Open File Envelope No. 3838

EL 620

WOORONG

PROGRESS AND FINAL REPORTS FOR THE PERIOD 21/4/80 TO 19/3/82

Submitted by
Afmeco Pty Ltd
1982

Enquiries: Customer Services
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101 Grenfell Street, Adelaide 5000

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

PRIMARY INDUSTRIES AND RESOURCES SA

CONTENTS ENVELOPE 3838 — EL. NO. 620

TENEMENT: Exploration Licence No. 620

TENEMENT HOLDER: Afmeco Pty. Ltd.

AFMECO PTY. LTD.

11-13 Lucknow Place, West Perth, Western Australia
P.O. Box 526, West Perth, Western Australia, 6005
Telephone: (09) 321 9618, 321 9681
Telex: AFMECO 92077 Perth

PPA/ds 80-2350

003

12th August, 1980

Director-General,
Department of Mines and Energy,
P.O. Box 151,
EASTWOOD SA 5063

Dear Sir,

EXPLORATION LICENCE 620 - WOORONG
QUARTERLY REPORT 21.4.80 to 20.7.80

There has been no field work on this Licence as yet.

There was no expenditure for the quarter.

Yours faithfully,
AFMECO PTY LTD.

J.-P. POGGI,
Managing Director.

AFMECO PTY. LTD.
11-13 Lucknow Place, West Perth, Western Australia
P.O. Box 526, West Perth, Western Australia, 6005
Telephone: (09) 321 9618, 321 9681
Telex: AFMECO 92077 Perth

004

TL/ds 80-3446

18th November, 1980

Director-General,
Department of Mines and Energy,
P.O. Box 151,
EASTWOOD SA 5063

Dear Sir,

Exploration Licence 620 - Woorong
Quarterly Report 20.7.80 to 19.10.80

No field work was carried out during the period. A contract has been let for aerial magnetic surveying, which is scheduled for early December.

Expenditure for the quarter was $1,220.75 as per the attached Schedule.

Yours faithfully,
AFMECO PTY LTD.

J.-P. POGGI,
Managing Director

Enc.1

STATEMENT OF EXPENSES RELATING TO EXPLORATION
PROGRAMME QUARTER ENDING 20.7.80 to 19.10.80

PERSONNEL (FIELD WORK, EVALUATION, OFFICE WORK)	$ 499.27
MATERIAL (DIRECT)	1.10
TRAVEL, ACCOMMODATION (DIRECT)	29.63
CONTRACTS, SUPPLIES	
DRAFTING SERVICE, PREPARATION OF REPORTS & MISCELLANEOUS	632.62
MANAGEMENT/OVERHEADS	58.13
	$1,220.75

AFMECO PTY. LTD.
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006

ENV 3838

JPP:kt 81-657 23rd February, 1981

The Director General,
Department of Mines & Energy,
P.O. Box 151,
EASTWOOD, S.A. 5067

Dear Sir,

EXPLORATION LICENCE 621 & 620 No.
QUARTERLY REPORT 20.10.80 - 20.1.81

During December approximately 1200 km and 1500 km respectively of low level high resolution aerial magnetic surveys were flown by Aerodata Services Pty. Ltd.

Processing is now well under way and presentation is expected in the coming period. It is anticipated that from the information obtained an air core drilling programme will follow mid year.

Details of this exercise will be advised in due course.

Expenditure for the quarter is shown as per attached schedule.

Yours faithfully,
AFMECO PTY LTD.

J.-P. Poggi,
Managing Director

ENCL: 1

PROJECT NO: 620

007

STATEMENT OF EXPENSES RELATING TO EXPLORATION PROGRAMME QUARTER ENDING 21.10.80 - 20.1.81

Personnel (Field Work, Evaluation, Office Work)	1,136.44
Material (Direct)	3.03
Travel, Accommodation (Direct)	336.02
Contracts, Supplies	10,602.66
Drafting Service, Prep. of Report	707.36
& Miscellaneous	
Management/Overheads	639.28
	$13,424.79

008

AFMECO PTY. LTD.

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P.O. Box 526, West Perth, Western Australia, 6005
Telephone: (09) 321 9618, 321 9681
Telex: AFMECO 92077 Perth

TL/tnb 81-3115

21st April, 1981

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

Dear Sir,

Exploration Licence 620
Progress Report 21.10.80 to 20.4.81

An aerial radiometric and magnetic survey over this area was completed in January and the data is currently being processed. Follow-up ground magnetics are now under way in preparation for a scout drilling programme due to take place in late May and early June.

As this is planned mainly to obtain information on bedrock geology, we ask the Department's permission to drill on sites adjacent to existing roads and tracks. Unfortunately, with this type of exercise, it is not possible to pinpoint exact drill sites except for where an anomaly exists. These sites will be submitted for approval prior to drilling.

Expenditure for this period is shown as per the attached schedule.

Yours faithfully,
AFMECO PTY. LTD.

J.-P. POGGI
Manag[illegible] Director

encl. schedule

PROJECT NO 137 009

STATEMENT OF EXPENSES RELATING TO EXPLORATION

PROGRAMME QUARTER ENDING 21.10.80 TO 20.1.81

Personnel (Field Work, Evaluation, Office Work)		1,136.44
Material (Direct)		3.03
Travel, Accommodation (Direct)		336.02
Contracts, Supplies		10,602.66
Drafting Service, Preparation of Reports and Miscellaneous		707.36
Management/Overheads		639.28
	$	13,424.79

STATEMENT OF EXPENSES RELATING TO EXPLORATION 010

PROGRAMME EL. 620 QUARTER 21-1-81 TO 20-4-81

Personnel (Field Work, Evaluation, Office Work)		119.38
Material (Direct)		0.47
Travel, Accommodation (Direct)		8.34
Contracts, Supplies		7097.02
Drafting Service, Prep. of Reports & Miscellaneous		757.47
Management/Overheads		399.13
	$	8381.81

AFMECO PTY. LTD.
11-13 Lucknow Place, West Perth, Western Australia
P.O. Box 526, West Perth, Western Australia, 6005
Telephone: (09) 321 9618, 321 9681
Telex: AFMECO 92077 Perth

011

TL/tb 81-4747

23rd September, 1981,

The Director General,
Department of Mines and Energy,
P.O. Box 151,
EASTWOOD, S.A. 5063

Dear Sir,

Re : Exploration Licence 620
Progress Report 21/4/81 - 20/7/81

During this quarter a scout drilling programme was conducted using the aircore system with the capability of obtaining a diamond core sample of the bedrock.

Four holes were drilled in an attempt to study the basement geology. The overburden proved to be far thicker than predicted and severe drilling problems were encountered due to the inflow of poorly consolidated sandstone.

Expenditure for this period is shown as per the attached schedule but it should be noted that the full cost of drilling has not yet been shown but will be included in our next quarterly report.

Yours faithfully,
AFMECO PTY. LTD.

P.D.

J.-P. POGGI
Managing Director

Encl.

STATEMENT OF EXPENSES RELATING TO EXPLORATION PROGRAMME :

E.L. 620 Quarter 21/4/81 to 20/7/81

Personnel (Field Work,Evaluation,Office Work)	2,224.46
Material (Direct)	329.19
Travel, Accommodation (Direct)	1,005.81
Contracts, Supplies	7,750.87
Drafting Service, Prep. of Reports and Miscellaneous.	1,585.94
Management/Overheads	644.81
	$ 13,541.08

AFMECO PTY. LTD.

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Telephone: (09) 321 9618, 321 9681
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013

MQ/pz 81-5606 December 16, 1981

The Director General
Department of Mines and Energy
PO Box 151
EASTWOOD SA 5063

Dear Sir,

Mining Act 1971 to 1978
Exploration Licence No. 620
2nd Quarter Report, Year 2
Period 21/7/81 to 20/10/81

During the period covered by this report, the following work has been carried out by Afmeco Pty Ltd:-

1. Drilling

To test basement geology, four aircore/diamond holes were drilled in the exploration licence, total aggregate depth 872 metres. In all holes, severe drilling problems occurred near the 100 metre depth level, where an inflow of poorly consolidated sandstone hampered drilling.

Although gravity, seismic and magnetic surveys indicated a shallow depth to basement, the Permian and Recent aged overburden were much deeper than expected. This suggests the possibility that a denser, faster and more magnetic layer within the Permian maybe simulating basement contrasts. An andesitic tuff, for example could record similar characteristics as those given by basement rocks.

Of the four holes drilled only one intersected basement which consisted of acid gniess of the Mulgathing Complex

014

2. Results

The test drilling demonstrated that the Exploration Licence is partially underlain at depth by a basement unfavourable to this type of study.

Please find enclosed for your information and retention a statement of expenditure covering the period of this report.

Yours faithfully,
AFMECO PTY LTD

J.-P. Poggi
Managing Director

Enc.

STATEMENT OF EXPENSES RELATING TO EXPLORATION PROGRAMME
EL 620 QUARTER 21-7-81 to 20-10-81

Personnel (Field work, evaluation, office work)	6,387.86
Material (Direct)	2,224.59
Travel, Accommodation (Direct)	3,652.40
Contracts, Supplies	30,835.32
Drafting Service, Preparation of Report and Miscellaneous	861.85
Management/Overheads	2,198.10
	$46,160.12

Commitment: $55,000

Permit Year Ends: 20.4.82

AFMECO PTY. LTD.

11-13 Lucknow Place, West Perth, Western Australia
P.O. Box 526, West Perth, Western Australia, 6005
Telephone: (09) 321 9618, 321 9681
Telex: AFMECO 92077 Perth

F. 016

MQ/ds 82-0500

25th February, 1982

The Director General,
Department of Mines and Energy,
P.O. Box 151,
EASTWOOD S.A. 5063

Dear Sir,

Mining Act 1971 to 1978
Exploration Licence No. 620
3rd Quarter Report, Year 2
Period 21.10.81 to 20.1.82

During the period covered by this report no field or office work was carried out in respect of the above-mentioned tenement.

However, we do enclose an expenditure statement showing the amount spent to date in regard to exploratory programme on this licence.

Yours faithfully,
AFMECO PTY LTD

J.-P. POGGI,
Managing Director

Encl.:

STATEMENT OF EXPENSES RELATING TO EXPLORATION PROGRAMME
E.L. 620 QUARTER 21.10.81 to 20.1.82

	$
PERSONNEL (FIELD WORK, EVALUATION, OFFICE WORK)	Nil
MATERIAL (DIRECT)	Nil
TRAVEL, ACCOMMODATION (DIRECT)	Nil
CONTRACTS, SUPPLIES	Nil
DRAFTING SERVICES, PREP. OF REPORTS & MISCELLANEOUS	Nil
MANAGEMENT/OVERHEADS	Nil
	$ Nil

Permit Year Ends: 20.4.82

Total Expenditure Reported to Date: $59,701.20

Commitment: $55,000.

52
~~033~~

AFMECO PTY. LTD.

11-13 Lucknow Place, West Perth, Western Australia
P.O. Box 526, West Perth, Western Australia, 6005
Telephone: (09) 321 9618, 321 9681
Telex: AFMECO 92077 Perth

MQ/lk 82-0785

6th April, 1982

The Director General,
Department of Mines and Energy,
P.O. Box 151,
EASTWOOD SA 5063

Dear Sir,

Mining Act 1971 to 1978
Exploration Licence No. 620
4th Quarter Report, Year 2
Period 21.1.82 to 19.3.82

We refer to our letter MSQ/ds 82-0612, dated 15th March, 1982, concerning the proposed surrender of exploration licence No. 620.

As prescribed by the Mining Act and regulations, whilst awaiting final permission to be granted for surrender, Afmeco Pty. Ltd. has continued to monitor both work and expenditure relevant to this tenement.

During this quarter, work carried out has centred on the collation and finalisation of completion reports due in respect of the exploration licence.

We enclose for your information and retention, an expenditure statement relevant to this period. You will note than an amount of $1295.68 has been deducted from the expenditure total. This represents an adjustment for a contract overcharge. Total expenditure during the one year term of this licence amounted to $60,579.48, some $5,579.48 in excess of the $55,000 commitment.

Yours faithfully,
AFMECO PTY. LTD.

J.-P. POGGI
Managing Director

Encl.

STATEMENT OF EXPENSES RELATING TO EXPLORATION PROGRAMME

WORRONG EL 620 PERIOD 21.1.82 to 19.3.82

PERSONNEL (FIELD WORK, EVALUATION, OFFICE WORK)	868.25
MATERIAL (DIRECT)	25.46
TRAVEL, ACCOMMODATION (DIRECT)	524.60
CONTRACTS, SUPPLIES	(1 295.68) *
DRAFTING SERVICE & PREPARATION OF REPORTS & MISCELLANEOUS	713.83
MANAGEMENT/OVERHEADS	41.82
	$878.28

* Adjustment on Contracts

Permit Year Ends	20.4.82
Total Expenditure Reported to date	$60,579.48
Commitment	$55,000

AFMECO PTY LTD

018

WHYALLA BASE

Report No WY 81.9

FINAL REPORT ON WOORONG EXPLORATION PROJECT

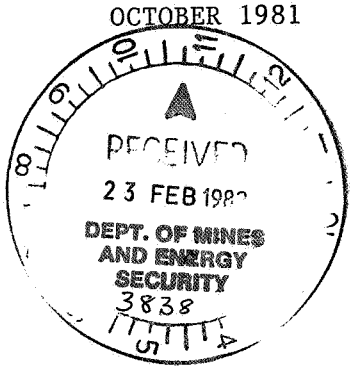
by

Y. BLADIER

WHYALLA

Ref: 81-4

OCTOBER 1981



EV-019

CONTENTS

FIGURES

APPENDICES

PLATES

I. INTRODUCTION

I.1 LOCATION AND ACCESS (Fig.1)

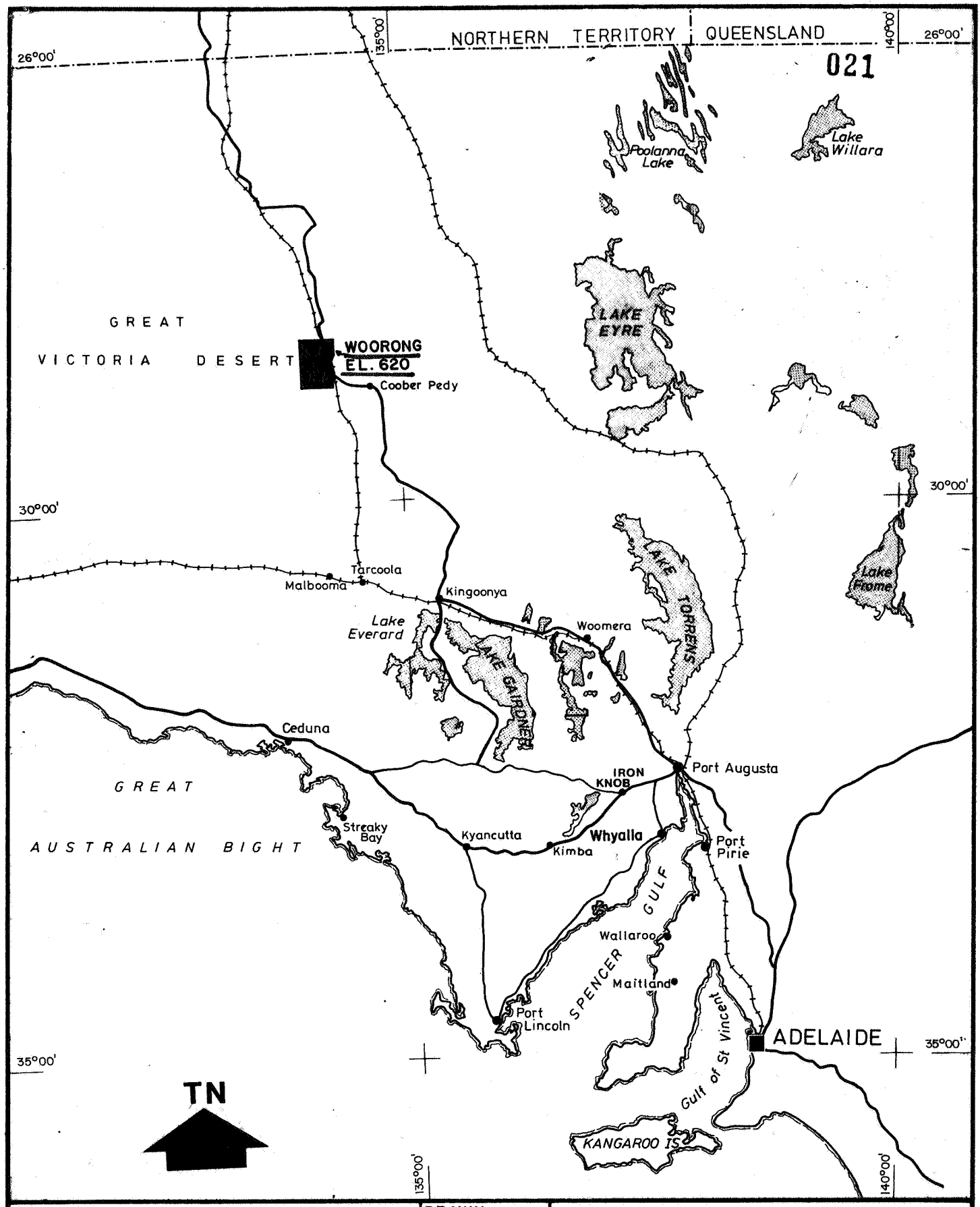
The area covered by EL 620 lies within the MURLOOCOPPIE 1:250,000 Topographical sheet, access is easy; the Stuart Highway and the new Tarcoola to Alice Springs railway line, run across the EL in a north south direction. The topography is flat and the vegetation cover comprises mainly grasses and shrubs. Telephone, food and fuel are available at Coober Pedy, located 40 km in a westerly direction.

I.2 PREVIOUS WORK

Regional work was carried out by Brown (1905) and Jack (1915 and 1931). Recent regional studies include Forbes (1961) and Rochow (1963). A recent programme of mapping was carried out from 1972 to 1974 by L.C. Barnes and G.M. Pitt who published in 1978 the Murloocoppie 1:250,000 geological map.

Aeromagnetic data over the sheet area has been compiled by the Geophysical Services Section of the South Australian Department of Mines from surveys by Delhi International (Aeroservices Corporation, 1961), on behalf of the Department of Mines and Exoil N.L. Total magnetic intensity map coverage is available at a scale of 1:250,000 with a contour interval of 50 gammas. Refer also to the Total Magnetic Intensity Map of the State at a scale of 1:1,000,000 (Frith 1976). The 1:250,000 gravity map is available from the B.M.R.

Detailed seismic investigations have been conducted over much of the Arckaringa Basin (Milton, 1964a and 1964b) with resultant basement contoured interpretations being reported by Milton (1969a, 1972 and 1973). Preparatory-seismic lines were shot for the drilling of stratigraphic wells SADME Karkaro 1 and Mount Furner 1; although the wells themselves were located on the basis of gravity data.



DRAWN	R.P.S.
DATE	MAY, 1981
GEOLOGY	
APPROVED	
DWG. No	SH53-2.137.4107
REV	1

AFMECO PTY. LTD.

SCALE 1:5000000 — 0 50 100 150 200 250 Kms

WOORONG PROJECT

SOUTH AUSTRALIA

LOCATION MAP

To Accompany Report No. WY 81.9

Figure 1

One recent practical application of the regional gravity surveys stemmed from the recognition of the Mabel Creek and Coober Pedy basement highs and their probable presence as little as 30m beneath the surface.

These were subsequently investigated to detect areas of near-surface basement rocks as potential sources of aggregate for the Tarcoola-Alice Springs Railway, using shallow seismic techniques (Nelson, 1971a and 1971b).

A small number of exposures of Mirackina Conglomerate, within the exhumed Mirackina Palaeochannel, were examined for radioactivity and rare anomalous counts were recorded. Although untested, these were regarded as being due to detrital radioactive minerals, as any secondary uranium mineralisation in the largely eroded Mirackina Palaeochannel would have been removed by leaching.

I.3 AIM

The tenement was selected to investigate the geology of the Gawler Craton over an area where gravity data suggests a basement uplift. Two possible models were envisaged for this area.

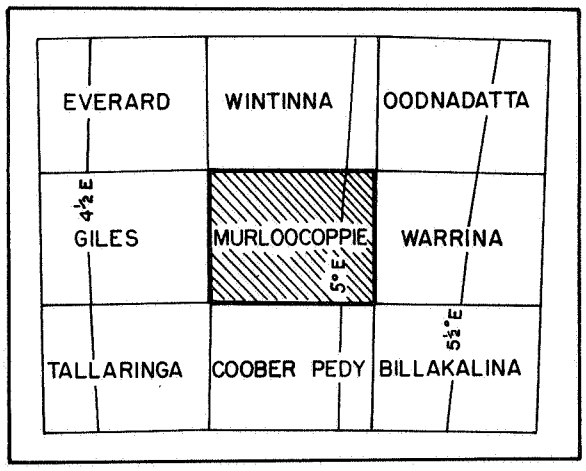
First: The Mabel Creek basement high could fit the Cu - U - Au Roxby Downs model of deposit because of a similar structural setting on the side of the Gawler Craton associated with a basement high.

Second: The east Alligator River uranium model could be envisaged if the Hutchison group with uranium potential is still present in the northern part of the craton.

I.4 GEOLOGICAL SETTING

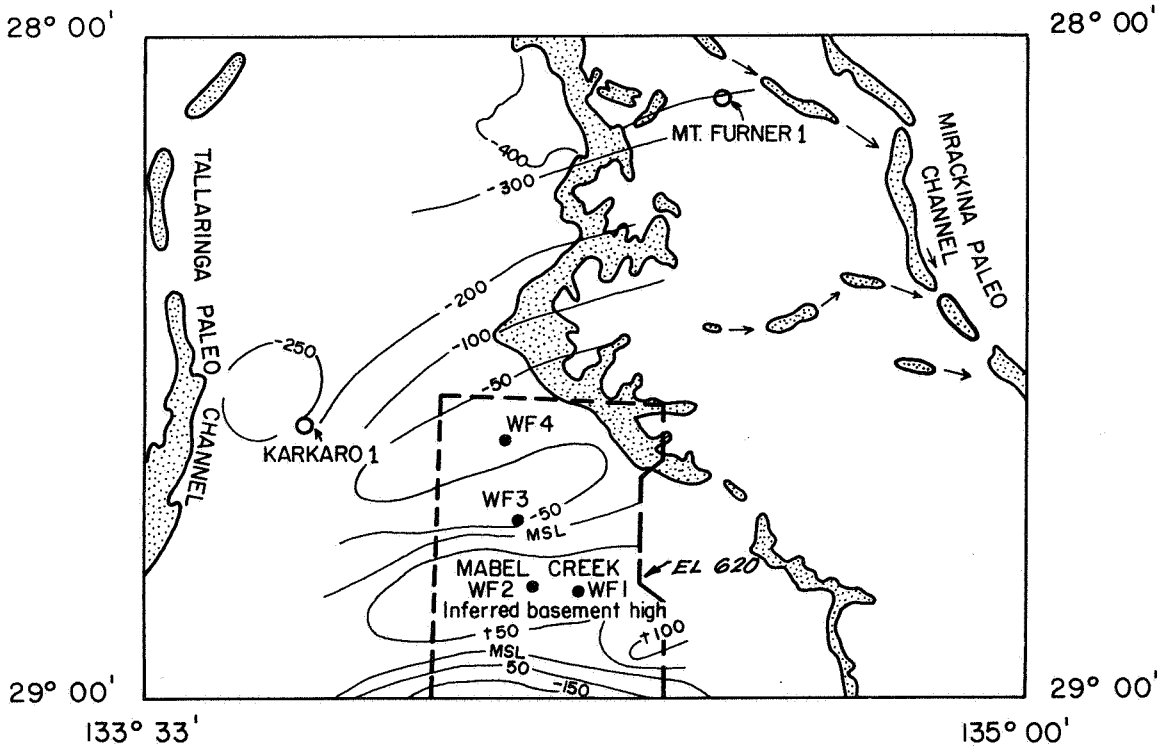
Only early Cretaceous and Cainozoic units occur in outcrop on MURLOOCOPPIE. Older rocks, specifically the late Jurassic of the Great Artesian Basin, the Permian of the Arckaringa Basin and the precambrian crystalline basement are present in the subsurface and have been intersected in Department of Mines (SADME)stratigraphic wells Karkaro 1 and Mount Furner 1 (figure 2).

INDEX TO ADJOINING SHEETS
MAGNETIC Declination 1970



MURLOOCOPPIE MAP

STRUCTURAL SKETCH



To Accompany Report No. W.Y. 81·9 *Figure 2*

LEGEND

	Tertiary
——-50	Basemement isobath (sea level)
KARKARO O 1.	S.A.D.M.E. Stratigraphic Drillhole
WF4 ●	AFMECO Drillhole
— — —	E. L. Boundary

DRAWN	N.C.
DATE	JAN. '82
COMPILED	Y. Bladier Nov. '81
APPROVED	Isdell
DWG. Nº	SH53-2.137.4108
REV.	

AFMECO PTY. LTD.

SCALE: Diagrammatic

WOORONG PROJECT : S. AUST.
E.L. 620

STRUCTURAL SKETCH OF
THE MURLOOCOPPIE MAP SHEET

SADME Karkaro 1 and Mount Furner 1 entered granitic and gneissic basement at 472m and 549m respectively. These basement rocks represent the northern extremity of the Gawler Craton. A five-sample Rb-Sr isochron was obtained from Mount Furner 1 giving an age of 1525 $\pm$ 99 Ma. This age corresponding to the Kimbian orogeny means that gneisses very similar to those of the Mulgathing Complex have been reworked.

Pre-tertiary sediments on MURLOOCOPPIE represent portions of two major, largely undeformed, superimposed, sedimentary basins overlying the crystalline basement of the Gawler Craton. These are the permian Arckaringa Basin and the mesozoic Great Artesian Basin.

The overall configuration of the Arckaringa Basin consists of a central platform area, within which MURLOOCOPPIE is situated, surrounded on the north eastern and northern, eastern and southern sides by deeper troughs: the Wintinna, Boorthanna, Phillipson and Wallira Troughs respectively. The whole basin is some 200 to 300km across.

Over most of the central platform area of the Arckaringa Basin, permian sediments rest directly on basement, and are generally flat-lying and undeformed except where locally disturbed by faulting, as at Mount Toondina, on OODNADATTA.

In the Mabel Creek area, the Marble Creek 'high' is expected to form a basement ridge over which permian is probably absent. In the north eastern and north western corners of the MURLOOCOPPIE sheet, the basement deepens towards the Wintinna and Boorthanna Troughs. (?) Devonian dolomite (the Cootanoorina Formation) is confined to these two troughs.

Unconformably overlying the Arckaringa Basin sediments are those of the Great Artesian Basin. Again, these units are virtually flat-lying and undeformed. In the Giddi Giddinna/Oolgelima area, however dips of 3-5 degrees were recorded on outcropping sands and shales of the unnamed transitional unit. These dips outline a gentle west-plunging anticline, which exploratory drilling and structural contouring (Mason, 1975b) show to be part of a dome.

The comparative lack of weathering of units exposed within the anticline, and dips recorded on surrounding gypsite crusts suggest that the structure is quite young and post-dates the most recent phase of deep weathering.

A major lineament, which forms an extension of the Karari Fault, extends from eastern TALLARINGA to Lake Eyre North, traversing the south eastern corner of MURLOOCOPPIE. This feature is visible on LANDSAT-1 imagery and is apparent on preliminary geological sheets of the area. It also has a pronounced effect on water quality in the Giddi Giddinna Creek due to enhanced local recharge (Mason 1975b).

The earliest Tertiary event of importance to the region was the deposition of the late Paleocene to Eocene Eyre Formation and its subsequent silicification probably during the Oligocene. The next identifiable Tertiary event was a major fluvial phase involving erosion of the cretaceous rocks and previous silcrete and the deposition of the Mirackina Conglomerate within an extensive drainage system. A phase of silcrete formation postdated this fluvial phase.

Quaternary deposits are formed by massive crystalline gypsum crust and red brown clayey sand overlapped by present day aeolian dune sands.

II. WORK COMPLETED

II.1 AEROMAGNETIC SURVEY (P1.1 - PP.2)

A detailed aeromagnetic survey has been flown over the western portion of the area, the aeromagnetic specification was a line spacing of 250 metres, a survey altitude of 200 metres mean terrain clearance and an instrument cycling time of 0.5 secs. The survey covered a surface of 351 km^2.

II.2 INTERPRETATION OF MAGNETIC DATA (Fig 3)

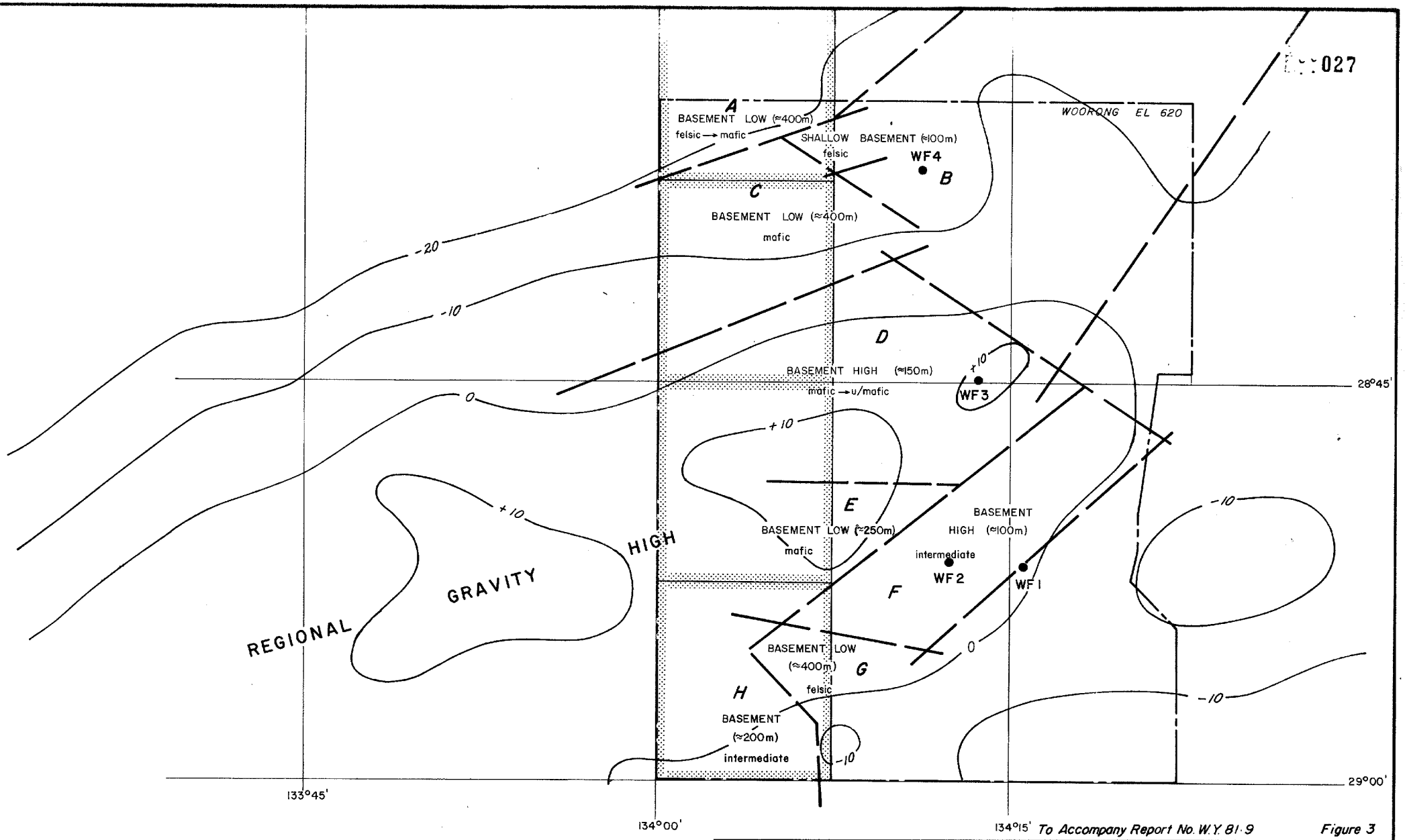
By calculating depths from the stacked profiles of the magnetic data a contour map of basement depths has been drawn. The identification of strike and dip of geological faults and contacts has enabled a structural map to be drawn. Amplitude of magnetic anomalies was used for estimating magnetic susceptibilities and thus giving a guide to the composition of the basement rocks.

II.3 DRILL PROGRAMME

To test the magnetic interpetation, 4 holes totalling 874m were drilled by the contractor Wallis Drilling Co Pty Ltd using aircore and diamond systems. Drilling commenced on 1/7/81 and finished on 11/7/81. Several drilling problems were encountered mainly due to running sand and very hard silcrete and pyrite beds.

II.4 PROBING OF DRILL HOLES

The holes were logged through the drill rods from a portable Mount Sopris Unit. Gamma count was recorded and presented on a single analog chart. No electric log was carried out due to caving in of open hole.



To Accompany Report No. W.Y. 81-9 Figure 3

LEGEND

+10 Gravity Contours

Fault

EL Boundary

1:25,000 Sheet Layout

● WF4 AFMECO Drillhole Location and Number

N

NOTE : This map is summary plan of the 4 x 1:25,000 maps. Compiled from MURLOOCOPPIE 1:250,000 Sheet.

DRAWN	J.A.M. & K.M.T.
DATE	APRIL 1981
GEOLOGY	G. ELLIOTT
APPROVED	
DWG Nº	SH 53-2.137 3254
REV	JAN. '82

AFMECO PTY. LTD.

SCALE 1:250,000 2 0 2 4 6 8 10km

GAWLER BLOCK - S. AUST
WOORONG EL 620
GEOPHYSICAL INTERPRETATION SUMMARY AND DRILL HOLE LOCATIONS

II.5 SAMPLING AND ANALYSIS OF DRILL HOLES

Samples were taken every metre and duplicates were consigned in clear plastic vials for permanent record. Some samples were sent for base metal pathfinders and background radiometric analysis. When it was possible a piece of core of basement was sent for petrology and full silicate analysis.

II.6 RECLAMATION OF DRILL HOLES

No groundwater was encountered in the drill holes. In accordance with the general specification of the SADME Hydrology Department the holes were filled with the remaining samples.

III. RESULTS

III.1 GEOLOGY

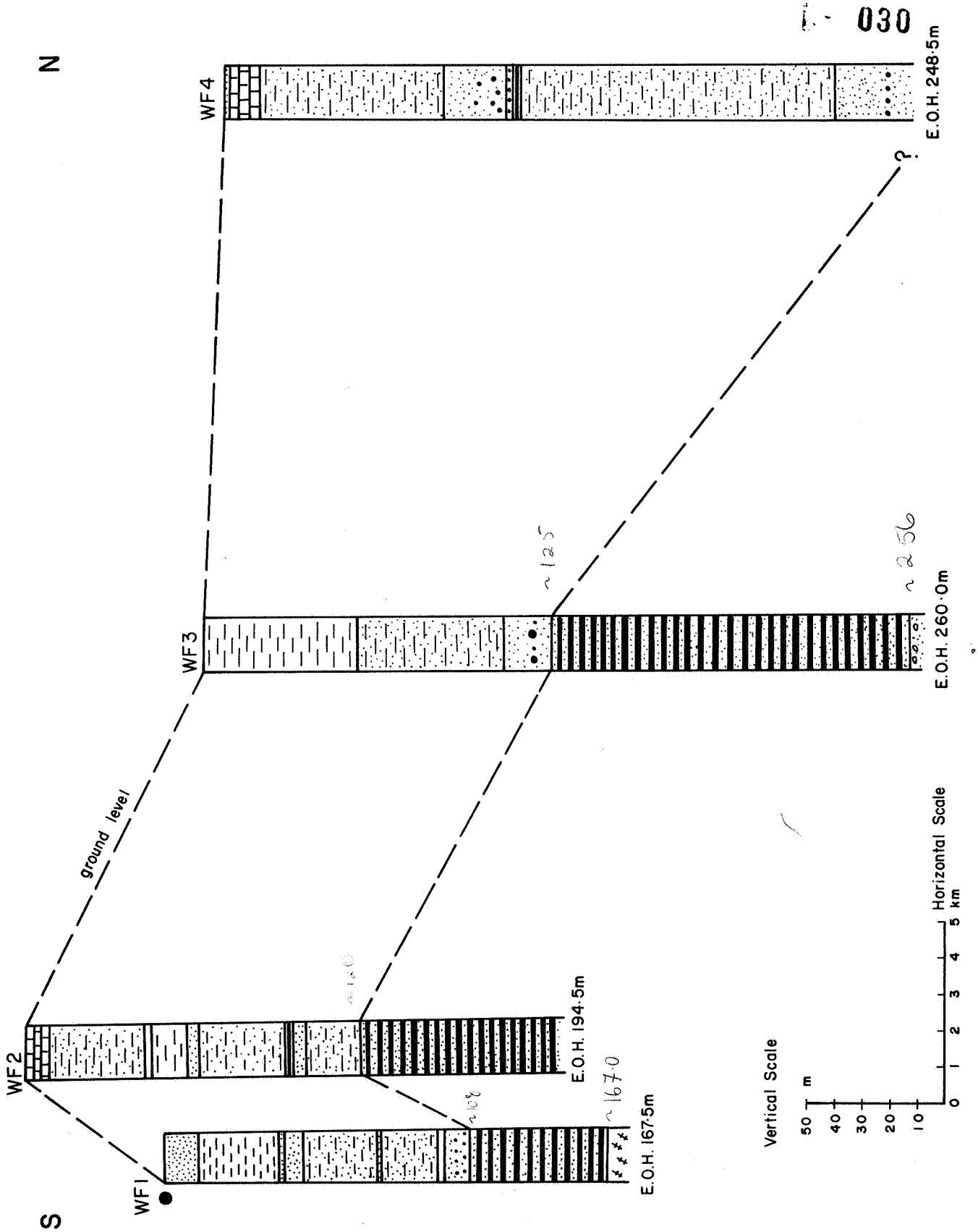
By comparison with the SADME stratigraphic drill holes Karkaro 1 it appears that in the four drill holes, TW 1 to TW 4, the main sedimentary sequence intercepted corresponds to permian sediments of probable Artinskian age. The upper unit of this sequence is composed of interbedded, very fine grained sandstones and siltstones and very fine level of coal and pyritic sandstones. This sequence overlaps a second unit of carbonaceous shales which end with a pebbly to cobbly unit. Both units have a thickness ranging from 150 to 250m in Hole WF1 to WF3. It appears that in Hole WF4 only the upper unit has been intercepted and this means that the basin is deepening from Hole WF1 to WF4 (Figure 4).

Basement rocks of the Gawler Craton have been intercepted only in Hole TW1 at 165.5 metres depth. The other holes have been abandoned before reaching the basement because of drilling problems and the basement was probably out of the capacity of the drilling machine.

III.2 DISCUSSION

This drilling programme shows that the geophysical interpretation from the railway seismic survey, the gravity survey, and our own mag interpretation are wrong. Basement is much deeper than expected. The geophysical interpretations gave a depth estimate ranging from 50 to 100m. The geological drill shows that the minimum depth is 165m and generally above 250m.

A cross section between our drill results and the SADME stratigraphic hole projection shows clearly that the basement is deeper than expected by any geophysical method (Fig.3). The reason for this general error is not explained but the existence of the Mabel Creek basement high is very doubtful. From the recognised basement high at Drill Hole CPB7 south west of Coober Pedy, the depth of the Gawler Craton is regularly increasing in a northerly direction.



To Accompany Report No. W.Y. 81·9 *Figure 4*

LEGEND

- calcrete
- fine grained sandstone
- coarse grained sandstone
- claystone
- fine grained sandstone interbedded with claystone
- fine grained sandstone interbedded with carbonaceous shale
- basement

DRAWN	N.C.
DATE	JAN. '82
COMPILED	Y. Bladier. Aug.'81
APPROVED	
DWG. No	SH53-2.137.4114
REV.	

AFMECO PTY. LTD.

SCALE As Shown

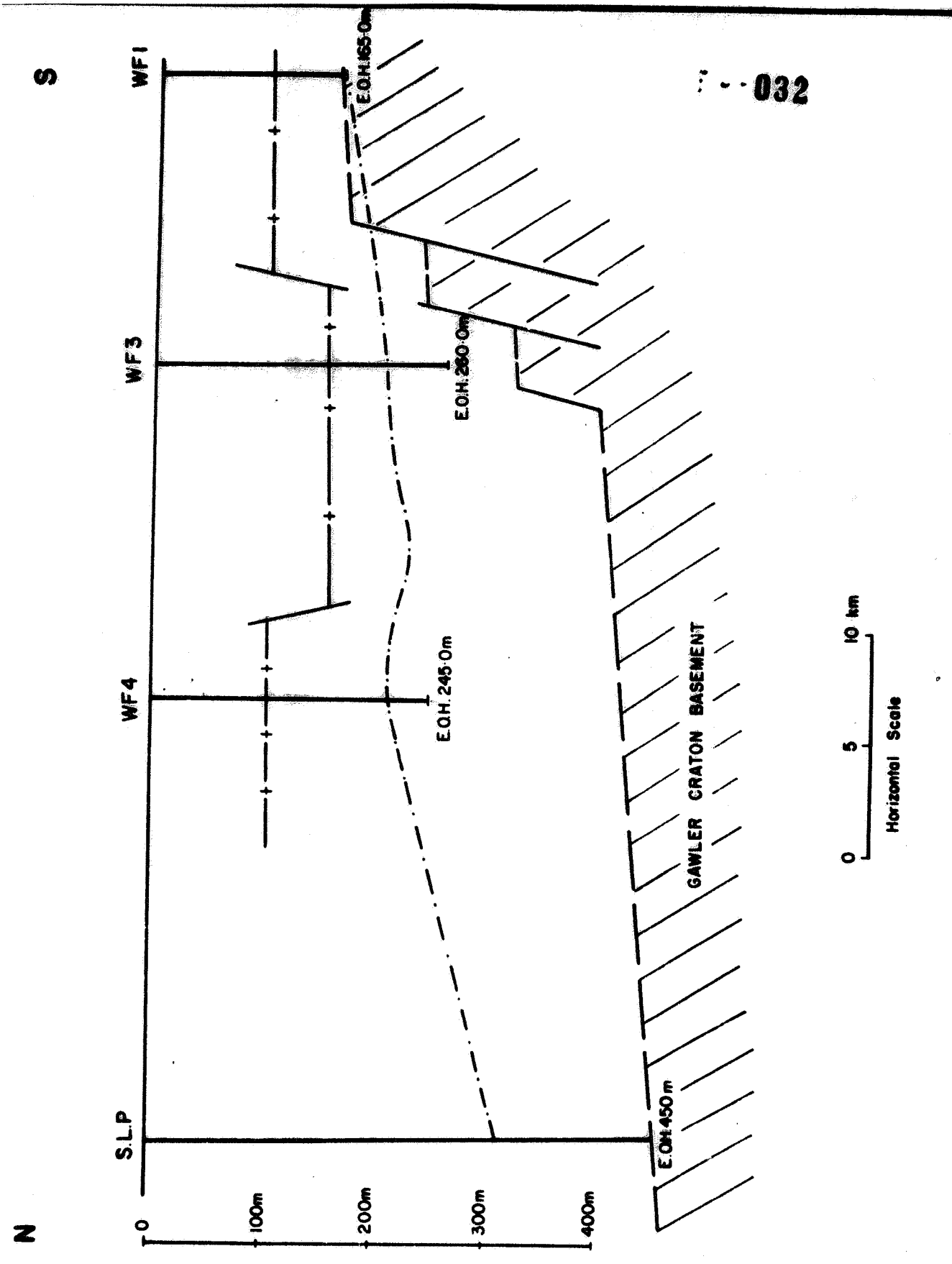
WOORONG PROJECT - S. AUST.

E. L. 620

CORRELATION BETWEEN DRILL HOLES

This increase can be sometimes accentuated by normal step fault. The Mabel Creek basement high does not fit with this model and probably does not exist, it could be just considered as a narrow shelf no deepeer than 200m between the Gawler Craton and the Great Artesian Basin (Figure 3).

The basement rocks are part of the Mulgathing Complex and have no interest for uranium. No radioactivity and a lack of oxidation process condemn also the sedimentary sequence for uranium exploration. A fine level of coal shows that the EL is on the border, but too far away, of a possible coal basin. At this stage the EL has to be relinquished or farmed out.



To Accompany Report No. W.Y. 81·9. *Figure 5*

LEGEND

- South Australia Department of mine interpretation
- AFMECO Geophysicist interpretation
- AFMECO Geologist interpretation

DRAWN	N.C.
DATE	JAN. '82
COMPILED	Y. Bladier. Aug. '81
APPROVED	
DWG. No	SH53-2.137.4115
REV.	

AFMECO PTY. LTD.

SCALE: As Shown

WOORONG PROJECT - S. AUST.

E.L. 620

INTERPRETATIONS OF DEPTH TO THE BASEMENT

APPENDIX 1

033

DRILL LOGS

APPENDIX 1

Drill Logs: WF 1
WF 2
WF 3
WF 4

APPENDIX 2

PETROLOGY

DRILL HOLE WF 1 - DEPTH 168.8

80/1541

HAND SPECIMEN: Biotite garnet feldspar gneiss.

THIN SECTION: Biotite garnet feldspar quartz gneiss.

Plagioclase	Major.
Biotite	Major.
Quartz	Major to Minor.
Potash feldspar	Major to Minor.
Opaques	Minor.
Garnet	Minor.
Chlorite	Accessory.
Muscovite	Accessory.
Zircon	Accessory.
(Sericite).	

This is a banded magnetic gneiss, containing two feldspars, major quartz, biotite and minor garnet. The banding is due to layers of biotite tending to alternate with quartzo-feldspathic layers. K feldspar bands are separated from garnet layers, etc. Thus, the gneiss has a marked heterogeneous character making determination of origin difficult. The texture is heteroblastic, due partly to the biotite confinement of feldspar grain size. The plagioclases reach 2 mm. in non-mica zones, contrasting 0.2 mm. in mica layers. The feldspar is poorly twinned, and may show extensive sericitization. R.I. tests indicate oligoclase.

Quartz is normally elongated, in the 0.5 - 1 mm. range and exhibits fairly marked deformation extinction. The K feldspar is typically xenoblastic, with microperthite texture, and a little myrmekite against oligoclase. The biotite is fresh, with a pale yellow to deep brown pleochroic scheme. It frequently contains fine nucleii of ? zircon with halos. The occasional garnets, of half millimetre dimensions, are partially replaced by a non-oriented green biotite (yellow-green to olive-green pleochroism): this colour is usually due to a high ferric iron content. This replacement is accompanied by fine opaques, ? magnetite.

/con't ..2

80/1541 (cont'd)

The main ore content is closely associated with biotite, and crystals of 0.5 mm. dimensions with idioblastic habit are common.

Zircon is the only accessory seen in the slide, most are rounded and below 50 micron dimensions. There is evidence of metamict condition.

The presence of significant magnetite and garnet, plus the banding favours a para-gneiss.

DRILL HOLE WF 4 - DEPTH 163.8

80/1545

HAND SPECIMEN: Sulphide-rich core.

POLISHED SECTION:

Pyrite

Ilmenite.

The sulphide is entirely pyrite, occurring as matrix to about 50% by volume of silicate crystals of relatively uniform sizing, as shown in photograph.

The pyrite probably forms a tightly packed aggregate of relatively small grains, suggested by irregular cracks. It is entirely fresh.
Amongst the inclusions, there are occasional ilmenites, some partially leucoxenized.

APPENDIX 3

DRILL SAMPLE ANALYSIS

ANALABS
(Australia) Pty. Ltd.

ANALYTICAL DATA

REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
2.0.01.20781	13.10.81		4 OF

Row No.	SAMPLE No.	Th	U	Drill	Qty Rec'd
	80/1541	7	4	WF1	168.8
17	80/1542	25	4	WF2	156
	80/1543	25	×	WF4	87.6
19	80/1544	15	×	1	164
	80/1545	10	×	1	163.8
22					
	DETECTION	4	3		
24	DIGESTION				
	METHOD	XRF	XRF		

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

RESPONSIBLE OFFICER

ANALABS
ANALYTICAL DATA

SAMPLE MARK	REPORT NUMBER	REPORT DATE		CLIENT ORDER No.	PAGE
	2.0.01.20781	13.10.81			5 of 6

LAB No.	SAMPLE No.	H20%	H20%+	Na20	MgO%	Al203%	Si02%	P205%	K20%	CaO%
14	80/1541	0.05	0.35	4.74%	3.9	16.7	55.2	0.081	3.15	3.40
15										
16										
17										
18										
19										
20										
21										
22										
	DETECTION			25						
24	DETECTION			A6						
25	METHOD	XRF	XRF	A6/3	XRF	XRF	XRF	XRF	XRF	XRF

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

RESPONSIBLE OFFICER

ANALABS

Advanced Analytical Laboratories Pty. Ltd.

ANALYTICAL DATA

FILE No.	REPORT NUMBER	REPORT DATE		CLIENT ORDER No.	PAGE
	2.0.01.20781	13.10.81			6 OF 6

LINE No.	SAMPLE No.	TiO2%	MnO%	Fe2O3%	FeO%	Drill	Depth m.			
14	80/1541	0.87	0.13	9.30	6.20	WF1	168.8			
17										
19										
21										
22										
23	DETECTION				0.05					
24	DUPLICATION									
	METHOD	XRF	XRF	XRF	SPEC					

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

RESPONSIBLE OFFICER

ANALABS

A Division of [illegible] & Co. Pty. Ltd.

ANALYTICAL DATA

	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.		PAGE
	2.0.01.20781	13.10.81			2 OF [illegible]

SET No.	SAMPLE No.	V	Co	Cu	Zn	As	Se	Mo	Ag	Pb
16	80/1541	65	35	75	175	×	×	×	1.0	×
17	80/1542	55	5	20	70	×	×	×	×	×
18	80/1543	350	30	15	95	×	3	×	×	×
19	80/1544	40	×	10	40	15	×	×	×	×
20	80/1545	×	20	5	15	110	×	×	×	×
21										
22										
23	DETECTION	5	5	5	5	3	3	3	1	5
24	DIGESTION		A1	A1	A1				A1	A1
25	METHOD	XRF	A1/1	A1/1	A1/1	XRF	XRF	XRF	A1/1	A1/1

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

RESPONSIBLE OFFICER [signature]

APPENDIX 4

GEOPHYSICAL INTERPRETATION OF THE WOORONG E.L.

GEOPHYSICAL INTERPRETATION OF THE WOORONG E.L. 044

INTRODUCTION

A detailed aeromagnetic survey has been flown over the Western portion of the Woorong Exploration Lease 620. The area is on the Murloocoppie 1:250,000 map sheet, South Australia.

The entire area has a mesozoic sedimentary cover with no mapped basement outcrop. The available regional gravity and aeromagnetic data and the recent detailed aeromagnetic survey have been interpreted to give an assessment of basement structure, composition and depth.

QUALITY OF DETAILED AEROMAGNETIC DATA

The aeromagnetic specifications required a line spacing of 250 metres, a survey height of 200 metres mean terrain clearance and an instrument cycling time of 0.5 secs.

The data was generally of a high quality with a noise envelope within 0.5 nT's with good height control. Navigation was adequate, although line spacings exceeded 400 metres in some line sections. Note gap between lines 2043 and 2044.

Data presentation of analogues, contours and stacked profiles was excellent with minor errors being noted on the preliminary prints.

METHOD OF INTERPRETATION

The lack of any indicated basement outcrop meant that basement structure could only be interpreted using the available geophysical data. The regional gravity data at a grid interval of approximately 6 kilometres has defined a strong, broad gravity high trending ENE into the Woorong area, this suggests a basement uplift in the area.

By calculating depths from the stacked profiles of the magnetic data, a contour map of basement depths has been drawn. The identification of strike and dip of geological faults and contacts in the area, has enabled a structural map to be drawn.

The amplitude of magnetic anomalies is useful in estimating magnetic susceptibilities and thus giving a guide to the composition of the basement rocks.

The interpreted geology is presented on a structural map at a scale of 1:250,000. A contour map of depth to basement and interpreted faults is shown for the four map sheets of the survey area at a scale of 1:25,000. The contour maps of magnetic intensity have been coloured at 100 nT's interval to assist in the definition of structure and geology.

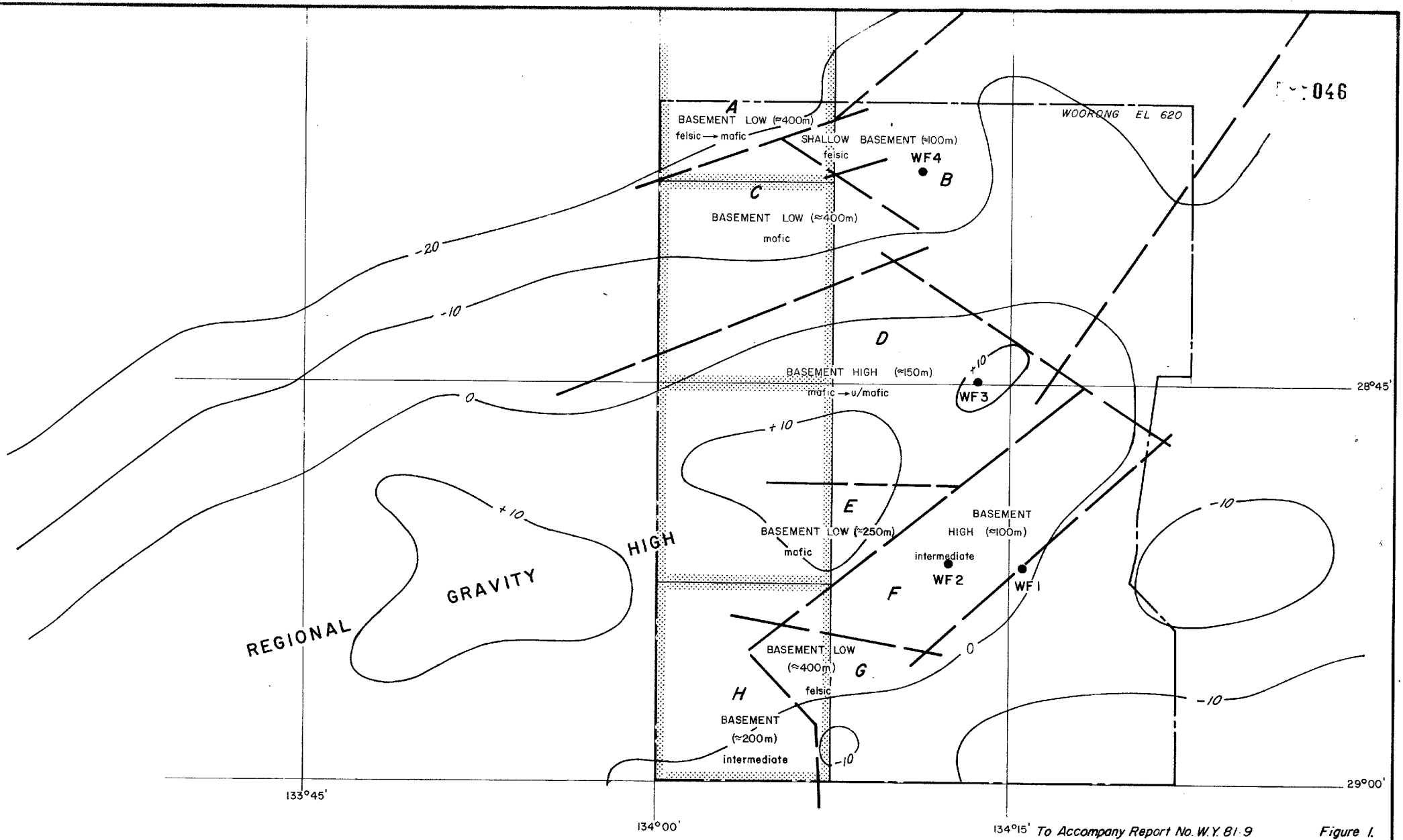
RESULTS

The survey area has been divided into several zones on the basis of depth to basement and the interpreted rock type. These zones are shown on Figure 1.

Zones A and C: These two zones are separated by an interpreted fault trending ENE. No major movement is obvious along the fault line, although weak magnetic anomalies suggest some alteration. It is possible that Zone C has more mafic basement rocks than Zone A, however they are thought to be of intermediate composition.

Generally the basement is thought to be approximately 400 metres below ground level in these two zones. This is based on the general contour patterns of the magnetic and gravity data rather than depth calculations on individual anomalies. There are weak magnetic anomalies (1-200 nT's) within these zones which indicate depths of approximately 100 metres. These anomalies represent no specific structure and are possibly lenses of laterite in the overlaying sediments.

Zone B: This zone is defined by interpreted faults trending ENE and SE. It is characterized by a magnetic low with source depths from 100-200 metres. The zone is thought to be of felsic composition and its relatively shallow depth make it a possible drill target to define rock types in the area.



To Accompany Report No. W.Y. 81-9 Figure 1.

LEGEND

- +10 — Gravity Contours
- Fault
- EL Boundary
- 1:25,000 Sheet Layout
- ● WF4 AFMECO Drillhole Location and Number

N

NOTE : This map is summary plan of the 4 x 1:25,000 maps. Compiled from MURLOOCOPPIE 1:250,000 Sheet.

DRAWN	J.A.M. & K.M.T.
DATE	APRIL 1981
GEOLOGY	G. ELLIOTT
APPROVED	
DWG No	SH 53-2.137 3254
REV	JAN. '82

AFMECO PTY. LTD.

SCALE 1:250,000 2 0 2 4 6 8 10km

GAWLER BLOCK - S. AUST
WOORONG EL 620
GEOPHYSICAL INTERPRETATION SUMMARY AND DRILL HOLE LOCATIONS

Zone D: This zone is distinct from Zone C by an increase in the complexity of the magnetic contour pattern and a higher magnetic intensity. Faulting is indicated between the two zones and also a more mafic basement rock type at a shallower depth. Interpreted depths suggest basement to within 50 metres of the surface.

The zone has a complex magnetic signature suggesting changes from mafic to ultra mafic rock types.

Zone E: This zone is similar in rock type to Zone D, however interpreted depths suggest that depth to basement is approximately 250 metres. An interpreted fault trending E-W divides the two zones. A strong magnetic high in the fault zone suggests some alteration has occurred.

Zone F: This zone is defined by two interpreted faults, one trending NE the other ESE. A general decrease in depth to basement suggests upfaulting has occurred with interpreted depths as shallow as 50 metres below ground level. A decrease in magnetic intensity suggests a decrease in mafic composition possibly an intermediate rock type.

Zone G: This zone is distinct from Zone F by the increase in interpreted depth to basement, and the reduction in magnetic intensity. Basement depth has been interpreted to 400 metres with a more felsic composition.

Zone H: An interpreted SSW trending fault separates Zones G and H. The rock types are thought to be of intermediate to basic composition. Depth to basement is interpreted to be approximately 200 metres.

These zones appear to extend into the remainder of the Woorong E.L., however without detailed magnetics only general trends can be interpreted. See Figure 1.

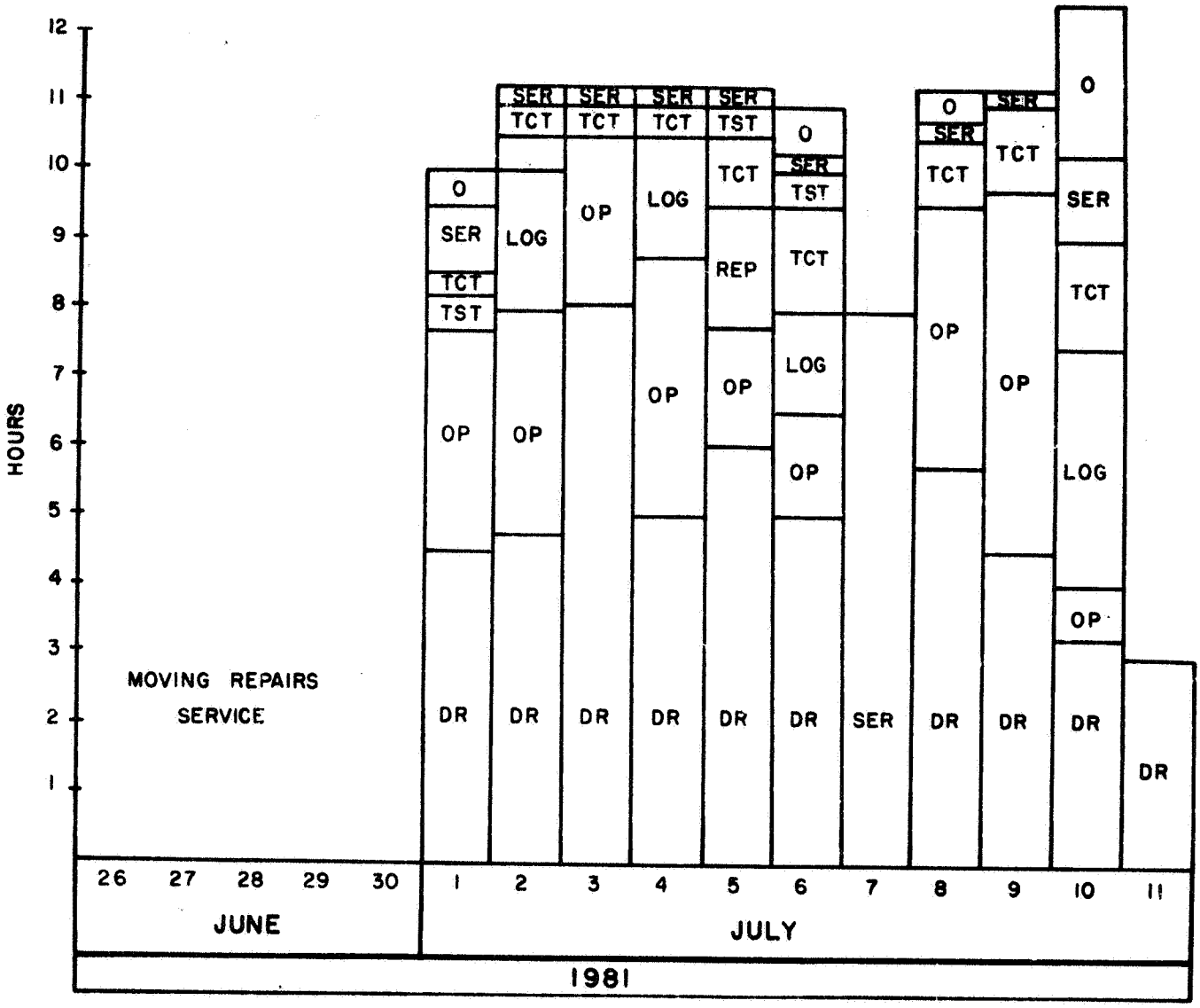
CONCLUSIONS AND RECOMMENDATIONS

The detailed aeromagnetic survey has enabled the Woorong area to be defined into eight separate zones on the basis of depth to basement and composition. Of these, three zones have been selected as the most suitable for reconnaissance drill targets to investigate basement composition. Zone B indicates a felsic rock type at a depth of approximately 100 metres. Zone D indicates a strongly mafic to ultra mafic rock type at a depth of approximately 50 metres. Zone F indicates an intermediate to mafic rock type with a basement depth of approximately 100 metres.

The zones of shallow depth to basement within the survey area suggest a complex magnetic signature with extensive faulting indicated. Without detailed aeromagnetic data for the remainder of the Woorong Exploration Lease only basic trends of geology can be interpreted. These are indicated on Figure 1.

APPENDIX 5

DRILLING STATISTICS



To Accompany Report No. W.Y. 81-9 *Appendix 5(a)*

LEGEND

DR = Drilling	RE = Reaming
T = Tripping Rods	P = Pulling rods
CON = Conditioning Hole	TS = Travel Site
TC = Travel Camp Site	SU = Set Up
ST = Stand By	Log = Logging
Rep = Repairs	S = Service
	O = Other

DRAWN	N.C.
DATE	JAN. '82
COMPILED	Y. Bladier. Nov.'81
APPROVED	
DWG. NO	SH53-2137-4112
REV.	

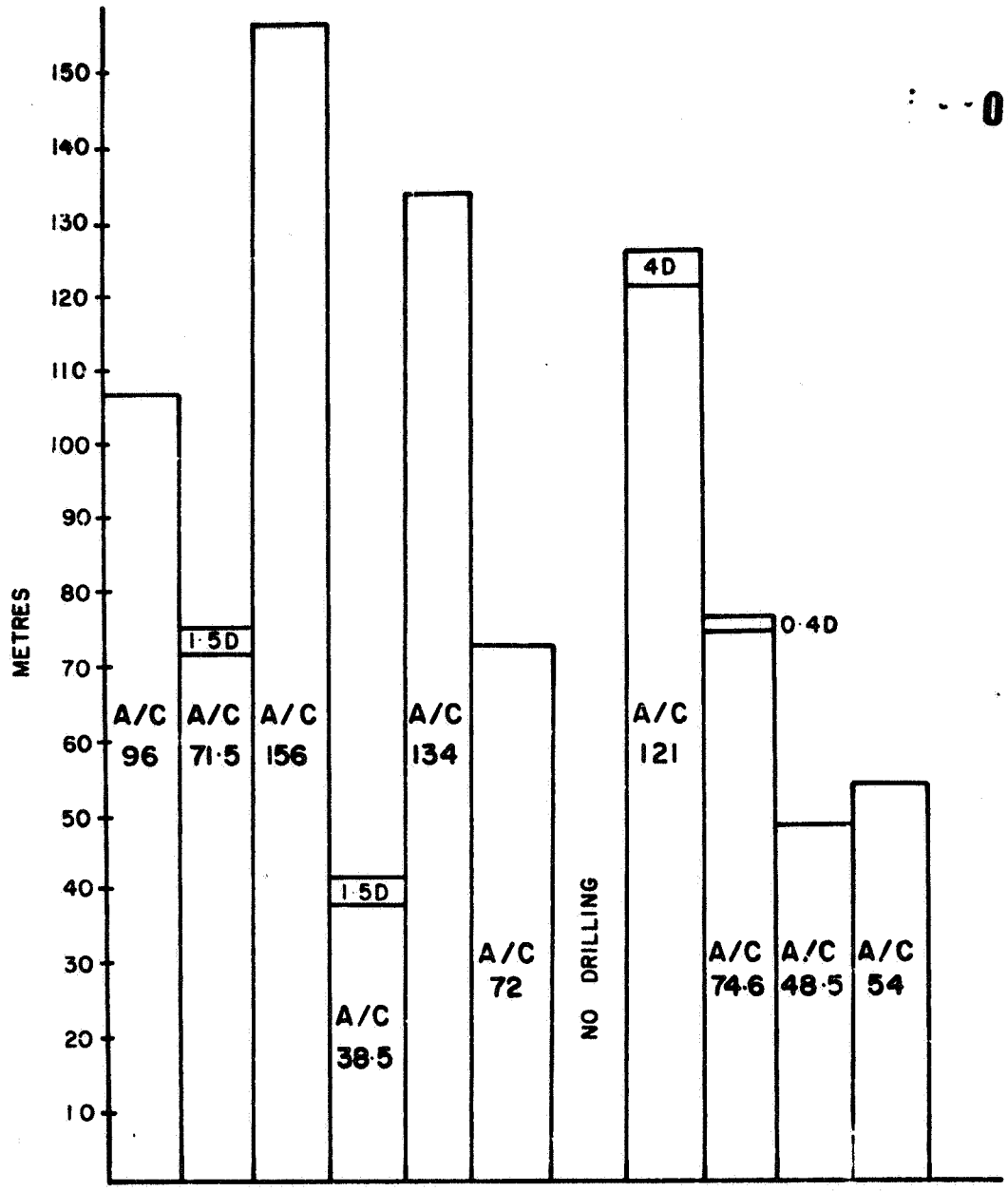
AFMECO PTY. LTD.

WOORONG PROJECT - S. AUST.

E.L. 620

DRILLING STATISTICS

051



A/C	HOURS	4·5	3·75	8	4 25	6	5		4·75	4·25	3·25	3
A/C	M/H	38·4	19·6	19·5	9 05	22·33	14·4		25·47	17 55	14·92	18
D	HOURS		1		0 25				1	0·25		
D	M/H		1·5		2				4	1·6		

To Accompany Report No. W.Y. 81·9 *Appendix 5(b)*

DRAWN N.C.	AFMECO PTY. LTD.
DATE JAN. '82	SCALE 1cm = 10m (Vert.)
COMPILED Y. Bladier Nov. '81	WOORONG PROJECT - S. AUST.
APPROVED	E.L. 620
DWG NO SH53-2 137 4113	DRILLING STATISTICS
REV.	

AFMECO PTY. LTD. | **HOLE Nº** WF 1

PROJECT: WOORONG **,Nº.:** 137

1:250 000 MAP SHEET: MURLOOCOPPIE **,Nº.:** SH/53-2

Collar Coords (m): 4280 E, 6807 N, (AMG ☐ / GRID ☐)

Collar R.L.:

Azimuth: ° (Mag☐,Grid☐)

Inclination: – °

Date begun 1-7-81

Date terminated 2-7-81

Contractor WALLIS

Drill D 12

Drilling techniques AIR CORE DIAMOND

Reasons for termination
TARGET REACHED

GEOLOGIST Y. BLADIER

DATE 28-8-81

LITHOLOGY (Use BMR Symbols).

- FINE SANDSTONE
- COARSE SANDSTONE
- CLAYSTONE
- CARBONACEOUS SHALE
- GNEISS

CASING			WEDGES PLACED		HOLE CONDITIONS WHILE LOGGING
Size	From	To	Type	Depth	
					☒ DRY ☐ OPEN HOLE ☒ WATER ☒ IN PIPE ☐ MUD
STANDING WATER DEPTH					ADDITIVES:
SAMPLE Nº					

STRUCTURE

Bedding; Banding; Foliation; Fracture, joint; Fault; Breccia

GENERAL COMMENTS

SCALE: 1 : 200

10/C/S/DW

Depth(m) | Core/Non core | Hole size | % core recovery | Hole attitude | Lithology | Structure (angle to bedding)

OBSERVATIONS

0 1 2 3 4 5 6

0 – RED BROWN TO GREY SILTY TO SANDY SOILS AND WEATHERING PRODUCT WITH A SURFACE LAG OF SILCRETE GIBBER INTERBEDDED WITH RED-BROWN CLAY

5

10

15

20 – WHITE YELLOW TO PINK CLAYSTONE AND SILTSTONE

25

30

35

40

45 – FINE QUARTZ SANDSTONE INTERBEDDED WITH CARBONACEOUS SHALE

50

55 – FINE QUARTZ SANDSTONE INTERBEDDED WITH YELLOW TO BROWN CLAYSTONE

60

65 – GREY SANDY CLAYSTONE

70

75 – QUARTZ RICH COARSE GRAINED, CLEAN SANDSTONE

80

81

85 – GREY SANDY CLAYSTONE

90

95 – GREY TO BLACK CARBONACEOUS SHALE

100

105 – FINE SANDSTONE INTERBEDDED WITH COARSE GRAINED SANDSTONE SOME PYRITE BEDS (mm TO cm)

110

115 – GREY FINE SANDSTONES INTERBEDDED WITH CARBONACEOUS SHALE

120

125

130

135

140

145 – GREY SANDSTONE INTERBEDDED WITH CARBONACEOUS SHALE

150

155

160

165 – GREY FINE SANDSTONE INTERBEDDED WITH CARBONACEOUS SHALE

GNEISS OF GAWLER CRATON

THIN SECTION BIOTITE GARNET FELDSPAR QUARTZ GNEISS

170

AFMECO PTY. LTD. | LOGGING DATA | Hole No. WF1

PROJECT WOORONG Date 2-7-81 Logger: Type MT. SOPRIS Model No. 2

Co-ordinates XYZ 6807N 4280E Operator: Y BLADIER Serial No. 352

GAMMA RAY				NEUTRON			
RUN No	1	2	3	RUN No	1	2	3
Logged depth (m)	167.5			Logged depth (m)			
Range (full scale)	10			Range (full scale)			
Time constant (sec)	4.5			Time constant (sec)			
Paper scale	1/100			Paper scale			
Logging speed (m/min)	4			Logging speed (m/min)			
Background count (cps) Source 1				Source (cps)			
" 2 (cps)				Probe No /type			
" 3				Source No			
" 4				Dead time			
Probe No /type 6375A				Hole medium			
Dead time (μsec) PROBE / SYSTEM 5				Hole diameter			
Bore hole medium	WATER			Standing water			
Tubes in hole	NO			Tubes in hole			

383-1

AFMECO PTY. LTD. | **HOLE Nº** WF2

PROJECT: WOORONG **,Nº.:** 137

1:250 000 MAP SHEET: MURLOOCOPPIE **,Nº.:** SH/53-2

Collar Coords (m): 4230 **E,** 6807 **N,** (**AMG** ☒ **GRID** ☐)

Collar R.L.:

Azimuth: ° , (**Mag** ☐, **Grid** ☐)

Inclination: – ° ,

LITHOLOGY (Use BMR Symbols).

- FINE SANDSTONE
- COARSE SANDSTONE
- CLAYSTONE
- CARBONACEOUS SHALE
- COAL
- CALCRETE
- PY PYRITE

Date begun 3-7-81

Date terminated 4-7-81

Contractor WALLIS

Drill D 12

Drilling techniques AIR CORE

Reasons for termination

ABANDONED IN RUNNING SAND

GEOLOGIST Y BLADIER

DATE 28-8-81

CASING			WEDGES PLACED		HOLE CONDITIONS WHILE LOGGING
Size	From	To	Type	Depth	☒ DRY ☐ OPEN HOLE ☒ WATER ☒ IN PIPE ☐ MUD
					ADDITIVES.

STANDING WATER

DEPTH

SAMPLE Nº

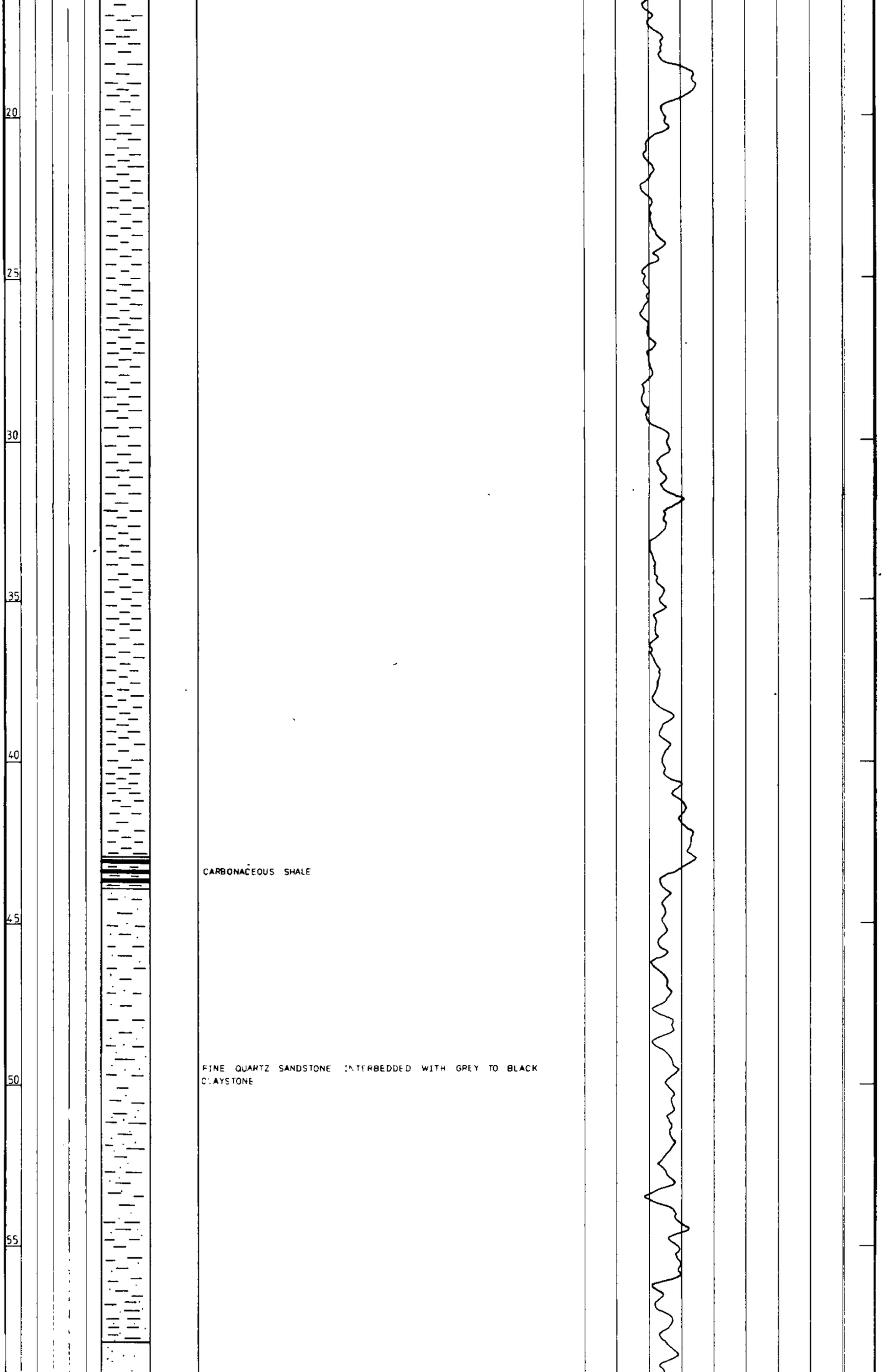
STRUCTURE

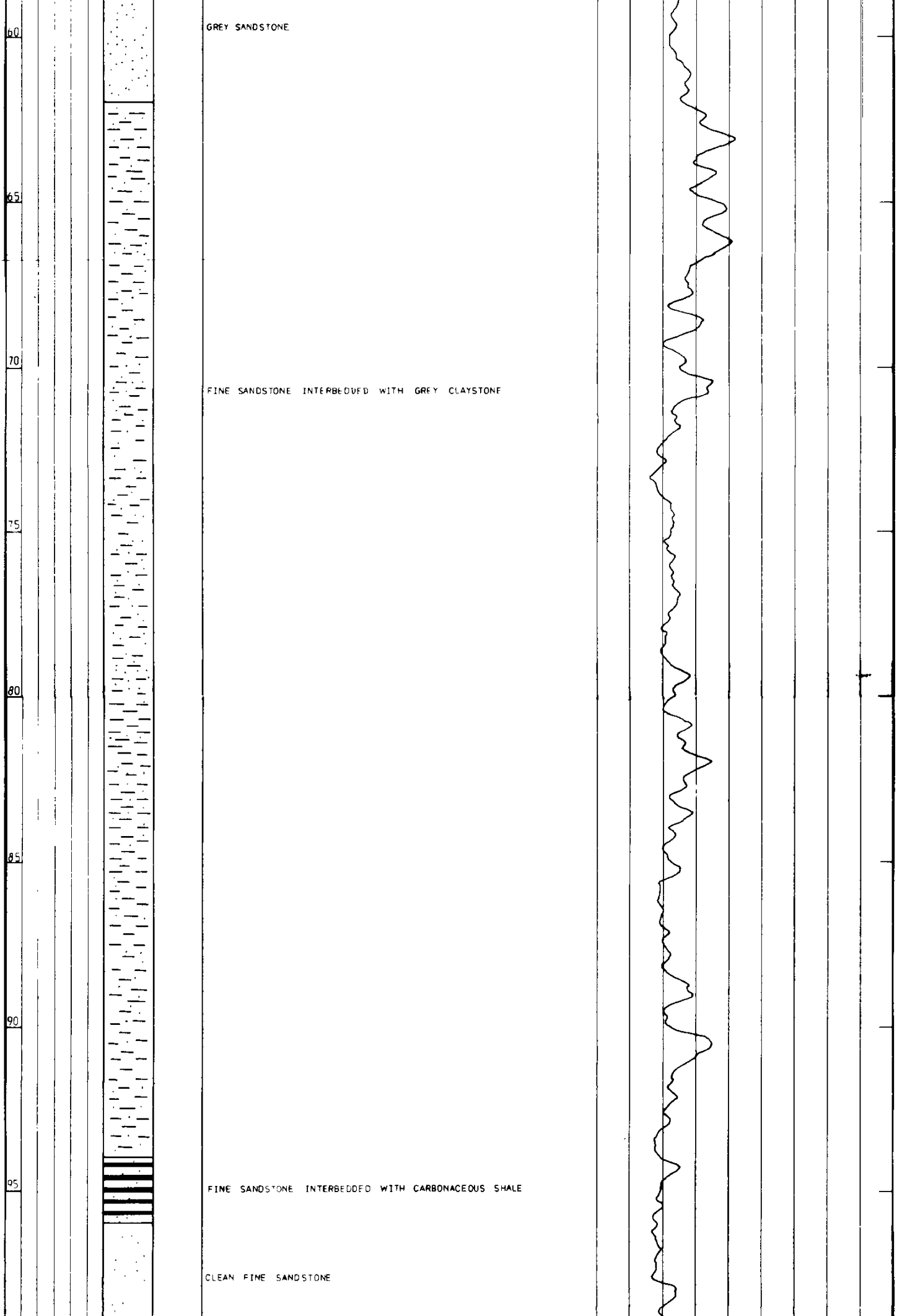
- Bedding
- Fracture, joint
- Banding
- Fault
- Foliation
- Breccia

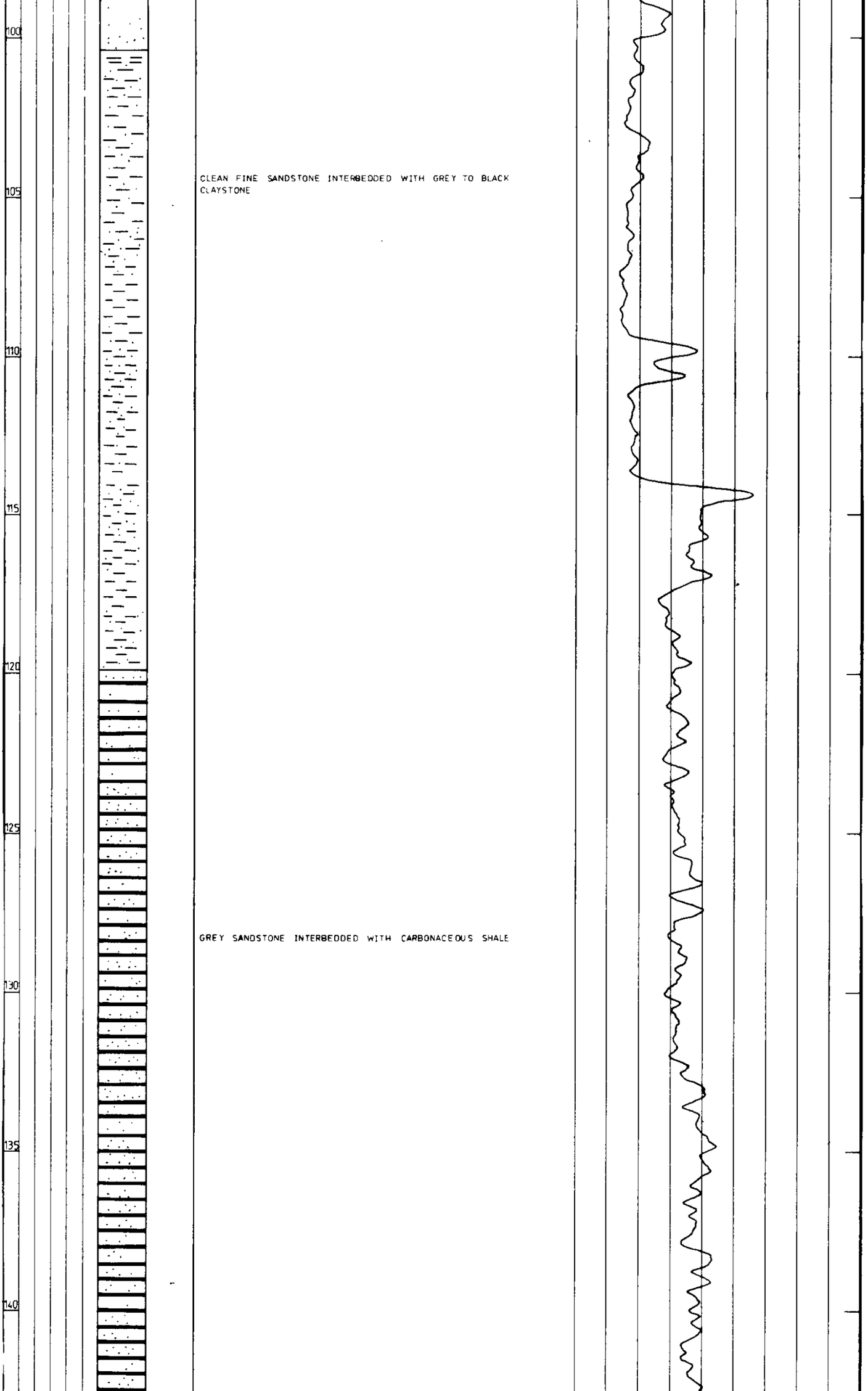
GENERAL COMMENTS

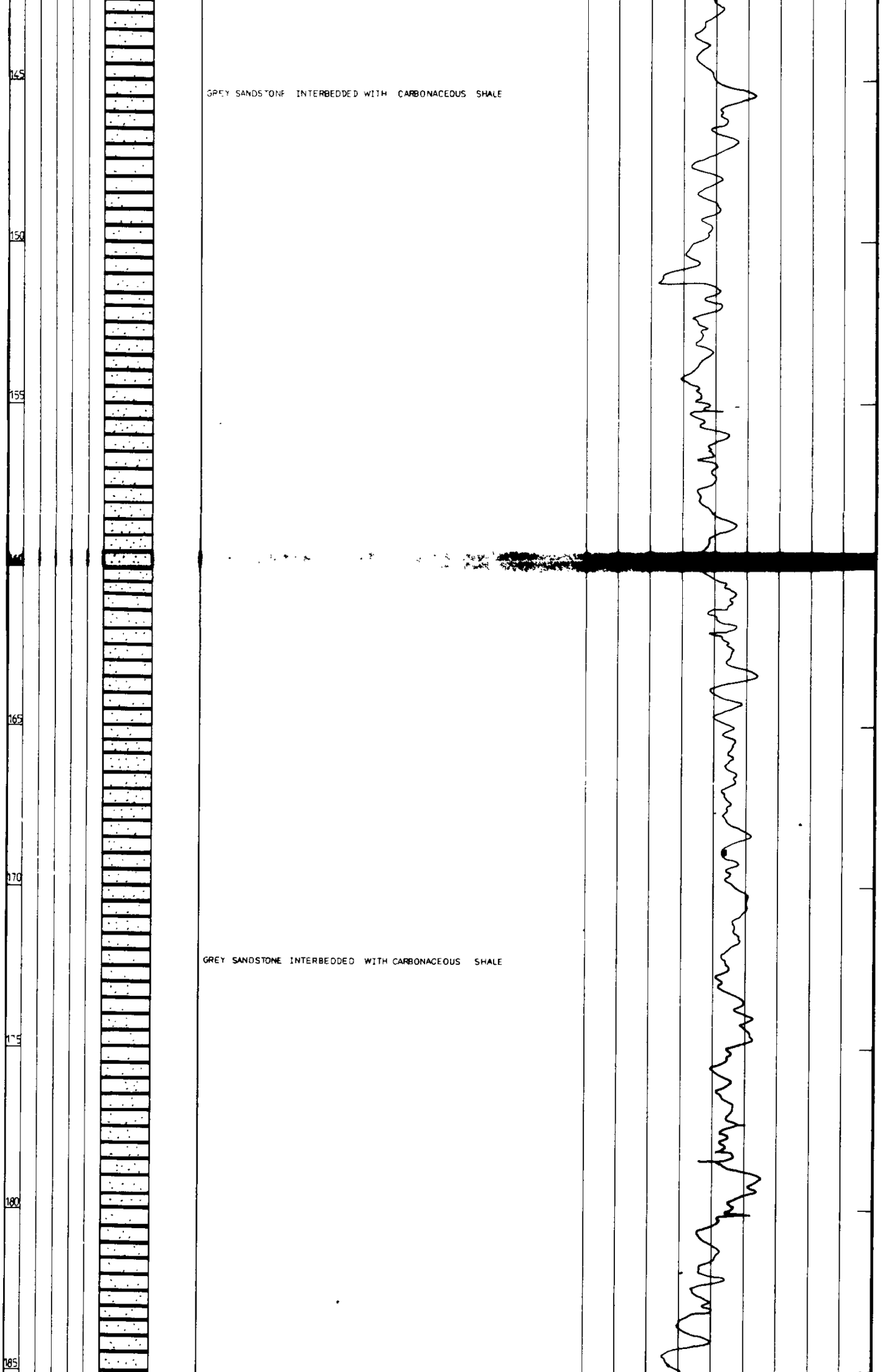
SCALE: 1:200

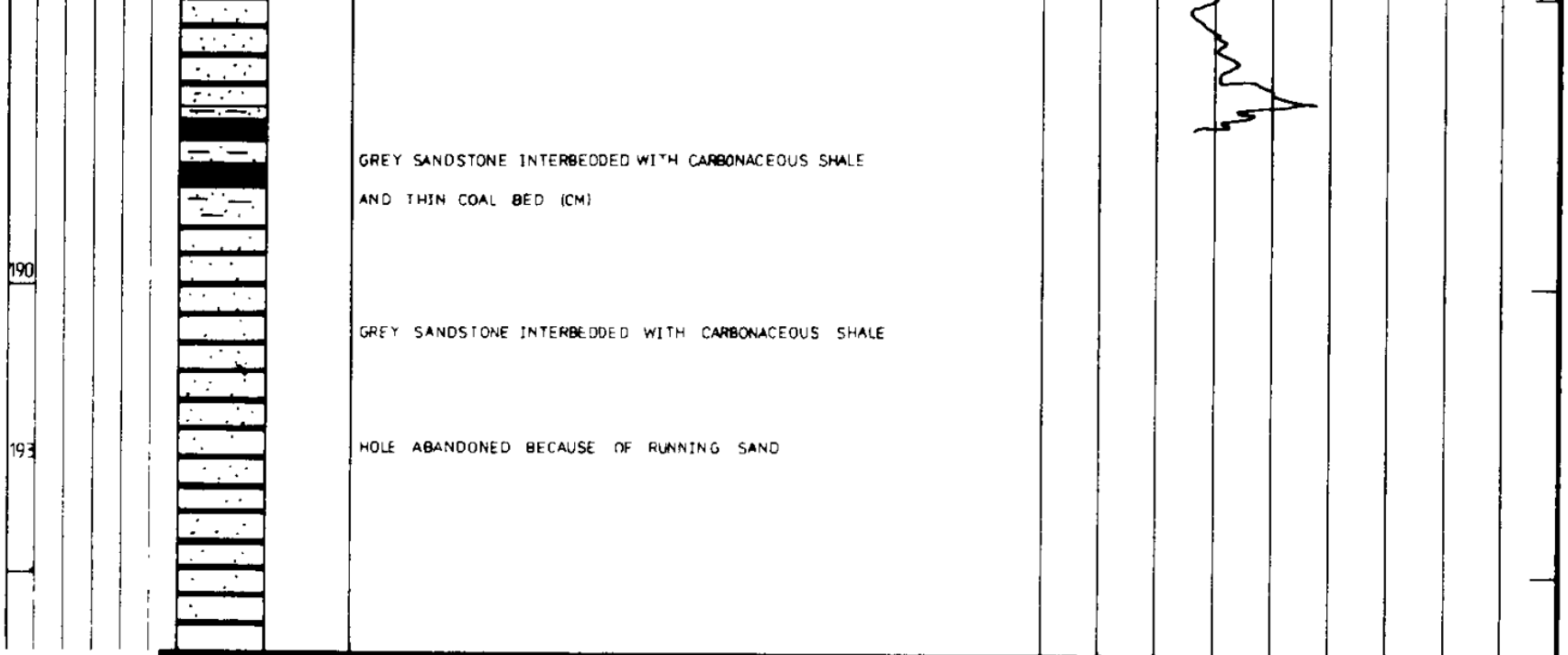
Depth (m)	Core/Non core	Hole size	% core recovery	Hole attitude	Lithology	Structure (angle to bedding)	OBSERVATIONS	10 C/S/DW 0 1 2 3 4 5 6
0								
							WHITE TO PALE COLOURED PLATY TO NODULAR CALCRETE	
5								
10								
15							YELLOW CLAYSTONE INTERBEDDED WITH PINK TO GREEN CLAYSTONE	


20
25
30
35
40
45
50
55
CARBONACEOUS SHALE
FINE QUARTZ SANDSTONE INTERBEDDED WITH GREY TO BLACK CLAYSTONE


60
65
70
75
80
85
90
95
GREY SANDSTONE
FINE SANDSTONE INTERBEDDED WITH GREY CLAYSTONE
FINE SANDSTONE INTERBEDDED WITH CARBONACEOUS SHALE
CLEAN FINE SANDSTONE


100
105
110
115
120
125
130
135
140
CLEAN FINE SANDSTONE INTERBEDDED WITH GREY TO BLACK CLAYSTONE
GREY SANDSTONE INTERBEDDED WITH CARBONACEOUS SHALE


145
GREY SANDSTONE INTERBEDDED WITH CARBONACEOUS SHALE
150
155
165
170
GREY SANDSTONE INTERBEDDED WITH CARBONACEOUS SHALE
175
180
185



AFMECO PTY. LTD. | **LOGGING DATA** | **Hole No.** WF 2

PROJECT WOORONG .. Date 4-7-81 Logger: Type MT SOPRIS .. Model No 2 .....

Co-ordinates XYZ 6807N ....4230E . Operator: G WATSON .. Serial No. 352 ....

GAMMA RAY

RUN No	1	2	3
Logged depth (m)	189		
Range (full scale)	10		
Time constant (sec)	4 5		
Paper scale	1/100		
Logging speed (m/min)	4		
Background count (cps) Source 1, " 2, " 3, " 4 (cps)			
Probe No/type 6375A			
Dead time (μsec) PROBE/SYSTEM	5		
Bore hole medium			
Tubes in hole	NO		

NEUTRON

RUN No	1	2	3
Logged depth (m)			
Range (full scale)			
Time constant (sec)			
Paper scale			
Logging speed (m/min)			
Source (cps)			
Probe No/type			
Source No			
Dead time			
Hole medium			
Hole diameter			
Standing water			
Tubes in hole			

3838-2

AFMECO PTY. LTD. | **HOLE Nº** WF 3

PROJECT: WOORONG **.Nº.:** 137

1:250 000 MAP SHEET: MURLOOCOPPIE **.Nº:** SH/53/2

Collar Coords (m): 42500 **E.** 68195 **N.** (**AMG** ☒ **GRID** ☐)

Collar R.L.:

Azimuth: ° (Mag ☐ Grid ☐)

Inclination: – °

Date begun 5-7-81 11-7-81

Date terminated 6-7-81 11-7-81

Contractor WALLIS

Drill D12

Drilling techniques AIR CORE DIAMOND

Reasons for termination
ABANDONED
6-7-81 run out of inner tube
11-7-81 run out of inner tube

GEOLOGIST Y BLADIER

DATE 28-8-81

LITHOLOGY (Use BMR Symbols)

- FINE SANDSTONE
- COARSE SANDSTONE
- CLAYSTONE
- CARBONACEOUS SHALE
- PY PYRITE

CASING			WEDGES PLACED	
Size	From	To	Type	Depth

STANDING WATER
DEPTH
SAMPLE Nº

HOLE CONDITIONS WHILE LOGGING

- [X] DRY
- [X] WATER
- [ ] MUD
- [ ] OPEN HOLE
- [X] N P PE

ADDITIVES.

STRUCTURE

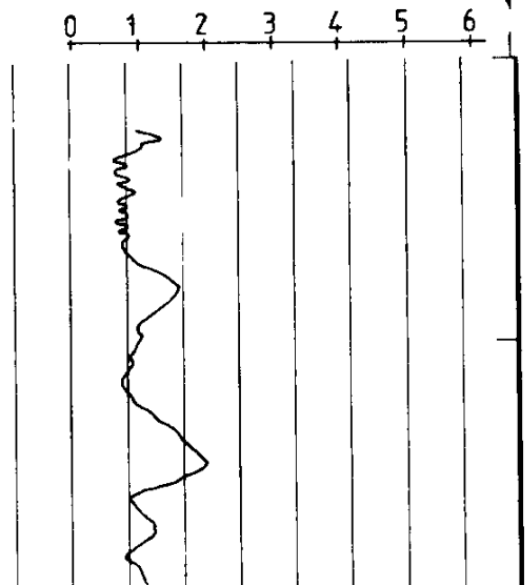
- Bedding
- Banding
- Foliation
- Fracture joint
- Fault
- Breccia

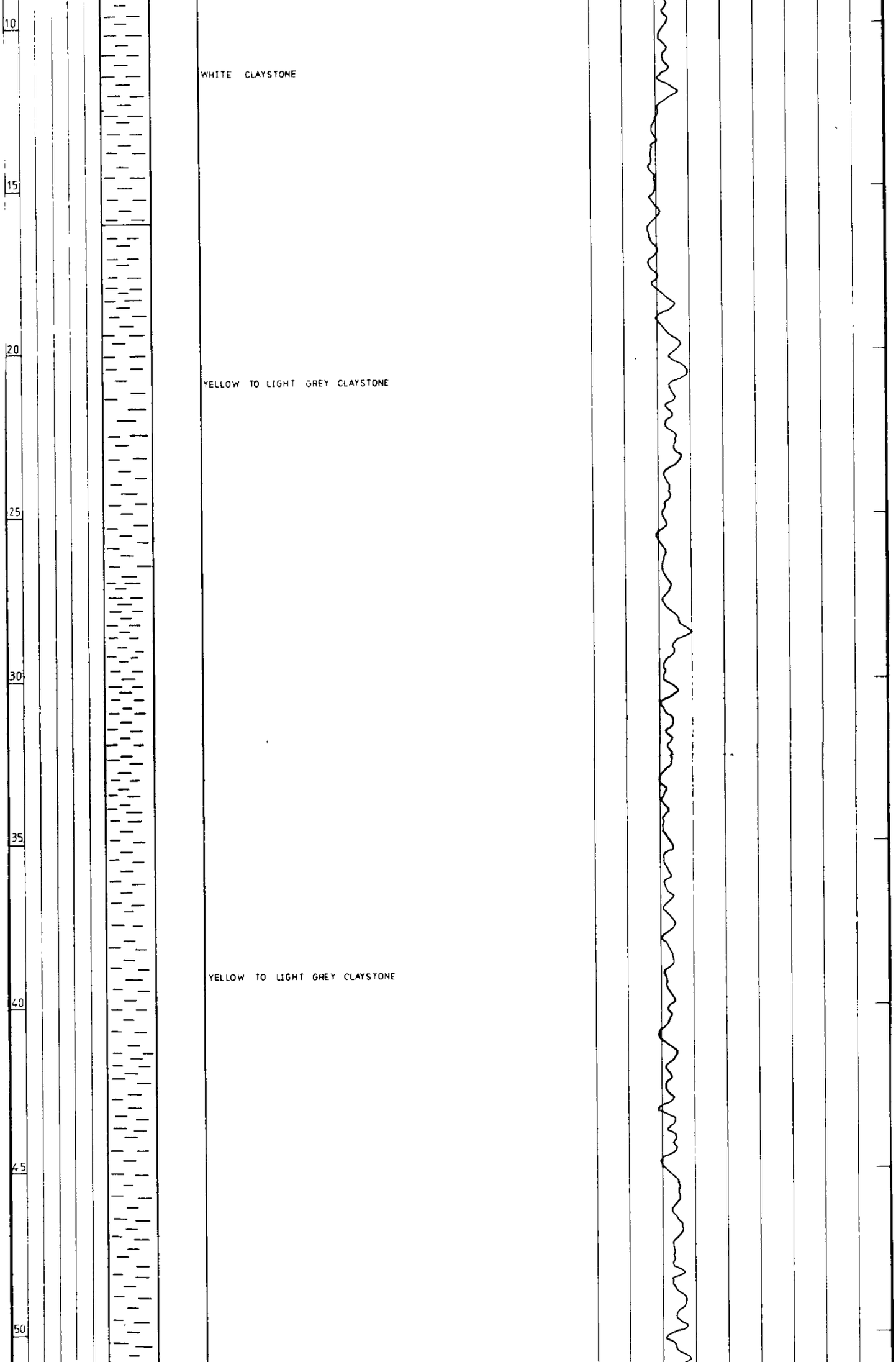
GENERAL COMMENTS

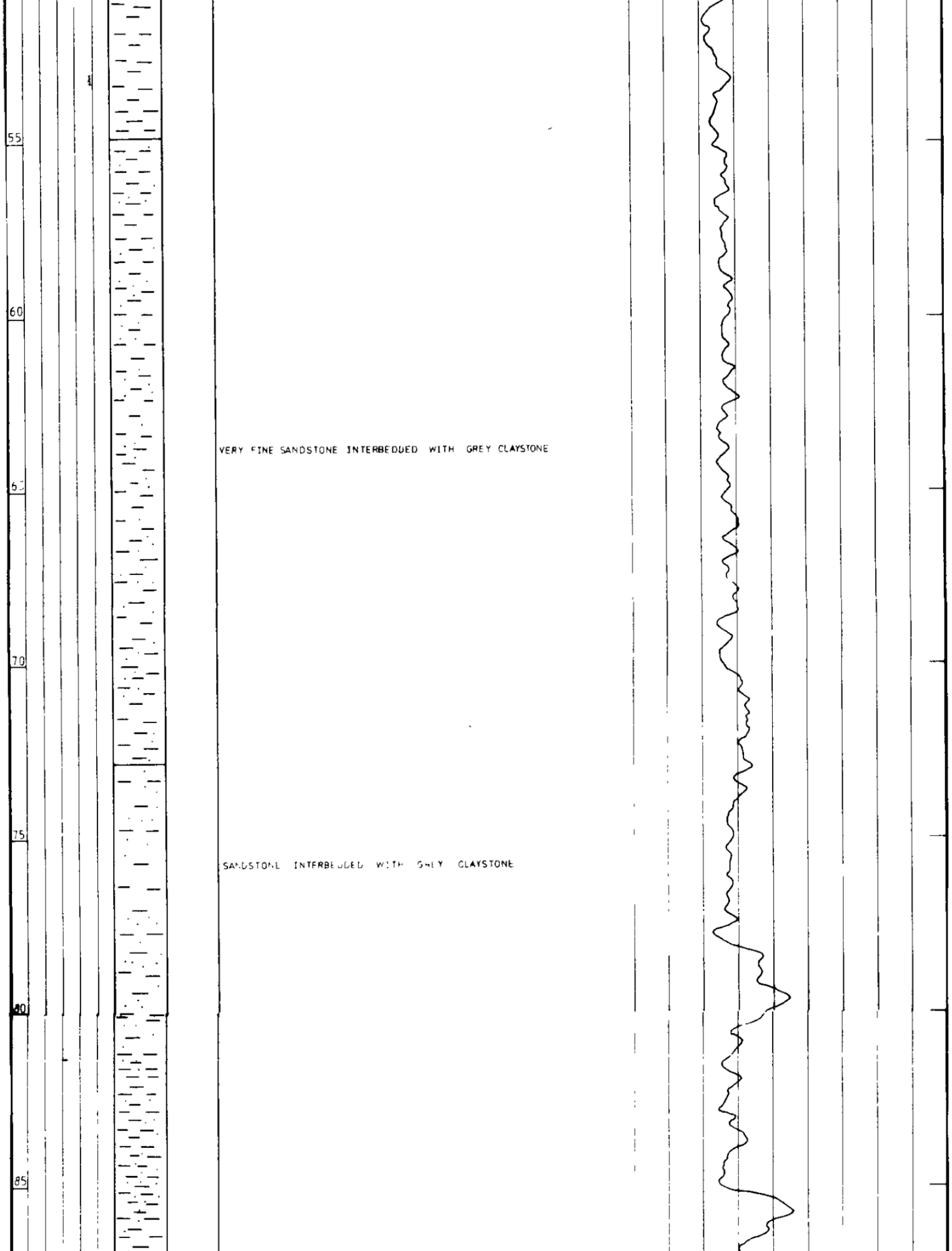
SCALE 1: 200

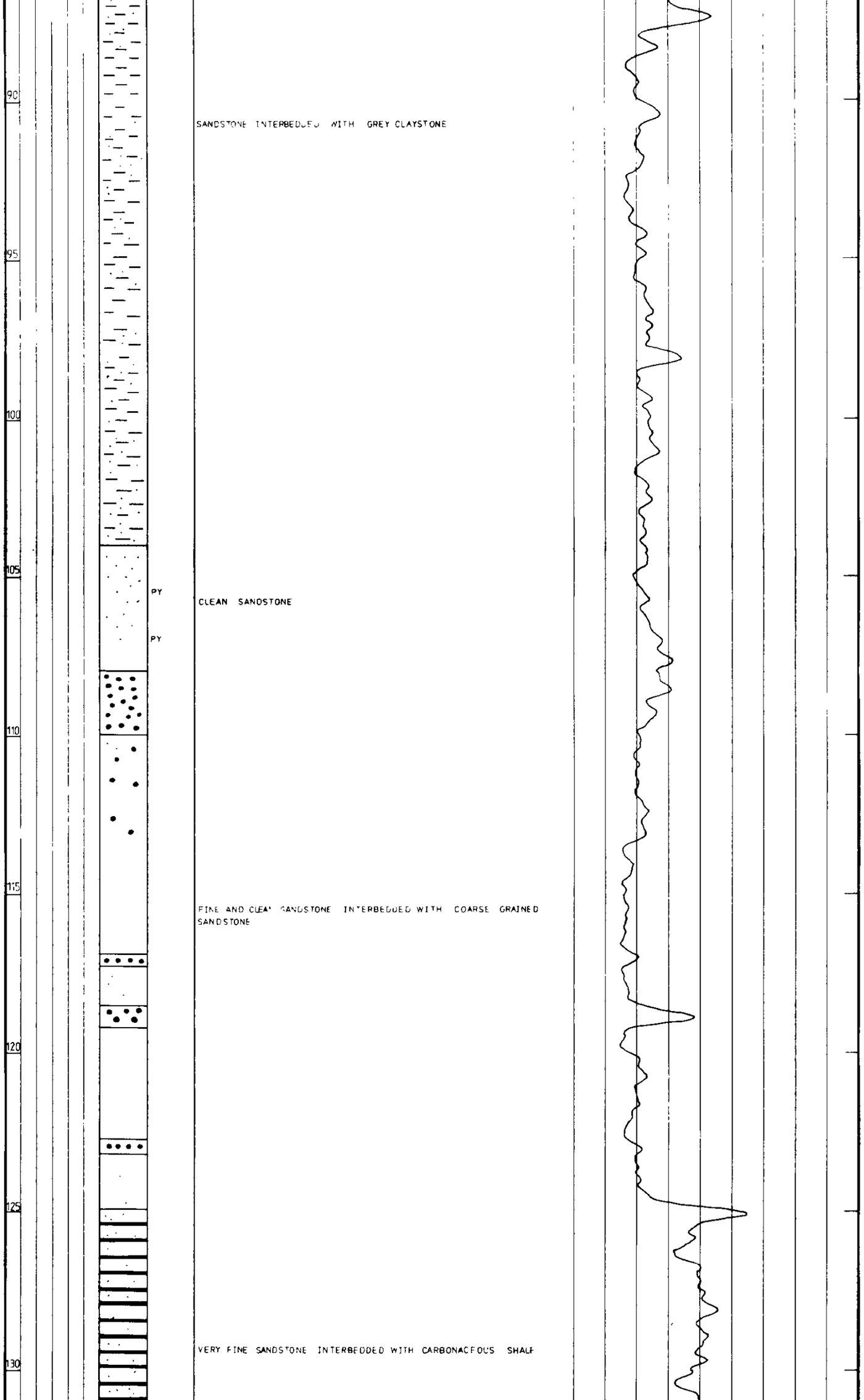
10 C/S/DW

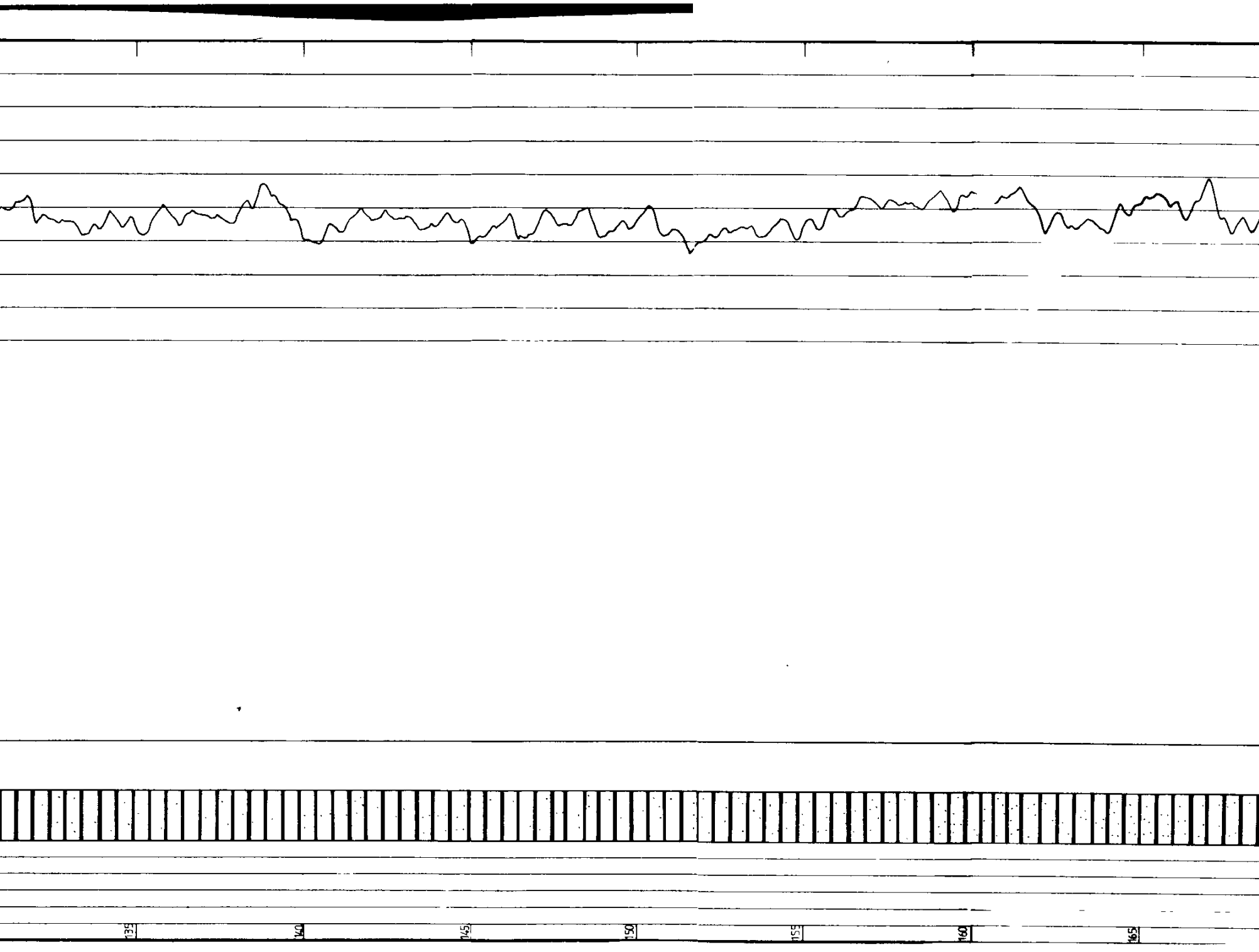
Depth (m)	Core/Non core	Hole size	% core recovery	Hole attitude	Lithology	Structure (angle to bedding)	OBSERVATIONS
0							
5							YELLOW CLAYSTONE

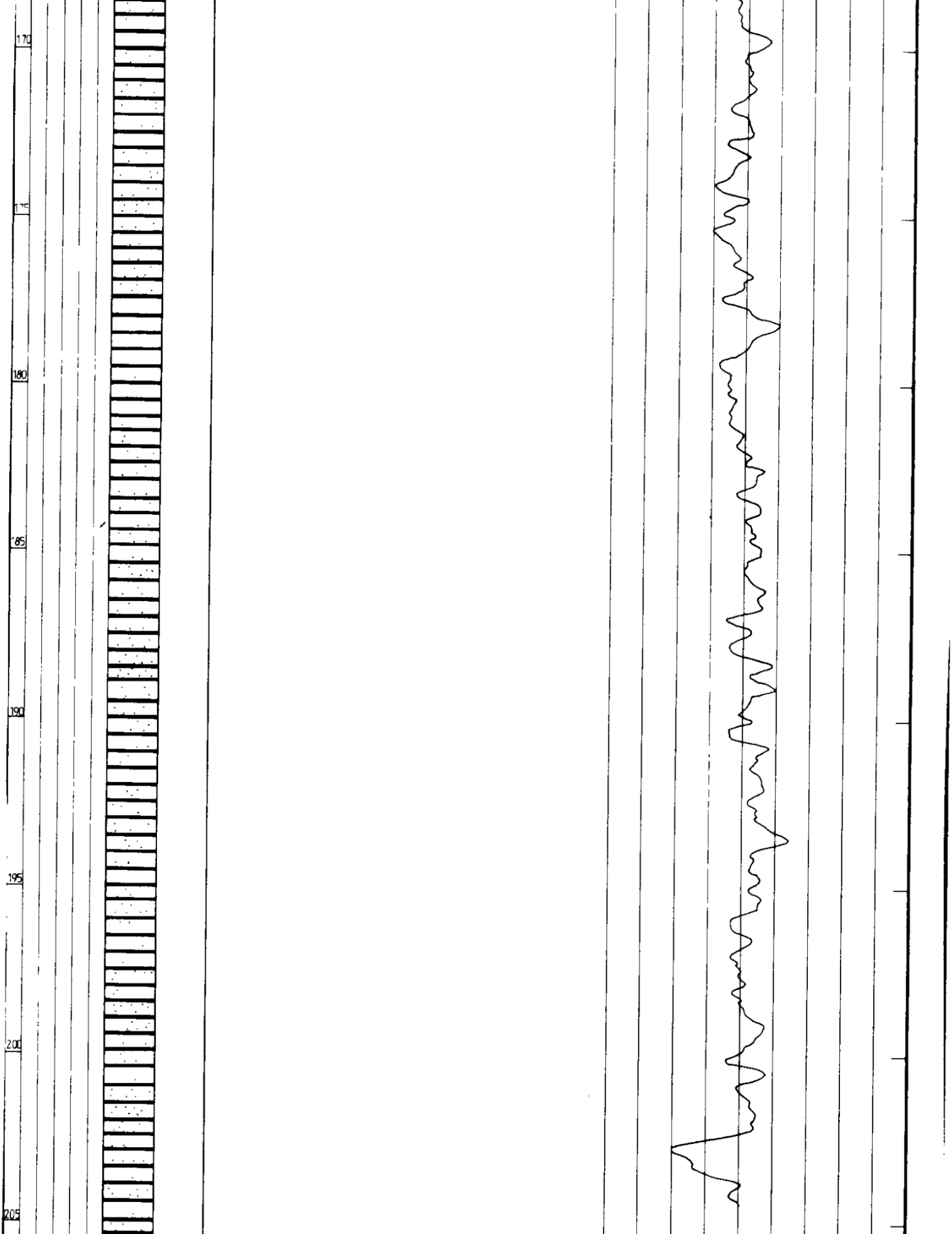



10
15
20
25
30
35
40
45
50
WHITE CLAYSTONE
YELLOW TO LIGHT GREY CLAYSTONE
YELLOW TO LIGHT GREY CLAYSTONE


55
60
65
70
75
80
85
VERY FINE SANDSTONE INTERBEDDED WITH GREY CLAYSTONE
SANDSTONE INTERBEDDED WITH GREY CLAYSTONE


90
95
100
105
110
115
120
125
130
PY
PY
SANDSTONE INTERBEDDED WITH GREY CLAYSTONE
CLEAN SANDSTONE
FINE AND CLEAN SANDSTONE INTERBEDDED WITH COARSE GRAINED SANDSTONE
VERY FINE SANDSTONE INTERBEDDED WITH CARBONACEOUS SHALE


135
140
145
150
155
160
165


170
175
180
185
190
195
200
205

210

215

220

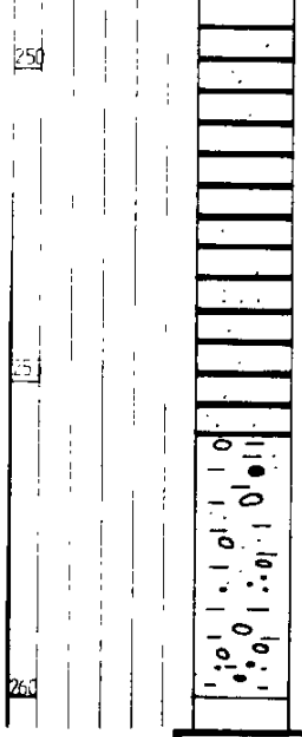
225

230

235

240

245



GREY SANDSTONE INTERBEDDED WITH GREY CLAYSTONE

NUMEROUS PEBBLES OF QUARTZ GRANITE GNEISS MICASCHIST

AFMECO PTY. LTD. | **LOGGING DATA** | **Hole No.** WF3

PROJECT WOORONG | Date 6-7-81 | Logger Type MOUNT SOPRIS | Model No. 2

Co-ordinates XYZ 68195N 42500E | Operator G WATSON | Serial No. 352

GAMMA RAY

RUN No	1	2	3
Logged depth (m)	205		
Range (full scale)	10		
Time constant (sec)	4.5		
Paper scale	1/100		
Logging speed (m/min)	4		
Background count (cps) Source 1, 2, 3, 4 (cps)			
Probe No / type SN815 G375A			
Dead time (μsec) PROBE / SYSTEM	5		
Bore hole medium			
Tubes in hole	NO		

NEUTRON

RUN No	1	2	3
Logged depth (m)			
Range (full scale)			
Time constant (sec)			
Paper scale			
Logging speed (m/min)			
Source (cps)			
Probe No / type			
Source No			
Dead time			
Hole medium			
Hole diameter			
Standing water			
Tubes in hole			

3838-3

AFMECO PTY. LTD. | **HOLE Nº WF4**

PROJECT: WOORONG **,Nº.:** 137

1:250 000 MAP SHEET: MURLOOCOPPIE **,Nº.:** SH/53-2

Collar Coords (m): 42100 E, 68340 N, (AMG ☐ / GRID ☐)

Collar R.L.:

Azimuth: ° , (Mag ☐, Grid ☐)

Inclination: − °,

Date begun 5-7-81

Date terminated 6-7-81

Contractor WALLIS

Drill D12

Drilling techniques AIRCORE DIAMOND

Reasons for termination
ABANDONED ON SILICIFIED LEVEL AND RUNNING SAND

GEOLOGIST Y BLADIER

DATE 27-8-81

LITHOLOGY (Use BMR Symbols).

- FINE SANDSTONE
- COARSE SANDSTONE
- CLAYSTONE
- CARBONACEOUS SHALE
- PY PYRITE

CASING			WEDGES PLACED		HOLE CONDITIONS WHILE LOGGING
Size	From	To	Type	Depth	☐ DRY ☐ OPEN HOLE; X WATER X IN PIPE; ☐ MUD; ADDITIVES

STANDING WATER DEPTH

SAMPLE Nº

STRUCTURE

Bedding — Fracture, joint

Banding — Fault

Foliation — Breccia

GENERAL COMMENTS

SCALE: 1:400

10 C/S/DW

OBSERVATIONS

Depth (m) | Core/Non core | Hole size | % core recovery | Hole attitude | Lithology | Structure (angle to bedding)

0–5: YELLOW-RED AEOLIAN QUARTZ SANDS MEDIUM TO FINE GRAINED UNCONSOLIDATED

5–10: WHITE TO PALE COLOURED PLATY TO MODULAR CALCRETE

20–75: FINE GRAINED SANDSTONES INTERBEDDED WITH GREY CLAYSTONES

60–80: FINE GRAINED SANDSTONE INTERBEDDED WITH CARBONACEOUS SHALE

80–90: FINE GRAINED SANDSTONE INTERBEDDED WITH RARE BLACK CLAYSTONE

90–100: FINE TO MEDIUM GREY SANDSTONE BECOMING COARSE GRAINED

100: COARSE GRAINED SANDSTONE

COAL — THICKNESS 20M

115–210: FINE GRAINED SANDSTONE INTERBEDDED WITH GREY CLAYSTONE NUMEROUS GRAIN AND PYRITE BED

PY

160–190: FINE GRAINED SANDSTONE INTERBEDDED WITH GREY TO BLACK CLAYSTONE - NUMEROUS PYRITE LEVEL OR DISSEMINATED PYRITE

220–250: FINE TO MEDIUM GRAINED QUARTZ SANDSTONE

STOPPED DUE TO LOGGER PROBLEMS

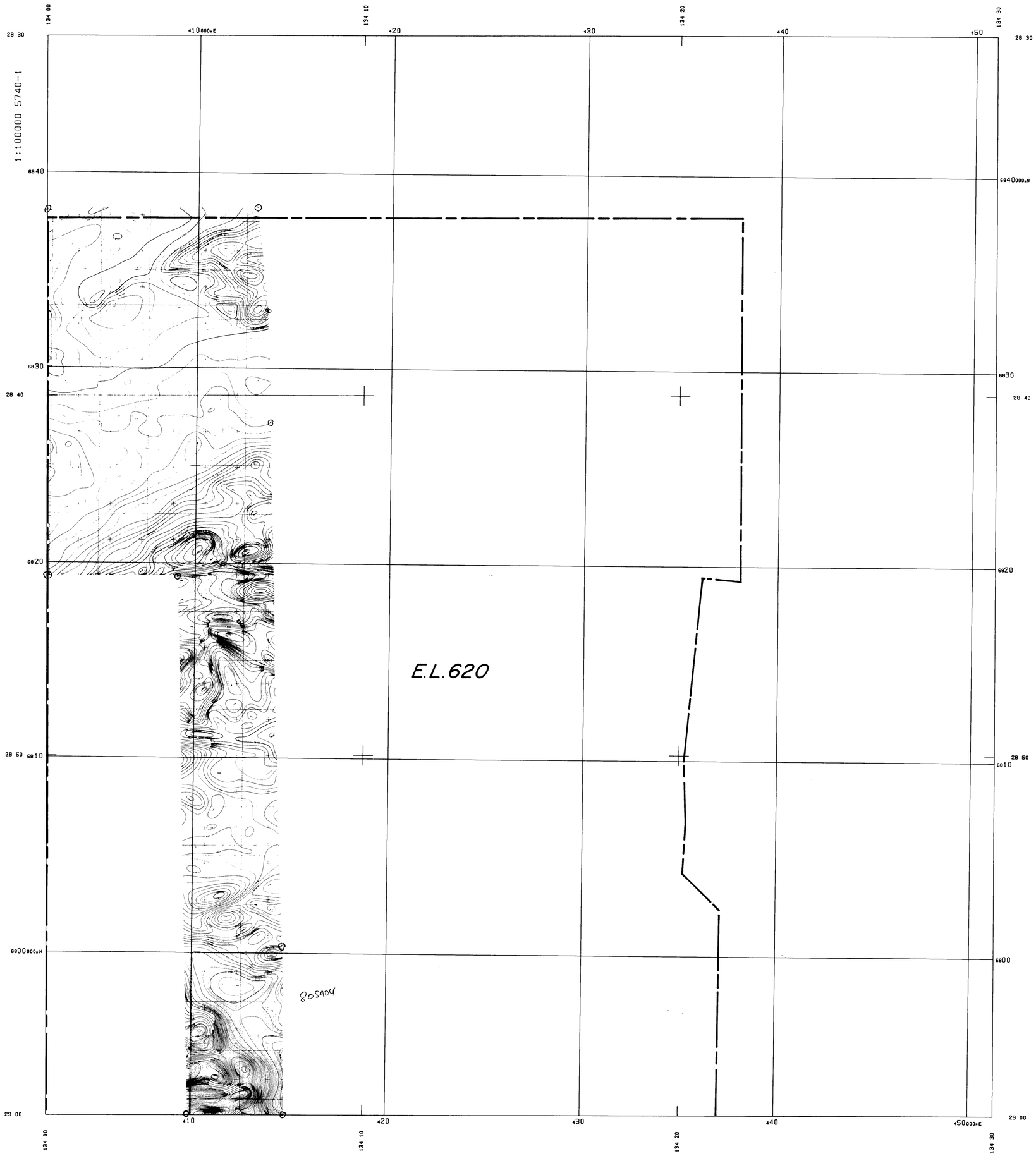
AFMECO PTY. LTD. | LOGGING DATA | Hole No. WF4

PROJECT WOORONG Date 10-7-81 Logger Type MT SOPRIS Model No. 2

Co-ordinates XYZ 68340N 42100E Operator G WATSON Serial No. 352

GAMMA RAY				NEUTRON			
RUN No	1	2	3	RUN No	1	2	3
Logged depth (m)	199			Logged depth (m)			
Range (full scale)	10			Range (full scale)			
Time constant (sec)	4.5			Time constant (sec)			
Paper scale	1/200			Paper scale			
Logging speed (m/min)	4			Logging speed (m/min)			
Background count (cps) Source 1 / " 2 / " 3 / " 4 (cps)				Source (cps)			
				Probe No/type			
				Source No			
				Dead time			
Probe No/type SN815 G375A				Hole medium			
Dead time (μsec) PROBE/SYSTEM	5			Hole diameter			
Bore hole medium				Standing water			
Tubes in hole	NO			Tubes in hole			

3838-4

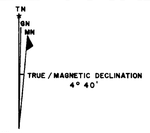


MURLOOCOPPIE

MABEL CREEK

5740

AFMECO PTY. LTD.



SCALE: 1 : 100 000

AUSTRALIAN MAP GRID

NAARLOCK 5641	MURLOO-COPPIE 5741	MT. AGNINA 5841
YARLIE 5540	MABLE CREEK 5740	ALBERULL-CULLIA 5840
YERADA 5639	PHILLIPSON 5739	COOPERPETY 5839

LOCATION INDEX

UNIVERSAL TRANSVERSE MERCATOR PROJECTION

WOORONG

CONTOUR INTERVAL 10 nanoTesla

FOR SURVEY SPECIFICATIONS SEE SHEET ONE OF 1:25000 CONTOUR MAP.

E.L. BOUNDARY

SURVEYED AND COMPILED BY:
AERODATA SERVICES (1980) PTY LTD
MAY 1981

To Accompany Report No. W.Y. 81:9

PLATE 2

REVISION	DATE	DRAWN S.L.C.
		DATE MAY, 1981
		GEOLOGY Y. BLADIER
		APPROVED
REVISION Nº	SIZE	DRAWING Nº SH 53 - 2. 137. 3303.

WOORONG - S.AUST
E.L.620

TOTAL MAGNETIC FIELD CONTOUR MAP
SUMMARY

5839-5

MURLOOCOPPIE
MABEL CREEK
5740

AFMECO PTY. LTD.

TN
GN
MN
TRUE/MAGNETIC DECLINATION 4° 40'

SCALE: 1:100 000

2 0 2 4 6 8 10 12 Km

AUSTRALIAN MAP GRID

NARRACK 5641	MURLOOCOPPIE 5741	MIRACKINA 5841
YARLIE 5640	MABEL CREEK 5740	ALGEBULL-CULLIA 5840
YERADA 5639	PHILLIPSON 5739	COOBER PEDY 5839

LOCATION INDEX

UNIVERSAL TRANSVERSE MERCATOR PROJECTION

CULTURAL FEATURES

- HEAD STATION, OUT STATION, HUT
- NATIONAL ROUTE NUMBER
- HIGHWAY OR MAIN ROAD
- SECONDARY ROAD
- TRACK
- TRACK ALONG BOUNDARY FENCE
- RAILWAY AND STATION
- RAILWAY AND SIDING
- VERMIN OR DOG PROOF FENCE
- POWER TRANSMISSION LINE
- MINE & PROSPECT OR MINERAL OCCURRENCE
- QUARRY
- YARD
- TRIG STATION
- IDENTIFIED HILL OR MOUNTAIN
- FERRY
- LIGHTHOUSE OR BEACON
- REEF
- TANK, BORE, WELL
- SPRING
- WATERHOLE
- DAM
- EPHEMERAL STREAM CHANNEL
- OUTWASH OR FLOOD PLAIN
- CLAY PAN, SALT PAN, SWAMP
- MANGROVE
- SAND DUNES
- ARTESIAN BORE
- OIL BORES
  - GAS
  - OIL AND GAS
  - OIL
  - DRY
  - STRATIGRAPHIC

LEGEND

- ••••• Airborne Magnetic Survey
- WF4 ● Drillhole Location and Number

To Accompany Report No. W.Y. 81-9. PLATE 1

REVISION	DATE	DRAWN S.L.C.
		DATE MAY. 1981
		GEOLOGY Y. BLADIER
		APPROVED
REVISION Nº	SIZE	DRAWING Nº SH 53-2. 137. 4116

WOORONG - S. AUST.
E.L. 620
LOCALITY MAP
Showing
DRILLHOLES 3838-6