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COMPILATION OF SOME GEOPHYSICAL AND GEOLOGICAL INFORMATION ON THE NORTHWESTERN PART OF THE EROMANGA BASIN, AND UNDERLYING BASINS, NORTHERN TERRITORY AND QUEENSLAND

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SUMMARY

The results of geological mapping, seismic surveys, and drilling in the northwestern part of the Eromanga Basin in the Northern Territory and Queensland were used to prepare structure contour maps of the base of the Lower Cretaceous Rolling Downs Group and the base of the Lower Jurassic to Cretaceous Eromanga Basin Sequence. The Eromanga Basin sediments form a trough up to 2100 m below sea level in the Simpson Desert area at about latitude 26°S and longitude 137°E and become steadily thinner to the north and northeast. Structural trends within the Eromanga Basin sediments clearly reflect trends in the underlying sediments of the Pedirka Basin in the south and the Georgina Basin in the northeast.

Geophysical, geological, and drilling results were also used to provide some information on the boundaries and sediment thicknesses of the Georgina, Pedirka, and Amadeus Basins where they are concealed by Eromanga Basin sediments. Further seismic surveys are needed to fill substantial gaps in the knowledge of these basins. Particular objectives suggested are definition of the northeastern margin of the Amadeus Basin, which is concealed by the Pedirka Basin, exploration of the northwestern part of the Toko Syncline in the Georgina Basin, and investigation of the thickness of Permian sediments and margins of the Pedirka Basin.

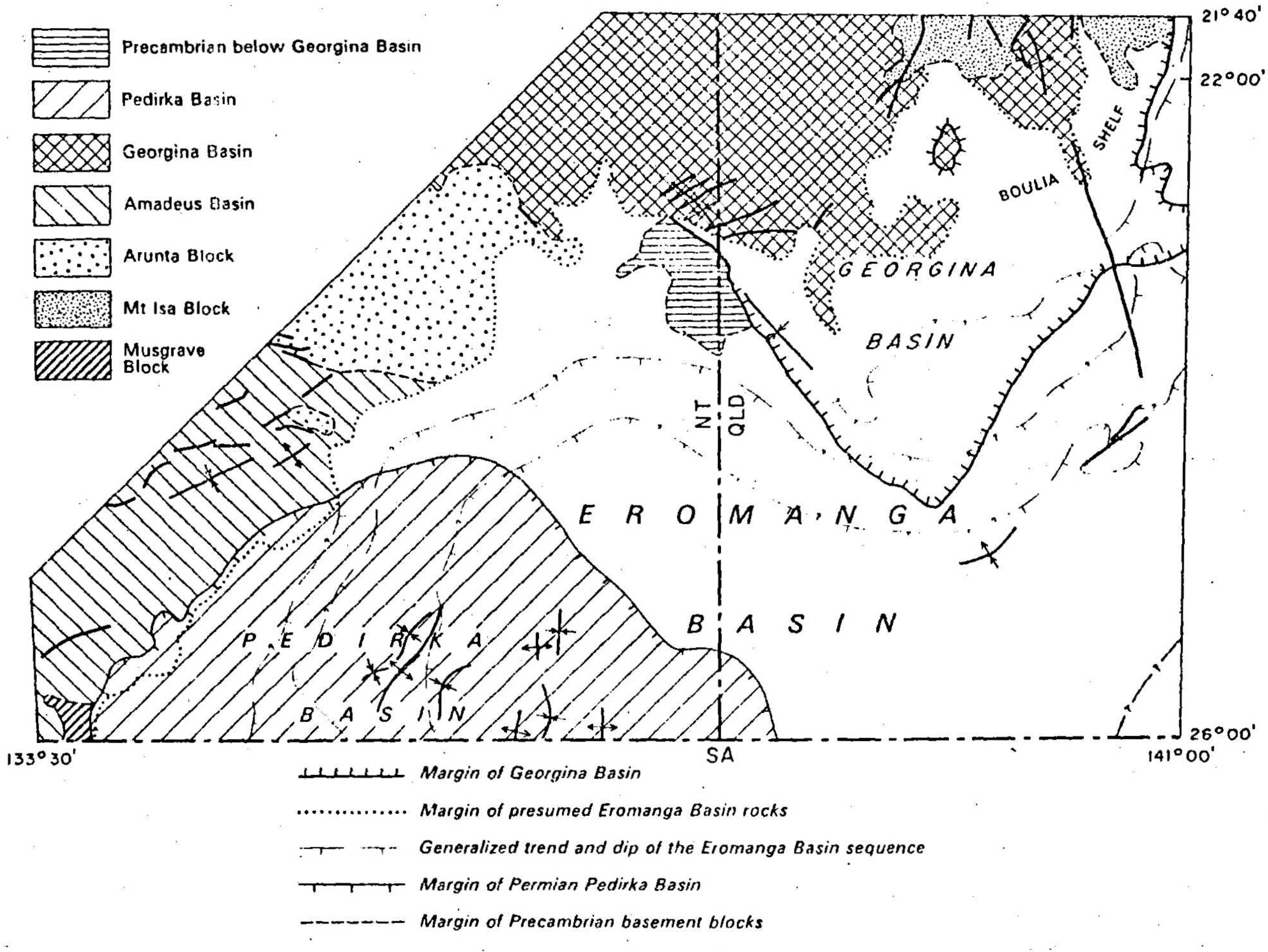

Fig. I LOCATION OF STUDY AREA WITH STRUCTURE AND DISTRIBUTION OF BASIN ELEMENTS

INTRODUCTION

The Eromanga Basin contains Lower Jurassic to Upper Cretaceous sediments; the Jurassic sequence is mainly terrestrial, the Lower Cretaceous is shallow marine, and the Upper Cretaceous grades from paralic to fluvial and lacustrine. The basin has been divided for descriptive purposes by BMR into northern, central, and northwestern parts, and notes on the geology of these areas are in preparation (Senior, Harrison, & Mond, in prep.; Senior, in prep; Mond & Harrison, in prep.).

The northwestern part of the Eromanga Basin was defined as that part which lies between latitudes 21°40'S and 26°S and longitudes 133°30'E and 141°E (Fig. 1). The Eromanga Basin sediments in this area conceal the southeastern margin of the Lower Cambrian to Devonian Georgina Basin and a major part of the Upper Carboniferous to Triassic(?) Pedirka Basin, and the Eromanga and Pedirka Basins together conceal the eastern margin of the Upper Proterozoic to Carboniferous(?) Amadeus Basin.

Geological mapping of the region (completed in 1971) was done jointly by the BMR and the Geological Survey of Queensland and has been reported in the Explanatory Notes for the 1:250 000 sheets; the results have been summarized by Mond & Harrison (in prep.).

Geological and geophysical information in the northwestern part of the Eromanga Basin was compiled, mainly to obtain structure contour maps of the base of the Lower Cretaceous Rolling Downs Group and the base of the Lower Jurassic to Cretaceous Eromanga Basin sequence to be included in the notes on the geology of the area (Mond & Harrison, in prep.). In addition, information was compiled on the sediments and structures of the underlying parts of the Georgina, Pedirka, and Amadeus Basins, in an attempt to indicate the main deficiencies in knowledge of the concealed parts of the older basins; these deficiencies were further considered by Mathur, Moss, & Bauer (1975) in proposing future land seismic investigations by the BMR.

Seismic traverse locations and an index of the four BMR seismic surveys and 23 seismic surveys made under the Petroleum Search Subsidy Acts (1959-1974), up to the end of 1974, are shown in Plate 1. The surveys which contributed information included in the structure contour maps are listed in Table 1, together with the quality of seismic reflection information.

EROMANGA BASIN SEDIMENTS

The structure contour maps of the base of the Rolling Downs Group (Pl. 2) and the base of the Eromanga Basin sequence (Pl. 3) were compiled using information from geological mapping, seismic surveys, petroleum exploration wells, and water-bores.

Two seismic reflectors, which have been mapped throughout the Eromanga Basin, were the most useful for correlation purposes. A strong and persistent reflector from near the top of the Upper Jurassic to Lower Cretaceous transition beds has been named in different reports as the 'Blythesdale Reflector', 'Transition Beds', or 'C Horizon'. The other, a weaker reflector with less consistent characteristics, from an unconformity between the Mesozoic and older sediments or basement has been named as the 'P', 'D', or 'Z' horizon. The seismic information used in the compilation was mainly in the form of contour maps and cross-sections showing reflection times or depths relative to different datum planes, and some refraction data. The contour maps or cross-sections of the horizons were modified only as necessary, to include information from nearby or intersecting seismic traverses and to take into account information from wells and water-bores.

Depth controls for the two horizons mapped came from 10 petroleum exploration wells and about 100 water-bores; the well or bore names and locations are shown in Plates 2 and 3. The identification of geological horizons in the bores was based on the gamma-ray (Mond & Harrison, in prep.) and lithological logs (Reynolds, 1965). No information was available from a considerable number of other water bores not shown.

The depth control is fair in the northeastern part of the area where seven wells and nearly all the water bores are located. The Eromanga Basin sequence is relatively thin in this area and the Longsight Sandstone Formation, the best artesian aquifer, is correspondingly shallow. The only drilling control west of longitude 138°30'E is from two wells and a deep bore.

Structure Contour Maps

The method of integrating the seismic and other results to produce structure contour maps is described in detail by Harrison (1975) and by Senior, Harrison, & Mond (in prep.) for the central part of the Eromanga Basin. Contour maps or cross-sections showing reflection times or depths were converted to depths in metres relative to mean sea level (MSL) using seismic or well information. Velocity information came mainly from expanded spreads, and most wells had no velocity survey. The depths were then adjusted to agree with those found for the same horizons in wells or bores on or close to the seismic traverses. This approach was considered satisfactory because of the lack of reliable detailed velocity information and because of the general conformity of the Eromanga Basin sediments. Structure contour maps were constructed from the integrated information.

Discussion

Seismic coverage is most complete and detailed in the southern central part of the area which is underlain by the Pedirka Basin and in the Toko Syncline area of the southern Georgina Basin (Pls. 1,4); thus the depth contours on the two horizons are most reliable there. Seismic coverage, and well and bore information, is sparse elsewhere and the contours are less reliable.

The structure contour maps for the two horizons exhibit the same regional structural trends. The horizons are deepest in the south central area, with maximum depths of 1700 and 2100 m below MSL. This has been a downwarped area over a long period as suggested by the presence of the deep trough of Amadeus and Pedirka Basin sediments underlying the Eromanga Basin.

Both horizon maps indicate broad areas with markedly different structural trends. In the south central area, underlain by Pedirka Basin sediments, the trends are north-northeast whereas in the northeastern area, which is underlain by Georgina Basin sediments, the trends are northwest. The structures in the Eromanga Basin sediments are mainly drape folds over buried ridges and may thus reflect differing tectonism that has deformed the underlying sediments. In the south central area the folding probably developed during Permian to early Cainozoic times as en-echelon structures resulting from dextral shear along major northeast-trending basement lineaments (Williams, 1973). In the northeastern area, however, Cambrian to Devonian Georgina Basin sediments were deformed in Carboniferous(?) time during the Alice Springs Orogeny (Forman, et al., 1973).

The McDills, Border, Colson, East Colson, and East Border anticlines were identified on the 'P' horizon (Top of Permian) structure map in the southern part of the area, by Williams (1973). The McDills Anticline, the only one tested by drilling, failed to indicate the presence of oil or gas.

PRE-EROMANGA BASIN SEDIMENTS

In addition to compilation of information on the Eromanga Basin sediments, information was compiled on the sediments of the parts of the Amadeus, Georgina and Pedirka Basins that are concealed by the Eromanga Basin in the area. The objectives were to define broadly the boundaries and sediment thicknesses of the underlying basins and particularly to indicate areas where subsurface information is poor or non-existent. The compilation gives some details about the problems and deficiencies in geological knowledge of the basins underlying the northwestern part of the Eromanga Basin, but it is intended only as a general guide and further more comprehensive reviews will be necessary prior to making future seismic surveys.

The map outlining the extent and thickness of pre-Eromanga sediments (Pl. 4) was compiled from outcrop data, drilling and seismic results; these included reflection information, refraction velocities, and depths calculated from reflection times and velocities. Brief summaries of the survey results have been incorporated in the map.

The magnetic basement depth contours (Pl. 5) were compiled from interpretative reports by the BMR and private companies. The Bouguer anomaly contours and the total magnetic intensity contours (Pls. 6 & 7) were also compiled from BMR and private company reports, at the same scale as the interpretative maps.

Basin boundaries and sediment thicknesses (Pl. 4)

The margins of the Georgina Basin are fairly well-defined within the map area: the western margin by older outcrops, the southern margin near the Toko Syncline by seismic surveys, the southeastern margin by isolated water-bores which intersected Proterozoic sediments beneath Mesozoic sediments, and the northeastern margin by crystalline basement outcrops and water-bores which intersected granite. Strong gravity and magnetic gradients and anomaly trends are associated with the southern margin of the basin (Pls. 6 & 7). The deepest section in the underlying Georgina Basin is within the Toko Syncline, where there are up to 9000 m of sediments, part of which may be Proterozoic.

The northeastern margin of the Amadeus Basin within the map area is poorly known. Amadeus Basin sediments extend beneath the Pedirka Basin as far east as 137°E, as shown by McDills No. 1 and Hale River No. 1 wells, which penetrated Proterozoic to Carboniferous sediments. Northwest of Hale River No. 1 well seismic surveys indicated about 2000 m of pre-Mesozoic sediments, most of which are probably Amadeus Basin sediments.

The Pedirka Basin is concealed by Eromanga Basin sediments except near longitude 134°E where there are Permian outcrops. The northeastern margin of the basin between 137° and 139° is poorly defined by seismic results. Williams (1973) has summarized seismic and drilling results in the Pedirka Basin and the following notes are based on his report. The Pedirka Basin sediments, as known from drilling, are Lower Permian with maximum thickness of 450 m, in Mokari No. 1 well south of the map area. Seismic surveys between about latitudes 25°30'S and 26°S and longitudes 136°30'E and 138°E indicate an additional 350-m sequence of Middle to Upper Permian and/or Triassic sediments. This sequence has not been drilled and may be prospective because of its similarity in age and type to the hydrocarbon-bearing Cooper Basin sediments. Several anticlinal growth structures defined by seismic work in the area show the possibility of structural and stratigraphic traps.

Between the Pedirka and Georgina Basins, in the southeast corner of the map, reconnaissance seismic surveys have indicated pre-Mesozoic sediments in some areas. Gibb (1967), in interpreting the Bouguer anomalies in this area, considered that the anomaly variations, up to ± 30 mGal, cannot be accounted for by Mesozoic thickness variations alone and proposed that the major cause of the anomalies is variations in Palaeozoic sediment thickness. Several of the gravity lows have been crossed by reconnaissance seismic traverses, but the results are not sufficiently good to confirm this hypothesis. This is a region of mainly low Bouguer anomalies (Cacoory Gravity Depression, Pl. 6) in strong contrast to the positive anomalies in the Georgina Basin area which form the Cloncurry Regional Gravity High (Gibb, 1967). The gravity trends are mainly northwest and northeast, distinct from the north and north-northwest trends in the Georgina Basin.

The Diamantina Gravity Gradient, the pronounced gravity gradient between the Cacoory Gravity Depression and the Cloncurry Regional Gravity High, is considered by Gibb (1967) to be caused by a major density change within the basement. The Diamantina Gravity Gradient appears to continue through the centre of the map area to the northwest, in a broad arc with its trend changing from northeast to northwest. Similar trends to those discussed above are seen on the total magnetic intensity map (Pl. 7).

The magnetic basement depth contours in Plate 5 were compiled from different surveys and were not re-contoured; hence they show considerable mismatch along some survey boundaries. The contours generally reflect the sedimentary thickness variations in the map area as known from seismic and drilling results. However in the Pedirka Basin and the southern part of the Georgina Basin the depths are known to be in error as they are much less than the known sedimentary thicknesses. In the latter area, the magnetic basement depths are 3000 m less than the sediment thickness indicated by good seismic control.

Deficiencies in knowledge

Georgina Basin. Seismic coverage is sparse over much of the basin, the most detailed work having been done in the southern area in and near the Toko Syncline where there are up to 9000 m of sediments.

Poor results were obtained from reflection work in many areas where there are thick sequences of cavernous and fractured carbonate rocks (Forman et al., 1973). The northwest extension of the Toko Syncline, suggested by a strong gravity low and magnetic basement depths, has not been explored by seismic surveys and is the most promising unexplored part of the basin in the map area.

Pedirka Basin. The Permian sediments of the Pedirka Basin in the southern part of the map area are probably the most prospective sediments because of their similarity in age and type to petroleum-bearing Cooper Basin sediments. Four main reflection horizons have been mapped in the basin (Williams, 1973):

- 'C' horizon (Upper Jurassic-Lower Cretaceous boundary)
- 'P' horizon (Mesozoic/Permian unconformity)
- 'P_1' horizon (.06 - .180 s below 'P' within Permian)
- 'Z' horizon (near base of Permian)

'P_1' and 'Z' horizons have been recorded on few surveys, mainly in the eastern part of the basin in the map area, and hence the thickness of the prospective Permian section is generally poorly known. The Poeppel Corner survey, the only survey to use digital recording, multiple-coverage reflection recording and digital processing, succeeded in mapping the 'P_1' horizon and produced some information on the minimum thicknesses of the Permian sediments.

The boundaries of the Pedirka Basin are partly but not well defined by seismic surveys.

Amadeus Basin. The northeastern margin of the Amadeus Basin is poorly known as it is concealed beneath the Pedirka and Eromanga Basin sediments. The McDills 1 and Hale River 1 petroleum exploration wells indicated that sediments equivalent to the Amadeus Basin sequence are present below the Eromanga Basin rocks in the Simpson Desert region and exist as far east as 136°45'E (Williams, 1972). Economic incentive for further exploration in this area would be gas found within the Cambrian to Ordovician sediments (Forman et al., 1973).

CONCLUSIONS

The structure contour maps (Pls. 2,3) indicate that the Eromanga Basin sediments are thickest in the south, and thin steadily to the northeast to form a thin cover over the Georgina Basin.

Parts of the Amadeus, Georgina, and Pedirka Basins are concealed in the map area by the Eromanga Basin sediments. The approximate boundaries and sedimentary thicknesses of these basins have been plotted and gaps in knowledge of the basins have been summarized. Areas which may warrant further seismic surveys, dependent on further detailed reviews, are as follows:-

<u>Georgina Basin</u>. Large areas of the basin lack seismic coverage. The main area requiring further seismic investigation is the possible north-west continuation of the Toko Syncline, which the gravity and magnetic results suggest may extend as far north as latitude 22°30'S. Between latitudes 22°S and 23°S, no seismic coverage has been made.

<u>Pedirka Basin</u>. Seismic coverage is extensive, but in much of the basin the base of the Permian has not been recorded and hence the Permian thickness is known mainly from the small number of exploration wells. Successful mapping would require multiple-coverage recording techniques and digital processing. The basin has no seismic coverage in the southwestern corner of the map between longitude 135°E and the Permian outcrops at about 134°E. The Permian may be thin over most of the area but gravity lows near latitude 26°S may indicate thicker sediments.

<u>Amadeus Basin</u>. The thickness and structure of the Amadeus Basin sediments beneath the Pedirka Basin in the region of latitudes 24°30'S and 26°S require definition.

Further work may be necessary between the Pedirka and Georgina Basins, in the area of the Pedirka-Annandale seismic lines (Survey No. 21, Pl. 1), to obtain improved deep information near gravity lows to investigate the possibility of other Palaeozoic sedimentary troughs beneath the Eromanga Basin sediments.

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Table 1. Results of seismic surveys used in this compilation

Survey Name	Survey no. in Plate 1	Type of data	Reflection quality: Base of Rolling Downs Group	Reflection quality: Base of Eromanga Basin	Pre-Eromanga Basin horizon mapped
Toko Range	1		-----	-----	3, Proterozoic(?) - Lower Palaeozoic
Simpson Desert 'A'	2		good	good	--------------
Simpson Desert North & 'B'	3		good	fair	Discontinuous map of deepe events
Simpson Desert 'C'	4		good	good	" " " " "
Kilpattha*	5	R	good	poor	------------------------
Perlanna*	6	R	good	poor	Middle-base Permian?
Andado	7		fair	fair	------------------------
Hale River Floodout+	8		fair	fair	------------------------
Dakota Bore	9		good	fair	------------------------
Three Corners	10	R	good	fair-poor	Permian, top Middle Purni member
Amadeus Basin	11		-----	-----	3, Lower-Middle Cambrian
SE Georgina Basin 1963	12	R	-----	-----	Lower Ordovician Ninmaroo Formation
" " " 1964	13	R	-----	-----	" " " "
Southern Georgina Basin	14	R	-----	-----	--------------
Great Artesian Basin	15	R	good	fair	--------------
Mt Charlotte	16		-----	-----	4, Proterozoic-Ordovician
Finke River	17		-----	-----	2, Proterozoic and Middle Cambrian
Steeles Gap	18		-----	-----	------------------------
Todd River	19		-----	-----	2, Precambrian(?) and Cambrian (?)
Hale River	20		-----	-----	------------------------
Pedirka-Annandale	21	R	good	fair-poor	------------------------
Bedourie	22	R	fair	fair	2, Proterozoic (?) - Cambrian
Sandringham	23	R	-----	fair	4, Proterozoic - Middle Cambrian
Simpson Desert	24		good	-----	--------------
Northern Simpson Desert	25	R	fair	poor	--------------
Springvale-Boulia	26		-----	fair-poor	2, Cambrian (?) and Ordovician (?)
Poeppel Corner	27		good	good	Middle-base Permian

Notes

*.. survey results incorporated in Poeppel Corner Survey
+.. " " " " Dakota Bore Survey
R.. survey used refraction in addition to reflection recording
------ horizon(s) not mapped by survey

No.	COMPANY OR ORGANISATION	YEAR	SURVEY NAME	SUBSIDY FILE OR RECORD NUMBER
1	ALLIANCE OIL DEVELOPMENT CO. AUST. NL	1970	TOKO RANGE	70/284
2	AMERADA PETROLEUM CORP. OF AUST. LTD	1965	SIMPSON DESERT 'A'	65/11007
3	AMERADA PETROLEUM CORP OF AUST. & EXOIL (NT) PTY LTD	1966	SIMPSON DESERT NORTH & 'B'	66/11087 and 66/11132
4	AMERADA PETROLEUM CORP. OF AUST. LTD	1966	SIMPSON DESERT 'C'	66/11096
5	AUSTRALIAN AQUITAINE PETROLEUM PTY LTD	1964	KILPATTHA	63/1557
6	" " " " "	1966	PERLANNA	66/11085
7	BEACH PETROLEUM NL.	1964	ANDADO	63/1544
8	" " "	1964	HALE RIVER FLOODOUT	64/4532
9	" " "	1964	DAKOTA BORE	64/4542
10	" " "	1971	THREE CORNERS	71/526
11	BUREAU OF MINERAL RESOURCES	1961	AMADEUS BASIN (SOUTHERN MARGIN)	1962/167
12	" " " "	1963	S.E. GEORGINA BASIN	1965/75
13	" " " "	1964	S.E GEORGINA BASIN	1965/39
14	" " " "	1965	SOUTHERN GEORGINA BASIN	1966/28
15	DEPARTMENT OF MINES, SOUTH AUSTRALIA	1960	GREAT ARTESIAN BASIN	1961/60
16	FINKE OIL CO. PTY LTD	1964	MT CHARLOTTE	64/4517
17	" " " " "	1965	FINKE RIVER	65/11023
18	FLAMINGO PETROLEUM PTY LTD	1962	STEELES GAP	62/1565
19	" " " "	1963	TODD RIVER	63/1510
20	" " " "	1964	HALE RIVER	64/4556
21	FRENCH PETROLEUM CO. (AUST.) PTY LTD	1963	PEDIRKA – ANNANDALE	63/1514
22	" " " " " "	1964	BEDOURIE	64/4503
23	" " " " " "	1965	SANDRINGHAM	65/4594
24	GEOSURVEYS OF AUSTRALIA LTD	1960	SIMPSON DESERT	62/1543
25	MERCURE INTERNATIONAL PETROLEUM PTY LTD	1964	NORTHERN SIMPSON DESERT	64/4520
26	PHILLIPS PETROLEUM CO. & SUNRAY MID-CONTINENT OIL CO.	1960	SPRINGVALE – BOULIA	62/1514
27	REEF OIL NL.	1972	POEPPEL CORNER	12/2645

- ∘ TOWN
- ▪ HOMESTEAD
- 27 —— SEISMIC LINE WITH SURVEY NUMBER (see index above)
- PETROLEUM EXPLORATION WELL
- KAMARAN • WATER BORE OR SHALLOW STRATIGRAPHIC HOLE
- 14645 • REGISTERED WATER BORE

KILOMETRES 0 50 100

LOCATION OF SEISMIC TRAVERSES, PETROLEUM EXPLORATION WELLS AND WATER-BORES

PLATE 2

STRUCTURE CONTOURS, BASE OF ROLLING DOWNS GROUP

Record No. 1976/81

F54/B3-215


PLATE 3
LEGEND
-50- CONTOUR WITH DEPTH IN METRES RELATIVE TO MEAN SEA LEVEL, POSITION RELIABLE
--+50-- CONTOUR, POSITION UNCERTAIN
u/d FAULT, WELL-DEFINED
u/d FAULT, POSITION UNCERTAIN
+82 PETROLEUM EXPLORATION WELL WITH DEPTH IN METRES RELATIVE TO MEAN SEA LEVEL
+86 WATER BORE WITH ELEVATION IN METRES RELATIVE TO MEAN SEA LEVEL
SPOT HEIGHT (metres)
HOMESTEAD
TOWN
CONTOUR INTERVAL 50 METRES
0 50 100 KILOMETRES
STRUCTURE CONTOURS, BASE OF EROMANGA BASIN SEQUENCE
NT
QLD
MT. WHELAN FAULT
TOOMBA FAULT
BURKE RIVER STRUCTURE
McDILLS ANTICLINE
BORDER ANTICLINE
COLSON ANTICLINE
EAST COLSON ANTICLINE
EAST BORDER ANTICLINE
DAJARRA
BOULIA
BEDOURIE
BIRDSVILLE
FINKE
"Burnham"
"Monners Creek"
"New Linda Downs"
"Glenormiston"
"Jervois"
"Indiana"
"Ringwood"
"Maryvale"
"Idracowra"
"Springvale"
"Glengyle"
"Monkira"
"Mooraberree"
"Durrie"
"Roseberth"
GEORGINA RIVER
BURKE RIVER
HAMILTON RIVER
DIAMANTINA RIVER
FINKE RIVER
HAY RIVER
PLENTY RIVER
HALE RIVER
TODD RIVER
138°00'
139°00'
140°00'
141°00'
21°40'
22°00'
23°00'
24°00'
25°00'
26°00'
133°30'
134°00'
135°00'
136°00'
137°00'
Record No. 1976/81
F54/B3-216

PRE-EROMANGA BASIN SEDIMENT BOUNDARIES AND THICKNESS


PLATE 5
LEGEND
A AEROMAGNETIC SURVEY BORDER AND REFERENCE
A WELLS, MILSOM AND TIPPER (1966)
B DICKOFF AND LEMONDE (1964)
C QUILTY AND MILSOM (1964)
D YOUNG AND SHELLEY (1966)
E HARTMAN (1963)
2440 MAGNETIC BASEMENT DEPTH CONTOURS (metres below mean sea level)
POSSIBLE FAULT
TOWN
HOMESTEAD
WATER-BORE
SPOT HEIGHT (metres)
PETROLEUM EXPLORATION WELL
0 50 100 KILOMETRES
MAGNETIC BASEMENT DEPTH CONTOURS
138°00'
139°00'
140°00'
141°00'
21°40'
22°00'
23°00'
24°00'
25°00'
26°00'
25°00'
133°30'
134°00'
135°00'
136°00'
137°00'
NT
QLD
DAJARRA
BOULIA
BEDOURIE
BIRDSVILLE
FINKE
"Manners Creek"
"New Lindo Downs"
"Glenormiston"
"Burnham"
"Springvale"
"Jervois"
"Indiana"
"Ringwood"
"Maryvale"
"Idracowra"
"Glengyle"
"Monkira"
"Mooraberree"
"Durrie"
"Roseberth"
GEORGINA RIVER
BURKE RIVER
HAMILTON RIVER
KING CREEK
DIAMANTINA RIVER
PLENTY RIVER
HAY RIVER
FIELD RIVER
TODD RIVER
HALE RIVER
FINKE RIVER
HUGH RIVER
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TOWN
SPOT HEIGHT (metres)
HOMESTEAD
ISOGAL VALUES IN MILLIGALS
GRAVITY 'HIGH' ANOMALY
GRAVITY 'LOW' ANOMALY
THE GRAVITY DATA ON THIS MAP ORIGINATE FROM SURVEYS BY THE BMR : (Langron, 1962) and (Lonsdale, 1962) AND SUBSIDIZED PRIVATE COMPANY SURVEYS, (Burbury, 1960), (Hoogenraad, 1967), (Sprigg & Stackler, 1962), (Burbury, 1961)
BOUGUER ANOMALY CONTOURS
0
50
100 KILOMETRES
CLONCURRY
REGIONAL
GRAVITY
HIGH
DIAMANTINA
GRAVITY
GRADIENT
CACOORY
GRAVITY
DEPRESSION
Rock density of 2·2g/cm³ used for computations
Rock density of 1·9g/cm³ used for computations
Rock density of 2·67g/cm³ used for computations
NT
QLD
BEDOURIE
BIRDSVILLE
FINKE
"Glengyle"
"Monkira"
"Roseberth"
"Springvale"
"Burnham"
"Glenormiston"
"Marqua"
"Ringwood"
"Indiana"
"Idracowra"
"Maryvale"
"Jervois"
"Mooraberree"
138°00'
139°00'
140°00'
141°00'
21°40'
22°00'
23°00'
24°00'
25°00'
26°00'
133°30'
134°00'
135°00'
136°00'
137°00'

PLATE 7

TOTAL MAGNETIC INTENSITY CONTOURS

KILOMETRES

0 50 100

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