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EL 254

CURNAMONA

PROGRESS AND TECHNICAL REPORTS TO LICENCE EXPIRY/SURRENDER, FOR THE PERIOD 2/7/1976 TO 1/7/1978

Submitted by
Mines Administration Pty Ltd
1978

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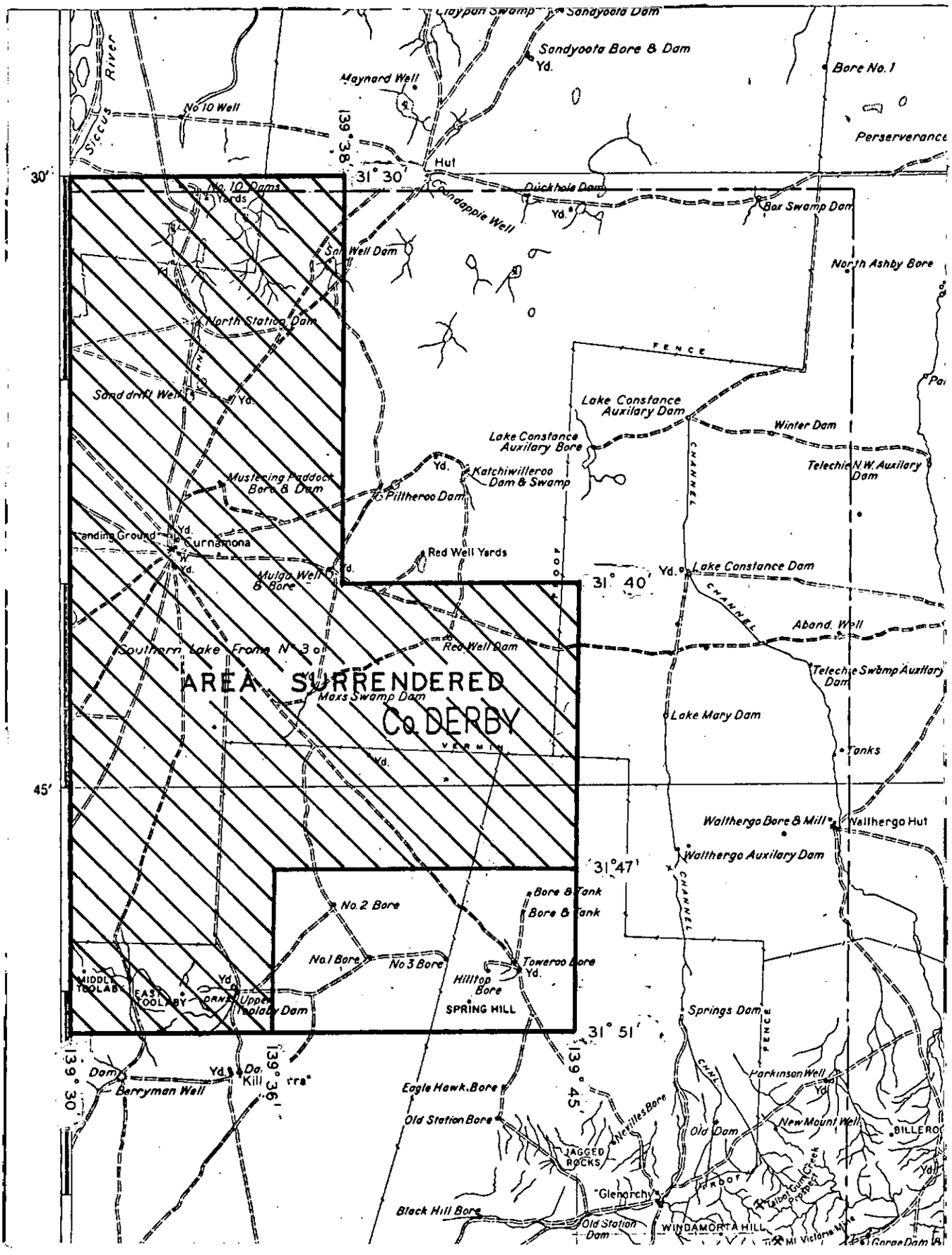
Government of South Australia
Department for Manufacturing, Innovation, Trade, Resources and Energy

SCHEDULE A



SCALE 1:250 000

KILOMETRES 5 0 5 10 15 20 25 KILOMETRES

APPLICANT: MINES ADMINISTRATION PTY LIMITED and TETON EXPLORATION DRILLING CO. PTY LIMITED

D.M. 163 | 76 AREA ~~716~~ 105 Square kilometres

1: 250000 PLANS CURNAMONA

LOCALITY CURNAMONA AREA - EXPIRED -

EXPIRY DATE 1·7·~~77~~ 78 E.L. No. 254

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TENEMENT: EXPLORATION LICENCE 254

TENEMENT HOLDER: MINES ADMINISTRATION PTY. LTD

REPORTS:

Plans:

REPORTS:

Plans:

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Plans:

Composite Lithological Logs.

CONTENTS ENVELOP 2818 Cont

REPORTS:

108 4A

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REPORT:

WECKER, R. 1978

Quarterly report Exploration Licence 254
Curnamona south Australia
Quarter ended 1/7/78 (pgs. 64-65)

(no Plans)

005

A RECONNAISSANCE RESISTIVITY SURVEY AT CURNAMONA, SOUTH AUSTRALIA FOR MINES ADMINISTRATION

By: R. B. Murdoch, B.A. (Earth Sciences),
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Telephone: (071) 44 1267

Report No. 240
September, 1976.

Conclusions

A reconnaissance resistivity survey has been carried out over E.L. Curnamona in the Lake Frome Embayment, South Australia. The aim of the survey was to map the depth to Cambrian basement on the 6 lines nominated and to identify any Tertiary channel anomalies that might occur.

Two and possibly three channels were identified during the survey. The Killawarra Channel Anomaly (see Report 239), heads northwards crossing lines 1, 2 and probably line 3 near Curnamona Homestead. This channel may join the Curnamona Channel between lines 3 and 4. The latter Channel flowing westwards, crossing line 6 just south of line 4 and continuing westwards between lines 3 and 4.

A third channel would appear to occur just west of the E.L. boundary. It may flow northwards close to the boundary or enter the E.L. and merge with the Killawarra Channel near Curnamona Homestead.

Two other tributories of the Curnamona Channel are possible. One may head south crossing lines 4 and 5 and the other may meander north and west in the eastern part of the survey area. These two anomalies are not definite and are of second priority at this stage.

A drilling programme has been recommended to test the probable channel anomalies encountered within the survey area (priority 1 holes). Depending upon success it could be extended to include less definite anomalies (priority 2 holes). Resistivity could be used to more accurately define the paths of any channel found to be uraniferous.

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Introduction

Under instruction from Mr. D. Brunt of Mines Administration Murdoch Geophysics (Australia) Pty. Ltd. have undertaken a reconnaissance resistivity survey at Curnamona, north of Yunta in South Australia. Field work associated with the survey was carried out in July and August 1976, in conjunction with a similar survey at Koonamore. A 3 man crew led by Mr. M. Armstrong and Mr. G. Connell were used for the survey.

The aim of the survey was to map the depth to Cambrian (or Precambrian) basement on the six lines surveyed, in particular to identify any Tertiary channelling anomalies that might occur.

Procedures

The resistivity survey was conducted along the six lines shown on Plate 1. The reading station interval was 500 metres. Each reading station was pegged and its respective line number and position marked on the peg. Compass bearings were maintained between reading stations not located on tracks. The reading station interval on all lines was measured by a vehicle speedometer.

The readings comprise detailed Schlumberger Array soundings at intervals of 1 km with rapid 3 point Schlumberger Array soundings at intervening intervals of ½ km. All soundings were expanded parallel to the traverse line for convenience.

The detailed soundings were expanded to a logarithmic formula with 22 individual readings being taken at each sounding for r values between 10 and 320 metres. As part of a follow-up programme, soundings where the depth to basement had not been adequately determined at r = 320 metres were expanded out to r = 500 metres. At the rapid sounding positions the readings taken were r = 130, r = 200 and r = 320 metres. (Where r is the half current electrode separation).

Presentation of results

The sounding results were plotted on standard log-log graphs of apparent resistivity (vertical axis) against current electrode

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separation from the centre of configuration (horizontal axis). They have not been included in this report but are available should they be required at any stage.

The profiles are presented on Plates 3 - 7 in two alternate forms.

(a) Superimposed profile curves - The r = 130, 200 and 320 metre data obtained from both the detailed and rapid soundings have been plotted as profiles on the one set of axes. The vertical scale is logarithmic (1 cycle = 6.25 cm.) and the horizontal scale is 1 cm = 250 metres.

(b) Resistivity pseudo-section - The pseudo-section is a two-dimensional display of all apparent resistivity results plotted beneath the profiles at the same horizontal scale. The vertical scale is 1 cm = 25 metres and the values have been logarithmically contoured.

Interpreted geological sections have been plotted beneath the pseudo-sections at the same scales.

Two contour plans accompany the report;

Plate 1 is a linear contour plan of depth to basement interpreted from the survey.

Plate 2 is a contour plan of apparent resistivity results obtained at r = 320 metres.

The scale of both plans is 1 cm = 500 metres. The contour interval on Plate 1 is 20 metres and on Plate 2 1 ohm metre.

Sounding Interpretation

The detailed soundings were interpreted by using the partial curve matching technique as follows :

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TABLE 1 - DETAILED SOUNDING INTERPRETATION

	Layer	Resistivity (ohm metres)	Thickness (metres)	Expected Geology
Line 1 00E	1	15	0 - 7.5	Surface
	2	3.25 to 5	7.5 - 110	Cainozoic
	3	17	110 +	Cambrian shale ?
1000E	1	5.5	0 - 9	Surface
	2	9.6	9 - 36	Quaternary
	3	4	36 - 112	Tertiary
	4	Very high	112 +	Precambrian
2000E	1	10	0 - 28	Surface
	2	5	28 - 128	Cainozoic
	3	35	128 +	Precambrian schist
3000E	1	12	0 - 9.5	Surface
	2	7.8	9.5 - 124	Cainozoic
	3	Very high	124 +	Precambrian
4000E	1	10	0 - 60	Cainozoic
	2	30	60 - 132	Precambrian schist(?)
	3	Very high	132 +	Cambrian
5000E	1	15	0 - 8.5	Surface
	2	7.5	8.5 - 135	Cainozoic
	3	Very high	135 +	Precambrian
6000E	1	10	0 - 28	Quaternary
	2	5	28 - 50	Cainozoic
	3	7	50 - 135	Tertiary
	4	Very high	135 +	Precambrian
7000E	1	6.5	0 - 25	Quaternary
	2	8.5	25 - 145	Tertiary
	3	High	145 +	Precambrian

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TABLE 1 - DETAILED SOUNDING INTERPRETATION (CONTINUED)

	Layer	Resistivity (ohm metres)	Thickness (metres)	Expected Geology
Line 1 8000E	1	9.5	0 - 12.5	Surface
	2	14.2	12.5 - 62.5	Quaternary gravel or limestone
	3	6.5	62.5 - 150	Tertiary
	4	Very high	150 +	Precambrian
9000E	1	6.5	0 - 80	Cainozoic
	2	Very high	80 +	Precambrian
10000E	1	11	0 - 5	Surface
	2	7.1	5 - 70	Cainozoic
	3	Very high	70 +	Precambrian
11000E	1	4.4	0 - 25	Cainozoic
	3	Very high	25 +	Precambrian
Line 2 00E	1	5.2	0 - 20	Quaternary
	2	3.4 - 4.4	20 - 150	Tertiary
	3	High	150 +	Cambrian
1000E	1	6.5	0 - 33	Quaternary
	2	2.6 - 2.2	33 - 160	Tertiary
	3	High	160 +	Cambrian
2000E	1	8	0 - 10	Surface
	2	6.4	10 - 33	Quaternary
	3	3.25 - 2.75	33 - 165	Tertiary
	4	High	165 +	Cambrian
3000E	1	6	0 - 32	Quaternary
	2	4.8	32 - 175	Tertiary
	3	Very high	175 +	Cambrian

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TABLE 1 - DETAILED SOUNDING INTERPRETATION (CONTINUED)

	Layer	Resistivity (ohm metres)	Thickness (metres)	Expected Geology
Line 2 4000E	1	17	0 - 5.8	Surface
	2	4.25	5.8 - 93	Cainozoic
	3	3	93 - 153	Tertiary
	4	High	153 +	Cambrian
5000E	1	6.7	0 - 13	Surface
	2	2.7 - 3.6	13 - 143	Cainozoic
	3	High	143 +	Cambrian
6000E	1	4 approx.	0 - 135	Cainozoic
	2	High	135 +	Cambrian
	(Data poor on this sounding)			
7000E	1	8	0 - 10	Surface
	2	3 - 3.25	10 - 150	Cainozoic
	3	High	150 +	Cambrian
8000E	1	13	0 - 13	Surface
	2	4.9 - 5.2	13 - 143	Cainozoic
	3	High	143 +	Cambrian
9000E	1	15	0 - 8	Surface
	2	6 - 3.5	8 - 166	Cainozoic
	3	Higher	166 +	Cambrian
10000E	1	4.4	0 - 14	Surface
	2	7.7	14 - 28	Quaternary
	3	5.2	28 - 92	Cainozoic
	4	3.5	92 - 170	Tertiary
	5	17.5	170 +	Cambrian
11000E	1	4.4	0 - 170	Cainozoic
	2	42	170 +	Cambrian

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TABLE 1 - DETAILED SOUNDING INTERPRETATION (CONTINUED)

	Layer	Resistivity (ohm metres)	Thickness (metres)	Expected Geology
Line 2 12000E	1	6	0 - 21	Quaternary
	2	10.5	21 - 61	Cainozoic
	3	5.8-4.5	61 - 164	Tertiary
	4	27.3	164 +	Cambrian
13000E	1	7	0 - 10	Surface
	2	5.6	10 - 100	Cainozoic
	3	4.5	100 - 180	Tertiary
	4	7	180 +	Cambrian
14000E	1	34	0 - 4	Surface
	2	5.1	4 - 44	Quaternary
	3	6.25	44 - 98	Cainozoic
	4	8	98 - 158	Cainozoic (?)
	5	?	158 +	Cambrian (?)
15000E	1	270	0 - 4.5	Surface
	2	4.8	4.5 - 94	Cainozoic
	3	3.8	94 - 154	Tertiary
	4	High	154 +	Cambrian
16000E	1	3.4	0 - 15	Surface
	2	5.95	15 - 90	Cainozoic
	3	7.3	90 - 130	Tertiary
	4	49	130 +	Cambrian
Line 2 1000W	1	13	0 - 11	Surface
	2	22.7	11 - 95	Cainozoic gravels/ limestone
	3	3.15	95 - 161	Tertiary
	4	High	161 +	Cambrian

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TABLE 1 - DETAILED SOUNDING INTERPRETATION (CONTINUED)

	Layer	Resistivity (ohm metres)	Thickness (metres)	Expected Geology
Line 2 2000W	1	9.5	0 - 14	Surface
	2	3.8	14 - 154	Cainozoic
	3	High	154 +	Cambrian
3000W	1	4.4	0 - 5	Surface
	2	18.5	5 - 26	Quaternary
	3	5.2	26 - 162	Tertiary
	4	20.3	162 +	Cambrian
4000W	1	7	0 - 8	Surface
	2	5.6	8 - 37	Quaternary
	3	2.75	37 - 131	Tertiary
	4	24.8	131 +	Cambrian
5000W	1	8	0 - 9.5	Surface
	2	4.4	9.5 - 151	Cainozoic
	3	28	151 +	Cambrian
6000W	1	7.2	0 - 50	Quaternary
	2	4.7	50 - 160	Tertiary
	3	25	160 +	Cambrian
7000W	1	7.5	0 - 18.5	Surface
	2	3.75	18.5 - 48	Quaternary
	3	4.6	48 - 190	Tertiary
	4	23	190 +	Cambrian
8000W	1	6.5	0 - 100	Cainozoic
	2	3.25	100 - 180	Tertiary
	3	30.8	180 +	Cambrian

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TABLE 1 - DETAILED SOUNDING INTERPRETATION (CONTINUED)

	Layer	Resistivity (ohm metres)	Thickness (metres)	Expected Geology
Line 2 9000W	1	9.5	0 - 27.5	Quaternary
	2	33.2	27.5 - 36	Quaternary limestone/ sand
	3	4.2	36 - 190	Tertiary
	4	35	190 +	Cambrian
10000W	1	5	0 - 80	Cainozoic
	2	2.5	80 - 160	Tertiary
	3	33	160 +	Cambrian
11000W	1	70	0 - 10.5	Surface
	2	4.2	10.5 - 31.5	Quaternary
	3	5	31.5 - 176	Tertiary
	4	12.5	176 +	Cambrian
Line 3 00E	1	7	0 - 10	Surface
	2	1.75	10 - 18	Quaternary
	3	3	18 - 145	Cainozoic
	4	11.8	145 +	Cambrian
1000E	1	8	0 - 10	Surface
	2	24	10 - 16	Quaternary gravels
	3	2.4	16 - 21.5	Quaternary
	4	6.0 - 6.7	21.5 - 155	Cainozoic
	5	2.4	155 - (?)	Tertiary
	6	Very deep		Cambrian
2000E	1	12	0 - 11	Surface
	2	9.6	11 - 77	Cainozoic
	3	3.8	77 - 175	Tertiary
	4	21	175 +	Cambrian

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TABLE 1 - DETAILED SOUNDING INTERPRETATION (CONTINUED)

	Layer	Resistivity (ohm metres)	Thickness (metres)	Expected Geology
Line 3 3000E	1	12	0 - 17.5	Quaternary
	2	6	17.5 - 119	Cainozoic
	3	4.1	119 - 165	Tertiary
	4	26	165 +	Cambrian
4000E	1	12	0 - 12	Surface
	2	7.2	12 - 72	Quaternary
	3	3	72 - 160 approx.	Tertiary
	4	18	160 approx. +	Cambrian
5000E	1	26	0 - 42	Quaternary
	2	10.4	42 - 170	Cainozoic
	3	2.4	170 - 210	Tertiary
	4	High	210 +	Cambrian
6000E	1	7	0 - 46	Quaternary
	2	5.6	46 - 180	Cainozoic
	3	21.8	180 +	Cambrian
7000E	1	15	0 - 44	Quaternary
	2	4.5	44 - 178	Cainozoic
	3	27.5	178 +	Cambrian
8000E	1	23	0 - 9.5	Surface
	2	9.2	9.5 - 123	Cainozoic
	3	2.25	123 - 162	Tertiary
	4	35	162 +	Cambrian
9000E	1	11	0 - 12	Surface
	2	33	12 - 60	Cainozoic gravels and limestone
	3	5.2	60 - 187	Tertiary
	4	18.75	187 +	Cambrian

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TABLE 1 - DETAILED SOUNDING INTERPRETATION (CONTINUED)

	Layer	Resistivity (ohm metres)	Thickness (metres)	Expected Geology
Line 3 10000E	1	7.5	0 - 11	Surface
	2	9.4	11 - 33	Quaternary
	3	39	33 - 77	Cainozoic
	4	4.95	77 - 165	Tertiary
	5	25.5	165 +	Cambrian
11000E	1	2	0 - 3.8	Surface
	2	7	3.8 - 96	Cainozoic
	3	3.2	96 - 175	Tertiary
	4	22	175 +	Cambrian
12000E	1	6	0 - 20	Surface
	2	4	20 - 150	Cainozoic
	3	18	150 +	Cambrian
13000E	1	4.7	0 - 145	Cainozoic
	2	High	145 +	Cambrian
14000E	1	26	0 - 7.5	Surface
	2	3.6	7.5 - 155	Cainozoic
	3	High	155 +	Cambrian
15000E	1	5	0 - 26	Quaternary
	2	3.2	26 - 155	Cainozoic
	3	High	155 +	Cambrian
16000E	1	7.5	0 - 9	Surface
	2	2.75 - 3.75	9 - 161	Cainozoic
	3	High	161 +	Cambrian
17000E	1	7.5	0 - 19.5	Quaternary
	2	4.9	19.5 - 161	Cainozoic
	3	12.5	161 +	Cambrian

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TABLE 1 - DETAILED SOUNDING INTERPRETATION (CONTINUED)

	Layer	Resistivity (ohm metres)	Thickness (metres)	Expected Geology
Line 3 18000E	1	6	0 - 11	Surface
	2	3	11 - 37	Quaternary
	3	11.7	37 - 56	Cainozoic
	4	2.5	56 - 150	Tertiary
	5	High	150 +	Cambrian
19000E	1	4 - 10	0 - 140	Cainozoic
	2	High	140 +	Cambrian
			(Shallow data poor)	
20000E	1	4	0 - 30	Quaternary
	2	1.2 - 2.1	30 - 140	Cainozoic, mainly Tertiary
	3	81	140 +	Cambrian
21000E	1	5.5	0 - 27	Quaternary
	2	3.1	27 - 147	Cainozoic, mainly Tertiary
	3	16.5	147 +	Cambrian
22000E	1	7	0 - 19	Quaternary
	2	3.5	19 - 161	Cainozoic
	3	16	161 +	Cambrian
23000E	1	6	0 - 9	Surface
	2	3	9 - 84	Cainozoic
	3	3.4	84 - 159	Tertiary
	4	High	159 +	Cambrian
24000E	1	5	0 - 75	Cainozoic
	2	1 - 1.25	75 - 150	Tertiary
	3	High	150 +	Cambrian

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TABLE 1 - DETAILED SOUNDING INTERPRETATION (CONTINUED)

	Layer	Resistivity (ohm metres)	Thickness (metres)	Expected Geology
Line 3 1000W	1	20	0 - 8	Surface
	2	3 - 2.5	8 - 166	Cainozoic
	3	18	166 +	Cambrian
2000W	1	22	0 - 12	Surface
	2	11	12 - 44	Cainozoic
	3	1.95	44 - 167	Cainozoic
	4	High	167 +	Cambrian
3000W	1	13	0 - 17	Surface
	2	39	17 - 29	Quaternary gravel and limestone
	3	3	29 - 173	Cainozoic
	4	22.3	173 +	Cambrian
4000W	1	24	0 - 14	Surface
	2	6	14 - 84	Quaternary
	3	1.8	84 - 197	Cainozoic
	4	13	197 +	Cambrian
5000W	1	14	0 - 9	Surface
	2	2.8 - 3.6	9 - 153	Cainozoic
	3	14.3	153 +	Cambrian
Line 4 00E	1	8	0 - 20	Quaternary
	2	3.2	20 - 184	Cainozoic
	3	10	184 +	Cambrian
1000E	1	6	0 - 25	Quaternary
	2	2.4	25 - 167	Cainozoic
	3	13	167 +	Cambrian

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TABLE 1 - DETAILED SOUNDING INTERPRETATION (CONTINUED)

	Layer	Resistivity (ohm metres)	Thickness (metres)	Expected Geology
Line 4 2000E	1	8	0 - 15	Surface
	2	3.2	15 - 123	Cainozoic
	3	11.2	123 +	Cambrian
3000E	1	18	0 - 15	Surface
	2	2.2	15 - 54	Cainozoic
	3	3	54 - 139	Tertiary
	4	10.5	139 +	Cambrian
4000E	1	13	0 - 44	Quaternary
	2	3.25	44 - 176	Cainozoic
	3	13	176 +	Cambrian
5000E	1	10	0 - 9	Surface
	2	35	9 - 23	Quaternary gravels and limestone
	3	16.4	23 - 86	Cainozoic
	4	0.85	86 - 150	Tertiary
	5	High	150 +	Cambrian
6000E	1	11	0 - 22	Quaternary
	2	27.5	22 - 70	Cainozoic gravel/ limestone
	3	3.15	70 - 180	Tertiary
	4	High	180 +	Cambrian
7000E	1	5	0 - 100	Cainozoic
	2	2.5	100 - 180	Tertiary
	3	17	180 +	Cambrian
8000E	1	10	0 - 25	Quaternary
	2	1.5	25 - 36	Cainozoic
	3	3.3	36 - 180	Tertiary
	4	15	180 +	Cambrian

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TABLE 1 - DETAILED SOUNDING INTERPRETATION (CONTINUED)

	Layer	Resistivity (ohm metres)	Thickness (metres)	Expected Geology
Line 4 9000E	1	12	0 - 20	Quaternary
	2	6	20 - 130	Cainozoic
	3	4.4	130 - 180	Tertiary
	4	20	180 +	Cambrian
10000E	1	11	0 - 9.5	Quaternary
	2	4	9.5 - 124	Cainozoic
	3	1.35	124 - 174	Tertiary
	4	High	174 +	Cambrian
11000E	1	9.5	0 - 16	Surface
	2	3.0	16 - 175	Cainozoic
	3	18	175 +	Cambrian
12000E	1	15	0 - 9.5	Surface
	2	3	9.5 - 14	Quaternary
	3	7.5	14 - 65	Cainozoic
	4	2	65 - 169	Tertiary
	5	30	169 +	Cambrian
13000E	1	5.5	0 - 18	Quaternary
	2	13.75	18 - 36	Quaternary
	3	7.2	36 - 119	Cainozoic
	4	1.6	119 - 188	Tertiary
	5	23.8	188 +	Cambrian
Line 5 00E	1	5	0 - 9	Surface
	2	3.25	9 - 161	Cainozoic
	3	High	161 +	Cambrian
1000E	1	4.4	0 - 67	Cainozoic
	2	1.3	67 - 157	Tertiary
	3	High	157 +	Cambrian

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TABLE 1 - DETAILED SOUNDING INTERPRETATION (CONTINUED)

	Layer	Resistivity (ohm metres)	Thickness (metres)	Expected Geology
Line 5 2000E	1	63	0 - 3.6	Surface
	2	1.5	3.6 - 120	Cainozoic
	3	High	120 +	Cambrian
3000E	1	30	0 - 5.5	Surface
	2	1	5.5 - 115	Cainozoic
	3	High	115 +	Cambrian
4000E	1	210	0 - 5.5	Surface
	2	1.4	5.5 - 120	Cainozoic
	3	14	120 +	Cambrian
5000E	1	21.5	0 - 8.5	Surface
	2	5.4	8.5 - 136	Cainozoic
	3	0.55	136 - 152	Tertiary
	4	7.75	152 +	Cambrian
6000E	1	10	0 - 23	Quaternary
	2	2	23 - 126	Cainozoic
	3	16.1	126 +	Cambrian
7000E	1	9.3	0 - 13	Surface
	2	2.3	13 - 143	Cainozoic
	3	High	143 +	Cambrian
8000E	1	8	0 - 35	Quaternary
	2	2.4	35 - 171	Cainozoic
	3	14.5	171 +	Cambrian
1000W	1	6.4	0 - 9.5	Surface
	2	1.6	9.5 - 134	Cainozoic
	3	17	134 +	Cambrian

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TABLE 1 - DETAILED SOUNDING INTERPRETATION (CONTINUED) 922

	Layer	Resistivity (ohm metres)	Thickness (metres)	Expected Geology
Line 5 2000W	1	4	0 - 25	Quaternary
	2	2	25 - 160	Cainozoic
	3	14.7	160 +	Cambrian
3000W	1	9.5	0 - 11	Surface
	2	2.37	11 - 154	Cainozoic
	3	16	154 +	Cambrian
4000W	1	5	0 - 6	Surface
	2	2	6 - 130	Cainozoic
	3	16	130 +	Cambrian
Line 6 1000N	1	7.5	0 - 7.5	Surface
	2	1.9 - 2.1	7.5 - 145	Cainozoic
	3	16	145 +	Cambrian
2000N	1	24	0 - 4	Surface
	2	3.6	4 - 28	Quaternary
	3	8	28 - 132	Cainozoic
	4	4.55	132 - 178	Tertiary
	5	18	178 +	Cambrian
3000N	1	4	0 - 17.5	Surface
	2	7	17.5 - 139	Cainozoic
	3	1.95	13.9 - 172	Tertiary
	4	16.1	172 +	Cambrian
4000N	1	4.8	0 - 11	Surface
	2	6	11 - 116	Cainozoic
	3	2.4	116 - 168	Tertiary
	4	21	168 +	Cambrian

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TABLE 1 - DETAILED SOUNDING INTERPRETATION (CONTINUED)

	Layer	Resistivity (ohm metres)	Thickness (metres)	Expected Geology
Line 6 5000N	1	5.5	0 - 8.5	Surface
	2	8.25	8.5 - 136	Cainozoic
	3	2.55	136 - 166	Tertiary
	4	18	166 +	Cambrian
6000N	1	5	0 - 7.5	Surface
	2	7.5	7.5 - 50	Quaternary gravel and/or limestone
	3	2.8	50 - 175	Tertiary
	4	9.6	175 +	Cambrian
7000N	1	8	0 - 15	Surface
	2	4	15 - 135	Cainozoic
	3	1.2	135 - 161	Tertiary
	4	15	161 +	Cambrian
8000N	1	4.8	0 - 13	Surface
	2	6	13 - 85	Cainozoic
	3	1.8	85 - 158	Tertiary
	4	15	158 +	Cambrian
9000N	1	17	0 - 5.5	Surface
	2	5.1	5.5 - 12	Quaternary
	3	7.5	12 - 95	Cainozoic
	4	2.25	95 - 178	Tertiary
	5	14.7	178 +	Cambrian
10000N	1	7	0 - 8.7	Surface
	2	4.55	8.7 - 89	Cainozoic
	3	1.92	89 - 156	Tertiary
	4	15	156 +	Cambrian

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TABLE 1 - DETAILED SOUNDING INTERPRETATION (CONTINUED)

	Layer	Resistivity (ohm metres)	Thickness (metres)	Expected Geology
Line 6 11000N	1	6	0 - 21	Quaternary
	2	2.5 - 3	21 - 199	Cainozoic
	3	8	199 +	Cambrian
12000N	1	8	0 - 46	Quaternary
	2	2.4	46 - 180	Cainozoic
	3	15	180 +	Cambrian
13000N	1	10	0 - 38	Quaternary
	2	3	38 - 190	Cainozoic
	3	11.9	190 +	Cambrian
14000N	1	80	0 - 3	Surface
	2	5	3 - 29	Quaternary
	3	17.5	29 - 69	Cainozoic gravel and limestone
	4	2.2	69 - 150	Tertiary
	5	High	150 +	Cambrian
15000N	1	80	0 - 4.6	Surface
	2	5.6	4.6 - 18	Quaternary
	3	7	18 - 110	Cainozoic
	4	2.1	110 - 189	Tertiary
	5	High	189 +	Cambrian
16000N	1	3	0 - 8.5	Surface
	2	4.4	8.5 - 96	Cainozoic
	3	1.3	96 - 170	Tertiary
	4	9.8	170 +	Cambrian

..../20

TABLE 1 - DETAILED SOUNDING INTERPRETATION (CONTINUED)

	Layer	Resistivity (ohm metres)	Thickness (metres)	Expected Geology
Line 6 17000N	1	6.6	0 - 8	Surface
	2	4.2	8 - 30	Quaternary
	3	6.9	30 - 73	Cainozoic
	4	2.4	73 - 193	Tertiary
	5	15	193 +	Cambrian
18000N	1	6	0 - 8.5	Surface
	2	15	8.5 - 85	Cainozoic
	3	1	85 - 145	- (?)
	4	High	145 +	Cambrian

At most soundings listed in Table 1 the first layer interpreted reflects near surface resistivity conditions. The resistivity and thickness of this layer is largely dependent upon surface moisture conditions and the separation of the first reading. At the remainder, the surface layer is too thin to be resolved from the underlying Cainozoic layer with first readings of r = 10 metres. In such cases the first layer is the Cainozoic.

At most soundings the second layer, or first layer where no surface layer has been interpreted, has been loosely labelled Cainozoic. Resistivities of this layer are generally under 10 ohm metres. The exceptions are expected to be layers containing a high percentage of secondary 'limestone' and/or gravels. They vary from 10 to 40 ohm metres dependent upon the proportion of limestone and gravel compared with finer grained factions. These limestone layers are up to 60 metres thick. The only feature identifying them as Cainozoic is that they overlie Cainozoic layers (resistivities under 10 ohm metres), in areas of otherwise thick Cainozoic section. The prevailing geo-electric conditions are correlatable to drill evaluated type-examples at Billeroo West.

The geology of the Cainozoic layers interpreted would vary from clay and silts (low resistivity values) to sand and gravels

...../21

(higher values). Very low values (say under 2 ohm metres) may reflect very saline conditions. Higher values are also characteristic of drier and shallow Cainozoic sections.

The final layer interpreted has been taken as Cambrian basement. However, it could in part include Precambrian rocks, particularly on line 1. Cretaceous rocks are not expected to occur. The majority of basement resistivities fall into the range 10 - 40 ohm metres. These are similar values to those encountered at Billeroo West where the basement was weathered Cambrian. High values generally imply that the basement resistivity cannot be determined with any reliability from the soundings. Some of the basement resistivities on line 1 are very high (approaching infinity). The same resistivities were encountered over most of the Koonamore area and from surface geology are expected to be Precambrian quartzites or other crystalline rocks of similar age.

Multi-separation sounding analysis was carried out over each line to locate possible errors or erroneous results (i.e. isolated sharp departures at one reading point only). Such departures may not be errors, but if a corrected reading is placed back in the sounding graph, more often than not any major doubt in sounding interpretation can be removed. The analysis is not included in this report, but is available if required.

Profile Interpretation

The data obtained from both the detailed and rapid soundings is presented on Plates 3 - 7 in two alternative forms.

(a) Pseudo-section - The chief advantage of the pseudo-section is that it isolates vertical contrasts (due to resistivity changes within the basement) from horizontal contrasts (intra-basinal changes). It also tends to highlight shallow sand, gravel and secondary limestone deposits.

(b) Superimposed profile curves - Data recorded at r = 130, 200 and 320 metres have been plotted as profiles, superimposed on each other for easy comparison. The profile curves show changes in depth to basement and resistivity contrasts. The relationship

..../22

between the individual curves combined with sounding depth to basement determinations identify channelling anomalies.

(c) Interpreted Sections - The interpreted sections plotted beneath the profiles summarizes the conclusions made from the profile and sounding interpretation. The sounding data is of chief importance in constructing the section, but the profiles, pseudo-sections and where used, multi-separation sounding analysis, take the doubt out of the interpretation.

Geological Interpretation

The interpreted thickness of Cainozoic sediments at Curnamona varies from 25 to 210 metres. Over most of the E.L. the interpreted depth to basement is between 140 and 180 metres. The shallowest sections occur on line 1 adjoining the Koonamore Prospect (see Report 239) with the deepest overall sections on lines 3, 4 and 6. The contact between Precambrian and Cambrian basement would appear to occur between lines 1 and 2.

Deeper Cainozoic sections (Channelling Anomalies) can be interpreted as follows.

TABLE 2 - DEEPER CAINOZOIC SECTIONS

Line Number	Line Interval	Average Depth to Basement (in metres)
1	4750E - 8250E	140
2	9250W - 7000W	190
2	500E - 3250E	165
2	8500E - 13500E	170
* 3	4250W - 2000W	180
3	4500E - 9500E	175
3	15250E - 17750E	160
4	00E - 750E	184
4	5250E - 9500E	180
5	750W - 1250E	160
* 5	7000E - 8500E	170
6	10750N - 13500N	190

* Interpretation questionable

..../23

The most important sections listed in this group are those considered likely to coincide with channelling. These would be thicker sections with steeper sided walls. Unless the channel parallels, or runs at an angle to the line, the optimum width for a channel in the Frome Embayment might be 1 - 2 kilometres.

Channelling is interpreted to occur as follows :

Line 1	6750E - 8250E
Line 2	9250W - 7000W
Line 2	500E - 3250E
Line 3	4500E - 7500E
*Line 4	00E - 750E
*Line 5	750W - 1250E
Line 6	10750N - 13500N

* Questionable Channel Anomaly

Discussion on Plate 1

The net conclusions of the survey are presented on Plate 1. Depths to basement are partially contoured at intervals of 20 metres. However, because of the wide line spacing it is difficult to predict to any accuracy what happens to interpreted channels between lines.

Interpreted Channel segments have been joined to give an idea of possible meander path. The meander path selected is not the only one available. Likely channel paths are shown by heavier dashed lines and possible channels or local deeps by thinner dotted lines.

The Killawarra Channel Anomaly (see Report 239) has probably been intersected on line 1 and 2 as shown. The Curnamona Channel, known to occur on the adjoining Billeroo West E.L., probably enters the survey area by crossing line 6, just to the south of line 4. Depths to basement further north on line 6 suggest a channel may closely parallel the line. The Curnamona Channel may have crossed line 3, but probably flowed westwards between lines 3 and 4, perhaps keeping closer to line 4 than 3. The channel anomaly near Curnamona Homestead on line 3 may be a northerly continuation of the Killawarra Anomaly. This channel may have joined the Curnamona Channel between lines 3 and 4.

..../24

Extensions of the resistivity traverses westwards, outside the survey area, suggest another probable channelling anomaly occurs on line 2, with a possible anomaly on line 3.

Overall, depths to basement are greater in the Curnamona E.L. than eastwards in Billeroo West (moving away from the Benagerie High). Depths to basement may continue to increase progressively westwards towards the Flinders Ranges, supporting the possibility of a westerly drainage pattern.

Discussion on Plate 2

Plate 2 is a partial contour plan of the r = 320 resistivity results. Higher apparent resistivity values occur in the southern part of the survey area near Precambrian subcrop. The values decrease northwards as the Cainozoic section increases. Resistivity values on lines 2 northwards are similar to those occurring on Billeroo West, where the basement is Cambrian.

Recommendations

(a) Drilling - A preliminary drilling programme is recommended to test the Killawarra and Curnamona Channel Anomalies that occur within E.L.

Initial holes are recommended at the following sites.

(i) Priority 1 (probable Channels)

Line 1	7500E
Line 2	2000E
Line 3	6000E
Line 6	12500E

Step-out holes are recommended at intervals of 500 metres either side of the initial holes to test the anomaly and to determine the uraniferous potential of the Channel sands.

(ii) Priority 2

- If considered warranted other possible channels or areas of thicker Cainozoic Section could be tested by drilling. Initial holes are recommended

..../25

as follows :

Line 2	10500E
Line 3	16500E
Line 4	00E
Line 4	8000E
Line 5	500E
Line 6	17000N

Drillsites have not been recommended outside the E.L.

(b) Resistivity - Resistivity could be used to follow-up areas of interest after completion of the drilling programme recommended above. In particular the method could more accurately define the path of any uraniferous channels located.

Murdoch Geophysics (Australia) Pty. Ltd.
(Inc. in N.S.W.)
Specialists in Electrical Resistivity Surveys

031

Phone: Maroochydore (071) 43 3178
(071) 44 1267 - After hours

14 Mallawa Street,
Kawana Waters,
via Mooloolaba, Qld. 4557
Australia

29th September, 1976.

Mr. D. Brunt,
Mines Administration,
31 Charlotte Street,
BRISBANE, QLD.

Dear David,

ADDENDUM TO REPORT 240

(a) Sounding Interpretation

The following corrections are made to sounding interpretation on line 1.

	Layer	Resistivity (ohm metres)	Thickness (metres)	Expected Geology
Line 1 00E	1	15	0 - 7.5	Surface
	2	3.75	7.5 - 82	Cainozoic
	3	17	82 +	Cambrian Shale?
1000E	1	5.5	0 - 9	Surface
	2	9.6	9 - 36	Quaternary
	3	4	36 - 100	Tertiary
	4	6.25	100 - 120	Weathered basement
	5	Very high	120 +	Precambrian quartzite
2000E	1	10	0 - 28	Quaternary
	2	5	28 - 100	Cainozoic
	3	7.5	100 - 128	Weathered basement
	4	Very high	128 +	Precambrian quartzite
3000E	1	12	0 - 9.5	Surface
	2	7.8	9.5 - 90	Cainozoic
	3	9	90 - 120	Weathered basement
	4	Very high	120 +	Precambrian quartzite

..../2

The changes made do not affect any of the channelling anomalies interpreted.

On Plate 1 Tertiary resistivities have been plotted in brackets beneath interpreted depth to basement values. Ideal resistivities for the Tertiary section over channels within the Frome Embayment are 2 - 4 ohm metres. Experience shows that substantially more resistive Tertiary sections (i.e. over 6 ohm metres) generally contain either very coarse detritus or a fine weathered basement layer confused with the Tertiary section. Tertiary resistivities on line 1 and the eastern end of line 2 are above 6 ohm metres, whereas except for isolated cases elsewhere on Curnamona, values are under 5 ohm metres. Therefore it is possible that depths to basement on line 1 and the eastern end of line 2 have been overstated. The thickness of Tertiary section may be less than shown. However, the best target on line 1 is still 7500E and drilling was not recommended at the eastern end of line 2.

(b) Plate 1 - The above changes somewhat downgrade the Killawarra Channel Anomaly on line 1 and also on the Koonamore Block to the south.

From drill evidence, the direction of flow of the Curnamona Channel is likely to be as shown on Plate 1 rather than as proposed in the body of the report.

The recommended drillsites remain the same, with perhaps line 1 7500E being given priority 2 status instead of priority 1.

Yours faithfully,
MURDOCH GEOPHYSICS (AUSTRALIA) P/L,

R. MURDOCH,
MANAGER.

MINES ADMINISTRATION PTY. LIMITED

31 CHARLOTTE STREET
BRISBANE 4000

Postal Address:

BOX 880 G.P.O.
BRISBANE 4001

Telephone : 221-2366
Telegrams : MINAD, Brisbane
Telex : AA42395

033

25th October 1976

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

Dear Sir,

Quarterly Report EL 254 (Curnamona)

Please find enclosed the Quarterly Report for Exploration Licence No. 254 for the quarter ended 1st October 1976.

Expenditure during the quarter totalled $7 720 - details are contained in the attached statement.

If there are any queries regarding this report, please do not hesitate to contact me.

Yours faithfully,
MINES ADMINSTRATION PTY LIMITED

ROBERT BRYAN
Manager : MTA

attch
RB:SF

GKE:SF

25th October 1976

034

QUARTERLY REPORT

EL 254 (CURNAMONA) SOUTH AUSTRALIA

PERIOD 2/7/76 TO 1/10/76

Exploration Licence 254 which covers an area of 716 square kilometres in the southwestern Lake Frome area of South Australia (see Fig. 1), was granted to Mines Administration Pty Limited and Teton Exploration Drilling Company Pty Ltd, on the 2nd July 1976.

During the first quarter ended 1/10/76, a reconnaissance surface resistivity programme was carried out over the EL, to delineate possible Lower Tertiary palaeochannels considered prospective for uranium mineralization.

Resistivity Survey

The resistivity survey was carried out by Murdoch Geophysics (Aust) Pty Ltd of Kawana Waters, Queensland, during July and August 1976, and was planned to delineate Tertiary palaeochannels. Six resistivity profiles were run predominantly east-west across the EL. Each profile consisted of detailed Schlumberger Array soundings at intervals of 1 kilometre with rapid 3 point soundings at intervening intervals of 500 metres. All soundings were expanded parallel to the traverse line. For detailed soundings, 22 different current electron separations were used.

One, and possibly two palaeochannels were interpreted from the survey. The main Curnamona/Killawarra palaeochannel heads north, then northeast to east across the eastern boundary of the EL. Overall, changes in basement relief are fairly subtle with the possibility of Lower Tertiary sand development over wide areas of the EL. The full report on the resistivity survey is enclosed.

An openhole drilling programme is planned for the next quarter, to examine the resistivity interpreted palaeochannels; to determine their morphology, and evaluate their potential for uranium deposits.

Expenditure during the quarter totalled $7 720 - an expenditure statement is attached.

G. K. ELLIS

Attachments : Results of resistivity survey on EL 254
: Statement of expenditure for period ended 1/10/76

Brisbane
25th October 1976

MINES ADMINISTRATION PTY LIMITED

STATEMENT OF EXPENDITURE

EL 254 (CURNAMONA)

QUARTER ENDED 1/10/76

Geophysical & Geological Costs	$	$
Salaries & Wages	1 099	
Drafting Supplies	8	
Contractor Geophysical	6 593	7 700
Logistics		
Communications		20
		$7 720

M. A. EGERT
Assistant Accountant

AC-MDE

MINES ADMINISTRATION PTY. LIMITED

31 CHARLOTTE STREET
BRISBANE 4000

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Telex : AA42395

036

26th January 1977

The Director of Mines
Department of Mines
P.O. Box 151
EASTWOOD S.A. 5063

Dear Sir,

Quarterly Report EL 254 (Curnamona)

Please find enclosed the Quarterly Report for Exploration Licence No. 254 for the quarter ended 1st January 1977.

Expenditure during the quarter totalled $19,262 - details are contained in the attached statement.

If there are any queries regarding this report, please do not hesitate to contact me.

Yours faithfully,
MINES ADMINISTRATION PTY. LIMITED

D. Kung

Robert Bryan
Manager : MTA

encs

Brisbane
26th January, 1977

MINES ADMINISTRATION PTY LIMITED

STATEMENT OF EXPENDITURE

EL 254 (CURNAMONA)

QUARTER ENDED 1.1.76

Geophysical and Geological Costs	$	$
Salaries & Wages	3,962	
Drafting Supplies etc	27	
Contractor - Geophysical	3,171	7,160
Logistics		
Equipment Hire	35	
Vehicle Running	801	
Travel & Accommodation	216	
Communications	103	1,155
Drilling Costs		
Contractor - Drilling	10,947	10,947
		$19,262

M. A. EGERT
Assistant Accountant

AC-MDE

QUARTERLY REPORT

EL 254 (CURNAMONA) SOUTH AUSTRALIA

PERIOD 2/10/76 to 1/1/77

038

Exploration Licence 254 which covers an area of 716 square kilometres in the southwestern Lake Frome area of South Australia (see Fig. 1) was granted to Mines Administration Pty. Limited and Teton Exploration Drilling Company Pty. Ltd. on the 2nd July 1976.

During the quarter ended 1/1/77, an openhole drilling programme was carried out on EL 254 to evaluate the potential of the resistivity interpreted palaeochannels, for uranium deposits.

Drilling Programme

From the 8th November to the 1st December 1976, a 22 hole, 3115 metre openhole drilling programme was carried out on EL 254 Curnamona. The drilling was undertaken by W. L. Sides and Son Pty. Ltd. of Clayton, Victoria, using a Mayhew 1000 rotary drilling rig. Cutting samples were collected from all holes and described at 1.5 metre intervals from surface to total depth. All holes were logged for gamma-ray, resistivity, and spontaneous potential by Geoscience Associates (Australia) Pty. Ltd. of Kilkenny, South Australia. The gamma-ray unit was calibrated against two in-ground uranium ore test pits, in turn calibrated against the United States Atomic Energy Commission test pits in Wyoming.

The main aim of the drilling programme was to delineate the Curnamona and other "palaeochannels" located by previous Esso Australia Ltd. drilling and the recent surface resistivity survey carried out by Murdoch Geophysics (Australia) Pty. Ltd.

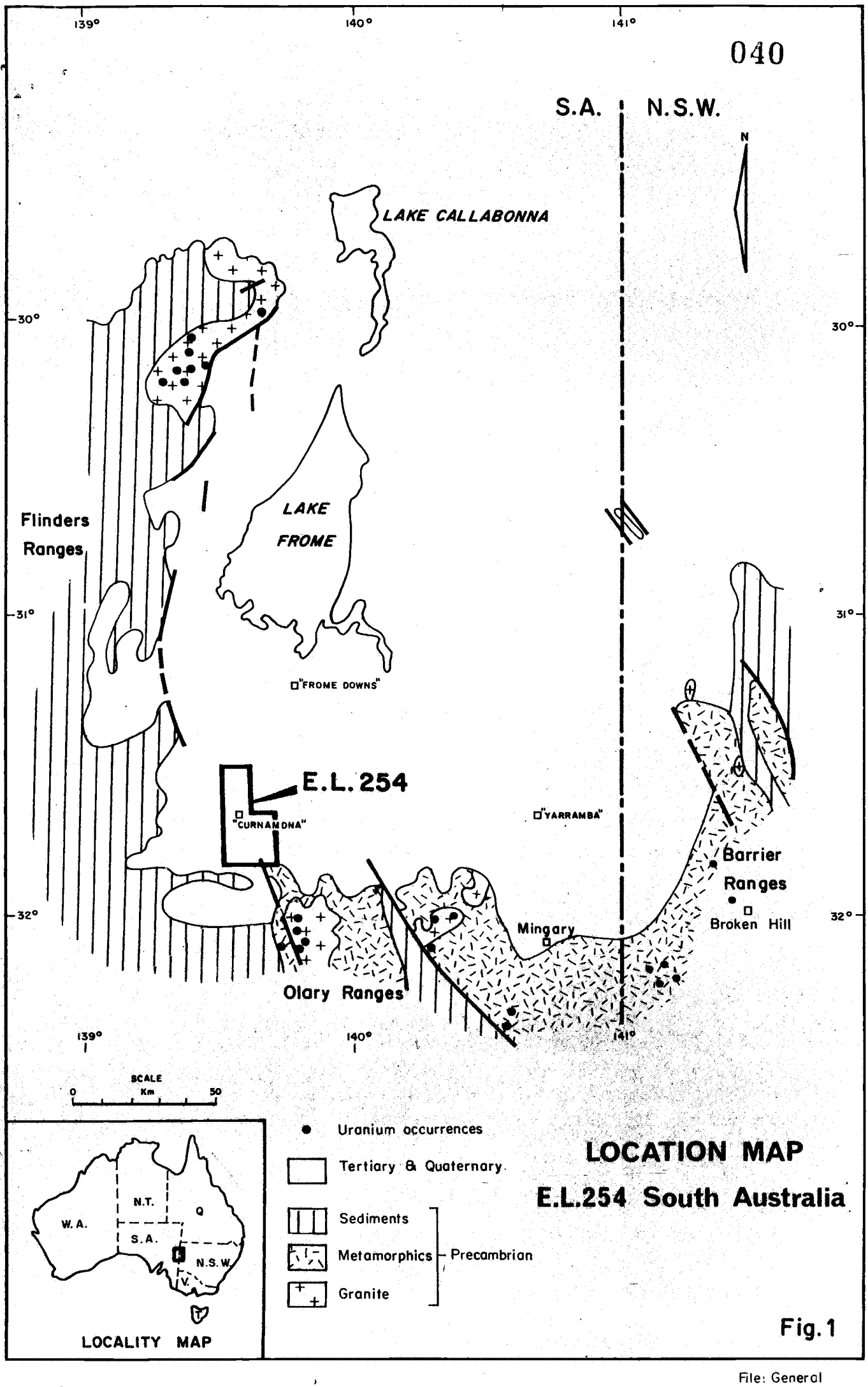
Preliminary evaluation of the results of the drilling programme indicate that the Curnamona palaeochannel is only poorly developed on EL 254, and the

other resistivity interpreted "channels" are very poorly developed or absent. The palaeochannel sands encountered contained no significant uranium mineralization.

Accurate surveying (position and elevation) of MTA and existing Esso Australia drill holes is presently being carried out. A detailed evaluation of the drilling results will be undertaken as soon as this work is completed.

Exploration expenditure during the quarter totalled $19,262 - a detailed statement is attached.

G. K. ELLIS
27th January 1977



LOCATION MAP
E.L.254 South Australia

Fig. 1

File: General

MINES ADMINISTRATION PTY. LIMITED

31 CHARLOTTE STREET
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041

28th April 1977

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

Dear Sir,

Quarterly Report EL 254 (Curnamona)

Please find enclosed the Quarterly Report for Exploration Licence No. 254 for the quarter ended 1st April 1977.

Expenditure during the quarter totalled $899 - details are contained in the attached statement.

If there are any queries regarding this report, please do not hesitate to contact me.

Yours faithfully,
MINES ADMINISTRATION PTY. LIMITED

Robert Bryan
General Manager - MTA

attch

QUARTERLY REPORT

EL 254 (CURNAMONA) SOUTH AUSTRALIA

QUARTER ENDED 1/4/77

042

by

G.K. ELLIS

Exploration Licence 254 which covers an area of 716 square kilometres in the south western Lake Frome area of South Australia, was granted to Mines Administration Pty. Limited and Teton Exploration Drilling Company Pty. Ltd., on the 2nd July 1976.

During the quarter ended 1/4/77, the elevations of MTA and existing Esso Australia drill holes were accurately determined by a licensed surveyor, P.B. Simmons of Wattle Park, South Australia. A detailed evaluation of the drilling results is presently being carried out, and the report on this work will be submitted with the next quarterly report.

Exploration expenditure during the quarter totalled $899 - a detailed statement is attached.

G. K. ELLIS
28th April 1977

attch

043

Brisbane.
20th April, 1977.

MINES ADMINISTRATION PTY. LIMITED

STATEMENT OF EXPENDITURE

EL 254 (CURNAMONA)

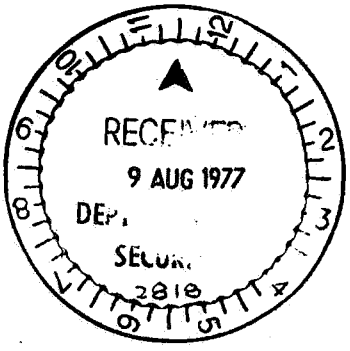
QUARTER ENDED 1.4.77

REF: AC/MDE

	$	$
Geophysical & Geological Costs		
Salaries & Wages	223	
Drafting Supplies etc.	8	
Contractor - Surveying	625	
Survey Consumables	2	858
Logistics		
Freight	5	
Travel & Accommodation	23	
Communications	13	41
		$899

M. A. EGERT.
Assistant Accountant.

EVALUATION OF RESULTS OF DRILLING PROGRAMME ON EL 254 (CURNAMONA) NOVEMBER/DECEMBER 1976



G. K. Ellis
July 1977

EVALUATION OF RESULTS OF DRILLING PROGRAMME ON EL 254 (CURNAMONA) NOVEMBER/DECEMBER 1976

INTRODUCTION

From the 8th November to the 1st December 1976, a 22 hole, 3115 metre reconnaissance open hole drilling programme was carried out over portion of EL 254 (Curnamona). The drilling was carried out by W.L. Sides and Son Pty. Ltd. of Clayton, Victoria using a Mayhew 1000 drilling rig. Down hole logging (gamma ray, point resistivity and S.P.) was conducted by Geoscience Associates (Australia) Pty. Ltd., of Kilkenny, South Australia. On site supervision was provided by project geologist G. K. Ellis of Mines Administration Pty. Limited on behalf of the MTA Joint Venture.

The main aims of the drilling programme were to further delineate the Lower Tertiary Curnamona Channel located by previous E.A. Rudd, and Esso Australia drilling, and, resistivity interpreted tributaries, and to evaluate their potential for uranium deposits.

GEOLOGICAL SETTING

The area of investigation is in the southwestern corner of the Frome Embayment. It is located to the north of Willyama Complex crystalline and metamorphic rocks and Adelaidean sediments of the Olary Ranges; and to the west of the Upper Proterozoic (Adelaidean) and Cambrian sediments of the Flinders Ranges.

The Frome Embayment is essentially a lobe of shallow marine sediments of the Great Artesian Basin which gradually thin southwards. These sediments are absent south and southwest of Lake Frome. In the southern half of the Frome Embayment Lower Tertiary deposition, initiated as a response to uplift of the Olary Ranges, occurred in distinct fluvial palaeochannels incised into Cambrian and PreCambrian rocks.

BASEMENT STRATIGRAPHY

Proterozoic (?)

The oldest rock unit encountered in the area consists of yellow-brown to dark grey-brown, slightly fissile, and slightly micaceous slate. This unit

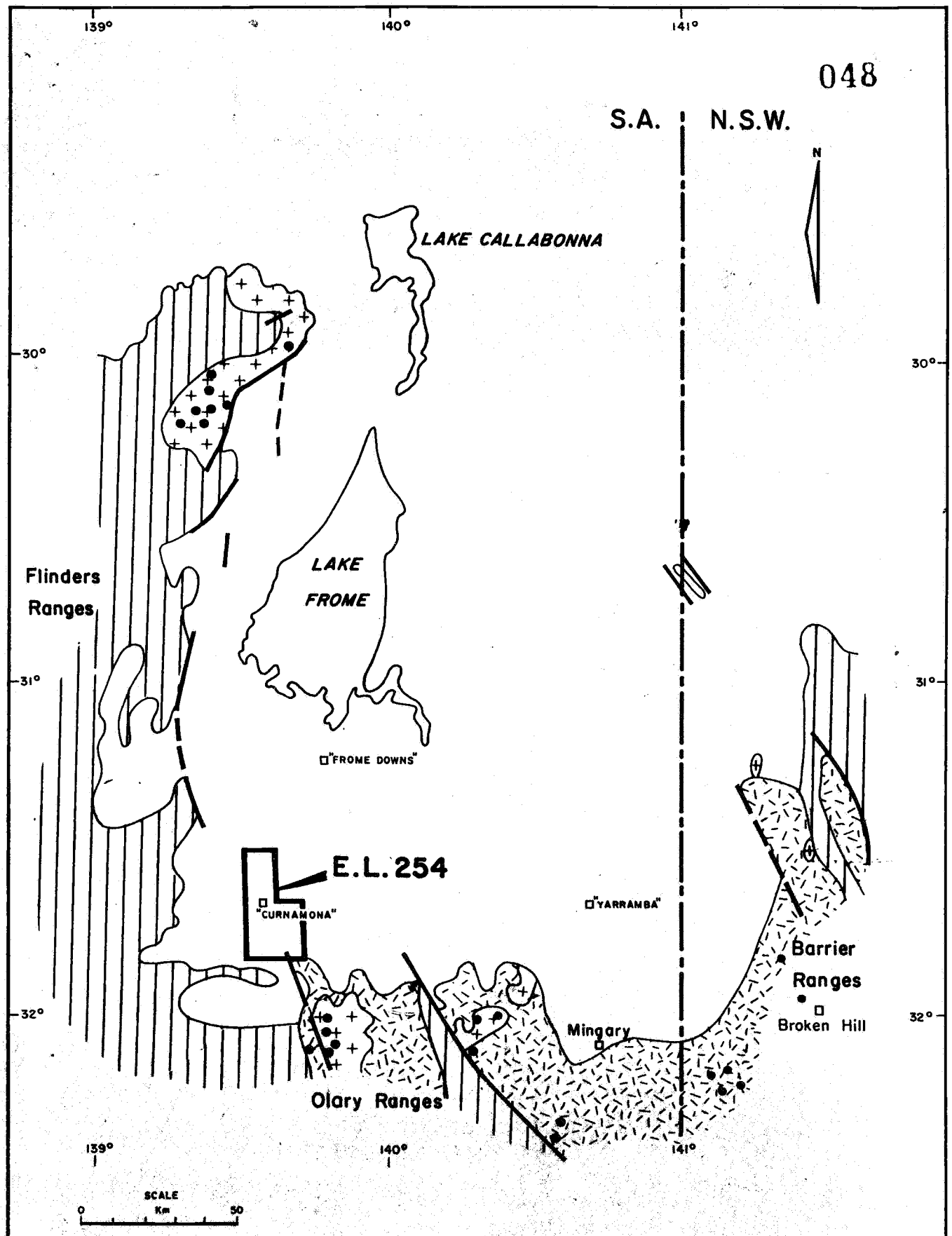
CONTENTS

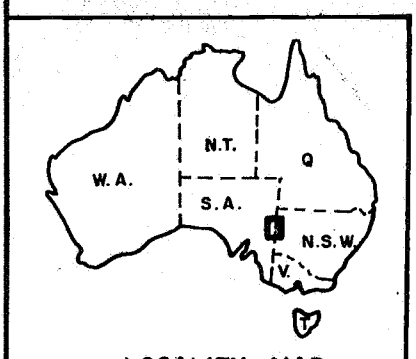
LIST OF FIGURES

KEYWORDS

047

CURNAMONA
ROTARY DRILLING
LOGGING
RESISTIVITY
FROME EMBAYMENT
ARROWIE BASIN
LOWER TERTIARY
PALAEOCHANNELS
NAMBA FORMATION
LIMESTONE
URANIUM
CURNAMONA 1:250,000 SHEET





- Uranium occurrences
- Tertiary & Quaternary
- Sediments
- Metamorphics — Precambrian
- Granite

LOCATION MAP
E.L.254 South Australia

Fig. 1

which was encountered in drill holes C2, 3 and 4 in the south of EL 254 (Fig. 4) is probably equivalent to the Adelaidean sediments outcropping in the Toolaby Hills to the west.

Cambrian

Basement in the northern two-thirds of the area is flat-lying micaceous red-brown shale, siltstone and minor sandstone (Fig. 4). These sediments are very similar to Middle Cambrian sediments in drill holes Lake Frome 1, 2 and 3 south of Lake Frome, which contain early Middle Cambrian sediments of the Arrowie Basin, dipping gently to the west (Wopfner, 1970) and probably equivalent to the Moodlatana or Balcoracana formations of the Frome Group, described by Daily (1956). Along the course of the Lower Tertiary Curnamona palaeochannel the "red beds" have been eroded exposing an underlying light to medium grey, slightly calcareous mudstone, which may well be equivalent to the Wirrealpa Limestone (Fig. 4). Deposition of these sediments occurred in a sublittoral environment.

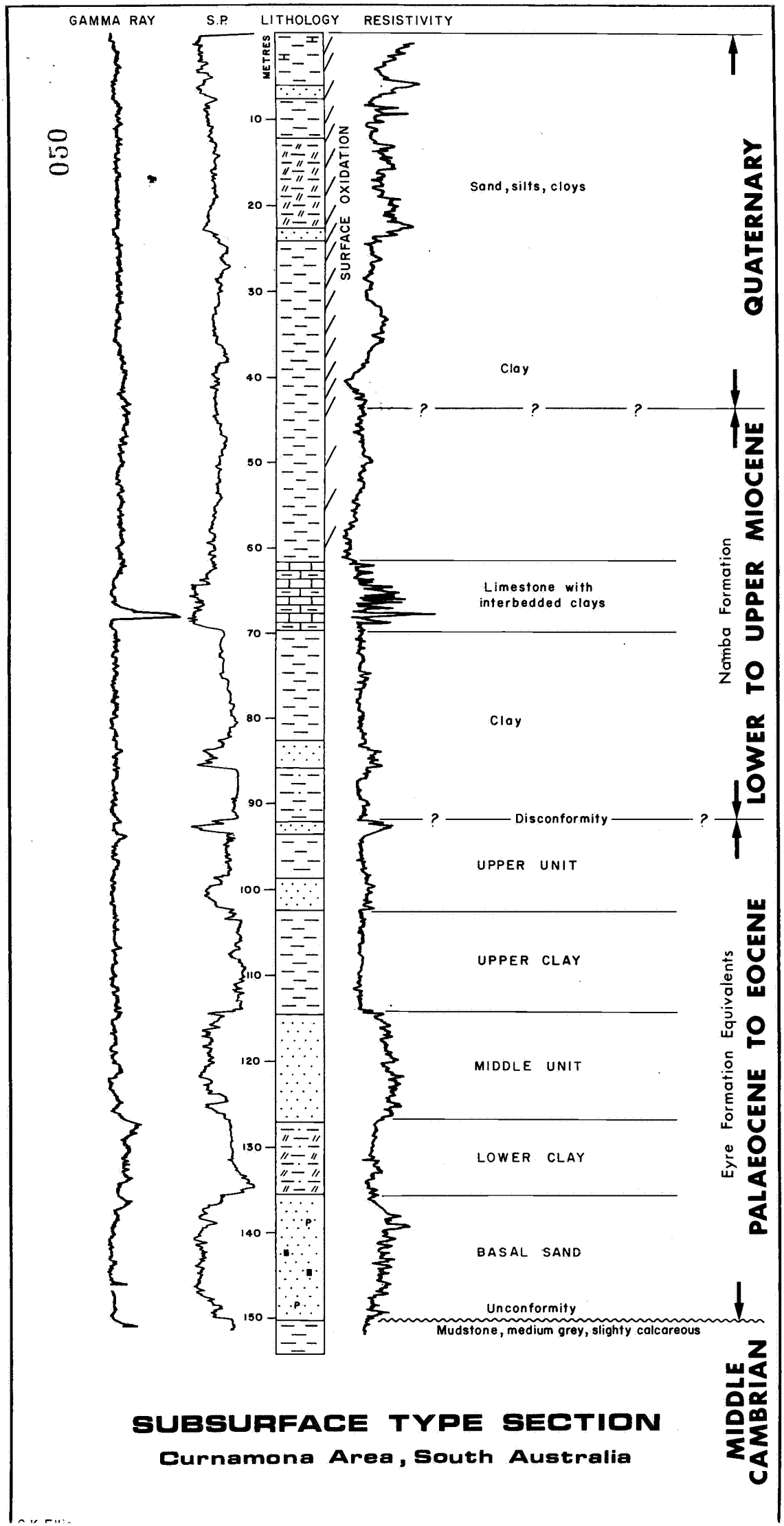
TERTIARY STRATIGRAPHY AND PALAEOGEOGRAPHY

Lower Tertiary sediments are represented by a sequence of sediments deposited in the fluviatile environment of the Curnamona Channel. These sediments are equivalent to the Eyre Formation sediments described by Wopfner et al (1974). The generalized stratigraphic section is shown in Fig. 2.

Exploration in the area has delineated the Lower Tertiary Curnamona palaeochannel. The Curnamona Channel is 5 to 10 kilometres wide, has been defined over 10 kilometres and contains up to 65 metres of channel-fill sediments. The channel extends from the central western boundary in an easterly to north-easterly direction across EL 254 (Fig. 3).

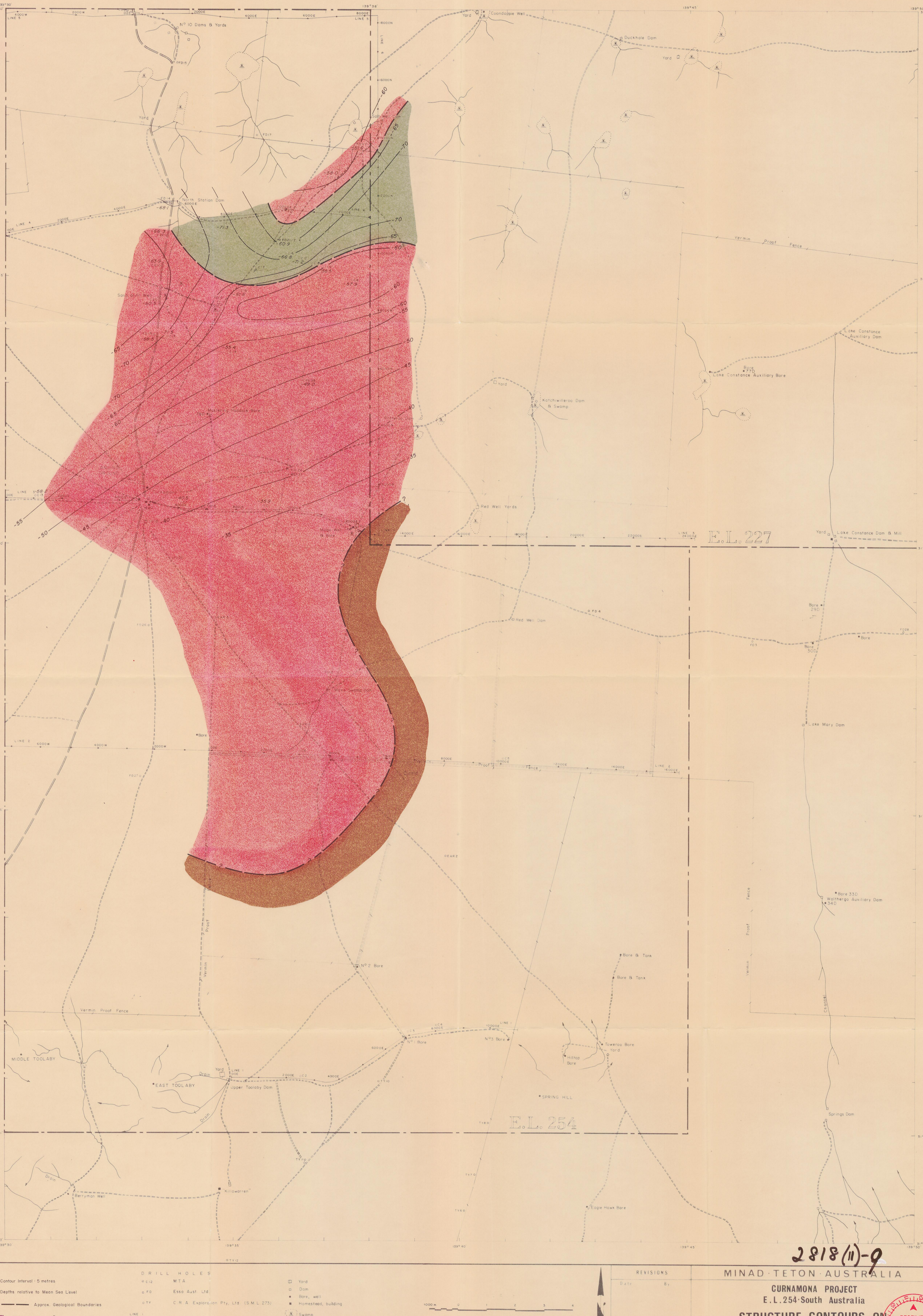
Deposition of the Lower Tertiary palaeochannel sediments occurred in a meandering river initially, with sinuosity increasing with time, which is partially indicated by the increase in width of the "channel" with time (Figs. 5 and 6). The Structure Contour Map at the Base of the Tertiary (Fig. 3) illustrates that the channel has virtually no gradient.

Detailed examination of the drill hole cuttings and the S.P., resistivity and gamma ray logs of MTA, and other company drill holes, has enabled the division of the palaeochannel section into five units (Fig. 2).



SUBSURFACE TYPE SECTION

Curnamona Area, South Australia



2818 (11)-9

Contour Interval : 5 metres

Depths relative to Mean Sea Level

Approx. Geological Boundaries

Siltstone	Middle Cambrain	
Calcareous Mudstone		
Pre - Cambrain		

DRILL HOLES

- C12 — MTA
- FD — Esso Aust. Ltd.
- TY — C.R.A. Exploration Pty. Ltd. (S.M.L. 273)

LINE 1 — Resistivity line

- Yard
- Dam
- Bore, well
- Homestead, building
- Swamp
- Road
- Track
- Water course
- Lease boundary

1000 m 0 1 2 3 4

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Date By

MINAD · TETON · AUSTRALIA

CURNAMONA PROJECT
E.L.254 · South Australia

STRUCTURE CONTOURS ON BASE OF TERITARY

SHOWING BASEMENT GEOLOGY

Author G.K. Ellis.
Date June, 1977.

Scale 1 : 50,000
File No.

FIG. 4

S 37

139°30' 139°35' 139°40' 139°45' 139°50'

31°30' 31°35' 31°40' 31°45' 31°51' 31°53'

4000W LINE 5 2000W 000E 2000E 4000E 6000E 6000E LINE 5

18000N LINE 6 16000N 14000N 12000N

00E LINE 4 2000E 4000E 6000E 8000E 10000E 12000E LINE 4

LINE 2 6000W 4000W 2000W 00E 2000E 4000E 6000E 8000E 10000E 12000E 14000E 16000E LINE 2

LINE 3 14000E 16000E 18000E 20000E 22000E LINE 3 24000E

2000N LINE 6 4000N 6000N 8000N 10000N

LINE 1 00E 2000E 4000E 6000E 8000E 10000E LINE 1

No° 10 Dams & Yards

OFD15

Yard

FD17

Salt Well Dam

FD11 0 61·6

-58·0 C11

FD14 -68·1

North Station Dam

C10 -71·3

-66·3 C22

FD21/21A -60·9

-66·8 C16 C12 -71·2 C18 C9 58·5 C17 C8 -57·9

-63·9 C21

Sand drift Well C20 -60·5

C19 67·6

Yard

FD13 0 -71·5 -68·5 C15

-55·4 C14

OFD 25 -49·0

Mustering Paddock Bore 78D

LANDING GROUND

FD 24 -40·11

-58·2 C13

"Curnamona"

-40·5 C7

-35·9 C1

Well

Yard

Mulga Well & Bore

Yard

Yard

Coondoppie Well

Duckhole Dam

Yard

Vermin Proof Fence

Lake Constance Auxiliary Dam

Bore 77D Lake Constance Auxiliary Bore

Yard

Katchiwilleroo Dam & Swamp

Pittheroo Dam

Red Well Yards

E.L. 227

Yard Lake Constance Dam & Mill

FD32

GEAR 3

FD26 0

Red Well Dam

FD4

FD3

Bore 29D

FD28

Bore

Bore 30D

Yard

Maxs Swamp Dam

Lake Mary Dam

EAR1 0

Bore

C6

Yard

C5

FD27 0

GEAR 2

Bore 33D Walthergo Auxiliary Dam 34D

Vermin Proof Fence

No° 2 Bore

Bore & Tank

Bore & Tank

Vermin Proof Fence

Chesnel

C4

C3

No° 1 Bore

No° 3 Bore

Toweroo Bore Yard

Hilltop Bore

MIDDLE TOOLABY

EAST TOOLABY

Drain

Yard

C2

Upper Toolaby Dam

0 TY10

SPRING HILL

E.L. 254

TY80

TY70

TY60

TY110

Springs Dam

Drain

Berryman Well

"Killawarren"

Eagle Hawk Bore

0 TY12

2818(11)-8

Contour Interval : 5 metres

Depths relative to Mean Sea Level

DRILL HOLES

o C12 M.T.A.

o FD Esso Aust. Ltd.

o TY C.R.A. Exploration Pty, Ltd. (S.M.L.273)

LINE 1 Resistivity line

Yard

Dam

Bore, well

Homestead, building

Swamp

Road

Track

Water course

Lease boundary

SCALE

1000 m 0 1 2 3 4

KILOMETRES

N

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Date By

MINAD · TETON · AUSTRALIA

CURNAMONA PROJECT

E.L.254·South Australia

STRUCTURE CONTOURS ON BASE OF TERITARY

Author G.K. Ellis.

Date June, 1977.

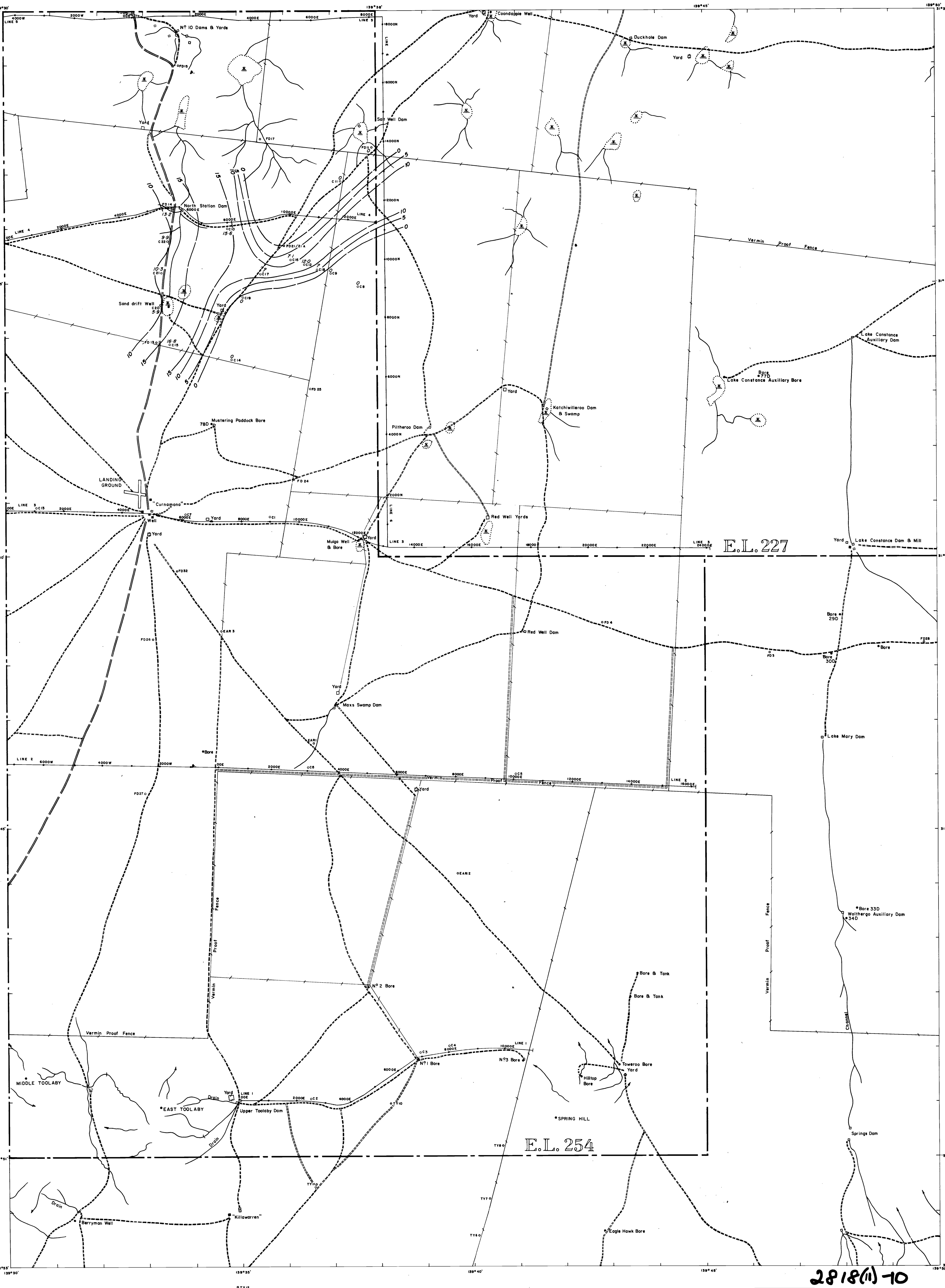
Scale 1 : 50,000

File No.

Map No. 2818

FIG. 3

S 37



139°30'
31°30'
139°38'
139°45'
139°50'
31°35'
31°40'
31°45'
31°51'
31°53'
139°35'
139°40'
LINE 5
LINE 4
LINE 3
LINE 2
LINE 1
LINE 6
N° 10 Dams & Yards
Coondappie Well
Duckhole Dam
Yard
Salt Well Dam
North Station Dam
Sand drift Well
Mustering Paddock Bore
78D
LANDING GROUND
"Curnamona"
Well
Piltheroo Dam
Katchiwilleroo Dam & Swamp
Lake Constance Auxiliary Dam
Bore 77D
Lake Constance Auxiliary Bore
Vermin Proof Fence
Red Well Yards
Mulga Well & Bore
Lake Constance Dam & Mill
E.L. 227
Red Well Dam
Bore 29D
Bore 30D
Bore
Maxs Swamp Dam
Lake Mary Dam
Bore 33D
Walthergo Auxiliary Dam
34D
N° 2 Bore
N° 1 Bore
N°3 Bore
Bore & Tank
Toweroo Bore
Hilltop Bore
SPRING HILL
MIDDLE TOOLABY
EAST TOOLABY
Upper Toolaby Dam
Drain
Channel
Springs Dam
E.L. 254
Berryman Well
"Killawarren"
Eagle Hawk Bore
FD14
FD15
FD17
FD11
FD21/21A
FD13
FD24
FD25
FD26
FD27
FD32
FD4
FD3
FD28
C10 15·6
C11
C15 16·8
C16 7·1
C12 12·0
C17
C18
C9
C8
C19
C20 5·9
C21 10·3
C22 9·9
13·2
C14
C13
C7
C1
C6
C5
C2
C3
C4
EAR1
EAR2
EAR3
TY5
TY6
TY7
TY10
TY11
TY12

Contour Interval : 5 metres

DRILL HOLES

o C12	M.T.A.
o FD	Esso Aust. Ltd.
o TY	C.R.A. Exploration Pty, Ltd. (S.M.L.273)
LINE 1	Resistivity line

- Yard
- Dam
- Bore, well
- Homestead, building
- Swamp
- Road
- Track
- Water course
- Lease boundary

SCALE

1000 m 0 1 2 3 4

KILOMETRES

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CURNAMONA PROJECT
E.L.254·South Australia

ISOPACH MAP OF BASAL SAND

Author G.K. Ellis.
Date June, 1977.

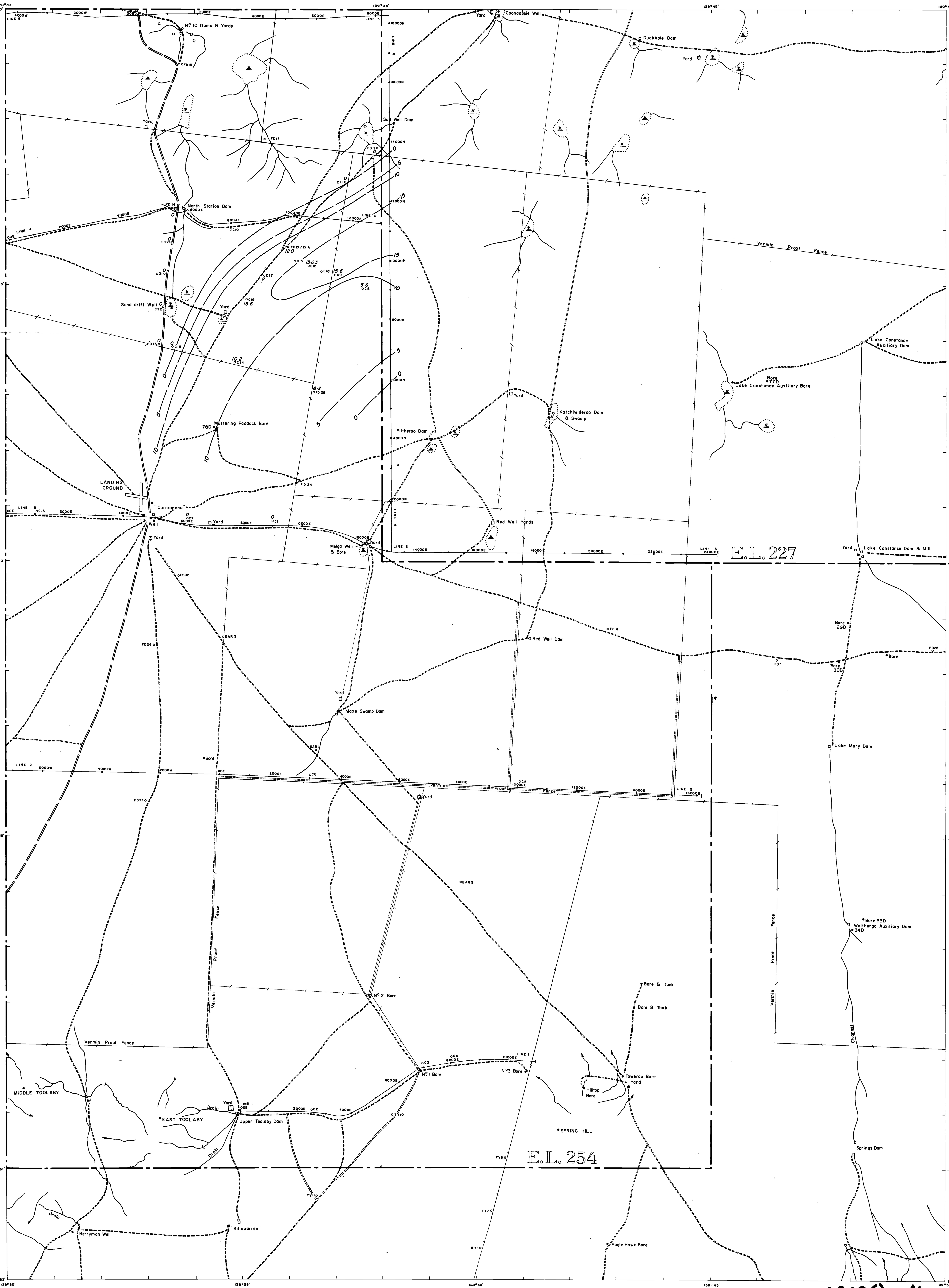
Scale 1 : 50,000
File No.

Map No. 2818

FIG. 5

2818(11)-10

S 37



139°30'
31°30'
139°35'
139°45'
139°50'
31°35'
31°40'
31°45'
31°51'
31°53'
139°40'
LINE 5
4000W
2000W
00E
2000E
4000E
6000E
8000E
Nº 10 Dams & Yards
FD15
Yard
FD17
Salt Well Dam
FD11
Coondappie Well
Duckhole Dam
LINE 6
18000N
16000N
14000N
12000N
10000N
8000N
6000N
4000N
2000N
North Station Dam
FD14
LINE 4
10000E
12000E
C10
C11
C22
C21
C20
FD21/21A
12·0
C16
15·03
C12
C18
15·6
C9
5·6
C8
C17
C19
13·6
Sand drift Well
FD13
C15
10·2
C14
8·2
FD25
Mustering Paddock Bore
78D
FD24
LANDING GROUND
"Curnamona"
Well
LINE 3
C13
C7
C1
Mulga Well & Bore
14000E
16000E
18000E
20000E
22000E
24000E
E.L. 227
Vermin Proof Fence
Lake Constance Auxiliary Dam
Bore 77D
Lake Constance Auxiliary Bore
Katchiwilleroo Dam & Swamp
Piltheroo Dam
Red Well Yards
Lake Constance Dam & Mill
FD32
EAR 3
FD26
Red Well Dam
FD4
Bore 29D
FD3
Bore 30D
FD28
Bore
Maxs Swamp Dam
EAR1
Lake Mary Dam
LINE 2
6000W
C6
C5
14000E
16000E
FD27
EAR 2
Bore 33D
Walthergo Auxiliary Dam
34D
Nº 2 Bore
Bore & Tank
Channel
MIDDLE TOOLABY
EAST TOOLABY
Drain
LINE 1
Upper Toolaby Dam
C2
C3
C4
Nº 1 Bore
Nº3 Bore
TY10
Towaroo Bore
Hilltop Bore
SPRING HILL
E.L. 254
TY8
TY7
TY6
TY11
Springs Dam
Berryman Well
"Killawarren"
Eagle Hawk Bore
TY12

2818(II) - 11

Contour interval: 5 metres

DRILL HOLES

○ C12	M.T.A.
○ FD	Esso Aust. Ltd.
○ TY	C.R.A. Exploration Pty, Ltd. (S.M.L. 273)
LINE 1	Resistivity line

- Yard
- Dam
- Bore, well
- Homestead, building
- Swamp
- Road
- Track
- Water course
- Lease boundary

SCALE 1000 m 0 1 2 3 4 KILOMETRES

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Date By

MINAD · TETON · AUSTRALIA

CURNAMONA PROJECT
E.L. 254 · South Australia

ISOPACH MAP OF MIDDLE UNIT

Author G.K. Ellis.
Date June, 1977
Scale 1 : 50,000
File No.

FIG. 6

S 37

139°30' 139°35' 139°40' 139°45' 139°50'
31°30' 31°35' 31°40' 31°45' 31°51' 31°53'

LINE 5 4000W 2000W 00E 2000E 4000E 6000E 8000E 10000E 12000E 14000E 16000E 18000E
LINE 4 4000W 2000W 00E 2000E 4000E 6000E 8000E 10000E 12000E
LINE 3 14000E 16000E 18000E 20000E 22000E 24000E
LINE 2 6000W 4000W 2000W 00E 2000E 4000E 6000E 8000E 10000E 12000E 14000E 16000E
LINE 1 00E 2000E 4000E 6000E 8000E 10000E
LINE 6 18000N 16000N 14000N 12000N 10000N 8000N 6000N 4000N 2000N

No 10 Dams & Yards
OFD15 -10·0
Yard
Coondappie Well
Yard
Duckhole Dam
Yard
Salt Well Dam
-4·9 FD17
FD11 +2·2
+0·3 C11
-5·3 FD14
North Station Dam
-5·3 OC10
-4·2 C22
-1·6 C21
FD21/21A -0·7
OC16 +0·8
OC12 +2·5
OC18 +5·0
OC9
+0·7 CC17
+4·9 OC8
OC19
Sand drift Well C20 -3·1
Yard
N.P. FD13
N.P. OC15
+4·0 OC14
+8·4 OFD 25
Vermin Proof Fence
Lake Constance Auxiliary Dam
Bore 77D
Lake Constance Auxiliary Bore
Yard
Katchiwilleroo Dam & Swamp
Depositional Limit of Limestone
78D Mustering Paddock Bore
Piltheroo Dam
LANDING GROUND
FD 24 N.P.
"Curnamona"
Well
N.P. OC13
N.P. OC7
N.P. OC1
Yard
Yard
Red Well Yards
Mulga Well & Bore
Yard
Yard
Lake Constance Dam & Mill
E.L. 227
FD32
FD26
CEAR3
Red Well Dam
FD4
FD3
Bore 29D
Bore 30D
FD28
Bore
Yard
Maxs Swamp Dam
EARI
Bore
Lake Mary Dam
FD27
Yard
OC6
OC5
CEAR2
Bore 33D
Wolthergo Auxiliary Dam 34D
Bore & Tank
Bore & Tank
N° 2 Bore
N° 1 Bore
OC3
OC4
N°3 Bore
Towaroo Bore Yard
Hilltop Bore
MIDDLE TOOLABY
EAST TOOLABY
Yard
Drain
LINE 1 00E
2000E OC2 4000E
Upper Toolaby Dam
TY10
SPRING HILL
E.L. 254
Springs Dam
Drain
Berryman Well
"Killawarren"
TY11
TY9
TY7
TY6
Eagle Hawk Bore
TY12

Contour Interval : 5 metres
Elevations relative to Mean Sea Level

DRILL HOLES
- oC12 M.T.A.
- oFD Esso Aust. Ltd.
- oTY C.R.A. Exploration Pty, Ltd. (S.M.L.273)
- LINE 1 Resistivity line

- Yard
- Dam
- Bore, well
- Homestead, building
- Swamp
- Road
- Track
- Water course
- Lease boundary

SCALE
1000 m 0 1 2 3 4
KILOMETRES

REVISIONS
Date By

MINAD · TETON · AUSTRALIA

CURNAMONA PROJECT
E.L.254 South Australia

STRUCTURE CONTOURS ON BASE OF LIMESTONE
(Namba Formation, Member 2, Upper Limestone)

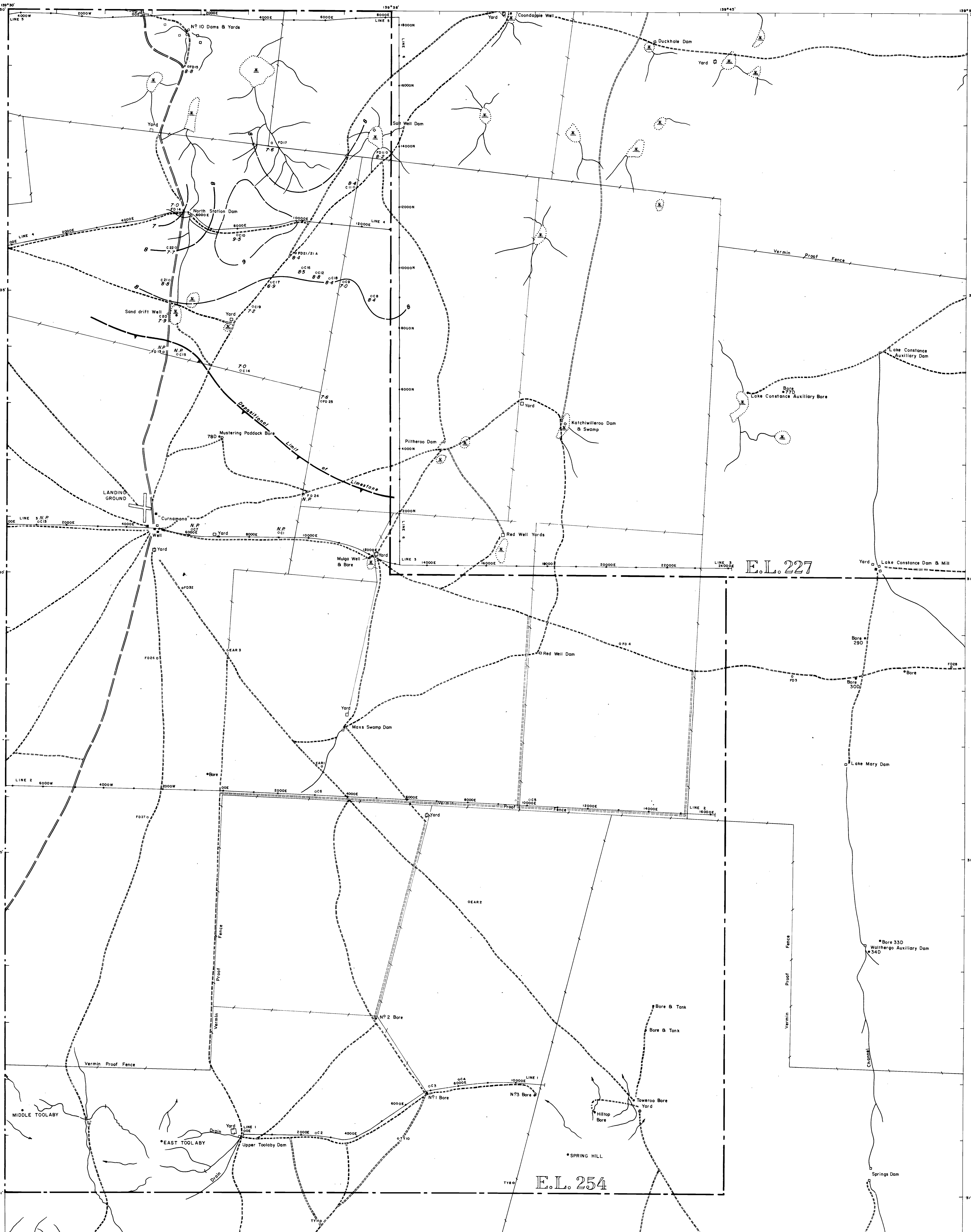
Author G.K. Ellis.
Date June, 1977.
Scale 1 : 50,000
File No.
Map No. 2818

RECEIVED 9 AUG 1977 DEPT. OF MINES SECURITY 2818

FIG. 7

2818(11)-12

S 37



139°30'
31°30'
139°38'
139°45'
139°50'
31°35'
31°40'
31°45'
31°51'
31°53'
139°35'
139°40'
LINE 5
4000W
2000W
00E
2000E
4000E
6000E
8000E
No 10 Dams & Yards
FD15
8·8
Yard
Coondappie Well
Duckhole Dam
Salt Well Dam
FD17
7·6
FD11
8·2
18000N
16000N
14000N
12000N
10000N
8000N
6000N
4000N
2000N
LINE 6
8·4
C11
7·0
FD14
North Station Dam
LINE 4
10000E
12000E
C10
9·5
C22
7·7
FD21/21A
C16
8·5
C12
8·8
C18
C9
C8
C17
6·9
C19
7·2
C21
Sand drift Well
C20
7·9
N.P.
FD13
C15
C14
7·6
FD 25
Depositional Limit of Limestone
Mustering Paddock Bore
78D
Piltheroo Dam
FD 24
LANDING GROUND
"Curnamona"
LINE 3
C13
C7
C1
Well
Mulga Well & Bore
14000E
16000E
18000E
20000E
22000E
24000E
Red Well Yards
Katchiwilleroo Dam & Swamp
Vermin Proof Fence
Lake Constance Auxiliary Dam
Bore
77D
Lake Constance Auxiliary Bore
Lake Constance Dam & Mill
E.L. 227
FD32
EAR 3
FD26
FD 4
Red Well Dam
Bore 29D
FD3
Bore 30D
FD28
Maxs Swamp Dam
EAR1
Lake Mary Dam
LINE 2
6000W
C6
C5
Yard
FD27
EAR2
Bore 33D
Walthergo Auxiliary Dam
34D
No 2 Bore
Bore & Tank
Channel
MIDDLE TOOLABY
EAST TOOLABY
Drain
LINE 1
Upper Toolaby Dam
C2
C3
C4
No 1 Bore
No 3 Bore
TY10
Toweroo Bore
Hilltop Bore
SPRING HILL
TY8
E.L. 254
Springs Dam
TY11
TY7
TY6
"Killawarren"
Berryman Well
Eagle Hawk Bore
TY12

2818(ii) - 13

Contour Interval : 1 metre

DRILL HOLES

- ○ C12 M.T.A.
- ○ FD Esso Aust. Ltd.
- ○ TY C.R.A. Exploration Pty. Ltd. (S.M.L.273)
- LINE 1 Resistivity line

- Yard
- Dam
- Bore, well
- Homestead, building
- Swamp
- Road
- Track
- Water course
- Lease boundary

SCALE 1000 m 0 1 2 3 4 KILOMETRES

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CURNAMONA PROJECT
E.L.254·South Australia

ISOPACH MAP OF LIMESTONE

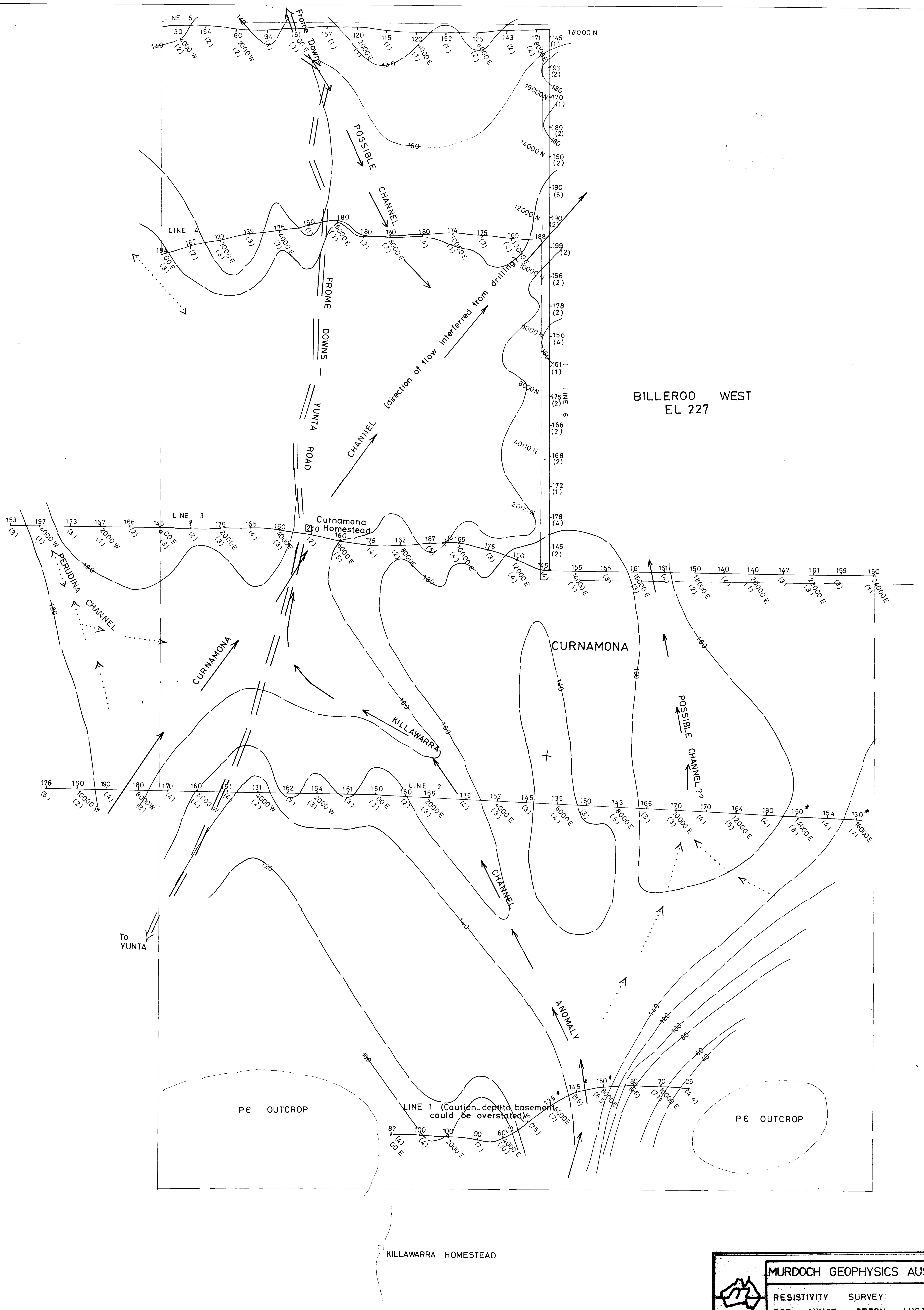
(Namba Formation, Member 2, Upper Limestone)

Author G.K. Ellis. Scale 1 : 50,000
Date June, 1977. File No.

Map No.

FIG. 8

S 37



MURDOCH GEOPHYSICS AUSTRALIA PTY. LTD.

RESISTIVITY SURVEY

FOR : MINAD — TETON AUSTRALIA

AT : CURNAMONA

CONTOUR PLAN OF INTERPRETED DEPTH TO BASEMENT

2818 (1)-1

SCALE : 1 cm = 500 metres

CONTOUR INTERVAL : 20 metres

LEGEND:

143 ← Depth to basement in metres. (Asterisk means depth maybe overstated)

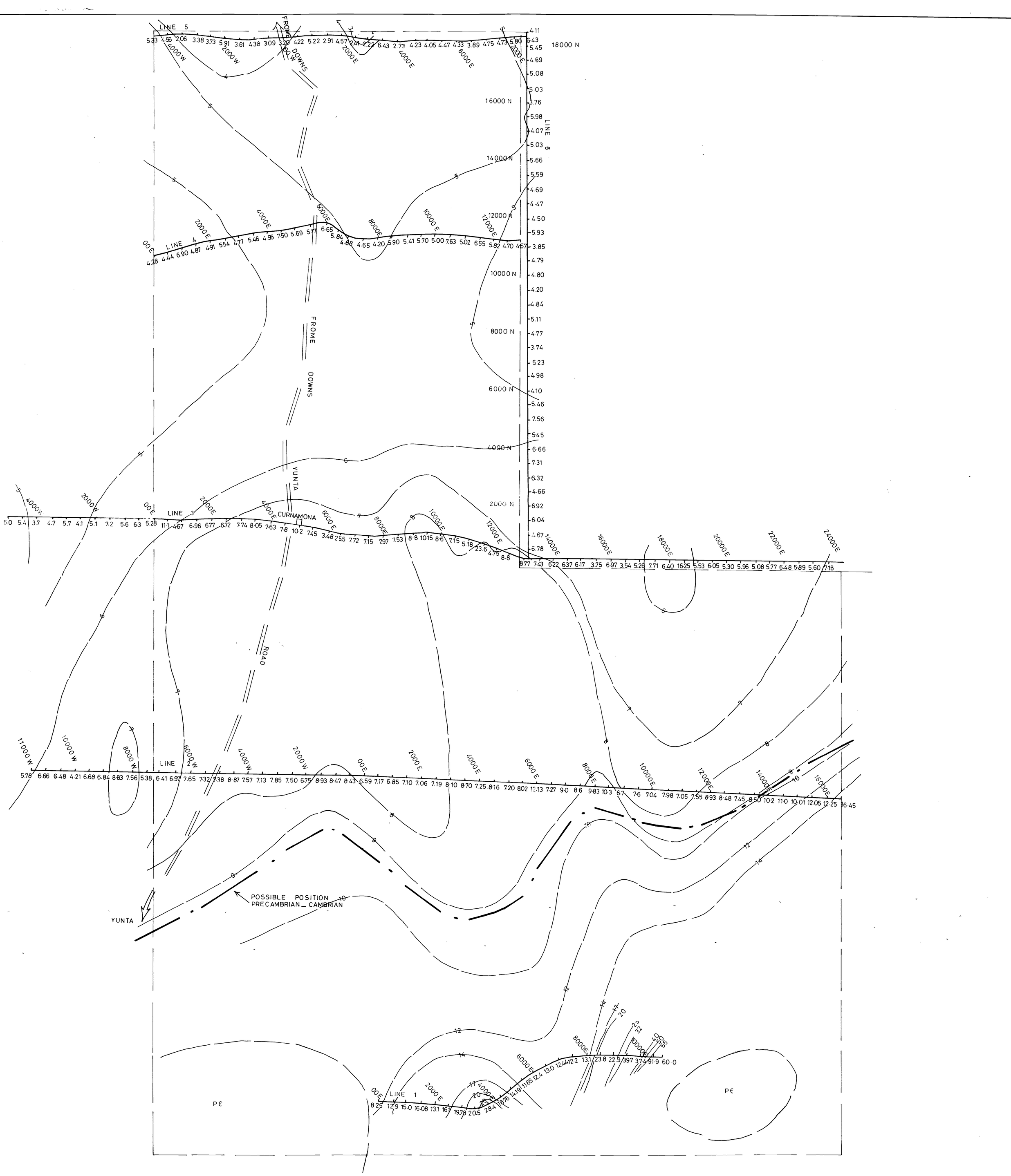
8000 E (5) ← Resistivity of Tertiary Section in ohm metres

PLATE N°. 1

REPORT N°. 240

DATE. SEPT 1976

2818(1)-1



28/8(1)-2

MURDOCH GEOPHYSICS AUSTRALIA PTY. LTD.

RESISTIVITY SURVEY

FOR : MINAD _ TETON AUSTRALIA

AT : CURNAMONA 2818 (1)-2

CONTOUR PLAN — APPARENT RESISTIVITY DATA

HALF CURREN. ELECTRODE SEPARATION r = metres

SCALE: 1 cm = 500 metres

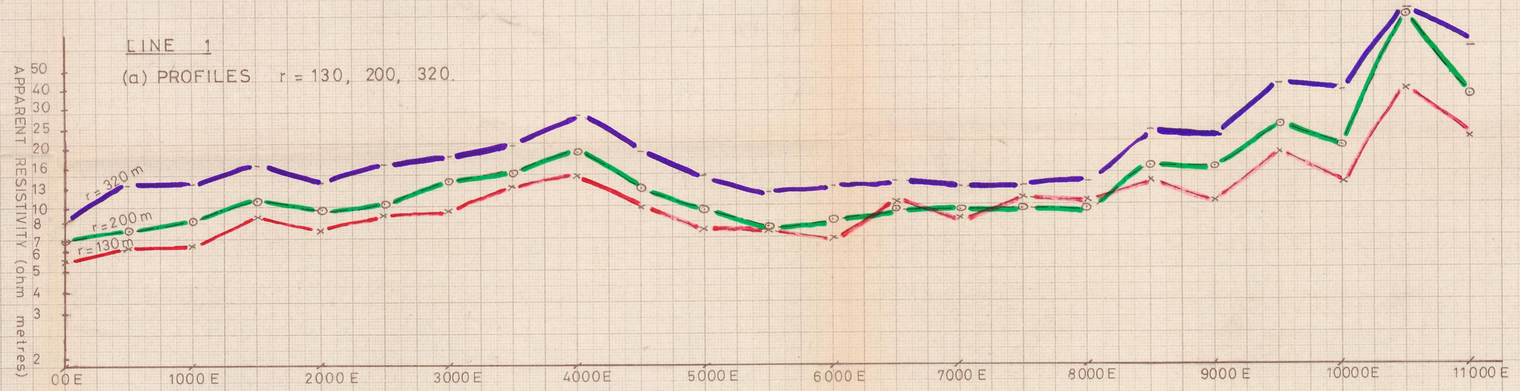
CONTOUR INTERVAL :
1 ohm metres under 10 ohm metres. Thence logarithmic

LEGEND:

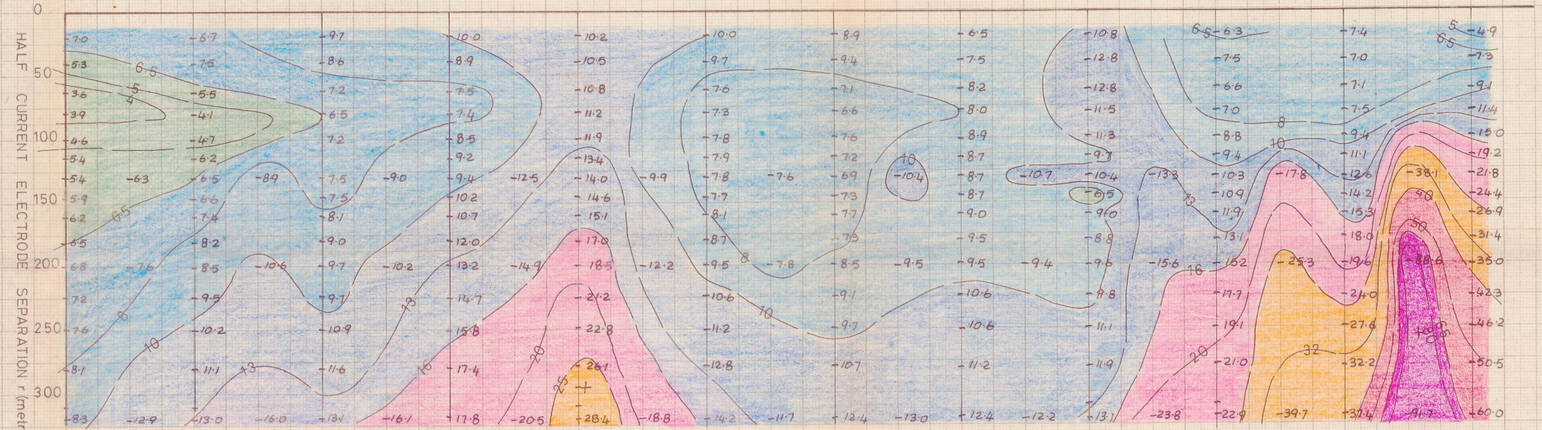
PLATE N°: 2 | REPORT N°: 240 | DATE: SEPT. 1976

LINE 1

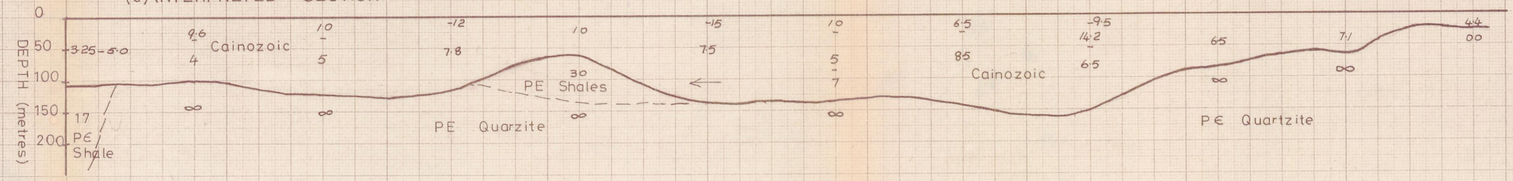
(a) PROFILES r = 130, 200, 320.



(b) PSEUDO SECTION



(c) INTERPRETED SECTION



MURDOCH GEOPHYSICS AUSTRALIA PTY. LTD.

RESISTIVITY SURVEY

FOR : MINAD — TETON AUSTRALIA

AT : CURNAMONA

RESISTIVITY PROFILES & PSEUDO SECTIONS

LINES : 1

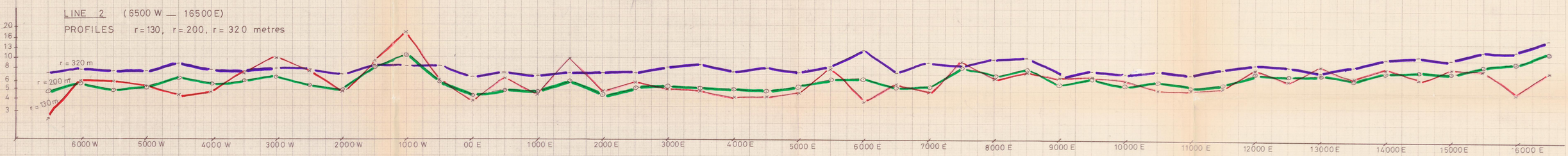
SCALES:	Vertical	Horizontal
(a) PROFILES	logarithmic 1 cycle = 6.25 cm	1 cm = 250 metres
(b) PSEUDO SECTIONS	1 cm = 25 metres	
(c) INTERPRETED SECTIONS	1 cm = 50 metres	

2818(1)-3

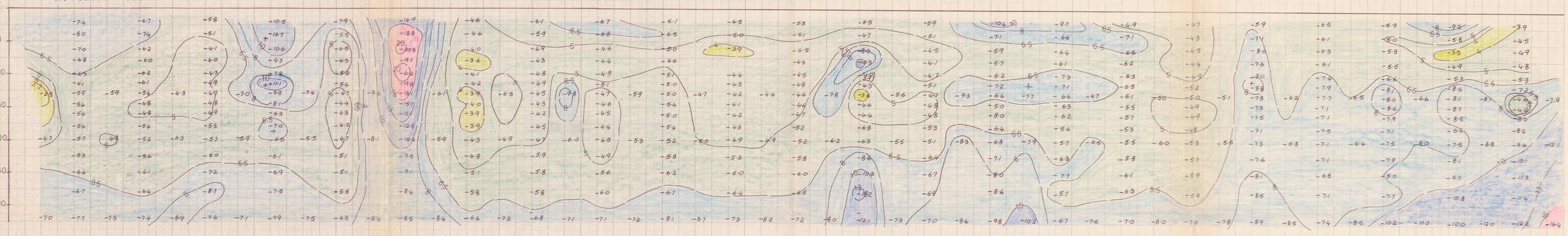
PLATE N°. 3 | REPORT N°. 240 | DATE : SEPT. '75

LINE 2 (6500 W — 16500 E)

PROFILES r=130, r=200, r=320 metres

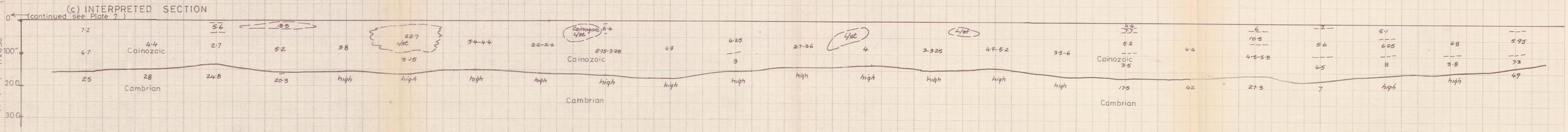


(b) PSEUDO SECTION



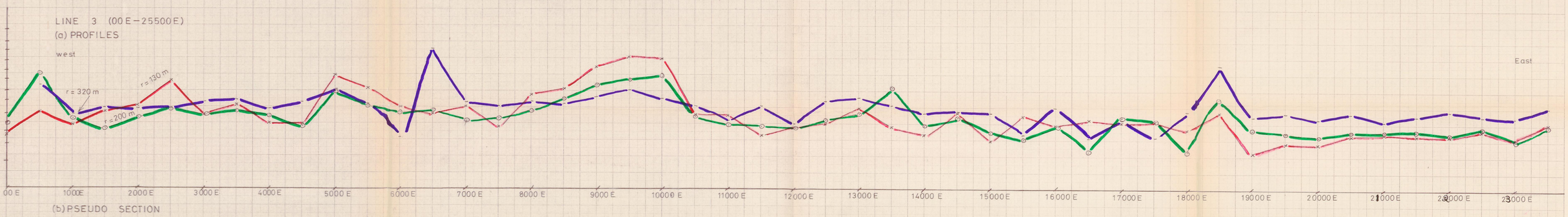
(c) INTERPRETED SECTION

(continued see Plate 7)

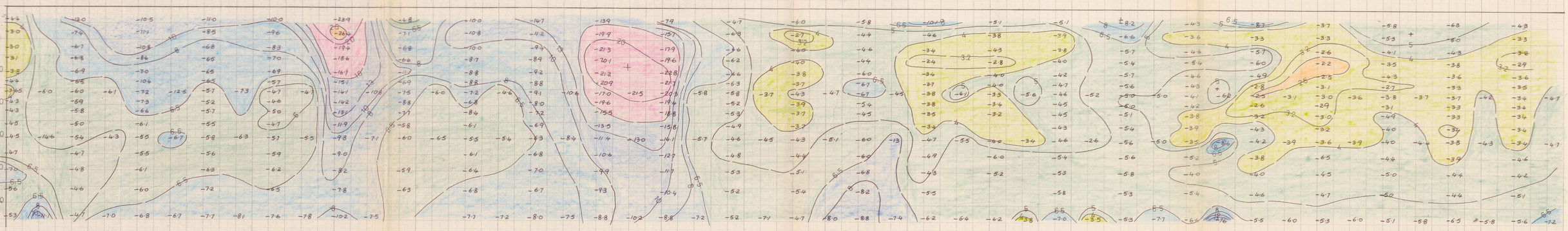


LINE 3 (00 E — 25500 E)

(a) PROFILES

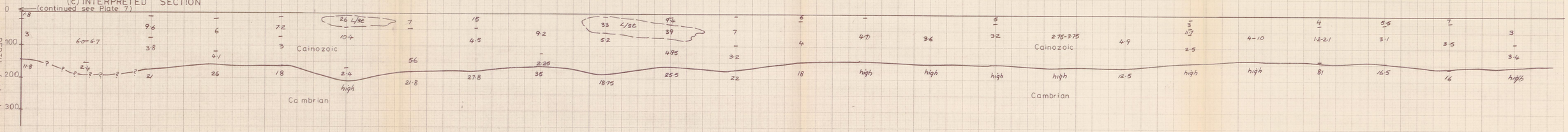


(b) PSEUDO SECTION



(c) INTERPRETED SECTION

(continued see Plate 7)



MURDOCH GEOPHYSICS AUSTRALIA PTY. LTD.

RESISTIVITY SURVEY

FOR : MINAD — TETON AUSTRALIA

AT : CURNAMONA

RESISTIVITY PROFILES & PSEUDO_SECTION

LINES : 2 & 3

SCALES:	Vertical	Horizontal
(a) PROFILES	logarithmic 1 cycle = 6·25 cm	
(b) PSEUDO SECTIONS	1 cm = 25 metres	1 cm = 250 metres
(c) INTERPRETED SECTIONS	1 cm = 50 metres	

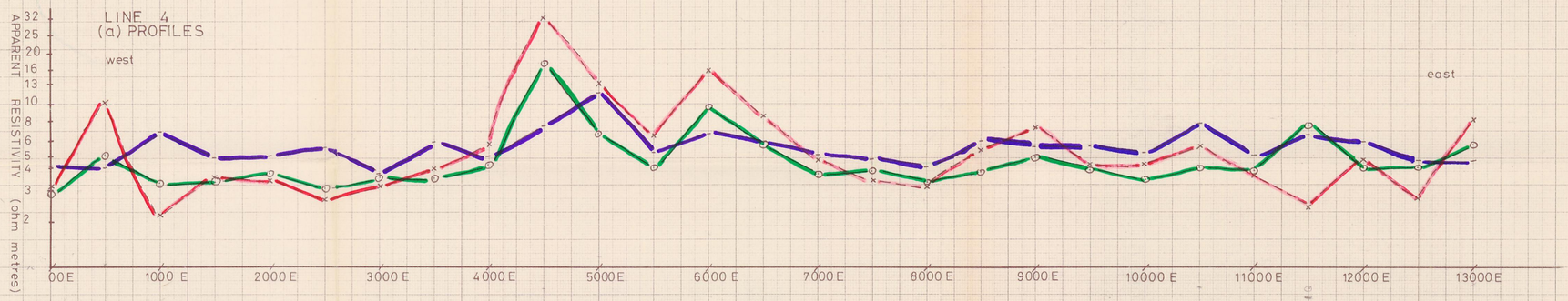
PLATE N°. 4 | REPORT N°. 240 | DATE: SEPT. '76

2818(1)-4

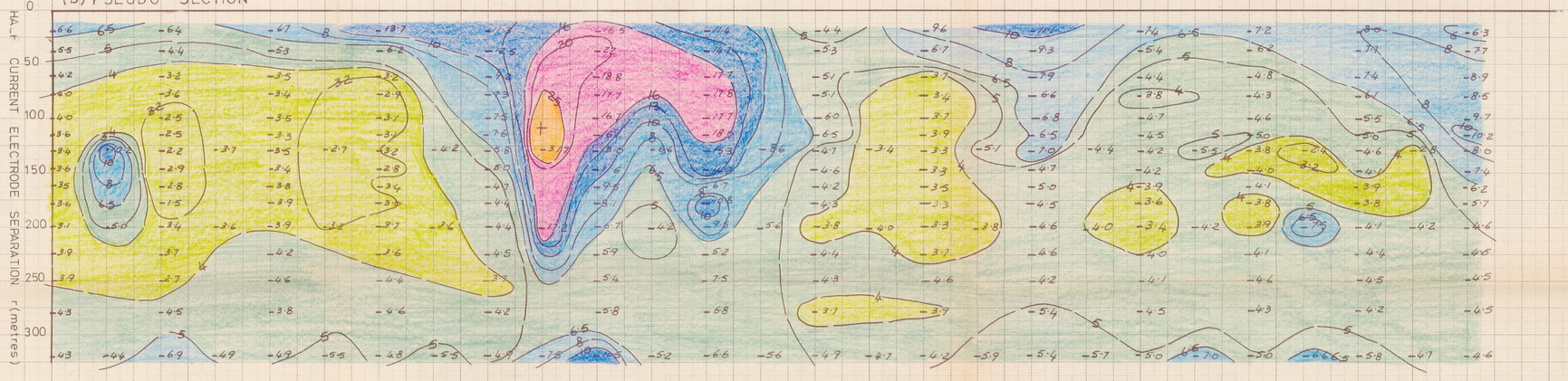
2818(1)-4

LINE 4

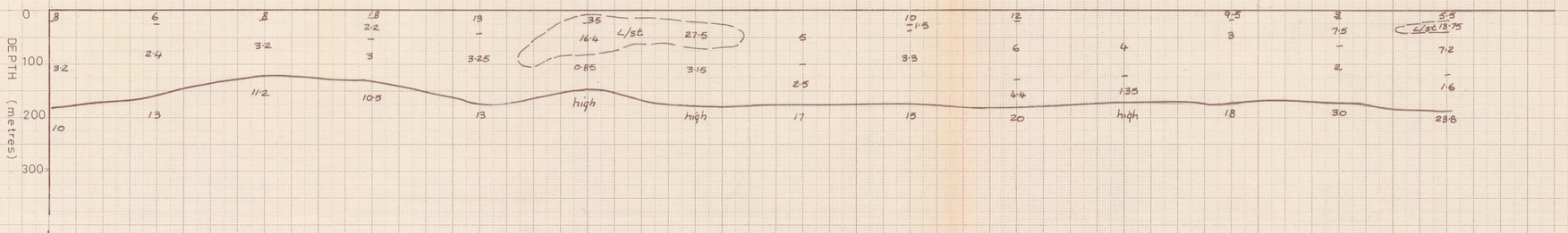
(a) PROFILES



(b) PSEUDO SECTION

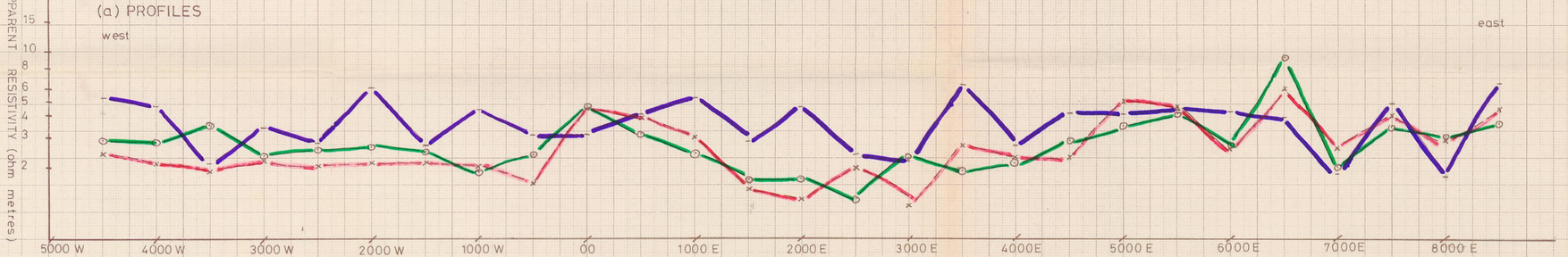


(c) INTERPRETED SECTION

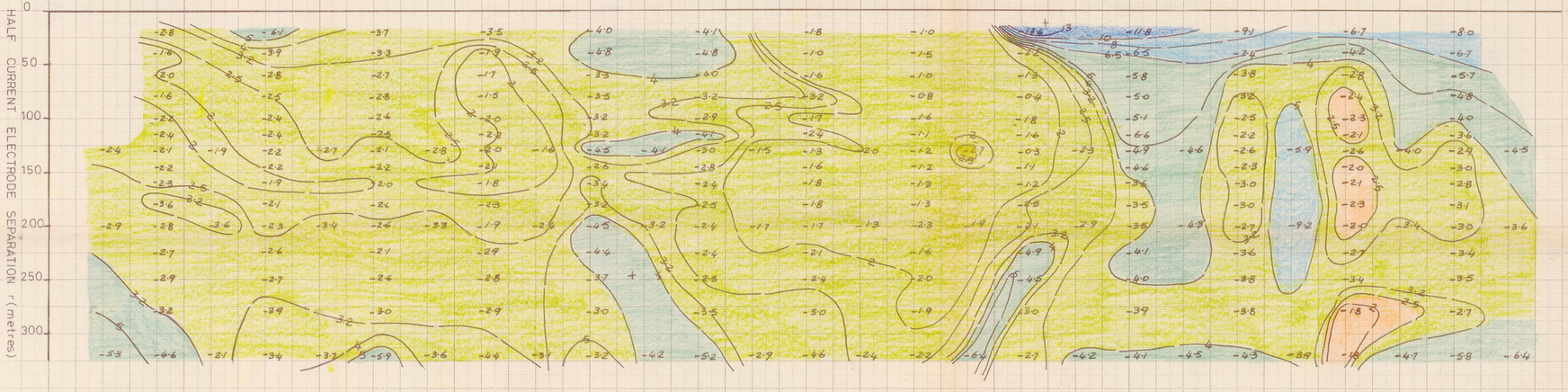


LINE 5

(a) PROFILES



(b) PSEUDO SECTION



(c) INTERPRETED SECTION

MURDOCH GEOPHYSICS AUSTRALIA PTY. LTD.

RESISTIVITY SURVEY

FOR : MINAD_TETON AUSTRALIA

AT : CURNAMONA

RESISTIVITY PROFILES & PSEUDO_SECTION

LINES : 4 & 5

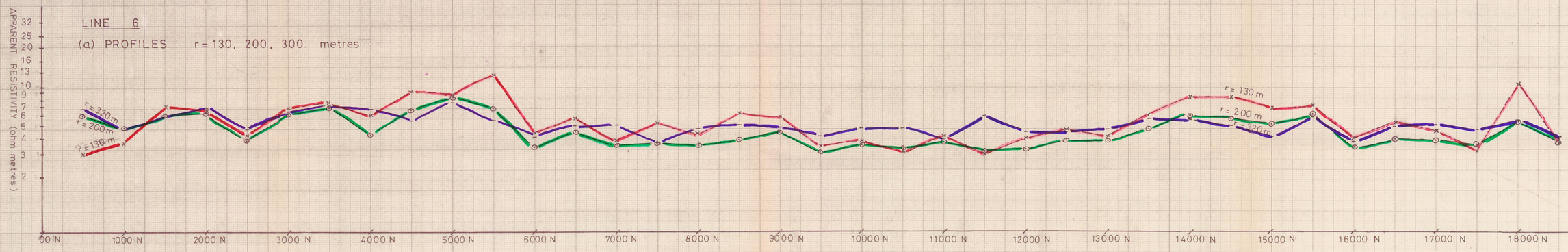
SCALES:	Vertical	Horizontal
(a) PROFILES	logarithmic	
(b) PSEUDO SECTIONS	1 cycle = 6.25cm 1 cm = 25 metres	1cm = 250 metres
(c) INTERPRETED SECTIONS	1 cm = 50 metres	

2818/1-5

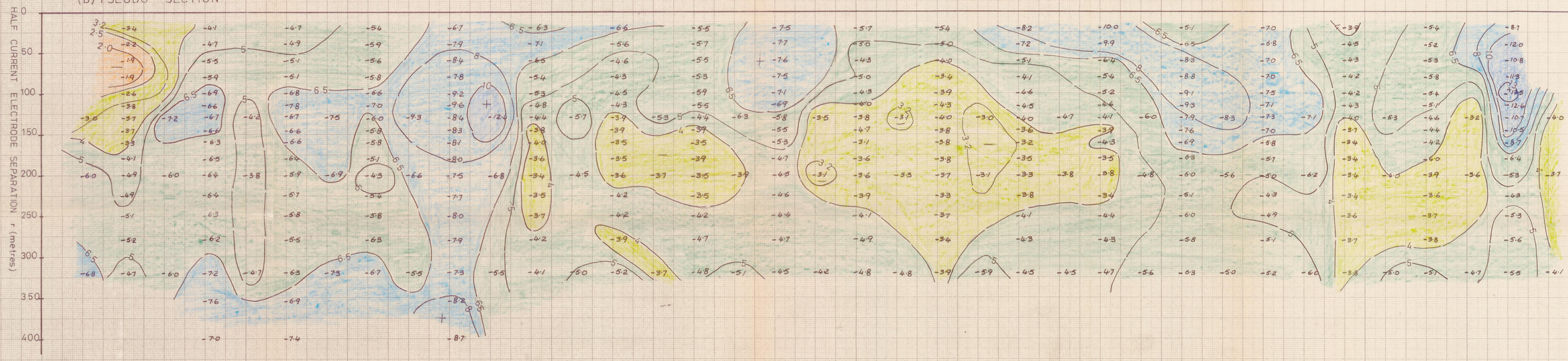
PLATE N°. 5 | REPORT N°. 240 | DATE: SEPT '76

LINE 6

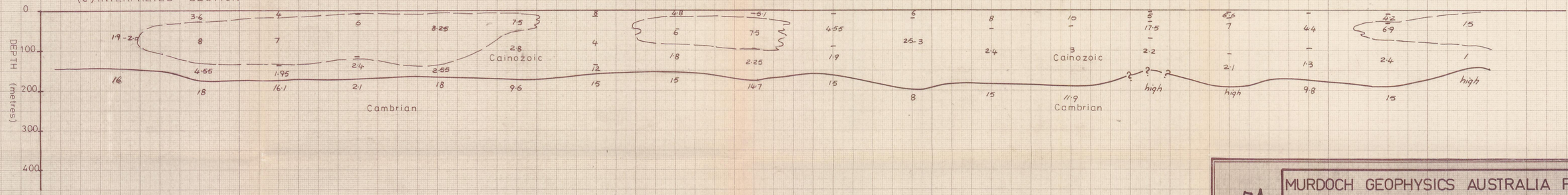
(a) PROFILES r = 130, 200, 300 metres



(b) PSEUDO SECTION



(c) INTERPRETED SECTION



MURDOCH GEOPHYSICS AUSTRALIA PTY. LTD.

RESISTIVITY SURVEY

FOR : MINAD — TETON AUSTRALIA

AT : CURNAMONA

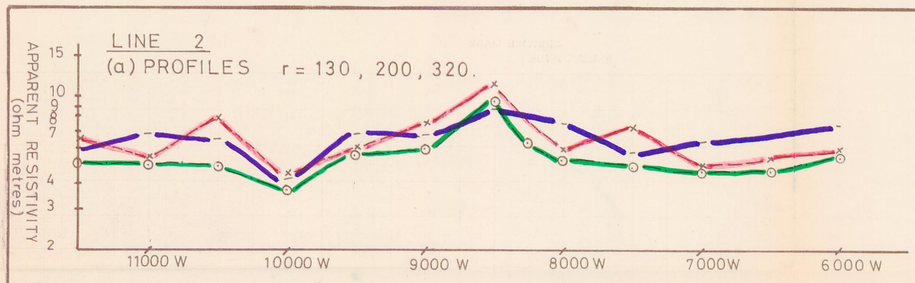
RESISTIVITY PROFILES & PSEUDO-SECTION

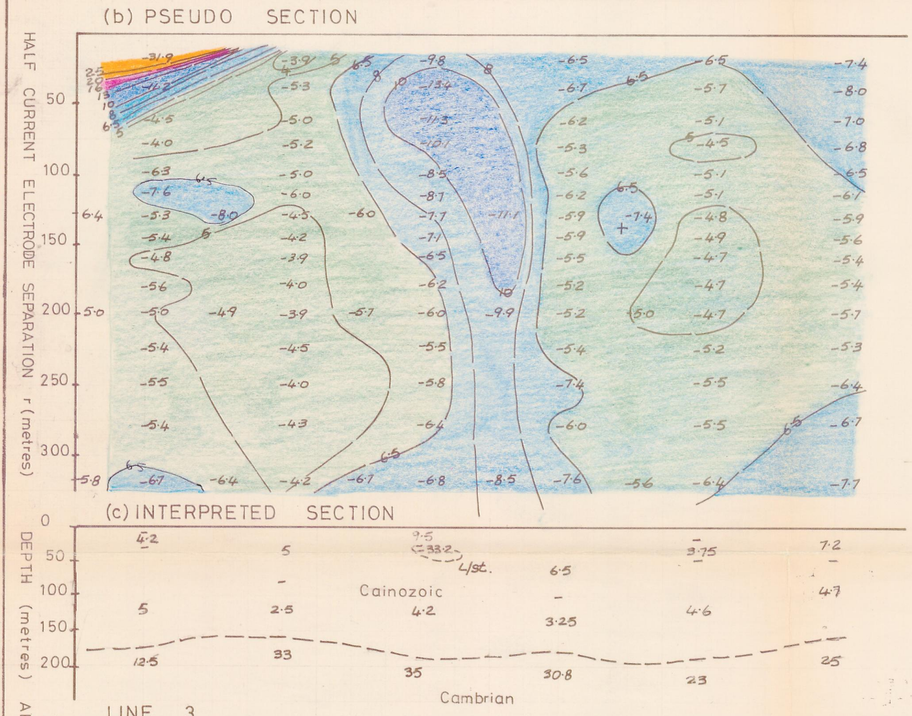
LINES : 6

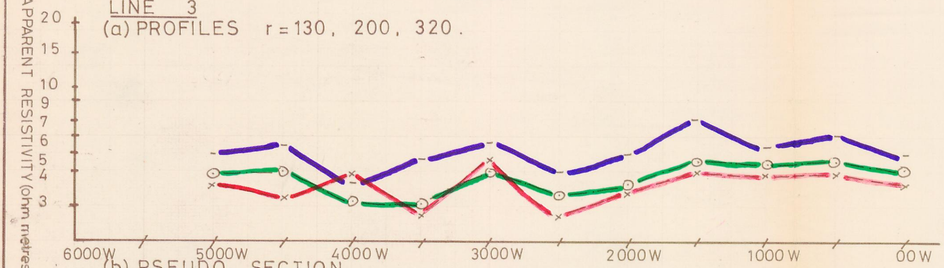
SCALES:	Vertical	Horizontal
(a) PROFILES	logarithmic 1 cycle = 6.25 cm	
(b) PSEUDO SECTIONS	1 cm = 25 metres	1 cm = 250 metres
(c) INTERPRETED SECTIONS	1 cm = 50 metres	

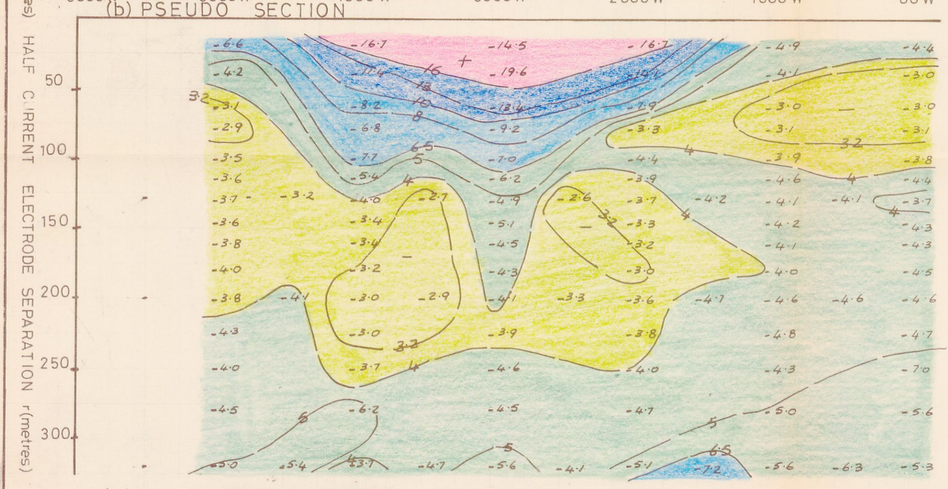
2818(1)-6

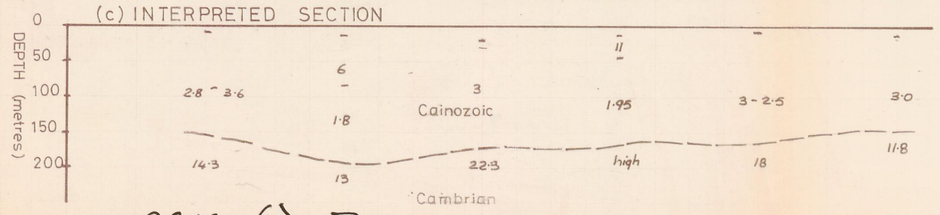
PLATE N°. 6 | REPORT N° 239 | DATE: SEPT. '76











2818 (1)-7

2818(1)-7

MURDOCH GEOPHYSICS AUSTRALIA PTY. LTD.

RESISTIVITY SURVEY
FOR : MINAD TETON AUSTRALIA
AT : CURNAMONA

RESISTIVITY PROFILES & PSEUDO-SECTION
LINES : 2 & 3 (WESTERN ENDS)

SCALES:

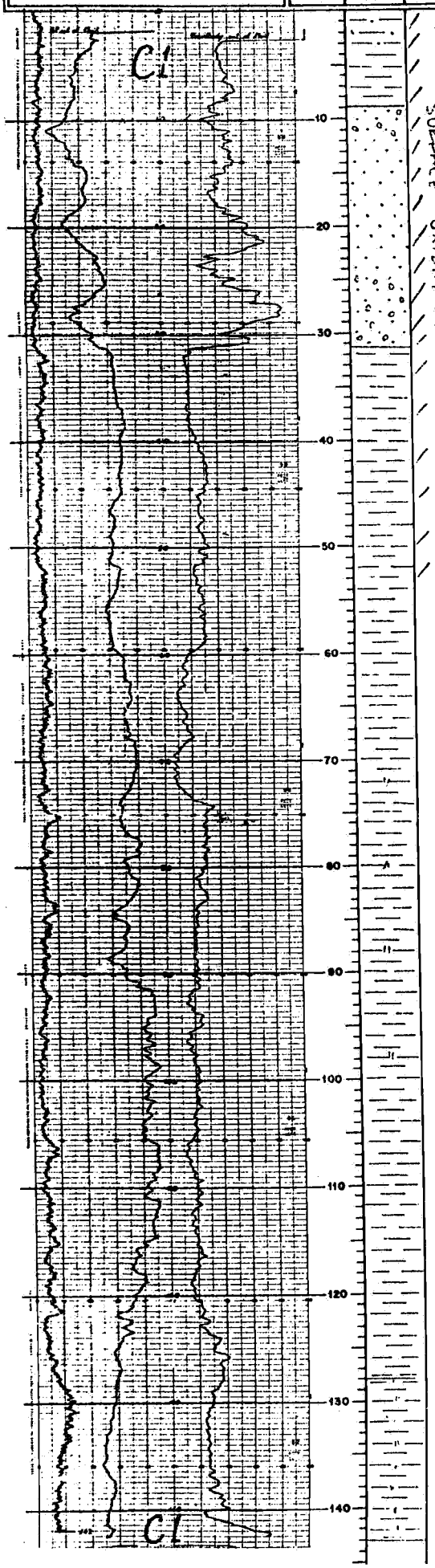
	Vertical	Horizontal
(a) PROFILES	logarithmic 1 cycle = 6.25 cm	1 cm = 250 metres
(b) PSEUDO SECTIONS	1 cm = 2.5 metres	
(c) INTERPRETED SECTIONS	1 cm = 50 metres	

PLATE N°. 7 | REPORT N°. 240 | DATE : SEPT '76

PROJECT CURRAMONA HOLE SIZE 12cm 12m ☑AIR ☑WATER HOLE NO. C1

ELEVATION 22.1m LOCATION: LOGGED BY G.K. ELLIS DATE 14/11/76

MAP SCALE T.D. 143.0m P.D. 142.5m



LITHOLOGY LOG

0-3.0 SANDY CLAY red brn, vfg-fg, subrnd, poor sorting

3.0 CLAY red brn, strong limonite oxidation, soft, sl silty.
firm - hard in pt → calcareous (kunkar)

9.0 SAND + GRAVEL orange brn, fg-cg-vcg-1cm, subrnd, poorly sorted, strong limonite oxidation.

12.0 SAND orange brn fg-mg-cg, subrnd-subang, poorly sorted
* strong limonite oxidation

18.0 SAND yellow orange, fg-mg, subrnd, fair-good sorting
Strong limonite oxidation

24.0 SAND-GRAVEL orange brn, mg-vcg (1cm) subrnd-subang, fair-poor sorting, strong limonite oxidation

31.3 Clay lt gy-md brn, silty, with md brn kaolinite and yellow limonite nodules

72.0 CLAY lt-md gy - md gy brn, sl silty in pt, sl carbonaceous

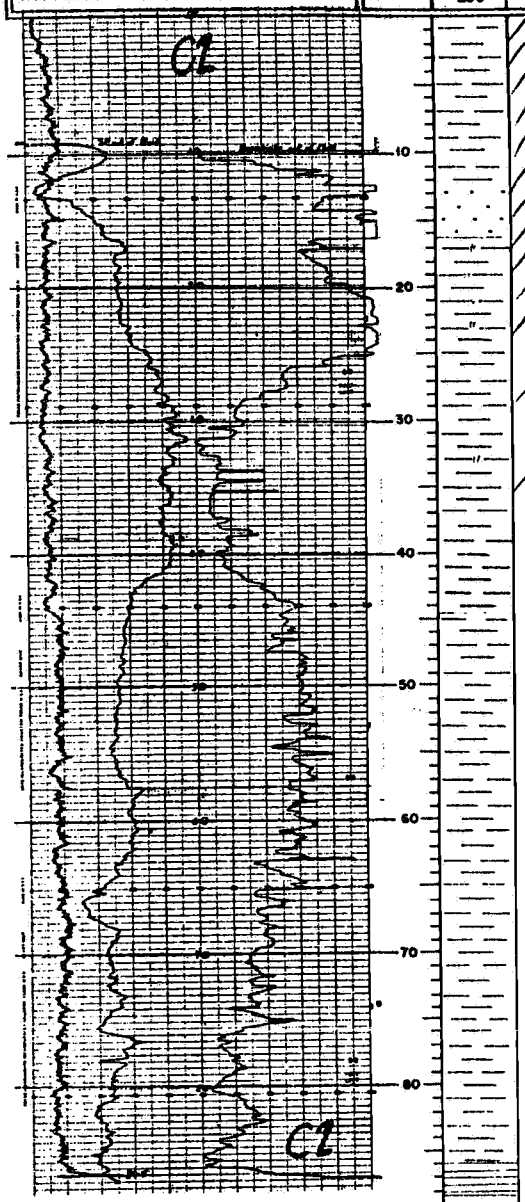
128.0 SILTSTONE red brn, micaceous, friable
(and grn-gy)

2818 (1)-9

PROJECT CURRAMONA (E.L.254) HOLE SIZE 12cm AIR WATER HOLE NO. C2

ELEVATION 135.4m LOCATION: LOGGED BY G.K.ELLIS DATE 9-11-76

MAP SCALE T.D. 88.5m P.D. 87.0m



DEPTH	STRIP LOG	LITHOLOGY LOG
	SURFACE OXIDATION	0-3.0 CLAY pale cm-red brn, calcareous, sl sandy
		3.0—12.0 CLAY red brn-yellow brn, soft.
		12.0-18.5 SAND red brn, fg-vcg → GRAVEL (1cm) subrnd, poorly sorted, strong limonite oxidation
		18.5— CLAY red brn, silty, soft
		24.0 CLAY lt gy with yellow limonite and red haematite mottling
		33.0 CLAY lt gy-white, kaolinitic, soft, sl silty, red haematite mottling in pt
		42.0 CLAY pale green grey, firm with interbedded orange, soft CLAY
		44.5m increase in ↑86 from 15-20cps
		@ 76.5 interbedded orange CLAY grades to greenish yellow CLAY
		86.0 SLATE, dk gy-dk gy brn, fissile, micaceous, firm-hard

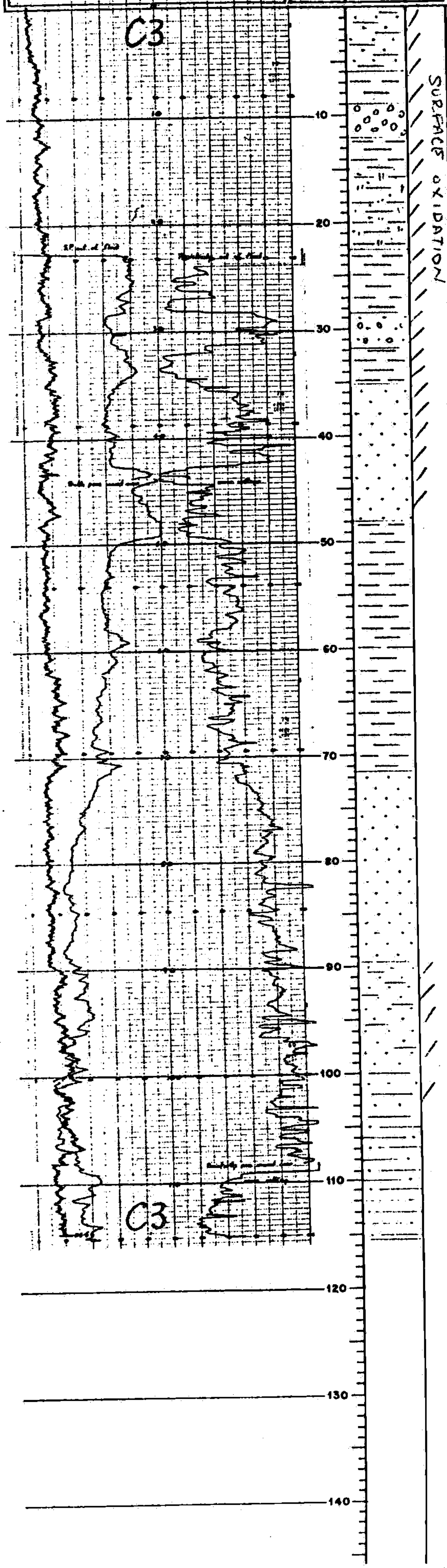
2818 (1)-9

PROJECT CURNAMONA HOLE SIZE 12cm ☑AIR ☑WATER **HOLE NO.** C3

ELEVATION 147.2m LOCATION: LOGGED BY G.K. ELLIS DATE 10-11-76

MAP SCALE T.D. 115.5m P.D. 115.0m

ANALYSIS OR RADIOACTIVITY	DEPTH	STRIP LOG		LITHOLOGY LOG



0-6.0 CLAYEY SAND red brn, fg-mg, subang-subrnd, fair-poor sorting strong limonite oxidation calcareous in pt (calcrete)

6.0 CLAY red brn.

9.0 GRAVEL/SAND 1cm-2cm → mg, subang-subrnd, poor sorting, strong limonite oxidation (red brn)

12.0 CLAY orange brn.

15.0 SILT/SAND orange brn-yellow brn, increase in grain size with depth silt size → vfg sand - fg-mg sand, subang-subrnd, good-fair sorting strong limonite oxidation.

22.5 CLAY orange brn.

28.7 SAND/GRAVEL orange brn, fg-mg-vcg - ½cm subang-subrnd, poor sorting, strong limonite oxidation

31.9 CLAY red brn - orange brn

35.2 SAND yellow-orange, vfg-fg, subang, good sorting, strong orange limonite staining

46.5 SAND red-orange, fg-mg, subang, fair-good sorting strong orange limonite and haematite oxidation.

48.0 CLAY white-vlt gy, kaolinitic, silty in pt

60.0 CLAY pale yellow-orange - strongly oxidised

72.0 CLAY white-pale gy, kaolinitic, sl silty in pt

71.5 SAND white-pale gy, vfg-fg, ang-subang, fair sorting, 50% qtz abnt lithic fragments - red brn siltstone-shale, residual sand abnt white feldspar, kaolinitic - becoming v clayey with depth

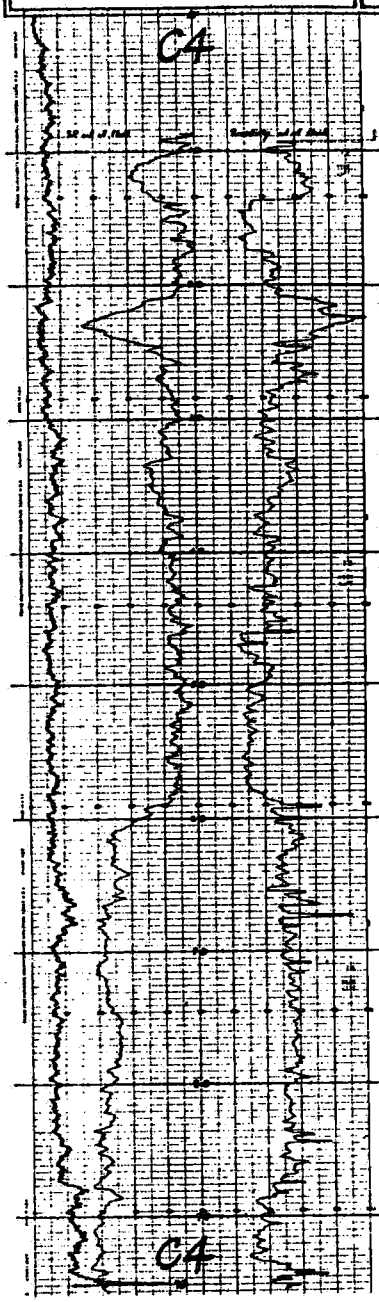
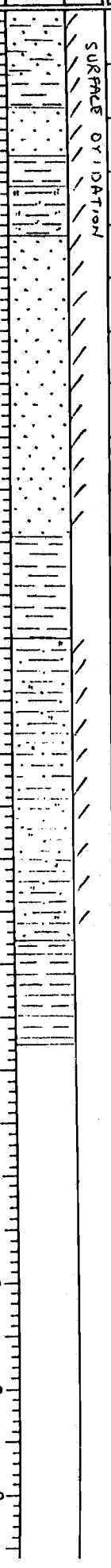
89.7 SAND yellow-orange, v clayey, v silty, fg-vcg, ang-subang poor sorting, strong orange limonite oxidation common red brn slate fragments → orange brn, sl micaceous with depth gradual increase in lithic fragments → decrease in qtzose content → 100% lithic → weathered basement - limonitic clays interspersed.

2818 (1)-10

PROJECT CURNAMONA HOLE SIZE 12cm CC. 3m ☒AIR ☒WATER HOLE NO. C4

ELEVATION LOCATION: LOGGED BY G.K.ELLIS DATE 10-11-76

MAP SCALE T.D. 97.5m P.D. 95.5m

ANALYSIS OR RADIOACTIVITY	DEPTH	STRIP LOG	LITHOLOGY LOG
	10 20 30 40 50 60 70 80 90 100 110 120 130 140		0–6.0 CLAYEY SAND, red brn, fg–mg, subang–subrnd, fair sorting, velayey in pt, strong limonite oxidation, calcareous in pt (calcrete lens) 6.0–9.0 CLAY red brn 9.0 SAND red brn, mg, subang–subrnd, good sorting, strong limonite oxidation, 13.5 CLAY red brn, 16.5 SILT red brn, v powdery, soft 21.0 SAND brn, fg–mg, subang–subrnd, good sorting, silty in pt strong limonite oxidation, pale yellow–white in pt. 27.0 SAND red brn–orange brn, mg–cg, subang–subrnd, fair sorting, abdt limonite ~~coat~~ staining on grains. sl decrease in rndness with depth. 46.5 SAND red brn, fg, subrnd–subang, fair sorting, strong haematite oxidation, some fragments of haematite? 49.5 CLAY white–v light gy, v kaolinitic, powdery. 59.0 CLAY yellow brn, strongly oxidised, silty in pt, sandy in pt, vfg–fg–mg, ang–subang. 78.0–84.0 CLAY yellow brn–pinky brn, some haematite ox gritty clay near base – abdt fragments of red brn–yellow brn 87.8 SLATE, sl fissile, sl micaceous

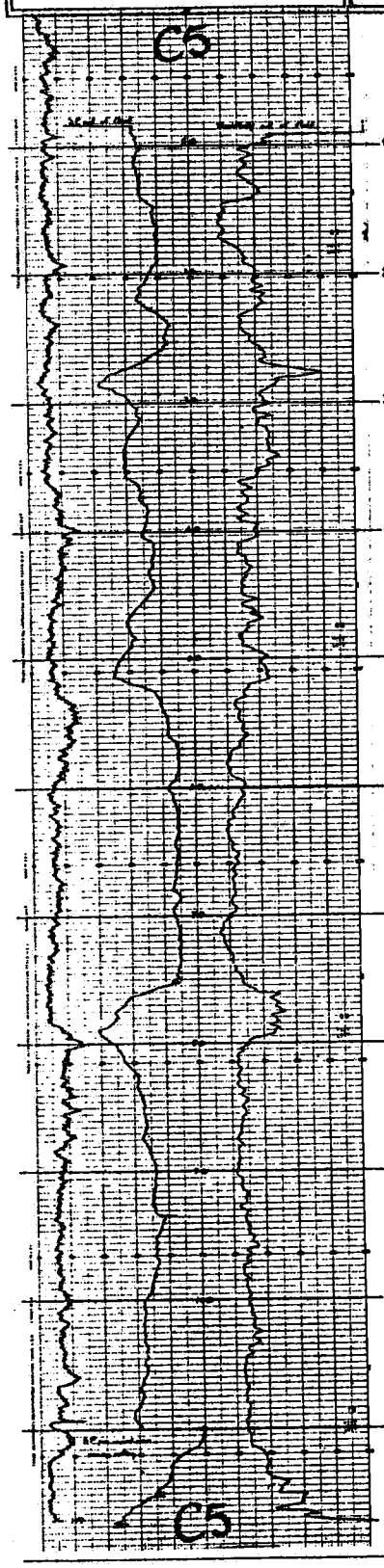
2818 (1)-11

MINAD TETON — AUSTRALIA

PROJECT CURNAMONA HOLE SIZE 12cm 18m ☑AIR ☑WATER **HOLE NO.** C5

ELEVATION 114.9m LOCATION: LOGGED BY G.K.ELLIS DATE 13-11-76

MAP SCALE T.D. 123m P.D. 117.5m



ANALYSIS OR RADIOACTIVITY | DEPTH | STRIP LOG | SURFACE OXIDATION

LITHOLOGY LOG

0-7.5 CLAY red brn, soft-firm, calcareous near fsp

7.5 SAND red brn, fg, subang-subrnd, good sorting, strong limonite ox

8.0 SAND yellow orange, fg-mg, subang, fair sorting strong limonite ox

10.5 CLAY red brn, soft-firm.

13.5 SAND/GRAVEL mg-vcg - 1cm, Subrnd-rnd, poorly sorted strong limonite ox

14.4 CLAY lt-med red brn.

20.2 SAND pale orange, fg-mg, subang-subrnd, fair sorting, strong limonite oxidation

23.4 CLAY red brn, sl silty.

27.0 SAND red brn, fg, subang, good sorting, strong limonite oxidation

grading to SAND pale orange, mg-cg, subang-subrnd, fair sorting with strong limonite oxidation

36.2 CLAY lt gy-lt yellow gy, strong yellow limonite mottling minor red haematite mottling

45.6-52.4 SAND/SANDY CLAY no evidence in samples, log character - sandy.

52.4 CLAY lt gy with red haematite mottling

72.0 CLAY med gy with red haematite mottling

76.2 CLAY lt gy-lt green gy-grey-white, kaolinitic sandy 76.2-82.4 (not evident in samples.

(82.4 HSG gamma activity)

112.0 SHALE lt-med gy, sl fissile - lt gy brn, fissile, sl micaceous. v hard

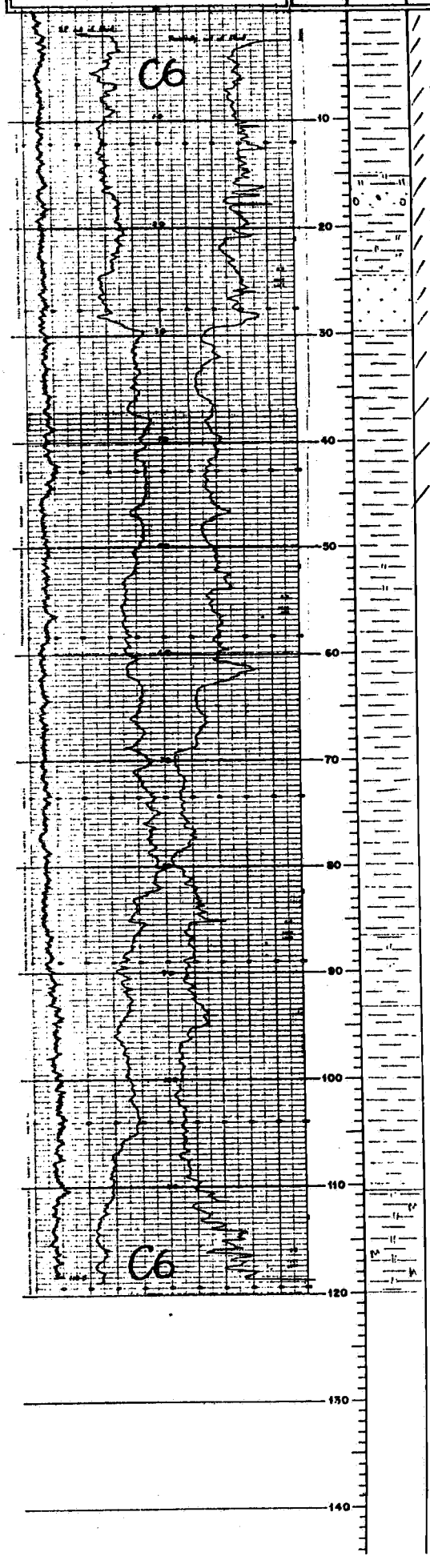
2818 (1)-12

MINAD TETON — AUSTRALIA

PROJECT CURNAMONA HOLE SIZE 12 cm 33m ☒AIR ☐WATER HOLE NO. C6

ELEVATION 106.8m LOCATION: LOGGED BY G.K. ELLIS DATE 14.11.76

MAP SCALE T.D. 120.0m P.D. 119.0m



LITHOLOGY LOG

0-15.0 CLAY lt red brn - red brn, soft - firm

15.0 SILT red brn, s-ft.

16.5 SAND/GRAVEL red brn med-cg, subang-subrnd, poor sorting, strong limonite oxidation, thin calcrete interbeds, crm-white, v hard rfg.

18.0 CLAY red brn, soft.

21.0 SILT, red brn, v. powdery.

24.5 SAND, orange brn, fg-cg, subang, poor sorting, strong limonite oxidation

29.8 CLAY lt gy with strong yellow limonite mottling

33.0 CLAY lt gy, sl silty in pt, strong red haematite mottling, mod common yellow limonite mottling.

52.5 - 54.0 CLAY lt gy-white, sl kaolinitic ? little v fn mottling sl silty

63.0 CLAY md gy (dk gy in pt) sl carbonaceous.

86.5 CLAY v.lt gy-white kaolinitic, soft, sl silty

93.2 CLAY pale yellow-brn

110.7 SILTSTN/MUDSTN red brn and grey green, sl micaceous, sl friable

CAMBRIAN.

2918 (1)-13

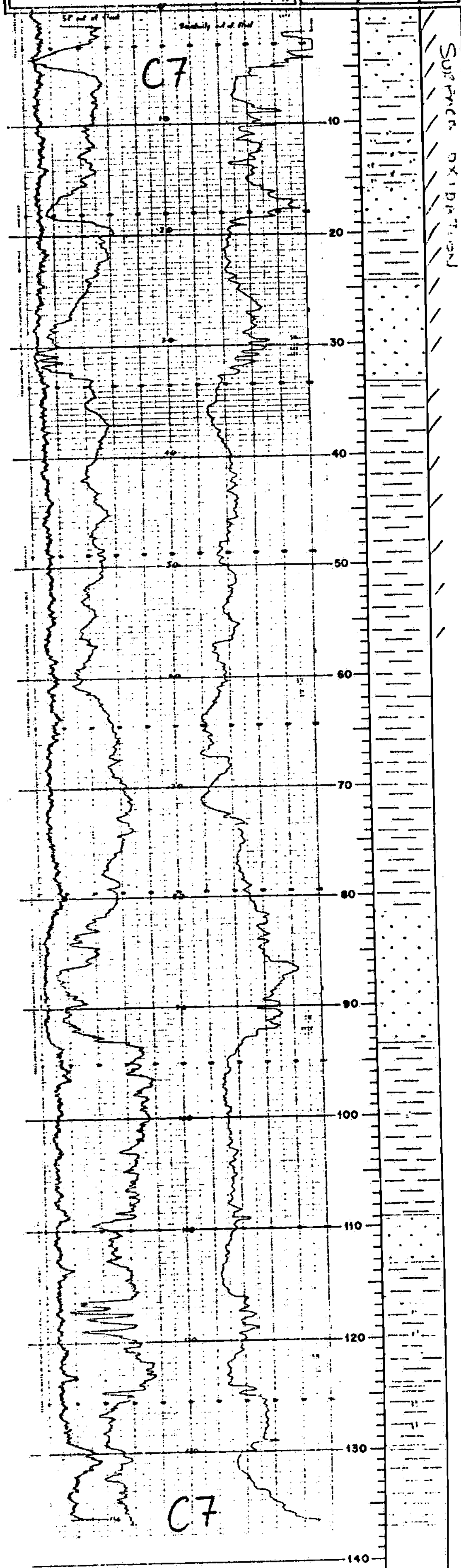
MINAD TETON — AUSTRALIA

PROJECT CURNAMONA **HOLE SIZE** 12cm 21m ☑AIR ☑WATER **HOLE NO.** C7

ELEVATION 89.2m **LOCATION:** **LOGGED BY** G.K. ELLIS **DATE** 14-11-76

MAP **SCALE** **T.D.** 137.0m **P.D.** 136.5m

ANALYSIS OR RADIOACTIVITY	DEPTH	STRIP LOG	OX	LITHOLOGY LOG



LITHOLOGY LOG

0-7.5 CLAYEY SAND red brn, fg-mg, subrnd, fair sorting grading to GRAVEL orange brn, mg-vcg-1cm, subrnd, poor sorting strong orange limonite oxidation

7.5- CLAY red brn, soft-firm

10.5 SILT red brn, sl sandy near top (vfg-fg)

16.0 SAND orange brn, fg-mg, subrnd-rnd, fair-good sorting, strong orange limonite staining

19.1 CLAY red brn-gy, silty

24.3 SAND yellow-orange, vfg-fg, subrnd-rnd, good sorting, strong limonite oxidation

33.3 CLAY lt gy, with strong red haematite and yellow limonite mottling

72.0 CLAY lt gy-white, kaolinitic

81.6 SAND white-lt gy, fg-mg, subang-subrnd, good sorting, neutral appearance

93.4 CLAY lt-med gy, silty

10?.0 SAND white-lt gy brn, vfg-fg, subang-subrnd, good sorting, sl clayey neutral appearance with to yellow limonite on 20% of grains

113.3 CLAY lt gy, firm
116.3-121.9?
124.5-127.7 higher resistivity zones — sand? no evidence in samples (Ellis, pattern of drg)

129.7 MUDSTONE [illegible], sl weathered, firm-soft [illegible]

2818 (1)-14

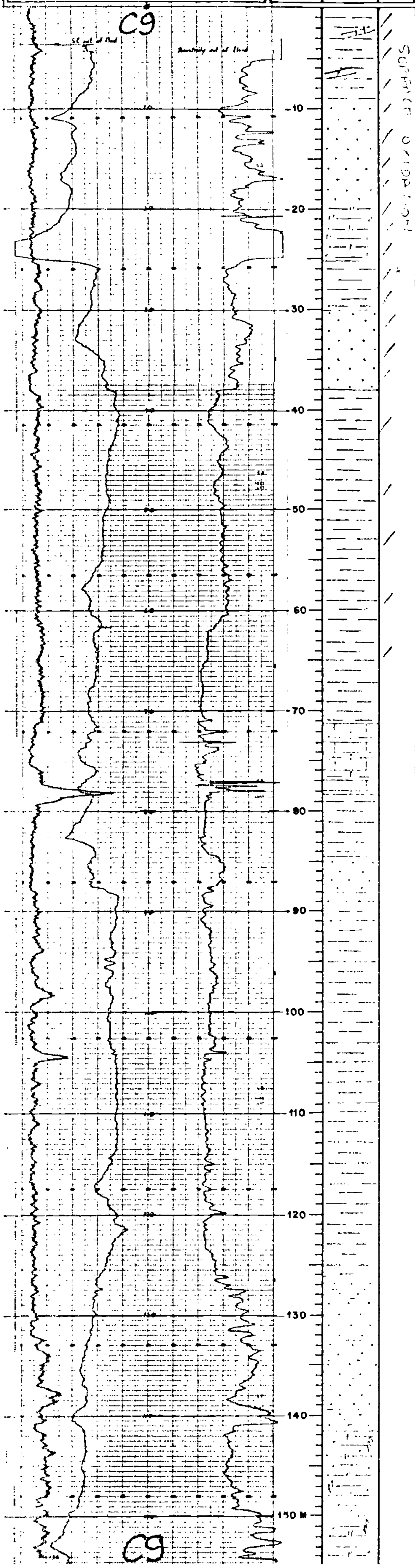
MINAD TETON — AUSTRALIA

PROJECT: CURNAMONA | HOLE SIZE: 12cm | 22.5m ☑ AIR ☑ WATER | HOLE NO. C9

ELEVATION: 62.2m | LOCATION: | LOGGED BY: G.K. ELLIS | DATE: 21-1-76

MAP: | SCALE: | T.D. 155.0m | P.D. 154.5m

ANALYSIS OR RADIOACTIVITY	DEPTH	STRIP LOG		LITHOLOGY LOG



0-9.0 CLAY lt brn, sl gypsiferous, vein form - thin bands of calcareous red brn, very hard.

9.0 SAND orange brn, fg-mg, subrnd-rnd, good sorting, strong limonite oxidation

19.5 SILT med brn, sl sandy, powdery.

22.5 SAND orange brn, fg-mg, sbang-sbrnd, good sorting, strong limonite oxidation

25.2 CLAY red brn, sl silty

30.0 SAND yellow brn, fg-mg, subrnd, good sorting, strong limonite oxidation.

38.0 CLAY lt gy with red haematite mottling

64.5 CLAY lt gy - lt gy brn with yellow limonite mottling.

71.2 LIMESTONE white-cream, calcilutite, firm with interbedded green grey CLAY to 75.5 and dk gy, carbonaceous CLAY to 78.2'

78.2 CLAY lt-med gy

84.5 SAND lt gy - lt gy brn, fg-mg, subrnd-rnd, good sorting neutral appearance

88.0 CLAY lt gy to lt green gy

126.1 SAND [illegible] in samples, [illegible] calcilutite [illegible] sandy clay in C6

sl [illegible]

141.7 MUDSTN/SILTSTN red brn, sl micaceous, sl sandy (v/f)

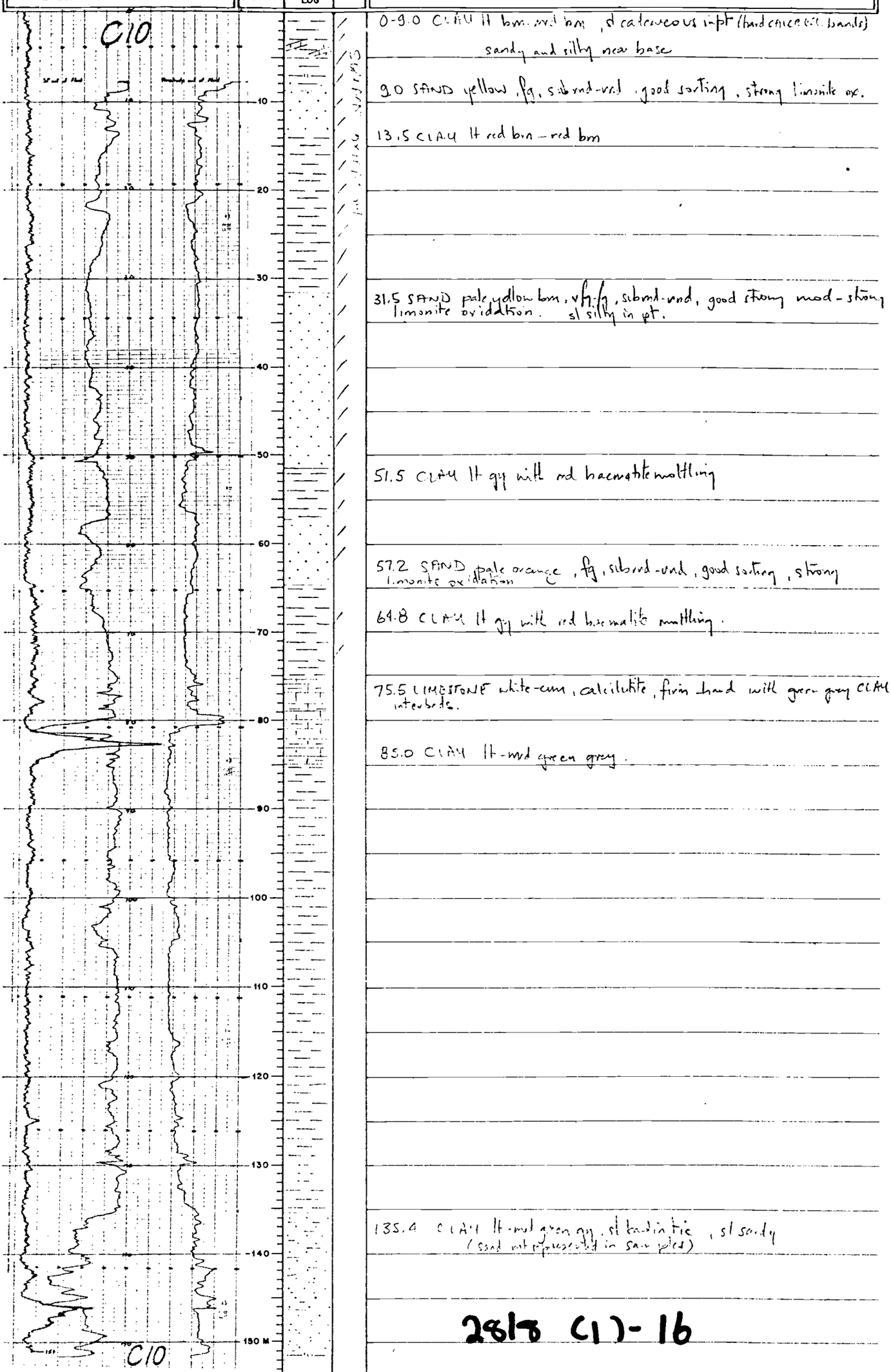
2818 (1)-13

MINAD TETON — AUSTRALIA

PROJECT CURNAMONA HOLE SIZE 12cm 225 ☑AIR ☑WATER HOLE NO. C10

ELEVATION 70.7m LOCATION: LOGGED BY C.L KELLIS DATE 23-11-76

MAP SCALE T.D. 152.0m P.D. 151.5m



LITHOLOGY LOG

0-9.0 CLAY lt brn-red brn, d calcareous in pt (hard calcareous bands) sandy and silty near base

9.0 SAND yellow, fg, s-sbrnd-rnd, good sorting, strong limonite ox.

13.5 CLAY lt red brn – red brn

31.5 SAND pale yellow brn, vfg-fg, sbrnd-rnd, good strong mod-strong limonite oxidation. sl silty in pt.

51.5 CLAY lt gy with rd haematite mottling

57.2 SAND pale orange, fg, sbrnd-rnd, good sorting, strong limonite oxidation

64.8 CLAY lt gy with rd haematite mottling.

75.5 LIMESTONE white-cream, calcilutite, firm-hard with green grey CLAY interbeds.

85.0 CLAY lt-md green grey.

135.4 CLAY lt-md green gy, sl kaolinitic, sl sandy (sand not represented in samples)

2818 (1)-16

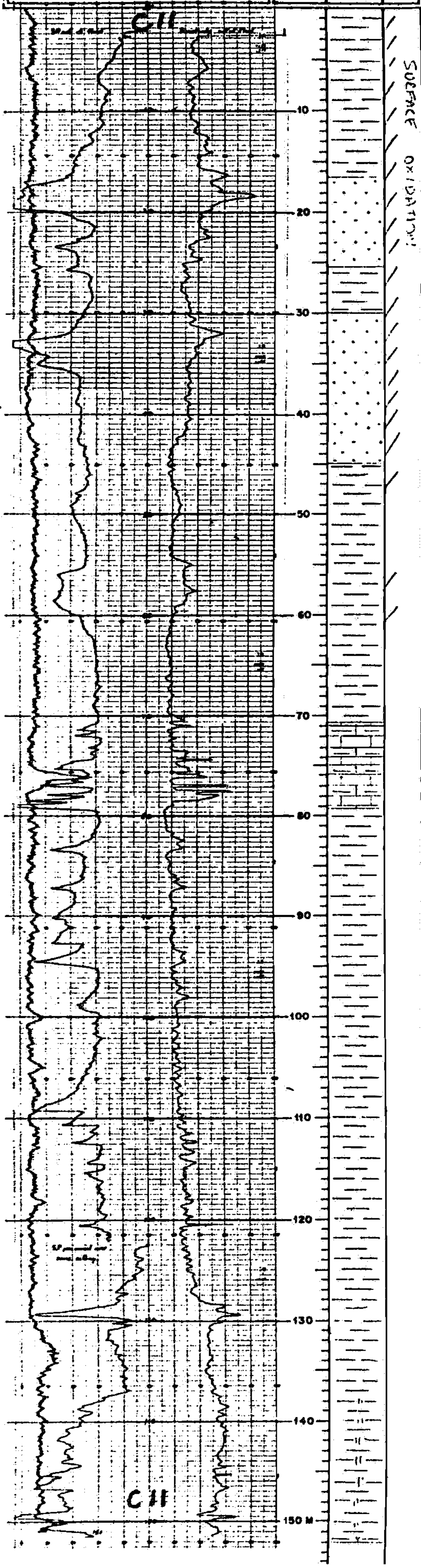
MINAD ISION — AUSTRALIA

PROJECT CURNAMONA **HOLE SIZE** 12cm 13m ☑AIR ☑WATER **HOLE NO.** C11

ELEVATION 79.5m **LOCATION:** **LOGGED BY** G.K. ELLIS **DATE** 24-11-76

MAP **SCALE** **T.D.** 152.0m **P.D.** 151.5m

ANALYSIS OR RADIOACTIVITY	DEPTH	STRIP LOG		LITHOLOGY LOG



0-6.0 CLAY lt-m-red brn, silty in pt.

6.0 - CLAY yellow brn - red brn
thin SILCRETE layers developed near base, red brn-white → hard
sl calcareous.

16.5 SAND orange brn, fg-mg, subang-subrnd, fair sorting, strong limonite oxidation. clayey towards base

25.5 CLAY red brn

30.0 SAND yellow brn, fg, subang-rnd, good sorting, strong limonite oxidation.

45.0 CLAY lt gy with yellow limonite mottling

57.0 CLAY lt gy with strong red haematite mottling

64.5 CLAY lt gy with yellow limonite mottling

70.8 LIMESTONE white-crm, calcilutite, firm-hard, with interbedded lt grey green and red gy CLAY

79.2 CLAY lt-med gy - lt green gy. firm

2818 (1)-17

137.5 MDSTN/SILTSTN red brn. firm-hard, fissile, sl micaceous
CAMBRIAN

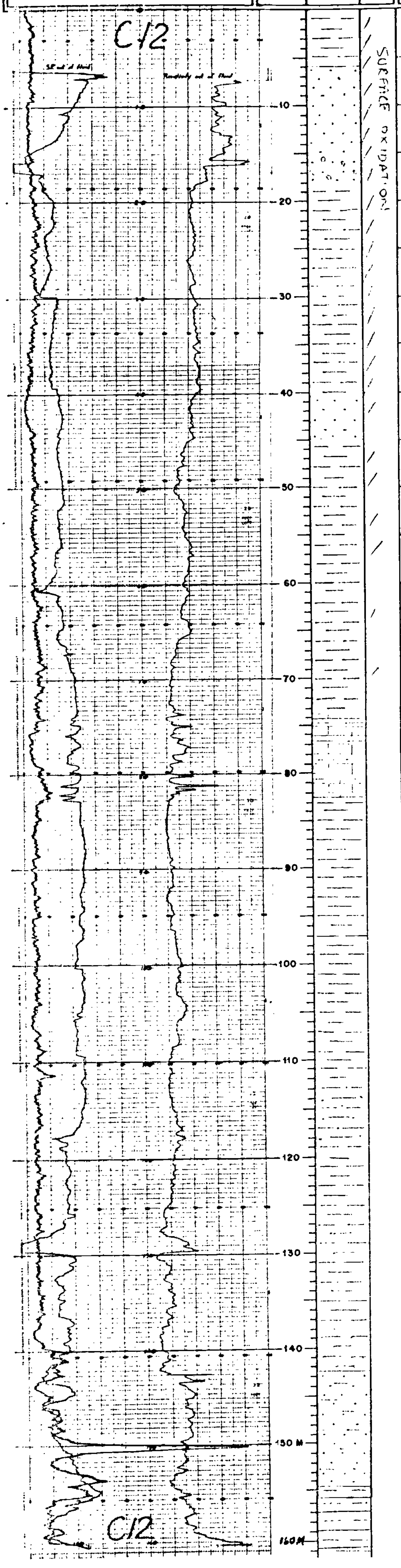
MINAD TETON — AUSTRALIA

PROJECT: CURNAMONA | HOLE SIZE: 12cm | 15m ☑ AIR ☑ WATER | **HOLE NO.** C12

ELEVATION: 92.2m | LOCATION: | LOGGED BY: G.K. ELLIS | DATE: 24-11-75

MAP: | SCALE: | T.D.: 161.0m | P.D.: 160.5m

ANALYSIS OR RADIOACTIVITY	DEPTH	STRIP LOG		LITHOLOGY LOG



LITHOLOGY LOG

0-6.0 CLAY lt-med brn, sl silty, calcareous numerous calcareous concretions

6.0 SAND lt yellow brn, vfg-fg, subang, fair sorting, strong limonite oxidation. grading to

10.5 SAND lt red brn, fg-mg, subang-subrnd, fair-good sorting, strong limonite oxidation.

15.0 GRAVEL grading to lt red brn vcg-1cm, subrnd, poor sorting, strong limonite and haematite oxidation

18.0 CLAY lt red brn with some yellow limonite mottling

40.5 SAND pale yellow, fg-mg, subrnd-rnd, fair-good sorting mod limonite oxidation.

45.0 CLAY lt gy with yellow limonite mottling

52.5 CLAY lt gy with red haematite mottling

60.0 CLAY lt gy with mod yellow limonite mottling and to red haematite mottling.

73.7 LIMESTONE white-crm, calcilutite, firm, with interbedded green gy CLAY

82.5 CLAY lt-med gy - lt green gy

113.0 CLAY/sh [illegible] sl sandy, vfg-fg, subang, [illegible] appearance

CLAY lt med gy - lt green gy, sl kaolinitic

142.5 [illegible] not represented in cutting samples [illegible] a sand [illegible] — though possibly a [illegible].

[illegible] MUDSTONE/SHALE med gy, v hard, microcrystalline

2818 (1)-18

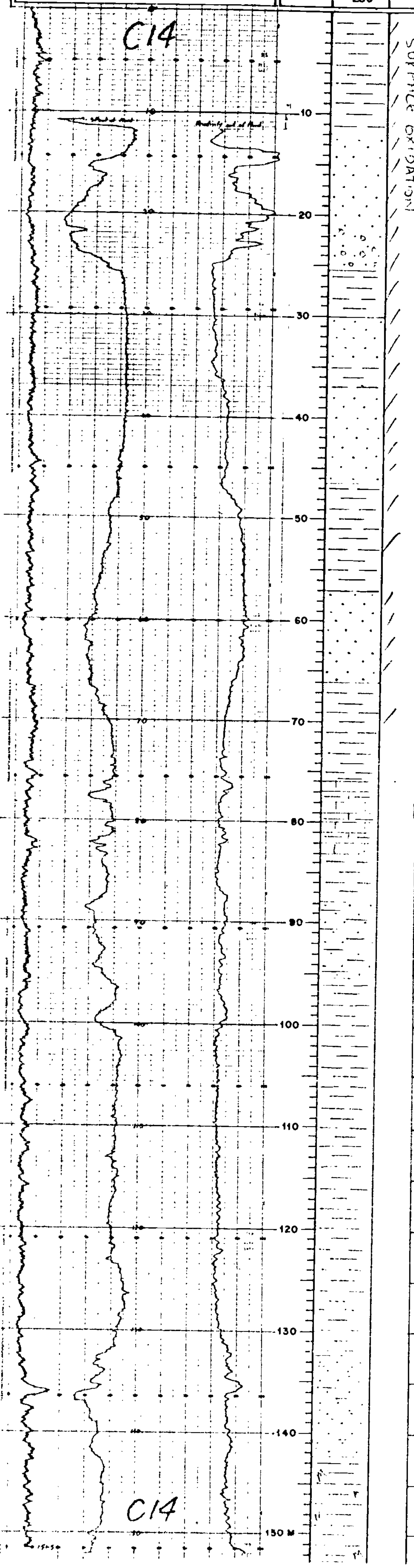
MINAD TETON — AUSTRALIA

PROJECT: CURNAMONA | HOLE SIZE: 12cm 16.5m | ☑ AIR ☑ WATER | **HOLE NO.** C14

ELEVATION: 87.0m | LOCATION: | LOGGED BY: GKBUS | DATE: 25-11-76

MAP: | SCALE: | T.D. 152.5 | P.D. 152.0m

ANALYSIS OR RADIOACTIVITY	DEPTH	STRIP LOG		LITHOLOGY LOG



LITHOLOGY LOG

0-12.0 CLAY lt brn with bands of CALCRETE, pink brn, v hard, siliceous in pt. Concretionary nodules near top.

12.0 SAND orange, fg-mg, subang-subrnd, fair-good sorting strong limonite oxidation.

16.5 becoming coarser -> mg-vcg - gravel (½mm-1mm) limonite-haematite pebbles subrnd-rnd

25.8 CLAY red brn, firm

30.0 SAND red brn, subang-subrnd, fair-good sorting, fg-cg. strong limonite oxidation.

34.5 CLAY red brn, silty in pt

37.5 SAND pale yellow brn, vfg-fg, subang-subrnd, fair-good sorting

46.5 CLAY lt gy with strong red brn haematite mottling

57.0 SAND red brn-orange brn, mg, subrnd-rnd, good sorting, strong limonite oxidation.

66.0 CLAY lt green gy with yellow limonite mottling

76.0 LIMESTONE white-cream, calcilutite, firm, with green gy CLAY interbeds to 79.5m, med gy CLAY interbeds 79.5m - 83.0 (v clayey section)

83.0 CLAY lt - med gy - lt green gy.

?76-95 sl sandy, vfg

[illegible]

138.0 CLAY a/a but sl kaolinitic

2818(1)-19

142.4 MUDSTONE red brn, soft (weathered)

CPS/B/E/BN

MINAD TETON — AUSTRALIA

PROJECT GURNAMONJA HOLE SIZE 12cm 24m ☑AIR ☑WATER HOLE NO. C15

ELEVATION 83.5m LOCATION: LOGGED BY G.K.ELLIS DATE 27-11-76

MAP SCALE T.D. 171.0 P.D. 170.5m

ANALYSIS OR RADIOACTIVITY	DEPTH	STRIP LOG	LITHOLOGY LOG
C15			0-9.0 CLAY red brn, calcareous concretionary nodules developed at top.
	10		9.0 SAND red brn subrnd-rnd, fg-mg, fair-good sorting, strong limonite oxidation
			10.5 CLAY grey-red brn, sl silty with thin discrete bands, v hard, pinky brn, sl siliceous
	20		15.0 SLT red brn, sandy in pt vfg-fg, suba-g-subrnd, strong limonite oxidation
	30		30.0 SAND yellow-orange, mg-vcg, subrnd-rnd, fair sorting, strong oxidation
			33.0 CLAY Hgy with strong yellow limonite mottling
	40		42.0 CLAY lt gy with mod red haematite mottling, silty in pt
	50		54.0 CLAY a/a but v sandy vfg
	60		60.0 CLAY H gy-H green gy with mod rd haematite and yellow limonite mottling
	70		
	80		82.6 SANDY CLAY lt-H gy-mod gy, fg-mg, subrnd, recent appearance
	90		
	100		101.0 CLAY lt-mod gy-grey green
	110		
	120		
	130		135.0? CLAY lt gy (mod gy-pk) – cavings? sl kaolinitic?
	140		139.2 high GS gamma activity slightly silty/sandy
	150 M		2918(1)-20
			156.0 MUDSTONE red brn, very weathered CAMBERVIEW
	160M		
C15	170M		

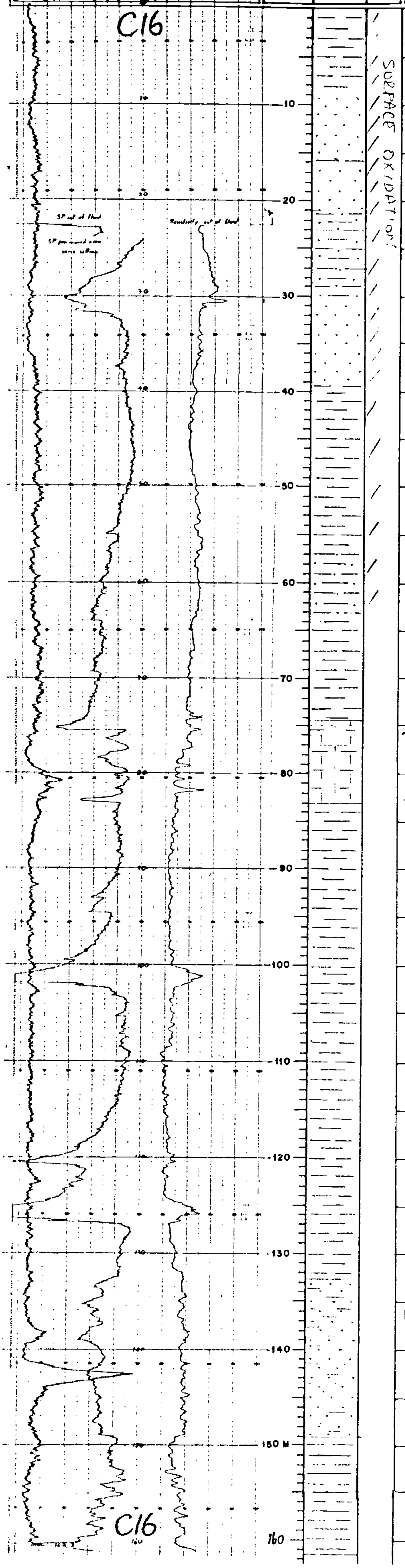
MINAD TETON — AUSTRALIA

PROJECT Curnamona **HOLE SIZE** 12cm 21.0m ☑ AIR ☑ WATER **HOLE NO.** C16

ELEVATION 62.2m **LOCATION:** **LOGGED BY** G.K. Ellis **DATE** 27-11-76

MAP **SCALE** **T.D.** 161.5m **P.D.** 161.0m

ANALYSIS OR RADIOACTIVITY	DEPTH	STRIP LOG		LITHOLOGY LOG



0 - 9.0 CLAY red brn, silty with bands of CALCRETE white-brn v hard, siliceous in pt.

9.0 SAND orange, fg, subrnd, good sorting, strong limonite oxidation

15.0 - 16.5 CLAY red brn, firm, sandy, silty.

21.0 SANDY CLAY red brn, sandy vfg, silty in pt

30.0 SAND yellow brn, vfg - fg, subang - subrnd, good sorting, sl silty strong limonite oxidation

39.0 CLAY lt gy with strong yellow limonite mottling

51.0 CLAY lt gy with strong red haematite and mod yellow limonite mottling.

sl sandy 57.0 - 63.0, vfg.

69.0 CLAY lt gy with yellow limonite mottling

74.5 LIMESTONE cream-white, calcilutite, firm with green gy CLAY interbeds to 79.5 and med-dk gy CLAY interbeds to base

83.0 CLAY lt-med gy, sl sandy near top

CLAY lt-med gy - lt green gy, sl kaolinitic.

132.7 SAND [illegible] not represented in samples but electric log indicates a sandy sequence

150.0 MUDSTN/SHALE med gy, v hard.

2018(1)-21

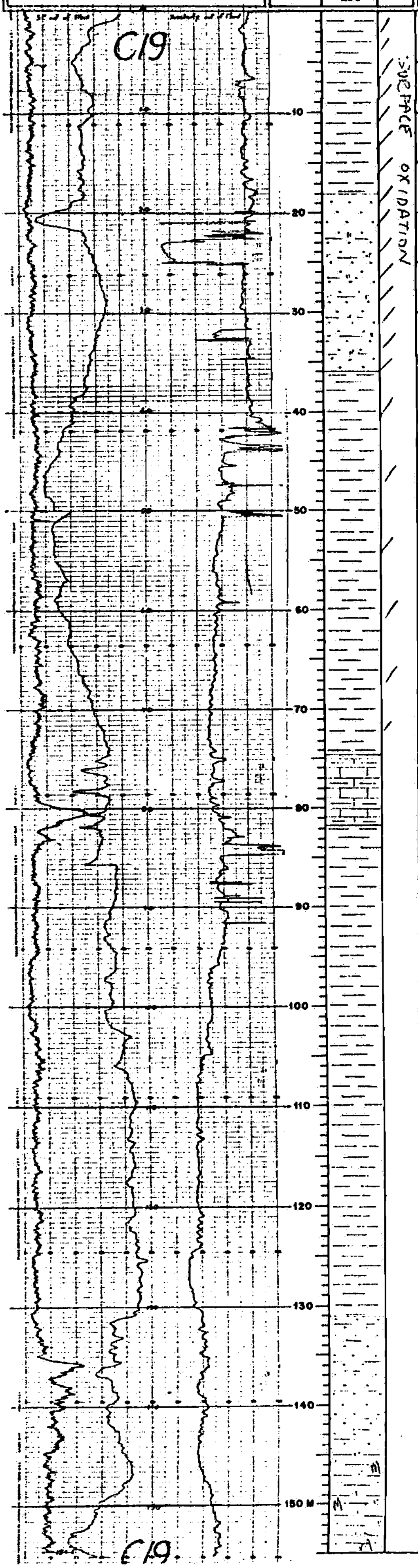
MINAD TETON — AUSTRALIA

PROJECT CURNAMONA **HOLE SIZE** 12cm 21.0m ☑ AIR ☑ WATER **HOLE NO.** C19

ELEVATION ______ **LOCATION:** ______ **LOGGED BY** G.K. ELLIS **DATE** 29-11-76

MAP ______ **SCALE** ______ **T.D.** 155.5m **P.D.** 155.0m

ANALYSIS OR RADIOACTIVITY	DEPTH	STRIP LOG		LITHOLOGY LOG



0-18.0 CLAY lt-med brn - red brn, abundant bands of pink brn-red brn CALCRETE, sl siliceous, v hard, concretionary in pt.

18.0 SAND orange brn, fg-vcg, subang-subrnd, poor sorting, strong limonite oxidation

21.0 SAND/SILT yellow brn, vfg.-silt, clayey in pt with strong limonite oxidation

36.0 CLAY lt gy with strong yellow limonite mottling

52.5 CLAY lt gy with mod-strong red haematite mottling, sandy (vfg) in pt, silty in pt

66.0 CLAY lt gy with mod yellow limonite mottling

74.7 LIMESTONE white-cream, calcilutite, firm with interbedded green grey CLAY

81.9 CLAY lt-med gy grading to lt greengy with depth.

[illegible] CLAY not represented in cuttings samples.

sl [illegible] [illegible]

144.6 SILTSN red brn, firm-hard, fissile, sl MICACEOUS

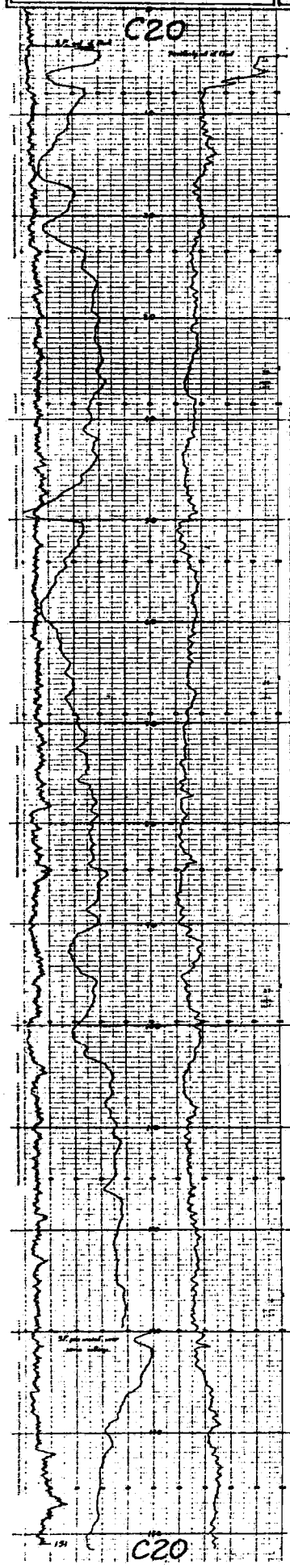
2818 (1)-22

MINAD TEICH — AUSTRALIA

PROJECT CURNAMONA HOLE SIZE 12cm 25.5m ☑AIR ☑WATER **HOLE NO.** C20

ELEVATION 81.6m LOCATION: LOGGED BY G.K.ELLIS DATE 30-11-76

MAP SCALE T.D. 152.0m P.D. 151.5m

ANALYSIS OR RADIOACTIVITY	DEPTH	STRIP LOG	LITHOLOGY LOG
		SURFACE OXIDATION	0-9.0 CLAY red brn - lt brn, with hard bands of CALCRETE, red brn-pink-brn 9.0 SAND lt-md brn, vfg-fg, subrd, fair-good sorting, strong limonite oxidation thin bands of CALCRETE also in pt 16.5 CLAY red brn 19.5 SILT/SAND red brn silt-vfg sand, good sorting, strong oxidation. 27.0 CLAY lt gy-red brn, sl Si. grading to lt gy with yellow limonite mottling 48.0 CLAY white lt gy with rd haematite mottling sl silty and sandy near top 70.5 CLAY lt gy and yellow limonite mottling 76.6 CLAY lt-red blue gy with thin bands of LIMESTONE white crm recalcitrant, frm grading to green grey CLAY and increase in LIMESTONE proportion grading back to lt-md gy CLAY with minor LIMESTONE bands 84.5 CLAY lt gy-lt green gy. 90.2 SAND ltgy, fg-mg, subrd-rnd, fair-good sorting, neutral appearance grading to CLAYEY SAND lt gy-md gy & SANDY CLAY (ie decrease in sand with depth) 103.5 CLAY lt-md gy grading to lt-md gy-green gy CLAY interbedded in samples. sl kaolinitic near base SILTSTN/MUDSTN rd brn, weathered, sl micaceous.

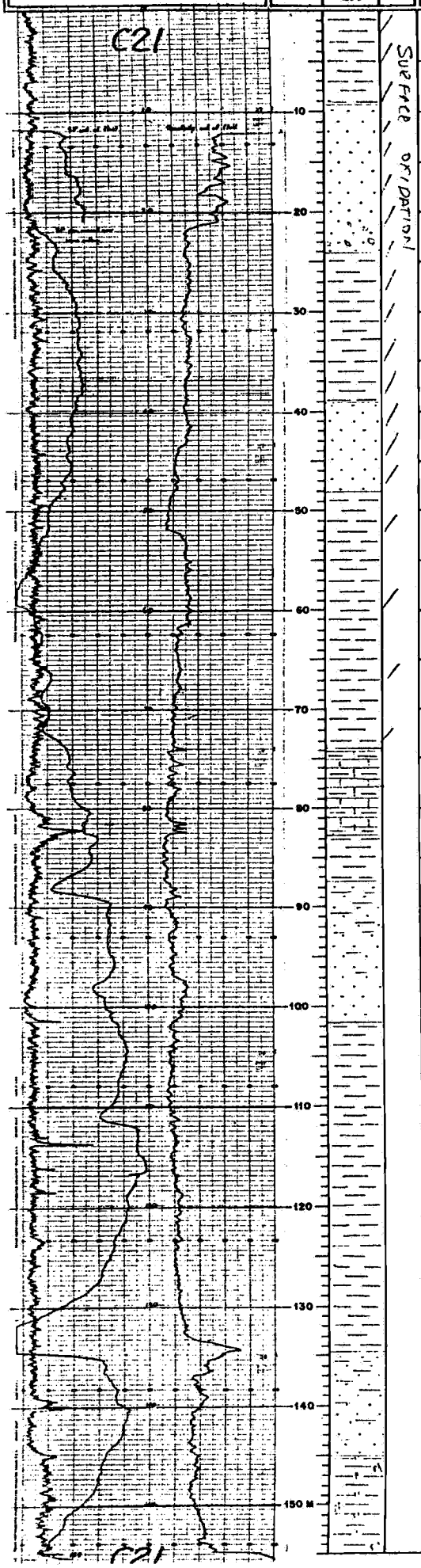
Q918 (17-23

MINAD NTON — AUSTRALIA

PROJECT CURNAMONA HOLE SIZE 12cm ☑AIR ☑WATER **HOLE NO.** C21

ELEVATION 91.1m LOCATION: LOGGED BY G.K.ELLIS DATE 30-11-76

MAP SCALE T.D. 156.0m P.D. 155.5m



ANALYSIS OR RADIOACTIVITY	DEPTH	STRIP LOG	LITHOLOGY LOG
			0-9.0 CLAY lt-md brn, sl sandy, silty in pt abnt bands of CALCRETE, v hard, sl siliceous.
			10 SAND red brn-yellow, mg-cg, sbrnd, fair sorting, strong limonite oxidation.
			22.5 GRAVEL/SAND vcg → bsm, sbrnd-rnd, poor sorting, strong limonite oxidation limonite pebbles dk brn.
			24.0 CLAY lt grybrn - red brn. sl silty.
			39.0 SAND pale yellow brn, fg-mg, sbrnd-rnd, fair-good sorting strong yellow limonite staining.
			48.0 CLAY lt gy with red haematite mottling, sl silty near Tp to yellow limonite mottling
			70.5 CLAY lt gy with yellow limonite mottling, friable smooth
			73.9 LIMESTONE white-cream, calcilutite, firm with intbeds of green gy CLAY at Tp, lt-md gy CLAY at base
			82.7 CLAY lt-md gy
			87.5 SAND lt gy, v clayey at top. fg-mg, sbrnd-rnd, fair sorting, neutral appearance. amt of clay decreases with depth.
			101.6 CLAY lt-md gy - lt green gy.
			134.7 SAND lt gy, fg-cg, sbang-sbrnd, fair sorting, neutral appearance sl kaolinitic clayey in pt, sl kaolinitic.
			ASSEMLDSTN/SILTSN red brn, sl micaceous, fissile, friable.

2818(17-24

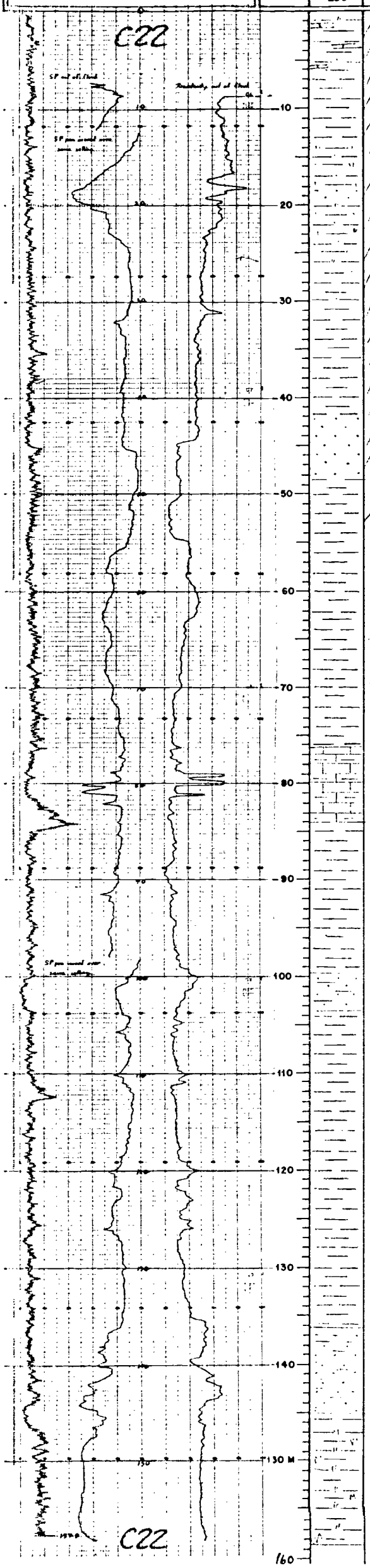
MINAD TETON — AUSTRALIA

PROJECT CURNAMONA HOLE SIZE 12cm 25.5m ☑AIR ☑WATER HOLE NO. C22

ELEVATION 73.5m LOCATION: LOGGED BY G.K ELLIS DATE 1-12-76

MAP SCALE T.D. 158.5m P.D. 155 Dr.

ANALYSIS OR RADIOACTIVITY	DEPTH	STRIP LOG	LITHOLOGY LOG



0-13.5 CLAY lt-med brn, silty in pt with bands of CALCRETE, v hard, sl siliceous, red brn.

13.5 SILT red brn, sl sandy

18.0 SAND yellow brn, vfg-fg, subang-subrnd, good sorting, strong yellow limonite staining

19.5 SILT red brn, sl sandy (vfg)

30.0 CLAY red brn, silty

42.0 SAND, yellow brn, vfg-fg, subrnd, good sorting, strong yellow limonite staining

48.0 CLAY lt gy brn with yellow limonite mottling

55.5 CLAY lt gy with strong red haematite mottling, lt yellow limonite mottling, sl silty at top.

76.5 CIMESTONE white cream, calcilutite, firm with interbedded grn-gy clay

84.0 CLAY med-dk gy.

90.0 CLAY lt-med gy

99.0-103.7 sl sandy, vfg-fg, subrnd, neutral appearance

136.2 [illegible] not represented on electric log by bit dimited by

145.0 CLAY lt-med gy - grn gy, sl radioactive

146.1 MUDSTONE/SILTSTONE pale brn, sl micaceous, mottled (s-f)

2618(1)-25

PROJECT GRNAMONA HOLE SIZE 12cm AIR WATER HOLE NO. C18

ELEVATION 82.7m LOCATION: LOGGED BY G.K.ELLIS DATE 29-11-76

MAP SCALE T.D. 142.0m P.D. 141.5m

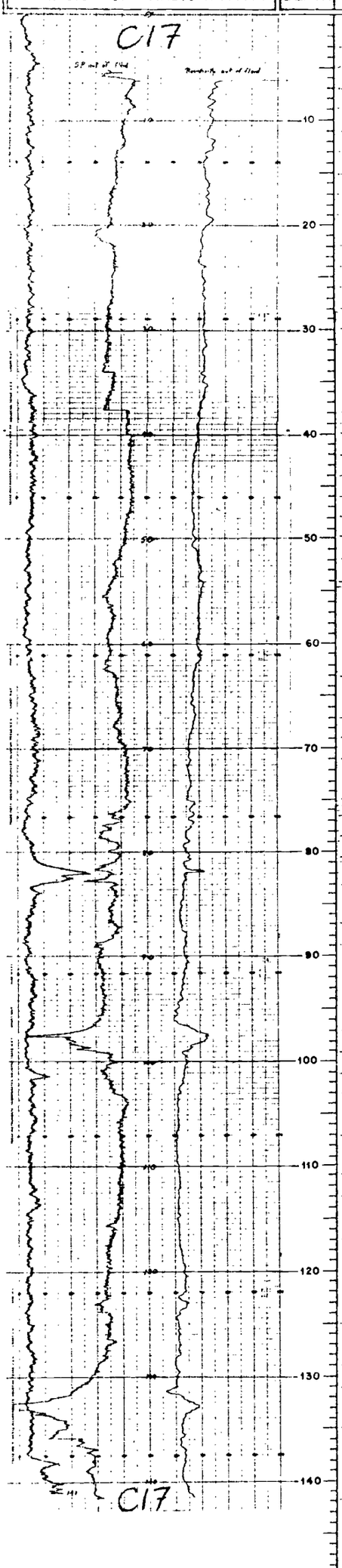
ANALYSIS OR RADIOACTIVITY	DEPTH	STRIP LOG	LITHOLOGY LOG
C18		SOAKAGE OXIDATION	0-10.5 CLAY red brn-lt brn with abnt bands of white CALCRETE v hard, concretionary nodules in pt sl sandy at top.
	10		10.5 SAND orange brn, mg (cgn pt), subrnd-rnd, fair-good sorting strong limonite oxidation eg-vcg near base, abnt limonite pebbles
	20		13.5 CLAY lt gy brn-md brn, silty
	30		33.0 SAND orange brn, vfg-fg, subang, silty, strong limonite oxidation
	40		39.0 CLAY red brn, sl silty, lt sandy
			43.5 SAND yellow brn, vfg-fg, subrnd, good sorting, strong limonite oxidation
	50		48.0 CLAY lt gy, v silt and yellow limonite and red haematite mottling
	60		66.0 CLAY lt gy, v silt lt yellow limonite mottling
	70		71.8 LIMESTONE white-crm, calcilutite, firm with green gy CLAY interbeds
	80		80.2 CLAY lt-med gy - lt-md green gy.
	90		90.0-96.0 sl sandy vfg
	100		
	110		
	120		
	130		
C18	140		2618(1)-26 sl bedding near base 140 very hard drilling SILCRETE? top of limestone?

MINAD TETON — AUSTRALIA

PROJECT [illegible] HOLE SIZE 12cm 21D ☑AIR ☑WATER HOLE NO. C17

ELEVATION _____ LOCATION: _____ LOGGED BY G.K.ELLIS DATE 25-11-75

MAP _____ SCALE _____ T.D. 142.0m P.D. [illegible]



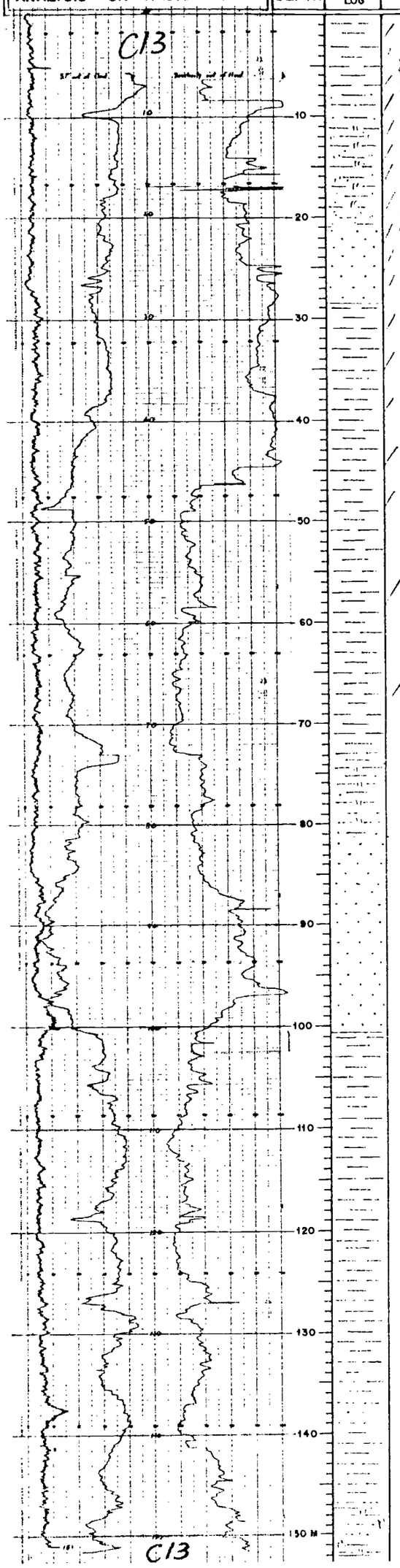
ANALYSIS OR RADIOACTIVITY	DEPTH	STRIP LOG	LITHOLOGY LOG
			0-3.0 CLAY red brn with abundant bands of CALCRETE white-red brn nodular/concretionary, hard, siliceous
			3.0 CLAY lt gy-red brn, sl silty, bands of calcrete conn Top (c/a)
			3.5 [illegible] red brn fg-mg sl rnd good sorting, strong oxidation
			21.0 CLAY lt gy-red brn sl silty
			31.5 SAND orange brn, fg-mg (g in pt) sl rnd-rnd, good sorting, strong oxidation
			39.0 CLAY lt gy-yellow, abnt yellow limonite mottling
			50.0 CLAY lt gy-yellow brn, abnt yellow limonite mottling, mod red haematite mottling.
			54.7 SAND yellow brn, vfg-fg, sl rnd, silty, fair-good sorting, strong yellow limonite oxidation
			62.6 CLAY lt gy with mod red haematite mottling, minor yellow limonite mottling
			75.8 LIMESTONE white-crm, calcilutite, firm with grey gy CLAY interbeds mod gy CLAY interbeds near base
			82.7 CLAY lt-md gy - lt-md grn gy
			sl kaolinitic towards base
			2618(17-27
			141.0 SILCRETE? v.v. hard, coll will not penetrate with rig pit — minute fragments recovered lt brn, white, v hard siliceous.
			— top of paleorhenoval surface ?

MINAD TETON — AUSTRALIA

PROJECT CURNAMONA HOLE SIZE 12cm 21m ☑AIR ☑WATER HOLE NO. C13

ELEVATION _____ LOCATION: _____ LOGGED BY G.K. ELLIS DATE 25-11-76

MAP _____ SCALE _____ T.D. 152.0m P.D. 151.5 m



LITHOLOGY LOG

0.0 CLAY lt brn with abnt calcareous concretions — siliceous in pt

sandy near base v fg-fg.

10.5 SANDY SILT med brn, vfg, subang-subrd

21.0 SAND pale yellow brn, fg, subrnd-rnd, good sorting, strong limonite oxidation

28.5 CLAY lt gy with yellow limonite and minor red haematite mottling

39.0 CLAY lt gy with strong red haematite mottling

decrease in intensity of mottling towards base.

52.5 CLAY lt gy with yellow limonite and minor red haematite mottling

74.5 becoming silty, sl sandy sl kaolinitic?

82.5 SAND white-lt gy vfg, subrnd-rnd, good sorting, neutral appearance sl traces of lt gy clayey in pt, kaolinitic

100.4 CLAY lt-med gy

133.0 CLAY lt-med gy & pale yellow-yellow orange

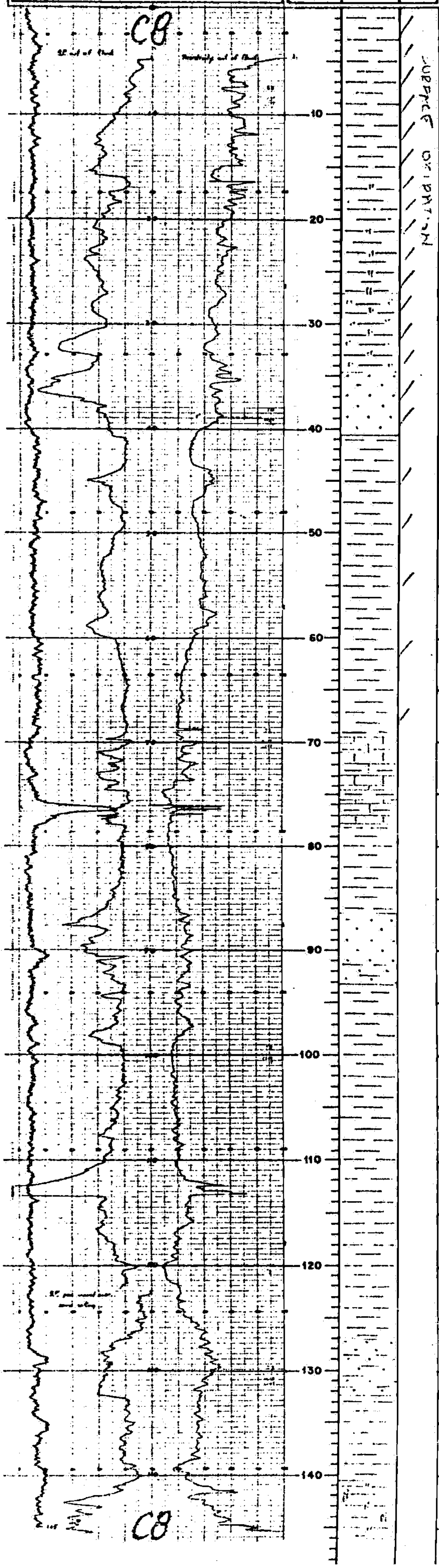
2818(1)-28

147.2 MUDSTONE/SILTSTONE red brn, micaceous, fissile, fine-flat CARNEGIE?

PROJECT [illegible] | HOLE SIZE 12cm | ☒ AIR ☒ WATER | **HOLE NO.** C8

ELEVATION 82.7m | LOCATION: | LOGGED BY G. K. ELLIS | DATE 21-11-76

MAP ENV 2818 | SCALE | T.D. 146.0m | P.D. 145.5m



LITHOLOGY LOG

0-21.0 CLAY lt brn-med brn, with bands of siliceous CALCRETE, red brn v hard

silty and sl sandy (?) near base

21.0 SILTY CLAY lt-med brn, sl sandy in pt

27.0 SILT red brn-orange brn, sl sandy

34.5 SAND orange brn, vfg-fg, subang-subrnd, good sorting, strong limonite oxidation

40.9 CLAY lt gy with strong red haematite mottling

63.0 CLAY lt gy with mod yellow limonite mottling

69.4 LIMESTONE white-cream, calcilutite, firm with interbeds of green gy CLAY to 75.0m

74.5 77.8 CLAY med-dk gy with thin interbeds of LIMESTONE a/a

77.8 CLAY med gy lt gy in pt

86.7 CLAYEY SAND med gy, sl sandy in pt, vfg-fg, subrnd [illegible]

93.1 CLAY med gy

127.9 [illegible]

132.6 [illegible]

2818(1)-29

140.6 MUDSTN/SILTSTN red brn, sl [illegible], sl micaceous, firm

CAMBRIAN

Basal Sand

The basal unit of Lower Tertiary deposition is a light grey to light grey-brown, fine to medium grained quartzose sand. The grains are subrounded to subangular and show fair to good sorting. The sand has a neutral to fresh appearance, with light to dark grey-brown humic staining on 10% of the grains, a trace to common yellow shiny pyrite, and a trace of dark brown carbonaceous matter. The sand is very clayey and silty, and quite often is very poorly represented in the cuttings samples, (e.g. C12 and C16).

The distribution of the Basal Sand is shown in the Isopach Map of the Basal Sand (Fig. 5). In the Curnamona Channel the Basal Sand is up to 15 metres thick. The present southwestern (upstream) limit is ill-defined, however there is some indication that it consists of a series of small tributary channels.

Lower Clay

The Basal Sand is overlain by a thin (up to 5 metres) discontinuous medium to dark grey clay which is slightly kaolinitic.

Middle Unit

The Middle Unit consists of light grey, fine to medium grained quartzose sand. The sand grains are generally subangular to subrounded and show fair sorting. The sand generally has a neutral appearance, though a faint tinge of light brown humic grain staining and a trace to common yellow dull to shiny pyrite is occasionally present. This sand is also poorly represented in the cuttings samples.

The distribution of the Middle Unit is shown in the Isopach Map of the Middle Unit (Fig. 6). It can be seen that the "channel" for the Middle Unit sand is very much wider than that for the Basal Sand. In the Curnamona Channel the Middle Unit is up to 10 metres thick. The present upstream limit of the Curnamona Channel is much better defined than for the Basal Sand.

Upper Clay

The Middle Unit is overlain by a thin and often discontinuous light to

medium grey, slightly kaolinitic clay. This unit is often indistinguishable from the overlying Upper Unit.

Upper Unit

The Upper Unit consists of sequence of interbedded sands, silts and clays. The sands are light grey, very fine to fine grained and quartzose. The sand grains are generally subrounded (subangular in part) and show fair sorting. The sand usually has a neutral appearance with slight evidence of weak limonite oxidation. The silts and clays are light to medium grey and very slightly kaolinitic. The upper boundary is generally ill-defined and merges with the overlying Namba Formation.

Beyond the channel margins rather than encountering shallow basement, a thick clay section is present, which appears to be either the facies equivalent of the Lower Tertiary palaeochannel section or Cretaceous sediments (though they bear no similarity to the Cretaceous clays elsewhere in the southern Frome Embayment). The clays appear to have been deposited in a lacustrine or broad flood plain environment associated with the middle to upper part of the fluvial regime of the Curnamona Channel, indicative of a very mature fluvial system.

In the far south of the area drill holes C3 and C4 intersected a "channel" sand section at a depth of 60 to 70 metres. It is a white to pale grey, very fine to fine grained (but becoming coaser with depth) quartzose sand. The grains are generally angular to subangular and show fair to poor sorting. Kaolinite and white feldspar (?) are common, and fragments of weathered orange-brown slate gradually increase with depth, as does the amount and strength of limonite oxidation. This sand is very immature and is most probably locally derived.

Middle Tertiary to Quaternary

Deposition of the Lower Tertiary channel sequence was followed by a period of non-deposition and minor erosion prior to deposition of the Middle Tertiary sediments (Callen, 1974).

A sequence of light to medium grey, slightly mottled clays and minor light grey, fine grained sands of the Miocene Namba Formation overlies the Lower Tertiary channel sequence. Within this sequence a limestone is present; it is a white to cream calcilutite with interbedded grey and green clays in the upper

half, and medium to dark grey, slightly carbonaceous clays in the lower half. It is equivalent to the upper carbonate of member 2 of the Namba Formation and was deposited in a supratidal lagoon environment or inland lake (Callen, 1975). The limestone section was cored in Esso's drill hole FD21A, and the core described in detail (Graveson, 1973). The limit of this unit is shown on the Structure Contour Map (Fig. 7), which also shows a general northeast-southwest strike and a shallow northwesterly dip. Toward the limit of the limestone deposition (i.e. shoreline) the clay/limestone ratio gradually increases, with the limestone becoming the minor constituent, with the increasing influence of terrigenous sediments. The limestone is 5to 9 metres thick (Fig. 8).

The upper part of the section consists of light grey clay with yellow limonite and red maematite mottling and light brown to red-brown silts, sands and clays with layers of hard concretionary calcrete close to the top of the section.

URANIUM MINERALIZATION

There is very little uranium mineralization developed in the area of investigation. Very minor gamma-ray kicks are occasionally associated with the neutral to fresh sands of the channel section (e.g. in the Basal Sand of C12 and C16) but they are not considered to be significant.

The carbonate unit of the Namba Formation contains anomalous radioactivity associated with carbonaceous clay interbeds in the lower half of the unit. There does not appear to be any marked pattern in the distribution of mineralization, although often areas of thicker (7 to 9 metres) limestone development contain the anomalous mineralization. This mineralization which was probably introduced during deposition of the enclosing sediment is not considered to be economically significant.

CONCLUSIONS AND RECOMMENDATIONS

Tertiary sedimentation is represented by the fluvial deposition in the northeast trending Curnamona palaeochannel. These sediments are probably equivalent to Eyre Formation sediments. The channel section is only poorly developed in the area of interest, though it gradually improves downstream.

The results of the drilling programme have not revealed any uranium

mineralization considered to be of economic significance. Minor mineralization was encountered in the area, associated with neutral to fresh sands of the channel section, and carbonaceous clays in the Namba Formation limestone. It is therefore recommended that no further work should be carried out in the area of investigation.

However it is felt that the potential for uranium deposits in the hard rock area in the vicinity of the Spring Hill Uranium Prospect in the southeast corner of the area does warrant further work. A programme of geological mapping, soil and rock-chip geochemistry, ground radiometrics and follow-up drilling is planned to evaluate this area.

G. K. Ellis
28th July 1977

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CALLEN, R.A., 1974. Geology of the Frome 1:125,000 geological map and adjacent regions. S. Aust. Dept. Mines unpublished report, RB 74/25.

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DAILY, B., 1956. The Cambrian in South Australia, in El sistema Cambrico. 20th International Geological Congress V.2 : 91-147.

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WOPFNER, H., 1970. Early Cambrian palaeography, Frome Embayment, South Australia. Bull. Am. Assoc. Petrol. Geologists 54 : 2395-2409.

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MINES ADMINISTRATION PTY LIMITED

QUARTERLY REPORT

EL 254 (CURNAMONA), SOUTH AUSTRALIA

PERIOD 2.4.77 TO 1.7.77

by
G.K. ELLIS

Exploration Licence 254, which covers an area of 716 square kilometres in the southwestern Lake Frome area of South Australia (Fig. 1), was granted to Mines Administration Pty Limited and Teton Exploration Drilling Company Pty Ltd, on 2nd July, 1976.

During the quarter ended 1st July, 1977, detailed evaluation and compilation of the results of the November/December 1976 drilling programme was completed. A copy of the report is enclosed.

Exploration expenditure during the quarter totalled $1,092.00 - a detailed statement is attached.

G. K. ELLIS
Project Geologist - MTA

BRISBANE

1st August, 1977

057

MINES ADMINISTRATION PTY LIMITED

STATEMENT OF EXPENDITURE

EL 254 (CURNAMONA)

QUARTER ENDED 1.7.77

	$	$
Geophysical and Geological Costs		
Salaries and Wages	966	
Drafting Supplies	121	1,087
Logistics		
Freight	5	5
		$1,092

M. A. EGERT
Accountant

Ref: AC/MDE

QUARTERLY REPORT

EL 254 (CURNAMONA) SOUTH AUSTRALIA

PERIOD 2/7/77 - 1/10/77

Exploration Licence 254, which covers an area of 105 square kilometres in the southwestern Lake Frome area of South Australia, was granted to Mines Administration Pty. Limited and Teton Exploration Drilling Company Pty. Ltd. on 2nd July 1976.

During the quarter ended 1st October 1977 no work was carried out on EL 254.

Exploration expenditure during the quarter totalled $910.

G. K. ELLIS
Project Geologist - MTA

26th October 1977

BRISBANE

19th October, 1977

059

MINES ADMINISTRATION PTY LIMITED

STATEMENT OF EXPENDITURE

EL 254 (CURNAMONA)

QUARTER ENDED 1.10.77

REF: AC/MDE

Geophysical and Geological Costs		
Salaries and Wages	754	
Drafting Supplies etc.	118	872
Logistics		
Communications	28	
Freight	10	38
		$910

M. A. Egert
Accountant

MINES ADMINISTRATION PTY. LIMITED

060

QUARTERLY REPORT

EL 254 (CURNAMONA) SOUTH AUSTRALIA

PERIOD 2/10/77 - 1/1/78

Exploration Licence 254 which covers an area of 105 square kilometres in the south-western Lake Frome area of South Australia was granted to Mines Administration Pty. Limited and Teton Exploration Drilling Company Pty. Ltd. on 2nd July 1976.

During the quarter ended 1st January 1978, no work was carried out on EL 254.

The expenditure during the quarter totalled $62.

G.K. Ellis
PROJECT GEOLOGIST - MTA

20th January 1978

EDV. 2818 II

Brisbane.
18th January, 1978.

MINES ADMINISTRATION PTY LIMITED

STATEMENT OF EXPENDITURE

EL 254 (CURNAMONA)

QUARTER ENDED 1.1.78

REF: AC/MDE

	$
Geophysical and Geological Costs	
Salaries and Wages	$62

M. A. Egert.

Accountant.

Mines Administration Pty Limited

062

QUARTERLY REPORT

EL 254 (CURNAMONA) SOUTH AUSTRALIA

QUARTER ENDED 1/4/78

Exploration Licence No 254 (Curnamona) was granted to Mines Administration Pty Limited and Teton Exploration Drilling Company Pty Ltd on 1st July 1976 for a period of one year. After partial relinquishment a 12 month Extension of Term was granted over the southeastern portion now constituting EL 254. The tenement covers an area of 105 kms^2 in the southern Lake Frome area of South Australia.

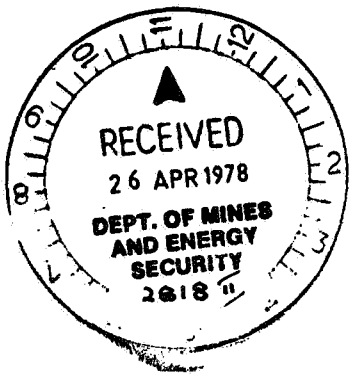
During the quarter no work was carried out on the tenement.

Expenditure during the quarter totalled $201 - a detailed expenditure statement is attached.

R. Wecker
Project Geologist

18th April 1978

attch



Brisbane

17th April 1978

063

Mines Administration Pty Limited

STATEMENT OF EXPENDITURE

EL 254 (CURNAMONA)

QUARTER ENDED 1.4.78

	$	$
Geophysical and Geological Costs		
Salaries & Wages	184	
		184
Logistics		
Travel & Accommodation	9	
Communications	8	
		17
		$201

M. A. Egert

Accountant

Ref: AC/MDE

064

MINES ADMINISTRATION PTY LIMITED.

QUARTERLY REPORT

EL 254 (CURNAMONA)

QUARTER ENDED 1.7.78

Exploration Licence 254 (Curnamona) was granted to Mines Administration Pty. Limited and Teton Exploration Drilling Company Pty. Ltd on the 2nd July 1976. The tenement encompassed an area of 716 kms^2 in the southern Lake Frome area of South Australia. Following relinquishment of the majority of the Licence area on the 2nd July 1977, extension of EL 254 was granted until the 1st July 1978. This reduced tenement covered 105 kms^2 and was centered on the Spring Hill uranium prospect.

The Spring Hill prospect is held under mining leases and contains an estimated 1 000 tonnes of ore at an average grade of 1.1 kg/tonne. The mineralisation is present as davidite associated with veinlets in granite and metasediment host rocks. Field reconnaissance failed to find any extension of the mineralisation outside the mining leases. Consequently, no additional exploration of the area was justified.

During the quarter ended 1.7.78, no field activities were undertaken on EL 254.

Expenditure during the quarter totalled $142 - a detailed expenditure statement is attached.

Yours faithfully,
MINES ADMINISTRATION PTY. LIMITED.

Ross Wecker.
Geologist.

Brisbane

20th July, 1978.

Mines Administration Pty. Limited

STATEMENT OF EXPENDITURE

EL 254 (CURNAMONA)

QUARTER ENDED 1.7.78

	$	$
Geophysical and Geological Costs		
Salaries and Wages	101	
Drafting Supplies	41	142
		$ 142

M. A. Egert

Accountant