEPTH: 99.0-361.5 m | PAGE: 4 OF 4

AZIMUTH: | VANGLE: VERTICAL | LEVEL: | DRILL: LY/44 HD SKID MOUNTED | QUIT: 6/6 | CASING: 102.5 m HQ | LOGGED BY G.Tahan, M.Podolsky

(DOWN HOLE SURVEY DETAIL IN LOG)

RUN LOG

FROM (m)	TO (m)	LEN (m)	REC (m) %	SIZE
				NQ
340.5	343.5	3	100	
343.5	346.5	3	100	
346.5	349.5	3	100	
349.5	352.5	3	100	
352.5	355.5	3	100	
355.5	358.5	3	100	
358.5	361.5	3	100	
361.5	364.5	3	100	
364.5	364.7	0.2		

LITHOLOGY

FROM (m)	DESCRIPTION
	ABANDONED HOLE AT 364.7

STRUCTURE

DEPTH (m)	ANGLES TO C. AXIS: BED / CLEAV	ANGLES TO C. AXIS: OTHER	FACE	ADDITIONAL DESCRIPTION

VEINS & MINERALIZATION

DEPTH (m)			DESCRIPTION

SAMPLE SHEET No.: DATE:

ANALYST

SAMPLE No	FROM (m)	TO (m)	LEN (m)	REC (m)			

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DRILL CORE LOG

HOLE I.D. WS-1A

CO-ORDS. APPROX 30m NNW OF WS-1 | PLAN-MAP REF: M66 D No. A01325/1 | DRILLER LONGYEAR | START: | DEPTH: | PAGE: 1 OF 6

AZIMUTH NOT MEASURED | VANGLE: VERTICAL | LEVEL: NOT SURVEYED | DRILL L-44 TRUCK MOUNTED | QUIT: | CASING: | LOGGED BY G. Tahan

(DOWN HOLE SURVEY DETAIL IN LOG)

RUN LOG					LITHOLOGY		STRUCTURE					VEINS & MINERALIZATION				SAMPLE SHEET No.: ANALYST					DATE:
FROM (m)	TO (m)	LEN (m)	REC (m)	SIZE	FROM (m)	DESCRIPTION	DEPTH (m)	ANGLES TO C. AXIS: BED / CLEAV.	ANGLES TO C. AXIS: OTHER	FACE	ADDITIONAL DESCRIPTION	DEPTH (m)			DESCRIPTION	SAMPLE No	FROM (m)	TO (m)	LEN (m)	REC (m)	
0	222					TRICONE DRILLING															
222	358.7			NQ	222	as for WS-1															

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DRILL CORE LOG

HOLE I.D. WS-1A

COORDS APPROX 30m NNW OF WS-1 | PLAN-MAP REF M66 D. No. A0 1325/1 | DRILLER LONGYEAR | START | DEPTH | PAGE 2 OF 6

AZIMUTH | VANGLE VERTICAL | LEVEL NOT SURVEYED | DRILL L-44 TRUCK MOUNTED | QUIT | CASING | LOGGED BY G. Tahan, B. Pertzel

(DOWN HOLE SURVEY DETAIL IN LOG)

RUN LOG FROM (m)	TO (m)	LEN (m)	REC (m)	SIZE	LITHOLOGY FROM (m)	DESCRIPTION
358.7				BQ		Alternating yellowy brown and pink to red bands of very well sorted very fine to med grained ss, locally
	364.7	6.0	100			feldspathic & cross bedded
364.7						Colour due to ferruginous staining
						Yellowy brown due to limonite, pinky red due to hematite
	370.7	6.0	100			Oxidation with deposition of
370.7						sediments in a very calm environment.
	376.7	6.0	100			
376.7						
	382.7	6.0	100			
382.7						
	388.7	6.0	100			
388.7						
	394.7	6.0	100			
394.7						
	400.7	6.0	100			
400.7						
	406.7	6.0	100			
406.7						
	412.7	6.0	100			

STRUCTURE DEPTH (m)	ANGLES TO C. AXIS BED / CLEAV	OTHER	FACE	ADDITIONAL DESCRIPTION
405.52	10° bed			Base of coarser sst: ferrug. stng: cross bedded

VEINS & MINERALIZATION DEPTH (m)			DESCRIPTION

SAMPLE SHEET No.: ANALYST DATE

SAMPLE No	FROM (m)	TO (m)	LEN (m)	REC (m)

049

DRILL CORE LOG

HOLE I.D. WS-1A

COORDS. APPROX 30m NNW OF WS-1 | PLAN - MAP REF: M66 D. No. A0 1325/1 | DRILLER LONGYEAR | START: | DEPTH: | PAGE: 3 OF 6

AZIMUTH | VANGLE VERTICAL | LEVEL: NOT SURVEYED | DRILL L-44 TRUCK MOUNTED | QUIT: | CASING: | LOGGED BY G. Tahan

(DOWN HOLE SURVEY DETAIL IN LOG)

SAMPLE SHEET No.: | ANALYST | DATE:

RUN LOG FROM (m)	TO (m)	LEN (m)	REC (m)	SIZE	LITHOLOGY FROM (m)	DESCRIPTION
412.7				BQ		
418.7	418.7	6.0	100			
424.7	424.7	6.0	100			
430.7	430.7	6.0	100		436.7	Rods stuck - blasted off BQ @ 348. Pulled BQ out Wedged at 315, Top of wedge 311. Bull nose bit drilled to 322 off the wedge. Cemented to 322
436.5	436.7	6.0	100	NQ	(OFF Wedge 436.5)	Bull nose drilled to 333 and recommenced NQ at 333m. From 333-436.7 already logged. Nearest last run to 436.7 on the wedge off is 436.5.
439.5	439.5					
442.5	442.5					
445.5	445.5					
448.5	448.5					
451.5	451.5					
454.5	454.5					
457.5	457.5					
460.5	460.5					
463.5	463.5					

STRUCTURE DEPTH (m)	ANGLES TO C. AXIS BED / CLEAV	OTHER	FACE	ADDITIONAL DESCRIPTION

VEINS & MINERALIZATION DEPTH (m)			DESCRIPTION

SAMPLE No	FROM (m)	TO (m)	LEN (m)	REC (m)

050

DRILL CORE LOG

CO-ORDS. APPROX 30m NNW OF WS-1 | PLAN-MAP REF: M66 D. No. A0 1325/1 | DRILLER LONGYEAR | START: | DEPTH: | HOLE I.D. WS-1A

AZIMUTH: | VANGLE VERTICAL | LEVEL: | DRILL LF44 TRUCK MOUNTED | QUIT: | CASING: | LOGGED BY G.Tahan | PAGE: 4 OF 6

(DOWN HOLE SURVEY DETAIL IN LOG)

SAMPLE SHEET No.: | ANALYST | DATE:

RUN LOG

FROM (m)	TO (m)	LEN (m)	REC (m) %	SIZE
469.5		3.0	100	NQ
472.5	472.5	3.0		
475.5	475.5	3.0		
478.5	478.5	3.0		
481.5	481.5	3.0		
484.5	484.5	3.0		
487.5	487.5	3.0		
490.5	490.5	3.0		
493.5	493.5	3.0		
496.5	496.5			
499.5	499.5			
502.5	502.5			
505.5	505.5			
508.5	508.5			
511.5	511.5			
514.5	514.5			
517.5	517.5			

LITHOLOGY

FROM (m)	DESCRIPTION
	Section described above
473.8	Buff creamy white-pink fine medium grained well sorted, well rounded sst with partly silic. & partly clayey matrix
488.3	Reddish brown ferrug. fine grained sst. & lam. of mudstone or shale up to 1cm thick
493.5	Buff creamy white-pink alternating bands of f. to medium grained well sorted, well rounded sst with local thin slivers & laminations of mudstone. These are up to 1mm thick
	Creamy buff to light grey fine to medium grained well sorted well rounded sst. locally pinkish ferrug. with fine laminations and bands of greyish mudst. up to 3 or 4mm across.

STRUCTURE

DEPTH (m)	ANGLES TO C. AXIS: BED / CLEAV	ANGLES TO C. AXIS: OTHER	FACE	ADDITIONAL DESCRIPTION
473.8				Disconformity surface? WILPENA GROUP

VEINS & MINERALIZATION

DEPTH (m)			DESCRIPTION
488.04			PYRITE -thin bands - dissin blebs up to 3mm across
488.14			Fine disseminated pyrite <1% in the sect. Pyrite blebs up or pellets to 1mm across
488.3			
	493.5		
493.5			
	530.5		(See next page)
			PYRITE
			Dissem. along planes or in blebs or pellets up to 3mm across. The pyrite reports pref. with the mudstone laminations but is not uncommon in the sst. It constitutes <3% of the section by volume.

SAMPLE

SAMPLE No	FROM (m)	TO (m)	LEN (m)	REC (m)

051

DRILL CORE LOG

HOLE I.D. WS-1A

CO-ORDS APPROX 30mm NNW OF WS-1 | PLAN-MAP REF: M66 - D. No. A01325/1 | DRILLER LONGYEAR | START | DEPTH | PAGE 5 OF 6

AZIMUTH | VANGLE VERTICAL | LEVEL | DRILL L-44 TRUCK MOUNTED | QUIT | CASING | LOGGED BY G. Tahan

(DOWN HOLE SURVEY DETAIL IN LOG)

SAMPLE SHEET No.: | ANALYST | DATE:

RUN LOG FROM (m)	TO (m)	LEN (m)	REC (m) %	SIZE	LITHOLOGY FROM (m)	DESCRIPTION
520.5	523.5					
523.5	526.5					
526.5	526.5					See previous page
529.5	529.5					
532.5	532.5				530.5	Cream grey - brick red -pink ferrug. bands of f to cs. pebbly sst.with Kaolinitic matrix. Greenish grey shaley lamin.
535.5	535.5					bands are interbedded locally & exhibit scour & fill & slump structures with some cross bedding
538.5	538.5				537.5	Bands of brick red to pink & whitish grey to buff very fine to coarse gr. predom. ferrug.sst
541.5	541.5					Locally c ferrug.& grey laminated shale showing scour & and. slump
544.5	544.5					patterns
547.5	547.5					A 30cm section shows the shale in and angular congl. form.
					547.5	White to light grey alternating bands of v. fine to cs. sandstone almost congl.in places
550.5	550.5					Large frags. are poorly rounded quartz. Matrix is about 15% clay. Within the section occur interlaminated greenish chlor greyish shaley bands of up to 1cm thick . These constitute about 20% of the section
553.5	553.5				552.7	Predominantly reddish to brown sst with inter laminated reddish brown
556.5	556.5					to grey shale. Sst varies from v. fine to a coarse congl. arkose towards
559.5	559.5					the base - frags are angular up to 2.5cm across and poorly sorted
562.5	562.5					Section is ferrug. with a micaceous felds.and. Kaolinitic matrix
565.5	565.5					

STRUCTURE DEPTH (m)	ANGLES TO C. AXIS BED / CLEAV	OTHER	FACE	ADDITIONAL DESCRIPTION

VEINS & MINERALIZATION DEPTH (m)	DESCRIPTION
	PYRITE - Disseminated and in blebs up to 1cm across constituting <3% of sect.
	PYRITE: As above, but volume is up to 7%
	PYRITE: Disseminated particularly along the cleavage planes of the shale & blebby - up to 1cm across in the sst. Pyrite constitutes up to 3% of the section.
546.5	PYRITE: Dissem. particularly along shale cleavage also dissem & pebbly - up to 1.5cm across in the sst. Pyrite constitutes about 15% of the section.

SAMPLE No	FROM (m)	TO (m)	LEN (m)	REC (m)

052

DRILL CORE LOG

HOLE I.D. WS-1A

CO-ORDS. APPROX 30m NNW OF WS-1 | PLAN-MAP REF: M66 D. No. A01325/1 | DRILLER LONGYEAR | START: | DEPTH: | PAGE 6 OF 6

AZIMUTH | VANGLE VERTICAL | LEVEL: | DRILL L-44 TRUCK MOUNTED | QUIT: | CASING: | LOGGED BY G. Tahan

(DOWN HOLE SURVEY DETAIL IN LOG)

RUN LOG FROM (m)	RUN LOG TO (m)	RUN LOG LEN (m)	RUN LOG REC (m) %	RUN LOG SIZE	LITHOLOGY FROM (m)	LITHOLOGY DESCRIPTION	STRUCTURE DEPTH (m)	STRUCTURE ANGLES TO C. AXIS BED / CLEAV	STRUCTURE ANGLES TO C. AXIS OTHER	STRUCTURE FACE	STRUCTURE ADDITIONAL DESCRIPTION
	565.5										
568.5	568.5										
571.2	571.2										
					573.2	Purple-brown & grey cs. angular congl. constit. predom. ferrug. & chlor. shale & fine sst. frags.					DISCONFORMITY? CALLANA BEDS?
574.3	574.3										
577.4	577.4					Alternating red & grey bands of well laminated flat lying shale.					
					578.2	Predominantly greyish green ?Chloritic & lesser ferrug. bands of shale which is highly contorted					
580.4	580.4										
583.5	583.5					Fragmented (breccia like) locally slumped & scour filled					
586.5	586.5					Simply put -"ONE FINE MESS"					
					587.5	Reddish brown to green congl. breccia? Angular frags.mainly schists, gneiss & argillites varying from 3mm-3cm size					
					588	Brownish red - creamy pink ferrug. fine sst c a conglomeritic band at its base. Frags are angular & constitute material derived from					
					591.3	basement					UNCONFORMITY CARPENTARIAN? ARCHAEAN?
592.2	592.2										
						Very dark grey greenish chlorite & biotite?					
594.5	594.5					Mica schist - sub vertical					
596.5	596.5					schistosity (+80°) with					
596.5	597		100			occasional stringers of quartz & iron along the schist planes					
					597	END OF HOLE					

VEINS & MINERALIZATION DEPTH (m)			DESCRIPTION
578.2			Occasional pyrite & mica specks.

SAMPLE SHEET No.: DATE:
ANALYST

SAMPLE No	FROM (m)	TO (m)	LEN (m)	REC (m)

053

APPENDIX II: MINERALOGICAL REPORT

Pontifex & Associates Pty. Ltd.

TEL. 332 6744
A.H. 31 3816

26 KENSINGTON ROAD, ROSE PARK
SOUTH AUSTRALIA

P.O. BOX 91, NORWOOD
SOUTH AUSTRALIA 5067

055

MINERALOGICAL REPORT NO. 3790

13th August, 1982

TO: Mr. G. Tahan,
Endeavour Resources Ltd.,
G.P.O. Box 524J,
MELBOURNE, Victoria 3001

YOUR REFERENCE: Your letter dated 30/6/82

MATERIAL: Percussion chips

IDENTIFICATION: WS - 6

WORK REQUESTED: Petrological study,
and describe sulphides

SAMPLES & SECTIONS: Returned to you
with this report

PONTIFEX & ASSOCIATES PTY. LTD.

WATSON SIDING:

16 AUG 1982

EAW			GWR	λ	
LJC			DPL		
RGJ			EAP		
GCG			CT		
			MCB		
FCC			GRT		
RNW			JH		

WS - 6 : chips of an in-situ pyrite/marcasite cement, incorporating minor scattered quartz sand grains; probably formed at base of Mesozoic or in a Permian paralic facies

About 20% of the chips were first examined in polished section where they are found to consist mainly of randomly intergrown patches of iron-sulphides, mainly marcasite, with subordinate pyrite. These patches generally have a micromosaic texture, but locally they display a vague scalloped or colloform layering (or zoning), including minor layers of more or less fibrous iron sulphide. Minor ill-defined patches of framboidal pyrite are present, and a breccia texture in some fragments of pyrite/marcaste may be a relict feature, completely replaced by the iron-sulphide.

These variably textured domains of iron-sulphide basically form a cement, which in most chips incorporate numerous subrounded to rounded, translucent, coarse sand-size grains, apparently as a loose-packed aggregate of detrital grains, which were examined in thin section, and all found to be quartz grains. Minor intergranular areas are occupied by clays.

In the light of your field notes, I would interpret these chips to represent a very loose sand, which may be the base of the Mesozoic, or more likely a Permian paralic deposit as you suggest, which has been cemented by iron sulphides in-situ. In other words, the sulphides are not detrital or "derived from the Proterozoic Gawler Block to the east".

APPENDIX III: SAMPLE ANALYSIS

The Australian
Mineral Development
Laboratories

Flemington Street, Frewville,
South Australia 5063
Phone Adelaide 79 1662
Telex AA 82520

Please address all
correspondence to
P.O. Box 114 Eastwood
SA 5063
In reply quote:

058

3/495/2/0 - AC 6093/82

17th June 1982

amdel

NATA CERTIFICATE

21 JUN 1982

GwR	X	
GT	X	

Mr. G. Jahan,
Endeavour Resources,
Endeavour Oil Company N.L.,
G.P.O. Box 524J,
MELBOURNE VIC. 3001

REPORT AC 6093/82

YOUR REFERENCE: Sheet Number: 624

IDENTIFICATION: As listed

DATE RECEIVED: 18th May 1982

D.K. Rowley
Manager
Analytical Chemistry Division

for Norton Jackson
Managing Director

le

Head Office:
Flemington Street, Frewville
South Australia 5063,
Telephone (08) 79 1662
Telex: Amdel AA82520
Pilot Plant:
Osman Place
Thebarton, S.A.
Telephone (08) 43 8053
Branch Laboratories:
Melbourne, Vic.
Telephone (03) 645 3093
Perth, W.A.
Telephone (09) 325 7311
Townsville
Queensland 4814
Telephone (077) 75 1377

ANALYSIS

Moisture Free Basis

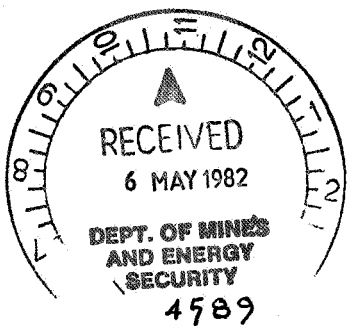
SAMPLE MARK	ASH	VOLATILE MATTER	FIXED CARBON	SPECIFIC ENERGY MJ/Kg
	----------%		----------	
W S 1	82.1	10.6	7.3	3.52
W S 2	90.7	6.6	2.7	1.34
W S 3	66.2	18.8	15.0	7.62
W S 4	76.8	13.3	9.9	4.80
W S 5	79.7	11.7	8.6	4.02
Method:	----------S1----------			S3

APPENDIX IV: GEOPHYSICAL DATA

AN INTERPRETATION REPORT ON GEOPHYSICAL DATA AT WATSON SIDING SOUTH AUSTRALIA

UNDERTAKEN ON BEHALF OF

ENDEAVOUR RESOURCES LTD.



R.K. Jones & Assoc.Pty.Ltd.
5 Rothbury Court,
Wantirna, Vic. 3152.

CONTENTS

1. Introduction.

2. Discussion of Results of Gravity Survey

3. Recommendations Regarding the Coal Potential of the Area.

APPENDIX I.

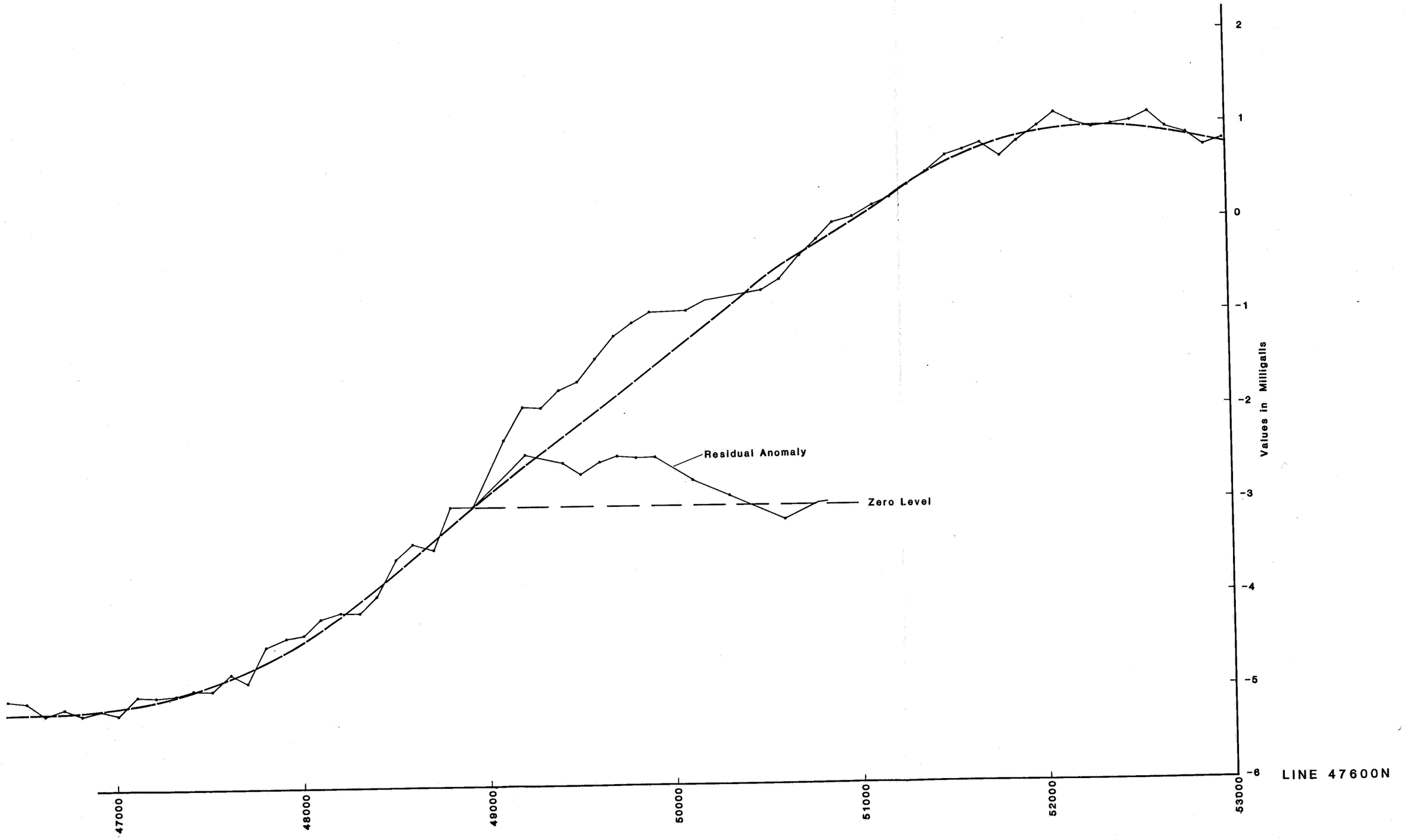
Bouguer Values for Anomaly A Grid Watson Siding.

LIST OF FIGURES.

Figure 1. Gravity Profiles - Anomaly A.

Figure 2. Contour plan of data with residual anomaly.

Figure 3. Regional Geophysical Data.



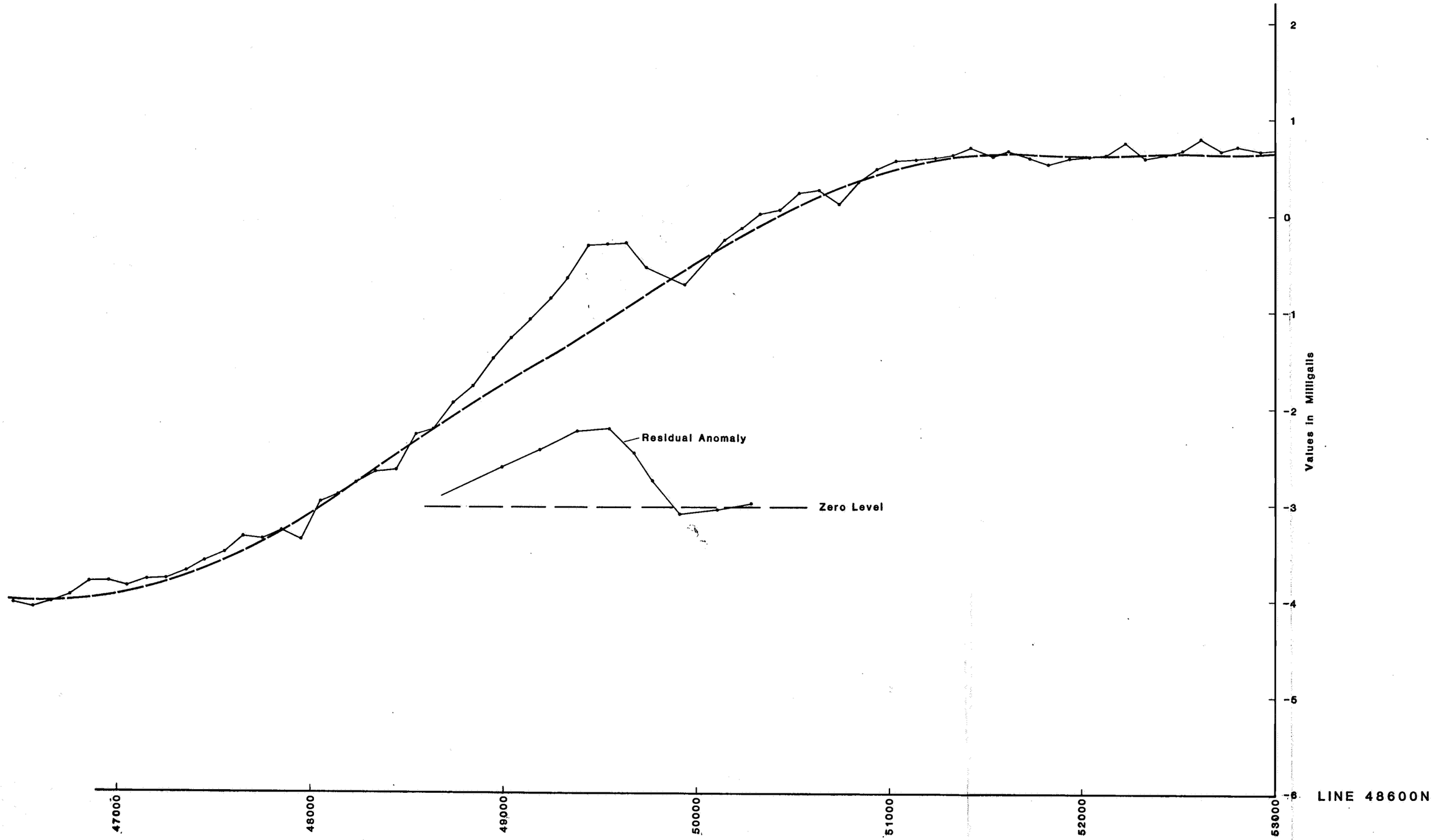
ENDEAVOUR RESOURCES LIMITED
SOUTH AUSTRALIA
EL 946
WATSON SIDING PROJECT

BOUGUER ANOMALY PROFILES

SCALE: 10,000
500 0 500 1000 Metres

AUTHOR: R K. JONES & ASSOCIATES
DATE: AUGUST, 1982

NOTE: Bouguer density Value 2.2gm/cc.



ENDEAVOUR RESOURCES LIMITED
SOUTH AUSTRALIA
EL 946

WATSON SIDING PROJECT

BOUGUER ANOMALY PROFILES

SCALE: 1:10,000

500 0 500 1000 Metres

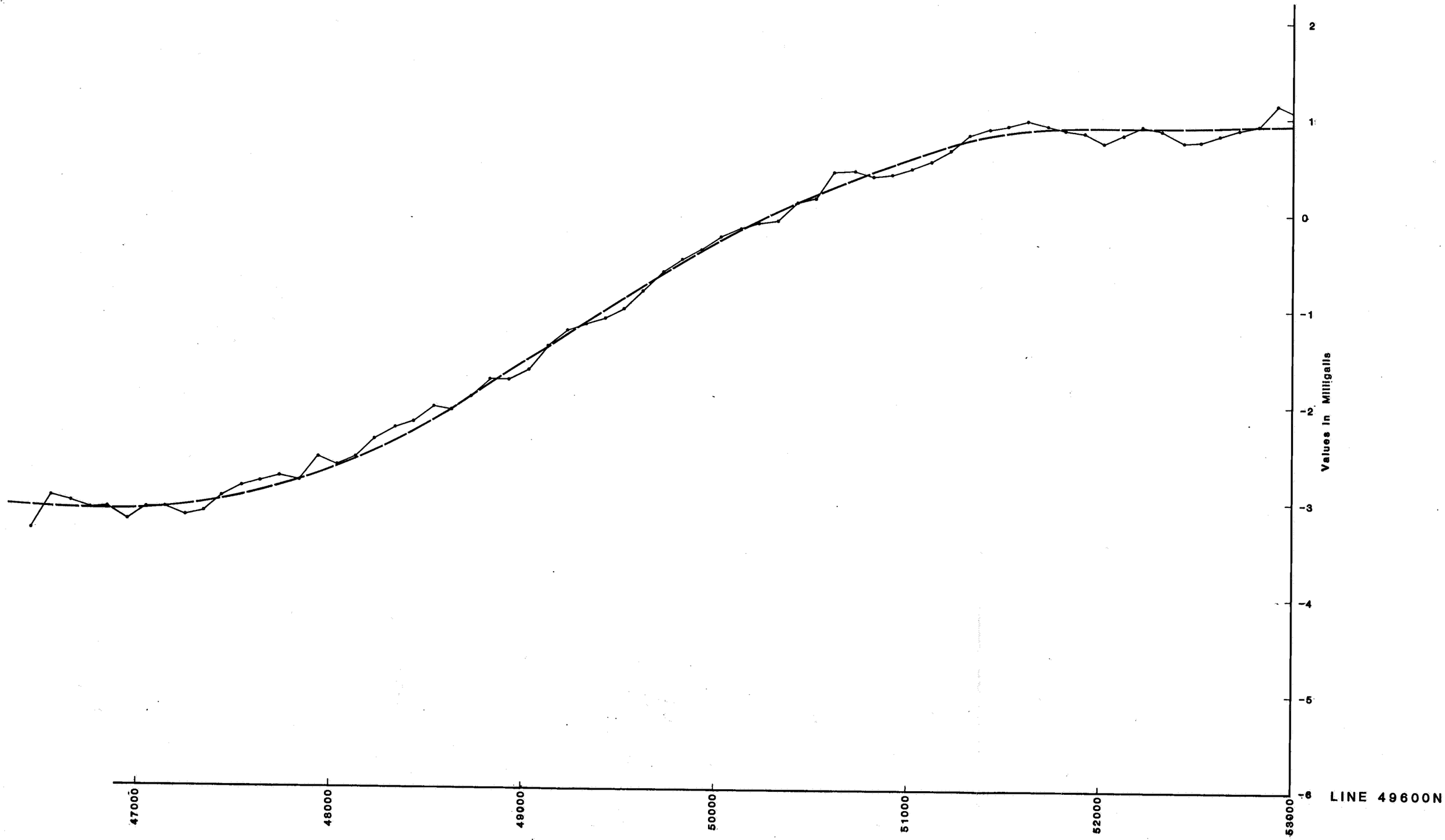
NOTE: Bouguer density Value 2.2gm/cc.

AUTHOR: R K. JONES & ASSOCIATES

DATE: AUGUST, 1982

DRAWING NUMBER: AQ1328

DRAWN BY R L. CONGDON MELB. AUGUST 1982



ENDEAVOUR RESOURCES LIMITED
SOUTH AUSTRALIA
EL 946

WATSON SIDING PROJECT

BOUGUER ANOMALY PROFILES

SCALE: 1:10,000

500 0 500 1000 Metres

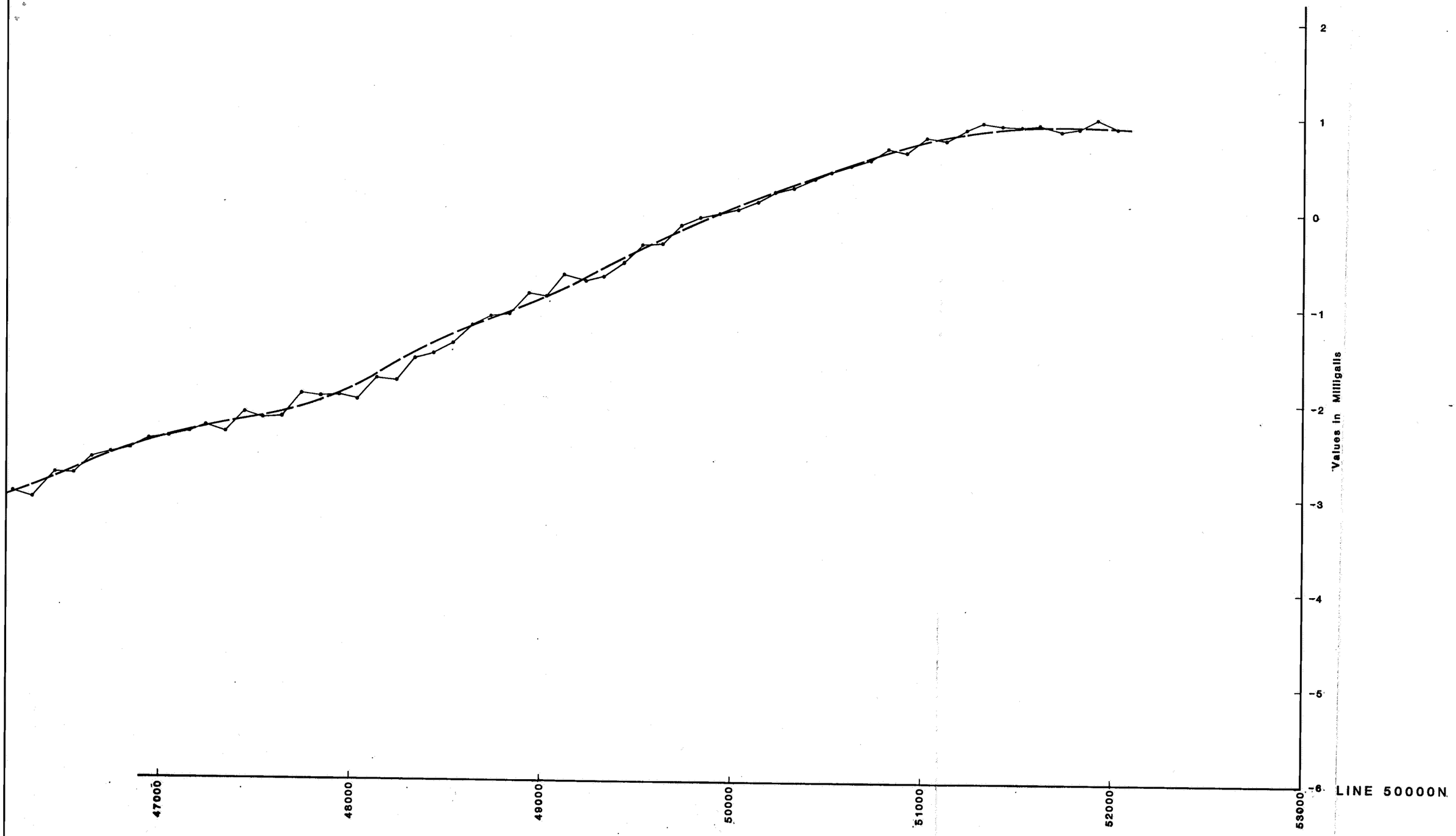
AUTHOR: R K. JONES & ASSOCIATES

DATE: AUGUST, 1982

DRAWING - NUMBER: A01328

DRAWN BY R L. CONGDON MELB. AUGUST 1982

NOTE: Bouguer density Value 2.2gm/cc.



ENDEAVOUR RESOURCES LIMITED
SOUTH AUSTRALIA
EL 946
WATSON SIDING PROJECT

BOUGUER ANOMALY PROFILES

SCALE: 10,000
500 0 500 1000 Metres

AUTHOR: R K. JONES & ASSOCIATES

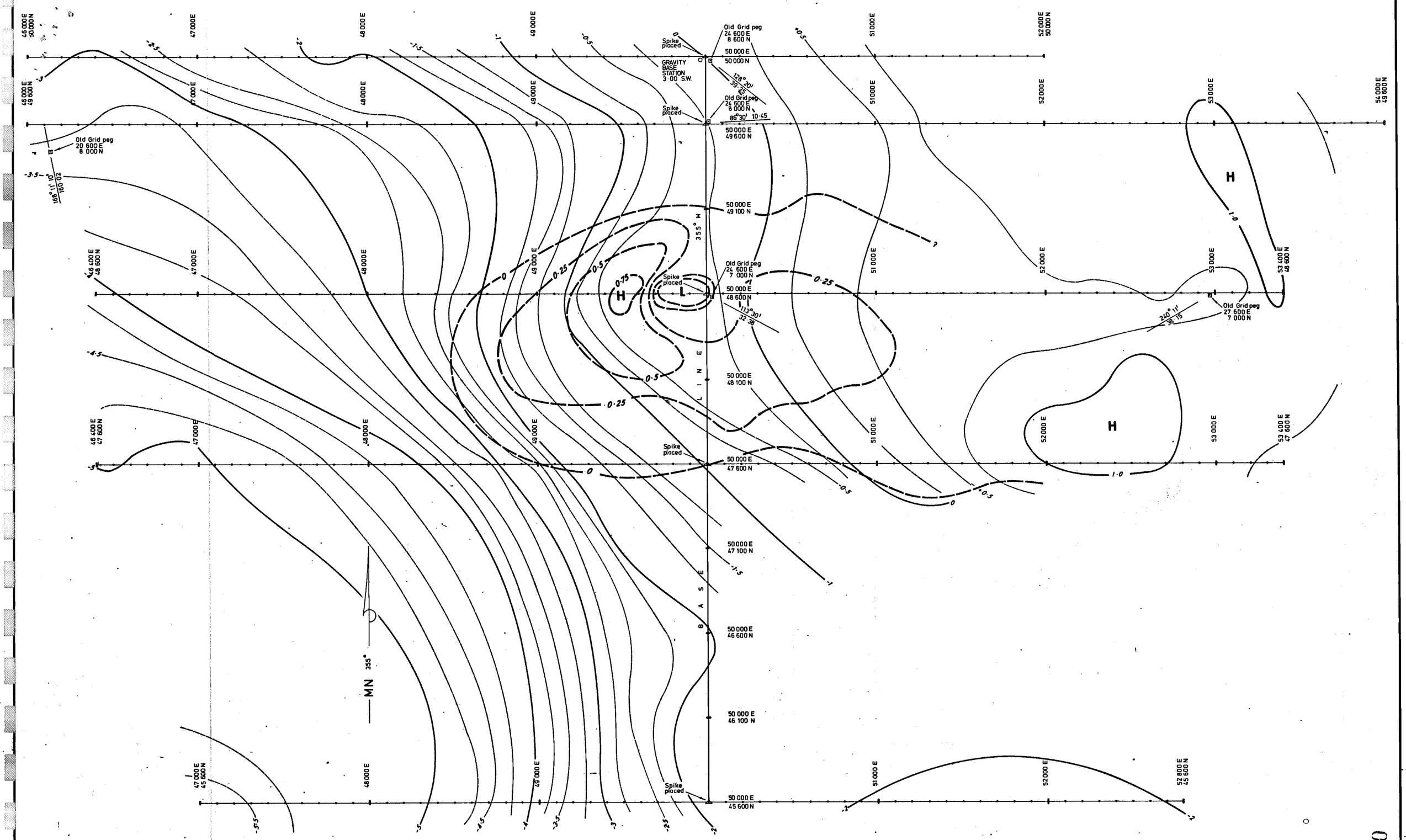
DATE: AUGUST, 1982

DRAWING NUMBER: A01330

NOTE: Bouguer density Value 2.2gm/cc.

DRAWN BY R L. CONGDON MELB. AUGUST 1982

080



No	AMENDMENTS	DATE	BY

COMPILED G.R.B.
DRAWN Q.C.B.
CHECKED
SCALE 10 000

Bradford Exploration Services
73 STATION STREET • SUNBURY • VICTORIA
TEL. (03) 744-4106

ENDEAVOUR RESOURCES LIMITED
SOUTH AUSTRALIA – E.L.946
WATSON SIDING PROJECT

CONTOUR PLAN OF BOUGUER VALUES
(BOUGUER DENSITY VALUE 2.2g c.c)

DRAWING No: A01325/1
REF. No M66
DATED: August, 1982

084

Figure 3

Regional Geophysical Data.

possible embayment area coal potential.

major geological boundary

major fault or lineament.

possible anomalies related to Watson Siding Magnetic Features

+ axes of gravity high

1. INTRODUCTION.

This report summarizes the geophysical programme carried out up to the present time in the Watson Siding Project Area, South Australia.

The initial phaze of the project involved the interpretation of ground magnetic and gravity profiles undertaken by Broken Hill Proprietary Company to delineate a very pronounced aeromagnetic anomaly.

On the basis of the interpretation additional gravity traverses were recommended and this programme was recently completed and the data reduced.

In this report the results of this survey are presented and discussed.

2. DISCUSSION OF RESULTS OF GRAVITY SURVEY.

In the interpretation of the original data acquired by Broken Hill Proprietary Ltd. three anomalies were outlined. Interpreted depths to the source of the anomalies showed anomaly A to be the shallowest at an estimated depth of 360-400m assuming a vertically dipping prismatic body.

A weak 0.8 milligal residual anomaly was outlined by the B.H.P. gravity profiles. The survey comprised one North South profile. In the initial interpretation assuming a thin horizontal sheet as a source (approximatal to an Olympic Dam type target) an estimate of 165m was calculated for the body.

As this inferred a coincident gravity-magnetic anomaly it was recommended that further traversing be undertaken to attempt to define the extent of the body.

Five east-west trending lines were surveyed using a La Coste-Romberg gravity unit. This programme was undertaken by G.R. Bradford on behalf of Endeavour Resources during November-December, 1981. Processing of the data was carried out by R.K. Jones & Associates and the results are listed in Appendix I. Bouguer values were calculated for density values 2.2, 2.4 and 2.67 gm/cc.

The processed results are shown as profiles and as a contour plan at a scale of 1:10,000.

From the profiles and contour plan it can be seen that a strong NNE to SSW gradient is present. This is confirmed by the regional S.A. Department of Mines data.

.../

This regional gradient is related to a major gravity high which will be discussed in a later part of the report. (figure 3)

An attempt has been made to remove the regional data and a residual anomaly calculated.

The residual anomaly has an amplitude of approximately 0.75 milligal which is in relatively good agreement with the previous profile undertaken by B.H.P.

The anomaly is seen to be elongate in an east-west direction and directly coincident with the ground magnetic anomaly.

Central to the anomaly is a localised gravity low. This is interpreted as a major cavity within the overlying limestone horizon.

The eastern margin of the anomaly is poorly defined as the regional trend is complicated within this area. Further profiles have been recommended to rectify this problem.

Further interpretation of the gravity assuming a sheet or dyke-like body of limited strike extent places the source at a depth of the order of 300 metres or greater. This value which should be considered as merely an estimate places the source at an approximately equivalent depth to the magnetic body.

Depth estimates assuming a spherical source places the centre of such a body at a depth of approximately 650 metres. Assuming a density contrast 1.8 gm/cc, assuming a banded iron formation as a source would place the top of the body at approximately 450 metres.

A lower density contrast would place the top of such a body at a shallower depth.

It has been proposed that further gravity work be carried out to better define the anomalous zone.

The results of this preliminary work suggest that the source of the gravity anomaly may be directly associated with the body causing the magnetic anomaly.

Assuming a common source depths to the target are of the order of 350-400 metres. The results of the work to date have shown that the Watson Siding anomalies are not associated with a typical Olumpic Dam type target.

.../

A review of the regional Mines Department data suggests that the anomalies may be related to a similar source to that which produces the linear high amplitude magnetic anomalies along the Karrari Fault. Estimated depths to these anomalies are of the order of 500 metres. Similar magnetic anomalies occur at Maralinga and it is recommended that the core be examined from the borehole at this site to determine whether magnetic basement was intersected.

If the results of the additional gravity traverses prove that the source is at depth comparable to the magnetic body this will determine whether further work should be undertaken at this site.

3. RECOMMENDATIONS REGARDING THE COAL POTENTIAL OF THIS AREA.

The regional gravity and magnetic data shows a clearly defined embayment in the basement east of the Watson Siding magnetic anomalies. In view of the geology of the area and the structural setting potential may exist for coal deposits. As far as is known the area has not been investigated in this regard. The major WNW-ESE trending linear structure is considered to be potentially important in this regard. To the west the results of seismic and oil drilling has shown a complex structural selting including the development of major graben-like structures. It is possible that within the proposed embayment area conditions may have been more stable closer to the margins of the Gawler Craton.

Enquiries are presently in hand to determine the availability and cost of the Mines Department shallow seismic reflection system.

If on geological grounds the area is considered suitable for the development of coal a percussion drilling programme would rapidly assess the potential for shallow coal deposits.

APPENDIX 1

Bouguer Anomaly Values - Watson Siding Anomaly A

N.B Values calculated relative to base station: 50000N/50,000E.

Job No:	Location:	Instrument:	Cal.factor: 1·02413	Operator: G.R.F. RADFORD
Drift -	Base 50000N 50000E	Bouguer Anomaly — Milligals		

Station	Co-ordinates	Elevation	Bouguer Density 2·2	2·4	2·67			Comments
50,000N	46.000 E		-2·90	-2·85	-2·77			
	46,100		-2·98	-2·92	-2·85			
	46,200		-3·00	-2·94	-2·87			
	46,300		-3·04	-2·99	-2·92			
	46,400		-3·82	-3·77	-3·70			
	46,500		-2·83	-2·77	-2·70			
	46,600		-2·54	-2·49	-2·41			
	46,700		-2·58	-2·51	-2·45			
	46,800		-2·54	-2·48	-2·40			
	46,900		-2·43	-2·37	-2·29			
	47,000		-2·41	-2·36	-2·29			
	47,100		-2·37	-2·31	-2·24			
	47,200		-2·28	-2·23	-2·16			
	47,300		-2·36	-2·31	-2·25			
	47,400		-2·15	-2·10	-2·04			
	47,500		-2·30	-2·15	-2·09			
	47,600		-2·20	-2·15	-2·10			
	47,700		-1·94	-1·90	-1·85			
	47,800		-1·98	-1·95	-1·90			
	47,900		-1·96	-1·93	-1·89			
	48,000		-2·01	-1·99	-1·95			
	48,100		-1·76	-1·74	-1·71			
	48,200		-1·80	-1·78	-1·76			
	48,300		-1·59	-1·57	-1·55			
	48,400		-1·52	-1·51	-1·49			
	48,500		-1·42	-1·40	-1·39			
	48,600		-1·22	-1·22	-1·21			
	48,700		-1·12	-1·12	-1·11			
	48,800		-1·12	-1·12	-1·12			
	48,900		-0·87	-0·87	-0·87			

Job No:	Location:	Instrument:	Cal.factor: 1.02413	Operotor:
Drift	Base 500N 500E	Bouguer Anomaly — Milligals		

Station	Co-ordinates	Elevation	Bouguer Density 2.2	2.4	2.67			Comments
500N,	49 000 E		-0.91	-0.91	091			
	49 100		-0.68	-0.67	-0.67			
	49 200		-0.74	-0.74	-0.73			
	49 300		-0.59	-0.59	-0.58			
	49 400		-0.54	-0.53	-0.53			
	49 500		-0.37	-0.37	-0.37			
	49 600		-0.37	-0.37	-0.36			
	49 700		-0.17	-0.17	-0.17			
	49 800		-0.08	-0.08	-0.08			
	49 900		-0.04	-0.04	-0.04			
	50 000	Base	0.00	0.00	0.00			
	50, 100		0.09	0.09	0.09			
	50 200		0.20	0.20	0.20			
	50 300		0.24	0.25	0.26			
	50, 400		0.31	0.31	0.32			
	50 500		0.40	0.40	0.41			
	50 600		0.45	0.45	0.46			
	50, 700		0.51	0.53	0.53			
	50, 800		0.67	0.68	0.70			
	50, 900		0.62	0.64	0.66			
	51, 000		0.77	0.79	0.81			
	51, 100		0.77	0.78	0.81			
	51, 200		0.85	0.87	0.89			
	51, 300		0.96	0.96	0.98			
	51, 400		0.93	0.95	0.97			
	51, 500		0.90	0.91	0.93			
	51, 600		0.91	0.93	0.95			
	51, 700		0.85	0.86	0.88			
	51, 800		0.88	0.90	0.92			
	51, 900		0.99	1.01	1.03			

Job No:	Location:	Instrument:	Cal.factor: [illegible]	Operator: 098
Drift	Base [illegible]			

Station	Co-ordinates	Elevation	Bouguer Anomaly — Milligals Bouguer Density 2·2	[illegible]	[illegible]			Comments
[illegible]	[illegible]		0·90	0·92	0·95			

Job No:	Location:	Instrument:	Cal.factor: [illegible]	Operator: 072
Drift	Base [illegible]	Bouguer Anomaly — Milligals		

Station	Co-ordinates	Elevation	Bouguer Density 2.?	2.??	2.67			Comments
49600N	4? 000 E		-3.61	-3.4?	-3.47			
	[illegible]		-3.??	-3.5?	[illegible]			
	[illegible]		[illegible]	-3.??	-3.34			
	[illegible]		-3.??	-3.2?	-3.??			
	[illegible]		-3.33	-3.??	-3.15			
	[illegible]		-2.99	-2.9?	-2.??			
	[illegible]		-3.08	[illegible]	[illegible]			
	[illegible]		-3.11	-3.05	-2.97			
	[illegible]		-3.10	-3.04	-2.9?			
	[illegible]		-3.??	-3.??	-3.00			
	[illegible]		-3.09	-3.03	-2.95			
	[illegible]		-3.10	-3.04	-2.96			
	[illegible]		-3.16	-3.11	-3.0?			
	[illegible]		-?.1?	-?.0?	-3.0?			
	[illegible]		-?.?5	-2.89	-2.81			
	500		-2.87	-2.8?	-2.73			
	600		-2.8?	-2.??	-2.71			
	700		[illegible]	[illegible]	[illegible]			
	800		-2.81	-2.76	-2.70			
	900		-2.56	-2.51	-2.?5			
	48000		-2.64	-2.60	-2.54			
	100		-2.56	-2.52	-2.47			
	200		-2.37	-2.33	-2.28			
	300		-2.25	-2.22	-2.17			
	400		-2.21	-2.18	-2.14			
	500		-2.05	-2.02	-1.98			
	[illegible]		-2.07	-2.0?	-2.0?			
	[illegible]		-1.92	-1.9?	-1.?7			
	[illegible]		-1.75	-1.73	-1.70			
	[illegible]		-1.79	-1.76	-1.73			

(V)

Job No:	Location:	Instrument:	Cal.factor: 1·02413	Operator: 073
Drift	Base 50000N50000E	Bouguer Anomaly — Milligals		

Station	Co-ordinates	Elevation	Bouguer Density 2·7	2·4	2·67			Comments
49600N	49,000 E		-1·65	-1·63	-1·60			
	49,100		-1·39	-1·37	-1·35			
	49,200		-1·23	-1·21	-1·20			
	49,300		-1·15	-1·15	-1·13			
	49,400		-1·10	-1·09	-1·08			
	49,500		-1·02	-1·02	-1·01			
	49,600		-0·82	-0·81	-0·81			
	49,700		-0·61	-0·60	-0·58			
	49,800		-0·48	-0·47	-0·46			
	49,900		-0·38	-0·37	-0·37			
	50,000		-0·24	-0·24	-0·25			
	50,100		-0·16	-0·15	-0·14			
	50,200		-0·10	-0·09	-0·08			
	50,300		0·07	0·08	0·10			
	50,400		0·13	0·13	0·14			
	50,500		0·17	0·18	0·20			
	50,600		0·45	0·46	0·48			
	50,700		0·46	0·48	0·49			
	50,800		0·40	0·42	0·44			
	50,900		0·43	0·45	0·47			
	51,000		0·48	0·50	0·52			
	51,100		0·56	0·58	0·61			
	51,200		0·67	0·69	0·72			
	51,300		0·83	0·85	0·88			
	51,400		0·87	0·89	0·93			
	51,500		0·94	0·92	0·97			
	51,600		0·98	1·00	1·03			
	51,700		0·92	0·94	0·97			
	51,800		0·89	0·90	0·93			
	51,900		0·88	0·89	0·97			

Job No:	Location:	Instrument:	Cal.factor: 1·02413	Operator:
Drift	Base 50000N 50000E	Bouguer Anomaly — Milligals		

Station	Co-ordinates	Elevation	Bouguer Density 2.2	2.4	2.67			Comments
49600	52000		0·78	0·80	0·83			
	52100		0·83	0·85	0·88			
	52200		0·94	1·01	1·05			
	52300		0·90	0·93	0·97			
	52400		0·75	0·78	0·81			
	52500		0·79	0·82	0·86			
	52600		0·86	0·89	0·93			
	52700		0·91	0·94	0·98			
	52800		0·95	0·97	1·03			
	52900		1·17	1·20	1·25			
	53000		1·10	1·13	1·19			
	53100		0·95	0·99	1·04			
	53200		0·98	1·02	1·07			
	53300		0·97	1·01	1·07			
	53400		0·79	0·82	0·88			
	53500		0·86	0·89	0·98			
	53600		0·75	0·80	0·87			
	53700		0·69	0·75	0·82			
	53800		0·63	0·68	0·75			
	53900		0·36	0·42	0·51			
	54000		0·52	0·58	0·66			

Job No:	Location:	Instrument:	Cal.factor: 1·02413	Operator:
Drift	Base 50000N 15000E	Bouguer Anomaly — Milligals		

Station	Co-ordinates	Elevation	Bouguer Density 2·2	2·4	2·67			Comments
48 600N	46,400		-4·01	-3·95	-3·87			
	46,500		-4·07	-4·01	-3·94			
	46,600		-4·00	-3·90	-3·87			
	46,700		-3·90	-3·84	-3·81			
	46,800		-3·80	-3·74	-3·67			
	46,900		-3·77	-3·71	-3·63			
	47,000		-3·84	-3·78	-3·70			
	47,100		-3·80	-3·75	-3·67			
	47,200		-3·78	-3·72	-3·64			
	47,300		-3·70	-3·64	-3·56			
	47,400		-3·59	-3·53	-3·45			
	47,500		-3·49	-3·43	-3·35			
	47,600		-3·33	-3·28	-3·20			
	47,700		-3·35	-2·29	-3·22			
	47,800		-3·26	-3·21	-3·13			
	47,900		-3·36	-3·30	-3·22			
	48,000		-2·96	-2·91	-2·83			
	48,100		-2·88	-2·83	-2·76			
	48,200		-2·74	-2·69	-2·62			
	48,300		-2·65	-2·60	-2·53			
	48,400		-2·64	-2·58	-2·51			
	48,500		-2·25	-2·20	-2·13			
	48,600		-2·20	-2·15	-2·08			
	48,700		-1·92	-1·87	-1·81			
	48,800		-1·75	-1·70	-1·63			
	48,900		-1·47	-1·42	-1·35			
	49,000		-1·25	-1·20	-1·14			
	49,100		-1·07	-1·03	-0·96			
	49,200		-0·83	-0·78	-0·72			
	49,300		-0·64	-0·59	-0·53			

Job No:	Location:	Instrument:	Cal.factor: 1.02413	Operator:
Drift	Base 50000N 50000E	Bouguer Anomaly — Milligals		

Station	Co-ordinates	Elevation	Bouguer Density 2.2	2.4	2.67			Comments
48600N	49,400		-0.28	-0.24	-0.17			
	49,500		-0.27	-0.38	-0.37			
	49,600		0.27	-0.31	-0.37			
	49,700		0.51	-0.55	-0.62			
	49,800		0.64	-0.60	-0.75			
	49,900		-0.72	-0.75	-0.87			
	50,000		-0.79	-0.83	-0.88			
	50,100		-0.22	-0.19	-0.11			
	50,200		-0.09	-0.05	0.01			
	50,300		0.05	0.09	0.15			
	50,400		0.08	0.12	0.17			
	50,500		0.26	0.30	0.35			
	50,600		0.30	0.33	0.38			
	50,700		0.12	0.16	0.21			
	50,800		0.39	0.42	0.47			
	50,900		0.52	0.55	0.60			
	51,000		0.61	0.65	0.70			
	51,100		0.61	0.64	0.69			
	51,200		0.64	0.67	0.72			
	51,300		0.65	0.68	0.73			
	51,400		0.77	0.81	0.87			
	51,500		0.66	0.70	0.76			
	51,600		0.70	0.74	0.80			
	51,700		0.64	0.68	0.73			
	51,800		0.57	0.62	0.67			
	51,900		0.65	0.69	0.75			
	52,000		0.65	0.70	0.76			
	52,100		0.67	0.71	0.77			
	52,200		0.79	0.83	0.89			
	52,300		0.64	0.68	0.74			

Job No:	Location:	Instrument:	Cal.factor: 1·C2413	Operator: 104
Drift	Base 50000N 50000E	Bouguer Anomaly — Milligals		

Station	Co-ordinates	Elevation	Bouguer Density 2.2	2.4	2.6			Comments
48600 N	52 400 E		0·70	0·75	0·81			
	52 500		0·71	0·76	0·83			
	52 600		0·83	0·88	0·94			
	52 700		0·74	0·78	0·84			
	52 800		0·75	0·80	0·85			
	52 900		0·71	0·75	0·82			
	53 000		0·70	0·74	0·81			
	53 100		0·63	0·68	0·75			
	53 200		0·80	0·86	0·93			
	53 300		1·04	1·10	1·18			
	53 400		0·93	0·99	1·07			
48100 N	50 000 E		−0·33	−0·27	−0·20			

Job No:	Location:	Instrument:	Cal.factor: 1·02413	Operator:
Drift	Base 50000N 50000E	Bouguer Anomaly — Milligals		

Station	Co-ordinates	Elevation	Bouguer Density 2·2	2·4	2·67			Comments
47600N	46400 E		-5·00	-5·46	-5·39			
	46500		-4·98	-4·93	-4·87			
	46600		-5·16	-5·11	-5·03			
	46700		-5·11	-5·05	-4·98			
	46800		-5·17	-5·12	-5·05			
	46900		-5·12	-5·07	-5·00			
	47000		-5·18	-5·13	-5·06			
	47100		-4·98	-4·93	-4·85			
	47200		-4·98	-4·93	-4·86			
	47300		-4·95	-4·90	-4·82			
	47400		-4·91	-4·85	-4·78			
	47500		-4·94	-4·90	-4·83			
	47600		-4·75	-4·70	-4·64			
	47700		-4·83	-4·78	-4·70			
	47800		-4·45	-4·39	-4·32			
	47900		-4·35	-4·30	-4·22			
	48000		-4·32	-4·26	-4·19			
	48100		-4·16	-4·11	-4·04			
	48200		-4·08	-4·03	-3·97			
	48300		-4·10	-4·06	-4·01			
	48400		-3·91	-3·88	-3·83			
	48500		-3·52	-3·48	-3·43			
	48600		-3·36	-3·32	-3·26			
	48700		-3·43	-3·37	-3·30			
	48800		-2·99	-2·94	-2·87			
	48900		-2·99	-2·93	-2·85			
	49000		-2·58	-2·52	-2·45			
	49100		-2·76	-2·20	-2·12			
	49200		-1·92	-1·86	-1·78			
	49300		-1·93	-1·87	-1·79			

Job No:	Location:	Instrument:	Cal.factor: 1·02413	Operator:
Drift	Base 50000N 50000E	Bouguer Anomaly — Milligals		

Station	Co-ordinates	Elevation	Bouguer Density 2.2	2.4	2.67			Comments
47600N	49400E		-1.73	-1.67	-1.59			
	49500		-1.65	-1.59	-1.51			
	49600		-1.41	-1.35	-1.26			
	49700		-1.17	-1.11	-1.03			
	49800		-1.03	-0.97	-0.88			
	49900		-1.91	-0.85	-0.77			
	50,000							
	50,100		-0.93	-0.87	0.79			
	50,200		-0.78	-0.72	-0.64			
	50,300		-0.82	-0.77	-0.70			
	50,400		-0.74	-0.70	-0.64			
	50,500		-0.72	-0.68	-0.63			
	50,600		-0.60	-0.56	-0.52			
	50,700		-0.35	-0.32	-0.28			
	50,800		-0.17	-0.15	-0.12			
	50,900		0.01	0.03	0.06			
	51,000		0.09	0.11	0.13			
	51,100		0.20	0.22	0.24			
	51,200		0.28	0.30	0.32			
	51,300		0.41	0.43	0.45			
	51,400		0.54	0.56	0.59			
	51,500		0.71	0.73	0.76			
	51,600		0.78	0.80	0.83			
	51,700		0.86	0.88	0.91			
	51,800		0.69	0.71	0.74			
	51,900		0.87	0.90	0.93			
	52,000		1.04	1.07	1.11			
	52,100		1.17	1.20	1.23			
	52,200		1.10	1.13	1.17			
	52,300		1.02	1.05	1.09			

Job No:	Location:	Instrument:	Cal.factor:1·02413	Operator: 107
Drift	Base 50000N 50000E	Bouguer Anomaly — Milligals		

Station	Co-ordinates	Elevation	Bouguer Density 2·2	2·4	2·6			Comments
47600N	52,400		1·03	1·06	1·11			
	52,500		1·05	1·08	1·13			
	52,600		1·18	1·22	1·27			
	52,700		1·00	1·04	1·10			
	52,800		0·95	1·00	1·06			
	52,900		0·82	0·86	0·93			
	53,000		0·90	0·95	1·01			
	53,100		0·82	0·87	0·94			
	53,200		0·75	0·81	0·89			
	53,300		0·69	0·75	0·83			
	53,400		0·62	0·68	0·76			

Job No:	Location:	Instrument:	Cal.factor: 1·02413	Operator:
Drift	Base 50000N 50000E	Bouguer Anomaly — Milligals		

Station	Co-ordinates	Elevation	Bouguer Density					Comments
45,600N	47,000		-5.70	-5.67	-5.64			
	47,100		-5.68	-5.65	-5.62			
	47,200		-5.64	-5.61	-5.57			
	47,300		-5.64	-5.60	-5.55			
	47,400		-5.24	-5.20	-5.14			
	47,500		-5.24	-5.19	-5.13			
	47,600		-5.17	-5.12	-5.06			
	47,700		-5.03	-4.98	-4.91			
	47,800		-5.04	-4.99	-4.93			
	47,900		-4.94	-4.89	-4.83			
	48,000		-4.97	-4.93	-4.86			
	48,100		-5.08	-5.03	-4.96			
	48,200		-5.08	-5.02	-4.95			
	48,300		-5.02	-4.96	-4.87			
	48,400		-5.98	-4.92	-4.83	-5.03	*	
	48,500		-4.95	-4.88	-4.79			
	48,600		-4.81	-4.75	-4.66			
	48,700		-4.64	-4.58	-4.49			
	48,800		-4.36	-4.30	-4.21			
	48,900		-4.10	-4.03	-3.94			
	49,000		-3.92	-3.86	3.76			
	49,100		-3.59	-3.52	-3.42			
	49,200		-3.37	-3.30	-3.20			
	49,300		-3.18	-3.11	-3.01			
	49,400		-2.94	-2.87	-2.77			
	49,500		-2.72	-2.65	-2.55			
	49,600		-2.58	-2.51	-2.41			
	49,700		-2.39	-2.32	-2.22			
	49,800		-2.26	-2.18	-2.08			
	49,900		-1.12	-1.04	-0.94			

Job No:	Location:	Instrument:	Cal.factor: 1·02413	Operator: 109
Drift	Base 50000N 15000E	Bouguer Anomaly — Milligals		

Station	Co-ordinates	Elevation	Bouguer Density 2·2	2·4	2·6			Comments
45600N	50,000		-1·89	-1·81	-1·71			
	50,100		-1·88	-1·81	-1·72			
	50,200		-1·86	-1·79	-1·70			
	50,300		-1·95	-1·89	-1·79			
	50,400		-1·94	-1·88	-1·79			
	50,500		-1·90	-1·83	-1·73			
	50,600		-1·83	-1·76	-1·66			
	50,700		-1·87	-1·79	-1·69			
	50,800		-1·96	-1·88	-1·79			
	50,900		-2·05	-1·98	-1·88			
	51,000		-2·20	-2·13	-2·03			
	51,100		-2·23	-2·16	-2·06			
	51,200		-2·39	-2·31	-2·22			
	51,300		-2·58	-2·51	-2·41			
	51,400		-2·59	-2·52	-2·42			
	51,500		-2·43	-2·35	-2·25			
	51,600		-2·47	-2·39	-2·28			
	51,700		-2·41	-2·33	-2·22			
	51,800		-2·39	-2·31	-2·22			
	51,900		-2·41	-2·33	-2·22			
	52,000		-2·35	-2·28	-2·17			
	52,100		-2·35	-2·28	-2·17			
	52,200		-2·27	-2·19	-2·09			
	52,300		-2·30	-2·22	-2·11			
	52,400		-2·23	-2·15	-2·04			
	52,500		-2·24	-2·16	-2·05			
	52,600		-2·11	-2·07	-1·96			
	52,700		-2·15	-2·07	-1·96			
	52,800		-2·13	-2·04	-1·93			
47100N	50 000		-1·71	-1·65	-1·57			

XV

Job No:	Location:	Instrument:	Cal.factor: 1·02413	Operator: 110
Drift	Base 50000N 50000	Bouguer Anomaly — Milligals		

Station	Co-ordinates	Elevation	Bouguer Density 2·2	2·4	2·67			Comments
46600N	50 000 E		-2.14	-2.08	-2·01			
46100N	50 000 E		-1.85	-1·78	-1·69			

ENDEAVOUR RESOURCES LIMITED

090

QUARTERLY REPORT
EL 996/EL 946
PERIOD ENDED 11/10/82

INTRODUCTION

EL 946 was taken out to explore for a large scale deep metalliferous ore body of the Olympic Dam style. The area encompassed the interesting magnetic anomalies and gravity signatures. Subsequently EL 996 was also taken out to cover peripheral sections of the geophysical targets.

ACTIVITIES

No exploration activity has occurred in these tenements during the period.

The single deep drill hole in Licence 946 targeted on the most interesting coincident geophysical anomaly was abandoned in August at 597 metres without intersecting any base metal mineralisation.

A review of the drilling results in relation to the regional geology and geophysical information indicated that the area was in fact not favourable for locating the ore-body style sought.

Work on Licence 996 was contingent on results obtained in the adjacent Licence 946. In view of the negative results the programme of proposed exploration was cancelled.

FORWARD PROGRAMME

Since expenditure commitments have been satisfied for these tenements we propose to relinquish both areas as per the covering letter.

ENDEAVOUR RESOURCES LIMITED
16TH DECEMBER 1982