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EL 63

MUTOOROO

PROGRESS AND FINAL REPORTS FOR THE PERIOD 4/5/73 TO 3/5/75

Submitted by

Tricentrol Australia Ltd
1975

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Tricentrol
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(Incorporated in Victoria)

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Ref: 73.300.01007
LSD: RS

20 September, 1973.

Director of Mines,
Department of Mines South Australia,
Box 38,
Rundle Street P.O.,
ADELAIDE. 5000.

Dear Sir:

Re: Quarterly Report for Period Ended 3rd August, 1973 - Mutooroo, South Australia
Technical and Financial.

We apologise for not forwarding the quarterly report at the due time as pointed out in your letter dated 7th September, 1973.

TECHNICAL REPORT:

The period was occupied in researching past literature on the area and compiling an exploration budget and work programme. The programme requires some 30,000 ft. of rotary drilling to investigate the sub-surface nature of the Murray Basin in this locality and determine if conditions are suitable for the deposition of sedimentary uranium. The field programme is due to commence on 15th August, 1973.

FINANCIAL REPORT:

Plans and Reports	$ 34.35
Hire of Neltronic Logger	$1,500.00
Travel & Accommodation	$ 21.60
Technical Staff Fees	$ 801.88
Head Office expenses	$ 32.92
	$2,390.75

RECEIVED
2 OCT 1973
DEPT. OF MINES
SECURITY

Yours faithfully,

L. S. DENHOLM.
Chief Geologist.

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TRICENTROL AUSTRALIA LIMITED

QUARTERLY REPORT, E.L.NO 63 - RADIUM HILL AREA

SOUTH AUSTRALIA

FOR QUARTER ENDED 3rd NOVEMBER, 1973

SYDNEY.

C O N T E N T S

1 INTRODUCTION

2. WORK PERFORMED DURING THE QUARTER.

(a) Drilling
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(c) Gamma and Electric Logging.

3. RESULTS.

4. PLANNED ACTIVITY FOR NEXT QUARTER.

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APPENDIX I :

Summary of Drill Logs MT1 - MT64

ILLUSTRATIONS:

Figure	Description	Scale
1	Locality plan showing bore holes completed.	1:250,000

C00005

1. INTRODUCTION

Exploration Licence No 63 was granted to Tricentrol Australia Limited on 4th May, 1973 and a Phase 1 rotary drilling programme was carried out between 15th August and 24th October, 1973. During this time, 64 holes were completed for a total of 7,335.7M drilling.

A base camp to service the drilling operations was established at Jubilee Dam (Figure 1). Food supplies and equipment were received once weekly from Broken Hill and arrived via Mutooroo Station.

Several rainy days were experienced during the drilling period and this caused minor delays in moving from hole to hole.

An additional area of approximately 20 sq.miles was applied for in the north-east abutting EL 63, and was selected so as to cover a possible extension of the anomalous north-east trending zone.

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2. WORK PERFORMED DURING THE QUARTER

(a) Drilling:

The drilling programme was carried out by W.L.Sides & Son Pty Ltd of Melbourne, under the supervision of Tricentrol personnel.

A single truck-mounted Mayhew 1000 air/water combination rotary was employed throughout the programme. Drilling commenced on 15th August, 1973 and was completed on 24th October 1973, during which time 64 holes were drilled for a total of 7335.7M.

Typical drilling practice was to bore open hole fashion with 4-$\frac{1}{2}$ inch blade bits employing water flushing, the drill cuttings being returned via a short standpipe onto a 1/16" mesh screen, with the medium being recirculated from a sludge tank.

A little bentonite drilling mud was employed initially. However, the excellent hole stability and minimal water loss made this hardly necessary. Regular hole flushing and water changes were frequently necessary, especially when drilling in calcareous material.

Hole MT 23C was drilled, reamed, and prepared to 94.49 M, then cored to 107.10 metres with a triple tube barrel of 5 feet (1.52 m) length. The overall recovery was approximately 60%.

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(b) Sampling and Geological Logging:

A sample was collected every 1.5M (5 feet) of drill advance from the cuttings delivered to the sampling screen. These samples were taken so as to allow for lag up the hole of the material coming from depth.

A degree of contamination is inevitable in this type of open hole drilling in unconsolidated sediments. This takes place especially in sand units, the basal sand member continuously in-washing below its lower contact.

From the cuttings samples, representing 1.5M, laid out in 30M rows, a composite grab sample from two heaps thus representing 3M, was placed in 6" x 4" polythene bags and retained for future reference.

The cuttings were logged at the drill site while still damp, on the basis of a complete microscopic description using the hand lens only. Attention was paid to drilling behaviour and first appearance of materials in picking formation boundaries which would otherwise be marked in places by in-washed material from above.

Particular emphasis was placed on recording the presence and nature of iron, carbonaceous and organic material.

Particular portions of the core from MT23C will be assayed for U_3O_8 and Th as high gamma counts were recorded from this hole.

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(c) Gamma and Electric Logging.

The South Australian Mines Dept. was contracted to carry out gamma and electric logging for the project. A Landrover mounted "Neltronic" unit, was employed with individual probes for gamma ray and single point resistivity & spontaneous potential functions. The former probe used 17 volt D.C. input with a 1500 volt photomultiplier and contained a 1" (?) sodium iodide crystal detector within a 1-$\frac{1}{4}$" diameter aluminium probe. Logging was carried out at a paper scale of 20 counts per second per centimetre with anomalous sections being re-run at 40 to 80 c.p.s. per cm.scale.

The probe calibration was checked with a source rated at 0.5 lbs. U_3O_8 per long (?) ton, this causing registrations of about 1300 counts per second.

The single point resistivity function employed 300 volt A.C. power and required an earth terminal to be effectively grounded close to the hole collar. Satisfactory definition was generally obtained by recording at a paper scale of 0.4 ohm. per centimetre. This S.P. function was recorded at a scale of 4 millivolts per centimetre.

Generally, satisfactory electric definition was obtained with the borehole medium employed.

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3. RESULTS

A summary of the lithological logs of holes MT1-MT64 is attached as Appendix 1.

The general stratigraphic pattern as revealed from the drilling and geophysical information is:

Pleistocene - Recent		Red-brown loam, silts, sands, gravel.	30M
POSSIBLE UNCONFORMITY			
"Jubilee Group" Miocene-Pliocene?	1.	Micaceous silts, clays red-brown oxidation becoming buff.	30M
	2.	Sands - orange stain, interbedded clays	40M
	3.	Sands - carbonaceous, pyritic, lignitic clays	15M
UNCONFORMITY			
"Loch Hazard Beds" Miocene.		Grey to brown carbonaceous clays with pyrite.	20M
"Kinloch Beds" Oligocene-Miocene		Dark green glauconitic marl abundant marine fossils - Pelecypod shell fragments, gastropods incl. Turritella types, bryozoan stems, forams? minor sand, limestone.	20M+

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UNCONFORMITY

"Mulga Beds" Undiff.Paleozoic or Mesozoic.	Mauve, brown silty clays, dark green shales.

UNCONFORMITY

Burra Group ? Lower Adelaidian	Schists, quartzites.

Significant anomalous gamma activity was recorded in MT-2 in a broad, sandy zone situated immediately below the oxidation level. Sharp gamma peaks to 800+ c.p.s. are characteristic of the zone which extends from 100 metres to 115 metres. Reducing conditions are evident by the presence of plentiful pyrite and carbonaceous material.

The stratigraphic sequence shows that the Tertiary sea invaded this portion of the Murray Basin and was then followed by a period of possible deltaic conditions. It does appear here that the conditions, as in the Lake Frome areas, were favourable for the deposition of uranium.

In the Jubilee - Jones Dams area (see plan) holes MT2, 35, 24, 23, 33, 8, 38 indicate an anomalous radioactive zone trending N.E. - S.W. This zone is about one mile wide and at least 8 miles long. The results indicate that the zone is on the down-thrown (southerly) side of a N.E. - S.W. tending fault and aeromagnetic data indicates this feature could extend right across the E.L. Whether economic concentrations of uranium exist along this structure remains to be determined. The radioactivity occurs in sands and clays approximately 100 metres below the surface and in reducing conditions as evidenced by abundant carbonaceous material and the presence of pyrite/ The gamma activity is spread over a width of about 10-15 metres. The indications from Spectrometer readings is that the radioactivity is due to uranium and not thorium.

Section MT 25-42-43-43A-45 exhibits a basement slope from north to south roughly paralleled by the present topography. Significantly anomalous gamma response is absent in MT 25 and 42 but is present in MT 45. High values were obtained at the base of 43A. There are strong indications that the anomalous radioactive zone extending WSW-ENE is related to the distinct topographic "warp" in this area. This feature appears to the surface expression of the Anabama Fault.

A significantly mineralised section occurs at MT 46 between 86 and 97 metres in thinly interbedded clays and sands. Peaks to 1000 cps were registered with an overall high background in excess of 200 cps. This hole is further north than the zone projected between MT 43 and MT 2 and possibly represents the downthrown side of a different en echelon fault which might be projected between MT 13 and 15. The eastern inferred fault controlling mineralisation might be projected between MT 48 and 49 (see attached plan).

A basement drop of about 75 m is indicated from MT 55A to MT 54, a distance of 1 mile, while the intermediate MT 56A shows a drop of about 18 m from the latter, thus positioning the possible Anabama Fault resultant scarp.

A basement rise of about 30 m takes place between MT 58 and MT 60. There is a sharp drop-off in gamma activity across this line as compared to the MT 37-38 section.

Holes MT 63 and 64 apparently straddle the fault zone.

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4. PLANNED ACTIVITY FOR NEXT QUARTER:

The drilling programme was completed on 24th October, 1973 and it is now planned to assess all the data prior to determining what additional work is required on the E.L.

5. EXPENDITURE FOR THE QUARTER:

	$
Camp cost	106.03
Geological	3345.50
Draughting Services	71.75
Drilling: Camp cost	215.25
" Contractors	24,924.61
Hire & running costs of trucks and caravans	1,043.22
Miscellaneous expenses	198.22
Plans and Reports	284.78
Communications	244.45
Accommodation	178.85
Travelling expenses	715.46
Administration fees	300.00
Head Office supervision etc.	3,422.12
Equipment.	23.88
	$35,128.12

Note

* Geophysical costs not included as account not finalised yet. This will be included in the next quarter's statement.

L. S. DENHOLM
Chief Geologist

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APPENDIX 1

Summary of Drill Logs MT1-MT64

Hole No.	Depth (Metres)	Lith. Log		Gamma Log
		Interval	Description	
MT 1	51.2	0 - 48	Gravel, silt, clay	
		48 - 51.2	Schist (Basement)	
MT 2	164.8	0 - 31.5	Gravel, silt, clay	
		31.5 - 69.0	Clays	
		69.0 - 115.0	Sand - carbonaceous after 100.0	864 c.p.s. at 106.3 400 c.p.s. at 109.3
		115.0 - 122.0	Carbonaceous clay	
		122.0 - 128.0	Marl - fossiliferous	
		128.0 - 164.8	Shale (Basement)	
MT 3	152.0	0 - 29.0	Gravel, silt, sand	
		29.0 - 55.0	Clays	
		55.0 - 104.0	Sands	120 c.p.s. at 73.2
		104.0 - 126.0	Carbonaceous clay	104 c.p.s. at 85.0
		126.0 - 148.0	Marly clays (K.B.)	
		148.0 - 152.0	Shale (Basement)	
MT 4	153.6	0 - 19.5	Gravel, silt, sand	
		19.5 - 37.5	Clays	
		37.0 - 102.0	Sands	
		102.0 - 126.5	Clays	
		136.5 - 153.6	Limestone (K.B.)	
MT 5	85.5	0 - 10.5	Gravel, silt, sand	
		10.5 - 42.0	Clays	
		42.0 - 85.5	Sand	Hole not completed
MT 6	116.0	0 - 12.0	Gravel, silt, sand	
		12.0 - 27.0	Clays	
		27.0 - 84.0	Sands	
		84.0 - 111.0	Clay - carbonaceous	
		111.0 - 116.0	Marl (K.B.)	

Hole No.	Depth (Metres)	Lith. Log.		Gamma Log
		Interval	Description	
MT 7	110.0	0 - 26.0	Gravel, silt, sand	
		26.0 - 57.0	Clays	
		57.0 - 96.0	Sands	
		96.0 - 110.0	Clay - carbonaceous	
MT 8	123.8	0 - 23.0	Gravel, silt, sand	
		23.0 - 63.0	Clays	
		63.0 - 118.5	Sand	230 c.p.s. at 89.4
		118.5 - 123.8	Carbonaceous clay	680 c.p.s. at 91.4
MT 9	108.3	0 - 22.0	Gravel, silt, sand	
		22.0 - 80.0	Clays	
		80.0 - 93.0	Sand	175 c.p.s. at 93.2
		93.0 - 100.0	Clay	
		100.0 - 108.3	Quartzite (Basement)	
MT 10	122.0	0 - 12.0	Gravel, silt, sand	
		12.0 - 63.0	Clays	
		63.0 - 99.0	Sand	240 c.p.s. at 99.4
		99.0 - 104.0	Clay	
		104.0 - 108.0	Marl (K.B.)	
		108.0 - 122.0	Schist (Basement)	
MT 11C	115.0	0 - 10.5	Gravel, silt, sand	
		10.5 - 65.0	Clays	
		65.0 - 101.0	Sand	470 c.p.s. at 101.6
		101.0 - 103.0	Carbonaceous clay	
		103.0 - 106.0	Marl (K.B.)	
		106.0 - 115.0	Phyllite (Basement)	
MT 12	71.2	0 - 4.5	Gravel, clay	
		4.5 - 33.0	Clays	
		33.0 - 34.0	Pebbly sand	
		34.0 - 56.0	Clay	
		56.0 - 71.2	Decomposed granite	

Hole No.	Depth (Metres)	Lith. Log		Gamma Log
		Interval	Description	
MT 13	91.6	0 - 7.5	Gravel, silt, clay	
		7.5 - 52.0	Clays	
		52.0 - 86.0	Sand	
		86.0 - 91.6	Gneiss (Basement)	
MT 14	128.0	0 - 19.5	Gravel, silt, clay	
		19.5 - 50.0	Clays	
		50.0 - 119.0	Sand mostly	
		119.0 - 128.0	Marl (K.B)	
MT 15	128.0	0 - 13.5	Gravel, silt, clay	
		13.5 - 48.0	Clays	
		48.0 - 106.0	Sand	
		106.0 - 119.0	Clay	
		119.0 - 128.0	Marl (K.B)	
MT 16	128.2	.0 - 7.5	Gravel, silt, clay	
		7.5 - 33.0	Clays	
		33.0 - 65.0	Sand	110 cps at 65.4
		65.0 - 119.0	Clays - carbonaceous	320 cps at 84.4
		119.0 - 128.2	Marl (K.B)	
MT 17	127.0	0 - 14.0	Gravel, silt, sand	
		14.0 - 36.0	Clays	
		36.0 - 91.0	Sands	
		91.0 - 102.0	Clays - Carbonaceous	
		102.0 - 127.0	Clay and marl	

Hole No.	Depth (Metres)	Lith. Log		Gamma Log
		Interval	Description	
MT 18	90.2	0 - 9.0 9.0 - 69.0 69.0 - 84.0 84.0 - 90.2	Gravel, silt, sand Clays Sand Siltstone (Basement)	
MT 19	48.2	0 - 15.0 15.0 - 22.0 22.0 - 48.2	Gravel, loam Clays Adelaide Systems rocks (Basement)	
MT 20	104.2	0 - 10.5 10.5 - 61.0 61.0 - 82.0 82.0 - 94.0 94.0 - 95.0 95.0 - 104.2	Gravel, sand etc. Clays Sand Clay Marl Schist (Basement)	150 cps at 83.3 145 cps at 85.1
MT 21A	97.7	0 - 3.0 3.0 - 53.0 53.0 - 94.0 94.0 - 97.7	Gravel, loam Clays Sands Phyllite (Basement)	
MT 22	128.2	0 - 12.0 12.0 - 65.0 65.0 - 114.0 114.0 - 123.0 123.0 - 125.0 125.0 - 128.2	Loam, Gravel Clays Sands Clays Marl Siltstone (Basement)	1300 cps at 103.6 750 cps at 114.5

Hole No.	Depth (Metres)	Lith. Log		Gamma Log
		Interval	Description	
MT 23	122.0	0 - 18.0 18.0 - 72.0 72.0 - 94.0 94.0 -123.0 123.0 -128.2	Gravel etc. Clays Sand Clay and sand Marl (K.B.)	1,250 cps at 95.8 160 cps at 122.2
MT 24	121.5	0 - 16.0 16.0 - 77.0 77.0 -121.5 121.5 -125.0 125.0 -128.2	Gravel, sand Clays Sand Clays Marl (K.B)	960 cps at 102.2 640 cps peaks between 106 - 122
MT 25	104.0	0 - 7.5 7.5 - 74.0 74.0 - 91.0 91.0 -102.0 102.0 -103.0 103.0 -104.0	Gravel, sand Clays Sand Clay Marl Phyllite (Basement)	
MT 26	128.2	0 - 7.5 7.5 - 73.0 73.0 -118.0 118.0 -120.0 120.0 -128.2	Gravel, sand Clays Sands Marl Siltstone (Basement)	225 cps at 94.6
MT 27	93.0	0 - 7.5 7.5 - 58.0 58.0 - 88.0 88.0 - 92.0 92.0 - 93.0	Gravel etc. Clays Sands Clay Phyllite (Basement)	

Hole No.	Depth (Metres)	Lith. Log		Gamma Log
		Interval	Description	
MT 28	111.6	0 - 6.0	Gravel	
		6.0 - 55.0	Clays	
		55.0 - 102.0	Sands	
		102.0 - 108.0	Clays	
		108.0 - 109.0	Marl	
		109.0 - 111.6	Phyllite (Basement)	
MT 29	133.0	SUMMARIES OF LOGS NOT RECEIVED		
MT 30	128.2	" " " "		
MT 31	123.2	" " " "		
MT 32	126.8	0 - 13.5	Gravel, sand	
		13.5 - 72.0	Clays	
		72.0 - 120.0	Sands	
		120.0 - 121.5	Clay & Pyrite	Several peaks to 800 cps +
		121.5 - 124.5	Marl	
		124.5 - 126.8	Phyllite (Basement)	
MT 33	128.2	0 - 9.0	Gravel, sand	
		9.0 - 61.5	Clays	
		61.5 - 115.5	Sands	Several peaks to 600 cps +
		115.5 - 120.0	Clay	
		120.0 - 126.0	Marly	
		126.0 - 128.2	Basement	
MT 34	108.2	0 - 15.0	Gravel, sand	
		15.0 - 58.0	Clays	
		58.0 - 94.0	Sand	
		94.0 - 105.0	Clay	
		105.0 - 107.0	Marly	
		107.0 - 108.2	Basement	

Hole No.	Depth (Metres)	Lith. Log		Gamma Log
		Interval	Description	
MT 35	134.4	0 - 9.0 9.0 - 76.0 76.0 - 120.0 120.0 - 124.0 124.0 - 133.0 133.0 - 134.4	Gravel etc. Clays Sands Clays Marly Basement	1700 cps at 103.6 1700 cps at 113.2 500 cps at 120.2
MT 36	128.2	0 - 16.5 16.5 - 68.0 68.0 - 94.0 94.0 - 117.0 117.0 - 124.0 124.0 - 128.2	Gravel etc. Clays Sand Clays Marly Basement	300 cps at 94.5 440 cps at 102.2
MT 37	120.0	0 - 13.0 13.0 - 79.0 79.0 - 108.0 108.0 - 114.0 114.0 - 118.0 118.0 - 120.0	Gravel etc. Clays Sands Clays Marly Basement	310 cps at 103.4
MT 38	114.4	0 - 4.5 4.5 - 61.0 61.0 - 100.5 100.5 - 103.0 103.0 - 110.0 110.0 - 114.4	Gravel etc Clays Sands Clay Marly Basement	720 cps at 68.0 300 cps at 92.2 840 cps at 95.5
MT 39		ABANDONED		

Hole No.	Depth (Metres)	Lith. Log		Gamma Log
		Interval	Description	
MT 40	102.2	0 - 4.5	Gravel etc.	190 cps at 82.8 200 cps at 92.2
		4.5 - 49.0	Clays	
		49.0 - 92.0	Sands	
		92.0 - 94.0	Clay	
		94.0 - 101.0	Marly	
		101.0 - 102.2	Basement	

Hole No	Depth (Metres)	Lith.Log		Gamma Log
		Interval	Description	
MT 46	112.5	0 - 15	Calcrete, silt,sand	
		15 - 45	Clays	
		45 - 58	Clay, sand	
		58 - 75	Clays	
		75 - 97	Clays, sand (pyritic)	av.200-400 cps peaks to 1000 cps (86-97)
		97 -106	Clay	
		106 -108	Limestone, sand(K.B)	
		108 -112.5	Siltstone, phyllite	
MT 47	109.4	0 - 13.5	Gravel,silt	
		13.5 - 42	Clays	
		42 - 76	Clay & sand	
		76 - 97	Sand & clays	150 cps at 92.5 230 at 97.
		97 -103	Clay,pyrite	
		103 -108	Marl, clay (K.B.)	
		108 -109.4	Phyllite	
MT 48	112.8	0 - 7.5	Silt, gravel	
		7.5 - 48	Clays, sand	
		48 - 73	Sand, clay	
		73 - 97	Sand	230 cps at 94.4
		97 - 102	Clay	
		102 - 106	Clay	
		106 - 112.8	Sandy marl,(K.B.) limestone	
MT 49	125.6	0 - 9	Calcrete, clays, sand	
		9 - 48	Clays	
		48 - 77	Clay, sand	
		77 - 101	Sand	
		101 - 110	Clay	280 cps at 100.8
		110 - 117	Clay	170 cps at 103.8
		117 - 125.6	Marl,limestone(K.B.)	

Hole No	Depth (Metres)	Lith.Log		Gamma Log
		Interval	Description	
MT 50	105.3	0 - 12	Calcrete,clays,sand	
		12 - 56	Clays, sand	
		56 - 80	Sand, clays	190 cps at 75
		80 - 99	Sand	
		99 - 101	Clay	
		101 - 103	Sand (K.B.)	
		103 - 105.3	Siltstone	
MT 51	109.8	0 - 16	Clays, gravel	
		16 - 40	Clays	
		40 - 53	Sand, clay	
		53 - 63	Clay	
		63 - 92	Sand	
		92 - 96	Clay	av.180 cps
		96 - 100	Clay	
		100 - 109.8	Marl (K.B.)	
MT 52	109.8	0 - 14	Calcrete,silt, sand	
		14 - 38	Clays	
		38 - 58	Sand	
		58 - 64	Clays	
		64 - 92	Sand	
		92 - 100	Clay (pyrite)	240 pcs at 93.6
		100 - 109.8	Clay, limestone, marl. (K.B.)	
MT 53	114.3	0 - 15	Calcrete,silt,gravel	
		15 - 37	Clays	
		37 - 63	Sand	
		63 - 74	Clay	
		74 - 98	Sand	
		98 - 105	Clay	180 at 98.6
		105 - 114.3	Clay,limestone, marl (K.B.)	

Hole No	Depth (Metres)	Lith. Log		Gamma Log
		Interval	Description	
MT 54	134.2	0 - 27	Calcrete,silt,gravel	
		27 - 85	Clays, sand	
		85 - 107	Sand	
		107 - 121	Clay,pyritic sand interbeds	380 cps at 107.8 570 cps at 119.4
		121 - 123	Clay	
		123 - 132	Sandy marl, clay(K.B.)	
		132 - 134.2	Phyllite	
MT 55A	63.4	0 - 11	Calcrete,clays, sand	
		11 - 48	Clays, sand	
		48 - 63	Sand	
		63 - 63.4	Phyllite	
MT 56A	81.5	0 - 16.5	Calcrete, clays	
		16.5 - 31	Clay	
		31 - 71	Sand	
		77 - 80	Clay	
		80 - 81.5	Phyllite, siltstone (pyritic)	
MT 57	128.2	0 - 28		
		28 - 60		
		60 - 79		
		79 - 88		
		88 - 103	Sand (pyritic)	Peaks to 190 cps in 96 - 103
		103 - 116	Sand (pyritic)	
		116 - 121	Clay	
		121 - 128.2	Sand, sandy mark (K.B.)	

Hole No	Depth (Metres)	Lith. Log		Gamma Log
		Interval	Description	
MT 64.	113.6	0 - 3	Calcrete	
		3 - 59	Clays	
		59 - 75	Clays, sand inter-beds.	
		75 - 93	Clay, pyrite	700 cps at 91 & 92.6
		93 - 103	Sand, pyrite	
		103 - 113.6	Clay, pyrite	165 cps at 109.8

000051

Tricentrol
AUSTRALIA LIMITED
(Incorporated in Victoria)

31st Level, Australia Square,
Sydney, N.S.W. 2000: Australia
Telephone 02-27 7507
Telegraphic Address Tricentrol Sydney
Telex AA24073

27th February, 1974.

Director of Mines
Department of Mines
P.O. Rundle Street, P.O.
ADELAIDE, S.A. 5000

Our ref: 73.300.01007

Dear Sir,

Re: Quarterly Report for Period ended 3rd February, 1974

E.L. 63 Mutooroo Area.

Herein is our quarterly report re: the above area.

Technical Report

The period has been taken up with detailed compilations in our Sydney Office to enable detailed assessment to be made of the worth of the area. Following discussions with our joint venture partner Getty Mining Pty. Ltd., we have decided to embark on a follow up rotary drilling programme of at least 60 holes, commencing in May or June.

This will be centered on the Anabamma Fault Zone.

Expenditure for the Quarter

Geological	2,461.60
Drafting	161.34
Plans and reports - general	350.19
Vehicle and caravan hire	708.23
Camp Costs	88.55
Head Office supervision	1,878.87
Assays and petrological	207.96
Geophysical - hire of Neltronic Loggerr	3,750.00
" vehicle mileage ets.	778.96
" camp costs	200.00
Drilling contractor, overstated previously	(3,207.11)
Communications	19.23
Drilling camp costs & general	329.17
Legal	200.00
Equipment	24.80
Insurance	60.00
Accommodation - overstated previously	(14.25)
Miscellaneous re: Mining Title etc.	35.00
	$8,041.94
To Date	$45,560.81

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7 MAR 1974
DEPT. OF MINES
SECURITY
2315

Yours faithfully,
TRICENTROL AUSTRALIA LIMITED

pp.

L. S. DENHOLM

ENV. 2315.

000052 W

Tricentrol
AUSTRALIA LIMITED
(Incorporated In Victoria)

31st Level, Australia Square,
Sydney, N.S.W. 2000. Australia
Telephone 02-27 7507
Telegraphic Address Tricentrol Sydney
Telex AA24073

Ref 73 300 01007

LSD:ip

The Director of Mines,
Department of Mines,
Box 38, Rundle Street P.O.
ADELAIDE S.A. 5000

16th May, 1974

Dear Sir,

Re: Quarterly Report for Period Ended
3rd May, 1974, E.L.63, Mutooroo Area.

Herein is our quarterly report re the above area:-

Technical Report:

Activity during the last quarter included preparations for the 1974 field programme and the setting up of a base camp at Jubilee Dam, 20 miles south-west of Mutooroo homestead.

The company representative has moved into the area and, subsequently, a drilling rig and Mines Department logging unit. However, renewed rainfall has prevented the immediate commencement of drilling operations.

Financial Report:

	$
Geological and Supervision	1,077.50
Plans and Reports	117.66
Data Acquisition	10.10
Assays and Petrological	76.30
Geophysical-misc.	89.42
Communications	35.12
Travel and Accommodation	223.18
Head Office Administration	122.96
Sundries	20.78
	1,773.02
Total for year	$47,333.83

Yours faithfully,
TRICENTROL AUSTRALIA LIMITED
L.S.Denholm

L.S.DENHOLM,
Mineral Exploration Manager.

000053

Tricentrol
AUSTRALIA LIMITED
(Incorporated in Victoria)

31st Level, Australia Square,
Sydney, N.S.W. 2000. Australia
Telephone 02-27 7507
Telegraphic Address Tricentrol Sydney
Telex AA24073

Ref. 73.300.01007
10th September, 1974

The Director of Mines,
Department of Mines,
Box 28, Rundle Street P.O.
Adelaide, South Australia 5000

Dear Sir,

QUARTERLY REPORT FOR PERIOD ENDED AUGUST 3rd, 1974

E.L.63, MUTOOROO

Please find herewith our Quarterly Report for the Mutooroo area. This covers a Phase II programme of rotary drilling carried out during May and June. The complete set of geophysical and lithologic logs will be forwarded in the near future.

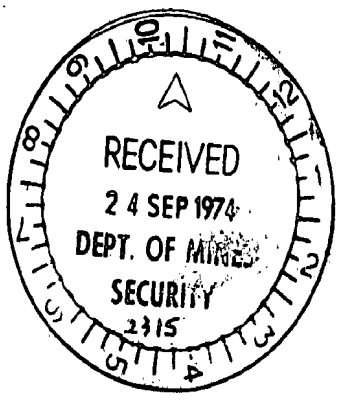
The course of future action is still being determined with our joint venture partner.

Yours faithfully,

L. S. Denholm
Mineral Exploration Manager

TM:lw

encl.



TRICENTROL AUSTRALIA LIMITED

000028

MUTOOROO, E.L.63

QUARTERLY REPORT FOR PERIOD ENDED 3/8/1974

T. W. MIDDLETON

SEPTEMBER, 1974

C00029

C O N T E N T S

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APPENDIX I	Summaries of Lithologic-geophysical logs
APPENDIX II	Analysis Results
PLAN	Plan Showing Rotary Drillhole Locations

000030

INTRODUCTION

A rotary drilling programme, designed to localise the Anabama Fault and test for uranium mineralisation, in particular downdip from the fault and in a possible re-entrant, just east of Gairloch Dam, was carried out in May and June.

Following the enforced layoff in field activities due to rain throughout the area in early May, a return was made on May 20th.

Accessibility proved difficult at first due to still boggy conditions, however, the drilling programme was completed by June 26th.

Summaries of the lithologic logs and analysis results are appended and a plan showing drillhole locations and order of gamma activity is attached.

C00031

DRILLING

During the period May 23rd to June 26th, 35 holes were drilled in E.L.63 for a total of 3,853.5m, this including 4 holes which did not reach basement.

Circulation difficulty was experienced in about 50% of holes - this mostly being restored by copious use of bentonite mud and bran. Hole MT82 was abandoned at 72.4m due to inability to penetrate a silcrete (?) horizon, while holes MT85, 96 and 99 were abandoned after inability to regain circulation.

GEOPHYSICAL LOGGING

A portable "Neltronic" gamma ray - spontaneous potential - single point resistivity logging unit, hired from the Mines Department (operator A. W. Young), was used throughout.

Generally, good electric log definition was obtained, apart from the early holes where saline drilling water was drawn from Jubilee Creek, this causing a dampening effect.

The separate gamma ray probe was calibrated to 1200-1300 cps = $\frac{1}{2}$ lb/ton U_3O_8 for all holes apart from MT94 where a probe calibrated to 460 cps = $\frac{1}{2}$ lb/ton was used.

C00032

LITHOLOGIC LOGGING AND SAMPLING

All holes were lithology logged by the writer at the drillsite. In the occasional absence of good sample quality, or no circulation return, sand-clay breaks were picked by noting drilling behaviour.

A spread of about 50% of the holes was grab sampled at intervals (compositing 2 X 1.5m intervals) and retained for future reference.

Samples from the gamma anomalous zone of two holes were submitted for uranium analysis by a fluorimetric method while basement samples of a pyritic, graphitic slate from hole MT95 were submitted for Cu, Pb, Zn, Ag and Au analysis. The results are appended.

C00033

GEOLOGY

1) Basement Structure and Lithology

Effective basement has been taken, in the northern parts, as the Adelaidean rocks of the Olary Block while the marine "Kinloch Beds", as previously reported (equivalent of Finniss Clay ? of mid-Miocene age), has been used as economic basement in the southern parts.

The Anabama Fault scarp has been more closely delineated throughout the area by the drilling and observation of an often subtle surface topographic breakaway. Another fault, paralleling the Anabama is postulated about 3 km north of Jubilee Dam. It is evidenced by an aerial photograph feature extending over about 11 km length.

The lithology of the Adelaidean basement is generally low grade pelitic metamorphics. A highly pyritic, graphitic slate (?) was encountered in MT95.

000034

2) Tertiary Stratigraphy and Lithologies

The stratigraphy of the area stands as reported previously.

Pleistocene - Recent	thin loamy red soil, clay
Miocene - Pliocene (?)	"Jubilee Beds" (1) upper silts and clays with some sand interbeds - mostly oxidised (2) Basal moderately sorted coarse sands - mostly oxidised with some clay interbeds.
Miocene (?)	"Gairloch Beds" - carbonaceous, pyritic sand, silt, clay - variable degree of oxidation in the northern parts (updip).
Miocene	"Loch Hazard Clay" - grey - green clay, minor limestone, siderite nodules.
Miocene	"Kinloch Beds" - fossiliferous, glauconitic grey - green marl some sand, limestone.

The "Gairloch Beds", which is considered to be the most prospective formation is defined by electric log markers. It extends downdip from the Anabama Fault, near which it is thickest, but also appears to extend northward in an apparent re-entrant, just east of Gairloch Dam.

The "Gairloch Beds" is marked by rapid facies changes and a decrease in sand content to the south. There is an apparent degree of oxidation marked by variable limonitic staining near the updip limits.

It appears possible that the "Gairloch Beds" was deposited after re-activation of the Anabama Fault.

000035

GAMMA ACTIVITY

One zone of highly anomalous gamma activity has been discovered during the recent programme. At MT97, about 4 km E.N.E. of Gairloch Dam, peaks of 2550 cps ($\sim$ 1 lb/ton eU_3O_8) and 2000 cps were recorded on clay interfaces around 100m depth. About 200m N.W., the recorded activity dropped sharply while 200m S.E. (MT106) and apparently over the Anabama Fault scarp, values were on a par (peaks to 2000 cps on clay interfaces. About 400m further S.E. a drop to about 1000 cps peak activity occured (MT76).

Besides the proximity to the fault, probably the major overall localising factor, there is an increase in clay interbeds and a decrease in oxidation, proceeding south.

Peaks to 1000 cps were recorded over a 15m zone (90-105) in MT95, about 4 km N.E. of Jones Dam and within 800m of the Anabama Fault.

Within the re-entrant, the best values were recorded in MT66, about 2.5 km east of Mulga Dam, with peaks to 1350 cps on clay interfaces below 95m depth.

C00036

EXPENDITURE REPORT

GEOLOGICAL & SUPERVISION	5,936.02
PLANS & REPORTS	88.08
VEHICLE & CARAVAN	747.24
DRILLING	10,695.81
GEOPHYSICS	3,441.51
TRAVEL, ACCOMMODATION & CAMP	151.86
COMMUNICATIONS	82.24
TRACK GRADING	220.00
HEAD OFFICE & ADMINISTRATION	1,364.83
	$ 22,727.65

APPENDIX I

000037

HOLE NO.	DEPTH (METERS)	INTERVAL	DESCRIPTION	GAMMA LOG	SAND UNIT
MT 65	103.8	0 - 16.0	Loam, sand, gravel, Q		
		16.0 - 54.5	Silt, clay, JB		31.0 - 35
		54.5 - 93.5	Sand, some clay, JB, oxidised		54.5 - 93.5
		93.5 - 99.5	Clay, sand, GB	230cps at 100.4	
		99.5 - 102.0	Marl, KB		
		102.0 - 103.8	Gneiss, PC		
MT 66	140.5	0 - 17.0	Loam, sand silt, Q		
		17.0 - 69.5	Silt, clay, JB		
		69.5 - 97.0	Sand, JB, oxidised		69.5 - 97
		97.0 - 105.0	Clay, Sand, GB	1350 cps at 97.4	100.0 - 105
		105.0 - 118.0	Clay, sand, KB	800 cps at 99.4	
		118.0 - 140.5	Tillite ? PC	550 cps at 105.6	
MT 67	116	0 - 20.0	Loam Sand, silt, gravel, Q		
		20.0 - 72.0	Silt, clay		
		72.0 - 96.5	Sand, JB , oxidised	540 cps at 99	72.0 - 96.5
		96.5 - 106.0	Clay, sand, GB, non-oxidised		
		106.0 - 111.5	Fossiliferous, Sand, Marl, KB		
		111.5 - 116.0	Basement, PC		
MT 68	110	0 - 18.5	Loam, Silt, gravel, Q		
		18.5 - 64.5	Lilt, clay, JB		
		64.5 - 89.5	Sand, JB , oxidised		64.5 - 89.5
		89.5 - 97.5	Clay, sand, GB	230 cps at 91.6	
		97.5 - 102.0	Clay, LHC	260 cps at 97.6	
		102.0 - 106.0	Glauconitic, Marl, Sand, KB		
		106.0 - 110.0	Basement, sandstone ? PC		

APPENDIX I

000038

HOLE NO.	DEPTH (METERS)	INTERVAL	DESCRIPTION	GAMMA LOG	SAND UNIT
MT 69	106.8	0 - 18	Sand, silt, clay, Q		
		18.0 - 61	Silt, clay, JB		
		61.0 - 96.5	Sand, JB, oxidised	580 cps at 97.4	61 - 96.5
		96.5 - 101.0	Clay, pyritic, carbonaceous, LHC		
		101.0 - 105.0	Sand, Marl, KB		
		105.0 - 106.8	Basement, Gneiss, PC		
MT 70	103.8	0 - 7.5	Loam, silt, Q		
		0 - 67.0	Silt, clay, Oxid. sand, JB		47 - 52
		67.0 - 94.0	Sand, JB, oxidised	720 cps at 96	67 - 94
		94.0 - 100.5	Clay, sand, GB, non-oxidised	300 cps at 97.6	94 - 100
		100.5 - 103.8	No cuttings return, KB ?		
MT 71	120.5	0 - 12	Loam, sand, gravel, Q		
		12.0 - 61.5	Clay, silt, sand, JB		37.5 - 52.5
		61.5 - 97.5	Sand, JB , oxidised		61.5 - 97.5
		97.5 - 105.5	Sand, GB, oxidised		97.5 -105.5
		105.5 - 108.0	Clay, GB	360 cps at 107	
		108.0 - 113.0	Marl, sand, KB		
		113.0 - 120.5	Basement, clay, PC		
MT 72	114	0 - 13	Loam, sand, gravel		
		13.0 - 65.5	Silt, clay sand		25.5 - 30
		65.5 - 96.0	Sand, JB, oxidised		41.0 - 55
		96.0 - 109.0	Clay, sand, GB	650 cps at 106	65.5 - 96
		109.0 - 112.0	Clay, LHC	250 cps at 109 - 111	106.5 - 96
		112.0 - 114.0	Fossiliferous, glauconitic material, KB		

APPENDIX I

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HOLE NO.	DEPTH (METRES)	INTERVAL	DESCRIPTION	GAMMA LOG	SAND UNIT
MT 73	128.2	0. - 11.5	Loam, sand, clay, Q		
		11.5 - 62.0	Silt, clay, sand, JB		42 - 55
		62.0 - 88.0	Sand, JB, oxidised		62 - 88
		88.0 - 107.0	Sand, GB, oxidised		88 - 107
		107.0 - 112.0	Clay, sand, GB	300 cps at 107	109.5- 112
		112.0 - 122.0	Marl, sand, KB		
		122.0 - 128.7	Basement, sandstone, PC		
MT 74	120.5	0 - 8.0	Loam, clay, Q		
		8.0 - 79.0	Clay, silt, sand, JB		56 - 68
		79.0 - 94.0	Sand, JB, oxidised		79 - 94
		94.0 - 108.5	Sand, GB, oxidised		94 - 108.5
		108.5 - 113.0	Clay, GB		
		113.0 - 116.0	Fossiliferous, Marl, sand, KB	320 cps at 108.8	
		116.0 - 120.5	Basement, siltstone, PC		
MT 75	128.2	0 - 4.5	Loam, calcrete, sandy clay, Q		
		4.5 - 73.0	Silt, clay, sand, JB		
		73.0 - 101.0	Sand, JB, oxidised		73 - 101
		101.0 - 114.0	Sand, GB, oxidised		101 - 114
		114.0 - 122.0	Clay, GB	350 cps at 105.2	
		122.0 - 128.2	Marl, sand, KB		
MT 76	134.3	0 - 17.5	Calcrete, clay, gravel, Q		
		17.5 - 78.0	Silt, clay, sands, JB, oxidised		54 - 72.5
		78.0 - 93.0	Clay, silt, JB		75 - 78
		93.0 - 125.5	Sands, clays, GB, non-oxidised	1000 cps at 114	114.5-117
		125.5 - 134.3	Glauconitic, fossiliferous, marl, KB	300 cps at 117.4	

APPENDIX I

000040

HOLE NO.	DEPTH (METRES)	INTERVAL	DESCRIPTION	GAMMA LOG	SAND UNIT
MT 77	128.2	0 - 9.0	Calcrete, clay, gravel, Q		54 - 72.5
		9.0 - 76.0	Silt, clay, sands, JB, oxidised		75 - 78
		76.0 - 95.0	Carbonaceous clays, JB	200 cps at 93.4	114.5 -117
		95.0 - 122.0	Sand, clay, GB, non-oxidised	210 cps at 110.4	
		122.0 - 128.5	Glauc., Fossil., sandy marl, KB		
MT 78	128.2	0 - 7.5	Loam, calcrete, clay, Q		22.5 - 32
		7.5 - 80.0	Silt, clay, sands, JB		40 - 46
		80.0 - 98.0	sand, oxidised, JB		80 - 98
		98.0 - 111.0	Sand, oxidised, GB		98 -111
		111.0 - 119.0	Clay, GB	280 cps at 112.2	
		119.0 - 128.2	Marl, KB		
MT 79	128.2	0 - 6.0	Loam, calcrete, clay, Q		
		6.0 - 61.5	Silt, clay, JB		61.5 - 95
		61.5 - 95.0	Sand, JB, oxidised		95 -114.5
		95.0 - 112.5	Carbonaceous, sand, GB	220 cps at 109.4	
		114.5 - 123.5	Clay, LHC		
		123.5 - 128.2	Glau., fossilif., Marl, KB		
MT 80	134.3	0.- 15.0	Loam, calcrete, clay, gravel, A		
		15.0 - 65.0	Silt, clay, JB		
		66.0 - 99.5	Sand, clays, JB, oxidised		66 - 103.5
		99.5 - 118.0	Sands, clays, GB, non-oxidised	1000 cps at 102.2	
		118.0 - 126.0	Clay, LHC	>200 cps at 100 - 104.2	
		126.0 - 134.3	Glau, fossilif.sandy, marl, K.B	280 cps at 108.6 & 111.4	

APPENDIX I

C00041

HOLE NO.	DEPTH (METRES)	INTERVAL	DESCRIPTION	GAMMA LOG	SAND UNIT
MT 81	72.4	0 - 12.5	Loam, calcrete, silt, clay, Q		
		12.5 - 55.5	Silt, clay, JB		
		55.5 - 72.4	Sand, JB	Hole abandoned - unable to penetrate silcrete.	
MT 82	134.3	0 - 10.5	Clay, silt, calcrete, Q		
		10.5 - 53.5	Silt, clay, JB		
		53.5 - 104.0	Sand, Clay, JB , oxidised		
		104.0 - 128.0	Sand, GB, non-oxidised	320 cps at 84.8	53.5 - 69
		128.0 - 130.0	Clay, LHC		84.0 - 104
		130.0 - 134.3	Sand, marl, KB		104.0 - 128
MT 83	122.2	0 - 15.0	Loam, clay, silt, calcrete, Q		
		15.0 - 57.0	Silt, clay, JB		
		57.0 - 93.0	Sand, JB , oxidised		
		93.0 - 110.0	Sand, GB , non-oxidised		
		110.0 - 116.5	Clay, carbonaceous, LHC		
		118.5 - 122.1	Glau., fossilif., marl, KB		
MT 84	122.1	0 - 7.5	Loam, clay, clay, Q		
		7.5 - 66.0	Silt, clay, JB		
		66.0 - 101.0	Sand, JB , oxidised		66 - 101
		101.0 - 110.0	Sand, GB , oxidised	180 cps at 112	101 - 110
		110.0 - 116.0	Clay, LHC		
		116.0 - 117.5	Glau., fossili., marl, KB		
		117.5 - 127.1	Basement?		

APPENDIX I

HOLE NO.	DEPTH (METRES)	INTERVAL	DESCRIPTION	GAMMA LOG	SAND UNIT
MT 85	53.8	0 - 12.0	Loam, clay, silt, Q	Hole abandoned due to inability to regain circulation.	
		12.0 - 53.8	Silt, clay, JB		
MT 86	116	0 - 13.5	Loam, sandy clays, Q		
		13.5 - 72.0	Silt, clays		72 - 80
		72.0 - 91.0	Sands, clay interbeds		83 - 86
		91.0 - 100.0	Carbonaceous clays, sands	2250 cps at 102.2	102 - 105
		100.0 - 109.0	Glau. Marl, Limestone, KB	750 cps at 103.8	
		109.0 - 116.0	Basement, quartz, chlorite schist, PG - band of +200 cps from 101.4 - 105.8		
MT 88	113	0 - 13.5	Loam, calcareous clay, Q		
		13.5 - 60.0	Silt, clay, JB		
		60.0 - 88.0	Sand, JB, oxidised		
		88.0 - 100.0	Sand, clays, GB, oxidised		
		100.0 - 107.0	Carbonaceous, clays, sands, GB	540 cps at 101	
		107.0 - 109.0	Glau., fossiliferous, sandy marl, KB	190 cps at 103.6	
		109.0 - 113.0	Basement, PG		
MT 87	76.8	0 - 12.0	Loam, clay, Q		
		12.0 - 54.5	Silt, clay, sand, JB	32 - 38	
		54.5 - 74.5	Sand, oxidised JB	54.5 - 74.5	
		74.5 - 76.8	Basement, Phyllite, PG		

APPENDIX I

000043

HOLE NO.	DEPTH (METRES)	INTERVAL	DESCRIPTION	GAMMA LOG	SAND UNIT
MT 89	113	0 - 18.0	Loam, clays, Q		
		18.0 - 70.0	Silt, clay, JB		
		70.0 - 88.0	Sand, JB, oxidised		70 - 88
		88.0 - 100.5	Clay, then sand, GB non-oxidised		92 - 100.5
		100.5 - 104.0	Clay, Glau. marl, KB	215 cps at 101.2	
		104.0 - 113.0	Basement Phyllite, PC		
MT 90	110	0 - 16.5	Silt, calcrete, clays, Q		
		16.5 - 64.0	Silt, clay, JB		
		64.0 - 102.0	Sand, clays, JB, oxidised		64 - 95
		102.0 - 106.5	Clay, sand, GB, non-oxidised		95 - 102
		106.5 - 108.0	Marl, siderite bands, KB	1800 cps at 102.6	
		108.0 - 110.0	Basement- Chlorite schist, PC / high activity		102 - 104.2
MT 91	106.9	0 - 19.5	Loam, gravel, silt, clays, Q		
		19.5 - 73.0	Silt, clay, JB		73 - 87
		73.0 - 99.0	Sand, clay, JB, oxidised		92 - 99
		99.0 - 105.5	Sand, clay, GB, non-oxidised	350 cps at 99.2	100 - 105
		105.5 - 106.9	Basement?	300-400 cps at 103 - 104	
MT 92	116	0 - 18.0	Loam, calcrete, cal., sandy clays, Q		
		18.0 - 77.0	Silt, clay, JB		
		77.0 - 93.5	Sand, JB, oxidised		77 - 93.5
		93.5 - 104.5	Sand, interbedded clay, GB		93.5 - 104.5
		104.5 - 107.0	Clay, carbonaceous, GB		
		107.0 - 109.0	Glauc., marl, siderite, KB	102.2 - 106.4 +200 cps	
		109.9 - 116.0	Basement - Phyllite	103.6 - 105.8 peaks to 2100 cps	

APPENDIX I

HOLE NO.	DEPTH (METRES)	INTERVAL	DESCRIPTION	GAMMA LOG	SAND UNIT
MT 93	116	0 - 19.5	Loam, clays, silt, sand, Q		
		19.5 - 66.0	Silt, clays. JB		
		66.0 - 85.0	Clay, sand, interbedded sequence, JB		85 - 95
		85.0 - 95.0	Sand, clay, JB, oxidised		99 - 106
		95.0 - 99.0	Clay, pyritic		
		99.0 - 106.0	Sand, pyritic, carb.,	102.2 - 106.8 +200 cps	
		106.0 - 107.0?	Clay?	2 peaks to 900 cps	
		107.0 - 110?	KB?		
		110.0 - 116.0	Basement?	No sample return at base of hole.	
MT 94	116	0 - 16.5	Loam, calcrete, sand, clay, Q		75 - 93.5
		16.5 - 75.0	Silt, clay, interbedded sand, JB		95 - 97
		75.0 - 93.5	Sand, coarse, JB, oxidised	160 cps at 93.8	100.5-107
		93.5 - 109.0	Clay, sand, GB	320 cps at 97.4, 100, 102.4, 107.2	
		109.0 - 111.0	Glauconitic, fossilif. sand, marl, KB		
		111.0 - 116.0	Basement - Phyllite, PC		
MT 95	110	0 - 18.0	Loam, silty clays, Q		
		10.0 - 48.0	Silt, clay		48 - 93
		48.0 - 93.0	Sand, coarse, stained, JB	200 cps at 94	
		93.0 - 98.5	Clay, Glau., fossili. marl, sand, KB		
		98.5 - 110.0	Basement-pyritic, carbonaceous, shale, PC		
MT 97	116	0 - 13.5	Loam, calcrete, sand, clay, Q		
		13.5 - 78.5	Silt, clay, oxidised sands, JB		
		78.5 - 98.0	Sand, JB, oxidised	270 cps at 77	25 - 34
		98.0 - 102.0	Pyritic, Carbon. clay, sand, GB	2550 cps at 98.2	45 - 62
		102.0 - 112.0	Pyritic, carbonaceous, clay, LHC	2000 cps at 100	78.5 - 98
		112.0 - 116.0	Glau., fossil. marl, KB	+200 cps from 97.4-102	100 - 101.5

APPENDIX I

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OLE O.	DEPTH (METRE)	INTERVAL	DESCRIPTION	GAMMA LOG	SAND UNIT
T 98	128.2	0 - 24.0	Loam, calcrete, clay, sand, gravel, Q		
		24.0 - 47.0	Silt, clay, JB		47 - 73
		47.0 - 73.0	Sand, JB , oxidised		
		73.0 - 78.0	Clay, JB		
		78.0 - 87.0	Carbonaceous, pyritic clay, lignite, JB		
		87.0 - 96.0	Sand, JB , oxidised	220 cps at 78.2	87 - 96
		96.0 - 109.0	Sand, GB , oxidised ?		96 - 109
		109.0 - 121.0	Clay, LHC		
		121.0 - 128.2	Glau.fossil. sandy marl, KB		
T 100	122.1	0 - 16.5	Loam, calcrete, clay, Q		
		16.5 - 79.0	Silt, clay, sand, oxidised, JB		54 - 72
		79.0 - 96.0	Sand, JB, oxidised		79 - 96
		96.0 - 105.0	Sand, oxidised, GB		96 - 105
		105.0 - 116.0	Clay with sand interbedded pyritic, carb., GB		
		116.0 - 122.1	Glau. fossil. sand, marl, KB	205 cps at 106.2	
IT 101	122.1	0 - 22.0	Loam, calcrete, clay, sand, Q		
		22.0 - 72.0	Silt, clay, sand ,JB		47 - 72
		72.0 - 95.0	Sand, JB , oxidised		72 - 95
		95.0 - 102.0	Sand, oxidised, GB		95 - 102
		102.0 - 115.0	Clay with sand interbeds, GB		
		115.0 - 122.1	Glau., fossil., marl, sand, KB	350 cps at 103.6	160 cps at 101.8 -105.6
IT 102	122.1	0 - 24.0	Loam, calcrete, silt, clay, sand, Q		
		24.0 - 75.0	Clay, silt, sand, JB		47 - 67
		75.0 - 98.0	Sand, JB , oxidised		75 - 98
		98.0 - 104.5	Sand, GB , oxidised		98 - 104.5
		104.5 - 116.0?	Clay, pyritic, carbon. and sand, GB		100 - 102
		116.0 - 122.1	Glau. fossil., sandy marl, KB	140 cps at 104	

APPENDIX I

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HOLE NO.	DEPTH (METRES)	INTERVAL	DESCRIPTION	GAMMA LOG	SAND UNIT
MT 103	122.1	0 - 18.0	Calcrete, sand, silt, clay, Q		
		18.0 - 73.0	Silt, clay, oxid. sand, JB		56 - 66
		73.0 - 96.0	Sand, JB , oxidised		73 - 96
		96.0 - 107.0	Sand, GB , oxidised	170 cps at 106	96 - 107
		107.0 - 117.0	Clay + sand, grey, carb., GB		110 - 111.5
		117.0 - 121?	Glau. fossil., marl, KB		
		121.0 - 122.1	Basement - grey schistose rock, PG		
MT 104	122.1	0 - 32.0	Calcrete, clay, silt, sand, Q		
		32.0 - 75.0	Clay, silt, some clayey sand, JB		54 - 66
		75.0 - 102.0	Sand, oxidised + clay interbeds, JB		75 - 80,87-102
		102.0 - 109.0	Sand, oxidised, GB		102 - 109
		109.0 - 120.0	Clay, sand, both pyritic, carb, GB		113 - 117
		120.0 - 122.1	Glau., fossil., marl, KB	350 cps at 109.4,	320 cps at 110
MT 105	116	0 - 21.0	Calcrete, sand, clay, silt, Q		
		21.0 - 74.0	Silt, clay, oxidised sand, carb. clay, JB		
		74.0 - 93.0	Sand, JB, oxidised	460 cps at 68	45 - 61
		93.0 - 100.0	Sand, clay, GB, oxidised	430 cps at 100	74 - 93
		100.0 - 110.5	Clay, pyritic, GB		93 - 100
		110.5 - 116.0	Glau. fossil. marl, KB		
MT 106	128.2	0 - 21.0	Calcrete, clay, sand, Q	240 cps at 70.2	
		21.0 - 75.0	Silt, clay, sand, silty, oxid, carb. clay, JB		49 - 63
		75.0 - 93.0	Sand, clay, JB, oxidised		75 - 93
		93.0 - 108.5	Sand with interbedded clay, GB		93 - 108.5
		108.5 - 123?	Clay + some interbedded sand-pyritic, GB	+200 cps at 102 - 105.6	
		123.5 - 128.2	Glau. fossil. sand? marl?, KB	2200 cps at 104.6	

APPENDIX I

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HOLE NO.	DEPTH (METRES)	INTERVAL	DESCRIPTION	GAMMA LOG	SAND UNIT
MT 107	76	0 - 16.5	Loam, clay, silt, Q		
		16.5 - 53.0	Silt, clay, JB		
		53.0 - 72.5	Sand, with interbedded clay, JB		53 - 63
		72.5 - 76.0	Basement - foliated siltstone, PG		71 - 72.5
MT 108	69	0 - 16.5	Loam, clay, Q		
		16.5 - 53.0	Silt, clay, JB		
		53.0 - 66.5	Sand, clay, oxidised, JB		53 - 58.5
		66.5 - 69.0	Basement - Phyllite, PG		
MT 109	110	0 - 20.0	Loam, clay, sand, Q		
		20.0 - 60.0	Silt, clay, JB		60 - 86
		60.0 - 86.5	Sand, oxidised, JB		91 - 101
		86.5 - 101.0	Clay, then sand, oxidised		
		101.0 - 105.0	Clay, pyritic, carbonaceous	210 cps at 101	
		105.0 - 108.0	Glauconitic, fossil. marl, KB		
		108.0 - 110.0	Basement - Phyllite, PG		

APPENDIX II

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ANALYSIS RESULTS

Several cuttings grab samples were submitted to Geochemical and Mineralogical Laboratories Pty. Ltd. who carried out analysis using a fluorimetric method based on HCL-HF attack; organic solvent extraction of U; fusion with NaF; then fluorescence by U.V. radiation in a Jarrell Ash Fluorimeter.

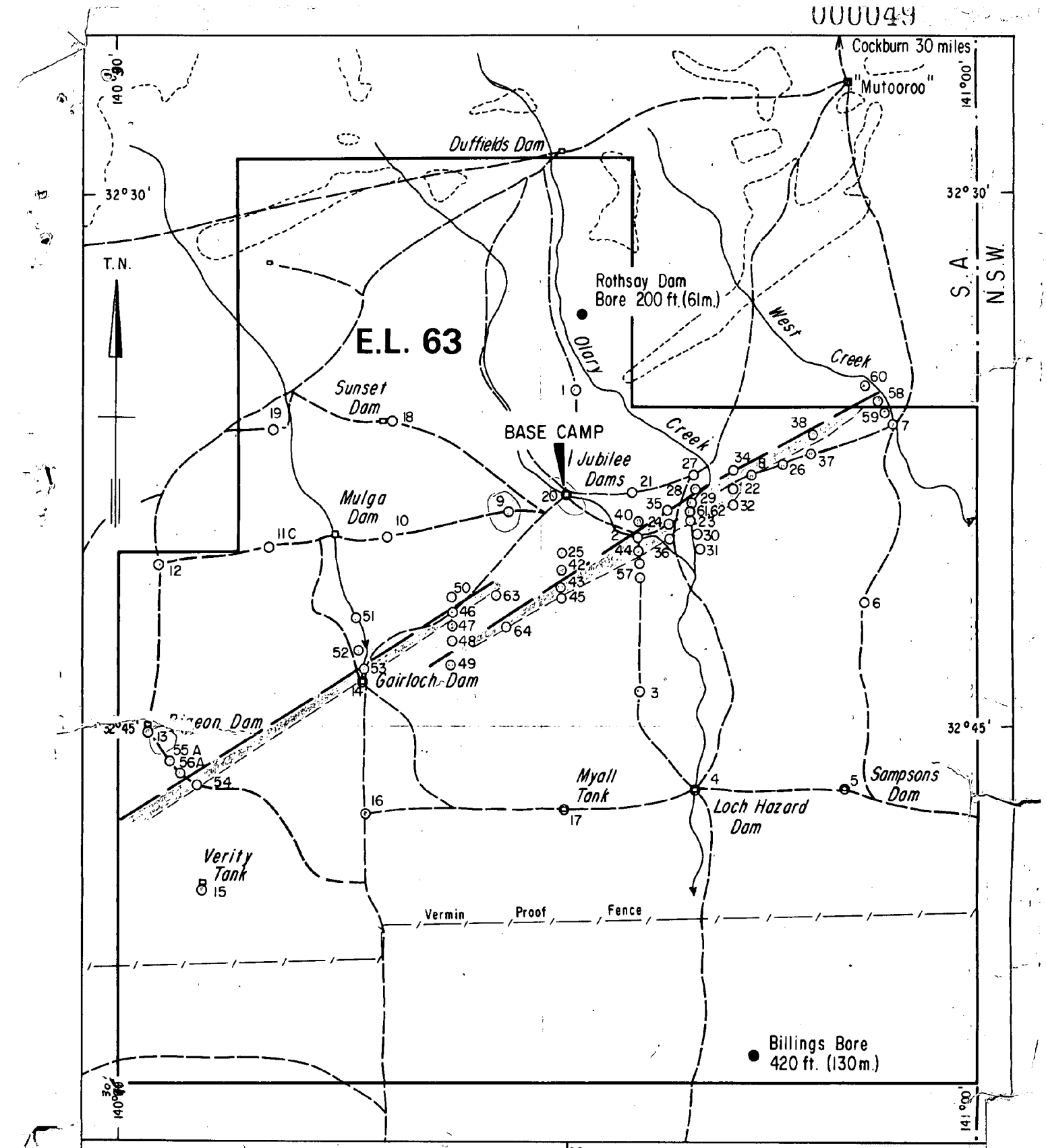
The results are tabulated:

HOLE	INTERVAL	U IN p.p.m.
MT 86	100.5-102m	8
"	102.0-103.5m	8
"	103.5-105m	3
"	105.0-106.5m	6
"	106.5-108m	4
"	108.0-109.5m	4
MT 97	99.0-100.5m	30
"	100.5-102m	17
"	102.0-103.5m	21
"	103.5-105m	16

Two cuttings samples of basement pyritic, graphitic slate from MT95 were submitted to the same laboratory for Cu, Pb, Zn, Ag and Au analysis by A.A.S. methods.. The results are: (all in p.p.m.)

HOLE	INTERVAL	Cu	Pb	Zn	Ag	Au
MT 95	102-103.5m	52	58	190	1.0	X
"	108-109.5m	108	64	140	0.8	X

(X means below limit of detection ie <1 p.p.m.)



REFERENCE

- E.L. 63 BOUNDARY
- PRE 1973 DRILLHOLES
- PREVIOUSLY COMPLETED DRILLHOLES
- DRILLHOLES COMPLETED IN PEROID
- POSSIBLE FAULT TRENDS
- PRINCIPAL MINERALISED ZONE
- PRECAMBRIAN BASEMENT OUTCROPS

TRICENTROL AUSTRALIA LIMITED

PLAN SHOWING ROTARY DRILLHOLE LOCATIONS E.L. 63 MUTOOROO SOUTH AUSTRALIA

DATE : AUGUST, 1973. | AUTHOR

Tricentrol
AUSTRALIA LIMITED
(Incorporated in Victoria)

000054

31st Level, Australia Square,
Sydney, N.S.W. 2000. Australia
Telephone 02-27 7507
Telegraphic Address Tricentrol Sydney
Telex AA24073

Ref: 73.300.01007
21 November, 1974

The Director of Mines,
Department of Mines,
P.O. Box 38, Rundle St. P.O.,
Adelaide, S.A. 5000

Dear Sir,

QUARTERLY REPORT FOR PERIOD ENDED
NOVEMBER 3rd, 1974
E.L.63, MUTOOROO

Herewith is our quarterly report re the above area.

Technical Report
No field work was carried out during thepast quarter, our activities being restricted to office appraisal.

We are at the present time discussing a possible farmout of interest to an Australian company with a view to the continued exploration of the E.L. and also meeting the 51% local equity requirement.

Financial Report
Below is a summary of expenditure during the quarter which includes several costs incurred during the previous period.

Geological & Supervision	$712.28
Plans & Reports	39.46
Vehicle Hire	226.14
Drilling	1078.26
Geophysics hire	110.00
Travel, Accommodation & Camp	115.00
Communication	15.54
Track grading	272.84
Head Office & Administration	1275.96
	$3845.48

Yours faithfully,
Tricentrol Australia Limited

L.S. Denholm
Minerals Exploration Manager

encl.

TWM/lw

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Tricentrol
AUSTRALIA LIMITED
(Incorporated in Victoria)

31st Level, Australia Square, Sydney, N.S.W., 2000, Australia
Telephone: 02-27 7507. Telegrams Tricentrol, Sydney. Telex AA24073

Our Ref. 73.300.01007
17 March, 1975.

The Director,
Department of Mines,
P.O. Box 38, Rundle Street P.O.,
ADELAIDE. S.A. 5000.

EL 63, Mutooroo
Quarterly Report for period ended 3/2/1975

Dear Sir, 7/8

We apologise for not lodging this return sooner, this being due to a misunderstanding within our office.

General

No field work was undertaken during the quarter. We are still discussing the farmout of interest to an Australian Company with regard to continued exploration and meeting the 51% local equity requirement.

Financial Report

We have no expenditures to report for the quarter.

Yours faithfully,
TRICENTROL AUSTRALIA LTD.

T.W. Middleton,
On behalf of Mineral
Exploration Manager.

RECEIVED
20 MAR 1975
DEPT. OF MINES
SECURITY
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TRICENTROL AUSTRALIA LIMITED

MUTOOROO, E.L. 63

FINAL REPORT

A. TECHNICAL REPORT

T.W. MIDDLETON

JUNE 1975

SUMMARY OF EXPLORATION ACTIVITY
SUMMARY OF GEOLOGY
a) Pre Tertiary Basement
b) Tertiary Stratigraphy
ANOMALOUS GAMMA ACTIVITY
CONCLUSIONS

Appendix I Geophysical Logs Analysis Tables

Plan 63/12 Rotary Drillhole Location (Phase I) and proposed Phase II Location
Plan 63/13 Rotary Drillhole Location (Phase II) and Basement Structure
Plan 63/14 Gairloch Beds Isopachs
Plan 63/15 Anomalous Gamma Activity Isopachs
Plan 63/19 Cross Section A-B (Phase I)
Plan 63/20 Cross Section E-F (Phase I)
Plan 63/21 Cross Section K-L (Phase I)
Plan 63/22 Cross Section O-P (Phase I)
Plan 63/23 Cross Section A-A' (Phase II)
Plan 63/24 Cross Section B-B' (Phase II)
Plan 63/25 Cross Section C-C' (Phase II)

SUMMARY OF EXPLORATION ACTIVITY

a) The Exploration Licence 63 area was originaly selected as an area on the northern fringe of the Murray Basin within close proximity to the Radium Hill uranium lodes and other uraniferous rocks of the Olary-Willyama Block.

b) The area was granted for a period of one year from 4/5/1973 to Tricentrol Australia Ltd.; who had earlier entered into a joint venture agreement with Getty Mining Pty. Ltd. on a regional basis. The licence was renewed for a further year from 4/5/1974.

c) A Phase I rotary drilling programme was undertaken in August-October 1973 with the drilling being undertaken by W.L. Sides & Son Pty. Ltd. of Melbourne; down the hole logging by the South Australian Department of Mines (using a "Neltronic" Landrover mounted unit with separate gamma ray and spontaneous potential - single point resistivity probes, operator A.W. Young); while the programme supervision, lithological logging and sampling was carried out by the writer.

A total of 63 holes were completed (MT1-63) for 7241.2 m drilling plus 12.61m effective coring in one hole (MT23C).

This programme indicated, at an early stage, that prospective non-oxidised host sediments extended updip as far as a basement escarpment thought to be a manifestation of the regional Anabama Fault. The latter stage of this programme was taken up in tracing this feature.

d) Results from the Phase I work were thought sufficiently encouraging to undertake a Phase II follow-up programme based on closer drilling along the Anabama Fault and also in a suspected basement re-entrant. representing a possible paleo-drainage channel,extending in a north west direction.

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The Phase II programme was carried out in May-June, 1974 with the same contractors used. In all, 46 holes were drilled for a total of 5061.8m.

In both programmes, drilling proved difficult in about 50% of holes with considerable "lost circulation" in the open holes. On the whole, electric logging provided good definition, however, complete coverage was not possible in some holes due to rapid medium loss.

Drillhole sectioning and correlation using geophysical/lithological log indicated cut offs, has been employed throughout.

SUMMARY OF GEOLOGY

a) Pre-Tertiary Basement

Adelaidean system rocks outcrop just north of the E.L. and are assumed to extend beneath the Cainozoic cover, throughout the area and well into the Murray Basin.

The basal Adelaidean rocks of this area are probably Burra Group shales, sandstones, arkoses and minor acid volcanics which outcrop on a prominent anticlinal(?) ridge about 10 km south of Mutooroo Homestead. These have undergone low grade metamorphism to phyllite or greenschist facies and probably extend south west across the area. Phyllites were the most common basement rocks encountered in drilling, these being occasionally pyritic but including one highly pyritic, graphitic type encountered in MT95, about 5 km north east of Jones Dam.

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The basement deepens gradually southward, however, a prominent, variably steep escarpment extends NE-SW across the E.L., through E.L.122, and is interpreted as the eroded Anabama Fault trace which is part of a system marking the tectonic boundary between the Murray Basin and Olary - Willyama Block. This fault, which was probably active in the Delmarian Orogeny (Ordovician), and at several stages during the Tertiary, is normal with south side downthrown and a possible rifting effect is evidenced by slight tilting to the north immediately basinward. The maximum relief observed is about 70m over 1.6 km in the far west of the E.L. near Satire Dam.

The basement scarp is reflected by a slight surface topographic feature and a further possible basement scarp is evidenced by a parallel aerial photographic feature, observed about 3 km north of Jubilee Dam.

Airborne Magnetometer surveys, undertaken by Longreach Metals N.L. during the tenure of S.M.L.274, have indicated the Anabama Fault position and also a prominent basement NE-SW ridge in the Sunrise Dam area.

On the accompanying plan 63/13, basement contours are indicated. These represent the R.L. of Adelaidean basement northward from the limit of basal Tertiary marine "Kinloch Beds" and the R.L. of the top of the "Kinloch Beds" where it is present. This formation top is taken as economic basement.

A NNW trending shallow re-entrant is inducated just east of the Gairloch Dam, extending through the Mulga Dam area.

b) Tertiary Stratigraphy

The Tertiary sequence has been subdivided into a number of lithological units, of widespread aerial extent, based on geophysical/lithological log cut offs rather than strictly on stratigraphic grounds. The

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names used are those of the author, based on local features, and the only correlation with established Murray Basin stratigraphy is via the basal marine "Kinloch Beds", which is an equivalent of the Finnis Clay or Morgan Limestone, of Lower Miocene age (information supplied by J.M. Lindsay & W.K. Harris, S.A.D.M.).

The stratigraphy is as follows:

Pleistocene - Recent		Reddish sandy soils; calcrete; sands; gravels
	Unconformity?	
	"Jubilee Beds"	Silts; clays; fine to coarse oxidised sands; rare siltcrete; minor carbonaceous clays.
Lower Miocene - Pliocene	Unconformity?	
	"Gairloch Beds"	Carbonaceous, pyritic sands; silts; clay; lignite. Partial oxidation close to Anabama Fault.
	Unconformity;	
	"Loch Hazard Clay"	Grey-green clay; minor thin limestone bands; siderite nodules Non-oxidised.
Lower Miocene	"Kinloch Beds"	Marine, fossiliferous, glauconitic, grey-green marl; quartz sands; minor limestone bands Non-oxidised.

The Pleistocene - Recent cover is fairly irregular, ranging from outwash gravels, flood plain sediments and nodular calcretes.

The top of the "Jubilee Beds" is not very clear cut, probably due to differential scouring and filling during the Pleistocene. This sequence includes three basic units which are indicative of an initial fluviatile then largely lacustrine sedimentation history. They are, on top; a predominantly red brown to buff silt unit; in the middle, a little stained grey clay unit becoming progressively sandier towards the base; and beneath this a predominantly oxidised

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which is moderately to poorly sorted rounded to sub angular quartz. The latter unit shales out in a few local areas but is usually present in thicknesses up to 50m and is characterised by very strong resistivity - S.P. effects and low gamma.

The "Gairloch Beds" top is picked by a marked contrast in resistivity - S.P. compared to the Jubilee basal sands. The nature is generally that of an interbedded silty, pyritic, carbonaceous sand - clay sequence with rapid changes of facies and depositional character. In the Phase I hole MT23C, which was cored, a pyritic, poorly sorted sand matrixed, clay pellet breccia was observed, suggesting rapid scouring and filling conditions.

This formation only appears to extend updip as far as the Anabama Fault, where it is thickest, and also into the re-entrant near Gairloch Dam, and it is suggested that reactivation of the Anabama Fault took place immediately prior to its deposition.

The "Loch Hazard Clay" is recognized on electric logs by low, uniform resistivity - S.P. effect and is probably a paralic-regressive stage of the underlying marine "Kinloch Beds" which is characterised by abundant macro and micro fossils, glauconite, marl and limestone with some sand interbeds. These two formations appear to lap over the Anabama Fault in places, further suggesting that reactivation took place following the marine transgression - paralic stages of the lower Miocene.

ANOMALOUS GAMMA ACTIVITY

Anomalous gamma activity has been recorded in a number of holes in proximity (mostly downdip) to the Anabama Fault and in the re-entrant east of Gairloch Dam. The anomalies occur in the "Gairloch Beds" and to a minor extent in the "Jubilee Beds" basal member.

In the "Jubilee Beds", significantly anomalous activity was recorded, during Phase I drilling, in holes MT44, about 0.4m south of Jubilee Tank, and MT46, about 8 km north east of Gairloch Dam. In each

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case, the normally oxidised lower sand unit has lensed out into a pyritic sand - carbonaceous clay sequence. In the former, a 10m anomalous zone at 90m depth (around 0m R.L.) includes peaks to 1000 cps on clay interfaces, with 1.5m grab samples, although contaminated, assaying up to 19 ppm U, while peaks to 840 cps were recorded in the latter, at a similar depth.

In the Phase I hole MT23 locality near Jones Dam, a cored hole, MT23C, registered gamma peaks to 1450 cps on clay interfaces with part oxidised sand. Core samples, although of dubious value due to poor core recovery, assayed 40 ppm U from the same inferred position.

Most anomalous activity has been recorded in the "Gairloch Beds" - in proximity to Anabama Fault or in the re-entrant. The highest peaks recorded were in Phase II hole MT97, 4km E.N.E. of Gairloch Dam, where values of 2550 cps ($\sim$1 lb/tonne eU_3O_8) and 2000 cps were recorded on clay interfaces at around 100m depth (-15m R.L.). At 200m north west, the values had dropped sharply, while 200m south east (MT106) and apparently over the Anabama Fault scarp, interface peaks to 2200 cps persisted. A further 300m south east, a drop to 1000 cps peak activity occured (MT76).

Cuttings grab samples of 1.5m intervals were analyses from hole MT97 and values to 30 ppm U obtained.

Further north in the re-entrant at MT66, about 2.5 km east of Mulga Dam, peaks to 1350 cps were recorded in carbonaceous clays below 95 m depth.

In the Phase I drillhole MT35, about 2.5 km north east of Jubilee Tank, a peak of 1700 cps (about 0.7 lb/ton eU_3O_8) was recorded, corresponding with a lignite band. The corresponding 1.5m grab sample assayed 140 ppm U.

In general, the Anabama Fault appears to be the principal localising factor and hence control on mineralisation as such. Other important

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related factors are: facies changes in the "Gairloch Beds", and to a lesser extent in the "Jubilee Beds" (principally constriction of sand units); a possible oxidation - reduction interface within the Gairloch in proximity to the fault; the influence of the re-entrant in so far as sedimentation and channeling of sub-surface drainage; and possibly the influence of the present major drainage courses.

Apart from isolated instances, the Tertiary sediments are oxidised above about 90m depth and hence are unlikely to host significant uranium mineralisation above that level. In addition uranium, which has obviously been transported southward through the area, in solution, has been scavenged only by clays and lignites in contact with permeable sands and has not been trapped to any significant extent in the sands themselves, the normal host in the "type" environments.

This was also found to be the case in the former Minad S.M.L.416 where a lignite band, with narrow intervals assaying up to 2 lb/ ton U_3O_8, was delineated by semi detailed drilling at a locality about 70 km south west of Lignum Dam and 10 km south of "Lilydale" homestead. The lignite would appear to be at the top of the "Gairloch Beds" equivalent and the position relative to the Anabama Fault projection similar. The nature of uranium mineralisation at this locality and in E.L.63 is not known.

The source of the uranium is likely to have been the Carpentarian Willyama Complex matamorphicsand granitoids, at present outcropping in the Olary Creek basin. These host the Radium Hill lodes. Most of this basin is of Adelaidean rocks which might be considered largely barren as regards uranium content, apart from some basal arkoses etc. containing minor detrital uraniferous minerals. Thus an effective dilution factor has been operative.

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CONCLUSIONS

1. Narrow intersections of up to 1 lb/tonne eU_3O_8 have been observed in E.L.63, occuring on clay interfaces or lignite in contact with non-oxidised sands at depths of 90m+. No significant values have been recorded in the sands.

2. The anomalous gamma activity occurs in sediments which exhibit rapid facies change in close proximity to a basement escarpment, the Anabama Fault zone, or else in a shallow basement re-entrant. North from the fault, surface oxidation effects have probably precluded the preservation of uranium deposits, while at a short distance southwards, the prospective host sediments are non-oxidised, suggesting that uranium in groundwater would largely have been precipitated updip.

3. On the whole, conditions for the deposition of uranium in economic concentrations do not appear to be present, although the density of drilling cannot have tested all possibilities. Under different politico-economic circumstances, further persistence may have been warranted.

T.W. MIDDLETON

APPENDIX I

ANALYSIS RESULTS

Several cuttings grab samples were submitted to Geochemical and Mineralogical Laboratories Pty. Ltd. who carried out analysis using a fluorimetric method based on: HCl - HF attack; organic solvent extraction of uranium; fusion with NaF; then fluorescence by U.V. radiation in a Jarrell Ash Fluorimeter.

Hole	INTERVAL	U in p.p.m.
MT86	100.5 - 102m	8
	102 - 103.5m	8
	103.5 - 105	3
	105 - 106.5m	6
	106.5 - 108m	4
	108 - 109.5m	4

APPENDIX I

HOLE NO.	DEPTH (METRES)	INTERVAL	DESCRIPTION	GAMMA LOG	SAND UNIT
MT 86	116	0 - 13.5	Loam, sandy clays, Q		
		13.5 - 72.0	Silt, clays		72 - 80
		72.0 - 91.0	Sands, clay interbeds		83 - 86
		91.0 - 100.0	Carbonaceous clays, sands	2250 cps at 102.2	102 - 105
		100.0 - 109.0	Glau. Marl, Limestone, KB	750 cps at 103.8	
		109.0 - 116.0	Basement, quartz, chlorite schist, PG - band of +200 cps from 101.4 - 105.8		
MT 88	113	0 - 13.5	Loam, calcarious clay, Q		
		13.5 - 60.0	Silt, clay, JB		
		60.0 - 88.0	Sand, JB		
		88.0 - 100.0	Sand, clays, GB		
		100.0 - 107.0	Carbonaceous, clays, sands, GB	540 cps at 101	
		107.0 - 109.0	Glau., fossiliferous, sandy marl, KB	190 cps at 103.6	
		109.0 - 113.0	Basement, PG		
MT 87	76.8	0 - 12.0	Loam, clay, Q		
		12.0 - 54.5	Silt, clay, sand, JB	32 - 38	
		54.5 - 74.5	Sand, limestone, JB	54.5 - 74.5	
		74.5 - 76.8	Basement, Phyllite, PG		

APPENDIX I

000062 A

HOLE NO.	DEPTH (METRES)	INTERVAL	DESCRIPTION	GAMMA LOG	SAND UNIT
MT 93	116	0 - 19.5	Loam, clays, silt, sand, Q		
		19.5 - 66.0	Silt, clays. JB		
		66.0 - 85.0	Clay, sand, interbedded sequence, JB		85 - 95
		85.0 - 95.0	Sand, clay, JB		99 - 106
		95.0 - 99.0	Clay, pyrite, JB		
		99.0 - 106.0	Sand, pyritic carb., JB	102.2 - 106.8 200 cps	
		106.0 - 107.0?	Clay?	2 peaks to 900 cps	
		107.0 - 110?	KB		
		110.0 - 116.0	Basement?		

APPENDIX I

000063 A

HOLE NO.	DEPTH (METRES)	INTERVAL	DESCRIPTION	GAMMA LOG	SAND UNIT
MT 89	113	0 - 18.0	Loam, clays, Q		
		18.0 - 70.0	Silt, clay, JB		
		70.0 - 88.0	Sand, JB		70 - 88
		88.0 - 100.5	Clay, then sand, GB		92 - 100.5
		100.5 - 104.0	Clay, Glau. marl, KB	215 cps at 101.2	
		104.0 - 113.0	Basement Phyllite, PC		
MT 90	110	0 - 16.5	Silt, calcrete, clays, Q		
		16.5 - 64.0	Silt, clay, JB		
		64.0 - 102.0	Sand, clays, JB		64 - 95
		102.0 - 106.5	Clay, sand, GB		95 - 102
		106.5 - 108.0	Marl, siderite bands, KB	1800 cps at 102.6	
		108.0 - 110.0	Basement- Chlorite schist, PC / high activity		102 - 104.2
MT 91	106.9	0 - 19.5	Loam, gravel, silt, clays, Q		
		19.5 - 73.0	Silt, clay, JB		73 - 87
		73.0 - 99.0	Sand, clay, JB		92 - 99
		99.0 - 105.5	Sand, clay, GB	350 cps at 99.2	100 - 105
		105.5 - 106.9	Basement	300-400 cps at 103 - 104	
MT 92	116	0 - 18.0	Loam, calcrete, cal., sandy clays, Q		
		18.0 - 77.0	Silt, clay, JB		
		77.0 - 93.5	Sand, JB		77 - 93.5
		93.5 - 104.5	Sand, interbedded clay, GB		93.5 - 104.5
		104.5 - 107.0	Clay, carbonaceous, GB		
		107.0 - 109.0	Glauc., marl, siderite, KB	102.2 - 106.4 +200 cps	
		109.9 - 116.0	Basement - Phyllite	103.6 - 105.8 with ample packing to 2100 cps.	

A P P E N D I X I

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HOLE NO.	DEPTH (METRES)	INTERVAL	DESCRIPTION	GAMMA LOG	SAND UNIT
MT 107	76	0 - 16.5	Loam, clay, silt, Q		
		16.5 - 53.0	Silt, clay, JB		
		53.0 - 72.5	Sand, with interbedded clay, JB		53 - 63
		72.5 - 76.0	Basement - joliated siltstone, PG		71 - 72.5
MT 108	69	0 - 16.5	Loam, clay, Q		
		16.5 - 53.0	Silt, clay, JB		
		53.0 - 66.5	Sand, clay, oxidised, JB		53 - 58.5
		66.5 - 69.0	Basement - Phyllite, PG		
MT 109	110	0 - 20.0	Loam, clay, sand, Q		
		20.0 - 60.0	Silt, clay, JB		60 - 86
		60.0 - 86.5	Sand, oxidised, JB		91 - 101
		86.5 - 101.0	Clay, then sand, oxidised		
		101.0 - 105.0	Clay, pyritic, carbonaceous 210 cps at 101		
		105.0 - 108.0	Glauconitic, fossil. marl, KB		
		108.0 - 110.0	Basement - Phyllite, PG		

APPENDIX I

PHASE I - II DRILLING PROBE LOGS ANALYSIS TABLES

000066 A

Hole No.	Depth	Collar R.L.	PC Basement Depth/(RL)	Top Kinloch Depth/(RL)	Top Loch Hazard Clay	Top Gairloch	Top Jubilee Sand	Thickness Gairloch Beds	Thickness Non-oxidised Gairloch Beds Thickness/(%)	Thickness Sand Gairloch Beds Thickness/(%)	Total Sand	Meters 200cps	Meters 800 cps
1	51.2	104	48(56)	a	a	-	36?	-	-	-	4	-	-
2	164.8	93	128(-35)	122(-29)	115	100	68	15	15?(100%)	10(66)	40 (35)	2.8	0.4(830)
3	152.8	90	148(-58)	126(-36)	105	91	76	14	14?(100%)	13(92)	42(40)	-	-
4	148.6	80	np	136.5(-56.5)	105	76	65	29	29?(100%)	22(75)	59(56)	-	-
5	85.3	69	np	np	85	-	-	-	-	-	-	-	-
6	116	75	np	111(-36)	85	81	61	4	0?(0)	4(100)	50(59)	-	-
7	110	87	np	np	107	92	87	15	? (?)	6(40)	41(38)	-	-
8	139.8	90	np	120(-30)	119	100	63	19	?19?(100%)	15(78)	49(41)	1.2	-
9	108.3	94	100(-6)	a	93	a	80	-	-	-	20(22)	-	-
10	132	101	108(-7)	104(-3)	99	95	63	4	0(0)	4(100)	30(30)	0.8	-
11	115	106	106(-11)	103(+3)	101	a	66	-	-	-	32(32)	0.6	-
12	71.2	111	56(+55)	a	a	-	-	-	-	-	- (0)	-	-
13	91.6	100	86(+14)	a	a	-	52	-	-	-	32(37)	-	-
14	128.2	87	n.p.	121(-34)	119	94	78	25	2(8)	23(92)	57(48)	-	-
15	128.2	82	n.p.	119(-37)	107	102	48?	5	5(100)	5(100)	44(41)	-	-
16	128.2	74	n.p.	119(-45)	99?	87?	?45	?12?	?(100%)	?(?)	44?(44)	0.4	-
17	127	70	n.p.	n.p.	103	78	53	25	25?(100%)	17(68)	53?(51)	-	-
18	96.2	105	84(+21)	a	a	a	75	-	-	-	12(14)	-	-
19	48.8	100	22(+78)	a	a	a	a	-	-	-	-(0)	-	-
20	104.2	100	95(+5)	94(+6)	85	a	61	-	-	-	20(24)	-	-
21	97.7	100	94(+6)	a	a	a	53	-	-	-	40(43)	-	-
22	128.2	91	125(-34)	123(-32)	114	101	65	13	?2(15)	10(77)	47(41)	2.4	0.3
23	128.2	90	n.p.	123(-33)	122	101	71	21	21(100)	10(48)	45(37)	3.6	0.8
24	128.2	90	n.p.	125(-35)	121.5	101	78	20.5	20.5(100)	12(59)	35(29)	4.9	0.3
25	104	100	103(-3)	1029-2)	91	73	73	-	-	-	11(12)	-	-
26	128.2	88	120(-32)	118(-30)	115	97	63	18	4?(22)	15(83)	47(41)	0.4	-
27	93	100	92(+8)	a	87?	a?	58	-	-	-	15(17)	-	-
28	111.6	94	109(-15)	108(-14)	103	a	55	-	-	-	40(39)	-	-
29	113	90	127(-37)	124(-34)	123	100	64	23	0(0)	22(96)	57(46)	-	-
30	128.2	90	125(-35)	120(-30)	115	97	63	18	18?(100)	10(56)	43(37)	1.4	0.4
31	125	87	122(-35)	119(-32)	117.5	91	55	26.5	26.5(100)	12(45)	41(35)	2.6	0.2
32	126.8	90	125(-35)	121(-31)	118	99	71	19	19(100)	14(74)	42(36)	0.8	-
33	128.2	88	122(-34)	120(-32)	111.5?	98	58	13.5	?13.5(100)	8(59)	45(40)	0.4	-
34	108.2	92	107 (-19)	105(-17)	95	a?	58	-	-	-	28(29)	-	-
35	164.4	93	133(-40)	124(-31)	120	103	68	17	10(59)	10(59)	40(33)	4.6	1.2
36	128.2	90	124(-34)	117(-27)	112	93	68	21	21(100)	9(43)	31(28)	1.0	-
37	120	87	118(-31)	114(-27)	108	87	78	21	7(33)	12(57)	22(20)	0.6	-
38	114.4	90	110(-20)	103(-13)	100.5	92	75	8.5	8.5(100)	4(47)	23(23)	3.4	0.2(840)
39	-	-	-	-	-	-	-	-	-	-	-	-	-
40	102.2	95	101(-6)	94(+1)	91.5	a?	53	-	-	-	34(37)	-	-
41	-	91	-	-	-	-	-	-	-	-	-	-	-
42	115.8	99	114(-15)	106(-7)	90	a?	84	-	-	-	20(22)	-	-
43	97.6	95	n.p.	n.p.	n.p.	n.p.?	58?	?	?	?	30(31)	0.6	-
43A	99	94	n.p.	n.p.	n.p.	n.p.?	57	?	?	?	26(26)	2.4	-
44	128.2	92	120(-34)	120(-28)	119	97	66	22	22(100)	11(50)	42(35)	11.2	0.2(840)

Hole No.	Depth	Collar R.L.	PC Basement Depth/(RL)	Top Kinloch Depth/(RL)	Top Loch Hazard Clay	Top Cairloch	Top Jubilee Sand	Thickness Cairloch Beds	Thickness Non-oxidised Cairloch Beds Thickness/(%)	Thickness Sand Cairloch Beds Thickness/(%)	Total Sand	Meters 200cps	Meters 800 cps
45	131.4	92	n.p.	127(-35)	122	99	91	23	14(61)	18(78)	43(35)	0.8	-
46	112.5	93	108(-15)	106(-13)	96.5	a?	75	-	-	-	24(25)	10	0.4(1000)
47	109.4	91	108(-17)	103(-12)	97	a?	66	-	-	-	34(35)	0.4	-
48	112.8	88	n.p.	106(-18)	97.5	94	73	3.5	3.5(100)	3(86)	33(34)	0.4	-
49	125.6	85	n.p.	117(-32)	110	101	72	9	9(100)	5(55)	45(41)	0.2	-
50	105.3	93	103(-10)	101(-8)	99.5	a?	80	-	-	-	3(3)	-	-
51	109.8	90	n.p.	100(-10)	93	a?	63	-	-	-	40(43)	1.0	-
52	100.8	88	n.p.	100(-12)	93	a?	64	-	-	-	47(43)	0.4	-
53	114.3	87	n.p.	105(-18)	98	a?	74	-	-	-	48(49)	-	-
54	134.2	90	132(-42)	123(-33)	121	104	85	17	13(76	10(59)	33(27)	1.6	-
55	63.4	95	63(+32)	a	a	a	46	-	-	-	21(33)	-	-
56	81.5	93	80(+13)	a	a	a	52	-	-	-	44(55)	-	-
57	128.2	89	n.p.	121(-32)	117	96	60	21	21(100)	16(76)	45(38)	-	-
58	114.3	94	110.5(-16.5)	a?	107	101	94	6	-(0)	6(100)	16(15)	-	-
59	128.2	92	115(-23)	113(-21)	110.5	90	59	20.5	-(0)	12(59)	42(38)	-	-
60	91.5	97	83(+14)	a	a	a	59	-	-	-	8(10)	-	-
61	128.2	90	n.p.	126(-36)	118	95	74	23	18?(78)	10(43)	31(26)	2.0	0.2(840)
62	128.2	90	n.p.	124(-34)	120	100	66	20	7(35)	13(65)	47(39)	-	-
63	104.6	95	103(-8)	102(-7)	92.5	a	72	-	-	-	22(24)	0.4	-
64	113.6	90	n.p.	n.p.	n.p.	103	59	10.6	-10.6?(100?)	7	32(28)	2.0	-
65	103.8	98	102(-4)	101?(-3)	100	93.5	54.5	6.5	40?(62)	4?(62)	45(45)	0.6	-
66	140.5	99	118(-19)	108?(-9)	105.5	97	69.5	8.5	8.5?(100)	5(59)	29.5(28)	4.0	0.4
67	116	99	111.5(-12.5)	106(-7)	99	96.5	72	2.5	0(0)	2.5(100)	27(27)	1.0	-
68	109.9	99	106?(-7)	102(-3)	97	89.5	64.5	6.5	6.5(100)	2(31)	25(26)	0.8	-
69	106.8	100	105(-5)	101(-1)	97	a?	64.5	-	-	-	33.5(35)	0.7	-
70	103.8	93	n.p.	101.5?(-8.5)	101	94.5	67	6.5	6.5(100)	3.5(54)	35.5(35)	3.0	-
71	120.4	89	113(-23)	110.5(-21.5)	107	97.5	61.5	9.5	1.5(16)	7(74)	63(59)	1.2	-
72	120.4	90	n.p.	113?(-23)	109	96	66	13	13(100)	3(23)	51(47)	2.4	-
73	128.2	89	122(-33)	110(-21)	107	100?	62	7	0(0)	6(86)	58(54)	0.6	-
74	120.5	90	116(-26)	113(-23)	109	94?	79	15	3(20)	12(80)	42(39)	0.5	-
75	128.2	87	n.p.	122(-35)	114?	101	73	13	0(0)	12(92)	41(36)	3.0	-
76	134.3	85	n.p.	125.5(-40.5)	117.5	95?	60?	22.5	22.5?(100)	7(31)	24(20)	2.6	0.4
77	128.2	85	n.p.	122(-37)	110	?95?	55?	?15	0?(0)	14(93)	34(31)	0.4	-
78	128.2	85	n.p.	119(-34)	111.5	98?	80	13.5	0(0)	12(89)	56.5(51)	0.6	-
79	128.2	89	n.p.	123.5(-34.5)	114.5	95	61	19.5	8(41)	12(62)	44(38)	0.2	-
80	134.3	91	n.p.	126(-35)	118	99.5	65	19.5	14?(72)	8(41)	34(29)	4.8	0.6(1000)
81	72.4nc	97	n.p.	n.p.	n.p.	n.p.	53.5	-	-	-	19	-	-
82	134.3	92	n.p.	130(-38)	128	104	85.5	24	14?(58)	22(92)	52(41)	1.6	-
83	122.1	91	118.5?	116.5(-22.5)	110	93	57	17	4(24)	10.5(62)	42.5(39)	-	-
84	122.1	93	117.5?	116?(-23)	111	?98	66	?13	?3(23)	?10(77)	40(36)	-	-
85	53.8nc	96	n.p.	n.p.	n.p.	n.p.	n.p.	-	-	-	-	-	-
86	116	90	108(-18)	106(-16)	105	80?	72	25?	4?(16)	3(12)	10?(10)	5.6	0.6(22.50)
87	76.8	92	75(+17)	a	n.p.?	a	54.5	-	-	-	23(31)	-	-
88	113	89	109(-20)	107(-18)	105	88	60	17	5(29)	10(59)	50(48)	1.6	-
89	113	87	104?(-17)	103?(-16)	100.5	88	70	12.5	4(32)	8(64)	26(26)	0.2	-
90	110	91	108(-17)	107(-16)	106.5	78.5?	64	?28?	6(21)	16?(57)	28(26)	1.8	0.6(1750)
91	106.9	89	105.5?(-16.5)	a?	105	87	73	18?	6?(33)	11(61)	25(24)	2.6	-
92	116	90	109(-19)	107(-17)	104.5?	93.5	77	11	4?(36)	6(55)	20(19)	4.2	2.2(2050)

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Hope No.	Depth	Collar R.L.	PC Basement Depth/(RL)	Top Kinloch Depth/(RL)	Top Loch Hazard Clay	Top Gairloch	Top Jubilee Sand	Thickness Gairloch Beds	Thickness Non-oxidised Gairloch Beds Thickness/(%)	Thickness Sand Gairloch Beds Thickness/(%)	Total Sand	Meters 200cps	Meters 800cps
93	116	89	110?(-21)	107?(-18)	106	95?	85	11?	9?(82)	4?(36)	11(10)	4.6	0.4(900)
94	116	92	111(-19)	109(-17)	107	93.5	75	13.5	11?(81)	8(59)	26.5(25)	7.2	1.0(4000)
95	110	98	98.5(-0.5)	93.5(+4.5)	93	a	48	-	-	-	43(46)	-	-
96	nc	87	-	-	-	-	-	-	-	-	-	-	-
97	116	87	n.p.	112(-25)	101.5	94	45?	7.5	5(67)	1.5(20)	47(46)	4.0	1.2(2550)
98	128.2	84	n.p.	121(-37)	110.5	96	47?	14.5	1(7)	11(76)	46(42)	0.2	-
99	63nc	94	n.p.	n.p.	n.p.	n.p.	54	-	-	-	-	-	-
100	122.1	91	n.p.	116(-25)	113?	96	77	17	0(0)	9(53)	44(39)	0.2	-
101	122.1	87	n.p.	115(-28)	111.5	95	72	16.5	4(24)	9(55)	58(52)	2.4	-
102	122.1	85	n.p.	116(-31)	113	98	75	15	11(73)	8(53)	51(45)	-	-
103	122.1	86	120	117(-31)	112	96	73	16	6(38)	12.5(78)	45.5(41)	-	-
104	122.1	88	n.p..	120(-32)	116	102	75	18	8(44)	11(61)	43(37)	2.0	-
105	116	87	n.p.	110.5(-23.5)	100	93	74	7	2(29)	6(86)	42(42)	1.2	0.3(430)
106	128.2	86	n.p.	123.5?(-37.5)	109	93	75	16	16?(100)	10(63)	30(28)	5.6	1.0(2200)
107	76	101	72.5(+28.5)	a	a?	a	53	-	-	-	11.5(16)	-	-
108	69	105	66.5(+38.5)	a	a?	a	53	-	-	-	5.5(8)	-	-
109	110	87	108(-21)	105(-18)	101	86.5	60	14.5	2(14)	11(76)	31.5(31)	0.2	-

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FINAL REPORT

E.L.63 Mutooroo

B. Expenditure Report

Total expenditure Year 1 4/5/1973-3/5/1974 — 47,334

Year 2 Expenditure

	¼ to 3/8/74	¼ to 3/11/74	¼ to 3/2/75	¼ to 3/5/75
Geological & Supervision	5,936	712	[illegible]00	200
Plans & Reports	88	39		
Vehicle & Caravan	747	226		
Drilling	10,696	1,078		
Geophysics	3,442	110		
Travel & Accommodation	152	115		
Communications	82	16		
Track Grading	220	273		
Head Office & Administration	1,365	1,276	[illegible]00	100
	22,728	3,845	-	300

Total Year 2 — 26,873

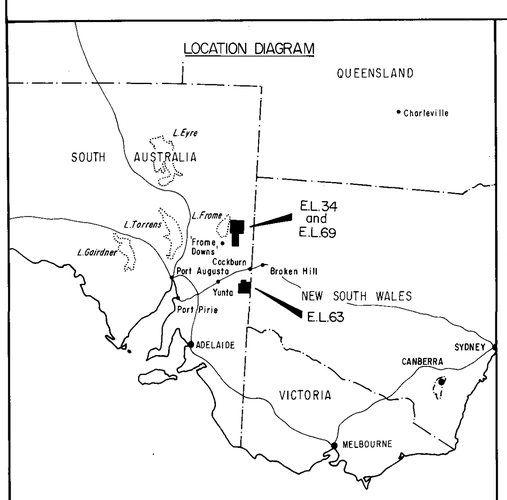
Total Project — $ 74,207

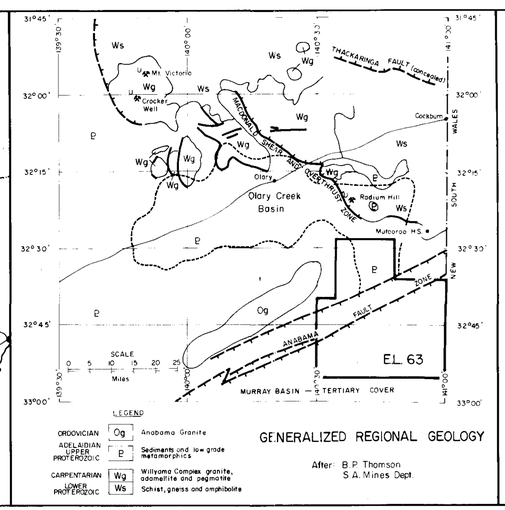
140° 30'
140° 45'
141° 00'
32° 30'
32° 45'
33° 00'

Radium Hill 8mi
Acacia Dam
Peaked Hill
North Dam
Reeds Dam
Yard
Mutooroo Dam
Station Dams
"MUTOOROO H.S."
Coxburn 30mi
Burta Dam
Little Borehole Dam
North East Catch
Black Hill Catch
Borehole West Dam
Two Mile Dam
Elephant Well
Duffield Dam
Davenborough Dam
Duffield Well
North Catch
Lyndoch Catch
Pegline Dam
Blackhill Dam
Flood Dam
Borehole Dam
North Plain Dam
Aldermans Dam
Ironstone Dam
Alderman Catch
Lyndock Dam
Bull Dam
Houlahans Dam
Warnes East Dam
Warnes Hut & Dam
Yards
Rothsay Yards
Maldorky Dam
Ironstone South Dam
Old Dam
Duffields South Dam
D
108
E.L. 122
107
Lignum Dam
Olary
Westcreek Dam
Hubbles Dam
87
89
90
93
86
Tank
109
92
91
88
D'
Lambert East Catch
Davenborough Dam
Hut
Cockrums Dams
Yards
Well
Sunset Dam
Midday Dam
Sunrise Dam
Creek
85
84
Zone
Anabama Fault
95
94
83
Lamberts Dam
Perseverance Dam
Old Dam
MT 26
Connwell Dam
Yard
Yard
Jubilee Dam
Yard, Hut
Boundary Dam
Boundary Plain Catch
Jones Dam
A
A'
Yard
Hut
Mulga Dam
C
Droughty Dam
69
68
67
66
65
Old Dam
Jubilee Tank
81
Mill, Tank & Trough
80
79
Dinnertime Dam
Jones Extension Dam
York Tank
B
B'
70
71
72
73
74
82
Crossout Dam
York Dam
105
96
97
106
76
75
Jubilee Scrub Dam
Kinloch Tank
Kinloch Dam
Yard
C'
77
78
Yard
Gairloch Dam
Cottonbush Dam
New Year Dam
Mill & Trough
98
Zone
Anabama Fault
99
100
101
103
102
104
Pigeon Dam
Satire Dam
Tea & Sugar Dam
Oom Paul Dam
Loch Hazard Dam
Well
Sampsons Dam
South East Dam & Hut
Yard
Myall Tank
Verity Tank
Terminus Tank
Mill & Dam
Oakvale Dam
E.L. 63
Mulga Dam
Yard
Paringa Dams
Mennings Dam
Coomba Catch
Yard
Two Mile Dam
Briggs Dam
Martins Dam
Johnsons Dam
Canteen Dam
Lubra Dam
Schwiers Dam
Yard
Conegrass Dam
West Paddock Dam
James Dam
Chalkers Dam
Mill
Oakvale North Dam
Woolshed & Yards
"OAKVALE H.S."
Catch
200 Yard Dam
Oakvale Proper Dams
Yard
Hut
Brook Bore

SOUTH AUSTRALIA
NEW SOUTH WALES

LOCATION DIAGRAM





GENERALIZED REGIONAL GEOLOGY

After: B.P. Thomson
S.A. Mines Dept.

REFERENCE

- PHASE I DRILLHOLE
- PHASE II DRILLHOLE
- A---A' LINE OF SECTION
- P BASEMENT OUTCROPS (PROTEROZOIC)
- FAULT SHOWING DOWNTHROWN SIDE

ORDER OF MAXIMUM GAMMA PEAK

- < 200 cps.
- 200 - 400
- 400 - 800
- 400 - 1200
- 1200 - 2000
- > 2000

T.N. M.N

SCALE
0 1 2 3 4 Miles
0 1 2 3 4 5 6 Km.

ENV 2315 (E) - 1

TRICENTROL AUSTRALIA LIMITED

PLAN SHOWING ROTARY DRILLHOLE LOCATIONS

MUTOOROO E.L. 63
LIGNUM DAM E.L. 122
SOUTH AUSTRALIA

DATE: MAY , 1974	AUTHOR: T.W.M.	PLAN No
SCALE: 1 inch = 1 mile	DRAFTING: L.R.F.	

ENV 2315(I)-2

TRICENTROL AUSTRALIA LIMITED

PLAN SHOWING

RADIUM HILL E.L. 63

ROTARY DRILL HOLE LOCATIONS

AND PROPOSED PHASE II LOCATIONS

SOUTH AUSTRALIA

DATE: MARCH, 1974	AUTHOR: T.W.M.	PLAN No 63 / 12
SCALE: 1 inch = 1 mile	DRAFTING: L.R.F.	

RECEIVED 13 JUN 1975 DEPT. OF MINES SECURITY 2315-I

E.L. 122

E.L. 63

E.L. 34 and E.L. 69

E.L. 63

Radium Hill 8mi

"MUTOOROO H.S."

Cockburn 30mi

"OAKVALE H.S."

Woolshed & Yards

Yard

Hut

Well

Catch

Old Dam

Mill

Tank

Mill & Dam

Mill, Tank & Trough

Mill & Trough

Mill & Dam

Oakvale Dam

Oakvale North Dam

Oakvale Proper Dams

200 Yard Dam

Oom Paul Dam

Loch Hazard Dam

Sampsons Dam

South East Dam & Hut

Brook Bore

Tea & Sugar Dam

Myall Tank

Terminus Tank

Verity Tank

Pigeon Dam

Satire Dam

Schwiers Dam

Chalkers Dam

James Dam

Canegrass Dam

West Paddock Dam

Mennings Dam

Paringa Dams

Coomba Catch

Mulga Dam

Two Mile Dam

Briggs Dam

Johnsons Dam

Canteen Dam

Lubra Dam

Martins Dam

Cottonbush Dam

New Year Dam

Jones Extension Dam

Crossout Dam

Lambert East Catch

Lamberts Dam

Perseverance Dam

Boundary Dam

Boundary Plain Catch

Old Dam

Jones Dam

Westcreek Dam

Lignum Dam

Hubbles Dam

Warnes East Dam

Warnes Hut & Dam

Houlahans Dam

Flood Dam

Borehole Dam

Blackhill Dam

Bull Dam

Lyndock Dam

Rothsay Yards

Lyndoch Catch

Two Mile Dam

Borehole West Dam

Little Borehole Dam

Burta Dam

Station Dams

Mutooroo Dam

Reeds Dam

North East Catch

Black Hill Catch

Duffield Dam

Elephant Well

Davenborough Dam

Duffield Well

Acacia Dam

Peaked Hill

North Dam

North Catch

Pegline Dam

North Plain Dam

Aldermans Dam

Alderman Catch

Ironstone Dam

Ironstone South Dam

Old Dam

Maldorky Dam

Duffields South Dam

Olary

Olary Creek Basin

Radium Hill

Mutooroo H.S.

Cockrums Dams

Yards

Connwell Dam

Midday Dam

Sunset Dam

Sunrise Dam

Mulga Dam

Droughty Dam

Dimertime Dam

York Tank

York Dam

Gairloch Dam

Jubilee Dam

Jubilee Scrub Dam

Jubilee Tank

Kinloch Tank

Kinloch Dam

Creek

Anabama Fault Zone

Thackaringa Fault (projected)

Broken Hill Shear Zone

Cockburn Shear Zone

MT 1 MT 2 MT 3 MT 4 MT 5 MT 6 MT 7 MT 8 MT 9 MT 10 MT 11 MT 12 MT 13 MT 14 MT 15 MT 16 MT 17 MT 18 MT 19 MT 20 MT 21A MT 22 MT 23 MT 24 MT 25 MT 26 MT 27 MT 28 MT 29 MT 30 MT 31 MT 32 MT 33 MT 34 MT 35 MT 36 MT 37 MT 38 MT 39 MT 42 MT 43 MT 43A MT 44 MT 45 MT 46 MT 47 MT 48 MT 49 MT 50 MT 51 MT 52 MT 53 MT 54 MT 55 MT 56 MT 57 MT 58 MT 59 MT 60 MT 61 MT 62 MT 63 MT 64

A B C D E F G H I J K L M N P Q R S T

32°30' 32°45' 33°00' 140°30' 140°45' 141°00'

AUSTRALIA SOUTH WALES SOUTH NEW

LOCATION DIAGRAM

QUEENSLAND

Charleville

SOUTH AUSTRALIA

L. Eyre

L. Frome

L. Torrens

L. Gairdner

Frome Downs

Cockburn

Port Augusta

Broken Hill

Yunta

Port Pirie

NEW SOUTH WALES

E.L. 63

E.L. 34 and E.L. 69

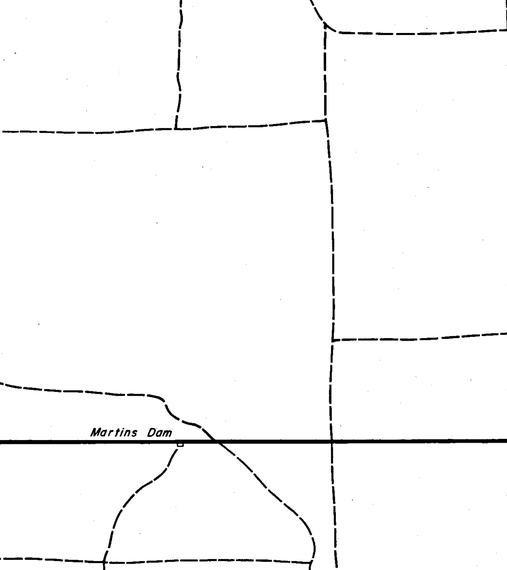
ADELAIDE

SYDNEY

CANBERRA

VICTORIA

MELBOURNE



GENERALIZED REGIONAL GEOLOGY

After: B.P. Thomson S.A. Mines Dept.

REFERENCE

○ Phase I rotary drill holes

BASEMENT OUTCROPS

P Proterozoic

Fault

A ○—○ B Line of section

○ Proposed Phase II rotary drill holes

T.N. M.N.

SCALE

0 1 2 3 4

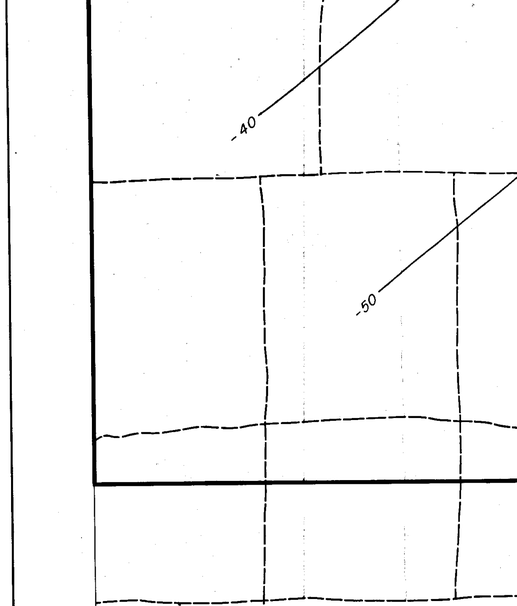
Miles

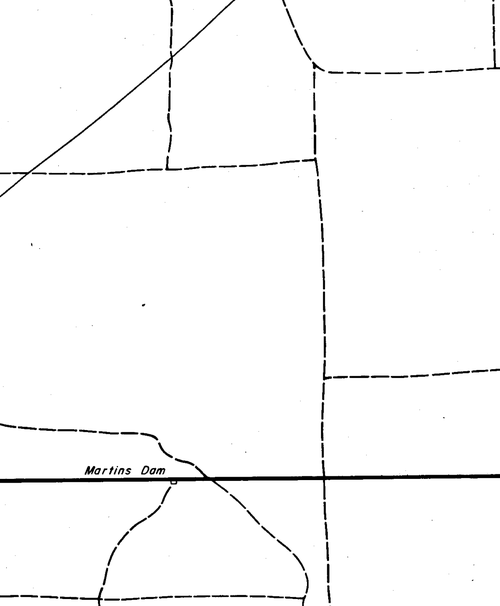
140° 30'
140° 45'
141° 00'
32° 30'
32° 45'
33° 00'

Radium Hill 8mi
Acacia Dam
North Dam
Peaked Hill
Reeds Dam
Yard
Mutooroo Dam
Station Dams
Cockburn 30mi
"MUTOOROO H.S."
Burta Dam
North East Catch
Black Hill Catch
Little Borehole Dam
Elephant Well
Duffield Dam
Davenborough Dam
Duffield Well
Borehole West Dam
Two Mile Dam
North Catch
Lyndoch Catch
Pegline Dam
Blackhill Dam
Flood Dam
Borehole Dam
North Plain Dam
Aldermans Dam
Ironstone Dam
Alderman Catch
Lyndock Dam
Bull Dam
Houlahans Dam
Warnes East Dam
Warnes Hut & Dam
Yards
Rothsay Yards
Maldorky Dam
Ironstone South Dam
Old Dam
Duffields South Dam
Olary
Westcreek Dam
Hubbles Dam
+40
D
108
+38.5
E.L. 122
+30
107
+28.5
Lignum Dam
+20
+10
0
-10
-20
87
+17
89 -16
90
93
86
Tank
-16
109 -18
92
91
60
+14
-16.5
88
-18
D'
Lambert East Catch
Davenborough Dam
Cockrums Dams
Hut
Yards
+56
+60
+50
+40
+70
+60
+40
+30
+9
+78
Well
-18
+21
Sunset Dam
Midday Dam
Sunrise Dam
+30
+40
+50
+60
Zone
85 np
84 -23
58
59
Yard
np
Lamberts Dam
Perseverance Dam
Creek
Anabama Fault
95 +45
-13
83 -25.5
94 -17
38
-27
-30
MT 26
37
Old Dam
-17
+8
-30
Boundary Dam
Boundary Plain Catch
Connwell Dam
Yard
Jubilee Dam
+6
+61
Yard, Hut
Jones Dam
-32
-31
-35
-30
-27
-32
Old Dam
Mulga Dam
Droughty Dam
A
11
+3
Yard
Hut
69
68
67
66
65
C
10
4
-3
-7
-9
-3
-6
81
Mill, Tank & Trough
80 -34
79 -34.5
57
-32
Jubilee Tank
+1
-29
+2
-7
np
-35
82 -38
np 64
Jones Extension Dam
Crossout Dam
-36
-40
York Tank
+70
+60
+50
+40
+30
+20
+10
0
-10
-20
-30
-40
-50
+55
12
Dinnertime Dam
B
B'
-85
-10
-21.5
-23
-21
-23
70
71
72
73
74
-12
-18
50
-8
-13
63
-7
York Dam
Jubilee Scrub Dam
Kinloch Tank
Yard
Kinloch Dam
3
-36
96 -25
97
-37.5
105
106
76 -40
C'
-35
75
-32
77
78 -34
Gairloch Dam
-30
98 -37
Cottonbush Dam
New Year Dam
Mill & Trough
Zone
Anabama Fault
Pigeon Dam
+14
99
np
100 -25
101 -28
103 -31
102 -31
104 -32
+32
+13
+10
+20
+30
+10
+20
+10
0
-10
-20
-33
Satire Dam
16
-45
Tea & Sugar Dam
Oom Paul Dam
Loch Hazard Dam
-36.5
Well
5
np
Sampsons Dam
South East Dam & Hut
Yard
17
np
Myall Tank
Verity Tank
15
-37
Terminus Tank
Mill & Dam
Oakvale Dam
E.L. 63
Mulga Dam
Yard
Paringa Dams
Coomba Catch
Mennings Dam
Two Mile Dam
Briggs Dam
Martins Dam
Johnsons Dam
Canteen Dam
Lubra Dam
Schwiers Dam
Yard
Canegrass Dam
West Paddock Dam
James Dam
Chalkers Dam
Mill
Oakvale North Dam
Woolshed & Yards
"OAKVALE H.S."
Catch
200 Yard Dam
Oakvale Proper Dams
Yard
Hut
Brook Bore

SOUTH AUSTRALIA
NEW SOUTH WALES

LOCATION DIAGRAM





GENERALIZED REGIONAL GEOLOGY
After B.P. Thomson S.A. Mines Dept.

REFERENCE

- ● PHASE I DRILLHOLE
- ○ PHASE II DRILLHOLE
- A---A' LINE OF SECTION
- E BASEMENT OUTCROPS (PROTEROZOIC)
- FAULT SHOWING DOWNTHROWN SIDE

NB DATUM IS THE COLLAR OF MT 20 (JUBILEE HUT) - TAKEN AS +100m.

ORDER OF MAXIMUM GAMMA PEAK

- ○ < 200 cps
- ○ 200 - 400
- ◐ 400 - 600
- ◐ 400 - 1200
- ◐ 1200 - 2000
- ◐ > 2000

NORTHERN LIMIT OF MARINE "KINLOCH BEDS"

BASEMENT RL. CONTOURS - TOP OF KINLOCH BEDS WHERE PRESENT OTHERWISE TOP OF PROTEROZOIC

T.N. MN

SCALE
0 1 2 3 4 Miles
0 1 2 3 4 5 6 Km.

ENV2315(i)-3

TRICENTROL AUSTRALIA LIMITED

PLAN SHOWING
ROTARY DRILLHOLE LOCATIONS AND BASEMENT STRUCTURE
MUTOOROO E.L. 63
LIGNUM DAM E.L. 122
SOUTH AUSTRALIA

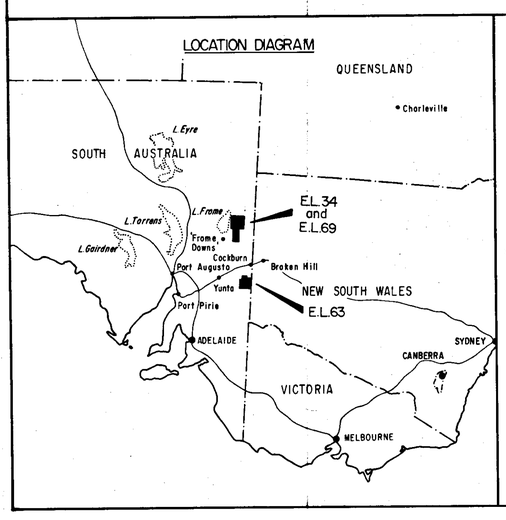
RECEIVED 13 JUN 1975 DEPT. OF MINES SECURITY 2315

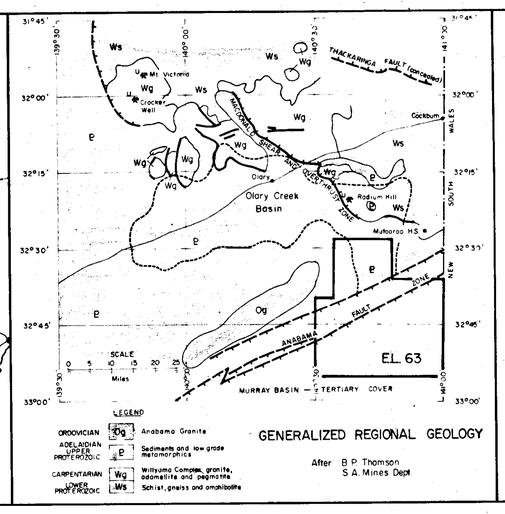
DATE: JULY , 1974	AUTHOR: T.W.M.	PLAN No 63/13
SCALE: 1inch = 1 mile	DRAFTING: L.R.F.	

140° 30'
140° 45'
141° 00'
32° 30'
32° 45'
33° 00'

Radium Hill 8mi
Acacia Dam
Peaked Hill
North Dam
Reeds Dam
Mutooroo Dam
Station Dams
"MUTOOROO H.S."
Cockburn 30mi
Burta Dam
Little Borehole Dam
Borehole West Dam
North East Catch
Black Hill Catch
Yard
Elephant Well
Duffield Dam
Davenborough Dam
Duffield Well
North Catch
Lyndoch Catch
Two Mile Dam
Pegline Dam
Blackhill Dam
Flood Dam
Borehole Dam
North Plain Dam
Aldermans Dam
Ironstone Dam
Alderman Catch
Yard
Lyndock Dam
Bull Dam
Houlahans Dam
Warnes East Dam
Warnes Hut & Dam
Yards
Rothsay Yards
Maldorky Dam
Ironstone South Dam
Old Dam
Duffields South Dam
Olary Creek
Yard
Westcreek Dam
Hubbles Dam
E.L. 122
D
108
107
Lignum Dam
87
89 12·5
109 14·5
Tank
Davenborough Dam
Hut
Cockrums Dams
Yards
Well
Sunset Dam
Midday Dam
Sunrise Dam
Lambert East Catch
Lamberts Dam
Perseverance Dam
Anabama Fault Zone
Old Dam
MT 26
Boundary Dam
Boundary Plain Catch
AUSTRALIA
WALES
SOUTH
Connwell Dam
Yard
Jubilee Dam
Yard, Hut
Jones Dam
Old Dam
Mulga Dam
Droughty Dam
Hut
A
A'
B
B'
C
C'
Jubilee Tank
Mill, Tank & Trough
Dinnertime Dam
Jones Extension Dam
Crossout Dam
York Tank
York Dam
Jubilee Scrub Dam
Kinloch Tank
Kinloch Dam
Yard
Gairloch Dam
Cottonbush Dam
New Year Dam
Mill & Trough
Tea & Sugar Dam
Oom Paul Dam
Pigeon Dam
Anabama Fault Zone
Loch Hazard Dam
Well
Sampsons Dam
South East Dam & Hut
Satire Dam
Yard
Myall Tank
Verity Tank
Terminus Tank
Mill & Dam
Oakvale Dam
E.L. 63
Mulga Dam
Yard
Paringa Dams
Coomba Catch
Mennings Dam
Two Mile Dam
Briggs Dam
Martins Dam
Johnsons Dam
Canteen Dam
Lubra Dam
Schwiers Dam
Yard
Canegrass Dam
West Paddock Dam
James Dam
Chalkers Dam
Mill
Oakvale North Dam
Woolshed & Yards
"OAKVALE H.S."
Catch
200 Yard Dam
Oakvale Proper Dams
Yard
Hut
Brook Bore

LOCATION DIAGRAM





GENERALIZED REGIONAL GEOLOGY
After B.P. Thomson
S.A. Mines Dept

REFERENCE

- PHASE I DRILLHOLE
- PHASE II DRILLHOLE
- A---A' LINE OF SECTION
- P BASEMENT OUTCROPS (PROTEROZOIC)
- FAULT SHOWING DOWNTHROWN SIDE

ORDER OF MAXIMUM GAMMA PEAK

- ○ < 200 cps.
- ○ 200 - 400
- ◔ 400 - 800
- ◑ 400 - 1200
- ◕ 1200 - 2000
- ● > 2000

N.B. DATUM IS THE COLLAR OF MT 20 (JUBILEE HUT) - TAKEN AS +100 m

5 10 15 ISOPACHS OF "GAIRLOCH BEDS" IN METRES.

NORTHERN LIMIT OF "GAIRLOCH BEDS"

AREA OF TOTALLY UNOXIDISED "GAIRLOCH BEDS"

T.N. MN

SCALE
0 1 2 3 4 Miles
0 1 2 3 4 5 6 Km

ENV 2315(I)-4

TRICENTROL AUSTRALIA LIMITED

PLAN SHOWING
ROTARY DRILLHOLE LOCATIONS & 'GAIRLOCH BEDS' ISOPACHS
MUTOOROO E.L. 63
LIGNUM DAM E.L. 122
SOUTH AUSTRALIA

RECEIVED 13 JUN 1975 DEPT. OF MINES SECURITY 2315-I

DATE: JULY, 1974	AUTHOR: T.W.M.	PLAN Nº 63 / 14
SCALE: 1 inch = 1 mile	DRAFTING: L.R.F.	

ENV 2315(I)-5

TRICENTROL AUSTRALIA LIMITED

PLAN SHOWING
ROTARY DRILLHOLE LOCATIONS & ANOMALOUS GAMMA ACTIVITY ISOPACHS

MUTOOROO E.L. 63
LIGNUM DAM E.L. 122
SOUTH AUSTRALIA

DATE: JULY , 1974	AUTHOR: T.W.M.	PLAN Nº
SCALE: 1 inch = 1 mile	DRAFTING: L.R.F.	63 / 15

RECEIVED
13 JUN 1975
DEPT. OF MINES
SECURITY
2315-I

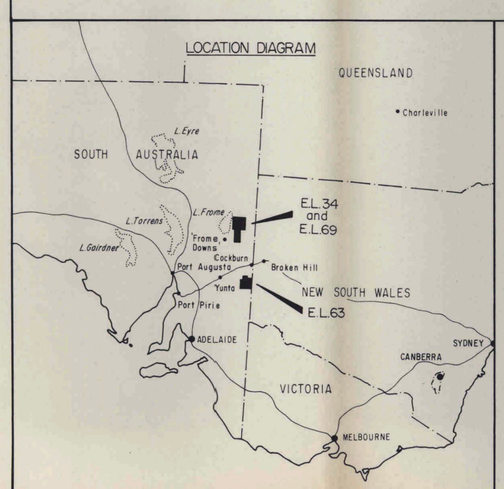
E.L. 122

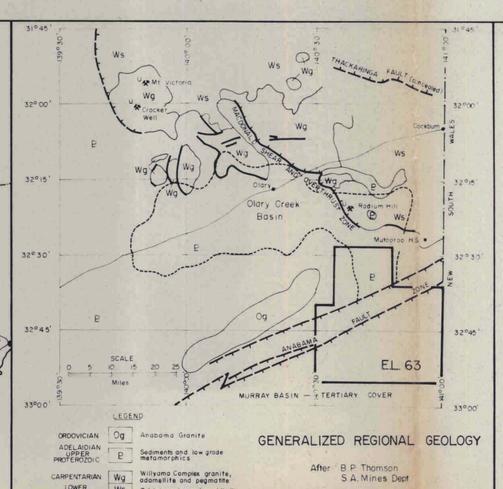
E.L. 63

E.L. 34 and E.L. 69

E.L. 63

LOCATION DIAGRAM





GENERALIZED REGIONAL GEOLOGY

After: B.P. Thomson S.A. Mines Dept

REFERENCE

- PHASE I DRILLHOLE
- PHASE II DRILLHOLE
- A---A' LINE OF SECTION
- P BASEMENT OUTCROPS (PROTEROZOIC)
- FAULT SHOWING DOWNTHROWN SIDE
- \+ GREATER THAN 5 METRES > 200 cps.

ORDER OF MAXIMUM GAMMA PEAK

- ○ < 200 cps.
- ○ 200 - 400
- ○ 400 - 800
- ○ 400 - 1200
- ○ 1200 - 2000
- ○ > 2000

0 / 5 ISOPACHS OF METRES GREATER THAN 200 cps.

T.N. MN

SCALE
0 1 2 3 4 Miles
0 1 2 3 4 5 6 Km.

A

B

MT 13
R.L. 100

MT 55 A
R.L. 95

MT 56 A
R.L. 93

MT 54
R.L. 90

MT 15
R.L. 82

4·83 km

100m R.L.

50m R.L.

0m R.L.

-50m R.L.

PLEISTOCENE - RECENT

JUBILEE BEDS

GAIRLOCH BEDS

LOCH HAZARD BEDS

KINLOCH BEDS

ADELAIDEAN BASEMENT

ANABAMA FAULT SCARP

T.D. 91·6 m

T.D. 63·4 m

T.D. 81·5m

T.D. 134·2m

T.D. 128·2 m

LITHOLOGY
PREDOMINANT SUBORDINATE

- Gravel, pebbles
- Sand
- Silt
- Clay
- Limestone, marl
- Carbonaceous material, lignite
- Pyrite
- Marine fossils

REFERENCE

- Top of "Jubilee Beds"
- Top of "Gairloch Beds"
- Top of "Loch Hazard Clay"
- Top of "Kinloch Beds"
- Basement
- "Loch Hazard Clay"
- "Kinloch Beds" glauconitic, sandy fossiliferous marl, sand
- Basement – Upper Proterozoic – Adelaidean phyllite, siltstone, dolomite, schists

GAMMA ANOMALOUS ZONES

- < 200 cps
- 200-400 cps
- 400-800 cps
- 800-1200 cps
- 1200-2000 cps
- > 2000 cps

RECEIVED
13 JUN 1975
DEPT. OF MINES
SECURITY
2315 I

ENV 2315 (I)-6

TRICENTROL AUSTRALIA LIMITED

CROSS SECTION A-B

RADIUM HILL E.L. 63
SOUTH AUSTRALIA

DATE: NOVEMBER, 1974	AUTHOR: T.W.M.	PLAN Nº
SCALE: V. 1cm = 5 m H. 1cm = 200 m	DRAFTED: L.R.F.	63/19

E F

100m R.L.

50m R.L.

0m R.L.

-50m R.L.

MT 50 R.L.93

MT 46 R.L.93

MT 47 R.L.91

MT 48 R.L.88

MT 75 R.L.87

MT 49 R.L.85

T.D. 105·3m

T.D. 112·5m

T.D. 109·4m

T.D. 112·8 m

T.D. 128·2 m

T.D. 125·6 m

ENV2315(E)-7

LITHOLOGY
PREDOMINANT SUBORDINATE

- Gravel, pebbles
- Sand
- Silt
- Clay
- Limestone, marl
- Carbonaceous material, lignite
- Pyrite
- Marine fossils

REFERENCE

- Top of "Jubilee Beds"
- Top of "Gairloch Beds"
- Top of "Loch Hazard Clay"
- Top of "Kinloch Beds"
- Basement
- "Loch Hazard Clay"
- "Kinloch Beds" glauconitic, sandy fossiliferous marl, sand
- Basement – Upper Proterozoic – Adelaidean phyllite, siltstone, dolomite, schists

GAMMA ANOMALOUS ZONES

- < 200 cps
- 200-400 cps
- 400-800 cps
- 800-1200 cps
- 1200-2000 cps
- > 2000 cps

RECEIVED
13 JUN 1975
DEPT. OF MINES
SECURITY
2315-E

TRICENTROL AUSTRALIA LIMITED

CROSS SECTION E-F

RADIUM HILL E.L. 63
SOUTH AUSTRALIA

DATE: NOVEMBER, 1974	AUTHOR: T.W.M.	PLAN Nº
SCALE: V. 1cm = 5 m H. 1cm = 200 m	DRAFTED: L.R.F.	63/20

K

L

MT 27
R.L. 100

MT 28
R.L. 94

MT 29
R.L. 90

MT 62
R.L. 90

MT 61
R.L. 90

MT 23
R.L. 90

MT 30
R.L. 90

MT 31
R.L. 87

100m R.L.

50m R.L.

0m R.L.

-50m R.L.

PLEISTOCENE - RECENT

JUBILEE BEDS

GAIRLOCH BEDS

LOCH HAZARD CLAY

KINLOCH BEDS

ADELAIDEAN BASEMENT

ANABAMA
FAULT
SCARP

T.D. 93m

T.D. 111·6m

T.D. 133m

T.D. 128·2m

T.D. 128·2m

T.D. 128·2m ?

T.D. 128·2m

T.D. 125m

ENV 2315 (I)-8

LITHOLOGY
PREDOMINANT SUBORDINATE

- Gravel, pebbles
- Sand
- Silt
- Clay
- Limestone, marl
- Carbonaceous material, lignite
- Pyrite
- Marine fossils

REFERENCE

- Top of "Jubilee Beds"
- Top of "Gairloch Beds"
- Top of "Loch Hazard Clay"
- Top of "Kinloch Beds"
- Basement
- "Loch Hazard Clay"
- "Kinloch Beds" glauconitic, sandy fossiliferous marl, sand
- Basement – Upper Proterozoic – Adelaidean phyllite, siltstone, dolomite, schists

GAMMA ANOMALOUS ZONES

- < 200 cps
- 200-400 cps
- 400-800 cps
- 800-1200 cps
- 1200-2000 cps
- > 2000 cps

RECEIVED
13 JUN 1975
DEPT. OF MINES
SECURITY
2315-I

TRICENTROL AUSTRALIA LIMITED

CROSS SECTION K-L

RADIUM HILL E.L. 63
SOUTH AUSTRALIA

DATE: NOVEMBER, 1974	AUTHOR: T.W.M.	PLAN No 63/21
SCALE: V. 1cm = 5 m, H. 1cm = 200 m	DRAFTED: L.R.F.	

O

P

100m R.L.

50m R.L.

0m R.L.

-50m R.L.

MT 60
R.L. 97

MT 58
R.L. 94

MT 59
R.L. 92

MT 7
R.L. 87

PLEISTOCENE - RECENT

JUBILEE BEDS

GAIRLOCH BEDS

LOCH HAZARD CLAY

KINLOCH BEDS

ADELAIDEAN BASEMENT

T.D. 91·5m

T.D. 114·3m

T.D. 128·2m

T.D. 110m

ENV 2315 (I) - 9

LITHOLOGY
PREDOMINANT SUBORDINATE

- Gravel, pebbles
- Sand
- Silt
- Clay
- Limestone, marl
- Carbonaceous material, lignite
- Pyrite
- Marine fossils

REFERENCE

- Top of "Jubilee Beds"
- Top of "Gairloch Beds"
- Top of "Loch Hazard Clay"
- Top of "Kinloch Beds"
- Basement
- "Loch Hazard Clay"
- "Kinloch Beds" glauconitic, sandy fossiliferous marl, sand
- Basement - Upper Proterozoic - Adelaidean phyllite, siltstone, dolomite, schists

GAMMA ANOMALOUS ZONES

- < 200 cps
- 200-400 cps
- 400-800 cps
- 800-1200 cps
- 1200-2000 cps
- > 2000 cps

RECEIVED
13 JUN 1975
DEPT. OF MINES
SECURITY
2315-F

TRICENTROL AUSTRALIA LIMITED

CROSS SECTION O-P

RADIUM HILL E.L. 63
SOUTH AUSTRALIA

DATE: NOVEMBER, 1974	AUTHOR: T.W.M.	PLAN Nº 63/22
SCALE: V. 1cm = 5 m H. 1cm = 100 m	DRAFTED: L.R.F.	

A

A'

MT 11

MT 69

MT 68

MT 67

MT 66

MT 10

MT 65

100m R.L.

50m R.L.

0m R.L.

-50m R.L.

T.D. 115 m

T.D. 106·8 m

T.D. 110 m

T.D. 116 m

T.D. 140·5 m

T.D. 122 m

T.D. 106·5 m

ENV 2315 (I)-10

LITHOLOGY
PREDOMINANT SUBORDINATE

- Gravel, pebbles
- Sand
- Silt
- Clay
- Limestone, marl
- Carbonaceous material, lignite
- Pyrite
- Marine fossils

REFERENCE

- Top of "Jubilee Beds"
- Top of "Gairloch Beds"
- Top of "Loch Hazard Clay"
- Top of "Kinloch Beds"
- Basement
- "Loch Hazard Clay"
- "Kinloch Beds" glauconitic, sandy fossiliferous marl, sand
- Basement – Upper Proterozoic – Adelaidean phyllite, siltstone, dolomite, schists

GAMMA ANOMALOUS ZONES

- < 200 cps
- 200-400 cps
- 400-800 cps
- 800-1200 cps
- 1200-2000 cps
- > 2000 cps

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TRICENTROL AUSTRALIA LIMITED

CROSS SECTION A-A'

RADIUM HILL E.L. 63
SOUTH AUSTRALIA

DATE: NOVEMBER, 1974	AUTHOR: T.W.M.	PLAN No 63/23
SCALE: V. 1cm = 5 m H. 1cm = 200 m	DRAFTED: L.R.F.	

B

B'

100m R.L.

50m R.L.

0m R.L.

-50m R.L.

MT 70

MT 51

MT 71

MT 72

MT 73

MT 74

MT 47

T.D. 103·8 m

T.D. 109·8 m

T.D. 120·5 m

T.D. 114 m

T.D. 128·2m

T.D. 120·5m

T.D. 109·4 m

ENV 2315 (I) - 11

LITHOLOGY
PREDOMINANT SUBORDINATE

- Gravel, pebbles
- Sand
- Silt
- Clay
- Limestone, marl
- Carbonaceous material, lignite
- Pyrite
- Marine fossils

REFERENCE

- Top of "Jubilee Beds"
- Top of "Gairloch Beds"
- Top of "Loch Hazard Clay"
- Top of "Kinloch Beds"
- Basement
- "Loch Hazard Clay"
- "Kinloch Beds" glauconitic, sandy fossiliferous marl, sand
- Basement – Upper Proterozoic – Adelaidean phyllite, siltstone, dolomite, schists

GAMMA ANOMALOUS ZONES

- < 200 cps
- 200-400 cps
- 400-800 cps
- 800-1200 cps
- 1200-2000 cps
- > 2000 cps

RECEIVED
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DEPT. OF MINES
SECURITY
2315-I

TRICENTROL AUSTRALIA LIMITED

CROSS SECTION B-B'

RADIUM HILL E.L. 63
SOUTH AUSTRALIA

DATE: NOVEMBER, 1974	AUTHOR: T.W.M.	PLAN Nº
SCALE: V. 1cm = 5m, H. 1cm = 200 m	DRAFTED: L.R.F.	63/24

C

C '

5 km

100m R.L.

50m R.L.

0m R.L.

-50m R.L.

MT 66

MT 74

MT 105

MT 97

MT 106

MT 76

T.D. 140·5 m

T.D. 119 m

T.D. 116 m

T.D. 116m

T.D. 128·2m

T.D. 134·3 m

ENV 2315 (I)-12

LITHOLOGY
PREDOMINANT SUBORDINATE

- Gravel, pebbles
- Sand
- Silt
- Clay
- Limestone, marl
- Carbonaceous material, lignite
- Pyrite
- Marine fossils

REFERENCE

- Top of "Jubilee Beds"
- Top of "Gairloch Beds"
- Top of "Loch Hazard Clay"
- Top of "Kinloch Beds"
- Basement
- "Loch Hazard Clay"
- "Kinloch Beds" glauconitic, sandy fossiliferous marl, sand
- Basement – Upper Proterozoic – Adelaidean phyllite, siltstone, dolomite, schists

GAMMA ANOMALOUS ZONES

- < 200 cps
- 200-400 cps
- 400-800 cps
- 800-1200 cps
- 1200-2000 cps
- > 2000 cps

RECEIVED
13 JUN 1975
DEPT. OF MINES
SECURITY
2315-I

TRICENTROL AUSTRALIA LIMITED

CROSS SECTION C-C'

RADIUM HILL E.L. 63
SOUTH AUSTRALIA

DATE: NOVEMBER, 1974	AUTHOR: T.W.M.	PLAN Nº
SCALE: V. 1cm = 5m H. 1cm = 200 m	DRAFTED: L.R.F.	63/25

000070

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mutooroo EL 63, South Australia

HOLE NO.	MT 1	CONTRACTOR	W.L. Stolen & Son P/L	STARTED	15/8/1973
LOCATION	4mi N of Jubilee Dam	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	16/8/1973
COORDS	N E	GEOL. LOGGED	T.W. Middleton	SHEET	1 OF 2
TOTAL DEPTH	57.2m (61) 57.2m (L)	HOLE DIAMETER	4½ in	SCALE	1in = 3m
COLLAR ELEV.	104m	PROBE DIAMETER	1¼ in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy, pebbly LOAM, CLAY reddish brown, becoming red-brown		overall reddish 1in, Stn.					air flushed 0-24m
6	GRAVEL – reddish sandy/loamy matrix predom. at top. generally poorly sorted at top becoming more pebbly, fine-med to coarse predom. quartz, minor wood		v/st matrix 1in.-hem. Stn.					
	Stn. Rockin. rhyol. pebbles to 25mm 20% rnd. limestone pebbles of shale 5% magnesite, magnetite							
9	Sandy CLAY with GRAVEL BANDS? med-light grey clay		Abt 1in-4in Stn.					Apparently pebbly alluvium
12	brn-buff, reddish 1in. Stn. Minor colourless qtz sand grains Abt fine qtz-limestone gravel 9-10.5m							Difficult to tell whether in place or caved in
15	Sandy GRAVEL with CLAY brown buff; poorly sorted fine gravels to 7-8mm - qtz predom + limestone - rnd.; variable sand		predom orange-reddish 1in. Stn.					
	Some buff Stn. grey clay also							
18	SiltyCLAY light grey but predom red-brown 1in. Stn.		15% red-brn 1in. Stn.					
21	Sandy SILT with some GRAVEL bands 18-19.5' (5.5m?) reddish buff to brown fine-med sand, occasion med-fine Stn qtz to 15mm, minor limestone		40% red-buff 1in. Stn.					
24	SAND light - med-mod sorted fine-med sand sub-rnd - sub-ang		10% orange 1in. Stn. matrix					
			10% Fe Stain					

MT1
2/2

24	As previously SAND							
27	Pebbly SAND buff; poorly sorted fine to coarse SAND gls, pebbles to 2mm		75% orange lim. stn			minor white mica flakes		
30	- predom. colorless gls - orange lim. stn.					- orange lim stn.		
33	Sandy SILT - light grey with buff stain common few gls pebbles to 20 mm.		30% orange buff lim. stn.					
36	orange sandy band 33 - 34.5 m							
37								
39	Pebbly SAND orange-buff poorly sorted; med-coarse grained matrix with gls pebbles to 5mm		150% orange lim stn					
42	Clayey SILT light grey-buff stn		30% buff mottled					
45	CLAY light grey-greenish w/ minor colorless gls sand		20% buff	few black specks				
48			lim stn	carb? streak				
	SCHIST - light grey at base mostly very weathered, soft, decomposed to clay with white mica at base							T.D. drilled 166' ft. Logged to 51.2m
51								

000072

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mutooroo EL 63 South Australia

HOLE NO.	MT2	CONTRACTOR	W.L. Sides & Son P/L	STARTED	16/8/1973
LOCATION	Jubilee Tank, 2m SE Jubilee Dam	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	17/8/1973
COORDS	N E	GEOL. LOGGED	T.W. Mickelson	SHEET	1 OF 5
TOTAL DEPTH	164.8m(d) 164.8m(l)	HOLE DIAMETER	4½in	SCALE	1in = 3m
COLLAR ELEV.	93m	PROBE DIAMETER	1¼in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy LOAM red-brown							Hygroscopic 0-24m - no moisture
6	Pebbly SAND, CLAY, LOAM		as above					
9	Abt small pebbles & fragments of Fe Stn. gtz and lesser iron stone		5-10% iron-stone pebbles					
12	Sandy GRAVEL red-buff; 50% > 5mm - 95% pebbles to 25mm		as above			minor mica		
	Pebbly SAND pebbles fairly poorly sorted, fine-coarse sand							
15	Silty SAND - light reddish grey		30% coarse Fe					
	SAND reddish-buff; mod poorly sorted fine-med gr sand; pebbles		50% Fe coarse			Comp of sand to 15m		
18	Pebbly SAND buff; very poorly sorted; coarse gr. sand - pebbles to 3cm dia.		50% Fe			Comp		
21	CLAY red-brown		some Fe					
24	Pebbly sandy (clayey) SILT		some Fe					

000073

MT2
2/5

24

As previously Pebbly sandy SILT

27

Pebbly, clayey SAND variegated red-wht-grn-buff. Mostly coarse gr. some pebbles to 1" max. Bands of gray-pink-buff silty clay

30

Micaceous SILT red-brown, reddish buff minor fine sand

33

36

Micaceous SILT (CLAY?) as previously but lesser reddish - mostly buff at top becoming more light green

39

42

45

48

CLAY light gray with buff/tan streaks

51

Sandy, silty CLAY light gray, mottled red-buff, minor moderate str. Good relict bedding at base of section, few pebbles to 1" max. Few sand filled burrows - vertical

54

Quaternary? Top of Tertiary?

MT2/4/5

96								
99	As previously **SAND + CLAY** Predom fine		10-20% orange brown lamst					As underlying sandy Sharp contact
102	**CARBONACEOUS SAND (& CLAY LIGNITE)** Sand as previously but v. lignitic stain, minor black-brown carb stain			50/50 black carb sand fragts	Sandy Clay			
105	**SAND** grey - fine med gr. some pale red-grey clays. **CARBONACEOUS CLAYS + SAND LIGNITE**		5-10% lamst carb frags 10% lamst carb	Abt strongly carb sandy 5-10% black carb				— lamst carb frags in underlying sand. minor MMC
108	- possibly (?) med-dk grey & brownish black clays not fissile as above some light grey - reddish colour		minor PY	Wood also PY seed 10% PY aggr.	Liquite clays			black (minor m/ft to) also garnet & brownish zircon in mudsite? minor pyrite
111	**Carbonaceous SAND** - med grey fine-v.f. poorly sorted; predom fine-med gr but pebble to 7mm v.f. to subang, common g/s pellets		5-10% PY aggr. to 7mm 10-20%	5-10% brown black carb wood				PY aggr. common g/s grains & have pitted appearance
114	+ milky, med gr clear minor black + carb Some grey brown clay. Abt 10% well sorted fine-med gr sands		Mainly orange 1 lamst. abt 10%	5-10%				Lithologies not Chronologically correlated from adj. Lim. Sm. Sand
117	moderate. Mod well sorted fine-med gr sands		10% orange lamst.					mins as previously & Moderately fissile
120	**CLAY** med. grey, soft slightly							Abt mineral in moderately fissile
123	Possibly Cretaceous							Fine sand laminated? pyrite
126	**CLAY, silty CLAY** med grey & dk grey/gy brown soft, plastic. Gelatinous colour							
129	Probably due to glauconite Common marine fossil frags incl forams - spines, Bryozoa ~~shell~~ Mollusc shell frags. - possibly Cretaceous.							
132								

132

135 **CLAY with SHALE/MUDSTONE**
Clays, predom brownish purples to maroon, with
138 harder shale/mudstone as above, predominantly dark grey, brownish grey some dk mottled clays.

141 Suggestion of a shiny
Change in harder shale
144 bands — oblique to
drill log

147

150

153

156 Becoming predom brownish maroon

159

162 TD drill 540 ft
Logged 164.8m

Bit change / new man-cage

Strong resistance to rod rotation, breakthrough

in direction of Lake Pinto

core

000076

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mutooroo EL 63, South Australia

HOLE NO. MT 3
LOCATION ~4km S. of MT2 (Stanley Tank)
COORDS N E
TOTAL DEPTH 152.8m(d) 152.2m(l)
COLLAR ELEV. 90m 128

CONTRACTOR W.L. Sinclair & Son P/L
GAMMA LOGGED S.A. Mines Dept.
GEOL. LOGGED T.W. Maddern
HOLE DIAMETER 4½ in
PROBE DIAMETER 1¼ in

STARTED 17/8/1973
COMPLETED
SHEET 1 OF
SCALE 1in = 3m

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Surface sandy LOAMY CLAY red-brown buff Few grits pebbles		overall weak to mod.				3/3	Air flushed 0 – 150 ft. (45m)
6	Silty CLAY – mainly light grey but variably stained with brown yellow browns. Often shows finely laminated		50% mod. to strong yellow brown				3/6	
9	mottled / interbedded light grey / red brown & yellow brown with some pebbles		mod. str.				3/9	
12							3/12	
15							3/15	
18							3/18	
21	SAND						3/21	
	Silty CLAY		50% +				3/24	

MT3
2/

24								
27	**Silty SAND** reddish brown poorly sorted fine-medium. Becoming coarser with depth Subangular Subrounded Some hard silty layers		50/4 orange brown			micaceous flakes	3/27	
30	**Silty pebbly SAND** - progression from light-gray sand with pebbles to brown silty sand with sub-rounded		no clean				3/30	
33	**Silty CLAY** light gray with organic str		30/4 buff				3/33	
36	**SILT** - light buff micaceous hard bands gray silty clay		medium buff firm str.				3/36	
39	**Silty CLAY** with SILT bands light gray mottled iron stained with brown yellow brown		50/4 firm str				3/39	
42	**CLAY** - light med gray mottled with silt, yellowish brown micaceous content		50/4 firm str				3/42	
45	Becoming sandy 43.5 ft to bottom - fine saturated						3/45	
48	Qtz sand						3/48	Water flushed 25 ft
51							3/51	
54							3/54	
57	**SAND** light buff to gray med well sorted fine to fine-med gr, predom subangular to ang		soft firm stiff sand with thin clay layers				3/57	
60	fine sand interbeds of clayey silty - light gray mottled with -		decreasing with depth				3/60	

60							
63	As previously **SAND**		Minor lightly grey silt				3/63
66			Silt. Sand only				3/66
69	**CLAY** med, light-med, brownish grey			dk coloured due to fine			3/69
72				carb material?			3/72
75	**CARBONACEOUS WOOD, LIGNITE** -black-brown coarse wood		Minor PY fibres	75% + carb material			3/75
78	frags to 2-3cm. Minor lignite Clay		Minor				3/78
	SAND - light-med grey med well sorted, fine-med gr.		Minor PY -ind.	2-3% black carb			
81	subrnd-sub ang, orange brown lithics, minor milky, blue-grey amber		aggr Minor orange lithic sand	wood frags.			3/81
84	**Carbonaceous CLAY** med, med-dark grey			Abd V. fine carb material throughout			3/84
				carbon			3/87
87	**SAND** med grey, buff-pink med well sorted, subang-subrnd		Silt lightly throughout	Abd black carb			
90	sand - sub ang / subrnd frags & milky, black, amber. Sand not as fine, also buff-orange, light grey clay lithics		Less than minor PY aggr.	wood frags throughout			3/90
93	med well sorted fine-med gr. 91.5-94.5m.						3/93
96	Coarse med 94.5 - 97.5m		v. minor orange lithic ft	Abd 3-5% carb wood			3/96
98							

NT3
4/

96								
96	Lo primarily SAND light-med grey mod coarse 94.5-97.5m then fine-med, mod sp. mostly well sorted		mica lightly orange lmst	Fair black carb wood			3/99	
102	Few med grey also lt gy yellowish interbeds - clay		rare fair PY aggr	frags f/out 1-2%			3/102	
105	CLAY med grey				Abt. v.fine carb. material		3/105	Abt in washed? Sand as above
108	CARBONACEOUS WOOD - brownish black - 1m		PY aggr.	wood			3/108	
108	Carbonaceous CLAY with SAND interbeds?		SL. PY aggr.	coarse dark to Abt			3/108	SAND possibly washed
111	med, light med greys. Sand abt. 108.5-108m - med gn. mod sorting, mostly qtz, blk gls.		+/out	v.fine carb. common black carbs			3/111	throughout
114				wood frags +/out			3/114	
117	Appreciably more brown clays Sand as lamination - poorly sorted fine to coarse Frags lt/med grays						3/117	
120	Lost to break						3/120	Very hard
123	CLAY dark brownish grey Sand break, fine bands - [illegible]		Rare PY aggr.	abt. wood frags			3/123	to sand break (Top one washed to show carb & lamination
126	(Interbedded clay dark brown/grey to med gn)						3/126	
129	Appearance of remains shell fragments Carbonaceous CLAYS dark grey-brown, med grey with planar/wavy laminations		Rare PY aggr.				3/129	
132	Common shell frags - mostly mollusc plate like Turritella like shells, Disc Bryozoan frags		Rare PY aggr.				3/132	

132								
135	As previously CLAYS - silty. Calcareous Dark grey-green fossiliferous	G					3/135	
138							3/138	
141		G					3/141	
144		G					3/144	
147		G					3/147	
150	CLAY Mannish brown + dark green						3/150	
							3/157.5	

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mutooroo EL 63, South Australia

HOLE NO.	MT4	CONTRACTOR	W.L. Sides & Son P/L	STARTED	18/8/1973
LOCATION	Loch Hazard Dam	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	19/8/1973
COORDS	N E	GEOL. LOGGED	T.W. Middleton	SHEET	1 OF 5
TOTAL DEPTH	143.6m(d) 143.6m(l)	HOLE DIAMETER	4½ in.	SCALE	1in = 3in
COLLAR ELEV.	173.80m	PROBE DIAMETER	1¼ in.		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	**Pebbly SAND** - light brown - buff. Very poorly sorted fine to pebble to 25mm (at surface), sub rnd to ang. colourless & white & orange stn		50% f. red-orange limonite			few calcareous nodules	4/3	Auger stuck at 4.5m
6	mostly coarse sand @ 4.5m							
	Sandy CLAY - cream, red brown (some grey, pink grey) abd med sand		75% reddish limonite				4/6	
9	**SAND** dark red-brown med well sorted coarse, subang to sub rnd - mostly orange stn qtz. Fair red-brown clayey matrix Pebble band at base - to 20mm		cream red-brown limonite stn				4/9	
12	**Sandy SILT** buff, light brown orange mottled minor light grey, minor med-coarse sand grains. In places possibly a very fine sand.		75% orange brown limonite				4/12	
15	Fairly well compacted Few pebble bands - although these may have caved from near surface						4/15	
18							4/18	
21							4/21	
	CLAY light grey buff pink to dark grey to purple mottling		75% red-brn limonite stn					
24	and variable dark red. Minor silt-sand content		25% white limonite stn				4/24	
27								

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24								
27	As previously **CLAY** brecciated buff, brown, light grey & black rock fragments		orange brown buff light grey mottled				4/27	
30			orange brown buff				4/30	
33							4/33	
36	**Sandy CLAY** – as previously with increasing fine-med gr sand grains throughout dry		brown to tan stiff SD/+				4/36	
39	**SAND**: ~~brown~~ yellow med poorly sorted fine to med gr sub-rnd to rnd; abundant coverage clay gr. Tr med, light-med grey clay bands		SD/+ damp				4/39	
42			brown sandy				4/42	
45							4/45	
48	**SAND** as previously + clay, soft, white, amorphous **LIME** bands Some consolidated sand bands		as above			20% calc. bands	4/48	strong carbon break
51	**SAND** light orange-pink med poorly sorted, fine-med gr as above; abundant clay coatings and friable sand with occasional lithic gr		sandy stone dry rock fragments				4/51	
54	**SAND** consolidated as above but yellow brown clay + pale buff		SD/+ orange brown				4/54	strong carbon break
57			mixed lime lightly cemented				4/57	
60			slow at base				4/60	

MT4

4/5

96								
99	As previously Carbonaceous SANDS & CLAYS although clay becoming more dominant		ap ?	Abt fine black brown			4/99	
102				matter			4/102	
105	CLAY - more or less as above some grey, some brownish possibly carbonaceous			Abt. v fine black carb material			4/105	Abt. buff brown calcilutite clay present Stonefront - Suspect this to
108				few larger black carb wood frags			4/108	be caved from near surface due to standpipe casing problems
111							4/111	
114	becoming thinly laminated Shale-like						4/114	
117							4/117	
120	becoming brittle SHALE						4/120	
123							4/123	Poor cuttings return because of pulverising of material and because as drilling water is recirculated
126							4/126	
129							4/129	
132							4/132	

132								
135	to predominantly CLAY with thinly laminated brecciated Shell-like substr. mod, med-dark gray			Not free and extrinsic				
138	Glauconitic calcareous CLAY/SILT dark green gray-green, hard	5	7	7				Sharp transition Cretaceous?
141	hard to light greenish gray limestone (calcilutite) Abundant Shell frags - predominantly mostly gastropod molluscs some intact small molluscs & shell imprint like beds	6						End of hole sampling 142.5m drilling 47 gft
144	Als bryozoan segments	8						logging 138.4m 143.6

000085

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mutooroo EL 63 South Australia

HOLE NO. MTS
LOCATION Simpson Dam
COORDS N E
TOTAL DEPTH 85.34m (d)
COLLAR ELEV. 119.69m RL.

CONTRACTOR W.L. Sales & Son P/L
GAMMA LOGGED S.A. Mines Dept
GEOL. LOGGED T.L. Mollison
HOLE DIAMETER 4½ in
PROBE DIAMETER 1¼ in

STARTED 19/8/1973
COMPLETED
SHEET 1 OF 3
SCALE 1in = 3in

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy LOAM red-brown with fine sand at top becoming coarser towards base. Few clayey bands. Weak Ca & Fe brown drill cuttings		overall reddish brown lim. sh			Few calcareous nodules	5/3	Air flushed 0-80 ft Cuttings not representative 0-50 ft
6								
	Sandy, Silty CLAY red-brown - Silty sandy - calcareous		as above				5/6	
9	Pebbly SAND light red-brown and buff Sandy to fine pebbly to 10mm mostly fine to coarse quartz		5-10% fe stained lim. sh.				5/9	
	Sandy SILT buff-brown very fine texture		overall buff lim. sh					
12			brown lim. sh				5/12	
	CLAY - buff, light to grey Sandy, fine sand,		5% fe buff					
15			lim. sh				5/15	
18							5/18	
21	very calcareous - light drilling						5/21	
24							5/24	

24								
27	As previously CLAY						5/27	
30	CLAY & Sandy CLAY minor sandy limestone		5Y/ buff, calc.			more white calc. cement	5/30	
33	Same clays as above but predom light gray clay mottled buff with dist. jnt fills & sandstone throughout		5 brown red-brown hard			calc. cement & sand	5/33	
36							5/36	
39							5/39	
42							5/42	
45	SAND pale buff, poorly sorted fine to coarse gr, subrounded to subang Calcareous & limest. fgs. Clay matrix		10Y orange limest.				5/45	
45	Sandy CLAY light gray buff, yellow mottled 10YR 8/2 5Y 8/2 mx		5Y/ limest.			orange calc.		
48						calc. cement & sand	5/48	
51	SAND pale buff, moderately sorted fine gr, subrounded to subang Calcareous & limest. fgs & 5%		10Y buff orange limest.				5/51	
54	Sandy CLAY with SAND bands. buff, yellow brown, red brown. Sand poorly sorted fine to med gr, subrounded to subang Calcareous & limest. fgs &		5Y/ sand limest. orange				5/54	
57			pink lith & limest.				5/57	
60							5/60	

MTS
3/3

60								
63	**SAND** pale buff, reddish buff; most well sorted fine-med gr, sub rnd to sub ang, Colorless, orange		50% Fe St -stained red pink brown				S/63	
66	Shy & wh - orange to red-pink shy Apparently interbedded buff and reddish shy sands		orange tan. shy				S/66	
69							S/69	
72	**Sandy CLAY with SAND** beds clay buff - to yellow brown mottled (orig light gray - some remains		Sand no wh clay 50/50				S/72	
75	**SAND** as above - becoming med gr.		tan shy				S/75	
78	**SAND** - light reddish, mod well sorted med gr, minor fine, sub rnd to sub ang; colorless Reddish shy gr		50/50 with red brn shy Fine orange banks				S/78	
81	**SAND** light gray buff poorly sorted; fine to coarse pred med gr; sub rnd to sub ang; Colorless & orange shy gr		Red. highly stained tan & wht				S/81	
84	Mostly buff reddish & some gray to buff clay beds Predom fine to med gr 82.5-84m						S/84	T.D. obtained 250 ft not logged
87	Circulation lost at bottom level in sand. - Bit attempting to recover, rods became bogged - wanted to withdraw — only tip of bit recovered. Hole abandoned.						S/87	
90							S/90	
93							S/93	
96							S/96	

C00088

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mt Isa EL 63, South Australia

HOLE NO.	MT6	CONTRACTOR	W.L. Stokes & Son P/L	STARTED	22/8/1973
LOCATION	Cottenbush Tank	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	23/8/1973
COORDS	N E	GEOL. LOGGED	T.D. Middleton	SHEET	1 OF
TOTAL DEPTH	116m (d) 115.4m (l)	HOLE DIAMETER	4½"	SCALE	1in = 3m
COLLAR ELEV.	75m	PROBE DIAMETER	1⅝"		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
2	Red-brown surface LOAM, then SILTY CLAY - light brown		orange red brown limonite stain				6/3	Air Hoisted 0 - 6m - moist
3	PEBBLY SAND red-brown, poorly sorted fine to coarse, coarse fraction with pebbles of qtz to 30mm							
6	SILTY SAND - light reddish brown, poorly sorted fine to med gr. subround to subangular		as above				6/6	
9	SILT - sandy, clayey light brown to red brown fine fine sand.		as above				6/9	
12	becoming more clayey with depth						6/12	
15	CLAY light grey buff mottled red-brown, buff		75% red brn buff lmn stn				6/15	
18	Color break						6/18	
21	CLAY light grey mottled buff, fawn, minor redbrn		30% red buff lmn stn				6/21	
24	minor sand constituent						6/24	

MTG 2/

24								
27	**Sandy CLAY with SAND bands?** light grey buff clay band with abundant fine 2ry sand		50% buff/ yellow brown				6/27	Circulation greatly diminished – possibly 50% return
30	Sand becoming more abt. with depth.		buff				6/30	
33	Predom sand with clay – silt & carbon.						6/33	
36	**SAND** light buff/pale grey, med well sorted fine Predom sub angular colorless 2ry – to cloudy 2ry – some orange stn.		20%? light orange buff sand				6/36	Suspect Contamination by red brown clays.
39	Minor clay bands as above						6/39	Sensing lost this section
42	**SAND**: very light grey (+ abt red brown clay – washing from upper section of hole) Mineralogy as above fine to fine-med in well sorted bands.		10%+ light orange buff				6/42	
45	~~Out~~ Predom colorless to cloudy 2ry, v. minor orange (possibly reworked)						6/45	
48							6/48	
51	Fine sand as above						6/51	
54	**SAND** as above with thin muddy sand common red brown & orange		30% orange red brn				6/54	
57	Common red brown, yellow brown & white (sand) Silt. Common (Suspect red brown clay is cavings)		silt red brn buff orange				6/57	
60	**SAND with CLAY bands** sand: orange red to buff, subrounded fine / sub ang Clay: buff grey, red brown, yellow, brown, green silt		50% orange red 25% buff				6/60	

00005.0
MTC
3/4

60								
63	As previously SAND with CLAY bands SANDS (predom.) some CLAY bands						6/63	
66	mostly dark buff - slight orange buff & reddish buff colours Mostly mod well sorted, fine to fine-med sub ang		orange buff overall 75% - 56%				6/66	
69	colours - closely as but predom orange, reddish brn - brn, slightly dark grey red brown, yellow-brn, darker		orange brn/dk buff lower red-orange brn 70				6/69	
72	med-ge becoming more pebbly & m sub ang		str.				6/72	
75							6/75	
78	SAND - as above mod well sorted med-ge (fine-med) but strong orange-buff colour		75% + orange buff lt. str.				6/78	
81	SAND as above but overall reddish buff colour		50% + orange reddish buff str.				6/81	
84	SAND as above orange buff at -6 2.5 then reddish red colour - med ge.		50% + orange buff str.				6/84	
87	SAND + CLAY bands & Carb WOOD sand overall grey-brn in colour - med-ge & fine to med coarse sub rd. Abt clay bands, red-brown yellowish brown, shale		orange buff orange buff 20%	5% dk grey brown carb. wood frags			6/87	
90			fr/ mod.				6/90	
93	CLAY with SHALE bands Tr lt grey shale med medium laminated mostly soft plastic sticky dk brn with occ. fine blk carb. laths		mod. dk brn dk brn	fine blk/brn carb. rich frags at top			6/93	
96	but some reddish brn shale like in -also with fine blk carb laths						6/96	

MTB 4/

96								
99	[illegible] CLAY [illegible]						5/99	
102							5/102	
105							5/105	
108							5/108	
111	glauconitic marly CLAY						5/111	
114	[illegible]						5/114	
117							5/117	
120							5/120	
123							5/123	
126							5/126	
129							5/129	
132							5/132	

000092

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mularee EL63 South Australia

HOLE NO.	MT7	CONTRACTOR	V.C. Sides & Son P/L	STARTED	23/8/1973
LOCATION	Lambeth Dam	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	23/8/1973
COORDS	N E	GEOL. LOGGED	T.W. Mallett	SHEET	1 OF 4
TOTAL DEPTH	110m (A) 109.4m (B)	HOLE DIAMETER	4½in	SCALE	1in = 3in
COLLAR ELEV.	87m	PROBE DIAMETER	1½in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy, silty LOAM red brown LOAM into Sandy, silty CLAY red brown						7/3	Air flushed 0–33m injection, air flushed 33–end.
6	CLAY with CALCRETE band light grey with pockets red brown						7/6	
9	brown. Is stable carbonate bands or nodules?						7/9	
12	Silty CLAY red-brown						7/12	
15	SILT light grey, light pink, buff, pale brown						7/15	
18	SAND Pebbly SAND reddish buff, pearly						7/18	
21	Sandy, silty CLAY red brown						7/21	
24	Silty SAND buff-brown						7/24	

NFT 7
2/4

24								
27	Sandy SILT - red-brown CLAY - buff-brown		overall stiff-hard lam str				7/27	
30							7/30	
33	SILT buff, red-brown with light-gray mottling Minor sand content. Trace micaceous		50/-1 reddish buff lam str.				7/33	
36							7/36	
39	CLAY light, light med gray mottled red-brown, buff below 39 less so with depth		30/- red-brn lam str				7/39	
42							7/42	
45							7/45	
48	Med-gray CLAY becoming more common - predom with light, light-med gray with 20% brick red mottled brown		20-20 brown gray-brown lam str				7/48	
51			thin lam				7/51	
54							7/54	
57							7/57	Ground pts thrown in reconsolidation due to bentonite swelling around stand pipe - unable to seal
60							7/60	

MT7
3/4

60								
63	**SAND** with **CLAY** as previously Common to prevalent in cuttings 60 — 66m (Suspect naught is contam - introduced due to poor hole collar sealing)		10/4 lts lightly orange 11m sh.				7/63	repeat sea bed - boy mostly clay cuttings and surface dirt & weeds
66	Sand is pale grey overall poorly sorted fine to coarse (+3mm) but predom med gr. rnd. to subang. ; predom colourless to cloudy qtz mins milky, shell						7/66	
69							7/69	
72							7/72	
75							7/75	
78	**SAND** as above but overall becoming lightish in colour becoming slightly coarser		20/4 lightly orange 11m sh.				7/78	
81	predom med - coarse - but variable sections						7/81	
84							7/84	
87			soft & crumbly 11m sh. stronger lmst				7/87	
90							7/90	
93							7/93	Ended effective sampling - general cuttings changing 75% of sediment taken from surface
96							7/96	

96								MTT 4/4
99	SAND apparently becoming more thoroughly orange tint. Some Plas. Appearance of some sand and S pyrite							Ineffective sampling
102								Sand lime clast + coal - feldspathic clasts Reservoir
105								Drilling in Clay some grey clay cuttings Suggestion of base of "Tiblis" Group member - with basal shale bands
108								
1695	Apparently formed in grey CLAY with coal shale bands.							Drilling 360 ft
111	Ensign Trish							

000096

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT:

HOLE NO.	MT8	CONTRACTOR	W.L. Stokes & Son P/L	STARTED	24/8/1973
LOCATION	5m W of Lambert's Dam	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	24/8/1973
COORDS	N E	GEOL. LOGGED	T.W. Mitchelmore	SHEET	1 OF 4
TOTAL DEPTH	123-8m(d)/ 123-8m(l)	HOLE DIAMETER	4½in	SCALE	1in = 3m
COLLAR ELEV.	90m	PROBE DIAMETER	1¼in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Surface SANDY LOAM yellow silty SAND red-brown. Sand rounded coated fine to coarse sand to subangular. mainly quartz. Minor clay		overall red-brn orange 1in.sh magnetic debris				8/3	
6	GRAVEL reddish buff, pebbly sandy matrix sand to pebble fragments. Mostly sand matrix		20 where				8/6	
9	CLAY with GRAVEL bands Light grey but patchy mottled Limonitic, hard		50/1 1in.sh				8/9	
12	SILT red-brown, orange brown.		75/+ red-brn orange 1in.sh				8/12	
15	Soft, powdery compacted, highly Micaceous						8/15	
18	Pebbly SAND orange buff very poorly sorted sub-rounded						8/18	
21	coarse with pebbles of clay Fine to coarse grey sand Sh. gy clay						8/21	
24	CLAY light mod grey green. red-brown		75% 1in.sh				8/24	

MT8
2/4

24								
27	As previously **CLAY** **SILT** red brown, orange brown. Highly micaceous		75%+ lam sh				8/27	
30							8/30	
33							8/33	
36	**Pebbly, silty SAND** reddish buff **SILT** buff, red brown becoming more light gray		75%+ fin sh 1/cm bands 50%+ lam sh				8/36	
39	mottled red-brown, buff						8/39	
42	**CLAY** light gray, silty with red brown bands		50/1 lam sh				8/42	
45	yellow brown mottling - decreases with depth						8/45	
48							8/48	
51							8/51	
54	Common bands of red gray **CLAY** yellow-brown [illegible]						8/54	
57							8/57	
60	**Clayey, sandy SILT (?)** light gray mottled red-brown yellow-brown		30% reddish yellow fissures in silt				8/60	

MTS 3/4

60								
63	**Clayey, sandy SILT** as previously						8/63	Samples discolored by thick clotting medium-red brown
66	**SAND** light buff/pale grey and pearly coated and increase		30/ light				8/66	
69	Sil sand to silty clay - Colombian to clayey as lesser milky minor black amber, small grey black and chert granules		orange limestone decreasing coal				8/69	
72	Few buff, yellowish, off white clay bands		clayey rare PY frag.				8/72	
75							8/75	
78	becoming more pearly coated fine to coarse						8/78	
81							8/81	
84	**SAND** as above but increased strong orange stain		30% orange limest.				8/84	
87	strong buff coarse sand		50% limestone				8/87	
90	**Carbonaceous(?) SILT** dk dark grey		100?	Abd. v. fine black carb. material			8/90	
93							8/93	
96	**SAND** light grey/tr buff pearly coated fine to medium subround to subang similar to 90-93 to base sample		30% mostly light orange limest.				8/96	

000099

MTS 4/4

96								
99	Carbonaceous SAND - sand as previously but with few bands of black-brown lignitic silt 96-99		30% strong	Fairbanks black-brown lignitic silt			8/99	
102	As 96-99 bands of grey carb. fine sand and reddish brn. clay.		few fair strength - mod. tarnish				8/102	
105				Few black brown carb. sand seams			8/105	
108							8/108	
111	SAND with CLAY bands? Sand more poorly sorted fine to coarse with pebbles to 10mm		Above	Abt. fair bands material			8/111	Steady circulation Loss in fine sands thin black - no water
114	Abt. bands of CLAY - med grey carbonaceous some very light grey occasional buff, reddish brn. pebble clay stone			lithology			8/114	Apparently drilling in harder sand (stone) bands - bank-flume seams
117							8/117	RC hand clay stone bands in clay with sand in cuttings Contamination
120	CLAY Med grey and grey			Above			8/120	Drilling in clay
123	Glauconitic, silty, sandy MARL dk grn-grey-brn soft sl. lith. poor glauconite grains fair sorting fine to med. sand to silt. Some carbonaceous material from lt brn-med. colored lignitic silt & clay		Above brief	Above			8/123	Finish first string drilling 123 in clay stone
126	bottomed in hard clay stone?		Thin bed of sand. Trace clay				8/126	
129								
132								

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mulgaree EL63, South Australia

HOLE NO.	MT9	CONTRACTOR	W.L. Sedimond Sons P/L	STARTED	25/8/1973
LOCATION	2km W of Tobacco Dam	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	26/8/1973
COORDS	N E	GEOL. LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	108·3m (d) 108·2m (h)	HOLE DIAMETER	4½in	SCALE	1in = 3in
COLLAR ELEV.	94m	PROBE DIAMETER	1¼in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	CALCRETE white, fawn, pink mod. hard minor qtz. grains		minor fine Sh.			75% calcite		Air flushed 0–29
3	Sandy LOAM red-brown minor sand – orange silt.		general red-brn fine Sh.				9/3	
	qtz. + few red-brown clay lumps							
6	Pebbly SAND red-brown very poorly sorted fine to cobble size		75% + clay + fine Sh.				9/6	
9	as Sh. above (coarser) mostly qtz with 10–20% manganese pebbles		as pebbly pebbles				9/9	
12	SILT orng light grey buff pinkish mottled red-brown Abst. fine mineral material some fine sand & pebbles		75% + red-brn fine Sh.				9/12	
15	(caving?) few red-brown clay lumps						9/15	
18							9/18	
21							9/21	
	Pebbly SAND – orange buff very poorly sorted fine to coarse cobbles in matrix qtz + manganese		15% + fine Sh.				9/24	
24	SILT red-brown buff – caving hard/earthy deposit		25% red-brn fine Sh.					

000101 MTB 2/4

24								
27	as previously SILT red brown with buff to fawn banding more common		5Y/4 red brn finish				9/27	
30	Highly mottled						9/30	
33							9/33	cut M/S red brown oxidation colors transition gradational
36	SILT as above, predom buff to fawn		75/4 buff fawn finish				9/36	
39							9/39	
42							9/42	
45	Mottled grey stained banding more common						9/45	
48							9/48	
51	Silty CLAY buff at top than light grey		2.5/ buff- fawn finish				9/51	
54	light - most grey						9/54	
57							9/57	
60							9/60	

NTS
3/4

60								
63	As previously CLAY - silty light grey		10/YR 8/1 buff, U. lamp. 20% bon lin str.				9/63	
66							9/66	
69	CLAY with as above with inclusions of fine sand		10-20 buff lin str				9/69	
72	CLAY - as above light grey		No bleach				9/72	
75	CLAY as above with fair SAND inclusions - colourless gs		As above				9/75	
78							9/78	
81							9/81	
84	SAND with CLAY bands Sand buff - poorly sorted fine to coarse - mostly medium at top sand (coarse) bottom colourless, clouds, some milky		50/4 mod orange lam str Sand				9/84	
87	light grey clay plus harder Cretaceous bands - grey, buff						9/87	
90	Sand becoming coarser with increasing number of clear blue tinged, some grey to black chert granules Most well rounded		50/4 more highly orange lam str				9/90	
93	More light grey Cretaceous fine - med sands with few very fine pebbles to 5 mm		20/4 orange lam str	few black coal wood frags			9/93	
96	SAND as above - buff grey, poorly sorting fine - med mm - ss subang		10YR 8/6 orange mottled 5YR 7/6	5-10% black coals wood			9/96	average 3% sand probably continuous from above Abs. rounded sand
96	CLAY med grey, dolly + sand light grey, blebby (bioturbated equiv)		10-20% red, buff lin str	high trace lamp material				

ATTS 4/4

96								
99	As previously CLAY - predom mid gray, carbonaceous lam abt bands of very light gray, buff gray Maryclone	— — — —	Mixed red/tan buff laminated grey bands				9/93	
102	SCHIST dark gray/gr green micaceous - 4th well bands of recrystallized(?) leaf-green sandstone	SSSS SSSS SSSS SSSS	mixed buff tan/brown lam str				9/102 9/105	Fairly easy penetration dep top
105								
108		SSSS SSSS					9/108	
111	End of hole - sampling 108 m drilling 355 ft						9/111	
114							9/114	
117							9/117	
120							9/120	
123								
126								

C00104

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mt Isa area EL 63 South Australia

HOLE NO.	MT10	CONTRACTOR	W.L. Sidebottom P/L	STARTED	25/8/1973
LOCATION	1.5km E of Mulga Downs	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	25/8/1973
COORDS	N E	GEOL. LOGGED	T.J. Middleton	SHEET	1 OF 4
TOTAL DEPTH	122m(d) / 120.8m(l)	HOLE DIAMETER	4½ in	SCALE	1in = 3m
COLLAR ELEV.	101m	PROBE DIAMETER	1⅝ in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Shallow soil then CALCRETE white - pink - brown - round nodules.		soil fm. St. soil				10/3	
	Sandy LOAM then more to loose SILT red-brown, red-buff		gravel ed-brn, buff					
6	Some clay sands		1% fm. St.				10/6	
9							10/9	
12	GRAVEL SAND red-brown; pea sized > 5mm 75% rounded pebbles		75% + orange fm. St.				10/12	
15	SILT red-brown, clayey		25% - red-brn fm. St.				10/15	
18	CLAY red-brown to buff		as above				10/18	
21							10/21	
24	SILT red-brown, red-buff		as above				10/24	

MTO 2/4

24								
27	As previously SILT						10/27	
30	Silty CLAY red-brown		20% reddish brown silt				10/30	
33	SILT red brown pockets but buff becoming more common						10/33	
36							10/36	oxidation front from red-brown to buff
39	SILT as above but buff becoming more pockets highly micaceous						10/39	
42							10/42	
45							10/45	
48							10/48	
51	CLAY pockets light grey mostly buff Few black Mn_2O_3 ? Streaks 48 - 51m Irregular fine laminations of silt and sand in clay.		20% buff				10/51	
54							10/54	
57							10/57	
60							10/60	

60								
63	Sandy SILT (clayey) light grey common to colorless 9% sand		Minor buff				10/63	
66							10/66	
69	SAND with interbedded CLAY 66-70 poorly sorted fine to coarse well as common small pebbles of qtz. colorless to milky 95 + blue tinged		Abd. well-bnd to clay				10/69	
72	fine gray, brown Chert's. Well rounded Abd. light gray to off white clay & rounded clear some mottled buff, red-brown						10/72	
75	Thence fine sand mostly fine to med. gr colorless 95						10/75	
78							10/78	
81	SAND buff; poorly sorted fine to coarse, mostly med-coarse		20% highly rounded				10/81	
84	sand as before, colorless, cloudy milky qtz; min pink tinged 95 + black, gray chert. Some clay		Min sh 75% Strongly cemented				10/84	
87	SAND with interbedded CLAY sand mostly fine to med gr. Abound rounded; colorless 95		20% of fg bdy well-bnd fine				10/87	
90	CLAYS very light gray to off white, mottled pattern Red-brown		20% of bdy light				10/90	
93	CLAYS Red-brown mottled						10/93	
96							10/96	

96								
99	SAND orange-buff mod [illegible] sorted, med [illegible] of typ med - coarse w/ base [illegible]		3/4 strong orange					
102	CLAY med grey (slightly greenish) [illegible] black carb specks		?	common thin black carb specks				LOCH HAZARD FORMATION
105								
108	Glauconitic SAND(stone?) greenish grey poorly sorted; fine to coarse but coarse predom - to 3mm med pebbles [illegible] mostly colourless cloudy qz min black							KINLOCH BEDS
111	abt 10% green glauconitic grains also some dark [illegible] Zoo fragment? foram? shell frags Clay matrix mod stiff - lt grey							occurred very hard bands
114	Silty CLAYS - bedded thinly multicoloured mostly, khaki, pink Lightly micaceous							
117	Trace of relict fabric(?) possibly sedimentary bedding [illegible] [illegible] depth - [illegible]							?
120	[illegible] possibly a slump [illegible]							
123	End of hole sampling & drilling	121.5m 400 ft						

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000103

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: McArthur EL 63 Dec. Re-Assess

HOLE NO. MT/~~[illegible]~~ 11C
LOCATION 2.7m N, 1.5m E of Pit 6 pad
COORDS N E
TOTAL DEPTH 115m(d) / 115m(l)
COLLAR ELEV. 106m

CONTRACTOR Mt. Isa Mines P/L
GAMMA LOGGED S. A. Mines Dept
GEOL. LOGGED [illegible]
HOLE DIAMETER 4 5/8 in
PROBE DIAMETER 1 1/2 in

STARTED 20/5/1993
COMPLETED 31/5/1993
SHEET 1 OF 4
SCALE 1:200

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Shallow surface LOAM - red brown then CALCRETE - 1m - Silt to fine sand					calcrete bands	11/5	Drilled MTH 0-30m in 30-36m water - complete circulation loss - nearest bore 570m W/NW
3	~~Clay~~ Sandy, Silty LOAM - micro calcareous red-brown clay		overall red brn (variable)					0-66m water - complete circulation loss - after mud 2nd use. After MTHB - total circulation loss 9m
							11/6	
6	GRAVEL - red-brown Poorly sorted, fine to coarse sub-angular to sub-rounded quartz pebbles to 30mm		2brns 1 trans					
			Mn to 9%				11/7	
9	SILT - Sandy, clayey red brown, consolidated		2 brn					
							11/8	
12	Sandy SILT (or fine SAND ?) red-brown buff		overall red brn (variable)					
	Silt more or less coarse Silt grade		Mn rich				11/9	
15								
	SILTY CLAY red-brown, mott yellow-brown Silt bands		2brns 1 yel brn				11/10	
18								
			Mn rich				11/11	
21								
							11/12	
24	SILT red-brown - fine micaceous		2 brns					
27								

MTH c 2/4

24								
27	as previously SILT red-brown buff becoming greyish coarse grey mottled red, buff clay		red-brn, buff lam sh				11/27	
30							11/30	
33	Silty CLAY (?) - red brown mottled grey, buff v. stiff, compacted		25% red-brn 75% buff lam sh				11/33	
36	SILT - buff, f sand, red-brown some unstained light grey highly micaceous		as above				11/36	
39							11/39	
42	Sandy silty CLAY buff fine red-brown, minor grey v. occ. lenses variable sand - silt		as above				11/42	
45							11/45	
48	SILT light grey, mottled yellow-brown buff red-br fine, decreasing with depth micaceous		soft red-brn buff petroliferous lam sh				11/48	
51			25% as above				11/51	
54	some CLAY brn-blk						11/54	
57	Silty CLAY, CLAY light grey, pink, red grey mottled reddish yellow soft		as above red yellow brown lam sh				11/57	
60							11/60	

60								MTIC 3/2
63	As previously CLAY light grey, mottled red-brown						11/63	
66							11/66	
69	SAND light buff/pale grey poorly sorted fine to coarse, predom med-coarse; ⅔ to 3 mm; mod to subrounded; hard, pore spherocity variable); predom colourless to cloudy, minor milky, blue tinged [illegible]		10-20% orange, red-orange tinged, mostly to fine grs				11/69	
72	Minor red, brown/grey/black clasts. Predom med gr below 69m - next chilli poorly sorted fine to coarse						11/72	
75	Minor grey, buff clay bands		↑ lightly coloured tinged				11/75	
78							11/78	
81	Increasing yellowish clay bands			rare brass fragment			11/81	
84				finned wood frags? (long pyritised?)			11/84	
87	SAND as above but brown and [illegible] coarse fraction		75% orange strong				11/87	sharp transition
90	- predom - brown coarse to light		orange to orange-brown tinged minor				11/90	
93	very coarse - up 2mm 70-90-5m Increasing predom med but still poorly sorted fine to coarse		red-pink				11/93	
96	Sandy CLAY - predom - pale grey, [illegible] Like 84 to above						11/96	

MTIC 4/4

96								
99	SAND as previously + CLAY bands - light grey + yellow mixt		75% orange limst			11/99		
102	orange - buff at base		hard limonite band at base			11/102		
105	Carbonaceous CLAY med grey pudeal? with abb. black Carb wood frags.		PY films on wood	5% black carb wood frags		11/105		
108	Glauconitic SAND + LIMESTONE band shove + base 1/8in. Gradational contacts		Abt PY frags			11/108		Abt limestone shell frags, bryozoan frags
	CLAY & SHALE - dark grey green sandy textured soft clay with		PY					1/4 is recovered
111	fine lustre & banded) hard green grey shale (or phyllite) well foliated					11/111		Unit description is for lowermost unit as a low grade phyllite
114	Abt 1/4 white angular Magnetite (or chert) in matrix of dissolving shale Bottomed on hard green PHYLLITE (?)					11/114		Magnetite is probably in place. becomes more competent at base. End of Glauconitic unit
117								Total depth 117m Logging 115m

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mirboo, EL 63, South Australia

HOLE NO.	MT 12	CONTRACTOR	W.L. Sidebottom P/L	STARTED	31/8/1973 (6-54)
LOCATION	Eastern side of Mirboo Dam	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	1/9/1973
COORDS	N E	GEOL. LOGGED	T.A. Middleton	SHEET	1 OF 3
TOTAL DEPTH	73.2m (d) 71.2m (b)	HOLE DIAMETER	4½"	SCALE	1" = 3m
COLLAR ELEV.	111m	PROBE DIAMETER	1½"		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Shallow red brown LOAM then CALCRETE - of dense to brecciated & thin zones of hard Then red-brown CLAYEY SILT extensive bands						12/3	
6	Clayey SILT - red-brown with minor zones of carbonate						12/6	
9							12/9	
12							12/12	
15							12/15	
18							12/18	
21	SILTY CLAY - grey to light grey with calcareous, loose Minor sand content						12/21	
24							12/24	

000113
MT12
2/KCS

24								
27	As previously SILTY CLAY light gray + yellow red-brown mottled		Same as above				12/27	
30							12/30	
33							12/33	
36	PEBBLY SAND red-brn. poorly sorted fine to 15 mm pebbles of quartz + volcanics		Pebbly red-brn. limestone				12/36	Complete circulation loss - Considerable circulation difficulty throughout
36	CLAY light gray mottled red-brown + yellow-brown silty (?)		20% red-brn. trace yellow-brn. limestone					
39							12/39	
42							12/42	
45							12/45	
48							12/48	
51	Becoming more silty with depth - appears stratified		10%				12/51	
54	Interbedded - ½" kaolinitic clay with scattered fine black specks + limestone chips		Limestone chips				12/54	
57							12/57	
60	Return to medium sand - fine pebbles						12/60	

000114

NHT-2

3/3

60								
63	Dk. greenish gray CLAY Coarse flake with many fines, buff, residual from mafics Very soft, plastic with quartz & feldspar felic.	— —	vf, buff, lower hd incr				12/63	
66	Appears to be sericite & some kaolinite minerals, possibly originally derived from a	— —					12/66	
69	felsitic rock, possibly related to Anabama Granite due south. Black specks	— —					12/69	
72							12/72	End of sampling for drilling 240 ft logging 70 ft
75							12/75	
78							12/78	
81							12/81	
84							12/84	
87							12/87	
90							12/90	
93							12/93	
96							12/96	

C00115

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mureaco EL 63 South Australia

HOLE NO.	MT13	CONTRACTOR	W.L. Sinclair & Son P/L	STARTED	1/8/1973
LOCATION	Byerwhan	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	2/8/1973
COORDS	N E	GEOL. LOGGED	T.C.M. Nicholson	SHEET	1 OF 4
TOTAL DEPTH	91.6m(d) 91.6m(c)	HOLE DIAMETER	4½in	SCALE	1in = 5in
COLLAR ELEV.	100m	PROBE DIAMETER	1½in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy LOAM 0.5m then CALCRETE - nodules on band with red-brown CLAY		ground red-brn brn sh				13/3	
6	Sandy, Silty CLAY light brown		as above				13/6	
9	GRAVEL - [illegible] Sandy, clayey SILT red-brown		as above				13/9	
12	[illegible]						13/12	
15	Sdy CLAY red-brown [illegible]		15% brn sh				13/15	
18							13/18	
21							13/21	
24	Sandy SILT buff red-brown [illegible]		pale green [illegible]				13/24	

MT13
2/4

24								
25	Fe-Brecciated Sandy SILT becoming Clayey							13/27
27								
28								13/30
30								
33	Silty CLAY some Sandy SILT bands buff, yellow-brown, red-brown							13/33
34								
36								13/36
37								13/37
42	Sandy CLAY mod grey mottled red-brown, yellow-brown Abd. med/cg. qtz sand —							13/42
45	in places predom with qtz clay matrix. Colorless & red-brn stained.							13/45
46								
48								13/48
51								13/51
50	SAND buff, mod well sorted coarse sand 5 dom med, lesser med-coarse; well rnd to sub-rnd. predom colorless							13/54
57	& Subordinate qtz, some milky translucent, pink & light. Mostly angular							13/57
60								13/60

000117

MT/3
3/3

60									
63	As previously SAND orange-buff 60-61.5 then pale buff to light pinkish grey becoming more poorly sorted		75% strong orange 5%						
66	Sand to granule size poorly sorted. Well rounded. Few black, grey & white granules		50% light 50% dark 5% strong 10% few						
69			Majority grains						
72									
75									
78									
81	Coarse sand at base with rounded pebble of reworked siltstone CLAY? - light grey with mottled yellow-brown pebbles		30% strong in base 50% base						Overlying in clay bed fracture sand in cuttings
84	SAND as above poorly sorted medium-coarse sand		30% strong 10%						Overlying in Sand
87	CLAY? light grey fissile with yellow-brown red-brown Metamorphic Basement GNEISS - fine gr. recrystallised		30% base						
90	Pale to greenish grey with laminae of pale grey [illegible]								
93									End of hole Sample 91.5 Drilling stop Logging 91.6

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

14

PROJECT: Mckenzie EL 63 South Australia

HOLE NO.	MT14	CONTRACTOR	W.L. Sides & Son P/L	STARTED	2/9/1973
LOCATION	Gawler Dam	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	2/9/1973
COORDS	N E	GEOL. LOGGED	T.O. Middleton	SHEET	1 OF 4
TOTAL DEPTH	128.2m(d) 127.2m(l)	HOLE DIAMETER	4½" to 14m	SCALE	1in = 3m
COLLAR ELEV.	87m	PROBE DIAMETER			

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy LOAM - qtz. GRAVEL CALCRETE		minor lim. stn					
3	Sandy, Silty CLAY brown		minor red-brn lim. stn				14/3	
6	Silty SAND red-brown, fine-v. small orange lim. nod. Pale orange clay matrix		v. minor, orange				14/6	
9	Pebbly SAND med. brown red-brn) very weak cemented nodules pebbles to 15mm 2% 2 10% transparent grains (magnetite). Qtz is sub-rnd to angular - mostly orange stained Minor Silt in matrix		most sand orange & lim. stn			Few small shiny mica flakes	14/9	
12							14/12	
15							14/15	Abt equal magnetic pebbles to 5mm in rock - also fine black
18							14/18	mainly a brownish granular Sandstone, also some (Limonite?)
21	SILT red-brown becoming buff mottled grey		25% dark				14/21	Abt sand number
24	Sandy, clayey						14/24	

MT14
2/4

24								
27	No recovery **SILT** light gray fine sand, mottled red-brown, buff		75% fines				14/27	
	Recovery clayey with depth							
30	**CLAY** light gray fine sand mottled		75% fines				14/30	
33	**Clayey SILT** (wash - soft) tan-brown red-brown mottled with gray light gray. Highly weathered zone.		35% fines				14/33	
36	Clay bands						14/36	
39							14/39	
42							14/42	
45							14/45	
48	**CLAY** light gray mottled red-brown, buff Silt bands increased content		50% fines red-brown fines mottled buff				14/48	
51							14/51	
54							14/54	
57	**SAND** poorly graded fine to fine-medium sand and silt lenses and bands; saturated at 57 feet water bearing		50% fines brown fines				14/57	
60							14/60	

000120

MW14
3/4

60								
63	As previously **SAND** pale buff poorly sorted fine gravelly [illegible]						14/63	
66							14/66	
69	**CLAY** light to light med grey						14/69	
72							14/72	
75	becoming sandy towards base, [illegible]						14/75	
78							14/78	
81	**SAND** pale orange buff and partly stained light brown fine to coarse dominantly medium grained sand [illegible]						14/81	
84	As previously 96, brown with minor black [illegible]						14/84	
87							14/87	
90							14/90	
93							14/93	
96							14/96	

	98	As previously SAND pale buff, fine rounded sand, loose to fairly good porosity	... -	30-50% light bluish grey				14/99
99			... -					
			... -					
	102		... -					14/102
102			... -					
	105		... -					14/105
105			... -					
	108		... -					14/108
108			... -					
	111		... -					14/111
111			... -					
	114	SAND as above + few CLAY pebbles — very light grey	... -	as above 50%				14/114
114			... -					
	117	medium rest pink to orange-yellow brown, small most grains subangular, loose	... -	grey reddish brown yellow brown				14/117
117			... -					
	120		... -	20% sand few strongly orange brown				14/120
120			... -					
			... -	few fine fragments coals				
	123	Glauconitic ? sandy, MARL mod greenish grey marl	... -	30% clay lumps	slight black oil stain		weak	14/123 KINLOCH BEDS Age from nannoplankton
123			... -					
	126	as above 95% sand Poorly sorted fine - medium sand grains, angular to sub-rounded	... -	mainly white brown	10% HC			14/126 from above
126			... -					
			... -					14/129
	129							14/129 Fragments of [illegible]
129								
								4

000122

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mt Isa EL 63 Sand Aeroplex

HOLE NO.	MT 15	CONTRACTOR	W.L. Sides & Son P/L	STARTED	3/5/1993
LOCATION	Varley Tank	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	4/5/1993
COORDS	N E	GEOL. LOGGED	F.D. Middleton	SHEET	1 OF 4
TOTAL DEPTH	128.2m (d) 127.6m (l)	HOLE DIAMETER	4½"	SCALE	1in = 2m
COLLAR ELEV.	82m	PROBE DIAMETER	1½"		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	0.5m light brown LOAM fine CALCRETE nodules - becoming		lt-mbr loam					
3	Sandy silty CLAY - red-brown		overall red-brn				15/3	
6	becoming more silty at base with few qtz rounded pebbles		lt-mbr				15/6	
9							15/9	
12	GRAVEL - red-brown - very poorly sorted fine sand to 20mm qtz pebbles + silt + moderate clean brown subangular		as above				15/12	
15	Sandy silty CLAY red-brown becoming buff at base		as above				15/15	
18	Kaol. silt - as above as bands in fine sand-conglom		+ sand				15/18	
21			buff stain				15/21	Finish Drilling at 21m
24	Silty CLAY buff / brown mottled red brown increasing with depth to light grey		15% buff / brown mottles to base				15/24	Set @ 24m - hard red-brown

24								MT 15 3/6
27	Pr previously SILTY CLAY light gray with pressure lift, [illegible]		75% by 11 [illegible]				K/27	
30							K/30	Circulation to
33							K/33	
36							K/36	
39							K/39	
42	Drain out of						K/42	Terminate 3/4/73
45	CLAY - micaceous, soft light gray with pronounced red-ochre [illegible] & yellow brown lam. sh.		50% red lam. sh. 25% yellow br.				K/45	Recommence 4/5/73
48			lam. sh.				K/48	
51	SAND light brown gray med poorly sorted [illegible]		15% red orange to				K/51	
54	[illegible] to clay, brown to [illegible] lesser milky, minor black		orange lam. sh.				K/54	
57							K/57	
60	Increased orange clay & overall fine to		30% red lam. sh. orange				K/60	

MTJS 2/4

60								
63	As previously SAND more poorly sorted — as becomes with predom matrix		20% + orange bits				15/63	Contaminant heavy excavation Vibes
66	Bands of lighter + buff/tan (not as much (contam.?)						15/66	
69							15/69	V heavy pour settling reduced due to poor mobility
72							15/72	- mostly clay in cuttings - assumed contam
75							15/75	Presume settling in sand
78	poorly sorted - with fair to v fine gr. bright white appearance		20% coarse to fine gr				15/78	
81	Appearance of ~~the~~ LIGNITIC CLAY blackish brown with few pyrite blebs. + SAND as previously - most contaminant		5% blebs in lignite also	unknown % of black brown lignite			15/81	Unable to tell boundaries from sampling due to poor circulation
84	White with little coarse sand fine gr appears angular to subround often very blackly grain		5% grey brown	Clay			15/84	
87								
87	SAND coarse to fine, poorly sorted, most mostly wood		fine gr grey	Black and wood			15/87	Poor sample quality
90	No coarse sub rnd to ang gr.		white grains to light orange brown	Lignite % ?			15/90	
93	Some black-brown lignitic clay bands common light grey coarse pyrite Clay - in place.						15/93	
96	Fine sand - white		2-3% pyrite				15/96	

MTS 9/14

96								
99	**SAND** buff to white poorly sorted fine to med. subround to ang.		3/4 large 1 inch	Tan Black Grey Lmst			15/95	Very poor sample cuttings dominated by
102			loose mix of cuttings?				15/102	to lost circulation
105							15/105	
108				Abst blk-brn carb woody fragments			15/108	— wood fragments drilled relatively fast light weight, white waxy fibre
111	**CLAY** very dark grey (chocolate) with scattered fine			Abst fine carb matter	?		15/111	LOST HAZARD MEMBER
114	Same but as above, black, 1% brown shale bands			Abnt as above			15/114	
117							15/117	
120	**Glauconitic, sandy MARL**		fair PP			abnt	15/120	KILLICK ???
123	with abn shell frags [illegible]		frags			carb matrix	15/123	
126	[illegible]						15/126	
129	abn glauconitic grains						15/129	End of hole Temperature 127.5° C drilling 420 ft
132								

C00126

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mulga EL 63 South Australia

HOLE NO.	MT 16	CONTRACTOR	N.L. Sides & Son P/L	STARTED	5/8/1977
LOCATION	5mi S of Cowlitch Bore	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	5/8/1977
COORDS	N E	GEOL. LOGGED	T.D. Middleton	SHEET	1 OF 4
TOTAL DEPTH	128.2m(d) 128.2m(l)	HOLE DIAMETER	4½"	SCALE	1/2 = 3m
COLLAR ELEV.	74m	PROBE DIAMETER	1¼"		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	brown band of Sandy LOAM CALCRETE ~~reddish~~ then Sandy, silty CLAY – ~~reddish~~ brown, moist ~~to~~ moderately ~~light~~ dry						16/3	
6							16/6	
9	Pebbly SAND (GRAVEL) ~~red~~ brown pebbles ~~quartz~~ ~~quartz~~ ~~to~~ ~~rounded~~						16/9	
	Silty CLAY ~~red~~ ~~reddish~~ brown							
12							16/12	
15	SILT ~~red~~ ~~brown~~ highly micaceous ~~reddish~~ ~~brown~~ ~~very~~ ~~hard~~						16/15	
18							16/18	
21							16/21	
24							16/24	

MT 16
2/4

24									
27	As previously SILT red-brown to buff		orange red-brn to buff lmn/sh					16/27	
30								16/30	
								16/33	
33	Sandy, silty CLAY red-brown predom lesser buff, lmn light grey								
36								16/36	
39								16/39	
								16/42	very difficult to establish relation
42	SAND with CLAY bands fine-med, sub-well, rare pebbly		mainly orange						
45	sorted fine to coarse, mod gn predom?; well rnd (coarse) to sub ang; mostly calcitic & cloudy gy lesser milky		lmn/sh stg lgy-bff lgy-wh lmn/sh grey					16/45	appears fine and clay
48	fine grey brown clean CLAY light red brown, buff, lesser sandy becoming predom at base							16/48	
51									
54	SAND orange-buff; mnr well sorted fine toned gn		25% mod orange					16/51	
57	Sub rnd to sub ang pale buff colour 5Y 8/5-5Y 8/4		lmn/sh mnr reddish					16/54	
60	SAND (STONE) with CLAY+MARL bands: pale gn-lgn - calc: cemented sandstone - fine gn pale gn with rounded clasts		50% pale buff lgn					16/57	Miocene Sandstone ?
63	Shell debris - fragmentary		shm					16/60	
66	SAND red-brown, predom fine-med, sub-well sorted, calcitic		25% orange						

MT 16
3/4

60								
63	**SAND** reddish buff poorly-sorted fine to med gr sl clayey to sandy clay & silt		30% red sand, lith. sl. 35%	minor grey & cerio clay			16/63	
66	Cuttings of light buff-cream clayey micro gritty chalk & wood frags brown-buff 64.5-66m		strongly limestone 75% orange limestone				16/66	some dark hematite frags.
69	**Carbonaceous CLAY** black & grey mottled/flecked w/ yellow brown, sl. sandy, soft, light grey		20-30% yellow brown red lithic	Abnt. V. fine black carb. material			16/69	
72	Minor Sand - colourless qz		Common red pyrite, hematite & lithic frags	Common black carb. wood frags			16/72	
75			Abnt pyrite frags				16/75	
78	**CLAY** - med green-grey & grey, soft, plastic		minor lithic fragments, moist	Rare sl. carbonaceous black carb. wood frags			16/78	
81	becoming dk brown - no sand			frags			16/81	
84	Cuttings as above						16/84	
87	**Carbonaceous CLAY** & **SAND** interbedded. Clay med. soft, [illegible] sand as above & qz sand, coarse, fine to v. coarse, rounded to sub-angular, clear to colourless, occ. frosted, occ. pink, occ. grey, occ. dk brown qz		30% lithic orange	Rare black carb. wood frags			16/87	
90	**SAND** v. fine to med. loose - poorly sorted, well rounded, colourless, cloudy, pink, grey, brown, dk brown qz		frags				16/90	
93	**Carbonaceous CLAY** - med. to dark grey, some sand as above - [illegible]		Abnt pyrite frags	Abnt fine black carb. material			16/93	
96							16/96	

MT16
4/4

96								
99	As previously Carbonaceous CLAY with increasing shale-like material - olive brown grey		common PY fragments	common fine black specks			16/99	Jervis Bay Sand
102				brown dk brn black band			16/102	
105				grey			16/105	
108	increasing grey-green claystone						16/108	
111							16/111	
114							16/114	
117	CLAY - med grey as above, dark brown carb. fragments - grey-green Clst & early [illegible] dolomite? bands		common PY fragments	minor black specks			16/117	- hard amorphous limestone dark band
120	- mainly an indurated claystone						16/120	dark blk effervescence with cold HCl
123	Glauconitic, sandy MARL grey to greyish green Glauconite, [illegible]		fair PY fragments			minor carb. shell	16/123	Kulnura Beds
126	[illegible] dk grey to green Marl [illegible]		rare PY fragments				16/126	
	[illegible] dk grey-green silty						16/127.5	
129								End of initial sampling 127.5m 419ft Hole continued 128-22
132								

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mulgaro EL 63 South Australia

HOLE NO.	MT17	CONTRACTOR	W.L. Sidebottom P/L	STARTED	6/9/1973
LOCATION	Myall Tank	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	6/9/1973
COORDS	N E	GEOL LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	127m(d) 127m(l)	HOLE DIAMETER	4½in	SCALE	1in = 5m
COLLAR ELEV.	70m	PROBE DIAMETER	1½in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy LOAM at top red-brown Silty CLAY red-brown, base light grey		75% red-brn Hi Sta				17/3	
6	SILT red-brown, lower buff becoming ...		25% olive				17/6	
9			buff				17/9	
12	Pebbly SAND brown ...		25% coding				17/12	
	... range with pebbles of ... Hole bottom at 25m ...							
15	Silty CLAY ... mottled ... brown ...		75%				17/15	
18	brown, red-brn						17/18	
21							17/21	
24							17/24	

MTT7
2/4

24	As previously Silty CLAY, CLAY light-med grey with pockets mottled dark yellow brown, lower sandier layers		50-75% lam. Sh				17/27	
27							17/30	
30							17/33	
33							17/36	
36	Sandy, silty CLAY with SAND pockets clay light grey mottled buff, brown, coarser sand common fine rounded colorless sand		75% clay lam. 50% silty sand				17/39	
39	Sandy, gravelly, coarse to med. mostly fine med. sand with trace of clay coatings		light orange lam. Sh				17/42	
42	Sand, becoming more common						17/45	
45	As above - increase in silt clay lam. not as common		25% lightly mottled lam.				17/48	
48								
51	CLAY - yellowish buff mottled light grey, light gray		50% mottled lam. Sh				17/51	Some interbedded sand
54							17/54	
57	Some sand - as intervals from 60						17/57	
60							17/60	

60								
63	**SAND** with some **CLAY** bands. Mostly buff, occasional reddish brn/buff. Patchy carbon [illegible] well sorted to [illegible]		30% light gray mang limest			few pale brn fossil fragm	17/63	
66	well sorted to [illegible] decreases to clayey at base, milky blush. Bands of light green clay mottled					red stain	17/66	
69	buff, yellowish, fair, reddish						17/69	
72							17/72	
75	Alt med to coarse sand		above + 30% thenly coarse [illegible]				17/75	
78			few red-pink hem frags				17/78	
81			after PY + 30% carbon. [illegible]				17/81	
84							17/84	
87							17/87	
90							17/90	
93	**SAND** gray, pearly sheen but reddish parts. well sorted carbon & milky qtz + black & gray frags. Rare clay		30% PY coarse frags	minor black carb clay			17/93	PY slightly cemented - often cementing fossil fragments 53-86
96	**Carbonaceous CLAY** - med gray dark mostly bleached [illegible] buff, reddish, yellow brown		10% PY 30% limest.	PBL. some carb material			17/96	

MT 17
4/4

96								
99	Aspermont Carbonaceous Pyritic CLAY		10% PY 5% lignite clas				17/99	
102	SAND gray; poorly sorted fine to med gy, occ coarse, sub rnd to subang; colorless & clear to frosty, minor milky white Lignitic sand at base D.Sh - dark gy/brn		fair 2% ligs of 1 orange	Fair dk brn carb wood frags			17/102	
105	Carbonaceous CLAY med to dark gray - blackish & mottled w/ buff fawn, nodular		20% lignitic strings	Abt lignitic sh.			17/105	
108			common PY frags	black carb material some wood frags			17/108	
111	Clay takes on a dark grayish brown gray color diminishing carb. content & visible fragments						17/111	
114							17/114	
117							17/117	
120							17/120	
123							17/123	
126	Top bed of Calc dolomitic? limestone (marl) - nose base of Lock Haven?						17/126	weight response break
129							17/129	End of hole sampling 126m drilling 415 ft 10:30 17 127m
132								

000134

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mutooroo, E.L. 63, South Australia

HOLE NO. MT 18
LOCATION Sunset Dam
COORDS N E
TOTAL DEPTH 90-2 m(d) 89-4 m(l)
COLLAR ELEV. 105 m

CONTRACTOR W.L. Sedgwick Son & Co
GAMMA LOGGED S.A. Mines Dept.
GEOL. LOGGED T.D. McAlleenan
HOLE DIAMETER 4½"
PROBE DIAMETER 1¼"

STARTED 6/9/1973
COMPLETED 11/9/1973
SHEET 1 OF
SCALE 1/2 = 3m

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Pebbly, sandy LOAM - red-brown dry then sandy, Silty CLAY - red brown. Fine calcareous nodules near surface		overall red-brn lim. stn.				18/3	Air flushed 0-54m
6	Silty SAND red-brown becoming light brown, becoming sandier with depth. Fine to coarse gr		as above				18/6	
9	Pebbly SAND red-brown overall, coarse, some fine to coarse sand, 1/2 pebbles to 30mm, some gravel of pebbles		as above strong lim. stn.				18/9	
12	SILT buff at top of unit, base - more clayey, some fine sand at top. Very fine Silt at base		overall buff, brown, some lim. stn.				18/12	
15							18/15	
	CLAY red-brown		overall red-brn lim. stn.					
18							18/18	
21	SILT buff to light brown		overall buff-brn lim. stn.				18/21	
	CLAY - red-brown		red-brn lim. stn.					
24	SILT light grey mottled with buff		75% lim. stn.				18/24	

24								
27	As previously SILT - mostly red-brown							
30	SILTY SAND light brown [illegible]							
33	SILT - brown, red brown							
36	SILT light grey becoming buff-brown							
39								
42	CLAY silty - light grey mottled							
45	SILT with CLAY bands light grey mottled buff-brown							
48	SILT buff to brown [illegible]							
51								
54								
57	CLAY light grey, mottled [illegible]							
60	silty							
63								

MT 18
3/3

60									
63	to 63m sandy **CLAY** - lightgrey pockets with patches of dark brownish grey mottled yellow brown	— — — — — —	20% + yellow brown in it					18/63	
66		— — — — — —						18/66	
69		— — — — — —						18/69	
72	**SAND** (+ clay rich beds at top) light grey - slightly lighter at top. Poorly sorted. fine to coarse grain. Silt	. . . . .	5-10% grey limestone at top few					18/72	Cuttings sand although mostly clay in cuttings
75	sand fraction angular calcite & limestone & flint.	. . . . .	limestone fragments					18/75	AS 72-73.5m
78	**SAND** - mid grey, sorted to coarse silt, subangular to subrounded. Colourless to cloudy qtz + milky white cream grey, brown flint grains Rounded coarse to granule dark light grey appearance Pebble of brown siltstone	. . . . .	20% of total					18/78	
81		. . . . .	siltstone limestone					18/81	
84		. . . . .	coal appearance					18/84	
87	**SILTSTONE** - lightly dolomitic, dark grey to dark dark grey, brownish. Finely well laminated (coal)	≡≡≡	some siltstone as above					18/87	PE - Hebridean
90	Total drilled depth							18/90.5	
93									Total depth drilled 295ft or approx 89.5m logged 89.4m
96									

000137

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

19

PROJECT: Mideast EL 63 South Australia

HOLE NO. MT19
LOCATION 1km S. of Cockburn Rd
COORDS N E
TOTAL DEPTH 48.8m(d) 48.8m(l)
COLLAR ELEV. 100m

CONTRACTOR Lindsay Sinclair & Son P/L
GAMMA LOGGED S.A. Mines Dept.
GEOL. LOGGED T.D. Madden
HOLE DIAMETER 4½"
PROBE DIAMETER 1¼"

STARTED 7/3/1973
COMPLETED 7/4/1973
SHEET 1 OF 2
SCALE 1" = 3m

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	surface Sandy LOAM. lt grey brown then GRAVEL - poorly sorted, with pebbles to 3cm - mostly qtz & siltstone, ironstone		overall 1mSh				19/3	
6	SILT, +CLAY red-brown with minor gravel bands		overall red brn 1mSh				19/6	
9							19/9	
12							19/12	
15	GRAVEL red-brown poorly sorted, qtz & ss, ironstone		ab abr c				19/15	
18	SILT - red brown buff		red brn about 1mSh				19/18	
21	becoming clayey							
	CLAY - light grey mottled red-brown		30% f 1mSh				19/21	
24							19/24	
	Basement							

11.19
2/2

24								
27	Basement ~~sed~~ rock - very highly decomposed to 0 soft, shale brown yellow brown, red						19/27	
30	Bumps, ~~white~~ ~~red~~ white often replacing relict foliation						19/30	
33	Possibly originally a pelitic sediment metamorphosed to an ~~unknown~~ degree						19/33	
36	- probably not greatly - pC - Adelaidian						19/36	
39							19/39	
42							19/42	
45							19/45	
48							19/48	
								Composite sample from drill hole 19 from beginning 48m

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Milmerran EL 63 South Australia

HOLE NO.	MT20	CONTRACTOR	W.L. Sutherland P/L	STARTED	7/9/1973
LOCATION	Tchikie Dam	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	
COORDS	N E	GEOL. LOGGED	F.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	102.4m(d) 102.4m(l)	HOLE DIAMETER	4¾"	SCALE	1in = 3m
COLLAR ELEV.	100m	PROBE DIAMETER	Nil		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Surface sandy LOAM mixed CALCRETE nodules						20/3	
3	GRAVEL red-brown overall composition of is. rounded,		red-brn					
	quartzite to 10" seen in red brown sandy-silt matrix		lt.m.sh				20/6	
6	Sandy, SILT - red-brown		red-brn, lt.m.sh					
	lts pebbles						20/9	
9	Silty, pebbly SAND red-buff very small pebbles to		v.small red-brn,					
	as above to 12" - pebbles to 8mm in silty matrix		lt.m.sh				20/12	
12	Clayey SILT red-buff breccia red-brown		red-brn lt.m.sh					
	as above						20/15	
15								
							20/18	
18								
	Silty CLAY red-brown to buff		v.small red-brn				20/21	
21								
			Strong lt.m.sh					strong cut off
	SILT buff		buff lt.m.sh				20/24	
24								

MT 20

24								
27	As previously SILT buff		soft buff lam SL				20/27	
30							20/30	
	GRAVEL orange buff. Pebbles to 3/4 sand, large cobble mostly 3/4 angular, rubber membrane	ooo ooo ooo	coarse loose					
33	SILT light gray mottled buff		SOFT buff lam. str				20/33	
36							20/36	
39							20/39	
	SAND buff; poorly sorted fine to coarse, little matrix		fine to coarse loose					
42	SILT light gray mottled buff						20/42	
45	Silty CLAY light gray mottled buff - thin decreasing to silt layers		soft buff, faint lam. str at top				20/45	
48							20/48	
51	Minor sand bands often light gray silty - slight pet. odor						20/51	
54							20/54	
57							20/57	
60							20/60	

MT 20
3/4

60								
	as previously CLAY + light gray fossil CLAYSTONE							
63	SAND light gray light buff poorly sorted subangular predom.		lt. buff				20/63	
66	Coarse gr sand + fine pebbles predom. chalcedony qtz + some rock fragments. Common gray + black chert + some siltstone qtz + feldspar grains.		orange tint				20/66	
69			few lime strongly orange tint				20/69	
72			grains				20/72	
75	SAND as previously but more buff fine - med + coarse gr. predom		lt. buff slightly lighter orange tint				20/75	
78							20/78	
81	more buff gray		Buff orange tint				20/81	
84	Coarse, poorly sorted - pebbles + SAND		common lithic fragments buff				20/84	
84	CLAY, CLAYSTONE - silty bent light gray mottled		buff hard chalky				20/84	
87	buff to tan		common lithic fragments buff				20/87	
90							20/90	
CLAY 93	beds of dark gray clay with white + brn. fos. specks		hard dry firm	common fine black + brn specks			20/93	Lower Marker in this well
96	Few white limestone beds, microcrystalline to fine crystalline						20/96	Thin wedge of Kinsella Lake

MT20
H/L

96								
99	**SILTSTONE** dark greenish grey + gray clay stone & clay sands (Cretaceous product) Base of Tertiary and probably very coarse Paleozoic	SS SS					20/99	of Aptedian
102							20/102	
								hard pack below
105							20/105	End of Sidewall sampling 103.5 ft drilling 500 ft reaming 104 ft
108							20/108	
111							20/111	
114							20/114	
117							20/117	
120							20/120	
123							20/123	
126							20/126	
129								

000143

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Moreenee EL 63 South Australia

HOLE NO.	MT21 & 21A	CONTRACTOR	W.L. Swindon P/L	STARTED	4/3/1973
LOCATION	2km E of Eyrie	GAMMA LOGGED	C.A. Mineslight	COMPLETED	4/3/1973
COORDS	N E	GEOL. LOGGED	F.D. Mapleton	SHEET	1 OF 3
TOTAL DEPTH	97.7m(21) 94m(21A)	HOLE DIAMETER	4½in	SCALE	1in = 3m
COLLAR ELEV.	100m	PROBE DIAMETER	1¼in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy LOAM, SLT minor GRAVEL brown small	o o o	small brown many limon				21/3	Hole MT21 drilled to 20ft - air flushed - unable to obtain circulation on changing to mud hole abanded
6	SILT - medium with fine CLAY Sandy Red-brown, brown Fine brown Stones (Laterite?)		small brown reddish limonite				21/6	Hole MT21A - drill collar floating from Hole.
9	ba. do						21/9	
12							21/12	
15							21/15	
18	SILT with thin bands SILCRETE band(s) - brown		10% limonite				21/18	
	CLAY, silty & SILT mottled brown, brown buff		20% limonite					
21							21/21	
24	SILT soft brown, pink(?)						21/24	

MT 21
2/B

24								
1 / 27	As previously SILT light brown, buff, minor reddish		25/+ hard				21/27	
30	more contained light grey becoming apparent with		50/ hard				21/30	
33	common buff mottling		buff				21/33	
36							21/36	
39	sharp break CLAY light grey, mottled brown, reddish		25/ hard				21/39	
42							21/42	
45							21/45	
48	continuing light grey + minor medium dark grey		zero hardness				21/48	
51							21/51	
54							21/54	
57	harder light grey claystone bands CLAY, CLAYSTONE with SAND as indicated - [illegible]		rare evidence hardness				21/57	
60	clay, claystone - as above - grey, [illegible]		Same				21/60	
63	[illegible]							

MT21
3/UB

60								
63	As previously CLAYSTONE/CLAY - light grey with SAND interbeds (possibly medium) — more fine grained as sand — non-stained						21/63	
66	SAND — medium — as above but fine red qz medium — unstained		20 limestone				21/66	
69	Clay-stone interbeds 67.5 – 70.5m						21/69	
72	med. coarse more medium						21/72	
75	SAND — as prev. but coarse medium with buff/orange appearance		30% mod. to light brown/orange hem. Stn				21/75	
78	SAND as above but coarse — buff		75% white/clear/orange				21/78	
81	SAND med. orange/brown stained with brownish CLAY Interbeds?		50% orange/brown stained				21/81	Mica on sand — unconsolidated?
	CLAYSTONE — light grey brown buff, brick red		10% brick red					
84							21/84	
87	SAND with light grey CLAYSTONE interbeds (claystone as above) sand buff, mostly coarse, some to coarse qz — medium med.,		5% light brown/orange hem. Stn				21/87	
90	Silty mud to soft claystone is mostly qz + milky white sand — buff — white, translucent		20+30% orange/brown				21/90	
93			light				21/93	
96	Sand coarse, pale some yellow/brown clasts						21/96	pl. Adelaidean Fm. Interbedded 97.5
98.5m	PHYLLITE — med grey, hard						21/98.5	Fault Zone

000146

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mulgaco EL 63, South Australia

HOLE NO. MT22
LOCATION 1m WSW of MT8
COORDS N E
TOTAL DEPTH 128·2m(d) 128·2m(l)
COLLAR ELEV. 91m

CONTRACTOR W.G. Sidebottom P/L
GAMMA LOGGED J.A. Mirabelli Geol.
GEOL. LOGGED T.W. Middleton
HOLE DIAMETER 4½"
PROBE DIAMETER 1½"

STARTED 3/2/1973
COMPLETED 3/4/1973
SHEET 1 OF 4
SCALE 1in = 5m

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy LOAM light reddish brown							
3	CLAY - pinkish brown then GRAVEL - pisolitic						22/3	
6	Sandy with pebbles to 30mm - qtz, qtzite, laterite, siltstone old granite?						22/6	
9	clay						22/9	
12							22/12	
15	CLAY - kaolinitic with pockets red-brown, yellow-brown mottling						22/15	
18	SILT						22/18	
21							22/21	
24	CLAY - silty						22/24	

MT22
2/4

24								
27	SILT light gray - buff pred. mottled red brown, brn buff		15% sd brn buff				22/27	
30							22/30	
33							22/33	
36	buff becoming pred.						22/36	
39							22/39	
42							22/42	
45							22/45	
48							22/48	
51	CLAY light gray mottled buff, red brown		20% f sd				22/51	
54							22/54	
57	CLAY medium gray			laminae silt & f sd			22/57	
60	CLAY as 48-55' light gray, minor mottling		10% 1mm lt				22/60	

MT22

3/4

60								
63	As previously CLAY - light gray						22/63	
66							22/66	
69	SAND (- CLAY interbeds to 72m) lt brn; poorly sorted; fine to coarse (predom 66-70 is c-) some well rnd but subang to subrnd. to subang; (on) sph cmpy colorless to cloudy gls + milky, blish & some gray, black, brown chert granules		30/+ lightly to med orange lim-sh				22/69	most of clay may be washed from above
72			decreasing				22/72	
75	~~a++~~ more well sorted med-gr (still fine to coarse overall)		lim-sh				22/75	fair fine sand - mainly v. fine-coarse mins - lots of original green minerals? lots of garnets
78	med - coarse gr predom.		15/+ lightly				22/78	Subblack chert, magnetite
81			orange lim-sh				22/81	
84	Light - v crs gr predom						22/84	
87							22/87	
90	Poorly sorted fine to coarse grains to Gran med subrounded.		20/+ lightly orange lim-sh				22/90	
93	Med gr predom		lim-sh orange				22/93	
96			orange lim-sh				22/96	

MTZ 4/a

96								
99	As previously SAND		10-70% limest.				22/99	
Bmnt 102	Few clay balls - of mud mottled as above + sand as above basal sand strongly orange limest		few white limest strong limest				22/102	
Bmnt 105	CLAY silty light grey buff weakly bleached off white, mottled yellow brown interbeds of light grey clay stone		2-3% orange lm. frag 2% PY frags dull	2-3% black carb. wood frags			22/105	Cuttings in Clay but tabl. contains sand
108	SAND + CLAY interbedded sand pale buff, poorly sorted fine to medium, sub and to sub rounded clear to cloudy glass clasts		50% very light orange limest				22/108	Probably some limestone sand from upper zone
111	Clay as above mottled yellow-brown, buff, waxy Claystone light grey interbeds Graining increasing overall.		Several Few PY frags				22/111	
114	very poorly sorted fine to coarse, sub to rounded						22/114	
117	CLAY - med dark brownish grey - evenly textured		1-2% PY	Abt v fine black			22/117	LOCH HAZARD FM. MEMBER
120	Common PY sand(?) - occasionally cemented thin sand interbeds		Frags	rare sparks			22/120	
123	Some dark greenish grey clay						22/123	
126	Glauconitic, Sandy MARL fine - medium, sub rounded, common well sorted, sandy limestone fragments, common clear to frosted fine to medium sand grade quartz		Few PY frags			Calcite cemented?	22/126	RUNNER BEDS Pf - Paleocene
	SILTSTONE (?) - brownish grey						22/129.5	Top of Cretaceous (?) Paleocene boundary
129							22/130	
132							22/132	

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mutooroo EL 63 South Australia

HOLE NO.	MT23	CONTRACTOR	W. L. Sides & Son P/L	STARTED	4/9/1973
LOCATION	1mi W.S.W. of MT22	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	5/9/1973
COORDS	N E	GEOL. LOGGED	T.W. Mobbleton	SHEET	1 OF 4
TOTAL DEPTH	128·2m(d) 128m(l)	HOLE DIAMETER	4 3/4 in	SCALE	1in = 3m
COLLAR ELEV.	90m	PROBE DIAMETER	1 1/4 in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Silty SAND Brown overall, poorly sorted		overall 1/m.str				23/3	
	CALCRETE light brown							
6	Silty SAND Red-brown		overall 1/m.str				23/6	
9	GRAVEL with interbeds of red-brown Silty SAND Poorly sorted gravel - qtz, qtzite, ironstone to about 3cm, pebbles		overall red-brn, orange 1/m.str				23/9	
12	with interbeds of well compacted silty sand - poorly sorted in red-brown silt matrix						23/12	
15	SAND Red-orange; fine to coarse		overall 1/m.str				23/15	
18	becoming very coarse - to 5mm. Generally sub ang to angular						23/18	
21	CALCRETE - 2m. band?; light grey, light brown, reddish, cementing fine sand						23/21	
24	CLAY Light grey mottled red-brown		50/1 1/m.str				23/24	
	SILT Light grey, mottled red-brown							
27	Buff, brown, highly micaceous						23/27	
30							23/30	

NPT23
2/4

30								
	As previously SILT							
	CLAY silty light gray with fine red-brown soft		75% limestone				23/33	
33								
	SILT buff to brown, red-brown light brown		25% limestone				23/36	
36								
	Sandy with some cracked mostly coarse silt grade						23/39	
39								
							23/42	
42								
	Predom light gray, fine						23/45	
45								
	CLAY light gray, mottled yellow-brown, buff minor red brown		20% limestone				23/48	
48								
							23/51	
51								
							23/54	
54								
	CLAY most to dark gray			color due to organic carbon?			23/57	
sandy								
57								
	CLAY light gray		trace limestone				23/60	
60								
	Sandy SILT light gray with fine calcareous sand & clay throughout						23/63	
63								
							23/66	
66								

NOTES 3/4

66								
69	It previously SandySILT - light grey Sandy Bedding more common - fine gr						23/69	
72	less sandy/gritty than sta Sierra		Major color change orange to Gr				23/72	
75	SAND with CLAY interbeds Sand light buff/tan grey; poorly sorted fine to coarse - predom med gr; sbrd to subang		5-10% orange lmn SL sand 10-20%				23/75	
78	Colorless to cloudy qtz + milky blush, amber and grey, brown, black chert grains Clay: light to dark grey clay/stone Lithology: mottled buff, reddish		lmn SL Clay 20-30% Orange				23/78	
81	Clay Clay interbeds decreasing Sand gravel increasing		lmn SL sand				23/81	
84	SAND [illegible] poorly sorted fine to coarse subang to subrd		20% red/ orange lmn SL sand				23/84	abrasion due to amt of fines in matrix
87	[illegible]		lmn SL 20% red/ orange lmn SL sand				23/87	
90	SAND with CLAY interbeds Sand: poorly sorted fine to coarse - predom fine to med gr; subrd to subang		mod yellowish orange mottled lmn SL	v fine carb material coating clay?			23/90	some coarse grains rounded?
93	Clay: dark brownish gray / light gray (clay core) + lgt [illegible] yellow brown		50% of clay interbeds lmn SL				23/93	
96							23/96	
99	CLAY (predom) to SAND - as above + soft, plastic dark gray - commonly bioturbated & mottled w/ buff		SLIGHTLY cemented aggr.	Abt. v fine black specks			23/99	SAND is rounded?
102	SAND + CLAY interbeds light buff/tan gray; poorly sorted sand w/ abd [illegible] fine to coarse subrd to subang		30% lightly cemented	above			23/99	
105	mostly Sand as above Clay as above (96-99 sm)		lmn SL Sand	Clay			23/102	

MT23
4/4

102								
	As previously SAND + CLAY interbeds						23/105	
105	Carbonaceous Sandy SILT dark grey with silty fine sand [illegible]		few PY frags	Abt fine black carb specks				
108				carb specks			23/108	
	SAND with CLAY interbeds sand light grey - poorly sorted but mostly fine gr. / sub ang Clays as in 87-96m but		10% lightly orange limestone	Abt fine black carb specks			23/111	
111								
114	Lesser yellowish, reddish nothing Also silt as above		PY frags red/yellow silty limestone	in clay & silt			23/114	
117	Carbonaceous, silty CLAY		common PY cement frags	Abt fine black specks coarser specks			23/117	Abt mauroks 117 sand
120	SAND with Carbonaceous CLAY interbeds Sand light grey / poorly sorted but mostly fine gr. Sub ang to sub rounded		antipaw orange limestone 2-3% PY	5-10% black carb wood frags			23/120	orange colour sand possibly weathered
123	Clay is dark grey, silty with Abt carb wood specks		Common frags.				23/123	suspected LOCH RAVEN
	CLAY — dark grey		PY frags?	Abt v fine carb.				Abt 1m above material in washed?
126	Glauconitic, sandy MARL + SAND interbeds — green grey		Common PY				23/126	KINLOCH BEDS 125m
	few marine frags & bryozoan stems. SAND is poorly sorted with abt coarse well rounded colorless		frags				23/128	End of hole sample 127.5
129								Sandy 129 m logging

000154

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mulgeeria EL 63 South Australia

HOLE NO.	MT24	CONTRACTOR	W.L. Stillwell Sons P/L	STARTED	19/9/1973
LOCATION	0.9m. ENE of MT2	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	19/9/1973
COORDS	N E	GEOL. LOGGED	T. & M. Middleton	SHEET	1 OF 4
TOTAL DEPTH	128.2m (d) 128m (L)	HOLE DIAMETER	4½ in	SCALE	1in = 3m
COLLAR ELEV.	90m	PROBE DIAMETER	14in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	light brown sandy CLAY		low Fe content					Air drilled 0-6m
	Thin CALCRETE light brown							
	Sandy, silty CLAY - red-brown		moderate red-brown high Fe				24/3	
3								
	Silty SAND light red-brown poorly sorted fine with red silt matrix		Fe stain				24/6	
6								
	SAND with CLAY interbeds white to brown very coarse poorly sorted; becoming less sandy clay red-brown		Fe stained red-brown				24/9	
9								
	some pebbles GRAVEL pebbles to 10mm quartz mineralisation							
	SILT, silty CLAY + CALCRETE Reworked		Fe content				24/12	
12								
	red-brown sandy silt matrix brown							
	SAND coarse - variably cemented + CALCRETE banded		Fe stained brown				24/15	
15								
	CLAY, silty red-brown medium some carbonaceous fragments		Fe				24/18	
18								
							24/21	
21								
							24/24	
	SILT red-brown, coarse sand		Fe stained brown					
24								

MT24
2/4

24								
27	As previously SILT med-brown, brown buff minor light gray		75%				24/27	
30							24/30	
33							24/33	
36							24/36	
39							24/39	
42	SILT as previously but change to buff - medium		50-75%				24/42	
45							24/45	
48	mostly light gray		25%				24/48	
51	CLAY light gray with minor calcareous buff [illegible]		10-20%				24/51	
54							24/54	
57							24/57	
60							24/60	

MT24
3/4

60								
63	As previously CLAY light gray with some dark brown/black mottles		minor buff, reddish brown tint	minor fine sand material impurities color			24/63	
66							24/66	
69							24/69	
72							24/72	
75							24/75	
78	SAND (+CLAY interbeds ? 76-78m) light buffish gray; poorly sorted but mostly med to coarse;		fe-stained fine to med light gray				24/78	Preston clay/sand contact 75-78m
81	Interbedded sand and clay sand/clay is cloudy brown. Clay is tan brn & gray to black clasts becoming more buffish appearance		50/50 light-brown gray				24/81	
84	Predominantly coarse rock debris		black				24/84	
87							24/87	
90							24/90	
93	SAND with CLAY interbeds Sand as above but more		black 30/70 gray/brn				24/93	
96	poorly sorted v soft clay/silt consistency, mottled reddish & yellow; brown + pale gray clay/silt		brn to black 30/70 gray/brn clay				24/96	

96							
97	Interbedded SAND and CLAY/CLAYSTONE with some [illegible]		[illegible]				
102	[illegible]						
105							
	Interbedded of black and dark grey CLAY with SAND interbed		Slow PY	42% black carb			
108	Sandy Clay - off white to buff clay stone + medium grey clay with black carbs specks Sandy bed at base - fine to coarse grade 105-108m		Medium frags.	Many specks			
111	Sandy clay 108-109.5m		Moderate 20% hard clay				
114			Abundant				
117	SAND - light grey, friable, coarse, moderate sort, slightly clayey? Minor clay/stone components		[illegible]	[illegible]			
	CLAY/STONE - [illegible] dark grey carb. clay		[illegible]	[illegible]			
120	Carbonaceous CLAY sandy? dark grey, firm to stiff some fine colourless gl sand		Common PY frags	Abnt v. fine black carb specks			
123	Carbonaceous WOOD - black Thin section [illegible]						
126	Carbonaceous CLAY [illegible]						
129	Glauconitic, sandy MARL - grey [illegible]		[illegible]	[illegible]			

000158

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mirrango EL 63 South Australia

HOLE NO. MT 25
LOCATION 18m S of J/B camp
COORDS N E
TOTAL DEPTH 104m(d) 104m(c)
COLLAR ELEV. 180m

CONTRACTOR W. L. Sales Drilling P/L
GAMMA LOGGED SA Mines Dept.
GEOL. LOGGED T.D. Middleton
HOLE DIAMETER 4½in
PROBE DIAMETER 1½in

STARTED 10/9/1973
COMPLETED 12/9/1973
SHEET 1 OF 4
SCALE 1in = 3m

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	GRAVEL with sandy SILT interbeds red-brown overall generally poorly sorted pebbles to 2cm throughout S.B.B. matrix		red-brn Sandy 1in Sh +Vort				25/3	
6	Sandy clst red-brown v some more clayey bands						25/6	
9	SILT v. v. some CLAY bands red brown mottled buff, red-grey		25/9 1in Sh				25/9	
12							25/12	
15							25/15	
18							25/18	
21	Silty CLAY red-brown pisolitic		100% 1in Sh				25/21	
24			Sh				25/24	

000159

M725
2/4

24								
27	SILT red-brown, trace buff		predom lam SL				25/27	
30	Silty CLAY red-brown to brown, buff		3" seam				25/30	Brown fine sand Grades red-brown to buff stain
33	SILT light gray, buff Mottled buff & red-brown red-brown		50% + lam SL				25/33	
36							25/36	
39							25/39	
42							25/42	
44.5	CLAY light gray, w/ iron buff " mottled		10% + buff "				25/45	
48			lam SL				25/48	
51							25/51	
54	CLAY - as above but red-brn Sl gray			color due to ferric coat on clay?			25/54	
57	CLAY as 53.5-54						25/57	
60							25/60	

60								
63	No pronounced CLAY light to light med gray		mixg buff limstn				25/63	
66							25/66	
69							25/69	
72	few narrow bands of dk gray carb. clay			bands(?) dk gray c w/ fine carb materia			25/72	
75	some light gray claystone caving						25/75	
78	CLAY + SAND interbedded Interval: Same as above Sand poorly sorted, orange-red at top, fine to coarse f with pebble to [illegible] and to [illegible]		sand mostly orange limstn lt gy				25/78	
81	Mor calcareous cmnt towards base		strong limstn frags				25/81	
	CLAY light gray predom minor dark gray		soft buff silstn					
84			brown limstn				75/84	
	SAND light buff, med well sorted fine-med gr		sand lightly					In washed cuttings as 5-81 1/2
87	most is subrounded to subangular clear to frosted, minor [illegible] fine to [illegible]		orange limstn				25/87	
90	becoming more poorly sorted fine to med gr						25/90	
93			light gray orange limstn				25/93	
96	some red-purple [illegible] into the [illegible] zone of		sft reddish gray red-pur				25/96	

000161 MT25

4/4

96								
99	CLAY/STONE lithology off-white mottled red-purple, yellow brown CLAY - dark grey - slightly bedded stone	— — — —	Few PY grains 30% fine sand				25/98	Some red-purple mottled beds of L.O.M. LOCH HAZARD Fm.
102		— — — —	purple with yellow brown limestone & PY	black carb. shale			25/102	
	Glauconitic MARL grey-green rare white chalk PHYLLITE yellow-grey-foliated	— — — —	minor PY				25/105	KAOLIN BEDS 0.5m band of DE - Adelaidean?
105	non-garnetiferous metamorphosed pelitic rock	SSSS					25/105	End of hole sample 1025. drilling 340 ft logging 1038m
108							25/108	
111							25/111	
114							25/114	
117							25/117	
120							25/120	
123							25/123	
126							25/126	
129							25/129	
132							25/132	

000162

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mulga Downs Eh 63, South Australia

HOLE NO.	MM 26	CONTRACTOR	W.L. Sinclair Pty Ltd	STARTED	10/9/1973
LOCATION	1m E of MM2 (Centre of fence)	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	11/9/1973
COORDS	N E	GEOL LOGGED	T.G. Middleton	SHEET	1 OF 4
TOTAL DEPTH	128.2m (d) / 127.6m (L)	HOLE DIAMETER	4½in	SCALE	1in = 3m
COLLAR ELEV.	90m	PROBE DIAMETER	1½in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy LOAM - light brown & CALCRETE nodules (?)		Bon lim. str.				26/3	
	Sandy SILT + fine-med GRAVEL Fe nod.		Abt lim. str.					
6	Silt bovenid, becoming light grey towards base Common pearly dark coal						26/6	
9	SILT - light grey mottled brown, red-brown		50/ lim. str.				26/9	
12	Fair calcrete nodule horizon Minor sa. & coal						26/12	
15							26/15	
18	CLAY light grey bent predom. mottled, red-brown Fe Nod		15% lim. str.				26/18	
21	SILT light grey, predom. red-brown, buff mottled		Above				26/21	
24	CLAY buff predom. mottled						26/24	Predom. red-brown, carbon bearing & buff

24								
27	Ap previously CLAY buff						26/27	
30	SILT highly micaceous buff [illegible]		50/+ blows				26/30	
33							26/33	
36							26/36	
39							26/39	
42	CLAY highly [illegible] buff micaceous [illegible]		25/3 blows				26/42	
45							26/45	
48							26/48	
51	CLAY micaceous gray brown trace laminated			calcareous			26/51	
54				calcareous			26/54	
57	Sandy clayey SILT gray trace [illegible] Very fine and calcareous silty sand in pockets in clay matrix		moist blows				26/57	
60							26/60	

60								
63	to predominately sandy clayey SILT with white, buff gravish buff clayston						26/63	
66							26/66	
69	sandy clayey SILT with clay CLAYSTONE + SAND interbeds – sand poorly sorted mostly fine; colorless to gray clay beds		50% buff, gray, white, mostly clay				26/69	
72	SAND light gray to buff mostly fine grained 70-72 becoming		SILT 50% light gray to buff				26/72	
75	increasingly coarse to 76-77 and 80 sub-ang (coarse mostly sand to pebbles), colorless to clear cloudy + pink milky white + brown, gray, black chert		30% light gray sand				26/75	
78							26/78	
81	becoming more poorly sorted		30-50% light gray sand				26/81	
84							26/84	
87							26/87	
90	buff orange to yellow 85-90		75% light buff				26/90	
93			50% light gray				26/93	
96	low clay, variable - chert		90%				26/96	

MT 26
4/4

96								
	SAND as previously + CLAY interbeds							
99	CARBONACEOUS WOOD Sand as above very fine grained sand + trace clay similar as above		25% fine orange sand	0.5m? black-brn carbonaceous band			26/99	Oxidation boundary
102	SAND light grey, poorly sorted fine to coarse but mostly coarse Sub-rnd to sub-ang med-coarse, Carbonaceous as previously		30% fine orange sand				26/102	Pale orange sand probably in washed
105	mostly fine brn sd @ 1035-1050m		pale orange finish more common PY frags	few coal/wood frags			26/105	
108	SAND with CLAY interbeds sand as above but mostly fine-med clay matrix med grey but mostly bleached white, mottled reddish buff		common PY frags	2% coal Abt. coal/wood			26/108	
111	SAND light grey, poorly sorted fine-med/coarse, mostly fine to coarse (mostly fine grained 1095-1100m) sub to sub ang. carbonaceous as previously		PYRITE frags Hard common	common black coals			26/111	
114	Fine clay bands as previously		orange finish sand colour?	coal frags 2% coal/wood			26/114	
				frags				
117	CLAY with SAND interbeds Clay as above, mod-poorly bedded		abt 10% PY frags	fine coaly specks			26/117	Approximately mostly drilling in clay
	Clay med grey, brn mostly bleached, fine sand, silt, yellow brn clay		abt. 5% fine sand	trace				MAASTRICHT FM
120	Glauconitic sandy MARL - grey Abundant grey-green soft clay		common PY				26/120	Probably very thin wedge of L.M. at top
	mod-well sorted (coarse-v.coarse) Abt. well frags 1120-1125		frags					
123	BASEMENT - dk grey shale			trace coal			26/123	PC Mesozoic
	dk grey/brn very well bedded black coal & specks			light brn coal specks				
126	becoming very compacted with depth. SILTSTONE - very fine sand						26/126	
								End of Gradiometry 1277m Mobility 1282m Logging 1279m

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mineroo EL 63 South Australia

HOLE NO.	MT27	CONTRACTOR	D. L. Drilling P/L	STARTED	12/3/1973
LOCATION	Im N of MT23 (1.7m E of MT24)	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	12/3/1973
COORDS	N E	GEOL. LOGGED	T.D. Mallett	SHEET	1 OF 3
TOTAL DEPTH	93m(d) 93m(l)	HOLE DIAMETER	4½in.	SCALE	1" = 3m
COLLAR ELEV.	100m	PROBE DIAMETER	1⅝in.		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Rubbly LOAM at surface then hard CALCRETE nodules in pebbly SAND & GRAVEL orange-brown		weak orange brown tinge				27/3	
6	Clay with pebbly gravel and sandy loam						27/6	
9	SILT (fossils) with CLAY		sl. Fe stained				27/9	
12	Pattern of holes at bottom of sludge ? = a tooth / bolt ? Pothole ? mussel ? core depth						27/12	
15							27/15	
18							27/18	
21							27/21	
24							27/24	
27								

MTZ7
2/3

24								
	SAND fine to coarse with silt		Mot orange stn					Circulation loss
27	SILT		75% sand				27/27	
30	fine sand layers						27/30	
33							27/33	
36							27/36	
39	light grey becoming more compact						27/39	
42	CLAY light grey silty		25% hard				27/42	
45	some med grey clay 43.5-44.5						27/45	
48							27/48	
51							27/51	
54							27/54	
57							27/57	
60	SAND fine grey						27/60	

MTZ7
3/3

60								
67	SAND with CLAY interbeds? ...		20% highly broken				27/63	Pea-gravel-sized quartz ...
66	Pebbly sandstone ...						27/66	
69	Silty CLAY light gray, mottled ...		50% broken				27/69	Sand possibly all in sandstone
72	Sandstone beds? as above		buff				27/72	
75	SAND buff; ...		50% highly broken				27/75	
78	...		most. orange broken				27/78	
81	Common clay interbeds - light gray & buff ...						27/81	Difficult to tell ...
84							27/84	
87							27/87	
90	CLAY ... buff, white, buff, yellow		broken				27/90	
	CLAY - dark gray (bentonite)							LOCH HAZARD FM
93	PHYLLITE ...						27/93	At Lodalen
96							27/96	End of ...

000169

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mulgeara EL 63 South Application

HOLE NO.	MT28	CONTRACTOR	W.L. Sides & Son P/L	STARTED	13/9/1973
LOCATION	Midway MT23-27	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	13/9/1973
COORDS	N E	GEOL. LOGGED	T.G. Mitchell	SHEET	1 OF 4
TOTAL DEPTH	111.6m (d) 111.6m (l)	HOLE DIAMETER	4½ in	SCALE	1" = 3m
COLLAR ELEV.	94m	PROBE DIAMETER	1¼ in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy LOAM red brown with CALCRETE nodules - effects: Spinifex							
3	Pebbly SAND - coarse red-brown [illegible]		coated orange red-brn				28/3	
6	[illegible] red-brown silt matrix		Iron Sh.				28/6	
	SILT - light grey, mottled brown, red-brown		50% Iron Sh.					
9	CLAY + SILT interbeds light grey & medium to red-brown		75% Iron Sh.				28/9	
12							28/12	
	SILT light red-brown [illegible]		[illegible]					
15							28/15	
18							28/18	
21							28/21	
	CLAY red-brown		[illegible]					
24							28/24	

MT28
2/4

24								
27	SILT reddish-brown to buff		75% hard				23/27	
30	band of pebbly sand - orange 0.5 to 1 cm poorly sorted						28/30	
33	becoming more predom light grey		50% hard				28/33	
36			25% hard				22/36	
39							28/39	
42	CLAY light grey minor mottling. few black MnO2 streaks		minor reddish buff hard				22/42	
45							28/45	
48							28/48	
51	Silty CLAY - light grey decreasing progressively more silty to base		minor hard				28/51	
54							28/54	
57	SAND light grey slightly brown poor sorted fine to coarse (section must be corrected) dark mud to sand agg (few specks)		30% lightly orange hinches				28/57	
60	Predom. colourless to cloudy qtz - lesser milky, minor black few grey black brown chert fragments						28/60	

MT28
3/4

60								
63	As previously SAND light gray medium ~~coarse~~ coarse		minor 10/- mang lmst frags				28/63	
66							28/66	
69							28/69	
72							28/72	
75	sand very coarse sand at base - 40 bam						28/75	5' core lost 74 to 75.
78	CLAY very light gray mica silty in part, calcite stone fragments clay stone pebbles - same color		20/. lim. sh				28/78	
81	SAND light brown fine to coarse mostly medium subrounded to subang S coll grains as		60/ light brown orange lim. sh				28/81	
84	predominantly fine clay bands 79.5-82.5m as above						28/84	
87							28/87	
90	Interbedded shale, mainly siltstone						28/90	
93	SAND as previously but light-medium color overall mica, well sorted - mostly medium coarse gr.		75/+ mica fishing sand - pellets				28/93	
96			lim. sh.				28/96	

MT 28
4/4

96									
	CLAY (STONE?) light grey mottled yellow brown, red-orange	— — —	20% firm						
99	SAND orange-brown; poorly sorted med to very coarse;	. . . .	75% strong						
	Most resistant decomposition of Spotsylvy?	. . . .	orange to brown-hem.						
	Some clay interbeds as above	. . . .	stn.						
102	coarse at base and very strongly stained	. . . .							sandstone boundary LOCH HAZARD FM.
	CLAY med grey - homogeneous	— —		few black carb. seed specks					
105	Some bleached lighter grey & mottled reddish yellow brown	— —							
108		— —							
	Glauconitic Sandy MARL - grey (micaceous) - few shell frags + clear/orange sand	. . . .							o/c KINLOCH BEDS
109.6	PHYLLITE - hard black green	SSSS							o/c in Pt Adelaide Eneby Lake sampling 1095 log 109.6 - 365 m

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mukeeno EL 63 South Australia

HOLE NO. MT29
LOCATION Midway MT 29+MT28
COORDS N E
TOTAL DEPTH 133m(d) 133m(l)
COLLAR ELEV. 90m

CONTRACTOR W.L. Sellsdon P/L
GAMMA LOGGED S.A. Mines Dept
GEOL. LOGGED T.D. Mundleton
HOLE DIAMETER 4½in
PROBE DIAMETER 1¼in

STARTED 13/2/1973
COMPLETED 16/2/1973
SHEET 1 OF 4
SCALE 1in = 3m

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy LOAM brown.		minor Fe stn. Sd.				29/3	
3	GRAVEL red-brown, predominantly 3/8"-1" rounded pebbles to 15mm		Fe stained			minor calc. clay		
6	Sandy SILT red-brown very fine to fine sand content		Fe stained				29/6	
9	GRAVEL red-brown, predominantly 3/8" to 1" rounded pebbles to 30mm		Fe stained				29/9	
12	Silty CLAY light grey mottled red-brown, stiff		Fe stained				29/12	
15	SILT red-brown predominantly stiff		Fe stained				29/15	
18							29/18	
21							29/21	
24							29/24	

M129
2/4

24								
27	Interbedded SILT and clay, brown, stiff becoming more clayey to light gray		75% limit				29/27	
30	Interbedded brown						29/30	
33							29/33	
36							29/36	
39	Pebbly SAND, orange-brown, gravel pebbles 1/2" dia. rounded with		predom. orange limit				29/39	
42	SILT, light gray mottled buff, red-brown		50% limit				29/42	
45							29/45	
48	CLAY light gray mottled buff, red-brown		25% limit				29/48	
51							29/51	
54							29/54	
57	CLAY, medium dark gray, silty, some fine sand			Abt. v. fine			29/57	
60				Abt. 1/2 sand?			29/60	
63								

60								
63	Sandy silty CLAY light gray mottled colors, sand silt content.		minor yellow brown iron stn.				29/63	
66							29/66	
69	SAND light buff to gray, poorly sorted fine mostly med to coarse at top, ~~and~~ mod to fair grains, gas & water		10% orange iron stn. highly				29/69	
72	bitumen minor brown, gray, black clayey granules. Grain size variable, generally poorly sorted with most gr most common						29/72	
75							29/75	
78							29/78	
81							29/81	
84	Fair to clayey interbeds light, med gray						29/84	
87			30-50% light orange stained				29/87	
90			~10% variable				29/90	
93							29/93	
96	Fair minor clayey interbeds						29/96	

96								
99	Pr. predominantly SAND light buff/tan grey with ~1% few light, med grey clay bands		30-50% orange lam. sh.				23/99	
102							23/102	
105	more common clay bands 92-93 Snr		50% reddish hem. stn. 50% orange				23/105	
108	Sand becoming coarse - strongly oxidized sh.		50% strong to mod orange lam. stn.				23/108	Oxidation boundary ?
111	SAND with CLAY interbeds - clays becoming common - light grey (v. light) with a mottled pale orange, stiff, blocky - sand as above		soft yellowish light orange stain	Rare black carb. wood frags v. fine			23/111	Probably cbl. in washed sand.
114	Sand dark yellowish brown fine to med. but still some coarse		soft/ clay lam. stn.	sand in dark clay			23/114	oxidation boundary
117	Sand becoming light grey, clean in matrix of clay		very minor orange lam. stn. sand				23/117	The main orange stn. sand below this possibly transported
120	More abundant clay (cont. to 117-118) Sand Bretton ? USS - 15% fine to coarse ~50% fine-med		few % clay	mod common black carb. wood clasts			23/120	
123			frags?				23/123	
126	CLAY mostly olive brown w/ some dark brn and dark grey soft plastic		few % frags	Soft yellowish brn grains			23/126	this contact of LOCAL WASH fan ? overlies previously [illegible]
129	Glauconitic sandy MARL grey brown to dk grey. Sand is fine to coarse. More sandy, glauconitic at base with few shell beds - molluscs		few % frags				23/129	Kincaid 126-129 Contact 126-127 m
132	BASEMENT? micaceous rock consisting of some white - clay - grained matrix with streaks of dk. China clay - decomposed ?						23/132	Contact 129-132 m

End of hole Drilling 132m 436ft 133m

C00177

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mineroo EL 63, North Australia

HOLE NO.	MT 30	CONTRACTOR	W.A. Sinclair Sons P/L	STARTED	16/9/1973
LOCATION	Tank SSE of MT 23	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	16/9/1973
COORDS	N E	GEOL. LOGGED	T.D. Middleton	SHEET	1 OF 4
TOTAL DEPTH	128·2m (cl) 128m (L)	HOLE DIAMETER	4½in	SCALE	1in = 3m
COLLAR ELEV.	90m	PROBE DIAMETER	1¼in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy SILT red-brown common sand, few small gravel, rounded pebbles		overall red-brown limonite				30/3	
6							30/6	
9	GRAVEL mainly brown. Mine [illegible]		mostly orange limonite sand				30/9	
12	[illegible] SILT [illegible]		[illegible] limonite				30/12	mineralised gravel
15	GRAVEL [illegible] Sandy SILT [illegible]		orange limonite; mottled limonite				30/15	
18	GRAVEL [illegible]						30/18	
21	SILT [illegible] light grey		[illegible] limonite				30/21	
24	[illegible]						30/24	

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24								
27	As previously SILT red-brown buff, light grey		50-75% hard				30/27	
30	CLAY-silty red brown, buff light grey		50/4 hard				30/30	
33							30/33	
36	Sandy SILT (or silty SAND?) red brown, buff, light grey Common sand throughout		50/4 hard				30/36	
39	SILT light grey mottled buff, red brown		25% hard				30/39	
42	CLAY light grey mottled red brown, buff		25% hard				30/42	
45							30/45	
48							30/48	
51	becoming more red-grey						30/51	
54	SILT light grey, minor red brown, buff mottling Very well compacted		minor hard				30/54	
57							30/57	
60							30/60	

60								
	Qt predominantly SILT - light grey							
63	SAND and SILT, CLAY interbedded as above		minor light grey bands				30/63	
66	Silt light grey, sandy, sand fine to coarse subangular to subrounded, mostly well rounded but few spherical to subangular, Colour due to cloudy brown matrix		from 52				30/66	
69	clasts qtz + grey, brown, red/black cherts becoming more med-coarse (random fraction)						30/69	
72	gradually decreasing overall grain size with depth (some coarser bands however)						30/72	
75							30/75	
78							30/78	
81	med-gr. random.		50% light brown orange from 52				30/81	
84							30/84	
87	dominantly orange brown, very gradually lighter & coarser		50% light brown from 52				30/87	
90			- fine fraction only				30/90	
93	more common clay interbeds - very dark grey to olive drab						30/93	
96	light brown soft clay, mottled buff, [illegible]						30/96	

MT 30
4/4

96								
	As previously SAND main CLAY interbeds						30/99	excellent bonding
99	SAND with CLAY/SILT interbeds Sand grey, v. poorly sorted fine to [illegible]		Minor orange fluff	Abt. v. fine black				
102	but no change staining Classified as above Dark grey SILT(?) - [illegible]		- fine sand, contains fairly frags throughout	specks in silt few coarser black [illegible]			30/102	
105	Carbonaceous SAND with CLAY/SILT interbeds as above Sand grey poorly sorted as above but increased fine fraction		PY increasing to 2-3%	@ base +3-5% black to blk brown			30/105	
108	- pockets. Minor dk. brown lignitic clay bands.		v. fine depth	coal wood frags			30/108	
111	Carbonaceous CLAY/sandy, silty dk. grey - occasional homogeneous		Common PY	Abt fine			30/111	Abt inundated? material as above
114	but dominantly as above - suspect inundated Possible fine sand interval 112.5 – 115.5m		frags in patches?	black coal specks fine [illegible]			30/114	[illegible]
				wood frags				
117	CLAY med-dk grey [illegible] Carbonaceous		common PY				30/117	LOCH HAZARD
120			frags				30/120	
123	Glauconitic, Sandy MARL to SAND interbeds - med grey becoming grey green		Rare PY frags				30/123	KILLARA BEDS
126	Sand becoming [illegible] grey speckled but distinct [illegible] with shell inundant Rare mollusca shell frags Foram. bed at base - Globigerina type siliceous tests - [illegible]						30/126	
	BASEMENT - soft sing clay [illegible] very dark grey/ch blue						30/129	PE - Holotrichia
129							[illegible]	End of bit drill 420 m Logging 127.5m
132							30/132	100% [illegible]

000181

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mirroo EL 63 South Australia

HOLE NO.	MT 31	CONTRACTOR	W.L. Sidebottom P/L	STARTED	16/9/1973
LOCATION	1/2 mile SSE of MT30	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	17/9/1973
COORDS	N E	GEOL. LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	125m(d) 123.2m(l)	HOLE DIAMETER	4½in	SCALE	1in = 3m
COLLAR ELEV.	87m	PROBE DIAMETER	1½in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy LOAM minor CALCRETE minor GRAVEL pockets SILT red-brown		red-brown limonite				31/3	0-30m 16/9/1973
6							31/6	
9	Silty SAND red-brown pebbly gravel fine to coarse		red-brown to brown				31/9	
	Silty CLAY red-brown, brown with grey		75% limonite					
12							31/12	
15	SILT red brown, pockets light grey/white		75% limonite				31/15	
18							31/18	
	Silty CLAY red-brown, brown, light grey		75% limonite					
21	SILT red-brown, buff, white grey		25% limonite				31/21	
24	Silty CLAY red-brown, light grey		25% limonite				31/24	

24								
27	Silty CLAY red-brown						31/27	
	SILT red-brown		50/+ blows					
30	Silty CLAY red brown, buff light gray		as above				31/30	
33	SILT buff pockets at top, brown, red-brown and buff		50/+ blows				31/33	
36	red-brown						31/36	
39							31/39	
42	mottled light gray							
	CLAY light gray mottled red-brown, yellow-brown, buff		25/+ blows				31/42	
45							31/45	
48							31/48	
51							31/51	
	Sandy, silty CLAY light gray — silt, fine sand, clay		many blows					
54	decrease in silt increasing with depth						31/54	
57							31/57	
60							31/60	
	SAND light gray							

MT31
3/4

60								
63	SAND (poorly) well Sandy silty CLAY interbedded as previously light-grey, mod well sorted fine, fine-medium + subrnd. to subang. previous. Fragments to clasts.		mixed lightly orange/tan/brn				31/63	
66	SAND light grey, slightly buff/tan, poorly sorted, fine-		mixed lightly				31/66	
69	to coarse Predom lithics, sand (mono) - sub ang.		60% 5Y 1/tan/brn				31/69	
72	becoming more well sorted coarse		20% light tan/grey				31/72	
75			orange/tan/brn				31/75	
78	very coarse strong color break SAND - poorly very coarse buff orange color overall		75% med-sh orange/tan/brn	S			31/78	
81	CLAY/STONE light grey mottled yellow-brown, buff, red-brown		50% tan/brn				31/81	
84	SAND buff/tan grey 225Y 6/4 olive light grey 5Y 6/1 fine sorted; mod to well rounded		50% light orange/tan/brn				31/84	
87	becoming coarse; slightly orange soft; mod to well rounded						31/87	
90			20% light orange/tan/brn				31/90	
93	grey sand		mixed w/ orange				31/93	
			tan/brn	light grey				
C16	SAND + CLAY		Range of grey				31/16	contact between boreholes

MTSI
4/4

96								
99	As previously SAND + CLAY interbeds sandy grey - poorly sorted - fine to coarse. Clay mod. dark grey + lighter grey claystone(?) mottled buff, red-brown		few PY frags 50% claystone lith. sh.	fine blk specks in clay some larger black wood frags			31/99	
102	CLAY predom - mottled Claystone no visible ∫ med grn sand clay		minor scattered PY frags 50% claystone lith. sh.	few black coaly wood frags			31/102	Inundated? Sand seams above Consolidated
105	SAND (+CLAY?) 0.5-1m bed grey - poorly sorted		common PY ~2%	Abt. black wood frags			31/105	Excavation loss - several remnants of medium sand? Fair rounded sand
	CLAY / CLAYSTONE predom claystone light grey mottled		50% / claystone	Abt. v fine black wood frags				
108	yellow-brown, red-brown, buff + med grey clay - slightly brackish		lith. sh.	specks in grey clay			31/108	
111							31/111	Very poor sample quality from 108 m - mostly brown - severe circulation loss
114	SAND and CLAY? interbeds?						31/114	Drilling in SAND
117	Sand - light grey poorly sorted fine to med gr; sub rnd to ang		few PY frags	Abt. fine black wood			31/117	
120	Common buff claystone ∫ cutting contents			trace black			31/120	
123	Appearance of glauconitic glauconite grains Glauconitic SAND? - light grey fine grained		PY frags				31/123	Kingaroy BEDS Pc Aldebaran
	BASEMENT - base of hole in light grey GRANITE							
124.5	- badly differenced in the core ∫ cuttings						31/124.5	Basal penetration
126							4/126	End 3½" Sampling 1243 Reaming 4½" to 126m
129							31/129	

000185

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mirboo EL 63 South Australia

HOLE NO.	MT32	CONTRACTOR	W.C. Sinclair & Co. P/L	STARTED	17/3/1973
LOCATION	0.5km SSE of MT22	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	18/3/1973
COORDS	N E	GEOL. LOGGED	T.D. Middleton	SHEET	1 OF 4
TOTAL DEPTH	126-8 m (d) 126.8m (w)	HOLE DIAMETER	4½"	SCALE	1" = 3m
COLLAR ELEV.	90m	PROBE DIAMETER	1¼"		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy LOAM, SILT, red-brown, fine sand, manganese pebbles, qtz, ironstone						32/3	
6							32/6	
9	CLAY sandy, silty, red-brown, with gravel of calcrete and red clay		as above				32/9	
	Sandy SILT with GRAVEL and CALCRETE		50% Iron St.					
12	Band, Yellow-brown, red-brown light grey		silt orange Iron St. sand, gravel				32/12	
15							32/15	
	Silty CLAY light grey, red-brown		5% Iron St.					
18							32/18	
	SILT light brown, sandy							
21							32/21	
	Silty CLAY red-brown, fine sand							
24							32/24	
	SILT red-brown							

24								
27	Occasionally SILT red-brown becoming brown to buff		75% fine sd				32/27	
30	CLAY light grey mottled red-brown, buff		50% fine sd				32/30	
33	SILT buff to yellow-brown predom. becoming light grey predom. at base		15% fine sd				32/33	
36							32/36	
39							32/39	
42							32/42	
45			25% fine sd				32/45	
48	CLAY light grey mottled red-brown, red-brown		25% fine sd				32/48	
51							32/51	
54	CLAY red to dark grey		trace fine sd				32/54	
57	Silty CLAY light grey		trace fine sd				32/57	
60							32/60	

MT32
3/4

60	"							
63	as previously SILTY CLAY						32/63	
	Clayey SILT light grey, minor [illegible]		10%					
66							32/66	
69	becoming sandy - fine colorless gls sand						32/69	
72							32/72	
75	SAND light buff/pink grey, poorly sorted fine to coarse sub rounding colorless, mod (mine) per clay sub matrix to [illegible]		10% 20% light brown orange limestone				32/75	Increased silt, clay cuttings at top
78	Spk cuttings, colorless to cloudy Hardly, opal 95 + con. grey, soft, amorph clear granular CLAY Few off white mottled buff, sandstone clay in [illegible]						32/78	
81							32/81	
84	gradually increasing sandstone limestone stringers						32/84	
87			30% light to mod grey limestone				32/87	
90							32/90	
93	Increase colour to dark brown soft						32/93	
96			95% white to clear amorph granular				32/96	

NT32

4/4

96								
99	SAND ...		10% Shards 10% light brown shale	rare black carb. speck			32/99	mostly orange shale and mudstone?
							32/102	oxidation boundary
102	SAND + CLAY interbeds Sand v. poorly sorted ...		few fresh	few black + red				
105	... Clay mid grey - silty.		5% shards	v. rare shards fine specks in clay			32/105	D/Hole to place clay beds exactly ... cuttings
108	SAND + CLAY interbeds Sand as above + ... grey clay interbeds		as above	as above			32/108	
111	... fine qz sand becoming more predom			5% black carbonaceous minor			32/111	
114	CLAY Silty ... + SAND ... Clay is silty ... mid grey, ... as above ...		more common 5% shards 1%	few black carb wood frags			32/114	
117	... qz pebbles - sand ...			+ fine specks in clay				
	SAND + CLAYSTONE ...		5% shards 1%	as above			32/117	
120	CLAYSTONE/CLAY + SAND + CARB WOOD ...		as above + 1% shards	5% + black carb wood			32/120	
123	CLAY + PYRITE + SAND ...		2-3% shards				32/123	Interbedded Sand ... WIZARD FM ... KINGFISH BEDS
	Glauconitic, sandy MARL + SAND ...		few shards					
126	...		1%				32/126	TD - Aptian
	PHYLLITE ...							End of Calibration log 126 ... Casing 415 ... logging 126 &

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mutooroo EL 63 South Australia

HOLE NO. MT 33
LOCATION ~½ mile SE MT 32
COORDS N E
TOTAL DEPTH 128·2m(d) 128m(l)
COLLAR ELEV. 88m

CONTRACTOR W. L. Sides & Son P/L
GAMMA LOGGED S.A. Mines Dept.
GEOL. LOGGED T. W. Middleton
HOLE DIAMETER 4½in
PROBE DIAMETER 1¼in

STARTED 18/3/1973
COMPLETED 18/3/1973
SHEET 1 OF 4
SCALE 1in = 3m

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy LOAM – brown with minor CALCRETE Sandy, silty CLAY red-brown brown, light grey						33/3	
6							33/6	
9	Sandy SILT with GRAVEL bands light grey - mottled buff, yellow brown Gravel pisolitic (red-yellow) 9½ to 25mm						33/9	
12	Silty CLAY light grey with red-brown, yellow-brown						33/12	
15							33/15	
18	SILT red-brown						33/18	
21	Silty CLAY red-brown						33/21	
24							33/24	

MT 33
2/4

24								
27	SILT red-brown, brown buff mixed light gray		75/+ lim sl				33/27	
30							33/30	
33	Silty CLAY red-brown mottled		75/+ lim sl				33/33	
36	SILT light gray - medium mottled red-brown, buff at top						33/36	
39							33/39	
42	medium light gray variegated		Mica lim sl				33/42	
45	CLAY light gray mottled red-brown buff		25/+ lim sl				33/45	
48							33/48	
51							33/51	
54	Same with gray sands						33/54	
	Silty CLAY light gray mottled red-brown buff		25/+ lim sl					
57							33/57	
60	Some fair-med calcareous sand content						33/60	

AIT 33
3/4

60							
63	SAND - predominantly Sandy, Silty CLAY SAND light buff/tan grey; poorly sorted fine to coarse; subangular to ang.		30% light brn/tan				33/63
66	Less cohesive; appears to clean/dry & milky, bleach; less grey, dark clasts Mostly fine to med gr at top		lim. stn				33/66
69	Some clay interbeds / lenses - v/f sand (bleached) mottled ochre, reddish						33/69
72							33/72
75							33/75
78	Becoming overall coarser - moderately buff/tan. Add pebble to 6mm - milky qtz generally very poorly sorted		30% light brn or orange lim. stn				33/78
81	with apparent contaminant from sand - silt matrix		30% light brn				33/81
84			orang lim. stn				33/84
87	more well sorted coarse decreasing orang lim. stn		10-20% light brn orang				33/87
90							33/90
93			20-30% light brn to orang orang lim. stn				33/93
96	SAND as above, + more common CLAY clasts/lenses - light grey		as above	3-5% carb coal frags			33/96

MT33
4/4

96								
99	SAND as previously but predom? CLAY/ CLAYSTONE as previously SAND (light grey; poorly sorted fine to coarse - mod gr predom and to subang; comp as above as previously Some light grey claystone? & minor med grey silty clay		3% lightly stained few PY frags +/ent 1/>	5-10% black carb wood few black carb wood frags 5-10% wood frags			33/99 33/102	Sand loosely consolidated? oxidation boundary minor unconsolidated? orange fine sand Some non-surface? reddish clay frags.
102								Invaded Zone?
105	SAND as above + predom? CLAY/ST. interbeds - similar above - very		1/+ PY	2-3/+ black			33/105	difficult to pick wash zone
108	poorly sorted silt - to coarse sd Claystone as above + some med brownish grey carb. clay. Few brownish amber(?) frags.		2 PY wood frags	carb wood frags			33/108	of clay interbeds - but probably thicker (eventually) 106.5-109.5m
111	SAND with minor CLAY interbeds grey; mostly as from 99.5-103.5		1/+ PY	2-3/. black			33/111	
114	Very poorly sorted; few well rounded - subangular to ang Few claystone pieces as above		2PY wood frags	rare wood frags			33/114	
117	CLAY + CLAYSTONE? med grey mostly clay - compact		few PY	few black			33/117	"Loose material" Invaded material?
120	(light grey claystone as above (invaded?) & reddish clay - suspect invaded from near Collar.		frags - in shoe?	carb wood frags			33/120	from above
123	CLAY - as above (thin beds of laminated) fine glauconitic, sandy MARL grey to dark grey shale		Some PY frags				33/123	"KINLOCH BEDS"
126	SAND interbedded as above coarse -		PY				33/126	
	BASEMENT - highly altered granite - mostly fine clay like material - minor quartz						33/127.5	
129							33/125	Ridgeline Sandy 1225 Muddy 1232 Igneous
132								

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mileroo EL 63 South Australia

HOLE NO.	MT34	CONTRACTOR	W.L. Sales Drilling	STARTED	20/9/1973
LOCATION	½ mile NNW of MT22	GAMMA LOGGED	J.A. Miles Dept	COMPLETED	25/9/1973
COORDS	N E	GEOL LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	108.2m (6") 108.2m (C)	HOLE DIAMETER	5½in	SCALE	1in = 3m
COLLAR ELEV.	92m	PROBE DIAMETER	1¼in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy LOAM, SILT reddish brown		strong limestone				34/3	
6	Sandy SILT with GRAVEL bands light brown, red-brown Gravels poorly sorted ironstone, siltstone, pebbles to 25mm		moderate				34/6	
9							34/9	
12	Sandy SILT mottled buff, red-brown light grey-pred		50/+ limestone				34/12	
15	GRAVEL red brown, poorly sorted pebbles to 25mm, in silt and sandy silt matrix		moderate limestone				34/15	
18	SILT red-brown to buff mottled in places light grey						34/18	
21							34/21	
24							34/24	

MT34
2/4

24								
	As previously SILT						34/27	
27	CLAY, silty - red-brown, buff minor sand		75/+ lin ft					
30	SILT - buff, brown, red-brown minor light grey at top		50-75/ lin ft				34/30	
33							34/33	
36							34/36	
39	Predom light grey - overtaivel		30/ lin ft				34/39	
42							34/42	
45	CLAY light grey minor yellow-brown, red-brown mottling		25/- lin ft				34/45	
48							34/48	
51	CLAY as above + thin SAND band - orange-brown 9.5 - coarse						34/51	
	CLAY light - med grey to brown yellowish grey 5/2. 49.5-51m		15/- lin ft					
54	dark grey to black 51-52.5 - carb? light - med grey 52.5m - 54m			carb. stain			34/54	
57	Sandy, Silty CLAY light grey Some san. at - silt carb fragm		brown lin ft				34/57	
60	laminae? of [illegible]						34/60	

60								
63	**SAND** light buff/tan/pink/gray; poorly sorted fine to coarse (coarse pebbles) - to 5cm and to ent subrdz; ent generally poor sphericity; Colorless to clr dk qtz + milky & blue qtz + qtzite, gray, black, red, brown cherts. Few off-white clay lenses + mottles		10-20% light/dk brown & lt/m.gr				34/63	
66							34/66	
69	buff/reddish						34/69	
72							34/72	
75							34/75	
78	more buff/pk		50% lt lt gr/tan/brown/gray				34/78	
81	**Interbedded SAND & CLAY** Sand as above ent very poorly sorted with abt silty matrix(?) & pebbles of qtz, qtzite(?) to 15cm		Sand as above light/dk tan/brown/orange lt m.gr				34/81	Difficult to pick exact place of interbeds
84	Clay soft, plastic, light gray ent mostly mottled yellow/brown/red & white		Clay soft yellow/brown/red/gray				34/84	
87	as above, fewer, porportion to clay		Sand as above Few lt gr/wh frags				34/87	
90							34/90	
93	**SAND** - as above very poorly sorted, buff. few clay interbeds as above		30% lt light/m gr/tan/brown/orange lt m.gr				34/93	
96	becoming coarser overall - add pebbles to 10cm		50% lt gr/brown/tan/gray				34/96	

MT34
4/4

96								
99	CLAY - bleached & limonite stained at top, off white mottled yellow-brown, buff, and limonite 2cm+ of sample		50% pisolith + tan limonitic banded clay?				34/99	Abt in-situ Laurel at top. Undisturbed clay!
102	(Abt in-situ Reddish and grey banded (Abt in-situ bleached & Tinsta clay - 50cm+)			few fine black carb specks			34/102	oxidation boundary " LOCH HAZARD Fm
105			mineral by fragg				34/105	
108	thin glauconitic, sandy MARL + LIMESTONE & SHELL Bed PHYLLITE greyish green		minor by cement				34/108	"KINLOCH BEDS" RE Adelaidean
111							34/111	Sampling 108 to 358 ft Spotting 1082
114							34/114	
117							34/117	
120							34/120	
123							34/123	
126							34/126	

000197

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mukeroo EL 63 South Australia

HOLE NO.	MT 35	CONTRACTOR	W.L. Sidey Son P/L	STARTED	20/9/1973
LOCATION	0.25m NNW of MT24	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	20/9/1973
COORDS	N E	GEOL. LOGGED	T.D. Middleton	SHEET	1 OF 1
TOTAL DEPTH	134.4m(d)/134.4m(l)	HOLE DIAMETER	5½ in	SCALE	1in = 3m
COLLAR ELEV.	93m	PROBE DIAMETER	1¼ in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy LOAM - light red-brown CALCRETE - bed on nodule		overall lim. st. silt				33/6	not sampled 0 - 6.0m
3	GRAVEL red-brown; generally poorly sorted limestone		Overall orange-brown			minor mica flakes		
6	mostly v. coarse sand (2-2mm) to pebbles to 30mm - mostly subangular; mostly ss, slightly micaceous, red mudstone/claystone		lim. st.				33/60	
9	minor fine sand - silt matrix (possibly mostly weathered loose material) long bands							
12	Sandy SILT with less gravel (decreased) red brown to buff, minor light grey Mostly silt grade		75/1 lim. st.					general mudstone
15								
18	SILT ? organic red brown minor light grey		Pure					
	GRAVEL - coarse grey-white 2-2cm.							Severe cavitation loss below this
21	SILT pinkish-brown red-brown org. rich.		75/1 lim.					previously with the grain Led
24	with depth							

MT 035
2/4

20								
27	to grey/brn SILT - medium stiff		75/.4 lmst				38/23	Poor quality sample - due to excessive circulation - Down in hole
30							35/23	
33							35/25	
36							32/28	
39	SILT to grey interbedded with sandy SILT - light gray & SAND - poorly sorted fine to coarse		50/.4 sand orange lmst 50/.4				38/37	
42			50/.4 sltst lmst				38/42	
45	SILT (sandy) light gray mottled buff & brown		50/- + lmst					
48								
51	SILT + CLAY + SAND - light brown poorly sorted fine to coarse w/ mottled orange & buff		50/.4 lmst					Very poor recovery samples - not to down
54								
57	CLAY light gray - brown dark gray		brown gray lmst					
60								

C00199

MT 35
3/4

60								
63	CLAY						35/60	An amount of contaminated groundwater due to clients is seal
66							35/63	Lab
69							35/66	
72							35/69	
75	SAND (with CLAY? interbedded-overlying) light gray pervasively stained [illegible] (minor coarse) sand and [illegible] interbedded to cloudy qtz		Minor stain in SL				35/72	
78							35/75	
81	CLAY? pred. + SAND as above light, med gray mottled		30/f in SL & Bg				35/78	
84	yellow-brown, minor marine, isolated						35/81	
87	SAND (minor CLAY) fine-med, subrounded variable light gray to buff to orange brown. Poorly sorted but mostly coarse, mod to unsorted, locally poor sphericity, mostly		variable orange in SL + 1/2 ft coal stain				35/84	
90	colorless to cloudy qtz + milky blush qtz & gray black chert. lt. gray 84-85.5' orange buff 85.5-88.5' buff-gray 88.5-90'		85.5-88.5' 30/f light				35/87	
93	becoming coarser - granules to 4mm		lasting orange in SL				35/90	
96							35/93	

MT 35
4/4

96								
99	As previously SAND - coarse buff 96 - 97.5m M. buff/lt grey 97.5 - 103.5m orange buff 113.5 - 123.5m		50/f strong pressure lime sh 20/f				35/99	Unknown degree of contamination throughout due to borehole diff/cal hole
102	fine clay (smear) light accal grey mottled buff/yellow-brown/mauve, isolated		rare red orange lime sh				35/102	
105			75 f/f lgtly strong				35/105	
108			orange lime sh				35/106.5	
	CLAY well grey predom - sandy? silty bleached(?) in places & borehole mottled		30/f lime, hem? sh	common black carb fine			35/108	
	mauve, buff, yellow-brown		common PY frag N/f	specks few coarse			35/109.5	
111	CLAY + above + SAND interbeds? sand, poorly sorted - as above + abt orange Foraminifera shale		lime, hem? sh as above	as above			35/111	As indicated by drilling behaviour
			Common PY frag N/f				35/112.5	
114	SAND orange-buff; poorly sorted fine to coarse (mostly med-crse) sub ang - most common ± subrnd		75% lgtly to strong comp'd				35/114	Sand from above
	SAND & CARBONACEOUS WOOD BAND (105m?) sand poorly sorted fine to coarse; and lo sub ang - possibly vertically oriented		20/f orange - contains Mineral PY	20/f black carb wood fragments			35/115.5	← Logged as carbonaceous sand with abundant carbonaceous debris - coal in log?
117	SAND with CLAY interbeds Sand angular mostly poorly sorted		50/f orange	minor black			35/117	badly contaminated 115.5 - 120m ?
120	Sand fine to medium sub ang mostly orange lime sh Clay mostly med grey, v/f abt mauve, buff, yellow-brown, v/f white		lime sh	coarse specks in clay			35/118.5 35/120	Sand predom as indicated by drill behaviour v/f abt clay in cuttings
123	SAND buff fine-med lt brown grey- Probably coarse fine to coarse predom rounded PY + ang to subang;		75% lgtly to strong orange lime sh				35/121.5 35/123	Contact 122 - 123m
126	CLAY common grey natural med grey to greenish grey but abundant v/f-fine, buff yellow-brown, mauve v/f in part - Cavings?		Abt lime, hem sh Clays - contain				35/124.5 35/126 35/127.5	Abt sand & clay in washed.
129	LIMESTONE - thin bands of light brownish grey, amorphous; CLAY						35/129	
132	- grey-green thin Glauconitic Sandy, MARL - grey-green with predom SAND at base coarse poorly sorted - mostly rounded (most) calcareous & ABL shell hash - mostly m						35/130.5 35/132	
	RHYLLITE & SILTSTONE - grey-green						35/135	TD Sampled 130.5 drilled 4 more?

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mutooroo EL 63 South Australia

HOLE NO.	MT 36	CONTRACTOR	W.L. Stacy & Son P/L	STARTED	22/3/1973
LOCATION	0.5m SSE of MT24	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	23/3/1973
COORDS	N E	GEOL. LOGGED	T.D. McClellan	SHEET	1 OF 4
TOTAL DEPTH	128.2m (d) 128.2m (l)	HOLE DIAMETER	5½in	SCALE	1in = 3m
COLLAR ELEV.	90m	PROBE DIAMETER	1¼in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy LOAM / CLAY red-brown some calcareous nodules 1.5-3m		overall limonite					
6	Sandy SILT with GRAVEL beds red-brown, yellow-brown, buff, minor		as above					
9	light grey gravel - as above beds - poorly sorted 95% mainstone with red sand. Pebbles to 15mm							
12								
15								
18	SILT light grey buff grades to red-brown, yellow-brown		75% limonite					
21	buff. Coarse sand 18-19.5m							
24								

MT36
2/4

24								
27	A pinnacle SILT with trace of Rock but light gray becoming more dense in Red Clay inclusions		50/4 hard					
30								
33	Rock water							
36								
39	Decom light gray							
42								
45	CLAY light gray with some red brown, buff, limonite		25/- hard					
48								
51								
54	CLAY			Core / A.L. for Card?				
57	CLAY light gray		some hard					
60								

00020/67 T 36
3/4

60							
	As previously CLAY light brown						
63	Sandy SILT & Sandy silty CLAY brown					36/63	
66	light grey Predominantly fine gr, subrounded gr Sand & silty clay					36/66	
69						36/69	
72	SAND (+ interbeds 2' of light grey CLAY) fine light grey, brown; poorly sorted fine to coarse - mostly med gr; subrounded to angular mostly colourless to cloudy gr		30' light grey orange limestone minor shell			36/72	
75	Some clay interbeds - light grey					36/75	
78	SAND - pale brown; poorly sorted fine mostly medium coarse gr, subrounded to subangular, minor ang; decomposition as above & more mostly, minor mostly light grey, black, red shale		50' fine light to brown orange limestone			36/78	
81	Sand as above containing coal & pyrite as above (less pyrite)					36/81	
84	SAND with CLAY interbeds As above with very poorly sorted (mix of sand & pebbles & 5mm) sand to subangular		many thin beds of light to brown orange limestone			36/84	
87	CLAY light grey mottled yellow, soft, fissile, some limestone similarly coloured claystone Sand as above - medium fine to medium gr Interbedding with sandy shale		30' of clay yellow in part limestone			36/87	
90	CLAY, CLAYSTONE, siltstone + SAND as above with claystone lumps		30' light brown grey limestone & shale			36/90	
93	SAND as above		mottled shale 30' of mottled shale			36/93	
96	CLAYSTONE as above - light, light grey & BROWN SAND as above + CLAYSTONE		" 20' of light grey claystone			36/96	

7

MT 36
4/4

96								
99	CLAY, CLAYSTONE + SAND —		1-2/ py frags	few small black carb specks Abt.			36/97.5 36/99	Abt. mixed lithologies — caved?
102	CLAY			few black specks to mod. abund. in cgls			36/102	
				few black specks			36/103.5	
105	SAND with CLAY? interbeds?		few py	few black			36/105	clay ct frags + wood
108	Sand — fine to coarse, mod poorly sorted, subangular to subrounded, clear to orange, lithic, quartzose, w/ minor dk gy clay Abt claystone cuttings as above		frags	few specks			36/108-5 36/108	Mixed orange sand — unwashed?
111							36/108-5 36/111	
114							36/112-5 36/114	
117	CLAY/CLAYSTONE		few py frags mostly?	Abt. v. few black specks			36/116-5 36/117	Some cave/contam Lots of LCM?
120			mod common py				36/118.5	
	Glauconitic sandy MARL with SAND interbeds		few py				36/120	Known BFDS
123	Sandy glauc marl — many lithologies Dark gn glauconitic quartz & strong reworked? gs. Few shell frags & lgy —		frags				36/122.5 36/123	
126	Abund cuttings same as 123-126 — mostly sand grains predom — few shell frags & lgy claystone						36/125 36/126	
	BASEMENT(?) light grn mica to —						36/126	RC interbedded
129								T.D. sampled 129.5m Hole bottomed in basement 132m
132								

000205

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mulgeno EL 63 South Australia

HOLE NO. MT 37
LOCATION 1km E WE of MT26
COORDS N E
TOTAL DEPTH 120m(d) 120m(l)
COLLAR ELEV. 87m

CONTRACTOR W.C.S. and Son P/L
GAMMA LOGGED S.A. Mines Dept.
GEOL LOGGED T.W. Mabbutt
HOLE DIAMETER 5½ in.
PROBE DIAMETER 1¼ in.

STARTED 23/7/1973
COMPLETED 24/9/1973
SHEET 1 OF 4
SCALE 1in = 3m

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy LOAM – white calcareous nodules brown.		strong 1in. sh.					
3	Sandy SILT with GRAVEL interbeds – silt light grey		gravel poor – Extra					
	medium (granular) light brown, non-uniform.		1in. sh.					
6	Gravel poorly sorted – 3/8, 3/8" Lenses pockets – pebbles to 15cm Some silt-bearing clay bands							
	Sandy SILT – light grey mottled red-brown, soft		50% 1in. sh.					
9	GRAVEL sandy SILT [illegible]		mostly poor – Extra					
	[illegible] 3/8, light mid. [illegible]		1in. sh.					
12								
	CLAY – silty light grey-brown		75% 1in. sh.					
15								
	SILT – clayey red-brown [illegible]							
18								
	CLAY red-brown, mottled light grey		10% 1in. sh.					
21								
	SILT – red-brown, brown, [illegible]		Trace					
24								

MT37
2/4

24								
27	CLAY - red-brown, light gray		30% humic					
30	SILT - light gray, mottled red-brown, stiff		50% humic					
33								
36								
37	CLAY light gray mottled red-brown, buff, some cream, stiff-shale		25% humic shale					
42								
45								
48								
51								
54	CLAY black to dark gray - red gray			dark color shale				
57				dark color shale				
60	CLAY light gray							

MT 37
3/4

60								
63	As previously CLAY light gray predom - mixed reddish buff & mottling Some pebbles, lenses & streaks of dark brownish sandy clay		10/+ hard					
66								
69								
72								
75								37/75
78								37/78
81	CLAY with SAND interbeds light gray to off white + med gray, brownish gray. [illegible]		20/+ hard buff, yellowish brown					37/81
84	[illegible] to sandy. Clay predom overall but [illegible]		[illegible] hard [illegible] - mix sandy & [illegible]					37/84
87								37/87
87	SAND [illegible]		70/ [illegible]					
90	[illegible] Mostly [illegible] gray, brown, black chert		[illegible] hard					37/90
93	[illegible] Some Clay [illegible]		50/ variable [illegible]					37/93
96	Sand - buff [illegible]							37/96

0002108

MT37
4/4

96								
99	SAND - as previously						37/99	poor sample quality - muddy brown
102							37/102	97.5 – 105m. after a contact box and reaming of hole.
105	Appearance of cuttings CARB. WOOD SAND + CLAY interbedded? pebbly Lithical fine to coarse; coal to sub-ang - subrounded		1-3% PY fragments common	5% + black carb. wood fragments			37/103.5 37/105	Abt. invaded: orange/tan. Stained in cuttings
108	suspect the 25% = orange tan shale sands contains: CLAY mostly light grey to off white mottled reddish yellow brown + med brownish grey		PY wood fragments	some dk. brn lignite material			37/106.5 37/108	
111	CLAY lt. med blueish grey - off white light to grey off white & mottled buff red		Common PY although some reworked	Few black coaly wood fragments common			37/109.5 37/111	Abt invaded sand - shallow invasion clay "LOCH HAZARD FM"
114							37/112.5 37/114	
	Also fossil, ammonites limestone bands? at base						37/115.5	
117	Glauconitic, Sandy MARL - mid grey greenish grey - common Mg specs		rare PY				37/117	"KIALOCH BEDS"
point	Glauconitic bearing fine sand - peach colour Rock mostly Calcite as cemented shell frags - moderate bioturbation seen		replaced				37/118.5 37/120	continue 118-119m BE. Adelaidean
120	BASEMENT - mostly light grey blue - occ with some Purple fine grained - light grey - pale							TD Dropping 120m drilling 393 ft logging 120m

000209

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mulgeno EL 63 South Australia

HOLE NO.	MT 38	CONTRACTOR	W.C. Sinclair Sons P/L	STARTED	24/9/1973
LOCATION	0.5m NW of MT 37	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	25/9/1973
COORDS	N E	GEOL. LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	114.4m(d) 113m(l)	HOLE DIAMETER	5½"	SCALE	1in = 3m
COLLAR ELEV.	90m	PROBE DIAMETER	1¼"		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	red-brown LOAM & Sandy SILT with thin GRAVEL bands overall red-brown Gravel poorly sorted - pebble [illegible]		several red-brn. iron stn					
6	SILT red-brown, brown, buff mottled		25% iron stn					
9								
12								
15	CLAY with SILT [illegible] light grey buff mottled red-brown [illegible] soft		50% limit					
18								
21	SILT light grey brown pebbly with thin red-brown iron [illegible] soft		75% iron stn					
24								

MT38
2/4

24	" "								
27	As previously SILT light brown mottled buff, reddish brown Mottling decreasing at depth		25'-54' Hard						
30									
33									
36									
39									
42	mica sandy seated sand content CLAY light grey ...		57 Soft						upper limit coarse sand - gradually from 40m zone
45									
48									
51	CLAY red brown grey ...		48-51 hard						
54	...								
57	SILT ... light grey ...		54-60 hard						
60									

MT 38
3/4

60								
63	SAND light gray, v. fine well sorted quartz sand, some fine to med. angular quartz gravel, occasional dk brown lithic fragments		Minor orange limish				38/63	Poor sample quality in pond because of expanded mud ring & bouncing of hole & severe circulation loss
66	becoming buff/ish		50/+ lightly stained orange limish				38/66	
							38/67.5	
69	LIGNITE (0.5m band?) - dk brown/black flaky habit, overall clay like, however - some black vitreous material +CLAY						38/69	
72	CLAY (light gray, ~~tan~~ yellow, buff minor brick red		50/+ lt m. stn	few black lignitic streaks			38/70.5 38/72	
75	SAND (+ CLAY interbeds?) light buff/tan, ~~gray~~ peach fine/vfine to coarse (coarse fraction) subrnd to ang		30/+ light to med orange limish				38/75	
78	(coarse unsorted) Composition as previously Clay interbeds - as above						38/78	
81							38/81	
84							38/82	
87	SAND buff - peach tan fine to coarse to orange subang to subrnd, unsorted, minor clay (pore fill)		30/+ lightly stained orange limish Few/Pr loosely cemented lumps				38/87 38/90	
93			Poor lumps & clay				38/93	overdrilling log
96	Sandy, silty CLAY - mostly light gray to off white - v. fine sand - silt to pebble fragments med gray silty, carbonaceous CLAY		mostly clay	v. fine black specks in dk gray clay			38/95 38/96	Poor sample quality - mostly brown

MT 38
44

96								
99	SAND 96-97.5 ?? SAND) lt gray – med with dark fine-med (+ fine-lg sand)		Minor PY frags 10% + ?				38/97.5 38/99	Very poor sample quality – mostly bean.
102	Sand poorly sorted fine to coarse + lt gray clay; med gray sandy SILT – calcareous		Minor	Abt 1% carb material			38/102.5 38/102	
105	Glauconitic sandy MARL CLAY + SAND interbeds mostly clay gray, greenish gray, sand poorly sorted but mostly coarse – med & rounded calcareous ch;		Few PY frags Hort	Few black carb Scales			38/103.5 35/105	? KIMLEAH BED ?
108	Abt small, mottled, greyish green frags. Common dk green glauconite grains. Common basalt frags Common black carb. Scales (in place?)						38/106.5 35/108	
111	BASEMENT SILTSTONE PHYLLITE & lt gray		Common PY frags				38/109.5 38/111	PE – Holocanian
114	Recovery		Many fine cubes				38/114	
117								T.D. Samples 114m drilling 370 ft logging 115m
120								
123								
126								
129								
132								

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mulcaree EL 63 South Australia

HOLE NO.	MT [redacted]40	CONTRACTOR	W.L. Sullivan P/L	STARTED	26/9/1973
LOCATION	0.25mi N of MT2 (on fence)	GAMMA LOGGED	J.A. Mines Pty Ltd	COMPLETED	26/9/1973
COORDS	N E	GEOL. LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	102.2m(d) 102.2m(l)	HOLE DIAMETER	5½in	SCALE	1in = 2m
COLLAR ELEV.	95m	PROBE DIAMETER	1¼in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy LOAM thin CALCRETE cobble bed		overall red-brown from ditch					
3	Pebbly SAND + Sandy SILT interbedded (softer lt. red-brown)		overall red-brown					
6	very poorly sorted (mostly fine to pebbles (is Sand) - mostly qtz with few magnetite pebbles		low					
	Silty CLAY lt. yellow-grey mottled red-brown		50/f low					
9	SILT red-brown, soft, brown lithology		25/ low					
12								
15								
	Pebbly SAND red-brown very poorly sorted: fine to pebble sand		mod to high					
18	SILT red-brown, soft, brown mottling at base		25/ low					
21								
	GRAVEL pebble to 10cm - qtz (25m basal.)		strong to high					
24	SILT brn, lt. grey		50/f low					

MT3440
2/4

24								
27	As previously SILT mostly Runoff + light grey (varicolored) with brown		50% Hard					
30								
33	CLAY cream at top then Yellowish, mottled yellow brown, stiff, soft		25% Hard					
36								
39								
42								
45	becoming silty with minor fine calcareous sand content							
48								39/48
51	SILTY SAND grey with white with several pebble beds; mostly calcareous to strongly calcareous		Hard					39/51
54	becoming grey with brown mottling; most sand is calcareous							39/54
57	fine to medium grained							39/57
60								39/60
63	SAND as above but showing cross bedding of fine to medium grained calcareous sand		Hard					

MT 39 40
3/4

66							39/63	
63	SAND (as previously) buff, light grey, poorly sorted fine to coarse (mostly fine) coarse gr (to 5mm) grad to silt-clay;	....	20% strong orange limbs + 30%				39/66	
66	+ grey, black, mottled clasts	....	30%				39/69	
69		....	orange limbs				39/72	
72	orange buff 70.5–72cm	....	75% strong orange				39/75	
75	buff-grey 72–76.5cm	....	30% light orange limbs				39/78	
78	yellow buff 76.5–81cm	....	75% no silt matrix				39/81	
81		....	limbs				39/84	
84	red-brown + yellow buff 81–84cm	....	50% happen branch 20% orange				39/85	
87	CLAY (very low angle) dk-dark brown/grey clay with dk black carb specks some silt (in situ comm)			Abt. 1cm dk brown specks			39/85.5 39/87	✓ Can wear sample speckly – mottling
90	CLAY as above + SAND in blebs laminated poorly sorted fine to coarse with scattered granules 88.5–89.5		5% 2mm 10% 1mm 15% med	as above in grey clay			39/89.5 39/90	
93			cream buff mottled				39/92	
	CLAY dk-med grey heterogeneous						39/93	Core 1492 1490.7m
96							39/95	
	Glauconitic, Sandy MARL						39/96	

000216

MT 39
4/4 40

96								
99	Glauconitic sandy MARL – green/grey some dk brn clay CLAY + SAND – mostly coarse with angular to rounded White and pink limestone fragments Rare shell fragm. and fossiliferous						39/4/99	Pt Adelaidian Abt inclined
102	PHYLLITE						39/10	TD sampling 102m drilling 335ft logging 102m

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mukaroo EL 63 South Australia

HOLE NO.	MT4	CONTRACTOR	W.G.S. Adelaide	STARTED	26/9/1973
LOCATION	1 mile S of MT2	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	27/9/1973
COORDS	N E	GEOL. LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	87m (A)	HOLE DIAMETER	5 1/2 in	SCALE	1in = 3m
COLLAR ELEV.	91m	PROBE DIAMETER	1 1/4 in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy LOAM red-brown with some calcareous nodules							
3	Sandy, silty CLAY red-brown and black mottled							
6	Common [illegible]							
9	GRAVEL [illegible]							
12	[illegible]							
15								
18	SILT [illegible]							
21	[illegible]							
24								

MTH
2/4

24

27 — Silty CLAY mod-brown, mottled light-gray — 75% fines

30 — SILT light-gray w/ dark-gray mottles — 75% fines

33 — Silty CLAY (or very fine SILT?) buff, light-gray mottled — 75% fines

36

39 — SAND buff; very poorly sorted fine to coarse (with pebbles 8 mm) — 75% fines

interbedded to 42 ft with 95% mixed mottled, 5% clay — trace fines

42 — CLAY light-gray mottled buff to brown — 35% fines

45

48

51

56 — Sandy, silty CLAY with SAND — 50% fines

57 — light-gray with fringe colors 95% sandy silt to clayey silt — very little fines

Poorly sorted sand interbedded - approx. 5%

60

C00219

MT40
3/4

60								
63	As previously Sandy, silty CLAY w/L SAND interbeds		as prev.					
66	SAND [illegible] (coarse fraction) subrnd to angular		50/.1 [illegible]					
69	[illegible]		[illegible]					
72								
75								
78								
81								
84								
87								Lost circulation at 87m (209'+ drilled)
90								Unable to regain circulation - pressure lost at 37.5 - 40.5m
93								Jar [illegible] inserted
96								

000220

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mutooroo EL 63 South Australia

HOLE NO.	MT42	CONTRACTOR	W.L. Sales & Son P/L	STARTED	1/10/1973
LOCATION	½ mile S of MT19	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	1/10/1973
COORDS	N E	GEOL. LOGGED	T.W. Mitchell	SHEET	1 OF 4
TOTAL DEPTH	115.8m (of) 113.4m (W)	HOLE DIAMETER		SCALE	1in = 3m
COLLAR ELEV.	~ 299m	PROBE DIAMETER			

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy LOAM thin CALCRETE – 1m nodular to massive beds		orange red-brn at top					
3	Sandy SILT red-brown. Abd. orange – fine sand		orange red-brn thin sh					
6	GRAVELS, Pebbly SAND with Sandy SILT interbeds red-brown overall. Quartz generally sandy-coated (silt) pebbles to 2cm		red to orange brown thin sh					
9	Quartz 95% aggate pebbles coarse sand – sub-rnd to angular		orange					
12								
15	SILT red-brown, purple-brown, (variegated)		red to red-brn					
18								
21								
24	Silty CLAY red-brn							

MT42
2/4

24	"							
27	SILT red-brown, dense, hard		soft to hard					
30	Silty CLAY reddish brown, hard		stiff					
33	SILT light grey weathered red-brown, hard, dry		soft to hard					
36								
39	SILT ~~with~~ as previously with SAND interbeds? - poorly sorted fine to med gr, orange, dry Colour and texture as above		75% hard					
42	SILT light grey weathered with very fine gr.		25% hard					
45								
48	Sandy, silty CLAY light grey mottled yellow poorly consolidated below 45 SAND in clay matrix		soft to hard					
51	Sandy, silty CLAY with SAND interbeds. Clay reddish grey		3% hard					
54	[illegible] stiff, fine-med sand Sand fine, poorly sorted, fine to med gr. Silt and clay		stiff to hard					
57			99% hard					
60								

MT42
3/4

60								
63	SAND light grey;						42/63	
66							42/66	
69							42/69	
72	CLAY						42/72	Some inversion
75							42/75	
78							42/78	
81	CLAY Carbonaceous CLAY						42/81	
84							42/84	
87	SAND + CLAY, Carb. CLAY						42/87	
92							42/92	
93							42/93	
96	CLAY + carb CLAY						42/96	

96	"							Ref 42 4/4
	CLAY as [illegible]						42/99	
099	CLAY — [illegible]							Some clay on Abel Investigator
102							42/02	"LOCH HAPPARD "FM" ?
105							42/05	
108	Some dark sepia carbonaceous clay						42/08	
	Glauconitic sandy MARL, CLAY							KINLOCH BEDS
111	Common Shell [illegible]						[illegible]	
114	[illegible]						[illegible]	
	PHYLLITE [illegible]						42/155	SE Applecross
117								TD sample 115-5m Hardly 350 K.
								[illegible] 1.3-4m

000224

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mulvaree EL 63 South Australia

HOLE NO.	MT43	CONTRACTOR	W.C. Sinclair P/L	STARTED	1/10/1973
LOCATION	0.5mi S of MT42	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	1/10/1973
COORDS	N E	GEOL. LOGGED	T.J. Middleton	SHEET	1 OF 4
TOTAL DEPTH	97.6m (d)	HOLE DIAMETER		SCALE	1in = 3m
COLLAR ELEV.	95m	PROBE DIAMETER			

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy LOAM – light brown with calcareous and ferruginous soil CALCRETE nodule bed		overall variation 1m/s.b.					1/10/73 0–30.5 P/C 90 mm
6	Sandy SILT – orange-brown with pebbly SAND interbed(s) – rounded to sub-rounded pebbles of calcrete, quartz, ferruginous sandstone and ironstone		overall variation 1m/s.b.					
9	SILT – sandy at top (contains) ferruginous. Coarse to fine grained grey		7% overall 1m/s.b.					
12								
15								
18	Silty CLAY + SILT		5%					
21	SILT							
24								

M143
2/4

24								
27	Bio-pervasively SILT red-brown fine-clay		75/ hard					
30								
33								
36	CLAY red-brown, brown, minor light gray		75/ lim. SL					
39	SILT light gray mottled buff, olive-brown, minor calcareous		50/+ hard					
42	Clayey fine sand							
45								
48								
51								
54								
57	Sandy, silty CLAY light gray mottled yellow-brown, bulky [illegible]		30/+ hard					
	[illegible]							
60	Clayey, silty SAND?							

MT43
3/4

62									
63	Clayey, silty SAND light grey mottled reddish buff Sand most abundant? - Sticky, poorly sorted very fine to medium.		common buff, reddish mottled (matrix)						
66	(possibly fine) subangular to angular, mostly colourless to cloudy Abundant silt - clay matrix		minor orange limestone (sand ~ 5%)						
69	More or less homogeneous throughout								
72									
75									
78									
81									
84									
87	CLAY + Clayey silty SAND medium light grey, locally compact. Sandy in parts?		minor yellow brown limestone						Interval of Sh
90	CLAY - as previously common dark grey fossils.		as above	few black coaly specks					
93	CLAY			few orange staining fine black specks (shell fragments)					
96	Some red-brown sandy clay, more common fossils		red/brown limestone						

000227

MT43 4/4

96								
	CLAYS as previously - light grey + dark grey							very hard band at about 97m - unable to penetrate
99								
								drilled 2hrs with roller bit for 3½. Penetration 10cm and swapped 200/12 down hole due to extreme torsion
								No cuttings from last 2m due to 1m core
								- all appeared to be extremely soft low plasticity

C00228

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mykeroo EL 63 South Australia

HOLE NO.	MT 434	CONTRACTOR	W.L. Stacker Sons P/L	STARTED	4/10/1973
LOCATION	4 miles S of MT 43	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	4/10/1973
COORDS	N E	GEOL. LOGGED	T.J. Middleton	SHEET	1 OF 4
TOTAL DEPTH	99m (d)	HOLE DIAMETER	4 3/4"	SCALE	1in = 3m
COLLAR ELEV.	94m	PROBE DIAMETER	1 1/2"		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy LOAM, CALCRETE							
3	Sandy, SILT with a few GRAVEL inclusions		overall red-brn					
6	red-brown overall Poorly sorted gravel bands - 10%							
9								
12	GRAVEL - overall red-brown poorly sorted mostly 5 mm of Calcrete in sand-silt matrix		overall red-brn, top of hole					
15	Silty CLAY - red-brown, soft		overall limestone					
	GRAVEL red-brown with [illegible]		as above					
18	[illegible]							
21	SILT red-brown, hard, soft clay [illegible]		overall limestone					
24								

MT46454
2/4

24									
27	As previously SILT red brown to 36cm where abrupt color change to buff		75/ 1inch						
30	light gray								
33									
36									
39	becoming very fine gr. - clayey		50/.1 1inch						
42									
45	SILT as above + SAND interbeds sand predom. - buff, poorly sorted fine to coarse buff predom coarse; mostly sub-ang to ang clasts to cobble gr		med sand mod						
48			poorly 1/m. sh						
51	SILT light gray buff predom mottled buff very fine gr. - clayey		50/.1 1/m sh						
54									
57	CLAY light to light-med gray mottled buff		20/.1 1/m sh						
57	Sandy silty CLAY + SAND interbeds light gray w/white mottled buff-faint tinge reddish sand w/pink, poorly sorted		50/.1 1/m sh clay						
60	fine to coarse (mostly fine to med)								

MT46 434
3/4

60									
63	Alt pervasively Sandy silty CLAY with SAND interbeds?								
66									
69									
72	Becoming very Quartz-sand and clay more abundant sand.								
75	SAND + sandy, silty CLAY interbeds		minor orange mottle						
78	-interbeds as above - sand coarser, mostly fine to medium		sand						
81	SAND predom minor CLAY as above Alt Bentonite Quartz sand as above + some coarse orange lithic sh		20% sand strong orange lithic sh						
84	Becoming overall coarser		some irregular zeolite 1% +						
87	CLAY - light grey to off-white minor buff, yellow, reddish stain		20% lithic sh						Drilling in hydrothermal Alt + invaded sand + cuttings
90	CLAY, silty - med grey		Common PY frag ± 1%	common fine black coal specks					Alt. invaded sand
93	SAND + CLAY interbeds - sand buff, red to grey, poorly sorted - fine to coarse grained		30% lithic sh, 3-5%	as above					Alt clay + thin sand beds penetration
	Clay variegated med grey, yellow, buff, reddish		increasing fine to coarse PY						
96	CLAY - as 87-91.5m med grey								Alt + invaded sand

000231

MT43K
4/4

96	CLAY silty - as prev.		few Py frags	common coarse black wood frags				
99	CLAY as above + SAND — as 9.5-9.45m							Drilling in sand
102								Sudden circulation loss in cavity at 325 ft. (99m) unable to recover any all circulation lost. TD sampling 99m drilling 325 ft

000232

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT :

HOLE NO. MT 44
LOCATION 0.35mi S of MT2
COORDS N E
TOTAL DEPTH 128.2m (dr)
COLLAR ELEV. 92m

CONTRACTOR W.L. Sidebottom & Son P/L
GAMMA LOGGED S.A. Mines Dept.
GEOL. LOGGED T.D. Middleton
HOLE DIAMETER 4.75in
PROBE DIAMETER 1.5in

STARTED 2/10/1973
COMPLETED 2/19/1973
SHEET 1 OF 4
SCALE 1in = 3m

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy LOAM soil zone calcareous nodules mixed colours		red-brn lmn sh					
3	Sandy SILT red-brown predom. common poorly sorted sand		overall lmn. sh					
6	GRAVEL soil zone Sandy SILT matrix. Brownish overall		Dusky orange					
9	very poorly sorted with sand. Pebbles to 30mm. Mostly 95% shale with 10% + limestone, minor siltstone, sandstone, shell spicule Vanuild, sand-silt matrix		lmn sh overall					
12	Brownish sandy-silt interbeds							
15	SILT predom red-brown, in Mesa changes colour		75% lmn sh					
18	~~very~~ coarse silt to very fine sand speck in places							
21								
24								

24								
27	As previously SILT							
30	SAND - orange buff, very poorly sorted fine to coarse with fine pebbles to 5mm rnd to ang. colourless to cloudy. few magnetite grains		mostly orange l/mstn					
33	Silty CLAY light grey mottled buff, reddish		50% l/m stn					
36	SILT light grey mottled buff, reddish		50% l/mstn					
39								
42								
45	CLAY light grey to white predom minor buff, reddish mottling		25% l/mstn					
48								
51	Silty CLAY with minor SAND interbeds. as above + some med grey + minor orange l/mstn sand		as above					
54								
57	Sandy Silty CLAY with some SAND interbeds light grey with colourless qtz sand content in clay. Sand is orange-buff		most of sand orange l/m. stn					
60	poorly sorted but predom coarse rnd to sub ang colourless to cloudy qtz few chert minor magnetite		20% of clay l/mstn					

MT44
3/4

60								
63	As previously Sandy, silty CLAY with STONE in bedded Sand becoming predom- as previously		weak effer orange lim Sh					
66								
69								
72								
75	STONE sub baffid very poorly sorted but with 50% ± coarse to very coarse (av 3mm with pebbles to 6mm) mostly subround to subang cong. calcareid to matrix		very light orange lim Sh. at top					
78	95 cream bleach 5% fair grey, brown, red, black chert. Mica poorly sorted with depth less very coarse		bit calc. weak to strong below					
81								
84	more fine gr. Sh brick hard but still some orange lim Sh more							
87								
90								
93	STONE coarse CLAY interbeds Sand - changes change to mostly		moderate orange lim Sh	Zun black chert				Suspect most orange Sh cavings
96	non-calcareous; very poorly sorted fine to coarse with coarse predom sand & subang; comp as above. Clay light grey, bleached, flecks of pyrite		Sand?	fine speck lacking				

MT44
4/4

96									
	as previously SAND with CLAY interbeds		20% clasts SA-SR						
99	As above but more common CLAY			minor carb					
102	CLAY predom. sandy, silty - med grey + minor bleached off white, reddish		common PY frags 1/+	Abt. v fine black carb specks					sand invasion
105	SLAY + SAND interbeds Clay as above but more carbonaceous Sand grey, poorly sorted; rarely to SLstone Comp as previously		Abt. PY frags 2-3/+	Abt fine carb specks 1/+					
				coarser wood frags					
108	SAND as above - grey		few PY frags	few black specks					
111	SAND + CLAY interbeds — as above Sand grey poorly sorted fine to coarse		Abt. PY frags	Common fine black carb					very difficult to determine exact nature of occurrence
114	Clay mott to dark grey, silty		+/- out 1-2/.	specks in Clay few					some reddish Clay & orange lithic sand - suspect invasion
117				coarser					
120									
123	CLAY - soft plastic, homog med greenish grey								
	Claystone, micr sandy MARL with CLAY & SAND interbeds at base								
126									
	BASEMENT? Indurated soft plastic clay/like material								
129									
132									

000236

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mulgaree EL 63 South Australia

HOLE NO.	MT45	CONTRACTOR	W.L. Sikes Well Drlg	STARTED	3/10/1973
LOCATION	South of MT43	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	6/10/1973
COORDS	N E	GEOL. LOGGED	T.W. Middleton	SHEET	1 OF 2
TOTAL DEPTH	131.4m(d) 131.4m(L)	HOLE DIAMETER	4¾"	SCALE	1" = 3"
COLLAR ELEV.	92m	PROBE DIAMETER	4¾"		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy LOAM to CALCRETE		red-brown to buff					
3	Sandy, silty CLAY red-brown							
6	GRAVEL red-brown, sandy [illegible]		red-brown matrix					
	Sandy SILT red-brown, green, buff		green/ brown					
9	GRAVEL with Sandy SILT [illegible]		red-brown					
	[illegible]		[illegible]					
12								
	Silty CLAY red-brown [illegible]							
15								
	SILT [illegible]							
18								
	Silty CLAY [illegible]							
	SILT red-brown, brown [illegible]							
21								
24								

MT 45
2/5

24			
27	As previously SILT red-brown, brown, buff, minor light grey		75% lim sh
30			
33	CLAY red-brown, buff, lt grey		30 abnd
36	SILT red brown but becoming more mottled buff, light grey		50% lim sh
39			
42			
45			
48	CLAY - silty at top light grey mottled buff		50% lim sh
51			30% lim sh
54			
57	Sandy, silty CLAY with SAND in pockets light grey clay mottled yellow		50% yellow lim sh clay abnd
60	Sand (50%) whitish; poorly sorted fine to med (minor coarse) subrnd to ang; predom colourless to cloudy qtz		orange-yellow lim sh sand

MT45
3/4

60									
63	As previously Sandy, silty CLAY with SAND interbeds? light grey to off white clay mottled yellow, buff, reddish		20/ 1/m st clay						Difficult to tell natural sand seams
66									
69									
72	SAND medium with some sandy, silty CLAY interbeds		5/> orange 1/m st						
75	Sands above - clinkal poorly sorted but predom fine-med gr. Sub rnd to ang. Calcareous cloudy ~3% + minor coarse orange lithics		sand clay as above						
78	Clay as above								
81	CLAY - variegated red grey bleached off white, buff, reddish minor sample		50/+ 1/m st	dk grey clay - carb.					
84	CLAY as above + SAND - as 10-5-3%		20/ orange 1/m st. pred						
84	Carbonaceous wood (in band?) + black wood frags + dk separ lignitic clay		common 5% frag						
87	Silty CLAY + SAND interbeds? Clay light grey mottled yellow-brn, buff + some harder maroon interbeds.		Abt 5% Pyritised wood frags	Abt blk-brn coals wood frags.					much of sand may be washed as mornpe mud of coal accn & py.
90	Sand. less common - grey, poorly sorted fine to med gr predom sub-rnd to ang		30/+ of clay 1/m. str	clay					
93									
96	SAND light grey poorly sorted fine to coarse (mid to coarse predom) sub-rnd to sub ang		10/ orange 1/m str						

MTL5
4/4

96									
97	As previously SAND medium colourless to cloudy + milky, brown + grey, black, red clasts		minor PY frags						
									boundary 99 ~
102	SAND + CLAY interbeds Sand as previously described		50% sand	minor clay					Not known the nature of occurrence from drilling record - muddy sand may be inwashed
105	predominantly Clays light to med grey yellow-brown, basaltic material common red clast (mostly inwashed?)		mostly med orange brown 50% of	with black coal speck					
108			clay limst						
111	SAND + CLAY as previously + abt black coal+hardcore wood		as above + 1-2% PY frags	20% + black wood frags					
114	SAND + CLAY interbeds - as 99-105 Sh Abundant reddish clay frags - suggest from near surface		clayish orange stn sand 50% +	few black coals wood frags					not known amount of sand inwashing
117			a/clay limst few PY frags	+ /coal					
120			+ /coal						
123	CLAY grey - med slightly greenish		clayish PY						Common sand & clay as above in cuttings - suggest all inwashed. Possibly in Clay LOCH HAZARD Fm
126			frags						
129	Glauconitic, sandy MARL + CLAY abundant green to greenish grey. Common dk grey Glauconitic grains + minor coloured Sand. Abt mollusc shell frags								
132									T.D. sampling 130.5 Logging 131.0

000240

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mulgeno EL 603 South Australia

HOLE NO. MT 46
LOCATION 3mi NE. Gairloch Dam
COORDS N E
TOTAL DEPTH 112·8m (V) 112m (C)
COLLAR ELEV. 93m

CONTRACTOR W.G. Sidebottom P/L
GAMMA LOGGED S.A. Mines Dept.
GEOL LOGGED T.D. Middleton
HOLE DIAMETER 4 3/4in
PROBE DIAMETER 1 1/4in

STARTED 5/10/1973.
COMPLETED 8/10/1973
SHEET 1 OF 4
SCALE 1in = 3m

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy LOAM + CALCRETE red brown, fine							
	Sandy, silty CLAY + SILT red-brown, yellow-brown, buff		75% f 1m Sh					
6	Silty SAND - red-brown, poorly sorted, fine to coarse		small orange red brn					
9	Clayey SILT - red-brown, brown		small 1m Sh					
12	Pebbly SAND and Sandy SILT mixed red brown, fine to coarse		v. small orange red brn					
15	very poorly sorted fine to coarse Pebbly SAND							
18	Silty CLAY light grey buff pattern mottled red brown, buff dense, soft to firm		75% 1m Sh					
21	SILT light grey, buff		15%					
24								

MT46
2/4

24								
27	Silty CLAY predom light red-brown		75/ 1 in SL					
30	SILT light gray with predom buff mottling		50/+					
33								
36	Silty CLAY + SILT light gray mottled buff, brown red-brown		50/+ 1 in SL					
39	SILT : light gray mottled buff to yellow-brown		50/+ 1 in SL					
42								
45	Silty CLAY - light gray mottled buff		50/ 1 in SL				46/45	
48	Silty, clayey SAND light gray to olive gray well compacted, cemented Sand grains sorted fine to medium		20/ yellow brown 1 in SL				46/48	
51	silt unit to siltstone, colors from to cloudy with light gray brown silty clay matrix some more clayey bands						46/51	
54							46/54	
57	more fine sand						46/57	
60	Here or less Sandy Silty CLAY - as above but greatly increased sand content		minor 1 in SL				46/60	

MT46
3/4

60								
63	As previously Sandy, silty CLAY light grey CLAY light to med grey + silty clay		few thin lenses of gritty	few fine black coal specks indistinct clay			46/63	some in washed sand
66	CLAY ~~not~~ predom. dark grey finely, gravish grey		limonitic bands minor yellow brown	as above			46/66	Hole leasing; circulation continually. Some inwashing, collapse of walls near surface clay fragments during delays
69	CLAYS as above + minor Sandy, silty CLAY		harsh as above	as above			46/69	
72	- v.lt. colouless gs sand content some light grey mottled yellow brown, soft						46/72	
75	Minor sand content increasing - interbeds grey, poorly sorted fine to med gr. sub rnd to rnd		common ~1%				46/75	
78	- Colorless to cloudy gs		- coffee as cement frags				46/78	
81	CLAYS as above + SAND lt. brn clayey shaley laminated shalelike Sand as above + coaly frags		10% of clay transl 1" - 2" thick	as above + ~5% brn coaly black coaly			46/81	Presumably thin seams interbedded sequence of shale and clays.
84	CLAY predom in cuttings but abundant fine sand escaping through smallest mesh screen			wood frag			46/84	
87							46/87	
90							46/90	
93							46/93	
96							46/96	

MT46
4/4

96								
99	As previously mentioned interbedded sequence of CLAYST SAND - clayst med, dk grey, greenish grey sandy light grey, coarse, well sorted, subrounded		few pyr. frags. 1 per 10 ft	super thin black specks			46/99	Coreberm from above 97 to 100 ft. - material settled in hole after drilling
102	Siderite CLAY - med green-grey + some other as above (contains						46/102	"LOCH HAZARD FM."
105			- increasing ?				46/105	Core Missing mostly congealed drilling mud + bits in drum
108							46/108	core run 107 - 108m
111	Glauconitic, sandy LIMESTONE? CLAYST Some shale to grey limestone + clay as above Some sand - well rnd coarse; foraminifera fragments abt bryozoan frags + foram + mollusc SILTSTONE - dark grey, med						46/111	"KINLOCH BEDS" nature of occurrence in London RE - Aberdonian
112.5m	green-grey; well foliated phyllite						46/112.5	broad penetration
114								T.D. sampling 112.5m drilling 374 ft logging 112m

000244

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mcleese EL 63, South Australia

HOLE NO.	MT47	CONTRACTOR	W.L. Siddell & Son P/L	STARTED	8/10/1973
LOCATION	0.5m SE of MT46	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	8/10/1973
COORDS	N E	GEOL. LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	109.4m (b) 109.4m (d)	HOLE DIAMETER	4 3/4"	SCALE	1in = 3m
COLLAR ELEV.	91m	PROBE DIAMETER	1 1/4"		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy LOAM — lt. brown then calcareous material - chalcedony							
3	Sandy SILT with few pebbles - red brown very fine		overall limish					
6	Yellow sand & clay & orange sh. 93.							
9	GRAVEL red brown, poorly sorted, pebbles to 20mm mostly qtz, pink - some mag. chunks Variable sand silt matrix		overall orange - brn. limish					
12								
15	Clayey SILT mostly red brown at top but more light grey at base with red & yellow		50/50 limish					
18			mixed					
21	Sandy, silty CLAY - fine sand of quartz pebbles red brown mixed sand very poorly sorted		Mixed red brn orange limish					
24								

NT47
2/4

24								
27	SILT light gray mottled buff to yellow brown		50/+ lam. sh					Sharp color break
30								
33								
36	Clay band 33-34.5 sh							
39	becoming very fine gr. sandy clayey							
42	CLAY - light gray mottled yellow brown to buff Sandy, silty CLAY med to dark gray. Abundant		30/ lam sh mica bits					
45	Sand - calcite 95 - more so in darker clay		pebble lam. sh				47/45	
48	Sandy, silty CLAY + clayey silty SAND — minor becoming		50/. of clay				47/48	
51	more predom. with depth. Clay ~~conc~~ ive light to med gray trace of yellow to buff mica pebble sand Sand fine, poorly sorted - fine		finely 50/. sand some lam. sh				47/51	
54	to med gr with minor coarse sand and to pebbly clay; calcareous Clay 95 Zero micaceous flakes						47/54	
57	Sand predom fine to coarse Laminations of clay becoming more common		30/ banding light sand				47/57	
60	CLAY - light to dark gray micaceous to Sandy silty CLAY Sandy, silty CLAY		mica flakes as above				47/60	

MT47
3/4

60									
63	Interbedded sequence of CLAY, Sandy, silty CLAY & SAND Clays are light grey to off white & minor yellow to buff mottling. Micaceous		20/40/ clays lim.sh 10/+					47/63	
66	Sand is shaly; poorly sorted fine to med gr (minor coarse) Subround to subang; calcareous in cloudy gls Common (10-20%) mauve sh clay appears		orange lim.sh sand					47/66	
69								47/69	
72	Sandst/ brown, lmonite cement (after PY.)							47/72	
75								47/75	
78	Clay more predom							47/78	possibly mostly reworked Sand
81	SAND - clayey/silty predom with clay interbeds as above Sand buff/pale grey poorly sorted fine to coarse, mod to subang calcareous to cloudy gls predom milky, minor blush + grey, black chert.		30/40 clays lim.sh av. 20%, sand					47/81	
84			orange lim.sh.					47/84	
87								47/87	
90	minor mudstone clay as above less calc specks							47/90	
93								47/93	
96								47/96	

000247

MT47
4/4

96								
	As previously SAND & CLAY interbeds few coarse-round grains to 3mm well sorted						47/99	
99	CLAY — med to dark grey 97.5-99 Thin med bs		few PY frags	Color due to v. fine carb. material few black specks				drilling a lightly AB. invaded sand
102	med - greenish grey						47/102	LOCH HAZARD Fm
105	Glauconitic, sandy MARL, CLAY greenish grey to grayish green		PY frags				47/105	KINLOCH BEDS
108	Becoming more sandy at base - poorly sorted calcareous gy-md and dk green glauconite grains common Mell frags - Mollusc Bryozoa						47/108	
	PHYLLITE - grayish green	SSS					47/1095	PC - Helendale
111								T.D. sample 109.5m drilled 358 ft logging 101.4m

000243

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mulgaree EL 69 S.A. N. Australia

HOLE NO.	MT48	CONTRACTOR	W.L. Sobiesiak	STARTED	9/10/1973
LOCATION		GAMMA LOGGED	S.R. Mineralogic	COMPLETED	9/10/1973
COORDS	N E	GEOL LOGGED	T.W. Riddell	SHEET	1 OF 4
TOTAL DEPTH	112.8m(d) 112.8m(l)	HOLE DIAMETER	4 3/4"	SCALE	1" = 3'
COLLAR ELEV.	88m	PROBE DIAMETER	1 7/8"		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy LOAM							
6	SILT GRAVEL							
9	Clayey SILT							
12								
15								
18	Silty CLAY							
21								
24	SILT							

MTH8

24									
27	As previously SILT (clayey) real brown but becoming more buff with depth		75% hard						
30									
33									
36	Silty CLAY light grey mottled buff, mineralised-hard		90% hard						
39	SILT (clayey) light grey blotched buff mostly v. fine-silt grade		95% hard						
42									
45	Sandy silty CLAY variegated light brn clayey patches buff/yellow-brown veins		50% hard					40/45	
48	abundant fine to med gr calcareous gravel throughout More med grey at top, light grey at base							45/48	
51	more or less clayey, silty SAND - silty most calcareous fine to med gr, sub-rnd to sub-ang calcareous nodules 5%		soft 5% gravel					48/51	
54	some sandy silty clay nodules like silt clay matrix							48/54	
57	more calc. medium sand at base							48/57	
	Sandy silty CLAY v. very plastic soft some sandy fine to med gr calcareous nodules		85% stiff						
60	- mod to light grey mottled yellow brown							48/60	
	CLAY, silty, soft grey mottled yellow brown								

MT48
3/4

60								
63	Silty CLAY - light-med grey mottled yellow brown mottling minor dark grey carbonaceous clay.		10% f-m sand	minor DK grey cross clay			48/63	
66	sand fine grained sandstone clay						48/66	
69							48/69	
72	Silty Carbonaceous CLAY med to dark grey - more or less uniform but v.f. common black lignite leaves (small)		minor ON fragg 10% wood	Abt cross bedding 5-10°			48/72	
75	SAND with some CLAY fine grained, micaceous, biotitic, poorly sorted fine to coarse but predom med grey, subrnd to sub ang.		30% f-m sand 30% med orange				48/75	Abt interbedded clay 72 - 73.5m
78	speckled colourless to clear sandy, micaceous, feldspathic Clay light grey speckled med brown, gritty, micaceous		trace 20% of clay fragments				48/78	
81			trace frags of clay				48/81	
84							48/84	
87	Sand overall coarser - more well rounded mineral orange stain						48/87	
90	SAND as above + occasional CLAY interbeds - light med greenish grey thinly laminated						48/90	
93	Sand buff-orange from 91.5m		75% light to med orange				48/93	
96			orange trace				48/96	large cylindrical (apparently) inclusion

000251

MT48
4/4

96								
	As previously SAND +CLAY							
99	CLAY light brown/grey, mod calcareous silty clay	CL	common pyrite	minor carb clay			48/99	Interbedded Sand
102	Minor dark grey carb. clay	CL	1-2%				48/102	
105	CLAY - predom. red/green/grey as above - reworked?	CL	minor py	minor fine black specks			48/105	LOCH HAZARD Fm
							48/108	
108	Glauconitic sandy MARL							KINLOCH BEDS
111	Predom. green/grey + grey LIMESTONE beds - firm Hot. Shell fargs. mollusc + bryozoa Sand & fine to coarse mod. sorted - as interbedded above - coarse well rounded; calcareous						48/111	
112.5	BASEMENT? - hard crystalline rock in sand/gravel matrix - possibly basal volcanic sand						48/112.5	T.D sampling 112.5m drilling 370 ft logging 112.6m

000252

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mulcorso EL 63, South Australia

HOLE NO.	MT49	CONTRACTOR	W.L. Sidebottom P/L	STARTED	9/9/1973
LOCATION	1m S of MT48	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	9/10/1973
COORDS	N E	GEOL. LOGGED	T.C. Middleton	SHEET	1 OF 4
TOTAL DEPTH	125.6m (d) 125.6m (L)	HOLE DIAMETER	4 3/4 in	SCALE	1:1 = 3m
COLLAR ELEV.	85m	PROBE DIAMETER	1 3/4 in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy LOAM to CALCRETE – nodular red							
3	Clayey SILT – red brown very stiff, sandy, with sand & cement, increasing above		Ø sand trim sh					
6								
9	Clayey SILT + SAND interlay – [illegible]		Ø sand					
12	Silty CLAY light grey brn [illegible]		25% trim sh					
15								
18	Clayey SILT – red brown		[illegible]					
21	Silty CLAY [illegible]		25% trim sh					
24	Clayey SILT [illegible]							

24									
27	SILT - clayey in parts. red-brown Pleist 24-33m		75% hard						
30									
33									
36	Becoming more buff to Brown mottled red-brown / light grey								
39									
42									
45	CLAY light grey mottled brown to buff		50% hard						
	Sandy, silty CLAY light grey, mottled buff, yellow brown		50% hard						
48	Boulder Hard fine sand content		all rock						
51	Becoming more sandy - a clayey SILTY SAND Pleist fine mod soaked fine to medium angular to subang, colourless to clear in clay-silt matrix - mottled		30% hard clayey matrix						
54	yellow, reddish brown Clayey 51-55.5m Sandy, silty CLAY - some med grey - carbonaceous?		hard hard						
57	more sandy 55.5-60m Clayey, silty SAND								
60									

MT49
3/4

60									
63	Approximately Clayey silty SAND + CLAY interbed Some mid grey silty clay								
66	~~Sandy~~ silty CLAY & CLAY predom - light grey		mangan stn yellow 1/m sh						Drilling remarks re clay interbed sand
69	Abt sand 66–67.5m – fine to med gr.								
72	Sandy silty CLAY + SAND interbeds (+CLAY) light grey mottled buff to yellow, minor reddish		50/+ 1/m sh clay						Drilling behaviour suggests abt sand
75	Chalky fine gr sand Clay predom?								
78									
81	Mainly abt sand – fine to med gr. Mostly clay 1/m sh		30/+ orange 1/m silty sand						
84	SAND light buff; occ silty fine to coarse (mod – coarse predom) sub rnd to sub ang; calcareous cemented clay + sandy; mainly brn, grey, black stains, pebble frags. Some clay beds(?) as previously + minor dark grey clay		50/+ lgt buff to buff orange 1/m silty sand						
90									
93									
96									

MT 49
4/4

96									
99	Predominantly SAND + CLAY interbeds Sand gradually becoming more well sorted - fine to medium		20/1 light orange fine SL						
102			50/50 clay/silt						
	Sand coarser sand		30/1 mixed orange fine SL						
105	CLAY silty CLAY + SAND interbeds? mid, local brownish grey clay		3-5% pyr & pyrite	few black & light grey					accident on borehole Abt. 1m washed (?) sand
108	+ mid grey silty (v. fine sandy) CLAY becoming predom sandy, silty CLAY (or clayey silty SAND?) - mid grey with abt. fine & coloured specks of sand		frags of lap then common	common v. fine black specks in clay					
111									
114	CLAY - mid (slightly greenish) grey - soft, plastic		mica pyr frags						"LOCH HAZEL Fm"
117									
120	Glauconitic, sandy MARL CLAY mid greyish green to greenish grey - with fine shell frags. Mollusc & bryozoan		few pyr frags						KINLOCH BEDS
123	Fine brown, grey limestone bands Mod. laminated at base - hollow limestone fossil.								
	Rock fossil, Coral & bryozoan fragments BASEMENT? Fine/sandy - possibly in limestone bands								
									T.D. sampling 124.5m drilling 410ft logging 125.6m

000256

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mirocco EL 63 South Australia

HOLE NO.	MT 50	CONTRACTOR	W.L. Sidi & Son P/L	STARTED	9/10/1973
LOCATION	½ mile W of MT 46	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	9/10/1973
COORDS	N E	GEOL LOGGED	T.W. Middleton	SHEET	OF 4
TOTAL DEPTH	105.3m (L) 104.8m (L)	HOLE DIAMETER	4½in.	SCALE	1m = 3m
COLLAR ELEV.	93m	PROBE DIAMETER	1¼in.		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy LOAM to CALCRETE nodular sand - white to brown							
	Sandy SILT - red-brown with fine to med sand		overall lim. sh.					
	Pebbly SAND orange brown, poorly sorted, fine to coarse with pebbles to 10mm - lgs, round-angular mostly subangular to ang		overall orange lim. sh.					
	Sandy SILT + CLAY + SAND sandy red-brown - overall		overall lim. sh.					
	Pebbly SAND - med sorted very coarse red-brown		as above					
	SILT light grey pisolom		20% lim. sh.					
	SILT red brown pisolom + brown buff, mottled grey		75% lim. sh.					
								Strong colour break
	Pisolom buff							

MTSC

2/4

24									
27	Dsp previously SILT buff								Abt. bromide sampler - Lost casing correction
20	SAND sorted fine to coarse orange-buff; poorly		weakly weak to strong						
33	Silt and to and		orange limestone						
36	SILT + CLAY buff/light grey		50/.4 brunsh						
39									
42	CLAY + some SILT interbeds		white limestone						
45	light grey predom								
48									
51	few white dolomitic bands								weakly brown 48 — 55.5
54									
57	Sandy silty CLAY / silt SAND interbeds Clay light grey; mottled buff in part dolomitic and sorted		25/ limestone clay					50/57	
60	fine-, silt and loamy fecal comma orange - suspect washing from 28.5 - 33m							50/60	

60.								
63	**CLAYS** 60-64.5m predom light grey mottled buff to brown, yellow minor dark grey (carbonaceous)		50% finely clay	10% dk grey carb. clay			50/63	Minor interbed sand
66	64.5m → light to med grey + buff to brown, minor dark grey		30% finely				50/66	
69	brownish, light yellow-green, some red specks grey		minor PY + lignite				50/69	
72							50/72	
75							50/75	
78							50/78	
81							50/81	
84	**SAND + CLAY** interbeds Clays as above Sand med grained fine to med grained subangular to subrounded mostly quartz		10-20% fine to med sand minor PY frags	carb. clay as above			50/84	
87							50/87	
90							50/90	
93	common clayey sand		30% fine to med sand				50/93	
96	**CLAY** predom - more or less as previously						50/96	Interbed? Sand

000259

97	5							MT 50 4/4
99	CLAY + SAND : interbeds as previously interbedded clay sequence with sand more abt. sand 97.5–99m		PY frag 1% + lignt	carb. clay as prev.			50/99	
102	CLAY – sequence as previously		few PY frags	as above few black wood frags.			50/102	Interbedded ? sand
105	Glauconitic Bed – unknown nature Forams, bryozoan stems, M to sand						50/105	KIMBERLEY BEDS
	SILTSTONE – grey, recent – laminated							PL – Aldinga
								T.D. sampling 105m drilling 345 ft logging

000260

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mutooroo EL 63 South Australia

HOLE NO.	MT 51	CONTRACTOR	U.C. Subsyd. Comp'y	STARTED	10/10/1973
LOCATION	2m NNW of Gairloch dam	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	10/10/1973
COORDS	N E	GEOL LOGGED	T.W. Micklethan	SHEET	1 OF 4
TOTAL DEPTH	109.8m(d) 109.8m(l)	HOLE DIAMETER	4 3/4in	SCALE	1in = 3m
COLLAR ELEV.	90m	PROBE DIAMETER	1 1/4in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy LOAM red-brown		overall lt-m Stn.					
3	Sandy silty CLAY - red brown predom. few pebbles		as above					
6	GRAVEL with sandy silty CLAY matrix at top lt/dk brown overall. Mod-sorted in parts - 5mm av.		mostly orange-brown lt-m Stn.					
9	but generally poorly sorted to 10mm (coarsen at base) mostly subang; fg, 75% Lt + 10% + magnetite							
12	Mostly with little fine matrix							
15	GRAVEL with sandy SILT matrix as in 12-15; red-brown More poorly sorted than above pebbles to 20mm		as above					
18	CLAY lt/dk grey mottled red-brown, hd, ff		2% lt-m St					
21								
24	SILT red-brown, brown		75% lt-m St					

MTS1
2/4

24									
27	As previously SILT - red-brown, brown buff		orange/ lt-m-sh						
30	CLAY silty red-brown, brown light-grey SILT buff, brown, red-brown, light-grey		75/ lt-m-sh 75/ lt-m-sh						
33									
36									
39									
42									
45	CLAY and SAND interbeds(?) light-grey mottled red-brown sand pebbly, poorly sorted fine to coarse, subrounded gr magnetite to 8mm; subordinate hydrous, colorless to cloudy gls fair silt matrix		75/ clay lt-m-sh 20/ lt-dk sand						
48			orange lt-m-sh sand						
51	as above, sand at base - chert gr								
54	SANDSTONE - white, lt-red-brown, fine-medium, well sorted, subangular CLAY (semi-va, slightly silty) light-grey mottled brownish		lt-m sh 10-20/ lt-m-sh						
57									
60	CLAY lightly, slightly micaceous, med grey		as above						

MT51
3/4

60									
	CLAY as previously								
63	SAND, silty with CLAY interbeds (as previously)		30/ orange						
66	buff, pasty to soft and is coarse - predominately fine to sand, orange, colorless to cloudy qtz + milky, bluish		light to med. lim. stn						
69	& grey, black cherty, few magnesian subrnd pebbles clay, frosty Relatively tight carnahan		50/ft light to strong orange lim. stn						
72	Sandstone								
75									
78									
81									
84									
87									
90									
93	CLAY - bleached white, firm, sl of- hard								Mod. massive sand
96	SAND(?) orange-buff mostly clear CLAY med grey with some yellowish orange mottled colors		75/ft mod. strong orange 30/ med. strong						In washed sand

000263

96									
99	as previously CLAY mid grey (slightly greenish here)		common PY frags 1-2%	rare black wood frags.					"LOCH NAZARD" ??
102	Glauconitic sandy MARL mid greyish green, greenish grey		few PY						"KINLOCHBER
105	mottled brownish more clayey at top becomes more sandy, glauconitic towards base with abundant shell bags - mostly abraded		frags.						
108	gastropods. some with small pelicas common & mixed types + thin gastropods								
1995									
									TD sample 1095 ft drillers 360 ft logger 105 ft

000264

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mt Toondoo EL 63 South Australia

HOLE NO.	MT 52	CONTRACTOR	W.L. Sinclair Sons P/L	STARTED	10/10/1973
LOCATION	1 mi NNW of Carlock Homestead	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	11/10/1973
COORDS	N E	GEOL. LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	109.8m (d) 109.4m (l)	HOLE DIAMETER	4 3/4 in	SCALE	1in = 3m
COLLAR ELEV.	88m	PROBE DIAMETER	1 1/4 in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy LOAM to CALCRETE Sandy, silty CLAY		Colour Wash					
6	Clayey SILT		Stone					
9								
12								
15	SAND		as above					
18	CLAY		Silt +					
21								
24	SILT							

MT52
3/4

24									
27	As previously SILT with some clayey sections red-brown predom to 28.5m then buff coarser here.		50/1 1m sec						
30	with instained light grey								
33									
36									
39									
42	becoming very fine with grade at base								
45	SAND with CLAY interbeds buff, sandy sized fine to		50/ 15cm 8cm						
48	clayey at top, with bits orange 95 + few angular small pebbles Clay light grey mottled buff		orange staining 50/ 15cm 8cm						
51	reddish blowing in one cuttings fine gr sand - light buff color overall								
54	only minor clay at base								
57	Clayey (sandy?) SILT light reddish buff - fine silt grade(?) on possibly a clay								Interbedded Sand(
60									
	CLAY med-dark grey			fine to medium					

MT52
3/4

60									
63	Clayey SILT light grey to off white mottled, fine silt grade. Minor sand content		minor sand						
66	SAND some CLAY interbeds light buff/pale green at top then		50% light/pale green						
69	buff, minor reddish; med salted med to coarse (minor fine) sand to sand avg; predom clastics to clasts + matrix, tolerable		orange tinge 100% med to coarse						
72	95% grey, black, brown chert mostly light grey clay interbeds reddish buff overall 70.5-72m		orange incl. 50% red-orange						
75			75% orange tinge						
78									
81	mostly fine to med gr sand 78-82.5m								
84									
87									
90	SAND + common CLAY interbeds sand buff, non peaky scaled grain size - fine to coarse with few pebbles (2mm Clay mostly laminar/pebbly		50% light to med orange tinge sand						
93	reddish yellow, reddish brown to bleached med grey		red brn clay						
96	CLAY at top bleached & pinkish mottled yellow-brown, reddish Minor interbedded sand stringers stain to clay becoming more red reddish grey 93.5 →		75% lt. brn clay + sand sized granite pebbles						

000267

MT 52 4/4

96								
99	CLAY silty sdy dk dark grey		common pf frags 1-2%	Abn. fine black carbs specks				
102	dark grey at base CLAY – med grey sl. brownish gy silty sdy Drastic sub LIMESTONE and above		Abt pf frags					
105	Glauconitic, Sandy MARL, CLAY more clayey at top - olive grey. Abt. Shell frags at top - molluscs (many pelecypods) abt. known - sub-units to 108		Few pf frags					
108	becoming more glauconitic, sandy at base with abt. shell frags - incl. Turritella some sandstone possibly cored well in sand							
109.5								T.D. sampling 109.5 drilling 360 ft logging 109.4

000268

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mutooroo EL 63 South Australia

HOLE NO.	MT53	CONTRACTOR	W. L. Sides & Son P/L	STARTED	11/10/1973
LOCATION	2 mile NW of Corinda	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	11/10/1973
COORDS	N E	GEOL LOGGED	T.W. Mollester	SHEET	1 OF 4
TOTAL DEPTH	114.3m(d) 114.2m(l)	HOLE DIAMETER	4¾in.	SCALE	1in = 3m
COLLAR ELEV.	87m	PROBE DIAMETER	14in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy LOAM then CALCRETE nodules and calcareous matrix clay							
3	Clayey sandy SILT - red-brown fine to v. fine							
6								
9	GRAVEL with sandy SILT matrix in parts, predominantly pisolitic gravel - pisolites of 95% white 235°F amygdaloidite to 25mm							
12	SILT medium with some GRAVEL in lenses?							
15	- gravel as previously SILT red brown							
18	SILT red-brown, buff pisolites light grey fine to v.f. grained							
21	CLAY light grey mottled red-brown, tough							
24								

MTS 3
2/4

24			
	CLAY as prev.		
27	SILT brown to buff, reddish tint gray.	75% lam sh	
	Clayey in parts		
30			
33			
	Minor sand content (interbeds!) 33-37.5m		
36			
39			
42			
	SAND with some CLAY, interbeds red/brown/buff fine to medium/minor coarse) ~~and~~ minor to subang. colorless to milky qtz minor	10-25% sandy lam sh	
45	fine limonite pseudomorphs qtz reddish-buff lam sh clay		
48	becoming more buff	20% lam sh.	
		same 75% of clay lam sh.	
51			
	more abundant clay interbeds - reddish buff / minor light gray sand more poorly sorted	2-3% lam sh	
54			
57			
60			

000270

MT53
3/4

60									
63	As previously SAND with CLAY interbeds		as prev. 2-3% mag hematite						
66	CLAY light grey to off white mottled brown, reddish, yellow, mauve		20/+ limish						Alt. impregnated sand
69									
72	becoming more silty with minor sand content(?)								
75	SAND with CLAY interbeds at top light buff/grey; poorly sorted fine to coarse but predom med-coarse; ~~but~~ rnd to subang ~~extended~~ clasts; qz predom;		20/+ lt/ltlo red. orange limish						
78	minor blue + grey lithic clasts clay interbeds above - minor								
81									
84	Mudge becoming more predom								
87									
90									
93	Clay interbeds becoming more common - light grey								
96									

MT53
44

96									
99	SAND — poor + CLAY interbeds		50/ 1inch						
102	CLAY — med gray - bleached at top - Dark gray + 20% mottled yellow, buff, reddish		Ammonite band at top then DY band 1-2 ft	Fine carb. mineral impurity color?					A6t - inwashed sand
105	Silty CLAY light laminated gray + slightly bluish		A6t						
108	Some light Jurassic grey limestone bands (thin)		Jags						
111	Glauconitic, sandy MARL greyish green. Common Shell interbeds? - poorly sorted. Calcareous, mudstone.								
114	with abu. glauconite A6t - Shell frags. - mollusc. Inclone. Turritella types, Bryozoan- common foram. Orbitoina LIMESTONE band at base								hard, recrystallized
									T.D. sampled 114 to 375 ft

000272

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mileeso FL 63 South Australia

HOLE NO. MT 54
LOCATION Satrie Tank
COORDS N E
TOTAL DEPTH 134.4m (d) / 129.8m (d)
COLLAR ELEV. 90m

CONTRACTOR W. L. Sides & Sons P/L
GAMMA LOGGED S.A. Mines Dept.
GEOL. LOGGED T.W. Middleton
HOLE DIAMETER 4 3/4 in
PROBE DIAMETER 1 7/8 in

STARTED 13/10/1973
COMPLETED 13/10/1973
SHEET 1 OF 4
SCALE 1in = 3m

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy LOAM then CALCRETE nodule beds							
3	Sandy, clayey SILT - red-brown		overall 1/m.sh					
6	GRAVEL with Sandy SILT matrix red-brown, poorly sorted, pebbles to 15mm		2% above					
9	Sandy, clayey SILT red-brown		2% above					
12								
15								
18								
21								
24	GRAVEL - brown, medium poorly sorted 3-6mm, rare to 15mm, fragments		2% above					

000273

MT54
2/4

24 ft — previously GRAVEL
put more pebble-sized - still common
sand-silt matrix
overall
lim. str

27 ft — SILT red-brown, orange, buff
light grey
75%
lim. str

30

33

SANDSTONE — reddish buff pebbly
sandst fine to coarse. Well cemented
massive
lim. str
faint
trough cross-beg.

36 ft — CLAY light grey, mottled red-brown
buff, yellow-brown
50%
lim. str.

39 — Sandy in parts

42

45

48

51

54

57

60

000274

MT54
3/4

60

Clayey, silty SAND light gray (10YR 7/1) fine yellow brown (10YR 5/6) (calcareous clayey), fine to coarse sand, subangular, calcareous nodules, predom

5-10% strong lim. sh

30% clayey sandstone lam. shale

63

66

CLAY light gray predom, mottled dark gray, dense yellow-brown, blocky nonplastic, minor Ca carbonate

22% lam sh

69

72

CLAY - light gray to SILTY CLAY (10YR 7/1) fine SAND

Siltstone beds yellow-brown

Sand distrib, mostly fine grained

10-20% yellow lim sh.

5% yellow brown limonitic concretions

75

78

81

84

SAND off-orange, mod sorted

Subround to subangular, fine to coarse grained, clayey, Ca carbonate cemented (?), few shale

coarse sand yellow-orange lam sh - mod bedding

minor fine sand from above interval

87

90

93

96

MT54
4/4

96	4' pres. SAND - becoming more poorly sorted = fine to coarse				
99	SAND with common CLAY interbeds and buffs, very poorly sorted fine to coarse, subrd to subang; clay as above		3o/ light to dk grey trans to brn/blk 3o/ clay lt/m. brn		
102	Clay lt gy/dk grey to off-white predom, brittle gelatin, soft, waxy, locally micaceous clay stone No old pebble to base				
105					
108	CLAY dark grey		few PY frags	Abt. fine, blk carb specks few coarse blk specks	Abt. interbedded sand
111					
114	clay/SAND with CLAY interbeds as above Sand poorly sorted fine to coarse; sand is dusky brn; subrnd-subang; abundant orange stain top 1m sandy depth.		PY frags Abt. frags Hornstone Top + limonite stained	as above in clay	
117					circulation lost suddenly at 117m in small cavity 117-120 sample badly contam.
120	Carbonaceous WOOD (60 cm?) +SAND - coarse, angular possible interbed			Blk to dk brown wood frags	
123	SAND light grey poorly sorted fine to coarse, subang to subrnd. Abdt. to Stain carbon level to base		Few PY frags	few carb wood frags	Interbedded orange stained sand
	CLAY - med grey/dk grey		PY frags		LOCAL HAZARD CLAY
126	FORAMINIFERA bearing silt top (1m) - Subordinate to Oligocene below to Glauconitic, Sandy MARL-CLAY - fine glauconitic sand, with foram shell frags, rounded + Bryozoan				
129	bearing, more sandy - poorly sorted mud to coarse glauconitic sand abt shell frags, Glauconite grains				continued 131m? 10 samples 132.5m drilled 440ft logged
132	PHYLLITE - dark grey, green/grey				

000276

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mulgaree EL 63 South Australia

HOLE NO.	MT 55A	CONTRACTOR	W.L. Sadler & Sons P/L	STARTED	13/10/1973
LOCATION	1.5 km SE Pigeon Bore	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	
COORDS	N E	GEOL. LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	63.4m (d) 63.4m (L)	HOLE DIAMETER	4 3/4 in	SCALE	1in = 3m
COLLAR ELEV.	95m	PROBE DIAMETER	1 1/4 in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy LOAM with CALCRETE nodule base							
3	Sandy, silty CLAY - red brown becoming v. sandy towards base		Decreasing Fe with depth					
6	Pebbly SAND (2mm?) red brown poorly sorted but mostly coarse		Fe rock					
	with pebbles of ferruginised mudstone to 10cm. Sand is mostly at base							
9	Clayey SILT red brown		Fe rock					
12	CLAY light red brown at top becoming darker grey off to		Fe/ limit					
15	light grey by 16m							
18								
21			Fe/ limit					
24								

24 As previously CLAY

27

Sandy, silty CLAY
light-med grey w mottled buff to yellowish brown to 31.5m then red-brown
v.f. f. sand becoming more abt at base. - Then v. few clasts
a clay contained sand

36

CLAY - light grey / minor red-purple lam. str.
- claystone at top.

42

45

48

SAND with CLAY (CLAYSTONE) interbeds (m. abs) of dep. - less so with depth
f. sst buff silt grey red sandstone
v. coarse sst dep (>2mm) and to sst m. g. calcium, to clay
thinly bed, fissile
becoming more sandy, sand base to coarse but predom coarse

54

57

buff colour overall 51-55.5m

sand becoming overall coarse

60

Sst
lightly
Graded
strs

10-20 f
sandy
red orange
lam str.

30 f-
lam. str.
as above

75 f. light
to mod
lam str.

50 f
mostly
red-orange
lam str.

Contact ~ 49.5m

NITSSA
3/3

60	SAND as previously def pattern very coarse		20-35%			PE Addendum
63	PHYLLITE w well foliated SILTSTONE	SSS				TD 63m
63						

000279

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mileura EL 63 South Australia

HOLE NO.	MT 56A	CONTRACTOR	W.L. Sinclair & Son P/L	STARTED	15/10/1973
LOCATION	0.5 mi SE MT 55A	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	15/10/1973
COORDS	N E	GEOL. LOGGED	T.W. Middleton	SHEET	1 OF
TOTAL DEPTH	81.5m(d) 81.2m(l)	HOLE DIAMETER	4¾in	SCALE	1in = 3m
COLLAR ELEV.	93m	PROBE DIAMETER	1¼in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy LOAM stron CALCRETE nodule bed							
3	CLAY - Sandy silty at top		75% Mins					
6	red-brown pasdom, minor light grey							
9								
12								
15	SILT yellow-brown, mostly red-brown		overall Mins					
18	CLAY light grey-mottled yellow-brown to buff		50% Mins					
21								
24								

MT86
2/3

24 — 4ft previously CLAY
light grey mottled yellow-brown w/ increasing

27

30 — Sandy, silty CLAY
light-med grey w/ numerous colorless fine-med gr sand

33 — Silty SAND
light-med grey. coarse silt to fine sand grade.
fine black specks in places
some clayey matrix sections
gradational to

36

39 — SAND
med-coarse fine - dominant
but becoming more poorly sorted after 42m - fine to coarse; grad to Subang; colorless to clear, gy, pink + white, black, + yellow chert.

42

45

48 — becoming well sorted fine dominated gr (pea gravel)

57

54

57

60 — abrupt change to mod. sorted coarse gr.

24	4ft previously CLAY	5Y 6/1 olive gray	
	light grey mottled yellow-brown w/ increasing		
27			
30	Sandy, silty CLAY	20%	
	light-med grey w/ numerous colorless fine-med gr sand		
33	Silty SAND		
	light-med grey. coarse silt to fine sand grade.		
	fine black specks in places		
36	some clayey matrix sections		
	gradational to		
39	SAND	30%	
	med-coarse fine - dominant		
	but becoming more poorly sorted after 42m - fine to coarse; grad to Subang;	med orange	
42	colorless to clear, gy, pink + white, black, + yellow chert.	brown	
45			
48	becoming well sorted fine dominated gr (pea gravel)	10YR 8/1 white? str. orange	
57		5Y 7/1 light gray orange brown	
54			
57			
60	abrupt change to mod. sorted coarse gr.	50% orange + white	

000281

MT 56
3/3

60

	Ab. prev. SAND		20/+ reddish			
	-brn to red coarse		brn. Sltst			
	reddish org bearing		30/+ light			
63	Organic (+ pet-mell)		brn sd			
	61.8 – 66m		orange			
			limestn			
	Some clay, coarse sand					
	mixed marine clay					
66	abrupt color break		75/+			
	-shaly buff color 66–73.5m		mod to			
	-mod sorted coarse gr.		strong			
			orange			
			lim. Sltst			
69						
72						
	abrupt color break		50/+			
	-reddish 73.5 – 78m		"red-brn"			
75	mod well sorted fine to		hem. Sltst			
	very coarse		25/+			
			orange			
			lim Sltst			
78	Some very coarse pebbly sand		some limestn			
	Some clay at base 1.5m		bands			Brn-dk gray clay
	Sandy SILTSTONE, slightly					? some pyrite fragments
	PHYLLITE, reddish SILTSTONE		Pyritic,			– not known if this from
	-dark grey, fissile fabric		PY films			basal clay or in bedrock
81						

T.D. sampler 81m
Auger 26.7m
logger 81.2m

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mureeno EL 63 South Australia

HOLE NO.	MT57	CONTRACTOR	W.L. Scales & Co P/L	STARTED	16/10/1973
LOCATION	0.5mi SofMT44	GAMMA LOGGED	S.A. Mines Report	COMPLETED	16/10/1973
COORDS	N E	GEOL. LOGGED	T.D. Middleton	SHEET	1 OF 4
TOTAL DEPTH	128.2m(d) 128m(l)	HOLE DIAMETER	4 3/4in	SCALE	1in = 3m
COLLAR ELEV.	89m	PROBE DIAMETER	1 5/8in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy LOAM [illegible] calcareous [illegible] nodules, minor calcrete							
	Silty CLAY [illegible] brown		overall [illegible]					
	[illegible]							
	Sandy SILT (pebbly ?) with GRAVEL [illegible]		7.5 ? [illegible]					
	[illegible]		[illegible]			3 ?		
	[illegible]							
	GRAVEL [illegible]		[illegible]					
	Clayey SILT [illegible]		7.5 ? [illegible]					
	[illegible]							
	Pebbly, sandy SILT [illegible]		[illegible]					

27	Pebbly silty SAND Buff, very poorly sorted - predom. v coarse with pebbles to 10mm		smothy orange lim-Stn					
30	Silty CLAY Light red-brown, minor light grey		75% f lim-Stn					
33								
36	SILT Light grey, mottled buff, light red-brown		50% f lim-Stn					
39								
42								
45	CLAY Light creamy grey, buffish lim-Stn		75% f lim-Stn					
48								
51	Pebbly sand bed at base							
54	Sandy, clayey SILT Off white to very light grey with common very fine		minor lim-Stn					
57	shelish sand							
60								

60								
63	Sandy, silty CLAY + SAND interbeds Sand becoming more common - poorly sorted, fine to coarse;	— — . . . — —	30/. + orange lim. stn. sand					
66	sub rnd to sub ang; colourless to cloudy qtz + predom + milky, blush, chert.	. . . . — —						
69	SAND As above; poorly sorted, baffish appearance, becoming more	. . . .	50/. + orange lim. stn					
72	strongly orange lim. stn	. . . .						
75	light grey predom Becoming baffish, more strongly	. . . .	10/. lim. stn.					
78	orange lim. stn.	. . . .						
	Very coarse sand at base - pebbles to 4mm	. . . .	30/. + lim. stn					
81	Silty CLAY Bleached at top but becoming	— — —	30/. + lim stn					Dulling in clay but common
84	med grey	— — — — — — — —						washed sand.
87		— — — — — — — — — — — —	Common PY frags	Abnt fine carb.				
90	SANDS & CLAYS Sequence of thin interbeds Clays as above, sand poorly sorted: mostly med gr; sub rnd	— — . . . . — —	Some lim stn sand at top	3-5/. black carb. good frags.				Incoached material from up the hole
93	to sub ang;	— — . . . . — —	Some PY frags +/out					
96		— — . . . . — —						

000285
M157 4/4

96								
99	CLAY silty SAND interbeds as previously but clay becoming predom							
102								
105								
108								
	SAND with minor CLAY interbeds as above		Minor Py					
111	Predom fine gr; colourless to cloudy qtz.		frags.					
114								
117								
	CLAY Med, slightly greenish grey		Few Py					Loch Hazard Clay
120			frags					
123								
126	Glauconitic, sandy MARL greyish green marl, few fossil frags.							Kinloch Beds

000286

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: ~~AAT 58~~, Mulga Rock EL 63 South Australia

HOLE NO.	MT58	CONTRACTOR	C.L. Smith & Son P/L	STARTED	16/10/1973
LOCATION	2310 from Lambert Bore	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	17/10/1973
COORDS	N E	GEOL. LOGGED	F.D. Middleton	SHEET	1 OF 3
TOTAL DEPTH	114.3m (d) 113.2m (l)	HOLE DIAMETER	4 3/4 in	SCALE	1in = 3m
COLLAR ELEV.	94m	PROBE DIAMETER	15in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy LOAM - red-brown		gravel from sh.					
3	Sandy silty CLAY + GRAVEL interbed (or scatt pebbles?)		as above					
6	Poorly sorted gravel - qtz with [illegible] pebbles to 15mm							
9	Silty CLAY - red-brown		as above					
12								
15	SILT - [illegible] with [illegible]		15% fine sh.					
18	[illegible]							
21								
24								

24								
27	SILT As previously		75% lim.stn					
30	bands of brownish calcrete							
33	CLAY Red-brown predom, + buff, light grey		75% lim.stn					
36	SILT Light grey mottled buff, red-brown		50% lim.stn					
39								
42	CLAY Light grey, mottled red-brown reddish, minor yellow brown		75% lim.stn					
45								
48								
51								
54	Silty CLAY Med grey, mottled red-purple		50% lim.stn					
57	red-brown, yellow-brown							
60	CLAY Light grey		25% lim.stn					

000288

MT58 3/4

60								
63	CLAY as prev. + SAND interbeds - poorly sorted, fine to coarse		10% sand orange lm-stn					Circulation lost at this stage - considerable
66	CLAYS Rhythmic sequence of light grey buff, to yellow brown, minor dark grey		50% lm-stn					difficulty in maintaining throughout rest of hole
69								
72								
75								
78	CLAYS as above + CARBONACEOUS WOOD & Lignitic CLAY		minor PY	Abnt carb				
81	Mostly black-brown carb. wood 79-5-81m		frags	moderate				
84	CLAYS? Predom off-white claystone + some med. grey with abnt black specks		common PY frags	Abnt fine black specks				Very poor sample quality
87	Some sand interbeds? - or caved?							
90								
93	More common sand fine to coarse - mostly red-brown lm-stn - contaminated?		more abnt. PY frags					
96								

000289
MT58 4/4

96								
99	SAND Buff to fawn, mod. sorted fine to med gr; sub rnd to sub ang; clustered to cloudy qtz	. . . .	50/+ light to mod. lim. stn					Poor sample quality throughout
102		. . . .	some PY frags - washed?					
105	Becoming more poorly sorted fine to coarse - mostly med gr.	. . . .	50/, pink hem. stn?					
108	Mostly med. gr. but minor coarse 104.5 - 104.5m	. . . .						
		. . . .	75/. strong orange					
111	CLAY Med, light-greys. mottled reddish	— — — — — —						
114	PHYLLITE Med to dark grey, hard, unweathered, with apparent qtz. veining, some PY films	SSS SSS						Adelaidean

000290

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: MT Mulooloo EL 63 South Australia

HOLE NO.	MT 59	CONTRACTOR	W.C. Sides & Sons P/L	STARTED	17/10/1973
LOCATION	2km S 30°W from Lambert	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	18/10/1973
COORDS	N E Datum	GEOL. LOGGED	T.C.S. Middleton	SHEET	1 OF 1
TOTAL DEPTH	128.2m (d) 128m (L)	HOLE DIAMETER	4 3/4"	SCALE	1" = 3m
COLLAR ELEV.	139 92m	PROBE DIAMETER	1 5/8"		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Pebbly, sandy LOAM - light red-brown then sandy silty CLAY red-brown		overall 1 m.sh.					
6	Sandy, clayey SILT red-brown		as above					
9								
12	CLAY - silty red brown		as above					
15	SILT red brown		as above					
18	GRAVEL - red brown matrix - as above with sherds, minor siltstone							
21	SILT red-brown, min. light grey							
24								

MT59
2/4
000291

24	As previously SILT red-brown					
	Pebbly SAND orange-brown, medium-grained - fine-coarse Sand & gravel		Mostly orange-brn fine			
27	SILT - red-brown		25/ 1/m-St			
	CLAY light grey, reddish mottled dk-brown buff		50/+ 1/m-Stf			
30						
33						
	SILT light grey, mottled red-brown, buff		50/ 1/m-St			
36	becoming very fine clayey					
39						
	CLAY light grey - creamy mottled buff		30/ 1/m-St			
42						
45						
48						
	Sandy, silty CLAY to CLAY mottled grey-brown, clayey with calcrete to 3 thick		30/ 1/m-St			
51						
	Clayey SILT (or silty CLAY?) light grey to oxidized - mottled buff, reddish Common fine-gr dk-brown		20/ 1/m-St silty, clayey			
54						
	becoming more clayey with depth					
57						
60						

MT59
3/4
000292

60	SAND pale buff/ph, mod sorted at top of very coarse gr (~2mm), ~~fine~~ med to ~~coarse~~ gr, colorless to cloudy qtz, pk feldsp + milky, pink + gray-blk rk fgms. Some clay at top (as prev) - possibly inworked	...	30/ light to mod orange tint Sh.	
63		....		
66	Becoming overall finer - next to coarse gr still minor	....		
		....		
69		....		
		....		
		....		
72	~~Generally more poorly~~ Clustered, dumbworthy limonitic stain	....		
		....		
75		....		
		....		
		....		
78		....		
		....		
		....		
		....		
81	Mod sorted, orange tint - orange buff color overall. Mod abd coarse gr but poorly sorted still	....	75/ Lightto Strong orange tint Sh.	
84		....		
		....		
		....		
87		....		
		....		
		....		
90		....		
		....		
	Sandy/silty CLAY with SAND interbeds ~~Orange~~ - light orange-gray buff mottled. Mod sand at top	----	20/ light buff Tint Sh.	
93		----		

96		----		

99		----		

102		----		

MT59
000293 4/4

96						
	Mpor. Sandy ?silty CLAY - creamy, off-white, minor med gray;		20% Nannos clay			Drilling indicates abundant sand interbeds. Over some of sand may be limestone
99	More common SAND interbeds - Sand poorly sorted, fine to coarse, sub to subang comp. as prev.		50% Nannos clay w/ 10% Nannos			
103						
105						
108						
	CLAY - med gray		common PY frags	Few fine Black carb. specks		Abr reworked Sand being from above - LICH HAZARD CLAY?
111	Some gravel size lime clast bands					
114	Glauconitic MARL, SAND Mica-bearing Marl + SAND - very poorly sorted to 8mm pebble		30%			reworked sand KINZAM BEDS
?						
117	BASEMENT? - light greenish gray finely laminated clay with shaley appearance - derived from weathered pelitic sediment		PY frags - throughout - moderate			Abr reworked sand, clay from above DF Paleocene? - or Paleozoic
120						
123						
126						
						T.D. reached 12755 drillers depth logged 12811

000294

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mioona EL 63 South Australia

HOLE NO.	MT 60	CONTRACTOR	W.L. Sides & Son P/L	STARTED	18/4/1973
LOCATION	1.5 mi W 3/8 Lamberts Dam	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	18/4/1973
COORDS	N E	GEOL. LOGGED	T.L. Middleton	SHEET	1 OF 3
TOTAL DEPTH	91.5m(d) 90.8m(l)	HOLE DIAMETER	4 7/8 in	SCALE	1in = 5m
COLLAR ELEV.	148.97m	PROBE DIAMETER	1 1/4 in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy LOAM, CLAY red-brown		overall 1 1/2 m. str.					
3	Sandy SILT with GRAVEL red-brown (concretions throughout)		as above					
6	red-brown brown, gravel grains sandy - pebbles as above, fresh, fine & medium							
9	CLAY light grey mottled red-brown, stiff		50% 1 m. str.					
12	SILT red-brown, mottled stiff light grey		75% 1 m. str.					
15	CLAY light grey mottled red-brown		50% 1 m. str.					
18	SILT red-brown, mottled light grey		25% 1 m. str.					
21								
24								

MT 66
2/3

24	As previously SILT light gray mottled red-brown, brown		50/ 1mm sh			
27	CLAY mostly mottled red-brown at top of section light gray pieces Minor sand 27-30m		50/ 1mm sh			
30			70/ 1mm sh			
33	becoming sandy, silty at base					
36	Sandy/silty CLAY with few SAND interbeds: olive med gray, light gray, mottled red-purple, reddish yellow-brown		30/ 1mm sh			
39	Sand: clear-milky gray light gray, pink laminated Clay/silt beds					
42						
45	CLAYS predom med-dk gray light gray, claystone mottled red-brown, yellow-brown		20/+ 1mm sh			
48						
51						
54						
57						
60	Predom LIGNITE, lignitic CLAY		common pyr nodules			

60

Rapid LIGNITE, low carb WOOD + CLAY
- mostly black-brown lignite 615-63½
- laminated, carbonaceous organic

63

CLAYS - predom light-dk gray + wh/gray, minor black, gray silty in parts. Minor wedge-zoned gray

66

69

72

75

78

Minor interbedded SAND - fine to med gr, subrnd to subang carbonaceous, gy

81

BASEMENT - SCHIST?
- light-dk gray, strong foliation apparent. Poss ductile dynamic metamorphism

84

Minor finely dissem pyrite
- pyrite

87

acc. pyrite cubes

90

93

	common PY blebs & nodules throughout lignite	Chiefly carbonaceous material	
	10% limestone clay. Minor PY. Foram frags. Few limonitic frags	Common carbonized frags - Transported? or in place?	
	50% of 95% light orange limest		
			RL - Adelaidean

000297

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Murraree EL 63 South Australia

HOLE NO.	MT 61	CONTRACTOR	W.A. Siddon Sons P/L	STARTED	21/12/1973
LOCATION	See fr MAW MT 23	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	21/12/1973
COORDS	N E	GEOL. LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	128.2m(d) 128m(l)	HOLE DIAMETER	4¾in.	SCALE	1in = 3m
COLLAR ELEV.	90m	PROBE DIAMETER	1¼in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy LOAM - red-brown							
6	Pebbly, silty SAND - red-brown Sandy, SILT red-brown							
9	Silty SAND - red-brown, pebbly Sandy, pebbly SILT red-brown							
12	Silty CLAY red-brown (mottled)							
15	Silty SAND overall red-brown pebbly Sand							
18	Silty CLAY - red-brown							
21	GRAVEL red-brown overall pebbly Sand/pebbly							
24	SILT - with sand, pebbles							

000298

MT 61
2/4

24

SILT with GRAVEL lenses/beds?

27 SILT light red-brown, buff, light grey — soft, wet

30

33

36

39

42

45

48

51 CLAY light grey mottled buff, red-brown — soft, wet — 20% silt

54

57 CLAY med-dark grey — some silt

60

000299

MT-61
3/4

60

Sandy, clayey SILT ± SAND interbeds?
light grey silt
sand clasts, predom fine gr.
strong bang; ~~brown~~ to cloudy
minor ~~red~~ to coarse - orange tan

Minor lam. sh. silt
20/+ orange lam sh sand

64

CLAY silty predom ± SILT as above
light grey predom, mottled buff to yellow-brown, micronodd

30/. lam sh

66

69

72

SAND sandy - clayey 72-75
mostly fine gr.

10/+ lightly orange lam sh.

makeup as above interbedded at top.

75

75-7 med. ~~coarse~~ sorted
~~light buff~~ grey, well to coarse (calcium) rnd ~~to~~ sub ang.
colorless to cloudy gs predom
frosty, white + grey, black, red chert

78

81

vaguecore 79.5 — 84
ave 2 mm-1, pebbles to 4 mm
fine gravel

84

becoming more poorly sorted with
clay matrix — silty, light grey
mottled buff to yellow-brown, 2 pebbles

30/ lam. shale clay

87

90

50/ sand stringers of dk. clast lam/laminae
few PV
fragm. pipe
Almandite fragm.

93

96

MT 61
000300 4/4

96	CLAY? Minor medium brn mottle bleached, mottled buff-yellow brn-		3yr 4 lbs sh clay	few fine black specks	Drilling in CLAY mostly sticking angle mostly drilling in sand
97	SAND + CLAY matrix-black arkose-buff poorly sorted fine & coarse but mostly fine med sub rnd to ang; clay as above		soft light brn orange brn SAND frags.		
102	Clays as 96-97.5m		1/4 pl frags		
105	same poorly sorted - increase coarse		strong orange brn sh		
108	Carbonaceous SAND - sim as above but will common black carb wood frags.		20% light to med orange brn common pl frags 1/4	3-5% blk-brn carbwood frags.	
111	SAND - as above mostly med-g. orange sh		as above	few black carbwood frags	
114	SAND as above - mostly med-g. but also fine to coarse Rounded frags in orange brn matrix Siltstone - Med gray clay interbed		10% light to med orange brn Dominant pl frags	as above	
117	CLAY and SAND interbeds - same med gray as 96-97.5m		common pl frags.		Drilly in clay Hole mostly sand
120	Sand possibly has orange brn sh				
123	CLAY light-med gray				Abt. 1/4 of sand Lots HARD CLAY
126	smooth Siltstone? sandy Glauconitic Sandy MARL SAND Lots Shell frags.				Known BEDS
129					

000301

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mutooroo EL 63 South Australia

HOLE NO.	MT 62	CONTRACTOR	W.L. Sides & Sons P/L	STARTED	22/10/1973
LOCATION	530 ft NNW of Jetty	GAMMA LOGGED	SA Mines Dept.	COMPLETED	24/10/1973
COORDS	N E	GEOL LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	128.2m (d) 127.8m (l)	HOLE DIAMETER	4 3/4in	SCALE	1in. = 3m
COLLAR ELEV.	90m	PROBE DIAMETER	1 7/8in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy LOAM - red-brown		overall lim. str.					
3	SAND with GRAVEL, SILT interbeds.		as above					
6	- poorly sorted fine to coarse Sand - silty matrix - poorly sorted gravel interbeds							
9	- Sandy Clayey SILT red-brown		as above					
12	CLAY red-brown, h-f,		75% lim. str.					
15	SILT - partly red-brown - as above		overall lim. str.					
18	- as above clayey interbeds							
21								
24								

000302

MT62
2/4

24

As previously SILT
mixing red-brown, + buff
mottled light grey

75/-1
lim.stn

27

30

CLAY light grey mottled
red-brown, buff

50/.+
lim.stn.

33

SILT red-brown buff,
light grey
becoming predom. buff/ish

50/.+
lim.stn

36

39

42

45

CLAY silty at top
light grey, mottled buff to
~~yellow brown~~

50/.+
lim.stn

48

51

54

CLAY mod to dark grey
mottled buff to ~~yellow brown~~

50/.
lim.stn

57

60

000303

MT 62

3/4

60 **CLAY** light gray mottled yellow-brown, buff

63 **CLAY** as above + **SAND** interbeds, minor coarse gr. Sand.

66

SAND buff, fine gray (slightly) 69 poorly sorted fine to coarse, mostly med to coarse, rnd to sub rnd

Colorless to cloudy qtz grains 72 trace feldspar, minor biotite, minor clasts - gray, black, pebbled

75 brown interbedded clay + silt - light gray mottled buff, yellow brown, reddish

78 increasing med gr fraction from silt poorly sorted

81

84

87

90

93

96

50% lam sh

no odor

10% trace coarse

light gray

non stn

+10% strong orange non stn

96						
	A/a gran. sands SAND	...	10/+			
	increased coarse fraction	...	light			
	- Clay fragments/coal	...	Lgt Grey			
99		....				
		....				
		....	Soft			
		....	light/stone			
102		....	Hard			
		....				
105		....				
		....				
		....				
108		....				
		....				
	increased fine to med gr fraction	....				
		....				
111		....				
		....	above			
114		....	Lgt			
		....	DY			
		....	frags			
	SAND with CLAY interbeds		Lt/+	few		Apparently drilling largely in clay - abt 1 harvested sand?
117	as above, decreasing		Grey	black		
	grain size Hard.		Hard	carbwood		
	Clay med grey - some bleached		more	frags		
	appearance (kaolinite) soft buff/pink		common			
120	clast (weathered fsp inclusion?)		DY			
			frags			
	CLAY - light med grey		Abt			Abt in washed materials as above
	grey		DY			
			frags			
123			1-2%+			LOCH HEARD CLAY
	Progressively					
	Glaucomitic Sandy MARL					
	- greyish green + brownish					
126	Interbedded clay as top. abt					KINLOCH BEDS
cont'd	sand - poorly sorted, angular					
	non stained. Few shell frags					
						T.D Samples 127.5
						Casted 420 ft
						Logged 127.8m

000305

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mukaroo EL 63 South Australia

HOLE NO.	MT63	CONTRACTOR	W.L. Sides & Son	STARTED	23/10/1973
LOCATION	2m W of MT25	GAMMA LOGGED	~~D.E.~~ S.A. Mines Dept.	COMPLETED	23/10/1973
COORDS	N E	GEOL. LOGGED	T.W. Middleton	SHEET	1 OF
TOTAL DEPTH	104.4m(d) 104.4m(l)	HOLE DIAMETER	4 3/4in	SCALE	1in = 3m
COLLAR ELEV.	95m	PROBE DIAMETER	1 1/4in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy LOAM then CALCRETE nodular bed.							
3	SAND, silty light red-brown fine to coarse with ash.		weak/moderate					
6	micaceous Silty material							
9	SAND pebbly silty red-brown very poorly sorted		as above					
12	Pebbly, sandy SILT light grey mottled buff, brown, red-brown		Soft/moderate					
15	SILT buff to yellow-brown, brown, red-brown, light grey		Soft/moderate					
18								
21								
24								

MTG 3
2/

24 Approximately SILT

27 Silty CLAY light gray mottled buff, red-brown — 50/f Hom Stn

30 SILT light gray mottled buff to yellow-brown, minor red-brown — 50/f Hom Stn

33

36

39

42

45 CLAY light gray mottled yellow-brown to buff — 20/f Hom Stn

48 Sandy silty CLAY light gray mottled yellowish — 20/f Hom Stn
Abundant calcareous shell fragments. Minor fine grained dolomite sand interbeds?

51

54

57

60 CLAY light, med gray

000307

MT63
3/

60	As previously CLAYS light grey predom to mod grey		Minor lim. stain.	
63				
66	CLAYS as above with minor interbedded? thinly SAND			
69				
72			few PY frags	few black carbonaceous frags
75	CLAY with SAND interbeds Clays - lt grey to mod yellowish Sand pebbly, coarse, fair to coarse, mod. to v. hard, predom colourless to cloudy qtz.		30% lim stn clay Tr PY S/limonite (after PY) frags.	
78				
81	SAND - with some interbedded? CLAY - Sand as above. Initial appearance overall			Abundant clay in cuttings - appears with drilling in sand however
84	more reb. with go. fragments becoming more abundantly evidently limonitic also		50% lim stn sst. orange lim stn.	
87				lesser clay cuttings
90				
93				
96				

000303

MT63
4/4

96	SAND as previously - more strongly orange stn.		75'/hr/ft	
99	CLAY light-med gy - slightly greenish appearance		comma PY/frags	KAOLINITIC CLAY
102	mixed lithologies: light grey/pk fsm siltstone & basalt - minor lgkuccinite			KINLOCH BEDS of Adelaidian
	SILTSTONE v dark brn, greenish grey f-hard, strongly foliated	SSS		
105				T.D sample 103.5m Oil/fluor 340/ft logger 104.6m

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mutooroo EL 63 South Australia

HOLE NO.	MT64	CONTRACTOR	W.L. Sides & Son P/L	STARTED	23/10/1974
LOCATION	0.9m SSE of MT63	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	24/10/1974
COORDS	N E	GEOL. LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	113.6m (d) 113.6m (c)	HOLE DIAMETER	4 3/4 in	SCALE	1 in = 3m
COLLAR ELEV.	90m	PROBE DIAMETER	1 1/2 in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy Silty CLAY Red-brown becoming calc. mottled							
3	Sandy, clayey SILT Red-brown		overall 1 in. str					
6	CLAY Light grey mottled red-brown		50% 1 in str					
9								
12	SILT Mostly red-brown, clayey in parts							
15								
18								Very poor sample quality
21	CLAY Mostly red-brown		75% 1 in str					
24	mottled brown, light grey							

MT64 2/4

24								
27	CLAY As previously							Poor sample quality
30	Clayey SILT Red-brown, predom, + brown light grey		75/. 11m Sh					
33								
36	CLAY Red-brown predom, light grey		as above					
39	SILT Becoming predom buff/lt, lesser red-brown + some lt/sh grey - increasing with depth		as above					
42								
45								
48								
51								
54	CLAY + SILT Light grey, buff, red-brown		50/. 11m. Sh					
57	Sandy, silty CLAY		50/. 1cm. Sh					
60	Light grey mottled buff to yellowish Common fine to med. sand							

MT64 3/4
000311

60								
63	Sandy, silty CLAY As previously with some fine gr. shitish sand interbeds		50/+ lam. silty clay					very poor sample quality
66								
69								
72								
75	Some med. grey clay							
78								
81	Sandy, silty CLAY predom, + Sandy clayey SILT Med to dark grey		Few small PY frags	common v. fine black specks				
84								
87								
90			2-3/ PY frags					
93								
96	SAND Some fine to med. gr. interbeds g/g. Sand.		PY frags					

96								
99	SAND As previously, light grey to buffish, poorly sorted fine to coarse, rnd. to sub ang.	. . . .	20% ? light to mod. orange					Very poor sample quality - thick drilling medium, unstable to cart
102	colorless to cloudy qtz predom	. . . .	lim. stn. Abnt PY frags					water. Most of sand in suspension
105		. . . .	~~mineralized~~ ?					
108	CLAY Light – med grey, slightly greenish	— — — — — — —	PY frags					Drilling in clay
111		— — — — — —						
		— — — — —						Unable to penetrate hard pyrite band ?

000313

73.300-002-0

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mutooroo E.L. 63 South Australia

HOLE NO.	MT 65	CONTRACTOR	W.L. Sides & Son P/L	STARTED	23/5/1974
LOCATION	3mi E. of Mulga Dam	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	24/5/1974
COORDS	N E	GEOL. LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	108·8 d, 103·4 l	HOLE DIAMETER	4¾ in.	SCALE	1:118
COLLAR ELEV.	98m RL	PROBE DIAMETER	1¼ in.		

DEPTH m	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	LOAM, TOPSOIL - red brown with CALCRETE nodule bed at 1m depth		overall red-brn				65/3	Air drilling 0–21m
6	Silty SAND red-brown becoming buff, poorly sorted but mostly fine gr. Common mica flakes, black magnemite grains		as above				65/6	
9	Pebbly silty SAND reddish buff, very poorly sorted with qtz, magnemite pebbles to 1cm.		abnt. red-brn orange				65/9	
12	SAND reddish buff, buff poorly sorted fine to coarse gr. - mostly fine-med, sub rnd to ang. qtz. Feld pebbles 13·5–15m also thin grey clay, silt interbeds		lim stn as above				65/12	
15							65/15	
18	SILT buff, red buff, lesser grey at first		TS/t buff.				65/18	
21			reddish lim stn.				65/21	
24							65/24	

24								
27	SILT as previously buff, reddish buff, with light grey becoming more		50/+ buff, reddish lim.				65/27	
30	common		stn.				65/30	
33							65/33	
36							65/36	
39							65/39	
42							65/42	
45							65/45	
48	CLAY, sandy, silty, CLAY light to med grey		mmor buff,	few black			65/48	
51	Common med-fine gr colorless qtz grains		reddish lim. stn.	sooty carb. patches			65/51	
54							65/54	
57	Sandy silty CLAY as above + SAND interbeds + CLAY		10/+ lim. stn.	minor black			65/57	
60	Clay becoming consolidated, shale like light, med, brownish grey		clay	carb clay			65/60	

60								
63	fg previously, SAND becoming more predom. - light grey, mod sorted; fine to med gr.	.... — — .... — —	minor orange lim. stn sand,				65/63	
66	sub ang. to sub rnd.; colorless qtz predom. Some hard, compacted clays as previously	.... — — .... — —	clays				65/66	
69	Minor black cemented sand - carbonaceous-pyritic material?	.... — — .... — —					65/69	
72		.... — — .... — —					65/72	
75		.... — —					65/75	
78	SAND predom minor clay interbeds. Light grey overall, poorly sorted fine to coarse, becoming coarser with depth, av 1-2 mm; sub rnd. to ang. Mostly colorless qtz + cloudy, milky, minor bluish, some green, black lithic and grains	.... — —	10% light orange reddish lim. stn				65/78	better sand recovery on finer screen
81		.... — —	lim. stn				65/81	
84	few light grey clay interbeds few pyrogenics to 4mm	.... — —	50% light to med orange lim. stn				65/84	
87		— — .... — —					65/87	
90	Increasing compact light grey clay interbeds		clean sand lim. stn				65/90	Much of clay possibly contamination
93							65/93	
96							65/96	

96								
99	SAND as previously	...	20/1				65/99	
102	Increased clay interbeds?	...					65/102	Sand possibly inwashed contam.?
	Coarser more well rounded Sand at base	...						
105	CLAY - brownish grey becoming greenish - marly & thin siltier siltstone, Bryozoan fronds	— — —	1% ± BY	11 ± Cuttl wood frags.			65/105	Kinleah Beds?
	GNEISS? - spessm, quartose peer cuttings representation	SSS SSS					65/105	Adelaidean Basement Abnt. mixed Sand
								T.D. 105.5M

000317

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mutooroo EL 63 South Australia

HOLE NO.	MT 66	CONTRACTOR	W. L. Sides & Son P/L	STARTED	28/5/1974
LOCATION	2mi E of Mulga Dam	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	29/5/1974
COORDS	N E	GEOL. LOGGED	T. W. Middleton	SHEET	1 OF 5
TOTAL DEPTH	140.5m (d) 141.2m (l)	HOLE DIAMETER	4 3/4 in	SCALE	1:118
COLLAR ELEV.	99m RL	PROBE DIAMETER	1¼ in		

DEPTH m	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy TOPSOIL LOAM red-brown Some CALCRETE nodules in top 2m		overall red-brn lim. str.				66/3	Air drilled 0 – 16.5 m
6							66/6	
9	SILT reddish buff to buff Common fine sand content mica flakes		as above				66/9	
12	SAND pebbly silty at top buff orange buff		Most orth				66/12	
15	Predom. mod. sorted fine gr sub rnd to ang. gtz		light orange lim str.				66/15	
18	SILT some sand at top - possibly undisturbed.		overall red-brn				66/18	
21	Red brown predom, red-buff		lim. str.				66/21	
24							66/24	

2/45

24								
27	SILT as previously red-brown, buff		overall lim str.				66/27	
30							66/30	
33							66/33	
36							66/36	
39							66/39	
42	buff becoming more predom, plus some unstained grey						66/42	
45							66/45	
48							66/48	
51	CLAY light grey at first		20% red-buff	some humic			66/51	
54	then increasing darker grey		lim str.	stain - dark grey clays			66/54	
57							66/57	
60	Some dark red hematitic? stain						66/60	

3/X/5

60								
63	CLAY as previously	— — — — — —	20% f sed yellow brown				66/63	
66		— — — — — —	lim hem stain				66/66	
69		— — — — — —					66/69	
72		— — — — — —					66/72	
75	SAND light grey; mod sorted mod to coarse grn, rnd to sub ang; colorless qtz predom; minor milky, cloudy + blue; some red, grey brown lithic grains - well sorted.	. . . . .	minor lightly crumy lim stn				66/75	2 samples missing - suspect boundary should be ~75m.
78		. . . . .					66/78	
81		. . . . .					66/81	
84	Several becoming orange-buff in color	. . . . .	sl/f to mod crumy lim stn.				66/84	
87		. . . . .					66/87	
90	Increasing clay interbeds light, dark grey, some yellow-buff	. . . . .					66/90	
93		. . . . .					66/93	No sample - to make up deficiency in sample count
96	Fine sand becoming predom.	. . . . .					66/96	

4/45

96								
97	CLAY med. dark grey						66/95	not certain of boundary Abnt. medium sand
102							66/102	
105	Some dark brownish grey clay			Brown humic clay			66/105 66	No sample due to lost circulation
108							66/108	Circulation difficulties
111				Few black carb. wood frags			66/111	
114							66/114	
117	Terrestrial, glauconitic SAND Grey; mod sorted med to coarse, well rnd to sub ang colorless qtz, few gastropod, bivalve, bryozoan frags		Minor PY frags				66/117	Kinlock Beds
122	BASEMENT? cottage mainly coarse sand grade qtz	S·SS	Common hackly				66/122	Uncertain of boundary Poor sample
123	up to 7-8mm; mod. sorted, of angular to sub ang often hackly, fractured appearance mostly colorless to cloudy	SS·I S·S·S· □	PY frags				66/123	quality as heavily moulded by previous circulation loose drilling behaviour
126	qtz with brownish or greenish stain, minor black, some green qtz-mica schist granules increasing soft sericitic like	S·S·S· S·S·S·					66/126	indicates sand consistency material
129	material adhering to qtz grains Possibly a illite rich of the lower Adelaidean Burra Group	S·S·S· □ S·S·S·					66/129	
132		S·S·S· □ S·S·S·					66/132	

000321

132								
135	BASEMENT ROCK as previously - possibly a TILLITE Some intact balls of	·.·.·. □ ·.·.·.	Common py frags 1% ±				66/135	
138	decomposed sericite(?) matrix with quartz grains. The decomposed matrix was previously broken down during	·.·.·. ·.·.·.	often adhering to qtz. grains				66/135	
141	the drilling	·.·.·. ·.·.·.					66/141	
144		·.·.·.·. □ ·.·.·.					66/144	
								T.D. 144m logged depth 141.2m

000322

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mutooroo E.L. 63, South Australia.

HOLE NO.	MT 67	CONTRACTOR	W.L. Sides & Son P/L	STARTED	29/5/1974
LOCATION	1m E of Mulga Dam	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	29/5/1974
COORDS	N E	GEOL. LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	116m(d) 115.8m(l)	HOLE DIAMETER	4 3/4 in	SCALE	1:118
COLLAR ELEV.	99m RL	PROBE DIAMETER	1¼ in		

DEPTH M.	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy LOAM, GRAVEL Red-brown; gravel with pebbles of qtz, qtzite, mylonite - silt, sand matrix		overall lum. str.				67/3	Air drilled 0 – 19.5m
6	Sandy, SILT, CLAY red brown overall		as above				67/6	
9	Silty SAND red brown, very poorly sorted qtz sand		as above				67/9	
12	SILT red-brown, minor sand content.		as above				67/12	
15	SAND reddish buff; poorly sorted, fine to coarse - mostly fine - med gr; subround to ang. Common mica flakes		as above				67/15	
18	Pebbly SAND reddish buff, buff as previously but pebbles to 5mm		as above but lesser degree				67/18	
	SAND reddish buff, fine gr		Soft + orange lim. str.				67/21	
21	SILT + CLAY light grey at top, buff, red-brown		Soft red-br.					
24	becoming more common. Calcrete bands 19.5-22.5m		buff-lum. str.				67/24	

24								
27	SILT + CLAY bands as previously		30/.1 red-brn buff lam. str.				67/27	
30							67/30	
33							67/33	
36	SILT - more homogeneous light gray stained buff, reddish buff		30/.1 lam. str.				67/36	
39							67/39	
42							67/42	
45							67/45	
48							67/48	
51							67/51	
	CLAY light gray at top becoming more & dark gray		Mottled lam. str.					
54							67/54	
57							67/57	
60							67/60	
	SILT light gray							

60								
63	SILT as previously light grey		minor buff lim.stn				67/63	
66							67/66	
69							67/69	
72							67/72	
75	Minor sand content						67/75	
78	SAND light grey, mod. well sorted med. gr. sand and to sub ang, colorless to cloudy qtz.		minor lightly orange lim.stn				67/78	
81			Sand 10% Limestone				67/81	
84	becoming less poorly sorted fine to coarse qtz.						67/84	
87							67/87	
90	Coarser sand mine component - to Hamm.		30% orange brown lim.stn				67/90	
93	Sand becoming fine-gr. on the whole						67/93	
96							67/96	

96								
99	SAND as previously Light buffish - rather poorly sorted overall fine to coarse Subangy. to sub rnd.		30% light tanned orange limestn				67/99	
102							67/102	Hard to pick boundary
105	CLAY light, med grey minor brownish grey humic		Few PY frags	Minor brn-grey humic clay			67/105	Drilling in clay but abnt washed sand.
108	Mostly med grey silty clay. Lignite bands(?)		Abnt PY frags 2-5%	common black coals			67/108	
111	Some light brownish grey siderite(?) fragments			Specks in clay			67/111	
114							67/114	
116	Foss. frags, glauconitic SAND, MARL grey sand; poorly sorted med		Common PY					KINLOCH BEDS
117	to coarse gr; well rnded to sub ang mostly colorless qtz. Common bivalve, gastropod fragments Becoming more marly - greyish green with common shell beds		frags				67/117	
	BASEMENT - light grey decomp rock with sand grade quartz in kaolinitic matrix	SSS					67/1155	Adelaidean Tillite(?) alternative
								T.D. Sampling 118.5m

000326

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mularee EL 63 South Australia

HOLE NO.	MT 68	CONTRACTOR	W.L. Sides & Son P/L	STARTED	30/5/[illegible]
LOCATION	½ mile E Midjo Dam	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	30/5/[illegible]
COORDS	N E	GEOL. LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	109.9m(d) 109.6m(c)	HOLE DIAMETER	4.3/4 in.	SCALE	1:118
COLLAR ELEV.	99m RL	PROBE DIAMETER	1.9 in.		

DEPTH m.	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy LOAM, CLAY red brown overall		overall red-brn fine str.				68/3	Air drilling 0–12m
6	GRAVEL red-brown, qtz stzite fraction, 10% magnetite		as above				68/6	
	Sandy SILT red-brown common fine sand		as above					
9							68/9	
12	GRAVEL red-brown, poorly sorted with pebbles to 2cm fraction qtz, stzite, + 20–30% magnetite		as above				68/12	
15	Sand-silt matrix						68/15	
18							68/18	
21	CLAY silty, sh-grey staining red-brown, soft		Sil + fine fe.				68/21	
24							68/24	

24								
27	CLAY as previously SILT light grey mottled red-brown, buff		30/ft 1mm str.				68/27	
30							68/30	
33							68/33	
36							68/36	
39							68/39	
42							68/42	
45							68/45	
48							68/48	
51	CLAY light creamy grey		mottled buff				68/51	
54			yellow brown 1mm str.				68/54	
57	med - dark grey 55.5m →			colour due to			68/57	
60				cont. material?			60/60	

60								
63	CLAY as previously but light gray predom						68/63	
66							68/66	
69	CLAY with minor SAND interbeds clays as previously, becoming more mottled - buff, yellow-brn, reddish		50% lm stn clays minor				68/69	
72	Mainly fine colorless to lightly orange stn. sand.		lm stn sand.				68/72	
75							68/75	
78	SAND with CLAY interbeds light buffish gray, mod sorted, fine-med gr, cut top; sub ang to sub rnd.		20% lightly orange lm. stn				68/78	
81	Colorless to cloudy qtz, minor milky, bluish, few red, gray lithic grains base colored to med gray clay		30% lt-k				68/81	
84	interbeds becoming more poorly sorted - increasing coarse fraction		mod. orange lm stn				68/84	
87			40% ext-orange lm stn				68/87	
90	Coarse sand predom av 1-2mm orang buff color overall		75% ext-orange lm stn				68/90	
93	CLAY with SAND interbeds at top mod to dark gray		light to strong	color-due to lime			68/93	Apparently dwelling in clay
96				carb. material?			68/96	possibly some interbedded sand.

4/4

96								
99	CLAY as previously + abt 5% white grains present 96 - 99m	— — — — — —	few PY fragments					
102		— — — — — —						
105	Fossiliferous glauconitic CLAY/MARLSTONE greenish grey clay at top, sparsely fossiliferous & with few qtz. pebbles becoming more of a grey-green marl then sandy 30° abv	— — — — — —	few PY fragments					KINLOCH BEDS
	- coarse, rnd, colorless qtz grains abnt. bivalve, gastropod, bryozoan frags + avoid glauconite grains	— — — — — —						
	BASEMENT - recrystallised SANDSTONE - White saccharoidal qtz rock + white decomp Kaolinitic material	∫∫∫ ∫∫∫ ∫∫∫						Adelaidean Basement Most weathered Kinloch material
								T.D. 109.5m sampled T.D. 360ft drilled
								T.D. 108m logged

000350

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mutooroo EL 63 South Australia

HOLE NO. MT69
LOCATION Mulga Dam
COORDS N E
TOTAL DEPTH 106.8m(d) 106.6m(l)
COLLAR ELEV. 168m RL

CONTRACTOR W.L. Sides & Son P/L
GAMMA LOGGED S.A. Mines Dept.
GEOL LOGGED T.W. Middleton
HOLE DIAMETER 4¾ in.
PROBE DIAMETER 1¼ in

STARTED 30/5/1974
COMPLETED 31/5/1974
SHEET 1 OF 4
SCALE 1:118

DEPTH m.	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy LOAM, CLAY red brown overall, minor calcrete		overall 1m. str.				69/3	Aircleaned 0–15m
3	GRAVEL red-brown, predom qtz. pebbles	o o o o o o	as above					
6	Clayey SILT red brown		as above				69/6	
9	SAND red-brown overall med. sorted fine gr with silty matrix, sub rnd to ang qtz		strongly orange, red-brown 1m str.				69/9	Abnt.
12							69/12	Common fine black mins + green, sm not
15							69/15	
18							69/18	
21	Silty CLAY light grey mottled red-brown		Nil/1 1m. str.				69/21	
24							69/24	

24								
27	Silty CLAY as previously						69/27	
30	SILT light gray but mostly mottled buff, tan and red-brown		50/4 1/mast				69/30	
33							69/33	
36							69/36	
39							69/39	
42							69/42	
45							69/45	
48							69/48	
51	CLAY light gray 48-54cm then med to dark gray 54-60cm						69/54	
54							69/54	
57				dark gray color due to carb. material?			69/60	
60							69/60	

60								
63	CLAY as previously						69/63	
66	CLAY with SILT & SAND interbeds Clay - light grey predom Minor med grey + some coppite grains - Chemical stained		Minor sil tan stn slight				69/66	
69	light grey silt + common Sand - light grey, fine to coarse colorless to cloudy qtz						69/69	
72							69/72	
72	SAND light grey at top poorly sorted but fine med to		Minor lim stn at top					
75	coarse gr predom. sub-ang to rnd, colorless to cloudy qtz predom + milky, bluish, minor grey, red, black lithic frags.						69/75	
78							69/78	
81	becoming more buffish overall		30% lightly orange				69/81	
84			lim-stn				69/84	
87	Sand becoming coarser on the whole		50% + lightly resistant orange lim stn				69/87	
90	Coarse strongly stained sand with orange - yellow clay matrix 60% - 90% san						69/90	
93	Sand changes to med gr - buff color overall		50% light orange				69/93	
96			orange lim stn				69/96	

4/4

96								
	SAND as previously						69/95	Garlock Beds – Loch Hazard
99	CLAY med grey but mostly mottled yellow-brown at top		50/ft limestone					
			1-2/ft				69/102	Clay
102			lesser limestone	Few black sand				
				several frags			69/105	Kinloch Beds
105	Glauconitic fossiliferous MARL SAND grey-green muddy clay + coarse, well rnd sand Bivalve, Brachiopod frags, glauconite		common frags					
	BASEMENT – GNEISS grey-green qtz-microcline-plag rock foliated	SSS	About 1/ft					Adelaidian About unwashed Kinloch material
								T.D. 106 Sm (sampled) T.D. 350 ft (drilled)
								T.D. 106 Sm logged

000334

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mutooroo E.L. 63 South Australia

HOLE NO.	MT10	CONTRACTOR	W.L. Sides & Son P/L	STARTED	31/5/1974
LOCATION	1 mi S.E. Donnelline Dam	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	3/6/1974
COORDS	N E	GEOL. LOGGED	F.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	103.7m (d) 103.6m (c)	HOLE DIAMETER	4 3/4 in.	SCALE	1:118
COLLAR ELEV.	93m RL	PROBE DIAMETER	1 1/4 in.		

DEPTH m	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Shallow LOAM then CALCRETE with GRAVEL						70/3	
3	Sandy SILT red-brown - abnt. sand grade material		overall 1m. str.					
6							70/6	
9	CLAY red-brown, buff, light grey		75% 1m. str.				70/9	
12							70/12	
15							70/15	
18							70/18	
21							70/21	
24	SILT buff, fawn, red-brown						70/24	

24								
27	SILT as previously buff, fawn, red-brown		50/ft lam. str.				70/27	
30							70/30	
33							70/33	
36							70/36	
39							70/39	
42							70/42	
45	CLAY light buffish, mottled red-brown, yellow brown becoming sandy with depth		30/ft lam. str.				70/45	
48							70/48	
	Sandy SILT, sandy silty CLAY light grey mottled reddish buff		as above					
51	about fine-medium sand - mostly colorless qtz						70/51	
54	SAND light grey, poorly sorted, fine to coarse, sand to sub. ang., colorless mainly qtz.		10/ft lightly orange lam. silt				70/54	
57	Sandy, clayey SILT light grey mottled reddish buff. common sand clast		30/ft reddish lam. str.				70/57	
60							70/60	

60								
63	Sandy, clayey SILT as previously						70/63	
66	CLAY, sandy, silty CLAY light grey mainly clay at top becoming more sandy at base		micaceous limestone				70/66	
69							70/69	
72							70/72	
75	SAND with CLAY interbeds sand light buff/pale grey med-sorted fine-med gr. subround 10% lost core		20/ft lightly orange limestone				70/75	
78	mostly colorless to cloudy qtz Clay light grey - uncommon interbeds at top.						70/78	
81			Strongly orange limestone				70/81	
84							70/84	
87	Sand becoming more buff/pale		Soft lightly to mod orange limestone				70/87	
90	Sand becoming red-buff to red brown		75% ft medium grey limestone				70/90	
93							70/93	
96							70/96	Caving in clay but abund micaceous sand.
96	CLAY							

96								
99	CLAY as previously med-dark brownish grey	— = — □ — = □	1/2 PY fragm	About 5% black carb. inclusions			70/97.5 no	Abnt. muscular sand. Severe corrosion loss at 97.5m
102	Drilling in clay - with rare oxidised pyrite bands (?) & cavities.	?					samples ↓	unable to regain after repeated efforts - moulding, broach etc.
		?						Hole halted at 103.5m - danger of bogging drill string
								T.D. 103.5m sampling T.D. 340ft drilling T.D. bearing (A)

000338

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mutooroo EL 63 South Australia

HOLE NO. MT 71
LOCATION 1mi E of MT 70
COORDS N E
TOTAL DEPTH 120·4m (d) 120·6 (l)
COLLAR ELEV. 89m RL

CONTRACTOR W.L. Sides & Son P/L
GAMMA LOGGED S.A. Mines Dept.
GEOL. LOGGED T.W. Middleton
HOLE DIAMETER 4 3/4"
PROBE DIAMETER 1 5/4in

STARTED 2/6/1974
COMPLETED 2/6/1974
SHEET 1 OF 4
SCALE 1:118

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy, clayey LOAM - red-brown minor calcareous mottling		overall lim. str.				71/3	Air chilled to 49.5 m
3	GRAVEL red-brown overall v.bent. sand-silt-clay matrix		as above					
	Pebbles of qtz, qtzite to 2cm fair small magnetite pebbles						71/6	
6	SAND light red-brown mod. sorted fine to med gr minor coarse. few mica flake		as above					
9	GRAVEL light red-brown sandy matrix. Pebbles of qtz to 3cm v.f. + magnetite		as above				71/9	
	SAND reddish buff to fawn mod sorted fine gr, silty at top sub rnd to ang; predom orange stn colorless qtz. Common mica		as above				71/12	
12	flakes. Becoming coarser towards base v.f. + black H.M.C.							
	CLAY reddish buff to fawn pbs light grey		75% lim. str.				71/15	
15	in stringers							
18							71/18	
21							71/21	
	SILT light orange-buff		75% lim. str.				71/24	
24								

000339 71/2/4

24								
27	SILT as previously CLAY reddish buff		50/ lim stn.				71/27	
30	SILT buff predom.		50/. + buff lim stn				71/30	
33							71/33	
36							71/36	
39	SAND very pale buffish grey poorly sorted at top, fine to coarse with pebbles to 7mm 36·375m some silt matrix. Colourless qtz predom. Becoming more well sorted fine to med gr. quite angular grains		lim stn.				71/39	
42	Some light grey clay interbeds		50/. + lightly stained				71/42	
45			Orange lim. stn				71/45	
48							71/48	
51							71/51	
54	More med. gr at base		common red-orange lim stn				71/54	
54	Sandy silty CLAY light purple at top then light-med grey		10-20/ reddish					
57	Common colourless qtz sand in predom clay matrix		yellow-brown lim stn clay				71/57	
60							71/60	

000340 71/3/4

60								
63	SAND and CLAY interbeds sand buff-L at top, becoming light grey. Med. scatd med		50/ light to strong orange Hm Sta				71/63	Drilling behavior indicates mainly Sand but with some clay interbeds
66	to coarse gr; sub rnd to ang colorless to cloudy qtz. Some bleached off white to buff-L clay interbeds						71/66	
69	becoming more med gr. on the whole		50/ light to med orange Hm Sta				71/69	
72							71/72	
75			75/ light orange				71/75	
78			orange Hm Sta				71/78	
81	Increasing finer gr. fraction - possibly fine to med gr.		50/50 light orange Hm Sta.				71/81	
84							71/84	
87							71/87	
90							71/90	
93							71/93	
96							71/96	

000341 71/4/4

96								
99	SAND as previously		50/ helium test					
102	Sand becoming coarser grained - bit Silver.		+25/+ Strongly orange tinge					
105	CLAY some dark grey fissile clay cuttings			Abnt mine material				Apparently working in clay. Abnt in washed sand Drilling behaviour indicates sand.
108	SAND - more or less as 99-102m - but much more finely washed							
111	CLAY dark grey		Abnt PV 2-3/+	Abnt mine material				Drilling jerky, abnt in washed sand
114	Glauconitic, locally very MARL CLAY dark grey clay at top, fissile, grey becoming greyish green marl with common glauconite grains, bivalve, gastropod, bryozoan frags some coarse, well rounded, colourless qtz sand.		Common PV frags					Kincheck Beds
117	BASEMENT - clay claystone of a fine gr. microcrystalline rock							Archaean (?) Basement
120	-probably phyllite. Light greyish olive green color							
								T.D. 120m (sampling) T.D. 395 ft (drilling) T.D. 120.6m (logging)

000342

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mulaco EL 63 South Australia

HOLE NO. MT 72
LOCATION 4km E of MT 71
COORDS N E
TOTAL DEPTH 114m(a) 114m(b)
COLLAR ELEV. 90m RL

CONTRACTOR W.H. Sides & Son Pty
GAMMA LOGGED S.A. Mines
GEOL LOGGED T.W. Middleton
HOLE DIAMETER 4 3/4"
PROBE DIAMETER 1 1/2"

STARTED 2/6/1974
COMPLETED 3/6/1974
SHEET 1 OF 4
SCALE 1:118

DEPTH m	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy, clayey LOAM red-brown, minor calcareous nodules		overall low-sta.				72/3	Air drilled 0–7.5m
6	SAND red-brown, poorly sorted fine to coarse with few qtz pebbles. Common maghemite grains.		as above				72/6	
9	GRAVEL reddish buff very poorly sorted with fine sand grade to 3-4cm pebbles predom qtz + 20-30% maghemite		mostly low sta.				72/9	
12	Sand matrix increasing towards base - more or less pebbly sand.						72/12	
15	Silty CLAY red-brown predom		overall low sta.				72/15	
18							72/18	
21	SLT reddish buff		as above				72/21	
24							72/24	

24								
	SILT as previously							
								72/27
27	Sandy SILT + SAND interbeds SILT is above		mostly lam Sta					
	Coarse orange Sta. sand.							
30	SAND reddish buff; poorly sorted but mostly med to very coarse		as above					72/30
	SILT reddish buff changing to buff with depth.							
33								72/33
36								72/36
39								72/39
	Sandy SILT buff reddish buff							72/42
42	common fine mostly carbonaceous sand.							
	SAND with SILT, CLAY interbeds		highly lam Sta					72/45
45	med very pale buff overall							
	med sorted fine to med gr. some coarse; Sub rnd to ang. Colorless to cloudy qtz.		sand at top Silt, clay common					72/48
48	Common buff, reddish buff							
	Silt, sandy silt, clay interbeds		lam Sta					72/51
51								
	some dense hard cemented sand beds							72/54
54								
	CLAY pred. with SAND interbeds							72/57
57	light to med grey, off-white Clay. Sand as above							
								72/60
60								

MT 72/3/4

60								
63	SAND with CLAY interbeds Sand as previously - pale buff, fine to med gr.		minor light brnish gray				72/63	Difficult to pick boundaries. Drilling behavior indicates predom. sand.
66	light to med gray clays		lim stn.				72/66	
69							72/69	
72	SAND entirely? - as prev. mostly fine to med gr. subrnd to rnd; calcareous to cleanly ??						72/72	
75							72/75	Few small manganese calcite fragments
78							72/78	- cavings?
81							72/81	
84			Grad ↑ brnish 30/ lighter				72/84	
87			to med orange				72/87	
90							72/90	
93							72/93	
96	CLAY? with SAND interbeds - light gray mottled yellow brown.						72/96	Apparently drilling in clay

000340 72/4/4

96								
99	Clay becoming more so dark gray mottled purple, yellow-brown		Bx/ biosta at top				72/99	About 1 meter sand from above + near surface gravel
102			Abnt Bx/				72/102	
105								
108								Severe circulation losses from here on. Suspect near surface sand. Sample contam, poor, & suspect
111								
	Appearance of more shell fragments & Glauconite grains - suspect Kincaid Beds							T.D. 111m Sampled T.D. 378ft drilled T.D. 114m logged
								Hole terminated due to inability to regain circulation

000346

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mulgaree EL 63 South Australia

HOLE NO. MT 73
LOCATION ½ mi E of MT 72
COORDS N E
TOTAL DEPTH 128·2m (A)
COLLAR ELEV. 89m RL

CONTRACTOR W. L. Sides & Son P/L
GAMMA LOGGED S.A. Mines Dept.
GEOL LOGGED T.W. Middleton
HOLE DIAMETER 4 3/4 in
PROBE DIAMETER 1 5/8 in

STARTED 3/6/1974
COMPLETED 3/6/1974
SHEET 1 OF 4
SCALE 1:118

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy, clayey LOAM - red-brown with some calcareous mottling		v.v. soft / fm. str.				73/3	
6	Sandy silty CLAY - red-brown common orange str. fine Sand content		as above				73/6	
9	Silty SAND orange-brown poorly sorted fine to coarse grade str. Sand		as above				73/9	
	Sandy, silty CLAY light grey b-f mostly mottled red-brown buff		75% fm. str.					
12	SILT reddish-buff more well sorted silt grade material		occasional fm. str.				73/12	
15							73/15	
18							73/18	
21	Silty CLAY - red-brown mottled fair silt content, Minor fine Sand		75% fm. str.				73/21	
24							73/24	
	SILT reddish buff							

000347 73/2/4

28								
27	SILT residual buff		overall lim. stn				73/27	
30							73/30	
33							73/33	
36	Abrupt color change to light buff		lesser lim. stn				73/36	Air clarified to 36m
39							73/39	
42	CLAY light grey mottled red-brown, buff Probably interbedded Silt beds		50% lim. stn				73/42	
45							73/45	
48	SAND with CLAY interbeds Sand a pale buff color overall well sorted fine gr. sub rnd to ang. (predom); mostly colorless to cloudy qtz		75% lightly orange lim. stn				73/48	
51	Off white, yellow mottled clay & silt interbeds						73/51	
54							73/54	
57	Slightly pinkish appearance		some residual iron? stn				73/57	
60							73/60	

000348 73/3/4

60								
63	SAND (refill garden?) CLAY Sand as previously Clay light, light med grey mottled with pyrite	— — — — — — — — —	30/f lam sh clay 30/f				73/63	
66		— — — — — — — — —	light brnish orange lam sh				73/66	
69	SAND light buffish med sorted mod sp -stained reddish org; colorless	. . . .	50/f lightly brnish orange				73/69	
72	Cloudy sh	. . . .	lam. sh.				73/72	
75		. . . .					73/75	
78	reddish-buff color	. . . .	f2s/ red- orange				73/78	
81		. . . .	lam. sh.				73/81	
84		. . . .					73/84	
87	light grayish buff	. . . .	50/f light brnish orange tannish				73/87	
90		. . . .	reddish lam. sh.				73/90	
93	Coarser sand 90-95% sa more reddish buff here	. . . .	as above f2s/ red-orange lam. sh.				73/93	
96		. . . .					73/96	

000349

73/4/4

96								
99	SAND as previously base well sorted - fine to coarse - glaucon: mod abr		50/+ limy sh mm oxidised pt					
102	Some off white, yellow, buff clay matrix		frags limestone Cement					
105								
108	Alone interval orange sand at interface		Stony limestone					
	CLAY med grey to buff bleached oxidised at interface		common pt frags	some fine black carb specks				Drilling indicates clay about impermeable bed
111			becoming more abund at depth					
114	Glauconite, sandy, bioliferous clay dragged olive green silt		few pt					Kimeridge Beds
117	minor celestine, well rounded Sand content common bivalve, gastropod, bryozoan frag Some avoid glauconite grains		frags					
120	Some greyish brown calcite Cement							
123	becoming more sandy - grit Coarse, well rounded pebbles to 5mm mainly coloured qtz also silicified lithic grains							
126	BASEMENT light grey fine angular colourless qtz sand, silt in decomp kaolinitic matrix							Palaeozoic ?
								TD 127.5m Sandvik TD 420 ft Shell
								TD Logged

000350

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mulcaree EL 63 South Australia

HOLE NO.	MT 74	CONTRACTOR	W.L. Stiles & Son P/L	STARTED	3/6/1974
LOCATION	½mi E of MT 73	GAMMA LOGGED	J.A. Mines Dept.	COMPLETED	3/6/1974
COORDS	N E	GEOL. LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	120·5m 61	HOLE DIAMETER	4 3/8in	SCALE	1:118
COLLAR ELEV.	90m RL	PROBE DIAMETER	1¼in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy, clayey LOAM with calcrete nodules and calcareous mottling. Red-brown		overall low-str				74/3	Air drilled 0–19·5m
6	CLAY - sandy silty at top red-brown predom		as above				74/6	
9							74/9	
	SILT reddish-buff, orange red		as above					
12							74/12	
15							74/15	
18							74/18	
	buff color at base							
21	SAND buff-brown, mod. sorted Coarse, subrnd to sb ang		mostly orange low-str				74/21	
24	CLAY red-brown		overall low-str				74/21	

000351 74/2/4

24								
27	SILT red-brown, red-buff		mostly lam-sta				74/27	
30							74/30	
33							74/33	
36							74/36	
39	becoming predom. buff with some light grey distortion						74/39	
42							74/42	
45	CLAY light grey some mottled red brown buff		20/ft lam-str				74/45	
48							74/48	
51							74/51	
54							74/54	
57	Clayey silty SAND light grey mottled yellow-brown, poorsort. Fine gr, mostly calcareous grs. Sand silt		30/ft lam-str matrix				74/57	
60	silt-clay matrix						74/60	

74/3/4

60								
63	Clayey, silty SAND as previously light grey						74/63	
66							74/66	
69							74/69	
72							74/72	
	Clay light, med grey, mottled yellow-brown		20% fine silt					Unwashed sand
75			as top				74/75	
78			Some ppt fragments	Few black carbonized fragments			74/78	
81	SAND light olive grey, mixed sorted well rounded, mineral free, coarse; subround to sub angular, mostly colorless to cloudy qtz		50% fine silt, lightly stained orange limonite				74/81	
84							74/84	
87	Some grey clay interbeds						74/87	
90	Sand mainly greyish, becoming common yellow. Common black lithic, siliceous grains		mica, lightly stained orange, fine silt				74/90	
93							74/93	
96							74/96	

000353 14/4/4

96								
99	SAND - light grey as previously. Becoming finer		minor highly orange lime Sh					
102			9/pm. Sh. 20/4					
105	Sand becoming more buffish							
108	Sand buff-orange							
111	CLAY - apparent from 108 m in cuttings, med grey.		common PY frags	fine black coal specks				Drilling behaviour indicates clay but mainly sand.
114								
117	Glauconitic, kaolinitic WACKE, SAND grains, quartz, black mafic frags & glauconite grains. Some coarse well rnd colorless extra sand		PY frags					Kimberley Beds
	BASEMENT - dark greenish grey foliated SILTSTONE	SSS						Adelaidean
								TD 118 Sm samples T.D. 360 ft drillers
								T.D 117 m logged

000354

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mulooree E.L. 63 South Australia

HOLE NO.	MT 75	CONTRACTOR	W.L. Sides & Son P/L	STARTED	4/6/1974
LOCATION	11-S. Juice Kms S of MT 48	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	4/6/1974
COORDS	N E	GEOL. LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	128.2m (A) 126.2m (L)	HOLE DIAMETER	4 3/4in	SCALE	1:118
COLLAR ELEV.	87m RL	PROBE DIAMETER	1 1/4in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy clayey REGOL, CALCRETE red-brown loam. Calcrete nodule 0.2cm						75/3	
3	Sandy silty CLAY brown minor sand silt content		FE RICH limonite					
							75/6	
6	SILT red-brown, orange-brown some brown clay interbeds		as above					
9							75/9	
12							75/12	
							75/15	
15	CLAY red-brown, reddish brn. fawn		as above					
18	SILT red to orange-brown		as above				75/18	
							75/21	
24	CLAY red-brown, fawn		as above					
							75/24	
24	SILT							

75/2/4

24								
27	CLAY red-brown, red-buff						75/27	
30							75/30	
33							75/33	
36	becoming more buff/pink						75/36	
39	SAND? pink buff very fine sand or coarse silt grade						75/39	
42	SILT as previously buff, red-buff						75/42	
45	CLAY light grey mottled buff, red-brown						75/45	
48							75/48	
51	Sandy silty CLAY + SAND interbeds Clay light grey with dark		v.p.f. to m. sd				75/51	
54	yellow, red-brown mottling about fine sand content Sand interbeds - becoming more dark with depth - fine lgr.		Clay				75/54	
57	v. sandy silty clay v. dark, pungent odourless to slightly gas						75/57	
60	gradually diminishing fissuring mottling with depth.						75/60	

60								
63	Sandy, silty CLAY (or clayey silty SAND?) — increased sand content — fine gr. very pale grey		little lim. stn. material				75/63	
66	CLAY, sandy silty clay light grey, little sand at top but becoming more common with depth		as above				75/66	
69							75/69	
72	becoming more clayey						75/72	
75	SAND light buffish grey well sorted fine gr. at top subangl to subrd clear & 1 to cloudy qtz		30% lightly orange lim stn				75/75	
78							75/78	
81	very fine sand to silt						75/81	
84	less well sorted fine to med gr. very pale buffish grey						75/84	
87							75/87	
90							75/90	
93							75/93	
96							75/96	

96								
99	SAND as previously pale buff fish grey, poorly sorted fine & coarse		35/1 light-brownish orange				75/99	
102			similar				75/102	
105							75/105	
108	Sand becoming more buff - increased lithic content						75/108	
111							75/111	Common fine black minerals in HMC + garnet, green(?)
114	CLAY (mostly broken down by sonic recirculating) mid grey		common PV	few brown-black			75/114	Caving unlikely but possible
117			frags	coal wood frags			75/117	Unsorted sand in cuttings.
120							75/120	
123	About higher grey/buff fossil siliceous frags						75/123	
126	Fossiliferous glauconitic SILTSTONE - mostly med gr sand - mdst ang (some unwashed) - siliceous sand. Abnt mollusc, bryozoan frags glauconite grains		common PV				75/126	Kinlock Beds
			frags				75/127.5	
								T.D. 1275m Sample T.D. 4186 ft drilled

000358

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mintaro EL 63 South Australia

HOLE NO.	MT 76	CONTRACTOR	W.L. Sidos & Son P/L	STARTED	5/6/1974
LOCATION	1mi S.W. MT 75	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	5/6/1974
COORDS	N E	GEOL LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	134.3m (d)	HOLE DIAMETER	4 3/4 in	SCALE	1:118
COLLAR ELEV.	85m RL	PROBE DIAMETER	1 1/4 in		

DEPTH M	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy LOAM, CALCRETE, CLAY loam red-brown; 1m. calcar. nodule bed then calc. mottled clay		overall lim. sh				76/3	Air-drilled 0-12m
6	Sandy, silty CLAY red-brown		as above				76/6	
9	GRAVEL pebbles of qtz etc chair maghemite abnt sand matrix		as above				76/9	
	SILT red-brown		as above					
12	GRAVEL Red-brown overall some silt		as above				76/12	
15	interbeds. Mostly qtz from sand grade to 2-3 cm. 10-20% maghemite pebbles						76/15	
18							76/18	
	SILT red-brown		as above					
21							76/21	
24							76/24	

76/2/4

24								
27	CLAY Red-brown		overall lim sta				76/27	
30							76/30	
33							76/33	
36	SILT brown, b.ff, red-brown mottles		75% lim sta				76/36	
39							76/39	
42							76/42	
45	Mine cobble unstained light gray silt		50% lim sta				76/45	
48							76/48	
51	CLAY light gray with some med gray silt base.						76/51	
54							76/54	
57	Sandy, silty CLAY light gray mottled yellow brown. About 5% of colorless qtz sand fm gray clay-silt matrix		30% lim sta clay				76/57	
60							76/60	

60								
63	SAND with sandy silty CLAY interbeds Sand is light grey, med sorted, fine gr. sub ang to ang.		75% limstn clay, minor sandy				76/63	~~Ground~~
66	Colorless to cloudy qtz Clay is light grey mottled pinish yellow-brown, reddish		limstn sand.				76/66	
69							76/69	
72	CLAY? or sandy silty CLAY? - largely washed out in circulation						76/72	Drilling behavior indicates clay
75							76/75	Dirt mark sand in cuttings
78	SAND light grey fine gr. ss fraction		minor limstn sand				76/78	Drilling behavior indicates sand.
81	CLAY, LIGNITE Light grey clay with abnt lignite (?) - clayey consistency dark blackish brown, but with white waxy texture		Common PY, Pyritized wood frags.	Lignite common carb wood frags.			76/81	Drilling behavior indicates clay
84							76/84	
87	Clayey sandy SILT (?) - caution silt quench mudstone		Few PY frags.	Few fine black carb frags.			76/87	
90	med. slightly bluish grey Common fine colorless qtz sand						76/90	
93	becoming more clayey at base						76/93	
96	SAND with CLAY interbeds Very light grey fine gr. Sub ang to ang, colorless to cloudy qtz		PY frags in Stn?	Few fine black carb frags.			76/96	Minor massive sandstone - suspect reworked

000361 76/4/4

96								
98	SAND with CLAY interbeds as previously Common light brownish grey clay interbeds		Few ppt frags.	minor carb. clay				
102			silt & depth					
105								
108	CLAY light-med grey; Common fine black carb wood frags. Pyrite banding possibly to 1cm - more or less homogeneous		Abnt ppt frags	Common black carb wood frags				Dustins behaviour indicates clay
111								
114								
117	Possibly more sand interbeds Some med greenish grey & brownish grey bands also brownish grey siliceate beds							Loch Hazard Clay
120								
123								
126								
129	Glauconitic, fossiliferous MARL greyish green; abnt shell frags. incl. bivalves and gastropods (incl. Turritella sp.)		Abnt ppt frags					Kintock Beds
132	Abnt ovoid glauconite grains Minor coarse, well rnd, colorless qtz & lithic sand							T.D. 440 ft drillers T.D. 133.5 m

000362

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mutooroo EL 63 South Australia

HOLE NO.	MT 77	CONTRACTOR	W.L. Sides & Son P/L	STARTED	5/6/1974
LOCATION	1m SW MT 76	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	6/6/1974
COORDS	N E	GEOL LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	128.2m (4)	HOLE DIAMETER	4 3/4 in	SCALE	1:118
COLLAR ELEV.	85m RL	PROBE DIAMETER	1 1/4 in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy LOAM & CALCRETE, Pebbly SAND red-brown. Thin calcrete nodule bed then pebbly sand		weak 1m. str.				77/3	Air-drilled 0-30m
6	Sandy silty CLAY red-brown		as above				77/6	
9	GRAVEL red-brown overall - qtz pebbles to 2mm		as above				77/9	
	Silty CLAY red-brown overall		as above					
12	SILT red brown then reddish-buff - becoming buff at base Gradual increase in grain size		as above				77/12	
15							77/15	
18	more or less gradation to						77/18	
21	SAND buff, reddish buff. Very fine-gr at top, becoming coarser with depth - very poorly sorted		mostly orange 1m str.				77/21	
24	Sand as above orange str. grs with minor magnetite, mica flakes						77/24	

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24								
	SAND as previously							
		77					77/27	
27	SILT red-buff to tan, red-brown		overall lim. str.					
	at base						77/30	
30	some sand 2-5-30% - possibly caved							
							77/33	
33								
	CLAY light grey mottled red-buff to red-brown		30/ft lim. str.				77/36	
36								
							77/39	
39								
	SILT light grey mottled buff, red-buff, red-brown		50/ft lim str				77/42	
42								
							77/45	
45								
							77/48	
48	CLAY light grey mottled buff to red-brown		30/ lim. str.					
							77/51	
51								
							77/54	
54								
	CLAY/SILT Sandy Silty CLAY / SAND interbedded		30/ft lim str clays, minor				77/57	
57	Clay light grey mottled as previously. Common fine sand							
	content also fine gr. white qtz sand as interbeds		average lim. str. sand.				77/60	
60								

77/3/4

60								
63	Sandy silty CLAY + SAND As previously clay light grey mottled buff, red-buff, yellow-brown with abnt. fine colorless qtz		3/4 limstn clay matrix,				77/63	
66	same content. Sand becoming more poorly sorted - f mottled gy.; minor coarse; sub rnd to ang.; colorless to cloudy qtz		increasing limstn sand.				77/66	
69							77/69	
72			Prange limstn sand ~20%				77/72	
75							77/85	Noticeably more surface gravel, sand & clay caverns contaminating
78	Appearance of LIGNITE + Sandy silty CLAY as previously			10% lignite?			77/78	
81	- blackish brown lignitous material of clay consistency. Common sand cont'd 78-81m - some possibly inwashed		Abnt PV frags. of limstn				77/87	
84	Brownish gray shalelike clay frags.		sand.				77/84	
87	CLAY more homogeneous med gray clay; plus more competent shalelike clay		Few PV frags.	Common fine black carb. specks in clay			77/87	Common inwashed? cavings recirculating sand - partly lumenitic stained
90			more abnt PV				77/90	
93			- hard to clean				77/93	
96	SAND - gray						77/96	

77/4/LL

96								
99	SAND light grey - slightly buffish at at top, mod. sorted fine to med gr; sub rnd to subang; colorless to cloudy qtz		red/ buffish mod. orange lim. Str.				77/99	minor pyrite throughout - possibly contam
102	Decreasing limonite stain		10% lim. Str.				77/102	common balack, fine, HARC + garnet(?) garnet
105							77/105	
108			1% lim. Str. 20-30% light buff				77/108	
	Coarse sand at base - more strongly lim. Str. with some limonite cement		orange lim. Str.					
111	CLAY light to med grey; some orange		fair orange lim. Str.				77/111	Drilling behavior indicates clay
114	limonite stained out top.		common PY frags.				77/114	abnt. mixed sand, incl coarse strongly orange lim. Str.
117							77/117	and fragments of limonite (ajkst) cemented sand.
120	Abnt. pyrite fragments - drilling indicates 4 ft thick beds - possibly covered cm.						77/120	
123							77/123	
126	Calcareous, fossiliferous, sandy MARL greyish green; abnt. glauconite grains, common bivalve, gastropod frags, plus grains of coarse, well rnd, colorless qtz.		minor PY frags.				77/126	Kincheloe Beds
							77/127.5	
129								T.D. 127.5m sample T.D. 420ft (128m) dd.
132								T.D. logged

000366

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mutooroo E.L. 63 South Australia

HOLE NO.	MT 78	CONTRACTOR	W.L. Sides & Son P/L	STARTED	6/6/1974
LOCATION	1km SW MT 77, w/in Eastern EME.	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	6/6/1974
COORDS	N E	GEOL LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	128.2m (4)	HOLE DIAMETER	4 3/4 in.	SCALE	1:118
COLLAR ELEV.	85m RL	PROBE DIAMETER	1 1/4 in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy, 20mm, CLAY, CALCRETE pinkish-brown overall. Abnt Calcareous mottling. Some calcrete nodules		mostly limonitic clay			Abnt calc. mottling	78/3	Air drilled 0-42m
6	Sandy, silty CLAY red-brown		overall limonite				78/6	
9	SILT reddish-buff, buff. Clay interbeds		as above				78/9	
12							78/12	
15	CLAY light grey but pacchy mottled red-brown		15% limonite				78/15	
18							78/18	
21	SILT reddish buff		overall limonite				78/21	
	CLAY Red buff to red-brown.		as above					
24	Silty SAND reddish-buff, buff		as above				78/24	

000367 78/2/4

24								
27	SAND — as previously reddish buff, - fine to coarse gr.	mostly orange limsta					78/27	
30	CLAY light grey but mostly mottled red-brown	50% + limsta					78/30	
33							78/33	
33	SILT light yellowish buff	limsta						
36							78/36	
39	CLAY pale buff	limsta					78/39	
39	SILT light buff becoming mostly	30% limsta						
42	light grey - subtranslucent mode of a fine sand grade 42.5-42.8m						78/42	
45							78/45	
48	CLAY pale grey mottled buff, yellow-brown, reddish	30% limsta					78/48	
51							78/51	
54	Dark grey at base						78/54	
57	Sandy, silty CLAY light grey but mostly mottled yellow-brown at top	50% + limsta					78/57	
60	Rock. fine, predom calcareous qtz sand in clay silt matrix Tan orange-brown chalcedony bands						78/60	

60								
63	Sandy, silty CLAY with SAND interbeds? As previously. Also fine sand - possibly water washed out		10/t lim.stn clay mins				78/63	
66	Sand is light grey; poorly sorted fine to coarse, and is angl; colourless to cloudy qtz.		orange lim.stn sand				78/66	
69							78/69	
72							78/72	
75	Diminishing sand content in clay						78/75	
78							78/78	
81	SAND? Same sand as above in cuttings cattings mainly sandy, silty clay		20/t				78/81	Drilling behaviour indicates sand
84	CLAY - as previously						78/84	Drilling behaviour indicates clay
87	SAND light buffish grey; med sorted fine to med gn, Subrnd to subang colourless to cloudy qtz grains.		20/t lightly to med orange lim.stn				78/87	
90							78/90	
93							78/93	
96							78/96	

78/4/4

96								
99	SAND as previously	. . . .	72/4 lightly to mod. orange				78/99	
102	Increasing intensity of limonitic staining - more buff	. . . .	lim. sta. 30/4				78/102	
105		. . . .					78/105	
108		. . . .					78/108	
111	Coarse sands is coarser - strongly limonitic stained - apparent in matrix	. . . .					78/111	
114	CLAY Sandy component in fine cuttings from 112 Sm. Med grey	— — — □ — — — — —	7 on 6Y 5/1				78/114	Drilling in clay Abnt. unwashed sand.
117		— — — — — —					78/117	
120		— — □ — — — — —					78/120	
123	Glauconitic fossiliferous sandy MARL Greyish green Abnt green glauconite grains, mean coarse Calcarenite, well und. sand grains	⊥ ⊥ G ⊥ ⊥ ..					78/123	
126	Common bivalve, gastropod fragments	G ⊥ ⊥ .. ⊥ ⊥					78/126	
		G ⊥ ⊥						
129							~~78/129~~	T.D. sampling 1275m T.D. drilling 1282m
								logging 1284m

000370

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mitcaroo EL 63 South Australia

HOLE NO.	MT79	CONTRACTOR	W.L. Sides & Son P/L	STARTED	7/6/1974
LOCATION	5m SE. Tin Lee Dam	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	7/6/1974
COORDS	N E	GEOL. LOGGED	T.W. Mueller	SHEET	1 OF 4
TOTAL DEPTH	128.2m (W) 128m (C)	HOLE DIAMETER	4 3/4in	SCALE	1:118
COLLAR ELEV.	89m RL	PROBE DIAMETER	1 1/4in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy & other than CALCRETE - calcrete pinkish brown to buff - nodular sand calcareous matter Clay						79/3	Air drilled 0-49.5m
6	Sandy, silty CLAY red-brown, buff		crossbedding lam. str.				79/6	
9	CLAY light grey mottled buff, yellow brown 6-9m then predom red-brown 9-12m		3c/1 lam. str.				79/9	
12			75/1 lam. str.				79/12	
15	SILT mostly reddish-buff and buff/red sections. Some buff clay interbeds		cross-bedding lam. str.				79/15	
18							79/18	
21							79/21	
24							79/24	

000371 79/2/4

24								
27	SILT as previously - reddish-buff		as above lam. sh.				79/27	
30	CLAY brownish buff		as above				79/30	
33							79/33	
36	SILT various shades of buff		as above				79/36	
39							79/39	
42							79/42	
45							79/45	
48	CLAY light gray with minor buff & yellowish-brown mottling		v. fis. lam. sh.				79/48	
51							79/51	
54							79/54	
57							79/57	
60							79/60	

60								
63	CLAY as previously SAND Light grey; mod. well sorted	— — — — — —					79/63	
66	coarse dark minerals fine to med gr, sub rnd to sub ang; colorless to cloudy grey mineral milky, black rarely	. . . .	mineral lim. Sh				79/66	
69	Sand becoming buff more fine-med gr on the chalk	. . . .	15% highly to mod coarse lim. Sh				79/69	
72		. . . .					79/72	
75		. . . .						
78	CLAY Bleached light grey, mottled yellow-brown	— — — — — — — —	50% lim. Sh				79/75 79/78	Drilling behaviour indicates clay mostly unwashed sand in cuttings
81	SAND - more apparent in cutting from 84m Pale buff, mod sorted	. . . .	30% highly to mod coarse				79/81	mostly clay cuttings from 73.5-78m interval at top
84	med to coarse, well rnd to sub ang; colourless to cloudy grey	. . . .	lim. Sh				79/84	
87		. . . .					79/87	
90		. . . .					79/90	
93	Becoming more strongly orange lim. Sh - buff/orange overall	. . . .	75% highly to strong orange				79/93	
96		. . . .	lim. Sh				79/96	

79/4/4

96								
99	SAND Ca previously buff-opengs, poorly sorted	Sc/f orang lim sta					79/99	
102	Thin clay interbeds - bleached light grey, buffish	few pf frags noted + lm conts					79/102	
105		cemented sand					79/105	Abnt inverted, recirculating orang stn sand.
	Carbonaceous pyritic SAND Stain sand as above	Abnt orang lim stn	few black coals					
108	Mod noticeably unstained sand - with light carbonaceous stain or pyrite adhering Poorly sorted but well to coarse	as above + comm pf frags	wood frags, Pyritised wood				79/108	
111	Predom - Sltst mod to sft orng carbonaceous to cloudy Some med greyish brown clay interbeds Sand becoming finer towards						79/111	
114	Base						79/114	Drilling behaviour indicates clay
	CLAY Disc evident if appears as a med greyish brown clay	Common pf						
117		frags.					79/117	Abnt washed sand - very little clay EXCESSIVE CONTAMINATION
120	Minor glauconite evident but mainly CLAY - light grey	v/ frags.					79/120	Abnt. washed, recirculated sand
123							79/123	
126							79/126	
	Glauconitic, foraminiferous marly MARL greyish green. Common bivalve frags							
								T.D 1270.5m - sample T.D. 1268.2m drillers

000374

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Moheroo EL 63 South Australia

HOLE NO. MT80
LOCATION 1km NW MT79
COORDS N E
TOTAL DEPTH 134.3m (d) 134m RL
COLLAR ELEV. 91m RL

CONTRACTOR W.L. Sides & Son P/L
GAMMA LOGGED S.A. Mines Dept.
GEOL. LOGGED T.W. Maddocks
HOLE DIAMETER 4¾in
PROBE DIAMETER 1¼in

STARTED 7/6/1974
COMPLETED 9/6/1974
SHEET 1 OF 4
SCALE 1:118

DEPTH m	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy LOAM, CLAY red-brown Then CALCRETE - nodular red - brownish pink		overall lim.sta at top				80/3	Air-drilled 0-51m
6	Sandy silty CLAY brown, red-brown		overall lim.sta				80/6	
9	GRAVEL Brown overall. Qtz pebbles to 2cm. Abnt magnesite pebbles		as above				80/9	
12	Silty CLAY red-brown buff		as above				80/12	
15	GRAVEL - Coarse pebble bed - qtz & sandstone to 3cm		as above				80/15	
18	SILT Banded buff		as above				80/18	
21	Silty CLAY Red-brown buff		as above				80/21	
24	SILT mottled buff		as above				80/24	

000375

80/2/4

24								
27	SILT Reddish buff		overall lam Str				80/27	
30	SAND, silty reddish buff fine lower gr orange stn. cfg.		overall orange lam Str				80/30	
33	CLAY buff, minor mottled gray		35° lam Str				80/33	
36							80/36	
39	SILT Reddish buff at top then mostly pale buff		overall lam Str				80/39	
42							80/42	
45							80/45	
48							80/48	
51	CLAY Lighter gray mottled buff,		20° lam Str				80/51	
54	Oxidized Breccia Some hard white limestone (?) chalk) bands to 55'-5"						80/54	
57							80/57	Footage 55'-5" as Log 7/6/84
60	Minor glauconitic, coloration of the sand						80/60	

80/3/11

60								
63	SAND as previously, minor sand fine to coarse, colorless						80/63	
66							80/66	
69	SAND light grey, poorly sorted fine to coarse gr. sub to subang; colorless to cloudy		Plum. light grey strong blue sta				80/69	Abnt clay cuttings - balled up in hole
72			↑ Plum. sta				80/72	
75	Predom coarse sand - some grains to 4mm. no color						80/75	
78	plus common multicolor grs, black, grey brown lithic, siltstone grains		20/4 lightly orange				80/78	
81			Plum sta				80/81	
84							80/84	
87	abrupt change to brown-orange color - SAND coarse sand		highly strongly orange				80/87	
90	predom.		blue sta some lilac lilac constant				80/90	
93	Common clay cuttings - white waxy - does not slake light, med grey clay (siltstone)						80/93	
96							80/96	

MT 80/4/6

96								
99	SAND as previously - orange-brown CLAY mott light, med grey clay cuttings		TSF lights stones				80/99	Drilling initiates clay
102	SAND & CLAY - interbedded sequence Sand as previously (probably mica washed) mixed lithologies		50% f lights frags orange limits				80/102	Drilling initiates interbedded sequence of sand
105	non stained qtz sand, light, Med grey clays Similar cuttings as SAND, CLAY & sands as above. Lots of		common PY frags	few black coals			80/105	Mixed clay ? Mixed orange str. sand
108	Coarse - commonly orange lim. Str			Dead frags & Spotted wood			80/108	possibly washed, reconcentrated
111	Clay becoming predom? v mixed brownish grey		Fibrous PY frags bands foliation?	common fine black specks in clay			80/111	
114							80/114	
117	SAND predominant mostly fine to medium, subang		30% f medium				80/117	Fair amount of probably reworked,
120	to rnd, colourless to dark grey & common orange lim str. Minor % sandstone containing PY		highly orange lim str. common PY				80/120	Coarse orange-brown sand, although sense of lim str. is in place (?)
123	CLAY - light-med slightly greenish grey		common PY frags	fine black coals specks			80/123	Drilling washes (reworked?) in clay
126							80/126	
129							80/129	
129	Glauconite, fossil fgmts sandy MARL greenish grey shell debris		C					
132	Common bivalve, gastropod, bryozoan frags, glauconite grains well rounded, colourless & sand.		C C				80/132	T.D. 1335 - Sample T.D. 134 Sandstone T.D. 134m logged

80/1335

000378

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mutooroo E.L. 63 South Australia

HOLE NO.	MT81	CONTRACTOR	W.L. Sides & Son P/L	STARTED	9/6/1974
LOCATION	½ mi NW MT80	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	10/6/1974
COORDS	N E	GEOL. LOGGED	T.M. Middleton	SHEET	1 OF 3
TOTAL DEPTH	72.4m (1 72.4m (L)	HOLE DIAMETER	4¾ in.	SCALE	1:118
COLLAR ELEV.	97m RL	PROBE DIAMETER	¼ in.		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Shallow sandy cover then CLAYEY - 2m+ medium bed brown-yellow light grey + pale mottled clay						S1/3	Air drilled @ 0–40 m
6	Sandy SILT light brown		overall moisture				S1/6	
9	Sandy SILT reddish brown poorly sorted hot mostly tank. Oxidation base		as above				S1/9	
12	Sandy silty CLAY reddish brown		as above				S1/12	
15	SILT predominant with CLAY interbeds Reddish brown to reddish-buff		as above				S1/15	
18							S1/18	
21							S1/21	
24	Sandy buff, light brown						S1/24	

M/T 81
2/3

24								
27	CLAY as previously b/f, reddish-b/f		overall lam. str.				81/27	
30	SILT b/ff, yellowish b/f		as above				81/30	
33							81/33	
36							81/36	
39							81/39	
42	CLAY Commonly b/ff, yellow-brown mottled to 40.5cm then light gray with minor dark gray patches		30% f lam. str. minor lam. str.				81/42	
45							81/45	
48							81/48	
51							81/51	
54							81/54	Cuttings in sand from 52.5cm?
57	SAND Coarse-brown; moderate		mostly lightly				81/60	
60	sorted coarse - minor fine to med gr.; mod to sub-ang. cobbles to boulders of basalt; minor lithic siltstone grains		no strong orange lam. str.				81/63	

000380

MTS1/3/3

60								
63	SHALE as previously - orange brown becoming more poorly sorted - to very coarse gr. with grains to 4mm + chert gravel						S1/63	
66							S1/66	
69							S1/69	unable to penetrate w blade bits
72	SANDSTONE, SILCRETE - poor cemented, unsorted sand as above + white, pink silcrete CALYSTONE - brittle, compacted light, med grey light greenish		Poor limestone				S1/72	- switched to rock bit - very slow penetration for 1hr + then unable to penetrate
75							S1/75	T.D. 72-3 m sampled T.D. 72.3 m? drilled
78							S1/78	
81							S1/81	
84							S1/84	
87							S1/87	
90							S1/90	
93								
96								

000381

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mirboo EL 63 South Australia

HOLE NO.	MT 82	CONTRACTOR	W.L. Sides & Son P/L	STARTED	10/6/1974
LOCATION	½ km NW MT 64	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	10/6/1974
COORDS	N E	GEOL. LOGGED	T.W. Middleton	SHEET	1 OF
TOTAL DEPTH	134.3m(d) 134m(l)	HOLE DIAMETER	4 3/4 in	SCALE	1:118
COLLAR ELEV.	92m RL	PROBE DIAMETER	1¼ in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy ROAD, CLAY red-brown		overall lim. str.					Air drilled 0 - 37.5m
3	CALCRETE - light brownish pink						82/3	
6	Sandy silty CLAY Red-brown		overall lim. str.				82/6	
9	GRAVEL Red brown - qtz pebbles to 2 m some manganese		above				82/9	
	Silty CLAY light grey but predom. mottled red-brown		75% lim. str.					
12	SILT red-brown		overall lim. str.				82/12	
15	CLAY - light grey but predom mottled red-brown		75% Lim. str.				82/15	
18							82/18	
21	SLT Reddish-buff, buff		overall lim. str.				82/21	
24							82/24	

26								
27	SILT as previously - reddish-buff		overall lim.sta				82/27	
30	SAND reddish-buff, medium coarse, angl; gfs - coarse sta SILT with CLAY interbeds reddish buff & buff		as above as above				82/30	
33							82/33	
36							82/36	
39	SAND Orange brown; poorly sorted, fine to coarse - mostly coarse subangl to rnd; colorless to milky gfs, few white grains stained		mostly orange lim.sta				82/39 82/42	
45	SILT with SAND interbeds? buff reddish + some light gray non stained reddish buff		75/ lim sta				82/45	Abnt fragments of recrystallized sand
48							82/48	
51							82/51	
54	CLAY light creamy gray mottled red-buff Sandy silty CLAY		30/ hard				82/54	
57	light gray mottled reddish yellow brown at top Abnt fine colorless gfs - sand content		at top				82/57	
60							82/60	

60									
63	SAND + Sandy silty CLAY + SILT Sand light grey, orange mostly Sorted fine to coarse BIT		20/+ lightly to strong orange						
66	mostly ~~orange~~ fine gr. Sub rnd to ang; Colorless to cloudy qtz Sandy, silty clay as previously described off white some silt interbeds		lim. str						
69	Sandy silty CLAY + SILT light grey contain silt grade		mum lim. str						
72	at top but mostly clay matrix with abnt. ~~fine~~ grey colorless qtz sand content								
75	becoming lesser sand content with depth								
78	Silty CLAY Well greenish grey								
81	Abnt. Silt to sand content + very fine sorted grade?		Few pf frags?						
86	SAND - silty CLAY interbeds Common chunks of wood		0-20% lightly orange	fine grade Sorted					Drilling indicates sand Abnt cuttings as above
89	grey silty clay + sand - light grey fine to very fine rnd sorted, grey colorless to cloudy qtz		from str. Abnt. Some	In clay					- invaded due to "balling up" in the hole.
90	It. increasing medium sand - fine to med gr.		pf frags 30% lightly						Common sand & pyrite fragments throughout -
93	Sand becoming more difficult in color		orange from str. still abnt						not known whether in situ or washing in
96			pf frags						

96								
99	SAND as previously; dark buff & more poorly sorted - fine to coarse well rounded quartz	....	50% f highly stained orange				82/93	Common insect clings from up the hole also some carbonaceous clings.
102	subequal to any; colorless to cloudy qtz quartz.	....	limonite				82/102	
105		....					82/105	Fair fine HMC Hornblende - common black
108		....					82/108	Ilmenite + garnet Zircon
111	brown evenly sorted fine-med qz. on the whole, pale buff color	....					82/111	
114		....					82/114	
117		....						
120	Becoming less buff in color - light gray	....						
123	light gray sand - med to coarse fg; subequal to subrounded	....	limonite stained grains					Rare chert. HMC
126	colorless to cloudy qtz becoming progressively coarser	....	stained grains					
129	CLAY	....	common pf					Bulk in clay - silty inserted sands & clings
132	- as previous bag / 30 sm med gray Glauconitic pebbles MEDIUM SAND	....	grains					

Upper part Cretaceous age with limestone beads 1/2 -

FB 1375 - [illegible]
FB 1343 - (end)

000385

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mulaco EL 63 South Australia

HOLE NO.	MT83	CONTRACTOR	W.L. Sides & Son P/L	STARTED	11/6/1974
LOCATION	2mi N. Lambert Dam	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	11/6/1974
COORDS	N E	GEOL. LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	122·1m(a) 121·6m(l)	HOLE DIAMETER	4 3/4 in	SCALE	1"-118
COLLAR ELEV.	91m RL	PROBE DIAMETER	1 1/4 in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy LOAM, sandy-silty Clay red-brown		overall lm.sta.				83/3	Air drilled @ -22 S.
6	CONCRETE light grey with common Sand gravel content		Const. sand, gravel.				83/6	
9	Pebbly SAND Buff, reddish-buff		mostly lm.sta.				83/9	
12	very poorly sorted with pebbles to 3cm at top. Becoming more well sorted medium at base						83/12	
15	Sandy SILT Buff. Abnt. sand content		overall lm.sta.				83/15	
18	SILT Buff		as above				83/18	
21	CLAY mostly red-brown but Some mottled light grey		75% lm.sta.				83/21	
24							83/24	

83/2/4

24								
27	CLAY As previously		75/ liter				83/27	Very difficult drilling condition Lost circulation
30							83/30	- probably in upper sands, and balling up of clay
33	SILT ~~as previously~~ but greenish mottled buff, red brown		as above				83/33	
36	CLAY As previously with decreasing limonite stain		50/ liter ↓				83/36	
39							83/39	
42							83/42	
45							83/45	
48							83/48	
51							83/51	
54	Siltstone med-dark grey 51-54m						83/54	
57							83/57	
60							83/60	

83/3/4

60									
63	SAND (clay interbed at top?) light grey, mod sorted, fine to mid gr, Sub rnd to Sub ang clasts to clayey gst		10/ lightly limonite						Drilling in sand from 60m
66									
69	Becoming more buff in colour		30/+ lightly to mod orange limonite						
72									
75									
78	Becoming more poorly sorted fine to coarse (interbedding) Sand) - cohesive mottled coarse gr.								
81									
84									
87	Some very coarse angular Quartz of clasts to milky qtz + black + some grey, black siliceous lithic grains		50/+ lightly						
90	- Sand mixed throughout increase in orange limonite		to strong orange limonite						
93	Mixed well sorted Med Coarse Sand av 2-3mm Dominantly milky qtz, clasts + common grey, black, brown siliceous lithic grains								
96									

83/4/4

96								
99	SAND as previously described, very coarse medium but with increasing fine to med gr		50% light to strong orange w.r.t.				83/99	
102	Sandst. buff, off white clay intrusions						83/102	
105	SAND Light grey - mostly med gr.		Few PY				83/105	About as described sand as above
108	Sdst and to cmg, colourless to cloudy 3/3. Few med grey clay coatings		frags.				83/108	
111	CLAY Med grey		Common PY	Few black			83/111	Drilling indicates
114			frags	Carb wood frags.				Clay, sandier material as cuttings however
117								
120	Clay coloured fossiliferous sandy MARL Crumbly green. Few brachiopods etc frags. Colourless shell fragments							KINLOCH BEDS
								T.D 121.5m sampling T.D 122.1m drilling

000389

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mutooroo E.L 63 South Australia

HOLE NO.	MT 84	CONTRACTOR	W.L Sides & Son P/L	STARTED	11/6/1974
LOCATION	½mi N of MT83	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	12/6/1974
COORDS	N E	GEOL. LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	123.4m (404 ft)	HOLE DIAMETER	4 3/4 in	SCALE	1:118
COLLAR ELEV.	93m RL	PROBE DIAMETER	1 1/4 in		

DEPTH m	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy overburden, CLAY Red-brown		Uneven 1/m. Sta.				84/3	Air drilled 0-45m
6	Interbedded gypseous, calcareous CLAY + pebbly SAND Red brown clay with gypsum (+ halite) nodules, some calcareous mottled, plus pebbly sand		ag coarse				84/6	
9	interbeds SILT Medium red-brown, with common						84/9	
12	more clayey interbeds fewer sand content in places						84/12	
15							84/15	
18	CLAY Light grey mottled buff at top		30/+ 1/m. Sta.				84/18	
21	- yellow brown						84/21	
24	becoming more red-brown in color						84/24	

000390 84/2/4

24								
27	CLAY as previously Light grey mottled red-brown		30/.1 lam. St.				84/27	
30							84/30	
33							84/33	
33	Sandy SILT (or silty SAND?) reddish buff		massive lam. St.					
36	Fine Sand to coarse silt grade						84/36	
39	CLAY light-grey		mines lam. St.				84/39	
39	SILT Light-grey mottled pinkish brn		as above					
42							84/42	
42	CLAY Light grey with minor		10/.1 lam St.					
45	red-brown, yellow-brown mottling						84/45	
48							84/48	
51							84/51	
54	mostly red to dark grey clay						84/54	
54	SILT with CLAY and minor SAND interbeds		20/ lam St.					
57	light grey predom. - silt with yellow-brown lam. sh. Clay interbeds as above plus minor fine columnar sh.						84/57	
60	Sand.						84/60	

84/3/4

62								
63	CLAY - light grey, minor med grey some yellow brown, reddish mottling	— — —	brzl/ lim. stn				84/63	
66	SAND Overall light buff to fawny grey. Poorly sorted at top fine to coarse but mainly	. . . . .	sc/f lightly to mod. orange				84/66	Bottom behaviour indicates sand. Abnt. balled up clay cuttings return at top.
69	med. gr. ; sub rnd. to sub ang Colorless to cloudy qtz	. . . . .	lim. stn				84/69	
72	Gradual increase in grain size	. . . . .					84/72	
75	Becoming medium coarse gr but still poorly sorted fine to coarse	. . . . .					84/75	Fair H.W.C. - black sand
78		. . . . .					84/78	prob. hematite + common brn mica Zircon, garnet
81	More grey/wh appearance - coarse gr. with common milky, blue qtz + grey/black brown siltstone, little grains	. . . . .	lc sc/ lightly orange lim. stn				84/81	
84		. . . . .					84/84	
87	Very poorly sorted - fine to very coarse - medium coarse - pred. to sub ang; few grains to 5 mm. Main size 82 - 83.5m	. . . . .	ms/ lightly to strong orange lim. stn				84/87	
90	Abnt very coarse sand av 3mm	. . . . .	sc/f lightly orange				84/90	
93	More well sorted coarse gr av. 1mm	. . . . .	lim. stn sc/c lim. stn.				84/93	
96		. . . . .					84/96	

000392 84/4/4

94								
96	SAND as previously, buff-tan grey color, predom coarse gr. - mod. well sorted	....	SB/ lt/bdy to med orange/ lim. str.					Circulation loss strengthened
102		....						
105	SL-LL decrease in grain size becoming less well sorted	....						
108	V. vy strongly limonite stained orange-brown color overall	....	SB/ mod to strong orange/ brown					
	Some coarser non stained sand grains all here	....	lim. str.					
111	CLAY Light-med, med brownish gy	EL	Common pyr	Few black				Drilling indicates clay-mostly interbedded sandstone
114		EL	Spags.	Carb. wood spags.				Greater circulation loss
117		EL						
120		EL						Very poor sample quality at bottom of hole due to poor circulation return.
	Clay as the formations MARL Few cuttings incl. shell fragments	B						
								TD 121.5m sampled TD 123.5m drilled TD 126m logged

-

000393

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mineroo EL 63 South Australia

HOLE NO.	MT 85	CONTRACTOR	W.L. Sides & Son P/L	STARTED	12/6/1974
LOCATION	½ mile NW of MT 84	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	12/6/1974
COORDS	N E	GEOL. LOGGED	T.D. Middleton	SHEET	1 OF 2
TOTAL DEPTH	538m(f) 53.2m(d)	HOLE DIAMETER	4 3/4"	SCALE	1"=10'
COLLAR ELEV.	96m RL	PROBE DIAMETER	1 5/8"		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy, clayey, loam Red-brown		as well lam. Sh.					Airdrilled 0–40.5m
3	Coarse sandy CLAY, minor GRAVEL		as above					
6	Red-brown clay with common x-talline Gypsum nodules							
	Common SILT Buff		as above					
9	Sandy silty CLAY red-brown, fawn, minor sand-silt		as above					
12	Contact							
15	SILT Buff		as above					
18	CLAY Light-grey mottled buff, red-brown		soft lam. Sh.					
21								
24	SAND fine red-brown, poorly sorted fine to coarse with some silt		as above					

000394

85/2/2

24								
27	SILT Reddish-buff, buff		creamy lim. str.					
30								
33	CLAY Silty, light grey - mottled buff red-brown at top							
36								
39								
42								
45								
48								
51								Hole abandoned due to excessive circulation loss unable to block loss
								T.D. 51m sampled T.D. 51m drilled

000395

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Motpena EL 63 South Australia

HOLE NO.	MT 94	CONTRACTOR	W.L. Sidebottom P/L	STARTED	17/6/1974
LOCATION	1/2 mi N.W	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	18/6/1974
COORDS	N E	GEOL LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	116m (a) 115.4m (l)	HOLE DIAMETER	4 3/4 in	SCALE	1:118
COLLAR ELEV.	92 m RL	PROBE DIAMETER	1 1/4 in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy, clayey lateritic Red-brown		overall lim. str.				94/3	
3	CALCRETE Brownish pink							
	Sandy SILT Red-brown, reddish buff		as above				94/4	
6								
							94/9	
9	SAND Orange-buff, poorly sorted		as above					
	fine to coarse with some silt matrix						94/12	
12	fine gr. at base							
	CLAY - sandy, silty Red-brown, some ironstained cut rep		mostly lim. str.				94/15	
15								
							94/18	
	SILT Red-brown		colour lim. str.					
18								
							94/21	
21								
	CLAY Red-brown						94/24	
24								

94/2/4

24								
27	SILT Red-brown, buff, reddish-brn		overall lim. str.				94/27	
31							94/30	
33							94/33	
36	CLAY Light grey- minor mottling		10% lim. str.				94/36	
	SILT Light red-brown		overall lim. str.					
39	More or less fine sand gravel at base SAND Light grey fine gr		10% lim. str.				94/39	
42	CLAY Light grey, mottled red-brown at top		20-30% lim. str. at top				94/42	
45			minor lim. str.				94/45	
48							94/48	
51	SAND + interbedded sandy silty CLAY CLAY		minor lim str.				94/51	Mostly bailed up clay cuttings
54	Sand is whitish, med. sorted fine gr at top; subangular Calcareous to clearly gb. Clay as previously + lighter-med		overall				94/54	return to 54m
57	ogby sandy, silty clay - minor mottling		20% yellow-buff lim. str. clay				94/57	
60							94/60	

60								
63	SAND + interbedded sandy silty clay as previously						94/63	
66							94/66	
69	Sand becoming more poorly sorted - fine to medium (rarely) slightly buffish in appearance		10/+ lightly orange				94/69	
72			limestn.				94/72	
75	SAND - buffish becoming pebbly and to		50/ lightly				94/75	Caliche embedded in sand
78	Coarse gr. sand to sdy and calcitess to cloudy g/3		to med orange limestn				94/78	About interbedded clay at top
81							94/81	
84	Pebbles coarse to very coarse - to 2mm, few grey, black, brown siltstone / silic. grains						94/84	
87	Becoming more strongly buffish color ~~grey~~						94/87	
90	orange-brown in color few grains to 4mm		mostly strong orange brown color				94/90	
93	Gradual decrease in intensity of limonitic staining						94/93	
96	Becoming paler buffish in color						94/96	

000398

94/4/4

96								
96	SAND Pale buff-fish, becoming fine gr - medium fine to med gr; Subrnd to Subrnd; calcareous to cloudy gy		30/ lightly orange 1/m str					
102	CLAY Bleached, mottled at top then med grey		py frags	Black carb specks				
102	SAND Light grey? mica as less as 96.		10/. t lightly					Suspect 1/m. str - sand is incarbed
105	med loose fine gr; Subrnd to rnd; calcareous to cloudy gy		orange 1/m str few py frags					
105	becomes coarse gr - med gr, predom - some more well rounded							
108	CLAY, LIGNITE Some off white / milky grey clay cuttings		About py					Cutting mainly in Clay
	also have light bluish grey lithic bands. Dark blackish brown lignitic material		frags					
111	Calcarenite, fossiliferous MARL SAND Light greyish orn, mostly but pale							Kunlach Beds
	Sand - coarse gr, rnded; calcareous to cloudy, non-stained. Abnt Siderite frags. Few mollusc frags							
114	BASEMENT - PHYLLITE med greyish green							Archaean Basement
								TD 115.5m (sample) 116 m (drilling)

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mitcham EL 63 South Australia

HOLE NO.	MT 95	CONTRACTOR	W.L. Sides Eden A/L	STARTED	18/6/1974
LOCATION	4m NW MT 94	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	18/6/1974
COORDS	N E	GEOL LOGGED	T.D. Mcallester	SHEET	1 OF 4
TOTAL DEPTH	110m(d) 110m(l)	HOLE DIAMETER	4 3/4in	SCALE	1:118
COLLAR ELEV.	98m RL	PROBE DIAMETER	1 1/4in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
	Sandy, clayey LIMN Red-brown		overall lim. Str.					Air drilled 0-36m
3	Gypseous, silty CLAY Red-brown Minor gypsum		as above				95/3	
	- xtalline nodules							
6	SAND Reddish buff poorly sorted		as above				95/6	
9	Gypseous, calcareous CLAY Reddish pink. Common calcareous mottling		mostly lim. Str.				95/9	
12	SILT Reddish buff		overall lim. Str.				95/12	
15	Silty CLAY light red-brown. Minor calcareous mottling		as above				95/15	
18							95/18	
21	SILT Buff		as above				95/21	
24							96/24	

MW95/2/3

24								
27	SILT buff	overall lim. sta					95/27	
30	CLAY buff SILT buff, reddish buff, light gray at base	dot above					95/30	
33							95/33	
36	CLAY light gray, mottled yellow-buff	10 YR/ lim sta					95/36	
39							95/39	
42							95/42	
45							95/45	
48							95/48	
51	SAND some CLAY interbeds at top many sandy zone fine to coarse at top most medium coarse;	non stained					95/51	
54	most to sub ang; calcareous to Clevedon 9/3 · Non stained at top						95/54	
57	some more common fine to med gr. - more angular grains	stained lim. sta					95/57	
60							95/60	

60								
63	STAND to previously - mud on packer and top. Mud well treated		30/ lightly orange pink					
66			lim sta					
69	Leaving prem. coarse heavy coarse - mud to sidewall							
72								
75	Sand abruptly changes to strong buff color		R/ mod to strong					
78			orange lim sta					
81	Change in color to pale buff gray - mud well treated		30/ lightly					
84	go		lim sta					
87								
90	Strong pinkish color - reddish buff overall		30/4 red-orange lim sta					
93								
96	Strongly orange-brown color at bottom		mostly orange lim sta					

000402 95/4/4

94								
95	Glauconitic, sandy fossiliferous MARL, SAND Homogeneous grey clayey ~~?~~ becoming mainly silt/sand		Low GR frags					Kinloch Beds
102	calcite cement - very hard, ~~brown~~ stained, few shell frags; shows Marble seams with red and white GREENT – CARBONACEOUS PYRITIC SHALE							Adelaidean
105	- black grading also to black laminated section - highly carbonaceous. Very high pyrite content 20-30%?							
108								
111								T.D. 109.5m T.D. 110m drilled
								T.D. 110m logged

000403

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mintaro EL 63 South Australia

HOLE NO.	MT96	CONTRACTOR	W. L. Sides & Son P/L	STARTED	13/6/1974
LOCATION	½ mi NW MT76	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	14/6/1974
COORDS	N E	GEOL. LOGGED	T. W Middleton	SHEET	1 OF 4
TOTAL DEPTH	24.5m(d) Abandoned	HOLE DIAMETER	4 3/4in	SCALE	1 : 118
COLLAR ELEV.	87m RL	PROBE DIAMETER	1¼in		

DEPTH m	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy, clayey LOAM with Calcareous CLAY, CALCRETE Red-brown buff-pink calcrete nodules both calc. mottled clay		overall 1in. str.				96/3	Air drilled 0 – 12m
6	Sandy, silty CLAY Red-brown, light red-brown		as above				96/6	
9							96/9	
12	SILT Light red-brown		as above				96/12	
15	GRAVEL Orange-brown, poorly sorted – qtz pebbles to 15mm, abnt manganese		as above				96/15	
18	CLAY Light grey – mottled buff-brown		50% 1in. str.				96/18	
21	SILT Buff		overall 1in. str.				96/21	
24	SAND Light brown, predgraded – to 5mm calcitic		as above				96/24	
	CLAY Light grey mottled red-brown		50% 1in. str.					

96/2/4

24								
	CLAY As previously, mostly red-brown		cement lim.str.				96/27	
29	SILT Light red-brown buff		cement lim.str.					
30							96/30	
							96/33	
33	CLAY, silty Light grey, mottled red-brown		30% lim.str.					
	buff						96/36	
36	SILT Buff, common ironstained		75% lim.str.					
	light grey towards bottom						96/39	
39								
42							96/42	
	CLAY Light grey mottled red-brown, buff		50% lim.str.				96/45	
45								
48	SAND Buff, med. sorted fine to med gr. with minor coarse; subrnd to subang pebbly		50% lightly orange lim.str.				96/48	Drilling in sand - abnt clay cuttings return from holding up at 49'
	colourless to cloudy qtz						96/51	
51								
54	Becoming more evenly sorted fine gr., mostly subang to subrnd;						96/54	
57							96/57	
	Few clay interbeds - bleached off-white, mottled buff, reddish						96/60	
60								

96/3/4

60								
	SAND as previously						96/63	
63	CLAY sandy/silty light grey (f to light-med)		10-20% lim.sta					
	mottled buff, red-brown f/s, v fine sand content						96/66	
66								
	Some med-dark grey ; matting - carbonaceous clay?			Common fine			96/69	
				black specks				
72	SAND light buff/grey; poorly		20% lightly				96/72	
	sorted fine to coarse sand fine-med gr predom; subrnd to ang; colourless to cloudy qtz		to mod orange lim.sta				96/75	
75								
78							96/78	
81							96/81	
84							96/84	
87							96/87	
	becoming coarser gr on the whole - med-coarse gr predom. Decrease in intensity of limonitic stain		10-20% lightly orange lim.sta				96/90	
93	Common grey, black lithic grains						96/93	Circulation lost suddenly @ 93m - unable to regain
							96/96	Able re-circulate to regain circulation
96								

000406

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mutooroo EL 63 South Australia

HOLE NO.	RAT 97	CONTRACTOR	W. L. Sides & Son P/L	STARTED	20/6/1974
LOCATION	4km NW RAT 76	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	20/6/1974
COORDS	N E	GEOL LOGGED	Tim Middleton	SHEET	1 OF 4
TOTAL DEPTH	116m(d) 115.4m(l)	HOLE DIAMETER	4 3/4 in	SCALE	1:118
COLLAR ELEV.	87m RL	PROBE DIAMETER	1 5/4 in.		

DEPTH m.	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy, clayey LOAM at top Tim CALCRETE GRAVEL Red-brown. Calcrete nodules with Qtz - magnesite gravel		overall 1/m. str.				97/3	Air drilled 0-48m
6	Silty CLAY Red-brown		as above.				97/6	
9	SILT light red-brown		as above				97/9	
12	Becoming coarser at base - possibly very fine sand grade Sandy Light red-brown, poorly sorted		as above				97/12	
15	Silty CLAY Red-brown SILT - some CLAY interbeds Light red-brown, reddish buff		as above				97/15	
18							97/18	
21							97/21	
24	SAND Reddish buff, poorly sorted m coarse Sandy, silty CLAY Red-brown		as above as above				97/24	

97/2/4

24								
	Sandy silty CLAY no discreet bg		crowd 1m Stn					
	SAND						97/27	
27	Red brown at top then white		as above					
	Buff. Mod sorted fine gr pcaon Sub rnd to rnd; intensely orange stn gb, minor							
30	mag/manite						97/30	
	Mostly med to coarse 30-31 cm - some well rounded							
33							97/33	
	SILT		as				97/36	
36	Buff, reddish buff		above					
39							97/39	
							97/42	
	Sandy CLAY		as					
42	Buff to brown, minor light grey		above					
							97/45	
	SILT							
45	Buff							
	SAND		3/					
	Buff to very pale buff/white		lightly				97/48	
	med sorted fine gr, sub rnd		to mod					
48	to rnd (predom), calcite to		orange					
	Clayey gb		1m stn					
	Some hard white cemented bands						97/51	
51	Common off white, reddish							
	clay bands (thin)							
							97/54	
54								
							97/57	
57								
	Becoming limonitic staining							
	at base						97/60	
60								

97/3/4

60								
63	SAND As previously, fine Sa.		Minor lim. sta. band				97/63	
66	CLAY Sandy, silty CLAY Light grey, minor yellow-brn. reddish mottling Common sand content		10-20% lim. sta.				97/66	
69							97/69	
72	CLAY Light grey, med brownish grey common dark grey mottling		Minor lim. sta. Common PY frags	Dark color due to fine Carb.			97/72	
75			-bands lt/cm	matrix			97/75	
78	Some thin sand interbeds?		lim. sta. at base				97/78	
81	SAND Orange-brown at top; med rarked fine-med gr., subrnd/ang colorless to cloudy qtz		50% strong orange, red orange lim. sta.				97/81	Common mica/shal frgmts & clay frags
84	Strongly diminishing intensity of limonitic staining		3% light brown				97/84	
87			lim. sta.				97/87	
90	Becoming coarser gr. -med well sorted med-coarse gr		10% highly lim. sta.				97/90	
93							97/93	
96	Medium coarse gr. some well rnd. Buff/lt color		3% + highly lim. stained				97/96	

000403 97/4/4

96								
99	SAND As previously medium grades at base							
102	CLAY light-med grey		Few PY frags					Drilling in clay
	SAND Predom poorly sorted fine to coarse and pebbly.		Abnt PY	Pyritised wood				Drilling in sand Some Contam. upper sands.
105	CLAY with PYRITE nods Common at top Light-med brownish grey		Abnt PY, pyritised wood frags.	Common fine black carb. specks				Drilling in clay
108	Some more compact light fawny grey clay sand.			Few coarse black wood				
111	Clay taking on a slightly greenish grey appearance			frags.				
114	Common greyish fawn siderite frags at base							
	Glauconitic, fossiliferous, sandy MARL Abnt mollusc frags, glauconite grains well rnd sand							Kintore Beds.
								T.D. 115.5m sampled T.D. 116m drilled
								T.D.

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mitcham EL 63 South Australia

HOLE NO.	MT98	CONTRACTOR	W.L. Sides & Son P/L	STARTED	20/6/1974
LOCATION	½ mi S Cowtrack Dam	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	20/6/1974
COORDS	N E	GEOL. LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	128.2m(d) 128m(L)	HOLE DIAMETER	4 3/4in	SCALE	1:118
COLLAR ELEV.	84m RL	PROBE DIAMETER	1 1/4in		

DEPTH m	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy clay, changing brown - red-brown then CALCRETE - pinkish-brown, few qtz, magnesite pebbles		weak limonite				98/3	Air-drilled 0-22.5m
6	Sandy silty CLAY Red-brown, red-buff		as above				98/6	
9							98/9	
12							98/12	
15	SAND Reddish-buff, buff, mostly fine gr with some silt grade material at top, subangular		as above - orange limonite stain				98/15	
18							98/18	
21	Clayey sand poorly sorted - with common well rounded coarse gr.						98/21	
24	GRAVEL - red calcareous quartz magnesite pebbles - av 5mm. Orange-brown						98/24	

98/2/4

24								
27	SILT Red-brown	overall 1/m. sta.				98/27	In washed gravel	
30	CLAY Light grey but predom. mott'd red-brown, buff	75% 1/m. sta.				98/30		
33						98/33		
36	SILT Red-brown, reddish-buff, buff	overall 1/m. sta.				98/36		
39	CLAY Light creamy grey mottled red-brown, buff	50% 1/m. sta.				98/39		
42	SILT, clayey Light grey mottled buff, red-brown	20-25% 1/m. sta.				98/42		
45						98/45		
48						98/48		
51	SAND Buff; poorly sorted fine to coarse but fine-med. predom.; mod. to arg.;	50% highly stained orange 1/m. sta.				98/51		
54	colorless to cloudy qtz					98/54		
57	becoming more strongly buff in color					98/57		
60						98/60		

60								
63	SAND As previously but becoming less strongly buffish in color Some clay interbeds to ~63.5		20% lightly to mod orange limonite				98/63	
66	light grey mottled reddish limonitic shell, poorly sorted but predom fine - med sz						98/66	
69	Becoming more evenly sorted med gry, very minor orang limonite		10% lightly limonite				98/69	
72							98/72	
75	CLAY light grey mottled yellow-buff reddish		20% limonite				98/75	
78	Minor interbedded Shihsh sand						98/78	
81	Carbonaceous CLAY, LIGNITE? Blackish grey, sepia - more or less homogeneous, partly almost entirely organic material		Common PY frags	Abnt carb. material			98/81	
84	Common discrete black wood frags.						98/84	
87	SAND Light grey, poorly sorted fine to coarse sand to coarse predom. well to ang; colorless to cloudy qtz. Non stained		Common PY frags + limonite after PY	Few black carb. wood frags			98/87	Common microshell Bryozoa cuttings
90				in situ ?			98/90	
93							98/93	
96	Fairly abrupt change to limonitic Shh. sand		30% med to strong orange red-orange limonite				98/96	

96								
99	SAND As previously proudly described but more to coarse grain. Reduced limonite stain intensity	. . . .	30/ highly orange 1mm Stn					
102	Becoming more well sorted coarse gr av 1mm - sub rnd to sub ang	. . . .						
105		. . . .						
108		. . . .						
		. . . .						
111	CLAY with some SAND interbeds Bleached off white mottled yellow brn	— — — — — —	About 1mm Stn + 1mm.	Fine black specks				About mixed sand at top.
114	red-brown at top, then med grey Sand difficult to distinguish from above - common limonite stained	— — — — — —	frags. than About PY frags.	in clay, few black wood frags.				
117	Becoming slightly greener med grey	— — — — — —						
120	Sand interbeds at base?	— — — — — —						
		— — — — — —						
123	Glauconitic fossiliferous sandy MARL Greenish grey with common	— — — — — —						Kinlock Beds
126	mollusc, bryozoan fragments some glauconitic limestone.	— — — — — —						
		— — — —						
								T.D. 1275m in sample T.D. 1282m drilled

000414

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mineral EL 63 South Australia

HOLE NO.	MTG9	CONTRACTOR	W.L. Sides Sdsn P/L	STARTED	21/6/1974
LOCATION	Km SE Coonalpyn Dam	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	21/6/1974
COORDS	N E	GEOL LOGGED	T.W. Middleton	SHEET	1 OF 2
TOTAL DEPTH	63m(d) 60m(k)	HOLE DIAMETER	4 3/4 in	SCALE	1:118
COLLAR ELEV.	94m RL	PROBE DIAMETER	1 1/4 in		

DEPTH m	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy clayey LOAM brown, Calcareous mottled plus CALCRETE - pinkish brown		v weak lim. str.				99/3	Air drilled 0–33m
6	Sandy silty CLAY, SILT Light red-brown, reddish buff		as above				99/6	
9	SILT Reddish buff		as above				99/9	
12	Silty SAND Buff, orange-buff; poorly sorted		as above				99/12	
15	Silt to coarse sand grade - predom fine sand. Evenly orange limonite stained						99/15	
18	CLAY Light grey mottled buff red-brown		Sc% lim. str.				99/18	
21							99/21	
24							99/24	

99/2/2

24								
27	SILT Buff, coarse silt gravel CLAY Light grey mottled light reddish-brown		overall lim-stn 50/ lim-stn				99/27	
30	Sandy, silty CLAY, CLAY light-grey, mottled yellow-brown		20-30/ lim-stn				99/30	
33	red-brown, buff, pinkish Abnt medgr. sand content in clay matrix. Some						99/33	
36	Sandy interbeds						99/36	
39							99/39	
42							99/42	
45							99/45	
48							99/48	Circulation lost becomes apparent
51	CLAY Light grey mottled red, yellow-brown CLAY Med-dark grey		30/ lim-st. minor lim-stn	Abnt shine			99/51	
54				black specks			99/54	
57							99/57	0% sample return from hole - drilled A - 63m. no circulation return
60	Drilling in sand ~57-63m						99/60	after repeated reaming - apparently near original hole presently in caliche

000416

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mt Gunson EL 63 South Australia

HOLE NO.	MT100	CONTRACTOR	W.L. Sides & Sons P/L	STARTED	21/6/1974
LOCATION	0.6m S of MTH7	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	21/6/1974
COORDS	N E	GEOL LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	122.1m(d) 122.1m(l)	HOLE DIAMETER	4 3/16 in	SCALE	1:118
COLLAR ELEV.	91m RL	PROBE DIAMETER	1 1/4 in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy, clayey LOAM, red-brown becoming calcareous mottled from CALCRETE - pinkish brown		overall limonite				100/3	Air drilled 0–4.5m
6	Sandy silty CLAY, CLAY red-brown Some silt interbeds		as above				100/6	
9							100/9	
12							100/12	
15							100/15	
18							100/18	
	SILT Orange-buff		as above					
21							100/21	
	CLAY Orange-buff, buff, red-brown		as above					
24	Minor Sandy Seams						100/24	
	SILT Orange-buff							

100/2/4

24								
27	SAND light red-brown, mostly fine to coarse CLAY Lt red-brn but pastel	- - - - - - - -	overall lm. str.				100/27	
30	mottled at top - buff, cream - buff, red-brown	- - - -	50 f. lm. str.				100/30	
33		- - - -					100/33	
36		- - - -	20-30 f. lm. str.				100/36	
39	common red-brown mottling	- - - -					100/39	
42		- - - -					100/42	
45		- - - -					100/45	
48		- - - -					100/48	
51	More common yellow-buff lm str (in place of red-brown)	- - - -					100/51	
54	& little med-grey clay at base	- - - -					100/54	
57	SAND - with CLAY interbeds at top. Sand subrd, Poorly sorted fine to coarse BUT mainly fine-med gr.	- - - - - - - -	20 f. highly to mod coarse lm str				100/57	
60	and (coarse) to any (fine gr.) colorless to cloudy qtz Clay: light grey mottled yellow brown, bedrock: Fairhaven Member	- - - - - - - -	20 f + lm str clay.				100/60	

000418

100/3/4

60								
63	SAND & CLAY sandy, silty clay as previously interbedded sequence Sand predominant		Sep. limsta sand 50/1				100/63	
66	Sand becoming coarser - with coarse gr. predom, mix to subround but less ...		limsta clay				100/66	
69							100/69	
72	CLAY sandy, silty + interbed SAND.		50/ limsta				100/72	Clay more predom according
75	More or less as above but clay predom. Light gray, bleached off pink, mottled yellow-buff, reddish. Often		clay 20/1 light to med				100/75	to drilling behavior Abnt marshal, reconstituted sand as above.
78	with abnt. sand content. Sand predom very poorly sorted		orange & red - orange sand.				100/78	
81							100/81	
84							100/84	
87	SAND Pale buff-pink gray, mod sorted fine to med gr, subangular to subround Colorless to cloudy qtz		30/ light to med orange				100/87	Drilling is sand controlled
90			limsta				100/90	
93							100/93	
96	Becoming mod poorly sorted fine to coarse - predom med gr.						100/96	

96								
99	SAND As previously							
102	Sand more well sorted fine to med. gr.		30-50% light tinted lim. sta					
105	Sand becoming more strongly buffish in color, med gr pcm		increase in lim. sta intensity					
108								
111								
114	CLAY with SAND interbeds Clay bleached, mottled orange than med grey		limonite frags. Abnt 5% frags	common fine black coals specks				Abnt unsorted, recrystalized sand as above
117	There is most unstained sand from very fine to very coarse, well sort, but not known Below limonite stained sand is in situ as			cyanitized wood frags				
120	contamin from above Returned to limonite stained sand to base. Abnt 10% frags and few siderite frags.							
	Claystone, fossiliferous SAND MARL Abnt coarse well sort sand, Shell frags. as above							T.D. 120 Sw sample T.D. 121 Ln drilled

000420

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mutooroo EL 63 South Australia

HOLE NO.	MT 101	CONTRACTOR	W. L. Sides & Son P/L	STARTED	22/6/1974
LOCATION	0.6km S of MT 100	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	22/6/1974
COORDS	N E	GEOL LOGGED	T.W. Mobbs/Carter	SHEET	1 OF 4
TOTAL DEPTH	122.1m (61)	HOLE DIAMETER	4 3/4in	SCALE	1:118
COLLAR ELEV.	87m RL	PROBE DIAMETER	1 1/4in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy, clayey LOAM Red-brown fine CALCRETE - pisolitic Brown well GRAVEL & CLAY		overall limonite				101/3	Air-drilled 0–24m
6	Sandy, clayey SILT Light red-brown, reddish buff		as above				101/6	
9							101/9	
12							101/12	
15	Sandy silty CLAY Light red-brown		overall limonite				101/15	
18	SILT Red-brown (light)		as above				101/18	
21	SAND Buff, reddish buff Poorly sorted fine to coarse Sub-angular fine - Common mica		as above				101/21	
24	Flakes Becoming coarser at the base						101/24	

101/2/1

24								
27	SILT Light red-brown		overall limestn.				101/27	
30	CLAY Light grey mottled yellow-buff to 37.5m						101/30	
33							101/33	
36							101/36	
39	Mottling changes to red-brown cavernous						101/39	
42							101/42	
45							101/45	
48							101/48	
48	SAND Pale buff, mod. sorted fine to mid gr. subround. to ang. colourless & cloudy qtz		SC/ lightly to mod. cemented limestn.					
51							101/51	
54							101/54	
57	Becoming coarser gr. in the chalk - med. gr. pred. Some brick red clay interbeds						101/57	
60							101/60	

161/3/4

60								
63	SAND More or less as previously noted tested – most gr. fraction Pale pinkish buff color	. . . .	30/+ 1/8" to med. orange, red-orange				161/63	
66	coal-stone pink, red & clay Interbeds – Charcoal off-white	. . . .	1/m.sth				161/66	
69		. . . .	mostly 50/+ 1/m.sta				161/69	
72		. . . .					161/72	
75	More poorly sorted in section – fine to coarse but with med. gr still greatest.	. . . .					161/75	
78		. . . .					161/78	
81		. . . .					161/81	
84		. . . .					161/84	
87		. . . .					161/87	
90	Coarse gr. becomes greatest. More shattered buff-pink color Should be sub ang	. . . .	75/+ med				161/90	
93		. . . .	to Strong orange 1/m.st.				161/93	
96		. . . .					161/96	

96								
99	SAND as previously - coarse gr, buff colour							
102	Common very coarse gr - to [illegible] at base							
105	CLAY with SAND interbeds bleached off white on top - mottled buff, pink, purple, buff then becoming more homogeneous med grey		75% limestone clay clasts, v.f. frag					Drilling in Clay Abnt marshal sand as above
108	Sand interbeds - grey, poorly sorted fine to coarse, pebbles med-coarse		Abnt					
111	Stained red brn, colourless to cloudy qtz - some with pyrite adhering							
114	CLAY Moderate gr clay - med grey		PY frags	fine black coal specks				
117	Abnt siderite frags. Calcareous fossil fgrain, MARL STONE lt grey med grained med grey sand							Kinloch Beds
120	Common grey fgrain limestone (marl siderite banded). Abnt coarse well sort, non stained qtz sand grains. Abnt shell fragments							
								T.D. 121.5m stopping T.D. 122.1m drilling

000424

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mitcham EL 63 South Australia

HOLE NO.	MT 102	CONTRACTOR	W.L. Sides & Son P/L	STARTED	22/6/1974
LOCATION	~2mi E Sturt Dam	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	
COORDS	N E	GEOL LOGGED	T.D. Middleton	SHEET	1 OF 4
TOTAL DEPTH	122.1m(d) 122.1m(c)	HOLE DIAMETER	4 3/4in	SCALE	1:118
COLLAR ELEV.	85m RL	PROBE DIAMETER	1 1/4in		

DEPTH m	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy, clayey LOAM to CALCRETE - pinkish brown, calc mottled CLAY		weak 1m. Sta				102/3	Air drilled 0—51m
6	Sandy, silty CLAY Red-brown		as above				102/6	
9	SAND, pebbly Light red-brown, very poorly sorted Lfs 5mm pebbles		as above				102/9	
12	Silty CLAY Light red-brown		as above				102/12	
15	Silty SAND Light red-brown Mostly very fine sized grade						102/15	
18							102/18	
21	SILT Light red-brown, reddish buff - coarse silt to very fine sand		as above				102/21	
24	SAND Reddish-buff, mostly very fine, minor med to coarse		as above				102/24	

102/2/4

24								
27	CLAY Sandy at top mostly buff		75/+ fine Sth				102/27	
30							102/30	
33	becoming more lightly grey mottled - buff mottling		50/- fine Sth				102/33	
36							102/36	
39			20-30/ fine Sth				102/39	
42							102/42	
45	becoming strongly red-brown to carmine mottled in place of buff						102/45	
48							102/48	
51	SAND Clayey at top - fine gr. well brown-buff kaolinitic cement						102/51	
54	Clayey silty SAND Orange-brown; poorly sorted fine to coarse; rnd. to subang; colourless to cloudy qtz		75/- strong orange fine Sth				102/54	
57	in orange-brown clayey silt matrix		v.fine/ Orange brown kaolinitic matrix				102/57	
60							102/60	

60								
63	Clayey, silty SAND Hy previously bcm becoming more sandy med gy, brn-gy		50/.5 highly textured orange				102/63	
66	Intensely hy bioturbated sandy matrix, decreasing clay matrix flaser clay bands (sandy) - orange to yellow buff, mottled		limestone				102/66	
69	Becoming more of a sand with sandy silty clay bands Attempt disagg in orange buff silty at 66' - poor recovery		30/6"				102/69	
72	in matrix & clay stain						102/72	
75							102/75	
78							102/78	
81	SAND - argillaceous Micaceous matrix						102/81	
84							102/84	
87							102/87	
90	Becoming strongly orange-buff in color. Coarse gr predom						102/90	
93	Med med gr lesser intensity of mottled stain						102/93	
96							102/96	

102/4/4

96								
99	Sand As previously becoming more orange buff then orange-brown in colour		75% shell					
102			Iostrea orange fine Sand					
105								
108	CLAY?							Drilling in clay Borehole tested Circulation lost No sample returns
111								103.5 – 112.5m
114	Apparently sandy Lemagrandian med-grey clay		Common Cy	Few black				
117			frags	Carb. specks				
120	Glauconitic sandstone, sandy limestone & argyrol gels. Basal unit abun							
	Glauconite grains, shell frags. Some coarse constituent, well sorted fine grained							
								T.D Samples 121.5m drilling 122m

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000428

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mereenie EL 63 South Australia

HOLE NO.	MT 103	CONTRACTOR	W.A. Sides & Son P/L	STARTED	23/6/1974
LOCATION	½ mi NW MT 102	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	23/6/1974
COORDS	N E	GEOL. LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	122·1m(6") 122·1m(C)	HOLE DIAMETER	4 3/4"	SCALE	1:118
COLLAR ELEV.	864m RL	PROBE DIAMETER	1 4/4"		

DEPTH m	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy, clayey normal fluv CALCRETE + CLAY occasional calcareous mottled		mostly limonite				103/1	Air drilled 0 - 4.75m
6	SAND light red-brown, poorly sorted, coarse sand to silt size		coarse limonite					
9	SILT with sandy silty CLAY interbeds light red-brown to brownish buff		as above					
12								
15								
18								
21	SILT Abrupt colour change to pale buff							
24	more or less very fine sand grade at base							

000429

103/2/4

24								
27	CLAY Lt brn-gry but predom mottled brn, yellow brn at top.		50+/- lum sta					
30								
33			20-30+/- lum sta					
36								
39								
42	Abrupt color shift to lt gry mottled blk red		30+/- lum sta					
45								
48								
51								
54	Sandy Silty CLAY + Shells? in beds. Clay light reddish gray, lt gry, mottled reddish brn		20-30+/- lum sta					
57	light green (10Y) Sand is reddish, fine to med gr minor coarse, subrnd to ang Colorless to cloudy qtz							
60	More or less a sandy silty clay with lesser clay matrix in pockets							

103/3/4

60								
63	Sandy silty CLAY with SAND interbeds so previously							
66	SAND predominant As above - poorly sorted fine to coarse (fine to med predom.) and (coarse) to ang		minor lam. to sand					Drilling in sand entirely?
69	Calcilutite to cloudy g/s							
	Silty CLAY Light gray mottled yellow-brn, hard, micaceous, gypsum. Some medium silt bands		20/1 lam. to					Common microshear zones.
72								
75	SAND Light brn/gray; moderately med gr; subrnd to subang but low sphericity; calcareous to cloudy g/s		minor lam. to sand					Drilling in sand Common clay cuttings
78								
81								
84	Becoming more poorly sorted fine to coarse (medium) increasing brn/orange color		30/1 light banding lam. to					
87								
90	Becoming coarser gr at the bottom but still poorly sorted ?							Few pyrite frags apparent in core interval, but probably contam.
93	Locally finer gr - fine to med gr bedding Predom.							to this material
96								

103/4/4

96								
99	SAND As previously, pale buffish colour fine to med. gr. subang to subrd (predom)		30/. lgt to med grey					
102			1/m sta					
105								
108	more strongly buffish in colour at base		75/. 1/m sta					
111	CLAY and SAND interbeds Clay intbeds at top, mottled yellow-buff, then becoming mid grey		1/m sta at top then common PY	Common small black coaly wood frags				Overlain from boundary Horiz laminated sandstone at top
114	Sand is light-med grey weakly poorly sorted pred med gr. subrnd to ang, colourless to cloudy, often milky adhering Pyrite		frags. 1-2/.					
117	mod common slightly greenish mid-grey.							
120	Common siderite(?) frags mid-lgt greyish brown							minor fine calcite grains replacement Kinlochbeth.
	Claystone, Seamlike bed Greenish grey. Mont shell frags							
	Minor sand							
	BASEMENT ? grey schistose rock							
								T.D. 1215 - sample T.D. 1222 - chalk
								T.D. 1222 - logged

000432

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mutooroo EL 63 South Australia

HOLE NO.	MT 104	CONTRACTOR	W.L. Sides Son & Co	STARTED	23/6/1974
LOCATION	½ mi SE Saline Dam	GAMMA LOGGED	S.A. Mines Dept	COMPLETED	23/6/1974
COORDS	N E	GEOL LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	122.4m (1) 122.4m (2)	HOLE DIAMETER	4 3/4 in	SCALE	1:118
COLLAR ELEV.	88m RL	PROBE DIAMETER	1 3/4 in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy clayey LOAM - red-brown then CALCRETE, calc. matrix Sandy silty CLAY		moderate lim. str.				104/3	Rotary drilled 0 – 58.5m Cuttings quite moist to 9m
6	Sandy, silty CLAY Red-brown		as above				104/6	
9							104/9	
12	SILT, clayey, sandy Red-brown, light red-brown		moderate lim. str.				104/12	
15							104/15	
18							104/18	
21	Silty CLAY Red-brown		as above				104/21	
24	Becoming calcareous buff						104/24	

24								
27	S. Ha CLAY as previously		v. stiff lim. str.				104/27	
	SILT Bl bf		as above					
31	coarse silt to very fine sandy grade						104/30	
33	SAND Orange-buff, predominantly silt to coarse sand grade		as above				104/33	
	CLAY Light gray - mottled buff at top		50/ lim. str.					
36							104/36	
39	Change to brownish red mottling		50/ lim. str.				104/39	
42							104/42	
45							104/45	
48							104/48	
51	Change back to buff/pink mottling						104/51	
54							104/54	
57	Clayey silty SAND light-med gray, some yellow brown, reddish mottling. Compacted, clayey matrix cementing med gr.		20-30/ lim. st. minus PI				104/57	Cuttings quite moist
60	95% sand - mostly med gr, sub rnd to ang;						104/60	switch to water drilling

60								
63	Clayey silty SAND tan, moderately		75/1.7 lim. Str.				104/63	
66							104/66	
69	CLAY light gray, creamy, off-white, minor light green		minor lim. Str.				104/69	Drilling indicates clay
72							104/72	
75	SAND - some clay interbeds at top : tobacco brown		minor lim. Str.				104/75	Drilling random in sand
78	poorly sorted fine to coarse but mostly medium subrounded to subangular Colorless to cloudy qtz						104/78	
81	CLAY minor SAND interbeds light gray mottled yellow buff reddish		25/1 lim. Str.				104/81	Drilling preferential clay
84							104/84	
87	SAND with CLAY interbeds most sorted med or fine grained Silt Basis - more often as 73.5 - 78m		minor lim. Str. common lim. frags				104/87	Sand predominate according to drilling behavior
90							104/90	
93	SAND uniformly light buff-ish gray, well sorted		10-20/1 lightly				104/93	
96	fine to med gr. Subround to angl. Colorless to cloudy qtz		rounded orange lim. Str.				104/96	

000435 NT 104/4/4

96								
99	SAND As previously but becoming more buffish in color Mostly fine to med gr.		30% lightly tanned					
102			orange tinste					
105	paler buffish color		20-30% tinste					
108	more strongly buffish color, med gr predom.							
111	Some coarse basal sand CLAY - blended, mottled w/ [illegible] Item med gray		10% frags	common black coal				Overlying in clay common mossbed
114			common	wood frags.				Sand from above
114	SAND predom - with CLAY interbeds common fine stained basal		10% frags					
117	predom med gr sub rnd to sub ang; - colorless to cloudy 3/3, often with adhering pyrite coats Clays as above		common					
120	CLAY med slightly greenish gray Common siltstone fragments		5% frags					Overlying predom in clay
	Glauconitic basal sand med slightly greenish gray Few shell frags							Overlies Beds

000436

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mureena EL 63 South Australia

HOLE NO.	MT105	CONTRACTOR	W.L. Sides Sdn P/L	STARTED	24/6/1974
LOCATION	200m @ 335° from MT99	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	24/6/1974
COORDS	N E	GEOL LOGGED	T.W. Middleton	SHEET	1 OF 4
TOTAL DEPTH	116m (d) 115.4m (l)	HOLE DIAMETER	4 3/4"	SCALE	1:118
COLLAR ELEV.	87m RL	PROBE DIAMETER	1 1/4"		

DEPTH M	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Silty, clayey LOAM - red-brown, then CHLCRETE, & Nodules mottled CLAY		overall limonite				105/3	Air drilled 0 - 15m
6	SILT Sandy, clayey buff to orange-buff		as above				105/6	
9							105/9	
12	Pebbly SAND grey-brown at top then orange-brown. Poorly sorted with 5% pebbles to 2cm;		as above				105/12	
15	10% + magnetite pebbles Mere even grained coarse sand at base						105/15	
18	Sandy silty CLAY light grey mottled red-brown		v.sl. limonite				105/18	
21							105/21	
24	SILT light red-brown						105/24	

24								
27	SILT As previously light red-brown, buff		as above limest.				105/27	
30							105/30	
33	CLAY Light gray, mottled red-brown		50% limest.				105/33	
36	SILT Light red-brown, buff, minor		as above limest.				105/36	
39							105/39	
42	CLAY Light gray mottled light red -brown, buff		50% limest.				105/42	
45							105/45	
48	SAND Fine buff color, mod sorted fine to med gr; subrnd to rnd Colorless to cloudy (random) lgt		10-20% lightly to strong orange, red-				105/48	
51	common red stained mica flakes. Some interbedded clay - occurring Sandy; - off white, mottled light red-brown, yellow-brown		orange limestn				105/51	
54							105/54	
57	Clay interbed becoming more common. Sand becoming more poorly sorted - to coarse		50% limestn				105/57	
60			clay				105/60	

105/3/4

60								
63	CLAY with Sand interbeds Clay mostly mottled light grey & orange, purple, yellow brown. Sand poorly sorted no structure		75/4 lmst clay 20/4				105/63	Rolling behaviour indicates clay with lesser sand interbeds
66			lmstn Sand.				105/66	Drilling extremely in clay
	CLAY Light grey minor yellow brown mottling		20/ lmstn					
69	Carbonaceous CLAY mid grey, dark brownish grey & dk		few py	common discrete black carb. wood frags.			105/69	
72	Mostly carbonaceous humic		frags				105/72	
75	Sand Pale orange-buff overall; poorly sorted fine to coarse with fine-med gr. predom.		10-30/ lightly to strong orange				105/75	Drilling entirely in Sand. Poor sample quality with abort.
78	Sub rnd to rnd; colourless to cloudy g's		lmst. Sta				105/78	contains clay from up the hole throughout
81							105/81	
84							105/84	
87							105/87	
90							105/90	
93	Sand light grey becoming mod dark [illegible] med. to coarse gr. sub rnd to rnd; colourless to cloudy g's		10/? light to strong orange lmstn				105/93	Bottom sample quality
96	Mass buff-pink colour from 93m		10-20/ light to strong lmstn				105/96	

000439 105/4/4

96								
	SAND As previously		2'-3" ft thick					
99	SAND + some CLAY interbeds Sand as above, becoming peaty							Clay interbeds indicated by cuttings
102	CLAY Med grey plastic + some brown & grey completely		Abundant	Some fine black				Drilling entirely in clay. Abnormal sand.
105								
108	Clay becoming a med grey grey. Some fine sand interbeds?							
111								
114	Few light brown-grey sandy grains.							
	Glauconitic sandy ferruginous MARL Light grey to green. Abundant shell fragments							
								T.D. 115 Sandy clay T.D. 114 m clayey

000440

TRICENTROL AUSTRALIA LIMITED.

ROTARY DRILLING LOG.

PROJECT: Mirace EL 63 South Australia

HOLE NO.	MT 106	CONTRACTOR	W.L. Sides & Son D/C	STARTED	24/6/1974
LOCATION	2cm S 155° from MT 96	GAMMA LOGGED	S.A. Mines Dept.	COMPLETED	24/6/1974
COORDS	N E	GEOL. LOGGED	T.D. Mitchelson	SHEET	1 OF 4
TOTAL DEPTH	128cm(d), 127.4m(L)	HOLE DIAMETER	4 3/4in	SCALE	1:118
COLLAR ELEV.	86cm RL	PROBE DIAMETER	1 1/4in		

DEPTH	DESCRIPTION	Graphic Lith.	Fe.	Carbon	Feldspar	Other	Sample No.	COMMENTS
3	Sandy clayey COARSE red-brown iron CONCRETE, calcareous mottled CLAY		overall low str.				106/3	Auger drilled 0–57m
6	Sandy silty CLAY Red-brown		as above				106/6	
9	SILT Red-buff, red-brown Progressive to		as above				106/9	
12	SAND, pebbly SAND Red-brown, fine gr at top becoming coarse, pebbly at base		as above				106/12	
15	CLAY Light grey buff green mottled red-brown, buff		75% low str.				106/15	
18	Silty SAND Red-brown		as above				106/18	
21	Sandy silty CLAY Red-brown		as above				106/21	
24	SAND Orange-buff							
	SILT Buff		as above				106/24	

24								
27	SILT Fine, occasionally Sandy silty CLAY Light brown		overall lam. str. as above				106/27	
30	SILT Orange-buff, reddish buff		as above				106/30	
33							106/33	
36							106/36	
39							106/39	
42	Becoming stiff Sand very fine sand sections						106/42	
45							106/45	
48	CLAY Light gray mottled buff		50% lam. str.				106/48	
51	Silty SAND Medium at top, becoming orange brown silty medium sand Mostly fine to medium; subround to angular; calcareous to dilute HCl; trace silty mottling & clay		30% lightly cemented orange lam. str.				106/51	
54			75% strong reticulate				106/54	
57			orange reddish lam. str.				106/57	
60							106/60	

106/3/4

000442

80								
63	CLAY, sandy, silty Flesh-cream pink, red-brown at top. Rare fine sand to silt constant.		100% firm sh				106/63	
66	Decreasing mottling - Big-gey becoming predom		Soft to firm sh				106/66	
69	Increase in sand-silt content		Few pyr frags				106/69	
72	Carbonaceous CLAY Dark grey, sepia, black		Few pyr frags.	Abnt lignite evident			106/72	
75	CLAY Mid grey, commonly shades off-white, mottled reddish, yellow-buff.		Soft firm sh Abnt pyr				106/75	
78	Lesser mottled clay		Frags from above	Common black earth specks in clay			106/78	
81	CLAY with SAND inclusions Clay as above. Sand appears light grey overall. Fine to med gr sub-rnd to sub ang		Abnt pyr frags.				106/81	
84	colourless to cloudy qtz.						106/84	
87	SAND embedded Brownish orange-buff earthy		50% light				106/87	
90	looked fine to coarse. Sub rnd to ang, colourless to cloudy qtz.		Lt stain earthy firm sh				106/90	
93							106/93	
96							106/96	

96								
99	SAND As previously? + some interbedded clay - indicated from shaking behaviour							Severe circulation losses from 93m down - emphasis placed on completing hole rather than
102								satisfactory sampling therefore total sample unreliability
105								
108								
111	CLAY - predominantly olive some interbedded sand? some med. grey clay cuttings evident olive fine grey non-stained sand.		Some oil fluorescence					Drilling in clay
114								
117								
120								Some sand drilling indicated
123								
126								
	Glauconite grains, shell fragments evident in final washing part of hole							
								T.D. 127.5m Logger 128.2m Driller 127.4m Logged