RB 765

DEPARTMENT OF MINES
SOUTH AUSTRALIA

CURRAMULKA LIMESTONE DEPOSITS, YORKE PENINSULA
DRILLING COMPLETION REPORT - SITE 2

Section 52S, Hundred Curramulka, County Fergusson

by

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Section 52S, Hundred Curramulka, Co.Fergusson

ABSTRACT

Two diamond drillholes and 22 air holes have indicated the presence of 28,500,000 tons of Lower Cambrian limestone containing over 85% calcium carbonate in a bed dipping at about 10° southwards and below overburden less than 20 ft thick. In addition, 9,000,000 tons is inferred, down to a depth of 200 ft; and a further 6,000,000 tons has been indicated or is inferred under a cover of calcrete and weathered lower grade limestone ranging in thickness from 20 ft to 50 ft.

Further drilling is recommended to the north to determine whether stratigraphically lower beds with little or no overburden conform to grade; and westwards along the strike where large additional reserves of high grade limestone are anticipated.

The limestone fulfils the requirements of the specifications except that the P_2O_5 (phosphorus pentoxide) content is higher than the figure quoted.

INTRODUCTION

This report describes the investigation of a limestone deposit on Section 52S, Hd. Curramulka, carried out between 25th October, 1969 and 12th November, 1969.

The site was selected by Supervising Geologist M.N. Hiern after drilling on Section 55, Hd. Curramulka, 1½ miles to the west, had failed to indicate a suitable deposit. (Blissett and Conor, 1970).

The following specifications have been stipulated:

1. The availability of at least 40,000,000 short tons of limestone for opencutting.
2. A minimum grade of 85% calcium carbonate
3. Not more than 12% magnesium carbonate
4. A minimum content of 2.5% silica
5. Combined phosphorus and sulphur to be less than 0.04%

With a tonnage factor of 12 cu.ft. per ton and assuming a quarry depth of 200 ft., an area of the order of 2,400 ft. by 1,000 ft. is required.

Surveyor N. Edwards laid down a grid at 500 ft. spacings with a baseline 2,500 ft. long parallel to the inferred strike of the Parara Limestone which is not accurately known on Section 52S. Two diamond drill-holes were sited 1,000 ft. apart in the southern portion of the area in order to test the limestone sequence to a depth of at least 250 ft. Air holes were drilled at 500 ft. centres to varying depths, down to 150 ft., the limit of the Halco 150 air hammer drill.

LOCATION AND COMMUNICATIONS

The town of Curramulka lies in central Yorke Peninsula, 130 miles by road from Adelaide. It is reached by way of a bitumen road to a point eight miles south of Ardrossan and thence by a partly sealed road turning southwestwards off the main road. The deposit is 1½ miles southeast of the township, along a good graded road leading to a gate on the eastern boundary of Section 52S. The drilling plant was moved from site to site with little difficulty.

There are two existing small shallow harbours on Gulf St. Vincent; Port Julia (Plate 4), lying about 10 miles northeast of Curramulka via well-graded roads, and 32 miles by sea due west of

Port Gawler; and Port Vincent (Plate 8), located 10 miles southeast of Curramulka to which it is connected by a sealed road. Port Vincent is 35 miles southwest of Port Gawler. Plates 5, 6 and 7 show shallow bays backed by cliffs 50 ft. to 75 ft. high between Sheoak Flat Beach and Port Vincent. (See Fig.2).

Details of the depth of water offshore are not available to the authors and should be obtained from the South Australian Department of Marine and Harbors.

TITLE

Section 52S is freehold land owned by S.G.W. Agnew, J.J. Agnew and E.J.E. Agnew; with minerals alienated from the Crown. Section 53 to the west is also freehold land with minerals alienated (E.M.Goldsworthy). Authority to Enter was negotiated in the name of the Minister of Mines for two years, commencing on October 15th, 1969 (Section 52S) and October 10th, 1969 (Section 53).

GEOGRAPHY

Site 2 lies on the slopes of a low plateau rising to an altitude of about 350 ft. above sea level, forming the southern margin of a broad west-east trending closed valley about 100 ft. lower in which internal drainage is controlled by fissures and sinkholes in the Parara Limestone. The watertable is at least 200 ft deep below the edge of the plateau though exact measurements in the two diamond drillholes were not possible, owing to caving in the upper beds. Air holes drilled to 150 ft. along line 1000S some 75 ft. lower down the slope were all dry.

Land in the district is used for the growing of cereals and sheep grazing.

Between Site 2 and the coast, a low dissected north-north-easterly trending ridge capped with "fossil" sand dunes rises to a maximum height of 271 ft. above sea level. It falls gently eastwards to the coastline where truncation by marine erosion has produced cliffs 50 ft. to 75 ft. high, indented with bays and separated by lower ground edged with sandy beaches at Port Julia, Sheoak Flat and Port Vincent.

GEOLOGICAL SETTING

The following Cambrian succession in the Curramulka district was established by Crawford (1965), supplemented by data on the "Red Bed Clastics" obtained from the Minlaton No.2 Stratigraphic borehole three miles to the south (Blissett, 1968).

Middle Cambrian

Ramsay Limestone (107 ft. thick). Dark blue-grey siliceous crystalline nodular limestone with a yellowish-brown dolomitic matrix.

Lower Cambrian

"Red Bed Clastics" (453 ft. in the Minlaton No.1 bore, thinning to 213 ft. in the Minlaton No.2 bore). The beds are concealed by post-Cambrian formations and have been intersected only in boreholes. They are a variable succession of limestones, reddish-brown siltstones, sandstones, conglomerate; and chocolate-coloured and greenish shales.

"Parara Limestone". (946 ft. - Minlaton No.1 Borehole.) Dark blue-grey crystalline nodular limestone with a yellowish-brown dolomitic matrix.

"Kulpara Limestone". (At least 1053 ft. thick in Minlaton No.1 borehole.) Grey limestones with bands of yellowish dolomitic limestone.

The beds have been folded into a northerly trending syncline plunging gently southwards, and are overlain to the south by Permian glacial clays and sands. There is an extensive cover of Quaternary clays and calcrete, so that outcrops of the Parara Limestone are mainly restricted to the valley floor and the lower slopes of the escarpment south of Curramulka.

M.N. Hiern traced outcropping Parara Limestone almost continuously from Site 1 on Section 55 to Site 2, a distance of about 1½ miles. At Site 2, the beds lie in the lower part of the formation and though correlation has not been possible, they appear to be at a higher stratigraphical level than the limestone at Site 1.

The low plateau on Section 52S is capped by calcrete up to about 12 ft. thick, resting upon decomposed limestone (See Fig.3). On the slopes there are thin isolated patches and coatings of calcrete upon the limestone and in irregular fissures. The lower ground is floored by relatively fresh limestone cropping out below a thin cover of sandy soil. No bedding planes are visible; however, Crawford (1965) recorded a dip of 10^{o} southeasterly at the Curramulka mine, about 3/4 mile to the southeast.

Core from the diamond drillholes shows that the limestone is vughy and pitted by leaching, and provides evidence of clay-filled solution pipes. Several air holes had to be abandoned in cavities at shallow depths. The limestone ranges from a nodular variety with a yellowish-brown matrix to grey and dark grey slump-bedded limestone with small-scale intraformational breccias. Oxidation has taken place

to a depth of at least 200 ft. and irregular limonite-stained fractures commonly cut the rock. Localised sandy and argillaceous aggregates give the superficial appearance of being infillings of irregular cavities, particularly when altered by weathering to yellowish-brown or reddish-brown sandy clay or marl. It is suggested that these aggregates may be connected with post-depositional or diagenetic alteration of the limestone; possibly a stage in the process of dolomitisation.

Malachite spotting was observed in a number of boreholes and samples prepared for analysis were examined spectrographically. Traces of copper, lead and zinc were reported. (See Appendix III).

DRILLING PROGRAMME (See Fig.3)

Two diamond drillholes totalling 518 ft 2 in, and 22 air holes totalling 1,851 ft. were drilled between 25th October and 12th November, 1969. The diamond drillholes were sited 1,000 ft. apart along a line (2000S) parallel to the inferred strike of the limestone in the southern portion of Section 52S. They were planned to intersect beds cut at shallower depths in airholes to the north, and to provide core for analysis as a check on grades indicated by cuttings from the air holes.

No difficulty was experienced in drilling the air holes to the maximum depth of 150 ft. in the lower ground in the northern portion of the grid where the limestone is exposed and relatively unweathered. However, below the calcrete capping on the plateau, the limestone is decomposed, fractured and leached and a number of holes had to be abandoned because of loss of circulation. For example, holes 52/7b,c and d were drilled without success in an attempt to penetrate deeper than 7a, abandoned at 46 ft. Hole 52/9c eventually reached 150 ft. after

9a and 9b had been abandoned. As both 52/10 (39 ft.) and 52/11 (36 ft.) failed to reach the objective, air hole 52/16 (148 ft.) was drilled at a point half way between them; and 52/17 was put down half way between 52/11 and 52/5 which could not penetrate below 46 ft. The beds below the latter hole were intersected in diamond drillhole 52/4 and in air hole 52/6.

PREPARATION OF SAMPLES

Core from the diamond drillholes (52/1 and 52/4)was split longitudinally over intervals determined by lithological and colour changes in the beds. One half of the core was sent to AMDEL for analyses and the remaining half is held in the Department of Mines core laboratory at the Thebarton depot where it is available for metallurgical tests, if required.

Dust and chippings from the air holes were collected in a sack attached to a cyclone. After each 6 ft. interval, (the length of a drill rod), the sample was removed and reduced in the field to a convenient volume in a riffle box sample splitter. The samples were further reduced in the core laboratory by means of a laboratory type sample splitter, and 6 ozs. of each were weighed and combined to form composite samples over intervals with similar lithology and colour. In order to reduce the delay in receiving results of analyses in the field, the samples were submitted for partial analysis for calcium carbonate and magnesium carbonate only, with an accuracy to within 1%.

On the completion of the drilling programme, bulk samples of the complete sections below the weathered zone were prepared for each hole by weighing out afresh 6 ozs. of each of the original 6 ft. samples, or of the sections of split core, the combined samples being split to a

convenient size and submitted for full analysis.

Comparison of analyses of core and air drill samples at Site 1 indicated a satisfactory correlation with a maximum variation of ± 4% $CaCO_3$ (Blissett and Conor, 1970, p.2.)

RESULTS OF ANALYSES (See Appendix III and Figs. 4, & 5.)

Over a large part of the area drilled, the limestone is in grade and bulk samples from air holes 52/11 and 52/13 contained over 90% $CaCO_3$. However, on the plateau east of line 1500W there is a capping of calcrete and evidence from boreholes showed that the upper part of the underlying limestone is deeply weathered, with less than 85% $CaCO_3$. The overburden of calcrete and weathered limestone is up to 47 ft. thick along line 2000S so that further exploration southwards on the plateau is not warranted.

To the north of line 1000S, there is no overburden and relatively fresh limestone crops out almost continuously below a thin patchy soil cover. The northern limits of the formation have not yet been defined, though below-grade dolomitic limestone was encountered below 102 ft. in air hole 52/12 (See Fig.4) These beds may reflect localised chemical variations in the Parara Limestone and are not necessarily part of a continuous dolomitic formation.

West of line 3500W, the boundary of the calcrete swings southwards, so that there should be large potential reserves of limestone in this direction with little or no overburden.

Details of the analyses are given in Appendix III. Discrepancies between the grade of $CaCO_3$ and $MgCO_3$ in bulk samples and the calculated weighted mean of the individual samples are attributed to the fact that the latter are partial analyses only.

RESERVES (See Fig.6)

Tests on four core samples gave an average specific gravity of 2.63, equivalent to approximately 12 cubic feet per short ton.

Variations in a uniform slope of the ridge are small and have been disregarded; in any event their effects will be to slightly increase the calculated reserves. Boreholes were drilled at 500 ft. centres and it is assumed that reserves will extend a further 250 ft. beyond the drilled grid. Indicated reserves signify tonnages calculated to the depths reached by boreholes; and inferred reserves refer to tonnages below those levels estimated to depths reached by neighbouring boreholes.

The average core loss below calcrete and weathered limestone in the two diamond drillholes was 4.71%. It is assumed that the loss was due to solution cavities and therefore 5% has been deducted from the total calculated tonnage.

Details of the calculations based on cross sections shown in Fig.6 are given in Appendix IV. Calculated reserves are as follows:-

Indicated reserves: approximately	28,500,000 short tons
Inferred reserves : approximately	9,000,000 short tons
Indicated and inferred below 30 ft - 47 ft. overburden	6,000,000 short tons
Total	43,500,000 short tons

CONCLUSIONS

Reconnaissance diamond and air drilling has provided the following data:

1. Assuming a loss of 5% due to cavities, 28,500,000 short tons of limestone of the required grade of calcium carbonate has been indicated, and 9,000,000 short tons inferred. In addition, a further 6,000,000 tons may be present below overburden 30 ft. to 47 ft. thick.
2. The limestone is relatively uniform in composition and it was not possible to correlate bands with higher, but still acceptable amounts of magnesium carbonate. Close drilling would be necessary to determine the relationship between calcium and magnesium carbonates in detail.
3. In the lowest beds intersected, along line 1000S, dolomitic limestone was encountered at a depth of about 100 ft. However, there may be a considerable volume of in-grade limestone with little overburden north of this line.
4. Outcropping limestone extends southwestwards along strike into Section 53, west of line 3500W, and it is expected that there is a large additional tonnage of high grade limestone in this direction.
5. East of line 1500W and south of line 2000S calcrete overlies decomposed limestone so that overburden containing less than 85% calcium carbonate may be up to 50 ft. thick.
6. The sulphate (SO_3) content of bulk samples ranges from 0.01% to 0.035%, averaging 0.018%. The phosphorus pentoxide (P_2O_5) content ranges from 0.71% to 1.1% with an average of 0.88%. This is higher than the combined S + P content of 0.04% quoted in the specification.
7. Spectrographic analyses of bulk samples indicated an average of 31 parts per million of copper and 49 ppm zinc. The lead content ranges from less than 10 ppm to 200 ppm.

RECOMMENDATIONS

Drilling to date has been sufficient only to indicate the presence of a large body of limestone of acceptable grade. Further exploratory drilling is required to define the limits of the deposit (Stages 1 and 2) and to prove the uniformity of grade (Stage 3).

Stage 1

In order to outline an area with a configuration suitable for opencutting and to determine the stratigraphical limit of limestone of the required grade, a borehole at least 150 ft. deep should be drilled at a point 500 ft. north of borehole 52/12 (preferably with a diamond drill to obtain core). If the grade is satisfactory, four air drillholes should be put down at 500 ft. centres between 1500W and 3500W. This area will contain about 15,000,000 short tons to a depth of 150 ft.

Stage 2

If the grade encountered in Stage 1 proves to be unacceptable, exploration should be extended west of line 3500W into Section 53. Air holes should be drilled at 500 ft. centres to a depth of 200 ft.

Stage 3

When an area with the required dimensions has been outlined, reserves should be proved by air holes 200 ft. deep drilled at 100 ft. centres.

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LIST OF PLATES

APPENDIX I

LOGS OF DIAMOND DRILLHOLES

No.: 52/1 (251 ft. 8 in.)

52/4 (266 ft. 6 in.)

DEPARTMENT OF MINES
SOUTH AUSTRALIA

LOG OF DIAMOND DRILLHOLE
(Mindrill F.20 No.24.)

Project: Curramulka Limestone (Site 2) DM.SR.5/6/40

Bore No.: 52/1 Bore Serial No.: 624/70

Hundred: Curramulka. Section: 52S Plan Ref:No.: 70-317

Co-ordinates: 2000S; 3000W R.L. of Collar: 347.5 ft.

Bearing: Vertical Depth: 251 ft. 8 ins.

Date drilling commenced: 25.10.1969 Date drilling completed, 30.10.1969

Logged by: A.H.Blissett, M.N.Hiern, C.H.H.Conor Driller: J. Jensen.

DEPTH From Ft.	In.	To Ft.	In.	DESCRIPTION
	0	11	6	Pale pinkish-brown calcrete
11	6	18	6	Grey nodular limestone with orange-brown weathered matrix.
18	6	28	9	Pale grey and brownish limestone with patches of pale yellowish and pinkish-brown calcareous sandstone and marl. Shattered and oxidised reddish-brown 17 ft.6 ins. to 26 ft. 6 ins. Secondary calcite in honeycomb structures 19 ft - 19 ft. 3 ins. and 27 ft. to 27 ft. 9 ins. Limestone pitted and vughy 26 ft. 6 ins. - 27 ft. and 27 ft. 9 ins. to 28 ft. 6ins.
28	9	35	10	Grey nodular limestone with brown matrix.
35	10	38	10	Clay pipe. Reddish-brown clay with fragments of limestone.
38	10	46	0	Grey and brownish nodular limestone with irregular yellowish-brown sandy and marly patches. Pitted and oxidised 40 ft. 2 ins. to 41 ft. 3 ins. Shattered, oxidised and leached below 42 ft.
46	0	46	6	Brecciated grey limestone.
46	6	68	0	Grey and brownish nodular limestone with abundant irregular yellowish-brown sandy and marly patches

CURRAMULKA LIMESTONE (SITE 2)
Bore Serial No. 624/70. Plan No. 70-317

From Ft.	From In.	To Ft.	To In.	DESCRIPTION
68	0	81	0	Grey nodular limestone. Leached and pitted in places, with limonitic coatings. Rare, irregular yellowish-brown patches and scattered vughs containing calcite. 72 ft. 3 ins to 77 ft. Patches weathered to yellowish-brown sandy clay with black manganiferous markings in shattered limestone 78 ft. 10 in. - 79 ft. 5 in. and 90 ft. 2 in. to 90 ft. 6 ins.
81	0	100	4	Grey nodular limestone with abundant irregular yellowish-brown sandy and marly patches.
100	4	124	0	Grey nodular limestone; weathered patches less abundant. Rare stylolites. Scattered small vughs with calcite crystals.
124	0	134	0	Medium grey and brownish limestone, with much small-scale slumping and intraformational brecciation. Scattered stylolites.
134	0	152	10	Grey limestone with scattered stylolites. Diagonal fissures coated with limonite between 136 ft. 10 in. and 139 ft. 8 in. Pale yellowish partings and patches in places.
152	10	181	6	Pale grey to medium grey and brownish limestone with yellowish-brown weathered patches. Leached and vughy to 154 ft. Slightly vughy 159 ft. to 160 ft. Vertical fractures, some coated with limonite, 154 ft. 9 in. - 155 ft. 4 in.; 160 ft. 4 in. - 160 ft. 10 in.; and 171 ft. 1 in. - 171 ft. 6 in. Weathered patches leached and altered to dark yellowish-brown sandy clay 172 ft. - 173 ft. (Patches and partings less abundant, below 176 ft.)
181	6	211	8	Pale grey and brownish limestone, with scattered stylolites. Limonite-coated fractures in places. Vughs lined with calcite 191 ft. 6 ins - 211 ft. 8 in. Scattered pale yellowish-brown partings and patches 199 ft. - 200 ft; 203 ft. 2 ins - 205 ft. 6 in. and below 210 ft. 7 in.
211	8	219	6	Grey and white mottled massive limestone with some stylolites and few yellow partings. Becomes mottled reddish-brown in depth.
219	6	223	5	Abrupt change below irregular surface to mottled grey limestone; few yellow sandy partings.
223	5	227	0	Faintly banded mottled grey and reddish-brown nodular limestone (Sharp contact at top).
227	0	235	0	Mottled grey limestone with gritty reddish-brown partings. Stylolites common.
235	0	236	9	Mottled grey nodular limestone with abundant reddish-brown matrix.
236	9	241	0	Sudden change to massive grey mottled limestone with few reddish-brown partings.

CURRAMULKA LIMESTONE (SITE 2)
Bore Serial No. 624/70 Plan No. 70-317

From Ft.	From In.	To Ft.	To In.	DESCRIPTION
241	0	242	0	Faintly laminated reddish-brown and grey limestone
242	0	243	0	Mottled grey limestone.
243	0	251	8	Grey mottled limestone with reddish-brown calcareous partings. Small cavity recorded at 245 ft. 8 ins.

Core recovery 225 ft. 3 in. = 89.63%

Core loss between 18 ft. 6 in. and 251 ft. 8 in. = 6.54%

DEPARTMENT OF MINES
SOUTH AUSTRALIA

LOG OF DIAMOND DRILLHOLE
(Mindrill F20 No.: 15)

Project: Curramulka limestone (Site 2) DM. SR 5/6/40

Bore No.: 52/4 Bore Serial No.: 626/70

Hundred: Curramulka Section: 52S Plan Ref. No.: 70-317

Co-ordinates: 2000S; 2000W R.L. of Collar: 346 ft.

Bearing: Vertical Depth. 266 ft. 6 in.

Date drilling commenced: 29.10.1969 Date drilling completed 5.11.1969

Logged by: C.H.H.Conor Driller: T.Jarvis.

DEPTH From Ft.	In.	To Ft.	In.	DESCRIPTION
	0	10	0	Calcrete; rather red at base.
10	0	14	0	Sand with clay matrix only slightly calcareous.
14	0	27	4	Decomposed limestone. Possibly some calcrete at top.
27	4	47	3	Light grey limestone with reddish-brown matrix. Weathered and broken in places.
47	3	53	10	Light grey limestone with pink matrix. Much dark ferruginous and manganiferous spotting.
53	10	68	2	Light grey limestone with dark spotted yellow partings more discrete.
68	2	76	4	Slightly darker grey limestone. Indiscrete pinkish matrix.
76	4	100	6	Coarse grained grey limestone with fairly discrete yellow and brown partings. Cavity between 84 ft. and 86 ft. Hyolithes at 86 ft. Lower 6 in. calcareous but very sandy in appearance (possibly cavity infilling). Similar material at 95 ft. 6 in.
100	6	123	3	Light greyish-brown limestone, darker below 110 ft. Patchy reddish-brown sandy calcareous infillings with gaps at 101 ft. 104 ft. 6 in. and 116 ft. Sandy calcareous weathered zone at 108 ft.
123	3	136	3	Medium grey mottled limestone with occasional yellowish and brownish sandy partings. Shattered 124 ft. to 127 ft.

CURRAMULKA LIMESTONE (SITE 2)
Bore Serial No. 626/70 Plan No. 70-317

From Ft.	From In.	To Ft.	To In.	DESCRIPTION.
136	3	156	9	Light grey mottled limestone with pinkish yellow partings, containing Hyolithes.
156	9	186	9	Similar. Shattered at 159 ft. 161 ft. and 170 ft. Drusy; some malachite at 165 ft. Fairly fine mottled grey limestone 172 ft. 6 in. to 180 ft. Scattered reddish-brown partings, forming discrete bands in places as at 183 ft.
186	9	204	9	Similar. Limestone shattered and drusy at 188 ft. and 196 ft.
204	9	220	9	Similar. Red and yellowish-red partings in places with ferruginous or manganiferous specks. Druses widespread. Limestone shattered at 203 ft. and 217 ft. Tinged pink and yellow at about 220 ft. Friable with a sandy appearance at 219 ft.
220	9	235	2	Dark grey and light grey mottled limestone with pink and yellow tinges in places. Light yellow partings with ferruginous spots between 220 ft. and 230 ft; well-developed in a discrete soft and very calcareous band at 227 ft. Rock has a friable sandy appearance at 231 ft.
235	2	258	1	Similar limestone. Many yellowish-brown and pinkish-yellow partings with a discrete band 2 ft. thick at 245 ft. Limestone rather sandy and friable, especially at 240 ft. 243 ft. and 248 ft. Less drusy than between 204 ft. 9 in. and 220 ft. 9 in. Light grey mottled limestone at 254 ft. with 40% yellow partings; becoming rarer in depth.
258	1	266 (End)	6	Dark grey limestone with dark brown and black shaly partings (Probably fresh limestone below the weathered zone).

Core recovery 232 ft. 9 in. = 87.34%

Core loss between 47 ft. and 266 ft. 6 in. = 7 ft. 8 in. = 2.88%

APPENDIX II.

LOGS OF AIR DRILLHOLES

No:	52/2	(150 ft.)
	52/3	(150 ft.)
	52/5	(46 ft.)
	52/6	(150 ft.)
	52/7a	(46 ft.)
	7b	(18 ft.)
	7c	(36 ft.)
	7d	(30 ft.)
	52/8	(150 ft.)
	52/9a	(36 ft.)
	9b	(44 ft.)
	9c	(150 ft.)
	51/10	(36 ft.)
	52/11	(36 ft.)
	52/12	(150 ft.)
	52/13	(42 ft.)
	52/14	(36 ft.)
	52/15	(85 ft.)
	52/16	(148 ft.)
	52/17	(96 ft.)
	52/18	(66 ft.)
	52/19	(150 ft.)
		1851 ft.

DEPARTMENT OF MINES
SOUTH AUSTRALIA

LOG OF AIR DRILLHOLE
(Halco 150, No: DM.186)

Project: Curramulka limestone (Site 2) DM. SR.5/6/40

Bore No.: 52/2 Bore Serial No.:920/70

Hundred: Curramulka. Section: 52S Plan Ref.No.: 70-317

Co-ordinates: 1500S; 3000W R.L. of Collar: 321.2 ft.

Bearing: Vertical Depth: 150 ft.

Date drilling commenced: 27.10.1969 Date drilling completed: 28.1.1969

Logged by: A.H.Blissett and M.N.Hiern Driller: K.Merrin.

DEPTH From Ft.	DEPTH To. Ft.	DESCRIPTION.
0	6	A little calcrete on yellowish-brown weathered grey limestone with sandy patches.
6	12	Pale grey to grey and brownish limestone; a few cream-coloured fragments.
12	18	Pale grey to grey limestone. Some yellowish-brown and reddish-brown sandy and marly patches.
18	54	Pale grey to grey limestone; a few scattered yellowish-brown sandy and marly patches.
54	66	Pale grey to grey and brownish limestone. Some yellowish-brown sandy and marly patches.
66	72	Grey to blue-grey and some brownish limestone.
72	84	Pale grey to grey limestone with pale yellowish-brown weathered sandy and marly patches.
84	90	Pale grey to grey limestone.
90	126	Pale grey and yellowish limestone, with scattered pale yellowish sandy and marly patches.
126	150	Pale grey and pale brownish limestone with yellowish-brown sandy and marly patches. Traces of malachite.

DEPARTMENT OF MINES.
SOUTH AUSTRALIA

LOG OF AIR DRILLHOLE
(Halco 150, No.: DM.186)

Project: Curramulka limestone (Site 2) DM. SR.5/6/40

Bore No.: 52/3 Bore Serial No.: 920/70

Hundred: Curramulka. Section: 52S Plan Ref. No.: 70-317

Co-ordinates: 1000S; 3000W R.L. of Collar: 272.7 ft.

Bearing: Vertical Depth: 150 ft.

Date drilling commenced: 25.10.1969 Date drilling completed: 27.10.1969

Logged by A.H.Blissett Driller: K. Merrin.

DEPTH From Ft.	DEPTH To Ft.	DESCRIPTION.
0	6	Pale grey limestone. Traces of reddish-brown gritty marl.
6	24	Pale grey and pale yellowish limestone, with yellowish-brown weathered sandy and marly patches showing black manganiferous markings.
24	42	Yellowish-brown weathered pale grey marly and sandy limestone
42	48	Pale grey finely crystalline limestone with yellowish-brown sandy and marly patches. Traces of malachite.
48	66	Pale grey to grey and brownish limestone.
66	78	Pale grey to grey and yellowish-brown limestone. Fragments of white crystalline calcite between 72 ft. and 78 ft.
78	90	Pale grey to grey limestone with some reddish-brown and yellowish-brown weathered sandy patches.
90	114	Similar, with fragments of pale brown crystalline calcite 90ft - 96 ft.
114	120	Pale grey to grey limestone with yellowish-brown sandy and marly patches. Traces of malachite.
120	138	Pale grey to grey and yellowish-brown limestone. A little pale brownish dolomite between 126 ft. and 138 ft.
138	150	Pale grey to grey limestone. Traces of pale brownish dolomite in places.

DEPARTMENT OF MINES.
SOUTH AUSTRALIA

LOG OF AIR DRILLHOLE
(Halco 150, No.DM.186)

Project: Curramulka limestone (Site 2) DM. SR.5/6/40

Bore No.: 52/5 Bore Serial No.: 920/70

Hundred: Curramulka. Section: 52S Plan Ref. No.: 70-317

Co-ordinates: 1500S; 2000W R.L. of collar: 324.4 ft.

Bearing: Vertical Depth: 46 ft.

Date drilling commenced: 30.10.1969 Date drilling completed: 30/10/1969

Logged by: C.H.H.Conor and M.N.Hiern Driller: K. Merrin.

DEPTH From Ft.	DEPTH To Ft.	DESCRIPTION
0	6	Red calcrete, and grey and light brown limestone.
6	12	Brown, fairly coarse limestone.
12	18	Brown limestone with a little malachite staining.
18	30	Brown and grey limestone.
30	42	Limestone paler in colour, with red stained calcite veining between 36 ft. and 42 ft.
42	46	Greyish-brown limestone, fairly coarsely crystalline.

(Hole abandoned in cavity.)

DEPARTMENT OF MINES
SOUTH AUSTRALIA.

LOG OF AIR DRILLHOLE
(Halco 150, No:DM.186)

Project: Curramulka limestone (Site 2) DM. SR.5/6/40

Bore No.: 52/6 Bore Serial No.: 920/70

Hundred: Curramulka. Section: 52S Plan Ref. No.: 70-317

Co-ordinates: 1000S; 2000W R.L. of collar: 273 ft.

Bearing: Vertical Depth: 150 ft.

Date drilling commenced: 29.10.1969 Date drilling completed: 30.10.1969

Logged by: A.H.Blissett and M.N.Hiern Driller: K.Merrin.

DEPTH From Ft.	DEPTH To Ft.	DESCRIPTION.
0	6	Grey, brown and pinkish-grey limestone. Fragments of reddish-brown gritty clay.
6	12	Pale grey and brownish limestone. Fragments of reddish-brown marl and sandstone.
12	18	Pale grey to grey limestone. A little yellowish-brown calcareous sandstone and marl. Some malachite spotting.
18	30	Pale grey to grey limestone. Some reddish-brown gritty marl
30	54	Pale grey to grey and brownish limestone. A little yellowish-brown calcareous sandstone and marl. Malachite spotting 30 ft. - 36 ft; 48 ft. - 54 ft.
54	72	Similar, but calcareous sandstone and marl more abundant. Malachite spotting 66 ft. - 72 ft.
72	78	Similar. Much yellowish-brown calcareous sandstone and marl with manganiferous markings.
78	102	Grey and brownish limestone with some calcareous sandstone and marl. M uch malachite spotting 78 ft. - 90 ft.; less abundant below 90 ft.
102	114	Blue-grey limestone. Traces of malachite.
114	126	Pale grey and brownish limestone. Traces of malachite.
126	132	Pale grey and brownish limestone, weathered yellowish-brown in places.
132	150	Grey to dark grey and brownish limestone. Traces of malachite 132 ft. - 138 ft.

DEPARTMENT OF MINES.
SOUTH AUSTRALIA

LOG OF AIR DRILLHOLE
(Halco 150; No.DM.186)

Project: Curramulka limestone (Site 2) DM. SR.5/6/40

Bore No.: 52/7a Bore Serial No.: 920/70

Hundred: Curramulka. Section: 52S Plan Ref. No.: 70-317

Co-ordinates: 2000S; 1500W R.L. of Collar: 349 ft.

Bearing: Vertical Depth: 46 ft.

Date drilling commenced: 5.11.1969 Date drilling completed: 5.11.1969

Logged by: C.H.H.Conor Driller: K.Merrin.

DEPTH From Ft.	DEPTH To. Ft.	DESCRIPTION.
0	12	Calcrete with fragments of reddish-brown weathered limestone
12	30	White-weathered decomposed limestone and ? weathered calcrete
30	42	Pale brown and grey limestone, weathered reddish-brown in places.
42	46	NO SAMPLE.

(Hole abandoned in cavity at 46 ft.)

DEPARTMENT OF MINES
SOUTH AUSTRALIA

LOG OF AIR DRILLHOLE
(Halco 150, No.: DM.186)

Project: Curramulka limestone (Site 2) DM. SR.5/6/40

Bore No. 52/7b Bore Serial No.: 920/70

Hundred: Curramulka Section: 52S Plan Ref. No.: 70-317

Co-ordinates: 2012S, 1500W R.L. of Collar: 349 ft.

Bearing: Vertical Depth: 18 ft.

Date drilling commenced: 5.11.1969 Date drilling completed: 5.11.1969

Logged by C.H.H.Conor Driller: K.Merrin.

DEPTH From Ft	To Ft.	DESCRIPTION
0	12	Calcrete with fragments of limestone, weathered reddish-brown.
12	18	NO SAMPLE

(Hole abandoned in cavity)

DEPARTMENT OF MINES
SOUTH AUSTRALIA

LOG OF AIR DRILLHOLE
(Halco 150, No.DM.186)

Project: Curramulka limestone (Site 2) DM. SR.5/6/40

Bore No.: 52/7c Bore Serial No.: 920/70

Hundred: Curramulka Section: 52S Plan Ref. No.; 70-317

Co-ordinates: 2000S; 1400W R.L. of Collar: 352 ft.

Bearing: Vertical Depth: 36 ft.

Date drilling commenced: 5.11.1969 Date drilling completed: 6.11.1969

Logged by: A.H.Blissett Driller: K. Merrin

DEPTH From Ft.	DEPTH To Ft.	DESCRIPTION.
0	6	Pale brownish calcrete.
6	12	Pale brownish calcrete and fragments of pale grey limestone
12	30	Pale grey, brownish and yellowish limestone. Some balls of soft yellowish-brown calcareous gritty clay between 24 ft. and 30 ft.
30	36	Pale grey and brownish limestone, with fragments of caved calcrete.

(Hole cased to 32 ft. and finally abandoned in broken or cavernous ground at 36 ft.)

DEPARTMENT OF MINES
SOUTH AUSTRALIA

LOG OF AIR DRILLHOLE
(Halco 150, No.DM.186)

Project: Curramulka limestone (Site 2) DM. SR.5/6/40

Bore No.: 52/7d Bore Serial No.: 920/70

Hundred: Curramulka. Section: 52S Plan Ref: No.: 70-317

Co-ordinates: 2000S; 1350W R.L. of Collar: 352.4 ft.

Bearing: Vertical Depth: 30 ft.

Date drilling commenced: 6.11.1969 Date drilling completed: 6.11.1969

Logged by: A.H.Blissett Driller: K. Merrin.

DEPTH From Ft.	DEPTH To. Ft.	DESCRIPTION.
0	18	Brownish, reddish-brown and yellowish-brown silcrete and calcrete. Fragments of pale grey limestone from 6 ft. to 18 ft.
18	24	Pale grey to grey and brownish limestone, weathered reddish-brown in places. A little calcrete.
24	30	Pale grey to grey and brownish limestone. Traces of calcrete. Small balls of soft yellowish-brown and reddish-brown gritty clay.

(Hole abandoned; probably in clay pipe)

DEPARTMENT OF MINES
SOUTH AUSTRALIA

LOG OF AIR DRILLHOLE
(Halco 150, No.DM.186)

Project: Curramulka limestone (Site 2) DM. SR.5/6/40

Bore No. 52/8 Bore Serial No. 920/70

Hundred: Curramulka. Section:52S Plan Ref: No.: 70-317

Co-ordinates: 1500S; 1500W R.L. of Collar: 331 ft.

Bearing: Vertical Depth: 150 ft.

Date drilling commenced: 31.10.1969 Date drilling completed: 31.10.1969

Logged by: C.H.H.Conor and M.N.Hiern Driller: K.Merrin.

DEPTH From Ft.	To Ft.	DESCRIPTION.
0	12	Pink and red weathered calcrete. Some grey and brown limestone fragments.
12	18	Fine grey and brown limestone.
18	30	Pale grey and brown, fine grained limestone with soft yellow gritty calcareous fragments. Becomes mainly pale brown below 24 ft.
30	48	Reddish-brown weathered creamy grey and brownish limestone with calcite crystals.
48	84	Pale grey limestone with calcite crystals.
84	120	Pale grey and pale brown limestone.
120	144	Creamy brown limestone. Some veins of calcite between 126 ft. and 132 ft. Reddish brown weathering between 132 ft. and 144 ft.
144	150	NO SAMPLE RECOVERED

DEPARTMENT OF MINES
SOUTH AUSTRALIA

LOG OF AIR DRILLHOLE
(Halco 150, No:DM.186

Project: Curramulka limestone (Site 2) DM. SR.5/6/40

Bore No.: 52/9a Bore Serial No.: 920/70

Hundred: Curramulka. Section: 52S Plan Ref. No.: 70-317

Co-ordinates: 1000S; 1500W R.L. of Collar: 286.6 ft.

Bearing: Vertical Depth: 36 ft.

Date drilling commenced: 30.10.1969 Date drilling completed: 30.10.1969

Logged by: C.H.H.Conor Driller: K.Merrin.

DEPTH From Ft.	DEPTH To Ft.	DESCRIPTION.
0	6	Calcrete with fragments of greyish-brown coarsely crystalline limestone.
6	12	Pale grey and some dark grey limestone.
12	18	NO RECOVERY
18	24	(Poor recovery). Reddish-brown weathered pale grey limestone.
24	36	NO RECOVERY (Driller reported cavity and broken ground)

DEPARTMENT OF MINES
SOUTH AUSTRALIA

LOG OF AIR DRILLHOLE
(Halco 150, No:DM.186)

Project: Curramulka limestone (Site 2) DM. SR.5/6/40

Bore No.: 52/9b Bore Serial No.: 920/70

Hundred: Curramulka.Section:52S Plan Ref. No: 70-317

Co-ordinates: 1000S; 1520W R.L. of Collar: 285 ft.

Bearing: Vertical Depth: 44 ft.

Date drilling commenced:30.10.1969 Date drilling completed:30.10.1969

Logged by: C.H.H.Conor Driller: K.Merrin.

DEPTH From Ft.	To Ft.	DESCRIPTION.
0	6	(Poor recovery). A little calcrete with grey and brown limestone, partly weathered reddish-brown.
6	12	Grey and some brownish limestone.
12	24	Reddish-brown weathered grey limestone. More intensely weathered, with some malachite staining, between 18 ft. and 24 ft.
24	44	Reddish-brown weathered grey limestone; less weathered between 30 ft. and 36 ft. Some calcite veining at 44 ft.

(Hole abandoned in broken ground)

DEPARTMENT OF MINES
SOUTH AUSTRALIA

LOG OF AIR DRILLHOLE
(Halco 150, No: DM.186)

Project: Curramulka limestone (Site 2) DM. SR.5/6/40

Bore No.: 52/9c Bore Serial No.: 920/70

Hundred: Curramulka. Section: 52S Plan Ref. No: 70-317

Co-ordinates: 962S; 1500W R.L. of Collar: 280 ft.

Bearing: Vertical Depth: 150 ft.

Date drilling commenced:30.10.1969 Date drilling completed:30.10.1969

Logged by: C.H.H.Conor and M.N.Hiern Driller: K.Merrin.

DEPTH From Ft.	DEPTH To Ft.	DESCRIPTION.
0	6	Pale grey and brown fine-grained limestone, weathered reddish-brown in places. Some calcrete.
6	30	Grey and brown limestone.
30	48	Brown and grey limestone. Some vein calcite.
48	72	Pale grey and brown limestone.
72	90	Pale grey limestone; brownish in places.
90	114	Pale grey and brown limestone. Reddish-brown patches between 90 ft. and 102 ft.
114	150	Blue-grey limestone, brownish in places.

DEPARTMENT OF MINES
SOUTH AUSTRALIA

LOG OF AIR DRILLHOLE
(Halco 150, No: DM.186)

Project: Curramulka limestone (Site 2) DM. SR.5/6/40

Bore No.: 52/10 Bore Serial No.: 920/70

Hundred: Curramulka. Section:52S Plan Ref: No.: 70-317

Co-ordinates: 2000S; 2500W R.L. of Collar: 345.6 ft.

Bearing: Vertical Depth 36 ft.

Date drilling commenced: 3.11.1969 Date drilling completed: 4.11.1969

Logged by: C.H.H.Conor and M.N.Hiern Driller: K.Merrin.

DEPTH From Ft.	DEPTH To Ft.	DESCRIPTION
0	6	Calcrete with dark brown and fine brown limestone fragments.
6	12	Blue grey to pale grey limestone with less abundant calcrete fragments.
12	30	Fine-grained blue-grey to pale grey and brownish limestone.
30	36	Dark brown clay with fragments of blue-grey limestone.

(Hole abandoned in cavity at 39 ft.)

DEPARTMENT OF MINES
SOUTH AUSTRALIA

LOG OF AIR DRILLHOLE
(Halco 150, No: DM.186)

Project: Curramulka limestone (Site 2) DM. SR.5/6/40

Bore No.: 52/11 Bore Serial No.: 920/70

Hundred: Curramulka. Section:52S Plan Ref. No.: 70-317

Co-ordinates: 1500S; 2500W R.L. of collar: 318.6 ft.

Bearing: Vertical Depth: 36 ft.

Date drilling commenced: 4.11.1969 Date drilling completed:4.11.1969

Logged by: C.H.H.Conor and M.N.Hiern Driller: K.Merrin.

DEPTH From Ft.	DEPTH To Ft.	DESCRIPTION.
0	12	Calcrete, with fragments of blue-grey to pale-grey and brownish limestone; much reddish-brown sandy calcareous material between 6 ft. and 12 ft.
12	18	Similar, but rarer fragments of calcrete.
18	24	Off-white to pale grey and brownish fine limestone.
24	30	Blue-grey to pale grey and brownish limestone.
30	36	Pale grey to off-white and brownish limestone.

(Hole abandoned in cavernous ground at 36 ft.)

DEPARTMENT OF MINES
SOUTH AUSTRALIA

LOG OF AIR DRILLHOLE
(Halco 150, No.:DM.186)

Project: Curramulka limestone (Site 2) DM. SR.5/6/40

Bore No.: 52/12 Bore Serial No.: 920/70

Hundred: Curramulka. Section: 52S Plan Ref. No.: 70-317

Co-ordinates: 1000S; 2500W R.L. of Collar: 274.7 ft.

Bearing: Vertical Depth: 150 ft.

Date drilling commenced: 1.11.1969 Date drilling completed: 3.11.1969

Logged by. M.N.Hiern Driller: K.Merrin.

DEPTH From Ft.	DEPTH To. Ft.	DESCRIPTION.
0	6	Brown and off-white limestone with calcite, and malachite spots. Brown limestone carries dendritic manganiferous markings.
6	12	Pale grey to dark grey and reddish-brown limestone.
12	18	Similar, but more intensely weathered reddish-brown
18	30	Dark brown, pale grey and white limestone with calcite.
30	36	Grey limestone, with much reddish-brown and red weathering.
36	42	Pale grey limestone with calcite. Weathered reddish-brown in places.
42	54	Grey and brown limestone.
54	72	Grey to brown limestone. Some white limestone and veins of calcite.
72	78	Similar, with some red clay (? fissure)
78	102	Grey to brown, some white limestone.
102	126	Off-white and brown limestone.
126	132	Pale grey, off-white and brown limestone.
132	138	Pale grey to bluish-grey and brown limestone.
138	150	Pale grey limestone. Dark bluish grey limestone increases in depth; rock is mainly dark blue-grey 144 ft. to 150 ft.

DEPARTMENT OF MINES
SOUTH AUSTRALIA

LOG OF AIR DRILLHOLE
(Halco 150, No.: DM.186)

Project: Curramulka limestone (Site 2) DM. SR.5/6/40

Bore No.: 52/13 Bore Serial No.: 920/70

Hundred: Curramulka. Section:52S Plan Ref.No.: 70-317

Co-ordinates: 1000S; 1000W R.L. of Collar: 311.6 ft.

Bearing: Vertical. Depth: 42 ft.

Date drilling commenced: 3.11.1969 Date drilling completed: 3.11.1969

Logged by: C.H.H.Conor Driller: K.Merrin.

DEPTH From Ft.	DEPTH To Ft.	DESCRIPTION.
0	6	Calcrete and fragments of grey and brown limestone.
6	42	Cream-coloured and red-brown stained limestone.

Fines: yellowish 6 ft. - 18 ft.
grey-brown 18 ft. - 30 ft.
white 30 ft. - 42 ft.

(Hole abandoned in cavity at 42 ft. - no returns.)

DEPARTMENT OF MINES
SOUTH AUSTRALIA

LOG OF AIR DRILLHOLE
(Halco 150, No.:DM.186)

Project: Curramulka limestone (Site 2) DM. SR.5/6/40

Bore No.: 52/14 Bore Serial No.: 920/70

Hundred: Curramulka. Section: 52S Plan Ref. No.: 70-317

Co-ordinates: 2000S; 1000W R.L. of Collar: 349.4 ft.

Bearing: Vertical Depth: 36 ft.

Date drilling commenced: 6.11.1969 Date drilling completed: 6.11.1969

Logged by: A.H.Blissett Driller: K.Merrin.

DEPTH From Ft.	DEPTH To Ft.	DESCRIPTION.
0	12	Cream-coloured and pale brown calcrete.
12	18	Pale grey to brownish and yellowish limestone. Some yellowish-brown calcareous sand and gritty clay.
18	24	Pale grey to brownish and yellowish limestone.
24	36	Pale grey to brownish and yellowish limestone with pale brownish sandy patches.

(Hole abandoned in cavity)

DEPARTMENT OF MINES
SOUTH AUSTRALIA

LOG OF AIR DRILLHOLE
(Halco 150, No:DM.186)

Project: Curramulka limestone (Site 2) DM. SR.5/6/40

Bore No.: 52/15 Bore Serial No.: 920/70

Hundred: Curramulka. Section: 52S Plan Ref. No.: 70-317

Co-ordinates: 1500S; 1000W R.L. of Collar: 332.6 ft.

Bearing: Vertical Depth: 85 ft.

Date drilling commenced: 6.11.1969 Date drilling completed: 7.11.1969

Logged by: A.H.Blissett and C.H.H.Conor Driller: K.Merrin.

DEPTH From Ft.	DEPTH To Ft.	DESCRIPTION.
0	6	Nodular pale brownish and black calcrete.
6	12	Nodular and massive brownish and black calcrete with yellowish-brown and pale pinkish-grey decomposed sandy limestone.
12	18	Dark reddish-brown calcareous gritty clay. A few rounded dark cherty pebbles (probably caved from calcrete.)
18	24	Fragments of pale grey limestone, balls of reddish-brown gritty clay and caved fragments of calcrete.
24	30	Soft pale greenish and a little reddish-brown clay, slightly sandy but not calcareous.
30	48	Pale grey and brownish fine limestone. A little crystalline white calcite between 42 ft. and 48 ft.
48	60	Pale grey to grey limestone, becoming brownish in depth.
60	72	Pale grey to grey limestone with brown and yellowish-brown weathered sandy patches.
72	84	Poor recovery. Weathered pale grey to grey and brownish limestone with yellowish-brown sandy patches.
84	85	NO RECOVERY

(Hole abandoned in cavity.)

DEPARTMENT OF MINES
SOUTH AUSTRALIA

LOG OF AIR DRILLHOLE
(Halco 150, No.DM.186)

Project: Curramulka limestone (Site 2) DM. SR.5/6/40

Bore No.: 52/16 Bore Serial No.: 920/70

Hundred: Curramulka. Section: 52S Plan Ref. No.: 70-317

Co-ordinates: 1750S; 2500W R.L. of Collar: 333.9 ft.

Bearing: Vertical Depth: 148 ft.

Date drilling commenced: 7.11.1969 Date drilling completed: 10.11.1969

Logged by: A.H.Blissett and C.H.H.Conor Driller: K.Merrin.

DEPTH From Ft.	DEPTH To Ft.	DESCRIPTION.
0	6	Brownish and cream calcrete with fragments of grey limestone.
6	12	Pale grey to grey limestone; some pale yellowish and reddish-brown sandy patches.
12	18	Pale grey to grey and yellowish limestone, some yellowish and reddish-brown sandy patches.
18	42	Pale grey and brownish limestone, with yellowish and reddish-brown patches.
42	54	Pale grey to grey and brownish limestone; sandy patches in places.
54	72	Pale grey to grey limestone with pale yellowish-brown sandy patches.
72	96	Pale grey to grey and brownish limestone, with reddish-brown gritty clay between 90 ft. and 96 ft.
96	132	Pale grey and brownish limestone with yellowish-brown and orange-yellowish weathered sandy patches.
132	150	Pale grey and cream-coloured limestone with yellowish sandy patches.

DEPARTMENT OF MINES.
SOUTH AUSTRALIA

LOG OF AIR DRILLHOLE
(Halco 150, No: DM.186)

Project: Curramulka limestone (Site 2) DM. SR.5/6/40

Bore No.: 52/17 Bore Serial No.: 920/70

Hundred: Curramulka. Section: 52S Plan Ref. No.: 70-317

Co-ordinates: 1500 S; 2250 W R.L. of Collar: 319 ft.

Bearing: Vertical Depth: 96 ft.

Date drilling commenced: 10.11.1969 Date drilling completed: 10.11.1969

Logged by: C.H.H.Conor and M.N.Hiern Driller: K.Merrin.

DEPTH From Ft.	To Ft.	DESCRIPTION.
0	6	Reddish-brown weathered calcrete, and pale grey and brownish limestone.
6	12	Pale grey and brownish limestone with fragments of calcrete.
12	18	Reddish-brown weathered grey medium-grained limestone.
18	24	Brown and grey limestone, partly weathered reddish-brown.
24	30	Brown and grey limestone.
30	36	Pale grey and brown limestone with reddish-brown sandy clay.
36	48	Pale grey and brownish limestone. Some reddish-brown sandy clay. Yellow sandy calcareous fragments 42 ft. - 48 ft.
48	96	Off-white to pale grey and brown limestone. Reddish-brown weathered sandy patches 54 ft. to 60 ft.

DEPARTMENT OF MINES
SOUTH AUSTRALIA

LOG OF AIR DRILLHOLE
(Halco 150, No.:DM.186)

Project: Curramulka limestone (Site 2) DM. SR.5/6/40

Bore No.: 52/18 Bore Serial No. : 920/70

Hundred: Curramulka. Section: 52S Plan Ref. No.: 70-317

Co-ordinates: 1500S; 3500W R.L. of Collar: 319.5 ft.

Bearing: Vertical Depth: 66 ft.

Date drilling commenced: 11.11.1969 Date drilling completed: 11.11.1969

Logged by: A.H.Blissett Driller: K.Merrin.

DEPTH From Ft.	DEPTH To. Ft.	DESCRIPTION.
0	6	A little calcrete on pale grey and brown-weathered limestone.
6	30	Pale grey to grey and brownish limestone with some yellowish-brown weathered sandy patches.
30	54	Pale grey and grey limestone with yellowish-brown sandy and marly patches becoming paler in depth.
54	60	Pale grey limestone with much pale yellowish sandy and marly material.
60	66	NO RECOVERY.

(Hole abandoned in cavity at 66 ft.)

DEPARTMENT OF MINES
SOUTH AUSTRALIA

LOG OF AIR DRILLHOLE
(Halco 150 No.: DM.186)

Project: Curramulka limestone (Site 2) DM. SR.5/6/40

Bore No.: 52/19 Bore Serial No.: 920/70

Hundred: Curramulka. Section: 52S Plan Ref. No.: 70-317

Co-ordinates: 1000S; 3500 S. R.L. of Collar: 274.2 ft.

Bearing: Vertical Depth: 150 ft.

Date drilling commenced: 11.11.1969 Date drilling completed: 12.11.1969

Logged by: A.H.Blissett Driller: K.Merrin.

DEPTH From Ft.	DEPTH To. Ft.	DESCRIPTION.
0	6	A little reddish-brown sandy clay on brownish and reddish-brown weathered limestone.
6	12	Brownish and reddish-brown weathered limestone with some yellowish calcareous sandstone and crystalline calcite.
12	24	Brownish and grey to pale grey limestone with some yellowish-brown sandy patches.
24	30	Pale grey to grey and brownish limestone, with reddish-brown gritty clay.
30	36	Pale grey limestone with pale reddish and yellowish-brown sandy patches. A little brownish crystalline calcite.
36	60	Pale grey to grey and brownish limestone, with pale yellowish-brown sandy patches in places. Some pale brownish calcite between 54 ft. and 60 ft.
60	66	Pale grey, yellowish and brownish limestone with pale brownish calcite fragments. Some yellowish-brown gritty clay.
66	72	Pale brownish and yellowish limestone with yellowish-brown sandy patches. Fragments of pale brownish calcite.
72	78	Pale grey and brownish limestone with yellowish-brown sandy patches.
78	114	Pale grey to grey and yellowish limestone with pale yellowish-brown sandy and marly patches. Brown calcite in places.
114	150	Pale grey to grey limestone with yellowish-brown sandy patches. Fragments of white, transparent, and brown calcite 114 ft - 120 ft.

APPENDIX III

ANALYSES (AMDEL)

1. Chemical and spectrographic analyses of bulk samples.

2. Analyses for calcium carbonate and magnesium carbonate (Individual boreholes).

AMDEL REPORT AN.2770/70

CHEMICAL AND SPECTROGRAPHIC ANALYSES OF BULK SAMPLES

Sample No.	Borehole	Depth range	Calcium as $CaCO_3$	Magnesium as $MgCO_3$	Silica SiO_2	Ferric Oxide Fe_2O_3	Aluminium Oxide Al_2O_3	Sulphate SO_3	Phosphorus Pentoxide P_2O_5	Copper Cu ppm	Zinc Zn ppm	Lead Pb ppm
A1001/70	52/18	6' - 60'	86.7	9.45	2.30	0.32	0.50	0.015	0.89	30	30	30
2	52/19	6' -150'	88.7	2.45	8.05	0.32	0.34	0.015	0.94	30	30	<10
3	52/17	6' - 96'	89.0	6.05	3.85	0.32	0.41	0.02	1.11	30	35	<10
4	52/16	6' -150'	88.4	7.55	3.10	0.29	0.41	0.02	1.00	30	220	200
5	52/13	6' - 42'	90.5	5.10	3.75	0.41	0.36	0.01	0.71	30	30	50
6	52/12	12' -102'	89.6	2.90	6.90	0.37	0.48	0.02	1.02	40	20	<10
7	52/12	102' -150"	82.3	9.10	6.60	0.39	0.66	0.015	0.89	15	30	<10
8	52/11	18' - 36'	93.7	4.35	1.72	0.28	0.38	0.01	0.86	30	30	10
9	52/9c	6' -114'	88.4	6.30	4.35	0.30	0.39	0.02	1.11	60	45	<10
A1010	52/8	12' -144'	89.0	7.05	3.20	0.28	0.36	0.015	0.99	30	35	20
11	52/6	6' -150'	89.9	5.35	3.90	0.32	0.52	0.035	0.99	40	35	<10
12	52/5	12' - 46'	89.9	6.05	2.95	0.31	0.41	0.01	0.85	30	140	60
13	52/3	0 -150'	89.0	3.90	5.90	0.30	0.39	0.025	0.86	40	30	60
14	52/2	6' -150'	87.9	7.75	2.78	0.33	0.36	0.02	0.86	30	30	10
15	52/4	47'3"-266'6"	87.6	8.00	3.25	0.27	0.43	0.015	0.97	15	20	20
A1016/70	52/1	18' -251'8"	89.0	6.05	3.35	0.39	0.64	0.015	1.07	15	20	10
	Weighted average:		88.73	6.09	4.13	0.33	0.44	0.018	0.88	31	49	

Analyses: C.R. Trigg; G.R. Holden

AMDEL REPORTS AN.1856/70; AN.2770/70

Diamond Drillhole 52/1

Sample No.	Depth Range	Calcium carbonate $CaCO_3$ %	Magnesium carbonate $MgCO_3$ %
		Preliminary partial analyses	
A1302/69	0 - 11'6"	84.8	3.1
A1303	11'6" - 18'6"	84.4	4.0
A1304	18'6" - 28'9"	89.8	2.1
A1305	28'9" - 35'10"	88.0	2.7
A1306	35'10"- 46'6"	85.9	0.9
A1307	46'6" - 68'0"	94.2	1.6
A1308	68'0" - 81'0"	92.4	4.3
A1309	81'0" - 100'4"	84.9	11.6
A1310	100'4" - 124'0"	91.6	4.9
A1311	124'0" - 134'0"	88.0	9.0
A1312	134'0" - 152'0"	89.7	5.5
A1313	152'0" - 181'6"	91.3	4.9
A1314	181'6" - 222'0"	91.3	3.3
A1315/69	222'0" - 251'8"	89.4	5.9
	Weighted average: (18' - 251'8")	90.27	4.87
		Full analysis	
A1016/70	Bulk sample (18' - 251'8")	89.0	6.05

Analyses: C.Holland, C.R.Trigg.

AMDEL REPORTS AN.1715/70; AN.2770/70

Air Drillhole 52/2

Sample No.	Depth Range	Preliminary partial analyses: Calcium carbonate $CaCO_3$%	Preliminary partial analyses: Magnesium carbonate $MgCO_3$%
A1248/69	0 - 6'	78.2	2.0
A1249	6' - 12'	93.4	2.5
A1250	12' - 30'	92.4	5.8
A1251	30' - 48'	88.0	1.0
A1252	48' - 66'	91.1	6.1
A1253	66' - 72'	85.4	1.2
A1254	72' - 84'	88.1	7.8
A1255	84' - 120'	88.0	8.8
A1256/69	120' - 150'	89.9	5.9
	Weighted average (6' - 150')	89.46	5.85

Full analysis

A1014/70	Bulk sample (6' - 150')	87.9	7.75

Analyses: C.R.Trigg.

AMDEL REPORTS AN.1715/70; AN.2770/70

Air Drillhole 52/3

Preliminary partial analyses

Sample No.	Depth Range	Calcium carbonate $CaCO_3$%	Magnesium carbonate $MgCO_3$
A1257/69	0 - 18'	89.0	4.0
A1258	18' - 24'	93.4	1.2
A1259	24' - 42'	80.7	5.0
A1260	42' - 66'	91.5	3.1
A1261	66' - 90'	92.7	2.1
A1262	90' - 120'	92.0	1.5
A1263	120' - 138'	84.0	11.8
A1264/69	138' - 150'	88.7	4.7
	Weighted average (0' - 150')	89.14	4.05

Full analysis

A1013/70	Bulk sample (0 - 150')	89.0	3.90

Analyses: C.R.Trigg.

AMDEL REPORTS AN.2018/70; AN.2770/70

Diamond Drillhole 52/4

Preliminary partial analyses

Sample No.	Depth Range	Calcium carbonate $CaCO_3$ %	Magnesium carbonate $MgCO_3$ %
A1362/69	0 - 10'	76.4	5.7
A1363	10' - 14'	4.3	2.6
A1364	14' - 27'4"	39.7	19.3
A1365	27'4"- 47'3"	80.0	11.4
A1366	47'3"- 53'10"	85.1	9.2
A1367	53'10"- 68'2"	79.1	11.0
A1368	68'2"- 76'4"	91.2	5.9
A1369	76'4"- 100'6"	95.8	1.6
A1370	100'6"- 123'3"	93.4	2.2
A1371	123'3"- 136'3"	91.0	6.2
A1372	136'3"- 156'9"	92.9	1.7
A1373	156'9"- 186'9"	87.9	7.7
A1374	186'9"- 204'9"	92.1	3.1
A1375	204'9"- 220'9"	92.1	4.2
A1376	220'9"- 235'2"	90.2	4.3
A1377	235'2"- 258'1"	90.9	3.0
A1378/69	258'1"- 266'6"	83.9	10.6
	Weighted average (47'3" - 266'6")	90.54%	4.77%

Full analysis

A1015/70	Bulk sample (47'3" - 266'6")	87.6%	8.00%

Analyses: G.K.Swingler; C.R.Trigg.

AMDEL REPORTS AN.1740/70; AN.2770/70

Air Drillhole 52/5

Preliminary partial analyses

Sample No.	Depth Range	Calcium carbonate $CaCO_3$ %	Magnesium carbonate $MgCO_3$ %
A1274/69	0' - 6'	77.3	2.7
A1275	6' - 12'	84.6	7.7
A1276	12' - 30'	89.9	5.9
A1277/69	30' - 46'	92.0	4.4
	Weighted average (6' - 46')	89.94	5.57

Full analysis

A1012/70	Bulk sample (6'-46')	89.9	6.05

Analyses: C.R.Trigg

AMDEL REPORTS AN 1797/70; AN 2770/70

Air Drillhole 52/6

Preliminary partial analyses

Sample No.	Depth range	Calcium carbonate $CaCO_3$%	Magnesium carbonate $MgCO_3$%
A1292/69	0 - 6'	70.8	3.7
A1293	6' - 12'	91.5	0.9
A1294	12' - 30'	92.3	3.2
A1295	30' - 60'	89.6	6.4
A1296	60' - 84'	90.3	5.5
A1297	84' - 96'	84.3	12.0
A1298	96' - 114'	82.6	6.1
A1299	114' - 126'	94.3	1.2
A1300	126' - 132'	90.2	4.3
A1301/69	132' - 150'	91.1	4.0
	Weighted average (6' - 150')	89.42	5.23

Full analysis

A1011/70	Bulk sample (6' - 150')	89.9	5.35

Analyses: C.R.Trigg.

Air Drillhole 52/7a

Preliminary partial analyses

Sample No.	Depth range	Calcium carbonate $CaCO_3$ %	Magnesium carbonate $MgCO_3$ %
A1431/69	12' - 30'	70.8	11.2
A1432/69	30' - 42'	76.9	5.7

Analyses: C.R.Trigg.

AMDEL REPORTS AN 1740/70; AN 2770/70

Air Drillhole 52/8

Preliminary partial analyses

Sample No.	Depth range	Calcium carbonate $CaCO_3$ %	Magnesium carbonate $MgCO_3$ %
A1278/69	0 - 12'	72.7	6.3
A1279	12' - 30'	85.5	9.1
A1280	30' - 60'	90.8	5.9
A1281	60' - 90'	87.0	6.7
A1282	90' - 120'	91.7	5.4
A1283/69	120' - 144'	86.1	7.4
	Weighted average (12' - 144')	88.56	6.68

Full analysis

A1010/70	Bulk sample (12' - 144')	89.0	7.05

Analyses: C.R.Trigg.

AMDEL REPORTS AN 1797/70; AN 2770/70

Air Drillhole 52/9c

Preliminary partial analyses

Sample No.	Depth range	Calcium carbonate $CaCO_3$ %	Magnesium carbonate $MgCO_3$ %
A1284/69	0 - 6'	70.1	3.3
A1285	6' - 30'	89.3	6.1
A1286	30' - 48'	90.5	5.0
A1287	48' - 72'	89.3	5.4
A1288	72' - 90'	91.4	4.4
A1289	90' - 114'	86.7	6.7
A1290	114' - 126'	83.9	9.3
A1291/69	126' - 150'	84.9	6.5
	Weighted average (6' - 150')	88.1	6.07

Full analysis

A1009/70	Bulk sample (6' - 114')	88.4	6.30

Analyses: C.R.Trigg.

AMDEL REPORT AN 1827/70

Air Drillhole 52/10

Preliminary partial analyses

Sample No.	Depth range	Calcium carbonate $CaCO_3$ %	Magnesium carbonate $MgCO_3$ %
A1316/69	0 - 6'	82.2	5.0
A1317	6' - 12'	83.3	7.1
A1318	12' - 30'	82.7	8.8

Analyses: C.R.Trigg.

AMDEL REPORTS AN 1827/70; AN 2770/70

Air Drillhole 52/11

Preliminary partial analyses

Sample No.	Depth range	Calcium carbonate $CaCO_3$ %	Magnesium carbonate $MgCO_3$ %
A1319/69	0 - 12'	75.6	5.7
A1320	12' - 18'	79.7	4.3
A1321/69	18' - 36'	90.7	6.6

Full analysis

A1008/70	Bulk sample (18' - 36')	93.7	4.35

Analyses: C.R.Trigg

AMDEL REPORTS AN 1827-70; AN 2770/70

Air Drillhole 52/12

Preliminary partial analyses

Sample No.	Depth range	Calcium carbonate $CaCO_3$ %	Magnesium carbonate $MgCO_3$ %
A1322/69	0 - 12'	80.0	5.9
A1323	12' - 30'	92.2	2.2
A1324	30' - 36'	81.8	3.3
A1325	36' - 54'	84.7	7.5
A1326	54' - 72'	91.2	2.3
A1327	72' - 78'	75.4	3.2
A1328	78' - 102'	90.1	2.3
A1329	102' - 126'	78.6	14.6
A1330	(126' - 132' Clay	82.7	9.6)
A1331	132' - 138'	84.7	6.1
A1332/69	138' - 150'	77.3	5.3
	Weighted average (12' - 126'; 132' - 150')	86.52	4.11

Full analyses

A1006/70	Bulk sample (12' - 102')	89.6	2.90
A1007/70	Bulk sample (102'-150')	82.3	9.10

Analyses: C.R.Trigg

AMDEL REPORTS AN 2116/70; AN 2770/70

Air Drillhole 52/13

Preliminary partial analyses

Sample No.	Depth range	Calcium carbonate $CaCO_3$ %	Magnesium carbonate $MgCO_3$ %
A1412/69	0 - 6'	83.2	3.0
A1413	6' - 18'	85.4	8.8
A1414	18' - 30'	92.0	2.5
A1415/69	30' - 42'	93.7	2.5
	Weighted average (6' - 42')	90.4	4.6

Full analysis

A1005/70	Bulk sample (6' - 42')	90.5	5.10

Analyses: C.R.Trigg

AMDEL REPORT AN.2116/70

Air Drillhole 52/14

Preliminary partial analyses

Sample No.	Depth range	Calcium carbonate $CaCO_3$ %	Magnesium carbonate $MgCO_3$ %
A1420/69	0' - 12'	60.3	1.6
A1421	12' - 24'	81.8	6.7
A1422	24' - 36'	79.4	6.8

Analyses: C.R.Trigg

Air Drillhole 52/15

Preliminary partial analyses

Sample No.	Depth range	Calcium carbonate $CaCO_3$ %	Magnesium carbonate $MgCO_3$ %
A1416/69	0' - 30'	32.2	5.0
A1417	30' - 60'	81.1	5.2
A1418	60' - 72'	76.9	5.3
A1419/69	72' - 84'	69.1	3.7

Analyses: C.R.Trigg

AMDEL REPORTS AN.2018/70; AN.2770/70

Air Drillhole 52/16

Preliminary partial analyses.

Sample No.	Depth range	Calcium carbonate $CaCO_3$ %	Magnesium carbonate $MgCO_3$ %
A1379/69	0' - 6'	80.2	4.2
A1380	6' - 18'	87.7	7.0
A1381	18' - 42'	89.3	6.2
A1382	42' - 54'	93.0	4.1
A1383	54' - 72'	88.1	8.6
A1384	72' - 96'	86.4	8.2
A1385	96' - 120'	89.5	5.9
A1386/69	120' - 150'	90.9	3.8
	Weighted average (6' - 150')	89.21	6.18

Full analysis

A1004/70	Bulk sample (6' - 150')	88.4	7.55

Analyses: G.K.Swingler; C.R.Trigg

AMDEL REPORTS AN.2018/70; AN.2770/70

Air Drillhole 52/17

Preliminary partial analyses

Sample No.	Depth range	Calcium carbonate $CaCO_3$ %	Magnesium carbonate $MgCO_3$ %
A1355/69	0 - 6'	83.5	3.3
A1356	6' - 12'	88.8	3.9
A1357	12' - 30'	91.2	3.3
A1358	30' - 36'	78.3	2.0
A1359	36' - 48'	94.0	2.2
A1360	48' - 72'	85.5	7.8
A1361/69	72' - 96'	90.4	4.0
	Weighted average (6'-96')	88.81	4.43

Full analysis

A1003/70	Bulk sample (6'-96')	89.0	6.05

Analyses: G.K.Swingler; C.R.Trigg

AMDEL REPORTS AN.2116/70; AN.2770/70

Air Drillhole 52/18

Preliminary partial analyses

Sample No.	Depth range	Calcium carbonate $CaCO_3$ %	Magnesium carbonate $MgCO_3$ %
A1407/69	0 - 6'	82.1	4.7
A1408	6' - 18'	91.6	5.0
A1409	18' - 30'	91.4	4.2
A1410	30' - 54'	87.8	8.4
A1411/69	54' - 60'	81.3	1.4
	Weighted average (6'-60')	88.72	5.93

Full analysis

A1001/70	Bulk sample (6'-60')	86.7	9.45

Analyses: C.R.Trigg

AMDEL REPORTS AN.2018/70; AN.2770/70

Air Drillhole 52/19

Preliminary partial analyses

Sample No.	Depth range	Calcium carbonate $CaCO_3$ %	Magnesium carbonate $MgCO_3$ %
A1387/69	0 - 6'	79.1	2.6
A1388	6' - 24'	94.5	0.9
A1389	24' - 36'	88.6	1.0
A1390	36' - 42'	91.0	0.7
A1391	42' - 54'	88.9	0.7
A1392	54' - 78'	90.9	0.6
A1393	78' - 114'	88.7	0.5
A1394/69	114' - 150'	88.1	1.2
	Weighted average (6'-150')	89.75	0.81

Full analysis

A1002/70	Bulk sample (6'-150')	88.7	2.45

Analyses: G.K.Swingler; C.R.Trigg

APPENDIX IV

CALCULATION OF RESERVES

(Short tons)

Block A (Line 3500W)

Block B (Line 3000W)

Block C (Line 2500W)

Block D (Line 2000W)

Block E (Line 1500W)

Block A

(Line 3500 W)

Indicated reserves

Sub block A1 (6 ft. overburden).

500 ft. wide x 500 ft. long x average depth of 55 ft. = 13,750,000 cu.ft.

Sub block A2 (No overburden)

500 ft. wide x 500 ft. long x average depth of 145 ft. = 36,250,000 cu.ft.

Total volume = 50,000,000 cu.ft.

= 4,167,000 tons.

Inferred reserves

Sub block A1 (To 200 ft.) 3,000,000 tons

Block B

(Line 3000W)

Indicated reserves

Sub block B1 (Overburden 18 ft. 6 in.)

500 ft. wide x 500 ft. long x average depth of 230 ft. = 57,500,000 cu.ft.

Sub block B2 (Overburden 6 ft. to 12 ft.)

500 ft. wide x 500 ft. long x average depth of 150 ft. = 37,500,000 cu.ft.

Sub block B3 (No overburden)

500 ft. wide x 500 ft. long x average depth of 150 ft. = 37,500,000 cu.ft.

Total volume of Block B = 132,500,000 cu.ft.

= 11,000,000 tons.+

Inferred reserves

Sub block B2. (To 200 ft.) 1,000,000 tons.

Block C

(Line 2500 W)

Indicated reserves

Sub block C1 (NOT INCLUDED IN TOTAL. Overburden 30 ft. thick. 2,000,000 tons inferred.)

Sub block C2 (Overburden 6 ft.)

500 ft. wide x 500 ft. long x average depth of 135 ft.

= 33,750,000 cu.ft.

Sub block C3 (Up to 12 ft. overburden?)

625 ft. wide x 500 ft. long x average depth of 90 ft.

= 28,125,000 cu.ft.

Total volume of Block C = 61,875,000 cu.ft.

= 5,156,250 tons.

Inferred reserves

Sub block C2 (To 200 ft.) 1,250,000 tons

Block D

(Line 2000 W).

Indicated reserves

Sub block D1 (NOT INCLUDED IN TOTAL. Overburden up to 47 ft. thick. 4,690,000 tons)

Sub block D2. (6 ft. overburden)

500 ft. wide x 500 ft. long x average depth of 35 ft = 8,750,000 cu.ft

Sub block D3 (No overburden)

500 ft. wide x 500 ft. long x average depth of 155 ft.

= 38,750,000 cu.ft.

Total volume = 47,500,000 cu.ft.

= 3,958,000 tons.

Inferred reserves.

Sub block D2 (To 200 ft.) 3,000,000 tons

Block E,

(Line 1500 W)

Indicated reserves.

Sub block E1 (NOT INCLUDED IN TOTAL) Overburden probably up to 42 ft.

Sub block E2 (Overburden at least 12 ft.)

500 ft. wide x 500 ft. long x average depth of 125 ft.

= 31,250,000 cu.ft.

Sub block E3 (No overburden)

500 ft. wide x 500 ft. long x average depth of 150 ft.

= 37,500,000 cu.ft.

Total volume of Block E = 68,750,000 cu.ft.

= 5,730,000 tons

Inferred reserves

Sub block E2 (To 200 ft.) 1,000,000 tons

Total indicated tonnage:

Block A	4,167,000	
B	11,000,000	
C	5,156,250	
D	3,958,000	
E	5,730,000	
	30,011,250	
Subtract 5% for cavities:	-1,500,000	
Total	28,500,000	short tons (approximately)

Total inferred tonnage:

Block A	3,000,000	
B	1,000,000	
C	1,250,000	
D	3,125,000	
E	1,000,000	
	9,375,000	
Less 5%:	-468,500	
Total	8,906,500	short tons

Not included in total:

Indicated below 47 ft. overburden.

Sub block D1		4,690,000	
Less 5%	=	4,455,500	short tons

Inferred below at least 30 ft. overburden.

Sub block C1		2,000,000	
Less 5%	=	1,900,000	short tons
Total		6,000,000	short tons (approximately)

PLATES

1. Halco 150 air hammer drill. Compressor on truck at left, cyclone at right (Photo: A.H. Blissett)

2. General view of Site 2 (Section 52S) from the north. Air drill at right (Photo: C.H.H. Conor)

3. Site 2 from the west, showing calcrete capping on plateau.
(Parara Limestone exposed down slope to left)

(Photo: A.H. Blissett)

4. Port Julia from the south. Harbors Board jetty in centre.

(Photo: A.R. Crawford)

5. Coastline south of Sheoak Flat beach. Port Vincent at left background (Bay shown in Plate 6 is in centre background).

(Photo: A.H. Blissett.)

6. Bay north of Port Vincent golf course, looking southwards.

(Photo: A.H. Blissett.)

7. Small bay and valley, looking northwards from No.2 tee, Port Vincent golf course.

(Photo: A.H. Blissett.)

8. Port Vincent from the north.

(Photo: A.H. Blissett)

MAITLAND

ARDROSSAN

PORT VICTORIA

PINE POINT

BLACK POINT

PORT JULIA

CURRAMULKA

SEE ENLARGEMENT (FIG. 2 — 70-316)

MINLATON

PORT VINCENT

STANSBURY

KLEIN POINT LIMESTONE QUARRY

WAROOKA

SPENCER GULF

GULF ST. VINCENT

SCALE

0 4 8 12

MILES

Geology after Crawford (1965)

LEGEND

QUATERNARY, TERTIARY AND PERMIAN

CAMBRIAN

RAMSAY LIMESTONE — MIDDLE

'RED BED CLASTICS' — LOWER

PARARA LIMESTONE

KULPARA LIMESTONE

ADELAIDE SYSTEM

PROTEROZOIC

OLDER PROTEROZOIC

Major roads

Minor roads

LOCALITY PLAN

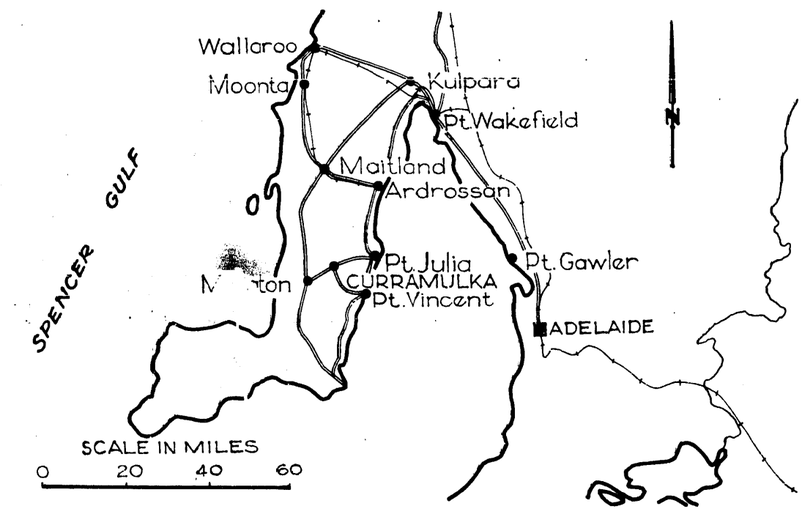


FIG. 1

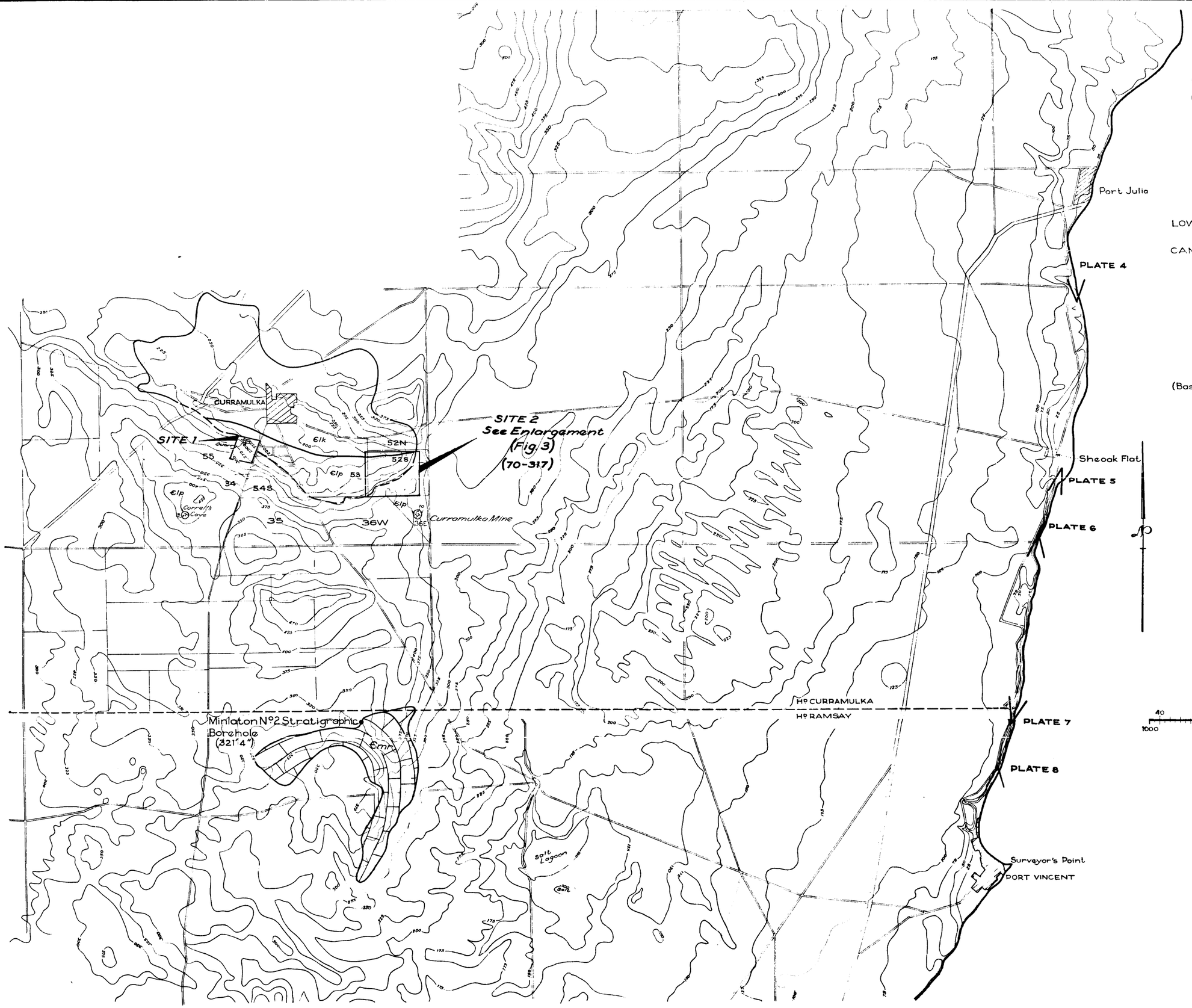
DEPARTMENT OF MINES — SOUTH AUSTRALIA

CURRAMULKA LIMESTONE DEPOSITS

YORKE PENINSULA

LOCALITY PLANS

		Drn. A.H.B	SCALE: As above
		Tcd. G.M	70-315
		Ckd. L.V.W	Gh 7+9
Director of Mines		Exd.	DATE: 7.6.70



SOUTH NORTH

RECENT AND PERMIAN		0'–600'	
MIDDLE CAMBRIAN	Cmr	RAMSAY LIMESTONE	
LOWER CAMBRIAN	€lc	RED BED CLASTICS (CONCEALED)	
	€lp	PARARA LIMESTONE	
	€lk	KULPARA LIMESTONE	
		BASAL CAMBRIAN	
		Base not reached	

STRATIGRAPHIC COLUMN
(SOUTH OF CURRAMULKA)

(Based on Minlaton Stratigraphic Boreholes Nos 1 & 2)
1 inch : 500 ft.

10 Strike and dip of bedding

Field of view of photographs

52S Section numbers

EAST OF CURRAMULKA

QUATERNARY
TERTIARY
PERMIAN
(Not to scale)

SCALE IN CHAINS
40 0 40 80 120 160 200
1000 0 1000 2000 3000 4000
SCALE IN METRES

FIG. 2

DEPARTMENT OF MINES — SOUTH AUSTRALIA

CURRAMULKA LIMESTONE DEPOSITS
YORKE PENINSULA
PLAN SHOWING GEOLOGY AND COASTAL LOCATIONS

		Drn. A.H.B.	SCALE: As shown
		Tcd. G.M.	70-316
		Ckd. L.V.W.	Gh. 7+9
Director of Mines		Exd.	DATE: 2 June '70

LEGEND

QUATERNARY

CALCRETE

LOWER CAMBRIAN

PARARA LIMESTONE with calcrete in patches and coatings in fissures

PARARA LIMESTONE

Diamond Drillhole ● Total depth (85′)

Air Drillhole o Hole number 52/15

Depth (in feet) to limestone with over 85% $CaCo_3$ (84)

Fence

225 230 235 240 245 250 255 260 265 270 275 280 285 290 295 300 305 310 315 320 325 330 335 340 345 350 355

APPROXIMATE LIMIT OF CALCRETE FORMATION

APPROXIMATE BOUNDARY OF MAIN CALCRETE OUTCROP

LINE 'A' LINE 'B' LINE 'C' LINE 'D' LINE 'E' LINE 'F' LINE 'G'

52/19 (150′) (6)
52/18 (66′) (6)
52/12 (150′) (12)
52/3 (150′) (0)
52/2 (150′) (6)
52/1 (251′8″) (18.5)
52/11 (36′) (18)
52/16 (148′) (6)
52/17 (96′) (6)
52/10 (39′) (30)
52/4 (266′6″) (47)
52/5 (46′) (6)
52/6 (150′) (6)
52/9C (150′) (6)
52/9A (36′)
52/9B (44′)
52/8 (144′) (12)
52/13 (42′) (6)
52/15 (85′) (84)
52/7A (46′) (42)
52/7B (18′)
52/7C (36′)
52/7D (30′)
52/14 (36′) (36)

1000S 1500S 2000S 2500W 3000W 3500W 2000W 1500W 1000W

N

SCALE IN FEET

100 0 100 200 300 400 500

50 0 50 100 150

SCALE IN METRES

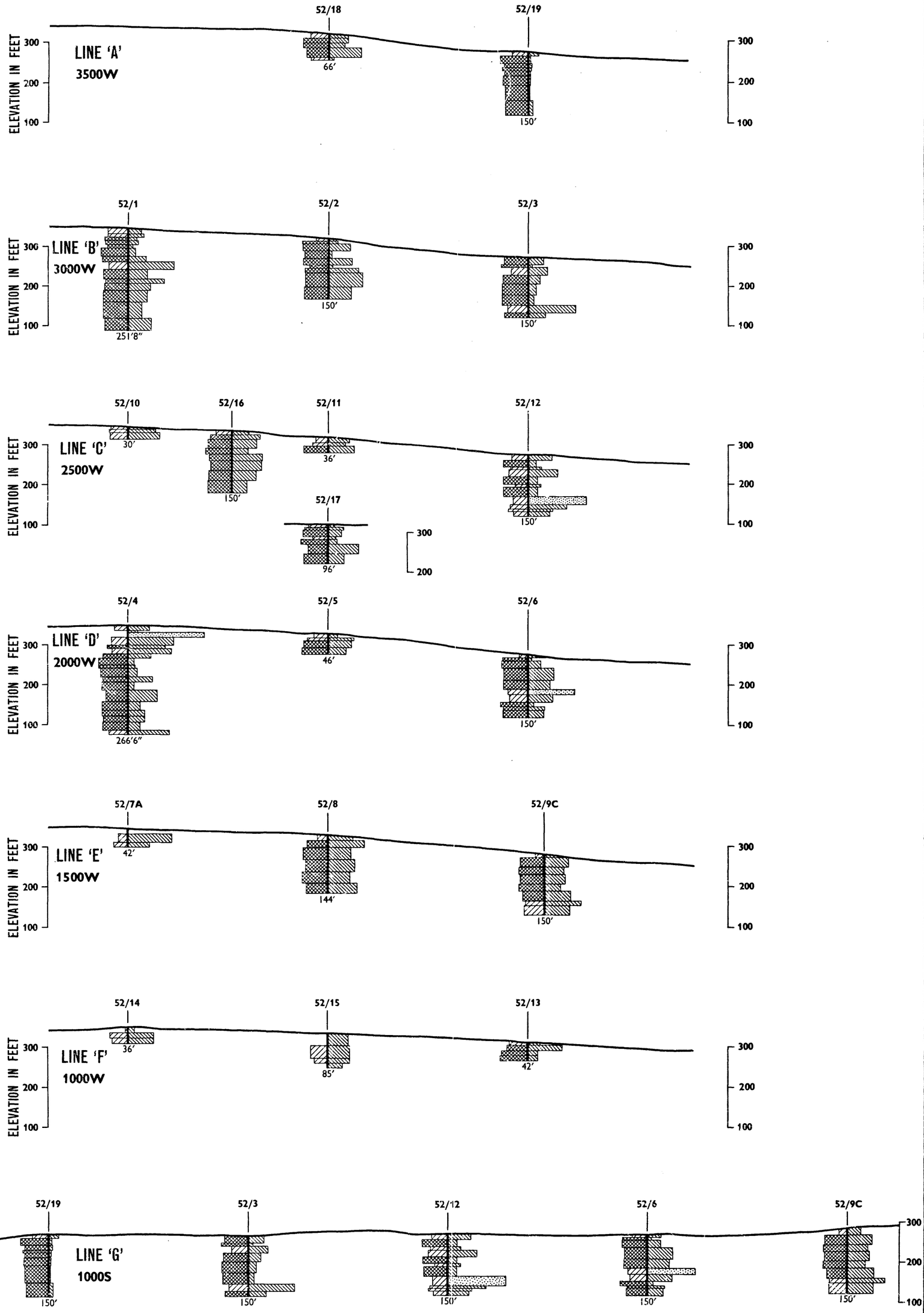
70-317 MR 132

A. H. Blissett Assistant Senior Geologist

S.A. Dept. of Mines

Fig. 1 Geological Plan and Borehole Locations of Curramulka Limestone Deposits – Site 2, Section 525 Hd Curramulka R.132

70-317/4
Gh7+9
6-4-71



70-318 M R 132

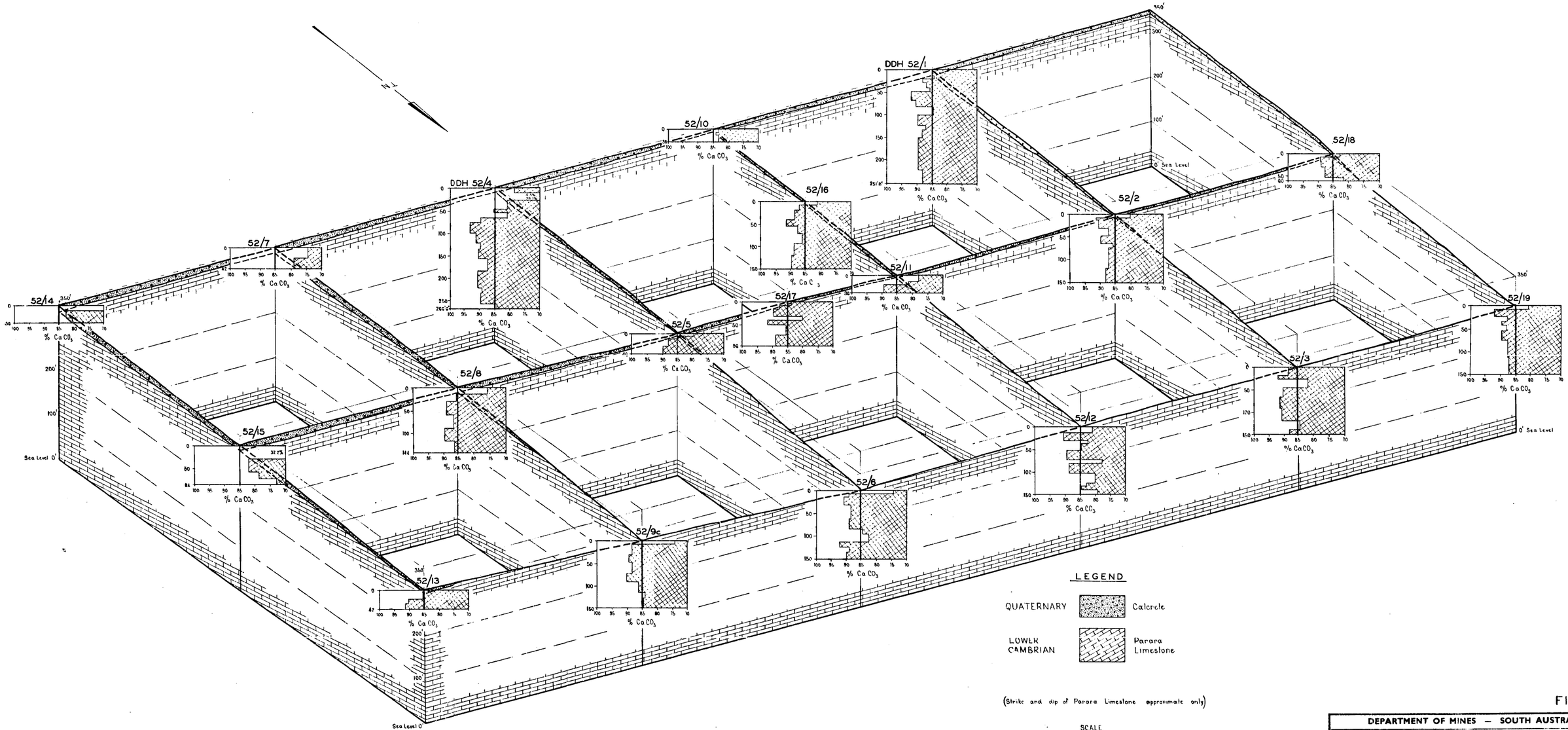
A. H. Blissett Assistant Senior Geologist

S.A. Dept. of Mines

Fig.2 Cross sections showing limestone analyses. Curramulka limestone deposits. Site 2

M.R.132

MLE 70-318/4
20-4-71



LEGEND

QUATERNARY — Calcrete

LOWER CAMBRIAN — Parara Limestone

(Strike and dip of Parara Limestone approximate only)

SCALE

Horizontal : 1 Inch = 100 Feet
Vertical : 1 Inch = 100 Feet

Histogram : 1 Inch = 15% $CaCO_3$

FIG. 5

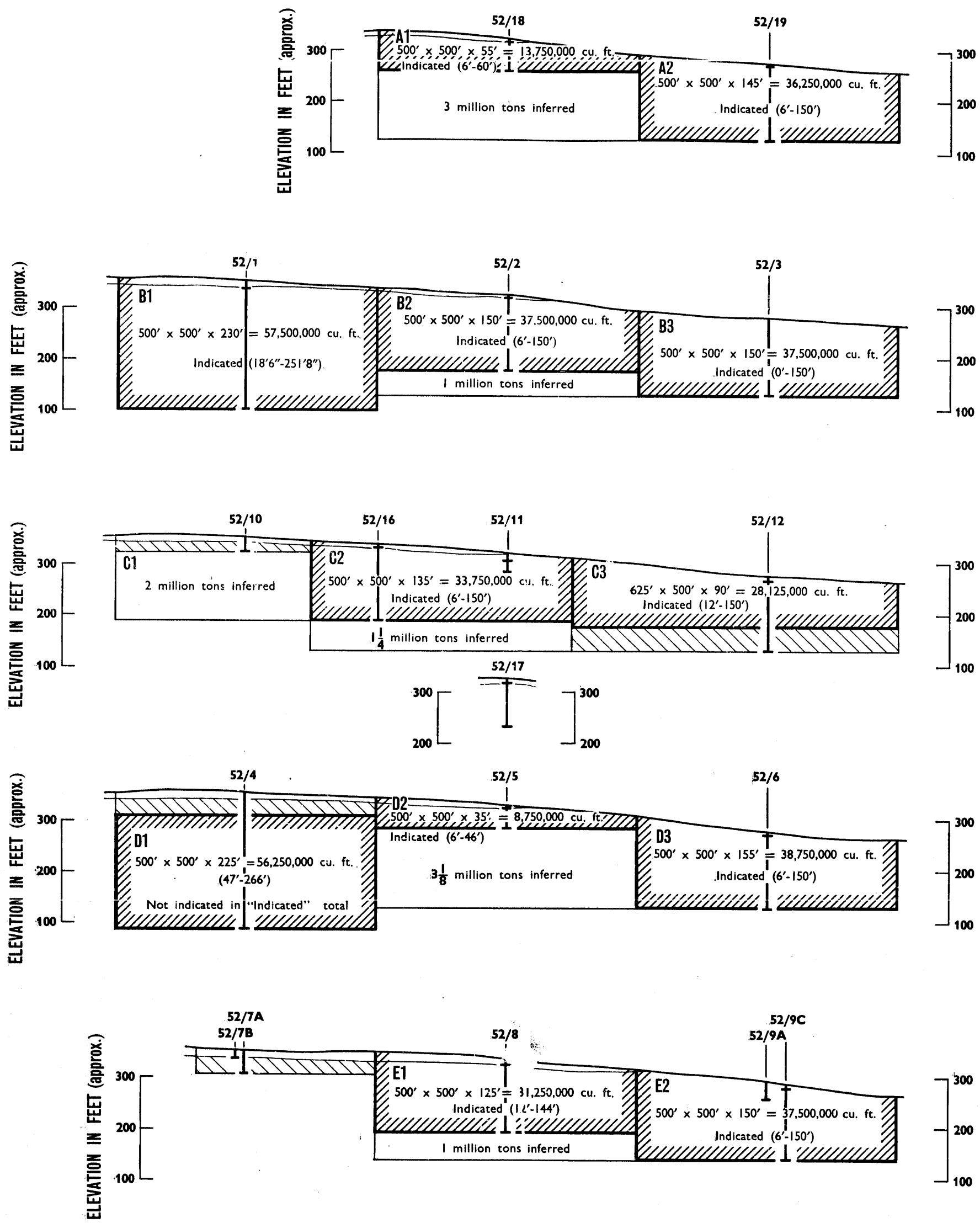
DEPARTMENT OF MINES — SOUTH AUSTRALIA

CURRAMULKA LIMESTONE DEPOSITS — SITE 2

SECTION 525 HD. CURRAMULKA

ISOMETRIC BLOCK DIAGRAM
WITH GRADE OF LIMESTONE IN BOREHOLES

		Compiled C.H.H. CONOR A.H. BLISSETT	Scale: As shown
			Date: 4 June 1970
		Drn. S.v.C	Drg. No. 70-319
Director of Mines		Ckd. L.V.W.	



INDICATED RESERVES (short tons)

BLOCK A	4,167,000
BLOCK B	11,000,000
BLOCK C	5,156,250
BLOCK D	3,958,000
BLOCK E	5,730,000
	30,011,250

Less 5% for cavities = 28,500,000 (approx.)

INFERRED RESERVES (short tons)

9,375,000

Less 5% for cavities = 9,000,000 (approx.)

Tonnage factor: 12 cu. ft. per ton

LEGEND

Calcrete

Limestone below 85% $CaCo_3$

SCALE IN FEET

100 0 100 200 300 400 500

SCALE IN METRES

50 0 50 100 150

70-320 MR 132

A. H. Blissett Assistant Senior Geologist

S.A. Dept. of Mines