Open File Envelope No. 871

SML 163

DARKE PEAK – MOUNT GEHARTY AREA

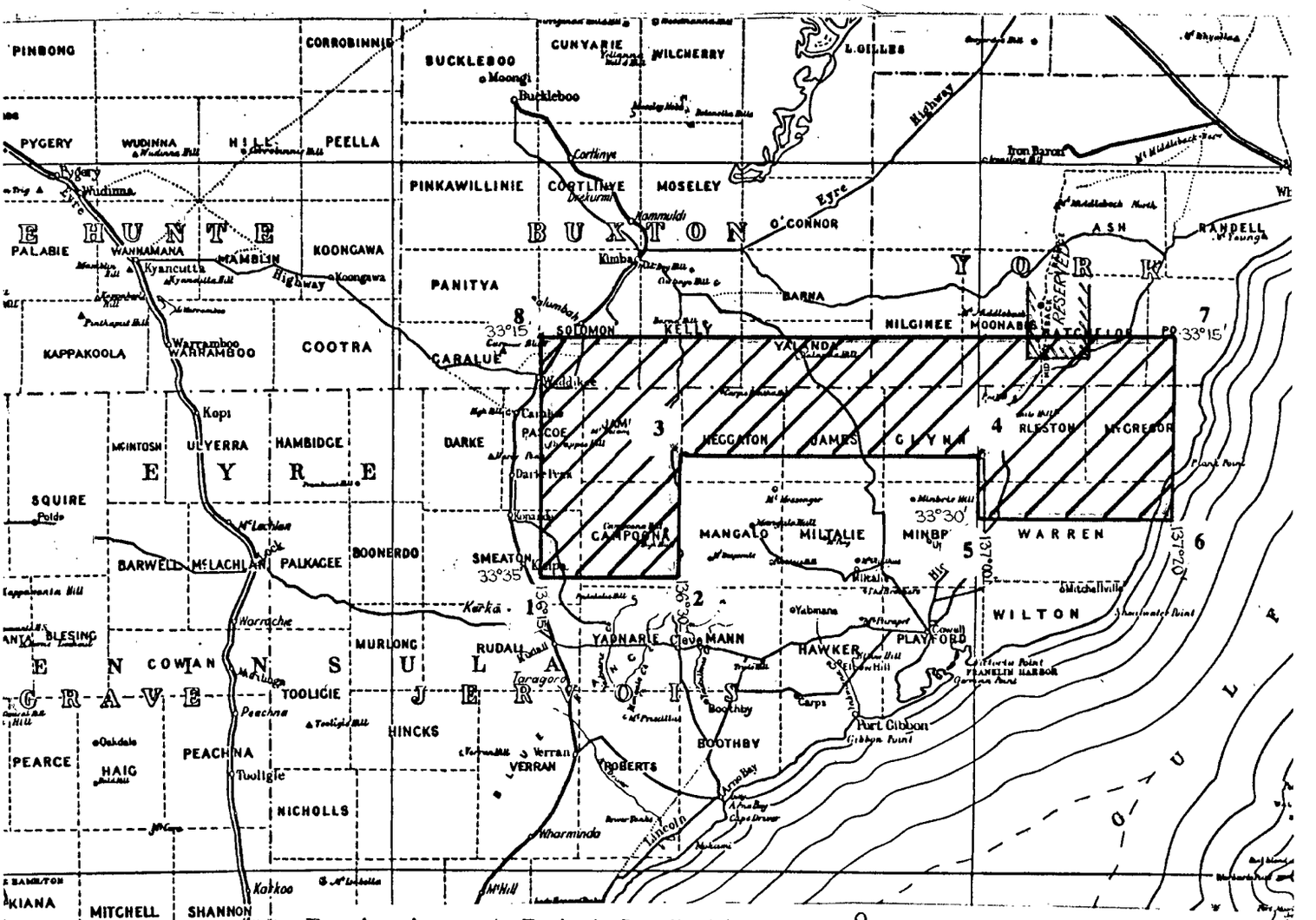
PROGRESS REPORT TO LICENCE RENEWAL FOR THE PERIOD 1/11/67 TO 31/10/68

Submitted by
Kerr-McGee Australia Ltd
1968

Enquiries: Customer Services
Ground Floor
101 Grenfell Street, Adelaide 5000

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

PRIMARY INDUSTRIES AND RESOURCES SA



Beginning at Point 1, Latitude 33°35' South, Longitude 136°15' East; thence east to Point 2, Latitude 33°35' South, Longitude 136°30' East; thence north to Point 3, Latitude 33°25' South, Longitude 136°30' East; thence east to Point 4, Latitude 33°25' South, Longitude 137°00' East; thence south to Point 5, Latitude 33°30' South, Longitude 137°00' East; thence east to Point 6, Latitude 33°30' South, Longitude 137°20' East; thence north to Point 7, Latitude 33°15' South, Longitude 137°20' East; thence west to Point 8, Latitude 33°15' South, Longitude 136°15' East; thence south to Point 1, the point of beginning.

Compiled from information in the DEPARTMENT OF LANDS, ADELAIDE,
under the direction of the Surveyor-General.

1965

VERY-MCGEE AUSTRALIA, LTD.

SCALE

MILES 8 6 4 2 0 8 16 24 32 40 48 56 64 72 MILES

H.J. WALL, GOVERNMENT PHOTOLITHOGRAPHER ADELAIDE

D.H. [illegible]

CONTENTS ENVELOPE 871 DM 1203 & 1632/67

TENEMENT: S.M.L. 163

TENEMENT HOLDER: KERR-McGEE AUSTRALIA LTD.

REPORTS:

KERR-McGEE AUSTRALIA LTD. 1968 Progress report for SML 163 (pgs. 3-27

PLANS:

Aeroradiometric survey, profile 59NE (871-13)

Anomaly rate of change - altitude test (871-1)

Airborne scintillometer survey - Cowell area - S.A. 1:126,720 (871-2)

Airborne scintillometer survey - Cowell area - S.A. 1:63,360

- Sheet 1 (871-3)
- Sheet 2 (871-4)
- Sheet 3 (871-5)
- Sheet 4 (871-6)
- Sheet 5 (871-7)
- Sheet 6 (871-8)

Radiometric anomaly, mineral lease, mineral claim and drillhole location sheets

- McGregor (871-9)
- Glynn (871-10)
- Rudall (871-11)
- Darke (871-12)

Envelope 87/

KERR-McGEE AUSTRALIA, LTD.
INCORPORATED IN DELAWARE, U.S.A.
P.O. BOX 53
GLENSIDE
SOUTH AUSTRALIA 5065

003

PROGRESS REPORT FOR SPECIAL MINING LEASE 163

SUMMARY

Aerial photography and airborne scintillation field work has been completed. Preparation of aeroradiometric maps have been completed and submitted to the Mines Department. Preliminary sampling and examination of anomalies is completed and a drill program has been started.

AERIAL PHOTOGRAPHY AND AERORADIOMETRIC SURVEY

The aerial work is described in detail in the six month report of Special Mining Lease 163.

GROUND WORK

Checking and sampling anomalies on the ground is completed and detail mapping of selected areas has been started.

EXPENDITURE STATEMENT

Table I gives the details of Kerr-McGee's expenditures for Special Mining Lease 163 for the first year.

PROGRESS REPORT FOR SPECIAL MINING LEASE 163

SUMMARY

Aerial photography and airborne scintillation field work has been completed. Preparation of aeroradiometric maps have been completed and are included in this report. Preliminary sampling of anomalies has been started and plans for drilling have been made.

AERIAL PHOTOGRAPHY

South Bank Aviation completed the aerial photography in October, 1967. The photo flight lines are oriented in an east-west direction and are spaced about 2 miles apart. The photos have a spacing of about 1 mile apart along the lines, giving sufficient overlap to have full stereo coverage.

Photo index maps on a 1-63,360 scale base map showing photo centers along with land forms were prepared and used as aero-rad base maps.

AERORADIOMETRIC SURVEY

Geophysical Resources Development Company (G.R.D.) has completed the aeroradiometric survey.

For this job, G.R.D. equipped a Cessna 337 Super Skymaster with a scintillometer, a tracking camera, and a radar controlled altimeter. The details and settings of their instruments are presented in Table III.

Tracking photography was taken by a movie camera mounted in the planes underside. The camera was set to take a frame every few seconds so as to

have a continous ground picture. A radar controlled recording altimeter was used so that the actual distance above the ground was evident and recorded along with the radiation record. Example of the flight record is enclosed in Appendix I.

The flight lines were planned on a northeast--southwest pattern so as to be parallel to most of the topography. This was done so that a constant distance above the ground could be more easily maintained. A photo mosaic was made by stapling the photos together. The proposed 1/4 mile flight lines were drafted onto the mosaics. The photo was then cut in to strips, each containing six (6) or seven (7) flight lines. The pilot used the photo strips to guide the aircraft and keep it on line. If the plane got off line the area was reflown.

An altitude of 300 feet was attempted. If the aircraft got above 500 feet that part of the flight was reflown.

The flight path was determined from the photos taken by the movie camera mounted in the plane. The true flight path was plotted on the air photos. They were then plotted onto the photo index map.

The altitude and gamma ray record was examined and the anomalies were adjusted for altitude. The method of adjustment is explained in Appendix II. Using the movie camera photos for location, the adjusted gamma ray values were plotted along the flight lines. These values were then contoured to give the final maps.

GROUND WORK

Examination of the anomalies is in progress and the results are

GROUND WORK (CON'T)

summarized in the enclosed maps and Table I.

EXPENDITURE STATEMENT

Table II gives the details of Kerr-McGee's expenditures for S.M.L. 163.

TABLE I

LOCATION AND ANOMALY DESCRIPTIONS

TABLE I

LOCATION AND ANOMALY DESCRIPTIONS

A-101 Southwest Caroppee Hill on the Darke sheet. This high pink granite hill has very high background due to low grade uranium content. In some areas yellow minerals have been seen. They have been identified as uranophane by V. J. Barczac. The rock shows some fluorescence in ultra-violet light. Samples C-14, C-15, and C-16 were taken from a high count area on this part of the hill. The results follow:

SAMPLE	V	U	Th
C-14	.01	.035	.005
C-15	.01	.035	.005
C-16	.01	.01	.010

A-102 Most of the southern half, which includes the highest part of the hill, was gone over with a counter. No area of extremely high count, such as found near A-101, was found. The flight records show that the plane was very low at this point so this coupled with the fact that the whole hill is 5 to 10 times background accounts for the anomaly. Much lower on the hill, to the southeast, a second area of very high count was found. Samples were taken here but no results as yet. The samples did have yellow minerals and were also fluorescent.

A-103 East of Bunora R.S. on the Darke sheet. This area is on a low hill and is composed of a highly kaolinized pegmatite and quartzite. Ground readings were 6 times background.

A-104 East of Bunora R.S. on the Darke sheet. This area is composed of weathered red gneisses. Readings of up to 3 times background were observed.

L-201* Mt. Ghearthy and Schiller Ranch located in the southeast part of the Glynn sheet. Much of this land has been inspected on the ground, especially the dolomite and nephrite claims. The area is of little interest to us. The results of a dolomite sample taken here follows:

* In S.M.L. 158

L-201

PARTS PER MILLION

SAMPLE	Cu	Pb	Zn	Ag	Au	V	Mn
C-5	20	6	20	.8	3	1	1000

L-202 Along Salt Creek near south edge of Glynn sheet. H. Schiller's M.C. 1641 for clay. Production should start on this kaolin deposite later this year. The Mines Department made a report on this property some time ago and did some drilling.

A-301 This area is in the southwest part of the McGregor sheet. Much of this land was looked at and walked over with a counter. Readings of 4 or 5 times background were recorded. No samples were taken. The rocks here are coarse granites with large feldspar phenocrysts.

A-303 Near the north edge of the McGregor sheet along the Lincoln Highway. This weak anomaly covers a low hill of feldspathic highly metamorphosed sandstone. The road department quarries it for road metal.

L-301 Old mine marked in northern part of McGregor sheet. Looks like an attempt to dig a water well. Hole is dry.

L-302 Mine shaft on north part of McGregor sheet. Handcock gold mine. Quartz veins in greenish, pink granite. This mine never produced any ore. A sample of vein material containing chalcopyrite was sent in for analysis. The results follow:

PARTS PER MILLION

	Au	Cu	Pb	Zn	Ag
1	1	45	65	110	5
2	Nil	710	130	390	5

L-303 Location in road cut along Lincoln Highway. Here is an exposure of coarse conglomerates made up of arkosic sand and lithic frag-

L-303 ments. The pebbles are well rounded and extremely weathered at the surface. The bed dips to the east 45° or 50° and has iron staining which is more radioactive than the rest. Note that a weak high extends along the strike of this formation.

L-304 North of center of McGregor sheet. Old shaft appears to be attempt at digging a water well. Hole dry.

L-305 East of L-304. Breccia bed. This bed looks like a metamorphosal talus pile. It is full of quartz veins, (quartz filled fractures). Note weak radiation high here.

L-306 East of L-305. Old mine marked on the map. Looks like an attempt to find water. It was dry.

L-307 Northeast of L-306. Murninnie Mine. This area has been mined for copper for some time. There are many shafts and test pits. Waste dumps show only malachite. No radiation was detected. Mineralization appears to be along shear zone associated with the intersection of two faults.

A-401 In northeast part of Rudall sheet. This area was found to be mainly red iron stained weathered granites. The area had a count of 4 or 5 times background over most of it, with nothing over 6 recorded.

A-403 Southwest of Campoona Hill on Rudall sheet. A large part of this area is radioactive, as A-401, but an oolitic vugular iron formation had extremely high count. The bed strikes southwest and is nearly vertical. Sample C-9 was taken here.

PARTS PER MILLION

	Th	U
C-9	less than 50	180

A-404* Area north of Poolalalio Hill on the west part of the Rudall

* In S.M.L. 158

A-404* sheet. This area was found to be a weathered granite with some ironstone and gneisses. No real hot zones were found; though the whole area read high.

L-402* South of A-404 Christian Copper Mine. This mine was dug on an azurite zone along a granite and gneiss contact. No count was observed in the area. A sample of ore was analysed.

	Cu	Pb	Zn	Ni	Sn	Ag	Av	V	Mo	Mn
C-8	10,000	500	30	20	5	100	Nil	5	70	10

* In S.M.L. 158

TABLE III

AERORADIOMETRIC SURVEY
DETAILS AND SETTINGS

Aircraft - Cessna 337 Super Skymaster

Base of Operations - Cleve, S.A.

Crew - Pilot - Charles Brown
Operator - Kingsley Austen
Field Dataman - Roger Lawrence

Survey Started (Flying) - 7.12.67

Survey Completed (Flying) - 14.1.68

Data reduced at G.R.D. Co. Offices, 232, Rocky Point Road, Ramsgate, Sydney, Australia.

INSTRUMENTATION

Nuclear Enterprises Scintillometer - Total Count.

Crystal Size - 3" x 5"

Threshold - .06875 M.E.V.

Sensitivity - 100 CPS

Time Constant - 3.3 sec.

MOSLEY 7100B Two Channel Recorder

Altimeter Trace (Blue) 80' to 2500' Scale

Scintillometer Trace (Red) 0 to + 100 CPS

(Due to necessity of recording pen displacement scintillometer trace and fiducial system lead the corresponding altimeter traces by approximately .08 inches).

TABLE III (con't.)

BOLEX 16 mm Single Frame Camera

Firing one frame every two seconds. Fiducial system correlated between camera frames and recorded traces.

APPENDIX I

EXAMPLE OF FLIGHT RECORDS

GRD. GEOPHYSICAL SURVEY

No. 016

Magnetometer Sensitivity _____ Scintillation Sensitivity 10^2 3.3 Altimeter Recording Scale 100'-3500'

Pilot C. BROWN Airplane VH-RPY Job No. 1876

Co-Pilot _____ Airport CLEVE Flight 27

Operator K. AUSTEN Take Off 0645 Date 4.1.68

Doppler Control Coordinate _____ Land 0940 Altitude 300' MTC

Flight Time 2:55 Fiducial Interval 2 SEC.

Line No.	Fiducials Start	Fiducials End	Local Time Start	Local Time End	Doppler From	Doppler To	Record Quality	Remarks	Mi. Kms.
63 NE	0001	0696							
62 SW	0700	1570							
61 NE	1574	7266							
60 SW	2270	3137							
59 NE	3210	3910							

Closure error ____ R-L ___ Field Office

	Field	Office		Field	Office
miles flown this flight - -			miles flown to date - - - - - - -		
miles void this flight - -			miles void to date - - - - - - -		
miles accepted this flight			miles accepted to date - - - - - -		
mag. record check - - - - -			diurnal record check - - - - - -		
step length - - - - -			flight path check - - - - - -		

APPENDIX II

ALTITUDE CORRECTION

TEST FOR RADIATION ATTENUATION

Date Flown	:	3.1.68 as part of Flight No. 25
Target	:	Anomaly located 2.7 miles west of Taragoro R.S. (Sheet No. 6) on Traverse 140
Flight Direction	:	North East for all profiles
Planned Terrain Clearance	:	150', 300', 450', 600', 1,200'.
Actual Terrain Clearance (Radar Altimeter)	:	175', 375', 500', 650', 1,200'.

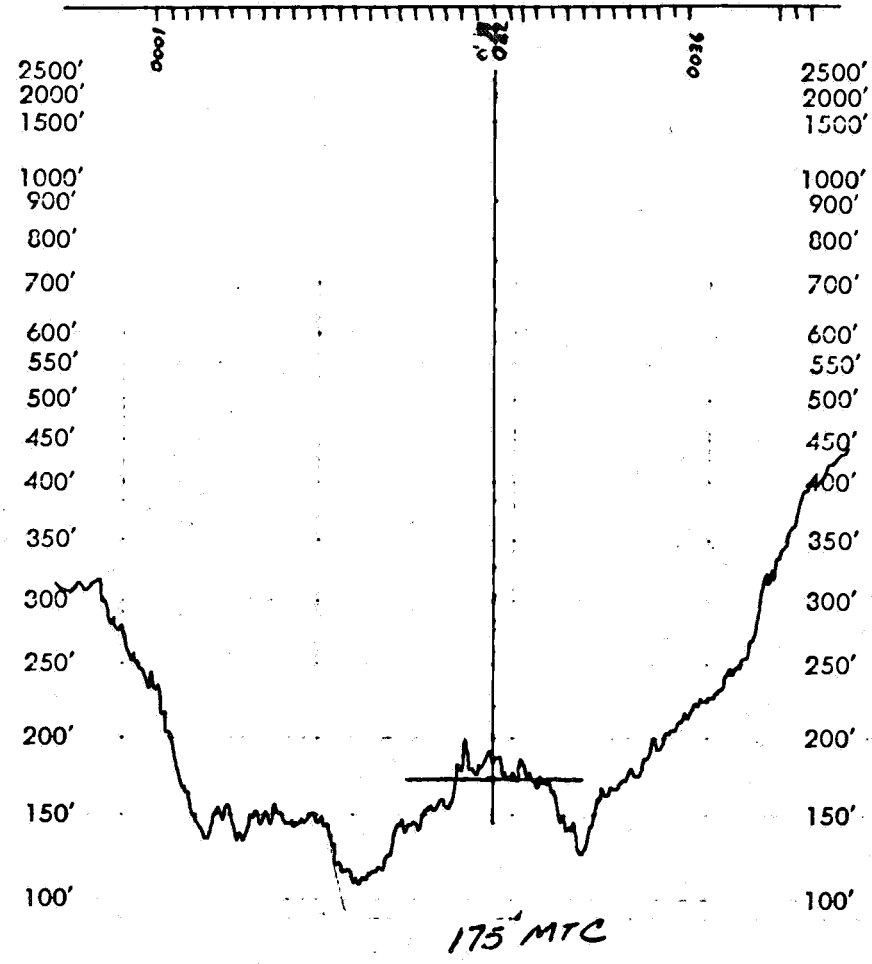
The test anomaly was observed to be 40 counts background on the original T140 profile.

The actual flight paths, as recovered from the tracking film, indicate a lateral spread of flight path approximating 400 feet. It was felt and proven that this dispersion was sufficiently within tolerance to produce a reliable attenuation curve for the reduction of data obtained by this instrument.

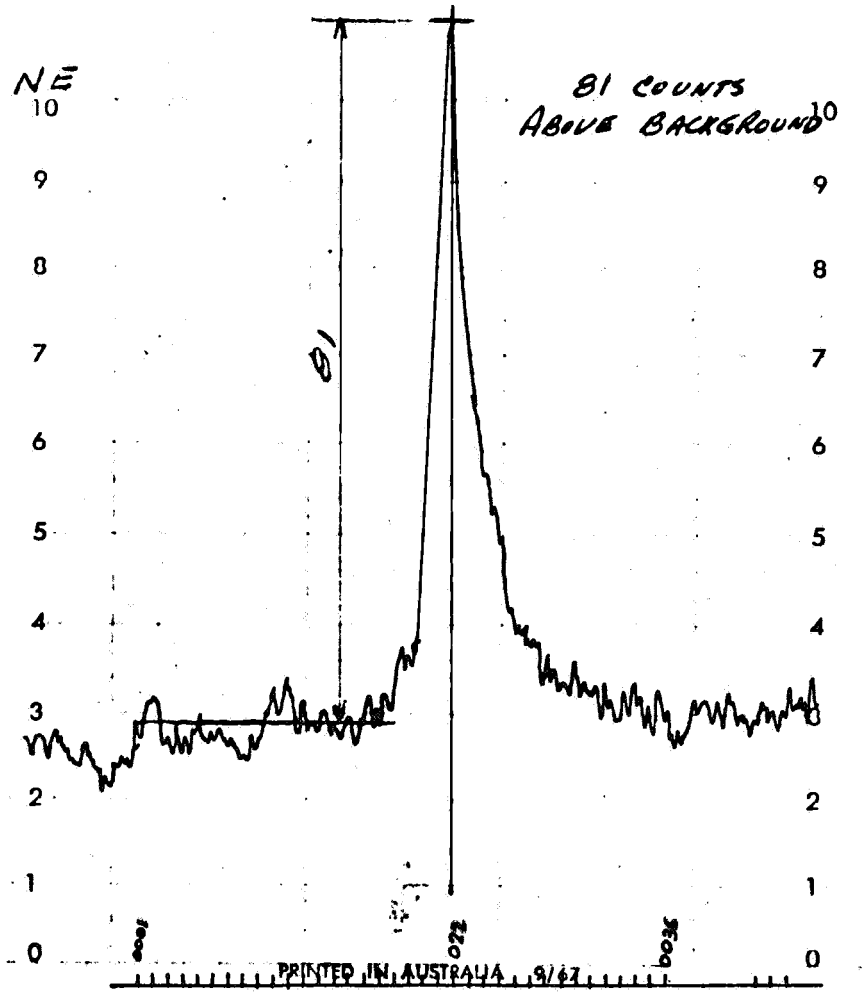
The results of the five test lines were plotted to produce the curve. After the curve was plotted, it was noted that the original anomaly value (40 counts) fitted the curve perfectly.

Since the survey was designed to be flown at a mean terrain clearance of 300', it was decided to use this altitude as the standard (i.e. observed value = 100%) and to adjust all observed anomalies at differing altitudes to this standard. Therefore, anomalies recorded with lesser terrain clearances were reduced proportionately, according to the graph, and those recorded at higher altitudes were increased accordingly.

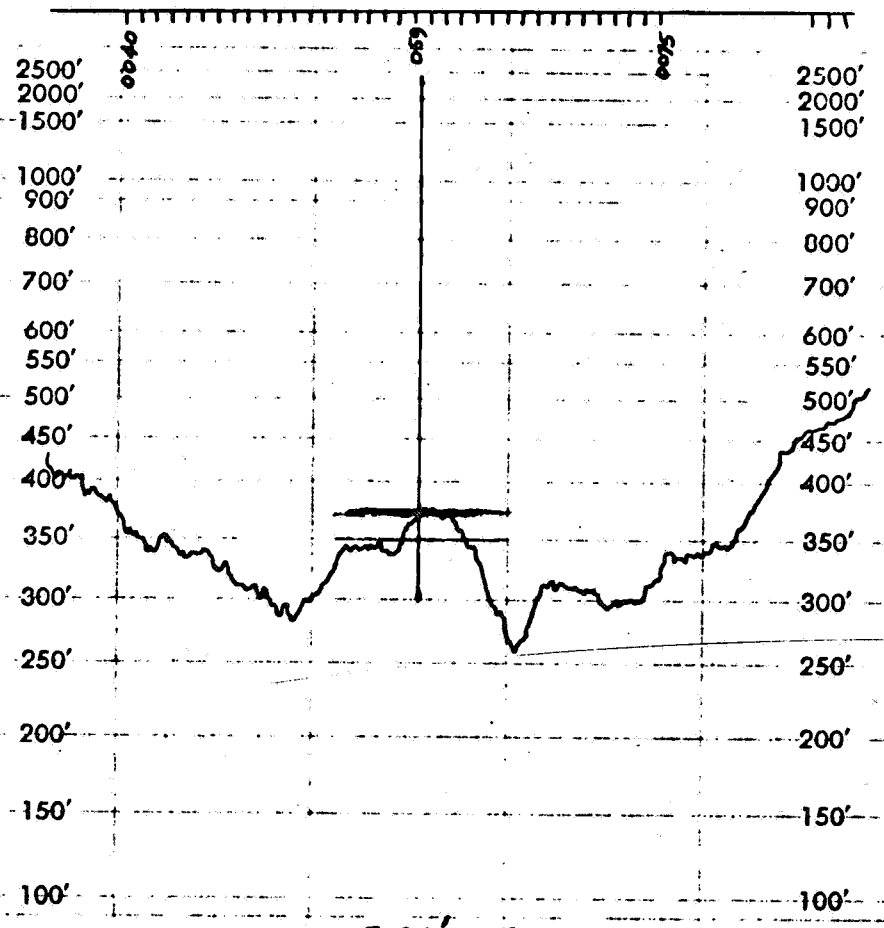
Due to the impracticability of accurately plotting the curve for terrain clearances of less than 100' - an infrequent occurrence (also the bottom limit of the radar altimeter) it was arbitrarily decided that the maximum adjustment would be 15% of the observed value as defined by the graph.



PASS # 1 NE



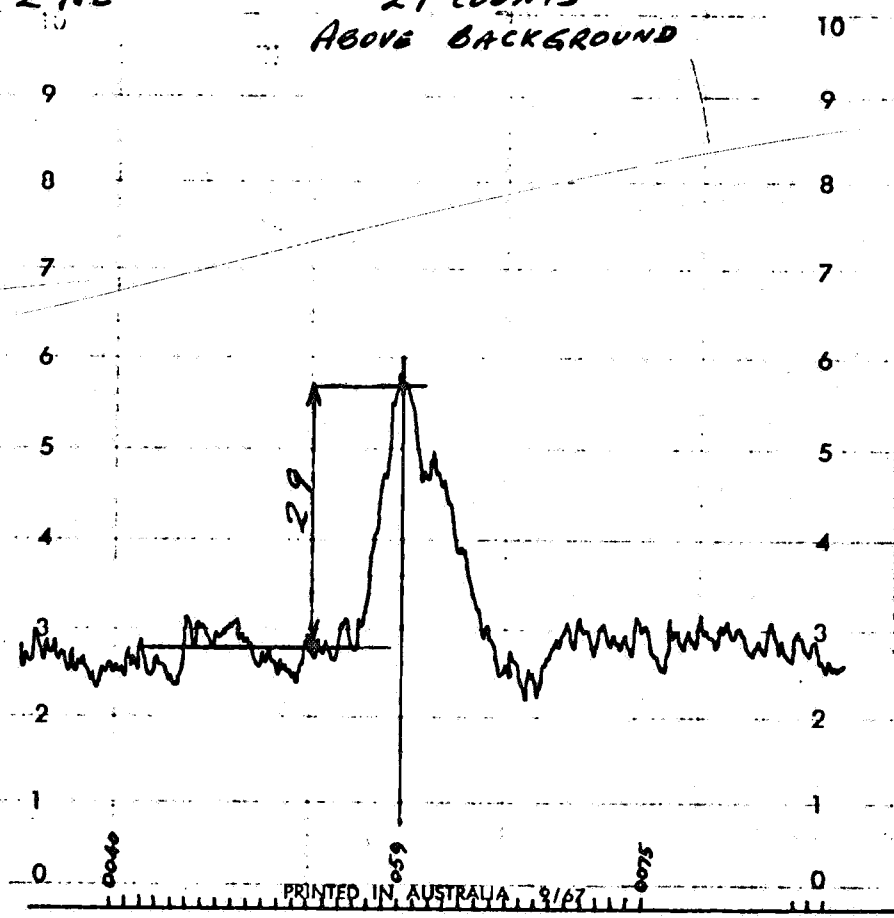
PRINTED IN AUSTRALIA 9/67

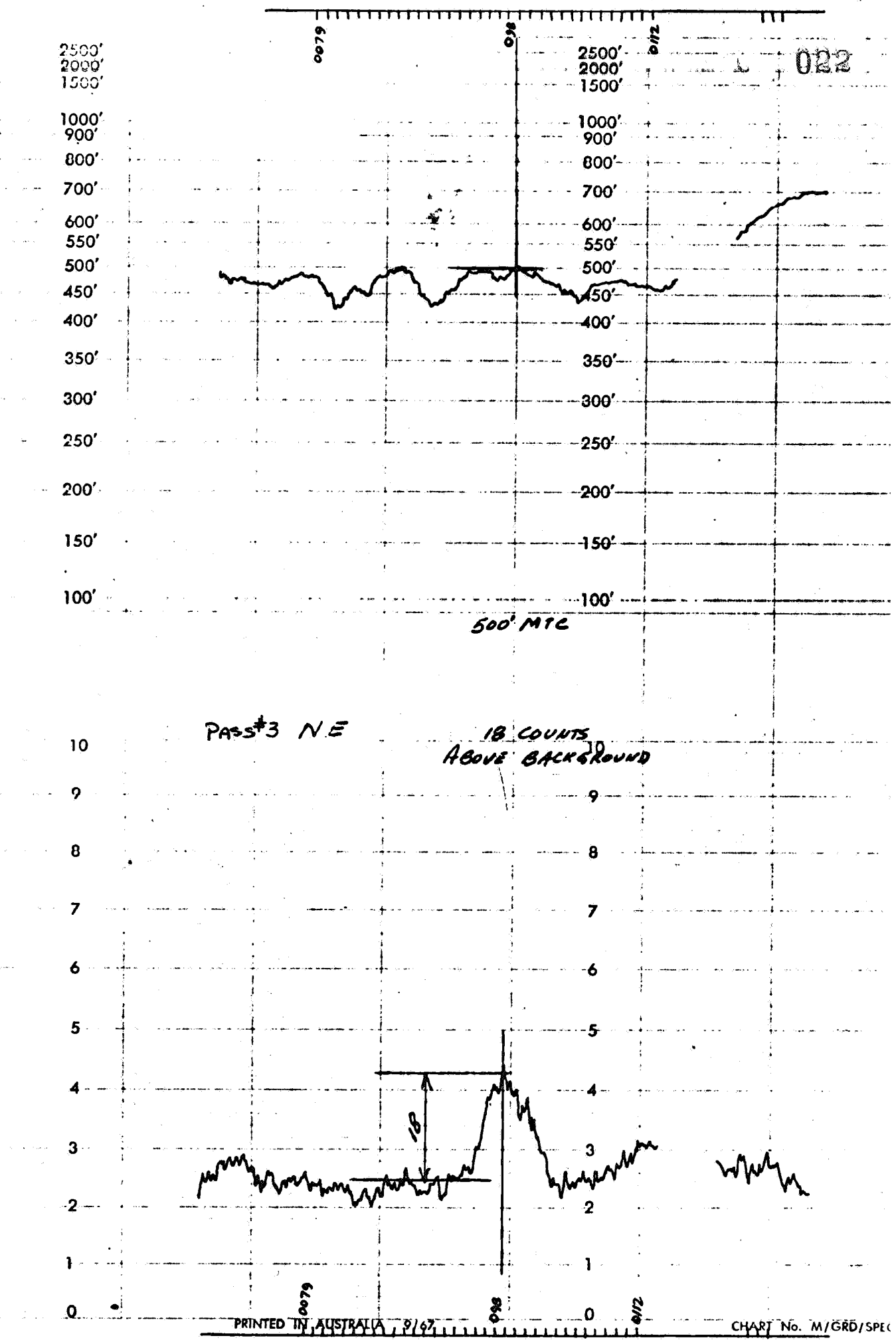


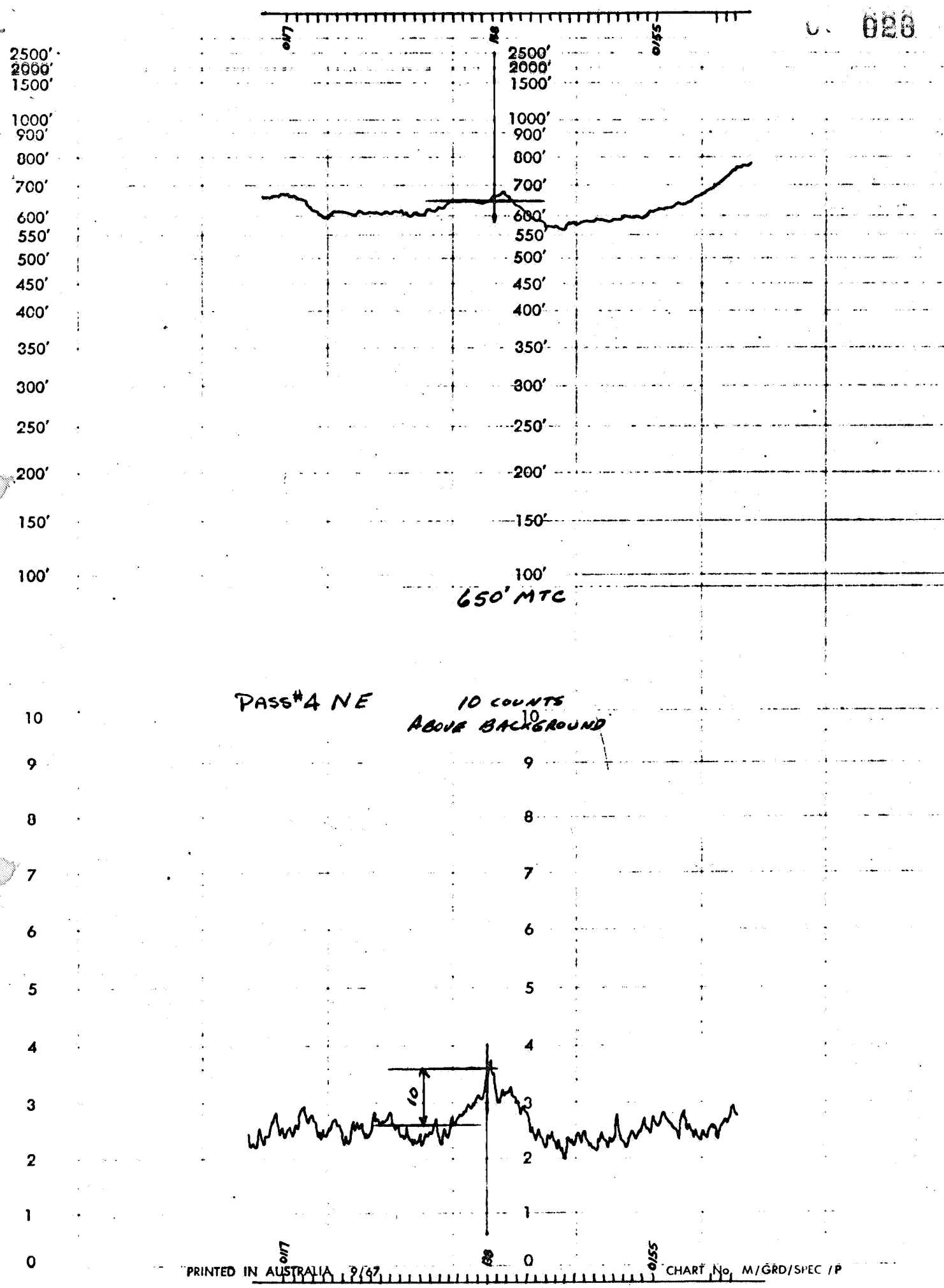
375' MTC

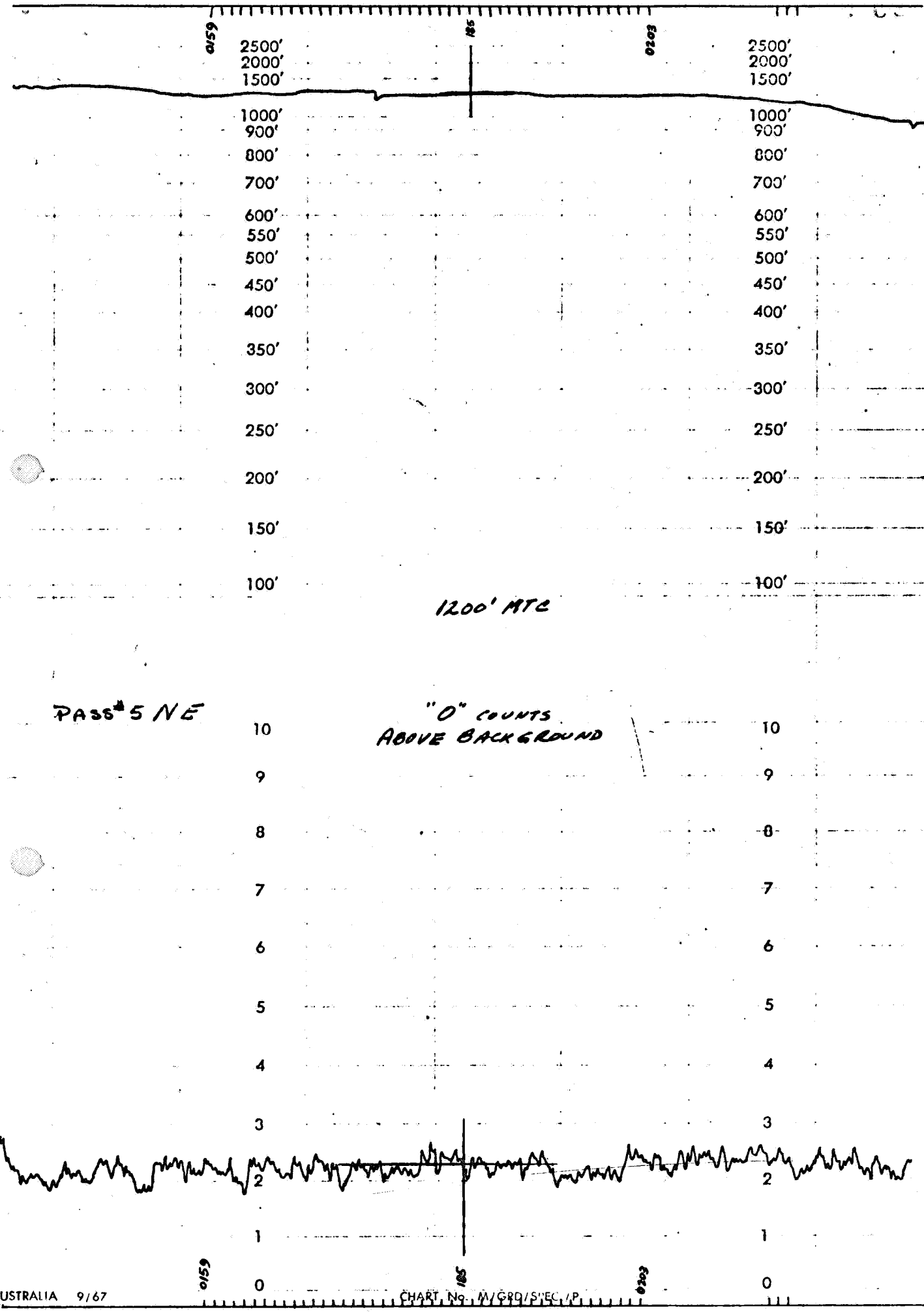
PASS #2 NE

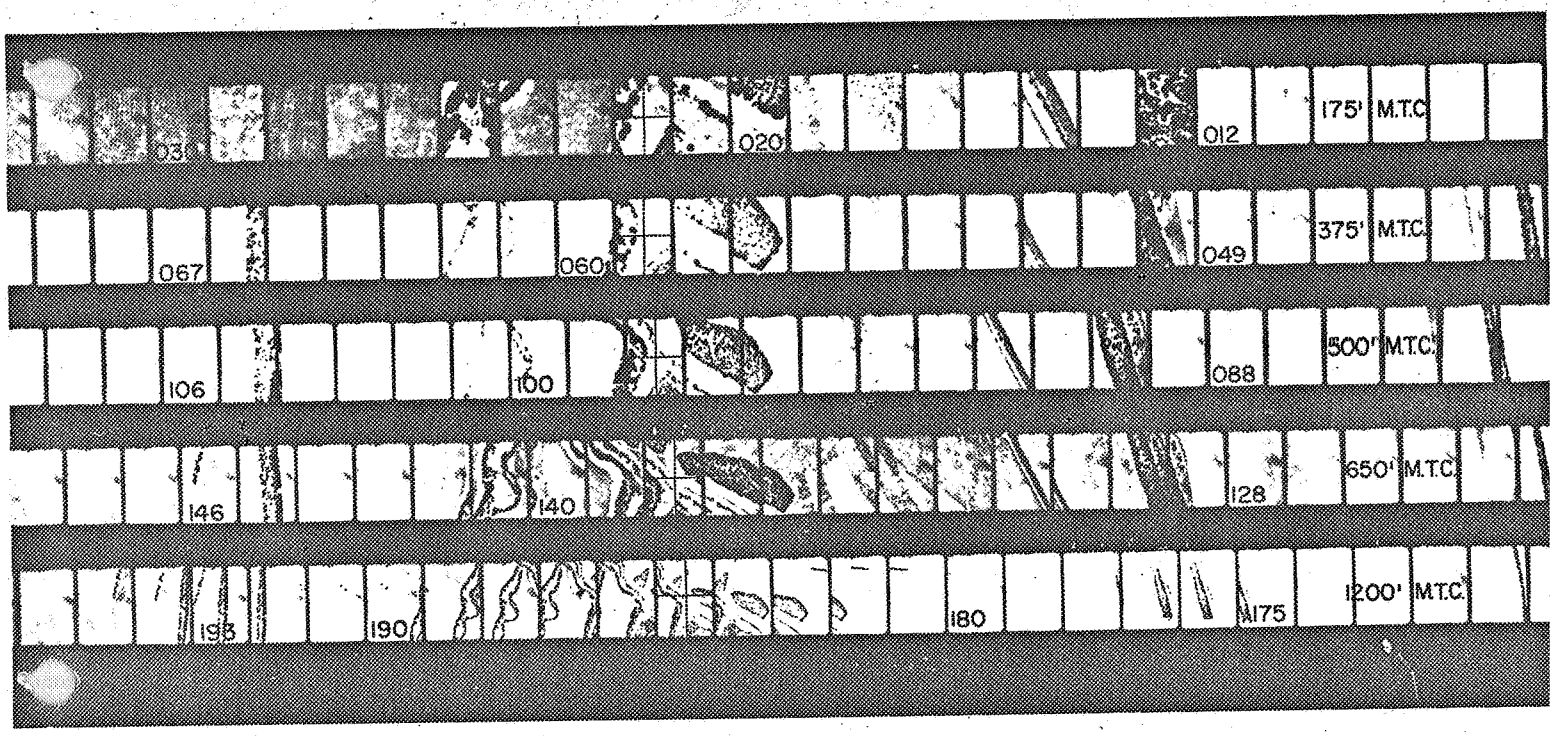
29 COUNTS
ABOVE BACKGROUND




0079
098
0112
2500'
2000'
1500'
1000'
900'
800'
700'
600'
550'
500'
450'
400'
350'
300'
250'
200'
150'
100'
500' MTC
PASS#3 NE
18 COUNTS
ABOVE BACKGROUND
10
9
8
7
6
5
4
3
2
1
0
18
PRINTED IN AUSTRALIA 9/67
CHART No. M/GRD/SPE


0117
88
0155
2500'
2000'
1500'
1000'
900'
800'
700'
600'
550'
500'
450'
400'
350'
300'
250'
200'
150'
100'
650' MTC
PASS#4 NE
10 COUNTS
ABOVE BACKGROUND
10
9
8
7
6
5
4
3
2
1
0
10
0117
88
0155


0159
185
0203
2500'
2000'
1500'
1000'
900'
800'
700'
600'
550'
500'
450'
400'
350'
300'
250'
200'
150'
100'
1200' MTC
PASS #5 NE
"0" COUNTS
ABOVE BACKGROUND
10
9
8
7
6
5
4
3
2
1
0


033
020
012
175' M.T.C
067
060
049
375' M.T.C.
106
100
088
500' M.T.C.
146
140
128
650' M.T.C.
193
190
180
175
1200' M.T.C.

INCREASING ALTITUDE

ADJUSTED VALUES PER 50' ALT. BLOCKS

COUNTS ABOVE BACKGROUND	300' 100%	350' 108%	400' 114%	450' 119%	500' 122%	550' 125%	600' 128%
	10	11	11	12	12	13	13
	20	22	23	24	24	25	26
	30	32	34	36	37	38	38
	40	43	46	48	49	50	51
	50	54	57	60	61	62	64
	60	65	68	71	73	75	77
	70	76	80	83	85	87	90
	80	86	91	95	98	100	102
	90	97	102	107	110	112	115
	100	108	114	119	122	125	128
	110	119	125	131	134	137	141
	120	130	137	143	146	150	154
	130	140	148	155	159	162	166

Observed readings to be adjusted to the values shown. In cases of observed readings larger than 130 or altitude readings between those shown, a linear extrapolation should be made to resolve an adjusted value.

DECREASING ALTITUDE

ADJUSTED VALUES PER 50' ALT. BLOCKS

300' 100%	250' 88%	200' 70%	150' 41%	100' 15%
10	9	7	4	1
20	18	14	8	3
30	26	21	12	4
40	35	28	16	6
50	44	35	20	7
60	53	42	25	9
70	62	49	29	10
80	70	56	33	12
90	79	63	37	13
100	88	70	41	15
110	97	77	45	16
120	106	84	49	18
130	114	91	53	19

COUNTS ABOVE BACKGROUND

KERR - McGEE AUSTRALIA LTD

SML 163 COWELL

871-1 ANOMALY RATE OF CHANGE

-2 AIRBORNE SCINTILLOMETER SURVEY

-3 " " " SHEET 1

-4 " " " " 2

-5 " " " " 3

-6 " " " " 4

-7 " " " " 5

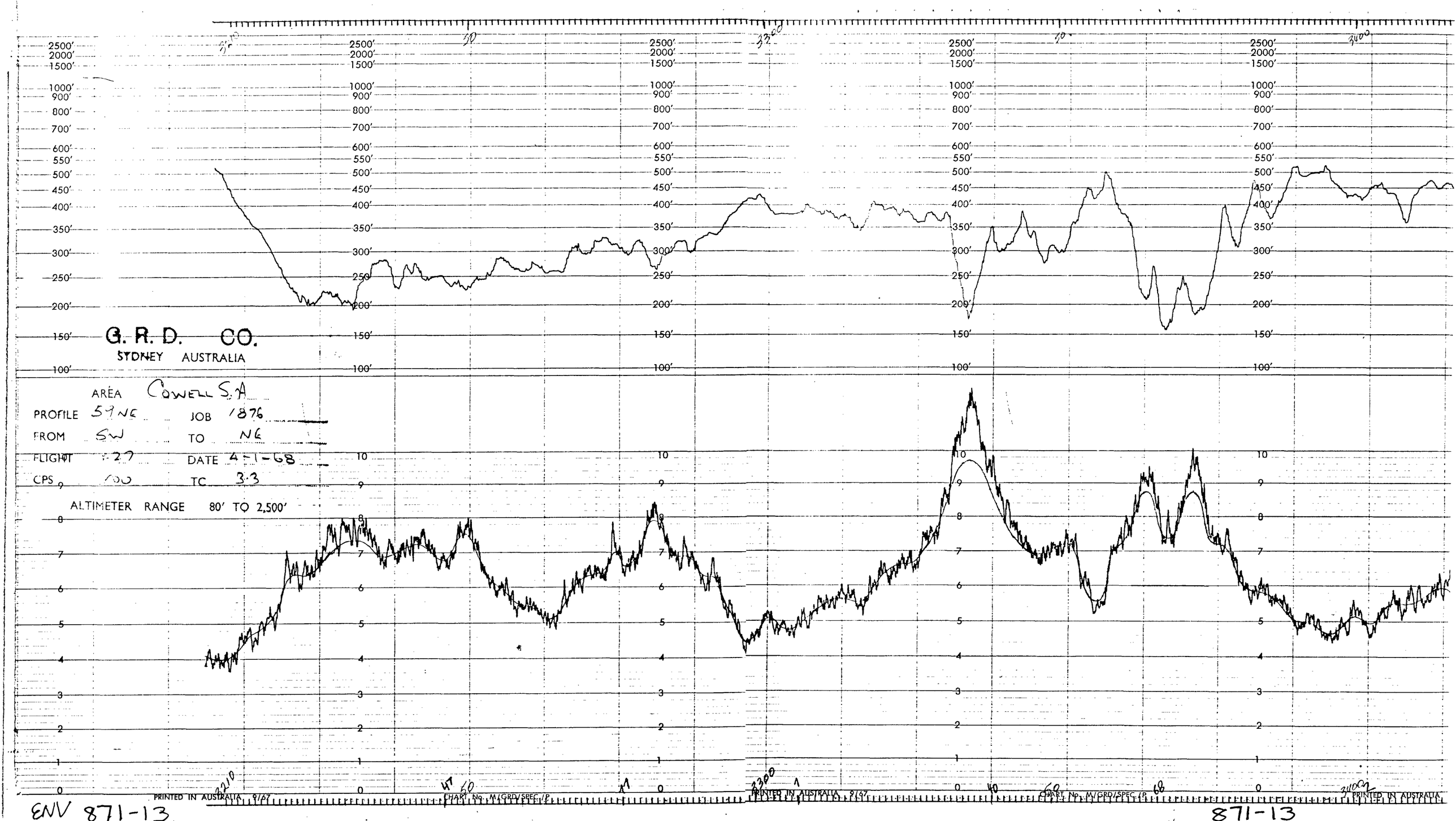
-8 " " " " 6

-9 McGREGOR GEOLOGICAL MAP

-10 GLYNN " "

-11 RUDALL " "

-12 DARKE " "



ENV 871-13

871-13

ANOMALY RATE OF CHANGE — ALTITUDE TEST

TEST OBSERVATIONS

↑ ALTITUDE

⊕ COUNTS ABOVE BACKGROUND

MAXIMUM CORRECTION
15% FOR 100' OR LESS

COUNTS ABOVE BACKGROUND

130
120
110
100
90
80
70
60
50
40
30
20
10
0

COUNTS
99
81
70
52
40
32
29
26
21
18
15
12
10

(COUNTS ABOVE BACKGROUND FOR REF ALT)

REFERENCE ALTITUDE

175' 375' 500' 650' 1200'

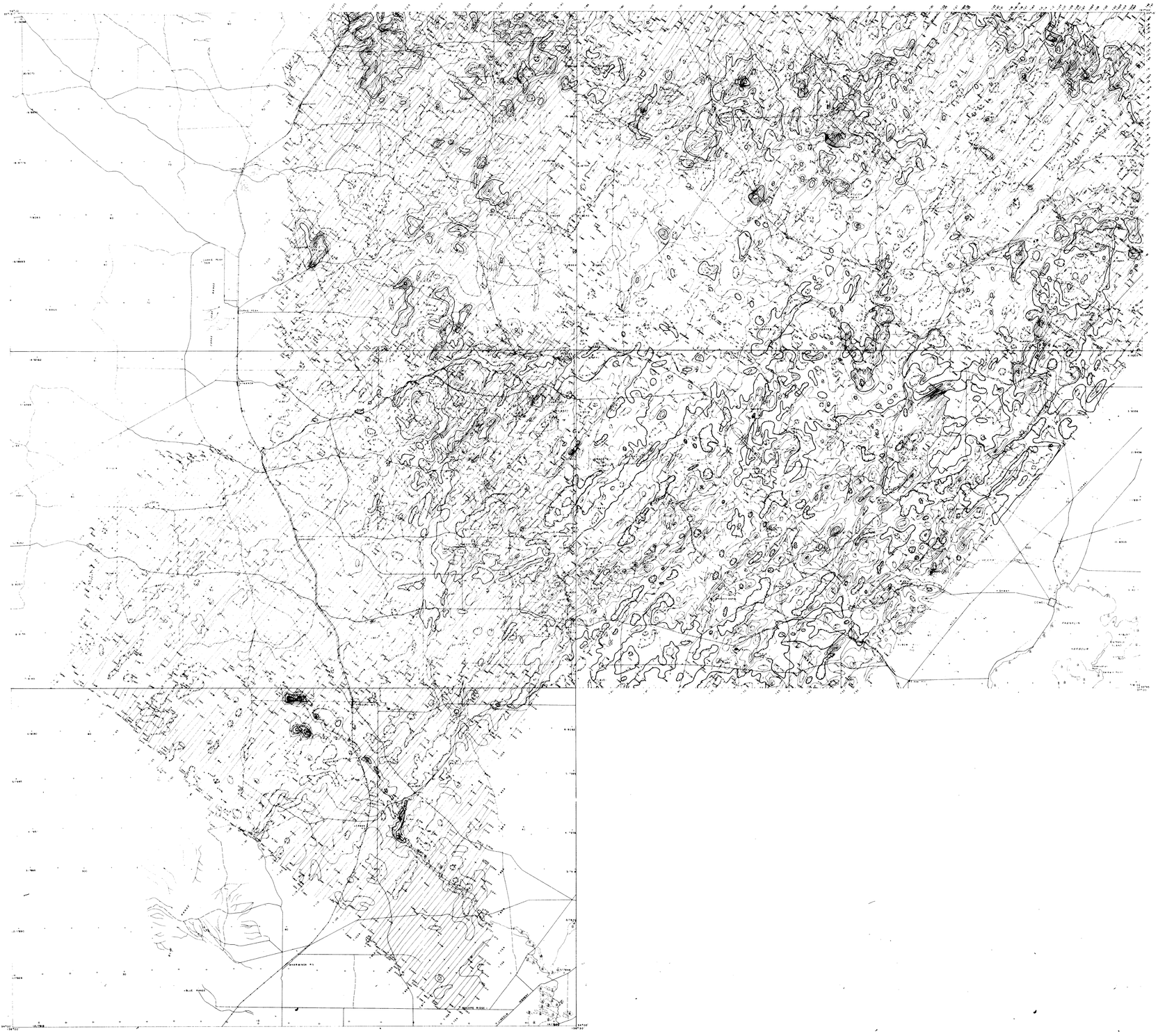
0 100' 200' 300' 400' 500' 600' 700' 800' 900' 1000' 1100' 1200' 1300'

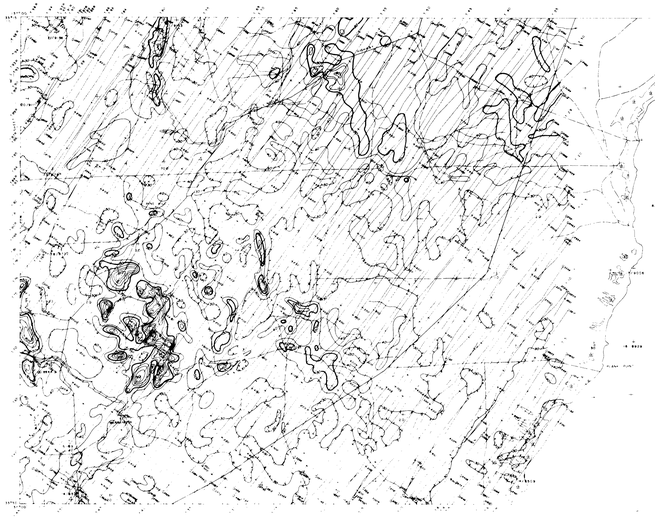
ALTITUDE (MEAN TERRAIN CLEARANCE)

40%
60%
80%
100%
120%
140%

ADJUSTMENT FACTOR FOR OBSERVED VALUES

ENV 871-1





THRESHOLD — 06875 M.E.V.
CONTOUR INTERVAL — 10 C.P.S.
FLIGHT INTERVAL — 1/4 MILE
ALTITUDE — 300' M.T.C.
HORIZONTAL CONTROL — BASED ON MAPS PUBLISHED BY DEPARTMENT OF MINES, ADELAIDE.

Env 871-2

AIRBORNE SCINTILLOMETER SURVEY

COWELL AREA — S.A.

KERR Mc GEE AUSTRALIA LIMITED

SCALE 1 : 126,720

MILES 2 1 0 2 4 6 8 MILES

SURVEYED AND COMPILED BY
GEOPHYSICAL RESOURCES DEVELOPMENT CO.
RAMSGATE, N.S.W.

THRESHOLD	—	06875 M.E.V
CONTOUR INTERVAL	—	10 C.P.S
FLIGHT INTERVAL	—	1/4 MILE
ALTITUDE	—	300' M.T.C

HORIZONTAL CONTROL BASED ON MAPS PUBLISHED BY DEPARTMENT OF MINES, ADELAIDE

SHEET INDEX

1	2	3
4	5	
6		

AIRBORNE SCINTILLOMETER SURVEY
COWELL AREA — S.A.

KERR Mc GEE AUSTRALIA LIMITED

SCALE 1:63,360

MILES 1 1/2 0 1 2 3 4 MILES

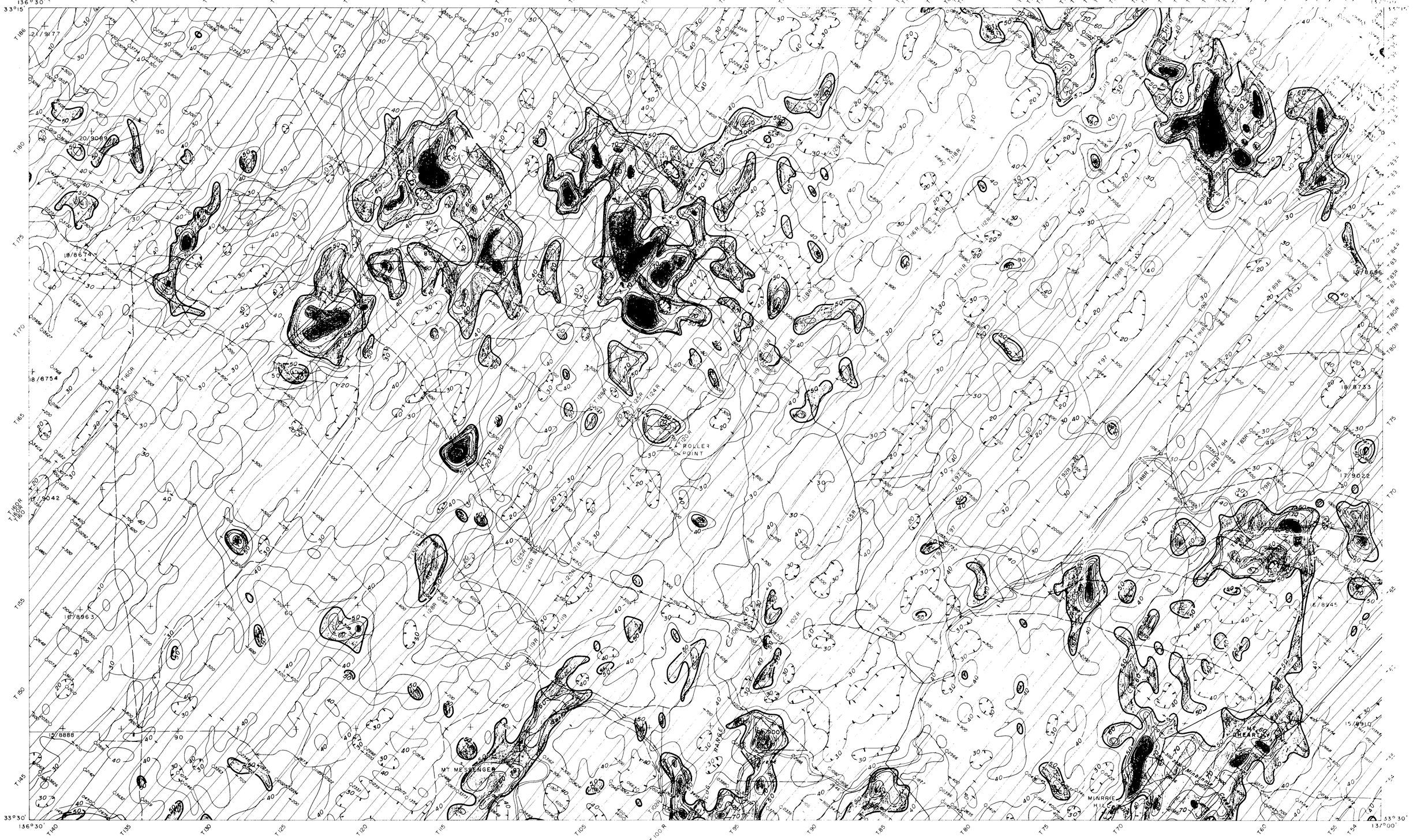
SURVEYED AND COMPILED BY
GEOPHYSICAL RESOURCES DEVELOPMENT CO
RAMSGATE, N.S.W

GRD

KERR-McGEE AUSTRALIA, LTD.
INCORPORATED IN DELAWARE, U.S.A.
P.O. BOX 53
GLENSIDE, S.A. 5065
AUSTRALIA

ENV 871-3

SHEET 1



THRESHOLD	—	0.675 M E V
CONTOUR INTERVAL	—	10 C P S
FLIGHT INTERVAL	—	1/4 MILE
ALTITUDE	—	300' M T C

HORIZONTAL CONTROL BASED ON MAPS PUBLISHED BY DEPARTMENT OF MINES, ADELAIDE

SHEET INDEX

1	2	3
4	5	
6		

AIRBORNE SCINTILLOMETER SURVEY
COWELL AREA — S.A.

KERR Mc GEE AUSTRALIA LIMITED

SCALE 1 63,360

MILES 1 1/2 0 1 2 3 4 MILES

SURVEYED AND COMPILED BY
GEOPHYSICAL RESOURCES DEVELOPMENT CO
RAMSGATE, N.S.W.

KERR-McGEE AUSTRALIA, LTD.
INCORPORATED IN DELAWARE, U.S.A.
P.O. BOX 53
GLENSIDE, S.A. 5065
AUSTRALIA

GRD

SHEET 2

EHV ~~855~~. 871-4

137°00'
33°15'
137°30'
33°15'
33°30'
137°00'
33°30'
137°30'

NO 2 SHEET

HIGHWAY

LINCOLN

PINE HILL

WARRAYSORA

MATCH LINE

PLANK POINT

GULF

SPENCER

21/9156

20/9111

19/8787

18/8732

17/9021

16/8941

15/8911

14/8552

17/9153

20/9131

19/8715

18/8117

17/9006

16/8929

15/8927

14/8509

THRESHOLD — ·06875 M.E.V.

CONTOUR INTERVAL — 10 C.P.S.

FLIGHT INTERVAL — 1/4 MILE

ALTITUDE — 300' M.T.C.

HORIZONTAL CONTROL BASED ON MAPS PUBLISHED BY DEPARTMENT OF MINES, ADELAIDE

TIE IN FROM SHEET NO 1 (McGREGOR) TO SHEET NO 2 (GLYNN) IS IMPOSSIBLE DUE TO INACCURACIES ON THE McGREGOR GEOLOGICAL SHEET

MATCH LINE HAS BEEN SHOWN FOR THE PURPOSE OF PROVIDING AN APPROXIMATE TIE TO SHEET NO 2

SHEET INDEX

1	2	3
4	5	
6		

AIRBORNE SCINTILLOMETER SURVEY

COWELL AREA — S.A.

KERR McGEE AUSTRALIA LIMITED

SCALE 1:63,360

MILES 1 1/2 0 1 2 3 4 MILES

SURVEYED AND COMPILED BY

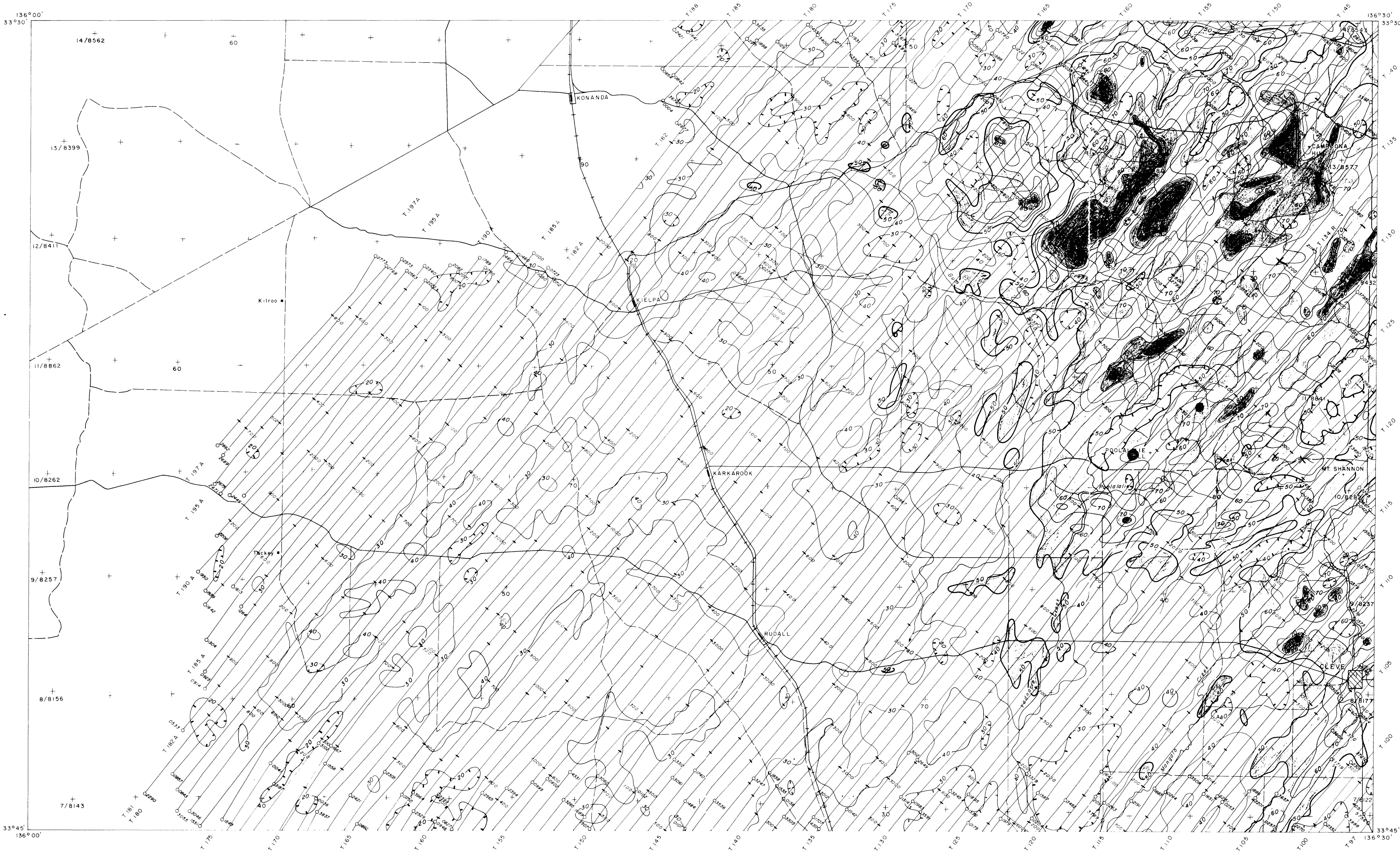
GEOPHYSICAL RESOURCES DEVELOPMENT CO.

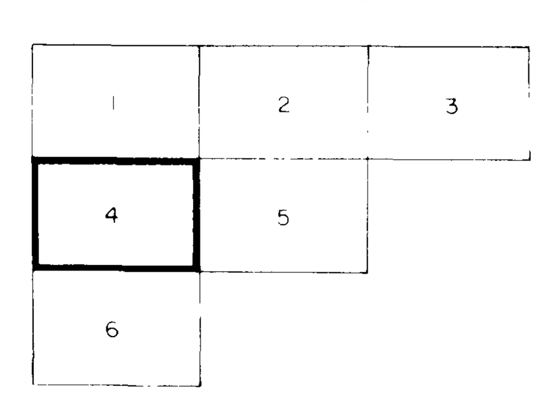
RAMSGATE, N.S.W.

GRD

SHEET 3

KERR-McGEE AUSTRALIA, LTD.
INCORPORATED IN DELAWARE, U.S.A.
P.O. BOX 53
GLENSIDE, S.A. 5065
AUSTRALIA





THRESHOLD	—	06875	M E V
CONTOUR INTERVAL	—	10	C P S
FLIGHT INTERVAL	—	1/4	MILE
ALTITUDE	—	300'	M T C

HORIZONTAL CONTROL BASED ON MAPS PUBLISHED BY DEPARTMENT OF MINES, ADELAIDE

AIRBORNE SCINTILLOMETER SURVEY
COWELL AREA — S.A.

KERR McGEE AUSTRALIA LIMITED

SCALE 1 63,360

MILES 1 1/2 0 1 2 3 4 MILES

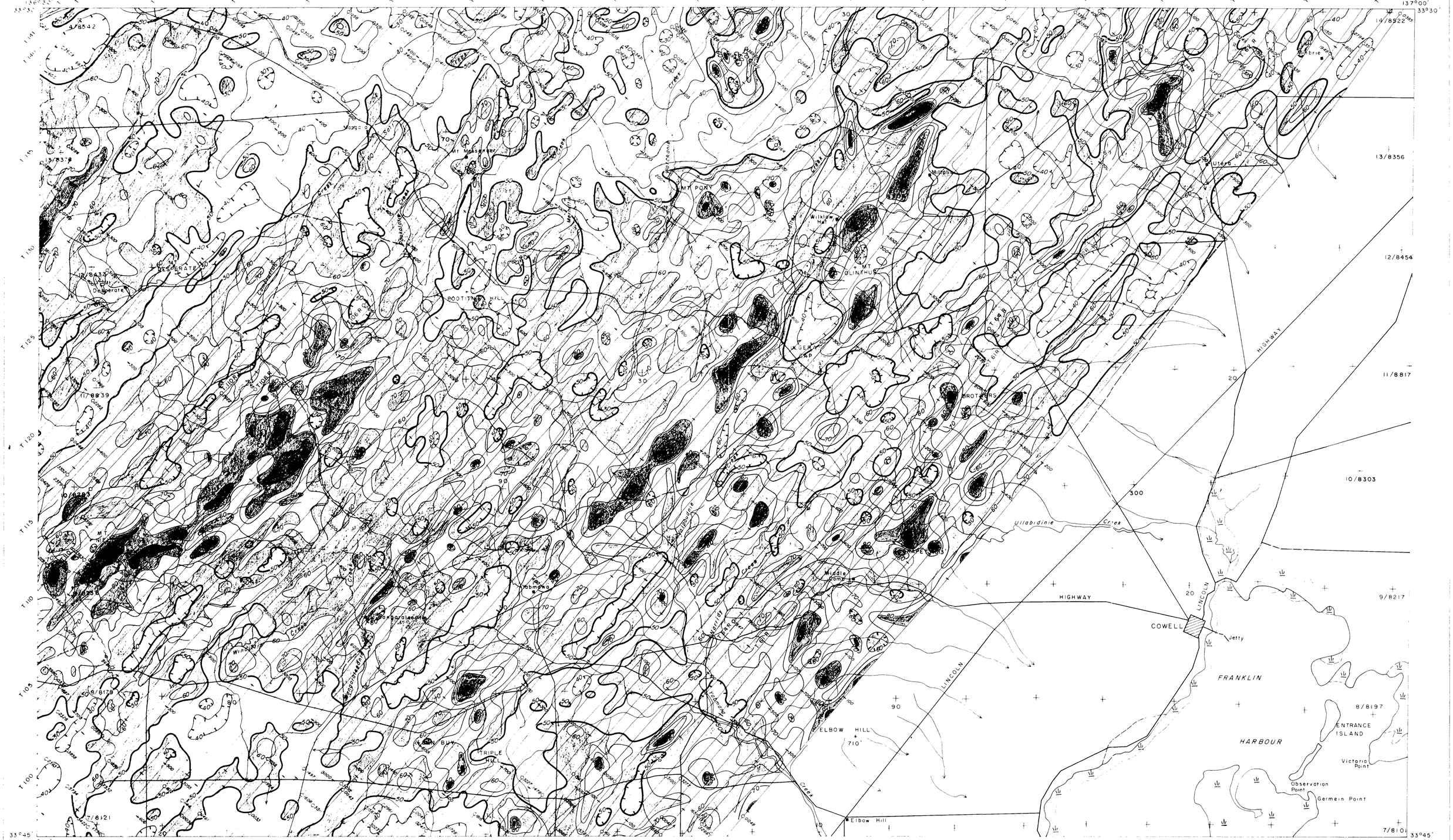
SURVEYED AND COMPILED BY
GEOPHYSICAL RESOURCES DEVELOPMENT CO
RAMSGATE, N S W

GRD

KERR-McGEE AUSTRALIA, LTD.
INCORPORATED IN DELAWARE, U.S.A.
P.O. BOX 53
GLENSIDE, S.A. 5065
AUSTRALIA

SHEET 4

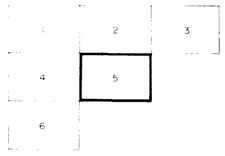
ENVELOPE 871-6



THRESHOLD	—	0.6875 M.E.V.
CONTOUR INTERVAL	—	10 C.P.S.
FLIGHT INTERVAL	—	1/4 MILE
ALTITUDE	—	300' M.T.C.

HORIZONTAL CONTROL BASED ON MAPS PUBLISHED BY DEPARTMENT OF MINES, ADELAIDE

SHEET INDEX



AIRBORNE SCINTILLOMETER SURVEY

COWELL AREA — S.A.

KERR Mc GEE AUSTRALIA LIMITED

SCALE 1:63,360

MILES 1 1/2 0 1 2 3 4 MILES

SURVEYED AND COMPILED BY

GEOPHYSICAL RESOURCES DEVELOPMENT CO

RAMSGATE, N.S.W.

GRD

KERR-McGEE AUSTRALIA, LTD.
INCORPORATED IN DELAWARE, U.S.A.
P.O. BOX 53
GLENSIDE, S.A. 5065
AUSTRALIA

ENV 811-7

SHEET 5

136°00'
33°45'
136°30'
34°00'

TARGORO RS
VERRAN RS
WHARMINDA RS
WHEARE RIDGE
MT PRISCILLA
BLUE RANGE
RANGE
HIGHWAY
LINCOLN
RIVER
(PEAK 131 C.P.S.)
(PEAK 167 C.P.S.)

6/8082 6/8062 5/7965 5/7985 4/7957 4/7938 3/7898 3/7918 2/7890 2/7870 1/7826 1/7846 1A/7818 1A/7800

THRESHOLD	—	06875 MEV
CONTOUR INTERVAL	—	10 CPS
FLIGHT INTERVAL	—	1/4 MILE
ALTITUDE	—	300' M T C

HORIZONTAL CONTROL BASED ON MAPS PUBLISHED BY DEPARTMENT OF MINES, ADELAIDE

SHEET INDEX

1	2	3
4	5	
6		

AIRBORNE SCINTILLOMETER SURVEY
COWELL AREA — S.A.

KERR Mc GEE AUSTRALIA LIMITED

SCALE 1:63,360

MILES 1 ½ 0 1 2 3 4 MILES

SURVEYED AND COMPILED BY
GEOPHYSICAL RESOURCES DEVELOPMENT CO
RAMSGATE, N.S.W.

GRD

KERR-McGEE AUSTRALIA, LTD.
INCORPORATED IN DELAWARE, U.S.A.
P.O. BOX 53
GLENSIDE, S.A. 5065
AUSTRALIA

SHEET 6

ENVELOPE ~~870~~ 871-8

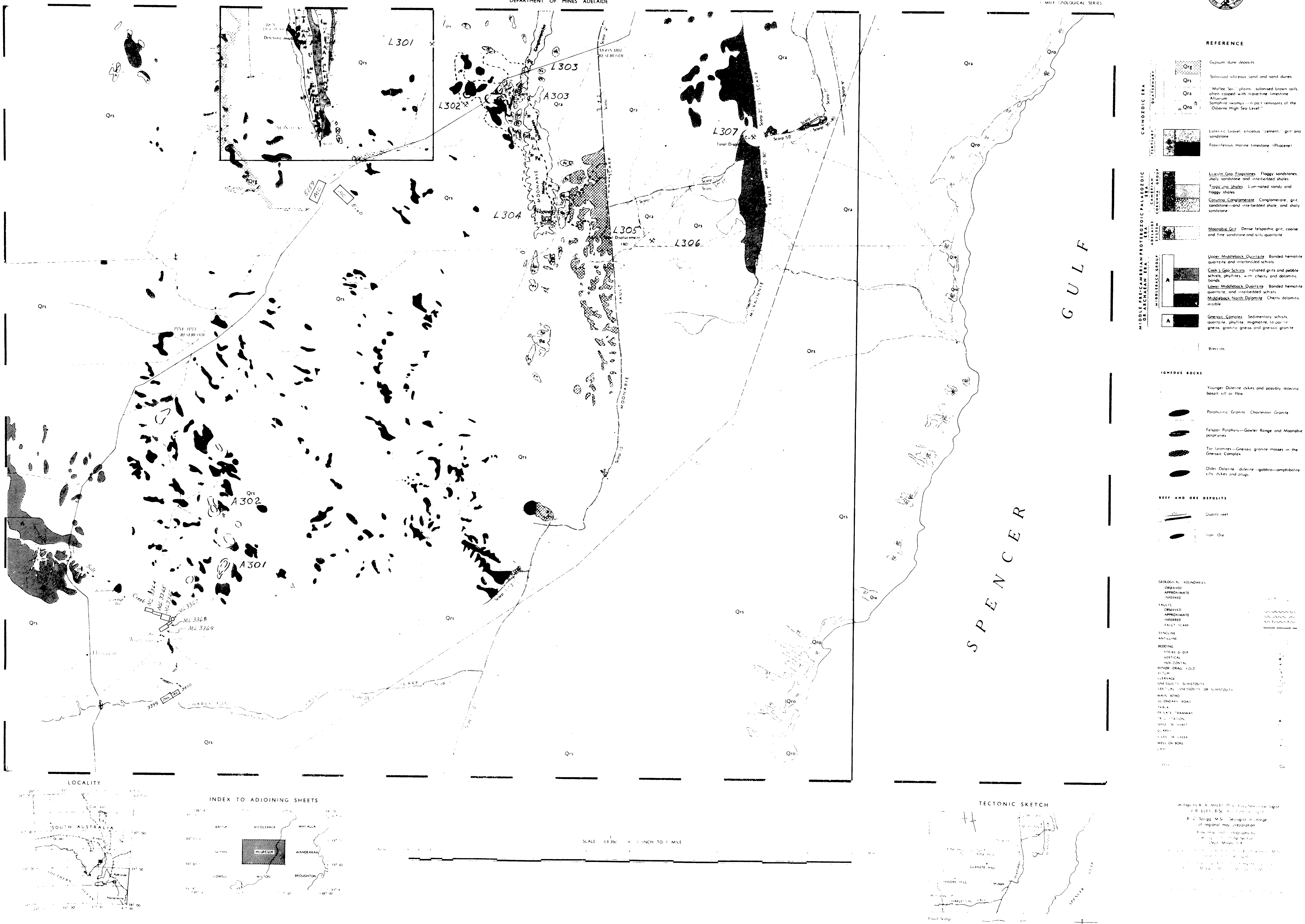
ENV 871/1

McGREGOR

GEOLOGICAL SURVEY OF SOUTH AUSTRALIA
DEPARTMENT OF MINES ADELAIDE

FIRST EDITION 1952

1 MILE GEOLOGICAL SERIES



ENV 871-9

11/178 ENV

RUDALL

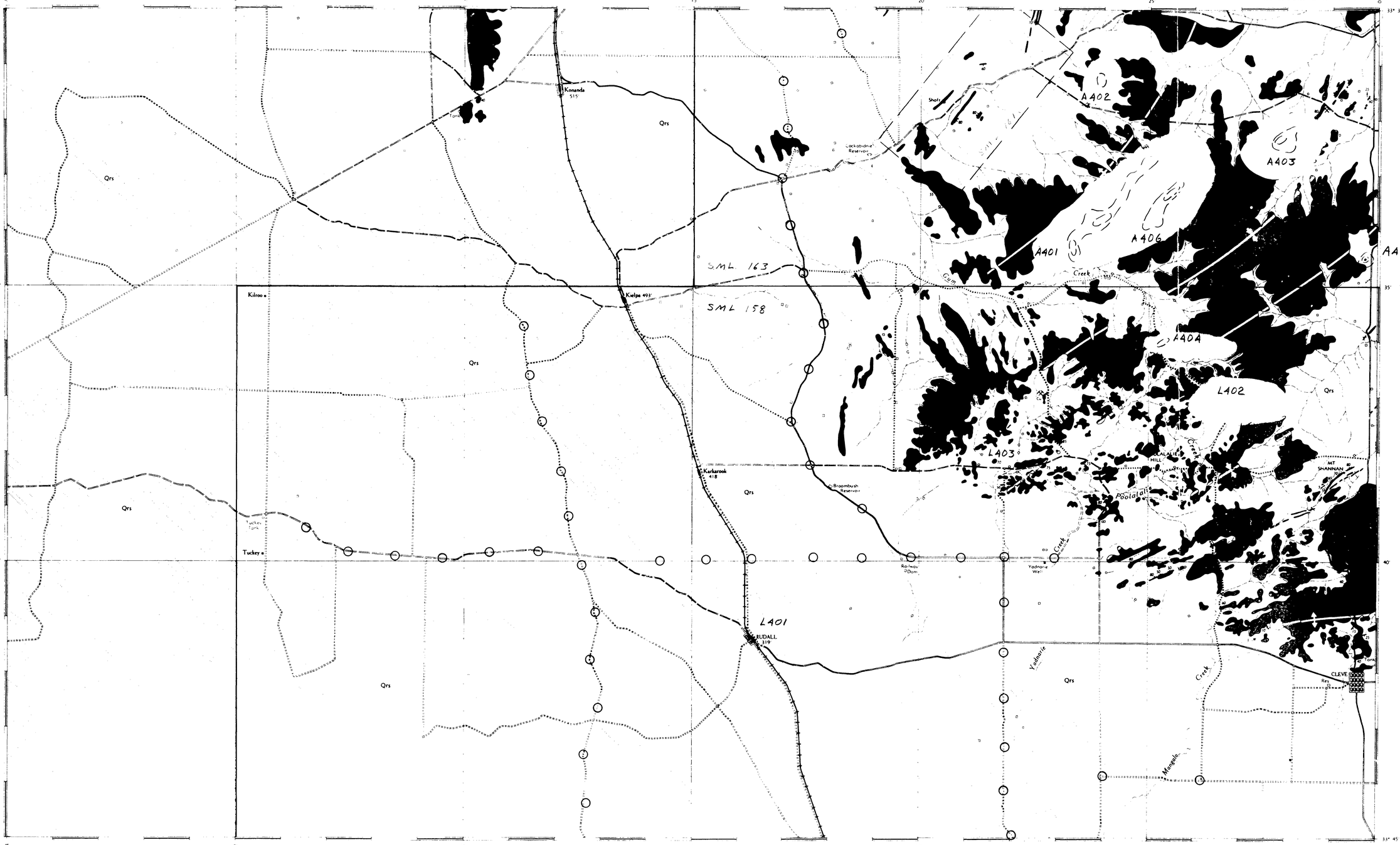
GEOLOGICAL SURVEY OF SOUTH AUSTRALIA
DEPARTMENT OF MINES ADELAIDE

FIRST EDITION 1957

Map Corners from data available at publication

GEOLOGICAL ATLAS 1-MILE SERIES

MAP REFERENCE No 795 ZONE 5



REFERENCE

CAINOZOIC QUATERNARY

Qrs — Alluvium, soils, clays, sands and gravels of drainage lines (thin) and outwash clays and gravels of coastal plain (thickness unknown) capped by travertine in parts
Sand Dunes

PALAEOZOIC CAMBRIAN?

Conglomerates, grits and sandstones

ARCHAEAN SCHIST GROUP

Haematite Quartzite - quartzite and cherts with interbedded schist and some dolomite

Undifferentiated Mica Schists with minor quartzites, amphibolites, graphite schists, micaceous quartzites and quartz-felspar gneisses, pegmatites abundant

Dolomites

GNEISS GROUP

Undifferentiated Quartz-Felspar Gneisses, metasediments with minor quartzites, schists and amphibolite, migmatites-pegmatites abundant

Quartzite, quartz sericite schist

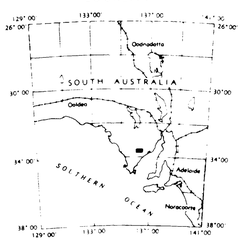
Dolomites

Qrs — Quartz Reefs

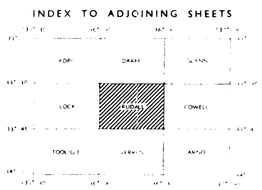
GEOLOGICAL BOUNDARIES
OBSERVED
APPROXIMATE
BEDDING
STRIKE AND DIP
VERTICAL
STRUCTURE FORM LINES
PLUNGE
FOLDS
LINEATION
GNEISSOSITY, SCHISTOSITY
SYNCLINE
ANTICLINE
MAIN ROAD
SECONDARY ROAD
TRACK
RAILWAY
RIVER OR CREEK
DAM
WELL
BORE
MINE
COPPER — Cu

Proposed Drill Hole

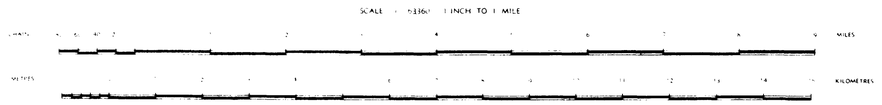
LOCALITY



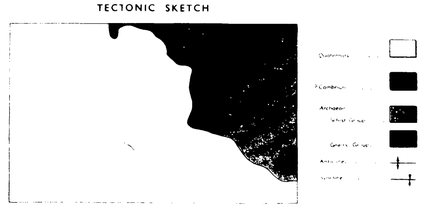
INDEX TO ADJOINING SHEETS



SCALE 1:31680 1 INCH TO 1 MILE



TECTONIC SKETCH



Geology by R. K. Johns, B.Sc., Geologist

B. Compana, D.Sc., Geologist in charge of regional map preparation

L. W. Parkin, M.Sc., A.S.T.C., Chief Geologist

Base map and cartography by Geological Drafting Section, Dept. Mines, S.A.

Compiled under the direction of T. A. Baines, M.Sc. Government Geologist

Issued under the authority of the Honourable Sir A. Lyell McEwin, M.L.C., Minister of Mines

Published 1957

Photo Litho S. R. Deimont Ltd

Printed by Government Photolithographer, Adelaide

ENV 871-11

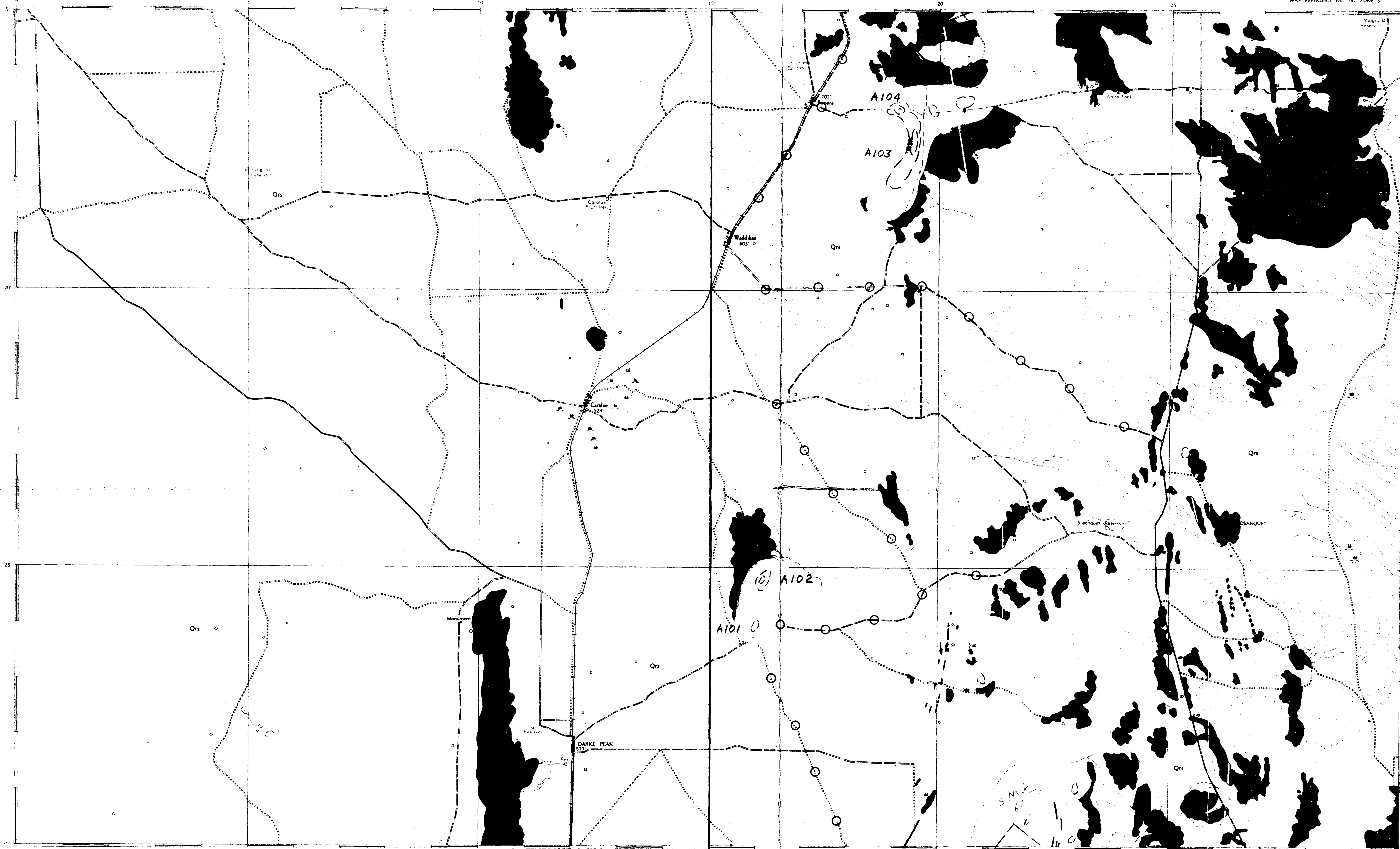
1/178 ENV

DARKE

GEOLOGICAL SURVEY OF SOUTH AUSTRALIA
DEPARTMENT OF MINES ADELAIDE

FIRST EDITION 1957
Map Corners from data available at publication

GEOLOGICAL ATLAS 1 MILE SERIES
MAP REFERENCE No. 787 ZONE 5



REFERENCE

CAINOZOIC — QUATERNARY

Qrs — Alluvium, soils, clays, sands and gravels of drainage lines (thin) and outwash clays and gravels of coastal plain (thickness unknown) capped by travertine in parts
Sand Dunes

ARCHAEAN — SCHIST GROUP

Haematite Quartzite -- quartzite and cherts with interbedded schist and some dolomite

Undifferentiated Mica Schists with minor quartzites, amphibolites, graphite schist, micaceous quartzites and quartz-felspar gneisses abundant

ARCHAEAN — GNEISS GROUP

Undifferentiated Quartz-Felspar Gneisses, metasediments with minor quartzites, schists and amphibolite, migmatites-pegmatites abundant

Quartzite, quartz sericite schist

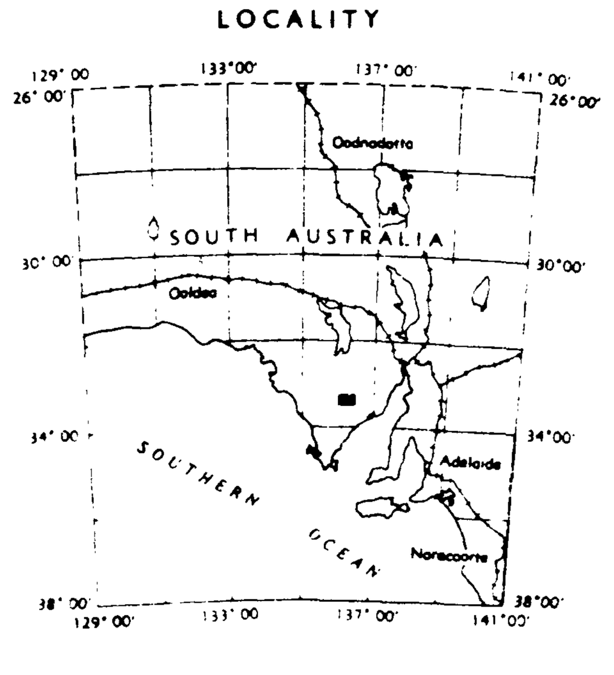
GEOLOGICAL BOUNDARIES
OBSERVED
APPROXIMATE

BEDDING
STRIKE AND DIP
VERTICAL
HORIZONTAL
STRUCTURE FORM LINES

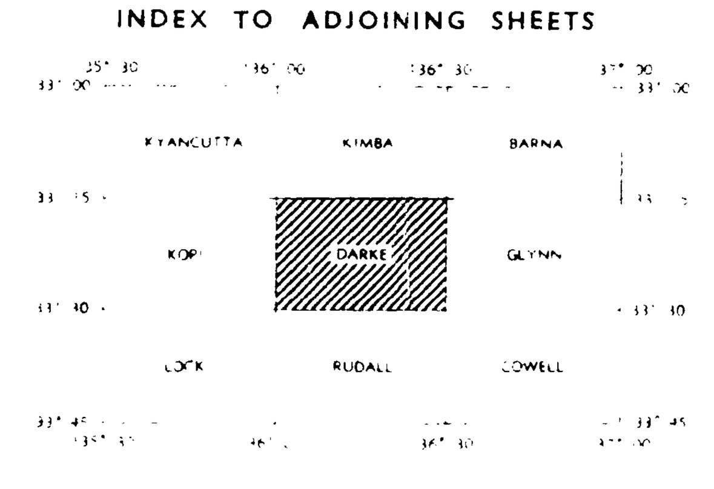
SYNCLINE
ANTICLINE
MAIN ROAD
ROAD
TRACK
RAILWAY
TRIANGULATION STATION
RIVER OR CREEK
SWAMP
DAM
BORE

Proposed Drill Hole

LOCALITY



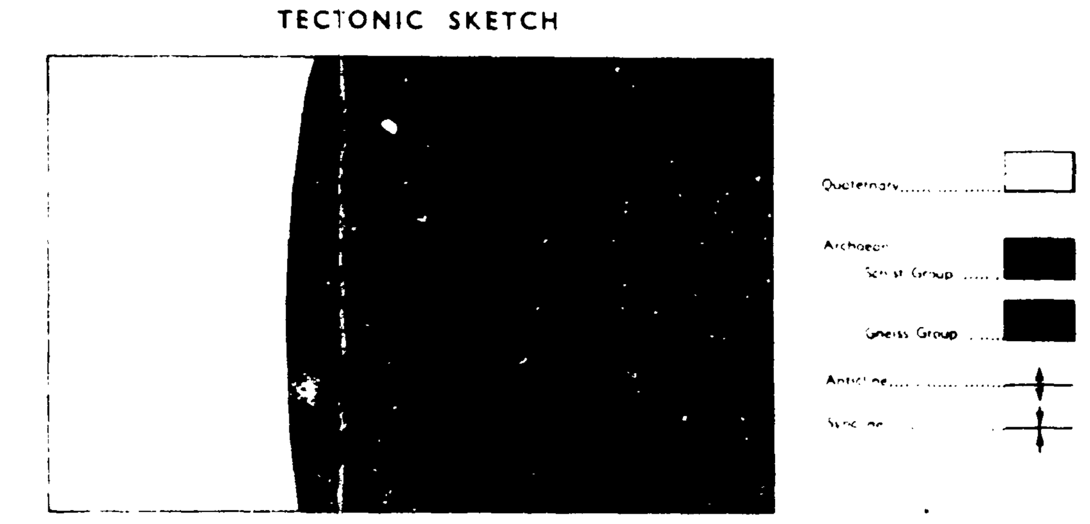
INDEX TO ADJOINING SHEETS



SCALE 1 : 63360 1 INCH TO 1 MILE

CHAINS — MILES
METRES — KILOMETRES

TECTONIC SKETCH



Geology by R. K. Johns, B.Sc., Geologist

B. Campana, D.Sc., Geologist in charge of regional map preparation

L. W. Parkin, M.Sc., A.S.T.C., Chief Geologist

Base map and cartography by Geological Drafting Section, Dept. Mines, S.A.

Compiled under the direction of T. A. Barnes, M.Sc., Government Geologist

Issued under the authority of the Honourable Sir A. Lyell McEwin, M.L.C., Minister of Mines

Published 1957

Photo Litho S. R. Delmont, Ltd

Printed by Government Photolithographer, Adelaide

ENV871-12

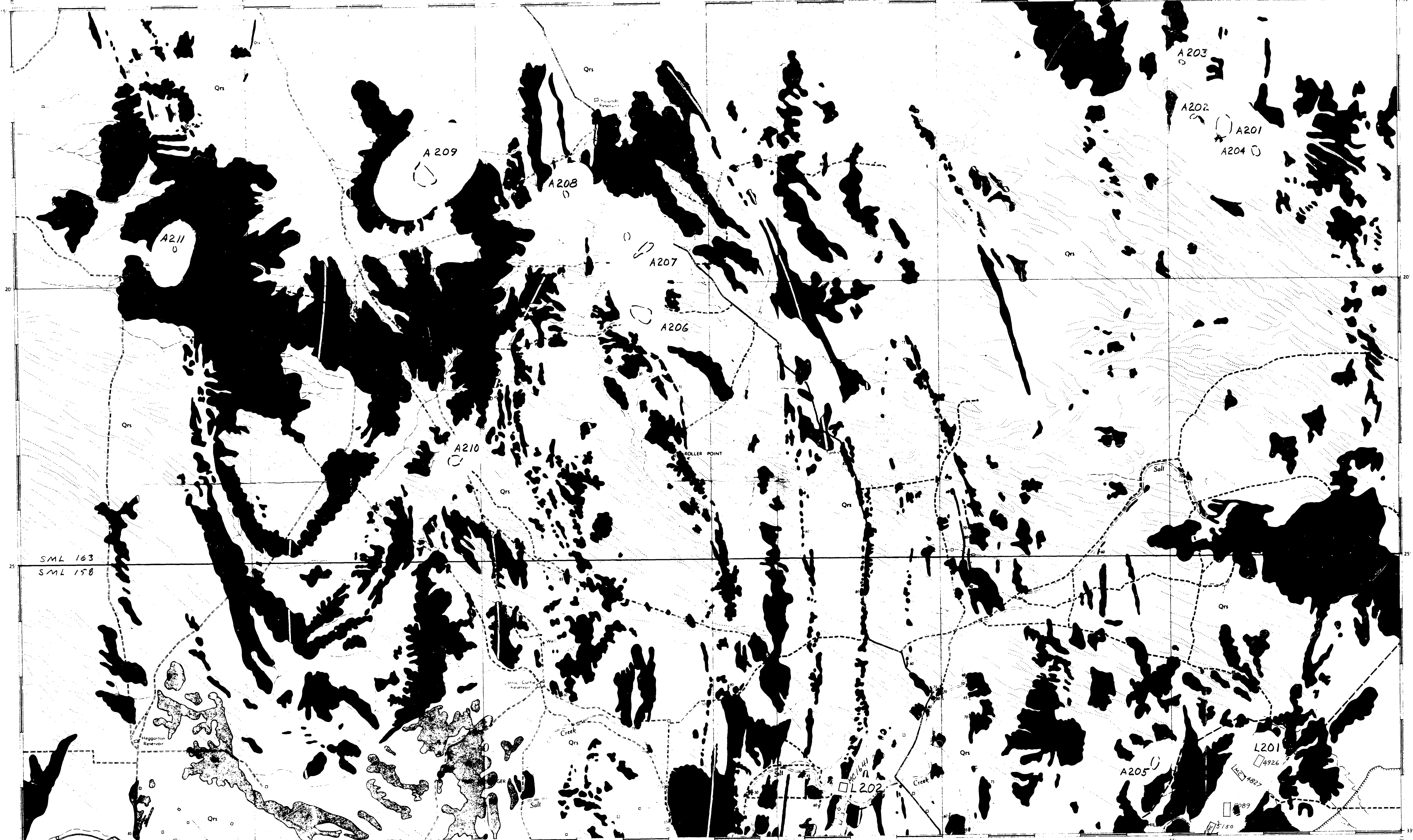
ENV 871/1

GLYNN

GEOLOGICAL SURVEY OF SOUTH AUSTRALIA
DEPARTMENT OF MINES ADELAIDE

FIRST EDITION 1957
Map Corners from data available at publication

GEOLOGICAL ATLAS 1 MILE SERIES
MAP REFERENCE No 788 ZONE 5



REFERENCE

CAINOZOIC — QUATERNARY

Qrs — Alluvium, soils, clays, sands, and gravels of drainage lines (thin), and outwash clays and gravels of coastal plain (thickness unknown), capped by travertine in parts.
Sand dunes.

ARCHEAN — SCHIST GROUP

Haematite Quartzite quartzites and cherts with interbedded schist and dolomite

Quartzite flaggy to massive and sericitic in part.

Undifferentiated Mica schists with minor quartzites, amphibolites, graphite schists, micaceous quartzites and quartz-felspar gneisses, pegmatites abundant

Dolomites

ARCHEAN — GNEISS GROUP

Undifferentiated Quartz-Felspar Gneisses metasediments with minor quartzites, schists and amphibolite, migmatites-pegmatites abundant.

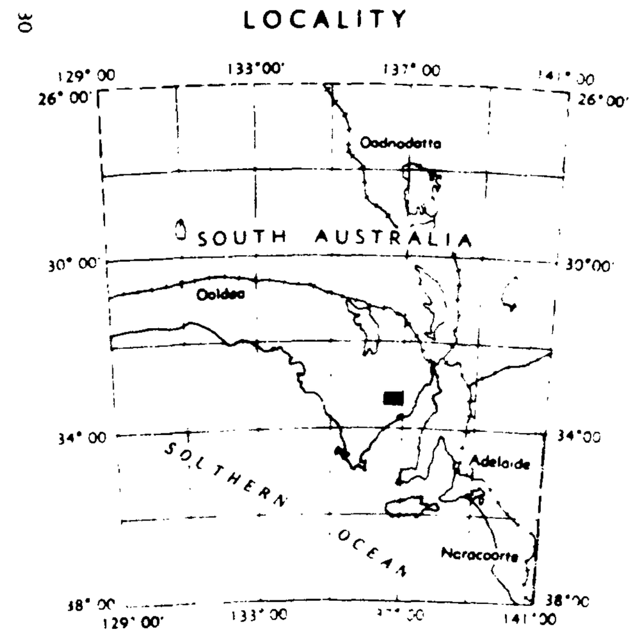
Quartzite, quartz sericite schists

Dolomites

Qtz — Quartz reefs

GEOLOGICAL BOUNDARIES
OBSERVED
APPROXIMATE
FAULT SCARP
BEDDING
STRIKE AND DIP
VERTICAL
OVERTURNED
STRUCTURE FORMLINES
PLUNGE
FOLDS
GNEISSOSITY, SCHISTOSITY
SYNCLINE
ANTICLINE
MAIN ROAD
ROAD
TRACK
TRIANGULATION STATION
RIVER OR CREEK
DAM
BORE

LOCALITY



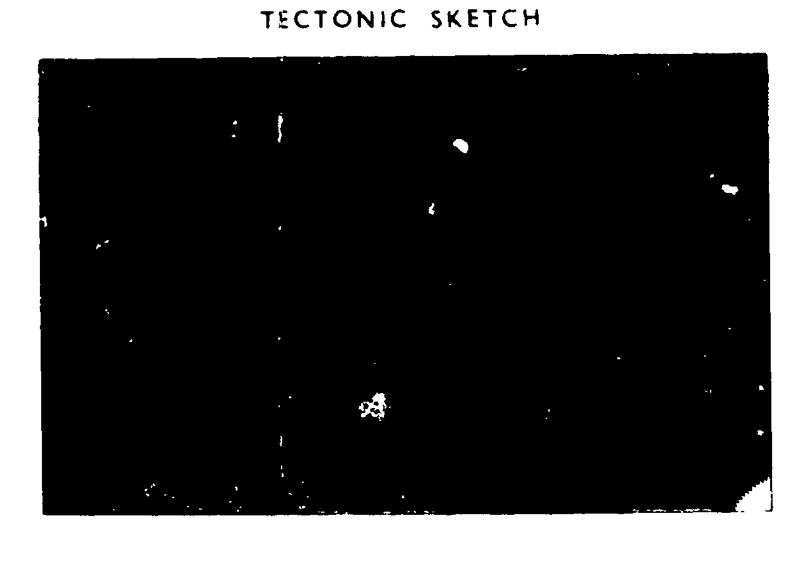
INDEX TO ADJOINING SHEETS

SCALE 1 INCH TO 1 MILE

MILES

KILOMETRES

TECTONIC SKETCH



Quaternary
Archaean
Schist Group
Gneiss Group
Anticline
Syncline

Geology by R K Johns, B Sc Geologist

B Campana, D Sc, Geologist in charge of regional map preparation

L W Parkin, M Sc, A S T C, Chief Geologist

Base map and cartography by Geological Drafting Section, Dept Mines, S A

Compiled under the direction of T A Barnes, M Sc, Government Geologist

Issued under the authority of the Honourable Sir A Lyell McEwin M L C, Minister of Mines

Published 1957

Photo Litho S R Delmont Ltd

Printed by Government Photolithographer, Adelaide

ENV 871-10