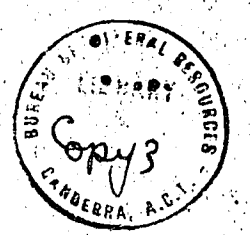
COMMONWEALTH OF AUSTRALIA.

DEPARTMENT OF NATIONAL DEVELOPMENT.

BUREAU OF MINERAL RESOURCES GEOLOGY AND GEOPHYSICS

RECORDS:

1963/86



THE BUREAU OF MINERAL RESOURCES GEORGINA BASIN CORE DRILLING PROGRAMME.

by

E.N.Milligan

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† Under separate cover

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THE BUREAU OF MINERAL RESOURCES GEORGINA BASIN CORE DRILLING PROGRAMME

SUMMARY

The Bureau of Mineral Resources Core Drilling Programme in the Georgina Basin was drilled by W.L. Sides & Son Pty Ltd., using a Failing 750 rig. Operations commenced on the 27th February and were successfully completed on the 26th December 1962. The maximum depth of any hole was approximately 750 feet. The total footage in 19 holes was 8,030 feet; from this, 5,150 feet of core was recovered.

The programme was designed:

i) to prove the nature and possible extent of Georgina Basin sediments to the west of known outcrop, under Quaternary and Tertiary cover;

ii) to obtain fresh material from carbonate sequences (potential source and reservoir beds for petroleum and water supply in the region), which in outcrops are weathered and poorly exposed.

The discussion of the preliminary results of the drilling (prior to detailed petrological and palaeontological work) has been grouped into 7 classes according to the specific purpose of individual holes i.e.

I and VII: to determine the western and north-western extensions of Georgina Basin sediments under Tertiary and Quaternary cover. Grg. 1,2,5,15,15A, 17 and 18.
Sandstone, limestone and siltstone ~~was~~ were found under the younger cover, ~~which~~ and were fossiliferous in Grg. 1,5,18,15, and 15A; No. 18 proved an extension of the Georgina Basin up to at least 40 miles from the most westerly outcrop.

II: to determine the lithological succession in the Lower Upper Cambrian Arrinthrunga Formation. Grg. 7 & 8.
Subsurface material included limestone with numerous intercalations of red, brown and purple calcareous siltstone. These highly coloured rocks have been found only rarely in outcrop and represent the concealed intervals in outcrop sections of the more resistant limestone and dolomite beds.

III: to determine the lithological succession in the Middle Cambrian Arthur Creek Beds. Grg. 6.
The core lithologies were essentially similar to those recognised in outcrop. Petroliferous odour, although prevalant, was

intermittent below 75 feet. The rocks were increasingly indurated by silica below 600 feet.

IV: to determine the lithological succession in the Upper Cambrian - Middle Ordovician sequences. Grg. 12.
A fossiliferous section of blue grey shale and coquina of the Middle Ordovician Nora Formation was recovered. Below the Nora Formation and the predominantly sandy Lower Ordovician Kelly Creek Beds, the Cambro-Ordovician Tomahawk Beds were composed of a higher proportion of sand to carbonate than was found in a measured section 12 miles to the SSW.

V: to determine the age and lithological sequence of Undifferentiated ?Lower Cambrian - Lower Ordovician dolomite and Cambro-Ordovician Ninmaroo Formation dolomite. Grg. 3,3A,4,9,9A, 11 and 14. All but Grg. 4 remained in dolomite throughout; and no fossils or other recognised stratigraphic units were definitely identified. Grg. 4 encountered 30 feet of limestone at 600 feet and the core as a whole, showed a marked resemblance to the lower Upper Cambrian Arrinthrunga Formation.

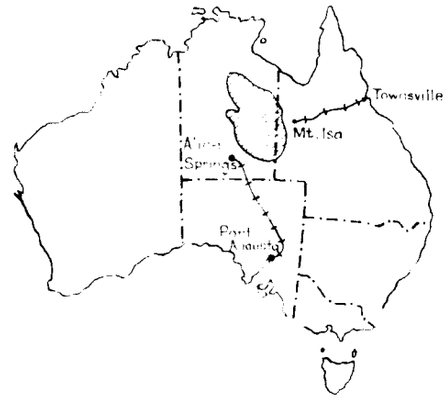
Grg. 11, 9, 9A and 14 recovered a uniform section of dolomite but certain lithologic features have been observed (presence or absence of pelletal rock, oolites, glauconite, non-carbonate component - especially red and green siltstone - undulate, convolute and broken bedding, scour and fill and intraformational conglomerate) which may help to determine their environment of deposition, and indirectly, their age. At the present stage of study, Grg. 9 and 9A are compared with the ?Lower - Middle Cambrian Camooweal Dolomite and Grg. 14 is compared with the Grg. 4 section and the Arrinthrunga Formation. Grg. 11 was spudded in fossiliferous dolomite of Upper Cambrian-Lower Ordovician age and no significant lithologic change was encountered in the hole.

Asphaltic residues were observed in vuggy dolomites in the interval 560 - 680 feet of Grg. 14.

VI: to determine the subsurface lithology of the ?Lower - Middle Cambrian Camooweal Dolomite Grg. 16.
70 feet of dolomite was present in the hole, overlying 200 feet of pellet, oolitic and bioclastic limestone which resembles outcropping Middle Cambrian rocks nearby.

Fig. 1

Location and extent of GEORGINA BASIN



133°
17°
136°
17°
139°
20°
20°
23°
23°
133°
136°
139°

N.T.
QLD.

BARKLY TABLELAND

GEORGINA BASIN

WARRAMUNGA GEOSYNCLINE

DAVENPORT GEOSYNCLINE

UNDILLA BASIN

OBAN BASIN

TOKO SYNCLINE

FREWENA

TENNANT CREEK

BARROW CREEK

CAMOOWEAL

URANDANGI

BOULIA

REFERENCE

- Cainozoic
- Mesozoic
- Middle Palaeozoic
- Lower Palaeozoic
- Precambrian

50 0 50 100 MILES

To accompany Record No 1963/86

Bureau of Mineral Resources Geology and Geophysics June 1963

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INTRODUCTION

The Georgina Basin is an area of 108,000 square miles containing Lower Palaeozoic sediments; it is bounded by Precambrian sediments, metamorphics and intrusives which crop out at the south (Harts Range and Field River area), east (Cloncurry Mt. Isa area) and central west (Davenport Range) margins. Its south-eastern and north-western extent is covered by Mesozoic rocks; it includes the contiguous Barkly 'Basin', in the Barkly Tableland, the Undilla Basin to the north-east, and the Oban Basin to the east (Fig.1).

The core drilling programme was proposed as a sequel to systematic mapping by the Bureau of Mineral Resources from 1957 to 1961. During the mapping, it became evident that a proper assessment of the geology was hampered by certain physiographic and weathering characteristics of this region. These were:

i) widespread sand and deep soil cover over much of the region,

ii) lack of exposed section in large areas of flat lying or shallow dipping strata in areas of low topography,

iii) ferruginisation and silicification of much of the outcrop.

As this has hampered the assessment of the petroleum and water supply potential of the basin, a shallow core drilling programme was envisaged which would:

i) penetrate the sand and soil cover, and recover sufficient section of the underlying bedrock to allow correlation with known outcrop geology;

ii) supply fresh sub-surface samples from the Lower Palaeozoic formation which may contain source or reservoir beds for petroleum, and to establish aquifers in areas not fully watered;

iii) sample sections of formations including hard and soft rock, where the soft rocks do not crop out.

The scope of the programme was determined by two qualifications:

a) Maximum depth of any hole to be 750 feet.

b) Coring should be as continuous as practicable.

a) It was expected that coring to 750 feet would suffice to penetrate Tertiary and Quaternary cover and to recover sufficient section to allow correlation with outcrop, and still within the capacity of a drilling unit economic for this type of programme.

b) Continuous coring was considered necessary to:

i) obtain as much solid subsurface material as practicable for analyses of the reservoir characteristics of the rocks, especially of the carbonate rocks, where the understanding of both the intergranular and the fracture porosity poses special problems.

ii) facilitate recovery of the maximum amount of macrofossil material and detail of sedimentary structures which are major factors in the interpretation of the geology of this region.

A maximum of 16 sites was proposed; two holes were later relocated because of projected deep stratigraphic holes in the area,(to be drilled in 1963) one because of access difficulty. Two of these were designated as Grg. 17 and Grg. 18; sites Grg. 10 and Grg. 13 were not drilled. Eventually 19 holes were put down in 16 locations; additional holes were drilled near three of the original sites for supplementary information.

Drilling commenced on 27/2/62 and was completed on 26/12/62; operations were suspended from 31/5/62 to 8/7/62 on the contractor's request. Grg. 4, 11 and 17 were left open for development as water bores for stock, the remainder were plugged with cement.

Approximately 5,150 feet of core was recovered and this has been stored at the Bureau of Mineral Resources Core and Cuttings Laboratory, Fyshwick, A.C.T., awaiting detailed petrological and paleontological examination. A representative sample of the cores from Grg. 9 and 9A ~~have~~ has been forwarded to the Queensland Geological Survey.

The core was examined on site using hand lens and low power binocular examination of fractured, polished and etched surfaces; simple chemical tests, i.e. 10% hydrochloric acid for limestones and 10% hydrochloric acid and potassium ferricyanide for dolomites, were carried out.

Officers engaged in the core logging were:

K.G. Smith (Supervising) 27/2/62 - 15/4/62

E.N. Milligan 27/2/62 - 22/6/62; 8/7/62 - 26/12/62
(Supervising, 15/4/62 - 22/5/62; 8/7/62 - 26/12/62)

G.A. Brown 9/3/62 - 31/5/62
(Supervising, 22/5/62 - 31/5/62)

J.M. Drummond 27/2/62 - 14/3/62

P.J. Jones 22/5/62 - 31/5/62

A.R. Lloyd 8/7/62 - 30/10/62

N.E.A. Johnson 26/10/62 - 26/12/62.

Fig. 2

Location of Core-hole sites with approximate disposition of lithologic units

Reference

- Lower Cambrian to Lower Ordovician Age not definitely established
- Established Upper Cambrian to Lower Ordovician
- Established Lower to Middle Cambrian
- Precambrian
- Grg7● Core-hole sites
- ○ Water bore / well
- Windpump
- ■ Homestead
- O Town
- Main road (sealed)
- Road (Loose surface)
- Vehicle track

10 0 50 Miles

133°30' 135°00' 136°30' 138°00'

19°00' 20°00' 21°00' 22°00' 23°00' 24°00'

"Rockhampton Downs" "Alroy Downs" "Dalmore Downs" "Avon Downs" "Elkedra" "Ammaroo" "Annitowa" "Arrabonga" "Donatippa" "New MacDonald Downs" "MacDonald Downs" "Derry Downs (abd)" "Tafton Downs" "Walgra"

BARKLY HIGHWAY STUART HIGHWAY TENNANT CREEK HIGHWAY

N.T. QLD.

Frewena Grg17 Tennant Creek Wauchope Spinifex Grg18 Taylors Well Barrow Creek Shady Grg2 Corella Grg1 Grg5 Grg4 Grg3,3A Grg14 Stokes Grg16 Ranker No.17 Grg15,15A Camooweal Grg9 Cooks Well Urandangi Grg9A Grg8 No.3 No.7 No.2 No.1 Grg6 Grg11 Coles Grg12 No.2 Alice Springs

TENNANT CREEK ALROY RANKEN CAMOOWEAL BONNEY WELL FREW RIVER AVON DOWNS MT ISA L. Nash ELKEDRA BARROW CREEK SANDOVER RIVER URANDANGI HUCKITTA TOBERMORY GLENORMISTON ALCOOTA ALICE SPRINGS ILLOGWA CREEK HAY RIVER MT WHELAN

Ranken River Georgina River Sandover River Macumba River Frew River Hay River Finke River

Bureau of Mineral Resources Geology and Geophysics June 1963 To accompany Record No 1963 86

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The programme was envisaged primarily to recover a wide range of the fresh lithologies of the Lower Paleozoic sedimentary rocks which could not be examined in outcrop. The detailed analysis of these lithologies is being undertaken in a joint study by the Bureau of Mineral Resources and the Institut Francaisø du Petrole. The Paleontological Section of the Bureau of Mineral Resources is starting a detailed study of the faunas recovered in the core. The purpose of this record is to outline the nature and extent of the coring programme and the background of geology which preceeded it; the results and discussions recorded here are purely preliminary observations of the stratigraphic implications and are included in order that advance information is available for consideration by groups currently interested in the geology of the Georgina Basin.

The information given under the heading of 'Geological Background' is taken from work done by officers of the Bureau of Mineral Resources which is recorded in publications and MSS listed under the heading 'Previous work'; no new concepts are advanced under this heading by the present author.

ACKNOWLEDGMENTS

Acknowledgment is made to pastoralists in the region, the Animal Industry Branch of the Northern Territory Administration and the Boulia Shire Council for permission to use water from their water bores and for actual assistance given during the course of the drilling programme.

WELL HISTORY

The well histories are summarised in Table 1; a more detailed account is included in the logs of the individual wells.

TABLE 1. SUMMARY OF WELL HISTORIES

Holes In order of drlg.	1:250,000 Sheet	General Locality	Elevation (G.L.) Barometer det.) (feet)	Latitude Longitude	Tenement holder & number	Total depth (feet)	Date spudded & terminated	Completed to target depth or abandoned	Depth Comm. Coring (feet)	Core Recovery (feet)	% of cored interval	Depth of circulation loss. (feet)	Total water usage (gals.)	Electric & Gamma Logs. +
GRG 1	Huckitta	McDonald Downs	1450	135°03'0"E 22°19'45"S	Smith Aust.Oil Co.Pty.Ltd. O.P.41	210	27/2/62 3/3/62	Completed	15	132	66	100)(partial) 207)	1,500	
5	Elkedra	Derry Downs	1240	135°14'38"E 21°11'52"S	"	450	17/3/62 31/4/62	Completed	175	258	94	180	62,000	E & G.
2	Barrow Ck.	Ammaroo	1360	134 58'43"E 21°49'26"S	Swan Petroleum O.P.70	354	12/4/62 14/4/62	Abandoned (loose sand)	49	19	28	nil	2,000	"
3	Elkedra	Annitowa	945	136°03'10"E 21°10'00"S	"	206	30/4/62 4/4/62 28/5/62 28/5/62	Abandoned (Hard drilling)	129	68	88	nil		
4	Elkedra	Annitowa	850	136°27'50"E 21°10'50"S	"	739	8/5/62 24/5/62	Completed	91'	601'	92	150		E. & G.
3A	Elkedra	Annitowa	945	136°05'10"E 21°10'00"S	"	243	28/5/62 31/5/62	Abandoned (Hard drilling)	222	11	87	220		
7	Huckitta	Lucy Creek	1134	136°07'35"E 22°19'40"S	Smith Aust.Oil Co.Pty.Ltd. O.P.41	755	8/7/62 26/7/62	Completed	6	701	94	112 (partial)	5,000	E.& G
8	Huckitta	Lucy Creek	1215	136°02'30"E 22°24'10"S	"	295	26/7/62 31/7/62	Abandoned (no water supply)	12	226	84	58	66,000	E. & G.
6	Huckitta	Lucy Creek	1030	136°12'30"E 22°30'00"S	"	683	4/8/62 18/8/62	Completed	23	652	99	54	140,000	E
12	Tobermory	Tarlton	910	136°50' E 22°39' S	Continental Oil & Gas. O.P. 63	755	22/8/62 3/9/62	Completed	5	688	95	nil	5,000	
11	Tobermory	Manners Creek	640	137°22'30"E 22°20'00"S	"	456	5/9/62 24/10/62	Abandoned no (Water supply)	24	379	88	52	130,000	E. & G (part only)
9	Urandangi	Urandangi	570	138°15'23"E 21°15'17"S	Papuan Apinaipi Pet.Co.Ltd. 54P.	373	2/10/62 12/10/62	Abandoned (no water supply)	6	341	98	9	122,000	E. & G.
9A	Urandangi	Urandangi	430	138°19'43"E 21°02'10"S	"	420	13/10/62 23/10/62	Abandoned (caving)	94	179	50	100		
14	Sandover River	Georgina Downs	730	137°15'46"E 21°10'32"S	United Aust.Oil Inc. O.P. 53	720	27/10/62 14/11/62	Completed	117	538	855	126		G
16	Ranken	Soudan	790	136°51'23"E 19°45'50"S	Aust.Oil Corp. O.P.61	303	16/11/62 25/11/62	Abandoned (Hard drilling)	30	260	97	100	45,000	G
15	Alroy	Dalmore Downs	750	136°12' E 19°43' S	Titan Petroleum Corp. O.P.59	314	29/11/62 4/12/62	Abandoned (Hard drilling)	32	12	37	103	55,000	G
15A	Alroy	Dalmore Downs	750	136°12' E 19°43' S	"	270	4/12/62 8/12/62	Abandoned (Hard drilling)	10	20	44	128	45,000	
17	Alroy	Frewena	710	135°21'00"E 19°26'15"S	Barkly Oil Co. Pty.Ltd.O.P.73B	170	10/12/62 17/12/62	Abandoned (Hard drilling)	117	50	97	131	35,000	
18	Barrow Ck.	Barrow Creek	1240	134 135°11'33"E 12°05'32"S	Vacant	315	24/12/62 26/12/62	Completed	305	158	76	310	5,000	

* Sites GRG 10 and 13 were not drilled.

+ Due to an intermittant fault in the equipment and in certain cases lack of standing water or unstable sidewall in the hole, gamma ray and electric logs were not run for all holes.

GEOLOGY

The core-holes were spaced over a wide area that shows locally, different geological aspects (Fig.2). For this reason, the treatment of the geology is grouped according to the reasons for drilling the particular holes. These groups are as follows:

I To determine the rock types of the westward extensions of the Georgina Basin sediments, which lie under the widespread sand cover in this region.

Grg. 1, 2, 5 and 18.

II To determine the lithologies in a section through the lower Upper Cambrian Arrinthrunga Formation.

Grg. 7 and 8.

III To determine the thickness and lithology of the Middle Cambrian Arthur Creek Beds.

Grg. 6.

IV To determine the relationship of the Upper Cambrian - Lower Ordovician Tomahawk Beds (sandy facies) and Ninmaroo Formation (carbonate facies) in the transition region.

Grg. 12.

V To determine the subsurface nature of a widespread 'sheet' of carbonate rocks ranging from Lower Cambrian to Lower Ordovician, in age which form most of the outcrop in the central Georgina Basin.

Grg. 3, 3A, 4, 9, 9A, 11 and 14.

VI To determine the subsurface nature of the northern (Barkly Tableland) extensions of this carbonate 'sheet' (Camooweal Dolomite) (Öpik, 1956) and any underlying rocks.

Grg. 16.

VII To determine the rock types of the north-western extensions of the Georgina Basin sediments, which lie under an extensive cover of sand and alluvium in this region.

Grg. 15, 15A and 17.

GRG. 1, 2, 5, AND 18.

Previous Work

The regional work of the Bureau of Mineral Resources in this area (and references to earlier workers) is given by Smith, Smith, Woolley and Pulley (1960); Smith, Vine and Woolley (1960); Smith and Vine (1960); Smith, Stewart and Smith (1961);

APPROXIMATE DISPOSITION OF ROCK UNITS IN THE CENTRAL WEST GEORGINA BASIN

Fig. 3

135°

136°

21°

22°

STUART HIGHWAY

Grg 18

Grg 2

Grg 5

Grg 1

Grg 8

Grg 7

Grg 6

DULCIE SYNCLINE

Bundey River

Sandover River

Reference

- Devonian Sandstone
- Upper Cambrian Sandstone
- Lower Upper Cambrian Sandstone
- Upper Cambrian Carbonates
- Middle Cambrian
- Precambrian

16 0 16 32 48 Miles

Bureau of Mineral Resources, Geology and Geophysics. June 1963 To accompany Record No 1963/86

F 53/6 JK 79

Smith, Vine and Milligan (1961a & b); Smith and Milligan (1963 a & b); and Smith, (1963). Reconnaissance geology has been carried out by Opik (1956), Casey and Gilbert-Tomlinson (1956), and Joklik (1955). Additional observations were recorded by Condon (1958 and 1961).

Geological Background

The outcrop in the central western region of the Georgina Basin shows an asymmetrical north-west trending syncline (Dulcie Syncline) with a steep south-west flank (Fig.3). The final tectonic phase occurred in late or post Devonian times.

On the south flank, the known Palaeozoic section includes 1400 feet of Lower Cambrian sandstone, siltstone and dolomite with dips up to 60 degrees, overlain by at least 600 feet of Middle Cambrian limestone and sandstone (Arthur Creek Beds), up to 3,000 feet of lower Upper Cambrian limestone and dolomite with rare sandstone intervals, (Arrinthrunga Formation) which are in turn overlain by at least 800 feet of sandstone, with some Tomahawk Beds and less than 100 feet of dolomite of the Upper Cambrian - Lower Ordovician oolitic ironstone and ferruginous sandstone of the Nora Formation. Lying unconformably on these is 1700 feet of Devonian fresh water sandstone (Dulcie Sandstone).

On the north flank of the syncline, the Dulcie Sandstone is underlain by the Tomahawk Beds and in part, the Arrinthrunga Formation. The beds immediately underlying the Arrinthrunga Formation do not crop out; the next oldest beds seen are the lower Middle Cambrian Sandover Beds which crop out some ten miles to the north, and dip south, off the flanks of the Lower Proterozoic basement forming the Davenport Range.

The Dulcie syncline has a known extent of about 120 miles, along its axis, but only in the south east corner is the full sequence exposed. North west of this, the Dulcie Sandstone, the Tomahawk Beds, and to the north, the Sandover Beds are the only definite Palaeozoic sediments exposed.

The purpose of Grg. 1, 2, and 5 was to penetrate the sand cover and establish the nature and extent of pre-Tomahawk and post Proterozoic sediments on both flanks of the syncline. Grg. 18 was sited even further to the north west, some 40 miles along the projection of the synclinal axis from the most westerly Palaeozoic outcrop in order to prove any extension of these sediments in this direction.

Results:

Grg. 2. encountered unconsolidated and friable sands, possibly Dulcie Sandstone, which prevented the recovery of useful core, and the hole was abandoned at 354 feet.

Grg. 1 and 5. penetrated a lower Palaeozoic section of sandstone, siltstone and oolitic, pelletal and aphanitic limestones.

Summary of the Logs:

Grg. 1. (Elevation 1450')
(Barometer determined)

0 - 118' Quaternary sand and Tertiary Limestone.
118'- 156' (38') Sandstone; grey, green red, interbedded with siltstone, grey, green and pink.
156'- 185' (29') Sandstone; and siltstone; green and grey, interbedded with limestone; green grey; oolites.
185'- 210' (25') Limestone; grey, brown, red, oolitic, with siltstone; grey, brown, green. Fossil at 208'.

Grg. 5. (Elevation 1240')
(Barometer determined)

0 - 170' Quaternary sand.
170'- 265' (95') Limestone; pink, blue, Siltstone; chocolate, green, grey, red, brown and purple, interlaminated with Calcarenite; pink. Fossil at 173'.
265'- 370' (105') Limestone; and calcarenite grey, oolitic, sandy, Sandstone; buff, green; Siltstone; black and blue-black.
370'- 430' (60') Sandstone; buff, grey; Limestone; silty, oolitic, chocolate.
430' -450' (20') Limestone; grey, brown, two tone in grey and pink, oolitic. Calcarenite; brown, grey, Siltstone; sandy, chocolate, red. Intraformational limestone breccia.

Palaeontology:

Sections of the core have been examined by palaeontologists of the Bureau of Mineral Resources; P.J. Jones reported:"Grg. 1. 207' 8" - 208' 8": Organic remains include ..... a complete dorsal valve of the phosphatic brachiopod tentatively referred by Dr. A.A. Opik to Linnarsonella Walcott 1902 ..... The presence of the Upper Cambrian brachiopod Linnarsonella indicates that 9

this bore has penetrated Upper Cambrian sediments".

J. Gilbert-Tomlinson examined fossils from Grg. 5 and reported "Grg. 5. 177' 3": ..... the trilobites are represented by free cheeks, and are not generically determinable. Their structure suggests they are not older than Upper Cambrian . The interval 174' 6" - 175' 6" contained trilobites with free cheeks, thoracic segments and a possible hypostome. They may belong to the same form as that in 177' 3". "

Sections of the core have been treated and examined for the presence of conodonts, with negative results.

Discussion:

Parts of the section recovered by these two bores show definite lithological similarities and are provisionally considered to be part of the same overall sequence, by lithological comparison and from the meagre palaeontological evidence available.

The sequence has not been recognised in outcrop and no definite stratigraphic position can be assigned to it at present. The factors considered in the present assessment of its position are as follows:

i) Palaeontological evidence suggests an Upper Cambrian age for at least part of the section in the two holes and no unconformities have been recognised in them.

ii) Two, and possibly three Upper Cambrian formations are recognised in outcrop in the region. These are a) - The Tomahawk Beds, b) - the Arrinthrunga Formation, and c) - a poorly exposed sequence of interbedded sandstone, dolarenite, algal and oolitic dolomite and limestone which underlies, in part, fossiliferous Upper Cambrian sandstones, and which outcrops in a region 20 to 30 miles north-west of Grg. 5; these rocks have been provisionally included in the Tomahawk Beds on the Barrow Creek 1:250,000 sheet, by Smith and Milligan (1963b).

a) On purely lithological grounds, the sequence penetrated by Grg. 1 and 5 has little similarity to the Tomahawk Beds which in the vicinity, are predominantly sandstone with minor dolomite, and are commonly highly glauconitic and richly fossiliferous.

b) The core holes were spudded along strike from outcrop of Arthur Creek Beds and the Arrinthrunga Formation. The Arrinthrunga Formation, contains little sandstone, apart from the conspicuous Eurowie Sandstone member, and in outcrop it seldom shows the vivid colourations frequently observed in the core from Grg. 1 and 5. Some lithologic similarities are apparent,

however, particularly the frequency of oolitic and pelletal beds and introformational breccias. Also, subsurface material from Grg. 7 and 8, drilled in the Arrinthrunga Formation to the east, included highly coloured rock similar to that in Grg. 1 and 5. A somewhat more negative comparison is the dearth of fossil material, a fact common to both the Arrinthrunga Formation and the two core-holes.

c) Little can be said about the third unit under discussion, due to the limited knowledge of its extent and stratigraphic position. However, it is known to contain interbedded sandstone and siltstone, and oolitic and pelletal carbonate rocks, and to partly underlie fossiliferous Tomahawk Beds.

It is possible that this third unit is a lateral equivalent of the Arrinthrunga Formation (and in part, to the sections in Grg. 1 and 5). However, certain outcrops of unit three rocks are similar to sandstone interbedded with siltstone, which crop out on the south flank of the syncline, some 60 miles north-west of Grg. 1. The sandstone is richly fossiliferous and contains a fauna correlated with that of the Tomahawk Beds. Anything but a tentative correlation is therefore premature at present.

Grg. 18, after penetrating 305 feet of Quaternary and Tertiary cover, encountered 10 feet of green grey dolomitised ?oolitic calcarenite with micaceous siltstone interbeds, before it was terminated due to caving in the hole. A brachiopod recovered from this interval was recognised by Dr. A.A. Opik as having a structure characteristic of an age no older than Upper Cambrian.

The section recovered from Grg. 18 is too thin to allow close stratigraphic comparison, but the presence of fossiliferous sediments of this age and type, some 40 miles north-west of the most north-westerly outcrop of Palaeozoic rock, is highly significant in the delimiting of the western limits of the Georgina Basin.

GRG. 7 AND 8.

Previous Work:

Regional coverage of this area has been done by Smith et al.; the records of this work are listed under group I.

Geological Background:

The stratigraphic position of the Arrinthrunga Formation was established by Smith and co-workers as lying above the Middle Cambrian Arthur Creek Beds and below the Upper Cambrian -

Lower Ordovician Tomahawk Beds. Four broad units were recognised in the eastern and north-eastern part of the Huckitta 1:250,000 Sheet area. Grg. 7 and 8 were sited in order to recover a representative range of the lithologies of the lower two of these four units. The lithologies of these units recognised in outcrop were: (Smith, Vine and Milligan, 1961b, p. 30).

" (2) blue oolitic limestone, blue algal limestone, thin quartz sandstone, and numerous concealed beds (blue-grey siltstone has been obtained in several water bores).

(1) (at the base) hard brown dolomite, sandy dolomite".

Both holes were spudded in unit (2); Grg. 7 in the lower part, and Grg. 8 where it was hoped that most of the hole would be in beds higher in the sequence. (due to poor exposure and consequent lack of knowledge of possible down-faulting it was not possible to be certain of this).

Results:

Grg. 7. spudded in the lower section of unit (2), encountered unit (1) at 465 feet, and drilled 290 feet into it.

Grg. 8. The hole was abandoned due to technical difficulties at 295', so that a complete section was not obtained. However, sufficient core was recovered to show that a lithology distinct from any encountered in Grg. 7. was present.

Summary of the Logs:

Grg. 7.

6 - 465' Limestone and siltstone. - almost equal amounts, interbedded and intergrading.
Limestone, aphanitic to silty, grey, brown and greenish Siltstone, calcareous. - very calcareous:, grey, green grey, blue grey, brown, red and chocolate.
occ. Intraformational breccia, minor sandstone at 110-120', 160-180', 265-280' and 445-465'.

465'- 520 (55') Dolomite, aphanitic, to crystalline, grey and brown, often silty, Minor siltstone, black.

520'- 755' (235') Dolomite, as previous, with dolarenite and pellety dolomite.

12

Grg. 8.

12' - 88' (76') Limestone and calcilutite; silty, grey to pink. Siltstone; green and grey.

88' -295'(207') Limestone and siltstone, as above with - Calcarenite; sandy and oolitic, pink and grey.

Palaeontology:

No fauna was seen during the logging; detailed examination for macrofossils is pending and samples are currently being treated preparatory to examination for conodonts.

Discussion:

The lithologies enccuntered in Grg. 7. were readily referable to units (1) and (2) in outcropping Arrinthrunga Formation; the lithologies in Grg. 8. were readily referable to those of unit (2). The distinctive sandy oolitic calcarenite was not present in Grg. 7 and may provide a basis for finer lithologic subdivision. Assuming no significant facies change occurs between the sites, it follows that the Grg. 8 section is indeed higher stratigraphically than Grg. 7, as the dips observed in outcrop indicate.

GRG. 6.

Previous Work:

Regional coverage of this area has been done by Smith et al.; the records of this work are listed under group I.

Geological Background:

Smith and co-workers, in Smith, Smith, Woolley and Pulley, (1960, pp. 36-39 and fig.7) and in Smith, Vine and Woolley, (1960, pp. 21-28, figs. 9, 15, 16, and 17) estimated the extent and thickness of the Arthur Creek Beds.

The sequence in the vicinity of Grg.6, consists of 100 - 200 feet of grey, white and yellow, medium to fine grained sandstone with minor limestone and rare dolomite, overlying and in part lensing into poorly exposed blue fossiliferous limestone estimated to be about 250 feet thick. Twenty miles to the west, blue-black limestones and shales have an estimated thickness of 400 feet.

Fossils from the upper sandstone sequence ~~are~~ of the Arthur Creek Beds, are upper Middle Cambrian in age; the blue limestone contains fossils of middle Middle Cambrian age. Due to age and lithologic similarities to limestones of the Sandover Beds, which produced wet gas in the Cherry Creek (Discovery) water bore on Ammaroo Station, about 100 miles to the north, (Mackay

and Jones 1956) the Arthur Creek Beds are considered to be possible source beds for petroleum. The hole was spudded along strike from the base of the sandstone sequence in order to penetrate the limestone at a known stratigraphic and lithological reference point.

Results:

Summary of the Log:

23' - 28'	Sandstone; buff, yellow.
28' -340'	Calcarenite; fine grained and calcilutite; grey, dark grey; equal amounts interbedded.
340'- 440'	mainly Siltstone; grey, calcareous, to very calcareous minor Sandstone; fine grained.
440'- 500'	mainly Limestone; grey, silty to very silty.
500'- 683'	mainly Siltstone; grey, calcareous to very calcareous; minor Sandstone; fine grained; some Chert; lensoid.

Palaeontology:

Macrofossils were quite common and well preserved throughout, so that close control will be available when palaeontological studies are undertaken.

Discussion:

The hole revealed a fairly monotonous section of dense, grey, fine grained sediments which became increasingly indurated below 600'. Throughout the hole, one lithology graded into another. Petroliferous odour was noted from the core at 75 feet depth and throughout the remainder of the hole. It is possible that some of the fine grained sandstone encountered in the hole might weather to the type of sandstone recorded in outcrop.

GRG. 12.

Previous Work:

Regional coverage of this area has been carried out by Smith et al. and recorded in Casey, Smith, Pritchard et al.(1962); Smith, Vine and Woolley (1960); Smith and Vine (1960); and Smith, Vine and Milligan (1961b).

Geological Background:

A number of stratigraphic units have been recognised in the vicinity of Grg. 12. It was chiefly to resolve the relationships of the lithologies in some of these units that this hole was drilled.

The interpretation of this relationship by Smith, Vine 14

GEOLOGY IN VICINITY OF Grg.12.

Fig. 4.

136°45'

137°00'

137°15'

22°30'

22°45'

23°00'

€-Ct

€-Ot

€-On

Olk

Om

i

ii

iii

?

Tarlton Downs

Grg12

Tarlton No2 Bore

Alice Springs-Queensland Rd.

Camel Creek

Limestone Creek

Reference

- i / ii — Areas distinguished on upper Cambrian - Lower Ordovician rock relationships (see text)
- Om — Middle Ordovician
- Olk — Kelly Creek Formation
- €-Ot — Tomahawk Beds
- €-On — Ninmaroo Formation

SCALE

5 0 5 10 15 miles

F53/12/2 EJ

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and Milligan, (1961b) is summarised below. The sedimentary rocks outcropping near Grg. 12 are Upper Cambrian to Ordovician in age, but the lithologic units are not readily correlated with neighbouring units of the same age, owing to the scattered nature of the outcrop in some critical areas. Three areas have been delineated on the basis of the visible relationships of the lithologic units seen in outcrop.(Fig. 4.)

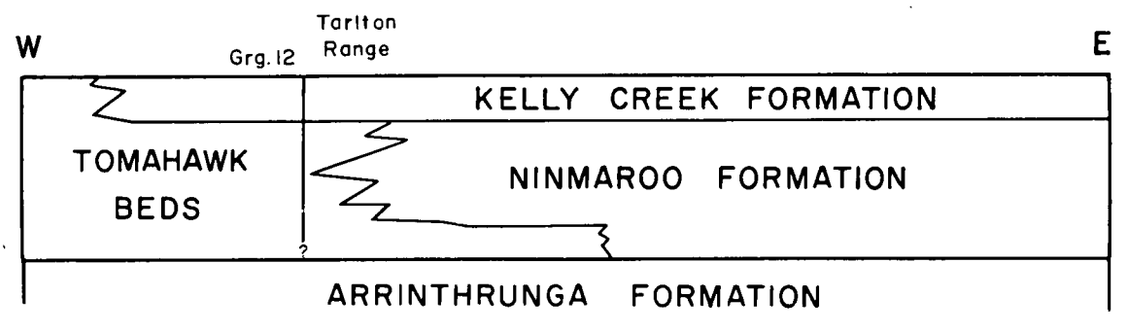
i) To the west, (Є - Ot.i) on the eastern margin of the Huckitta 1:250,000 Sheet) the Upper Cambrian - Lower Ordovician sequence is predominantly sandstone with some interbeds of carbonate and siltstone. It has not been practical to subdivide this sequence into formation in this sector and the name 'Tomahawk Beds' has been used.

ii) In the central (Tarlton Range) sector (Є-Ot. ii), the Tomahawk Beds include a considerable amount of carbonate rock and a dominantly sandstone sequence at the top has been identified as a separate unit, the Kelly Creek Formation.

iii) To the east, (Є-On. iii), the Tomahawk Beds grade laterally into an almost completely carbonate sequence, the Ninmaroo Formation, from which the Kelly Creek Formation can again be readily distinguished.

A diagrammatic representation of this relationship has been advanced in Smith, Vine and Milligan, (1961b Fig.3, facing p. 12) and is presented below (Fig. 5)(with the effective position of Grg. 12 added).

Fig. 5



Diagrammatic Section Through Upper Cambrian and Lower Ordivician rock units

(After Smith, Vine and Milligan 1961)

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JK

Grg.12 was expected to give also, further information on the structure which has resulted in the occurrence of the Middle Ordovician Nora Formation in subsurface in Tarlton No.2 water bore, when the base of this formation is exposed in outcrop in the scarp of the Tarlton Range, four miles to the ~~west~~ east.

Results:

Grg.12 was sited in the Ninmaroo - Tomahawk central sector (G Ot.ii): it recovered approximately 90 feet of the Nora Formation, 220 feet of the Kelly Creek Formation and 430 feet of Tomahawk Beds.

Summary of the Log:

(With comparison with Limestone Creek - Camel Creek Tomahawk Beds section, South Tarlton Ranges.)

Grg.12.		Limestone - Camel Creek. (after Smith & Vine, 1960, p.17.)	
0 - 11'	Quaternary		
11 - 92'	chiefly Claystone some Coquinite, - Nora Formation		
92 - 325'	chiefly Sandstone fine-medium grained Kelly Creek Formation	Kelly Creek Formation	
325 - 755'	Tomahawk Beds		
125'	of chiefly Dolomite: coarse, crystal Glauconite. oolites, some dolarenite and Intraformational conglomerate.	73'	of Limestone, grey, oolitic. Intraformational conglomerate glauconite, some buff siltstone.
90'	of chiefly Sandstone, grey, dolomitic.	85'	of interbedded Sandstone, white porous and Siltstone; green, and thin, coarse grained calcarenite.
85'	of chiefly Dolomite as previous	170'	of Calcarenite, coarse grained limestone; oolitic, sandstone, thin, porous and siltstone; green.
130'	of chiefly interbedded Sandstone and siltstone, some Dolomite, dolarenite, and intraformational conglomerate. Glauconite.		(base not exposed; fossiliferous Upper Cambrian sandstone unit known at base in other localities).

LOCATION AND EXTENT OF THE DOLOMITE SHEET
in the Central Georgina Basin & conspicuous Structure in the Region.

Fig. 6.

SCALE
32 16 0 32 64 miles

138°00'
136°30'
20°00'
21°00'
22°00'
23°00'

Frewena
BARKLY HIGHWAY
TENNANT CREEK
HIGHWAY
Wauchope
Wycliffe Well
STUART
Barrow Creek
ALICE SPRINGS
Ranken
CAMOOWEAL
Camooweal
Avon Downs
Mt. Isa
Lake Nash
Grg.4.
Annitowa
Grg.14.
Grg. 3,3A
Grg.9.
Grg.9A
Elkedra
Sandover River
Urandangi
Grg.11.
Grg.12
Huckitta
Tobermory
Glenormiston
Mt. Wheelan
TOKO RANGE
pC

Reference

- Dips < 15°
- Dips > 15°
- Faults and monoclines
- Mid-Upper Cambrian carbonates
- Upper Cambrian - Ordovician and Devonian
- ? Lower Cambrian - Lower Ordovician Dolomite 'sheet'

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NT/33 EJ

Palaeontology:

Macrofossils were observed throughout the core; this material is currently being examined by the Palaeontology Section of the Bureau of Mineral Resources.

Discussion:

It is evident that the carbonate rich upper part of the Tomahawk Beds that has been recognized in outcrop (below the sandy Kelly Creek Formation) persists under the sand cover to the west of the Tarlton Range. The dominantly sandy unit below this in the Limestone Creek - Camel Creek section is also present in Grg.12. Below this however, the section in Grg.12 shows a considerably higher proportion of sandstone than the Limestone - Camel Creek section.

The base of the Nora Formation in Grg.12 is about one hundred feet below the base observed in the scarp of the Tarlton Range one mile to the north-west, indicating that a warping or down-faulting to the west or south-west has occurred, as was suspected from the interpretation of the driller's log of Tarlton No.2 bore.

GRG. 11, 9, 9A, 3, 3A, 4 AND 14.

These holes were designed to penetrate a poorly outcropping area of principally dolomite rocks which extends over a large part of the central Georgina Basin, and to demonstrate the presence of any other rock types which might represent 'tongues' of stratigraphic units known from outcrops on the margins of this dolomite area.

The extent of this dolomite is shown in Figure 6. It extends north on to the Ranken and Camooweal 1:250,000 Sheet areas and south, on to the Tobermory and Glenormiston 1:250,000 Sheet areas, and the outcrop is generally unrelieved by other lithologies. It is for the most part unfossiliferous, and, due to the overall similarities of the lithologies represented, the positions of the stratigraphic boundaries are not known.

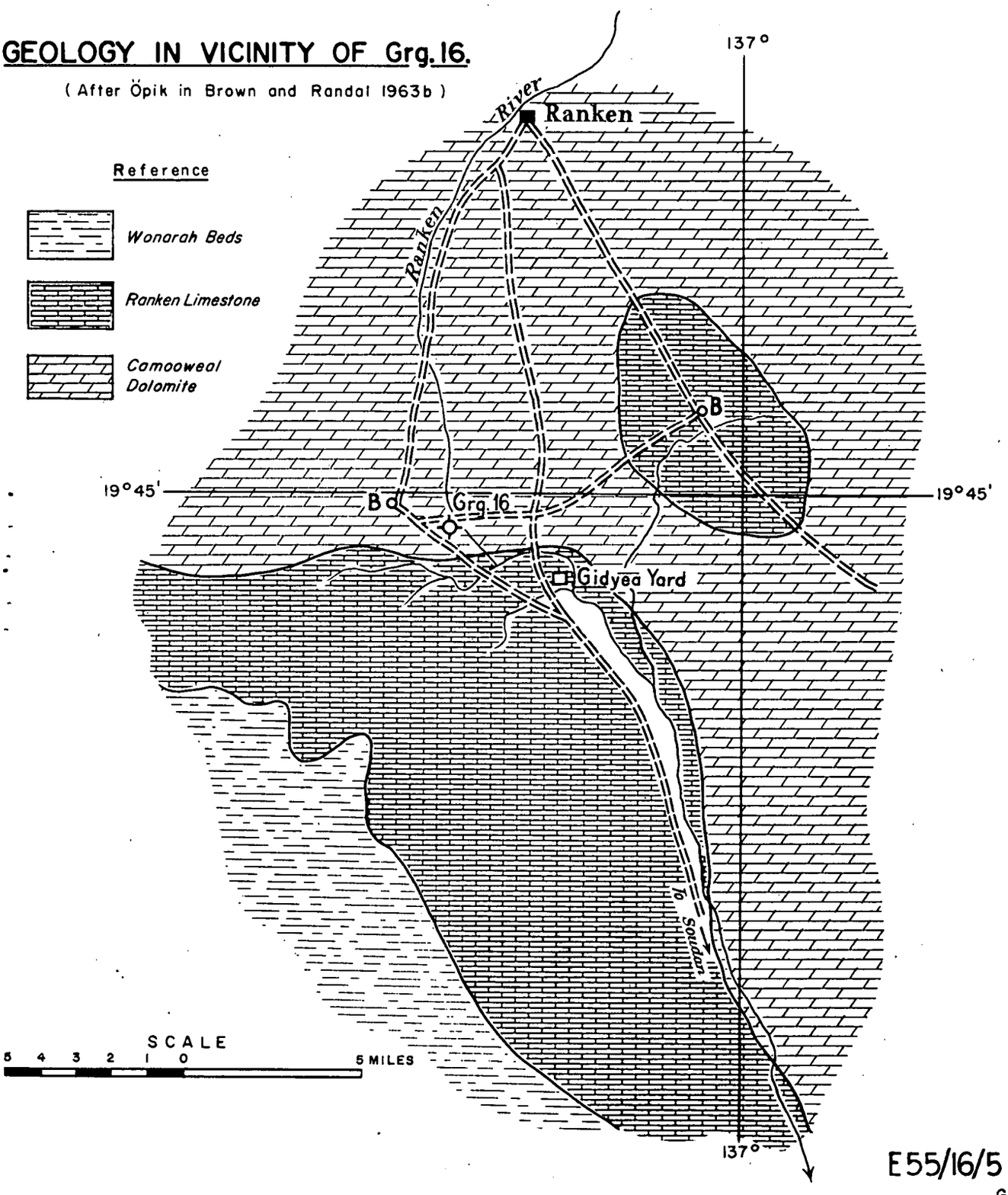
The fossils known from the dolomite are of uppermost Cambrian to Lower Ordovician age, but as their occurrence has been recognised only in the southern and south-eastern region, the age of the rocks in the central and northern sectors is in doubt. The Sandover River 1:250,000 Sheet which occupies the centre of the region, has not been mapped, even on a regional scale, so that even the lithological boundaries are unknown in this area.

The dolomite of the northern sector (Camooweal Dolomite) is believed by Randal and Brown (1962a,b, and c) and Brown(1962) to be a time equivalent, at least in part, to fossiliferous Middle

Fig. 7.

GEOLOGY IN VICINITY OF Grg. 16.

(After Öpik in Brown and Randal 1963b)



E55/16/5

G.M.

Bureau of Mineral Resources, Geology and Geophysics. June 1963. To accompany Record No 1963/86

Cambrian limestones, but post Middle Cambrian to pre - uppermost Cambrian rocks have not been recognised either from faunal, lithological or spatial relationships.

The structure of this dolomite 'sheet' is only little known. On the south and west margins of the 'sheet', the rocks have dips up to 30 degrees (and near some faults, vertical and overturned dips). In the northern sector, it is known that Middle Cambrian rocks crop out at the same general altitude over an area of 30,000 square miles. It is assumed then, that large scale faulting is absent and, as observable dips are always shallow, the regional structure is most probably of low relief. The general interpretation of the regional structure is that a gradual increase in section occurs from the Middle Cambrian in the north and north-east to the Lower Ordovician in the south. It is expected then that Grg. 4, 14, 9 and 9A spudded in rocks older than those penetrated by Grg.11. In the west-central region, the rocks appear to dip off the flanks of the Davenport Range at low angles. The observed direction of dip near Grg.4 is to the south and south-east, so that as Grg.3 and 3A were sited some miles to the west of Grg.4, they were expected to encounter Palaeozoic rocks older than those in Grg.4.

Grg.11.

Previous Work:

Regional mapping of the Tobermory 1:250,000 Sheet, which covers the region around Grg.11, has been done by Smith and co-workers and has been recorded in Smith and Vine (1960), and Smith, Vine and Milligan (1961b). Geological information on the Glen-ormiston and Urandangi 1:250,000 Sheets to the east has been recorded by Öpik (1956b), Noakes, Carter and Öpik (1959), Condon (1958 and 1961), and Öpik and Pritchard (1960).

Geological Background:

Grg.11 was spudded near outcrops of fossiliferous Ninmaroo Formation. It is not known which part of the Ninmaroo Formation the hole penetrated, as the outcrops are poor, the nearby fossils are poorly preserved, little section is exposed and the structure is not well known. It was sited to recover a section of the Cambrian-Ordovician Ninmaroo Formation representative of this particular area, in order to determine the overall sandstone carbonate ratio compared with that in the better known region to the south and south-west where the ratio may be as low as 1 : 1.

Extensive sandstone outcrop has been recorded to the north-west of the site, but it is rare to the east and in the immediate south.

Results:

Summary of the Log

24 - 270' : 246 feet of Dolomite; aphanitic to crystalline; small and scattered sand component.

270 - 456' : 186 feet of Dolomite; as previous, pellety in part, and Dolarenite; occasional oolitic, with rare glauconite. Some Intraformational breccia and conglomerate.

Palaeontology:

No macrofossils were seen in the core during the logging: more detailed examination for macrofauna and microfauna (conodonts) is pending.

Discussion:

The section cored included very little sand. It was not expected to be comparable to the Tarlton Range sections which are transitional to the Tomahawk Beds (and have been mapped as such in Casey, Smith and Pritchard et al.,1962), but it shows no trace of the extensive sandstone beds mapped to the north-west of Grg.11 and has little resemblance to 840 feet of section measured at a locality 45 miles to the south-east, on the west flanks of the Toko Ranges, which contains (Smith and Vine, 1960, p.17):

"111 feet of very coarse grey blue grey calcarenite with interbedded quartz sandstone.

115 feet of fine grained quartz sandstone; siltstone; thick interbeds of calcarenite, intraformational breccia and grey dolarenite.

131 feet of thick and thin bedded blue grey limestone, dolomite and oolitic limestone;

83 feet of fine grained quartz sandstone;

172 feet of grey coarse grained thick bedded dolarenite, with concealed interbeds of soft rocks;

229 feet of quartz sandstone; with thin interbeds of dolarenite, dolomite, and limestone;"

or to descriptions of sediments mapped as Ninmaroo Formation about sixty miles to the east, described by Noakes, et al. 1959, p.10), as "Sandy marl, shale, sandstone, with interbedded hard bands of limestone and dolomite",and by Condon (1958,p.10), as follows: "In the sediments of Bannockburn Hills, hard limestone is a minor constituent. Hard dolomite is more common, but dominant over both are soft bands of siltstone, fine sandstone and soft calcilutite".

Grg.11 probably penetrated the Ninmaroo Formation where either the overall proportion of non-carbonate to carbonate material is radically different from the areas referred to above, or the section represents a much expanded equivalent of only one of the thinner predominantly carbonate units in these other areas.

GRG 9 AND 9A.

Previous Work:

The results of previous work have been recorded in Öpik (1956b), Noakes, Carter and Öpik (1959), and Condon (1958 and 1961). Work on related areas, concerning the definition, and stratigraphic relationships of the formations discussed below, is recorded in Casey (1959), Casey et al.(1960),and Randal and Brown (1962a).

Geological Background:

The Urandangi 1:250,000 Sheet has been mapped on a four-mile scale by Noakes et al. who delineated two outliers of Ninmaroo Formation, some ten miles east of Urandangi township, which (Noakes et al., 1959, p.10), "...rests with a disconformity on the Camooweal Dolomite....". The Camooweal Dolomite was considered to lie (p.6), "...between the known Proterozoic and basal Middle Cambrian...", and to be "sub-Cambrian or Lower Cambrian....".

Grg.9 was spudded in the southern of these two outliers in order to recover a section of the lowermost Ninmaroo Formation and the supposedly underlying Camooweal Dolomite. When this hole had to be abandoned due to technical difficulties, Grg.9A was sited 140 feet topographically lower than Grg.9, and ten miles to the south-west, to recover a continuous stratigraphic section.

Results:

Summary of the Logs

Grg.9

4 - 270 feet :	predominantly dolomite; aphanitic - finely crystalline, light grey to white. Minor dolarenite and dololutite.
270 - 373 feet :	predominantly dololutite; light grey, with rare sandy lenses and intraformational breccia.

Grg.9A.

0 - 94 feet :	Tertiary limestone and siltstone. (equivalent to 140 - 234 feet - Grg.9)
94 - 130 feet :	predominantly dolomite; aphanitic - finely crystalline, light grey to white. Minor dolarenite and dololutite. (equivalent to 234 - 270 feet - Grg.9.)
130 - 420 feet :	predominantly dololutite; light grey, with rare sandy lenses and intraformational breccia. (equivalent to 270 feet plus - Grg.9.)

Discussion:

No evidence of the disconformity (which was mapped as being approximately fifty feet below the site of Grg.9) was found in the hole, and no clear evidence is visible from the log as to why the hill forming the outlier should show a different topographic expression to the surrounding plain, and in fact to 'typical' Camooweal Dolomite outcrop over a wide area. However, at 35 and 50 feet depths there are some silty bands, and clay in the bedding plane partings is common. It is possible that differential weathering on thin, soft interbeds has resulted in the preservation of conspicuous landforms.

The lithologies recovered in the core show little resemblance to the lithologies mapped as Ninmaroo Formation (sandy marl, shale, sandstone with limestone and dolomite) in the south-west corner of the Urandangi 1:250,000 Sheet, referred to by Noakes et al.(1959) and Condon (1958),but they do show resemblance to the descriptions of the Camooweal Dolomite by Opik (1956a), and Brown (1962).

No age connotation is suggested for this lithologic similarity. The regional dip is to the west and south-west (Condon, 1958, p.10, and 1961, p.10), and it might be supposed that the Urandangi outliers are the youngest Camooweal Dolomite sediments in this region. The relationships of these outliers to the fossiliferous Cambro-Ordovician Ninmaroo Formation to the south-west is obscured by about twenty miles of Quaternary and Tertiary cover. It is therefore not possible to postulate any finer time limits for these rocks than to say they are probably no older than Lower Cambrian and pre-Ordovician.

GRG. 3 AND 3A.

Previous Work:

The regional coverage of the geology in this region has been recorded by Smith, Vine and Milligan (1961a), and Smith and Milligan (1963a).

Geological Background:

Grg.3 was sited in an area of no outcrop near the western margin of the dolomite 'sheet' between outcrop of the fossiliferous Middle Cambrian Sandover Beds to the west and outcrop of dolomite with some sandstone and siltstone to the east, mapped by Smith, Vine and Milligan (1961a), and Smith and Milligan (1963a).

The hole was abandoned at 206 feet, due to hard drilling , without having penetrated definite Palaeozoic rocks; a second hole (3A) was drilled 200 yards west to 245 feet. This hole was also abandoned for the same reason, but 43 feet of apparently

unfossiliferous Lower Palaeozoic rock was recovered, which had lithologies similar to those in the top 300 feet of Grg.4. (The elevation of the hole was approximately 100 feet above Grg.4).

The Lower Palaeozoic sediments in Grg.3 are therefore provisionally considered to belong to the same sequence as that in top third of Grg.4.

Results:

Summary of Logs.

Grg.3

0 - 126 feet : Quaternary sand, gravel and clay.
126 - 206 feet : Tertiary limestone, sandstone and chert breccia.

Grg.3A.

0 - 125 feet : Quaternary sand, gravel and clay.
125 - 220 feet : Tertiary limestone, sandstone and chert.
220 - 243 feet : Lower Palaeozoic dolarenite and siltstone.

GRG.4

Previous Work:

The regional coverage of the geology nearby has been recorded by Smith, Vine and Milligan (1961a), and Smith and Milligan 1963a).

Geological Background:

Outcrop is limited, but Smith and Milligan (1963a, p.8) recorded "...low ridges -and - low outcrops of carbonate rocks -which - continued eastward from Annitowa Homestead onto the adjoining Sandover River Sheet" to the south-west and south-east of Grg.4. Here (1963,p.9) a section of "...red and brown friable quartz sandstone and weathered dolomite "- is overlain by- "buff and light grey, fine grained limestone, oolitic limestone and thin, soft sandstone". The regional dip was low and to the south. To the south-west of the Annitowa Homestead, dolomite was more abundant,and numerous beds of green and purple siltstone were observed. The authors commented on the lithologic similarities of these rocks to the top part of the lower Upper Cambrian Arrinthrunga Formation which crops out to the south.

Results:

Summary of the Log.

0 - 420 feet : chiefly pellet dolarenite and dololutite
420 - 590 feet : pellet calcarenite and dolarenite.
(590 feet chiefly detrital carbonates).
590 - 620 feet : chiefly aphanitic limestone.
620 - 730 feet : chiefly aphanitic dolomite.
(140 feet chiefly aphanitic carbonates).

Interval - 220 - 365 feet: ca. 50% grey, green and red siltstone.
380 - 435 feet: ca. 25% sandstone.
540 - 650 feet: ca. 50% grey, green and black siltstone.

Palaeontology:

No macrofauna was observed in the core during the course of the logging; samples have been treated and examined for conodonts, but with negative results.

Discussion:

The rocks in the top half of this hole resemble those described by Smith and Milligan (1963a) to the south-west, but differ from those to the south-east by their minor sand content, and their absence of oolitic beds. The sequence cored is probably stratigraphically below the sandstone/oolite sequence as the regional dip is south to south-east.

The top 600 feet of section penetrated in Grg.4 reveals a number of lithologic similarities to unit (2) of the Arrinthrunga Formation described by Smith, Vine and Milligan (1961b), and which was penetrated by Grg.7 and 8. These are:

(i) Considerable proportion of silt, with rich coloration in greens, blue-grey and reds.
(ii) Detrital carbonates common (in some sections).
(iii) Rapid alteration of the various lithologic types.
(iv) Numerous intraformational conglomerate/breccias.
(v) Sedimentary structures such as scour and fill, convolute bedding, current bedding and broken bedding common.

As no fossils have been found so far in the core, proof is lacking of continuity, in time as well as space, with the outcrops of the Arrinthrunga Formation, and the Grg.4 sequence must be recorded merely as a possible correlative.

A detailed petrological study on the core of Grg.4 is being currently undertaken by Dr.A.Fehr of the Institut Francais du Petroleand Dr.R.A.H. Nichols of the Bureau of Mineral Resources.

GRG.14.

Previous Work:

Grg.14 was sited within the area of the Sandover River 1:250,000 Sheet, which has not yet been mapped by the Bureau of Mineral Resources in its systematic regional mapping programme. A brief visit has been made by Condon(1961). The Avon Downs 1:250,000 Sheet, immediately to the north has been mapped by Randal and Brown (1962c), but the outcrop nearest Grg.14 is poorly exposed and imperfectly known. The Elkedra 1:250,000 Sheet immediately to the west has been mapped by Smith, Vine and Milligan (1961a), and Smith and Milligan (1963a), and some observations on the geology of the outcrops at the western margin of the Sandover River Sheet were made.

Geological Background:

A better interpretation of the log of Grg.14 will not be possible until the mapping of the Sandover 1:250,000 Sheet is completed in 1963. The stratigraphic information available is very limited. It is known that (Condon 1961 p.9) "In a large part of the area of the (Sandover River) Sheet, south of the Sandover River, dolomite crops out", and to the north on the Avon Downs 1:250,000 Sheet (Randal and Brown, 1962c, p.9) refer to "... finely crystalline, grey-white dolomite which crops out as pavements in the south-western and southern parts of the sheet area and sandstone and siltstone rubble occurs..". Smith and Milligan (1963a, p.9) recorded at the western margin of the sheet area, "... red and brown friable quartz sandstone and weathered dolomite overlain by buff and light grey, fine grained limestone, oolitic limestone and thin, soft, grey calcareous sandstone. The regional dip is to the south-east".

If the regional structure is simple, Grg. 14 should have spudded below the limestone, oolitic limestone and sandstone, as these are exposed on a topographic high more than 300 feet above Grg. 14; it would perhaps have encountered a sequence comparable in age to Grg. 4.

Results:

Summary of the Log:

0 - 118 feet	Quaternary and Tertiary sands and clay.
118 - 720 feet	Predominantly pellet dolarenite and dololutite; often silty, and in places sandy to granular. Intervals up to 30 feet of aphanitic dolomite. Siltstone beds not common, but persistant throughout.

Asphaltic material at 562 feet, and between 640 and 680 feet.

Palaeontology:

No macro-fossils were observed during the logging; treatment of samples, preparatory to examination for conodonts is under way.

Discussion:

Grg. 14 penetrated a uniform sequence of predominantly pellet dolarenites, dololutites and aphanitic to crystalline dolomite, with a scarcity of non-calcareous terriginous material. However, this terriginous material may be significant, as it shows features similar to those encountered in Grg. 4. i.e. pellet dolomites associated with siltstones, with red and green

colouration, scour and fill, cross bedding, undulate and convolute bedding, broken bedding and intraformational breccia and conglomerate.

It is not yet possible to estimate if these features can be used for correlation in this region. They are not universal; Grg. 9 and 9A lacked most of them, but they are certainly characteristic of a particular type of sedimentation; whether this type of sedimentation has been restricted to recognisable time or rock units, is as yet not known.

Parts of the Grg. 14 section are similar to rocks mapped as Camooweal Dolomite in the east and south-east of the Avon Downs 1:250,000 Sheet by Randal and Brown (1962c). These authors noted the overall similarity of these dolomites to both the ?lower Middle Cambrian Camooweal Dolomite and the Upper Cambrian to Lower Ordovician Ninmaroo Formation dolomites. It is pósssible that in this region a Lower Cambrian - Lower Ordovician succession exists that will be impossible to subdivide into rock units from surface information, and difficult even from subsurface information.

GRG. 16.

Previous Work:

Numerous geological observations have been made on this region. The pertinent references are listed in Randal and Brown (1962 a,b, and c.), and summaries of previous works, chiefly those of Dr. A.A. Öpik have been made by them. Condon (1961) recorded observations made during a brief visit to this region in 1960. Brown (1962) made a petrological study of the carbonate rocks in the north-east part of the Georgina Basin (i.e. Undilla Basin).

Geological Background:

The stratigraphy of this region has been variously interpreted. The contrasting views have been discussed by Randal and Brown (1962a, b, and c). The interpretations of the relationship of sediments near Grg. 16 are given below.

Plate 1 (after Öpik) in Randal and Brown (1962a) shows the relationship of the outcrop of the Camooweal Dolomite (age not established by fossil evidence) to the Ranken Limestone outcrop (Middle Cambrian). The pertinent portion of this map is shown in Fig. 7. The Camooweal Dolomite is described by Öpik (1957 p.12) as "... bedded dolarenite with nodules, stringers and some small lenticles of chert". Brown, (1962, p.4) from observations on thin sections, described the Camooweal Dolomite

as follows. "... the Camooweal Dolomite varies considerably from a dolomite with pellets and intraformational pebbles, to a dense fine-grained crystalline dolomite". He recorded also the presence of quartz, feldspar, and rare heavy minerals, which at times formed up to 30% of the rock".

Randal and Brown, (1962a p.8) described the Ranken Limestone as follows: "... the Ranken Limestone includes fragmented and crystalline limestone, silicified limestone, chert and some dolomite. Almost all outcrops were richly fossiliferous".

Öpik (1956 p.41) stated " ... the Ranken Limestone rests on the Camooweal Dolomite ... the limestones seem to intertongue with the Wonarah Beds". Condon, (1961, p.10) however, stated "the Ranken Limestone (Opik 1956, p.41) appears to rest on the Wonarah Beds that crop out west of Soudan and to grade up into the dolomite on the east side of the Ranken River".

Grg. 16 was spudded in alluvium believed to be covering Camooweal Dolomite, in order to establish the relationship between the unfossiliferous Camooweal Dolomite and the fossiliferous Ranken Limestone which crops out 2 miles to the southeast.

Results:

Summary of the Log:

37	- 100 feet	of chiefly dolarenite and dololutite.
100	- 200 feet	of approximately equal amounts of calcarenite, calcilutite and crystalline limestone.
200	- 303 feet	of oolitic and bioclastic limestone, (coquinite) silicified near the bottom of the hole, interbedded with calcilutite.

Discussion:

The coquinite, oolitic limestone and calcilutite encountered at 200 feet, although similar to lithological descriptions of the Ranken Limestone, are also similar to the Burton Beds described in detail in Randal and Brown (1962b, p. 18: plates 1 - 7); therefore they should not be considered as Ranken Limestone merely due to geographical proximity. They occur some 200 feet below the known outcrop of the Ranken Limestone and are certainly separated vertically by 200 feet of quite distinct rocks, but as the nearest Ranken Limestone outcrop is 2 miles to the south-east, a shallow north dip would be sufficient to cause the observed elevation difference between outcrop and the Grg. 16 occurrence.

Until detailed examination of the faunas and lithologies of the Grg. 16 coquinite - oolitic limestone section is carried

out, no correlation with outcropping fossiliferous rocks can be attempted. It should be noted that fossiliferous limestone has been found in the subsurface in Grg. 16, underlying dolomites that have been mapped as Camooweal Dolomite, without any apparent disconformity; the presence of dolomite at the surface does not therefore indicate that this is the substratum of fossiliferous Cambrian rock in this region.

GRG. 15, 15A AND 17.

Previous Work:

Very little systematic geological work had been done in this area before Randal and Nichols (1963) mapped the Alroy and Brunette Downs 1:250,000 Sheets. Outcrop is sparse throughout most of the region, and as a result the geology is still incompletely known.

Geological Background:

Surface outcrops of Lower Palaeozoic rocks in the Alroy Sheet area are mostly highly silicified, due to surface weathering effects. Fossils have been found in the central and north-eastern parts, which, together with the lithology enables them to be correlated with the Middle Cambrian Wonarah Beds to the east (Ranken 1:250,000 Sheet area). Cuttings examined from some water bores in the eastern part of the Wonarah Beds outcrop showed hard, dark grey silty limestone with numerous fossil fragments. Some 40 miles north of Grg. 17, on the Brunette Downs 1:250,000 Sheet, grey, cream and brown dolomitic limestone (sometimes micaceous and silty) and grey, tan and red-brown quartz sandstone occurs in outcrop and in water bores. (Randal and Nichols, 1963). These are the Anthony Lagoon Beds. They contain no diagnostic fossils, but are considered to be correlatives at least in part, of the Wonarah Beds.

Grg. 15 and 15A.

Results:

Grg. 15 spudded in Quaternary clay and sand; Wonarah Beds crop out 1 mile to the east. Due to the lack of core and cutting recovery between 103 and 304 feet, Grg. 15A was spudded ½ mile south in order to obtain further information on this section.

Although sample recovery from these holes was poor, sufficient material was available to determine the prevalent lithologic types.

Summary of the Logs:

Grg. 15.

0 - 50 feet	Quaternary and Tertiary.
50 - 133 feet	Chiefly shaly siltstone, with rich fauna - Xystridura, agnostids etc. (similar to Wonarah Beds); thin (less than 4") beds of calcarenite, calc. sandstone, and silicifed bioclastic limestone.
133 - 304 feet	(no cuttings, as no circulation; no core, as too soft).
304 - 310 feet	Brownish dolomite with grey fossil chert lenses.

Grg. 15A.

0 - 50 feet	Quaternary and Tertiary.
50 - 250 feet	Chiefly shaly siltstone, with rich fauna - Xystridura, as in Grg. 15. Thin (less than 4") beds of calcarenite, calc. sandstone and silicified bioclastic limestone.
250 - 270 feet	Brownish, fossiliferous, crystalline limestone with grey chert lenses.

Discussion:

The overall sequence shown by the logs is a downwards transition from Wonarah Beds into a crystalline limestone, which in turn grades into crystalline dolomite. Due to technical difficulties, the holes were abandoned before it could be determined whether there was any return to Wonarah type lithology below the dolomite.

The lithology of the rocks recovered from these holes are not like those recognised in chips from nearby water bores. The siltstone from Grg. 15 and 15A is badly weathered and it is possible that it is a highly leached calcareous siltstone which is a slightly more silty equivalent of the hard grey silty limestone from the water bores.

Grg. 17.

Grg. 17 was drilled in a region of no outcrop to determine the extent of any Lower Palaeozoic sediments which might occur to the south of known Middle Cambrian Wonarah Beds outcrop, and north of the Lower Proterozoic basement which crops out 50 miles to the south-west.

Results:

Summary of the Log:

0 - 117 feet	Quaternary and Tertiary
117 - 170 feet	Siltstone and sandstone; red, chocolate and green, highly micaceous, with rare interbeds of Limestone; dolomitic, white to light green-grey.

Discussion:

This sequence is more like the rocks of the Anthony Lagoon Beds than the Wonarah Beds; it appears that Anthony Lagoon Beds lithologies have an extension, under the Quaternary sand and the Tertiary limestone, at least 40 miles south of mapped outcrop.

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COMMONWEALTH OF AUSTRALIA.

DEPARTMENT OF NATIONAL DEVELOPMENT.

BUREAU OF MINERAL RESOURCES GEOLOGY AND GEOPHYSICS.

THE BUREAU OF MINERAL RESOURCES GEORGINA BASIN CORE DRILLING PROGRAMME

Part 2 of 3.

APPENDIX "A" LITHOLOGIC LOGS

PART 2 OF 3

CONSTITUENT PARTICLES →	Clay	Silt	Sand	Granule	Pebble	Cobble and Boulder	Calcite and/or Aragonite	Dolomite	Anhydrite or Gypsum	Chert
	<0·004mm.	0·004–0·06mm.	0·06–2·0mm.	2–4mm.	4–64mm.	>64mm.			A or ∀	

INDURATED ROCK

Shale	SHALE	Silty shale	Sandy shale	CONGLOMERATIC SHALE: Granule shale	Pebbly shale	Cobbly shale	Limy shale	Dolomitic shale	Anhydritic shale	Cherty shale
Claystone (or Clay Shale)	CLAYSTONE	Silty claystone	Sandy claystone	CONGLOMERATIC CLAYSTONE: Granule clayst.	Pebbly claystone	Cobbly claystone	Limy claystone	Dolomitic claystone	Anhydritic claystone	Cherty claystone
Siltstone (or Silty Shale)	Clayey siltstone	SILTSTONE	Sandy siltstone	CONGLOMERATIC SILTSTONE: Granule siltstone	Pebbly siltstone	Cobbly siltstone	Limy siltstone	Dolomitic siltstone	Anhydritic siltstone	Cherty siltstone
Sandstone	Clayey sandstone	Silty sandstone	SANDSTONE	CONGLOMERATIC SANDSTONE: Granule sandstone	Pebbly sandstone	Cobbly sandstone	Limy sandstone	Dolomitic sandstone	Anhydritic sandstone	Cherty sandstone
Conglomerate	Clayey conglomerate	Silty conglomerate	Sandy conglomerate	CONGLOMERATE: Granule conglom.	Pebbly conglom.	Cobbly conglom.	Limy conglomerate	Dolomitic conglomerate	Anhydritic conglomerate	Cherty conglomerate
Limestone	Clayey limestone	Silty limestone	Sandy limestone	CONGLOMERATIC LIMESTONE: Granule limest.	Pebbly limest.	Cobbly limest.	LIMESTONE	Dolomitic limestone	Anhydritic limestone	Cherty limestone
Dolomite	Clayey dolomite	Silty dolomite	Sandy dolomite	CONGLOMERATIC DOLOMITE: Granule dolom.	Pebbly dolomite	Cobbly dolomite	Limy dolomite	DOLOMITE	Anhydritic dolomite	Cherty dolomite
Anhydrite or Gypsum	Clayey anhydrite / Clayey gypsum	Silty anhydrite / Silty gypsum	Sandy anhydrite / Sandy gypsum				Limy anhydrite	Dolomitic anhydrite	ANHYDRITE / GYPSUM	
Chert	Clayey chert	Silty chert	Sandy chert	CONGLOMERATIC CHERT: Granule chert	Pebbly chert	Cobbly chert	Limy chert	Dolomitic chert		CHERT

	Salt	Chalk	Marl	Breccia	GREYWACKE: Basic	Feldspathic	Arkose	TILLITE: Silt matrix	Sand matrix	Erratics
	Coal	Gl Glauconite / Glauconitic	P P Phosphatic	Fe Fe Ferruginous	Si Si Siliceous	Py Pyrite	Oolitic	Pisolitic	Concretions	Coprolites	Carbonaceous / Torbanite

OTHER SYMBOLS

	Soil	Alluvium	Calcarenite	Dolarenite	Calcilutite	Dololutite	Tuffs		Intraformational Conglomerate	Bm Bm Basement
OIL symbols	Bit / Bitumen	Oil shale	Gas show: yellow colour	PRODUCTION ZONE Gas: yellow colour	Dead oil: D, red colour / oil stain: S	Oil show: red colour	PRODUCTION ZONE Oil: red colour	Fluorescence	blue colour: FW Fresh water 0-2,000 ppm t.d.s. / BW Brackish water 2000–10000 ppm	blue colour: SW Salt water 10000+ ppm. / H_2S Sulphurous
Fossils	Macro	Micro	Spores	Plant	Wood	Algal	Coquinite	Radiolarite		

Bedding Structure												
Very thick >100 cm. >40 in.	Thick 30–100 cm. 12–40 in.	Medium 10–30 cm. 4–12 in.	Thin 1–10 cm. 0·4–4 in.	Laminate <1 cm. <0·4 in.	Cross-bedded	Graded bedding	Scour and fill	Undulate	Convolute	Slumped	Ripple marks - Wave	Ripple marks Current	Fluting	Load cast	Flame	Trails	Burrows	Chewed up by organisms	Jointing

5 N 1962

Well: B.M.R. Org 12

Co.:

State: Northern Territory

1:250,000 Sheet: Tabermorris

LOCATION: E.: N.: Long.: 136° 59' E Lat.: 22° 33' S

ELEVATION: Gr.: 910' D/Rt: K.B.:

General Locality: Tarlton Downs

Sketch Map of Locality

Scale: 1 inch = 40 miles

WELL LOG AND HISTORY RECORD

Bureau of Mineral Resources Geology and Geophysics

Basin: Georgina	Field:		File No: 106 NT/2 1	
Tenement: Name	No	Area	Holders Name & Address	Expiry Date
	OP 63	2304 sq mi	Commonwealth Oil & Gas No Liability Limited, 168 Grenfell Street, Adelaide, S. A.	3-9-63
Well Classification: Core	Geological Objective: To determine the Geological formation relationship in the region especially in the N. Cambrian Lower Ordovician Transition beds between Arrinthrunga Formation and Antrim Plateau Volcanics Formation			
Drilling: Commenced: 0100 hrs. 23/9/62	Suspended - Resumed:	Completed: 2/11/62	Drilled by & Method: W.A. LORD & SON PTY. LTD. ROTARY TYPE - Time 12 hr. shifts	Total Depth: 755'0"

Results: Oil Indications or reports (Mr) Nil. Gravity Wt. 345-385 - Oil Tests conducted by: — Nil —

- Mineral Determined: Nora Formation
- Mineral Observed: Nora, Giles F.
- Co-ordinates: Within Tarlton Sheet.

Samples depths & depositary: Cuttings, Cores, Water, Oil / Gas

Reports Author, Nº & depositary: Geological, Geophysical, Palaeont'l, Drilling, E - Logs, Others, Final Completion

AGE	FORMATION	DEPTH & Cores 1 / 100	LITHOLOGIC LOG	CONTACTS, Palaeontol. or Mineral Zones	GEOLOGICAL DESCRIPTION	Mechanical information, Casing, Shoes, Tests, E-Log surveys. Core depths & recovery, Poro/Perm. etc.
MIDDLE ORDOVICIAN	NORA FORMATION	0 – 90			0'-10' Sand, reddish brown, poor sort, fine grained, ferruginous, Gypsum, m grained, Quartz, rock, sandy	Drilled 0'- 5'6" Core #1 5'6"- 17'10" Rec. 0'6" Core #2 14'0"- 15'6" Rec. 0'6" Core #3 18'0"- 19'6" Rec. 0'6" Drilled 19'6"- 61'9" Core #4 61'9"- 66'0" Rec. 1'3" Core #5 66'0"- 69'6" Rec. 0'8" Core #6 69'6"- 71'6" Rec. 0'8" Core #7 71'6"- 73'6" Rec. 0'8" Core #8 73'6"- 76'6" Rec. 0'8" Core #9 76'6"- 78'6" Rec. 0'8" Core #10 78'6"- 80'6" Rec. 0'8" Core #11 80'6"- 82'6" Rec. 0'8" Core #12 82'6"- 84'6" Rec. 0'8" Core #13 84'6"- 86'6" Rec. 0'8" Core #14 86'6"- 88'6" Rec. 0'8" Core #15 88'6"- 90'6" Rec. 0'8"
LOWER ORDOVICIAN	KELLY CREEK FORMATION	90 – 755'0"			10'-20' Siltstone, reddish brown to grey, micaceous, sandy, quartz, ferruginous, Gypsum, m grained, Quartz, rock, Dolomite, rock, sandy, Limestone, rock, sandy, Gypsum, m grained, Quartz, rock, ferruginous

S.N. 1962

Bureau of Mineral Resources Geology and Geophysics

File No. 1958/61

Well: B.M.R. Grg 7

Co.:

State: Northern Territory

1:250,000 Sheet: HUCK/17A

E.:

N.:

Long.: 136°07'35"

Lat.: 22° 19'40"

Gr.: 1134'

DF/RT

K.B.

General locality: 4 miles E. of Grant Creek

Sketch Map Showing Location

WELL LOG AND HISTORY RECORD

Basin: GEORGINA — Field:

Tenement: Name — Area — Holders Name & Address — Expiry Date

O.P. 41. 7211 sq. miles — Smith Australian Oil Co. Pty. Ltd. Smith Building, Bradley Street, Bowen — 28-5-63

Well Classification: Core

Geological Objective: To obtain a complete section of the lower part of the Arrithrunga Formation, in order to examine its lithology and record its content of microfossils and to provide samples for detailed study.

Drilling: Commenced 9/8/62 — Suspended - Resumed — Completed 26/9/62 — Drilling by A Method: Nic. Sutton & Son. Pty. Ltd. Rotary Type Rig Used — Total Depth 753'0"

Results: 0'-6'5" Quaternary gravel
6'5"-753'0" Arrithrunga Formation.
The drill penetrated fourteen of the recognised units in the Arrithrunga Formation, a basal dolomite unit.

Samples depths & depositary: Cuttings; Cores; Water; Oil / Gas

Reports Author, & depositary: Geological; Geophysical; Palaeont'l; Drilling; E - Logs; Others; Final or Completion

FORMATION	DEPTH in Feet	LITHOLOGIC LOG	CONTACTS, Palaeontol. or Mineral Zones	GEOLOGICAL DESCRIPTION	Mechanical information, Casing, Shows, Tests, E-Log surveys, Core depths' & recovery, Pore/Perm. etc.
Quaternary	0				Drilled 0'-6'5"
	10			0'-6'5" SAND, soft, fine red. 6'5"-10'0" SAND, coarse, angular, quartz, pebbly, red.	Core No 1 6'5" to 10'0" Rec. 8'0"
	20			10'0"-19'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 2 10'0" - 19'0" Rec. 9'0"
	30			19'0"-25'6" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 3 19'0" - 25'6" Rec. 6'3"
	40			25'6"-26'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 4 25'6" - 26'0" Rec. 4'7"
	50			26'0"-30'9" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 5 30'9" - 38'7" Rec. 7'8"
	60			38'7"-45'7" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 6 38'7" - 45'7" Rec. 7'0"
	70			45'7"-52'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 7 45'7" - 52'0" Rec. 6'3"
	80			52'0"-60'8" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 8 52'0" - 60'8" Rec. 8'8"
	90			60'8"-67'4" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 9 60'8" - 67'4" Rec. 7'3"
	100			67'4"-77'6" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 10 67'4" - 77'6" Rec. 9'8"
	110			77'6"-88'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 11 77'6" - 88'0" Rec. 10'3"
	120			88'0"-96'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 12 88'0" - 96'0" Rec. 10'0"
	130			96'0"-107'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 13 96'0" - 107'0" Rec. 9'6"
	140			107'0"-117'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 14 107'0" - 117'0" Rec. 10'6"
	150			117'0"-125'6" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 15 117'0" - 125'6" Rec. 7'8"
	160			125'6"-135'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 16 125'6" - 135'0" Rec. 9'3"
	170			135'0"-138'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 17 135'0" - 138'0" Rec. 2'8"
	180			138'0"-148'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 18 138'0" - 148'0" Rec. 10'4"
	190			148'0"-158'6" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 19 148'0" - 158'6" Rec. 10'4"
	200			158'6"-168'6" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 20 158'6" - 168'6" Rec. 9'5"
	210			168'6"-179'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 21 168'6" - 179'0" Rec. 10'1"
	220			179'0"-189'6" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 22 179'0" - 189'6" Rec. 10'3"
	230			189'6"-198'5" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 23 189'6" - 198'5" Rec. 8'6"
	240			198'5"-210'5" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 24 198'5" - 210'5" Rec. 11'4"
	250			210'5"-220'6" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 25 210'5"-220'6" Rec. 10'1"
	260			220'6"-230'9" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 26 220'6" - 230'9" Rec. 10'3"
	270			230'9"-241'6" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 27 230'9" - 241'6" Rec. 9'8"
	280			241'6"-251'3" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 28 241'6" - 251'3" Rec. 10'4"
	290			251'3"-261'6" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 29 251'3"-261'6" Rec. 10'3"
	300			261'6"-271'6" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 30 261'6" - 271'6" Rec. 9'6"
	310			271'6"-282'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 31 271'6" - 282'0" Rec. 11'1"
	320			282'0"-292'6" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 32 282'0" - 292'6" Rec. 10'8"
	330			292'6"-302'6" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 33 292'6" - 302'6" Rec. 10'0"
	340			302'6"-313'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 34 302'6" - 313'0" Rec. 10'6"
	350			313'0"-323'6" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 35 313'0" - 323'6" Rec. 10'6"
	360			323'6"-333'6" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 36 323'6" - 333'6" Rec. 10'0"
	370			333'6"-345'6" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 37 333'6" - 345'6" Rec. 10'0"
	380			345'6"-356'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 38 345'6" - 356'0" Rec. 10'4"
	390			356'0"-364'6" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 39 356'0" - 364'6" Rec. 10'6"
	400			364'6"-374'6" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 40 364'6" - 374'6" Rec. 10'0"
	410			374'6"-384'6" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 41 374'6" - 384'6" Rec. 10'0"
	420			384'6"-395'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 42 384'6" - 395'0" Rec. 10'7"
	430			395'0"-405'6" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 43 395'0" - 405'6" Rec. 9'6"
	440			405'6"-415'6" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 44 405'6" - 415'6" Rec. 10'0"
	450			415'6"-425'6" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 45 415'6" - 425'6" Rec. 10'0"
	460			425'6"-436'6" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 46 425'6" - 436'6" Rec. 9'4"
	470			436'6"-446'6" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 47 436'6" - 446'6" Rec. 9'4"
	480			446'6"-456'3" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 48 446'6" - 456'3" Rec. 9'4"
	490			456'3"-466'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 49 456'3" - 466'0" Rec. 7'5"
	500			466'0"-476'2" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 50 466'0" - 476'2" Rec. 10'5"
	510			476'2"-486'3" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 51 476'2" - 486'3" Rec. 8'2"
	520			486'3"-495'8" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 52 486'3" - 495'8" Rec. 9'6"
	530			495'8"-506'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 53 495'8" - 506'0" Rec. 9'8"
	540			506'0"-516'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 54 506'0" - 516'0" Rec. 9'8"
	550			516'0"-526'3" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 55 516'0" - 526'3" Rec. 10'0"
	560			526'3"-536'3" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 56 526'3" - 536'3" Rec. 9'4"
	570			536'3"-546'3" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 57 536'3" - 546'3" Rec. 9'8"
	580			546'3"-556'3" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 58 546'3" - 556'3" Rec. 9'8"
	590			556'3"-566'3" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 59 556'3" - 566'3" Rec. 9'8"
	600			566'3"-576'3" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 60 576'3" - 586'8" Rec. 9'8"
	610			576'3"-586'8" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 61 586'8" - 596'6" Rec. 9'8"
	620			586'8"-596'6" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 62 596'6" - 606'6" Rec. 9'8"
	630			596'6"-606'6" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 63 606'6" - 616'9" Rec. 9'8"
	640			606'6"-616'9" SAND, fine to coarse, angular, quartz, red, hard in patches.	Drilled & Cored 616'9" - 626'3" Rec. 9'4"
	650			616'9"-626'3" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 64 626'3" - 636'3" Rec. 9'8"
	660			626'3"-636'3" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 65 636'3" - 646'3" Rec. 9'8"
	670			636'3"-646'3" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 66 646'3" - 656'3" Rec. 9'8"
	680			646'3"-656'3" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 67 656'3" - 666'3" Rec. 9'8"
	690			656'3"-666'3" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 68 666'3" - 676'3" Rec. 9'8"
	700			666'3"-676'3" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 69 676'3" - 686'3" Rec. 9'8"
	710			676'3"-686'3" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 70 686'3" - 696'3" Rec. 9'8"
	720			686'3"-696'3" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 71 696'3" - 706'3" Rec. 9'8"
	730			696'3"-706'3" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 72 706'3" - 716'3" Rec. 9'8"
	740			706'3"-716'3" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 73 716'3" - 726'3" Rec. 9'8"
	750			716'3"-726'3" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 74 726'3" - 736'3" Rec. 9'8"
	760			726'3"-736'3" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 75 736'3" - 746'3" Rec. 9'8"
	770			736'3"-746'3" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 76 746'3" - 756'3" Rec. 9'8"
	780			746'3"-756'3" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 77 756'3" - 766'3" Rec. 9'8"
	790			756'3"-766'3" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 78 766'3" - 776'0" Rec. 9'5"
	800			766'3"-776'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	Core No 79 776'0" - 786'0" Rec. 9'8"
	810			776'0"-786'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	820			786'0"-796'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	830			796'0"-806'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	840			806'0"-816'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	850			816'0"-826'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	860			826'0"-836'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	870			836'0"-846'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	880			846'0"-856'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	890			856'0"-866'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	900			866'0"-876'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	910			876'0"-886'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	920			886'0"-896'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	930			896'0"-906'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	940			906'0"-916'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	950			916'0"-926'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	960			926'0"-936'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	970			936'0"-946'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	980			946'0"-956'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	990			956'0"-966'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1000			966'0"-976'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1010			976'0"-986'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1020			986'0"-996'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1030			996'0"-1006'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1040			1006'0"-1016'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1050			1016'0"-1026'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1060			1026'0"-1036'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1070			1036'0"-1046'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1080			1046'0"-1056'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1090			1056'0"-1066'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1100			1066'0"-1076'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1110			1076'0"-1086'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1120			1086'0"-1096'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1130			1096'0"-1106'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1140			1106'0"-1116'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1150			1116'0"-1126'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1160			1126'0"-1136'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1170			1136'0"-1146'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1180			1146'0"-1156'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1190			1156'0"-1166'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1200			1166'0"-1176'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1210			1176'0"-1186'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1220			1186'0"-1196'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1230			1196'0"-1206'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1240			1206'0"-1216'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1250			1216'0"-1226'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1260			1226'0"-1236'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1270			1236'0"-1246'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1280			1246'0"-1256'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1290			1256'0"-1266'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	
	1300			1266'0"-1276'0" SAND, fine to coarse, angular, quartz, red, hard in patches.	

T.D. 753'0"

Core Recovery

Interval	Drilled	Cored	Recovered	% Recovery of Cored
0-25'	10'3"	10'3"	9'8"	94·6
25'-125'	0'	100'	99'0"	99·0
125'-225'	0'	100'	98'8"	98·7
225'-325'	0'	100'	98'7"	98·7
325'-425'	0'	100'	97'5"	97·25
425'-525'	0'	100'	97'8"	97·25
525'-625'	2'8"	97'4"	89'1"	91·0
625'-725'	0'	100'	99'0"	99·0
725'-753'	0	30'	17'0"	53·0

Core Diameter

6'2" - 674'6" 2⅞"
674'6" - 1065'0" 2"
1065'0" - 1488'0" 1⅞"
1582'6" - 1755'0" 1"

Casing
0'-10' Loosely pushed
Rotary 6 ¼"

Cement
Covered by E-Log through
Natural cement with shoes 130'-170' in completion

Drilling Progress Curve

Depth in Feet
Elevation in Feet
Penetration Rate in Minutes per Foot
Days (calendar)

Logged by Ed Hodgson
A.K. Lloyd

Electrical Log 70'-991'
Sonic Log 0'-991'
Others: Nil
Mud Logs (not now available): Nil

0'-62' Rock bit 7⅞"
62'-152' Diamond bit 7⅞" Special
152'-197' Rock bit 7⅞"
197'-674' Diamond bit 7⅞" Special
674'-1065' Diamond bit 3⅝"
1065'-1582' Diamond bit 3⅜" Special
1582'-1755' Rock bit 3⅜"
1755'-1988' Diamond bit 3⅜" Special
1988'-2301' Rock bit 3⅜"
2301'-2351' Diamond bit 3⅜"
2351'-2361' Rock bit 3⅜"
2361'-2600' Diamond 3⅜"

GD55

N.1962

Well: BMR GRG 9.
Co.:
State: QUEENSLAND.

LOCATION
1:250,000 Sheet: URANDANGI
E.
N.
Long. 138° 15' 25" (96' / 55")
Lat. 21° 33' 17"

ELEVATION
Gr. 570'
DF/RT
K.B.

General Locality: URANDANGI.

Sketch Map of locality No 2
Scale: 1:253,440

WELL LOG AND HISTORY RECORD

Bureau of Mineral Resources Geology and Geophysics

Basin	GEORGINA	Field		File No	106 NT/9/1.
Tenement	Name	No	Area	Holders Name & Address	Expiry Date
		54 P	49,100 sq mi	PAPUAN APINAIPI PETROLEUM CO LTD 33 Martin Place, Sydney, N.S.W.	30-9-63.
Well Classification	CORE-HOLE.	Geological Objective	To obtain a section from the lowermost Ninmaroo Formation (U.Cambrian - Lower Ordovician) and the Camoweal Dolomite lying disconformably below.		

Drilling	Commenced	Suspended – Resumed	Completed	Drilled by & Method	Total Depth
	2/10/1962		12/10/1962	W.L. SIDES & SON PTY. LTD. FAILING 750 (2 12hr. shifts).	372' 11"

Results
8 – 270' Predominantly L grey to white aphanitic-finely crystalline dolomite, minor dolarenite-rudaloutite
270 – 372' Predominantly L grey dolomite rare sandy lenses + intraformational breccia.
No diagnostically recognised, presently all Camoweal Dolomite

Samples depths & depositary	
Cuttings	
Cores	
Water	
Oil / Gas	

Reports Author, No & depositary	
Geological	
Geophysical	
Palaeont'l	
Drilling	
E – Logs	
Others	
Final Completion	

AGE	FORMATION	DEPTH & Cores 1:200	LITHOLOGIC LOG	CONTACTS, Palaeontol. or Mineral Zones	GEOLOGICAL DESCRIPTION	Mechanical information, Casing, Shows, Tests, E-Log surveys, Core depths & recovery, Poro/Perm. etc.
Quaternary	Nil	0			Red clay(soil)	
					4'0" Dolomite	
					3'0" Dolomite: buff, aphanitic, rare stylolites & fm. sone vughs	
					2'0" Chert: nodular in dolomite grading to massive chert.	
		10	chert.			Core 1 6'-8', Rec. 9"
						Core 2 8'0"-10'6", Rec. 1'4"
					10'6" Dolomite: white-buff, L blue-grey pts throughout, silicified dolomite near top, minor chert & stylolites. Clayey throughout & vfgrnd banding.	Core 3 10'6"-15'0", Rec. 6'6"
		20				Core 4 15'0"-16'8", Rec. 1'8"
						Core 5 16'8"-16'8", Rec. 3"
					6'4" Dolomite & minor chert: buff, f. crystalline & sugary texture, minor vughs & stylolites, minor nodular chert.	Core 6 16'8"-19'6", Rec. 5'0"
		30				Core 7 19'6"-21'0", Rec. 1'6"
			vughs.			Core 8 21'0"-23'8", Rec. 1'6"
					10'4" Dolomite: buff & grey-buff, clayey, aphanitic, numerous vughs, rare pts. Purplish clay bands & parting filling near top, also worm burrows.	Core 9 23'8"-26'10", Rec. 4'3"
		40				Core 10 26'8"-31'7", Rec. 4'8"
			vughs. stylolites.			Core 11 31'7"-36'8", Rec. 4'11"
					12'11" Dolomite: buff, f-m. crystalline & sugary texture, vuggy throughout, numerous stylolites & partings filled L clay which becomes glauconitic basewards.	Core 12 36'8"-42'0", Rec. 5'5"
		50				Core 13 42'0"-50'5", Rec. 8'3"
			pellets. stylolites mica.			Core 14 50'3"-57'10", Rec. 7'7"
		60			7'3" Dolomite: grey to buff to blue-grey, f. crystalline, pellety in pts, numerous stylolites & partings filled L micaceous clay.	
					6'6" Dolomite: grey to brown-grey, aphanitic in pt. crystalline, some pellets, small vughs & low dmpl. stylolites.	Core 15 57'10"-65'11", Rec. 8'1"
		70			5'1" Dolarenite & dolalutite: grey, interlaminated & lenses of max 5" bands, L clay & silt sized grains. Vughs & convolute bedding in last 3".	Core Nº 16 65'11"-69'3", Rec. 3'4"
			pellets.		4'0" Dolomite: aphanitic, grey, pts abundant, 2" med. crystal. grey-grey dolomite.	Core Nº 17 69'3"-73'11", Rec. 5'8"
		80				
					18'6" Dolalutite: L-med. grey, banding up to ¾" often obscured by recrystallisation, some dolarenite bands, +30% sand content, in small 2".	Core Nº 18 73'11"-87'2", Rec. 4'6"
		90	vughs. stylolites.			Core Nº 19 87'8"-91'6", Rec. 4'4"
					2'0" Dolomite: grey to grey-brown, vfcrystalline, vuggy texture.	
					2'0" Dolalutite: numerous pts + grey vuggy at top, some low dmpl. stylolites.	Core Nº 20 91'6"-93'10", Rec. 6'11"
		100			6'6" Dolalutite: banded grey-L grey, some silt-sized bands becoming dolarenite, rare pts, sand grs, some vughs, stylolites & clay lined partings.	
						Core Nº 21 93'10"-100'4", Rec. 10'6"
		110	stylolites vughs.		17'5" Dolomite: L-med. grey some mottling, aphanitic, numerous stylolites & partings & clay lining, becoming vuggy towards base some sugary. 6" Inter-bedded dolalutite & dolarenite bands up sone.	Core Nº 22 100'4"-118'4", Rec. 18'0"
		120				
					2'6" Dolomite: L-med grey, aphanitic becoming f-c. crystalline, rare stylolites, vuggy at base.	
			pellets.		8" Conglomeratoid breccia: pellets of aphanitic dolomite & dolalutite set in crystalline matrix.	Core Nº 23 118'4"-128'10", Rec. 9'8"
		130	stylolites. vughs		4'4" Dolomite: v-m. crystalline, L-med grey, L numerous dk grey clay bands, vuggy, some stylolites & sugary partings.	Core Nº 24 128'10"-138'6", Rec. 7"
					2'8" Siltstone: Mod grey to brown-grey, aphanitic, L clayey dolomite lenses.	
					2'7" Dolomite: M-med grey, f-m. crystal., L clay partings. Top 6" intraformational breccia	Core Nº 25 138'6"-152'6", Rec. 9'6"
		140			6'2" Dk grey clay & red grey dolomite: v.f. laminated, small lenses pinkish dolomite, rare vughs, some stylolites. Numerous clay partings & dk. grey clay bands.	
					4'1" Dolomite: m-grey-dk brownish grey, aphanitic, some clay partings slightly brecciated in pts.	
		150	oolites.		2'1" Dolarenite & silt: dk grey-brown, v.f.gr., oolitic, siliceous, glauconitic, calcareous cement.	Core Nº 26 138'6"-152'6", Rec. 9'6"
					3'10" Intraclasts: M. grey & buff, p.c.c. chalcedonic, L dk grey clay partings, rare stylolites, some vughs.	Core Nº 27 152'6"-160'2", Rec. 10'6"
		160	vuggy stylolites.		20'3" Dolomite: L grey to blue-grey also buff-grey, aphanitic-f. crystalline, vuggy in pts, numerous low dmpl. stylolites at top rare at base, some dk. grey clayshale bands & partings, banding up sone in pts.	Core Nº 28 160'2"-170'2", Rec. 10'0"
		170				Core Nº 29 170'2"-170'4", Rec. 1"
			stylolites. Pyrite.		10'4" Dolomite: L-m. grey to buff grey, aphanitic, numerous fine stylolites at top more at bottom, numerous irregular sone covers partings. Finely disseminated pyrite in top 9½".	Core Nº 30 170'2"-180'6", Rec. 10'3"
		180				
			vugs. stylolites. pellets.		2'11" Dolalutite: v.f.gr. slaty-sized particles, L grey, faintly banded, silty partings.	
					2'11" Dolomite: L-grey, vfcrystal., vughs, stylolites.	
					5'11" Dolarenite: v fgr. clay-sized particles, L grey, rare stylolites, silty partings.	Core Nº 31 180'6"-190'5", Rec. 9'11"
		190			3'8" Dolarenite: white, v.f.gr., dolalutite matrix 2-30% clay & small 2mm. pellets.	
					6'0" Dolomitic calcilutite: v.f.gr., white. 2" knotted silty. green grey. Abbundant pyrite.	Core Nº 32 190'5"-197'6", Rec. 6'11"
		200			2'0" Dolomite: grey, vfcrystal, vuggy, porous.	
					4'10" Dolarenite & calcilutite: white & L grey to blue-grey, softer bands,	Core Nº 33 197'5"-206'9", Rec. 7'6"
		210			1'10" Dolomite: grey to green-grey, vfcrystal.	Core Nº 34 206'9"-211'0", Rec. 6'3"
			pyrite.		6'0" Dolomite: white-L-grey, aphanitic grading to silty calcareous & increasing grey sized bands, some pyrite.	Core Nº 35 211'0"-215'4", Rec. 4'4"
		220			2'0" Dolomite grey, m.crystalline, porous. last 2" dolarenitic, white irregular pellets.	Core Nº 36 215'4"-221'10", Rec. 2'6"
			vughs.		12'11" Dolomite white to grey to buff, aphanitic, partly mottled. L vuggy decreasing basewards, rare stylolites & partings.	Core Nº 37 221'10"-231'2", Rec. 5'6"
		230	vughs.			Core Nº 38 231'2"-236'5", Rec. 8'3"
					1'2" Dolomite: buff, f-m. crystal, v. vuggy & sugary texture, some fractures.	
					6'10" Dolomite white grey, blue-grey & buff, aphanitic-f. crystalline, rare pyrite, vuggy throughout, rare stylolites.	Core Nº 39 236'5"-246'5", Rec. 9'10"
		240				
					11'3" Dolomite: L grey-buff grey, aphanitic, minor vughs, rare stylolites & clay lining, rare dk. grey clayshale beds. 2" Intraformational breccia +3 ark. grey, clayey pellets set in a fn. grey dolomitic matrix.	Core Nº 40 246'5"-246'6", Rec. 10'5"
		250	vughs.		7'10" Dolomite: L grey to buff-grey, aphanitic-f. crystalline, vuggy & sugar. sugary texture.	Core Nº 41 256'6"-266'2", Rec. 10'8"
					12'6" Dolomite: L grey, blue-grey & buff grey, aphanitic, some silt at bottom, rare stylolites & partings, vuggy in pts. Several clayshale bands.	Core Nº 42 260'2"-266'3", Rec. 6'1"
		260				
			pyrite. pellets.		2'1" Intraformational breccia: white clasts, irregular carbonate shape. pyrite.	
					2'2" Dolomite: L grey, aphanitic with laminations of L grey mudstone silt. c. w. thin laminae.	
					5'10" Dolomite: L grey, to dolarenite & pellets & thin laminae.	Core Nº 43 266'3"-275'11", Rec. 10'8"
		270			5'0" Dolomite: grey, aphanitic with partings.	
					1'9" Dolarenite: L grey, rounded pellets up to ¼" white.	
					1'9" Dolomite: L grey, vfcrystal, calcite in small veins.	
		280			9'3" Dolarenite: L-grey & white rounded pellets, some stylitic dolomite bands. Core breaches bands, grey-brown partings & rare stylolites over last 6".	Core Nº 44 275'11"-286'6", Rec. 10'8"
					5'11" Dolomite: f. crystalline & L-vughs grading into crystalline dolomite. 2 ¼" bands of white dolarenite.	Core Nº 45 286'6"-300'4", Rec. 10'9"
		290			9'0" Dolalutite: grey to grey-brown, banded & grained leading & micro-conglom. at base of beds. Conglom & dolalutite bands, in matrix. Bands of dolarenite grading into micro breccia at base.	
					2'4" Dolomite: brown-grey, recrystallised, porous, shows remnants of pellets & f-grained bands.	Core Nº 46 300'4"-311'5", Rec. 10'1"
		300			1'6" Dolarenite: grey-brown, as above.	
			pellets.		2'0" Dolomite: grey, recrystallised, porous.	
					1'10" Dolalutite: L grey & ½" bands micro conglom. pellets, vughs as bands.	
		310				
			stylolites.		23'6" Dolalutite: L grey - white, some black-grey streaks, low dmpl. stylolites 2° apart seldom & silt/pting. Some recrystallisation in irregular white lenses. 1"-2" bands dolomite, greenish white, crystalline very base.	Core Nº 47 311'5"-331'2", Rec. 9'7"
		320				Core Nº 48 331'5"-335'2", Rec. 6'10"
			vughs pyrite		4'6" Dolomite: Mottled white & black streaks, stylitic to aphanitic grading to dolalutite at bases, numerous small vughs, fine pyrite, often pellets near top.	Core Nº 49 335'3"-342'6", Rec. 9'1"
		330	pyrite		6'7" Dolalutite: white-L grey & blue streaks & fine pyrite, some thin grey silty/f. partings.	
					4'8" Dolomite: L-grey, stylitic, vughs first 6", some stylolites, blue streaks mottling in lower parts.	Core Nº 50 342'6"-348'1", Rec. 4'8"
		340			2'7" Dolalutite: L-grey, pyritic less apart from some faint laminae.	
					3'6" Dolalutite/dolarenite: L grey & brown grey, dolomite grains/grs, & 30% sand grs.	Core Nº 51 348'1"-355'2", Rec. 5'9"
		350			1'0" Dolomite: grey, f.-m. stylitic.	
					1'0" Dolomite: grey & buff & glauconitic.	
			vughs.		1'0" Dolomite: grey, stylitic, vughs.	Core Nº 52 352'2"-362'2", Rec. 9'10"
		360				
			pellets. pyrite		14'1" Dolalutite: sandy lenses & inclus 2" domals dolarenite and sandy dolomite throughout. White rounded pellets & micro breccia (some low pellets). Pellets silt/sand, often fragments, pyrite.	Core Nº 53 362'2"-372'11", Rec. 10'1"
		370			2'2" Dolomite: white, m. stylitic, porous due to many fine vughs.	
		380				
		390				
		400				
		410				
		420				
		430				
		440				
		450				
		460				
		470				
		480				
		490				
		500				
		510				
		520				
		530				
		540				
		550				

? LOWER – MIDDLE CAMBRIAN

CAMOWEAL DOLOMITE

Geology by: E.N. Milligan
A.R. Lloyd.

0 – 6'0" Drilled (T-C) 3½"
6'0" – 69'3" Cored (G.C.) 3⅞" (SECOND)
69'3" – 372'11" Cored (G.C.) 3⅞"

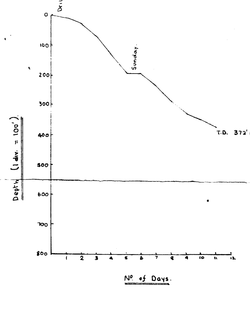
Core recovery:

Interval	Drilled	Cored	Recovered	% Recovery of Cored Interval
6'-25'	6'0"	19'0"	13'0"	68.4%
25'-125'	—	100'0"	99'5"	99.25%
125'-225'	—	100'0"	98'7"	98.167%
225'-325'	—	100'0"	98'0"	98.0 %
325'-373'11"	—	47'11"	44'0"	91.5 %

Tregar: at 346'; 3° @ 315°

Standing water level 148'

Drilling progress chart:



Well: B.M.R. Grg 6.

WELL LOG AND HISTORY RECORD

Bureau of Mineral Resources Geology and Geophysics

Co.

State: Northern Territory

Basin: GEORGINA — Field: — File No: 106/NT/21

Tenement: Name: OP41 — No: 7211 sq mls — Area: — Holders Name & Address: SOUTH AUSTRALIAN OIL & GAS PTY Cons Building Mourray St Darwin N.T. — Expiry Date: 23.5.63

LOCATION
1 - 250,000 Sheet: HUCKITTA
E.
N.
Long.: 136° 12' 30"
Lat.: 22° 30'
Gr.: 1030'
DF/RT
K.B.
General Locality: LUCY CREEK
Sketch Map of locality

Well Classification: Co - 3016 — Geological Objective: To advance to the Hot Springs Anticline and determine the stratigraphy of the north eastern part of the Basin for the purpose of hydrocarbon exploration

Drilling: Commenced: 4/3/62 — Suspended - Resumed: — Completed: 18/3/62 — Drilled by & Method: WL SIMCO 2500 RTY LTD Rotary 750 (Cmd 12 Nov AA 1/2) — Total Depth: 0 82'6

Results: 0 - 25 Quaternary; 25 - 4282 Pzn calcareous, calcilutite, Cgl + silt stones sandstones, cherts, pebbles intercalcareous layers often present; (Middle Cambrian Arthur Creek Beds)

Samples depths & depositary: Cuttings; Cores; Water; Oil / Gas

Reports Author, No & depositary: Geological; Geophysical; Palaeont'l; Drilling; E - Logs; Others; Final Completion

AGE	FORMATION	DEPTH & Cores 1:250	LITHOLOGIC LOG	CONTACTS, Palaeontol. or Mineral Zones	GEOLOGICAL DESCRIPTION	Mechanical information: Casing, Shows, Tests, E-Log Surveys, Core depths & recovery, Paro/Perm. etc.
QUATERNARY	Undifferentiated	0			0-25' Sand, red	Drilled 0' - 25'
CAMBRIAN	MIDDLE CREEK BEDS ARTHUR	10			1.5' Calcilutite, fine to yellow as weathered, chalk fissile 10' Gyp, silt, clay, as stained red brown, hard to soft, irregular, chalky, calcareous, fissile, fine sandy, trace quartz and mica vein	Core #1 13'0" - 15'5" Rec. 9'5"
		20			4.5' Calcilutite, as above, grading into calcareous, sandy, siltstone, trace of fossil, Gyp + Anhydrite	Core #2 33'6" - 49'6" Rec. 15'0"
		30			11' Calcilutite, med grey, med hard, firm, micaceous, quartzose in part, minor trace dolomite grey	Core #3 46'6" - 53'6" Rec. 10'0"
		40				Core #4 53'6" - 63'0" Rec. 8'6"
		50				Core #5 63'0" - 67'3" Rec. 6'0"
		60				Core #6 67'3" - 75'0" Rec. 8'0"
		70			12'6 Calcilutite/dolomite as previous, finely laminated, 1/2" dol. seam grey at base.	Core #7 75'0" - 86'1" Rec. 10'6"
		80			2.5' Calcilutite dolomite with micaceous plastic, bituminous 1.5' dol. med grey, laminated, dol. seams trace, slowly laminated.	Core #8 86'1" - 95'8" Rec. 9'6"
		90				Core #9 95'8" - 105'8" Rec. 10'0"
		100				Core #10 105'8" - 114'7" Rec. 8'8"
		110			65' Calcilutite/dolomite as previous, grading into Siltstone, pink, calcareous, bituminous, trace fossil, shows, micaceous, in top 10' dolomite as above as minor interbeds	Core #11 114'7" - 124'8" Rec. 10'6"
		120				Core #12 124'8" - 134'2" Rec. 9'6"
		130			27' Lst, dark grey, speckled, 1/2" bands interbedding with Siltstone, black, calcareous	Core #13 134'2" - 142'5" Rec. 8'2"
		140				Core #14 142'5" - 153'5" Rec. 10'10"
		150			36'0" Calcilutite / dolomite as previous, with rare Lst bands, bituminous, shows	Core #15 153'5" - 165'3" Rec. 10'8"
		160				Core #16 165'3" - 174'9" Rec. 10'7"
		170				Core #17 174'9" - 184'8" Rec. 9'8"
		180			27'0" Calcilutite, med grey, hard, laminated, with rare thin Siltstone bands, black, trace fossil, calcareous, bituminous shows, grey dolomicrite inserts	Core #18 184'8" - 197'5" Rec. 11'9"
		190				Core #19 197'2" - 207'10" Rec. 10'5"
		200				Core #20 207'0" - 216'6" Rec. 10'3"
		210			36'6" Lst, med to dk grey, speckled, massive in part, with thin Siltstone bands, black, trace fossil, calcareous, bituminous, grading into Calcilutite	Core #21 216'6" - 228'6" Rec. 8'10"
		220				Core #22 228'6" - 237'0" Rec. 10'10"
		230			12.5' Calcilutite with thin black Siltstone bands as above, bituminous, calcareous	Core #23 237'0" - 247'8" Rec. 10'10"
		240			2.5' Siltstone, dark to black, Calcilutite as above	Core #24 247'8" - 258'6" Rec. 10'10"
		250			13.5' Calcilutite, med grey, hard, partly massive, trace of fossil, as to 2.5' bands, black, Siltstone, calcareous, bituminous	
		260			17.5' Lst, dark, speckled, hard, with 1" Siltstone, black, bands Calcilutite, as above, with rare Siltstone bands, black, calcareous, bituminous, trace, med grey, as above	Core #25 258'6" - 268'8" Rec. 10'8"
		270			11.5' Calcilutite & Siltstone as previous, grading into Calcarenite, sandy, argill. to sandy	Core #26 268'6" - 278'6" Rec. 10'0"
		280			6.5' Lst, black, siltstone, hard, with rare Siltstone, thin bands as	Core #27 278'6" - 288'5" Rec. 10'10"
		290			11.5' Calcilutite/dolomite, as previous, grading into Calcarenite, sandy, argill. to sandy	Core #28 288'5" - 298'6" Rec. 10'10"
		300			20' Calcarenite, med grey, v.fg., sandy, massive with rare thin Siltstone, black, grey, as	Core #29 298'6" - 308'6" Rec. 9'10"
		310			17' Calcilutite/dolomite, as previous, with rare thin Siltstone, black, grey, as above, trace, med grey,	Core #30 308'6" - 318'5" Rec. 9'6"
		320			13.5' Lst, med grey, massive, hard, massive, Siltstone, black, calc. Calcilutite, med grey, sandy, as above, med grey, hard, speckled, rare fossil	Core #31 318'5" - 328'7" Rec. 10'1"
		330				Core #32 328'7" - 338'7" Rec. 8'4"
		340			12.5' Siltstone, med hard, grey, sandy, micaceous, trace, grading into Lst, med grey, sandy, as above, trace fossil, calcareous	Core #33 338'7" - 348'7" Rec. 9'6"
		350			7.5' Lst, med grey, fg, sandy, calcareous, grades to Siltstone,	Core #34 348'7" - 358'7" Rec. 10'6"
		360				Core #35 358'7" - 368'7" Rec. 10'10"
		370			24'0" Lst, med to dk dark grey, sandy & Siltstone, med grey, sandy, micaceous, trace, fossil, as above,	Core #36 368'7" - 378'7" Rec. 10'8"
		380				Core #37 378'7" - 388'8" Rec. 10'8"
		390			7.5' Lst, med grey, fg, sandy, med hard, with rare Siltstone, light grey, sandy, laminated	Core #38 388'8" - 398'8" Rec. 10'8"
		400				Core #39 398'8" - 408'8" Rec. 10'0"
		410				Core #40 408'8" - 418'8" Rec. 10'0"
		420			27.5' Siltstone, med grey, sandy, grey to dk grey, micaceous, trace fossil, grading into Lst, med grey, sandy, as above, trace fossil, calcareous	Core #41 418'8" - 428'8" Rec. 10'0"
		430				Core #42 428'8" - 438'8" Rec. 9'6"
		440				Core #43 438'2" - 448'2" Rec. 10'0"
		450				Core #44 448'2" - 458'2" Rec. 10'0"
		460			22.5' Lst, med grey, sandy, grading to Calcarenite, grey, fg, sandy, silty, as as above, trace fossil, calcareous, bituminous shows	Core #45 458'2" - 468'2" Rec. 10'0"
		470				Core #46 468'2" - 478'2" Rec. 10'0"
		480			2.5' Siltstone, med grey, sandy, micaceous, trace, grades to Lst, med grey, sandy, as above, trace fossil, calcareous 2.5' Lst, med grey, sandy, as above, trace fossil, calcareous	Core #47 478'2" - 488'2" Rec. 10'0"
		490			5.0' Siltstone, med grey, sandy, micaceous, trace, grades to Lst, med grey, sandy, as above, trace fossil, calcareous	Core #48 488'2" - 498'2" Rec. 10'0"
		500			22.5' Lst, med grey, sandy, grading to Calcarenite, grey, fg, sandy, silty, as as above, trace fossil, calcareous, bituminous shows	Core #49 498'2" - 508'2" Rec. 10'0"
		510				Core #50 508'2" - 518'2" Rec. 10'0"
		520			2.5' Siltstone, med grey, sandy, micaceous, trace, grades to Lst, med grey, sandy, as above, trace fossil, calcareous 2.5' Lst, med grey, sandy, as above, trace fossil, calcareous	Core #51 518'2" - 528'2" Rec. 10'0"
		530			5.0' Siltstone, med grey, sandy, micaceous, trace, grades to Lst, med grey, sandy, as above, trace fossil, calcareous	Core #52 528'2" - 538'2" Rec. 10'0"
		540			22.5' Lst, med grey, sandy, grading to Calcarenite, grey, fg, sandy, silty, as as above, trace fossil, calcareous, bituminous shows	Core #53 538'2" - 548'2" Rec. 10'0"
		550				Core #54 548'2" - 558'2" Rec. 10'0"
		560				Core #55 558'2" - 568'2" Rec. 10'0"
		570			2.5' Siltstone, med grey, sandy, micaceous, trace, grades to Lst, med grey, sandy, as above, trace fossil, calcareous 2.5' Lst, med grey, sandy, as above, trace fossil, calcareous	Core #56 568'2" - 578'2" Rec. 10'0"
		580			5.0' Siltstone, med grey, sandy, micaceous, trace, grades to Lst, med grey, sandy, as above, trace fossil, calcareous	Core #57 578'2" - 588'2" Rec. 10'0"
		590			22.5' Lst, med grey, sandy, grading to Calcarenite, grey, fg, sandy, silty, as as above, trace fossil, calcareous, bituminous shows	Core #58 588'2" - 598'2" Rec. 9'9"
		600				Core #59 598'2" - 608'2" Rec. 10'6"
		610				Core #60 608'2" - 618'2" Rec. 9'10"
		620				Core #61 618'2" - 628'2" Rec. 10'9"
		630			15.5' Siltstone, as above, grading to Lst, med grey, sandy, micaceous, trace fossil, calcareous, bituminous shows, oil stain	Core #62 628'2" - 638'2" Rec. 10'0"
		640				Core #63 638'2" - 648'2" Rec. 10'0"
		650			12.5' Siltstone, as above & Lst, as as above, trace fossil, calcareous, bituminous shows, oil stain	Core #64 648'2" - 658'2" Rec. 10'0"
		660				Core #65 658'2" - 668'2" Rec. 10'0"
		670			2.5' Siltstone, med grey to black, soft, friable, flaky, trace fossil & fairly med grey, hard, siliceous, calcareous, as above, trace fossil, calcareous	Core #66 668'2" - 678'2" Rec. 8'6"
		680				Core #67 678'2" - 682'6" Rec. 4'5"
		690				
		700				
		710				
		720				
		730				
		740				
		750				
		760				
		770				
		780				
		790				
		800				
		810				
		820				
		830				
		840				

T.D. 682'6

Geology by: F.N. Milligan, A.R. Lloyd

Core Recovery:

Interval	Drilled	Cored	Recovered	% Recovery of Cored Interval
0 - 25	25	0		100
25 - 125	0	100	100	100
125 - 225	0	100	99.8	100
225 - 325	0	100	100	100
325 - 425	0	100	100	100
425 - 525	0	100	100	100
525 - 625	0	100	99.5	99.7
625 - 682.6	0	57.6	55.10	94.9

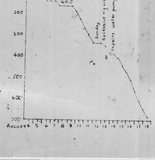
0°-23' Dr Dev. 3/4° max. at 23'-165' Cored. 3/4° to 1° Gyro Surveyed
165'-165' Cored. 3/4° max. at 165'-682' Cored. 3/4° to 1° Gyro Surveyed

Deviation: 1° at 525'
4° at 624'
4° at 645'
6° at 661'
6° at 682'

Casing: 8" Tubulars applied 23'6"
6" landed at 61'
No bit picked

Traverse: Dev. 0° to 0°58' to 0°15'

Drilling Progress Chart



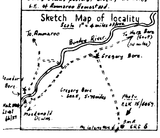
Well: BMR. 6866.
Co.:
State: Northern Territory

LOCATION
1:250,000 Sheet: Elkedra, (E4/7)
E. 135° 16'
N.
Long. 135° 16' E
Lat. 21° 42' 55" S

ELEVATION
Gr. 1240 feet
DF/RT
K.B.

General locality: Derry Downs pastoral lease, 30 miles S.E. of Rumarama Homestead.

Sketch Map of locality



WELL LOG AND HISTORY RECORD

Bureau of Mineral Resources Geology and Geophysics

File No: 106 NT/0/1

Basin	GEORGINA	Field			
Tenement	Name	No	Area	Holders Name & Address	Expiry Date
		O.P. 41	22°30'-22°45'S. 137°30'-138°E.	Smith Bros. Pty Ltd & Ltd	
Well Classification	Core-hole.	Geological Objective	To determine formation(s) beneath sand plain which extends from Mt. Isa East Area, Landsborough Creek Basin, to foothills of Dulcie Range, 4 miles E. of Mt. Isa. Results to be correlated with Lake Nash-Mudbrook Bore; in north, final correlation to Control Bore in Rumarama Basin.		
Drilling	Commenced	Suspended - Resumed	Completed	Drilled by & Method	Total Depth
	7 Sept 1962.	11 Sept 1962. 4:00 a.m. Rod hook stuck, 243/63 removed 4:00 p.m. 24/9/62.	8 Oct, 1962.	W.L. SIDES & SON, PTY LTD FAIRLINE 750, shouted by fan auto assy.	450 feet.
Results	(a) Rock section at Rumarama bore: 0-12'. (b) 12'-450'. Limestone, pebble limestone, siltstone & sandstone. Structure of drillsite fragments indicate Upper Cambrian age for at least top part of core. No diagnostic fossils recognised. Lithologically similar to Grg 3 and 4 of the Hermannsburg Formation rocks.				
Samples depths & depositary	Cuttings				
	Cores				
	Water				
	Oil / Gas				
Reports Author, No & depositary	Geological				
	Geophysical				
	Palaeont'l				
	Drilling				
	E - Logs				
	Others				
	Final Completion				

AGE	FORMATION	DEPTH & Cores 1:200	LITHOLOGIC LOG	CONTACTS, Palaeontol. or Mineral Zones	GEOLOGICAL DESCRIPTION	Mechanical information, Casing, Shows, Tests, E-Log sources. Core depths & recovery. Poro/Perm. etc.
Quaternary		0			Aeolian sand, red, arkosic	0-30' 9⅞" dia. roller bit. 30-173 8" " " (casing heads). 173-460, 5⅞" " Diamond bit (calyfields). Reamed: 173'-186', and 186'-200', with 6" dia. roller bit. CASING: 0-66' 8" casing 30-173 5" " landed in sand and sidewall at 173-186 5" " " plunger now driven in. 200-460', uncased 4" hole. Base of 8" casing at 200'. Bentonite: 9 bags used 0-25', because bore water reacted chemically and thinned the bentonite.
		10				
		20				
		30		occasional	Cobbly sand, red-brown, soft, C-D, angular, with clay matrix; pebbles of chert and feldspathic sandstone	
		40				
		50			Sand, red brown, C-G, angular, with black accessory minerals; clay matrix in part.	
		60				
		70			Sand, fine to fraith, red, m-c-g, poorly sorted, angular, with clay matrix in part. Fine stone common, black accessory minerals common, and biotite in part.	
		80				
		90			Clay, sandy, friable, pink-white, mottled, pebble, micaceous, Mn-stained, colour light-green in lower 2/3 of interval.	
		100				
		110			5" of hard clay, red brown & lime veins.	
		120			Clay, hard, stony, light-brown to red-brown, uniform texture; sand clasts; sand.	
		130				
		140			Clay:	
		150			Clay:	
		160			Clayey Sand, red-brown, fairly firm (core wet), m-c-g.	
		170		Unconformity 12'-0" Pebbaghan	Sand, red and white mottled, clayey in part, mg-cg, illmarked.	Interval 30'-173' cored in sand and clay; 112' of 2⅜" diameter core recovered, i.e., 76%. Representative samples totalling 10' retained, remainder discarded.
		180			Silt, sandy, chocolate, sand grains f.g.-m.g., sub-angular	
		190			Sand, red, c. some white and grey patches, fine grained, friable, clayey.	
		200				
		210				
		220				
		230			Sand, light-brown, medium-grained, non-argillaceous, friable.	
		240				
		250				
		260				
		270				
		280				
		290				
		300				
		310				
		320				
		330				
		340				
		350				
		360				
		370				
		380				
		390				
		400				
		410				
		420				
		430				
		440				
		450	T.D. 450'			

CORE DIMENSION: 2" (for Cores No. 1-27)

Core No. 1	Cut 10'2"	Rec 9'0"
Core No. 2	Cut 10'2"	Rec 8'6"
Core No. 3	Cut 10'5"	Rec 9'3"
Core No. 4	Cut 10'0"	Rec 10'0"
Core No. 5	Cut 10'6"	Rec 10'2"
Core No. 6	Cut 10'1"	Rec 9'4"
Core No. 7	Cut 10'6"	Rec 7'6"
Core No. 8	Cut 10'0"	Rec 9'3"
Core No. 9	Cut 10'5"	Rec 4'5"
Core No. 10	Cut 10'3"	Rec 9'0"
Core No. 11	Cut 10'6"	Rec 9'6"
Core No. 12	Cut 9'10"	Rec 8'6"
Core No. 13	Cut 10'0"	Rec 9'6"
Core No. 14	Cut 9'10"	Rec 10'0"
Core No. 15	Cut 10'6"	Rec 10'6"
Core No. 16	Cut 10'6"	Rec 10'6"
Core No. 17	Cut 9'3"	Rec 9'3"
Core No. 18	Cut 10'2"	Rec 10'2"
Core No. 19	Cut 8'0"	Rec 8'0"
Core No. 20	Cut 10'3"	Rec 10'4"
Core No. 21	Cut 10'6"	Rec 10'6"
Core No. 22	Cut 10'6"	Rec 9'8"
Core No. 23	Cut 10'6"	Rec 9'0"
Core No. 24	Cut 10'6"	Rec 10'0"
Core No. 25	Cut 6'6"	Rec 6'3"
Core No. 26	Cut 10'6"	Rec 10'6"
Core No. 27	Cut 10'3"	Rec 10'5"

CORE RECOVERY

173'-274'	91%
274'-373'	96%
373'-460'	96%

Specialists Test (Wagner): RE 460', deflection +7.2" in direction 240°

Lost Circulation: Total loss occured 30'-183', and from 183'-460'. Hole was drilled without any return at first.

Total Water Used: Bore Water from 1200' - strong pull per day.

Drilling Progress:

Time	Date	Depth	
4pm	7/9/62.	Surface.	
00hr.	8/9/62.	80'.	
00hr.	9/9/62.	173'.	
00hr.	10/9/62.	173'	1 mud pump o/h.
00hr.	11/9/62.	185'.	
00hr.	12/9/62.	230'.	
00hr.	13/9/62.	258'.	Reaming and lowering Casing Trouble.
00hr.	14/9/62.	274'.	
00hr.	15/9/62.	274'.	
00hr.	16/9/62.	274'.	
00hr.	17/9/62.	406'.	
00hr.	18/9/62.	334'.	
00hr.	19/9/62.	366'.	Maintenance.
00hr.	20/9/62.	366'.	
00hr.	21/9/62.	366' 4½" NP	
00hr.	22/9/62.	446'.	
8240.	23/9/62.	450'.	

STANDING WATER LEVEL: 173'.

Electric Log: Run, 2/10/62.
γ-ray Log: Run 8/10/62.

Logged by: R.E. Lewis, E.M. Mussellwhite.

KES 2/10/62.

S.N.1962

Well: B.M.R. GRG. 15

Co.:

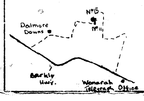
State: NORTHERN TERRITORY.

LOCATION
1: 250,000 Sheet ALROY.
E.
N.
Long. 136° 12'
Lat. 19° 43'

ELEVATION
Gr. 750'
DF/RT
K.B.

General Locality
DALMORE DOWNS.

Sketch Map of locality
Scale: 1: 2,000,000



WELL LOG AND HISTORY RECORD

Bureau of Mineral Resources Geology and Geophysics

Basin	GEORGINA.	Field		File Nº	106 NT/G/1.
Tenement	Name	Nº	Area	Holders Name & Address	Expiry Date
		OP 59	8.944 sq mls	TITAN PETROLEUM CORP. c/- J.W. Lyons, Smith St. Darwin N.T.	10·1·64
Well Classification	CORE - HOLE.	Geological Objective	To examine in detail the subsurface lithology of the Middle Cambrian and to determine its thickness.		

Drilling	Commenced	Suspended - Resumed	Completed	Drilled by & Method	Total Depth
	29/11/62		4/12/62.	W. LOSIDES & SON - PTY. LTD. Fooling 750 (Two 12 hour shifts).	314'3"

Results: Hole abandoned before target depth due to excessive bit wear in drilling chart.
0-50' Cuttings nil.
50-280½ Fossiliferous shaly siltstone with thin coquinite, grit & calcarenite bands (Mineral Beds) ? Middle Cambrian
280½-304 No sample recovered.
304-314 Medium argillaceous dolomite with fossiliferous chert.

Samples depths & depositary: Cuttings; Cores; Water; Oil / Gas

Reports Author, Nº & depositary: Geological; Geophysical; Palaeont'l; Drilling; E - Logs; Others; Final Completion

AGE	FORMATION	DEPTH & Cores 1: 200	LITHOLOGIC LOG	CONTACTS, Palaeontol. or Mineral Zones	GEOLOGICAL DESCRIPTION	Mechanical information, Casing, Shows, Tests, E-Log surveys, Core depths & recovery, Poro./Perm. etc.
QUATERNARY		0			Gravel, gray & buff clay, white clay.	
? TERTIARY ? ? ?		30			15'0" Glauconite, white & pink mottling, silty, micaceous (muscovite), structureless, & calcareous & non-calcareous areas. Chert lenses & nodules.	Core Nº 1 32'4" - 41'8" Rec. 1'8".
		40				Core Nº 2 41'8" - 47'4" Rec. 0'8".
		50		Unconformity.	(Position approximate).	
MIDDLE CAMBRIAN	? WONARAH BEDS	90	⑧		1'11" Calcarenite, F.G., sandy, pink, occasional fossils. Chert, black, vesicular (gelatinous coquinite). Siltstone, pinkish-grey, micaceous, grassic, mainly to non-fossiliferous, v. weathered, calc., ferruginised.	Core Nº 3 85'6" - 87'5" Rec. 1'6"
		120				Core Nº 4 125'0" - 126'0" Rec. 0'4"
		130	⑨		8'6" Fragments of calcarenite, chert, siltstone, & ferruginous sst. (description as for Core Nº 3).	Core Nº 5 126'5" - 135'6" Rec. 1'3"
		180			Lithology as above. (calcarenite, siltstone, chert, & ferruginous sst.).	
		240			Change in lithology from calcarenite & siltstone to dolomite & chert. (Position approximate, determined from information obtained from Org 15A).	
		310	⑩		9'9" Dolomite: brown, fine-med. crystalline, ? joint luminate structures, and chert, some of which is fossiliferous. Also minor lst. units calcarenite with dolomite pellets 4-½".	Core Nº 6 306'6" - 308'11" Rec. 3'4" Core Nº 7 309'4" - 310'1" Rec. 1'0" Core Nº 8 310'4" - 312'0" Rec. 1'0" Core Nº 9 312'0" - 314'3" Rec. 1'10"

Logged by: E.N. Milligan.
N.E.A. Johnson.

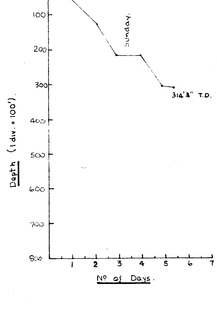
Core Recovery:

Interval	Drilled	Cored	Recovered	% Recovery of Coring
25'-125'	93'6"	16'6"	3'10"	23·2 %
125'-225'	91'6"	8'6"	1'7"	18·4 %
225'-314'3"	78'6"	9'9"	7'2"	73·5 %

0 - 32'	Rock bit (T-C) 6"
32' - 32'4"	Rock bit (T-C) 3⅞"
32'4" - 47'4"	Diamond (G.C) 3⅞"
47'4" - 85'6"	Rock bit (T-C) 6"
85'6" - 87'5"	Diamond (G.C.) 3⅞"
87'5" - 125'0"	Rock bit (T-C) 6"
125'0" - 133'6"	Diamond (G.C) 3⅞"
133'6" - 304'6"	Rock bit (T-C) 6"
304'6" - 312'0"	Diamond (G.C) 3⅞"
312'0" - 314'3"	Diamond (G.C) 3⅞" (Internal).

Casing: 0 - 304' 6" (cemented & grouted).

Traverse: 0-100': ½° at 100'



Drilling Progress Chart.

S.N. 1962

Well: B.M.R. Grg 3

Co.:

State: Northern Territory

LOCATION

1:250,000 Sheet: Elkedra

E.:

N.:

Long.: 136 05' 10" E

Lat.: 21° 20' 00" S

ELEVATION

Gr.: 945'

DF/RT

K.B.

General Locality: Elkedra River

Sketch Map of locality

Scale 1:250,000

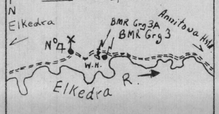


Photo: Elk. Run 3 no 5145

WELL LOG AND HISTORY RECORD

Bureau of Mineral Resources Geology and Geophysics

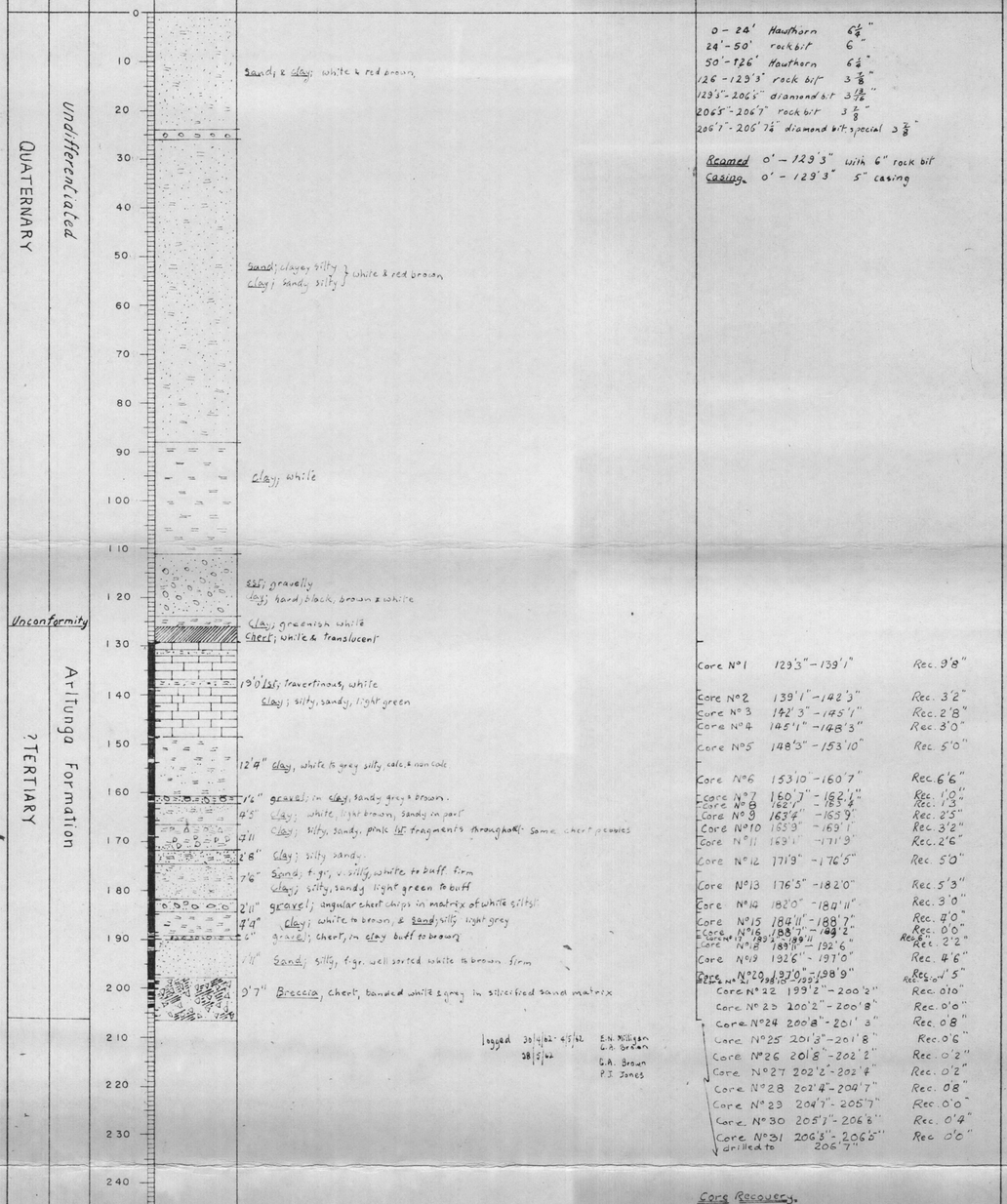
Basin: GEORGINA	Field:			File No:	106 NTQ 1
Tenement: Name		No:	Area	Holders Name & Address	Expiry Date
		O.P. 70.	7,928 sq. mls	SWAN PETROLEUM PTY. LTD. c/- Messrs. Norvill & Ward, Shiels Building, Knuckey St., Darwin N.T.	28-10-63
Well Classification: Core		Geological Objective: To determine the Palaeozoic formations beneath the widespread sand cover in this area and to determine the relationship of these beds to those to be logged in Grg 4.			

Drilling	Commenced	Suspended - Resumed		Completed	Drilled by & Method	Total Depth
	0001 hrs 30/7/62	0900 hrs 4/5/62	0001 hrs 28/5/62	1830 hrs 28/5/62	W.L. Sides & Son Pty Ltd. Failing 750 — two 12hr shifts	206'7"

Results: 0'-126' Quaternary sand & clay
126'-206' Tertiary Arlunga Formation - lst, sst, and chert.
The hole was abandoned before target level due to excessive bit wear in chert breccia.

Samples depths & depositary	
	Cuttings
	Cores
	Water
	Oil / Gas

Reports Author, No & depositary	
	Geological
	Geophysical
	Palaeont'l
	Drilling
	E - Logs
	Others
	Final Completion



S.N. 1862

WELL LOG AND HISTORY RECORD

Bureau of Mineral Resources Geology and Geophysics

Well: BMR GRG 17

Co.:

State: NORTHERN TERRITORY

LOCATION
- 1:250,000 Sheet: ALROY
- E.
- N.
- Long. 135° 24"
- Lat. 19° 26' 15"

ELEVATION
- Gr. 710'.
- DF/RT
- R.B.

General Locality: FREWENA

Sketch Map of locality

Basin	GEORGINA.	Field		File No	106 NT/Q/1.
Tenement	Name	No	Area	Holders Name & Address	Expiry Date
		OP 73 (Area b)	(Total) 3,386 sq. mls.	BARKLY OIL Co. PTY LTD c/- R.B. King, 10 Clements St. Auchenflower Qld Sydney N.S.W.	27.9.63
Well Classification	CORE-HOLE.	Geological Objective	To examine in detail the subsurface lithology and if possible to establish its age.		
Drilling	Commenced	Suspended - Resumed	Completed	Drilled by & Method	Total Depth
	10/12/62. (1000 hrs.)		17/12/62. (0900 hrs.)	W.L. SIDES & SON Pty. Ltd. FAILING 750 (2 12 hour shifts).	170'0"
Results	Hole abandoned before target depth due to excessive bit wear in chert. 0'-117' Quaternary & Tertiary. 117'-170' Red, brown & green calc. sst. & siltst. w interbeds of whitish dolomitic lst.				
Samples depths & depositary	Cuttings				
	Cores				
	Water				
	Oil / Gas				
Reports Author, No & depositary	Geological				
	Geophysical				
	Palaeont'l				
	Drilling				
	E-Logs				
	Others				
	Final Completion				

AGE	FORMATION	DEPTH & Cores 1:200	LITHOLOGIC LOG	CONTACTS, Palaeontol. or Mineral Zones	GEOLOGICAL DESCRIPTION	Mechanical Information - Casing, Shows, Tests, E-Log surveys, Core depths & recovery, Poro./Perm. etc.
QUATERNARY		0			Sand & alluvium, some gravel of white siltstone chips	
TERTIARY (?)		40			Sand, grey clay & siltstone.	
CAMBRIAN ?		120		Unconformity	7'1" Sst. calc.; lt.-dk. brown, F-M.G. & some white & gritty patches, ferruginous common, ? ripple marks, chert nodules in last 1'. Last 2" contain rhombs. =7" Siltst. calc; lt. olive-green, discrete laminations, mica flakes throughout. 9'7" Lst. & chert nodules; Lt greenish to brownish gray, V.F.G., very vuggy near centre, chert nodules up to 3" diam., throughout. 6" Convolute bedding at base. 4'10" Siltst. calc, med. olive-green, V weak laminations, rare V.F.G. sandy lenses, Cav frags. as claystone & some pellets 5'8" Lst. & chert nodules; greenish gray - gray, F.G. becoming silty & slightly micaceous towards base, rare laminations. Rare chert nodules. 3'6" Lst. silty; olive-gray, weak laminations, micaceous, rare chert lenses. 9'0" Interbedded calc. s/stone & lst; irregularly interbedded. Calc. siltst, chocolate-brown, silt-sized particles & stained clay lst: fragments (5% diam) Micaceous. Regular & contorted laminations. Lst: gray, F.-M.G., ? discrete nesting, possible chert lenses. 3'0" Breccia; Cav frags. ¼"-1½" diam., set in a chocolate brown calc. siltstone matrix 3'3" Interbedded calc. siltst & lst: (as above) 3'9" Calc. Siltst: pale brown - greenish gray, micaceous, some lithic frags up to ⅛" diam. 1'11" Chert & lst: bands ⅛-1½" wide, chert grey; lst. crystalline, F.G.	Core No 1 117'-122' Rec. 4'9" Core No 2 122.2'-125'6" Rec. 3'2" Core No 3 125'6"-131'0" Rec. 5'0" Core No 4 131'0"-133'3" Rec. 2'3" Core No 5 133'3"-133'9" Rec. 6" Core No 6 133'9"-137'3" Rec. 3'3" Core No 7 137'3"-144'0" Rec. 6'9" Core No 8 144'0"-150'6" Rec. 6'6" Core No 9 150'6"-155'10" Rec. 5'4" Core No 10 155'10"-164'4" Rec. 8'9" Core No 11 164'4"-168'1" Rec. 3'9" Core No 12 168'1"-170'0" Rec. 1'11"
		260				
		320				
		350				

Geology by: E.N. Milligan.
N.E.A. Johnson.

Core recovery:

Interval	Drilled	Cored.	Recovered	% Recovery of Core.
25'-126'	92'	8'	7'4"	97%
125'-170'	—	45'	42'11"	96.4%.

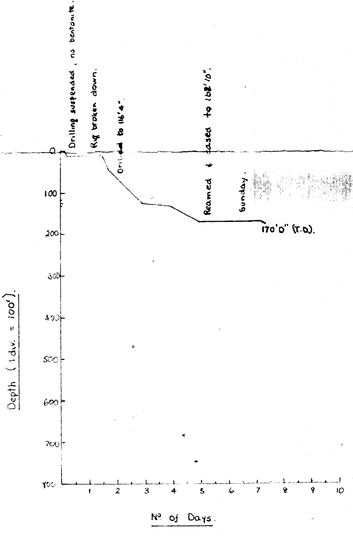
0 - 116'4" Drilled (T-C) 6⅝"
116'4" - 117'0" Drilled (T-C) 3⅞".
117'0" - 168'1" Cored (G.F.) 3⅞".
168'1" - 170'0" Cored (G.F.) 3⅞". (Special).

Reamed: 0 - 116'4"; 116'4" - 162'10"

Cased: 0 - 162' 10". Landed 5"

Tropari: @ 160': 1° @ 839"

Standing water level: 128'



Drilling progress chart.

Well: B.M.R. Grg 2.

Co.:

State: Northern Territory.

LOCATION

1 : 250,000 Sheet: Barrow Creek.

E.

N.

Long... 134° 58' 45" E

Lat. 21° 49' 26" S

ELEVATION

Gr. 1360 feet.

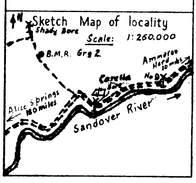
DF/RT

K.B.

General Locality

Sketch Map of locality

Scale: 1:250,000



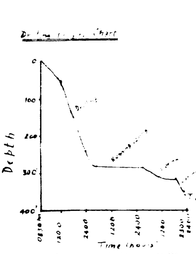
WELL LOG AND HISTORY RECORD

Bureau of Mineral Resources Geology and Geophysics

Basin	GEORGINA	Field	—	File Nº	106 NT/Q 1
Tenement	Name: Nil	Nº: O.P. 70	Area: 7,928 sq.mls	Holders Name & Address: SWAN PETROLEUM PTY LTD	Expiry Date: 28·10·62
Well Classification	Core	Geological Objective	To identify formation(s) under sand plain where Cambro-Ordovician Tomahawk Beds may have overlapped Lower Middle Cambrian Sandover Beds.		
Drilling	Commenced: 0830, 12/4/62	Suspended - Resumed	Completed: 2300, 14/4/62.	Drilled by & Method: W.L. Sides & Son Pty Ltd. Failing 750, operated in two 12-hour shifts.	Total Depth: 354 feet.
Results	0 - 280' Quaternary. Sand. 280' - 354' (Devonian) Dulcie Sandstone	(1) Thick sequence of Quaternary sand (cf. logs of 2nd. Grg 6). (2) Deposition of Devonian sediments further east than as yet established; nearest outcrops of Devonian sandstone are about 9 miles due west of B.M.R. Grg 2.			

Samples depths & depositary	Cuttings
	Cores
	Water
	Oil / Gas
Reports Author, Nº & depositary	Geological
	Geophysical
	Palaeontol
	Drilling
	E - Logs
	Others
	Final Completion

AGE	FORMATION	DEPTH & Cores 1 : 200	LITHOLOGIC LOG	CONTACTS. Palaeontol. or Mineral Zones	GEOLOGICAL DESCRIPTION	Mechanical information. Casing. Shows. Tests. E-Log surveys. Core depths & recovery. Poro./Perm. etc.
Quaternary		0				0'–49'4" Drilled; 6¼" Hawthorn Bit. 49'4"–56'4" Cored; 4" Diamond head (Goldfields) 56'4"–282'0" Drilled; 6¼" Hawthorn Bit. 282'0"–354'0" Cored; 4" Diamond head (Goldfields)
		10				Core Diameter (all cores) 2"
		20				Casing: Surface – 244', 5" diameter. Shoe at 244'.
		30				
		40			Boulders of grey, hard, silty, c.g., sandstone.	
		50			Sand: unconsolidated, f.g. – m.g., brown-red, compact, rich in biotite, some muscovite; some clay.	Core No.1 49'4"–54'4". Cut 5'0" Rec 4'0"
		60				
		70				
		80			Gravel.	
		90				
		100				
		110				
		120				
		130				
		140			Sand; f.g. – m.g. brown and red, micaceous, clayey in part.	
		150				
		160				
		170				
		180				
		190				
		200				
		210				
		220				
		230			Clay; sandy, white, soft.	
		240				
		250			Sand; white, clayey, f.g. m. grain.	
		260			Clay; white, soft, sandy; ferruginous sandstone pebbles.	
		270			Clay: mottled red and pale green; very soft.	
		280		Unconformity	Clay; white, sandy, soft	Core No.2 282'0"–284'0" Cut 2'0" Rec. 2'0"
		290			Sandstone; pale grey, f.g., friable, sub-angular, silty.	Core No.3 284'0"–292'5". Cut 8'5" Rec 0'9"
		300			Siltstone; pale green, soft, finely sandy. 1" " " & few medium quartz grains. 1'6" " " " " " " " " 6" Sandstone; grey, f.–m.g., poorly sorted, silty, soft.	Core No.4 292'5"–302'5" Cut 10'0" Rec 6'0"
		310			Sandstone; grey, f.g. silty, & laminae of c.g. to very coarse quartz grains, and 9cm pebble of quartz. 1" Quartz sandstone, hard; 9" siltstone, sandy (rounded, well-sorted); 6" quartz sandstone, clean, well-sorted. 6" Quartz sandstone; f.g., clean. 8" siltstone; white, clayey, with angular quartz grains.	Core No.5 302'5"–312'1" Cut 9'8" Rec 0'6" Core No.6 312'1"–316'7" Cut 4'6" Rec 1'4" Core No.7 316'7"–323'1" Cut 6'6" Rec 1'2"
		320				
		330			6" Broken core of sandy siltstone, pebbly; pebbles of clear quartz, grey chert. 4" Sandstone; buff, f.g., clean, soft. 11" " white, silty, f.g., soft.	Core No.8 323'1"–333'9" Cut 9'8" Rec 1'9"
		340			6'0" quartz sandstone; white, fine-grained, silty, clayey, thin hard and soft interbeds.	Core No.9 333'9"–343'6" Cut 10'0" Rec 6'0"
		350			¼" Sandstone; white, very f.g., silty, micaceous, & coarse grains of quartz.	Core No.10 343'6"–354'0" Cut 10'6" Rec 1'6"
? Upper Devonian	? DULCIE SANDSTONE	360	T.D 354'			
		370			Logged by: K.S. Smith, E.W. Milligan, G.A. Brown.	Core Recovery: 282'–354', 28%
		380			Drilling Time Chart	Verticality Test (Trabaru) Nil, owing to condition of hole below 244'
		390				Electric Log: 0–282', Run, 13/4/62.
		400				X-Ray Log: 0–282', Run, 13/4/62.
		410				Total Water used: 2000 gallons.
		420				



S.N. 1962

Well: B.M.R. Grg 3A

Co.:

State: Northern Territory

LOCATION

1:250,000 Sheet: Elkedra

E.

N.

Long. 136° 05' 10" E

Lat. 21° 30' 00" S

ELEVATION

Gr. 945'

DF/RT

K.B.

General Locality: Elkedra River

Sketch Map of locality

Scale 1:250,000

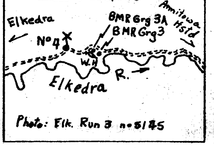


Photo: Elk. Run 3 no 5185

WELL LOG AND HISTORY RECORD

Bureau of Mineral Resources Geology and Geophysics

Basin	GEORGINA	Field		File No	106NT/01

Tenement	Name	No	Area	Holders Name & Address	Expiry Date
		O.P. 70	7,298 sq. mls	SWAN PETROLEUM PTY LTD c/- Messrs. Nauvall & Ward, Chins Building, Knuckey Street, Darwin N.T.	28-10-63

Well Classification	Core	Geological Objective	To identify formation(s) under the extensive area of sand alluvium in the lower Elkedra River area between the outcrops of Sandover Beds to the West and dolomites to the East.

Drilling	Commenced	Suspended - Resumed	Completed	Drilled by & Method	Total Depth
	0/30 hrs 29/5/62		1200 hrs 31/5/62	W. L. Sides & Son Pty. Ltd. Failing 750, operated on two 12hr shifts	243'0"

Results

0'-125' Quaternary sand, gravel & clay
125'-220' Tertiary Limestone, clay & sand
220'-243' ? Upper Cambrian ? Arrinthunga Formation. - dolomite, silt/shale & chert

Samples depths & depositary

Cuttings	
Cores	
Water	
Oil / Gas	

Reports Author, No & depositary

Geological	
Geophysical	
Palaeont'l	
Drilling	
E - Logs	
Others	
Final Completion	

AGE	FORMATION	DEPTH & Cores 1:200	LITHOLOGIC LOG	CONTACTS, Palaeontol. or Mineral Zones	GEOLOGICAL DESCRIPTION
QUATERNARY	Undifferentiated	0			
		10			30' Sand; silty, red brown & light brown, Gravel; white opaque chert chips
		20			
		30			
		40			
		50			35' Clay; light brown sandy minor red brown sst.
		60			
		70			
		80			
		90			
		100			
		110			
		120			
TERTIARY	Arltunga Formation	130			28' Silt, hard, white, cherty
		140			
		150			
		160			29' Clay; white & red brown w chert chips.
		170			
		180			
		190			22' Sand; white & red brown, silty w. chert chips
		200			
		210			11' Clay, soft, w. chert chips & boulders at top & bottom.
? UPPER CAMBRIAN	Unidentified	220			2'7" Dolomite; aphanitic, with pellets; yellow-brown & grey Clay; light green & grey mottled & thin banded Silt; calc. white & silica brown Dolomite; aphanitic, yellow brown & light grey. Dolomite; aphanitic, yellow brown & grey cavernous Silt, white calc. shaly & part Chert cuttings. Dolomite silty, buff to dark. Pellet dolomite, light buff. Clay, grade micaceous white, Claystone, dolomitic, white & buff. Chert, brown.
		230		Vughs	
		240			
		T.D. 243'0"			
		250			
		260			
		270			
		280			
		290			
		300			
		310			
		320			
		330			
		340			
		350			
		360			
		370			
		380			

a Pellet dolomite = pellet dolarenite, possibly dolomitised calcarenite

Mechanical information, Casing, Shows, Tests, E-Log surveys, Core depths & recovery, Poro./Perm. etc.

0'-222'3" rock bit 4¼"
222'3"-231'6" diamond bit 3 1/16"
222'3"-234'8" rock bit 4¼"
234'8"-237'9" diamond bit 3 1/16"
237'9"-243'0" rock bit 4¼"

Reamed 0'-234'8" 6" rock bit

Core No 1	222'3" - 227'0"	Rec. 4'6"
Core No 2	227'0" - 229'8"	Rec. 2'2"
Core No 3	229'8" - 231'6"	Rec. 1'2"
Drilled	231'6" - 234'8"	
Core No 4	234'8" - 237'9"	Rec. 3'0"
Drilled	237'9" - 243'0"	

Core Recovery

Interval	Drilled	Cored	Recovery	%	Recovery of interval cored
0'-25'	25'	0'	0'		—
25'-125'	100'	0'	0'		—
125'-225'	96'3"	3'9"	3'8"		99.2
225'-243'	8'9½"	9'7½"	7'2"		75.3

Core diameter 2"

no E log as hole dry

no γ-ray log as probe inoperative at this stage

Well: B.M.R. G.R.C.1.

Co.:

State: Northern Territory.

LOCATION

1 : 250,000 Sheet: Huckitta.

E.

N.

Long. 135° 3' 0" E.

Lat. 22° 19' 45" S.

ELEVATION

Gr 1,450

DF/RT

K.B.

General Locality

10 miles N.W. of New Macdonald Downs.

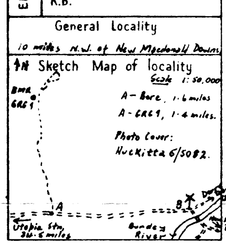
Sketch Map of locality

Scale 1:50,000

A – Bore, 1·6 miles

A-GR.1, 1·6 miles.

Photo Cover: Huckitta 6/5082.



WELL LOG AND HISTORY RECORD

Bureau of Mineral Resources Geology and Geophysics

Basin	GEORGINA.	Field	—	File No	106/NT/01

Tenement	Name	No	Area	Holders Name & Address	Expiry Date
		O.P. 41	135° – 136° 30' E 21° 30' – 22° 30' S	Smith, Anst. Oil Co. Cains Building Knuckey St. Darwin N.T	29/5/63

Well Classification	Geological Objective
Core	To discover what formations underlie a sand plain about 4 miles wide, where there are no outcropping rocks between the Grant Bluff Formation and the Tomahawk Beds.

Drilling	Commenced	Suspended - Resumed	Completed	Drilled by & Method	Total Depth
	0800 hrs, 27/2/62.	2300 hrs, 1/3/62 (rain, then mechanical trouble) 1300 hrs, 3/3/62 at 117'6"	1600 hrs, 9/3/62.	W.L. Sides & Son Pty Ltd. Failing 750, operated by two toolco-keer units	210'

Results	
0'- 20' sand. 20'- 116' Tertiary 116'- 210' Upper Cambrian	An Upper Cambrian brachiopod at 208'. Sequence not immediately referable to any Formation in outcrop. Lithologically more comparable to Arrinthunga Formation (lower Upper Cambrian) than Tomahawk Beds (upper Upper Cambrian)

Samples depths & depositary	
Cuttings	
Cores	
Water	
Oil / Gas	

Reports Author, No & depositary	
Geological	
Geophysical	
Palaeont'l	
Drilling	
E - Logs	
Others	
Final Completion	

AGE	FORMATION	DEPTH & Cores 1 : 200	LITHOLOGIC LOG	CONTACTS, Palaeontol. or Mineral Zones	GEOLOGICAL DESCRIPTION
Quaternary	—	0			Unconsolidated sand
? Tertiary	Arrinthunga Beds.	30			0'-20' sand: m.g., soft, porous, with occasional black organic inclusions, possibly wood; pebbles of purple chert and sandstone. Clay: green-grey, mottled red and brown, calc, soft, friable, with occasional black organic inclusions.
		40			
		50			2" coarse sand: 2'0"-2' siltstone; sandy, soft, brown, calc, grading to silty, sandy limestone. Limestone; white, silty, soft and weathered, some firm; sandy (f.-m.-grained to medium-grained); occasional iron mottling, black accessory minerals.
		60			
		70			9" siltstone, green-grey, calc, sandy. 1'8" limestone; white, hard, with chert and chalcedony nodules. Limestone; white, hard, with chert nodules.
		80			
		90			Cuttings of pebbles of white limestone and white chert.
		100			Clay; white and red mottled, calc, with 15% pebbles of limestone, white and chert, white clay; grey-white, soft, calc, with pebbles of white limestone and chert, and chalcedony. Clay; grey-white, calc, very soft, with numerous pebbles of chert.
		110			2" clay; grey-white, soft, calc, with occasional chert pebbles. 2" limestone; grey-white, hard, sandy.
	Unit 1001.	120		Unconformity.	Limestone; white, clayey, partly sandy, hard. 10" limestone; white, hard, sandy. 3'4" sandstone; light-grey, very silty, slightly calc, poorly sorted, partly friable. 4" clay; grey-white, calc, v. soft shale; interbedded with sandstone, f., m.g., hard. 4" clay; grey white, calc, pebbly; suspected cavities of weathering. 6" sandstone; grey white, quartzose, m-g., well-sorted, soft
		130			grey Sandstone; m-c.g, angular, very soft, silty.
		140			Siltstone; light green, soft, sandy. Siltstone; light green, soft, calc, sandy; ? burrows dipping 60°; micaceous particles on face. Sandstone; very coarse, angular, no cement; 2" interbed; light green, sandy, micaceous.
		150			Sandstone; grey-green, f.-g., silty, micaceous, laminated. Sandstone; light green, fine-grained, silty, micaceous, laminated; dip 26°
		160			Sandstone; light green, fine-grained, limestone, ; interlaminated brown siltstone; dip 50° (true), 70° (apparent) Sandstone; grey-green, calc, interbedded with limestone; oolitic (m-g, 40%-70% of rock), low angle cross-bedded; dip 15° interbedded siltstone, grey-white, sandy, soft, calc, micaceous, and limestone; sandy, oolitic in part, (f-g, 30%) hard; partly recrystallised; dips 30°-40°.
		170			Interbedded limestone, (oolitic (m-g) sandy, silty in part, soft, green-grey) and sandstone, grey-green, silty, calc, micaceous, ? yellow mud pellets.
		180			sandstone; red, hard, micaceous, calc, f-g, with shale, interbeds and calcite-filled vugs. Siltstone; pink-grey, sandy, micaceous, with thin interbeds of green calc shale. Sandstone; red, f-g, thin-bedded, hard with thin interbeds of green, calc shale, and lenses of c.g. poorly-sorted felspathic sandstone. Greywacke; buff and pink, m-c.g, with shale fragments, ? glauconite grains Sandstone; buff and pink, f-g, calc with thin shale interbeds; small scale, density current cross-stratification; lenses of c.g. felspathic sandstone. Dip 6°-8°; ? fossiliferous cores.
		190			Limestone; grey and brown-grey, hard, sandy, silty, oolitic (oolites mostly f-m, some m-c; poorly-sorted, recrystallised in part, ironstained) with lenses of sandstone and oolitic limestone; thin interbeds of Shale; green-brown, soft, dip 10°.
	Shale member 200.	200			Siltstone; red-brown, slightly calc, micaceous, buristic, with thin laminae of shale. Siltstone; grey, hard, calc, thin Shale interbeds; grey calc, slumped; dip 5°.
		210		? Limerocamelle	Limestone; grey and red, slumped, with some pseudo-breccia; ? shelly fossils Siltstone; red-brown, hard, calc; dip 10°.
		T.D. 210'			
		220			
		230			
		240			
		250			
		260			
		270			
		280			
		290			
		300			
		310			
		320			
		330			
		340			
		350			

UPPER CAMBRIAN — Unnamed

Mechanical information, Casing, Shows, Tests, E-Log surveys, Core depths & recovery, Poro./Perm. etc.

0'-15', 9 5/8" dia hole, roller bit.
15'-93', 6" dia. hole. Reed. roller bit.
93'-105', 4" dia. hole. Kalix soft formation bit.
105'-135', 4" dia. hole. Goldfields diamond bit.
135'-155', 4" dia. hole. Kalix soft formation bit.
155'-210', 4" dia hole. Goldfields diamond bit.

CORE DIAMETER: (6" roller bit) 2 7/8"; other bits, 2"

Core No 1.	24'7"-34'7"	Cut 10'0"	Rec 6'8".
Core No 2.	34'7"-44'5"	Cut 9'8"	Rec 0'5"
Core No 3.	44'3"-46'6½"	Cut 2'3½"	Rec 2'2¾"
Core No 4.	46'5½"-52'2¾"	Cut 5'9"	Rec 6'9"
Core No 5.	52'2¾"-54'5½"	Cut 2'3"	Rec 2'3"
Core No 6.	54'6½"-58'8½"	Cut 4'3	Rec 4'3"
Core No 7.	58'8½"-65'3"	Cut 6'6½"	Rec 3'8"
Core No 8.	65'3"-72'10"	Cut 7'7"	Rec 1'11"
Core No 9.	72'10"-73'9"	Cut 0'5"	Rec 1¼" (1¾" broken on bottom)
Core No 10.	73'6"-83'5" (reamer dropped 3', 76'3"-79'6")	Cut 9'11"	Rec 6" (3¾" of this from bottom of previous interval)
Core No 11.	83'6"-93'1"	Cut 9'8"	Rec 1'0" (Lost formation bit. 90'-93' very soft drilling.)
Core No 12.	93'1"-95'4"	Cut 2'3"	Rec 1'6"
Core No 13.	96'4"-100'4"	Cut 5'0"	Rec 4'0"
Core No 14.	100'4"-105'4"	Cut 5'0"	Rec 2'0" (1" chopped out when preparing for diamond bit)
Core No 15.	106'5"-111'6"	Cut 5'0"	Rec 2'9"
Core No 16.	111'5"-116'8"	Cut 4'3"	Rec 3'0"
Core No 17.	116'8"-116'9"	Cut 1'1"	Rec 1'1"
Core No 18.	117'8"-126'5" (Drilled in 17 minutes.)	Cut 7'9"	Rec 1'0"
Core No 19.	126'5"-136'5" (Drilled in 14 minutes)	Cut 10'0"	Rec 0'9"
Core No 20.	135'3"-138'4"	Cut 3'1"	Rec 1'1"
Core No 21.	138'4"-140'10"	Cut 2'6"	Rec 2'3"
Core No 22.	140'10"-141'10"	Cut 1'0"	Rec 1'0"
Core No 23.	141'10"-146'10"	Cut 5'0"	4'3"
Core No 24.	146'10"-150'7"	Cut 3'9"	Rec 3'3"
Core No 25.	150'7"-155'7"	Cut 5'0"	Rec 4'3"
Core No 26.	Diamond bit at 155'7" 155'7"-158'9"	Cut 3'2"	Rec 2'9"
Core No 27.	158'9"-163'7"	Cut 4'10"	Rec 4'7".
Core No 28.	163'7"-168'0"	Cut 4'5"	Rec 4'5"
Core No 29.	168'0"-172'0"	Cut 4'0"	Rec 4'0"
Core No 30.	172'0"-181'11"	Cut 9'11"	Rec 9'11"
Core No 31.	181'11"-192'3"	Cut 10'4"	Rec 10'4"
Core No 32.	192'3"-202'9"	Cut 10'6"	Rec 10'6"
Core No 33.	202'9"-210'0"	Cut 7'3"	Rec 7'3"

At 210', circulation lost and brakes on drill failed. Drill pipe removed from hole by Landrover tow.

Total Drilling Water used. 1600 gallons.

CASING NIL. Surface casing available, but not set. 5" casing not available because of floods.

E-log, X-ray log } NIL. Equipment and operator not available, because of floods. Condition of hole would make operation risky.

Verticality Test. NIL. Condition of hole made lowering of Tropari too risky.

CORE RECOVERY 0-28'. Not cored, on B.M.R. authority.

28'-128' 47%

128'-210' 85%

Overall Recovery, 28'-210', 64%.

Drilling Progress:

Time	Date	Depth
0800,	27/2/62	Surface.
0001,	28/2/62	48'.
0001,	1/3/62	78'.
2300,	1/3/62.	117'. Suspended.
1300	3/3/62	117' Resumed
0001,	4/3/62	146'.
0001,	5/3/62	176'.
1600,	9/3/62	210'.

KCA 8/3/62

S N 1962

Well: B.M.R. Grg. 16.
Co.:
State: Northern Territory.

LOCATION
1: 250,000 Sheet: RANKEN
E.
N.
Long. 136° 51' 23"
Lat. 19° 45' 50"

ELEVATION
Gr. 790'
DF/RT
K.B.

General Locality: Ranken Store.

Sketch Map of locality
Scale 8 miles to inch
Ranken Store.
Ranken R.
Mustered Bore
Caldwell
N°17 Bore
Grg. 16
To Soudan.

WELL LOG AND HISTORY RECORD

Bureau of Mineral Resources Geology and Geophysics

Basin	GEORGINA.	Field		File Nº	106 NT/Q/1.
Tenement	Name	Nº	Area	Holders Name & Address	Expiry Date
		OP 53	8,897 sq mi	United Australian Oil Inc. 1300 Life Building Dallas, Texas	13·7·63
Well Classification	Core-hole.	Geological Objective	To examine in detail the subsurface lithology of the dolomite in the region and determine its relationship to the nearby Ranken Limestone		

Drilling	Commenced	Suspended - Resumed	Completed	Drilled by & Method	Total Depth
	16/11/62		28/11/62	W.L. SIDES & SON PTY. LTD. Failing 750 (two 12 hour shifts).	303' 0"

Results
0–37' Surface sand & minor gravel + soil
37–100' chiefly dolarenite + dololutite
100–200' Calcarenite, calcilutite to crystalline limestone
200–303' Oolitic and bioclastic lst. interbedded + calcilutite

Samples depths & depositary
- Cuttings
- Cores
- Water
- Oil / Gas

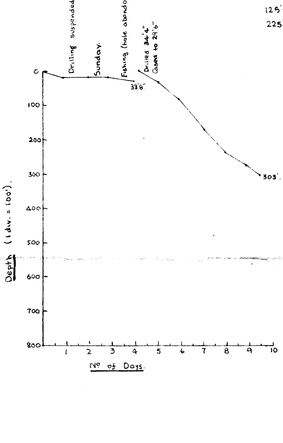
Reports Author, Nº & depositary
- Geological
- Geophysical
- Palaeont'l
- Drilling
- E - Logs
- Others
- Final Completion

AGE	FORMATION	DEPTH & Cores 1" : 200"	LITHOLOGIC LOG	CONTACTS, Palaeontol. or Mineral Zones	GEOLOGICAL DESCRIPTION	Mechanical information: Casing, Shows, Tests, E-Log surveys, Core depths & recovery, Poro/Perm. etc.
QUATERNARY.		0			Clay and claystone, pebbles of chert, and rare dolomitic lst.	
		10				
		20				
		30				Core Nº 1 29'6 - 32'8" Rec. 3"
		3'2"			Clay, claystone and chert ? pebbles	
		40		Unconformity		Core Nº 2 37'6 - 41'1" Rec. 3'7"
		4'11"			Dolarenite ; yellow-brown to brownish-grey, F.G., laminations with units up to ½" wide, Consolute bedding at 37'7", Cavity at 37' and 41'7".	Core Nº 3 41'1 - 42'5" Rec. 1'4"
		1'0"			Dolomite; brownish, F-M. laminations, aphanitic - v.fine crystalline, slightly vuggy.	Core Nº 4 42'5 - 46'2" Rec. 2'10"
		50			Dololutite & minor dolarenite & clay; Greenish-grey to light brown, thin laminations, micaceous, claystone between 0-8".	Core Nº 5 46'2 - 49'8" Rec. 3'4"
		7'6"				Core Nº 6 49'8 - 54'10" Rec. 3'2"
		60				Core Nº 7 54'10 - 55'9" Rec. 11"
		9'4"			Dolomitic lst.; Pale grey to brownish-grey, aphanitic to finely crystalline, variable silt content & silty layers over last 4', structureless. Clay; whitish-grey, forms last 1'.	Core Nº 8 55'9 - 64'7" Rec. 8'7"
		70				Core Nº 9 64'7 - 69'5" Rec. 4'9"
		21'5"			Dolarenite; Med - light brownish grey, F.G. & minor silt-sized areas, rock porous & weathering following bedding directions in places, rare vert. fractures, some thin growths, laminations up to 12" wide.	Core Nº 10 69'5 - 71'7" Rec. 2'0"
		80				Core Nº 11 71'7 - 75'7" Rec. 4'0"
						Core Nº 12 75'7 - 83'8" Rec. 8'1"
		90				
		3'6"			Dololutite; Pale grey - dark brown, laminates < 0·5" thick, oolitic between 2' & 2'6".	Core Nº 13 83'8 - 93'7" Rec. 9'11"
		8'9"			Dolomitic lst.; Light grey, finely crystalline, rare irreg. vert. fractures some vughs up to ½" diam., very faint laminations, gradation to calcarenite at base.	Core Nº 14 93'7 - 103'4" Rec. 9'9"
		100				
		6'2"			Calcarenite; Yellowish-brown, F - M.G., composed of carbonate pellets & rare oolites, rare bedding laminations.	
		110				Core Nº 15 103'4 - 112'11" Rec. 9'7"
		27'0"			Limestone; Pale grey, F - M. crystalline, weathered & a very vuggy (>¼" diam.) or pitted appearance, decreases near base, Numerous calcite veins some vughs. Bedding irregular, poorly defined. Rare med. amplitude stylolites. Silty in places.	Core Nº 16 112'11 - 122'3" Rec. 9'4"
		120				
		130				Core Nº 17 122'3 - 132'0" Rec. 9'9"
		140				Core Nº 18 132'0 - 142'3" Rec. 10'3"
		150				Core Nº 19 142'3 - 151'4" Rec. 9'1"
		48'1"			Calcarenite; yellow-brown to light - medium brown-grey, F. - M.G. crystalline & lutite fragments & rare pellets between 9-18'. Thin to laminate bedding at top becoming discrete near base. Low - med. amplitude stylolites in bottom half. Med. - v. vuggy throughout. Several patches of purple-brown specks ? heavy minerals	Core Nº 20 151'4 - 160'9" Rec. 9'5"
		160				Core Nº 21 160'9 - 170'9" Rec. 10'0"
		170				Core Nº 22 170'9 - 180'5" Rec. 9'8"
		180				
		12'9"			Limestone; Yellow-brown to greenish grey, finely crystalline lutite increasing towards base, no bedding, few vughs most filled & crystalline calcite, mod. weathered & v. porous. Rare low - med. amplitude stylolites & vert. fractures.	Core Nº 23 180'5 - 190'4" Rec. 9'11"
		190				
		9'8"			Calcarenite; light-grey to brown-grey, v.f.g. oolitic & some silt-sized material No bedding, discrete low amplitude stylolites, weathered & porous.	Core Nº 24 190'4 - 200'5" Rec. 9'11"
		200				
		10'0"			Dolitic lst; yellow-brown to brownish grey, weathered & porous, composed of ~80% oolites & some shell fragments. Becoming silty over last 2'-3'.	Core Nº 25 200'3 - 210'0" Rec. 9'9"
		210				
		7'3"			Calcilutite; pale olive-green, calcareous, finely laminated, ?⅛" - ½" wide, micaceous.	Core Nº 26 210'0 - 220'9" Rec. 10'9"
		9'1"			Lst.; grey to yellow-brown, finely crystalline & some lutite areas, porous, fossiliferous (fragments of trilobites, biconulites, bivalves, etc.).	Core Nº 27 220'9 - 230'2" Rec. 9'5"
		230				
						Core Nº 28 230'9 - 240'0" Rec. 9'10"
		36'6"			Coquina lst.; Pale grays & browns, weathered & v. porous, composed of 80 - 90% fossil fragments (Trilobites, biconulites, hyolithids, etc.) with minor lutite fragments. Gradual change from Coquina to F.G. crystalline lst. over last 6'. Chert lenses, ¼ - 2½" thick, occur throughout last 6'. Calcilutite 4" at 2'5", pale grey-brown, fossiliferous.	Core Nº 29 240'0 - 250'1" Rec. 10'0"
		250				Core Nº 30 250'1 - 256'4" Rec. 6'3"
						Core Nº 31 256'4 - 266'10" Rec. 8'6"
		6'0"			Calcilutite; Pale yellow-brown to gray-brown, laminated (⅛" - ½" wide) [illegible]	Core Nº 32 266'10 - 277'0" Rec. 10'2"
		270				
		11'2"			Crystalline lst.; Med. gray becoming olive-gray towards base, finely crystalline some silt-sized material, possibly fossiliferous, poor porosity, no sed. structures, Small chert lenses throughout.	Core Nº 33 277'10" - 281'2" Rec. 9'4"
		280				
						Core Nº 34 281'2 - 290'5" Rec. 9'5"
		210'			Interbedded calcilutite & siliceous oolitic lst. & lenses of chert	
		290			Calcilutite - Med.-olive-grey, coarse - fine undulatory laminations, some irregular med.-grey chert lenses up to 1" wide.	Core Nº 35 290'5 - 299'2" Rec. 8'9"
					Oolitic lst. - Med. to dark blue-grey, oolites ≤ 1/8" diam., replaced by silica or weathered out. Fossiliferous; shell fragments only.	Core Nº 36 299'2 - 303'0" Rec. 2'0"
		300				
		303'				
		310				
		320				
		330				
		340				
		350				
		360				
		370				
		380				
		390				
		400				
		410				
		420				
		430				
		440				
		450				
		460				
		470				

Logged by: N.E.A. Johnson.

Core Recovery:

Interval	Drilled	Cored	Recovered	% Recovery of Core
25' - 33'8"	4'10"	3'10"	6"	13%
25' - 126'	9'4"	90'8"	88'2"	91.8%
126' - 225'	—	100'0"	99'6"	99.6%
225' - 303'	—	78'0"	78'0"	100.0%



0 - 29'5" Drilled (T-C) 6"
29'5" - 29'10" Drilled (T-C) 3⅞"
29'10" - 33'4" Cored (G-F) 3⅞".

0 - 29'6" Drilled (T-C) 6"
29'6" - 32'8" Cored (G-F) 3⅞".
32'8" - 37'6" Drilled (T-C) 6"
37'6" - 303'0" Cored (G-F) 3⅞".

Cored: 0' - 33'8" (3 barrels pulled)
0' - 29'6" "

Trip at: @ 300' 1½° @ 935'
Standing water level: @ 800'

S.N. 1962

Well: B.M.R. Grg 15A.

Co.:

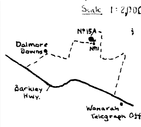
State: Northern Territory

LOCATION: 1:250,000 Sheet ALROY; E.; N.; Long. 136° 12'; Lat. 19° 43'.

ELEVATION: Gr. 750'; DF/RT; K.B.

General Locality
DALMORE DOWNS.

Sketch Map of locality
Scale 1:2,000,000



WELL LOG AND HISTORY RECORD

Bureau of Mineral Resources
Geology and Geophysics

Basin	GEORGINA	Field		File No	106 NT/G/1.
Tenement	Name	No	Area	Holders Name & Address	Expiry Date
		OP 59	8,944 sq. mls	TITAN PETROLEUM CORP. c/- J.W. Lyons, Smith St. Darwin N.T.	10-1-64
Well Classification	CORE-HOLE.	Geological Objective	To obtain further information on the interval 120'-302' in Grg 15 and to continue recovery of a section stratigraphically below total depth Grg 15.		

Drilling	Commenced	Suspended - Resumed	Completed	Drilled by & Method	Total Depth
	4/12/62. (1800 hrs.)		6/12/62. (0900 hrs.)	W.L. SIDES & SON Pty. Ltd. FAILING 750 (2 12 hr. shifts).	270.'

Results
(Hole abandoned in hard drilling before target depth.)
0-50' Conglomerate
50-120' Siltst. w. thin sequences and sandstone (Wonarah Beds) } Middle Cambrian
120'-260' as above
260'-270' Fossiliferous arenaceous crystalline limest. in chert.

Samples depths & depositary	
Cuttings	
Cores	
Water	
Oil / Gas	

Reports Author, No & depositary	
Geological	
Geophysical	
Palaeont'l	
Drilling	
E - Logs	
Others	
Final Completion	

AGE	FORMATION	DEPTH & Cores 1:2.000	LITHOLOGIC LOG	CONTACTS Palaeontol. or Mineral Zones	GEOLOGICAL DESCRIPTION	Mechanical Information, Casing, Shows, Tests, E-Log surveys, Core depths & recovery, Poro./Perm. etc.
QUATERNARY		0			Sand & clay.	
		10			6'4" Sandstone, lateritised particularly around cavities; light - med. brown, F. - M. grained, no sed. structures. Clay & sandy areas, some pale grey claystone patches.	Core No 1 10'6" - 11'11" Rec. 9"
		20				Core No 2 11'11" - 16'10" Rec. 1'2"
TERTIARY		30			9'8" Silicified lms. & chert nodules; lms light grey, V.F.G. to aphanitic, pitted & vuggy. Chert nodules, aphanitic	Core No 3 28'4" - 32'9" Rec. 4'4"
		40				Core No 4 32'9" - 38'0" Rec. 2'11"
		50				
		60		A	First fossils recorded in cuttings, ? Peronopsis at 60'.	
		70				
		80				
		90				
		100			7'4" Siltstone brown - dark brown, may grade into V.F.G. sst. Laterit-ised & orbicular Fe structures.	Core No 5 99'10" - 107'2" Rec. 6"
		110				
		120				
		130		B	8'3" Coquinite, brown, crystalline, fossiliferous (Trilobites - Agnostids; Brachs).	Core No 6 133'8" - 136'7" Rec. 1'2"
		140		C	Siltstone pink, micaceous, calcareous, fissile, some trilobite fragments aligned on bedding plane surfaces, also thin ½" lenses of hard buff-pink sst.	Core No 7 136'7" - 141'11" Rec. 1'6"
		150				
		160				
		170				
		180		D	3'8" 1" Calcarenite & chert nodules, & siliceous streaks & large frags. of Kystrodora, & agnostids on surface & throughout. 1'2" Siltstone, yellow-brown to buff, micaceous.	Core No 8 177'8" - 181'4" Rec. 1'3"
		190				
		200		E	4'5" 1" Grey chert. 5" Coquinite, dark grey, & Obolaids & Agnostids. 3" Sst. & siltstone pink, poorly calcareous. few fossils.	Core No 9 200'5" - 205'0" Rec. 9"
		210				
		220				
		230				
		240				
		250		F	14'5" Crystalline lst., organic grey - yellow brown, F. - M. gr., no visible bedding, some V. fine dendritic Mn growths. Chert bands up to 3" wide after 4'6", grey, fossiliferous, fragments of Trilobites & brachs.	Core No 10 248'7" - 253'0" Rec. 3'9"
		260		G		Core No 11 253'0" - 263'0" Rec. 4'6"
		270			3" Chert, med. grey, non-fossiliferous, small wedding concretions ⅛" wide	Core No 12 267'11" - 270'0" Rec. 6"

Geology by: E.N. Milligan.
N.E.A. Johnson.

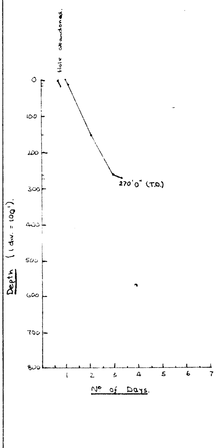
Core recovery:

Interval	Drilled	Cored	Recovered	% Recovery of Core.
35'-125'	83'0"	17'0"	7'9"	46.6%
125'-225'	83'8"	16'6"	4'8"	28.6%
225'-270'	28'6"	15'6"	8'9"	56.4%

0 - 10' Drilled (T-C) 6"
10'6" - 10'6" " " 3⅞"
10'6" - 16'10" Cored (G.F.) 3⅞" special

0 - 27'8" Drilled (T-C) 6"
27'8" - 28'4" " " 3⅞"
28'4" - 41'4" Cored (G.F.) 3⅞"
41'4" - 46'1" Drilled (T-C) 3⅞"
45'1" - 49'4" Cored (G.F.) 3 13/16" special
49'4" - 99'10" Drilled (T-C) 3⅞"
99'10" - 101'2" Cored (G.F.) 3 13/16" special
101'2" - 133'8" Drilled (T-C) 3⅞"
133'8" - 141'11" Cored (G.F.) 3 13/16"
141'11" - 177'8" Drilled (T-C) 3⅞"
177'8" - 181'4" Cored (G.F.) 3 13/16"
181'4" - 200'5" Drilled (T-C) 3⅞"
200'5" - 205'0" Cored (G.F.) 3 13/16"
205'0" - 248'7" Drilled (T-C) 3⅞"
248'7" - 253'0" Cored (G.F.) 3 13/16"
253'0" - 267'4" Drilled (T-C) 3⅞"
267'4" - 270'0" Cored (G.F.) 3 13/16"

Trepani @ 265' 15° to vert. 135°



Drilling Progress Chart.

S.N. 1962

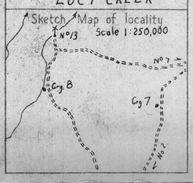
Well: B.M.R. Grg. 8.
Co.:
State: NORTHERN TERRITORY

LOCATION
1:250,000 Sheet: HUCKITTA
E.
N.
Long: 136°02'30"E
Lat. 22°24'10"S

ELEVATION
Gr. 1215'
DF/RT
K.B.

General Locality: LUCY CREEK

Sketch Map of locality Scale 1:250,000



WELL LOG AND HISTORY RECORD

Bureau of Mineral Resources, Geology and Geophysics

Basin: GEORGINA | Field: | File No: 106 NTQ/1.

Tenement Name	No	Area	Holders Name & Address	Expiry Date
	O.P. 41	135°-136°30'E 21°30'-22°30'S	Smith Australian Oil Co. Cain's Building, Knuckey St. Darwin N.T.	29.5.63

Well Classification: Core-hole | Geological Objective: To determine in detail the nature of the softer beds of the Arrinthrunga F. which is poorly exposed in this area.

Drilling	Commenced	Suspended - Resumed	Completed	Drilled by & Method	Total Depth
	26/7/62		31/7/62	W.L. Lyons Drilling & Son Pty. Ltd. Failing 750 (two 12 hr. shifts)	295'5"

Results: 0-12' Quaternary alluvium
12'-295'5" Upper Cambrian Arrinthrunga F. The hole was abandoned at 295' due to water supply difficulties but sufficient core was recovered to show that below 160' a lithologic type distinct from any encountered in Grg 7 was present.

Samples depths & depositary: Cuttings | Cores | Water | Oil / Gas

Reports Author, No & depositary: Geological | Geophysical | Palaeont'l | Drilling | E-Logs | Others | Final Completion

AGE	FORMATION	DEPTH & Cores 1:200	LITHOLOGIC LOG	CONTACTS, Palaeontol. or Mineral Zones	GEOLOGICAL DESCRIPTION	Mechanical information, Casing, Shows, Tests, E-Log surveys, Core depths & recovery, Poro./Perm. etc.
QUATERNARY	Unditf. consolidated	0			12'0" Gravel, clayey red, silt, sand.	Drilled 0'-12'
		10		UNCONFORMITY Stylolites Arg'laliths		Core No 1 12'-16' Rec. 4'0"
		20				Core No 2. 16'-24'9" Rec. 7'0"
		30			Lst; silty grey, pink & reddish 44'2" Lst; aphanitic, grey recrs. Silst; v. calc, hard. rare Intraformational breccia All thin-bedded 4"-1"	Core No 3 24'9"-34'9" Rec. 10'"
		40		Stylolites. Vughs.		Core No 4 34'9"-44'9" Rec. 10'0"
		50				Core No 5 44'9"-55'3" Rec. 10'6"
		60			5'7" Lst; silty to sandy, grey to pink. Silst; calc, green grey, blue grey soft micaceous (mudcrack); fissile. Intraform. breccia, pebbles 3"x 1" 6'0" Silst; calc, green grey & blue grey soft fairly micaceous	Core No 6 55'3"-65'3" Rec. 8'11"
		70				Core No 7 65'3"-74'11" Rec. 10'2"
		80		vughs	11'9" Lst; silty in part, pink to buff with occas. interbeds silt/sst grey to blue grey, soft fissile micaceous, intervals 4"-1½" interbedded with Calcilutite pink-buff 5'11" Lst; grey, pink & blue mottled grading to calcilutite reddish, massive-up to 2'2" without lamination	Core No 8 74'11"-85'6" Rec. 10'11"
		90			10'0" Lst; silty in part, pink to buff w occas. interbeds silt/sst grey to blue grey, soft fissile micaceous, intervals 6"-2' interbedded w calcilutite, calcarenite, oolites, pellets scattered w. granules, 6in zone, 7ft 9 ½ calcarenite, granular grading into micro-conglomerate, brick red	Core No 9 85'6"-95'6" Rec. 10'0"
		100			7'7" calcilutite, mottled pink banded	Core No 10 95'6"-106'0" Rec. 10'8"
		110		Pyrite	6'5" Calcarenite, oolitic, granular, grading to calcarenite, granular, grading to microbreccia, ground sized pellets 1-2" bands. Calcarenite & calcilutite alternating bands ca ½" grey	Core No 11 106'0"-116'0" Rec. 9'9"
		120			13'3" Lst; aphanitic, grey w minor calcilutite & silty/fissile micaceous grading occasionally to calcarenite & rarely microbreccia.	Core No 12 116'0"-126'6" Rec. 10'8"
		130		Stylolites	6'6" Calcarenite w lst, grey alternating uppers ½" bands w. silt/sst, hard v. calc. and fissile.	Core No 13 126'6"-136'3" Rec. 10'0"
		140			6'1" Lst; silty in part, brown, pink, buff & grey 7'7" Calcarenite, pink and greengrey w. occas. 2" bands Microbrecciated and silt/sst, red brown "knotted"	Core No 14 136'3"-146'9" Rec. 10'6"
		150		Stylolites	2'3" Intraformational breccia buff to pink, pebbles 1½"x½" Calcarenite/oolite 3'1" Lst; silty to silt/sst, calc, hard, red brown, 1½" breccia, thin Calcarenite 6'2" Lst, grey, aphanitic, politic - red oolites. Lst grey up to 1" intervals	Core No 15 146'9"-156'11" Rec. 10'3"
		160				
		170			Lst; aphanitic, grey Silst, calc, chocolate 51'6" rare intraformational breccia Ca 40' lst. Cavernous with much soft puggy yellow-brown clay - Fault	Core No 16 156'11"-178'6" Rec. 6'0"
		180				
		190				
		200				Core No 17 178'6"-208'5" Rec. 2'4"
		210			3'0" Lst; finely crystalline hard, grey to pink, silty towards base	Core No 18 208'5"-218'0" Rec. 9'8"
		220			8'10" Calcarenite, f.gr. sandy, greatly granular in parts, buff with red oolites minor lst. friable & parted in part	Core No 19 218'0"-227'9" Rec. 10'0"
		230		Vughs	6'11" Lst; aphanitic, grey & pink mottled Silst, calc grading to sst silty, blue grey & chocolate ca 4' lst; alternating with calcilutite grading to calcarenite & increasing laterally, fmd. oolite granular, 2nd breccia, Silst; Calcarenite mottled red & grey	Core No 20 227'9"-238'9" Rec. 10'6"
		240			15'2" Lst; silty & silst, calc, grey granular in part grading to & interbedded with intraformational breccia. Lst & calcilutite showing percentage changes. Formations 1-6" bands	Core No 21 238'9"-248'4" Rec. 9'11"
		250			5'8" Calcarenite, sandy, f.gr. grey to tan and Calcilutite, red grey mottled grading to silt/sst, calc, red.	Core No 22 248'4"-258'4" Rec. 10'0"
		260			2'0" Lst; finely crystalline, chalky Calcarenite, sandy, f.gr. grey scattered oolites 5'4" Lst; aphanitic to silty, grey	Core No 23 258'4"-269'3" Rec. 9'10"
		270		Vughs & Stylolites	6'11" Calcilutite, grey & tan silty & silst, calc, inter laminated, some oolitic lst leases and Calcarenite, sandy, f.gr. pink.	Core No 24 269'3"-279'9" Rec. 6'2"
		280		Stylolites Stylolites	16'11" Lst; aphanitic, greengrey & tan silty, reddish Calcarenite, grey & pink. Calcilutite ½"-5" bands	Core No 25 279'9"-283'2" Rec. 9'10"
		290		Vughs, Stylolites Vughs Vughs & Stylolites	6'3" Calcarenite, sandy, f.gr. buff-light grey & calcilutite buff & brown red thin laminae. Sst grey, finely crystalline	Core No 26 283'2"-292'1" Rec. 8'6" Core No 27 292'1"-295'5" Rec. 3'9"
		300		T.D. 295'5"		
		310				
		320				
		330				
		340				
		350				
		360				
		370				
		380				
		390				
		400				
		410				
		420				

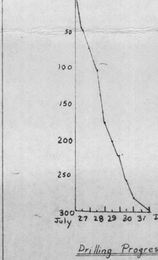
UPPER CAMBRIAN — Arrinthrunga Formation

Logged: E.N. Milligan, A.R. Lloyd

Drilled 0-12' 5⅞" rock bit
Cored 12'-295'5" 3⅞" Diamond.

Core Recovery

Interval	Drilled	Cored	Recovered	% Recovery of Cored
0-25	12'0"	13'0"	11'9"	87.0
25-125	0'	100'	100'	100
125-225	0	100'	45'1"	45.1
225-295'5"	0	70'5"	70'0"	99.2



Drilling Progress Chart

Core Diameter: 2"

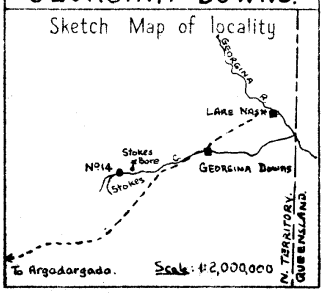
Electric log: 120'-285' } 31/8/62
V Ray log: 0'-285' }

Water level: 129'

S.N. 1962

Well: BMR GRG 14.	
Co.:	
State: NORTHERN TERRITORY.	
LOCATION	1: 250,000 Sheet SANDOVER RIVER
	E.
	N.
	Long. 137° ~~15~~ 21' 46".
	Lat. 21° 10' 32".
ELEVATION	Gr. 730'
	DF/RT
	K.B.
General Locality	GEORGINA DOWNS.

Sketch Map of locality



WELL LOG AND HISTORY RECORD

Bureau of Mineral Resources
Geology and Geophysics

Basin	GEORGINA	Field		File No	106 NT/Q/1.

Tenement	Name	No	Area	Holder's Name & Address	Expiry Date
		O.P.53.	8,897 sq.mls.	United Australian Oil Inc. 1900 Life Building, Dallas, Texas U.S.A.	13. 7. 63.

Well Classification	CORE-HOLE.	Geological Objective	To recover fresh material of the poorly exposed Palaeozoic dolomites and any interbedded rocks in this region

Drilling	Commenced	Suspended - Resumed	Completed	Drilled by & Method	Total Depth
	27/10/62.		14/11/62.	W.L. SIDES & SON. PTY. LTD. FAILING 750 (2 12 hr. shifts).	720' 4".

Results	
	0' - 118' Quaternary and Tertiary sands and clay.
	118' - 720' Mostly dolarenite and dololutite, minor aphanitic and sandy dolomite, dolomitic siltstone.

Samples depths & depositary	
Cuttings	
Cores	
Water	
Oil / Gas	

Reports Author, No & depositary	
Geological	
Geophysical	
Palaeont'l	
Drilling	
E - Logs	
Others	
Final Completion	

AGE	FORMATION	DEPTH & Cores 1:200	LITHOLOGIC LOG	CONTACTS, Palaeontol. or Mineral Zones	GEOLOGICAL DESCRIPTION	Mechanical information, Casing, Shows, Tests, E-Log surveys, Core depths & recovery, Poro./Perm. etc.
QUATERNARY	Undifferentiated	0				
		10			Sand & clay.	
		20			Gravel.	
		30				
		40				
		50			Bands of sand, clay, gravel.	
		60				
		70				
TERTIARY	Undifferentiated	80				
		90			White & buff clays & sand.	
		100				
		110				

Depth	Feature	Thickness	Description	Core	Interval	Recovery
120		19'6"	Dolomite: brown & buff, finely crystalline, massive, rare vughs, numerous fractures & partings. Clay, several narrow bands.	Core Nº 1	117'6" – 123'0"	Rec. 2'9"
				Core Nº 2	123'0" – 128'0"	Rec. 1'3"
130			Buff clay & some hard bands (? dolomite).	Drilled	128'0" – 140'10"	
140		10'8"	Dolomite: light – dark buff, aphanitic – v. finely xtalline, rare med. amplitude stylolites & vughs, dendritic Mn growths. 1" Intraformational breccia, buff & fine xtalline fragments set in a calcareous cement.	Core Nº 3	140'10" – 146'8"	Rec. 2'3"
				Core Nº 4	146'8" – 151'6"	Rec. 4'9"
150		4'1"	Dolomite & dololutite: buff, fine laminations, v. finely xtalline – aphanitic, rare vughs, some dendritic Mn growths.	Core Nº 5	151'6" – 156'2"	Rec. 4'1"
				Core Nº 6	156'2" – 158'5"	Rec. 2'3"
160		24'10"	Dolomite: grey – white, aphanitic, stylolites common to rare, rare vughs & some filled c̄ crystalline calcite, partings may be filled c̄ yellow-brown clay. Dendritic Mn growths.	Core Nº 7	158'5" – 167'11"	Rec. 3'2"
170				Core Nº 8	167'11" – 174'11"	Rec. 6'0"
				Core Nº 9	174'11" – 180'10"	Rec. 5'3"
180		5"	Intraformational breccia: contains finely crystalline lst. pellets + fine sand grains & a calcareous cement.			
		13'9"	Dolomite: Gray – yawnish grey, rare vughs some filled c̄ clear calcite grains, rare stylolites, slightly arenaceous in places. Some dendritic Mn. Claystone, 3", fawn, non-calcareous.	Core Nº 10	180'10" – 187'6"	Rec. 6'4"
190				Core Nº 11	187'6" – 194'2"	Rec. 3'3"
	stylolites pellets.	5'3"	Sandy dolomite: buff, F.–M.G., quartzose, some pellets, numerous stylolites, rare clayey partings & fractures.	Core Nº 12	194'2" – 203'0"	Rec. 8'3"
200						
				Core Nº 13	203'0" – 212'9"	Rec. 7'0"
210	stylolites, vughs, Mn. (all rare).	31'8"	Dolomite: buff & light gray – white, aphanitic to v. finely xtalline in places, rare stylolites & vughs, partings frequently clay filled, some Mn growths, weathering throughout.	Core Nº 14	212'9" – 217'3"	Rec. 2'11"
220				Core Nº 15	217'3" – 224'7"	Rec. 5'10"
				Core Nº 16	224'7" – 229'0"	Rec. 2'11"
230	vughs.	2'9"	Dolomite: buff & lt. grey – white, coarsely – finely xtalline, v. vuggy, sugary texture.	Core Nº 17	229'0" – 236'8"	Rec. 7'8"
240		9'10"	Dolomite: Light gray – buff, massive, aphanitic, rare – med. vuggy, rare stylolites some c̄ clay filling, Claystone bands up to ½" near top of section.	Core Nº 18	236'8" – 246'8"	Rec. 10'0"
		5"	Dololutite: yellow-brown, F.G., no laminations, 2 stylolites.			
		3'3"	Dolomite: Pale grey, aphanitic, rare stylolites & fractures, no vughs.			
		7"	Sandy dolomite: Med. olive green, F.Gr., v. finely xtalline, c̄ 1" calcareous claystone.			
250	Ω	13'5"	Dolomite: Light grey becoming blue-grey, aphanitic to finely xtalline, rare low amplitude stylolites c̄ claystone filling, vughs v. rare. Possible convolute bedding at approx. 10'.	Core Nº 19	246'8" – 256'6"	Rec. 9'10"
260		1'0"	Dololutite: blue-grey, fissile.	Core Nº 20	256'6" – 266'5"	Rec. 9'11"
		5'4"	Dolomite: Pale gray to buff, aphanitic – v. finely xtalline, sey. vughs c̄ calcite lining and claystone bands at base, rare stylolites.			
		7"	Dolarenite: Med. olive grey, F.G., no sed. structures, single clay band.			
270		11'8"	Dolomite: buff – light grey, aphanitic – finely xtalline, rare vughs & low amplitude stylolites. Lt. olive-brown claystone bands up to 3" wide in top 6', may fill fractures & partings. Dendritic Mn. F.G Dolarenite & intraformational breccia close to base.	Core Nº 21	266'5" – 276'1"	Rec. 9'8"
280		2'0"	Dololutite: Pale grey-brown, c̄ v. minor sandy dolomite, some fine laminations.	Core Nº 22	276'1" – 285'9"	Rec. 9'8"
		5'7"	Dolomite: Pale grey – buff, F.G. – aphanitic, low amplitude stylolites, rare vughs c̄ calcite filling, which also form patches & v. short veins.			
		6"	Intraformational breccia: Fawn, car. lst. frags. up to 2" diam. set in a carbonate cement.			
290	stylolites	15'7"	Dolomite: Pale grey – buff, some blue-grey areas, aphanitic – finely crystalline, L.–M. amplitude stylolites, rare small vughs, Fractures & partings common, some dendritic Mn. Several dk. blue-grey clayey bands.	Core Nº 23	285'9" – 295'5"	Rec. 9'8"
300				Core Nº 24	295'5" – 304'7"	Rec. 9'2"
	pellets stylolites	7"	Dolarenite (microcongl) c̄ coarse, buff pellets. Low ampl. stylolites.			
		2'8"	Dolomite: buff, low ampl. stylolites, aphanitic c̄ pebble – silt-sized carbonate pellets.			
310		3'8"	Dolomite: buff, aphanitic becoming sandy (F.G.)	Core Nº 25	304'7" – 315'0"	Rec. 9'5"
	⊥, vuggy, cavernous.	2'6"	Dolarenite: pebbly – intraformational breccia, pebbles subangular – rounded, stylolites.			
		2'0"	Dololutite: buff, v.f.gr., v. fine banding, graded bedding, pull-apart.			
		2'9"	Dolarenite – intraform. congl.: v. vuggy, cavernous, recrystallized in part.			
320		10"	Dolomite: aphanitic, buff, some silty partings.	Core Nº 26	315'0" – 324'6"	Rec. 10'5"
		18"	Intraformational breccia: c̄ sandy lenses, grading down to f.gr. dolomite to silty dolomite.			
	⋔, pyrite.	7'1"	Dololutite: v.f.gr., occassional banding due to silt-sized qtz. Several micro-congl. & breccia bands. Buff to med. grey, low ampl. stylolites. Pyrite nodules. Scour & fill.			
330	Ω, pebbles.	2'11"	Dolomite: med. grey, sandy to silty convolute bedding, scattered carb. pebbles up to ½".	Core Nº 27	324'6" – 334'6"	Rec. 10'0"
		2'10"	Dololutite: v.f.gr., med. grey, v. finely banded, silt content increasing basewards.			
		2'8"	Dolomite: aphanitic, buff, discrete sand grs., 2" intraform. breccia.			
		1'3"	Dololutite: f.gr., L.green-brown, some interlaminated sst. & siltst.			
340		5'4"	Dolomite: buff, carbonate pebbles < ¼", some penecontemporaneous deformation.	Core Nº 28	334'6" – 343'9"	Rec. 9'3"
	=, pyrite	4'4"	Dolomite: L.grey, aphanitic to silt-sized, low amplitude laminae, pyrite disseminated.			
350	⊻, mica.	4'11"	Dolomite: aphanitic grading to siltst. & clayst. c̄ mica flakes, cross-bedding. Pebbly dolarenite, f. xtalline.	Core Nº 29	343'9" – 353'1"	Rec. 9'4"
	stylolites	4'6"	Dolomite: aphanitic – f.gr., gray, low ampl. stylolites, some discrete sand grs., poor laminations.			
		4"	Dololutite: blue-gray, discrete sand grs., few fine laminations.	Core Nº 30	353'1" – 362'9"	Rec. 9'8"
360	pyrite	11'10"	Dolomite: blue-grey, lt. grey – fawn, aphanitic – f. xtalline, rare stylolites & partings most c̄ clay filling, trace pyrite grains, discrete sand grs. throughout. Minor dololutite & dark blue-gray claystone bands. 3" Intraformational breccia c̄ av. pebble size ¼".	Core Nº 31	362'9" – 372'9"	Rec. 10'0"
370		8"	Interbedded dark grey claystone & med. gray siltstone, v.f. laminations.			
380		11'0"	Dolomite: green grey, aphanitic c̄ f.gr. silty laminae, rare sandy dolomite bands ½"–1" wide. Occasional stylolites c̄ blue-green claystone filling. Near base fractured & recemented brecciated sections.	Core Nº 32	372'9" – 382'7"	Rec. 9'10"
	pellet, vughs.	4'6"	Dololutite: buff to L.green grey, finely banded c̄ pellety bands, small vughs sugary.			
	=, pellets.	9"	Dolarenite: buff, microcongl., finely banded, carbonate pellets.	Core Nº 33	382'7" – 392'1"	Rec. 9'6"
390	pyrite, mica	4'11"	Dololutite: olive green → med. grey → reddish grey, grades siltst. at base, Fine sst. beds c̄ abundant graded bedding, pyrite, muscovite flakes, worm trails & burrowings.			
	stylolites pyrite.	5'8"	Dolomite: light grey, aphanitic c̄ some 2" brown-grey, red xtalline bands. Pyrite nodules common, stylolites, Rare silty bands.	Core Nº 34	392'1" – 399'1"	Rec. 7'8"
400		8"	Dolarenite: Light grey, sandy pebbly (Carbonate).			
	stylolites.	2'5"	Dolomite: aphanitic, L.grey, incipient stylolites.			
		2'0"	Dolomite: m. – f.gr. xtalline, stylolites.	Core Nº 35	399'1" – 408'3"	Rec. 8'0"
		2'5"	Dolomite: aphanitic, white – L.grey, occas. stylolites c̄ dk. grey siltstone.			
	pyrite, micaceous.	1'0"	Dololutite: blue-grey, 20% fa sand & silt-sized qtz., pyrite, micaceous.			
410		1'6"	Interbedded dolomitic siltstone & gr. sandy dolomite, c̄ discrete qtz. grs. throughout.	Core Nº 36	408'3" – 417'11"	Rec. 9'8"
420	stylolites. weak.	19'7"	Dolomite: Pale grey to blue-grey, aphanitic – rare finely xtalline, low – med. amplitude stylolites most c̄ dk. grey dolomitic siltstone. Vughs rare, most c̄ calcite lining. Weak laminations. Rare claystone bands c̄ pyrite & mica flakes. Discrete sand grs. throughout.	Core Nº 37	417'11" – 427'11"	Rec. 10'0"

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differentiated

Un	430	micaceous.	3'0".	Dololutite :- dk. grey, fine - med laminations, micaceous : and dolarenite :- siltsized, finely banded.	Core Nº 38 427'11" - 437'11" Rec. 10'0"
		stylolites	5'7"	Dolomite : blue gray - light gray, aphanitic, stylolites, partings rare. Several vughs c̄ calcite lining. Faint laminations. Discrete sand grs. throughout.	
	440		1'4"		
		stylolites (rare)	3'11"	Dolomite : Lt. - med. grey, aphanitic, rare low ampl. stylolites, some irregular claystone bands.	Core Nº 39 437'11" - 448'2" Rec. 10'3"
			10'4"	Dolomite : pale grey, m. - f.gr. becoming aphanitic, rare stylolites, v. vuggy at base, lined c̄ calcite rhombs. Interbedded c̄ dk. dolichitic siltst & grey dolarenite.	
CAMBRIAN	450	vughs.			
			2'0"	Dolomite : (as above) c̄ much interbedded dololutite & dolarenite. No stylolites.	Core Nº 40 448'2" - 458'7" Rec. 10'5"
			1'5"	Dolomite : Lt. grey, m. - f.gr., xtalline.	
	460	Mn.	5'6"	Dolomite : Lt. - med. grey, aphanitic, low ampl. stylolites, rare fractures & partings. Vuggy in last 6". Dendritic Mn.	Core Nº 41 458'7" - 462'6" Rec. 3'5"
		Muscovite, pyrite.	2'1"	Calcilutite & dolilutite : finely banded, f.gr., pale green grey, some muscovite, pyrite.	
		pellets.	5'0"	Dolomite : white, brown-grey, green grey, finely xtalline - aphanitic, some pelletty & pebbly bands. rare vughs, high ampl. stylolites.	Core Nº 42 462'6" - 478'0" Rec. 10'6"
	470		2'5"	Intraformational breccia : white, large tabular irregular pebbles (CaO) <1" x ¼".	
		pyrite	11'1"	Dolomite : Lt. - med. grey becoming greenish grey & reddish, finely xtalline, some silty laminae. Silt increasing basewards c̄ worm trails & burrowings, pyrite nodules.	Core Nº 43 473'0" - 483'6" Rec. 10'6"
	480		1'4"	Dololutite & dolarenite : v.f. gr., v. finely banded dololutite c̄ sandy - pebbly dolarenite,	Core Nº 44 483'6" - 493'6" Rec. 10'0"
			1"	Dolomite : med. - f. xtalline, qtz. lined vughs.	
			3'7"	Dolomite : aphanitic, much silt-sized material, sandy to granular near top.	
	490	pyrite, vughs.	3'6"	Dolomite : med. - fine xtalline becoming silty basewards. pyrite, vughs. Some black micaceous pyritic siltstone	
			10'0"	Dolomite c̄ minor siltstone at top, med. - aphanitic xtalline, vuggy, brown grey - light grey. Green grey siltstone at top.	Core Nº 45 493'6" - 503'6" Rec. 10'0"
	500	pyrite		Dolomite : grey, aphanitic, rare discrete stylolites. Occassional thin laminations. Several fine claystone bands Pyrite nodules & mica. Irregular partings c̄ dark grey claystone filling.	Core Nº 46 503'6" - 514'0" Rec. 10'4"
		mica	8'11"		
		vughs	3'2"	Dolomite : Lt. brownish grey, F. - M. xtalline, v. vuggy to rare at base,	Core Nº 47 514'0" - 522'4" Rec. 6'11"
			1'8"	Dololutite : finely laminated, M. - dk. gray siltstone, some silt sized qtz. grs.	
	520	vughs stylolites (rare).	12'11"	Dolomite : Lt. grey, aphanitic rarely f. xtalline, few stylolites some c̄ claystone filling, rare vughs c̄ calcite lining. Some interbedded dolomitic siltstone.	Core Nº 48 522'4" - 533'2" Rec. 10'9"
	530		1'6"	Siltstone : v. dark grey, c̄ interbedded dolomite & silty dolomite	
				Dolomite : med. grey - pale brown, aphanitic, low ampl. stylolites,	
		vuggy.	6'3"	discrete laminations, vuggy near base. Intraformational breccia, 3", subangular, pebbles in carbonate matrix.	Core Nº 49 533'2" - 542'11" Rec. 9'9"
	540	stylolites, vughs.	5'9"	Dolomite : Lt grey, aphanitic, f. - m. ampl. stylolites common, numerous vughs some calcite lined. 2'6" at top interbedded dolomite & dk. grey dololutite, silty.	
		Mica, pyrite	9'9"	Dololutite & silty dolomite : Dololutite : med. - dk. grey, some laminations, mica & pyrite, discrete qtz. grs. throughout, silty dolomite predominates at base - v.f. grained laminated,	Core Nº 50 542'11" - 548'11" Rec. 5'9"
	550		3'1"	Dolarenite : dk. grey, some low ampl. stylolites & laminations, crystalline & f.gr., discrete qtz. grs. throughout.	Core Nº 51 548'11" - 558'5" Rec. 9'5"
			7'1"	Dolomite : grey, aphanitic rare low - med. ampl. stylolites, some c̄ dk. grey claystone filling, many partings. Dololutite : v. dk. grey, finely laminated, 6".	
	560	vughs calcite veins Bit. pyrite nodules.	6'0"	Dolomite : grey to brownish brown, f. - m. xtalline, v. vuggy, c̄ calcite veins & pyrite nodules < ¼" diam. Black asphalt deposit. ? fault at top.	Core Nº 52 558'5" - 567'2" Rec. 8'10"
	570	micaceous.	6'8"	Dolomite : White - l. grey occas brown, aphanitic c̄ thin dolarenite. Also laminar, irregular silty lenses, micaceous. and rare intraform. breccia.	Core Nº 53 567'2" - 574'10" Rec. 7'8"
		Pyrite	11"	Dolomite : Finely sandy, pebbly, l. grey, pebbles - buff carbonate.	
		pyrite.	5'1"	Dolomite : Lt. grey, aphanitic, some silty partings < ⅛", pyrite nodules.	Core Nº 54 574'10" - 581'7" Rec. 5'9"
	580	vughs stylolites Pyrite.	8'6"	Dolomite : Light brown, course - med. xtalline, vuggy, stylolites, some pyrite nodules.	Core Nº 55 581'7" - 591'1" Rec. 8'4"
	590	micaceous	1'1"	Dolomite ; Lt. grey, aphanitic, c̄ micaceous siltst. and silt - fine sand sized qtz. < 10%.	
			7'10"	Dolomite & minor dololutite : Lt. grey, aphanitic - med. xtalline, low - med. ampl. stylolites c̄ claystone filling. Dololutite : dk. greenish grey, irregular laminations, some silty dololutite. Intraform. breccia, 3", subround lst. frags. & sand grs. c̄ ca cement	Core Nº 56 591'1" - 599'5" Rec. 7'0"
	600				Core Nº 57 599'5" - 605'7" Rec. 5'5"
	610	Chert.	23'6"	Dolomite : Lt. grey - lt. brownish grey, aphanitic - v.f. xtalline, low - med. ampl. stylolites some c̄ claystone filling, v.f. laminations at top, vughs some c̄ calcite rhomb lining. Partings & fractures present. Several chert lenses in middle, one lens with small (.x) pieces of chalcedony. Dolomitic siltstone dk. grey, irregularly bedded near top.	Core Nº 58 605'7" - 615'0" Rec. 9'2"
	620				Core Nº 59 615'0" - 622'5" Rec. 6'4"
		pyrite, mica.	8'7"	Dolomite : med. grey - brownish grey, f. xtalline, numerous dk. grey claystone laminations near top. Few discrete stylolites, rare vughs, pyrite nodules, mica in claystone.	Core Nº 60 622'5" - 631'0" Rec. 8'5"
	630				Core Nº 61 631'0" - 641'0" Rec. 8'8"
	640	stylolites, vughs. Bit.	20'5"	Dolomite : Lt. - m. grey m. brownish grey, aphanitic - v.f. xtalline, varying nos. of low - med. ampl. stylolites, v. vuggy in centre many c̄ black mineral filling. Fractures and partings variable in no. Dololutite, dk. grey, laminated, near base. Partings filled c̄ ? bituminous claystone.	
	650				Core Nº 62 641'0" - 653'0" Rec. 11'3"
		Bit.	2'4"	Dolomite : med. brownish grey, f. - m. xtalline, c̄ black ? bituminous inclusions.	
	660	pyrite, mica. chert.	11'8"	Dolomite : lt. grey, aphanitic, much med grey dolomitic siltstone c̄ silt-sized qtz. grs. rich in pyrite nodules, some mica. Dolomite becoming siliceous c̄ chert bands and silicified conglo. (pebbles < 1" diam.) towards base. Low ampl. stylolites.	Core Nº 63 653'0" - 660'9" Rec. 7'0"
			2'9"	Dolomite & interbedded sandy dolomite : x-bedded, some scour & fill, 4" intraform. breccia at base.	
	670	stylolites	8'6"	Dolomite : brown grey, m. - f. xtalline, vuggy recrystallized in part, stylolites, bitumen 'blobs' in vughs, Aphanitic near base, stylolites c̄ silty partings.	Core Nº 64 660'9" - 679'0" Rec. 15'4"
		Bit.			
	680	chert.	5'8"	Dolomite : Aphanitic, med. grey, low ampl. stylolites, silicified over top 6" c̄ white, faintly dolomitic, calc., banded chert.	Core Nº 65 679'0" - 682'2" Rec. 2'9"
		nullets. chert.	2'8"	Siliceous dolomite & chert : l. brownish grey - white, a few v. thin pelletty dololutite bands c̄ silt-sized qtz. Chert grades above & below to siliceous dolomite → dolomite.	
			2'10"	Dolomite c̄ minor dololutite : dolomite silty, graded beds at base	
	690		5'6"	Dolomite : Aphanitic, med. grey - l. brownish grey, rare silt-sized qtz.	Core Nº 66 682'2" - 696'8" Rec. 12'4"
			3'6"	Dolomite : grey - brown to l. brown, finely crystalline, low ampl. stylolites. V. thin Intraformational conglomerate.	
	700	stylolites c̄ bituminous filling.	8'10"	Dolomite : brownish - grey to v. light grey, aphanitic to finely xtalline, low - med. amplitude stylolites c̄ v. limited bituminous clay filling. Numerous small vughs.	Core Nº 67 696'8" - 705'6" Rec. 5'8"
			8"	Dolarenite : white - l. grey, f.gr., low ampl. stylolites c̄ bituminous claystone filling, possible ripple-marks, v. small x.-bedding.	
	710	chert	12'2"	Dolomite : l. grey, aphanitic - f. xtalline, rare stylolites, rare silt-sized qtz. grs., Chert, nodules or lenses in middle of unit. Small vughs	Core Nº 68 705'6" - 718'4" Rec. 5'8"
	720				Core Nº 69 718'4" - 720'4" Rec. 8".

CAMBRIAN

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Geology by : E.N. Milligan.
N.E. A. Johnson.
A.R. Lloyd.

Core recovery:

Interval.	Drilled.	Cored.	Recovered.	% Recovery of Core.
25' - 125'	117'6"	7'6".	3'6".	46·6%.
125' - 225'	12'10".	87'2".	62'5".	71·4%.
225' - 325'	—	100'0"	98'7"	98·7%.
325' - 425'	—	100'0"	99'6"	99·6%.
425' - 525'	—	100'0"	96'0"	96·0%.
525' - 625'	—	100'0"	94'0"	94·0%.
625' - 720'.	—	95'0"	83'11".	88·4%.

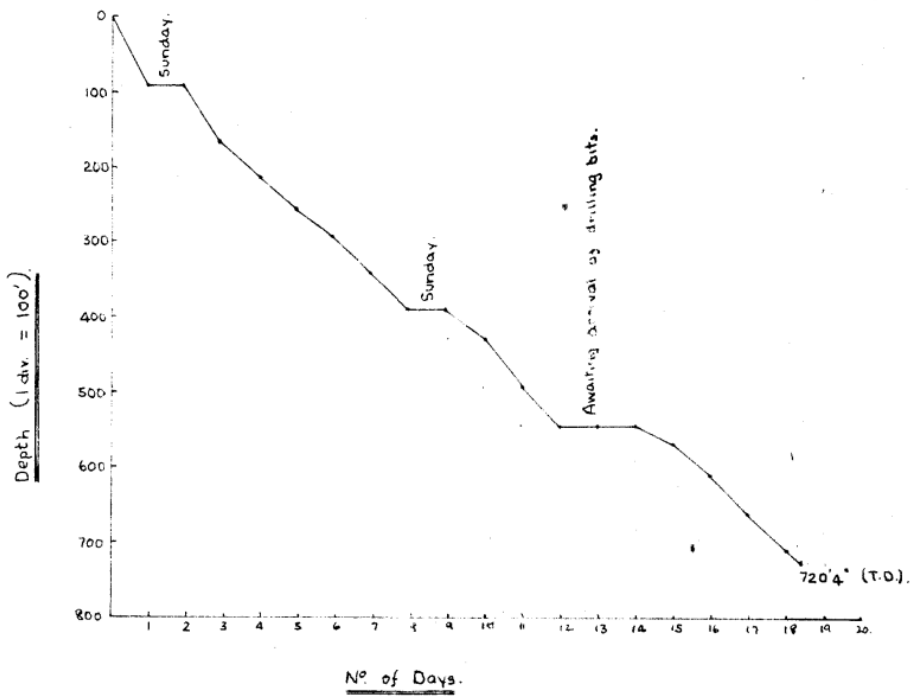
0 - 117'6".	Drilled (T-C) 6".
117'6" - 128'0".	Cored (G.F.) 3 3/16".
128'0" - 140'0".	Drilled (T-C) 3 7/8".
140'0" - 229'0".	Cored (G.F.) 3 13/16" (SPECIAL).
229'0" - 533'2".	Cored (G.F.) 3 13/16".
533'2" - 542'11".	Cored (G.F.) 3 13/16". (SPECIAL)
542'11" - 581'7".	Cored (G.F.) 3 13/16".
581'7" - 718'4".	Cored (G.F.) 3 13/16" (SPECIAL).
718'4" - 720'4".	Cored (G.F.) 3 13/16".

Cased: 0 - 117'6". 5" casing. Landed & pulled.

Trepari @ 700': 1° dev. @ 340°

Standing Water Level: 200'

Drilling progress chart.



S.N. 1962

WELL LOG AND HISTORY RECORD

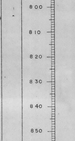
Bureau of Mineral Resources Geology and Geophysics

Well: B.M.R. Grg 4	Basin: GEORGINA	Field:		File No: 106 NTQ/1	
Co.:	Tenement: Name:	No: C.P. 70	Area: 7249 sq. mls.	Holders Name & Address: Shell Petroleum Pty. Ltd. 155 William St. Perth & Stanley House, Stanley St. Sydney	Expiry Date: 28-10-63
State: NORTHERN TERRITORY	Well Classification: Core-hole	Geological Objective:	To determine the thickness of Cretaceous rocks, the nature of their base, & their relationship to the Proterozoic.		
LOCATION: 1:250,000 Sheet: EIKEDRA (F53/7)	Drilling: Commenced: 24/10/62	Suspended - Resumed:	Completed: 2/January	Drilled by & Method: W.L. Gilbert & Co. Pty. Ltd. Failing 500 (two 150 units)	Total Depth: 738'11"
E.	Results: a) Maximum thickness of Cretaceous (mud 0'-9')				
N.	b) 9' - 1455' Antrim Gypsum Formation, 7 Upper Cambrian in this area.				
Long. 136°27'50"					
Lat. 21°10'50"					
Gr. 850'					
ELEVATION: Df/Rt	Samples depths & depositary: Cuttings				
K.B.	Cores				
General Locality: Approximately 100 miles, 4 miles NNW Mauritson Bore	Water				
Sketch Map of locality	Oil / Gas				
	Reports Author, No & depositary: Geological				
	Geophysical				
	Palaeontol'l				
	Drilling				
	E - Logs				
	Others				
	Final Completion				

AGE	FORMATION	DEPTH & Cores 1:200	LITHOLOGIC LOG	CONTACTS: Palaeontol. or Mineral Zones	GEOLOGICAL DESCRIPTION	Mechanical information, Casing, Shows, Tests, E-Log surveys. Core depths & recovery, Poro/Perm etc.
QUATERNARY	Undifferentiated	0				0' - 8' Kwartern R.T. 44'
		10				18 - 316' Kwartern R.C. 4"
		20				316 - 1021' Diamond (Gr) 3 3/8"
		30				1021 - 1250' Rock bit 3 3/8"
		40				1250 - 1516' Diamond (Gr) 3 3/8"
		50				1516 - 1706' Rock bit 3 3/8"
		60				1706 - 1911' Diamond (Gr) 3 3/8"
		70				1911 - 2174' Rock bit 3 3/8"
		80				2174 - 2355' Diamond (Gr) 3 3/8"
		90				2355 - 2411' Diamond (Gr) 3 3/8"
		100 ±				2411 - 2467' Diamond (Gr) approx 3 3/8"
		110				2467 - 2475' Rock bit 3 3/8"
		120				2475 - 2576' Diamond (Gr) 3 3/8"
		130				2576 - 2656' Rock bit 3 3/8"
		140				2656 - 2781' Diamond (Gr) 3 3/8"
		150				Reamed 0' - 1065' - 4 3/4" Hymo
		160				Casing: 0' - 1065' - 4" Hymo
		170				
		180				
		190				
		200				Core #1 914' - 943' Rec 14"
		210				Core #2 943' - 1002' Rec 47'6"
		220				Cored #3 1002' - 1062' Rec 10
		230				Core #4 1062' - 1122' Rec 10
		240				Core #5 1122' - 1182' Rec 10
		250				Core #6 1182' - 1242' Rec 10
		260				Core #7 1242' - 1302' Rec 10
		270				Core #8 1302' - 1362' Rec 10
		280				Core #9 1362' - 1422' Rec 10
		290				Core #10 1422' - 1482' Rec 10
		300				Core #11 1482' - 1542' Rec 10
		310				Core #12 1542' - 1602' Rec 10
		320				Core #13 1602' - 1662' Rec 10
		330				Core #14 1662' - 1722' Rec 10
		340				Core #15 1722' - 1782' Rec 10
		350				Core #16 1782' - 1842' Rec 10
		360				Core #17 1842' - 1902' Rec 10
		370				Core #18 1902' - 1962' Rec 10
		380				Core #19 1962' - 2022' Rec 10
		390				Core #20 2022' - 2082' Rec 10
		400				Core #21 2082' - 2142' Rec 10
		410				Core #22 2142' - 2202' Rec 10
		420				Core #23 2202' - 2262' Rec 10
		430				Core #24 2262' - 2322' Rec 10
		440				Core #25 2322' - 2382' Rec 10
		450				Core #26 2382' - 2442' Rec 10
		460				Core #27 2442' - 2502' Rec 10
		470				Core #28 2502' - 2562' Rec 10
		480				Core #29 2562' - 2622' Rec 10
		490				Core #30 2622' - 2682' Rec 10
		500				Core #31 2682' - 2742' Rec 10
		510				Core #32 2742' - 2802' Rec 10
		520				Core #33 2802' - 2862' Rec 10
		530				Core #34 2862' - 2922' Rec 10
		540				Core #35 2922' - 2982' Rec 10
		550				Core #36 2982' - 3042' Rec 10
		560				Core #37 3042' - 3102' Rec 10
		570				Core #38 3102' - 3162' Rec 10
		580				Core #39 3162' - 3222' Rec 10
		590				Core #40 3222' - 3282' Rec 10
		600				Core #41 3282' - 3342' Rec 10
		610				Core #42 3342' - 3402' Rec 10
		620				Core #43 3402' - 3462' Rec 10
		630				Core #44 3462' - 3522' Rec 10
		640				Core #45 3522' - 3582' Rec 10
		650				Core #46 3582' - 3642' Rec 10
		660				Core #47 3642' - 3702' Rec 10
		670				Core #48 3702' - 3762' Rec 10
		680				Core #49 3762' - 3822' Rec 10
		690				Core #50 3822' - 3882' Rec 10
		700				Core #51 3882' - 3942' Rec 10
		710				Core #52 3942' - 4002' Rec 10
		720				Core #53 4002' - 4062' Rec 10
		730				Core #54 4062' - 4122' Rec 10
		740				Core #55 4122' - 4182' Rec 10
		750				Core #56 4182' - 4242' Rec 10
		760				Core #57 4242' - 4302' Rec 10
		770				Core #58 4302' - 4362' Rec 10
		780				Core #59 4362' - 4422' Rec 10
		790				Core #60 4422' - 4482' Rec 10
		800				Core #61 4482' - 4542' Rec 10
		810				Core #62 4542' - 4602' Rec 10
		820				Core #63 4602' - 4662' Rec 10
		830				Core #64 4662' - 4722' Rec 10
		840				Core #65 4722' - 4782' Rec 10
		850				Core #66 4782' - 4842' Rec 10
		860				Core #67 4842' - 4902' Rec 10
		870				Core #68 4902' - 4962' Rec 10
		880				Core #69 4962' - 5022' Rec 10
		890				Core #70 5022' - 5082' Rec 10
		900				Core #71 5082' - 5142' Rec 10
		910				Core #72 5142' - 5202' Rec 10
		920				Core #73 5202' - 5262' Rec 10
		930				Drilled 5262' - 5274'
		940				Core #74 5274' - 5334' Rec 10
		950				Core #75 5334' - 5394' Rec 10
		960				Core #76 5394' - 5454' Rec 10
		970				Core #77 5454' - 5514' Rec 10
		980				Core #78 5514' - 5574' Rec 10
		990				Core #79 5574' - 5634' Rec 10
		1000				Core #80 5634' - 5694' Rec 10
		1010				Core #81 5694' - 5754' Rec 10
		1020				Core #82 5754' - 5814' Rec 10
		1030				Core #83 5814' - 5874' Rec 10
		1040				
		1050				
		1060				
		1070				
		1080				
		1090				
		1100				
		1110				
		1120				
		1130				
		1140				
		1150				
		1160				
		1170				
		1180				
		1190				
		1200				
		1210				
		1220				
		1230				
		1240				
		1250				
		1260				
		1270				
		1280				
		1290				
		1300				
		1310				
		1320				
		1330				
		1340				
		1350				
		1360				
		1370				
		1380				
		1390				
		1400				
		1410				
		1420				
		1430				
		1440				
		1450				
		1460				
		1470				
		1480				
		1490				
		1500				
		1510				
		1520				
		1530				
		1540				
		1550				
		1560				
		1570				
		1580				
		1590				
		1600				
		1610				
		1620				
		1630				
		1640				
		1650				
		1660				
		1670				
		1680				
		1690				
		1700				
		1710				
		1720				
		1730				
		1740				
		T.D. 738'11"				

Logged by G.A. Brown 27 Dec. 62 & W.Hogan

Interval	Drilled	Core & Recovery	% Recovery
1 Pellet dolomite & pellet dolomitic limey dolomitic limestone	125'-128'	102'5 22'1"	19'2" 86-5
	128'-226'	0'0" 97'1"	88'2 90-9
	226'-325'	0'0" 100'6"	93'1 93-2
	325'-425'	0'0" 95'6"	91'0 95-3
	425'-525'	0'0" 100'0"	98'8 98-7
	525'-625'	0'0" 100'0"	96'5 96-5
	625'-725'	7'2" 92'10"	88'10" 88-3
	725'-738'11"	0'0" 13'11"	13'1" 92-8



Drilling Progress Chart

GD55

S.N. 1962

Well: BMR GRG 9A.

Co.:

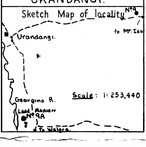
State: QUEENSLAND

LOCATION
1:250,000 Sheet: URANDANGI
E.
N.
Long. 138° 19' 48"
Lat. 21° 42' 10"

ELEVATION
Gr. 430'
DF/RT
K.B.

General Locality: URANDANGI

Sketch Map of locality



WELL LOG AND HISTORY RECORD

Bureau of Mineral Resources Geology and Geophysics

File No. 106 NT/9/1.

Basin	GEORGINA	Field			
Tenement	Name	No.	Area	Holders Name & Address	Expiry Date
		54 P	43,100 sq mls	Petroleum Abenarie Petroleum Co. LTD 53 Martin Place Sydney N.S.W.	30-9-63
Well Classification	CORE-HOLE	Geological Objective	To obtain a section of the Cannowonal Dolomite lithologies continuous with and below the section in Grg 3.		
Drilling	Commenced	Suspended - Resumed	Completed	Drilled by & Method	Total Depth
	13/10/1962		23/10/1962	W.L. SIDES & SON PTY. LTD. FAILING 750 (2 12hr. shifts).	419' 8".

Results
0 - 41' Austral Downs Limestone } Tertiary
41 - 94' Siltstones
94 - 420' Dololutite as in lowest 100' of Grg 3 Cannowonal Dolomite

Samples depths & depositary
Cuttings
Cores
Water
Oil / Gas

Reports Author, No & depositary
Geological
Geophysical
Palaeont'l
Drilling
E - Logs
Others
Final Completion

AGE	FORMATION	DEPTH & Cores 1:200	LITHOLOGIC LOG	CONTACTS, Palaeontol. or Mineral Zones	GEOLOGICAL DESCRIPTION	Mechanical information, Casing, Shows, Tests, E-Log surveys, Core depths & recovery, Poro/Perm. etc.
TERTIARY	AUSTRAL DOWNS LIMESTONE — Undifferentiated	0				
		10				
		20			41'6" **Limestone**: white-grey.	
		30				
		40				
		50			50'0". **Siltstone**: brown & buff weathering pervasive arenose to very fine siltstone becomes calcareous & green.	
		60				
		70				
		80				
		90				
		100		Vughs Stylolites.	13'6" Calcareous dolomite: ∫ chalcedonic, pale buff to yellow-brown, numerous stylolites decreasing in size & rare fm., intensely weathered in middle - no core. 2" calcarenite & white calcite pockets at base. Cavernous.	Core No 1 94'6"-94'6" Rec. 0"
		110			17'6" Calcareous dolosiltite: ∫ f-gr., white to buff some silt. grs., rare fine partings.	Core No 2 94'6"-104'1" Rec. 4'10"
		pl 10				Core No 3 104'1"-107'6" Rec. 3'1"
		120			9'3" Calcareous dolomite: ∫ - m. chalcedonic, white to blue-grey to buff-grey, rare vughs and partings, partly weathered clayey.	Core No 4 107'5"-113'0" Rec. 5'8".
						Drilled (113'0" - 123'2")
		130			10'6" Intraformational breccia (conglo): rounded & ear dolomite pebbles (yellow-brown, grey, siltstones) set in a buff, chalcedonic dolomitic matrix.	Core No 5 123'2"-131'6" Rec. 7'9"
		140			19'1" Calcareous dolomite: white to buff-grey, ∫ chalcedonic, numerous vuggyness, rare stylolites, clayey in pts.	Core No 6 131'6"-137'2" Rec. 7'9"
		150			1'10" Clay: blue-grey to buff, ∫ buff dolomite inclusions & reddish pebbles.	Core No 7 137'2"-142'5" Rec. 2'4"
					5'10" Calcareous dolomite: buff to ltgry, aphanitic - f. chalcedonic, grey colored bands, mod. clayey.	Core No 8 142'5"-147'1" Rec. 3'10"
		160			6'4" Cavernous dolomite & dolosiltite: buff-brown, ½" bands. Brown clay & sandy silt lenses.	Core No 9 147'1"-154'10" Rec. 5'4"
					12'6" Dolomite: m. chalcedonic, pale grey, small vughs.	Core No 10 154'10"-157'5" Rec. 1'10"
					2'8" Calcareous dolosiltite & dolosiltite: as above, some stylolitites.	Core No 11 157'6"-162'6" Rec. 4'8"
		170			2'1" Dolomite: ∫ chalcedonic, brownish-white.	Core No 12 162'6"-168'1" Rec. 5'7"
					6'3" Cavernous dolosiltite & dolocarenite: as above.	
				massive vughs	12'6" Dolomite: chalcedonic, white, almost boundstone.	Core No 13 168'1"-177'6" Rec. 1'2"
		180			10'6" Calcareous dolosiltite & dolocarenite: interbedding buff, discrete patches < 30% some v. silty lenses & unconsolidated blankets. 2" dolomitic siltstone, mod. blue-grey, v. vuggy, cavernous > 70%.	Core No 14 177'6"-187'6" Rec. 5'8"
		190		cavernous	10'0" Dolomite - dolosiltite: buff, with soft & v.f-gr. sandy lenses increasing basewards. Last 4" dolosiltite, v. f-gr. sandy; bedding & unconsolidated siltstone 1-2" bands. Highly cavernous and/or clayey.	Core No 15 187'6"-198'0" Rec. 4'2"
				vughs	5'4" Calcareous dolosiltite: buff, some weathering. 2" cavern between 192'-192'.	
		200			10'5" Cavernous dolomite: white-buff, ∫ chalcedonic, vuggy, some weathering.	Core No 16 198'0"-208'0" Rec. 8'4"
					Calcareous dolosiltite: buff, rare vughs, blue-grey in pts, some weathering. Cavernous between 202'-208', resulted in excessive core loss, rock may be weathered or cavernous.	
		210		vuggy dolosilt.	5'10" Intercalated calcareous dolosiltite & dolomite: dolosiltite as above, dolomite buff, v.f. chalcedonic, vuggy, some stylolites, mod. weathered. Cavernous between 209'-210'.	Core No 17 208'0"-216'6" Rec. 2'8"
		220			3'8" Calcareous dolomite: buff, brown-grey to lt. grey, aphanitic, some stylolites & partings, some weathering & clay.	Core No 18 216'6"-221'11" Rec. 3'8"
					1'7" Cavernous dolosiltite: buff, hard to soft, strongly weathered, clayey, ½" bedding.	Core No 19 221'11"-228'6" Rec. 2'4"
		230			3'0" Calcareous dolomite: buff, ∫ chalcedonic, some weathering.	
					10'6" Calcareous dolosiltite: buff - creamy, mottled in pts, minor vughs, core loss in very clayey material.	Core No 20 228'6"-239'0" Rec. 1'3"
		240				
		250				Drilled (239'0" - 264'0").
		260				
? LOWER MIDDLE CAMBRIAN	CANNOWONAL DOLOMITE	270		pellets	10'10" Calcareous dolomite: buff-grey, aphanitic becoming ∫ chalcedonic at base, rare stylolites & vughs, numerous clay partings, fracture mylns, some weathering especially in clayey pts.	Core No 21 264'0"-272'10" Rec. 7'4"
					8'4" Calcareous dolosiltite: v.f-gr. pellets & silt, silt content, grading in thin centre to intraform. congl. bands & carb. pellets & dolocarenite pebbles.	Core No 22 272'10"-276'10" Rec. 2'0"
		280			1'4" Dolomite: chalcedonic, buff.	Core No 23 276'10"-283'2" Rec. 4'0"
					11'8" Calcarenite dolocarenite: buff grading to intraform. congl. ¼" pebbles, rounded, mod-low sphericity, mostly recrystallisation. Rare 3-5" lst bands, buff, v.f-gr.sandy. Alt. bands, c. ¼" thick, at 9'5-10'6 & pelsid bands. Convolutions & indurations.	Core No 24 283'2"-295'4" Rec. 10'1".
		290				Core No 25 283'6"-294'4" Rec. 3'0"
						Core No 26 294'6"-301'0" Rec. 4'10"
		300		massive vughs	8'3" Calcarenite dolosiltite: buff to brown-grey, toxic patch in centre (? due to weathering of Mn? yields) v.f. bedding, very transported, micaceous, some mm. lenses bands. Indurated & v. bedding, at base. Dolomitic bands grading to chalcedonic dol. base. (Core loss on base).	Core No 27 301'0"-310'5" Rec. 9'5"
		310		pellets	9'0" Cavernous dolomite: mottled (buff to pinkish & blue white), aphanitic, some banding due to dol. concentric ring pellets, intercalated ∫ cementing and ¼in. lenses ∫ unchanged dk. grs.	Core No 28 312'6"-318'0" Rec. 1'11".
						Core No 29 318'0"-328'0" Rec. 8'0"
		320		vughs	Calcarenite dolomite: white to lt grey, blue-grey & buff, aphanitic - ∫ chalcedonic, vuggy some ∫ pinkish calcite stains, some stylolites. Numerous fractures near base.	Core No 30 328'0"-331'7" Rec. 4'4"
				pellets	1" Intraformational breccia: white to buff dolomite pellets, ½" & less, in white aphanitic dolomite matrix.	Core No 31 331'7"-339'1" Rec. 8'10"
		330			16'8" Calcarenite dolomite: white to blue-grey & buff, aphanitic - ∫ chalcedonic, vuggy in top half, numerous fractures & medium staining, more low angle stylolites.	Core No 32 339'7"-342'6" Rec. 3'0"
					1'0" Intraformational breccia (congl): rounded & ear pellets of buff dolomite in a dolomite matrix.	Core No 33 342'6"-346'0" Rec. 9'8"
		340		vughs	13'6" Calcarenite dolomite: white to grey to buff, aphanitic - f. chalcedonic, mod. vuggy, rare stylolitites, some fractures & medium staining.	Core No 34 346'0"-354'0" Rec. 2'4"
						Core No 35 354'0"-360'1" Rec. 5'9"
		350			8'10" Dolomite & silty & sandy dolomite: lt.-m. grey, scattered lenses & sand up to 50% , also ½" cong. Some blue-grey silt as interphases, Pyrite	Core No 36 360'1"-368'8" Rec. 2'4"
					7'4" Dolomite: white, chalcedonic grading down to aphanitic & sandy dolomite at base, vughs.	Core No 37 368'8"-370'8" Rec. 4'3"
		360				Core No 38 370'8"-376'2" Rec. 2'5"
						Core No 39 376'2"-381'4" Rec. 4'6"
		370		cavernous	23'8" Calcareous dolomite: grey, mottled to buff weathering & porous coloration, 8"-1' partings some ∫ bdg. & silty. Occasional thin bands & lens sand & rare sandy dolomite. Discrete ofte. grs. throughout. Cavernous thinness base.	Core No 40 381'4"-386'0" Rec. 4'8"
						Core No 41 386'0"-391'0" Rec. 8'3"
		380				Core No 42 391'0"-398'4" Rec. 8'0".
		390				Core No 43 398'4"-404'4" Rec. 5'3"
		400		cavernous vughs.	20'4" Calcareous dolomite: lt grey to buff, weathers to a buff color, aphanitic - f. chalcedonic, mod. to v. vuggy, some fracturing. Cavernous - may explain loss of core.	Core No 44 404'4"-413'10" Rec. 2'4".
		410				Core No 45 413'10"-416'6" Rec. 1'5"
						Core No 46 416'6"-419'8" Rec. 1'0"
		420				

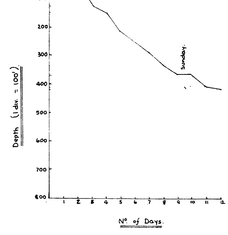
Geology by: E.N. Milligan.
A.R. Lloyd.

Core recovery:

Interval	Drilled	Cored.	Recovered.	%Recovery of Cored Interval
25' - 125'	79'2"	20'0"	13'0"	62.4 %
125' - 225'	1"	99'4"	55'6"	55.8 %
225' - 325'	25'0"	75'0"	51'9"	69.0 %
325' - 419'8"	—	94'8"	74'11"	79.2 %

0 - 94'0" Drilled (4¾in.) 3%"
94'0 - 107'5" Cored (6¼) 3¾in.
107'5" - 113'0" Cored (6¼) 3¾in. (special)
113'0" - 123'2" Drilled (4¾) 3¾in.
123'2" - 137'2" Cored (6¼) 3¾in.
137'2" - 147'1" " " " (special)
147'1" - 163'8" Drilled (4¾) 3¾in.
163'8" - 234'0" Cored (6¼) 3¾in. (special)
234'0" - 264'0" Drilled (4¾) 3¾in.
264'0" - 391'0" Cored (6¼) 3¾in. (special)
391'0" - 419'8" Cored (6¼) 3¾in.

Drilling progress chart.



COMPANY

AREA CEORGINA BASIN

WELL B.M.R. Org 9

COUNTY STATE Queensland

COORDINATES 138° 15' 23"E
N 21° 7' 17"S
S

ELEVATION:
D.F.
K.B.
G.L. 570

	Run No. 1	Run No. 2
Date	12/10/62	
First Reading	0	
Last Reading	365	
Footage Logged	365'	
Bottom (Driller)	373	
Casing (Schlum. Log)		
Casing (Driller)		
Casing Size		
Bit Size	5 3/16"	
Bit Size		

MUD	Run No. 1	Run No. 2
Nature	Rare water	
Density		
Viscosity	@ °F	@ °F
Resistivity	@ °F	@ °F
Res. @ BHT	@ °F	@ °F
pH		
Circ. Temp.		
B.H. Temp.		
Logged by	J.N. MILLIGAN	
Witnessed by	A.E. LLOYD	

REMARKS

Reg. U.S. Pat. Off.

Sensitivity .0025 m/m/div. Scanning 30mm.
Logging speed 300'/hour
X-ray

10 Per Cent

S.N.1962

Well: BMR GRG 18

Co.:

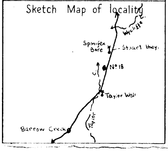
State: NORTHERN TERRITORY

LOCATION
- 1: 250,000 Sheet: BARROW CREEK
- E.
- N.
- Long. 145° 11' 33".
- Lat. 21° 8' 32".

ELEVATION
- Gr. 1240'.
- DF/RT
- K.B.

General Locality: BARROW CREEK.

Sketch Map of locality



WELL LOG AND HISTORY RECORD

Bureau of Mineral Resources Geology and Geophysics

Basin	GEORGINA.	Field		File No	106 NT/Q/1.
Tenement	Name	No	Area	Holders Name & Address	Expiry Date
		Vacant	—	—	—
Well Classification	CORE-HOLE.	Geological Objective	To penetrate the sand to determine the lithology of the underlying rock.		
Drilling	Commenced: 24/12/62 (1000 hrs.)	Suspended - Resumed	Completed: 26/12/62.	Drilled by & Method: W.L. SIDES & SON PTY. LTD. FAILING 750 (2 12hr. shifts).	Total Depth: 315'.
Results	0' - 180' Quarternary 180' - 303' Tertiary 303' - 315' Upper Cambrian. Dolomitised calcarenite & dolomitic siltst. w. a brachiopod of Upper Cambrian type				
Samples depths & depositary	Cuttings Cores Water Oil / Gas				
Reports Author, No & depositary	Geological Geophysical Palaeont'l Drilling E - Logs Others Final Completion				

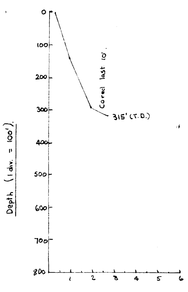
AGE	FORMATION	DEPTH & Cores 1 : 2.000	LITHOLOGIC LOG	CONTACTS, Palaeontol. or Mineral Zones	GEOLOGICAL DESCRIPTION	Mechanical information, Casing, Shows, Tests, E-Log surveys, Core depths & recovery, Poro./Perm. etc.
QUATERNARY.		0			Brown clay, gravel & sand.	
? TERTIARY.		180		? ?	White clay & quartz granules.	
UPPER CAMBRIAN	Undifferentiated	303		? ?	Purple pebbly clay. Dolarenite, light green, M.G., micaceous, discrete sand grains (c10%), rare low amplitude stylolites. Occasional sandy & silty lenses, ½" - 1", pink & dk. green; rare micaceous siltstones. Upper Cambrian brachiopod at 304'3", also garnets & ? other heavy minerals. 7'6"	Core 1 305'0" - 315'0" Rec. 7'6".
		315				

Geology by: E.N. Milligan.
N.E.A. Johnson.

0 - 305'0" Drilled (T.C.) 3⅜"
305'0" - 315'0" Cored (D.C.) 3⅞"

Core recovery:

Interval	Drilled.	Cored.	Recovered	% Recovery of Core.
25'-125'	100'	—	—	—
125'-225'	100'	—	—	—
225'-315'	80'	10	7'6"	76.0%



Drilling progress chart.

G055

S.N. 1962

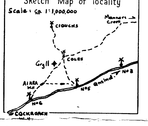
Well: B.M.R. Grg. 11
Co.:
State: NORTHERN TERRITORY

LOCATION
1:250,000 Sheet: TOBERMORY
E.
N.
Long. 137° 22' 30"
Lat. 22° 20'

ELEVATION
Gr. 640'
DF/RT
K.B.

General Locality: MANNERS CREEK

Sketch Map of locality
Scale ~ ca. 1" = 1000,000



WELL LOG AND HISTORY RECORD

Bureau of Mineral Resources Geology and Geophysics

File No: 106 NTQ1

Basin	GEORGINA	Field			
Tenement	Name	No	Area	Holders Name & Address	Expiry Date
		OP 63	136°40'-138°E 21°40'-23°S	CONTINENTAL OIL AND GAS Da Costa Building 68 Grenville Street Adelaide	9.9.63
Well Classification	CORE-HOLE	Geological Objective	To recover a representative section of Nimaroo lithologies in the region.		

Drilling	Commenced	Suspended – Resumed	Completed	Drilled by & Method	Total Depth
	1200 hrs 5/9/62		2400 hrs 24/9/62	W.L. SIDES & SON PTY. LTD. FALCON 750 – 5½ 12 hr shifts	456'

Results: 0 – 24' Quaternary
24 – 454 Nimaroo Formation: dolomites
454 – 570 Age unknown: sandstone, shale, dolomite
570 – 926 Dolomite, dolomitic and calcareous sandstone with recrystallized interbeds, breccia, dolitic horizons and rare glauconite

Samples depths & depositary: Cuttings; Cores; Water; Oil / Gas

Reports Author, No & depositary: Geological; Geophysical; Palaeont'l; Drilling; E – Logs; Others; Final Completion

AGE	FORMATION	DEPTH & Cores 1:200	LITHOLOGIC LOG	CONTACTS, Palaeontol. or Mineral Zones	GEOLOGICAL DESCRIPTION	Mechanical information, Casing, Shows, Tests, E-Log surveys, Core depths & recovery, Poro/Perm. etc.
QUATERNARY	undifferentiated	0				
		10			24' Sand, red brown.	Drilled 0 24'0"
		20			16' Travertine	
		30				CORE 1. 24'0" – 26'3" REC. 2'3" (9%) CORE 2. 26'3" – 28'0" REC. 1'9" (7%) CORE 3. 28'0" – 30'11" REC. 0'2" (1%)
		40			39'11" **Dolomite**, aphanitic, rarely f.–m. cryst., white – buff, silicified in part. Some discrete qtz. grains of silt – granule size.	Drilled 0 53'0"
		50				CORE 4. 53'0" – 53'6" REC. 0'6" (10%) CORE 5. 53'6" – 54'3" REC. 0'7" (10%) CORE 6. 54'3" – 58'0" REC. 3'9" (10%) CORE 7. 58'0" – 63'3" REC. 5'3" (10%) CORE 8. 63'3" – 68'3" REC. 5'0" (10%) CORE 9. 68'3" – 73'3" REC. 5'0" (10%)
		60		Vughs		CORE 10. 73'3" – 78'3" REC. 5'0" (10%)
		70		Vughs	4'6" **Dolomite**, aphanitic, f.grey silicified in part with secondary saccharoidal tex. 2'10" **Dolomite**, f.cryst. of SST., yellow brown near base **Dolomite**, as above to f.grey-yellowish grey, dolomitic porous SST.	CORE 11. 78'3" – 78'3" REC. 7'3" (10%)
		80				CORE 12. 78'3" – 79'1" REC. 3'8" (10%) CORE 13. 79'1" – 81'9" REC. 6'8" (10%)
		90		Vughs	26'4" **Dolomite**, f. cryst. buff to thin beds & lenses **Sandy dolomite**, buff, micaceous fissile	CORE 14. 81'9" – 84'9" REC. 2'8" (10%) CORE 15. 84'9" – 88'3" REC. 3'2" (10%)
		100		Vughs		CORE 16. 88'3" – 91'3" REC. 3'0" (10%) CORE 17. 91'3" – 91'7" REC. 0'4" (10%) CORE 18. 91'7" – 96'7" REC. 5'0" (10%)
		110		Cavernous		CORE 19. 96'7" – 98'10" REC. 2'3" (10%)
		120				CORE 20. 98'10" – 103'5" REC. 4'7" (10%)
		130		Cavernous		CORE 21. 103'5" – 103'7" REC. 0'2" (10%)
		140		Cavernous	72' 2" **Dolomite**, mod cryst, buff-grey to white, massive rare SST. f.gr. dolomitic, green, yellow & buff, grey, thin bedded. Cone. of qtz. sand grains at some stylolites.	CORE 22. 103'7" – 103'3" REC. 0'4" (10%)
		150		Vughs		CORE 23. 103'3" – 104'9" REC. 1'6" (10%)
		160	GI	Vughs		CORE 24. 104'9" – 105'3" REC. 0'6" (10%) CORE 25. 105'3" – 106'5" REC. 0'9" (10%)
		170			0'11" **SST.** f.gr. dolomitic, grey, interbedded w. **dolomite**, f.cryst. creamy	CORE 26. 106'5" – 109'8" REC. 3'3" (10%)
		180		Vughs	14'0" **Dolomite**; as above	CORE 27. 109'8" – 111'10" REC. 2'2" (10%) CORE 28. 111'10" – 113'3" REC. 1'5" (10%)
		190		Vughs Vughs	2'10" **Dolomite**, aphanitic, buff, with minor SST. silty, yellow-buff, laminae 2'6" f.gr. dolomitic, buff, micaceous interbeds – **claystone**, dolomitic, blue grey **Dolomite**, silty, f.brown, flaky laminae, of clay/claystone inclusions, yellow brown to blue grey	CORE 29. 113'3" – 113'6" REC. 0'3" (10%)
		200		Vughs Vughs	4'11" **Dolomite**, aphanitic – m.cryst, buff-brown grey, Qtz grns. in fenoid concentrations some laminae of clay, yellowbrown	CORE 30. 113'6" – 123'5" REC. 9'11" (10%) CORE 31. 123'5" – 126'0" REC. 2'7" (10%)
		210		Vughs	15'1" **SST.**, dolomitic/**Sandy Dolomite**, f.gr. to f.-c.gr. v.w.gy, ish, buff, thin bedded – thin clay laminae, yellow **SST.** thin grey. Interbedded & lensing each other with **Dolomite**, aphanitic, & brown grey vuggy – lenses **clay**, dolomitic.	CORE 32. 126'0" – 126'3" REC. 0'3" (10%) CORE 33. 126'3" – 126'3" REC. 1'1" (10%)
		220		Vughs Cavities		CORE 34. 126'3" – 126'10" REC. 1'0" (10%) CORE 35. 126'10" – 126'2" REC. 0'4" (10%)
		230		Vughs Stylolites		CORE 36. 126'3" – 127'10" REC. 2'0" (10%) CORE 37. 127'10" – 129'1" REC. 0'7" (10%)
		240		Cavernous	32' 11" **Dolomite**, f. cryst. – aphanitic, buff-creamy. rare **SST.** lenses	CORE 38. 129'1" – 129'10" REC. 0'11" (10%)
		250		Cavernous Cavities		CORE 39. 129'10" – 144'2" REC. 2'4" (10%) CORE 40. 144'2" – 150'3" REC. 6'1" (10%)
		260		Pyrite Cavernous	11' 0" **Dolomite**, f. cryst. blue grey & grey & l.grey mottled, peaky/grainy, detrital carbonate? Discrete qtz. sand grains.	CORE 41. 150'3" – 150'3" REC. 0'0" (10%)
		270		Pyrite Stylolites	4'5" **Dolomite**, f.–m. cryst., blue grey with **Sandy Dolomite** (c) & minor **SST** (glauconitic)	CORE 42. 150'3" – 150'11" REC. 0'8" (10%)
		280		Vughs		CORE 43. 150'8" – 177'10" REC. 0'8" (10%)
		290		Vughs Vughs Stylolites	52'9" **Dolarenite**, m.gr. with sandy component, grey-blue grey & buff grading in sections. C – **Dololutite**, sandy & silty. ? oolites minor – **SST.**, silty, grey, laminate – fine bedded **Shale**, grey, green – blue grey – v.fine laminae **Breccia** – angular silt frags. in sandy silty matrix	CORE 44. 177'10" – 184'0" REC. 5'6" (10%) CORE 45. 184'0" – 192'8" REC. 8'2" (10%)
		300		Vughs		CORE 46. 192'11" – 203'5" REC. 6'3" (10%)
		310				CORE 47. 203'5" – 210'6" REC. 5'1" (10%)
		320				CORE 48. 210'6" – 220'3" REC. 8'8" (10%)
		330		Stylolites		CORE 49. 220'3" – 229'3" REC. 9'4" (10%)
		340			43'2" **Dolomite**, aphanitic, grey, massive, some dark grey silty bands	CORE 50. 229'3" – 236'5" REC. 6'8" (10%)
		350		Stylolites		CORE 51. 236'5" – 246'10" REC. 8'10" (10%)
		360		Cavernous GI pyrite		CORE 52. 246'10" – 256'10" REC. 9'5" (10%) CORE 53. 256'10" – 257'6" REC. 2'8" (10%) CORE 54. 257'7" – 265'10" REC. 7'3" (10%)
		370		Stylolites GI		CORE 55. 265'10" – 274'6" REC. 8'6" (10%)
		380				CORE 56. 274'5" – 283'3" REC. 9'4" (10%)
		390			71'9" **Dolomite**, aphanitic, pellety in part buff, with scattered qtz grains recog. conc. into lenses. Some silt fixed glauconite. Minor – **SST.** grey, laminate clay, silty, in stylolites ¼" – ½" **Oolitic dolomite** @ 377'0 & 1' @ 401'	CORE 57. 283'3" – 293'1" REC. 9'8" (10%) CORE 58. 293'1" – 298'6" REC. 5'2" (10%)
		400				CORE 59. 298'6" – 308'11" REC. 7'10" (10%)
		410				CORE 60. 308'11" – 318'4" REC. 8'7" (10%)
		420		Pyrite Vughs		CORE 61. 318'4" – 328'0" REC. 8'6" (10%)
		430		Pyrite rare	20' 3" **Dolomite**, aphanitic, grey-brown grey, silty & pellety in part? oolitic @ 440'5"-446'0" **SST.** mgr., granular, grey, dark & green-grey	CORE 62. 328'3" – 338'8" REC. 9'8" (10%)
		440		Vughs Pyrite Pyrite		CORE 63. 338'8" – 348'0" REC. 9'5" (10%)
		450			10' 0" **Dolomite**, f.–m. cryst. & aphanitic, l.& dark grey banded with pellety & **SST.**'s **Silty dololutite** lenses. 3" of **SST.** dolomitic, l.grey & grey banded.	CORE 64. 348'0" – 356'0" REC. 9'2" (10%)
		460		T.D. 456'		

Geology by: E.N. Milligan, A.R. Lloyd.

0' – 24'	Drilled	3⅝" rock bit
24'0" – 30'11"	Cored	3½" Coldfields diamond
30'11" – 53'3"	Drilled	3⅝" rockbit
53'0" – 106'7"	Cored	3½" G.E. diamond
106'7" – 137'7"	Cored	3⅞" G.E. diamond (poor)
137'7" – 277'10"	Cored	3¾" G.E. diamond
277'10" – 456'0"	Cored	3¾" G.E. diamond (good)

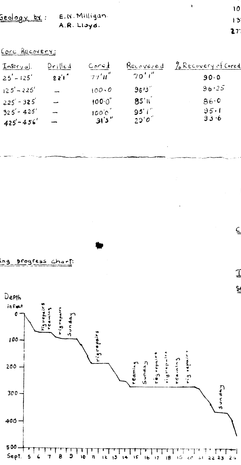
Core Recovery

Interval	Drilled	Cored	Recovered	% Recovery of Cored Interval
25' – 125'	84'	77'11"	70'1"	90·0
125' – 225'	–	100·0	36'3"	36·25
225' – 325'	–	100·0'	85'11"	86·0
325' – 425'	–	100·0'	95'1"	95·1
425' – 454'	–	29·0"	23'6"	33·6

Reamed: 0 – 69'2"; 45' – 49'2"; 459' – 90·0'; 90'5" – 445'

Casing: 5" { landed with pulled 45'; " " " 30'; landed – shoe at 203'

Drilling progress chart


Depth inter
0
100
200
300
400
500
Sept 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Drilling
Drilling
Drilling

COMMONWEALTH OF AUSTRALIA.

DEPARTMENT OF NATIONAL DEVELOPMENT.

BUREAU OF MINERAL RESOURCES GEOLOGY AND GEOPHYSICS.

RECORDS:

1963/86

Part 3 of 3

THE BUREAU OF MINERAL RESOURCES GEORGINA BASIN CORE DRILLING PROGRAMME

APPENDIX "B" ELECTRIC AND GAMMA RAY LOGS

COMPANY

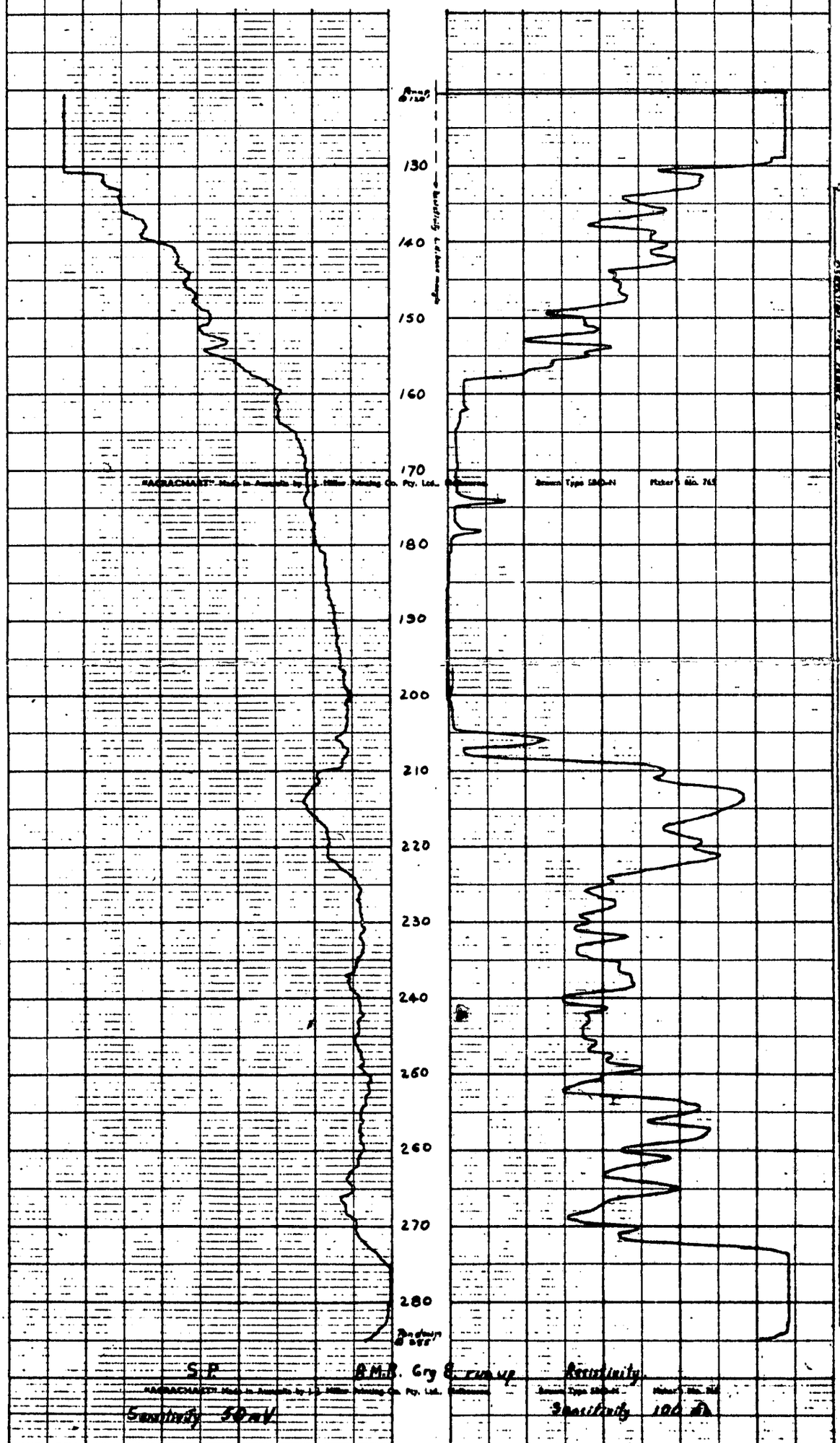
AREA GEORGINA BASIN

WELL B.M.R. Grg 8 STATE N.T.

COORDINATES
N
S
ELEVATION 1215
N.F.
K.B.
G.L.

	Run No 1	Run No. 2	MUD	Run No 1	Run No 2
Date	3/8/62		Nature		
First Reading	120		Density		
Last Reading	285		Viscosity	@ °F	@ °F
Footage Logged	165'		Resistivity	@ °F	@ °F
Bottom (Driller)	295'5"		Res. BHT	@ °F	@ °F
Casing (From Log)	nil		pH		
Casing (Driller)	nil		Circ Temp		
Casing Size	nil		B H Temp		
Bit Size	3 7/8				
Bit Size			Logged by		
			Witnessed by		

REMARKS Datum level 0'+1'6" drillers log



S.P

Sensitivity 50 mV

B.M.R. Grg 8 run up

Resistivity

Sensitivity 100 Ω

COMPANY

AREA GEORGINA BASIN

WELL B.M.R Grg 11

COUNTY STATE N.T.

COORDINATES: 133° 22' 30" E
N 22° 30' S
S
ELEVATION:
D.F.
K.B.
G.L. 640

	Run No. 1	Run No. 2
Date	20/9/62	
First Reading	100	
Last Reading	265	
Footage Logged	165	
Bottom (Driller)	269	
Casing (From Log)		
Casing (Driller)		
Casing Size		
Bit Size: 0-265	5 7/8"	
Bit Size: 265-269	5 5/16"	

MUD	Run No. 1	Run No. 2
Nature	Bore water	
Density		
Viscosity	@ °F	@ °F
Resistivity	@ °F	@ °F
Res. @ BHT	@ °F	@ °F
pH		
Circ. Temp.		
B.H. Temp.		
Logged by	E. N. McLEAN	
Witnessed by	A. R. LLOYD	

REMARKS

* Reg. U.S. Pat. Off.

— POTENTIAL +
mV

RESISTIVITY →

Temperature

110
120
130
140
150
160
170
180
190
200
210
220
230
240
250
260
265

"RADACHART" Made in Australia by J. J. Miller Printing Co. Pty. Ltd., Melbourne Brown Type 560-N Maker's No. 765

"RADACHART" Made in Australia by J. J. Miller Printing Co. Pty. Ltd., Melbourne Brown Type 560-N Maker's No. 765

Sensitivity 50 mV
S.P.

Sensitivity 25 Ω
Resistivity

COMPANY

AREA Grasslands Basin

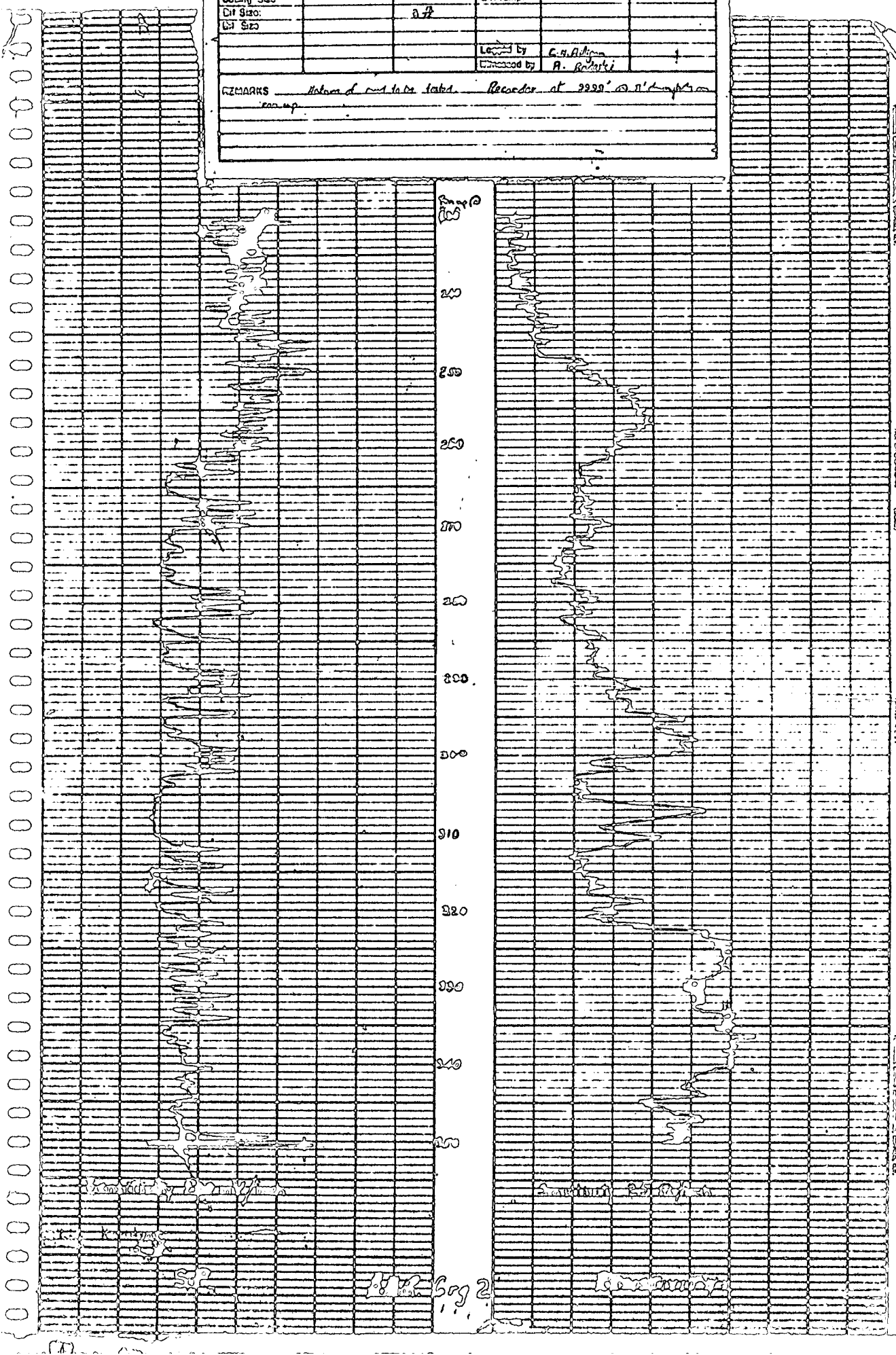
WELL B.M.B. Geo. 2 STATE N.J.

COORDINATES:
N
E
ELEVATION:
K.B.
K.D.
G.L. 1252'

	Run No. 1	Run No. 2
Date		10/2/62
First Reading		30a'
Last Reading		950'
Casing Logged		130'
Driller (Bottom)		950'
Casing (From Log)		200
Casing (Driller)		
Casing Size		
Bit Size:		8¾
Bit Size		

MUD	Run No. 1	Run No. 2
Material		
Density		
Viscosity	@ °F	@ °F
Resistivity	@ °F	@ °F
Res. @ MT	@ °F	@ °F
pH		
Circ. Temp		
BH Temp		
Logged by	C.H. Adkins	
Witnessed by	A. Rubaki	

REMARKS Volume of mud to be taked. Recorder at 2999' @ 1' /min
for up



COMPANY

AREA GEORGINA BASIN

WELL B.M.R. Grg 9

COUNTY STATE Queensland

COORDINATES: 138° 15' 23" E
N 21° 7' 17" S
S

ELEVATION:
D.F.
K.B.
G.L. 670

	Run No. 1	Run No. 2	MUD	Run No. 1	Run No. 2
Date	12/10/62		Nature	Bore water	
First Reading	140'		Density		
Last Reading	365'		Viscosity	@ °F	@ °F
Footage Logged	225'		Resistivity	@ °F	@ °F
Bottom (Driller)	378'		Res. @ BHT	@ °F	@ °F
Casing (From Log)			pH		
Casing (Driller)			Circ. Temp.		
Casing Size			B.H. Temp.		
Bit Size	3 7/8"				
Bit Size					
			Logged by	E.N. MILLIGAN	
			Witnessed by	A.R. LLOYD	

REMARKS Intermittent fault in S.P. recorder. Probably sludge forming in bottom of hole during logging

• Reg. U.S. Pat. Off.

T329A

— POTENTIAL + mv/

RESISTIVITY →

Remarks 140

ft

140
150
160
170
180
190
200
210
220
230
240
250
260
270
280
290
300
310
320
330
340
350
360
365

"AGRACHART" Made in Australia by S. Hollier Printing Co. Pty. Ltd., Melbourne — Brown Type SRC-N — Meter's No. 765

Sensitivity 50 mv

S.P.

Sensitivity 200 Ω

Resistivity

COMPANY

AREA Georgina Basin

WELL R.M.R. Corg. 16

COUNTY STATE N.T.

COORDINATES: 26° 61' 25" S
12° 48' 50" S

ELEVATION:
D.F.
K.B.
G.L. 720

	Run No. 1	Run No. 2
Date	25/11/12	
First Reading	0'	
Last Reading	500'	
Footage Logged	500'	
Bottom (Driller)	500'	
Casing (Prog. Log)		
Casing (Driller)	29'6	
Casing Size	8"	
1st Size	0-29'6": 6"	
2nd Size	29'6"-TD 5 7/16"	

MUD	Run No. 1	Run No. 2
Nature	Bore water	
Density		
Viscosity	@ °F	@ °F
Resistivity	@ °F	@ °F
Res. @ BHT	@ °F	@ °F
pH		
Circ. Temp.		
B.H. Temp.		
Logged by	E.N. MILLIGAN	
Witnessed by		

REMARKS On run up 0' on paper = 3978 on logger

* Reg. U.S. Pat. Off.

0 10 20 30 40 50

"AGRACHART" Made in Australia by J.J. Miller Printing Co. Pty. Ltd., Melbourne — Brown Type SBO-M — Maker's No. 765

60 70 80 90 100 110

"AGRACHART" Made in Australia by J.J. Miller Printing Co. Pty. Ltd., Melbourne — Brown Type SBO-M — Maker's No. 765

120 130 140 150 160 170

"AGRACHART" Made in Australia by J.J. Miller Printing Co. Pty. Ltd., Melbourne — Brown Type SBO-M — Maker's No. 765

180 190 200 210 220 230 240 250 260 270 280 290

"AGRACHART" Made in Australia by J.J. Miller Printing Co. Pty. Ltd., Melbourne — Brown Type SBO-M — Maker's No. 765

300 310

Sensitivity 0.005 mR/hr/mm Time Constant 0.5 sec

Logging speed 10 ft/min

γ-ray

COMPANY —

AREA GEORGINA BASIN

WELL B.M.R. Gog 16

COUNTY — STATE N.T.

COORDINATES: 136° 12' E
N 19° 43' S
S

ELEVATION:
D.F.
K.B.
G.L. 750

	Run No. 1	Run No. 2	MUD	Run No. 1	Run No. 2
Date	4/12/62		Nature	Rock water	
First Reading	0'		Density		
Last Reading	307'		Viscosity	@ °F	@ °F
Footage Logged	307'		Resistivity	@ °F	@ °F
Bottom (Driller)	314'		Res. @ BHT	@ °F	@ °F
Casing (From Log)			pH		
Casing (Driller)			Circ. Temp.		
Casing Size			B.H. Temp.		
Bit Size					
Bit Size					
			Logged by	E.N. MILLIGAN	
			Witnessed by	N.A. JOHNSON	

REMARKS

* Reg. U.S. Pat. Off.

COMPANY

AREA GEORGINA BASIN

WELL DAR Beg 1 STATE N.T.

COORDINATES:
W
S
ELEVATION: 1315'
K.B.
D.F.
G.L.

	Run No. 1	Run No. 2	MUD	Run No. 1	Run No. 2
Date	2/2/62		Material	Bore water	
First Reading	0		Density		
Last Reading	205'		Viscosity	① °F	① °F
Feet to Logged	205'		Resistivity	② °F	② °F
Bottom (Driller)	205'5"		Rm. BHT	③ °F	③ °F
Casing (From Log)	nil		pH		
Casing (Driller)	nil		Circ. Temp.		
Casing Size	nil		BH Temp.		
Bit Size.	5¾" OH				
Bit Size.	4½" API				
			Logged by	R.A.D. Ryan	
			Witnessed by	A.R. Lloyd	

REMARKS Datum level 0' = 1315' drillers log

Depth 0' on Gr/S recorder = 21' on gamma ray recorded at 155' 9" logged

0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
200
210
220
230
240
250
260
270
280
285

A

Radioactivity Log Gamma Ray Neutron

Run No. 1

Type Fluid in Hole

Max. Rec. Temp.

COMPANY

AREA Great Basin

WELL B.M.R. Grp 2 STATE N.T.

COORDINATES
N
S
ELEVATION
K.F.
K.B.
G.L. (Datum)

	Run No. 1	Run No. 2	MUD	Run No.	Run No.
Date	15/4/62	16/4/62	Nature		
First Reading	3	230	Density		
Last Reading	280	350	Viscosity	@ °F	@ °F
Footage Logged	277	120	Resistivity	@ °F	@ °F
Bottom (Driller)	354	354	Res. BHT	@ °F	@ °F
Casing (From Log)			pH		
Casing (Driller)	244		Fluid Loss		
Casing Size	5"		Bit Temp		
Bit Size	0-244' 6¾"	5¾"			
Bit Run	244-354' 5¾"				
			Logged by	J.W. Radajtis	
			Witnessed by	[illegible]	

REMARKS Composite log of Run 1. 3'-230' & Run 2. 230'-350'

Resistivity .005 mfd/inch — Spontaneous Potential 5 mvs

Logging speed 10'/minute

B.M.R. Grp 2 Werris log

GR-2 Run 1. 3' up. Logging speed 5' minute

Kelvin Hughes S.M.C.

No. B.8840-N (1962)

COMPANY

AREA GEORGINA BASIN

WELL BMR Org. 11

COUNTY STATE N.T.

COORDINATES: [illegible]

N [illegible]

S

ELEVATION: [illegible]

D.F.

K.B.

G.L. 64

	Run No. 1	Run No. 2
Date	24/9/62	
First Reading	0'	
Last Reading	420'	
Footage Logged	420'	
Bottom (Driller)	456'	
Casing (From Log)		
Casing (Driller)	202'	
Casing Size	5"	
Bit Sizes 0' - 265'	5 7/8"	
Bit Sizes 265' - 456'	3 7/16	

MUD	Run No. 1	Run No. 2
Nature	Bore water	
Density		
Viscosity	@ '	@ '
Resistivity	@ '	@ '
Res. @ BHT	@ °F	@ °F
pH		
Circ. Temp.		
B.H. Temp.		
Logged by	E.S. MILLIGAN	
Witnessed by	A.R. LLOYD	

REMARKS

* Reg. U.S. Pat. Off.

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390 400 410 420

"AUSTRACHART" Made in Australia by J.J. Miller Printing Co. Pty. Ltd., Melbourne. Brown Type SRG-N1 Maker's No. 765

COMPANY B.M.R.

AREA GEORGINA BASIN

WELL B.M.R. Grg 4 STATE N.T.

COORDINATES
N
S
ELEVATION 870'
R.F.
K.B.
G.L.

	Run No. 1	Run No. 2	MUD	Run No. 1	Run No. 2
Date	25/5/62		Nature	Dam water	
First Reading	750'		Density		
Last Reading	140'		Viscosity	@ °F	@ °F
Footage Logged	590'		Resistivity	@ °F	@ °F
Bottom (Driller)	739'		Res. BHT	@ °F	@ °F
Casing (From Log)			pH		
Casing (Driller)	108'5"		Circ. Temp		
Casing Size	5"		B.H. Temp		
Bit Size					
Bit Size	3 7/8"				
			Logged by	G.A. Brown	
			Witnessed by	P.J. Jones	

REMARKS Scale error 1 in 120' between recorder and paper. Scale in run up is 158' on paper & 189 on recorder. On run down first 'kick' on resistivity pen at 139'. Discrepancy between SP & Resistivity first 'kicks' duplicated in preliminary run.

"ACRACHART" Made in Australia by L.J. Miller Printing Co. Pty. Ltd., Melbourne. Brown Type 3566-N. Maker's No. 765

150 Level.

160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480 490 500 510 520 530 540 550 560 570 580 590 600 610 620 630 640 650 660 670 680 690 700 710 720

Pen down @ 730'

Sensitivity 20mV

S.P.

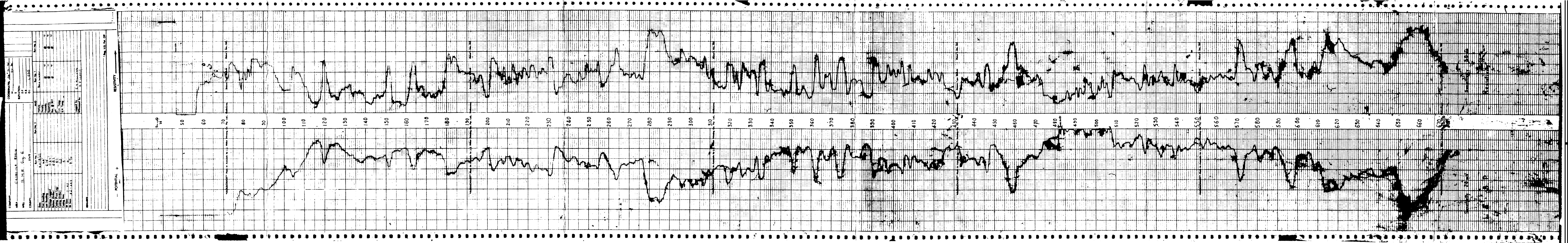
POTENTIAL 20 mV

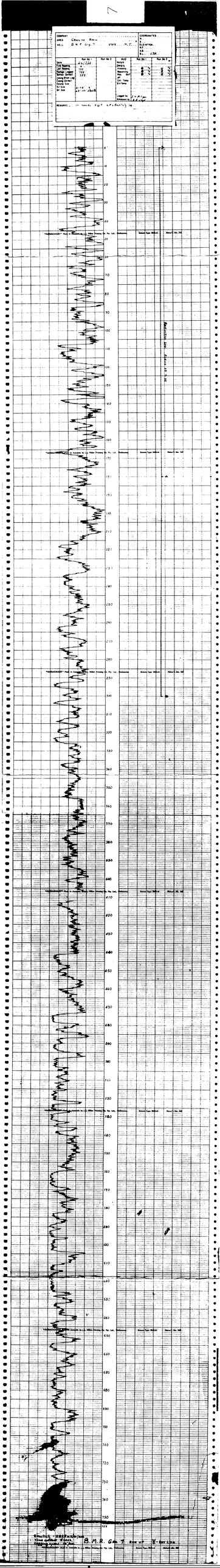
Sensitivity 100Ω

RES 100Ω

Resistivity

BMR - GRG 4 2nd RUN UP




COMPANY
AREA
WELL
B.M.R. Co. 7
STATE — N.T.
COORDINATES
Run No. 1
Run No. 2
Run No. 3
Well Data
Depth Driller's
Depth Logger's
Bottom Log Int.
Top Log Int.
Casing Driller
Casing Logger
Bit Size
Type Fluid in Hole
Density
Viscosity
pH
Fluid Loss
Source of Sample
Rm @ Meas. Temp.
Rmf @ Meas. Temp.
Rmc @ Meas. Temp.
Source: Rmf Rmc
Rm @ BHT
Time Since Circ.
Max. Rec. Temp. Deg. F
Equip. No. & Location
Recorded By
Witnessed By
REMARKS — 10 rounds cut 4 1/2" Perfo's log
Radioactivity Log
Gamma Ray - Neutron
B.M.R. Co. 7 Bore of Volcano
Engineer's Signature
Time after Circ.
Recorded by
Witnessed by

8 M1

COMPANY

AREA GEORGINA BASIN

WELL B.M.R. Grg. 14

COUNTY STATE

COORDINATES 137° 15' 46.6"
N 21° 10' 32.3"
S

ELEVATION
D.F.
K.B.
G.L. 730'

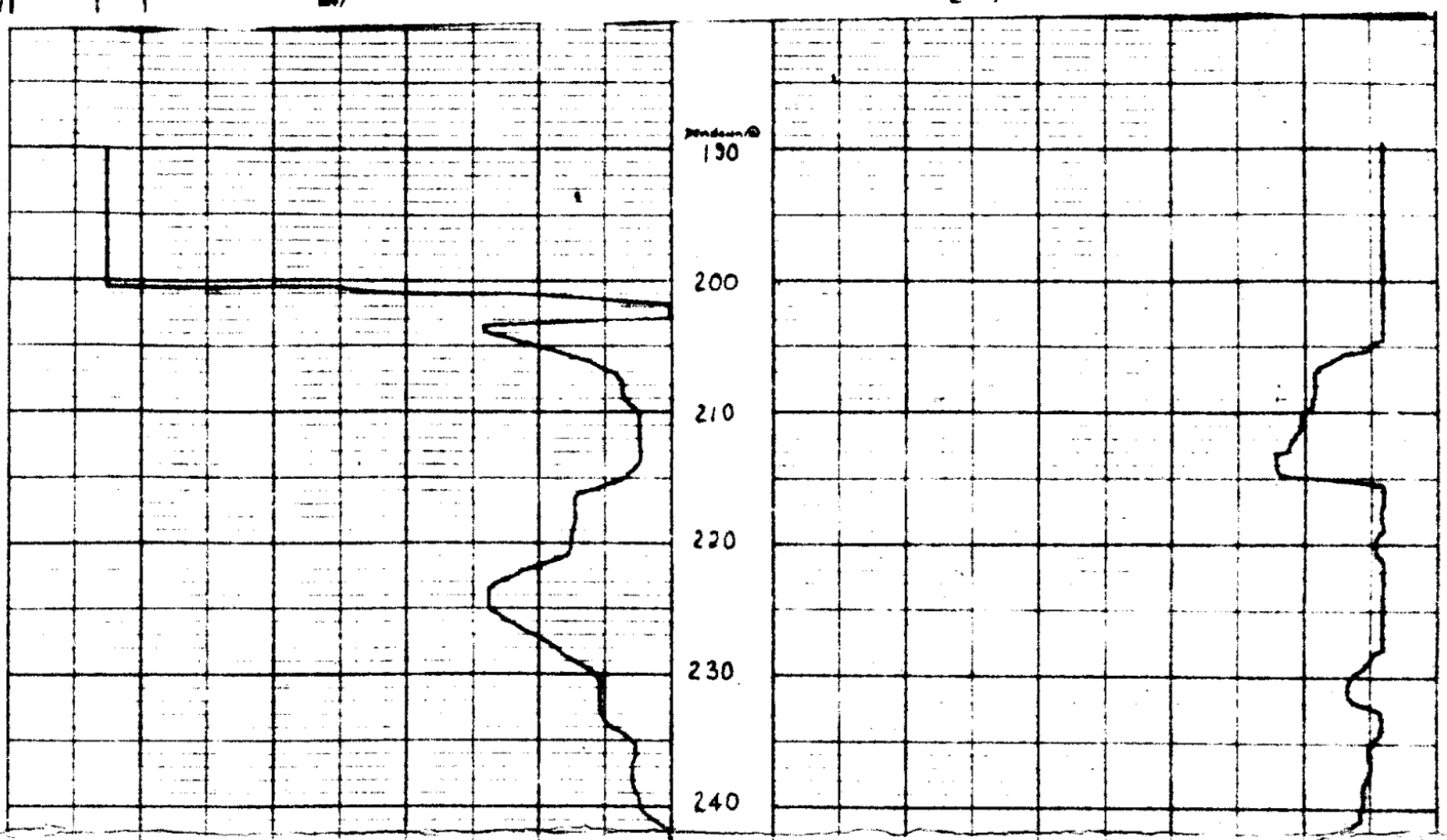
	Run No. 1	Run No. 2	MUD	Run No. 1	Run No. 2
Date	14/11/62		Nature		
First Reading	200'		Density		
Last Reading	700'		Viscosity	● °F	● °F
Footage Logged	500'		Resistivity	● °F	● °F
Bottom (Driller)	720'		Res. @ BHT	● °F	● °F
Casing (From Log)			pH		
Casing (Driller)	117'6"		Circ. Temp.		
Casing Size			B.H. Temp.		
Bit Sizes	0-117.6' 6" 125-161 3 7/8				
Bit Sizes	117.6'-125, 161-720 3 7/8				
			Logged by	E. M. MILLIGAN	
			Witnessed by	N.E.A. JOHNSON	

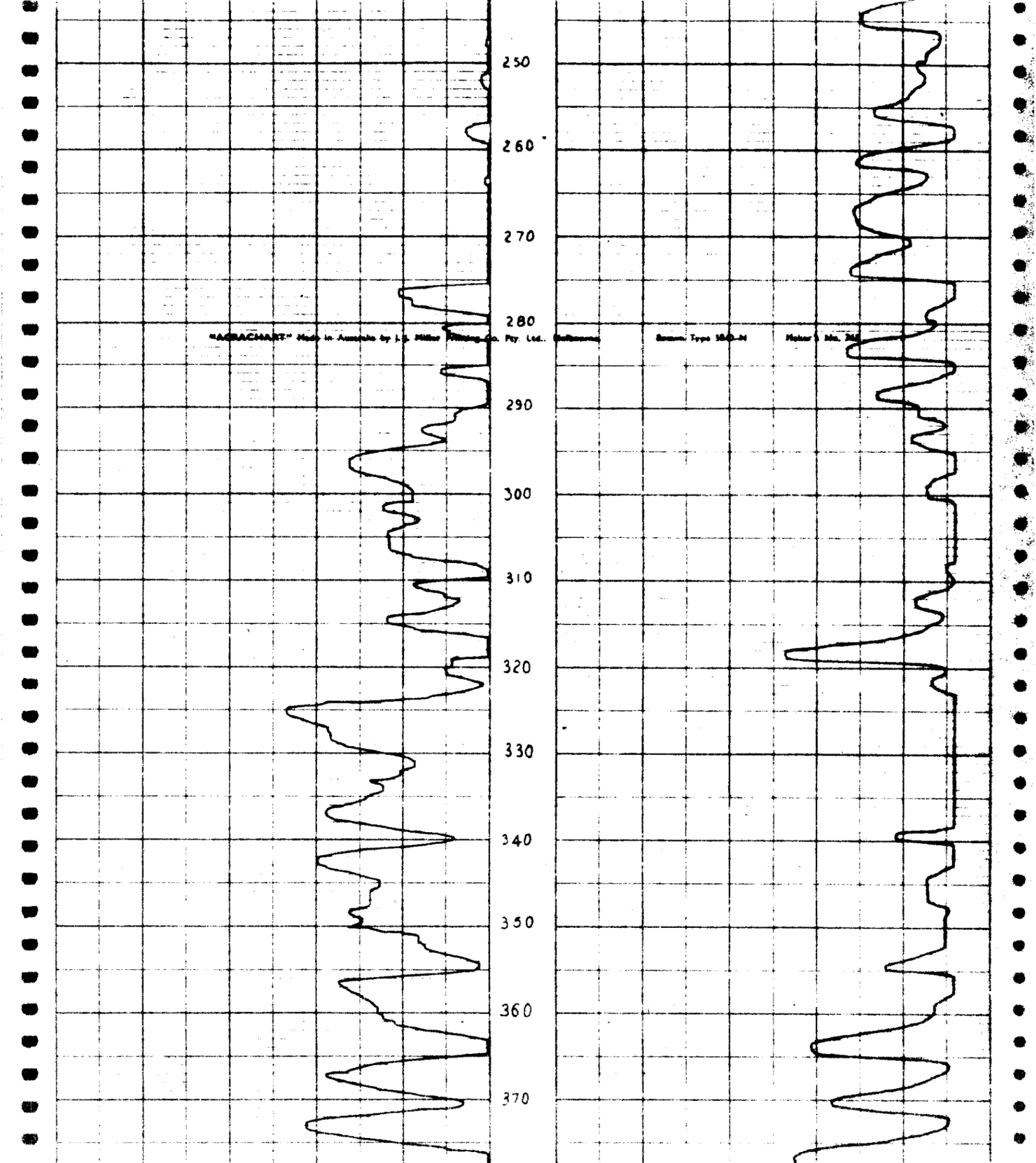
REMARKS

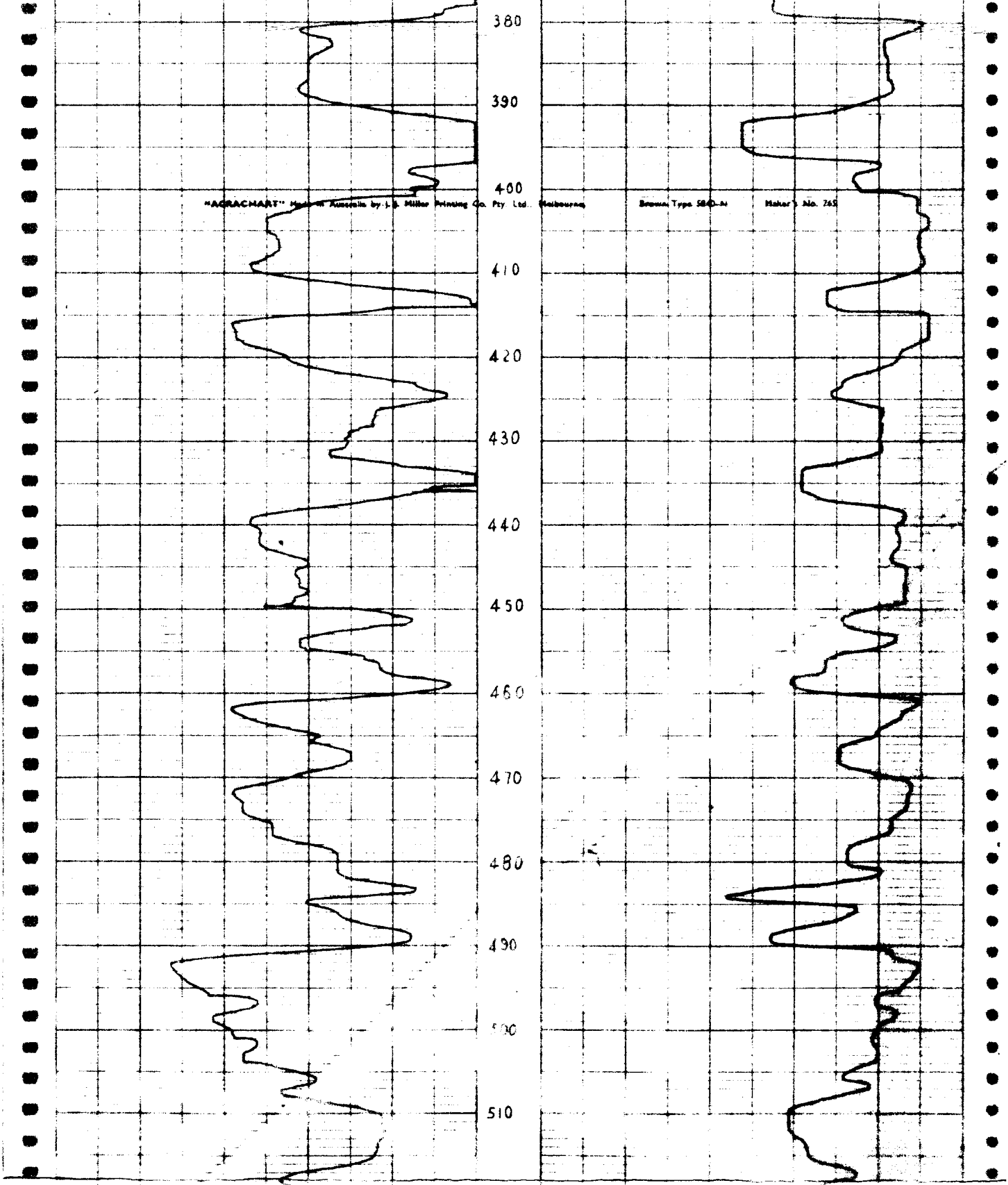
* Reg. U.S. Pat. Off.

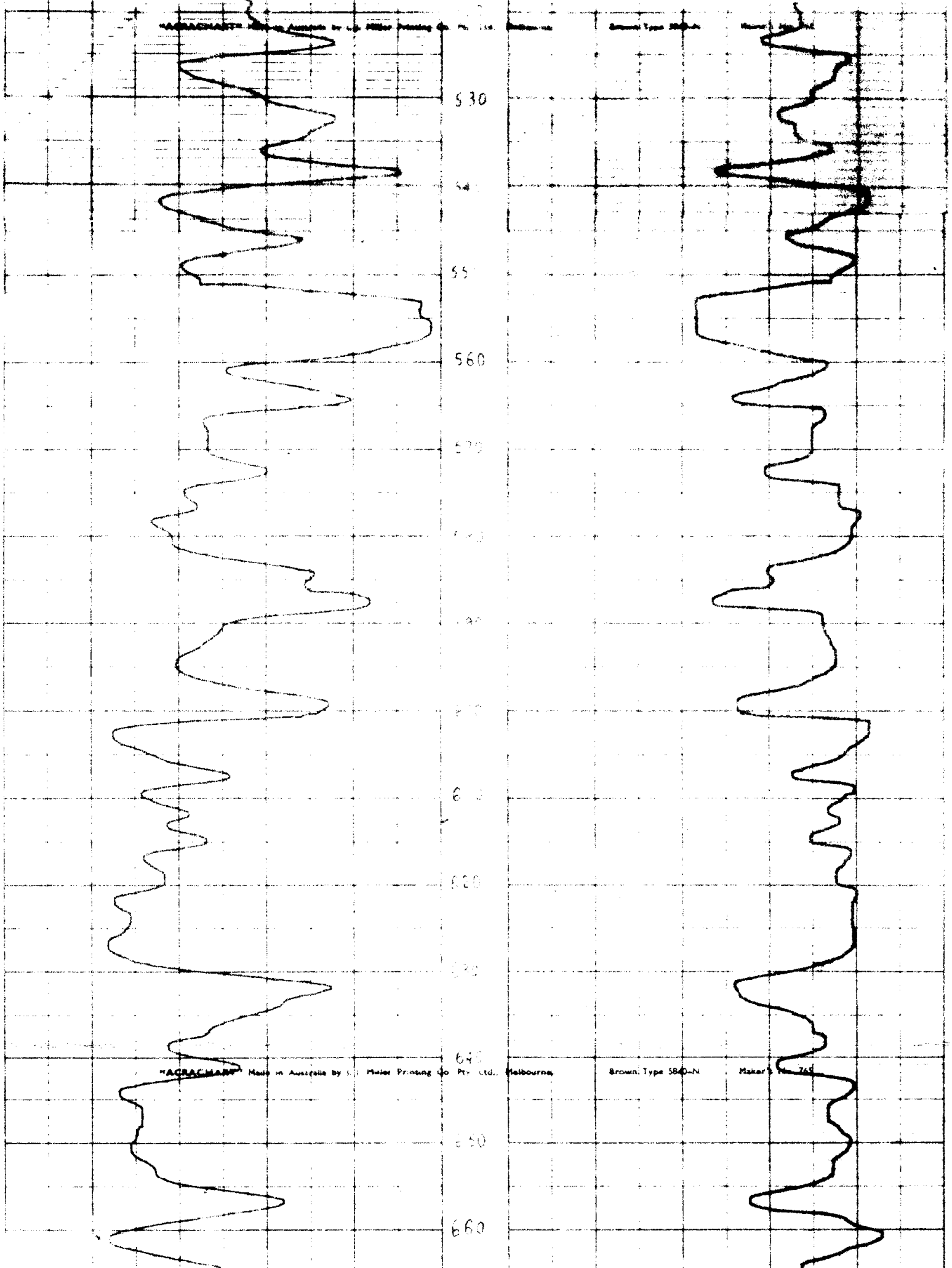
— POTENTIAL mv/ +

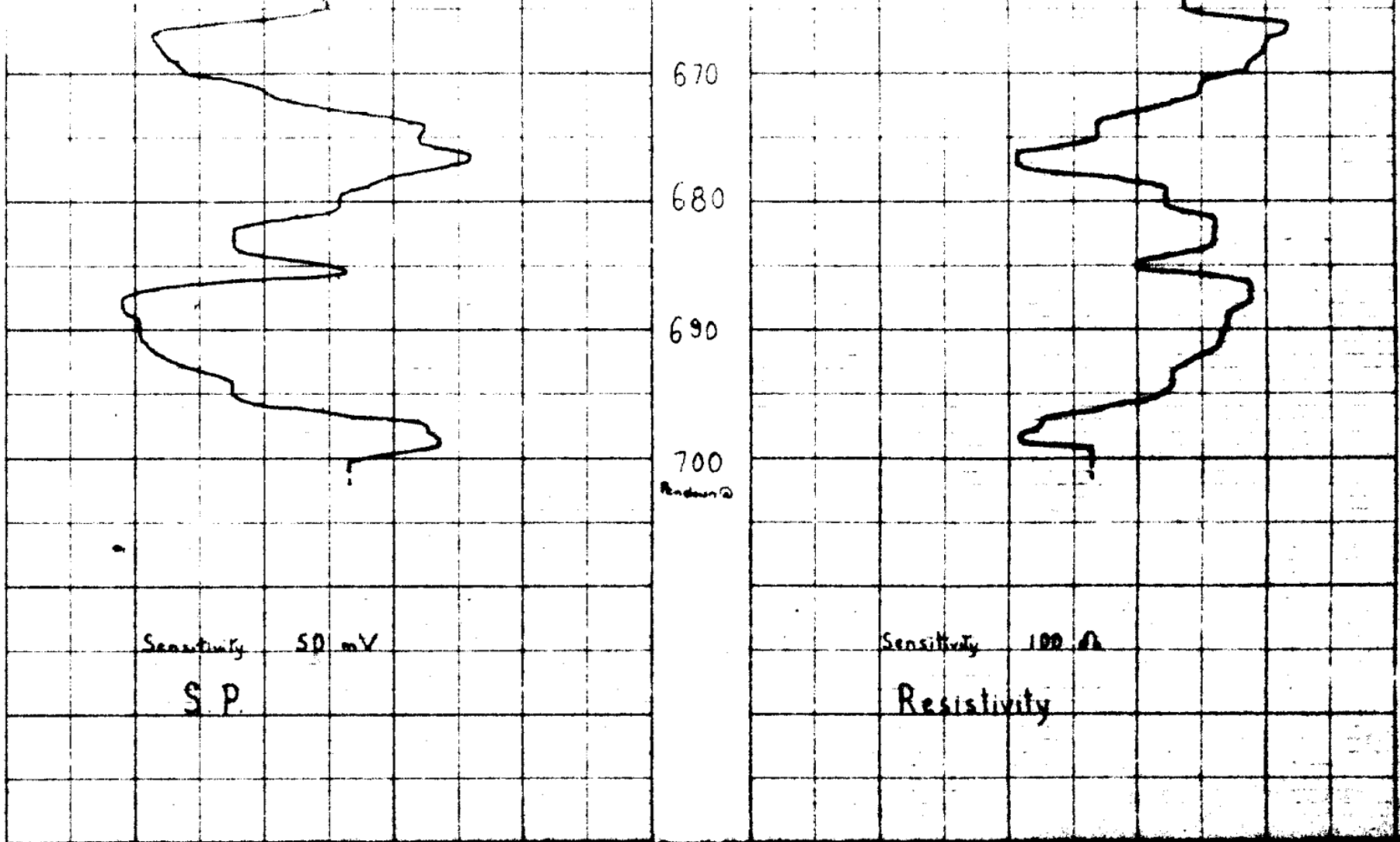
RESISTIVITY Ω/m

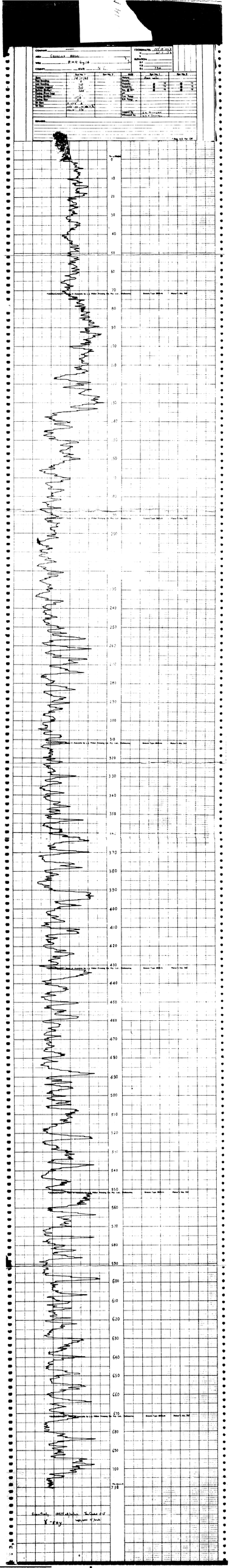



250
260
270
280
290
300
310
320
330
340
350
360
370


380
390
400
410
420
430
440
450
460
470
480
490
500
510
"AGRACHART" Made in Australia by J. B. Miller Printing Co. Pty. Ltd. Melbourne
Brown Type 580-A1
Maker's No. 765


530
540
550
560
570
580
590
600
610
620
630
640
650
660
"AGRACHART" Made in Australia by L. J. Miller Printing Co. Pty. Ltd., Melbourne.
Brown. Type 580-N
Maker's No. 765


670
680
690
700
Sensitivity 50 mV
S.P.
Sensitivity 100 Ω
Resistivity



COMPANY BMR

AREA NORTHERN TERRITORY

WELL BMR GRG 5 STATE NT

COORDINATES:
N
S
ELEVATION:
N.F.
K.B.
G.L.

	Run No. 1	Run No. 2	MUD	Run No. 1	Run No. 2
Date	2-4-62		Nature	River water	
First Reading	170		Density		
Last Reading	448		Viscosity	@ °F	@ °F
Footage Logged	278		Resistivity	@ °F	@ °F
Bottom (Driller)	452		Res. BHT	@ °F	@ °F
Casing (From Log)			pH		
Casing (Driller)			Circ Temp		
Casing Size			B.H.Temp		
Bit Size					
Bit Size					
			Logged by	E.N. Mellegers	
			Witnessed by	A. Rossiter	

REMARKS Depth ref. GL.
Depth indicated approx. 1 in 100 too low
No log above 170 ft

Begin
180 ft

200
220
240
260
280
300
320
340
360
380
400
420
440
448

A
B
C
D

Enlarge AB. 2½"
to CD. 3"

CRG 5. Ent. 8 cap

Sensitivity .005 Time const. 5 Speed 15 mm/min

TECHNICAL CHARTS INCORPORATED, BUFFALO, N.Y.

No. B-5840-N (5840)

PRINTED IN U.S.A.

TECHNICAL CHARTS INCORPORATED, BUFFALO, N.Y.

No. B-5840-N

COMPANY —

AREA Northern Territory

WELL BMR CRG 5 STATE N.T

COORDINATES:
N
S
ELEVATION: 124.0 feet
N.F.
K.B.
G.L.

	Run No. 1	Run No. 2	MUD	Run No. 1	Run No 2
Date	24/1/62	24/1/62	Nature	River water	
First Reading	204'		Density		
Last Reading	448'		Viscosity	@ °F	@ °F
Footage Logged	244'		Resistivity	@ °F	@ °F
Bottom (Driller)	452'		Res. BHT	@ °F	@ °F
Casing (From Log)	204'		pH		
Casing (Driller)	200'		Circ. Temp.		
Casing Size	5"		B.H. Temp.		
Bit Size					
Bit Size					
			Logged by	E.M. Wigan	
			Witnessed by	A. Radenski	

REMARKS Depth ref. G.L.
Depth indicated appear 1 in 100 too low.
Mr. Log shows 200 ft

SP

A

C

180

200

220

240

260

280

300

320

340

360

380

400

420

440

448

Entrance AB to CD

B