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No. 4265

EL 839

BORDERTOWN AREA

**PROGRESS AND FINAL REPORTS TO LICENCE EXPIRY
FOR THE PERIOD 13/4/81 TO 12/4/82**

Submitted by
Thiess Bros. Pty Ltd
1982

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**PRIMARY INDUSTRIES
AND RESOURCES SA**

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R601-603

R604-615 NOT INCL.

} NO USEFUL STRAT

CSR ENERGY DIVISION

000003

on behalf of

THIESS BROS. PTY LIMITED - MINING DIVISION

EXPLORATION LICENCE 839 - BORDERTOWN

EXPLORATION PROGRESS REPORT FOR

3 MONTH PERIOD ENDED 12 JULY 1981

Prepared by:

Exploration and Evaluation Group
13th Floor
AMP Place
10 Eagle Street
BRISBANE QLD 4000

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000005

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1.

SUMMARY

Exploration during the quarter has been directed at locating potential shallow lignite resources within the Knight Group (Renmark Beds) of the Murray Basin.

Three rotary chip holes were drilled and geophysically logged during June 1981 where shallow occurrences of Knight Group sediments were thought to occur.

Results of this exploration programme are currently being assessed. No reserves of lignite (brown coal) have been calculated.

000007

2. INTRODUCTION

2.1 Scope of Report

This report discusses the exploration for lignite within EL839 Bordertown during the three month period ended 12 July 1981. The results of this exploration are currently being assessed.

2.2 Tenement Details

EL839 Bordertown, covering an area of 2154 km², was granted to Thiess Bros. Pty Limited Mining Division on 13 April 1981 for a term of one year (Figure 1). The ground was acquired to explore for Eocene age lignite (brown coal) known to occur within Murray Basin strata of the area. The strata is similar to that found within EL609 Mannum.

2.3 Location, Physiography and Climate

EL839 Bordertown, is located in southeastern South Australia on the Naracoorte 1:250,000 and the 1:500,000 Geology of the Southeast of South Australia sheets. The EL is bounded to the west by the West Naracoorte Range, and to the east by the South Australia-Victoria state border. Bordertown is situated immediately outside of the northeastern extremity of the EL and Naracoorte lies within the southwestern section of the EL. The Dukes Highway and the Adelaide-Serviceton Railway traverse the northeastern corner of the EL.

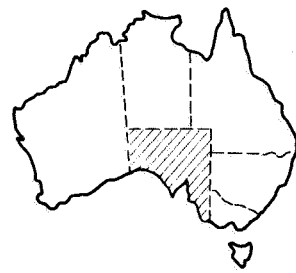
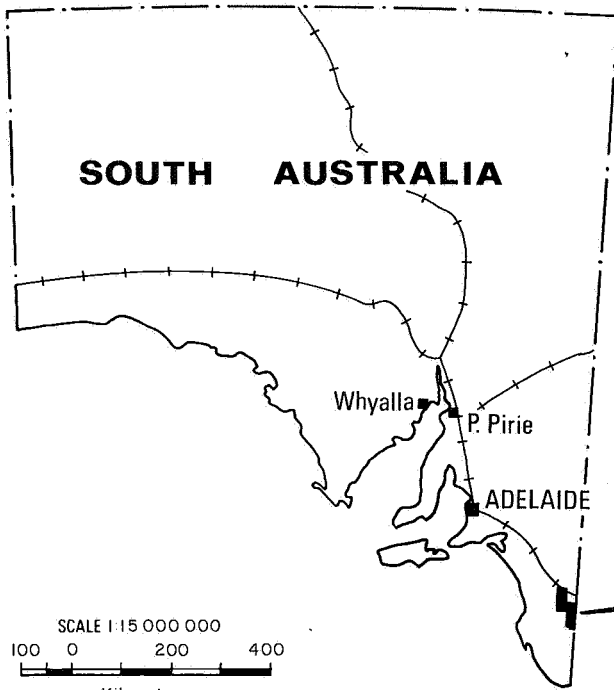
The surface of EL839 is flat to gently undulating, and is covered by stranded Pleistocene coastal dunes and interdunal deposits of clay, marl and silt. The largest stranded coastal dune is draped over a lower Palaeozoic granite ridge (Padthaway Ridge) and is known as the West Naracoorte Range. Nodular and sheet calcretes crop out in the soil profile, particularly north and northwest of rotary hole R602. Currently, land is used for grazing and growing cereal crops.

The climate of this area is one of warm to hot dry summers, and cold to cool wet winters. The rainfall ranges up to 500 mm, and falls during the winter months (May-September).

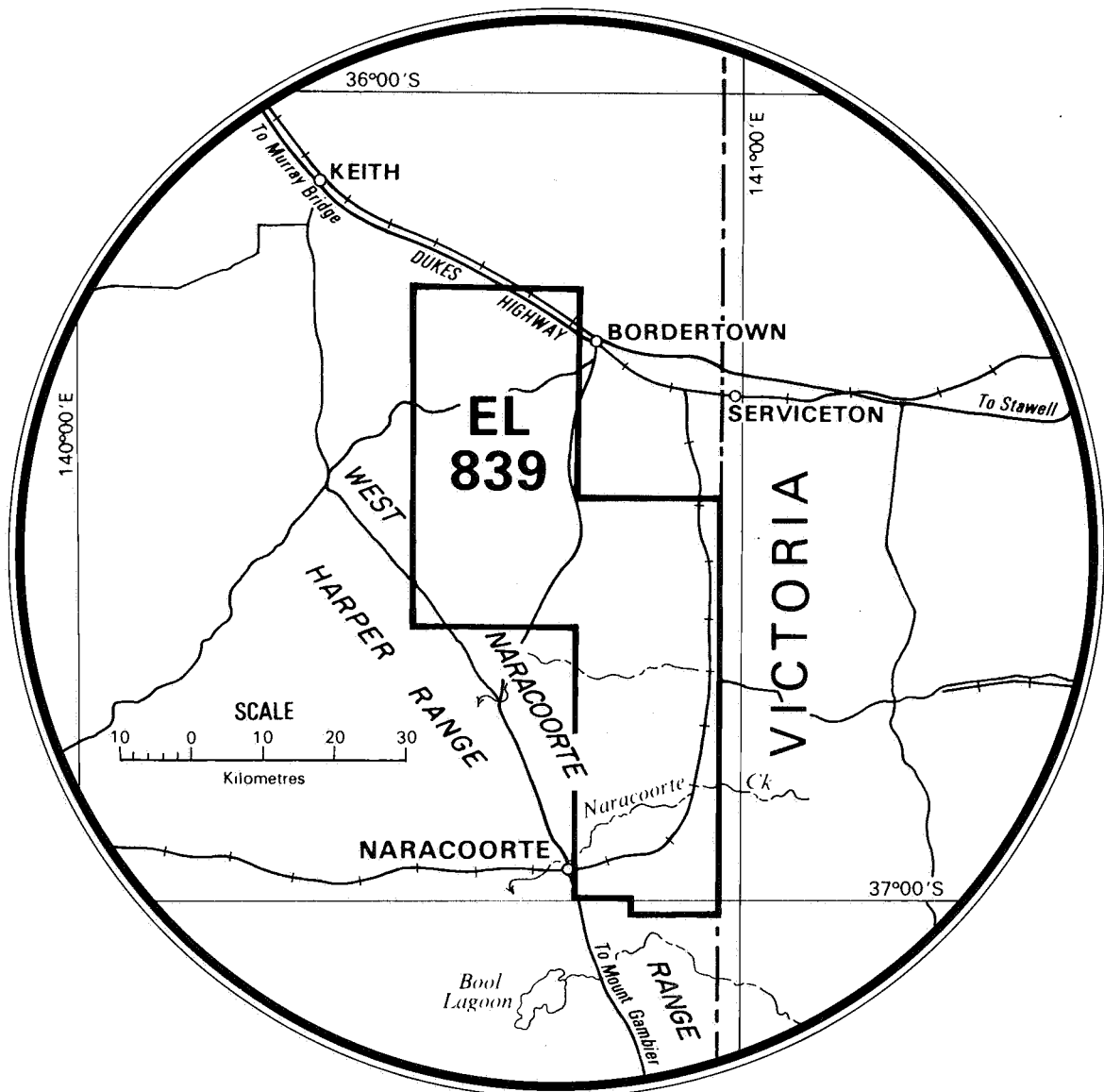
3. GEOLOGY

The Murray Basin strata within the EL are of Tertiary and Quaternary age and disconformably overly Palaeozoic basement consisting of Kanmantoo Group Meta-sediments and lower Palaeozoic granites and related volcanics.

000008



SCALE 1:15 000 000
100 0 200 400
Kilometres



EXPLORATION LICENCE 839 SOUTH AUSTRALIA

The Murray Basin strata within the area generally consist of inferior lignites, inferior clayey lignites, and ligneous clays, sands and silts of the Knight Group (Renmark Beds equivalent), that are overlain by marine influenced carbonaceous clays of the Buccleuch Group. The Buccleuch Group is overlain by the marine Ettrick Formation and bryozoal coquinitic Gambier Limestone (Mannum Limestone equivalent). The Quarternary Coomandook, Bridgewater and Padthaway Formations overly the Gambier Limestone. Figure 2 shows the correlation between Murray Basin strata of EL609 Mannum and EL839 Bordertown.

4. EXPLORATION

An examination of all available drillhole and geophysical information was undertaken to assess the potential for shallow economic Tertiary lignite deposits within the EL. Following this assessment, three rotary chip holes were drilled along the Kongal Park-Mundulla Road where shallow occurrences of lignite were thought to occur.

4.1 Exploratory Drilling

The drilling was undertaken by W.L. Sides & Son Pty Limited, using a Mayhew 1,000 rig, during the period 20 to 23 June 1981. Three rotary holes were drilled for an aggregate of 301.2 metres. A summary of the exploration statistics for the three month period are contained in Table 1, while details of drillhole statistics, including sampled intervals are included in Appendix 1. The location of the three drill holes is shown in figure 3. Drill hole number R601 was unintentionally drilled outside of the EL.

All drill holes were cemented to at least 20 metres above the Knight Group sediments and backfilled to the surface with rotary cuttings after the geophysical logging was completed.

TABLE 1

EL839 BORDERTOWN

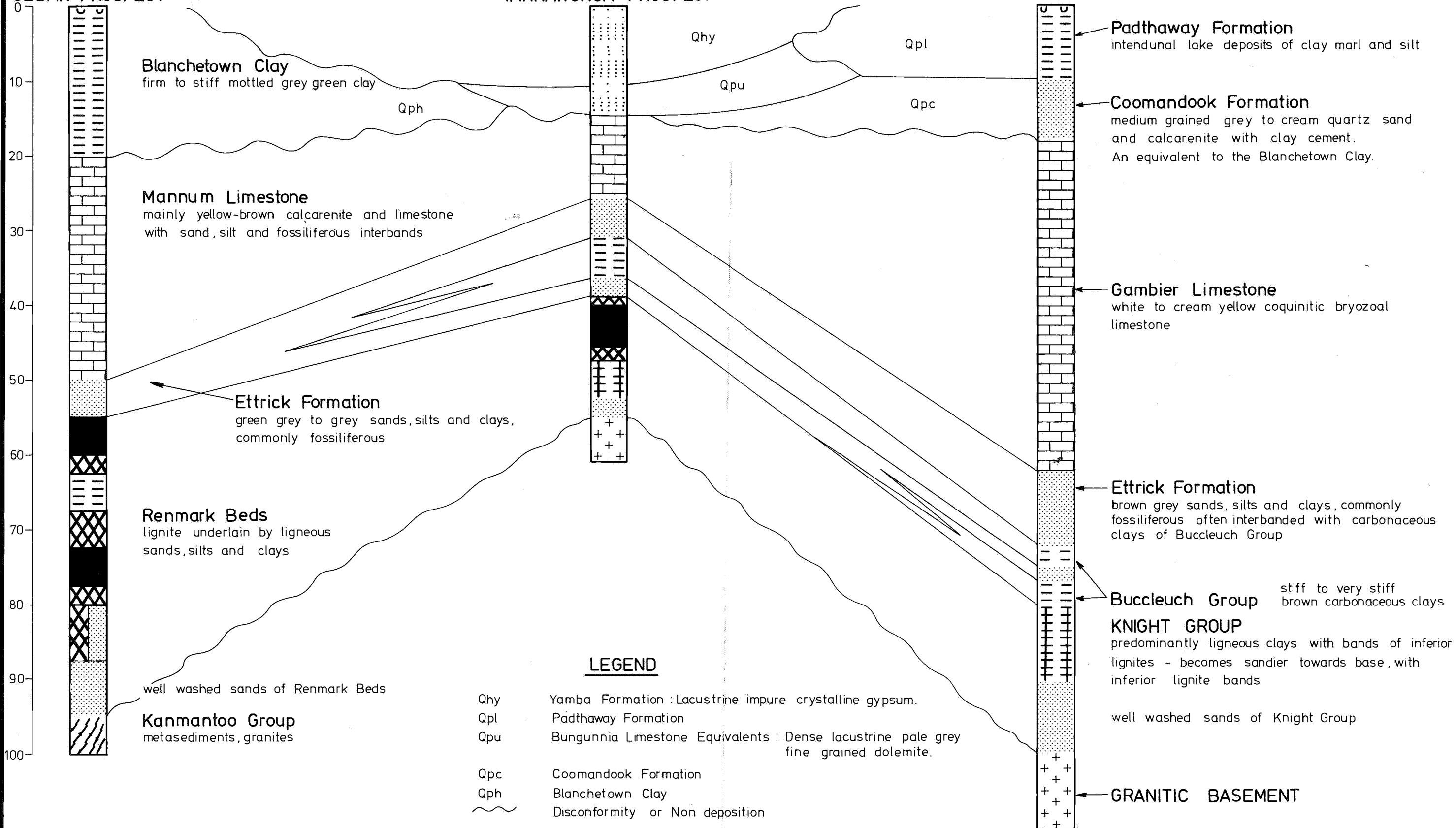
Exploration Statistics for Three Month Period Ended 12 July 1981

Period	No. of Holes		Total Depth (metres)
	Drilled	Wireline Logged	
20-23 June 1981	3	3	301.2

EL609 MANNUM -
SEDAN PROSPECT

EL707 YUMALI
YARRAWONGA PROSPECT

EL839 BORDERTOWN

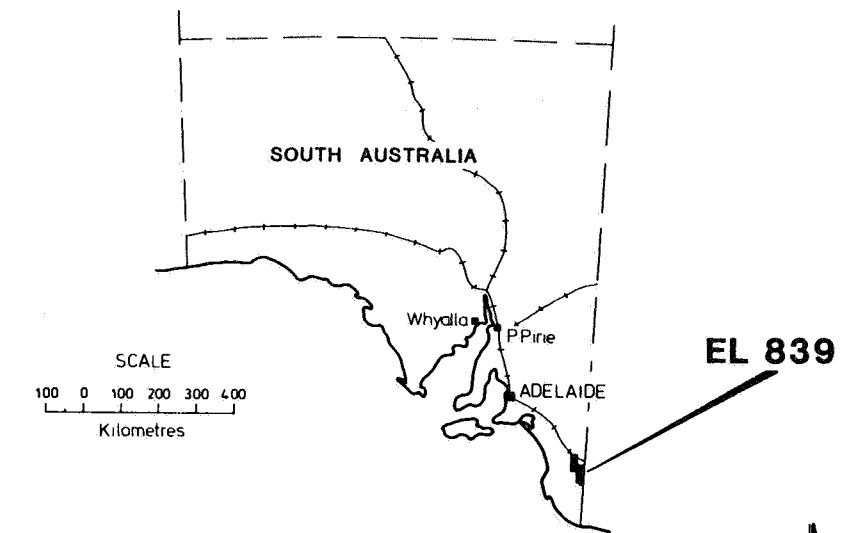
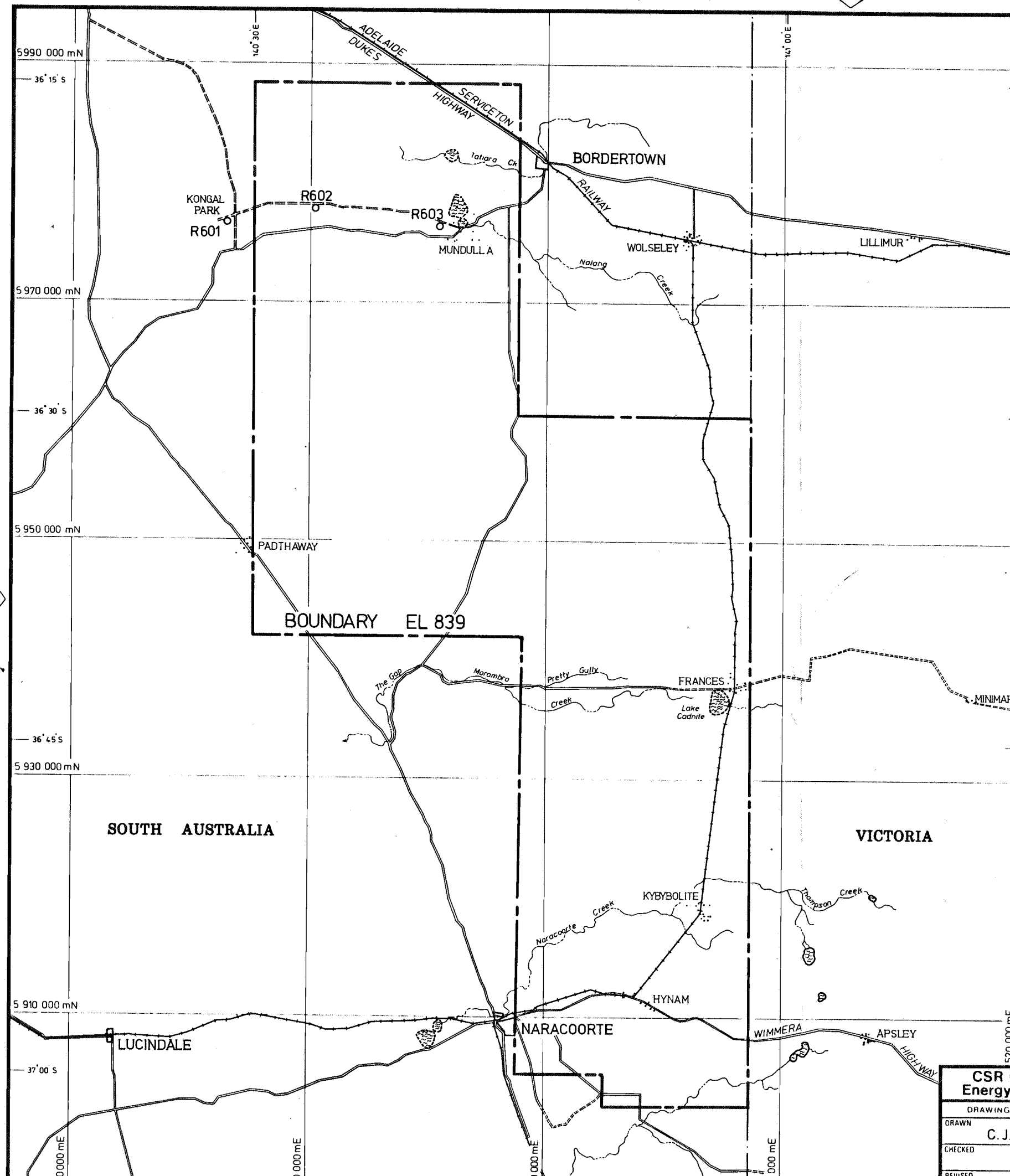


AFTER LUDBROOK (1980)

CSR Limited Energy Division		EXPLORATION AND EVALUATION GROUP			
DRAWING	DATE	CORRELATION BETWEEN STRATA OF EL609 MANNUM, EL839 BORDERTOWN AND EL707 YUMALI			SCALE
DRAWN C. J.	Aug. '81				1:500 V
CHECKED					FIGURE 2
REVISED					DRAWING No 50839-4

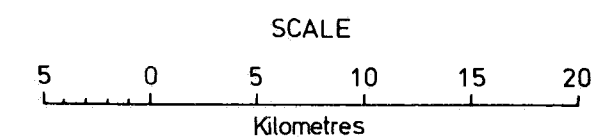
4265

Greek Log missing



LEGEND

- Built-up area
- Major roads
- Minor roads
- Railway
- EL Boundary
- R601 CSR Borehole



CSR Limited
Energy Division

EXPLORATION AND EVALUATION GROUP

CSR

DRAWING	DATE
DRAWN C. J.	July '81
CHECKED	
REVISED	

EL 839 BORDERTOWN
LOCATION OF EXPLORATION

SCALE
1 : 250 000

FIGURE 3

DRAWING No

The english and graphic logs of these holes will be included in the next quarterly report.

4.2 Geophysical Logging

All holes were geophysically logged by Geoscience Associates (Australia) for gamma, resistivity, S.P., neutron, density and caliper. Copies of the geophysical logs are included in Appendix 2 under a separate cover.

4.3 Further Exploration

Further exploration in the EL will involve scout drilling in areas considered to be prospective for shallow occurrences of economic lignite.

The next report will include english and graphic logs of all holes drilled during the present period.

5. REFERENCES

LUDBROOK, N.H.

1980

A Guide to the Geology
and Mineral Resources
of South Australia.



Peter Ellis - Geologist

C00013

MINING TENEMENT NO : EL839 PERIOD 20 / 06 / 81 TO 23 / 06 / 81
LOCATION : BORDERTOWN SHEET NO: 1 OF 1 SHEETS
SITE GEOLOGIST : P. ELLIS
T. TONERGAN DRILLING CONTRACTOR : W.L. SIDES & SON PTY LTD
LOGGING CONTRACTOR : GEOSCIENCE ASSOCIATES
(AUSTRALIA)

[illegible]

APPENDIX 1 (CONT'D)EXPLORATORY DRILLINGSAMPLE INTERVALS AND SAMPLE DESCRIPTIONS

	CHIP SAMPLE INTERVAL (metres)	FORMATION	DESCRIPTION
<u>R601</u>	16.0-30.0	GAMBIER Limestone	Moderate to hard, brittle, light grey- yellow-cream coloured bryozoan limestone.
	28.5-46.8	ETTRICK FORMATION (or equivalent), and oxidized GAMBIER Limestone	Orange-yellow clayey- sandy <u>SILTS</u> , silty <u>SANDS</u> , with Calcarenite bands.
	46.8-53.3	KNIGHT GROUP	Clayey, sandy <u>INFERIOR</u> <u>LIGNITE</u> , with some micaceous minerals.
R603	66.2-78.3	GAMBIER Limestone	Moderate, brittle, light grey-white-cream coloured bryozoan lime- stone with common coral fossils.

Exploration and Evaluation Group

CSR ENERGY DIVISION

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13th November, 1981

Our Ref: JT:CMC:905 1

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

ATTENTION: MR IAN GRANT

Dear Sir,

RE: EL 839 BORDERTOWN, EXPLORATION PROGRESS REPORT
FOR THE THREE MONTHS ENDED 12TH OCTOBER, 1981

No field work was undertaken in EL 839 Bordertown during the three month period under review.

A drilling programme is being prepared at present which will be undertaken in conjunction with drilling in EL 707 Yumali and EL 609 Mannum in the new year.

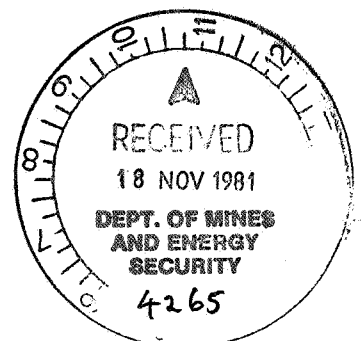
A summary of expenses incurred in EL 839 Bordertown during the period 12th July 1981 to 12th October 1981 is attached.

Yours faithfully,



J. THRIFT
Senior Geologist - Coal

Attached



STATEMENT OF EXPENDITUREBORDERTOWN EL 839THREE MONTHS PERIOD ENDED12TH OCTOBER 1981

Salaries and Wages	\$117-03
Stores and Materials	\$ 11.94
Drafting Services	\$355.68
Freight	<u>\$ 25.95</u>
	<u>\$510.60</u>

000017

CSR ENERGY DIVISION

on behalf of

THIESS BROS PTY LIMITED - MINING DIVISION

EXPLORATION LICENCE 839 - BORDERTOWN

EXPLORATION PROGRESS REPORT FOR 3 MONTH PERIOD

ENDED 12 JANUARY 1982

Prepared by:

Exploration and Evaluation Group
13th Floor, AMP Place
10 Eagle Street
BRISBANE Qld 4000

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3.	EL839 Bordertown Location of Exploration	50839-3

1. SUMMARY

No further exploration was conducted in the quarter. Results of previous exploration were assessed and a programme was planned for the next quarter to locate potential shallow lignite resources in the EL south of previous exploration.

2. INTRODUCTION

2.1 Scope of Report

This report discusses assessment during the three month period ended 12th January 1982, of exploration for lignite in EL839 Bordertown.

2.2 Tenement Details

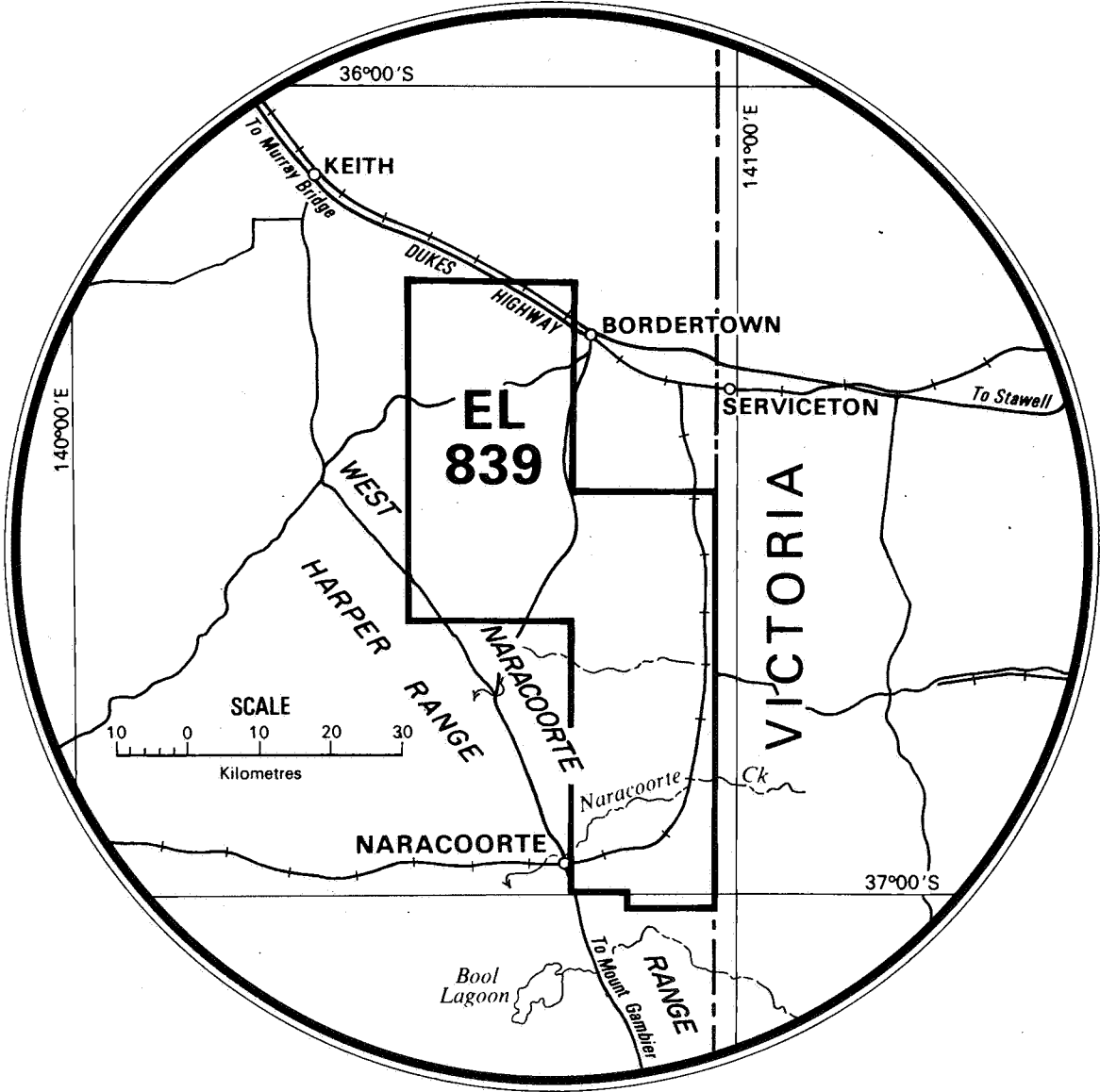
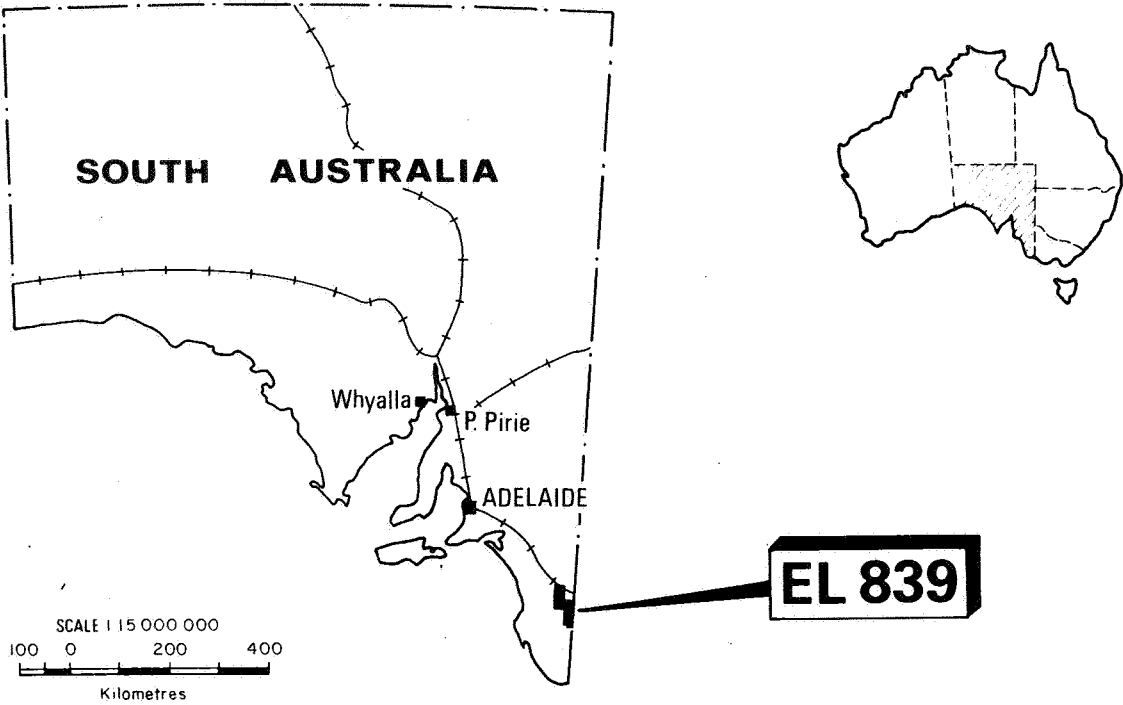
EL839 Bordertown, covering an area of 2,154km², was granted to Thiess Bros. Pty Limited Mining Division on 13 April 1981 for a term of one year (Figure 1). The ground was acquired to explore for Eocene age lignite (brown coal) known to occur within Murray Basin strata of the area. The strata is similar to that found within EL609 Mannum.

2.3 Location, Physiography and Climate

EL839 Bordertown, is located in southeastern South Australia on the Naracoorte 1:250,000 and the 1:500,000 Geology of the Southeast of South Australia sheets. The EL is bounded to the west by the West Naracoorte Range, and to the east by the South Australia-Victoria state border. Bordertown is situated immediately outside of the northeastern extremity of the EL and Naracoorte lies within the south-western section of the EL. The Dukes Highway and the Adelaide-Serviceton Railway traverse the northeastern corner of the EL.

The surface of EL839 is flat to gently undulating, and is covered by stranded Pleistocene coastal dunes and interdunal deposits of clay, marl and silt. The largest stranded coastal dune is draped over a lower Palaeozoic granite ridge (Padthaway Ridge) and is known as the West Naracoorte Range. Nodular and sheet calcretes crop out in the soil profile, particularly north and northwest of rotary hole R602. Currently, land is used for grazing and growing cereal crops.

The climate of this area is one of warm to hot dry summers, and cold to cool wet winters. The rainfall ranges up to 500mm, and falls during the winter months (May-September).



EXPLORATION LICENCE 839
SOUTH AUSTRALIA

FIGURE 1

3. GEOLOGY

The Murray Basin strata within the EL are of Tertiary and Quaternary age and disconformably overly Palaeozoic basement consisting of Kanmantoo Group meta-sediments and lower Palaeozoic granites and related volcanics.

The Murray Basin strata within the area generally consist of inferior lignites, inferior clayey lignites, and ligneous clays, sands and silts of the Knight Group (Renmark Beds equivalent), that are overlain by marine influenced carbonaceous clays of the Buccleuch Group. The Buccleuch Group is overlain by the marine Ettrick Formation and bryozoal coquinitic Gambier Limestone (Mannum Limestone equivalent). The Quaternary Commandook, Bridgewater and Padthaway Formations overly the Gambier Limestone. Figure 2 shows the correlation between Murray Basin strata of EL609 Mannum and EL839 Bordertown.

4. EXPLORATION

No exploration was conducted during the report period. Previous results were further assessed and a scout drilling programme was planned to supplement previous drilling. Drilling statistics for the EL are shown in Table 1.

4.1 Outline of Intended Programme

An exploratory rotary chip drilling program is due to commence on 24 February 1982 to test for occurrence of brown coal in Knight Group sediments to the south of previous drilling. The contractor will be Thompson Drilling, and all holes will be geophysically logged by Geoex Pty Limited.

TABLE 1
DRILLING STATISTICS

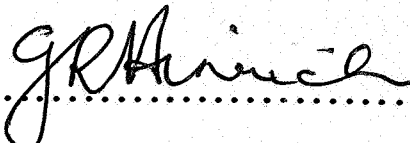
Period	No. of Holes		Total Depth (metres)
	Drilled	Wireline Logged	
20-23 June 1981	3	3	301.2

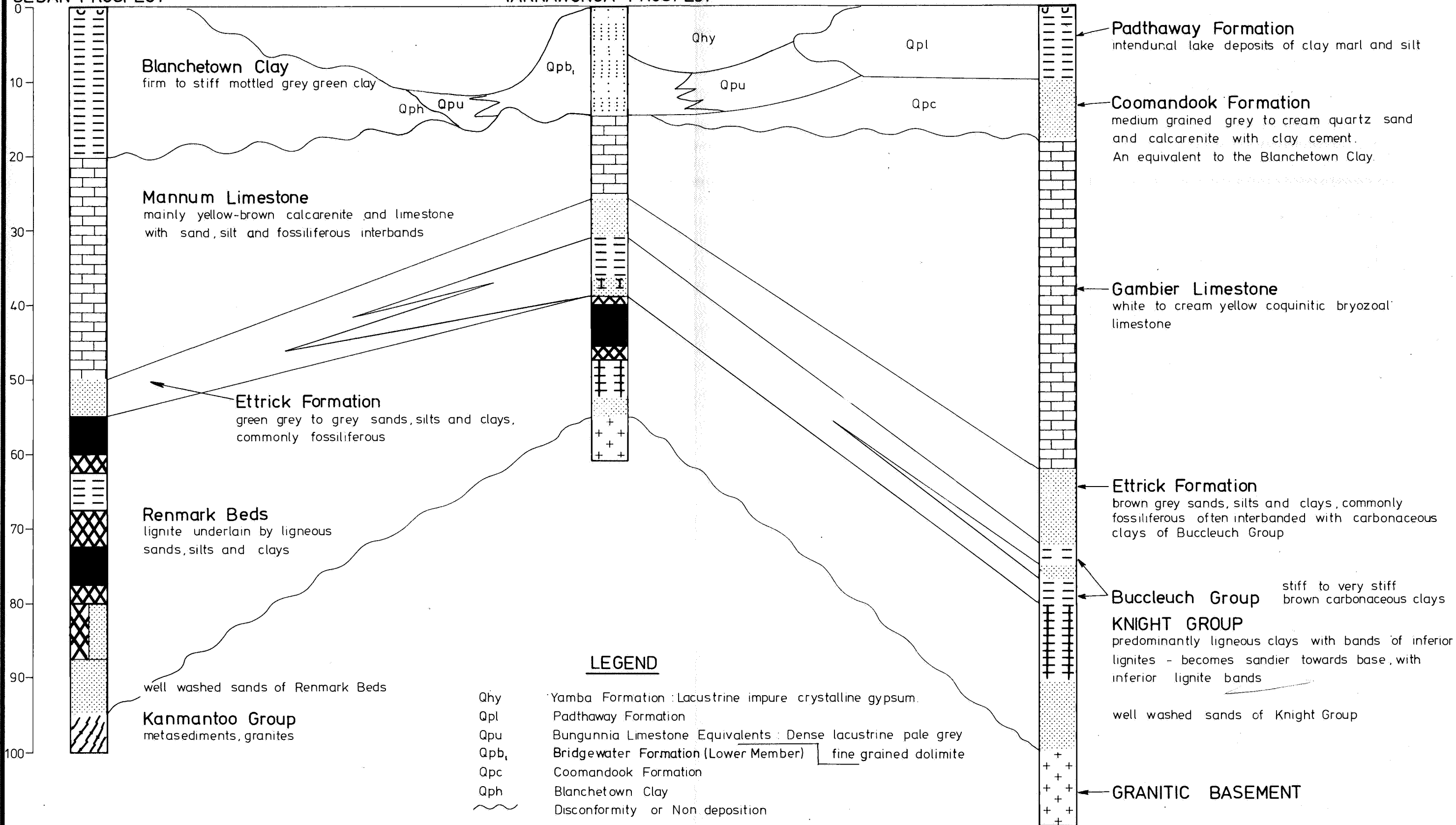
5. REFERENCES

ELLIS, P.

1981

CSR Energy Division on behalf
of Thiess Bros. Pty. Limited -
Mining Division. Exploration
Licence 839 - Bordertown
Exploration Progress Report
for 3 month Period ended July
12th, 1981.


.....
G.R. Hinrichs
Geologist



AFTER LUDBROOK (1980)

CSR Limited Energy Division		EXPLORATION AND EVALUATION GROUP			
DRAWING	DATE	CORRELATION BETWEEN STRATA OF EL609 MANNUM, EL839 BORDERTOWN AND EL908 YUMALI.			SCALE
DRAWN C. J.	Aug. '81				1:500 V
CHECKED					FIGURE 2
REVISED M.R.N.	Feb '82				DRAWING No 50839-4

000025

SOUTH AUSTRALIA

SCALE
100 0 100 200 300 400
Kilometres

EL 839



LEGEND

- Built-up area
- Major roads
- Minor roads
- Railway
- EL Boundary
- CSR Borehole

SCALE
5 0 5 10 15 20
Kilometres

SOUTH AUSTRALIA

VICTORIA

CSR Limited
Energy Division

EXPLORATION AND EVALUATION GROUP

CSR

DRAWING	DATE
DRAWN C J.	July '81
CHECKED	
REVISED MRN	Feb. '82

EL 839 BORDERTOWN
LOCATION OF EXPLORATION

SCALE

FIGURE 3

DRAWING No

50839-3 R

000028

CSR ENERGY DIVISION

ON BEHALF OF

THIESS BROS PTY LTD - MINING DIVISION

EXPLORATION LICENCE 839 - BORDERTOWN

EXPLORATION PROGRESS REPORT

FOR THREE MONTH PERIOD

ENDED 12 APRIL 1982

G. Hinrichs

Prepared by:

Exploration and Evaluation Group
CSR Energy Division
AMP Building
10 Eagle Street
BRISBANE QLD 4000

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1. SUMMARY

Exploration during the quarter was directed at locating shallow lignite resources within the Knight Group of the Murray Basin.

Three holes were drilled in June 1981 and thirteen in March 1982, in areas where shallow occurrences of Knight Group sediments were expected.

No significant intersections of quality lignite were recorded. The area is considered to have low potential for locating shallow lignite amenable to mining and CSR will not apply for renewal of the Exploration Licence on expiry.

2. INTRODUCTION

2.1 Scope of Report

This report discusses the results of exploration for lignite within EL839 Bordertown up to 12th April 1982. The results of all exploration to date have been assessed.

2.2 Tenement Details

EL839 Bordertown, covering an area of 2,154km², was granted to Thiess Bros Pty Limited Mining Division on 13th April 1981 for a term of one year (Figure 1). The ground was acquired to explore for Eocene age lignite (brown coal) known to occur within Murray Basin strata of the area.

2.3 Location, Physiography and Climate

EL839 Bordertown, is located in southeastern South Australia on the Naracoorte 1:250,000 and the 1:5000,000 Geology of the Southeast of South Australia sheets. The EL is bounded to the west by the West Naracoorte Range, and to the east by the South Australia-Victoria State border. Bordertown is situated immediately outside of the northeastern extremity of the EL and Naracoorte lies within the southwestern section of the EL. The Dukes Highway and the Adelaide-Serviceton Railway traverse the northeastern corner of the EL.

The surface of EL839 is flat to gently undulating, and is covered by stranded Pleistocene coastal dunes and interdunal deposits of clay, marl and silt. The largest stranded coastal dune is draped over a lower Palaeozoic granite ridge (Padthaway Ridge) and is known as the West Naracoorte Range. Nodular and sheet calcretes crop out in the soil profile, particularly north and northwest of rotary hole R602. Currently, land is used for grazing and growing cereal crops.

3. GEOLOGY

The Murray Basin strata within the EL are of Tertiary and Quaternary age and disconformably overlie Palaeozoic basement consisting of Kanmantoo Group Meta-sediments and lower Palaeozoic granites and related volcanics.

The Murray Basin strata within the area generally consist of inferior lignites, inferior clayey lignites, and ligneous clays, sands and silts of the Knight Group (Renmark Beds equivalent), that are overlain by marine influenced carbonaceous clays of the Buccleuch Group. The Buccleuch Group is overlain by the marine Ettrick Formation and bryozoal coquinitic Gambier Limestone (Mannum Limestone equivalent). The Quaternary Coomandook, Bridgewater and Padthaway Formations overlie the Gambier Limestone. Figure 2 shows a generalised stratigraphic column for EL839 Bordertown.

4. EXPLORATION

An examination of previous drillhole and geophysical information was undertaken to identify areas most prospective for shallow lignite within the EL. Following this assessment thirteen rotary chip holes were drilled during the period under review, with at least one hole in each of the most prospective areas within the EL.

4.1 Exploratory Drilling

A total of 16 rotary chip holes have been drilled in the EL in two programmes. Three holes were drilled in June 1981 by W.L. Sides & Son Pty Ltd using a Mayhew 1000 rig. During the period under review a further thirteen holes were drilled by Thompson Drilling using a Mayhew 1000 from 1st - 7th March 1982. A summary of exploration statistics is shown in Table 1, and detailed drilling statistics are in Appendix I. Location of all holes are shown in Figure 3.

TABLE 1
EL839 BORDERTOWN
EXPLORATION STATISTICS FOR THREE MONTH PERIOD
ENDED 12TH APRIL 1982

PERIOD	NO. OF HOLES		TOTAL DEPTH (m)
	DRILLED	GEOPHYSICALLY LOGGED	
20-23 June 1981	3	3	301.2
1-7 March 1982	13	11	1,377
TOTAL	16	14	1,678.2

4.2 Geophysical Logging

All holes in the June 1981 programme were logged by Geoscience Associates (Australia) for gamma, resistivity, S.P., neutron, density and caliper. Logging during the March 1982 drilling was undertaken by Geoex Pty Limited. Holes were logged for gamma, resistivity, neutron, short and long spaced density and caliper. Copies of the geophysical logs are in Appendix II under a separate cover.

4.3 Drilling Results

The top of the Knight Group (coal horizon) was encountered at depths between 80 and 131m. Two boreholes (R602 and R606) intersected the Knight Group at less than 100m. Of these two,

R606 encountered carbonaceous and ligneous clays, with no lignite evidence in either cuttings or geophysical logs. The other, R602, intersected ligneous clays with thin bands of inferior clayey lignite or sandy inferior clayey lignite.

Four drillholes intersected the Knight Group at over 100m (R607, R605, R610 and R612). The highest grade coal in these holes was inferior clayey lignite and the shallowest ligneous material was 109m. Two holes in the south of the EL were abandoned at 15m in limestone after total loss of circulation (R613 and R614). Similarly, R616 was abandoned at 32m.

Five holes were drilled to basement with no sign of Knight Group sediments (R603, R604, R605, R609 and R615).

One hole, on margins of a basement depression, was drilled with no circulation, and intersections are uncertain (R611). Clays with ligneous content may have been intersected between 107m and 110m but geophysical logs show no lignite.

Basement contours for the EL are shown in Figure 4. Depth to Knight Group in areas of Knight Group deposition is shown in Figure 5. A generalised cross section is shown in Figure 6. The English and graphic logs of all holes will be included under a separate cover when they become available.

4.4 Conclusions

The area is considered to have poor potential for locating shallow lignite reserves amenable to mining and no further exploration by CSR Limited is intended. The exploration licence will be relinquished on expiry on 12th April 1982.

5. REFERENCES

- ELLIS, P. 1981 CSR Energy Division on behalf of Thiess Bros. Pty Limited - Mining Division. Exploration Licence 839 - Bordertown. Exploration Progress Report for 3 month period ended 12th July 1981.
- HINRICHS, G.R. 1982 CSR Energy Division on behalf of Thiess Bros. Pty Limited - Mining Division. Exploration Licence 839 - Bordertown. Exploration Progress Report for 3 month period ended 12th January 1982.


.....
G.R. Hinrichs
Geologist

APPENDIX I

EXPLORATORY DRILLING DETAILS
INCLUDING SAMPLE INTERVALS
AND SAMPLE DESCRIPTIONS

000038

PERIOD : 20.6.81 TO 23.6.81
SHEET NO : 1 OF 1 SHEETS

DRILLING CONTRACTOR : W.L. Sides & Son Pty Ltd
LOGGING CONTRACTOR : Geoscience Associates (Australia)

[illegible]

000039

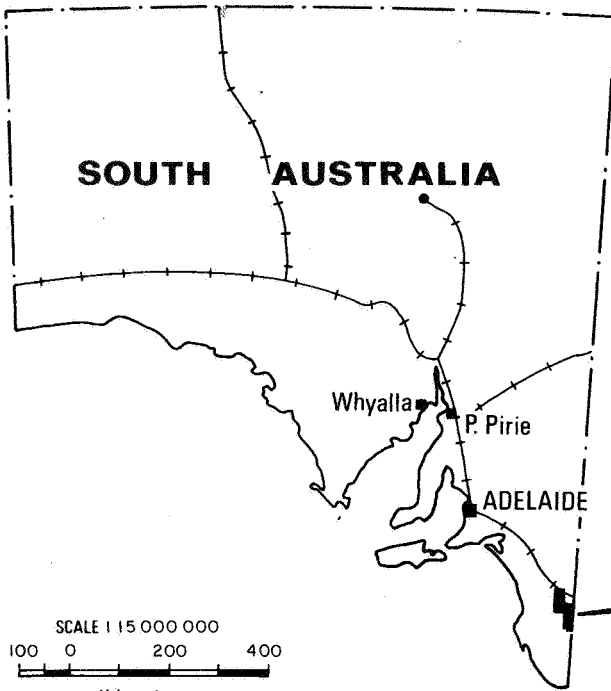
PERIOD : 1.3.82 TO 7.3.82
SHEET NO : 1 OF 1 SHEETS

[illegible]

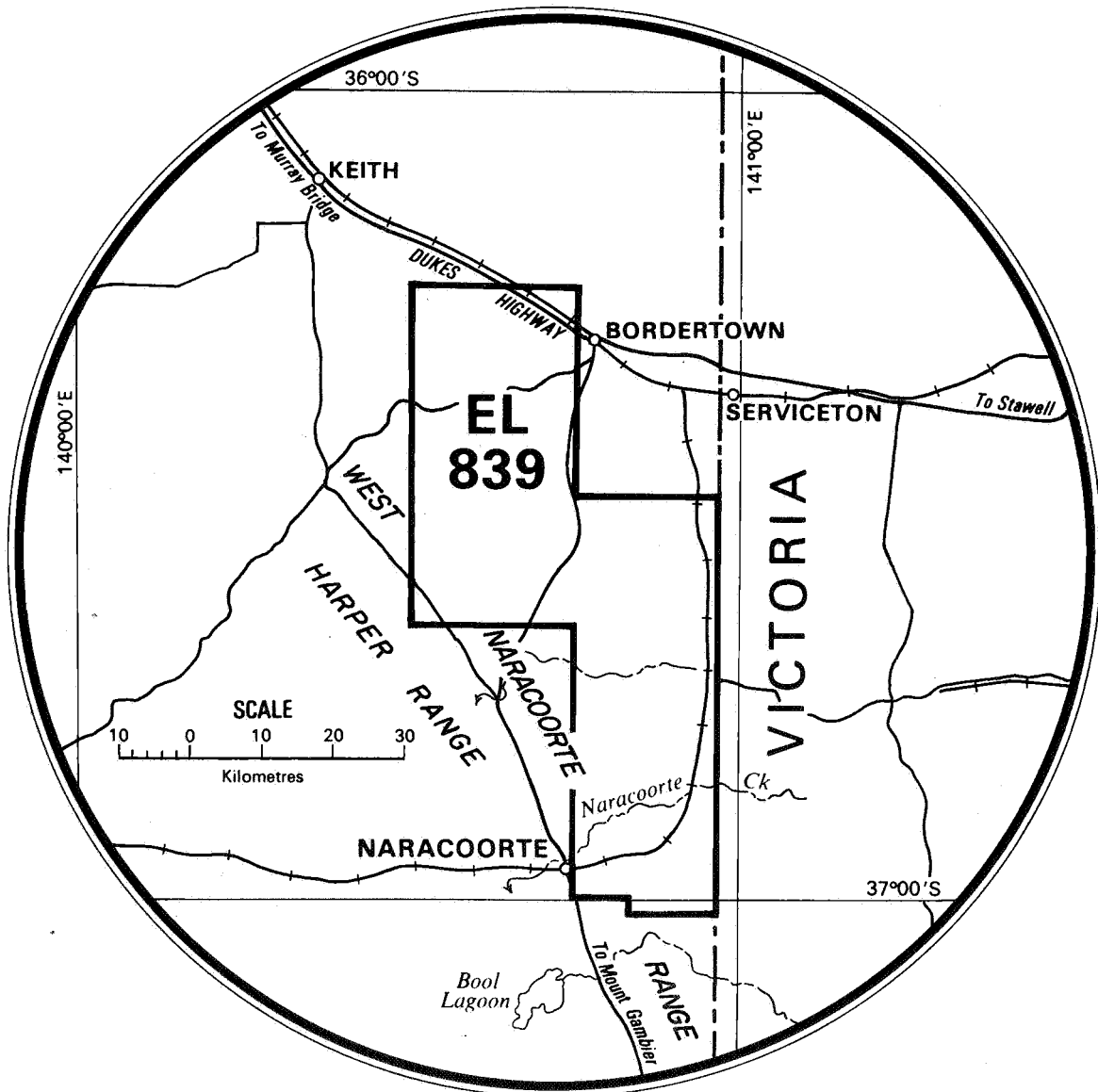
EXPLORATORY DRILLING
SAMPLE INTERVALS AND SAMPLE DESCRIPTIONS

	CHIP SAMPLE INTERVAL (metres)	FORMATION	DESCRIPTION
<u>R601</u>	16.0-30.0	GAMBIER LIMESTONE	Moderate to hard, brittle, light grey- yellow-cream coloured bryozoan limestone.
	28.5-46.8	ETTRICK FORMATION (or equivalent), and oxidized GAMBIER LIMESTONE	Orange-yellow clayey- sandy <u>SILTS</u> , silty <u>SANDS</u> , with Calcerenite bands.
	46.8-53.3	KNIGHT GROUP	Clayey, sandy <u>INFERIOR LIGNITE</u> , with some micaceous minerals.
<u>R603</u>	66.2-78.3	GAMBIER LIMESTONE	Moderate, brittle, light grey-white-cream coloured bryozoan limestone with common coral fossils.
<u>R606</u>	86.0-92.0	BUCCLEUCH GROUP	Firm, low plasticity mid to dark grey brown sanding carbonaceous <u>CLAYS</u> .
<u>R609</u>	28.0-60.0	GAMBIER LIMESTONE	Hard brittle to loose non plastic, moderately weathered to fresh light green grey <u>BRYOZOAN LIMESTONE</u> with abundant fragmented shells and marine fossils.
<u>R610</u>	39.0-110.0	GAMBIER LIMESTONE	Loose non plastic to hard brittle light grey green to cream <u>BRYOZOAN LIMESTONE</u> with some glauconite.
	140-151.0	KNIGHT GROUP	Firm, low plasticity mid and dark brown black <u>CARBONACEOUS</u> and <u>LIGNEOUS CLAYS</u> , with bands of clayey <u>INFERIOR LIGNITE</u> .

000041



EL 839

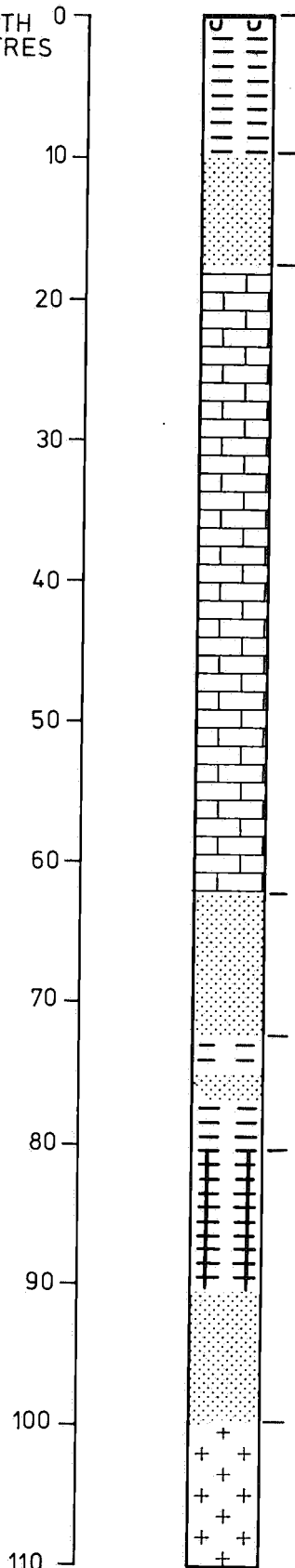


EXPLORATION LICENCE 839 SOUTH AUSTRALIA

EL 839 BORDERTOWN

000042

DEPTH
IN METRES



Padthaway Formation

interdunal lake deposits of clay marl and silt

Coomandook Formation

medium grained grey to cream quartz sand and calcarenite with clay cement.

An equivalent to the Blanchetown Clay.

Gambier Limestone

white to cream yellow coquinitic bryozoal limestone

Ettrick Formation

brown grey sands, silts and clays, commonly fossiliferous often interbanded with carbonaceous clays of Buccleuch Group

Buccleuch Group

stiff to very stiff brown carbonaceous clays

KNIGHT GROUP

predominantly ligneous clays with bands of inferior lignites - becomes sandier towards base, with inferior lignite bands

well washed sands of Knight Group

GRANITIC BASEMENT

CSR Limited
Coal Division

EXPLORATION AND EVALUATION GROUP

CSR

DRAWING / DATE

DRAWN
K.E. Apr. '82

CHECKED

REVISED

EL 839 BORDERTOWN
GENERALISED STRATIGRAPHIC
COLUMN

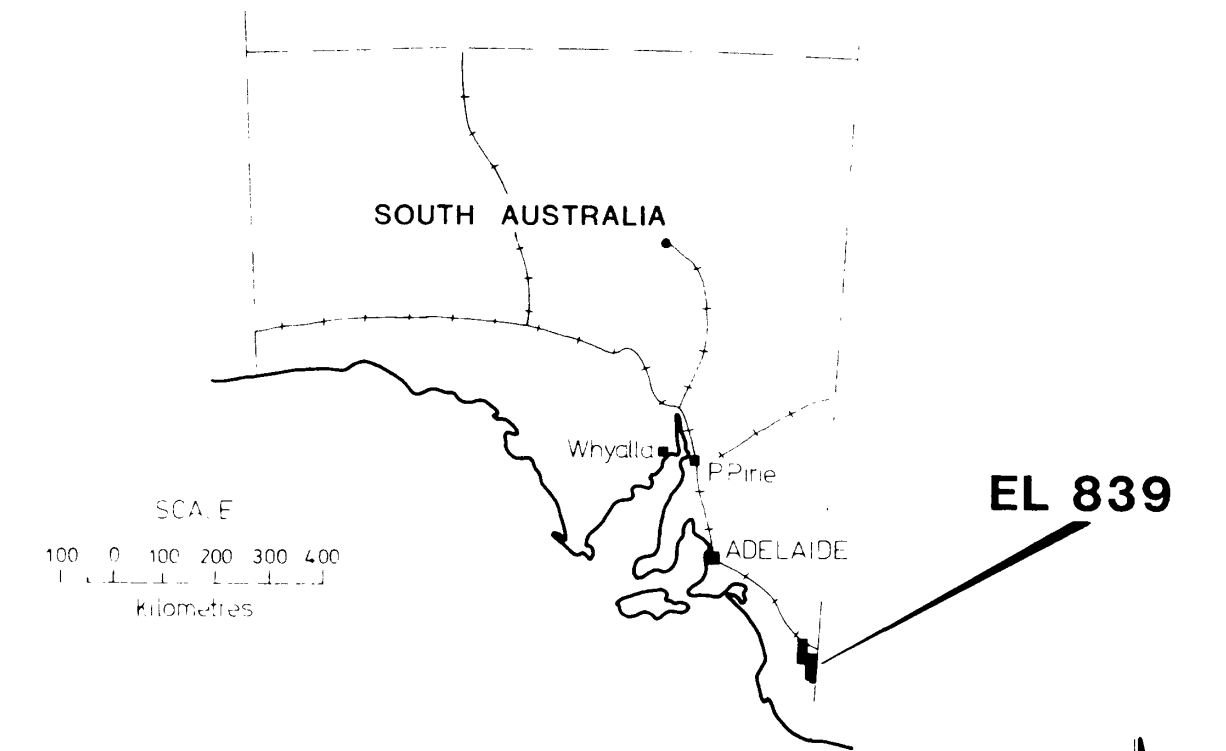
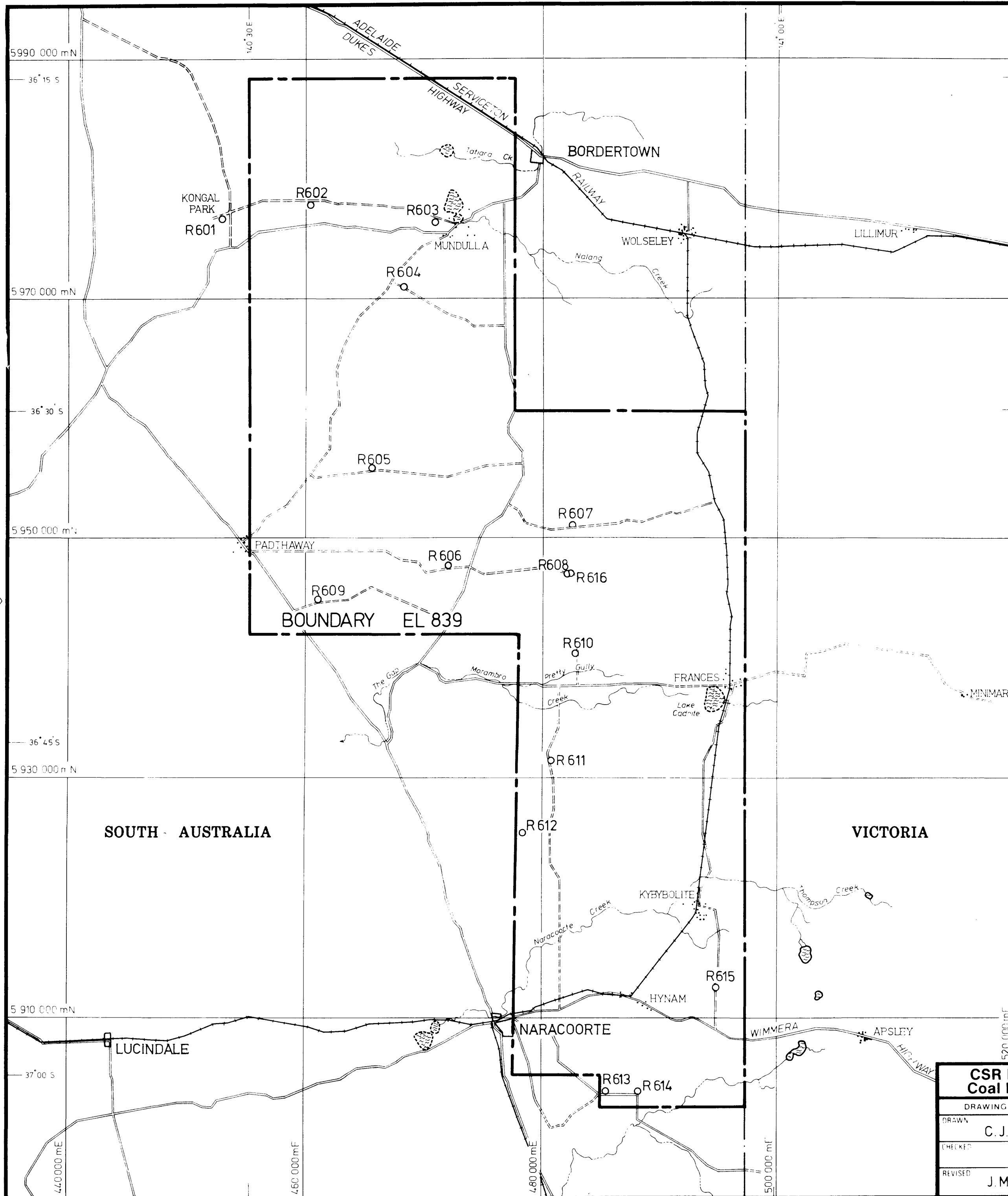
SCALE

1: 500 V

FIGURE 2

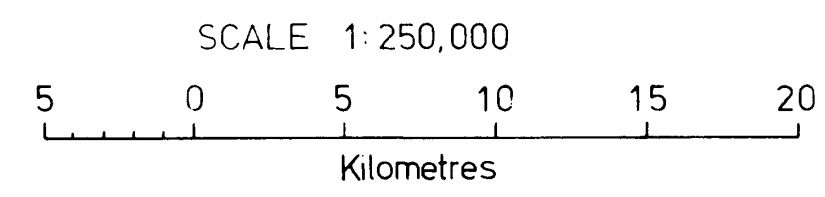
DRAWING No.

50839 - 5



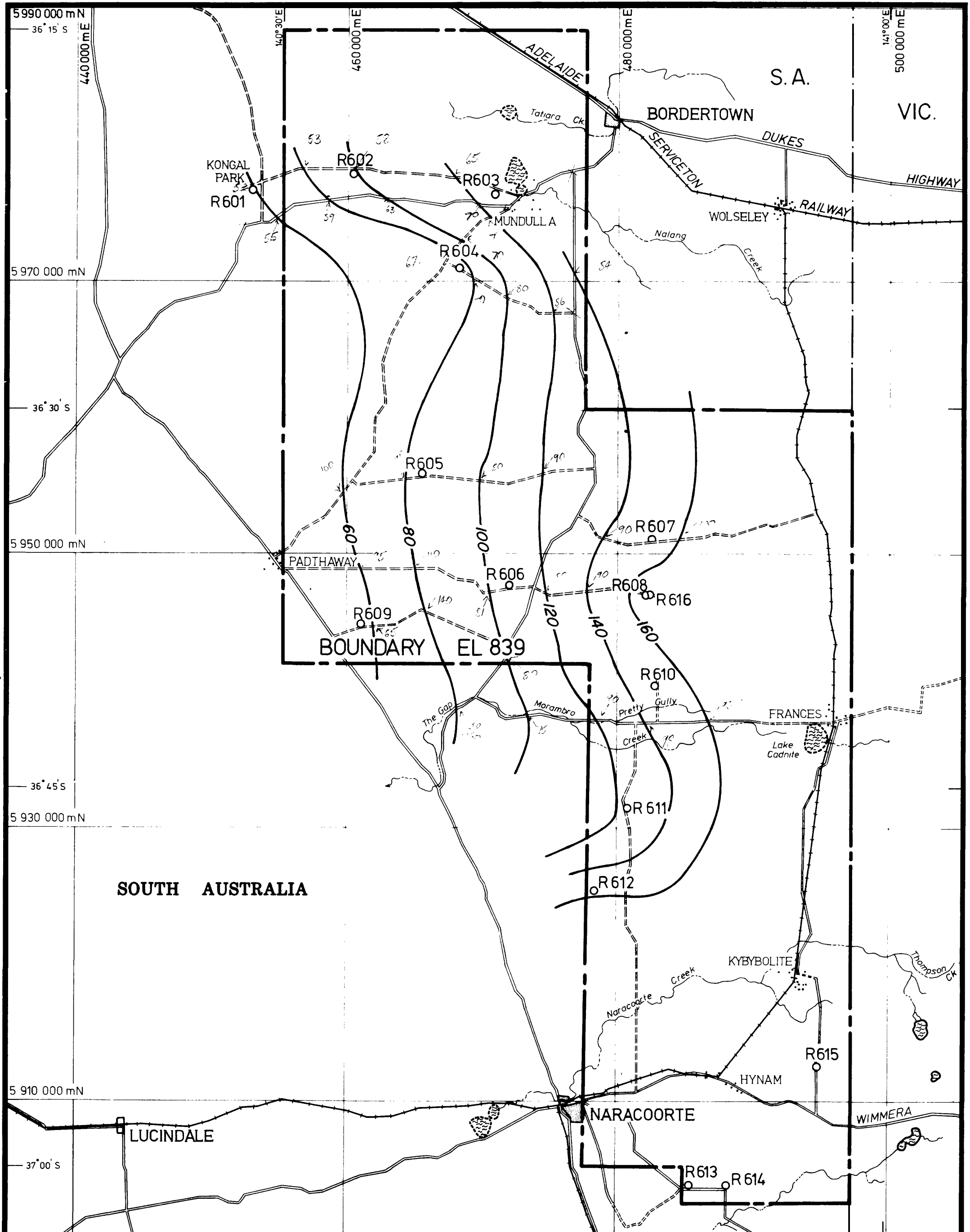
LEGEND

- Built-up area
- Major roads
- Minor roads
- Railway
- EL Boundary
- CSR Borehole

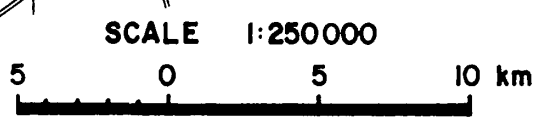


CSR Limited Coal Division		EXPLORATION AND EVALUATION GROUP		CSIR
DRAWING	DATE	EL 839 BORDERTOWN LOCATION OF EXPLORATION		SCALE 1:250 000
DRAWN C. J.	July '81			FIGURE 3
CHECKED				DRAWING NO. 50839-3
REVISED J. M.	Mar '82			

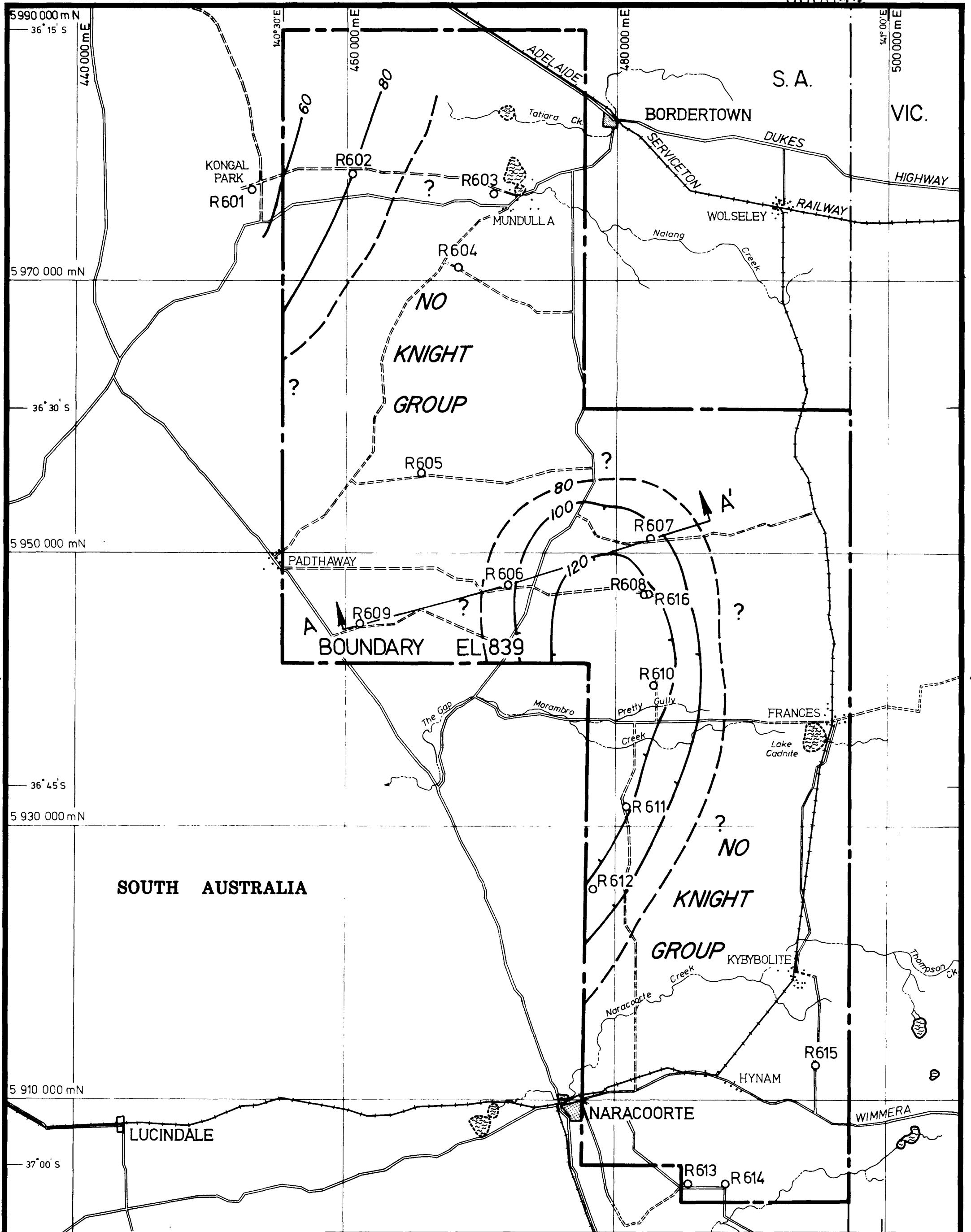
4265-1



SOUTH AUSTRALIA



CSR Limited Coal Division		EXPLORATION AND EVALUATION GROUP		
DRAWING	DATE	EL 839 BORDERTOWN BASEMENT CONTOURS		
DRAWN RLM	April '82			
CHECKED				
REVISED				
				SCALE 1:250 000
				FIGURE 4
				DRAWING No. 50839-6



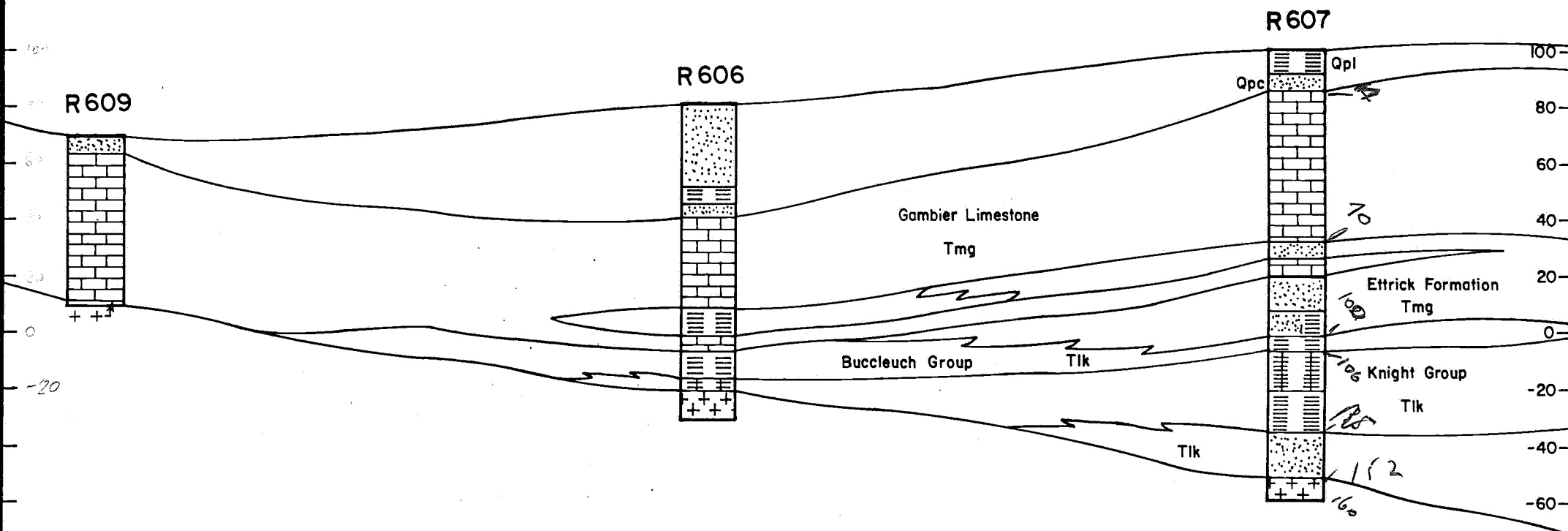
SCALE 1:250 000
5 0 5 10 km

CSR Limited Coal Division		EXPLORATION AND EVALUATION GROUP		CSR	
DRAWING	DATE	EL 839 BORDERTOWN DEPTH TO KNIGHT GROUP & AREAS OF KNIGHT GROUP DEPOSITION		SCALE	1:250 000
DRAWN RLM	April '82			FIGURE	5
CHECKED				DRAWING No.	50839-7
REVISED					

R.L. METRES

A

A'

R. L.
(metres)

NOTE: FOR LOCATION OF SECTION A-A',
SEE DRWG. N^o 50839-7.

HORIZONTAL SCALE 1:100 000

1 0 1 2 3 4 5 km $\frac{V}{H} = 50$

CSR Limited Coal Division		EXPLORATION AND EVALUATION GROUP		CSR
DRAWING / DATE		EL 839 BORDERTOWN CROSS SECTION A-A'		SCALE 1:2000 Vert. 1:100 000 Horiz.
DRAWN RLM Apr '82				FIGURE 6
CHECKED				DRAWING No.
REVISED				50 839 - 8

000046

APPENDIX II

COPIES OF GEOPHYSICAL LOGS

APPENDIX III

TRANSPARENCIES OF TEXT FIGURES

(these appendices are under separate cover)

 *
 * THIESS BROS. PTY. LTD. - MINING DIVISION *
 * EL839 R0601 *
 *

EASTING: 3484780.000 M.
 NORTHING: 5439430.000 M.
 GRID TYPE: AUSTRALIAN MAPPING GRID
 ACCURACY: APPROXIMATE
 CRL: 55.00 M.
 DATUM: APPROXIMATE LEVEL - NOT SURVEYED
 1:50000 SHEET:
 INDEX:
 TOTAL DEPTH: 73.20 M.
 DRILLING COMMENCED: 20/06/84
 DRILLING COMPLETED: 24/06/84
 INCLINATION:
 AZIMUTH:
 STANDING WATER LEVEL:

LOGGING ORGANIZATION: CSR EXPLORATION AND EVALUATION G
 LOGGED BY: ELLIS
 DRILLING CONTRACTOR: W.L. SIDES & SON
 GEOPHYSICAL LOGGING: GEOSCIENCE ASSOCIATES (AUST) PTY
 . LTD.

COUNTY:
 PARISH:
 PORTION:

PLUG DEPTHS:
 HOLE DIAMETER: 120 MM.
 CORE DIAMETER:
 CASED DEPTHS: .4 M.
 CORE BARREL:

AVAILABLE DATA: GAMMA LOGS
 NEUTRON LOGS
 DENSITY LOGS:
 SELF POTENTIAL LOGS
 RESISTIVITY LOGS
 CALIPER LOGS

DRILL BIT: BLADES

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL839 R0601

FLAG	SEQ	WORK	SAMPLE	ESTIMATED	%	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
STRAT NO	SECT	NUMBER	DEPTH	THICKNESS	REC		
			1.00	1.00		CLAY	SANDY, QUARTZOSE, LIGHT WHITE, GREEN, EXTREMELY HIGH STRENGTH, BRITTLE, FINE AND MEDIUM GRAINED, UNIFORM, ROUNDED, EQUANT, CALCITE CEMENT, (PADTHAWAY FORMATION), ADDITIONAL FEATURES INCLUDE: CALCIFIED.
			4.00	3.00		CLAY	SANDY, SILTY, LIGHT WHITE, GREEN, FIRM, LOW PLASTICITY (CLAY), FINE AND MEDIUM GRAINED, UNIFORM, ROUNDED, EQUANT, (PADTHAWAY FORMATION), ADDITIONAL FEATURES INCLUDE: QUARTZOSE; BANDS INCLUDE: CALC-ARENITE, LIGHT TO MEDIUM ORANGE, YELLOW, EXTREMELY HIGH STRENGTH, BRITTLE; CALC-ARENITE, LIGHT TO MEDIUM ORANGE, YELLOW, EXTREMELY HIGH STRENGTH, FRIABLE.
			9.60	5.60		SILT AND SAND	***. SANDY, QUARTZOSE, LIGHT WHITE, YELLOW, EXTREMELY HIGH STRENGTH, BRITTLE, CALCITE CEMENT, (COOMANDOOK FORMATION); BANDS INCLUDE: SILT; SANDY, QUARTZOSE, LIGHT WHITE, YELLOW, EXTREMELY HIGH STRENGTH, FRIABLE, CALCITE CEMENT, (COOMANDOOK FORMATION); SAND: SILTY, QUARTZOSE, LIGHT WHITE, GREEN, MEDIUM DENSE, NON-PLASTIC.
			12.30	2.70		CLAY	SANDY, QUARTZOSE, LIGHT GREEN, GREY, FIRM, HIGH PLASTICITY (CLAY), (COOMANDOOK FORMATION).
			20.80	8.50		SAND, SAND AND CLAY	INTERBEDDED 60:20:20. SAND: SILTY, CALCIFIED, LIGHT WHITE, VERY SOFT, FRIABLE, FINE GRAINED, (COOMANDOOK FORMATION); SAND: SILTY, CALCIFIED, LIGHT WHITE, EXTREMELY HIGH STRENGTH, BRITTLE; CLAY: SANDY, LIGHT WHITE, GREEN, FIRM, LOW PLASTICITY (CLAY), MEDIUM GRAINED.
			21.00	.20		CALC-ARENITE	LIGHT GREY, GREEN, HIGH STRENGTH, BRITTLE, ABUNDANT MARINE FOSSILS, CALCITE CEMENT, (GAMBIER LIMESTONE).
			30.70	9.70		SAND	SHELLY, LIGHT GREY, YELLOW, MEDIUM DENSE, NON-PLASTIC, MEDIUM AND COARSE GRAINED, ABUNDANT MARINE FOSSILS, (GAMBIER LIMESTONE); BANDS INCLUDE: SAND, SHELLY, CALCIFIED, LIGHT GREY, YELLOW, VERY SOFT, FRIABLE, MEDIUM AND COARSE GRAINED, ABUNDANT MARINE FOSSILS, CALCITE CEMENT, (GAMBIER LIMESTONE); SAND, SHELLY, CALCIFIED,

FLAG	SEQ	WORK	SAMPLE	ESTIMATED	%				
STRAT NO	SECT	NUMBER	DEPTH	THICKNESS	REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA		
							LIGHT GREY, YELLOW, EXTREMELY HIGH STRENGTH, BRITTLE, MEDIUM AND COARSE GRAINED, ABUNDANT MARINE FOSSILS, CALCITE CEMENT, (GAMBIER LIMESTONE); CLAY, GLAUCONITIC, SANDY, LIGHT GREEN, GREY, FIRM, LOW PLASTICITY (CLAY), (GAMBIER LIMESTONE), SANDS ARE COMPOSED ALMOST ENTIRELY OF BRYAZOAN FRAGMENTS. OTHER MARINE FOSSIL FRAGMENTS ARE SHELLS AND ECHINOID SPINES; WATER LOSS CONTINUAL THROUGH THIS UNIT SANDS ARE HIGHLY POROUS		
			36.00	5.30		SAND	SHELLY, LIGHT TO MEDIUM YELLOW, GREY, MEDIUM DENSE, NON-PLASTIC, MEDIUM AND COARSE GRAINED, ABUNDANT MARINE FOSSILS, (GAMBIER LIMESTONE); BANDS INCLUDE: SAND, SHELLY, CALCIFIED, LIGHT TO MEDIUM YELLOW, GREY, VERY SOFT, FRIABLE, MEDIUM AND COARSE GRAINED, ABUNDANT MARINE FOSSILS, CALCITE CEMENT, (GAMBIER LIMESTONE); SILT, SANDY, LIGHT TO MEDIUM YELLOW, BROWN, SOFT, NON-PLASTIC, VERY FINE GRAINED, (GAMBIER LIMESTONE).		
			38.90	2.90		SAND AND CALC-ARENITE	INTERBEDDED 60:40. SAND: SILTY, SHELLY, LIGHT TO MEDIUM ORANGE, YELLOW, VERY SOFT, FRIABLE, MEDIUM AND COARSE GRAINED, ABUNDANT MARINE FOSSILS, ACCESSORY QUARTZ CLASTS, (GAMBIER LIMESTONE); CALC-ARENITE: LIGHT TO MEDIUM ORANGE, RED, EXTREMELY HIGH STRENGTH, BRITTLE, MEDIUM AND COARSE GRAINED.		
			43.90	5.00		SILT	SANDY, CLAYEY, LIGHT TO MEDIUM BROWN, GREY, FIRM, LOW PLASTICITY (SILT), (ETTRICK FORMATION); BANDS INCLUDE: CALC-ARENITE, .40 M THICK, BASE AT 39.80 M, LIGHT TO MEDIUM ORANGE, HIGH STRENGTH, TOUGH.		
			46.70	2.80		LIGNEOUS CLAY	MICACEOUS, SANDY, MEDIUM TO DARK BROWN, STIFF, LOW PLASTICITY (ORGANIC), GRADATIONAL BASE, (BUCCLEUCH GROUP); BANDS INCLUDE: INFERIOR LIGNITE, CLAYEY, MICACEOUS, MEDIUM TO DARK BROWN, STIFF, PLASTICITY (UN- DIFFERENTIATED),		

FLAG& SEQ STRAT NO	WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
			50.30	3.60		LIGNEOUS CLAY	SANDY, MEDIUM TO DARK BROWN, SOFT, LOW PLASTICITY (ORGANIC), GRADATIONAL BASE, [KNIGHT GROUP].
			51.10	.80		SILT	LIGNEOUS, SANDY, MEDIUM TO DARK BROWN, LOOSE, NON-PLASTIC, GRADATIONAL BASE, [KNIGHT GROUP]; BANDS INCLUDE: LIGNEOUS CLAY, .40 M THICK, BASE AT 50.90 M, SANDY, MICACEOUS, MEDIUM TO DARK BROWN, FIRM, LOW PLASTICITY (ORGANIC), [KNIGHT GROUP].
			51.50	.40		INFERIOR LIGNITE	CLAYEY, SANDY, MEDIUM TO DARK BROWN, FIRM, PLASTICITY (UN- DIFFERENTIATED), [KNIGHT GROUP].
			52.10	.60		LIGNEOUS CLAY	SANDY, MICACEOUS, MEDIUM TO DARK BROWN, FIRM, LOW PLASTICITY (ORGANIC), [KNIGHT GROUP].
			52.50	.40		INFERIOR LIGNITE	CLAYEY, SANDY, MEDIUM TO DARK BROWN, FIRM, PLASTICITY (UN- DIFFERENTIATED), [KNIGHT GROUP].
			56.50	4.00		SAND	LIGNEOUS, QUARTZOSE, MEDIUM TO DARK BROWN, MEDIUM DENSE, NON-PLASTIC, [KNIGHT GROUP]; BANDS INCLUDE: INFERIOR LIGNITE, CLAYEY, SANDY, MEDIUM TO DARK BROWN, FIRM, PLASTICITY (UN- DIFFERENTIATED), [KNIGHT GROUP]; LIGNEOUS CLAY, MICACEOUS, MEDIUM TO DARK BROWN, STIFF, LOW PLASTICITY (ORGANIC), [KNIGHT GROUP]; 4,000 GALLONS OF WATER USED BETWEEN 21.00 METRES
			.00	.00	.0	SAND	LIGNEOUS, QUARTZOSE, MEDIUM TO DARK BROWN, MEDIUM DENSE, NON-PLASTIC, [KNIGHT GROUP]; BANDS INCLUDE: INFERIOR LIGNITE, CLAYEY, SANDY, MEDIUM TO DARK BROWN, FIRM, PLASTICITY (UN- DIFFERENTIATED), [KNIGHT GROUP]; LIGNEOUS CLAY, MICACEOUS, MEDIUM TO DARK BROWN, STIFF, LOW PLASTICITY (ORGANIC), [KNIGHT GROUP]; AND 56.50 METRES DUE TO LOST CIRCULATION .
			59.30	2.80	4.7	SAND	QUARTZOSE, CLAYEY, LIGHT TO MEDIUM GREY, MEDIUM DENSE, NON-PLASTIC, [KNIGHT GROUP];

FLAG& SEQ	WORK	SAMPLE	ESTIMATED	%		
STRAT NO	SECT	NUMBER	DEPTH	THICKNESS	REC	ROCK TYPE

GEOLOGICAL DESCRIPTION OF STRATA

SAND PROBABLY DERIVED FROM GRANITIC BASEMENT NOTE HIGH GAMMA
COUNT ON GEOPHYSICAL LOG .

67.00 7.70 CLAY

SANDY, QUARTZOSE, LIGHT WHITE, GREY, WEATHERED, SOFT,
NON-PLASTIC, (CAMBRIAN- ORDOVICIAN BASEMENT).

73.20 6.20 CLAY

SANDY, QUARTZOSE, LIGHT WHITE, GREY, WEATHERED, FIRM,
LOW PLASTICITY (CLAY), (CAMBRIAN- ORDOVICIAN BASEMENT),
ADDITIONAL FEATURES INCLUDE: MICACEOUS, GRANITIC BASEMENT.
HARD BASEMENT NOT INTERSECTED AT TOTAL DEPTH. .

END OF BORE AT 73.20 M

*
* THIESS BROS. PTY. LTD. - MINING DIVISION *
* EL839 R0602 *
*

EASTING: 3560870.000 M.
NORTHING: 5453260.000 M.
GRID TYPE: AUSTRALIAN MAPPING GRID
ACCURACY: APPROXIMATE
CRL: 55.00 M.
DATUM: APPROXIMATE LEVEL - NOT SURVEYED
1:50000 SHEET:
INDEX:
TOTAL DEPTH: 140.00 M.
DRILLING COMMENCED: 21/06/84
DRILLING COMPLETED: 22/06/84
INCLINATION:
AZIMUTH:
STANDING WATER LEVEL:

LOGGING ORGANIZATION: CSR EXPLORATION AND EVALUATION G
LOGGED BY: ELLIS
DRILLING CONTRACTOR: W.L. SIDES & SON
GEOPHYSICAL LOGGING: GEOSCIENCE ASSOCIATES (AUST) PTY
LTD.

COUNTY:
PARISH:
PORTION:

PLUG DEPTHS:
HOLE DIAMETER: 120 MM.
CORE DIAMETER:
CASED DEPTHS: .4 M.
CORE BARREL:

AVAILABLE DATA: GAMMA LOGS
NEUTRON LOGS
DENSITY LOGS:
SELF POTENTIAL LOGS
RESISTIVITY LOGS
CALIPER LOGS

DRILL BIT: BLADES

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL839 R0602

FLAG& SEQ STRAT NO	WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED % THICKNESS REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
			.80	.80	SILT	SANDY, LIGHT TO MEDIUM BROWN, GREY, MEDIUM DENSE, NON-PLASTIC, [PADTHAWAY FORMATION], WITH CALCRETE NODULES .
			3.00	2.20	CLAY	SILTY, LIGHT GREEN, GREY, FIRM, LOW PLASTICITY (CLAY), [PADTHAWAY FORMATION].
			4.00	1.00	CLAY	SANDY, QUARTZOSE, LIGHT WHITE, GREY, VERY SOFT, BRITTLE, MEDIUM GRAINED, [PADTHAWAY FORMATION], ADDITIONAL FEATURES INCLUDE: CALCIFIED; BANDS INCLUDE: CLAY, SANDY, QUARTZOSE, LIGHT WHITE, GREY, HIGH STRENGTH, BRITTLE, MEDIUM GRAINED, CALCITE CEMENT, ADDITIONAL FEATURES INCLUDE: CALCIFIED.
			7.00	3.00	CALC-ARENITE AND CLAY	INTERBEDDED 60:40. CALC-ARENITE: LIGHT WHITE, GREY, VERY SOFT, BRITTLE, GRADATIONAL BASE, [PADTHAWAY FORMATION]; CLAY: SANDY, LIGHT GREEN, GREY, FIRM, LOW PLASTICITY (CLAY), FINE GRAINED; BANDS INCLUDE: CALC-ARENITE, LIGHT WHITE, GREY, HIGH STRENGTH, TOUGH.
			11.60	4.60	CLAY AND CLAY	INTERBEDDED 70:30. CLAY: SILTY, SANDY, LIGHT GREEN, GREY, FIRM, LOW PLASTICITY (CLAY), [COOMANDOOK FORMATION]; CLAY: SILTY, LIGHT WHITE, GREY, FIRM, LOW PLASTICITY (CLAY).
			15.00	3.40	CLAY	LIGHT TO MEDIUM RED, ORANGE, FIRM, HIGH PLASTICITY (CLAY), [COOMANDOOK FORMATION].
			15.60	.60	CLAY	SILTY, SANDY, LIGHT GREEN, GREY, FIRM, LOW PLASTICITY (CLAY), [COOMANDOOK FORMATION].
			18.00	2.40	CLAY	MOTTLED GREEN, GREY, FIRM, LOW PLASTICITY (CLAY), [COOMANDOOK FORMATION], ADDITIONAL FEATURES INCLUDE: RED, ORANGE.
			19.30	1.30	LIMESTONE	BRYOZOAL, LIGHT YELLOW, WHITE, HIGH STRENGTH, BRITTLE, MEDIUM AND COARSE GRAINED, ABUNDANT MARINE FOSSILS, [GAMBIER LIMESTONE].
			20.60	1.30	LIMESTONE AND	INTERBEDDED 50:50. LIMESTONE: BRYOZOAL, LIGHT YELLOW, WHITE,

FLAG& SEQ STRAT NO	WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
						SAND	HIGH STRENGTH, BRITTLE, MEDIUM AND COARSE GRAINED, ABUNDANT MARINE FOSSILS; SAND; LIGHT YELLOW, WHITE, VERY SOFT, FRIABLE, MEDIUM AND COARSE GRAINED, ABUNDANT MARINE FOSSILS, CALCITE CEMENT.
			20.90	.30		LIMESTONE	BRYOZOAL, LIGHT YELLOW, WHITE, HIGH STRENGTH, TOUGH, MEDIUM AND COARSE GRAINED, ABUNDANT MARINE FOSSILS, [GAMBIER LIMESTONE].
			24.30	3.40		LIMESTONE AND SAND	INTERBEDDED 70:30. LIMESTONE: BRYOZOAL, LIGHT YELLOW, WHITE, HIGH STRENGTH, BRITTLE, MEDIUM AND COARSE GRAINED, GRADATIONAL BASE, ABUNDANT MARINE FOSSILS, [GAMBIER LIMESTONE]; SAND: LIGHT YELLOW, WHITE, VERY SOFT, BRITTLE, MEDIUM AND COARSE GRAINED, ABUNDANT MARINE FOSSILS, CALCITE CEMENT.
			36.00	11.70		LIMESTONE	BRYOZOAL, LIGHT CREAM, VERY SOFT, BRITTLE, FINE AND MEDIUM GRAINED, GRADATIONAL BASE, COMMON MARINE FOSSILS, [GAMBIER LIMESTONE]; BANDS INCLUDE: LIMESTONE, BRYOZOAL, LIGHT CREAM, HIGH STRENGTH, BRITTLE, FINE AND MEDIUM GRAINED, COMMON MARINE FOSSILS, [GAMBIER LIMESTONE]; LIMESTONE, BRYOZOAL, LIGHT CREAM, VERY SOFT, FRIABLE, FINE AND MEDIUM GRAINED, COMMON MARINE FOSSILS, [GAMBIER LIMESTONE].
			41.00	5.00		LIMESTONE AND LIMESTONE	INTERBEDDED 70:30. LIMESTONE: BRYOZOAL, LIGHT WHITE, CREAM, VERY SOFT, BRITTLE, MEDIUM AND COARSE GRAINED, ABUNDANT MARINE FOSSILS, [GAMBIER LIMESTONE]; LIMESTONE: BRYOZOAL, LIGHT WHITE, CREAM, HIGH STRENGTH, BRITTLE, MEDIUM AND COARSE GRAINED, ABUNDANT MARINE FOSSILS; BANDS INCLUDE: LIMESTONE, BRYOZOAL, LIGHT WHITE, CREAM, HIGH STRENGTH, TOUGH, MEDIUM AND COARSE GRAINED, ABUNDANT MARINE FOSSILS, [GAMBIER LIMESTONE]; LIMESTONE, BRYOZOAL, LIGHT WHITE, CREAM, VERY SOFT, FRIABLE, MEDIUM AND COARSE GRAINED, ABUNDANT MARINE FOSSILS, [GAMBIER LIMESTONE].
			49.00	8.00		LIMESTONE	BRYOZOAL, LIGHT WHITE, YELLOW, VERY SOFT, BRITTLE,

FLAG& SEQ	WORK	SAMPLE	ESTIMATED %				GEOLOGICAL DESCRIPTION OF STRATA
STRAT NO	SECT	NUMBER	DEPTH	THICKNESS	REC	ROCK TYPE	
							FINE AND MEDIUM GRAINED, COMMON MARINE FOSSILS, [GAMBIER LIMESTONE]; BANDS INCLUDE: LIMESTONE, BRYOZOAL, LIGHT WHITE, YELLOW, VERY SOFT, FRIABLE, FINE AND MEDIUM GRAINED, COMMON MARINE FOSSILS, [GAMBIER LIMESTONE]; LIMESTONE, BRYOZOAL, LIGHT WHITE, YELLOW, HIGH STRENGTH, BRITTLE, FINE AND MEDIUM GRAINED, COMMON MARINE FOSSILS, [GAMBIER LIMESTONE];
							DRILL BIT PENETRATION BETWEEN 36.6 AND 42.7 M
			.00	.00	.0	LIMESTONE	BRYOZOAL, LIGHT WHITE, YELLOW, VERY SOFT, BRITTLE, FINE AND MEDIUM GRAINED, COMMON MARINE FOSSILS, [GAMBIER LIMESTONE]; BANDS INCLUDE: LIMESTONE, BRYOZOAL, LIGHT WHITE, YELLOW, VERY SOFT, FRIABLE, FINE AND MEDIUM GRAINED, COMMON MARINE FOSSILS, [GAMBIER LIMESTONE]; LIMESTONE, BRYOZOAL, LIGHT WHITE, YELLOW, HIGH STRENGTH, BRITTLE, FINE AND MEDIUM GRAINED, COMMON MARINE FOSSILS, [GAMBIER LIMESTONE]; WAS 62 SECONDS, AND BETWEEN 42.7 AND 48.8 METRES WAS 66 SECONDS. AVERAGE PULLDOWN 200 POUNDS .
			53.00	4.00	7.5	LIMESTONE	BRYOZOAL, LIGHT YELLOW, CREAM, VERY SOFT, BRITTLE, GRADATIONAL BASE, COMMON MARINE FOSSILS, [GAMBIER LIMESTONE]; BANDS INCLUDE: LIMESTONE, BRYOZOAL, LIGHT YELLOW, CREAM, HIGH STRENGTH, BRITTLE, COMMON MARINE FOSSILS, [GAMBIER LIMESTONE]; CLAY, SILTY, LIGHT TO MEDIUM YELLOW, SOFT, LOW PLASTICITY (CLAY), [GAMBIER LIMESTONE].
			55.00	2.00		LIMESTONE	LIGHT YELLOW, CREAM, VERY SOFT, BRITTLE, GRADATIONAL BASE, COMMON MARINE FOSSILS, [GAMBIER LIMESTONE]; BANDS INCLUDE: LIMESTONE, LIGHT YELLOW, CREAM, HIGH STRENGTH, BRITTLE, [GAMBIER LIMESTONE]; CLAY, SILTY, SANDY, LIGHT TO MEDIUM YELLOW, SOFT, LOW PLASTICITY (CLAY), [GAMBIER LIMESTONE].
			57.50	2.50		SAND	SILTY, LIGHT TO MEDIUM YELLOW, MEDIUM DENSE, NON-PLASTIC, FINE AND MEDIUM GRAINED, [GAMBIER LIMESTONE];

FLAG& SEQ STRAT NO	WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
							BANDS INCLUDE: LIMESTONE, LIGHT TO MEDIUM YELLOW, HIGH STRENGTH, BRITTLE, FINE AND MEDIUM GRAINED, (GAMBIER LIMESTONE).
			60.50	3.00		LIMESTONE AND SILT	INTERBEDDED 50:50. LIMESTONE: LIGHT TO MEDIUM YELLOW, HIGH STRENGTH, BRITTLE, OCCASIONAL MARINE FOSSILS, (GAMBIER LIMESTONE); SILT: CLAYEY, SANDY, MEDIUM TO DARK YELLOW, SOFT, LOW PLASTICITY (SILT), FINE GRAINED, OCCASIONAL MARINE FOSSILS.
			62.60	2.10		LIMESTONE AND CLAY	INTERBEDDED 60:40. LIMESTONE: LIGHT TO MEDIUM YELLOW, CREAM, HIGH STRENGTH, BRITTLE, (GAMBIER LIMESTONE); CLAY: SILTY, SANDY, LIGHT TO MEDIUM YELLOW, ORANGE, FIRM, HIGH PLASTICITY (CLAY).
			69.60	7.00		SILT	CLAYEY, SANDY, LIGHT TO MEDIUM YELLOW, ORANGE, SOFT, LOW PLASTICITY (SILT), (ETTRICK FORMATION), WITH MARINE FOSSIL RICH BANDS .
			77.00	7.40		GRAVEL	QUARTZOSE, LIGHT TO MEDIUM GREY, YELLOW, MEDIUM DENSE, NON-PLASTIC, UNIFORM, SUBROUNDED, ABUNDANT MARINE FOSSILS, (ETTRICK FORMATION).
			80.40	3.40		CLAY	CARBONACEOUS, SANDY, MEDIUM TO DARK BROWN, FIRM, LOW PLASTICITY (CLAY), (BUCCLEUCH GROUP).
			82.00	1.60		LIGNEOUS CLAY	SANDY, MICACEOUS, MEDIUM TO DARK BROWN, STIFF, HIGH PLASTICITY (ORGANIC), (KNIGHT GROUP).
			82.60	.60		INFERIOR LIGNITE	CLAYEY, SANDY, MEDIUM TO DARK BROWN, FIRM, FRIABLE, (KNIGHT GROUP).
			86.40	3.80		LIGNEOUS CLAY	MEDIUM TO DARK BROWN, STIFF, HIGH PLASTICITY (ORGANIC), (KNIGHT GROUP).
			89.90	3.50		LIGNEOUS CLAY	MEDIUM TO DARK BROWN, STIFF, HIGH PLASTICITY (ORGANIC), (KNIGHT GROUP); BANDS INCLUDE: INFERIOR LIGNITE, CLAYEY, SANDY, MEDIUM TO DARK BROWN, FIRM, FRIABLE, (KNIGHT GROUP).

FLAG& SEQ STRAT NO	WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED % THICKNESS REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
			90.40	.50	INFERIOR LIGNITE	CLAYEY, MEDIUM TO DARK BROWN, FIRM, FRIABLE, (KNIGHT GROUP).
			93.00	2.60	SAND	SILTY, CLAYEY, LIGHT TO MEDIUM GREY, MEDIUM DENSE, NON-PLASTIC, FINE AND MEDIUM GRAINED, WELL SORTED, SUBROUNDED, (KNIGHT GROUP).
			94.30	1.30	LIGNEOUS CLAY	MEDIUM TO DARK BROWN, STIFF, LOW PLASTICITY (ORGANIC), (KNIGHT GROUP).
			96.00	1.70	SAND	LIGNEOUS, MEDIUM TO DARK BROWN, HIGH STRENGTH, NON-PLASTIC, (KNIGHT GROUP); BANDS INCLUDE: LIGNEOUS CLAY, MEDIUM TO DARK BROWN, STIFF, LOW PLASTICITY (ORGANIC), (KNIGHT GROUP); INFERIOR LIGNITE, CLAYEY, MICACEOUS, MEDIUM TO DARK BROWN, FIRM, PLASTICITY (UN- DIFFERENTIATED), (KNIGHT GROUP); NOTE RELATIVELY HIGH GAMMA COUNTS ON GEOPHYSICAL LOG .
			99.80	3.80	SAND	SILTY, QUARTZOSE, LIGHT TO MEDIUM BROWN, GREY, MEDIUM DENSE, NON-PLASTIC, SUBROUNDED, (KNIGHT GROUP), ADDITIONAL FEATURES INCLUDE: GRAVELLY, ROUNDED, THIS UNIT IS PROBABLY A CLAY OOZE, CONTAINING SAND, SILT AND GRAVEL .
			110.00	10.20	CLAY	SANDY, LIGHT WHITE, SOFT, NON-PLASTIC, UNIFORM, ANGULAR, (CAMBRIAN- ORDOVICIAN BASEMENT), WEATHERED GRANITE. DID NOT INTERSECT HARD BASEMENT AT TOTAL DEPTH .

END OF BORE AT 110.00 M

*
* THIESS BROS. PTY. LTD. - MINING DIVISION *
* EL839 R0603 *
*

EASTING: 3679350.000 M.
NORTHING: 5427470.000 M.
GRID TYPE: AUSTRALIAN MAPPING GRID
ACCURACY: APPROXIMATE
CRL: 80.00 M.
DATUM: APPROXIMATE LEVEL - NOT SURVEYED
1:50000 SHEET:
INDEX:
TOTAL DEPTH: 123.00 M.
DRILLING COMMENCED: 22/06/84
DRILLING COMPLETED: 23/06/84
INCLINATION:
AZIMUTH:
STANDING WATER LEVEL:

LOGGING ORGANIZATION: CSR EXPLORATION AND EVALUATION G
LOGGED BY: ELLIS
DRILLING CONTRACTOR: W.L. SIDES & SON
GEOPHYSICAL LOGGING: GEOSCIENCE ASSOCIATES (AUST) PTY
LTD.

COUNTY:
PARISH:
PORTION:

PLUG DEPTHS:
HOLE DIAMETER: 120 MM.
CORE DIAMETER:
CASED DEPTHS: .1 M.
CORE BARREL:

AVAILABLE DATA: GAMMA LOGS
NEUTRON LOGS
DENSITY LOGS:
SELF POTENTIAL LOGS
RESISTIVITY LOGS
CALIPER LOGS

DRILL BIT: BLADES

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL839 R0603

FLAG& SEQ STRAT NO	WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
			3.30	3.30		CLAY	SILTY, SANDY, LIGHT TO MEDIUM BROWN, RED, WEATHERED, FIRM, LOW PLASTICITY (CLAY), MEDIUM GRAINED, (PARILLA FORMATION), ADDITIONAL FEATURES INCLUDE: QUARTZOSE.
			5.00	1.70		CLAY	SILTY, SANDY, LIGHT TO MEDIUM BROWN, RED, WEATHERED, FIRM, LOW PLASTICITY (CLAY), MEDIUM GRAINED, (PARILLA FORMATION), ADDITIONAL FEATURES INCLUDE: QUARTZOSE; BANDS INCLUDE: SILT, SANDY, CLAYEY, LIGHT TO MEDIUM YELLOW, WEATHERED, FIRM, LOW PLASTICITY (SILT), FINE GRAINED, UNIFORM.
			11.00	6.00		CLAY	SANDY, QUARTZOSE, LIGHT GREY, GREEN, FIRM, LOW PLASTICITY (CLAY), MEDIUM GRAINED, UNIFORM, (PARILLA FORMATION); BANDS INCLUDE: CLAY, SILTY, SANDY, LIGHT TO MEDIUM YELLOW, FIRM, NON-PLASTIC, ADDITIONAL FEATURES INCLUDE: QUARTZOSE.
			18.00	7.00		CLAY	SANDY, LIGHT TO MEDIUM YELLOW, BUFF, STIFF, HIGH PLASTICITY (CLAY), FINE GRAINED, UNIFORM, FINING UPWARDS, (PARILLA FORMATION).
			33.50	15.50		LIMESTONE AND SAND	INTERBEDDED 50:50. LIMESTONE: BRYOZOAL, LIGHT WHITE, GREY, HIGH STRENGTH, BRITTLE, FINE TO COARSE GRAINED, (GAMBIER LIMESTONE); SAND: SILTY, SHELLY, LIGHT YELLOW, ORANGE, VERY SOFT, FRIABLE, FINE AND MEDIUM GRAINED, CALCITE CEMENT; BANDS INCLUDE: SAND, SILTY, SHELLY, LIGHT YELLOW, ORANGE, MEDIUM DENSE, NON-PLASTIC, FINE AND MEDIUM GRAINED, CALCITE CEMENT, (GAMBIER LIMESTONE).
			33.80	.30		LIMESTONE	BRYOZOAL, LIGHT WHITE, YELLOW, HIGH STRENGTH, TOUGH, FINE TO COARSE GRAINED, (GAMBIER LIMESTONE); BANDS INCLUDE: LIMESTONE, BRYOZOAL, LIGHT WHITE, YELLOW, HIGH STRENGTH, BRITTLE, FINE TO COARSE GRAINED, (GAMBIER LIMESTONE).
			40.00	6.20		SAND	CALCAREOUS, LIGHT WHITE, YELLOW, MEDIUM DENSE, NON-PLASTIC, FINE TO COARSE GRAINED, ABUNDANT MARINE FOSSILS, CALCITE CEMENT, (GAMBIER LIMESTONE), ADDITIONAL FEATURES INCLUDE: ACCESSORY QUARTZ CLASTS;

FLAG& SEQ STRAT NO	WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
							LIGHT TO MEDIUM GREY, HIGH STRENGTH, BRITTLE, ABUNDANT MARINE FOSSILS, CORALS ARE COMMON FOSSILS .
			82.40	4.40		SILT AND LIMESTONE	INTERBEDDED 50:50. SILT: SANDY, CALCIFIED, LIGHT TO MEDIUM GREY, VERY SOFT, FRIABLE, (GAMBIER LIMESTONE); LIMESTONE: SANDY, LIGHT TO MEDIUM GREY, HIGH STRENGTH, BRITTLE.
			88.20	5.80		SILT	SANDY, CLAYEY, LIGHT GREEN, GREY, SOFT, NON-PLASTIC, (ETTRICK FORMATION); BANDS INCLUDE: LIMESTONE, SANDY, LIGHT YELLOW, CREAM, HIGH STRENGTH, BRITTLE, ABUNDANT MARINE FOSSILS, (ETTRICK FORMATION).
			94.80	6.60		SILT	SANDY, CLAYEY, LIGHT TO MEDIUM GREEN, GREY, FIRM, LOW PLASTICITY (SILT), FINE GRAINED, FINING UPWARDS, (ETTRICK FORMATION), ADDITIONAL FEATURES INCLUDE: GLAUCONITIC.
			98.20	3.40		CLAY	CARBONACEOUS, MEDIUM TO DARK BROWN, FIRM, LOW PLASTICITY (ORGANIC), (BUCCLEUCH GROUP); BANDS INCLUDE: SILT, CARBONACEOUS, LIGHT TO MEDIUM GREY, BROWN, FIRM, LOW PLASTICITY (SILT), FINE GRAINED.
			102.60	4.40		SAND	SHELLY, LIGHT GREY, GREEN, MEDIUM DENSE, NON-PLASTIC, FINE TO COARSE GRAINED, ABUNDANT MARINE FOSSILS, (ETTRICK FORMATION); BANDS INCLUDE: SAND, SHELLY, LIGHT GREY, HIGH STRENGTH, BRITTLE, FINE TO COARSE GRAINED, ABUNDANT MARINE FOSSILS, (ETTRICK FORMATION); SAND, SHELLY, LIGHT GREY, HIGH STRENGTH, TOUGH, FINE TO COARSE GRAINED, ABUNDANT MARINE FOSSILS, (ETTRICK FORMATION).
			105.20	2.60		SILT	SANDY, CLAYEY, LIGHT GREY, GREEN, MEDIUM DENSE, NON-PLASTIC, FINE TO COARSE GRAINED, ABUNDANT MARINE FOSSILS, (ETTRICK FORMATION), ADDITIONAL FEATURES INCLUDE: GLAUCONITIC, SHELLY;
							LOST CIRCULATION AT 103.7 METRES MIXED 1.5 BAGS

FLAG& SEQ STRAT NO	WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
							BANDS INCLUDE: LIMESTONE, BRYOZOAL, LIGHT WHITE, YELLOW, HIGH STRENGTH, BRITTLE, FINE TO COARSE GRAINED, [GAMBIER LIMESTONE].
			42.70	2.70		SILT AND LIMESTONE	INTERBEDDED 60:40. SILT: SANDY, CALCAREOUS, LIGHT YELLOW, GREY, MEDIUM DENSE, NON-PLASTIC, [GAMBIER LIMESTONE]; LIMESTONE: BRYOZOAL, LIGHT YELLOW, GREY, HIGH STRENGTH, BRITTLE, FINE TO COARSE GRAINED, COMMON MARINE FOSSILS; HOLE WAS DRILLED TO 42.7 METRES ON 22 JUNE.
			.00	.00	.0	SILT AND LIMESTONE	SILT: SANDY, CALCAREOUS, LIGHT YELLOW, GREY, MEDIUM DENSE, NON-PLASTIC, [GAMBIER LIMESTONE]; LIMESTONE: BRYOZOAL, LIGHT YELLOW, GREY, HIGH STRENGTH, BRITTLE, FINE TO COARSE GRAINED, COMMON MARINE FOSSILS; CIRCULATION WAS LOST AT THIS DEPTH 4 BAGS OF SUPERGEL AND HALF A BAG OF RICE HUSKS WAS MIXED .
			52.00	9.30	17.9	SILT AND LIMESTONE	INTERBEDDED 60:40. SILT: SANDY, CALCAREOUS, LIGHT YELLOW, GREY, MEDIUM DENSE, NON-PLASTIC, [GAMBIER LIMESTONE]; LIMESTONE: LIGHT YELLOW, GREY, HIGH STRENGTH, BRITTLE, FINE TO COARSE GRAINED.
			61.20	9.20		SILT	SANDY, LIGHT GREY, MEDIUM DENSE, NON-PLASTIC, VERY FINE GRAINED, [GAMBIER LIMESTONE]; BANDS INCLUDE: LIMESTONE, BRYOZOAL, SANDY, LIGHT GREY, VERY SOFT, FRIABLE, FINE TO COARSE GRAINED, COMMON MARINE FOSSILS, [GAMBIER LIMESTONE].
			70.20	9.00		SILT	SANDY, CLAYEY, LIGHT GREY, VERY SOFT, FRIABLE, FINE AND MEDIUM GRAINED, [GAMBIER LIMESTONE]; ADDITIONAL FEATURES INCLUDE: CALCIFIED, LIGHT GREY; BANDS INCLUDE: LIMESTONE, BRYOZOAL, SANDY, LIGHT GREY, VERY SOFT, BRITTLE, FINE TO COARSE GRAINED, [GAMBIER LIMESTONE].
			78.00	7.80		SILT AND LIMESTONE	INTERBEDDED 50:50. SILT: SANDY, CALCIFIED, LIGHT TO MEDIUM GREY, VERY SOFT, FRIABLE, [GAMBIER LIMESTONE]; LIMESTONE: SANDY,

FLAG& SEQ	WORK	SAMPLE		ESTIMATED	%				
STRAT NO	SECT	NUMBER	DEPTH	THICKNESS	REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA		
			.00	.00	.0	SILT	SANDY, CLAYEY, LIGHT GREY, GREEN, MEDIUM DENSE, NON-PLASTIC, FINE TO COARSE GRAINED, ABUNDANT MARINE FOSSILS, (ETTRICK FORMATION), ADDITIONAL FEATURES INCLUDE: GLAUCONITIC, SHELLY; SUPERGEL REGAINED PARTIAL CIRCULATION .		
			107.80	2.60	2.4	CLAY	CARBONACEOUS, SILTY, MEDIUM TO DARK BROWN, SOFT, NON-PLASTIC, (BUCCLEUCH GROUP).		
			113.20	5.40		SAND	SHELLY, MEDIUM DENSE, NON-PLASTIC, (ETTRICK FORMATION).		
			123.00	9.80		SAND	LIGNEOUS, (KNIGHT GROUP);		
							LOST CIRCULATION, HOLE ABANDONED		
			.00	.00	.0	SAND	LIGNEOUS, (KNIGHT GROUP); LITHOLOGICAL BOUNDARIES HAVE BEEN INTERPRETED FROM GEOPHYSICAL WIRELINE LOGS DUE TO POOR SAMPLE RETURN AND DELAY OF SAMPLE RETURN CAUSING CONTAMINATION OF LITHOTYPES. .		

END OF BORE AT 100 M

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* THIESS BROS. PTY. LTD. - MINING DIVISION *
* EL839 R0604 *
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EASTING: 467400.000 M.
NORTHING: 5971000.000 M.
GRID TYPE: AUSTRALIAN MAPPING GRID
ACCURACY: APPROXIMATE
CRL: 70.00 M.
DATUM: APPROXIMATE LEVEL - NOT SURVEYED
1:50000 SHEET:
INDEX:
TOTAL DEPTH: 93.00 M.
DRILLING COMMENCED: 01/03/82
DRILLING COMPLETED: 02/03/82
INCLINATION:
AZIMUTH:
STANDING WATER LEVEL:

LOGGING ORGANIZATION: CSR EXPLORATION AND EVALUATION G
LOGGED BY: HINRICHS
DRILLING CONTRACTOR: THOMPSON DRILLING COMPANY
GEOPHYSICAL LOGGING: GEDEX PTY LTD

COUNTY:
PARISH:
PORTION:

PLUG DEPTHS:
HOLE DIAMETER: 120 MM.
CORE DIAMETER:
CASED DEPTHS:
CORE BARREL:

AVAILABLE DATA: GAMMA LOGS
NEUTRON LOGS
DENSITY LOGS:
DETAIL DENSITY LOGS
RESISTIVITY LOGS
CALIPER LOGS

DRILL BIT:

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL839 R0604

FLAG& SEC STRAT NO	WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
			4.00	4.00		CLAY	SANDY, LIGHT TO MEDIUM GREY, YELLOW, MODERATELY WEATHERED, LOW PLASTICITY (CLAY), [PARILLA FORMATION].
			6.50	2.50		CLAY	SANDY, LIGHT TO MEDIUM GREY, BUFF, MODERATELY WEATHERED, LOW PLASTICITY (CLAY), [PARILLA FORMATION].
			8.50	2.00		CLAY	SANDY, MOTTLED BROWN, GREY, FIRM, LOW PLASTICITY (CLAY), [PARILLA FORMATION].
			12.00	3.50		CLAY	SILTY, MOTTLED ORANGE, GREY, FIRM, LOW PLASTICITY (CLAY), [PARILLA FORMATION].
			13.00	1.00		CALC-ARENITE	SILTY, LIGHT TO MEDIUM GREY, HIGH STRENGTH, BRITTLE, [PARILLA FORMATION]; BANDS INCLUDE: CLAY, MOTTLED GREY, BROWN, SOFT, LOW PLASTICITY (CLAY).
			24.00	11.00		LIMESTONE	MOTTLED WHITE, GREY, HIGH STRENGTH, TOUGH, [GAMBIER LIMESTONE]; BANDS INCLUDE: CLAY, LIGHT TO MEDIUM GREY, FIRM, LOW PLASTICITY (CLAY), [GAMBIER LIMESTONE].
			32.00	8.00		SAND	CLAYEY, LIGHT TO MEDIUM GREY, ORANGE, MODERATELY WEATHERED, LOW STRENGTH, BRITTLE, FINE AND MEDIUM GRAINED, UNIFORM, [GAMBIER LIMESTONE].
			42.00	10.00		SAND	LIGHT TO MEDIUM ORANGE, GREY, MODERATELY WEATHERED, SOFT, BRITTLE, FINE GRAINED, UNIFORM, [GAMBIER LIMESTONE].
			50.00	8.00		LIMESTONE	SHELLY, LIGHT TO MEDIUM GREY, BUFF, MODERATELY WEATHERED, STIFF, BRITTLE, FINE AND MEDIUM GRAINED, WELL SORTED, COMMON FRAGMENTED SHELLS, [GAMBIER LIMESTONE]; BANDS INCLUDE: LIMESTONE, SANDY, LIGHT TO MEDIUM GREY, MODERATELY WEATHERED, BRITTLE, FINE GRAINED, [GAMBIER LIMESTONE].
			54.00	4.00		SAND	LIGHT TO MEDIUM BUFF, SLIGHTLY WEATHERED, NON-PLASTIC, FINE GRAINED, OCCASIONAL FRAGMENTED SHELLS, [GAMBIER LIMESTONE].

FLAG& SEQ STRAT NO	WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
			70.00	16.00		LIMESTONE	BRYOZOAL, LIGHT TO MEDIUM GREY, LOOSE, NON-PLASTIC, MEDIUM AND COARSE GRAINED, [GAMBIER LIMESTONE].
			75.00	5.00		LIMESTONE	SHELLY, PEBBLY, LIGHT TO MEDIUM GREY, LOOSE, ABUNDANT FRAGMENTED SHELLS, [GAMBIER LIMESTONE].
			82.00	7.00		GRAVEL	QUARTZOSE, CLAYEY, MEDIUM TO DARK GREY, YELLOW, LOOSE, NON-PLASTIC, COARSE GRAINED, POLYMODAL SORTING, ROUNDED, SECONDARY KAOLINITE DISSEMINATED, [CAMBRIAN- ORDOVICIAN BASEMENT].
			86.00	4.00		GRAVEL	QUARTZOSE, CLAYEY, LIGHT TO MEDIUM GREY, ORANGE, LOOSE, NON-PLASTIC, MEDIUM AND COARSE GRAINED, POORLY SORTED, GRADATIONAL BASE, OCCASIONAL CARBONACEOUS ROOT TRACES, CLAY DISSEMINATED, [CAMBRIAN- ORDOVICIAN BASEMENT].
			93.00	7.00		GRAVEL	QUARTZOSE, CLAYEY, LIGHT TO MEDIUM GREY, YELLOW, LOOSE, NON-PLASTIC, MEDIUM AND COARSE GRAINED, GLAUCONITE DISSEMINATED, [CAMBRIAN- ORDOVICIAN BASEMENT].

END OF BORE AT 93.00 M

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* THIESS BROS. PTY. LTD. - MINING DIVISION *
* EL839 R0605 *
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EASTING: 465600.000 M.
NORTHING: 5955500.000 M.
GRID TYPE: AUSTRALIAN MAPPING GRID
ACCURACY: APPROXIMATE
CRL: 79.00 M.
DATUM: APPROXIMATE LEVEL - NOT SURVEYED
1:50000 SHEET:
INDEX:
TOTAL DEPTH: 101.00 M.
DRILLING COMMENCED: 02/03/82
DRILLING COMPLETED: 02/03/82
INCLINATION:
AZIMUTH:
STANDING WATER LEVEL:

LOGGING ORGANIZATION: CSR EXPLORATION AND EVALUATION G
LOGGED BY: HINRICHS
DRILLING CONTRACTOR: THOMPSON DRILLING COMPANY
GEOPHYSICAL LOGGING: GEOEX PTY LTD

COUNTY:
PARISH:
PORTION:

PLUG DEPTHS:
HOLE DIAMETER: 120 MM.
CORE DIAMETER:
CASED DEPTHS:
CORE BARREL:

AVAILABLE DATA: GAMMA LOGS
NEUTRON LOGS
DENSITY LOGS:
DETAIL DENSITY LOGS
RESISTIVITY LOGS
CALIPER LOGS

DRILL BIT: BLADES

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL839 R0605

FLAG& STRAT NO	SEQ SECT	WORK NUMBER	SAMPLE DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
			.30	.30		SOIL	MEDIUM TO DARK GREY, (COOMANDOOK FORMATION).
			15.00	14.70		SAND	CLAYEY, MOTTLED ORANGE, GREY, MODERATELY WEATHERED, SOFT, LOW PLASTICITY (CLAY), FINE GRAINED, (COOMANDOOK FORMATION).
			20.00	5.00		SAND	LIGHT TO MEDIUM ORANGE, BROWN, MODERATELY WEATHERED, LOOSE, NON-PLASTIC, FINE GRAINED, (COOMANDOOK FORMATION).
			28.00	8.00		SAND	CLAYEY, LIGHT TO MEDIUM BROWN, GREY, STIFF, TOUGH, FINE AND MEDIUM GRAINED, (COOMANDOOK FORMATION); HARDER BANDS COMMON
			37.50	9.50		LIMESTONE	LIGHT TO MEDIUM CREAM, SLIGHTLY WEATHERED, HIGH STRENGTH, BRITTLE, FINE AND MEDIUM GRAINED, CRYSTALLINE, GRADATIONAL BASE, (GAMBIER LIMESTONE); LOST CIRCULATION 27.0-35.5M
			38.00	.50		SAND	LIGHT TO MEDIUM BROWN, GREY, LOOSE, NON-PLASTIC, FINE GRAINED, GRADATIONAL BASE, (GAMBIER LIMESTONE).
			44.50	3.50		LIMESTONE	LIGHT TO MEDIUM GREY, ORANGE, SLIGHTLY WEATHERED, HIGH STRENGTH, BRITTLE, FINE GRAINED, (GAMBIER LIMESTONE).
			49.50	8.00		LIMESTONE	LIGHT TO MEDIUM GREY, WHITE, SLIGHTLY WEATHERED, HIGH STRENGTH, BRITTLE, (GAMBIER LIMESTONE); BANDS INCLUDE: SAND, LIGHT TO MEDIUM GREY, VERY LOOSE, NON-PLASTIC, (GAMBIER LIMESTONE).
			62.00	12.50		LIMESTONE	BRYOZOAL, LIGHT TO MEDIUM GREY, WHITE, SLIGHTLY WEATHERED, HIGH STRENGTH, BRITTLE, COMMON FRAGMENTED SHELLS, (GAMBIER LIMESTONE); FASTER PENETRATION 55M TO 60M

FLAG& STRAT NO	SEG SECT	WORK SAMPLE NUMBER	DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
			71.00	9.00		LIMESTONE	CARBONACEOUS, LIGHT TO MEDIUM GREY, SLIGHTLY WEATHERED, ABRASIVE [=], BRITTLE, [GAMBIER LIMESTONE].
			74.00	3.00		LIMESTONE	SANDY, LIGHT TO MEDIUM GREY, ORANGE, MODERATELY WEATHERED, ABRASIVE [=], [GAMBIER LIMESTONE].
			74.50	.50		CALC-ARENITE	SANDY, LIGHT TO MEDIUM GREY, BROWN, MODERATELY WEATHERED, HARD, [GAMBIER LIMESTONE].
			77.50	3.00		LIMESTONE	LIGHT TO MEDIUM GREY, MODERATELY WEATHERED, HARD, TOUGH, [GAMBIER LIMESTONE].
			82.50	5.00		CLAY	CARBONACEOUS, MEDIUM TO DARK GREY, BROWN, FIRM, HIGH PLASTICITY [CLAY], [BUCCLEUCH GROUP]; BANDS INCLUDE: GRAVEL, QUARTZOSE, LOOSE, NON-PLASTIC.
			90.00	7.50		GRAVEL	GLAUCONITIC, CLAYEY, MEDIUM TO DARK GREY, LOOSE, NON-PLASTIC, [CAMBRIAN- ORDOVICIAN BASEMENT].
			95.00	5.00		GRAVEL	CLAYEY, MEDIUM TO DARK GREY, LOOSE, [CAMBRIAN- ORDOVICIAN BASEMENT].
			100.00	5.00		GRAVEL	MEDIUM TO DARK GREY, LOOSE, [CAMBRIAN- ORDOVICIAN BASEMENT].
			101.00	1.00		BASEMENT	[CAMBRIAN- ORDOVICIAN BASEMENT].

END OF BORE AT 101.00 M

*
* THIESS BROS. PTY. LTD. - MINING DIVISION *
* EL839 R0606 *
*

EASTING: 471500.000 M.
NORTHING: 5947300.000 M.
GRID TYPE: AUSTRALIAN MAPPING GRID
ACCURACY: APPROXIMATE
CRL: 81.00 M.
DATUM: APPROXIMATE LEVEL - NOT SURVEYED
1:50000 SHEET:
INDEX:
TOTAL DEPTH: 112.00 M.
DRILLING COMMENCED: 03/03/82
DRILLING COMPLETED: 03/03/82
INCLINATION:
AZIMUTH:
STANDING WATER LEVEL:

LOGGING ORGANIZATION: CSR EXPLORATION AND EVALUATION G
LOGGED BY: HINRICHS
DRILLING CONTRACTOR: THOMPSON DRILLING COMPANY
GEOPHYSICAL LOGGING: GEDEX PTY LTD

COUNTY:
PARISH:
PORTION:

PLUG DEPTHS:
HOLE DIAMETER: 120 MM.
CORE DIAMETER:
CASED DEPTHS:
CORE BARREL:

AVAILABLE DATA: GAMMA LOGS
NEUTRON LOGS
DENSITY LOGS:
DETAIL DENSITY LOGS
RESISTIVITY LOGS
CALIPER LOGS

DRILL BIT: BLADES

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL839 R0606

FLAG& STRAT NO	SEQ WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
			4.00	4.00		SAND	CLAYEY, MOTTLED GREY, ORANGE, FIRM, LOW PLASTICITY (CLAY), FINE AND MEDIUM GRAINED, WELL SORTED, (PADTHAWAY FORMATION).
			14.00	10.00		CLAY	SANDY, MOTTLED GREY, YELLOW, FIRM, LOW PLASTICITY (CLAY), FINE GRAINED, (PADTHAWAY FORMATION).
			29.00	15.00		SAND	QUARTZOSE, LIGHT TO MEDIUM CREAM, LOOSE, NON-PLASTIC, MEDIUM AND COARSE GRAINED, (COOMANDOOK FORMATION).
			35.00	6.00		CLAY	CARBONACEOUS, SANDY, MEDIUM TO DARK BROWN, GREY, FIRM, LOW PLASTICITY (CLAY), (COOMANDOOK FORMATION).
			39.00	4.00		SAND	CLAYEY, LIGHT TO MEDIUM YELLOW, BROWN, FIRM, LOW PLASTICITY (CLAY), FINE GRAINED, (COOMANDOOK FORMATION).
			64.50	25.50		LIMESTONE	LIGHT TO MEDIUM CREAM, HIGH STRENGTH, TOUGH, ABUNDANT FRAGMENTED SHELLS, (GAMBIER LIMESTONE); OCCASIONAL CHERT NODULES
			.00	.00	.0	LIMESTONE	LIGHT TO MEDIUM CREAM, HIGH STRENGTH, TOUGH, ABUNDANT FRAGMENTED SHELLS, (GAMBIER LIMESTONE); CLAY, SANDY, LIGHT TO MEDIUM CREAM, GREY, FIRM, HIGH PLASTICITY (CLAY), (GAMBIER LIMESTONE).
			65.50	1.00	1.5	CLAY	SANDY, LIGHT TO MEDIUM CREAM, FIRM, HIGH PLASTICITY (CLAY), (GAMBIER LIMESTONE).
			72.00	6.50		LIMESTONE	CLAYEY, LIGHT TO MEDIUM CREAM, GREY, HIGH STRENGTH, TOUGH, FINE AND MEDIUM GRAINED, (GAMBIER LIMESTONE).
			82.00	10.00		CLAY	SANDY, MEDIUM TO DARK GREY, FIRM, HIGH PLASTICITY (CLAY), (GAMBIER LIMESTONE).
			86.00	4.00		LIMESTONE	BRYOZOAL, LIGHT TO MEDIUM GREY, HIGH STRENGTH, TOUGH, (GAMBIER LIMESTONE).

FLAG& SEQ STRAT NO	WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
			92.00	6.00		CLAY	CARBONACEOUS, SANDY, MEDIUM TO DARK GREY, BROWN, FIRM, LOW PLASTICITY (CLAY), [BUCCLEUCH GROUP].
			93.00	1.00		CLAY	CARBONACEOUS, MEDIUM TO DARK GREY, BLACK, FIRM, LOW PLASTICITY (CLAY), [BUCCLEUCH GROUP].
			97.50	4.50		CLAY	CARBONACEOUS, SANDY, MEDIUM TO DARK BROWN, BLACK, FIRM, LOW PLASTICITY (ORGANIC), [BUCCLEUCH GROUP].
			102.50	5.00		CLAY	CARBONACEOUS, LIGNEOUS, MEDIUM TO DARK BROWN, BLACK, FIRM, LOW PLASTICITY (ORGANIC), COMMON LIGNEOUS WISPS, [KNIGHT GROUP].
			112.00	9.50		BASEMENT	QUARTZOSE, DARK BLACK, GREY, HIGH STRENGTH, TOUGH, [CAMBRIAN- ORDOVICIAN BASEMENT].

END OF BORE AT 112.00 M

*
* THIESS BROS. PTY. LTD. - MINING DIVISION *
* EL839 R0607 *
*

EASTING: 482650.000 M.
NORTHING: 5950800.000 M.
GRID TYPE: AUSTRALIAN MAPPING GRID
ACCURACY: APPROXIMATE
CRL: 100.00 M.
DATUM: APPROXIMATE LEVEL - NOT SURVEYED
1:50000 SHEET:
INDEX:
TOTAL DEPTH: 160.00 M.
DRILLING COMMENCED: 03/03/82
DRILLING COMPLETED: 03/03/82
INCLINATION:
AZIMUTH:
STANDING WATER LEVEL:

LOGGING ORGANIZATION: CSR EXPLORATION AND EVALUATION G
LOGGED BY: HINRICHS
DRILLING CONTRACTOR: THOMPSON DRILLING COMPANY
GEOPHYSICAL LOGGING: GEOEX PTY LTD

COUNTY:
PARISH:
PORTION:

PLUG DEPTHS:
HOLE DIAMETER: 120 MM.
CORE DIAMETER:
CASED DEPTHS:
CORE BARREL:

AVAILABLE DATA: GAMMA LOGS
NEUTRON LOGS
DENSITY LOGS:
DETAIL DENSITY LOGS
RESISTIVITY LOGS
CALIPER LOGS

DRILL BIT: BLADES

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL839 R0607

FLAG& SEQ STRAT NO	WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
			8.50	8.50		CLAY	SILTY, LIGHT TO MEDIUM GREY, FIRM, LOW PLASTICITY (CLAY), [PADTHAWAY FORMATION].
			15.50	7.00		SAND	MOTTLED YELLOW, GREY, LOOSE, NON-PLASTIC, VERY FINE GRAINED, [COOMANDOOK FORMATION].
			18.00	2.50		LIMESTONE	LIGHT TO MEDIUM YELLOW, LOOSE, NON-PLASTIC, FINE TO COARSE GRAINED, ABUNDANT FRAGMENTED SHELLS, [GAMBIER LIMESTONE].
			21.00	3.00		LIMESTONE	LIGHT TO MEDIUM YELLOW, GREY, DENSE, FRACTURED, ABUNDANT FRAGMENTED SHELLS, [GAMBIER LIMESTONE].
			30.00	9.00		LIMESTONE	SANDY, BRYOZOAL, LIGHT TO MEDIUM GREY, YELLOW, DENSE, FRACTURED, [GAMBIER LIMESTONE].
			31.50	1.50		SAND	BRYOZOAL, LIGHT TO MEDIUM GREY, YELLOW, MEDIUM DENSE, NON-PLASTIC, FINE AND MEDIUM GRAINED, [GAMBIER LIMESTONE].
			47.00	15.50		LIMESTONE	BRYOZOAL, LIGHT TO MEDIUM GREY, YELLOW, MEDIUM DENSE, NON-PLASTIC, [GAMBIER LIMESTONE].
			48.50	1.50		LIMESTONE	LIGHT TO MEDIUM ORANGE, GREY, DENSE, NON-PLASTIC, [GAMBIER LIMESTONE].
			68.00	19.50		LIMESTONE	BRYOZOAL, SANDY, LIGHT TO MEDIUM GREY, YELLOW, LOW STRENGTH, NON-PLASTIC, [GAMBIER LIMESTONE].
			70.00	2.00		SAND	BRYOZOAL, LIGHT TO MEDIUM GREY, LOOSE, NON-PLASTIC, [GAMBIER LIMESTONE].
			72.00	2.00		SAND	CLAYEY, CARBONACEOUS, LIGHT TO MEDIUM GREY, BLACK, FIRM, LOW PLASTICITY (CLAY), [GAMBIER LIMESTONE].
			73.50	1.50		SAND	LIGHT TO MEDIUM GREY, VERY LOOSE, NON-PLASTIC, [GAMBIER LIMESTONE].
			76.00	2.50		LIMESTONE	SANDY, LIGHT TO MEDIUM GREY, LOW STRENGTH, BRITTLE,

FLAG& SEQ STRAT NO	WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
							(GAMBIER LIMESTONE).
			80.00	4.00		LIMESTONE	BRYOZOAL, LIGHT TO MEDIUM GREY, MEDIUM DENSE, TOUGH, (GAMBIER LIMESTONE).
			81.50	1.50		SAND	CLAYEY, CALCAREOUS, LIGHT TO MEDIUM GREY, BUFF, LOOSE, NON-PLASTIC; (GAMBIER LIMESTONE).
			91.50	10.00		SAND	CALCAREOUS, LIGHT TO MEDIUM GREY, LOOSE, NON-PLASTIC, (GAMBIER LIMESTONE).
			103.00	11.50		SAND	CLAYEY, GLAUCONITIC, LIGHT TO MEDIUM GREEN, GREY, SOFT, LOW PLASTICITY (CLAY); (ETTRICK FORMATION).
			104.00	1.00		SAND	CLAYEY, LIGNEOUS, LIGHT TO MEDIUM GREEN, GREY, SOFT, LOW PLASTICITY (CLAY); (BUCCLEUCH GROUP).
			105.00	1.00		CLAY	CARBONACEOUS, MEDIUM TO DARK BROWN, GREY, FIRM, LOW PLASTICITY (ORGANIC); (BUCCLEUCH GROUP).
			109.00	4.00		CLAY	CARBONACEOUS, MEDIUM TO DARK BROWN, BLACK, FIRM, LOW PLASTICITY (CLAY); (BUCCLEUCH GROUP).
			121.00	12.00		CLAY AND LIGNEOUS CLAY	BANDS 60:40. CLAY: LIGNEOUS, SANDY, DARK BROWN, BLACK, FIRM, HIGH PLASTICITY (ORGANIC); (KNIGHT GROUP); LIGNEOUS CLAY: DARK BROWN, BLACK, FIRM, LOW PLASTICITY (ORGANIC); HARD BAND TO 122.5M .
			132.00	11.00		CLAY	CARBONACEOUS, DARK BROWN, BLACK, FIRM, LOW PLASTICITY (ORGANIC), (KNIGHT GROUP).
			134.00	2.00		CLAY	CARBONACEOUS, DARK BROWN, GREY, FIRM, HIGH PLASTICITY (CLAY), (KNIGHT GROUP).
			136.00	2.00		CLAY	CARBONACEOUS, SANDY, DARK BROWN, GREY, FIRM, LOW PLASTICITY (CLAY); (KNIGHT GROUP).
			137.00	1.00		SAND	CALCAREOUS, QUARTZOSE, MEDIUM TO DARK BROWN, GREY, VERY LOOSE,

FLAG& SEQ STRAT NO	WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
							NON-PLASTIC, MEDIUM AND COARSE GRAINED, [KNIGHT GROUP].
			149.00	12.00		SAND	QUARTZOSE, MEDIUM TO DARK GREY, VERY LOOSE, NON-PLASTIC, FINE AND MEDIUM GRAINED, [KNIGHT GROUP].
			152.00	3.00		SAND	CLAYEY, DARK BROWN, FIRM, LOW PLASTICITY (ORGANIC), [KNIGHT GROUP].
			152.50	.50		CLAY	SANDY, DARK BROWN, BLACK, FIRM, FRIABLE, [KNIGHT GROUP].
			160.00	7.50		BASEMENT	SANDY, MEDIUM TO DARK GREY, EXTREMELY HIGH STRENGTH, TOUGH, FINE GRAINED, [CAMBRIAN- ORDOVICIAN BASEMENT].

END OF BORE AT 160.00 M

*
* THIESS BROS. PTY. LTD. - MINING DIVISION *
* EL839 R0608 *
*

EASTING: 482450.000 M.
NORTHING: 5946950.000 M.
GRID TYPE: AUSTRALIAN MAPPING GRID
ACCURACY: APPROXIMATE
CRL: 90.00 M.
DATUM: APPROXIMATE LEVEL - NOT SURVEYED
1:50000 SHEET:
INDEX:
TOTAL DEPTH: 170.00 M.
DRILLING COMMENCED: 04/03/82
DRILLING COMPLETED: 04/03/82
INCLINATION:
AZIMUTH:
STANDING WATER LEVEL:

LOGGING ORGANIZATION: CSR EXPLORATION AND EVALUATION G
LOGGED BY: HINRICHS
DRILLING CONTRACTOR: THOMPSON DRILLING COMPANY
GEOPHYSICAL LOGGING: GEOEX PTY LTD

COUNTY:
PARISH:
PORTION:

PLUG DEPTHS:
HOLE DIAMETER: 120 MM.
CORE DIAMETER:
CASED DEPTHS:
CORE BARREL:

AVAILABLE DATA: GAMMA LOGS
NEUTRON LOGS
DENSITY LOGS:
DETAIL DENSITY LOGS
RESISTIVITY LOGS
CALIPER LOGS

DRILL BIT: BLADES

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL839 R0608

FLAG& SEQ STRAT NO	WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
			4.00	4.00		SAND	CLAYEY, MOTTLED GREY, YELLOW, FIRM, LOW PLASTICITY (CLAY), [COOMANDOOK FORMATION].
			10.00	6.00		SAND	CLAYEY, LIGHT TO MEDIUM GREY, FIRM, LOW PLASTICITY (CLAY).
			14.00	4.00		SAND	LIGHT TO MEDIUM YELLOW, GREY, LOOSE, NON-PLASTIC, FINE GRAINED, [COOMANDOOK FORMATION].
			18.00	4.00		LIMESTONE	LIGHT TO MEDIUM GREY, YELLOW, MODERATELY WEATHERED, LOOSE, NON-PLASTIC, ABUNDANT MARINE FOSSILS, [GAMBIER LIMESTONE].
			24.00	6.00		LIMESTONE	LIGHT TO MEDIUM CREAM, SLIGHTLY WEATHERED, LOOSE, NON-PLASTIC, ABUNDANT MARINE FOSSILS, [GAMBIER LIMESTONE].
			29.00	5.00		NO RECORD	[GAMBIER LIMESTONE]; CEMENTED AND REDRILLED
			64.00	35.00		LIMESTONE	LIGHT TO MEDIUM CREAM, SLIGHTLY WEATHERED, LOOSE, NON-PLASTIC, ABUNDANT MARINE FOSSILS, [GAMBIER LIMESTONE].
			68.00	4.00		LIMESTONE	CLAYEY, LIGHT TO MEDIUM CREAM, YELLOW, SLIGHTLY WEATHERED, FIRM, NON-PLASTIC, ABUNDANT MARINE FOSSILS, [GAMBIER LIMESTONE].
			70.00	2.00		SAND	CLAYEY, CALCAREOUS, LIGHT TO MEDIUM GREY, MODERATELY WEATHERED, LOW STRENGTH, LOW PLASTICITY (CLAY), FINE AND MEDIUM GRAINED, [GAMBIER LIMESTONE].
			94.00	24.00		LIMESTONE	MOTTLED GREY, SLIGHTLY WEATHERED, LOW STRENGTH, NON-PLASTIC, [GAMBIER LIMESTONE].
			100.00	6.00		CLAY	CARBONACEOUS, MEDIUM TO DARK BROWN, FIRM, LOW PLASTICITY (CLAY), [GAMBIER LIMESTONE].
			102.00	2.00		CLAY	SANDY, CARBONACEOUS, MEDIUM TO DARK GREY, BROWN, [GAMBIER LIMESTONE].

FLAG& SEQ STRAT NO	WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
			110.00	8.00		CLAY	SANDY, GLAUCONITIC, MEDIUM TO DARK GREY, GREEN, FIRM, LOW PLASTICITY (CLAY), (GAMBIER LESTONE).
			121.00	11.00		CLAY AND CLAY	INTERBEDDED 80:20. CLAY: CARBONACEOUS, MEDIUM TO DARK BROWN, FIRM, HIGH PLASTICITY (CLAY), (GAMBIER LESTONE); CLAY: SANDY, GLAUCONITIC, MEDIUM TO DARK GREY, GREEN, FIRM, LOW PLASTICITY (CLAY).
			123.00	2.00		LIMESTONE	BRYOZOAL, MOTTLED GREY, EXTREMELY HIGH STRENGTH, TOUGH, (GAMBIER LESTONE).
			131.00	8.00		LIMESTONE	BRYOZOAL, MOTTLED GREY, DENSE, BRITTLE, ABUNDANT FRAGMENTED SHELLS, (GAMBIER LESTONE).
			133.50	2.50		LIGNEOUS CLAY AND INFERIOR LIGNITE	50:50. LIGNEOUS CLAY: DARK BROWN, FIRM, LOW PLASTICITY (CLAY), (KNIGHT GROUP); INFERIOR LIGNITE: CLAYEY, DARK BROWN, FIRM, LOW PLASTICITY (ORGANIC).
			142.10	8.60		CLAY	CARBONACEOUS, MEDIUM TO DARK BROWN, GREY, FIRM, HIGH PLASTICITY (CLAY), (KNIGHT GROUP).
			144.00	1.90		INFERIOR LIGNITE	CLAYEY, SANDY, MEDIUM TO DARK BROWN, BLACK, FIRM, LOW PLASTICITY (ORGANIC), (KNIGHT GROUP).
			150.00	6.00		CLAY	CARBONACEOUS, DARK BROWN, GREY, FIRM, LOW PLASTICITY (CLAY), COMMON FRAGMENTED SHELLS, (KNIGHT GROUP).
			152.00	2.00		SAND AND CLAY	INTERBEDDED 60:40. SAND: LIGHT TO MEDIUM CREAM, SOFT, NON-PLASTIC, (KNIGHT GROUP); CLAY: LIGNEOUS, SANDY, MEDIUM TO DARK BROWN, BLACK, FIRM, LOW PLASTICITY (CLAY), SECONDARY PYRITE DISSEMINATED.
			153.00	1.00		SAND	LIGHT TO MEDIUM CREAM, SOFT, NON-PLASTIC, SECONDARY PYRITE DISSEMINATED, (KNIGHT GROUP).
			162.00	9.00		SAND	LIGHT TO MEDIUM CREAM, LOOSE, NON-PLASTIC, (KNIGHT GROUP).
			170.00	8.00		BASEMENT	SANDY, COARSE GRAINED, (CAMBRIAN- ORDOVICIAN BASEMENT).

END OF BORE AT 170.00 M

*
* THIESS BROS. PTY. LTD. - MINING DIVISION *
* EL839 R0609 *
*

EASTING: 461300.000 M.
NORTHING: 5944500.000 M.
GRID TYPE: AUSTRALIAN MAPPING GRID
ACCURACY: APPROXIMATE
CRL: 70.00 M.
DATUM: APPROXIMATE LEVEL - NOT SURVEYED
1:50000 SHEET:
INDEX:
TOTAL DEPTH: 61.00 M.
DRILLING COMMENCED: 04/03/82
DRILLING COMPLETED: 04/03/82
INCLINATION:
AZIMUTH:
STANDING WATER LEVEL:

LOGGING ORGANIZATION: CSR EXPLORATION AND EVALUATION G
LOGGED BY: HINKICHS
DRILLING CONTRACTOR: THOMPSON DRILLING COMPANY
GEOPHYSICAL LOGGING: GEDEX PTY LTD

COUNTY:
PARISH:
PORTION:

PLUG DEPTHS:
HOLE DIAMETER: 120 MM.
CORE DIAMETER:
CASED DEPTHS:
CORE BARREL:

AVAILABLE DATA: GAMMA LOGS
NEUTRON LOGS
DENSITY LOGS:
DETAIL DENSITY LOGS
RESISTIVITY LOGS
CALIPER LOGS

DRILL BIT: BLADES

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL839 R0609

FLAG& SEQ STRAT NO	WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
			6.00	6.00		SAND	LIGHT TO MEDIUM ORANGE, GREY, MODERATELY WEATHERED, VERY LOOSE, NON-PLASTIC, FINE GRAINED, (COOMANDOOK FORMATION).
			28.00	22.00		LIMESTONE	SANDY, LIGHT TO MEDIUM ORANGE, GREY, HIGHLY WEATHERED, LOOSE, NON-PLASTIC, FINE AND MEDIUM GRAINED, (GAMBIER LIMESTONE).
			30.00	2.00		LIMESTONE	SANDY, LIGHT TO MEDIUM GREY, ORANGE, MODERATELY WEATHERED, LOOSE, NON-PLASTIC, FINE TO COARSE GRAINED, ABUNDANT FRAGMENTED SHELLS, (GAMBIER LIMESTONE).
			49.00	19.00		LIMESTONE	BRYOZOAL, LIGHT TO MEDIUM GREEN, GREY, SLIGHTLY WEATHERED, LOOSE, BRITTLE, FINE TO COARSE GRAINED, ABUNDANT MARINE FOSSILS, (GAMBIER LIMESTONE).
			51.00	2.00		LIMESTONE	BRYOZOAL, LIGHT TO MEDIUM GREEN, GREY, FRESH, HIGH STRENGTH, BRITTLE, ABUNDANT MARINE FOSSILS, (GAMBIER LIMESTONE).
			60.00	9.00		LIMESTONE	BRYOZOAL, LIGHT TO MEDIUM GREEN, GREY, SLIGHTLY WEATHERED, LOOSE, BRITTLE, (GAMBIER LIMESTONE).
			61.00	1.00		BASEMENT	MICACEOUS, CLAYEY, DARK GREY.

END OF BORE AT 61.00 M

*
* THIESS BROS. PTY. LTD. - MINING DIVISION *
* EL839 R0640 *
*

EASTING: 482850.000 M.
NORTHING: 5940700.000 M.
GRID TYPE: AUSTRALIAN MAPPING GRID
ACCURACY: APPROXIMATE
CRL: 98.00 M.
DATUM: APPROXIMATE LEVEL - NOT SURVEYED
1:50000 SHEET:
INDEX:
TOTAL DEPTH: 152.00 M.
DRILLING COMMENCED: 04/03/82
DRILLING COMPLETED: 05/03/82
INCLINATION:
AZIMUTH:
STANDING WATER LEVEL:

LOGGING ORGANIZATION: CSR EXPLORATION AND EVALUATION G
LOGGED BY: HINRICHS
DRILLING CONTRACTOR: THOMPSON DRILLING COMPANY
GEOPHYSICAL LOGGING: GEDEX PTY LTD

COUNTY:
PARISH:
PORTION:

PLUG DEPTHS:
HOLE DIAMETER: 120 MM.
CORE DIAMETER:
CASED DEPTHS:
CORE BARREL:

AVAILABLE DATA: GAMMA LOGS
NEUTRON LOGS
DENSITY LOGS:
DETAIL DENSITY LOGS
RESISTIVITY LOGS
CALIPER LOGS

DRILL BIT: BLADES

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL839 R0640

FLAG& SEQ STRAT NO	WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
			8.00	8.00		SAND	CLAYEY, MOTTLED ORANGE, GREY, HIGHLY WEATHERED, LOW STRENGTH, LOW PLASTICITY (CLAY), FINE AND MEDIUM GRAINED, [COOMANDOOK FORMATION].
			12.00	4.00		CLAY	SANDY, MOTTLED GREY, YELLOW, HIGHLY WEATHERED, LOW STRENGTH, LOW PLASTICITY (CLAY), [COOMANDOOK FORMATION].
			29.00	17.00		NO RECORD	[COOMANDOOK FORMATION].
			36.00	7.00		SAND	[COOMANDOOK FORMATION].
			39.00	3.00		LIMESTONE	BRYOZOAL, LIGHT TO MEDIUM CREAM, FRESH, DENSE, BRITTLE, [GAMBIER LIMESTONE].
			39.60	.60		LIMESTONE	BRYOZOAL, INDURATED, LIGHT TO MEDIUM CREAM, FRESH, HARD, TOUGH, [GAMBIER LIMESTONE].
			42.00	2.40		LIMESTONE	BRYOZOAL, LIGHT TO MEDIUM CREAM, FRESH, TOUGH, [GAMBIER LIMESTONE].
			46.00	4.00		LIMESTONE	BRYOZOAL, LIGHT TO MEDIUM CREAM, YELLOW, SLIGHTLY WEATHERED, HARD, TOUGH, [GAMBIER LIMESTONE].
			62.00	16.00		LIMESTONE	BRYOZOAL, LIGHT TO MEDIUM CREAM, FRESH, DENSE, BRITTLE, [GAMBIER LIMESTONE]; RARE KAOLIN IN CLASTS
			76.00	14.00		LIMESTONE	BRYOZOAL, LIGHT TO MEDIUM CREAM, FRESH, DENSE, [GAMBIER LIMESTONE].
			78.00	2.00		SAND	BRYOZOAL, LIGHT TO MEDIUM CREAM, GREEN, FRESH, LOOSE, NON-PLASTIC, [GAMBIER LIMESTONE].
			84.00	6.00		LIMESTONE	BRYOZOAL, GLAUCONITIC, LIGHT TO MEDIUM BUFF, GREEN, FRESH, HIGH STRENGTH, BRITTLE, ACCESSORY MANGANESE STAINING, [GAMBIER LIMESTONE].

FLAG& SEQ STRAT NO	WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
			92.00	8.00		LIMESTONE	BRYOZOAL, LIGHT TO MEDIUM BUFF, FRESH, DENSE, BRITTLE, [GAMBIER LIMESTONE].
			92.50	.50		SAND	LIGHT TO MEDIUM GREY, ORANGE, LOOSE, NON-PLASTIC, [GAMBIER LIMESTONE].
			98.00	5.50		SAND	BRYOZOAL, GLAUCONITIC, LIGHT TO MEDIUM GREY, GREEN, MEDIUM DENSE, NON-PLASTIC, [GAMBIER LIMESTONE].
			109.00	11.00		LIMESTONE	BRYOZOAL, LIGHT TO MEDIUM CREAM, LOW STRENGTH, BRITTLE, ACCESSORY MANGANESE DISSEMINATED, [GAMBIER LIMESTONE].
			110.00	1.00		LIMESTONE	BRYOZOAL, LIGHT TO MEDIUM CREAM, ORANGE, HARD, TOUGH, [GAMBIER LIMESTONE].
			111.00	1.00		SAND	CARBONACEOUS, CLAYEY, MEDIUM TO DARK GREY, FIRM, LOW PLASTICITY (CLAY), [GAMBIER LIMESTONE].
			112.00	1.00		LIMESTONE	LIGHT TO MEDIUM GREY, LOOSE, NON-PLASTIC, [GAMBIER LIMESTONE].
			122.00	10.00		CLAY	CARBONACEOUS, MEDIUM TO DARK BROWN, BLACK, FIRM, LOW PLASTICITY (CLAY), [BUCCLEUCH GROUP]; BANDS INCLUDE: CLAY, SANDY, LIGHT TO MEDIUM GREY, FIRM, HIGH PLASTICITY (CLAY).
			126.00	4.00		SAND	CLAYEY, LIGHT TO MEDIUM GREY, CREAM, LOOSE, LOW PLASTICITY (CLAY), [ETTRICK FORMATION].
			131.00	5.00		CALC-ARENITE	SANDY, CLAYEY, LIGHT TO MEDIUM GREY, FRESH, HIGH STRENGTH, TOUGH, [ETTRICK FORMATION]; BANDS INCLUDE: SAND, LIGHT TO MEDIUM GREY, ORANGE, SOFT, NON-PLASTIC, [ETTRICK FORMATION].
			140.00	9.00		CLAY	CARBONACEOUS, LIGNEOUS, MEDIUM TO DARK BROWN, FIRM, LOW PLASTICITY (CLAY), [KNIGHT GROUP]; BANDS INCLUDE: CLAY, LIGNEOUS, MEDIUM TO DARK BROWN, BLACK, FIRM, HIGH PLASTICITY (CLAY).

FLAG& SEQ STRAT NO	WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
			142.00	2.00		LIGNEOUS CLAY	DARK BROWN, BLACK, FIRM, HIGH PLASTICITY (ORGANIC), [KNIGHT GROUP]; BANDS INCLUDE: INFERIOR LIGNITE, CLAYEY, DARK BROWN, BLACK, FIRM, HIGH PLASTICITY (ORGANIC).
			151.90	9.90		SAND	GRAVELLY, LIGHT TO MEDIUM GREY, GREEN, MODERATELY WEATHERED, [CAMBRIAN- ORDOVICIAN BASEMENT].
			152.00	.10		BASEMENT	[CAMBRIAN- ORDOVICIAN BASEMENT].

END OF BORE AT 152.00 M

*
* THIESS BROS. PTY. LTD. - MINING DIVISION *
* EL839 R0611 *
*

EASTING: 480700.000 M.
NORTHING: 5930600.000 M.
GRID TYPE: AUSTRALIAN MAPPING GRID
ACCURACY: APPROXIMATE
CRL: 89.00 M.
DATUM: APPROXIMATE LEVEL - NOT SURVEYED
1:50000 SHEET:
INDEX:
TOTAL DEPTH: 123.00 M.
DRILLING COMMENCED: 05/03/82
DRILLING COMPLETED: 05/03/82
INCLINATION:
AZIMUTH:
STANDING WATER LEVEL:

LOGGING ORGANIZATION: CSR EXPLORATION AND EVALUATION G
LOGGED BY: HINRICHS
DRILLING CONTRACTOR: THOMPSON DRILLING COMPANY
GEOPHYSICAL LOGGING: GEOEX PTY LTD

COUNTY:
PARISH:
PORTION:

PLUG DEPTHS:
HOLE DIAMETER: 120 MM.
CORE DIAMETER:
CASED DEPTHS:
CORE BARREL:

AVAILABLE DATA: GAMMA LOGS
NEUTRON LOGS
DENSITY LOGS:
DETAIL DENSITY LOGS
RESISTIVITY LOGS
CALIPER LOGS

DRILL BIT: BLADES

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL839 R0611

FLAG& SEQ STRAT NO	WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
			7.00	7.00		CLAY	SILTY, LIGHT TO MEDIUM GREY, FIRM, LOW PLASTICITY (CLAY), [COOMANDOOK FORMATION].
			14.00	7.00		CLAY	SILTY, MOTTLED GREY, YELLOW, FIRM, LOW PLASTICITY (CLAY), [COOMANDOOK FORMATION].
			47.00	33.00		LIMESTONE	BRYOZOAL, INDURATED, LIGHT TO MEDIUM CREAM, BUFF, HIGH STRENGTH, TOUGH, [GAMBIER LIMESTONE]; BANDS INCLUDE: LIMESTONE, BRYOZOAL, LIGHT TO MEDIUM CREAM, BUFF, LOW STRENGTH, BRITTLE.
			55.00	8.00		SAND	BRYOZOAL, QUARTZOSE, MOTTLED BUFF, ORANGE, LOOSE, NON-PLASTIC, FINE AND MEDIUM GRAINED.
			72.00	17.00		LIMESTONE	BRYOZOAL, MOTTLED CREAM, BROWN, LOW STRENGTH, BRITTLE.
			78.50	6.50		SAND	
			82.00	3.50		LIMESTONE	HIGH STRENGTH, BRITTLE; LOST CIRC-INTERP ONLY-DRILLING BLIND TO TD
			86.00	4.00		LIMESTONE	SANDY.
			93.00	7.00		LIMESTONE	HIGH STRENGTH, BRITTLE.
			107.00	14.00		SAND	CALCAREOUS, CLAYEY, SOFT, BRITTLE.
			110.00	3.00		CLAY	
			111.00	1.00		LIMESTONE	EXTREMELY HIGH STRENGTH, TOUGH; BANDS INCLUDE: LIMESTONE, DENSE, BRITTLE.
			122.00	11.00		LIMESTONE	
			123.00	1.00		BASEMENT	EXTREMELY HIGH STRENGTH, TOUGH.

END OF BORE AT 123.00 M

*
* THIESS BROS. PTY. LTD. - MINING DIVISION *
* EL839 R0612 *
*

EASTING: 478500.000 M.
NORTHING: 5925400.000 M.
GRID TYPE: AUSTRALIAN MAPPING GRID
ACCURACY: APPROXIMATE
CRL: 84.00 M.
DATUM: APPROXIMATE LEVEL - NOT SURVEYED
1:50000 SHEET:
INDEX:
TOTAL DEPTH: 164.00 M.
DRILLING COMMENCED: 05/03/82
DRILLING COMPLETED: 05/03/82
INCLINATION:
AZIMUTH:
STANDING WATER LEVEL:

LOGGING ORGANIZATION: CSR EXPLORATION AND EVALUATION G
LOGGED BY: HINRICHS
DRILLING CONTRACTOR: THOMPSON DRILLING COMPANY
GEOPHYSICAL LOGGING: GEOEX PTY LTD

COUNTY:
PARISH:
PORTION:

PLUG DEPTHS:
HOLE DIAMETER: 120 MM.
CORE DIAMETER:
CASED DEPTHS:
CORE BARREL:

AVAILABLE DATA: GAMMA LOGS
NEUTRON LOGS
DENSITY LOGS:
DETAIL DENSITY LOGS
RESISTIVITY LOGS
CALIPER LOGS

DRILL BIT: BLADES

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL839 R0612

FLAG& SEQ STRAT NO	WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
			2.50	2.50		SAND	SILTY, MOTTLED GREY, BROWN, LOOSE, NON-PLASTIC, [PADTHAWAY FORMATION].
			4.00	1.50		CLAY	SILTY, LIGHT TO MEDIUM GREY, FIRM, LOW PLASTICITY (CLAY), [COOMANDOOK FORMATION].
			6.00	2.00		CLAY	SANDY, SILTY, LIGHT TO MEDIUM GREY, FIRM, HIGH PLASTICITY (CLAY), [COOMANDOOK FORMATION].
			8.50	2.50		CLAY	SANDY, MOTTLED ORANGE, GREY, FIRM, HIGH PLASTICITY (CLAY).
			11.50	3.00		LIMESTONE	LIGHT TO MEDIUM YELLOW, GREY, LOW STRENGTH, NON-PLASTIC, ABUNDANT FRAGMENTED SHELLS, [GAMBIER LIMESTONE].
			23.00	11.50		LIMESTONE, CLAY AND IRONSTONE - UN- DIFFERENTIATED	INTERBEDDED 50:45: 5. LIMESTONE: BRYOZOAL, LIGHT TO MEDIUM GREY, YELLOW, LOW STRENGTH, NON-PLASTIC, [GAMBIER LIMESTONE]; CLAY: LIGHT TO MEDIUM GREY, FIRM, HIGH PLASTICITY (CLAY); IRONSTONE - UN- DIFFERENTIATED: MEDIUM TO DARK RED, BROWN, MODERATELY WEATHERED, EXTREMELY HIGH STRENGTH, BRITTLE.
			42.00	19.00		LIMESTONE AND LIMESTONE	INTERBEDDED 60:40. LIMESTONE: BRYOZOAL, LIGHT TO MEDIUM CREAM, BUFF, LOW STRENGTH, BRITTLE, [GAMBIER LIMESTONE]; LIMESTONE: LIGHT TO MEDIUM GREY, ORANGE, HARD, TOUGH.
			51.00	9.00		CLAY	SANDY, SILTY, LIGHT TO MEDIUM GREY, LOW STRENGTH, LOW PLASTICITY (CLAY), [GAMBIER LIMESTONE]; CHERT NODULES IN CL.
			72.00	21.00		LIMESTONE	SANDY, LIGHT TO MEDIUM GREY, MODERATELY WEATHERED, LOW STRENGTH, BRITTLE, [GAMBIER LIMESTONE].
			80.00	8.00		LIMESTONE AND SAND	INTERMIXED 90:10. LIMESTONE: SANDY, BRYOZOAL, LIGHT TO MEDIUM GREY, LOW STRENGTH, BRITTLE, [GAMBIER LIMESTONE]; SAND: CLAYEY, LIGHT TO MEDIUM GREY, FIRM, LOW PLASTICITY (CLAY).

FLAG& SEQ. WORK STRAT NO SECT	SAMPLE NUMBER	DEPTH	ESTIMATED % THICKNESS REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
		82.00	2.00	CLAY AND CLAY	INTERBEDDED 80:20. CLAY: MEDIUM TO DARK GREY, FIRM, LOW PLASTICITY (CLAY), (GAMBIER LESTONE); CLAY: SANDY, BRYOZOAL, LIGHT TO MEDIUM GREY, ORANGE, FIRM, LOW PLASTICITY (CLAY).
		90.00	8.00	LIMESTONE	BRYOZOAL, GLAUCONITIC, LIGHT TO MEDIUM GREY, GREEN, LOW STRENGTH, FRIABLE, (GAMBIER LESTONE).
		95.00	5.00	CLAY	CARBONACEOUS, SANDY, MEDIUM TO DARK BROWN, FIRM, LOW PLASTICITY (CLAY), (GAMBIER LESTONE).
		97.00	2.00	LIMESTONE	BRYOZOAL, LOW STRENGTH, FRIABLE, (GAMBIER LESTONE).
		102.00	5.00	CLAY AND SAND	INTERBEDDED 80:20. CLAY: CARBONACEOUS, SANDY, MEDIUM TO DARK BROWN, FIRM, LOW PLASTICITY (CLAY), (BUCCLEUCH GROUP); SAND: LIGHT TO MEDIUM GREY, LOOSE, NON-PLASTIC.
		106.00	4.00	CLAY AND SAND	INTERBEDDED 90:10. CLAY: CARBONACEOUS, MEDIUM TO DARK BROWN, GREY, FIRM, LOW PLASTICITY (CLAY), (BUCCLEUCH GROUP); SAND: MEDIUM TO DARK GREY, HARD, TOUGH, COMMON FRAGMENTED SHELLS.
		116.90	10.90	CLAY	CARBONACEOUS, SANDY, MEDIUM TO DARK BROWN, GREY, FIRM, FRIABLE, (ETTRICK FORMATION).
		118.00	1.10	SANDSTONE	EXTREMELY HIGH STRENGTH, TOUGH, (ETTRICK FORMATION).
		128.00	10.00	CLAY AND LIGNEOUS CLAY	50:50. CLAY: CARBONACEOUS, MEDIUM TO DARK BROWN, BLACK, FIRM, FRIABLE, (KNIGHT GROUP); LIGNEOUS CLAY: DARK BROWN, BLACK, FIRM, LOW PLASTICITY (ORGANIC).
		140.80	12.80	LIGNEOUS CLAY	DARK BROWN, BLACK, FIRM, FRIABLE, ABUNDANT BIOTURBATION, (KNIGHT GROUP).
		141.50	.70	INFERIOR LIGNITE AND LIGNEOUS CLAY	INTERBEDDED 50:50. INFERIOR LIGNITE: CLAYEY, DARK BROWN, BLACK, FIRM, LOW PLASTICITY (ORGANIC), (KNIGHT GROUP); LIGNEOUS CLAY: DARK BROWN, GREY, FIRM, HIGH PLASTICITY (CLAY).

FLAG#	SEQ	WORK	SAMPLE		ESTIMATED	%			
STRAT NO	SECT		NUMBER	DEPTH	THICKNESS	REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA	
								OCCASIONAL BIOTURBATION.	
				148.50	7.00		SAND	COARSE GRAINED, [KNIGHT GROUP]; BANDS INCLUDE: CLAY, CARBONACEOUS, LIGNEOUS, DARK BROWN, BLACK, FIRM, FRIABLE.	
				150.50	2.00		LIGNEOUS CLAY AND SAND	INTERMIXED 95: 5. LIGNEOUS CLAY: DARK BROWN, FIRM, FRIABLE, ABUNDANT BIOTURBATION, [KNIGHT GROUP]; SAND: LIGHT TO MEDIUM WHITE, BUFF, VERY LOOSE, NON-PLASTIC, COARSE GRAINED.	
				154.00	3.50		CLAY	SANDY, LIGHT TO MEDIUM GREY, FIRM, HIGH PLASTICITY [CLAY], [KNIGHT GROUP].	
				160.00	6.00		SAND	CLAYEY, [KNIGHT GROUP].	
				164.00	4.00		BASEMENT	EXTREMELY WEATHERED, TOUGH, [CAMBRIAN- ORDOVICIAN BASEMENT].	

END OF BORE AT 164.00 M

*
* THIESS BROS. PTY. LTD. - MINING DIVISION *
* EL839 R0613 *
*

EASTING: 485700.000 M.
NORTHING: 5904700.000 M.
GRID TYPE: AUSTRALIAN MAPPING GRID
ACCURACY: APPROXIMATE
CRL: 80.00 M.
DATUM: APPROXIMATE LEVEL - NOT SURVEYED
1:50000 SHEET:
INDEX:
TOTAL DEPTH: 15.00 M.
DRILLING COMMENCED: 06/03/82
DRILLING COMPLETED: 06/03/82
INCLINATION:
AZIMUTH:
STANDING WATER LEVEL:

LOGGING ORGANIZATION: CSR EXPLORATION AND EVALUATION G
LOGGED BY: HINRICHS
DRILLING CONTRACTOR: THOMPSON DRILLING COMPANY
GEOPHYSICAL LOGGING: GEDEX PTY LTD

COUNTY:
PARISH:
PORTION:

PLUG DEPTHS:
HOLE DIAMETER: 120 MM.
CORE DIAMETER:
CASED DEPTHS:
CORE BARREL:

AVAILABLE DATA: GAMMA LOGS
NEUTRON LOGS
DENSITY LOGS:
DETAIL DENSITY LOGS
RESISTIVITY LOGS
CALIPER LOGS

DRILL BIT:

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL839 R0613

FLAG#	SEQ	WORK	SAMPLE		ESTIMATED	%			
STRAT NO	SECT		NUMBER	DEPTH	THICKNESS	REC	ROCK TYPE		GEOLOGICAL DESCRIPTION OF STRATA

				4.00	4.00		SAND		MOTTLED GREY, YELLOW, VERY LOOSE, NON-PLASTIC, [PADTHAWAY FORMATION].
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				7.90	3.90		CLAY		SANDY, SILTY, MOTTLED YELLOW, BROWN, SOFT, LOW PLASTICITY (CLAY), [PADTHAWAY FORMATION].
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				9.50	1.60		LIMESTONE		CLAYEY, LIGHT TO MEDIUM BUFF, MODERATELY WEATHERED, LOW STRENGTH, NON-PLASTIC, [GAMBIER LIMESTONE].
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				15.00	5.50		NO RECORD		
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LOST CIRCULATION - CEMENTED

END OF BORE AT 15.00 M

*
* THIESS BROS. PTY. LTD. - MINING DIVISION *
* EL839 R0614 *
*

EASTING: 487950.000 M.
NORTHING: 5904800.000 M.
GRID TYPE: AUSTRALIAN MAPPING GRID
ACCURACY: APPROXIMATE
CRL: 80.00 M.
DATUM: APPROXIMATE LEVEL - NOT SURVEYED
1:50000 SHEET:
INDEX:
TOTAL DEPTH: 15.00 M.
DRILLING COMMENCED: 06/03/82
DRILLING COMPLETED: 07/03/82
INCLINATION:
AZIMUTH:
STANDING WATER LEVEL:

LOGGING ORGANIZATION: CSR EXPLORATION AND EVALUATION G
LOGGED BY: HINRICHS
DRILLING CONTRACTOR: THOMPSON DRILLING COMPANY
GEOPHYSICAL LOGGING:

COUNTY:
PARISH:
PORTION:

PLUG DEPTHS:
HOLE DIAMETER: 120 MM.
CORE DIAMETER:
CASED DEPTHS:
CORE BARREL:

AVAILABLE DATA:

DRILL BIT: BLADES

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL839 R0614

FLAG& SEQ STRAT NO	WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
			6.00	6.00		CLAY	SANDY, LIGHT TO MEDIUM BROWN, GREY, FIRM, LOW PLASTICITY (CLAY); LOST CIRC AT 3.0M-BLIND TO 15M
			15.00	9.00		LIMESTONE	LIGHT TO MEDIUM GREY, ORANGE, HIGHLY WEATHERED, LOW STRENGTH, BRITTLE; LOST CIRCULATION - ABANDONED, CEMENTED

END OF BORE AT 15.00 M

*
* THIESS BROS. PTY. LTD. - MINING DIVISION *
* EL839 R0615 *
*

EASTING: 494850.000 M.
NORTHING: 5912450.000 M.
GRID TYPE: AUSTRALIAN MAPPING GRID
ACCURACY: APPROXIMATE
CRL: 405.00 M.
DATUM: APPROXIMATE LEVEL - NOT SURVEYED
1:50000 SHEET:
INDEX:
TOTAL DEPTH: 179.00 M.
DRILLING COMMENCED: 07/03/82
DRILLING COMPLETED: 07/03/82
INCLINATION:
AZIMUTH:
STANDING WATER LEVEL:

LOGGING ORGANIZATION: CSR EXPLORATION AND EVALUATION G
LOGGED BY: HINRICHS
DRILLING CONTRACTOR: THOMPSON DRILLING COMPANY
GEOPHYSICAL LOGGING: GEDEX PTY LTD

COUNTY:
PARISH:
PORTION:

PLUG DEPTHS:
HOLE DIAMETER: 120 MM.
CORE DIAMETER:
CASED DEPTHS:
CORE BARREL:

AVAILABLE DATA: GAMMA LOGS
NEUTRON LOGS
DENSITY LOGS:
DETAIL DENSITY LOGS
RESISTIVITY LOGS
CALIPER LOGS

DRILL BIT: BLADES

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL839 R0615

FLAG& SEQ STRAT NO	WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
			.80	.80		CLAY	SANDY, LIGHT TO MEDIUM ORANGE, GREY, EXTREMELY WEATHERED, SOFT, LOW PLASTICITY (CLAY).
			1.50	.70		CLAY	SANDY, LIGHT TO MEDIUM GREY, MODERATELY WEATHERED, SOFT, LOW PLASTICITY (CLAY).
			4.50	3.00		CLAY	SANDY, LIGHT TO MEDIUM PINK, GREY, MODERATELY WEATHERED, SOFT, LOW PLASTICITY (CLAY).
			8.50	4.00		SAND	CLAYEY, LIGHT TO MEDIUM GREY, PINK, VERY LOOSE, NON-PLASTIC.
			14.50	6.00		CLAY	SILTY, SANDY, LIGHT TO MEDIUM BROWN, YELLOW, FIRM, LOW PLASTICITY (CLAY).
			21.00	6.50		LIMESTONE	(GAMBIER LIMESTONE); DRILLED BLIND-TO 32M
			23.00	2.00		LIMESTONE AND LIMESTONE	INTERBEDDED 80:20. LIMESTONE: LOW STRENGTH, BRITTLE; LIMESTONE: SANDY, EXTREMELY HIGH STRENGTH, BRITTLE.
			25.00	2.00		SAND	VERY LOOSE, NON-PLASTIC.
			38.00	13.00		LIMESTONE AND LIMESTONE	INTERMIXED 70:30. LIMESTONE: BRYOZOAL, CLAYEY, LIGHT TO MEDIUM CREAM, BUFF, FRESH, LOW STRENGTH, BRITTLE; LIMESTONE: BRYOZOAL, LIGHT TO MEDIUM ORANGE, GREY, MODERATELY WEATHERED, LOW STRENGTH, FRIABLE.
			49.00	11.00		LIMESTONE AND LIMESTONE	INTERMIXED 40:60. LIMESTONE: BRYOZOAL, LIGHT TO MEDIUM BUFF, EXTREMELY HIGH STRENGTH, TOUGH; LIMESTONE: CALCAREOUS, LIGHT TO MEDIUM OFF WHITE, LOW STRENGTH, BRITTLE.
			54.00	5.00		LIMESTONE AND CLAY	INTERMIXED 95: 5. LIMESTONE: SANDY, MOTTLED CREAM, ORANGE, LOW STRENGTH, BRITTLE, ABUNDANT FRAGMENTED SHELLS; CLAY: LIGHT TO MEDIUM GREY, FIRM, HIGH PLASTICITY (CLAY).
			66.00	12.00		CLAY	SANDY, LIGHT TO MEDIUM GREY, FIRM, LOW PLASTICITY (CLAY); CHERT NODULES 54-60M

FLAG& SEQ STRAT NO	WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
			72.00	6.00		LIMESTONE	BRYOZOAL, GLAUCONITIC, LIGHT TO MEDIUM GREEN, GREY, LOW STRENGTH, FRIABLE.
			84.00	12.00		SAND	BRYOZOAL, GLAUCONITIC, LIGHT TO MEDIUM GREEN, GREY, VERY HIGH STRENGTH, FRIABLE.
			94.00	10.00		SAND	BRYOZOAL, GLAUCONITIC, LIGHT TO MEDIUM GREY, GREEN, MODERATELY WEATHERED, LOW STRENGTH, ADDITIONAL FEATURES INCLUDE: CLAYEY.
			102.00	8.00		CLAY	MICACEOUS, LIGHT TO MEDIUM GREY, GREEN, EXTREMELY WEATHERED, SOFT, LOW PLASTICITY (CLAY); RESEMBLES WEATHERED BASEMENT
			108.00	6.00		CLAY	CARBONACEOUS, SILTY, LIGHT TO MEDIUM BROWN, GREY, SOFT, LOW PLASTICITY (CLAY).
			112.00	4.00		CLAY	SILTY, MEDIUM TO DARK GREY, GREEN, FIRM, LOW PLASTICITY (CLAY), ABUNDANT FRAGMENTED SHELLS.
			124.00	12.00		CLAY	SILTY, MEDIUM TO DARK GREEN, BROWN, FIRM, LOW PLASTICITY (CLAY).
			132.00	8.00		SAND, CLAY AND SAND	INTERBEDDED 50:40:10. SAND: MEDIUM TO DARK GREY, YELLOW, VERY LOOSE, NON-PLASTIC; CLAY: MOTTLED ORANGE, BROWN, SOFT, LOW PLASTICITY (CLAY); SAND: CLAYEY, LIGHT TO MEDIUM PINK, SOFT, NON-PLASTIC, FINE GRAINED.
			148.00	16.00		SAND, SAND AND CLAY	INTERMIXED 50:30:20. SAND: CLAYEY, LIGHT TO MEDIUM PINK, SOFT, NON-PLASTIC; SAND: LIGHT TO MEDIUM GREY, VERY LOOSE, NON-PLASTIC, VERY FINE GRAINED; CLAY: CARBONACEOUS, MEDIUM TO DARK GREY, FIRM, LOW PLASTICITY (CLAY).
			159.00	11.00		SAND	MEDIUM TO DARK GREY, VERY LOOSE, NON-PLASTIC.
			169.00	10.00		GRAVEL	QUARTZOSE, MEDIUM TO DARK GREY, LOOSE, NON-PLASTIC, COARSE GRAINED.

FLAG& SEQ STRAT NO	WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
			175.00	6.00		SAND	MICACEOUS, MEDIUM TO DARK GREY, LOOSE, NON-PLASTIC, MEDIUM AND COARSE GRAINED, ACCESSORY MANGANESE DISSEMINATED.
			178.00	3.00		SAND	MICACEOUS, MEDIUM TO DARK GREY, LOW STRENGTH, NON-PLASTIC.
			179.00	1.00		BASEMENT	MICACEOUS, QUARTZOSE, EXTREMELY HIGH STRENGTH, TOUGH.

END OF BORE AT 179.00 M

*
* THIESS BROS. PTY. LTD. - MINING DIVISION *
* EL839 R0616 *
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EASTING: 482200.000 M.
NORTHING: 5946950.000 M.
GRID TYPE: AUSTRALIAN MAPPING GRID
ACCURACY: APPROXIMATE
CRL: 90.00 M.
DATUM: APPROXIMATE LEVEL - NOT SURVEYED
1:50000 SHEET:
INDEX:
TOTAL DEPTH: 32.00 M.
DRILLING COMMENCED: 03/03/82
DRILLING COMPLETED: 04/03/82
INCLINATION:
AZIMUTH:
STANDING WATER LEVEL:

LOGGING ORGANIZATION: CSR EXPLORATION AND EVALUATION G
LOGGED BY: HINRICHS
DRILLING CONTRACTOR: THOMPSON DRILLING COMPANY
GEOPHYSICAL LOGGING:

COUNTY:
PARISH:
PORTION:

PLUG DEPTHS:
HOLE DIAMETER: 120 MM.
CORE DIAMETER:
CASED DEPTHS:
CORE BARREL:

AVAILABLE DATA:

DRILL BIT: BLADES

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL839 R0616

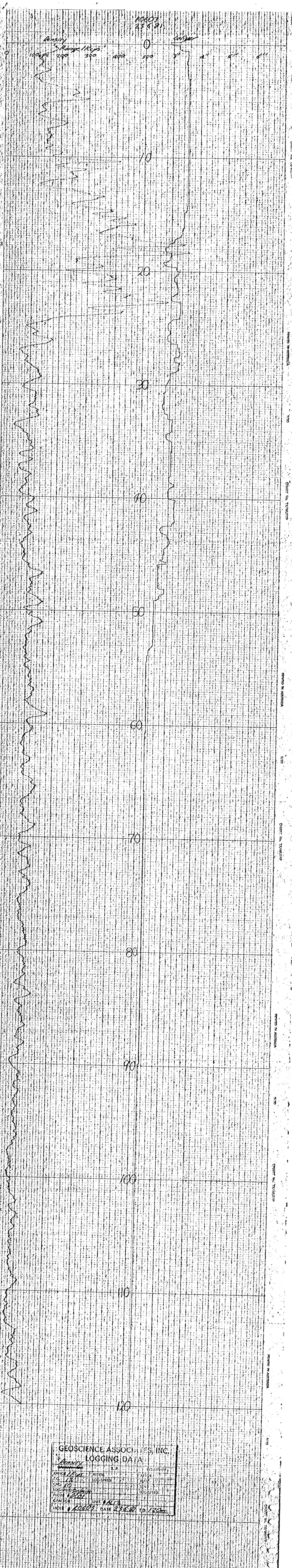
FLAG& SEQ STRAT NO	WORK SECT	SAMPLE NUMBER	DEPTH	ESTIMATED THICKNESS	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
			6.00	6.00		SAND	CLAYEY, LIGHT TO MEDIUM YELLOW, BROWN, HIGHLY WEATHERED, VERY LOW STRENGTH, LOW PLASTICITY (CLAY), FINE AND MEDIUM GRAINED.
			12.00	6.00		SAND	CLAYEY, LIGHT TO MEDIUM CREAM, HIGHLY WEATHERED, VERY LOW STRENGTH, LOW PLASTICITY (CLAY), FINE GRAINED.
			16.00	4.00		LIMESTONE AND SAND	INTERBEDDED 60:40. LIMESTONE: LIGHT TO MEDIUM GREY, YELLOW, EXTREMELY WEATHERED, LOOSE, BRITTLE, ABUNDANT MARINE FOSSILS; SAND: CLAYEY, LIGHT TO MEDIUM GREY, CREAM, HIGHLY WEATHERED, LOOSE, NON-PLASTIC.
			32.00	16.00		NO RECORD	LOST CIRCULATION-CEMENTED AND ABANDONED-SEE R608

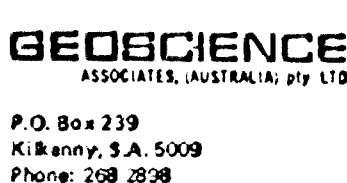
END OF BORE AT 32.00 M

HOLE

LOGGING DATA

DATE 23.6.81

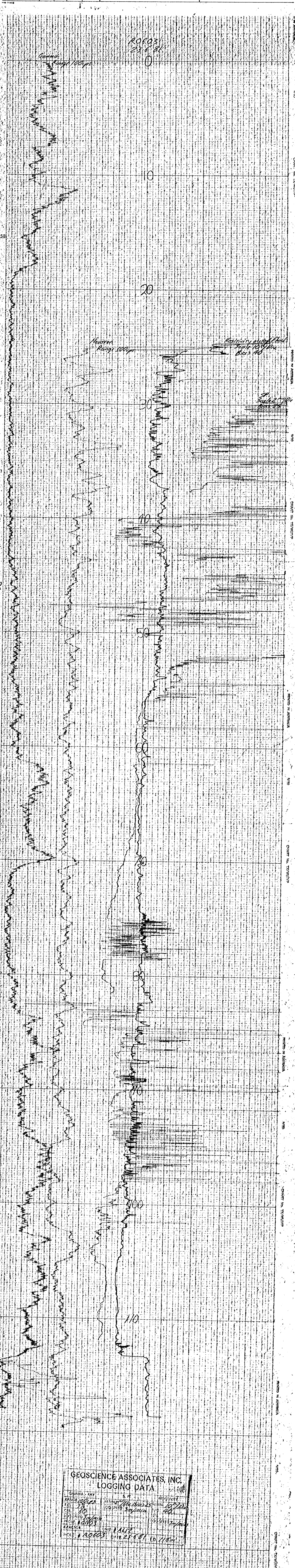
[illegible]



LOGGING DATA

DATE 23.6.81

LOCATION		HOLE NUMBER:		CLIENT:	
Border town.		RO603		CSR	
State: SA.		Collar elev. metres		Claim:	
Area:		Depth drilled: 123 metres		Owned by:	
Project: Border town.		CASING DATA		Operated by:	
Prospect:		HOLE DATA		Unit Operator: Jackson.	
Lat: ° ' " Long: ° ' "		Wall size in. Dia. from to		Unit No. AL12 Office: Adelaide	
GAMMA RAY		Dia. (inside) in. Dia. from to		ELECTRIC	
INITIAL RUN		Dia. from to		1 2 3 4	
2 3 4		Cored hole ☐ Non-cored hole ☐		Logged depth 118 118	
Logged depth 118 118		Sampled Interval		Type	
Range (Full scale) 100 500		2m		10m	
Time constant 3% 1%		INTERPRETATION DATA		S.P. scale m.v. 2m	
Paper speed cm/min 1 1		Probe No. Standard (cps) K factor		Paper speed 1 1	
Logging speed in/min 3 3				Logging speed 3 3	
Bgnd count (cps) 10				Probe size 40mm 40mm	
Probe No. 4403				Bias 40 25	
Size (dia) mm 40 40		REMARKS		CALIPER	
Crystal NaI 1/2 x 1/2		Fluid Level metres		Logged depth	
Standard				Scale in. set.	
Dead time		4 sec.		Paper Speed	
Amp. Gain (disc) 60 60				Logging speed	
Ratemeter No.				Arm Length in.	
Bore hole medium				Max. Def. in.	
Mud density					
Digital readout m. 05 05					
Time base (sec) 1 1					
Upper Disc.					
Lower Disc.					





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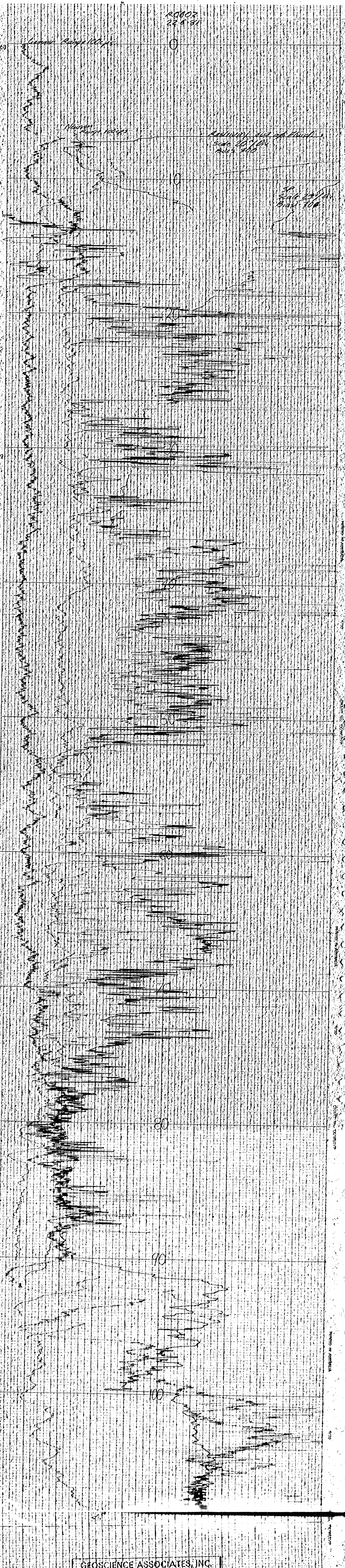
HOLE

LOGGING DATA

Gamma-Neutron - Res - SP.

DATE *22.6.81*

LOCATION <i>Bordertown</i>				HOLE NUMBER: <i>R0602</i>				CLIENT: <i>CSR</i>			
State: <i>SA</i>				Collar elev. metres				Claim:			
Area:				Depth drilled: <i>110</i> metres				Owned by:			
Project: <i>Bordertown</i>				CASING DATA				HOLE DATA			
Prospect:				Wall size in.				Dia <i>4 1/2</i> from <i>0</i> to <i>10</i> .			
Lat: <i>0</i>				Dia. (inside) in.				Dia. from to			
Long: <i>0</i>				Cased from to mtrs				Dia. from to			
GAMMA RAY				Cored hole ☐				Non-cored hole ☐			
INITIAL RUN				1				2			
2				3				4			
Logged depth <i>101.8</i>				101.8				Logged depth <i>101.8</i>			
Range (Full scale) <i>100</i>				500				Resist. scale <i>20m</i>			
Time constant (sec) <i>3%</i>				1%				S.P. scale m.v. <i>2m</i>			
Paper speed cm/min <i>1</i>				1				Paper speed <i>1</i>			
Logging speed m/min <i>3</i>				3				Logging speed <i>3</i>			
Bkgnd count (cps) <i>10</i>				10				Probe size <i>40mm</i>			
Probe No. <i>4103</i>				4103				Bias <i>200</i>			
Size (dia.) mm <i>40</i>				40				CALIPER			
Crystal <i>NaI 1/2 x 8</i>				AmBicurve				1			
Standard (cps)				Fluid Level metres				2			
Dead time				4 sec.				3			
Amp. Gain (disc) <i>60</i>				60				Scale <i>20m</i>			
Rate meter No.				Paper Speed				4			
Bore hole medium				Logging speed				5			
Mud density				Arm Length in.				6			
Digital readout in. <i>05</i>				05				Max. Def. in.			
Time base (sec) <i>1</i>				1				7			
Upper Disc.				8				9			
Lower Disc.				9				10			



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LOGGING DATA			
GAMMA RAY		RESISTIVITY	
RANGE <i>100 cps</i>	ATTEN <i>2m</i>	RANGE <i>20m</i>	BIAS <i>200</i>
LOG SPEED <i>3m/min</i>	LOG SPEED <i>3m/min</i>	LOG SPEED <i>3m/min</i>	LOG SPEED <i>3m/min</i>
PROBE NO. <i>4103</i>	UNIT <i>4103</i>	UNIT <i>4103</i>	UNIT <i>4103</i>
HOLE # <i>R0602</i> DATE <i>22.6.81</i> TO <i>101.8m</i>			



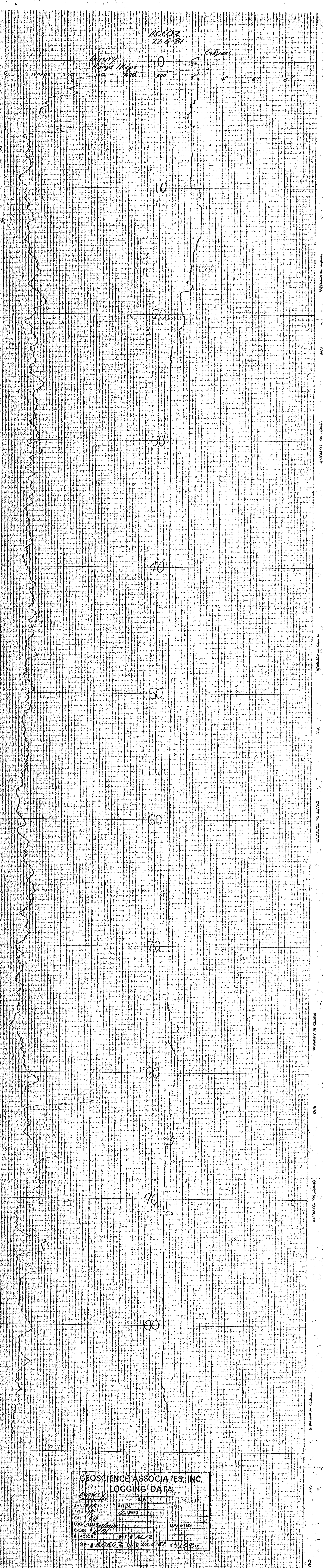
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ASSOCIATES, AUSTRALIA PTY LTD
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Kilbrenny, S.A. 5008
Phone: 288 2898

HOLE

LOGGING DATA

DATE 22.5.81

LOCATION <u>Borderdown.</u>		HOLE NUMBER: <u>R0602</u>		CLIENT: <u>LSR</u>	
State: <u>SA</u>		Collar elev. _____ metres		Claim: _____	
Area: _____		Depth drilled: <u>110.</u> metres		Owned by: _____	
Project: <u>Borderdown</u>		Casing data		Operated by: _____	
Prospect: _____		HOLE DATA		Unit Operator: <u>Jackson</u>	
Lat: 0 _____ Long: 0 _____		Dia. <u>3</u> from 0 to 10		Unit No. <u>AL12</u> Office: <u>Adelaide</u>	
GAMMA RAY		Dia. from to		ELECTRIC	
Cased hole ☐ Non cased hole ☐		Cored hole ☐ Non cored hole ☐		1 2 3 4	
Logged depth <u>109.</u>		Sampled Interval		Type	
Range (Full scale) <u>1K</u>		<u>2m</u>		<u>Mud Rotary</u>	
Time constant <u>1K</u>		INTERPRETATION DATA		Logged depth	
Paper speed <u>1</u>		Probe No. _____		Resist. scale <u>1000</u>	
Logging speed <u>3</u>		Standard _____		S.P. scale <u>1000</u>	
Bgnd count <u>100</u>		(cps) K factor _____		Paper speed <u>1</u>	
Probe No. <u>001</u>		REMARKS		Logging speed <u>1</u>	
Size (dia.) <u>50</u>		Fluid Level _____ metres		Probe size _____	
Crystal _____		Cased hole ☐ Non cased hole ☐		Bias _____	
Standard _____		Cased hole ☐ Non cased hole ☐		CALIPER	
Dead time _____		Cased hole ☐ Non cased hole ☐		Logged depth _____	
Amp. Gain (disc) <u>60</u>		Cased hole ☐ Non cased hole ☐		Scale <u>1000</u>	
Rate meter No. _____		Cased hole ☐ Non cased hole ☐		Paper Speed _____	
Bore hole medium _____		Cased hole ☐ Non cased hole ☐		Logging speed _____	
Mud density _____		Cased hole ☐ Non cased hole ☐		Arm Length _____	
Digital readout _____		Cased hole ☐ Non cased hole ☐		Max. Def. _____	
Time base (sec) <u>1</u>		Cased hole ☐ Non cased hole ☐		_____	
Upper Disc _____		Cased hole ☐ Non cased hole ☐		_____	
Lower Disc _____		Cased hole ☐ Non cased hole ☐		_____	



GEOSCIENCE ASSOCIATES, INC.			
LOGGING DATA			
HOLE: <u>R0602</u>		DATE: <u>22.5.81</u>	
UNIT: <u>AL12</u>		LOG-SPEED: <u>10/00m</u>	
PROBE: <u>001</u>		LOG-SPEED: <u>10/00m</u>	
RANGE: <u>1K</u>		LOG-SPEED: <u>10/00m</u>	
TIME: <u>1K</u>		LOG-SPEED: <u>10/00m</u>	
PAPER: <u>1</u>		LOG-SPEED: <u>10/00m</u>	
BGND: <u>100</u>		LOG-SPEED: <u>10/00m</u>	
CRYSTAL: <u>001</u>		LOG-SPEED: <u>10/00m</u>	
SIZE: <u>50</u>		LOG-SPEED: <u>10/00m</u>	
STANDARD: <u>100</u>		LOG-SPEED: <u>10/00m</u>	
DEAD TIME: <u>100</u>		LOG-SPEED: <u>10/00m</u>	
AMP. GAIN: <u>60</u>		LOG-SPEED: <u>10/00m</u>	
RATE METER: <u>100</u>		LOG-SPEED: <u>10/00m</u>	
BORE HOLE: <u>100</u>		LOG-SPEED: <u>10/00m</u>	
MUD DENSITY: <u>100</u>		LOG-SPEED: <u>10/00m</u>	
DIGITAL READOUT: <u>100</u>		LOG-SPEED: <u>10/00m</u>	
TIME BASE: <u>100</u>		LOG-SPEED: <u>10/00m</u>	
UPPER DISC: <u>100</u>		LOG-SPEED: <u>10/00m</u>	
LOWER DISC: <u>100</u>		LOG-SPEED: <u>10/00m</u>	



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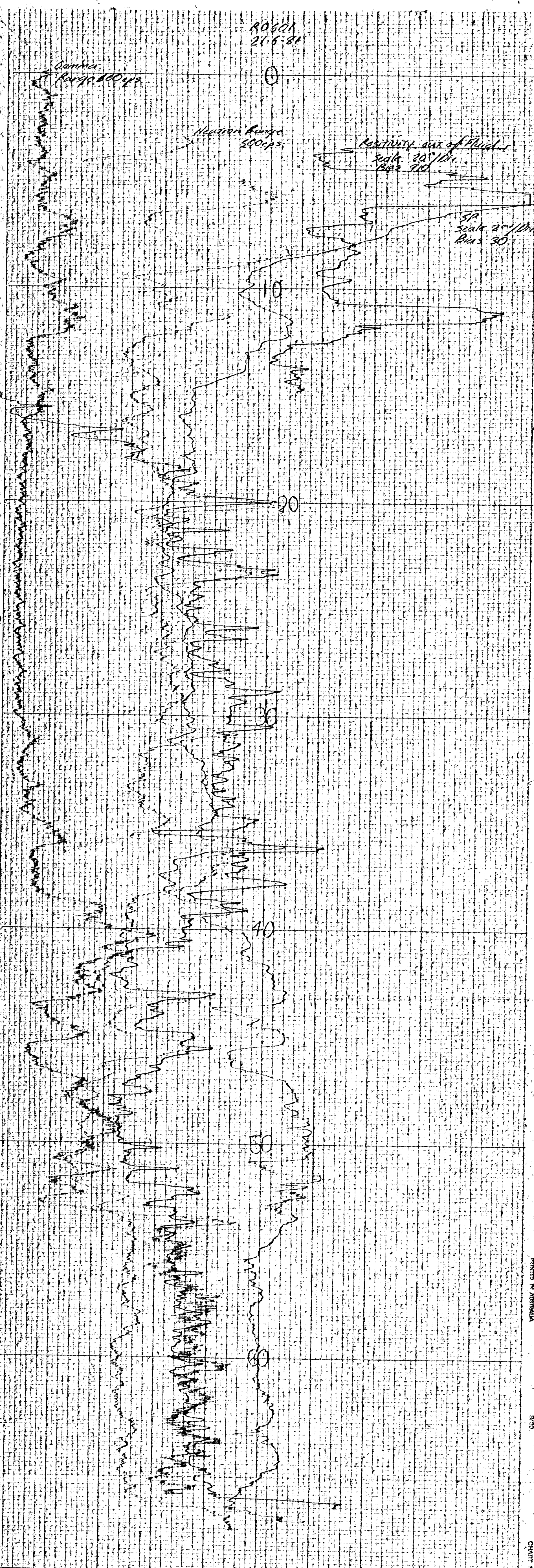
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Phone: 268 2838

HOLE

LOGGING DATA

DATE *21.6.81*

LOCATION <i>Border town.</i>				HOLE NUMBER: <i>R0601</i>				CLIENT: <i>CSR</i>			
State: <i>SA</i>				Collar elev. _____ metres				Claim: _____			
Area: _____				Depth drilled: <i>73.2</i> metres				Owned by: _____			
Project: <i>Border town.</i>				CASING DATA				HOLE DATA			
Prospect: _____				Wall size _____ in.				Dia. <i>4 3/8</i> from <i>0</i> to <i>10</i> .			
Lat: <i>0</i> " " Long <i>0</i> " " "				Dia. (inside) _____ in.				Dia. _____ from _____ to _____			
GAMMA RAY				Cased from _____ to _____ mtrs				Dia. _____ from _____ to _____			
INITIAL RUN				Cored hole ☐ Non-cored hole ☐				ELECTRIC			
Logged depth <i>66.4</i>				Sampled Interval _____				Type _____			
Range (Full scale) <i>100</i>				_____				Logged depth <i>66.4</i>			
Time constant <i>3%</i>				_____				Resist. scale <i>20</i>			
Paper speed _____ cm/m				_____				S.P. scale _____			
Logging speed _____ m/min				INTERPRETATION DATA				Paper speed _____			
Bgnd count _____ (cps)				Probe No. _____ Standard _____ (cps) K factor _____				Logging speed <i>2</i> <i>3</i>			
Probe No. <i>41003</i>				_____				Probe size <i>10mm</i> <i>10mm</i>			
Size (dia.) _____ mm				_____				Bias <i>910</i> <i>30</i>			
Crystal _____				REMARKS				CALIPER			
Standard _____ (cps)				Fluid Level _____ metres				Logged depth _____			
Dead time _____				_____				Scale _____			
Amp. Gain (disc) <i>60</i>				_____				Paper Speed _____			
Rate meter No. _____				_____				Logging speed _____			
Bore hole medium _____				_____				Arm Length _____			
Mud density _____				_____				Max. Def. _____			
Digital readout _____ m.				_____				_____			
Time base (sec) <i>1</i>				_____				_____			
Upper Disc. _____				_____				_____			
Lower Disc. _____				_____				_____			



GEOSCIENCE ASSOCIATES, INC.	
LOGGING DATA	
GAMMA RAY	NEUTRON RANGE
Scale <i>100cps</i>	Scale <i>500cps</i>
Time constant <i>3%</i>	Time constant <i>3%</i>
Probe No. <i>41003</i>	Probe No. <i>41003</i>
Size (dia.) _____ mm	Size (dia.) _____ mm
Crystal _____	Crystal _____
Standard _____ (cps)	Standard _____ (cps)
Dead time _____	Dead time _____
Amp. Gain (disc) <i>60</i>	Amp. Gain (disc) <i>60</i>
Rate meter No. _____	Rate meter No. _____
Bore hole medium _____	Bore hole medium _____
Mud density _____	Mud density _____
Digital readout _____ m.	Digital readout _____ m.
Time base (sec) <i>1</i>	Time base (sec) <i>1</i>
Upper Disc. _____	Upper Disc. _____
Lower Disc. _____	Lower Disc. _____



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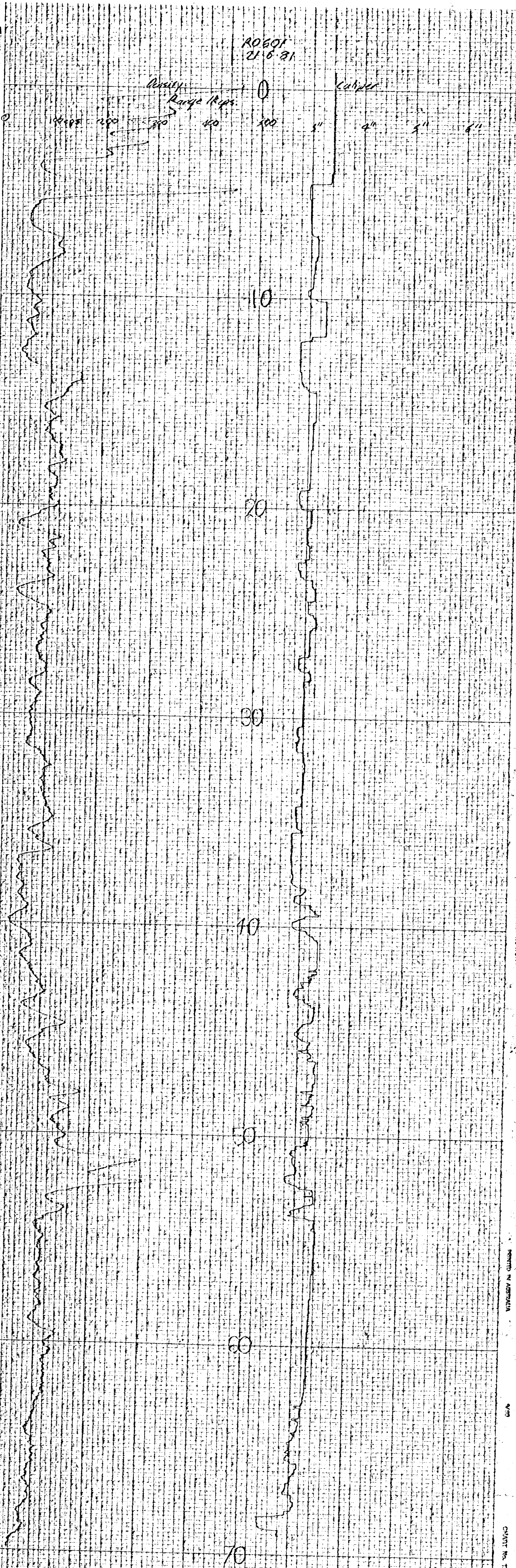
P.O. Box 239
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Phone: 268 2838

HOLE

LOGGING DATA

DATE: 21.6.81

LOCATION: <u>Bordertown</u>		HOLE NUMBER: <u>RO601</u>		CLIENT: <u>LSR</u>	
State: <u>SA</u>		Collar elev. _____ metres		Claim: _____	
Area: _____		Depth drilled: <u>73.2</u> metres		Owned by: _____	
Project: <u>Bordertown</u>		CASING DATA		HOLE DATA	
Prospect: _____		Wall size _____ in.		Dia. $\frac{3}{4}$ from 0 to 70.	
Lat: 0 " " Long 0 " "		Dia. (inside) _____ in.		Dia. from to	
GAMMA RAY		Cased from to _____ mtrs		Dia. from to	
INITIAL RUN		Cored hole ☐ Non cored hole ☐		ELECTRIC	
2		3		4	
Logged depth <u>61.8</u>		Sampled Interval _____		Type _____	
Range (Full scale) <u>1K</u>		2m _____		Mud Rotary _____	
Time constant (Sec) <u>1/8</u>		INTERPRETATION DATA		Logged depth _____	
Paper speed _____ cm/min		Probe No. _____		Standard _____	
Logging speed _____ in/min		Standard _____		(cps) K Factor _____	
Bgnd count _____ (cps)		Probe size _____		Bias _____	
Probe No. <u>RO601</u>		REMARKS		CALIPER	
Size (dia.) _____ mm		Fluid Level _____ metres		Logged depth _____	
Crystal _____		Dead time _____		Scale _____	
Standard (cps) _____		Amp. Gain (disc) <u>60</u>		Paper Speed _____	
Dead time _____		Rate meter No. _____		Logging speed _____	
Amp. Gain (disc) _____		Bore hole medium _____		Arm Length _____ in.	
Rate meter No. _____		Mud density _____		Max. Def. _____ in.	
Bore hole medium _____		Digital readout _____ m.		_____	
Mud density _____		Time base (sec) <u>1</u>		_____	
Digital readout _____ m.		Upper Disc _____		_____	
Time base (sec) _____		Lower Disc _____		_____	
Upper Disc _____		_____		_____	
Lower Disc _____		_____		_____	



GEOSCIENCE ASSOCIATES, INC.	
LOGGING DATA	
RANGE 1/5	ATTEN. LOG-SPEED
TC 1/8	LOG-SPEED
PAE 1/8	LOG-SPEED
LOG-SPEED 24/min	LOG-SPEED
PROBE #	UNIT # AL12
REACTOR	DATE 21.6.81 TO 69.8