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EL 1413

TEETULPA GOLDFIELD

PROGRESS AND FINAL REPORTS TO LICENCE SURRENDER, FOR THE PERIOD 17/7/1987 TO 24/12/1987

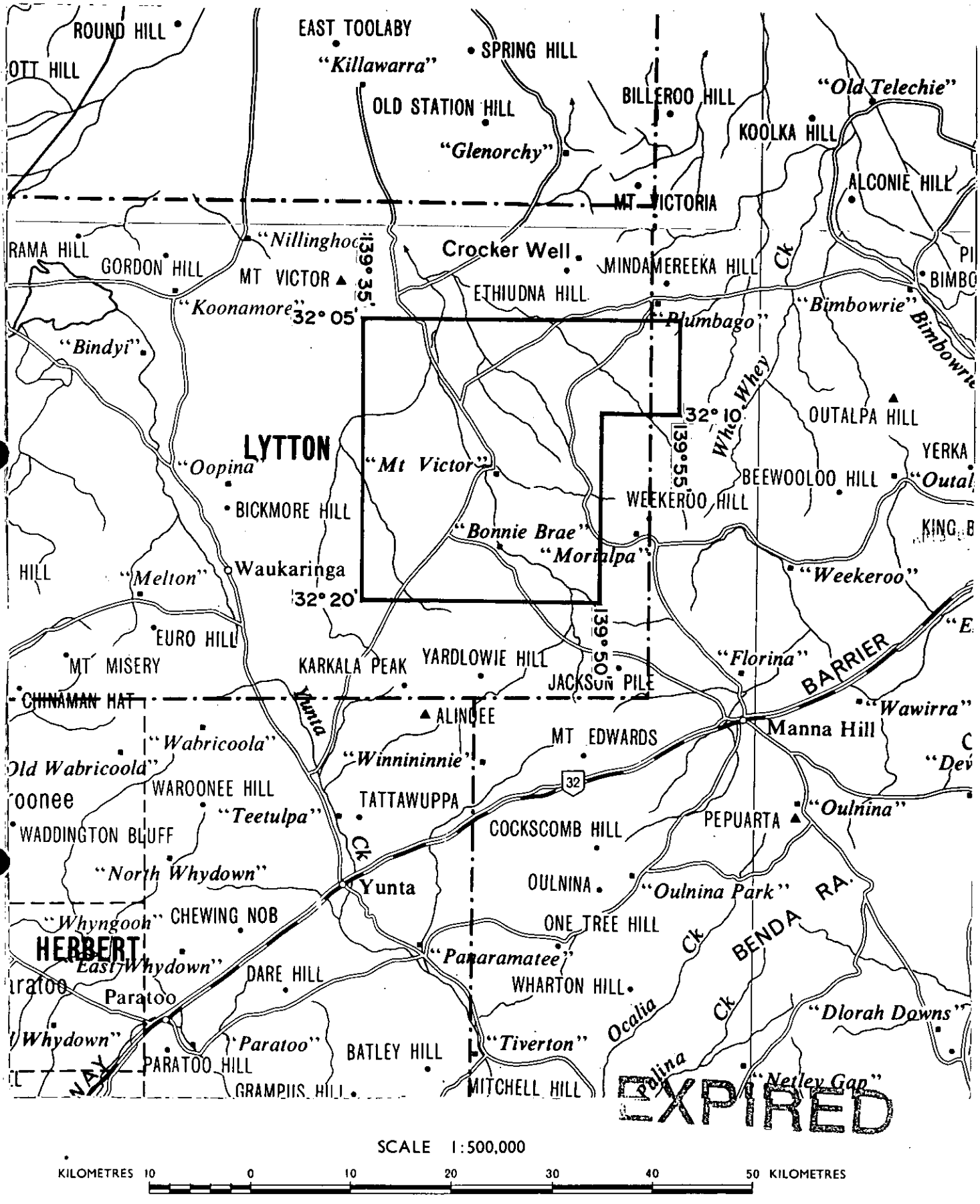
Submitted by
Thomdrill Pty Ltd
1988

Enquiries: Customer Services Branch
Minerals and Energy Resources
7th Floor
101 Grenfell Street, Adelaide 5000

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

Government of South Australia
Primary Industries and Resources SA

SCHEDULE A



SCALE 1:500,000

KILOMETRES 10 0 10 20 30 40 50 KILOMETRES

APPLICANT: THOMDRILL PTY. LTD.

DM: 94/87 AREA: 725 square kilometres (approx.)

1:250000 PLANS: OLARY

LOCALITY: TEETULPA GOLDFIELD AREA — Approx. 40 km north of Yunta.

DATE GRANTED: 17-7-87 DATE EXPIRED: 16-1-88 EL No: 1413

CONTENTS ENVELOPE 6935

TENEMENT: E.L. 1413 - Teetulpa Goldfield.

TENEMENT HOLDER: Thomdrill Pty. Ltd.

Thompson Drilling

Regd. Proprietor — THOMDRILL PTY. LTD
5 Pambula Street, Regency Park, S.A. 5010
37 North Terrace, Millicent, S.A. 5280
Telephone: Adelaide (08) 268 5911. Fax (08) 45 5418
Millicent (087) 33 2044. Fax (087) 33 2824
Telex: 89457

0003

15th December, 1987

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

Dear Sir,

FIRST QUARTERLY REPORT FOR E.L. 1413, TEETULPA GOLDFIELD

Enclosed is a report titled "First Quarterly Report on Exploration Licence 1413, Teetulpa Goldfield, South Australia, 17 July to 16 October 1987".

The licence was acquired to explore for leads of auriferous gravels beneath calcrete cap rocks.

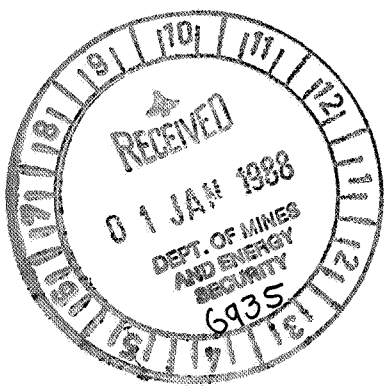
During the report period, two seismic profiles and three drilling profiles comprising 28 RAB and R/C holes were completed. No gravels were found concealed beneath calcrete cap rock. The maximum gold assay for drill samples was 8.0 ppb. The prospectivity of the area was significantly diminished by these results.

Exploration expenditure for the period totalled $13,659.00, which was incurred as a detailed on the attached Statement of Expenditure.

Yours faithfully,

.....

D.A. WILSON
Manager.



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0004

EL 1413 EXPENDITURE STATEMENT

17 July 1987 to 16 October 1987

	$
Contract Geological Services	2971
Laboratory Services	880
Geological Supplies	365
Drafting	113
Accommodation and Travel	416
Site preparation	300
Drilling	6914
Administration	1700
	$13659

THOMDRILL PTY LTD

FIRST QUARTERLY REPORT ON EXPLORATION LICENCE 1413 TEETULPA GOLDFIELD, SOUTH AUSTRALIA 17 JULY TO 16 OCTOBER 1987

Adelaide
December 1987

D.G. Tonkin
Consulting Geologist

CONTENTS

FIGURES

KEY WORDS

TEETULPA GOLDFIELD

E.L. 1413

OLARY SI 54-2

WINNININNIE 6833

SEISMIC REFRACTION

DRILLING

GOLD ASSAY

ALLUVIAL GOLD

1. INTRODUCTION

This is the first quarterly report for Exploration Licence 1413, Teetulpa Goldfield Area, being for the period ended 16 October 1987.

The E.L. covers an area of 725 square km, 40 km N of Yunta, on the Olary 1:250 000 map sheet. The licence was granted to Thomdrill Pty Ltd for a term of 6 months, commencing on 17 July 1987.

2. SUMMARY

A concept whereby auriferous gravels may have been concealed beneath a hard, calcrete cap rock was disproved by 2 seismic profiles and 28 open drill holes.

3. EXPLORATION CONCEPT

In 1908, H.Y.L. Brown suggested, on page 316 of the 4th edition of the Record of Mines of South Australia, that auriferous "Pliocene Leads" may pass under the alluvial flats of Salt Creek north of Brady's Gully. Prospecting shafts sunk in 1887 appeared

> "not to have been bottomed, but to have been abandoned on reaching a hard calcareous cement and conglomerate".

Thomdrill's exploration concept centered on the possible presence of auriferous gravel leads beneath hard, calcrete cappings downstream from the alluvial gold workings in Brady's Gully and Strawbridge's Gully.

4. WORK COMPLETED

4.1 Seismic Profiles

SADME geophysicists ran 2 east-west, shallow refraction seismic profiles across Salt Creek. On Fig. 2, Seismic Line 1 is marked A-B and Seismic Line 2 is marked C-D. A departmental report on the results of the seismic survey is being prepared by SADME geophysicist P. Hough.

4.2 Drilling

Thompson Drilling completed 28 Rotary Air Blast and Reverse Circulation holes. These were sited along 3 traverses; one on each seismic line and a third across the mouth of Brady's Gully, where it enters Salt Creek (Fig. 2). Drill hole logs, with assay results, are included in Appendix I.

Holes 1 to 6 were drilled along Seismic Line 1 - see geological section, Fig. 3. Alluvial gravels were intersected in holes 4 and 5. Holes 1,2 and 3 intersected gravels that were either eluvium or very immature alluvium. Each hole bottomed in hard bedrock of greenish coloured shale. No hard calcrete layer was encountered.

Holes 7 to 16 were drilled along Seismic Line 2 - see geological section, Fig. 4. Alluvial gravels were intersected in every hole except No. 16, at the westernmost end of the line. The gravels in hole 15 were more immature than the others, and possibly indicated input from the Brady's Gully tributary. Holes 7,8, 9 and 10 bottomed in hard, grey shale bedrock after passing through as much as several metres of greenish, weathered shale. All other holes except No. 7.5 bottomed in the weathered shale. A very hard calcrete cap, about 1 m thick, was encountered in hole 11, but this cap lay on top of weathered bedrock, not above the gravel layer.

Holes 17 to 26 were drilled on a line bearing 143

degrees (magnetic) across the mouth of Brady's Gully - see geological section, Fig. 5. Hole 27 was drilled 100 m NE (bearing 034 magnetic) of hole 22. Gravels were intersected in all except those at either end, holes 24 and 26. These gravels were, like those in hole 15, relatively immature compared to those along the rest of Line 2. Each hole bottomed in bedrock of weathered, greenish shale. No hard calcrete layer was encountered.

4.3 Assays of Drilling Samples

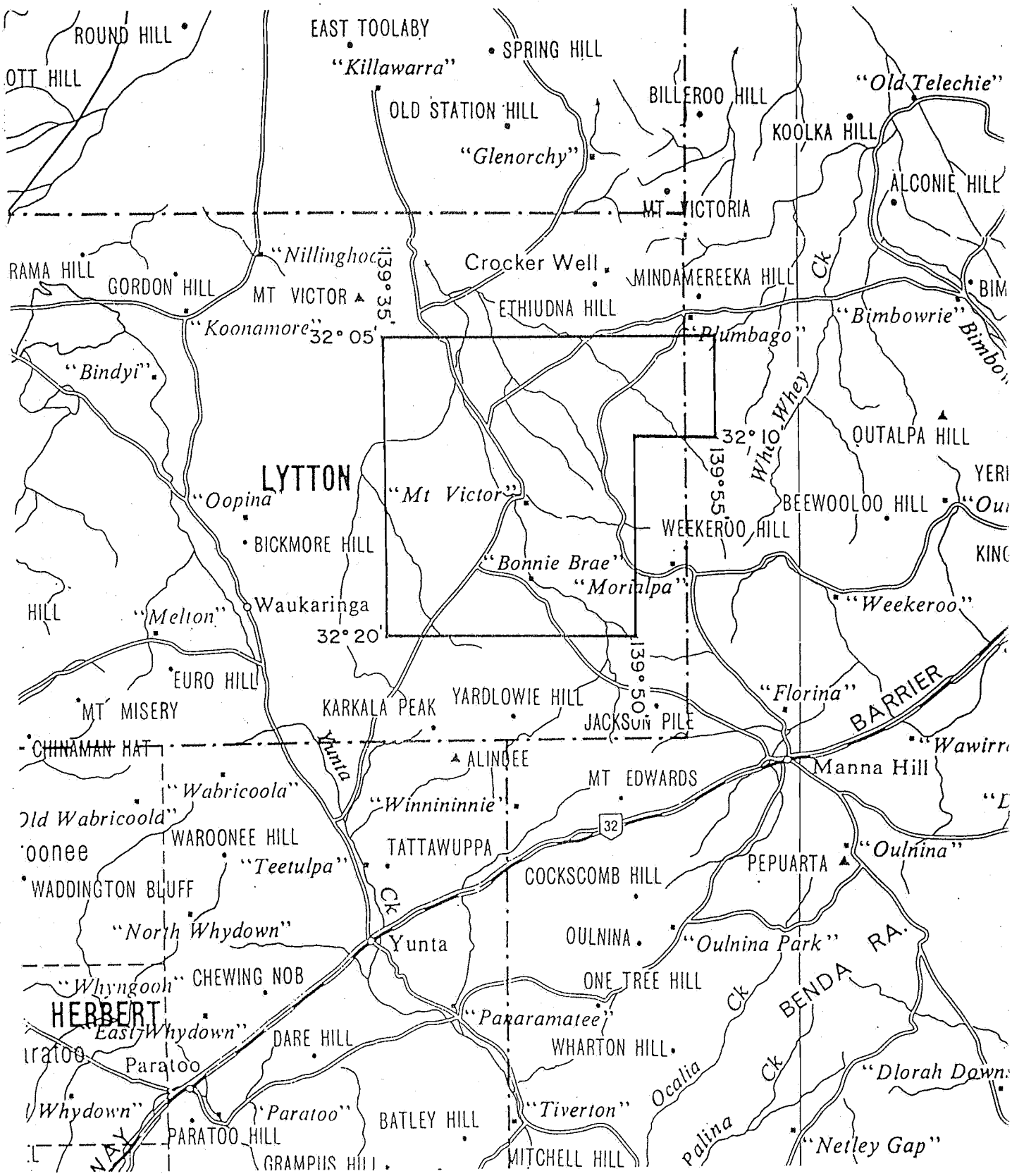
Comlabs (Adelaide) assayed for Au a total of 27 samples, collected from R/C drill holes, using a bulk leach technique with a detection limit of either 0.1 or 0.5 ppb. These assay results are included in Appendix II. Samples were selected from holes 4,5,15,17,21 and 27. All except one sample assayed in the range from 0.1 to 0.5 ppb. A sample from hole 4 yielded 8.0 ppb (see drill log in Appendix I).

5. FUTURE WORK

Drilling during the report period disproved the existence of "Pliocene Leads" beneath calcrete cappings downstream from Brady's and Strawbridge's Gullies. Future work will involve consideration of the hard rock Au potential, prior to a probable relinquishment of the title.

SCHEDULE A

0011



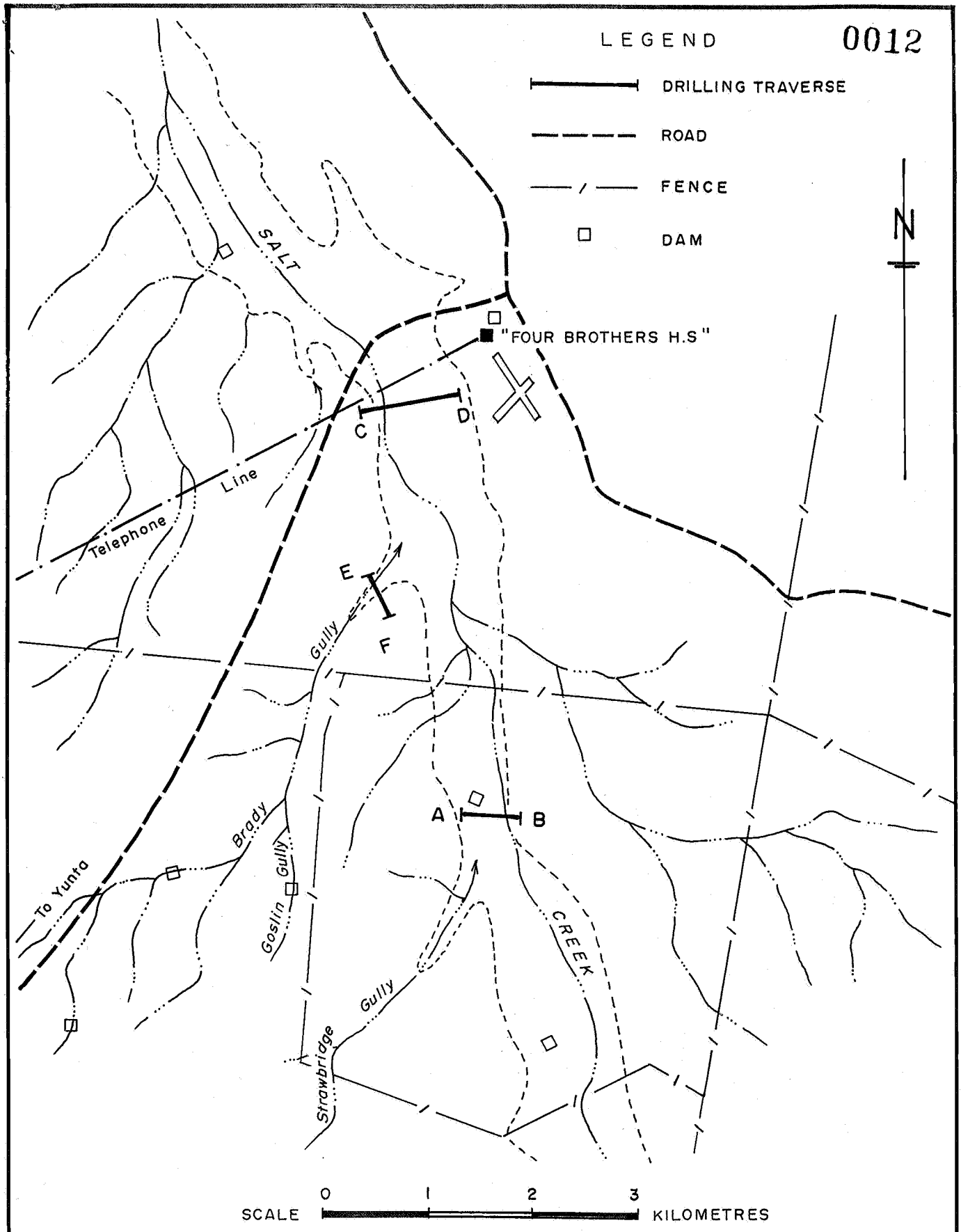
SCALE 1:500,000

KILOMETRES 10 0 10 20 30 40 50 KILOMETRES

EL 1413 Location Map

figure 1

NOTE: There is no warranty that the boundary of this Exploration Licence is correct in relation to other features on the map. The boundary is to be ascertained by reference to the Australian Geodetic Datum.



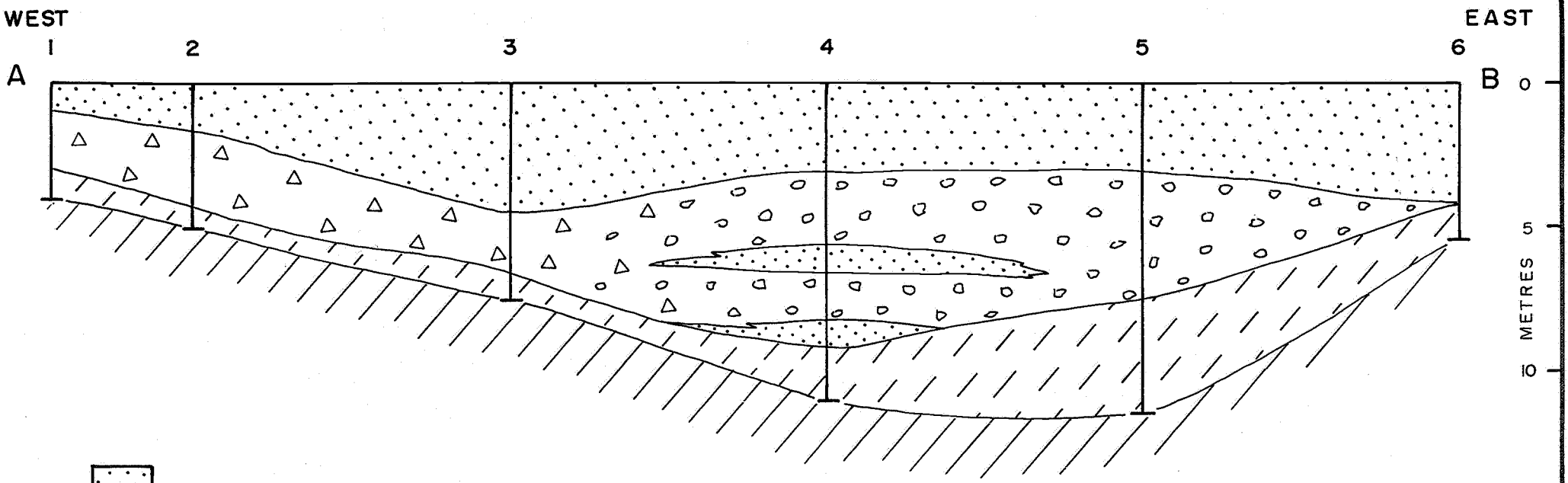
THOMDRILL PTY LTD

E.L.1413 – TEETULPA, S.A.

LOCATION OF DRILLING TRAVERSES

D.G.TONKIN, 1987

FIG. 2



SAND, SILT and CLAY

ALLUVIAL GRAVEL

ELUVIAL GRAVEL

WEATHERED SHALE

SHALE BEDROCK
(TAPLEY HILL FM ?)

0 50 100
METRES

THOMDRILL PTY LTD

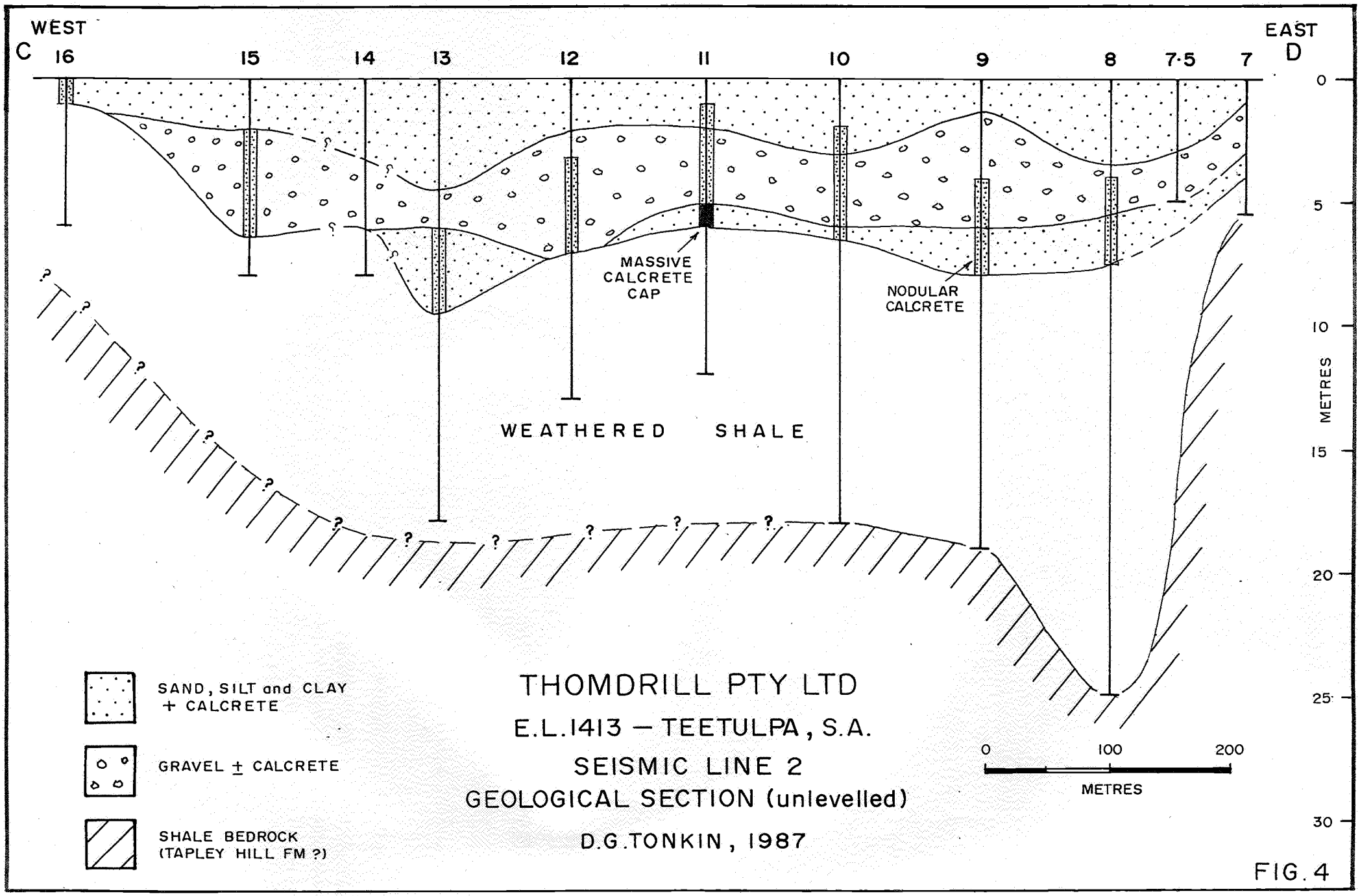
E.L.1413 — TEETULPA, S.A.

SEISMIC LINE 1.

GEOLOGICAL SECTION (unlevelled).

D.G.TONKIN, 1987

FIG. 3



THOMDRILL PTY LTD

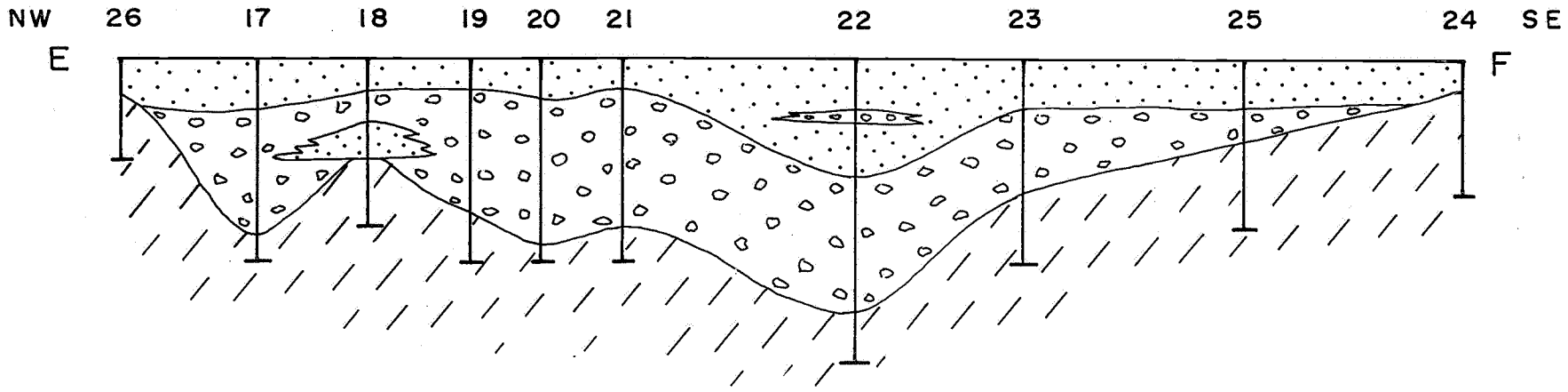
E.L.1413 — TEETULPA, S.A.

SEISMIC LINE 2

GEOLOGICAL SECTION (unlevelled)

D.G.TONKIN, 1987

FIG. 4



SAND, SILT and CLAY

GRAVEL

WEATHERED SHALE
(? TAPLEY HILL FM.)

0 50 100
METRES

THOMDRILL PTY LTD

E.L.1413 — TEETULPA, S.A.

GEOLOGICAL SECTION (unlevelled)

ACROSS MOUTH OF BRADY'S GULLY

D.G.TONKIN, 1987

FIG. 5

APPENDIX I

DRILL LOGS FOR TEETULPA HOLES 1 TO 27

FIELD DRILL LOG

0017

HOLE No. 1

PAGE 1 OF 1

PROJECT: TEETULPA

DATE STARTED: 25.8.87

TYPE OF DRILL: RIC

AREA: LINE 1 SEISMIC

COORDINATES:

HOLE SIZE: 4 1/4" roller

LOCATION: 50 m W of Spread 1

CONTRACTOR: THOMPSON

STARTED: 10.45

ELEVATION:

DRILLER: DEAN WATTS

COMPLETED: 11.00

DEPTH: 4 m

LOGGED BY: D.G. TONKIN

Metres	DESCRIPTION	SAMPLE No.	Assay Length	ASSAYS
0	Soil & Eluvium Brown soil ± angular small pebbles of quartz & shale	1	2	
	(One sample of 2m)			
2	Eluvium - ± small pebbles of quartz & shale.	2	1	
3	Weathered bedrock Soft, greenish shale	3	1	
4	Bedrock - hard, fresh EOH 4.0 m.			

FIELD DRILL LOG

0018

HOLE No. 2

PAGE 1 OF 1

PROJECT: TEETULPA
AREA: LINE 1 SEISMIC
LOCATION: SPREAD 1, 12/13
STARTED: 11:10
COMPLETED: 11:20

DATE STARTED: 26.8.87
COORDINATES:
ELEVATION:
DEPTH: 5.0 m

TYPE OF DRILL: R/C
HOLE SIZE: 4 1/4" roller
CONTRACTOR: Thompson
DRILLER: Dean Watts
LOGGED BY: D. G. Tonkin

Metres	DESCRIPTION	SAMPLE No.	Assay Length	ASSAYS
0	Silt			
1	Silt + Eluvium of small, angular pebbles mc. quartz			
2	Eluvium + clay Angular pebbles of quartz & greenish shale			
3	Eluvium + clay More compacted clay than above. Qtz + shale pebbles.			
4	Eluvium + clay to 4.5 m			
	Weathered bedrock - soft, greenish grey shale.			
5	Bedrock at 5.0 m			
	EOH			

0019

FIELD DRILL LOG

HOLE No. 3

PAGE 1 OF 1

PROJECT: TEETULPA
AREA: LINE 1 SEISMIC
LOCATION: SPread 2, 12/13
STARTED: 11:25
COMPLETED: 12:25

DATE STARTED: 25·8·87
COORDINATES:
ELEVATION:
DEPTH: 7·5m

TYPE OF DRILL: R/C
HOLE SIZE: 4¼" to 5.5 3⅞" to 7.5
CONTRACTOR: Thompson
DRILLER: Dean Watts
LOGGED BY: D.G. Tonkin

Metres	DESCRIPTION	SAMPLE No.	Assay Length	ASSAYS
0	Silt			
1	Silt			
2	Silt / Clay			
3	Clay / Silt			
4	Clay / Silt to 4.5 m			
	Eluvium - small angular pebbles qtz + shale. Some rounded.			
5	Eluvium + clay. Angular pebbles of quartz & shale. Some rounded cherts.			
6	Eluvium + clay to 6.75 Qtz + grey shale angular pebbles.			
7	Weathered bedrock - soft, green shale.			
	Grey siltstone / shale - hard, fresh			
7.5	EOH			

FIELD DRILL LOG

0020 HOLE No. 4 RC

PAGE 1 OF 2

PROJECT: TEETULPA
AREA: Line 1 seismic
LOCATION: Spread 3, 12/13
STARTED: 12.35
COMPLETED:

DATE STARTED: 25 · 8 · 87
COORDINATES:
ELEVATION:
DEPTH: 11.0 m

TYPE OF DRILL: R/C
HOLE SIZE:
CONTRACTOR: Thompson
DRILLER: Dean Watts
LOGGED BY: D.G. Tonkin

Metres	DESCRIPTION	SAMPLE No.	Assay Length	P.P.b. Au	ASSAYS
0	Silt - fine, clean, red-brown				
1	Silt - as above				
2	Silt - as above				
3	Alluvium - fine to medium grit size pebbles. Rounded sandstone & siltstone pebbles up to 1.5 cm. Angular to subangular quartz. Angular green/grey shale.				
4	Alluvium - as above.				
5	Alluvium (+ red silt fallback?) Pebbles as above + some rounded green shale pebbles. Some subrounded qtz pebbles.		1.0	<0.1	
6	Possible silt horizon ? Red silt horizon Alluvium - small to medium pebbles, many rounded.				
7	Alluvium - up to 1.5 cm pebbles. Rounded siltstone/s'ste, subrounded to subangular quartz		1.0	8.0	
8	Alluvium as above Silt - red/orange colour				
9	Weathered bedrock - green/khaki, soft shale				
10					

FIELD DRILL LOG

0021

HOLE No. 4

PAGE 2 OF 2

PROJECT: TEETULPA

AREA: LINE 1

LOCATION: Spread 3

STARTED:

COMPLETED: 5.05

DATE STARTED:

COORDINATES:

ELEVATION:

DEPTH: 11.0 m

TYPE OF DRILL: R/C

HOLE SIZE:

CONTRACTOR:

DRILLER:

LOGGED BY:

Metres	DESCRIPTION		SAMPLE No.	Assay Length	ASSAYS				
10	Weathered bedrock - light green, v. soft shale								
11	Bedrock - hard, greenish/grey shale at 11.0 m.								
	EOH								

FIELD DRILL LOG

0022 HOLE No. 5

PAGE 1 OF 2

PROJECT: TEETULPA
AREA: LINE 1 SEISMIC
LOCATION: Spread 4, 12/13
STARTED: 5.15
COMPLETED: 5.40

DATE STARTED: 25 . 8 . 87
COORDINATES:
ELEVATION:
DEPTH: 11.5 m

TYPE OF DRILL: RIC
HOLE SIZE:
CONTRACTOR: THOMPSON
DRILLER: DEAN WATTS
LOGGED BY: D.G.TONKIN

Metres	DESCRIPTION	SAMPLE No.	Assay Length	P.P.b. Au	ASSAYS
0	Silt - Light brown				
1	Silt - Brown				
2	Silt - dark brown				
3	Alluvium - dirty wash. Small, rounded pebbles				
4	Alluvium - dirty. Small to medium size pebbles, mostly < 1 cm				
5	Alluvium - more pebbles small to medium, max 1 cm				
6	Alluvium - as above			<0.5	
7	Alluvium - as above				
8	Weathered bedrock - soft Khalci shale Weathered bedrock - as above				
9	Weathered bedrock - as above				
10					

FIELD DRILL LOG

0023

HOLE No. 5

PAGE 2 OF 2

PROJECT: TEETULPA | DATE STARTED: 25.8.87 | TYPE OF DRILL:

AREA: | COORDINATES: | HOLE SIZE:

LOCATION: | | CONTRACTOR:

STARTED: | ELEVATION: | DRILLER:

COMPLETED: 5.40 | DEPTH: 11.5 m | LOGGED BY: D.G. Tonkin

Metres	DESCRIPTION		SAMPLE No.	Assay Length	ASSAYS
10	Weathered bedrock – soft, khaki shale				
11	Weathered bedrock – as above				
	Bedrock – greenish shale at 11.5 m				
	EOH				

FIELD DRILL LOG

HOLE No. 6

0024

PAGE 1 OF 1

PROJECT: TEETULPA
AREA: LINE 1 SEISMIC
LOCATION: Spread 5, 12/13
STARTED: 5:50
COMPLETED: 6:00

DATE STARTED: 25 · 8 · 87
COORDINATES:
ELEVATION:
DEPTH: 5·5 m

TYPE OF DRILL: RIC
HOLE SIZE: 4"
CONTRACTOR: THOMPSON
DRILLER: D. WATTS
LOGGED BY: D. G. Tonkin

Metres	DESCRIPTION		SAMPLE No.	Assay Length	ASSAYS
0	Silt – dark brown				
1	Silt – red-brown				
2	Silty alluvium – small, rounded pebbles in dirty matrix				
3	Silt – fine, pinkish				
4	Weathered bedrock – soft, green shale				
5	Weathered bedrock – as above Bedrock – greenish shale				
	EOH 5·5m				

FIELD DRILL LOG

HOLE No. 7

0025

PAGE 1 OF 1

PROJECT: TEETULPA

DATE STARTED: 26 . 8 . 87

TYPE OF DRILL: RAB

AREA: LINE 2 7·0·S

COORDINATES:

HOLE SIZE: 4½" Blade

LOCATION: SPREAD 6 GEOPHONE 24

CONTRACTOR: THOMPSON

STARTED: 8:40

ELEVATION:

DRILLER: D. WATTS

COMPLETED: 8:50

DEPTH: 5·5m

LOGGED BY: D. G. TOWNS

Metres	DESCRIPTION	SAMPLE No.	Assay Length	ASSAYS
0	Soil & Calcrete pebbles			
1	Alluvium - dirty gravel Rounded rock pebbles & sub-angular quartz. Up to 2·5 cm			
2	Alluvium - dirty. Rounded rock & sub-angular quartz pebbles to 1 cm			
3	Sandy silt			
4	Weathered bedrock - khaki, soft shale			
5	As above			
	Bedrock - hard grey-green shale at 5·5m			
	EOH			

FIELD DRILL LOG

0026

HOLE No. 7.5

PAGE 1 OF 1

PROJECT: TEETULPA

AREA: LINE 2

LOCATION: SPREAD 6 12/13

STARTED: 9.00

COMPLETED: 9.10

DATE STARTED: 26.8.87

COORDINATES:

ELEVATION:

DEPTH: 5 m

TYPE OF DRILL: RAB

HOLE SIZE: 4½"

CONTRACTOR: Thompson

DRILLER: ~~Thompson~~ D. WATTS

LOGGED BY:

Metres	DESCRIPTION		SAMPLE No.	Assay Length	ASSAYS
0	Silt + Calcrete nodules				
1	+ CO_3				
	Silt + calcrete				
2	++ CO_3				
	Clay + Silt + Calcrete				
3	+ CO_3				
	Gravel – dirty, coarse to medium rounded pebbles				
4	Gravel – dirty, coarse to medium, rounded pebbles				
5	+ CO_3				
	EOH				

FIELD DRILL LOG

0027

HOLE No. 8

PAGE 1 OF 3

PROJECT: TEEKULPA
AREA: LINE 2 (CENTRE)
LOCATION: SPREAD 7 12/13
STARTED: 9.20
COMPLETED: 10.20

DATE STARTED: 26.8.87
COORDINATES:
ELEVATION:
DEPTH: 25.0 m

TYPE OF DRILL: RAB
HOLE SIZE: Blade
CONTRACTOR: Thomason
DRILLER: D. WATTS
LOGGED BY: D.A. Tonkin

Metres	DESCRIPTION		SAMPLE No.	Assay Length	ASSAYS
0	Silt				
	+ CO_3				
1	Clay - fairly consolidated, sticky clay ± some white calcareous smears				
	++ CO_3				
2	silty clay				
	+ CO_3				
3	Silty clay				
	Alluvial gravel - dirty gravel ± rounded pebbles to 2 cm + CO_3	o o			
4	Alluvium - dirty gravel ± rounded pebbles + sub rounded qtz to 2cm.	o o			
	Includes calcrete pebbles or possibly calcrete cement? + CO_3	o o			
5	As above to 5.5m. Much angular qtz. + CO_3	o			
	Pebbles up to 2.5 cm of rounded sediment & angular qtz in sticky khaki - green clay matrix. (Pebbles = Fallback?)	calcrete			
6	Sticky khaki clay ± abundant angular & flaky quartz + chips of freshly broken, greenish grey ?limestone	+ clay			
	CO_3				
7	Thin, flaky chips of freshly broken greenish - pinkish ?limestone (calcrete?)				
	Weathered bedrock - v. soft, khaki shale. CO_3	/ / / /			
8	Weathered shale - v. soft, green	/ / / /			
		/ / / /			
9	As above	/ / / /			
		/ / / /			
10		/ / / /			

FIELD DRILL LOG

0028

HOLE No. 8

PROJECT: TEETULPA | DATE STARTED: | TYPE OF DRILL:

AREA: | COORDINATES: | HOLE SIZE:

LOCATION: | CONTRACTOR:

STARTED: | ELEVATION: | DRILLER:

COMPLETED: | DEPTH: 25.0m | LOGGED BY: D.G. TONKIN

Metres	DESCRIPTION		SAMPLE No.	Assay Length	ASSAYS
10	Weathered, v. soft, green shale				
11	Weathered shale – khaki, v. soft.				
12	As above				
13	As above				
14	Weathered shale – chips of soft grey shale + green powdered shale				
15	As above				
16	As above				
17	As above				
18	~~As above~~ Grey green chips of soft shale.				
19	As above (Making water)				
20					

FIELD DRILL LOG

0029

HOLE No. 8

PAGE 3 OF 3

PROJECT: ..... DATE STARTED: ..... TYPE OF DRILL: .....

AREA: ..... COORDINATES: ..... HOLE SIZE: .....

LOCATION: .... CONTRACTOR: .....

STARTED: ..... ELEVATION: ..... DRILLER: .....

COMPLETED: ..... DEPTH: 25-0 m ..... LOGGED BY: .....

Metres	DESCRIPTION		SAMPLE No.	Assay Length	ASSAYS				
20	Grey-green shale — soft chips. Water.								
21	As above								
22	As above								
23	As above								
24	As above								
25	Bedrock - hard grey shale at 25 m.								
	EOH								

FIELD DRILL LOG

0030

HOLE No. 9

PAGE 1 OF 2

PROJECT: TEETULPA | DATE STARTED: 26.8.87 | TYPE OF DRILL: RAB

AREA: LINE 2 | COORDINATES: | HOLE SIZE: 4½"

LOCATION: SPREAD 8, 12/13 | | CONTRACTOR: THOMPSON

STARTED: 10.30 | ELEVATION: | DRILLER: D. WATTS

COMPLETED: 10:55 | DEPTH: 19.0 m | LOGGED BY: D.G. TOWRAN

Metres	DESCRIPTION		SAMPLE No.	Assay Length	ASSAYS
0	Red silt				
	+ CO_3				
1	Silt				
	Gravel – coarse (3 cm) pebbles rounded + sub angular (qtz) + CO_3				
2	Green shale pebbles dominant. Dirty				
	Gravel – medium pebbles (1 cm) Dirty. Rounded shale + angular qtz				
3	+ CO_3				
	Gravel – coarse (3 cm) dirty. Rounded siltstone/shale angular quartz.				
4	+ CO_3				
	Gravel – coarse (3 cm) cleaner. Round shale, angular qtz + broken pebble-sized chips of pink ? calcrete = a cement?				
5	or broken large pebbles. + CO_3				
	Gravel – coarse. Shale + qtz pebbles + ? Calcrete (pink) pebbles? or coatings.				
6	+ CO_3				
	Pink shards of brittle, freshly broken ? calcrete + silvery angular glassy quartz chips + green/khaki, sticky clay.	calcrete + clay			
7	? CO_3				
	As above. Pebbles include v. well rounded glassy quartz to 2 cm! (Fallback?) Calcrete chips are broken.				
8	Weathered shale – khaki, soft chips.				
9	Weathered shale – greenish chips				
10					

FIELD DRILL LOG

HOLE No. 9

0031

PAGE 2 OF 2

PROJECT: ..... DATE STARTED: ..... TYPE OF DRILL: .....

AREA: ..... COORDINATES: ..... HOLE SIZE: .....

LOCATION: .... CONTRACTOR: .....

STARTED: ..... ELEVATION: ..... DRILLER: .....

COMPLETED: 10:55 DEPTH: 19.0 m LOGGED BY: .....

Metres	DESCRIPTION		SAMPLE No.	Assay Length	ASSAYS				
10	Weathered shale - green / khaki chips of shale. Soft.								
11	As above								
12	Water. Weathered green / grey soft shale. Fall back contamination of large (1 to 4cm) rounded pebbles, including quartz.								
13	As above								
14	As above								
15	As above								
16	As above								
17	As above								
18	Good chips of firm grey / green shale.								
19	Bedrock - hard grey - green shale. EOH 19.0 m								

FIELD DRILL LOG

0032

HOLE No. 10

PAGE 1 OF 2

PROJECT: TEETULPA | DATE STARTED: 26.8.87 | TYPE OF DRILL: RAB

AREA: LINE 2 (12/13) | COORDINATES: | HOLE SIZE: 4½" Blade

LOCATION: SPREAD 9 CENTRE | CONTRACTOR: THOMPSON

STARTED: 11:05 | ELEVATION: | DRILLER: D. WATTS

COMPLETED: 11.30 | DEPTH: 18.0 m | LOGGED BY: D. G. TONKIN

Metres	DESCRIPTION		SAMPLE No.	Assay Length	ASSAYS
0	Silt				
1	silt				
2	Silt + small rounded pebbles + pink calcrete (= broken pebbles or nodules ?)				
3	Gravel – dirty, medium sized. Rounded shale Subrounded qtz Rounded pebbles/nodules of calcrete				
4	Gravel – dirty, medium to coarse (3 cm). Rounded green shale Rounded of broken calcrete? (pink)				
5	Rounded of broken qtz. Gravel – very clean, coarse, mature quartz of sediment pebbles				
6	Thin layer? of brittle pale grey chalk (limestone? ie calcrete ?) Baked in khaki clay	calcrete + clay			
7	Weathered bedrock – khaki – green, soft shale Weathered bedrock – greenish/khaki soft shale				
8	As above				
9	As above				
10					

FIELD DRILL LOG

0033

HOLE No. 10

PROJECT: TEETULPA | DATE STARTED: | TYPE OF DRILL:

AREA: | COORDINATES: | HOLE SIZE:

LOCATION: | CONTRACTOR:

STARTED: | ELEVATION: | DRILLER:

COMPLETED: | DEPTH: 18.0 m | LOGGED BY: D. G. TONKIN

Metres	DESCRIPTION		SAMPLE No.	Assay Length	ASSAYS
10	Weathered shale – soft, green – khaki				
11	As above				
12	As above				
13	As above				
14	As above				
15	As above				
16	As above				
17	As above				
18	Bedrock – hard at 18.0 m.				
	EOH				

0034

FIELD DRILL LOG

HOLE No. 11

PAGE 1 OF 2

PROJECT: TEETULPA | DATE STARTED: 26.8.87 | TYPE OF DRILL: RAB

AREA: LEASE 2 | COORDINATES: | HOLE SIZE: Blade + Roller

LOCATION: SPREAD 10; 12/13 | | CONTRACTOR: THOMPSON

STARTED: 11:40 | ELEVATION: | DRILLER: D. WATTS

COMPLETED: | DEPTH: 12.0 m | LOGGED BY: D.G. TONKIN

Metres	DESCRIPTION		SAMPLE No.	Assay Length	ASSAYS
0	Silt				
	CO_3				
1	Silt - pinkish + small pebbles + ? calcrete nodules (small)				
	CO_3				
2	Very dirty gravel. Medium pebbles, well rounded, of shale + gtz up to 2cm.				
	CO_3				
3	Calcrete nodule (fine size) layer? pinkish, soft. Minor pebbles, coated in white calcrete				
	CO_3				
4	As above				
	CO_3				
5	Pink calcrete - cemented sand (+ gravel? or fallback?) Then very hard, pink massive calcrete unable to penetrate ∴ rock roller bit.	calcrete			
	CO_3				
6	Grey & Khaki, soft shale ~~E.O.H~~				
7	Khaki, weathered shale				
8	Greenish weathered shale, soft.				
9	Greenish weathered shale				
10					

FIELD DRILL LOG

HOLE No. 11

PAGE 2 OF 2

0035

PROJECT: TEETULPA DATE STARTED: ..... TYPE OF DRILL: .....

AREA: ..... COORDINATES: ..... HOLE SIZE: .....

LOCATION: .... CONTRACTOR: .....

STARTED: ..... ELEVATION: ..... DRILLER: .....

COMPLETED: ..... DEPTH: 12.0 m LOGGED BY: .....

Metres	DESCRIPTION		SAMPLE No.	Assay Length	ASSAYS				
10	Green - khaki weathered shale soft								
11	As above.								
12	EOH								

FIELD DRILL LOG

0036

HOLE No. 12

PAGE 1 OF 2

PROJECT: TEETULPA | DATE STARTED: 26.8.97 | TYPE OF DRILL: RAB

AREA: LINE 2 | COORDINATES: | HOLE SIZE:

LOCATION: SPREAD 11 & 12/13 | CONTRACTOR: THOMPSON

STARTED: | ELEVATION: | DRILLER: D. WATTS

COMPLETED: | DEPTH: 13 m | LOGGED BY: D.G. TONKIN

Metres	DESCRIPTION		SAMPLE No.	Assay Length	ASSAYS
0	Red silt				
1	CO_3				
	Pink silt				
2	CO_3				
	Gravel – fine + dusty + some larger pebbles				
3	CO_3				
	Gravel – medium pebbles, dusty. Calcrete coatings				
4	CO_3				
	Gravel – medium to coarse dusty. Calcrete coatings				
5	CO_3				
	Gravel – dusty. Much angular broken material inc. larger grey siltst. or white qtz pebbles. Calcrete coats pebbles + as broken pieces.				
6	Less mature than previous hole (?) CO_3				
	Grey & pink calcrete cementing (?) gravels inc. esp. qtz pebbles.				
7	CO_3				
	Khaki / brown clay / silt				
	= Weathered bedrock				
8	Red / brown clay / silt				
9	Khaki clay / silt				
10					

FIELD DRILL LOG

0037

HOLE No. 12

PAGE 2 OF 2

PROJECT: TEETULPA

DATE STARTED:

TYPE OF DRILL:

AREA:

COORDINATES:

HOLE SIZE:

LOCATION:

CONTRACTOR:

STARTED:

ELEVATION:

DRILLER:

COMPLETED:

DEPTH: 13 m

LOGGED BY: D.G.TONKIN

Metres	DESCRIPTION		SAMPLE No.	Assay Length	ASSAYS
10	Khaki silt/clay				
11	As above				
12	Greenish silt/clay				
13	EOH				

FIELD DRILL LOG

0038

HOLE No. 13

PAGE 1 OF 1

PROJECT: TEETULPA
AREA: LINE 2
LOCATION: SPROAD 12, 12/13
STARTED:
COMPLETED: 2.45

DATE STARTED: 26.8.87
COORDINATES:
ELEVATION:
DEPTH: 18 m

TYPE OF DRILL: RAB
HOLE SIZE: 4½" Blade
CONTRACTOR: THOMPSON
DRILLER: D. WATTS
LOGGED BY: D. G. TONKIN

Metres	DESCRIPTION		SAMPLE No.	Assay Length	ASSAYS
0	Red / brown silt / clay				
2	CO_3				
	Red silt / clay				
4	CO_3				
	Fine to medium gravel, mod. clean. Small rounded silt stone & less rounded qtz pebbles.				
6	CO_3				
	Greenish / brown clay & small to medium pebbles bedded in it (= fall back?) sticky	clay + calcrete			
8	CO_3				
	Calcrete layer? grey / green I'stle chips				
	Khaki, soft shale				
10	CO_3				
	As above				
12	Water				
	Green, soft shale				
14					
	As above				
16					
	As above				
18					
	EOH				

FIELD DRILL LOG

0039

HOLE No. 14

PAGE 1 OF 1

PROJECT: TESTULPA
AREA: LINE 2 (1/2 SPREAD 12)
LOCATION: 55m W of hole 13
STARTED: 2:55
COMPLETED:

DATE STARTED: 26.8.87
COORDINATES:
ELEVATION:
DEPTH: 8.0 m

TYPE OF DRILL: RAB
HOLE SIZE: 4½" blade
CONTRACTOR: THOMSON
DRILLER: D. WATTS
LOGGED BY: D.G. TUNKIN

Metres	DESCRIPTION		SAMPLE No.	Assay Length	ASSAYS
0	Red silt/clay				
2	No sample return				
	Possibly gravels	Samples ON			
4					
6	Khaki green, soft shale				
8	EOH				

FIELD DRILL LOG

0040

HOLE No. 15 A

PAGE 1 OF 1

PROJECT: TEETULPA

DATE STARTED: Sept. 1987

TYPE OF DRILL: R/C

AREA: LINE 2

COORDINATES:

HOLE SIZE:

LOCATION: Twin of hole 15

CONTRACTOR: Thompson

STARTED:

ELEVATION:

DRILLER: D. WATTS

COMPLETED:

DEPTH: 6.1 m

LOGGED BY: —

Metres	DESCRIPTION	SAMPLE No.	Assay Length	P.P.b. Au	ASSAYS			
0								
		(1)	1.0					
1								
		(2)	1.0					
2								
		(3)	1.0					
3								
		(4)	1.0					
4								
		(5)	1.0	0.1				
5								
		(6)	1.0	<0.1				
6								
		(7)	0.1	0.2				
6.1								

FIELD DRILL LOG

0041

HOLE No. 15

PAGE 1 OF 1

PROJECT: TEETULPA | DATE STARTED: 26.8.87 | TYPE OF DRILL: RAB

AREA: LINE 2 | COORDINATES: | HOLE SIZE: 4½" blade

LOCATION: 100 m W of hole 14 | CONTRACTOR: THOMPSON

STARTED: 3:40 | ELEVATION: | DRILLER: D. WATTS

COMPLETED: 3:45 | DEPTH: 8 m | LOGGED BY: D. G. TONKIN

Metres	DESCRIPTION		SAMPLE No.	Assay Length	ASSAYS
0	Red / brown silt				
2	Gravell – fine to medium pebbles silt / clay matrix Siltstone, quartz + calcrete pebbles clay matrix moderate.				
4	Gravell – coarser than above: pebbles to 2cm but average 1 cm.				
6	Green / khaki weathered shale				
	Green weathered shale				
8	EOH				

0042

FIELD DRILL LOG

HOLE No. 16

PAGE 1 OF 1

PROJECT: TEETULPA | DATE STARTED: 26.8.87 | TYPE OF DRILL: RAB

AREA: KING 2 | COORDINATES: | HOLE SIZE: 4½" blade

LOCATION: 25m W of line end | | CONTRACTOR: Thompson

STARTED: 3.55 | ELEVATION: | DRILLER: D. WATTS

COMPLETED: 4.00 | DEPTH: 6 m | LOGGED BY: D.G. TONKIN

Metres	DESCRIPTION		SAMPLE No.	Assay Length	ASSAYS
0	Calcrete nodules + soil + fluvial quartz (ang/var).				
1	Khaki, weathered shale				
2	Green, weathered shale				
3	As above				
4	As above				
5	As above				
6	EOH				

FIELD DRILL LOG

HOLE No. 17

0043

PAGE 1 OF 1

PROJECT: TEETVLPA

AREA: BRADY'S Gully mouth

LOCATION: 30 m SE of N bank

STARTED: 4:30

COMPLETED: 4:40

DATE STARTED: 26.8.87

COORDINATES:

ELEVATION:

DEPTH: 6 m

TYPE OF DRILL: RAB

HOLE SIZE: 4½"

CONTRACTOR: THOMPSON

DRILLER: D WATTS

LOGGED BY: D G TONKIN

Metres	DESCRIPTION		SAMPLE No.	Assay Length	ASSAYS
0	Silt				
1	Silt				
	Gravel				
2	Gravel – medium to coarse pebble size, sub angular to sub rounded shale & granite pebbles – immature sediment. Rel. little matrix (losing air into formation)				
3	Gravel – as above				
4	Gravel – as above				
5	Khaki – green shale				
6	EOH				

FIELD DRILL LOG 0044

HOLE No. 17 RC
PAGE 1 OF 1

PROJECT: TEETULPA
AREA: BRADY'S GULLY MOUTH
LOCATION: Twin of hole 17 RAB (2m to SW)
STARTED:
COMPLETED:

DATE STARTED: 27.8.87
COORDINATES:
ELEVATION:
DEPTH: 5.8m

TYPE OF DRILL: R/C
HOLE SIZE:
CONTRACTOR: THOMPSON
DRILLER: D. WATTS
LOGGED BY: D.G. TONKIN

Metres	DESCRIPTION	SAMPLE No.	Assay Length	P.P.b. Au	ASSAYS
0	S.H	N/S	–		
1.5	Gravel	(1)	0.5		
2.0		(2)	1.0		
3.0		(3)	1.0	0.5	
4.0		(4)	1.0	<0.5	
5.0		(5)	0.8	<0.5	
5.8	EOH				

FIELD DRILL LOG

0045

HOLE No. 18

PAGE 1 OF 1

PROJECT: TEETULPA

AREA: BRADY'S GULLY MOUTH

LOCATION: 33m SE of hole 17

STARTED: 4.45

COMPLETED: 5.00

DATE STARTED: 26.8.87

COORDINATES:

ELEVATION:

DEPTH: 5 m

TYPE OF DRILL: RAB

HOLE SIZE: 4½"

CONTRACTOR: THOMPSON

DRILLER: D. WATTS

LOGGED BY: D.G. TONKIN

Metres	DESCRIPTION		SAMPLE No.	Assay Length	ASSAYS				
0	Silt								
1	Gravel - sub angular qtz + rounded shale in silty matrix								
2	Silt								
3	Green, soft shale								
4	Green soft shale								
5	EOH								

0046

FIELD DRILL LOG

HOLE No. 19

PAGE 1 OF 1

PROJECT: TEETULPA
AREA: BRADY'S GULLY NORTH
LOCATION: 30 m SE of hole 18
STARTED:
COMPLETED:

DATE STARTED: 20.8.87
COORDINATES:
ELEVATION:
DEPTH: 6.0 m

TYPE OF DRILL: RAB
HOLE SIZE: 4½"
CONTRACTOR: THOMPSON
DRILLER: D. WATTS
LOGGED BY: D.G. TONKIN

Metres	DESCRIPTION	SAMPLE No.	Assay Length	ASSAYS
0	Silt – yellowish			
1	Gravel – coarse, with angular quartz pebbles predominating over more rounded shale pebbles. Dirty matrix			
2	as above			
3	as above			
4	Immature Gravel &/or Colluvium of angular quartz pebbles to 4.5 m			
	Weathered shale – khaki, soft			
5	Weathered shale – khaki, soft.			
6	EOH			

FIELD DRILL LOG

HOLE No. 20

PAGE 1 OF 1

0047

PROJECT: TEETULPA

DATE STARTED: 26.8.87

TYPE OF DRILL: RAB

AREA: Brady's Gully mouth

COORDINATES:

HOLE SIZE: 4½"

LOCATION: 2 m SE of hole 19

CONTRACTOR: Thompson

STARTED:

ELEVATION:

DRILLER: D. WATTS

COMPLETED:

DEPTH: 6.0 m

LOGGED BY: D.G. Tonkin

Metres	DESCRIPTION		SAMPLE No.	Assay Length	ASSAYS
0	Silt				
1	Silt				
	Gravel of angular, coarse quartz				
2	Gravel – angular, coarse qtz + rounded qtz + rounded shale				
3	Calcrete – cemented Gravel?	Calcrete			
	Pulverised sample of quartz + calcrete				
4	Gravel – immature, relatively clean of matrix. Coarse to medium.				
5	Gravel – medium. Immature. to 5.75 m.				
	Weathered shale – khaki, soft at 5.75 m.				
6	EOH				

0048

FIELD DRILL LOG

HOLE No. 21

PAGE 1 OF 1

PROJECT: TEETULPA
AREA: BRADY'S GULLY MOUTH
LOCATION: 25m SE of hole 20
STARTED:
COMPLETED:

DATE STARTED: 26 · 8 · 87
COORDINATES:
ELEVATION:
DEPTH: 6.0 m

TYPE OF DRILL: RAB
HOLE SIZE: 4½"
CONTRACTOR: THOMPSON
DRILLER: D. WATTS
LOGGED BY: D.G. TONKIN

Metres	DESCRIPTION		SAMPLE No.	Assay Length	ASSAYS
0	Silt				
1	Gravel – immature, coarse				
2	Gravel – immature, medium to coarse				
3	Gravel – slightly better rounding (?)				
4	Gravel – immature, medium to coarse				
5	Weathered shale – khaki/green				
6	EOH				

FIELD DRILL LOG

49

HOLE No. 21 RC

PAGE 1 OF 1

PROJECT: TEETULPA
AREA: BRADY'S GULLY MOUTH
LOCATION: TWIN of hole 21 RAB (2m away) near old pit
STARTED:
COMPLETED:

DATE STARTED: 27.9.87
COORDINATES:
ELEVATION:
DEPTH: 6.0 m

TYPE OF DRILL: R/C
HOLE SIZE:
CONTRACTOR: THOMPSON
DRILLER: D. WATTS
LOGGED BY: D.G. TONKIN

Metres	DESCRIPTION	SAMPLE No.	Assay Length	P.P.b. Au	ASSAYS
0					
		(1)	1.0		
1					
		(2)	1.0	0.4	
2					
		(3)	1.0	0.2	
3					
		(4)	1.0	0.2	
4					
		(5)	1.0	<0.5	
5	nb - fines of gravels came up separately in this sample.				
		(6)	1.0	<0.5	
6					
	EOH				

FIELD DRILL LOG

0050

HOLE No. 22

PAGE 1 OF 1

PROJECT: TEETULPA
AREA: BRADY's GULLY MOUTH
LOCATION: 70 m SE of hole 21
STARTED:
COMPLETED:

DATE STARTED: 28 · 8 · 87
COORDINATES:
ELEVATION:
DEPTH: 9.0 m

TYPE OF DRILL: RAB
HOLE SIZE: 4½"
CONTRACTOR: THOMPSON
DRILLER: D. WATTS
LOGGED BY: D.G. TONKIN

Metres	DESCRIPTION		SAMPLE No.	Assay Length	ASSAYS
0	Silt				
1	Silt to 1.5 m				
	Gravel - coarse, immature				
2	Silt / Clay to 3.5 m				
3					
	Gravel - coarse, immature				
4	Gravel - coarse to medium, immature. Dirty matrix				
5	Gravel - immature, relatively clean matrix. Losing drilling air in formation				
6	Gravel - medium to fine				
7	Gravel - medium + yellowish clay (possibly gravel = fallback ?)				
8	Weathered shale - soft, green + fallback of big, round qtz pebbles.				
9	EOH				

FIELD DRILL LOG 0051

HOLE No. 22 RC

PAGE 1 OF 1

PROJECT: TEETULPA
AREA: BRADY'S GULLY MOUTH
LOCATION: Twin of hole 22 RAB (3m SE of old track)
STARTED:
COMPLETED:

DATE STARTED: 27:8:87
COORDINATES:
ELEVATION:
DEPTH: 9.0 m

TYPE OF DRILL: R/C
HOLE SIZE:
CONTRACTOR: THOMPSON
DRILLER: D. WATTS
LOGGED BY: D. G. TONKIN

Metres	DESCRIPTION	SAMPLE No.	Assay Length	P.P.b. Au	ASSAYS
0	See RAB hole log				
		(1)	1.0	<0.5	
1					
		(2)	1.0	<0.5	
2					
		(3)	1.0	<0.5	
3					
		(4)	1.0	<0.5	
4					
		(5)	1.0	<0.5	
5					
		(6)	1.0	<0.5	
6					
		(7)	1.0	<0.5	
7					
		(8)	1.0	<0.5	
8					
		(9)	1.0	<0.5	
9					
	EOH				

FIELD DRILL LOG

0052

HOLE No. 23

PAGE 1 OF 1

PROJECT: TEETULPA

DATE STARTED: 26.8.87

TYPE OF DRILL: RAB

AREA: BRADY's GULLY MOUTH

COORDINATES:

HOLE SIZE: 4½"

LOCATION: 50 m SE of hole 22

CONTRACTOR: Thompson

STARTED:

ELEVATION:

DRILLER: D. WATTS

COMPLETED:

DEPTH: 6.0 m

LOGGED BY: D.G. TONKIN

Metres	DESCRIPTION		SAMPLE No.	Assay Length	ASSAYS				
0	Silt								
1	Silt								
	Gravel – coarse to medium								
2	Gravel – medium								
3	Gravel (+ calcrete?)								
4	Weathered shale – green then khaki, soft.								
5	Weathered shale – khaki								
6	EOH								

FIELD DRILL LOG

0053

HOLE No. 24

PAGE 1 OF 1

PROJECT: TEETULPA

DATE STARTED: 26.8.87

TYPE OF DRILL: RAB

AREA: BRADY'S GULLY MOUTH

COORDINATES:

HOLE SIZE: 4½"

LOCATION: 130 m SE of hole 23 on low rise

CONTRACTOR: THOMPSON

STARTED:

ELEVATION:

DRILLER: D. WATTS

COMPLETED:

DEPTH: 4.0 m

LOGGED BY: D.G. TONKIN

Metres	DESCRIPTION		SAMPLE No.	Assay Length	ASSAYS
0	Silt				
1	Weathered Shale - Soft, grey & khaki				
2	Weathered Shale - Soft, green				
3	As above				
4	EOH				

FIELD DRILL LOG

0054

HOLE No. 25

PAGE 1 OF 1

PROJECT: TEETULPA

AREA: BANDY'S GULLY MOUTH

LOCATION: 65m NE of hole 24 midway between 22823

STARTED:

COMPLETED:

DATE STARTED: 26.8.87

COORDINATES:

ELEVATION:

DEPTH: 5.0m

TYPE OF DRILL: RAB

HOLE SIZE: 4½"

CONTRACTOR: THOMPSON

DRILLER: D. WATTS

LOGGED BY: D.A. TONKIN

Metres	DESCRIPTION	SAMPLE No.	Assay Length	ASSAYS
0	Silt (+ calcrete)			
1	Silt to 1.5m			
	Gravel – coarse			
2	Gravel to 2.5m			
	Weathered shale – soft, green			
3	as above			
4	as above			
5	EOH			

FIELD DRILL LOG

0055

HOLE No. 26

PAGE 1 OF 1

PROJECT: TEETULPA

AREA: BRADY'S GULLY MOUTH

LOCATION: 40 m NW of hole 17
10 m NW of creek channel

STARTED:

COMPLETED:

DATE STARTED: 26.8.87

COORDINATES:

ELEVATION:

DEPTH: 3.0 m

TYPE OF DRILL: RAB

HOLE SIZE: 4½"

CONTRACTOR: THOMPSON

DRILLER: D. WATTS

LOGGED BY: D. G. TOMKIN

Metres	DESCRIPTION		SAMPLE No.	Assay Length	ASSAYS
0	Soil / silt				
1	Weathered shale — soft, green				
2	as above				
3	EOH				

FIELD DRILL LOG

HOLE No. 27 RC

0056

PAGE 1 OF 1

PROJECT: TEETULPA

DATE STARTED: 27.8.87

TYPE OF DRILL: R/C

AREA: BRADY'S GULLY MOUTH

HOLE SIZE:

LOCATION: 100m NE of 22 (bearing 034M) 20m E of old track. Near pit.

COORDINATES:

CONTRACTOR: THOMSON

STARTED: 11.25 am

ELEVATION:

DRILLER: D WATTS

COMPLETED: 12.05 pm

DEPTH: 8 m

LOGGED BY: D. G. TONKIN

Metres	DESCRIPTION	SAMPLE No.	Assay Length	P.P.b. Au	ASSAYS
0	Silt - red/orange + Red clay	N/S	-		
1	Gravel - greyish, medium size	(1)	1.0	0.2	
2	Gravel - grey/brown, medium to coarse	(2)	1.0	0.2	
3	Gravel - grey/brown, medium to coarse	(3)	1.0	0.2	
4	Gravel	(4)	1.0		
5	Gravel	(5)	1.0	0.2	
6	Gravel	(6)	1.0		
7	Weathered shale	N/S			
8	EOH.				

APPENDIX II

GOLD ASSAYS FOR DRILLING SAMPLES

COMLABS SERVICES PTY. LTD.

305 South Road, Mile End South, South Australia 5031 Telephone (08) 43 5722 Telex LABCOM AA89323 Facsimile No. (08) 234 0321

NATA REGISTERED No. 1526

OUR REF.:

YOUR REF.: COM 872134

11261

Mr. B. Supple,
Thompson Drilling,
5 Pambula Street,
Regency Park,
S.A. 5011,

3rd September, 1987

Dear Bill,

RE: JOB COM 872134

Enclosed are the assays for the samples delivered to our laboratory on the 28th August, 1987.

Yours sincerely,
COMLABS SERVICES PTY LTD

per :

Report Length : 1 Pages

COMLABS SERVICES PTY. LTD.

Job: COM872134
O/N: 11261

ANALYTICAL REPORT

SAMPLE	Au
T22 1 - 2	<0.5
T22 2 - 3	<0.5
T22 3 - 4	<0.5
T22 4 - 5	<0.5
T22 5 - 6	<0.5
T22 6 - 7	<0.5
T22 7 - 8	<0.5
T22 8 - 9	<0.5
T22 0-1	<0.5
T21 4-5	<0.5
T21 5-6	<0.5
TT17 4-5	<0.5
TT17 5-5.8	<0.5
TT5	<0.5
TT4 7-8	8.0
UNITS	ppb
SCHEME	AAS5D

0060

COMLABS SERVICES PTY. LTD.

305 South Road, Mile End South, South Australia 5031 Telephone (08) 43 5722 Telex LABCOM AA89323 Facsimile No. (08) 234 0321

NATA REGISTERED No. 1526

OUR REF: COM 872258

YOUR REF: Order No. 11282

Mr. D. Tonkin,
Thompson Drilling,
5 Pambula Street,
REGENCY PARK. S.A. 5011,

17.9.87

Dear David,

RE: JOB COM 872258

Enclosed are the assays for the samples delivered to our laboratory on the 9th September, 1987.

Yours sincerely,
COMLABS SERVICES PTY LTD

per :

Report Length : 1 Pages

COMLABS SERVICES PTY. LTD.

Job: COM872258
O/N: 11282

ANALYTICAL REPORT

SAMPLE	Au
TT21 1-2	0.4
TT21 2-3	0.2
TT21 3-4	0.2
TT27 1-2	0.2
TT27 2-3	0.2
TT27 3-4	0.2
TT27 5-6	0.2
TT15A 4-5	0.1
TT15A 5-6	<0.1
TT15A 6-6.1	0.2
TT4 5-6	<0.1
TT17 3-4	0.5
UNITS	ppb
SCHEME	AAS5D

DEPARTMENT OF MINES AND ENERGY
SOUTH AUSTRALIA

REPT.BK.NO. 88/15
SEISMIC REFRACTION SURVEY
TEETULPA GOLDFIELDS

OIL, GAS AND COAL DIVISION

by

L.P. HOUGH
GEOPHYSICS

MARCH, 1988

DME.25/86

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DEPARTMENT OF MINES AND ENERGY
SOUTH AUSTRALIA

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SEISMIC REFRACTION SURVEY TEETULPA GOLDFIELDS

ABSTRACT

Two seismic refraction profiles were recorded over an area adjacent to the Teetulpa Goldfield in the search for alluvial channels incised into an Adelaidean bedrock.

Interpreted depths to bedrock of 6-10 metres were confirmed by follow-up drilling at the time of the survey and while the gravel layers were not mappable a clear indication of the bedrock profile was provided.

Further use of the seismic refraction method is recommended in the Teetulpa area in the search for buried alluvial channels.

INTRODUCTION

During August, 1987, at the request of the Mineral Resources Section, the Geophysics Section of the South Australian Department of Mines and Energy conducted a shallow seismic refraction survey in the Teetulpa Goldfield area (Exploration License 1413) to test the method's application in outlining alluvial channels incised into an Adelaidean bedrock (Fig. 1).

The bulk of gold production from this field has been from river alluvium, the maximum depth of which was expected to be about 6-10 metres. The ancient alluvial deposits are known to be slightly offset from the present day drainage systems and have in places been left suspended at higher elevations than present stream channels.

A follow up drilling programme by the licence holders Thomdrill Pty Ltd, was planned to confirm the interpretation of the refraction survey.

TOPOGRAPHY

The Teetulpa Goldfield consists of several small valleys and their tributaries extending north from or across a series of headwater quartz reefs extending from about Hospital Hill in the north to Strawbridge Dam in the south (Sprigg 1968), (Fig. 2).

The country is essentially of low rolling hills composed of rocks of the Tapely Hill Formation.

The main alluvial gravel accumulations represent ancient drainage systems which are slightly offset from those of today. The present drainage systems mostly drain northwards into the wide flat expanses of Salt Creek.

GEOLOGICAL SETTING

Teetulpa Goldfield lies near the keel of the gently west-plunging Waukaringa Syncline. Flaggy, well-laminated blue-grey to green siltstones of the Upper Proterozoic Tapley Hill Formation are host to three distinct sets of quartz reefs. These reefs are identified by the 3 strike directions 340°, E-W, 70-80°. Only the set striking E-W are devoid of any sulphide mineralisation and are non gold-bearing.

The gold field is predominantly an alluvial field developed by the erosion of the quartz - sulphide veins. The currently worked alluvial channel represents a fossil stream bed with the modern day stream meandering across the old accumulations of poorly sorted silty gravels. Many of the leads now exist at slightly higher levels than the existing streams (Horn and Fradd 1986).

Much of the gold recovered in the area has been in the form of small nuggets lodged in erosional pockets within the slate bedrock (Sprigg 1968), close to the headwater area which contains the group of auriferous reefs.

With this in mind, there must exist the potential for the discovery of finer gold further to the north (downstream) in ancient placer deposits (Sprigg 1968).

PROCEDURE

Two east-west seismic profiles were recorded over Salt Creek, a major stream to the east of the present gold field workings.

Line 1, of approximately 550 metres in length, was sited near Tonkins well while Line 2 (approximately 4 kilometres to the north) was approximately 1 kilometre south of the Four Brothers Homestead and 750 metres in length. (Fig. 2).

The seismic spreads consisted of 24 geophones, spaced 5 metres apart with 7 shots recorded per spread. The shots were fired at the centre, midway between the centre and the ends, at the end and at a nominated distance off the end of each spread.

Shot holes were prepared using a vehicle mounted Gemco auger and maximum shot hole depth was 1.5 metres.

All records were digitally recorded onto magnetic tape via a Geometrics Model G-7245 tape recorder to facilitate later computer interpretation of the results.

INTERPRETATION

Procedure

Interpretation of results was carried out in the field on a NEC APC III computer. All field recordings were transferred to the computer's hard disk on which a programme adapted from the Generalised Reciprocal Method (G.R.M.) method of refraction analysis (Palmer 1980) facilitated the picking of first arrivals and interpretation of depths and velocities.

In this method of refraction analysis time-depth terms for refractor interfaces are isolated at each geophone position which is equivalent to the time taken for energy to travel along a normal to the refracting interface and through the recording geophone position.

To effect depth conversion to the refractor a composite depth conversion is calculated which involves a knowledge of time-depths and refractor velocities of all intermediate layers. Drilling control can be used where the depth to the important refractor in the drill hole is divided by the time-depth to that refractor as calculated in the data analysis. The use of drilling control is desirable wherever possible.

RESULTS

LINE 1

Line 1 (Spreads 1-5) was interpreted as a simple 2 layer case with an upper layer of velocity 270-460 m/sec and a lower interface of velocity 4440-5350 m/sec.

The upper layer was correlated with river alluvium composed of silts and gravels as observed in outcrop while the lower refracting inteface is correlated with fresh slates and siltstones of the Tapley Hill Formation observed outcropping on the hillsides and in the deeper sections of the creek channels.

Time-depth values to the fresh rock interface were plotted for geophone positions along the line (Fig. 3) and the resultant time section gives a qualitative indication of the greatest depths to the basement horizon or conversely the area of thickest river alluvium (e.g., over a 160 metre section covered by spreads 3 & 4).

Initial depth estimates of the fresh rock ranged from 5-7 metres below the surface along the deeper sections of the profile and in this zone a thin weathered bedrock layer of 3170-3390 m/sec could be interpreted.

These findings were confirmed by drilling at the time of the survey (see Appendix for drilling results) with the greatest accumulation of river alluvium being 9 metres beneath spread 3.

Depth conversion of the time depth values was effected using the drilling control and the resultant depth profile is shown in Fig. (3).

LINE 2

Line 2 (spreads 6-12) was interpreted as a standard 3 layer case with surface velocities (Vo) ranging from 220-520 m/sec, an intermediate layer with velocity (Vl) of 2020-3250 m/sec and a basal layer with velocity (V2) ranging from 3630-5680 m/sec.

As with line 1, the upper velocity Vo was equated with surface material composed of soil plus alluvial silts and gravels

while the basal velocity V2 was correlated with a fresh bedrock interface. The intermediate velocity V1 was confirmed by drilling to be composed a highly weathered bedrock material.

Time-depth values for the V1 and V2 interfaces are plotted in fig (4) and show the greatest potential of channel development in the weathered bedrock beneath spreads 11 & 12 and possibly further west.

Preliminary depth estimates for line 2 indicated a depth of 2.5 - 5.0 metres for the weathered rock interface and from 14-25 metres depth to the fresh rock.

These results also were confirmed at the time of the survey by drilling. Gravel accumulations were found in all holes but, the best development of alluvial material was found beneath spreads 11 & 12 where thicknesses of 7 and 9 ½ metres were intersected respectively (See appendix).

Drilling control was used to depth-convert the time-depth values and the resultant depth section to the weathered bedrock is shown in fig. (4).

It was found during drilling that a thin calcrete layer (less than 1 metre thick) was present which capped the weathered bedrock layer and in places was particularly well cemented. This possibly resulted in producing a slightly higher estimate for the weathered bedrock velocity (eg on spread 10, V1 was approximately 3200 m/sec).

Further drilling to the west on line 2 suggested that channel development was not evident and the survey was completed at this point.

CONCLUSIONS AND RECOMMENDATIONS

The seismic refraction survey was successful in outlining bedrock topography and hence highlight areas of possible alluvial silt and gravel development. Follow-up drilling confirmed the postulated bedrock profile and while the gravel layers were not mappable because of their insignificant velocity contrast with the surrounding silts and clays, a clear indication of maximum accumulations of river alluvium was given.

The depth control offered by the follow-up drilling programme proved invaluable in the depth conversion of the time section profiles.

For a complete appraisal of the gold potential of the alluvial material a contour map of bedrock topography is required in order to estimate gross volumes of alluvium. Subject to the target size, in the shallower areas this can obviously be more effectively achieved by close spaced grid drilling but as depths increase the use of seismic refraction methods with follow-up drilling must be considered as an alterative.

LPG:AM

L.P. HOUGH

REFERENCES

Horn, C.M. and Fradd, W.P., 1986. Historical and Geological Review of Teetulpa Goldfield. S. Aust. Dept. of Mines and Energy report 87/86 (unpublished). Shaddock 86/92

Palmer, D., 1980. The Generalized Reciprocal Method of Seismic Refraction Interpretation. Society of Exploration Geophysicists. Tulsa Oklahoma.

Sprigg, R.C., 1968. Report on an Inspection and brief Investigation of the Teetulpa Goldfield, SML 156. Geosurveys of Australia Pty Ltd. S. Aust. Dept. of Mines and Energy open file env. 949 (unpublished).

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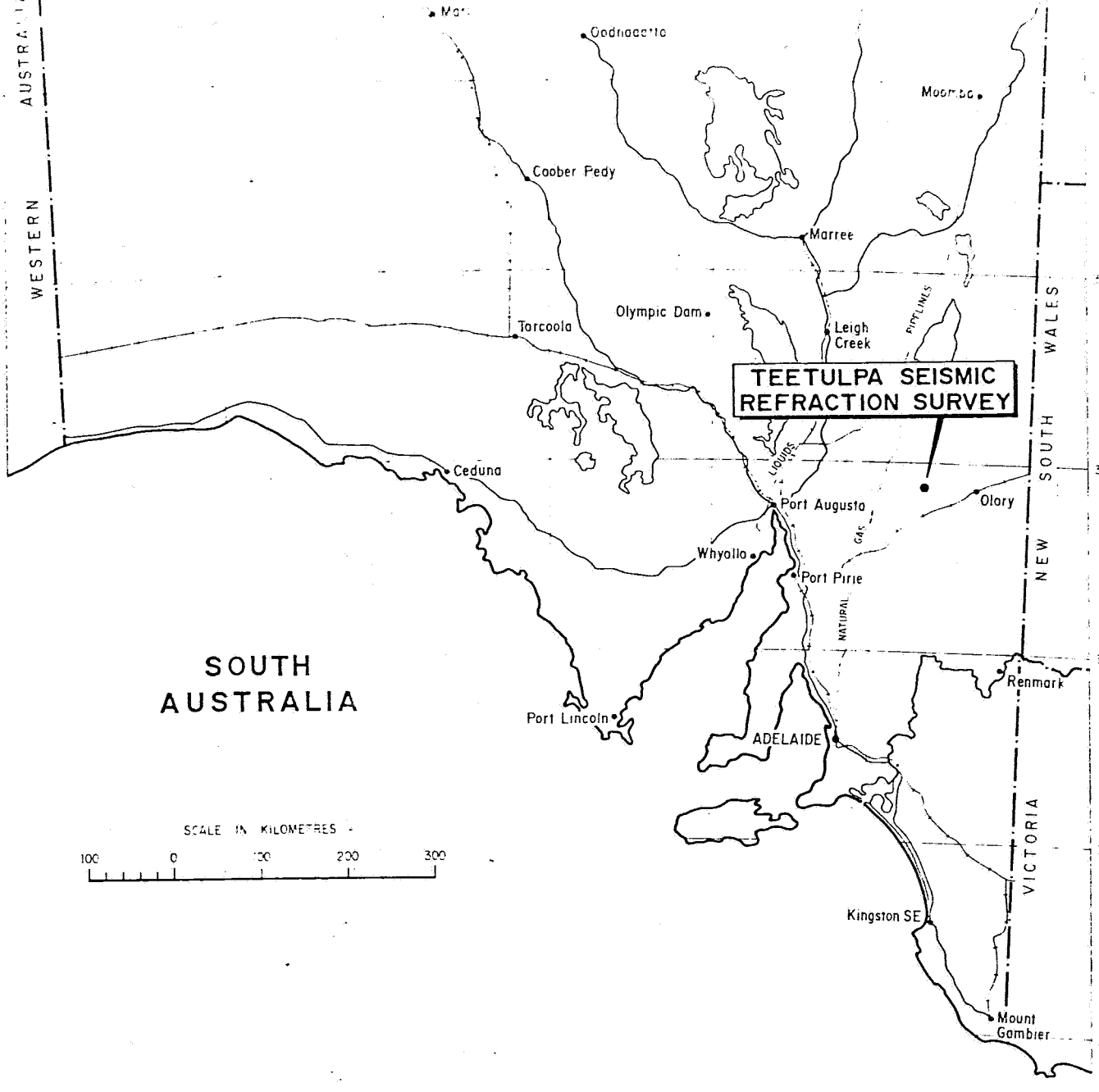

Figure..... 1

DEPARTMENT OF MINES AND ENERGY
SOUTH AUSTRALIA

COMPILED L. Hough	LR 15-4-88 C.D.O. DATE
DRAWN E. Calabio	SCALE 1:7000 000
DATE Jan.'88	PLAN NUMBER S19777
CHECKED	

TEETULPA SEISMIC REFRACTION SURVEY
LOCALITY PLAN

4550

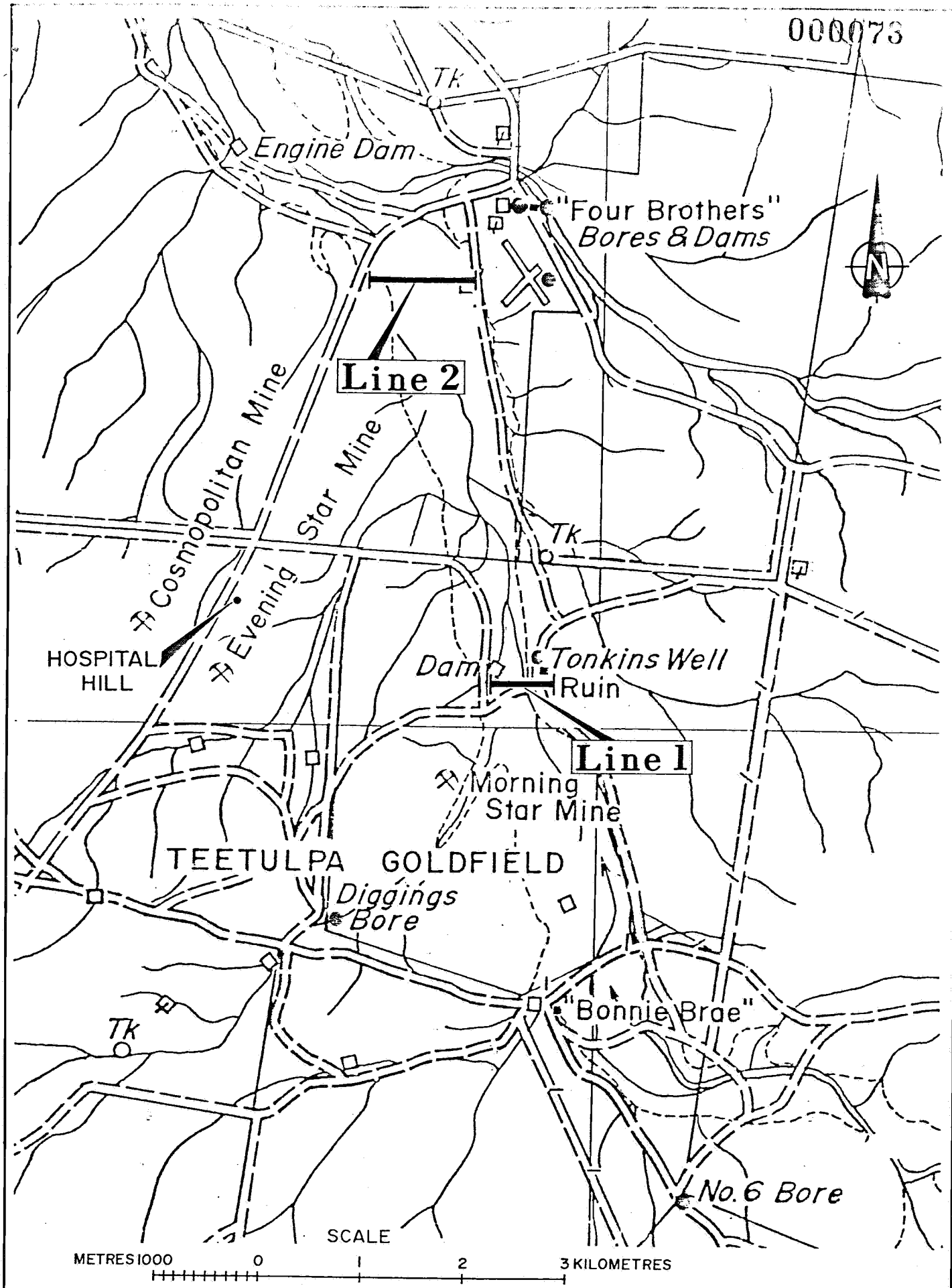

Figure..... 2

DEPARTMENT OF MINES AND ENERGY SOUTH AUSTRALIA	COMPILED L. Hough	CDO. 15·4·88 DATE
TEETULPA SEISMIC REFRACTION SURVEY	DRAWN E Calabio	SCALE 1:50000
LOCATION OF SEISMIC TRAVERSES	DATE Jan. '88	PLAN NUMBER S19778
	CHECKED	

4550

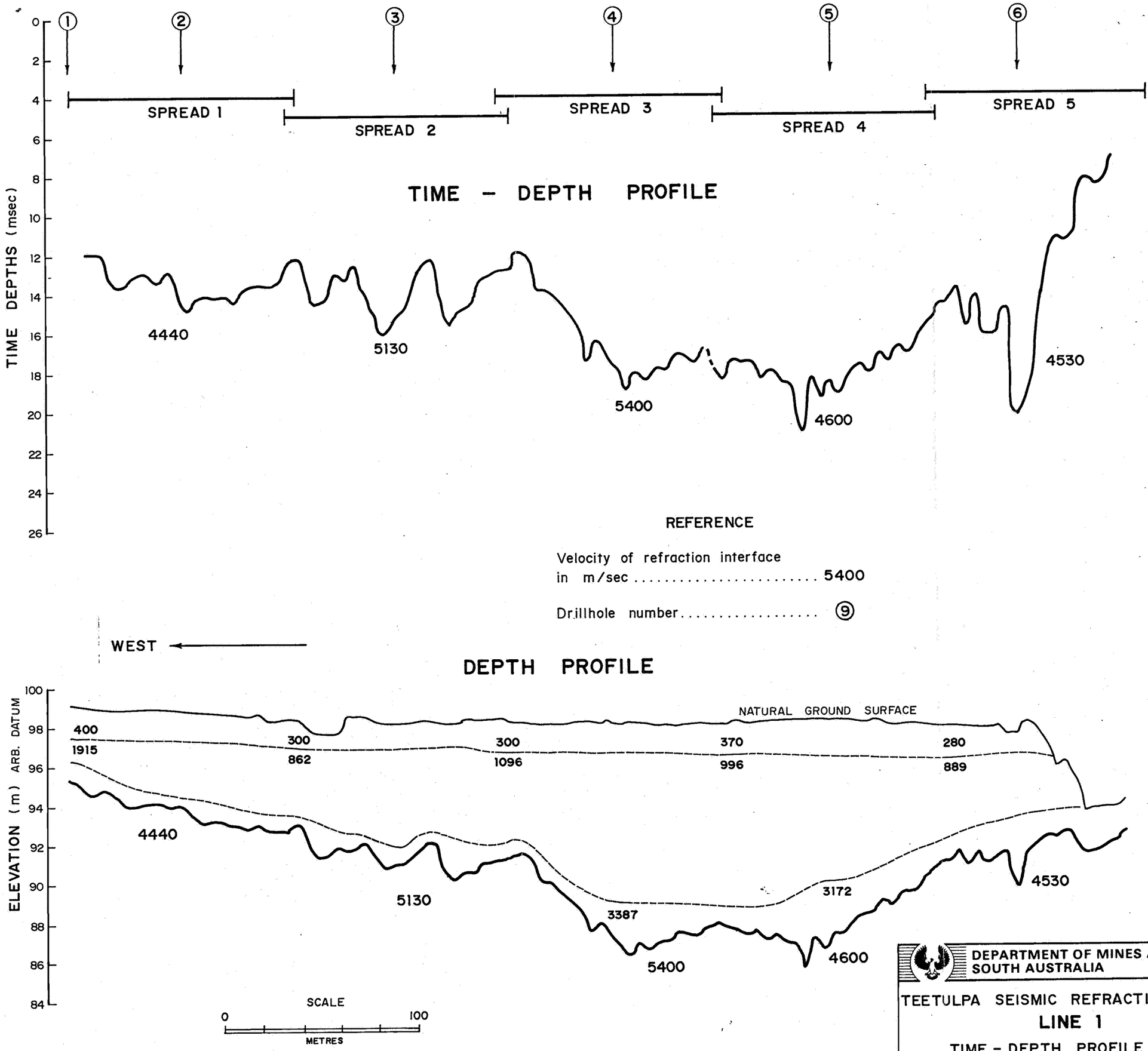

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Figure.....3

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SOUTH AUSTRALIA

TEETULPA SEISMIC REFRACTION SURVEY

LINE 1

TIME - DEPTH PROFILE AND
DEPTH PROFILE TO V_1 LAYER

COMPILED	L. HOUGH
DRAWN	R. BIRD
DATE	JAN 1988
CHECKED	
COO	15-4-88 DATE
SCALE	AS SHOWN
PLAN NUMBER	88-15

4550

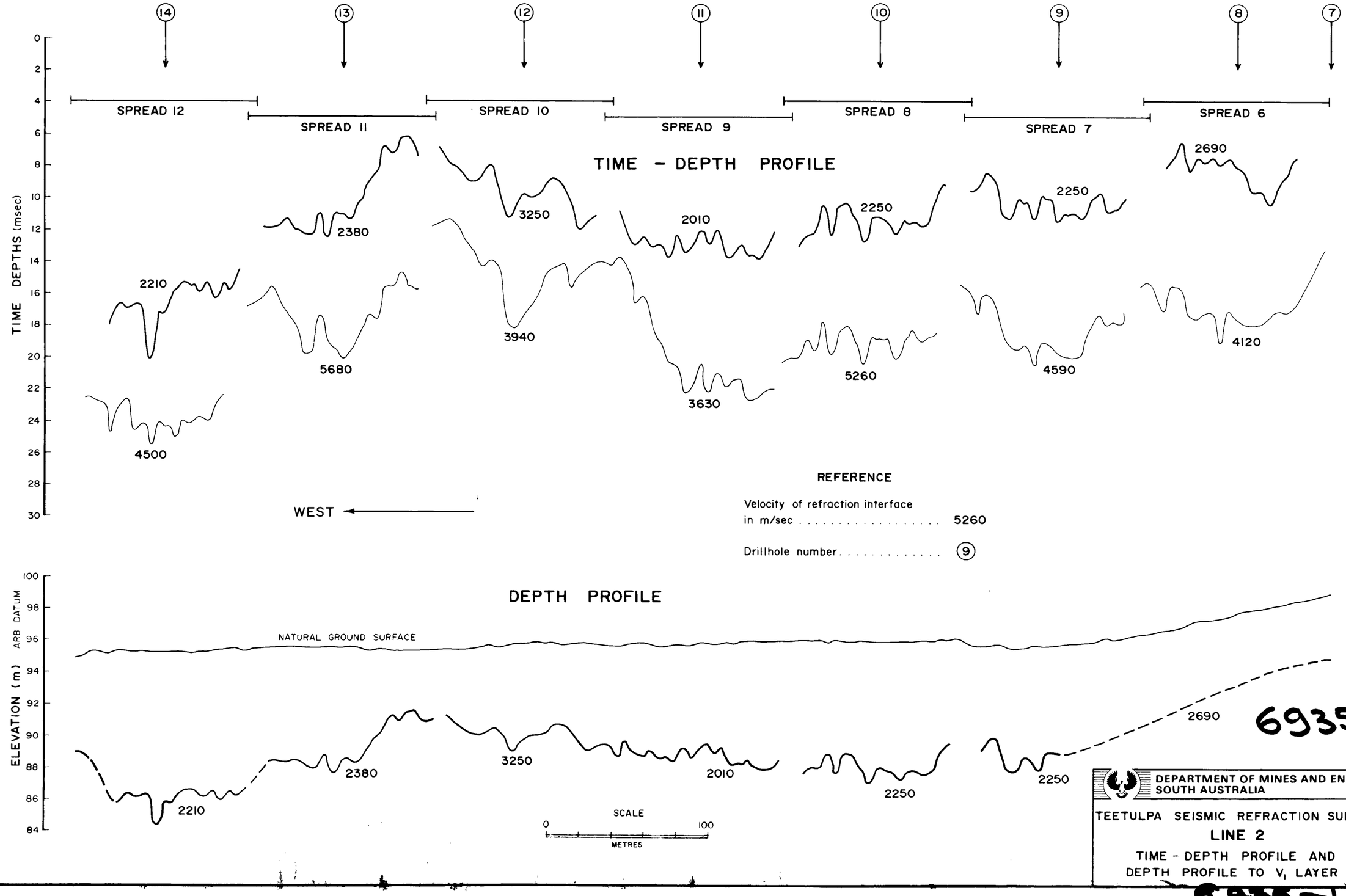

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Figure 4

DEPARTMENT OF MINES AND ENERGY SOUTH AUSTRALIA

TEETULPA SEISMIC REFRACTION SURVEY

LINE 2

TIME - DEPTH PROFILE AND DEPTH PROFILE TO V_1 LAYER

COMPILED	L. HOUGH
DRAWN	E. CALABIO
DATE	JAN.'88
CHECKED	
DATE	15.1.88
SCALE	As shown
PLAN NUMBER	88-16

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1550

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Env. 6935

Thompson Drilling

Regd. Proprietor — THOMDRILL PTY. LTD.
5 Pambula Street, Regency Park, S.A. 5010
37 North Terrace, Millicent, S.A. 5280
Telephone: Adelaide (08) 268 5911 Fax(08)455418
Millicent (087) 33 2044 Fax(087)332824
Telex: 89457

23rd May, 1988

Director General of Mines
Department of Mines and Energy
P.O. BOX 151
EASTWOOD SA 5063

Dear Sir,

Re: EL1413 - Teetulpa

Our first quarterly report concluded "Future work will involve consideration of the hard rock gold potential, prior to a probable relinquishment of the title."

Gold and Mineral Exploration N.L., already active in the main Teetulpa field, were invited to participate. A review of data by G.M.E. failed to produce a worth-while target.

Accordingly, a decision to relinquish the E.L. was advised on 24/12/88.

Some drilling by G.M.E. to provide a water supply for test work on existing mineral claims occurred within the E.L. We are in the process of ascertaining if any data relevant to exploration was obtained from this work and will forward same if it exists.

Yours faithfully,

D.A. WILSON
Director.