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COMMONWEALTH OF AUSTRALIA.

DEPARTMENT OF NATIONAL DEVELOPMENT.

BUREAU OF MINERAL RESOURCES
GEOLOGY AND GEOPHYSICS.

RECORDS.

1962/81

Pt 1 of 2

EXPLANATORY NOTES, JULIA CREEK SHEET, QUEENSLAND.

by

R.R. Vine and W. Jauncey.

PART 1 of 2

EXPLANATORY NOTES - JULIA CREEK SHEET

by

R.R. Vine and W. Jauncey

with Palynological Notes

by

P.R. Evans

RECORDS 1962 ..

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SUMMARY

The Julia Creek area forms the western and northern margins of the Eromanga Sub-Basin, where it is mainly composed of Cretaceous rocks overlying a shallow, crystalline basement. Small outcrops of Precambrian granite and metamorphics occur in the south-west. Thin veneers of Cainozoic sand and gravel, and Recent alluvium mask large areas of the Cretaceous rocks.

Interpretation of drillers' logs was used to draw structure contours and isopachs of the Longsight Sandstone. These indicate the whole sequence is faulted in the south-west and strong basement relief is reflected by folding in the overlying Cretaceous rocks.

Recommendations are made for a core-hole to resolve the problem of faunal and possible time breaks below the Toolebuc Member, for completion of the helicopter gravity survey of the area and extension northwards to basement outcrops, and for a well to test possible petroleum accumulation on the St. Elmo Structure.

INTRODUCTION

The Great Artesian Basin Party of the Bureau of Mineral Resources, consisting of R.R. Vine and W. Jauncey, with I. Chertok as draftsman, mapped the Julia Creek Sheet in 1961 as part of a programme of regional mapping covering the margins of the Eromanga Sub-Basin in Western Queensland. Four military 1:250,000 sheets were mapped during the field season, and explanatory notes to accompany each sheet have been produced. In addition to Julia Creek, the sheets mapped were McKinlay (Vine & Jauncey, 1962), Mackunda (Vine, 1962) and Brighton Downs (Jauncey, 1962). The results were plotted on air photos (average scale 1:46,500) taken by the Royal Australian Air Force in 1951 and the information was later reduced to the final 1:250,000 scale.

Access to and within the area is excellent, with many station tracks and main roads. The only obstacles to cross-country travel are numerous fences and the channels of larger creeks and rivers. Four planes a week fly into Julia Creek from each of Townsville and Mt. Isa, the Great Northern Railway (Townsville to Cloncurry and Mt. Isa) runs east-west through the area, and there are highways or main roads to Cloncurry, Normanton, Townsville, Winton (via Kynuna) and McKinlay. Most are earth roads and impassable for two or three days after rain, but a new highway being built to Normanton will be sealed.

Potable water from bores is available throughout the area; most are flowing bores. Waterholes are mainly small and temporary, although some of the larger ones on the Flinders River may be permanent.

The eastern third of the area (east of 142°E longitude) is held under Petroleum Authority to Prospect 76P by Exoil N.L. The rest of the area is held by Australian Oil Corporation.

PREVIOUS INVESTIGATIONS

Before the present survey only very broad, regional geological work had been carried out in the general area. Early workers recognised an old metamorphic belt of rocks forming the Cloncurry Mineral Field on the west, and Cretaceous sediments, with an arenitic aquifer at the base, forming the rolling downs on the east. (Daintree, 1872; Jack, 1885, 1895; Jack and Etheridge, 1892; Cameron, 1901; Dunstan, 1920, Jensen, 1925; Reid, 1929).

More detailed, though still broad reconnaissance, work was carried out on the Great Artesian Basin as a whole by Whitehouse (1930, 1945, 1953) which culminated in a comprehensive account of the stratigraphy, structure and geological history of the basin (Whitehouse, 1954). He also discussed the late geological history and physiography of western Queensland (Whitehouse, 1940, 1941) and recognised the extent of the Pliocene Glendower Formation in the Flinders River area (Whitehouse, 1954).

More systematic work on the western margins of the Great Artesian Basin began in 1957 with mapping of the Boulia Sheet (Casey et al, 1960) and continued with the Springvale Sheet (Reynolds, 1960a) Gilberton and Georgetown Sheets (Reynolds, 1960b) and south-western Queensland (Reynolds, Olgers and Jauncey, 1961). Casey (1959) established the nomenclature for the western margin of the basin; the Mesozoic sequence, with a probable correlation with Whitehouse's is:

Casey, 1959		Whitehouse, 1954
Winton Formation		Winton Formation
upper	Wilgunya Formation	Tambo Formation
Toolebuc Member		
lower		
		Roma Formation
Longsight Sandstone		Blythesdale Group (Upper part)

Laing and Power (1959a,b) published new stratigraphic names as a result of mapping in the adjacent Carpentaria Sub-Basin.

A photo-interpretation of the sheet was made by the Institut Francais du Petrole (de Lassus St. Genie, Perry and Scanvic, 1962). The geological map (Plate VI) was compiled mainly from this photo-interpretation; few changes had to be made.

Geophysical work is limited to a single gravity traverse by Sydney University (Marshall and Narain, 1954), a helicopter gravity survey of part of the area by the Bureau of Mineral Resources (Map only, Plate IV, this report) and an aeromagnetic traverse (Jewell, 1960).

PHYSIOGRAPHY

The whole of the Julia Creek area is nearly flat. Elevations range from 300 to 600 feet above mean sea level, with a gentle slope from the eastern and southern margins to the north-west. What little relief there is, is controlled by the geology (Plate VI) and is summarised in Table I:

Table I
Topography of the Julia Creek area.

Rock Unit	Topography
Qa (Alluvium)	Black soil plains, sandy flats; linear shallow, silty valleys of Julia, Eastern and Sadowa Creeks
Czg (High level alluvium)	Low, gravelly rises.
Czs	Sand and gravel flats, relict sand ridges in Saxby Downs area.
Klw_2) Klw_1) Wilgunya Formation	Rolling downs
Klw(t) Toolebuc Member	Low Ridge along St. Elmo Structure, low rocky knolls west of Gilliat River and south of the railway, rocky outcrops in rolling downs north of Flinders River ending in a low scarp against the alluvial belt of the Saxby River, and Express and Yard Creeks.
Pg) Pl) Precambrian	Rocky outcrops in alluvial plains.

STRATIGRAPHY

Table 2 summarises the stratigraphy of the Julia Creek Sheet. The Cretaceous units are continuations of those recognised and named from earlier surveys in nearby areas. Several fossil collections were made in the upper and Toolebuc Members of the Wilgunya Formation, but these have not yet been determined.

A very thin cover of the Cainozoic unit marked Czs overlies Mesozoic rocks in the north and north-east, thickens eastwards and has given rise to some low, linear, sand ridges, now completely covered in scrub. This unit is possibly part of the Glendower Formation, which Whitehouse (1954 pp 12-13) describes, in part, as loosely compacted sediments which form a belt of sandy soils from Normanton to beyond Hughenden. From the limited outcrops in the Julia Creek area it is inadvisable to claim that this is part of the Glendower Formation, but further mapping to the east during 1962 (including the type area near Glendower Homestead) may resolve the problem.

Some of the local inhabitants report "petrified wood" in the Julia Creek area. All the occurrences seen were cone-in-cone limestone.

STRUCTURE

Structural information in the Julia Creek area was obtained from three sources, each of which is partly interpretative.

Surface Mapping: (Plate VI):

(a) Crystalline basement crops out in the south-west of the sheet area.

(b) In the north-east the beds dip regionally in the south-west but rocks older than the Toolebuc Member of the Wilgunya Formation are concealed by veneers of Cainozoic deposits.

(c) A structurally controlled limestone ridge extends from near Lara Downs to east of Julia Creek Town. The limestone is the Toolebuc Member, which is topographically higher than the surrounding younger lutites of the upper member of the Wilgunya Formation. The Structure, here named the St. Elmo Structure, is a very gentle fold. It is probably related to the Manfred Fault (Whitehouse, 1954); this is discussed below in relation to sub-surface information.

Drillers' Logs: Approximately 200 bores have been drilled within the Sheet area. Where drillers' logs are available it is clear that practically all bores reach the Longsight Sandstone and approximately 50 penetrate it. These logs have been used to plot contours on the top and bottom of the Longsight Sandstone, to make an isopach map of the unit, and to show the lithologies of the pre-Cretaceous rocks (Plates I to III). The main features evident from these maps are:

(a) The St. Elmo Structure is the surface expression of a basement ridge with the Longsight Sandstone draped and thinning over it. Although the contours on the west side of the structure are close and nearly parallel, the isopachs do not suggest faulting.

Whitehouse (1954, Figure 34) shows the Manfred Fault in the approximate position of the St. Elmo Structure. He quotes (p.16), without any reference, Ogilvie as the originator of the name. Ogilvie (1954, Figure 95) gives a pho f steeply dipping limestone which he refers to as the surface expression of the Manfred Fault. Such dips are common in the Toolebuc Member, but they are of random direction and amount and normally represent collapse structures.

In this area, therefore, there is little evidence for the existence of the "Manfred Fault". The concept of a fold due to draping over a basement ridge is fundamentally different; to avoid confusion the name "St. Elmo Structure" is proposed for this feature to replace "Manfred Fault".

Further north Whitehouse (1954) shows the Manfred Fault on the east side of the Precambrian inliers of Mt. Brown and Mt. Fort Bowen. These were not examined, but it is quite possible that the inliers are part of the basement ridge of the St. Elmo Structure where it reaches the surface.

(b) Another basement ridge, shown by basement contours, extending roughly east-west forms the southern limit of the St. Elmo Structure. This ridge also caused draping and thinning of the Longsight Sandstone. It approximates the positions of the marked westerly swings of Julia and Eastern Creeks.

(c) In the south-west there is a crowding of the contours for the top and bottom of the Longsight Sandstone. There is no similar effect in the isopachs; a fault is therefore inferred with a downthrow of approximately 800 feet to the east. It is a continuation of the fault inferred from similar evidence in the north-west of the McKinlay area (Vine and Jauncey, 1962).

(d) East of the St. Elmo Structure bore information in the Julia Creek area is sparse, and no bore penetrates the whole of the Longsight Sandstone. The top of the unit dips off the eastern flank of the structure but rises again in the north-east. At Bore 4368 the top of the sandstone is 25 feet above sea level and the driller records 411 feet of "sandrock" and "pipe clay" which are interpreted as part of the Longsight Sandstone.

TABLE 2.

STRATIGRAPHY OF JULIA CREEK SHEET

ROCK UNIT	THICKNESS (feet)	LITHOLOGIES	DISTRIBUTION	STRUCTURE	TOPOGRAPHY	STRATIGRAPHIC RELATIONSHIP AND AGE	PRINCIPAL REFERENCES
Alluvium (Qa)	Thin cover	Silt, micaceous sand, gravel.	All creeks and rivers. Micaceous sand and gravel confined to west.		Plains, braided rivers and steep-sided creeks.	Quaternary	
Older alluvium (Czg)	Thin cover	Quartz gravel.	Patches west of Gilliat River.		Low rises beside rivers.	Old alluvial terraces. Cainozoic	
Sand and conglomerate (Czs)	Thin cover	Well-rounded, clean quartz sand and poorly lithified conglomerate.	Patches north of Flinders River.		Sandy and gravelly flats, fossil sand ridges in north-east.	Possibly part of the Glendower and Lynd Formations. Cainozoic.	Whitehouse, 1954. Laing & Power, 1959b.
Wilgunya Formation.				Gently folded over basement ridges, faulted in south-west.		Top eroded; conformably overlies Longsight Sandstone. Probably equivalent to Blackdown Formation, Kamileroi Limestone and Normanton Formations, and to Roma and Tambo Formations. Lower Cretaceous.	Casey, 1959. Casey et al., 1960. Reynolds, 1960. Laing & Power, 1959a, 1959b. Whitehouse, 1954.
upper member (Klw_2)	600+ (top eroded)	Blue and grey claystone and siltstone, silty limestone, cone-in-cone limestone.	Between Gilliat and Flinders Rivers and north of Flinders River.		Rolling downs.		
Toolebuc Member ($Klw_{(t)}$)	30	White, pink and grey limestone, coquinite, calcareous shale.	Inliers in south-west, between Julia Creek and Flinders River and south of Saxby River.		Low rises and knolls, low rocky ridges.		
lower member (Klw_1)	400-500	Blue and grey claystone and siltstone, silty limestone.	Mainly sub-surface, small outcrop in west bank of Flinders River north of Manfred Downs.				
Longsight Sandstone	0-500+ thinning over pre-Longsight ridges, possibly thickening eastwards.	Sandstone, "pipe clay" (drillers' term) conglomerate.	Sub-surface	Thinning over basement ridges, filling depressions, probably faulted in south-west.		Overlies unconformably Precambrian rocks, conformably overlain by Wilgunya Formation. Probably equivalent to the upper part of the Blythesdale Group. Late Jurassic-Lower Cretaceous.	Casey, 1959. Casey et al., 1960. Whitehouse, 1954.
Pre-Cretaceous		"Rock", "red rock", "slate", "schist", "granite", "diorite" (drillers' terms)	Sub-surface	Probably strongly faulted.		Probably a continuation of the Precambrian rocks of the Cloncurry Mineral Field.	
?Lower Proterozoic		Granite, meta-sediments.	Small inliers in south-west.	Meta-sediments, steeply dipping, probably part of fault block.		Overlain unconformably by Longsight Sandstone, probably a continuation of the Precambrian belt of north-west Queensland.	

This rise in the top of the unit is not, therefore, primarily due to basement relief but is a reflection of a thickening of the Mesozoic sequence.

Whitehouse (1954) noted that large water flows are common east of the "Manfred Fault" and postulated the existence of sandstone of the Bundamba Group at depth to account for them. This remains to be proved, but it appears certain that the Mesozoic sequence is thickening eastwards.

Ogilvie (1954) noted a sharp drop in the temperature gradient east of the "Manfred Fault". This he correlated with deepening basement.

<u>Geophysical surveys</u>: Geophysical surveys are listed on page 4; their locations are shown on Figure

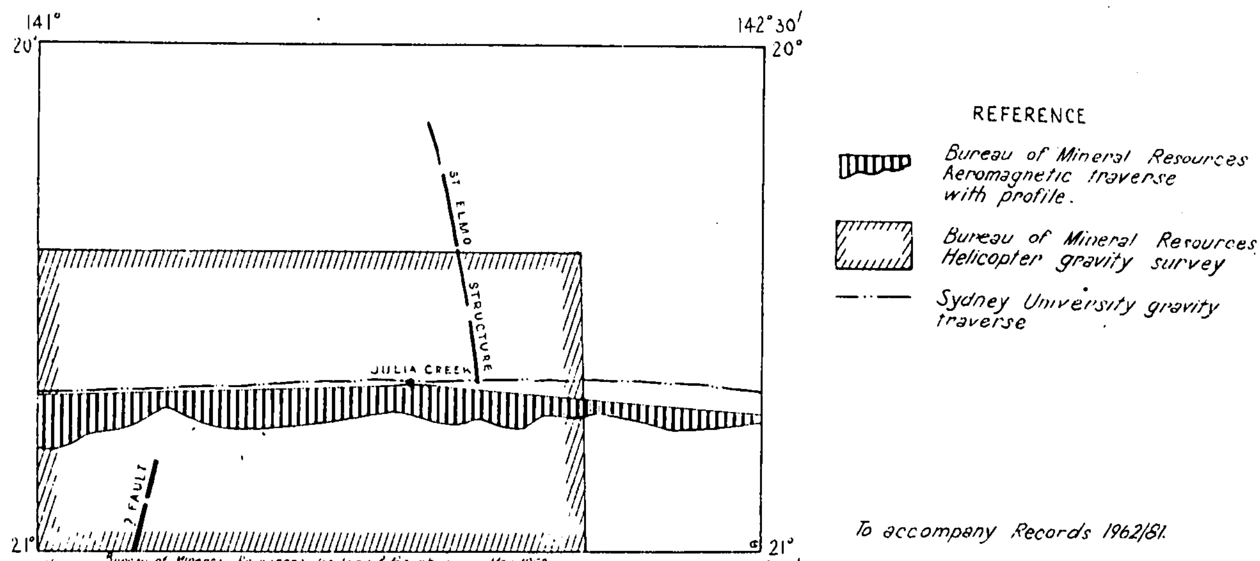

Figure 1 Geophysical Surveys, Julia Creek.

Jewell, (1960), describing the aeromagnetic profile, noted that no trace of the Manfred Fault could be seen, but his map shows the fault about 18 miles east of the St. Elmo Structure. It is probably incorrectly plotted from Whitehouse's map (1954, Figure 34). The magnetic profile shown on Figure 1, with values below arbitrary datum, is dominated by basement characteristics, but two crests can possibly be related to the St. Elmo Structure and the probable fault in the south-west, both of which bring basement close to the surface.

A broad relation can be seen between the contours of the Bouguer anomalies (Plate IV) and the contours of the base of the Longsight Sandstone (Plate I). It is evident that in this area depth to basement is largely the determining factor in the location of gravity anomalies and trends.

GEOLOGICAL HISTORY

Basement in the Julia Creek area is crystalline. The outcrops in the south-west are lithologically similar to some of the Precambrian rocks of the mineralised belt of north-west Queensland (Carter pers. comm.) and are probably a continuation of it. Basement is recorded by drillers as mainly granite or metamorphics, plus the ubiquitous "rock". In the McKinlay area rocks described by the drillers as "red rock" and "red marl" were mainly in basement hollows and they were regarded as possible pre-Cretaceous sediments. However in the Julia Creek area "red rock" is almost entirely restricted to basement highs, and as sediments are unlikely to be preserved in this position, the identity of the red rock in the Julia Creek area must remain speculative.

Sedimentation on an irregular surface of the basement rocks began late in the Jurassic - earlier if rocks of the Bundamba Group are present east of the St. Elmo Structure. The earliest sediments were mainly sandy. In this area it is not known if there was an initial fresh or brackish water phase, but the later arenites were marine. Over basement ridges the deposits are thin, and locally absent, and they thicken into basement hollows. The main effect of this period of sedimentation was to subdue earlier relief, but the Longsight Sandstone is not thick enough to obliterate all relief (Plates I to III).

The succeeding Wilgunya Formation was the deposit of a very muddy sea, with one break of clear water deposition when the Toolebuc Member was formed. These sediments were gently folded by draping and compaction over the now subdued relief of the mainly buried basement ridge to form the St. Elmo Structure.

There is no definite evidence that later Cretaceous sediments once covered the Julia Creek area. No shore-line conditions have been recognised in the Wilgunya Formation, and it is likely that it once extended continuously farther north, and can be correlated with the similar sequence in the Carpentaria Sub-Basin of Blackdown Formation, Kamileroi Limestone and Normanton Formation.

Faulting in the south-west took place subsequent to the deposition of the Wilgunya Formation, but presumably prior to the development of the present river system as the fault is completely concealed by the alluvium.

At what stage the drainage of the area was developed is impossible to decide. Vine and Jauncey, (1962) suggested that the watercourses of the Gulf drainage system reached the McKinlay area by headward erosion and river capture. Such headward erosion must have started on the flanks of the highest land. It is reasonable to suppose that such land would have been at a structurally controlled location such as the Euroka Shelf, which Whitehouse (1954 p5) refers to as "a shelf of shallow bedrock, deepening northwards, with a buried scarped southern edge about 19 degrees 30 minutes south latitude."

Both the sand and conglomerate in the north and the high level alluvium in the west represent the deposits of a period of more active erosion, when large quantities of material were brought down by the river systems. The sand ridges in the north-east are possibly due to a subsequent more arid period.

ECONOMIC GEOL...

Underground Water

Abundant supplies of potable water are available throughout the region. The only area where it is difficult to obtain good supplies is close to, and west of, the inliers of Precambrian rocks in the south-west. Except in the south-west most bores are flowing. Analyses of water quality are available from the Irrigation and Water Supply Commission, Brisbane.

The main aquifers are in the Longsight Sandstone, although small supplies are recorded from the Wilgunya Formation. Whitehouse (1954) suggested that the "Manfred Fault" separates very large supplies in the east from smaller supplies in the west, because sandstone of the Bundamba Group is preserved in the eastern area. There is no lithological evidence for this in the driller's logs. An alternative explanation is that the Longsight Sandstone thins over basement ridges which restrict the flow from the intake areas in the east to the western aquifers.

Road Metal

Builders of the new highway from Julia Creek to Normanton have had a major problem in obtaining road metal for the project within reasonable distances. In 1961 it was being obtained from two sources:

(a) Very thin-bedded limestone of the Toolebuc Member near the Landsborough Highway, east of Julia Creek;

(b) Gravel from the high level alluvium near Scrubby Bore in the north-west. This is only about 5 feet thick, and an alternative site being considered near Dalgonally Homestead contains a gravel bed only 2 feet thick.

The most suitable sources of road metal, especially for surfacing bitumen, are the gravels of the high level alluvial terraces, but these are all very thin. The surrounding alluvium has a large proportion of silt derived from the Cretaceous rocks. Gravel from the conglomerate, and sand of the possible Glendower sediments would also be suitable as road making materials. There is no laterite in the area to provide road metal.

Building Materials

No good building stones were seen. The granite in the south-west is badly weathered in outcrop, and the depth to fresh rock is unknown.

Some of the limestone of the Toolebuc Member is well bedded and flaggy and could be used in buildings for special effects. Some of it would also be suitable for lime making. Reynolds (1960b) records an analysis of 90% $CaCO_3$ of a sample from the unit from the Gilberton area, north-east of this sheet.

Petroleum

Drillers have reported kerosene or oil shale from several bores in the Julia Creek area, and traces of gas in others. The occurrences are listed in Table 3 and plotted on Plate III.

Possibly some of the reports are based on the presence of carbonaceous material, Reynolds (1960b) records one such occurrence. It is unlikely, however, that this is the sole explanation, as Vine (1962) records an analysis of oily material from a drillers' sample. The marine Cretaceous cannot be disregarded in searching for oil.

There are no suitable reservoirs stratigraphically above the Wilgunya Formation in the Julia Creek area, but the Longsight Sandstone should be considered in topographically high areas. The large supplies of water show that it is very porous, and the differences in supplies east and west of the St. Elmo Structure suggest that there is not free connection, and therefore some areas have not been flushed by meteoric water. The St. Elmo Structure provides a good stratigraphic trap in the Longsight Sandstone on a structural culmination, and with the target at shallow depths.

RECOMMENDATIONS

Three main problems have arisen as a result of the mapping of the Julia Creek Sheet, and further work is required on each.

(a) Stratigraphy near the Toolebuc Member

Surface Mapping in western Queensland is based mainly on the lithological change within the Wilgunya Formation from

TABLE 3 - DRILLERS' RECORDS OF PETROLEUM

Registered Number & Name	Lithology (Drillers terms)	Depth (feet)	Height above Longsight Sandstone (feet)
48 Dalgonally Trust	Shale, seams of sand, much of shale oily looking	0 -370	484-854
374 Julia Creek Town	Kerosene shale	423-456	505-538
389 Nelia Town	Hard oil shale	500-530	460-490
1747 Gladevale	Small quantity of odourless gas from flow	?	? From Longsight Sandstone
2070 Eurabba	Slight odour of gas	?	?
2315 Holy Joe	Gas in flow	?	? From Longsight Sandstone
2323 Maiden Camp	Kerosene shale	250-350	464-564
2458 Malvie Downs	Black oil shale	427-550	287-410
2460 Armadale	Blackish kerosene shale	573-973	117-517
2478 Leilavale No. 2	Kerosene shale	160-180	460-480
2479 Leilavale No. 3	Kerosene shale	191-240	180-229
2761 Corindi Park No. 4	Black kerosene shale	210-350	270-410
3713	Oily black shale	120-125	525-530
4023	A little gas in water	?	?From Longsight Sandstone
4336	Some gas	?	?

claystone-siltstone of the lower member, to limestone-coquinite-calcareous shale of the Toolebuc Member, and back to claystone-siltstone of the upper member. It is not certain if this coincides with Whitehouse's (1954) postulated time break between the Roma and Tambo Formations, which are based on faunal and not lithological differences. Whitehouse (1954 p.10) does, however, mention a coquina at or near the base of the Tambo Formation.

Dickins (1960) noted a very marked faunal difference between fossils collected from the lower member (with Roma-type fauna) and those collected from the Toolebuc Member and upper member (with Tambo-like fauna) and confirmed Whitehouse's suggestion of at least a faunal break. But it is not clear whether any fossils were collected from immediately below the Toolebuc Member. This is important as Evans (Appendix A) records a distinct palynological change 100 feet or more below the Toolebuc Member but no significant change at it. The possible relation between these concepts is illustrated in Table 4:

TABLE 4

Stratigraphic Concepts of Marine Cretaceous Sequence, Great Artesian Basin

	Lithological divisions used this report	Whitehouse (1954)	Dickins (1960)	Evans Appendix A this report
	upper member	Tambo Formation	Tambo-type fossils	Odontochitina operculata unit
30'	Toolebuc Member			
		Time Break	Macrofossil Break	
100'+	lower member	Roma Formation	Roma-type fossils	
				Palynological Change
				Dingodinium cerviculum unit

It is important that this confusion of names and faunal changes be resolved, and it is recommended that a core hole be drilled through the zone of interest. Coring is necessary to obtain samples of sufficient size for detailed macrofossil work with a direct relation to microfossil determinations. It would be essential that the samples are not split until after examination.

In order that an unweathered micro-fauna is obtained the bore must be sited to intersect the Toolebuc Member at a depth of about 100 feet. The most suitable location would be four miles north of bore registered number 2071, which is two miles east of Eurabba Homestead, near the eastern margin of the sheet. This bore penetrate "ravel-like limestone" (driller's term) between 200 and 230 feet depth. The area is beyond the region of thinning and possible non-sequence over the basement ridge of the St Elmo Structure.

(b) Relation of gravity to basement relief

Results from the Bureau of Mineral Resources helicopter gravity survey in the south-western half of the sheet (Plate IV) give a reasonable relation to basement relief. It is recommended that the survey of the remainder of the sheet should be completed. If this indicates the extent of the St Elmo Structure the survey should be extended northwards to include the area of Mt. Brown and Mt. Fort Bowen to show their relation to the structure.

(c) Petroleum accumulation on the St Elmo Structure

It is noted above (page 9) that there is a possible stratigraphical trap associated with a structural culmination on the St Elmo Structure. The most suitable location for a well to test this would be near bore registered number 5010, 13 miles north-east of Julia Creek. A site can be selected on the west, or least flushed side of the structure, and near a possible pinch-out of the Longsight Sandstone.

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APPENDIX A

NOTES ON A PALYNOLOGICAL EXAMINATION OF ST. ANDREW'S BORE, JULIA CREEK, QUEENSLAND

by

P.R. Evans

INTRODUCTION

Determinations of the distribution of microplankton in core samples from Conorada Ooroonoo No. 1 Well suggested a two-fold division of the marine Cretaceous beds either side of an horizon below the Toolebuc Member of the Wilgunya Formation in the Great Artesian Basin (Evans, 1961). Examination of cores and cuttings from Innamincka No. 1, Betoota No. 1, W.O.L. No. 3 (Warbreccan), Cabawin No. 1 and Mornington Island No. 1 Wells (Evans, 1961, 1961-1962) has shown that the same basic distribution is widespread over the basin. Study of Mornington Island No. 1 Well indicated that an intermediate "impoverished" section below the "fish-scale zone", the lithological and probable time equivalent of the Toolebuc Member, was also present. However, the types of samples available in each case restricted further observations on the nature of these divisions; cores were few and cuttings were readily contaminated by cavings from incompetent sediments.

However, the St. Andrew's Bore, Julia Creek sheet area, has provided another opportunity to examine these phenomena in the lower Wilgunya Formation and the Toolebuc Member. The top of the bore was sited only 340 ft. above the Toolebuc Member and casing, driven in behind the percussion bit, reduced contamination by caving to a minimum.

During the examination particular note has been taken of the distribution of previously chosen key species, of the relative abundance of microplankton throughout the section and of the nature of the apparently low fossil content below the Toolebuc Member.

A graphic log of the St. Andrew's Bore (compiled from the description in Appendix B, p.) and the depths of the eighteen samples analyzed is presented in Plate I.

OBSERVATIONS

A. KEY SPECIES

Dingodinium cerviculum Cookson & Eisenack 1958 always appears in the lower part of the marine Cretaceous of the Great Artesian Basin. It was uncertain previously how closely the range of this species approached to the Toolebuc Member, but at St. Andrew's it died out before the Toolebuc was deposited. Its associate *Micrhystridium* sp. 1 is also widespread and seems to disappear at about the same time

Odontochitina operculata (O. Wetzel) Cookson & Eisenack 1958 was chosen at Ooroonoo No. 1 (Evans, [illegible]1-2) as a possible marker of the remainder of the marine Cretaceous. However, rare specimens associated with *D. cerviculum* in the St. Andrew's Bore extend the lower limit of its range.

Pseudoceratium tetracanthum Cookson & Eisenack 1958 and *P. turneri* Cookson & Eisenack 1958 appeared in Ooroonoo No. 1 just above the *D. cerviculum* range and appeared in both Mornington Island No. 1 and Cabawin No. 1 Wells in the same relative position. They may provide better key fossils that *O. operculata* for an intermediate zone in the marine beds.

Certain microspores were observed to have restricted ranges in Ooroonoo No. 1 Well. The tops of the ranges of *Lycopodiumsporites circolumenus* Cookson & Dettmann 1958, *Dictyotosporites speciosus* C. & D. 1958 were found, as in the St. Andrew's Bore, within the range of *D. cerviculum*. *Trilobosporites trioreticulatus* C. & D. 1958 was thought to typify the higher parts of the upper Wilgunya Formation: its presence as low as the Toolebuc Member at St. Andrew's extends this range, but retains the species as a useful marker of the upper Wilgunya Formation.

B. MICROPLANKTON SWARMS

Relative changes in abundance of Gonyaulacidae were particularly noticeable throughout Mornington Island No. 1 while the persistence of *Diconodinium* spp. was obvious in Ooroonoo No. 1. It is noticed from the St. Andrew's Bore, that above the *D. cerviculum* range, one species of microplankton dominated a particular horizon to be replaced rapidly as the dominant form by another species at the next level.

Small leiospheres were the first to appear. A brief swarm of Deflandrea sp. nov. occurred at 503 ft., replaced above by the leiospheres once again. At 360 and 380 ft., within and just below the Toolebuc Member, a psilate Diconodinium is very prominent, while at 220 ft the spinose D. cf. multispina (Cookson & Eisenack 1958) was dominant. At 100 ft Gonyaulax edwardsi C. & E. 1958 was the most noticeable species. The changes in ornament that affected Diconodinium also affected Canningia spp. which at 640 ft were granulate, as in C. colliveri C. & E. 1960, but which were psilate at higher levels.

C. ABUNDANCE OF ORGANISMS

Produced from a standard extraction technique which normally removes bituminous matter satisfactorily, slides of samples from 340 to 420 ft contained abundant amorphous organic debris which tended to hide most microfossils from view. The yield of organisms between 460 and 600 ft was relatively low and at a minimum at 580 and 600 ft. These two factors combined to mark a poorly fossiliferous zone below and including the Toolebuc Member and above the D. cerviculum beds. However, the sample at 360 ft was reprocessed to remove all bituminous material and was found to contain many fossils. Two distinctive zones therefore seem to be present; the lower, with few fossils and the upper, bituminous but fossiliferous.

2. No quantitative measure of organism abundance per gm. of sample can be made by the current method of analysis, but the percentage of microplankton among all the types of micro-organisms present (spores, pollens and microplankton) has been measured as an indication of the suitability of the marine environment to micro-organic growth. The resultant graph (Pl.I) shows distinctly a progressive, but somewhat erratic increase in this figure to a peak at 380 ft, just below the Toolebuc Member, followed by a sudden reduction in abundance characterizing the upper Wilgunya Formation. The peak might occur at 360 ft, depending on the nature of abundant thin walled inaperturate psilate spheres. They differ in wall thickness and chemical character (ability to take stain) from those referred to as leiospheres and have previously been classed as pollens under the name Inaperturopollenites sp. If these are another type of leiosphere the count of aquatic organisms at 360 ft would be above 95 per cent.

REMARKS

1. While only certain species of microplankton have been chosen for study, a clearer understanding of the ranges of a few forms, which are widespread in occurrence and easily recognizable, will lead to the establishment of a zonal classificatory scheme. The recognition of the top of the range of Dingodinium cerviculum some way below the Toolebuc Member is a means of distinguishing a lower part of the lower Wilgunya Formation. This should be recognizable from cuttings in future test wells. Micrhystridium sp. 1 L. circolumenus, D. speciosus will also characterize the zone.

2. The extension of the known rang among others of Odontochitina operculata, Pseudoceratium turneri and P. tetracanthum resolves the apparent dissimilarity of the two microfaunas at Ooroonoo No. 1 to a progressively changing phase. Considerable assemblage variations above the D. cerviculum range due to changing plankton swarms take place, but there is no clear evidence to suggest that a microfaunal break takes place in the sequence. The changing swarms could be attributed to variations in environment in the basin during this part of Lower Cretaceous times and could reflect the same causes of the general variations in microfossil content and the distribution of bituminous matter. They may also be responsible for the alterations in the ornamentation of groups such as Diconodinium and Canningia. The Toolebuc Member would mark the end of these fluctuations and the onset of more stable conditions.

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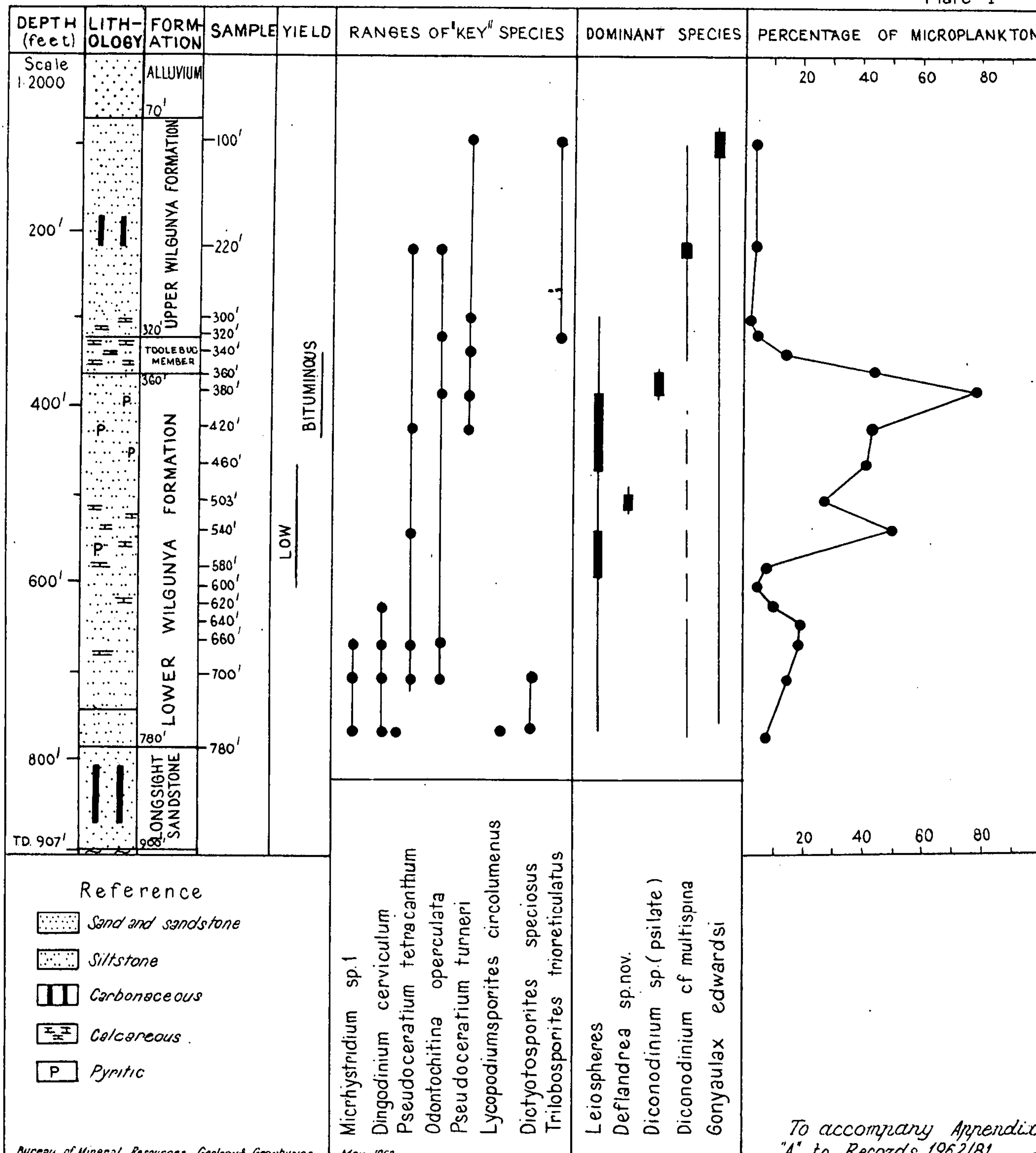
Plate I



Distribution of Selected Microfossils in St. Andrews Bore
Julia Creek Sheet.

APPENDIX B

LITHOLOGICAL EXAMINATION OF SAMPLES FROM ST. ANDREW BORE

REGISTERED NUMBER 14338

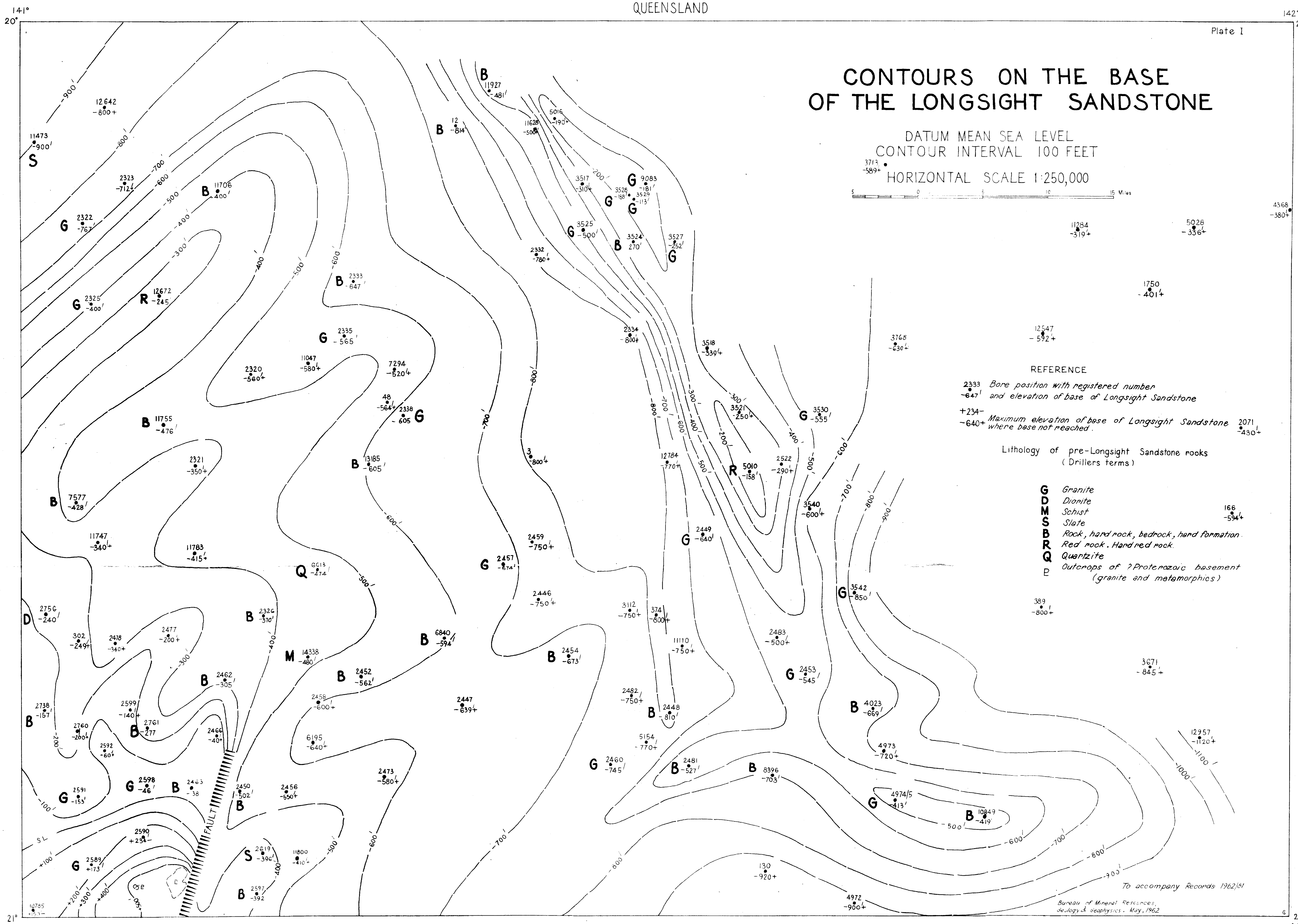
Location: 20°43'S, 141°20'E

Depth	Description	Geological Interpretation
10'	Fine grained quartz sand grains, sub-angular to sub-rounded; silty matrix; small percentage .ic minerals.	
20'	As for 10'	
30'	Same as 10' but decrease in percentage of quartz and increase in mafic mineral percentage.	
40'	Similar to 30'; some white mica present.	Alluvium
50'	Similar to 40'. Some congregation of red ferruginous matrix.	
60'	Sub-angular quartz grains; silty matrix; small percentage of mafic minerals, mica and carbonate.	
70'	Same as 60'; unidentified green mineral.	
80'	Grey siltstone, very slightly calcareous; scattered larger quartz grains, some iron staining.	
90'	Grey siltstone, non-calcareous with less iron staining than at 80'.	
100'	Grey non-calcareous siltstone.	
110'	Grey Siltstone, slightly calcareous.	
120'	Grey non-calcareous siltstone.	upper Wilgunya Formation
130'	Grey, non-calcareous siltstone with scattered fine-grained quartz grains.	
140'	Grey, non-calcareous siltstone	
150'	As for 140'	
160'	As for 140'	
170'	As for 140'	

Depth	Description	Geological Interpretation
180'	Grey, non-calcareous siltstone with ?carbonaceous material .	
190'	Grey, non-calcareous siltstone with ?carbonaceous material.	
198'	Grey, quartz siltstone with some mica; non-calcareous ?carbonaceous material.	
220'	Grey siltstone; non-calcareous, numerous mica grains, ?carbonaceous material.	upper Wilgunya Formation
240'	Grey, non-calcareous siltstone.	
260'	As for 240'.	
280'	Grey, calcareous siltstone with mica and scattered larger quartz grains.	
300'	Grey, calcareous, silty clay with white calcareous fragments and some pyrites.	
320'	Dark grey-blue, silty claystone with moderately strong reaction to dilute HCl; some very small specks of pyrites.	
340'	Very calcareous, grey siltstone with pyrites, calcite crystals and ?<u>Inoceramus</u> fragments.	Toolebuc Member
360'	Dark grey, highly calcareous claystone with pyrites.	
380'	Dark grey, non-calcareous siltstone.	
?400' (Marked 420')	Dark grey, calcareous siltstone with small amounts of pyrite.	
420'	Dark grey, non calcareous siltstone.	
440'	As for 420'.	
460'	As for 420'.	
480'	Dark grey, non-calcareous siltstone with some mica grains.	lower Wilgunya Formation
503'	Dark grey, non-calcareous siltstone.	
518'	Dark grey, calcareous siltstone with some quartz and a green mineral - ?glauconite.	
540'	Dark grey, slightly calcareous siltstone; appreciable amounts of pyrites present.	

Depth	Description	Geological Interpretation
560'	Dark grey, calcareous siltstone with pyrites and shell fragments.	
580'	Slightly calcareous, grey-siltstone with some "pellets" of buff-white clay.	
600'	Very slightly calcareous, grey siltstone with traces of mica and larger quartz grains.	
620'	Very slightly calcareous, grey siltstone.	
640'	As for 620'.	
660'	As for 620'.	
680'	As for 620'.	
700'	As for 620'	lower Wilgunya Formation
720'	As for 620'	
740'	Very slightly calcareous, dark grey siltstone with some mica.	
760'	Slightly calcareous, dark grey siltstone with some larger quartz grains.	
780'	As for 760'	
800'	Very fine grained, non-calcareous sand, clayey matrix; moderately numerous mica flakes and a green, amorphous, dull earthy mineral - ?glauconite.	
820'	Medium to coarse quartz grains, with a non-calcareous silty-clayey matrix; some mica and dark mafic minerals.	Longsight Sandstone
840'	Very fine quartz grains, sub-rounded to sub-angular, sub-spherical; very little matrix; approximately 1% heavy minerals; and some ?carbonaceous material.	
860'	As for 840'	
880'	As for 840' with a large piece of carbonaceous material.	
900'	As for 840' but with 1-2% mica flakes	
907'	Angular quartz grains, many with conchoidal fracture; small fragments of mica schist; some tourmaline. Very little weathering of grains, weathered material has probably fallen from above.	?Lower Proterozoic metamorphics

JULIA CREEK
QUEENSLAND



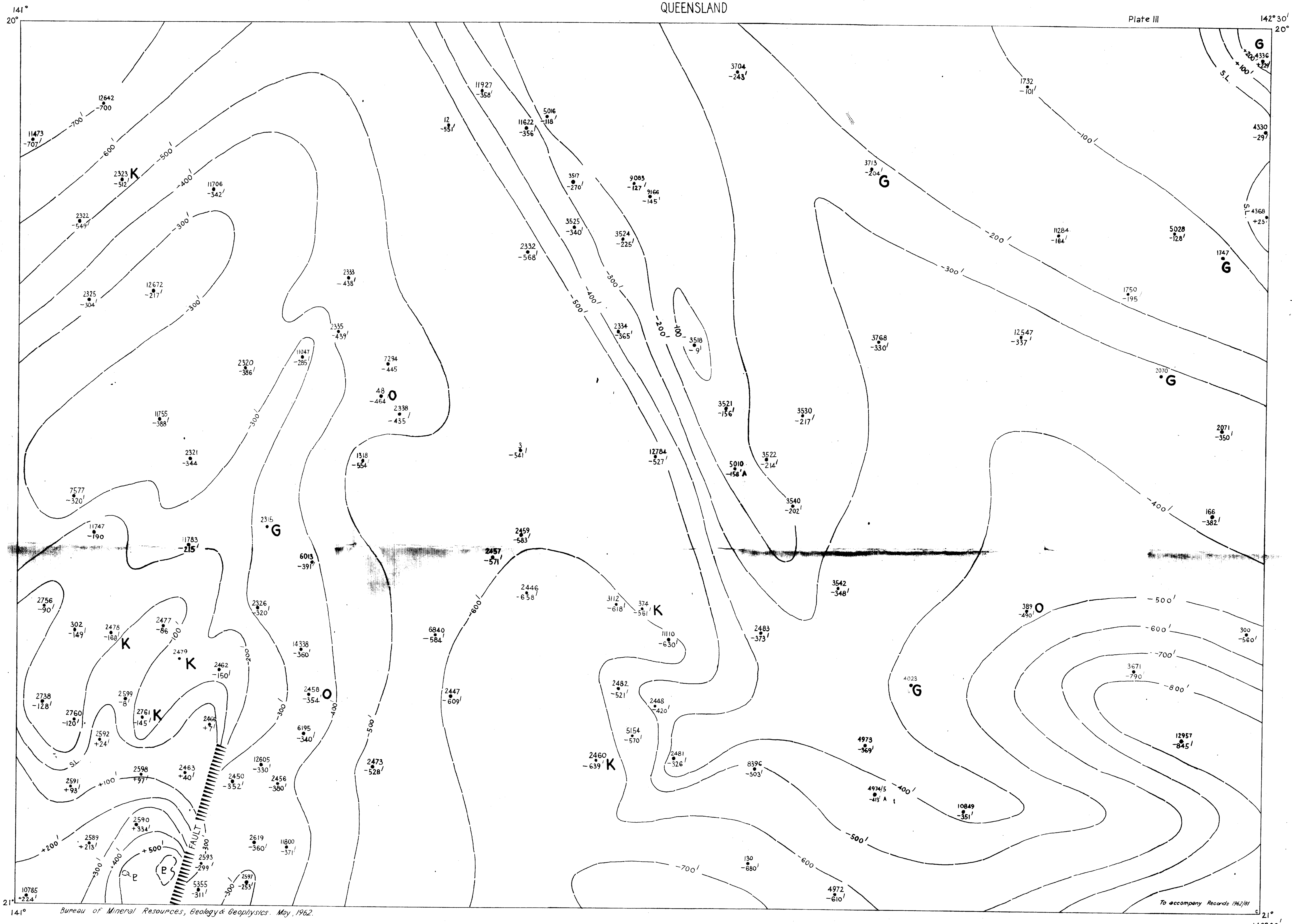
JULIA CREEK
QUEENSLAND

LONGSIGHT SANDSTONE ISOPACHS

CONTOUR INTERVAL 50 FEET
HORIZONTAL SCALE 1:250,000

5 0 5 10 15 Miles

JULIA CREEK
QUEENSLAND



REFERENCE

$\frac{1750}{-195'}$ Bore position with registered number and elevation of top of Longsight Sandstone.

-158A Elevation of top of basement where Longsight Sandstone absent.

(Ꝑ) Outcrop of ? Lower Proterozoic granite and metamorphics.

O Oil shale or oily shale
K Kerosene shale
G Gas
} Drillers records

CONTOURS ON TOP OF LONGSIGHT SANDSTONE

DATUM - MEAN SEA LEVEL
CONTOUR INTERVAL 100 FEET

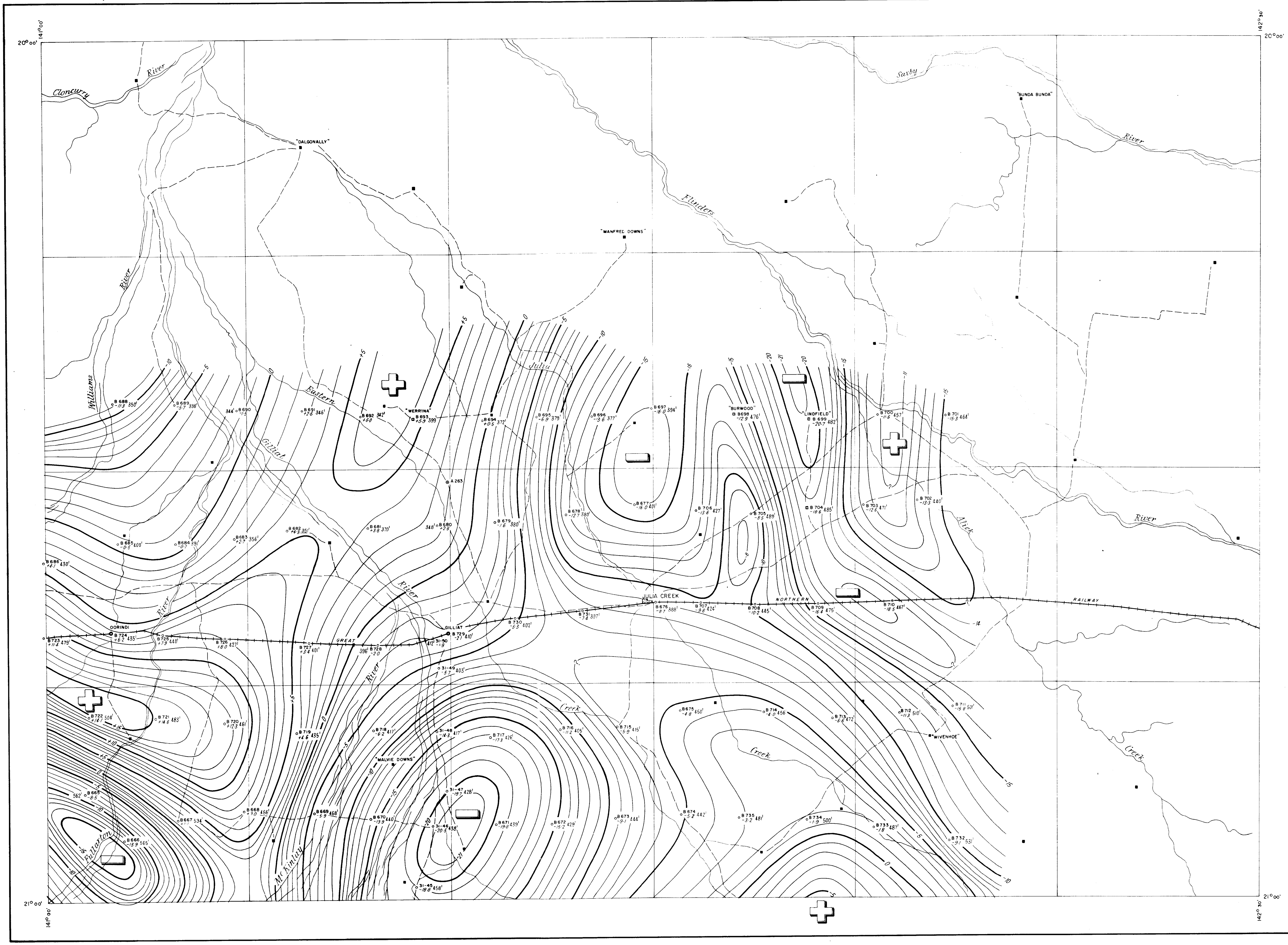
HORIZONTAL SCALE 1:250,000

5 0 5 10 15 Miles

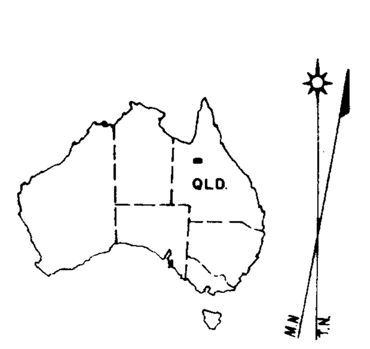
AUSTRALIA 1:253,440

JULIA CREEK
QUEENSLAND

F 54-3 ZONE 6



LOCATION



DOBBYN	MILLUNGERA	GILBERTON
CLONCURRY	JULIA CREEK	RICHMOND
DUCHESS	McKINLAY	MANUKA

REFERENCE TO AUSTRALIAN NATIONAL 4 MILE MAP SERIES

MAP DATA

PROJECTION: TRANSVERSE MERCATOR, AUSTRALIAN SERIES

CONTROL: NATIONAL MAPPING 4 MILE CONTROLLED PHOTOMAP WITH THE SAME NAME

DETAIL: B.M.R. LAND TRAVERSES PLOTTED FROM FIELD NOTES WITH THE AID OF DEPT. OF THE INTERIOR 4 MILE GRAVITY SURFACE CONTROL MAP. B.M.R. HELICOPTER TRAVERSES IDENTIFIED FROM AIR PHOTOGRAPHS AND SUBSEQUENTLY PLOTTED ON THE BASE MAP

RELIABILITY: PLANIMETRIC: RELIABLE SKETCH. GEOPHYSICAL: GRAVITY RECONNAISSANCE

RECONNAISSANCE GRAVITY SURVEY (1959)
GREAT ARTESIAN BASIN, QLD.
BOUGUER ANOMALIES

SCALE IN MILES

4 0 4 8 12 16

CONTOUR INTERVAL 1 MILLIGAL

LEGEND

TOPOGRAPHY

TRACK

RAILWAY

ASTRONOMICAL FIXATION

WATERCOURSE (NON-PERENNIAL)

HOMESTEAD

GRAVITY

B.M.R. STATION

-3·2 RELATIVE BOUGUER ANOMALY (MILLIGALS)

481' ELEVATION

ISOGALS

HIGH ANOMALY

LOW ANOMALY

EXPLANATION

RELATIVE BOUGUER ANOMALIES ARE BASED ON THE OBSERVED GRAVITY VALUES AT FOLLOWING B.M.R. PENDULUM STATIONS:-

N° 55 CLONCURRY, QLD. 978,650·7 MILLIGALS

N° 56 BOULIA, QLD. 978,793·2 MILLIGALS

FOR THE CALCULATION OF BOUGUER ANOMALIES 1·9 GR./CCM HAS BEEN ADOPTED AS AN AVERAGE ROCK DENSITY

ELEVATION DATUM M.S.L. QUEENSLAND

NOTE: TOPOGRAPHY AND CULTURAL FEATURES SHOWN ONLY TO LOCATE GEOPHYSICAL DATA

FIRST EDITION, JANUARY 1960

GEOPHYSICAL BRANCH, BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS G69-53-2

JULIA CREEK
QUEENSLAND

GRAPHIC REPRESENTATION OF SOME DRILLERS LOGS
HORIZONTAL SCALE 1:250,000
VERTICAL SCALE 1" = 1000'

AUSTRALIA 1:250,000

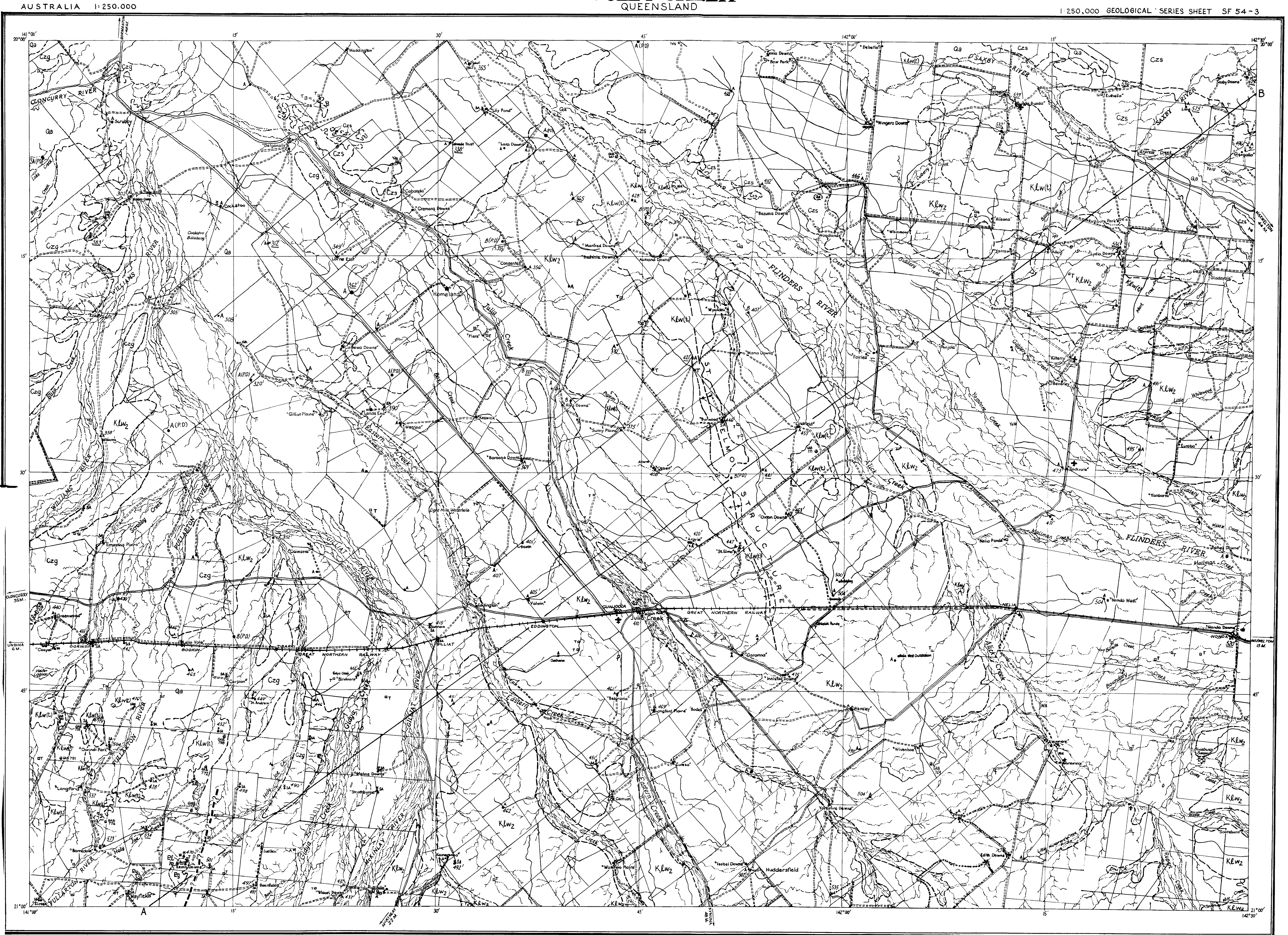
JULIA CREEK

QUEENSLAND

1:250,000 GEOLOGICAL SERIES SHEET SF 54-3

PRELIMINARY EDITION, 1962

SUBJECT TO AMENDMENT



Reference

CAINOZOIC	QUATERNARY		Qa	Alluvium and soil
	UNDIFFERENTIATED		Czg	Gravel (high level alluvium)
			Czs	Sand and conglomerate

Unconformity

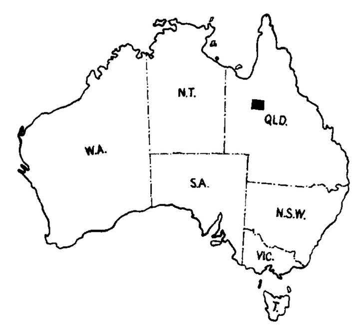
MESOZOIC	LOWER CRETACEOUS	Wilgunya Formation: Upper	Klw2	Mudstone, limestone, sandy limestone
		Wilgunya Formation: Toolebuc Member	Klw(t)	Limestone, calcareous shale
		Wilgunya Formation: Lower	Klw1	Mudstone, limestone, sandy limestone
		Longsight Sandstone	Kl	Sandstone, conglomerate (cross-section only)

Unconformity

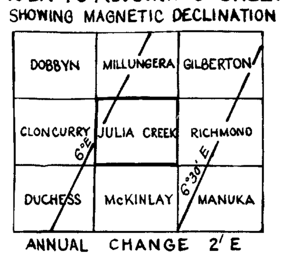
PRECAMBRIAN	? LOWER PROTEROZOIC	Eg	Granite, pegmatite
		El	Metasediments

- Geological boundary, position approximate
- 30 Strike and dip of strata
- Anticline, position approximate
- ? Fault, inferred, concealed
- GAB 772 Macrofossil locality, with reference number
- Railway
- Road
- Vehicle track
- A Bore - artesian
- SA Bore - sub-artesian, with windpump
- S Spring
- T Earth tank
- Dam
- Yd Yard
- Fence
- Landing ground
- Building
- 471' Barometric spot height } feet above mean sea level
- 520' Instrument levelled height } feet above mean sea level

Compiled and published by the Bureau of Mineral Resources, Geology and Geophysics, Department of National Development. Topographic base compiled by the Royal Australian Survey Corps. Aerial photography by the Royal Australian Air Force; complete vertical coverage at 1:48,000 scale. Transverse Mercator Projection.



INDEX TO ADJOINING SHEETS
SHOWING MAGNETIC DECLINATION



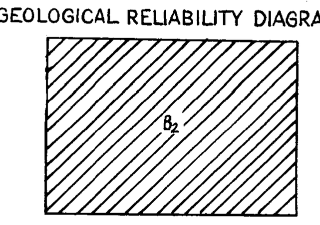
ANNUAL CHANGE 2' E

Scale
1:250,000

5 0 5 10 15 MILES

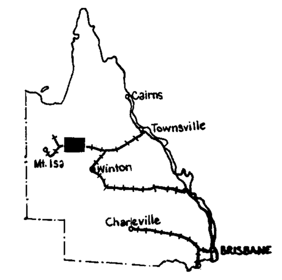
5 0 5 10 15 20 25 KILOMETRES

GEOLOGICAL RELIABILITY DIAGRAM



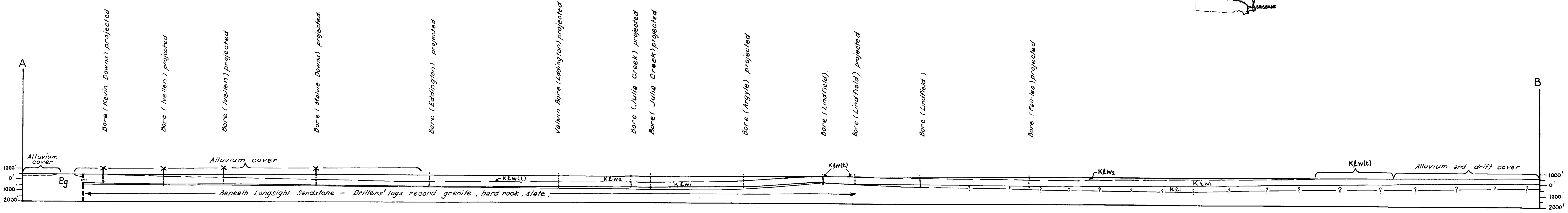
B_2 Reconnaissance - Traverses and air-photo interpretation

Geology by R.R. Vine, W. Jauncey
Compiled Nov. 1961, by R.R. Vine, W. Jauncey
Drawn by I. Chertok.



Section

Scale $\frac{V}{H} = 4$



JULIA CREEK
SF 54-3

COMMONWEALTH OF AUSTRALIA

Copy 2

DEPARTMENT OF NATIONAL DEVELOPMENT

BUREAU OF MINERAL RESOURCES
GEOLOGY AND GEOPHYSICS

RECORDS

Pt 2 of 2

APPENDIX C to RECORDS 1962/81

BORE DATA - JULIA CREEK

PART 2 of 2

APPENDIX C to RECORDS 1962/81.

BORE DATA - JULIA CREEK.

Information on all bores in the Julia Creek Sheet area, collected from the Irrigation and Water Supply Commission, Brisbane, and from property owners and managers, is listed in this Appendix.

The order of listing is numerical by the registered numbers allocated to water bores by the Irrigation and Water Supply Commission.

Abbreviations used in this Appendix are as follows:

Position

Mi	Miles	from Middleton Township.
N	North	
S	South	
E	East	
W	West	

Elevation

368'	Elevation of ground surface at bore. Barometric measurement, or method of survey not known.
L368'	Elevation of ground surface at bore, instrument levelled height.

Standing Water Level

S.A. Present water level unknown, pumping from below surface.

Water quality -

P	Potable
F	Fresh
B	Brackish
S	Salty or saline.

Drillers Log

Bd	band	P.cl	pipe clay
Bk	black	Pk	pink
Bl	blue	Qtz	quartz
Bld	boulder	Qtzite	Quartzite
Br	brown	Rd	red
Cl	clay	Rk	rock
Cong	conglomerate	S	sand
Cs	coarse	Sh	shale
Dk	dark	Shy	shaly
F	fine	Sst.	sandstone
Fm	formation	St	stone
Gn	green	Stk	streak
Gvl	gravel	Stky	sticky
Gy	grey	Sy	sandy
Hd	hard	T.D.	total depth
Lst	limestone	v.	very
Lt	light	w.	with
N.O.I.	No other information.	Wh	White
		Y.	yellow.

APPENDIX C TO RECORDS 1962/81

BORE DATA - JULIA CREEK

Reg.No. Name Property	Position from Julia Creek	Elev- ation (feet)	Driller Year Completed	Standing water level Pump depth (feet)	WATER Struck (feet)	Rose to (feet)	Supply (g.p.d.)	Quality	Temp ^oF	Drillers Log
Column A	Column B	Column C	Column D	Column E	Column F	Column G	Column H	Column I	Column J	Column K

Throughout this appendix the columns are indicated by the letters A to K. The full headings are given above.

DRILLERS' LOG

A	B	C	D	E	F	G	H	I	J	K.
3 Alva Trust Alva	15 Mi. NW.	L369	1922	Flowing	963 1032 1130 to bottom		1,097,000		159½	0– 80 Y sh. – 232 Br.sh. – 414 V Hd.Bl.Sh. – 719 Sy.sh. – 801 Bl.sh. – 824 Sy.sh. – 832 Gn.sst. – 910 Gy.sh. – 936 Gn.sst. – 952 Gy.s.rk. – 960 Gn.s.rk. – 1089 Water S. – 1200 Hd.S.rk.
12 Trust Cabanda	41 Mi NW	L338	1915	Flow- ing	316 889 932 986 1002 1020	80 21 Surface Surface Surface Surface	 30,000 442,330 698,300 761,109	B		0– 3 Subsoil – 12 Y.sy.sh. – 118 Y.cl. – 128 R.cl. – 184 Y.cl. – 202 Bl.sh. – 241 Gy.sy.sh. – 306 Bl.sh. – 316 Sst.W.stks. of gypsum – 366 Bk.sh. – 557 Bl.sh. – 625 Bl.sh.slightly sy. – 798 Bl.sh. – 889 Gy.sy.sh. – 1012 S.rk. – 1014 Hd.gy.rk. – 1020 P.cl. – 1025 Pink sst. – 1026 Coal – 1033 Pink s. – 1052 V.sticky sst. – 1073 P.cl. – 1079 Hd..p.cl. – 1100 Hd.gy.sh. – 1152 Gy.sh. – 1180 Sl.rk.
48 Trust Dalgonally	27 Mi NW	L390	1920	S.A.			114,950			0– 854 Sh.seams of s. 370 much of sh.oily-looking. – 951 S.rk. & p.cl.

DRILLERS' LOG

A	B	C	D	E	F	G	H	I	J	K
72 Trust St.Elmo	9 Mi. NE	L447	1916	Flow- ing	610-40) 710) 772-76) 1002)	Sur- face	Small 40,000 approx. Small increase 95,000 285,900 (1916) 251,270 (1917)		116	0 - 19 Y.cl.w.small stks hd.sst. - 26 Y.cl.& br. rotten sh. - 33 Br.rotten rk. - 44 Br.st.,v.hd. - 48 Br.rk. - 72 Y.cl. - 85 Lt.bk.sh. - 124 Sty.bl.sh. - 161 Bl.sh. - 123 Soft bl.sh. - 196 Bl.sh. - 223 Rotten bl.sh. - 282 Bl.st. - 314 Soft bl.sh. - 420 Bl.sh. - 445 Soft bl.sh. - 463 Bl.sh. - 480 Soft bk.sh.,gn.s. - 545 Bl.sh. - 610 Soft bl.sh. - 640 Bk.sh.w.s. - 666 Gy.sh.& s. - 700 F.sst. - 715 Soft s. - 735 Hd.s.rk. - 750 S.& gy.sh. - 756 Choc.sh. - 760 Sh. & s. - 776 Rough pebbly s. - 822 Gn.s.rk. - 881 Hd.gn.rk. - 887 Bk.s. - 934 Hd.gn.s.rk. - 945 Gn.s. - 951 Hd.gy.rk. - 958 Bk.s. - 967 Bk.s.& pk .sh. - 1015 Pk.&Bk.s. - 1033 choc.sh.w.a little bk.s. - 1042 Pk.sh. - 1052 Hd.dk.gy.rk. - 1067 choc.sh.w.a little dark s. - 1076 Fine bk.& wh.s. - 1080 Dk.gy.crystalline rk.
108 Wivenhoe	25 Mi. ESE	540	1899	Flow- ing						N.O.I.

A	B	C	D	E	F	G	H	I	J	K DRILLERS LOG
130 Toorale Trust Hudder field.	23 Mi S.S.E	L.507	1917	Flowing	1189 1207) 1222) 1246) 1279) 1324) 1387) 1406)	100 Surface	4000 89000 129000 213453 420424 540136 571642 (Approx- imately 250000 in 1961	P		0-3 Dk.sh -70 y.cl. -285 Bl.sh. -376 Gy.rk -498 Dk.sh -514 No infor[illegible] -105[illegible] Bl.Sh.w.small seam at 590 -1074 Hd.gy.rk -1100 Dk.gy.sh. -1183 Gy.sy.sh -1189 S.rk -1200 Gy.sst -1279 S.rk -1294 P.cl. -1324 S.rk. -1329 Hd.bd. -1406 S.sst -1409 Hd.pk.sst. -1424 V.hd.br.sst.
166 Yanborra	46Mi E.N.E.		1916	Flowing	902) 975) 1005) 1025) 1103)	Surface	104203 151718 339506 ? 473784			0-5 Surface cl. -28 Gy.rk. -100 Bl.sh -105 Hd.rk. -135 Lt.bl.sh. -154 Gy.sh. -179 Bk.sh. -239 Bl.sh. -261 Hd.dk.sh. -350 Bl.sh. -454 Dk.sh. -761 Bl.sh. -780 Bl.sh.W.S -892 Bl.sh. -1040 S.rk -1065 P.cl. -1104 S.rk.
300 Nonda Railway.	48Mi E	L.520	1907	Flowing	170 910 1080) 1093) 1132) 1175) 1280)	70 445 Surface	4076 32584 100968 236710 392078	B	100 100 110 112	0-35 Sy.cl.w.cl & pebbles. -130 y.cl. -910 Dk.bl.sh. -930 Dk.bl.sst. -1080 Lt.bl.sh. -1295 cs.sst.
[illegible] Julia Ck Railways	Julia Creek	410	1907	Flowing	?130 ?260 380 546 690 966 ?	95 130 120 95 85 Surface Surface	4 185' of head		112	0-546 Shoft shy.cl. -561 sst. -690 Shoft shy cl. - 705 Sst. -966 Soft Shy.cl.

DRILLERS LOG

A	B	C	D	E	F	G	H	I	J	K
302 Corindi Railway Station Railways.	44 Mi W.	433	1907	S.A.	25 582 602 632	15 Surface " "	 32584 169372 213450		 102 103 106	0-35 y.cl.w.qtz. -70 y.cl. -130 Gy. sh.cl -140 Cl.sst -150 Lst. -570 Lt.gy.sh.shy cl -582 Gy.Sh -632 Sst. -679 Sst.w.p.cl.
374 Town Julia Creek	Julia Creek		1928	Flowing	150 622 970) 1022) 1060) 1070) 1090) 1093) 1098) 1122) 1200)	Surface Surface	7000 10000 20800 32000 57000 85000 229000 373000 566000	S B		0-8 Surface soil -95 y.sh. -341 Gy.sh -405 Dk.Sh. -423 Coal and sh. -456 Kerosene sh. -501 Bk.sh -885 Gy.sh -961 Dk.sh -993 Sst. -1055 Sy p.cl. -1200 Sst. - bottom sst, particles of Qtzite apparently finishing in dk.sh.
389 Nelia Town	30 Mi E		1927	Flowing	1116) 1122) 1257) 1270)	Surface	73000) 83000) 110000) 190000) Increased) to) 563170)	F & soft		0-10 Subsoil -100 Y.sh. -150 Dk.sh. -320 Gy.sh -323 Sedimentary rk -500 Lt gy sh. -530 Hd.oil-sh -650 V.Bk.Oily sh -850 Gy sh -860 Sy.gy.br.sh -990 Dk.sh.cement fmn -1113 V.hd.Sst -1116 Soft sst -1122 Hd.fine sst. -1145 Hd qtzite -1150 V.hd.rk. cement fmn. -1157 R.marl. -1162 Sst. -1170 Fine hd.sst. -1185 Soft sst. -1190 Fine hd.sst. -1261 Gy.marl. -1267 P.cl. -1300 S.rk.
1729 Kungaburgh	54 Mi NE	L535	1900		680	Surface	433000		97	T.D. 883 N.O.I.
1730 Euthalla	56 Mi NE	L536	1893	Flowing	613	Surface	340000		106	T.D.613 N.O.I.

A	B	C	D	E	F	G	H	I	J	K
1731 Lydia Downs	48 Mi NE	L535	1900	Flowing	729	Surface	431,500		98	T.D. 1004 N.O.I.
1732 Bunda Bunda	52 Mi NNE	L539	1905	Flowing	653	Surface	897,000		98	T.D. 960 0-?640 Bk.sh -649 Sst. N.O.I.
1733 Bunda Bunda	49 Mi NNE	L532	1905	Flowing						T.D. 1104 N.O.I.
1735 Kungaburgh	51 Mi NE	L566	1901	Flowing						T.D.952 N.O.I.
1747 Gladevale	54 Mi NE	640	1902	Flowing			825,000	Small quantity odourless gas		T.D. 1100 S. rk near bottom, water-bearing. N.O.I.
1749 Rockvale	36 Mi ENE	473	1903	Flowing						T.D. 700 N.O.I.
1750 Kilterry	46 Mi NE		1922	Flowing	275 695 825 825-901 Static head 142' 7"	Soak Surface) Surface) Surface)	Slight 1001570			0-5 Surface soil -41 Y.sh. -57 Lst. -63 Bk.cl. -110 Hd.rk. -239 Bk.sh -695 Gy.sh. -757 P.cl.& s.rk -760 Blown cl. -791 P.cl ?880 P.cl.& s. -901 Cs.s.rk.
2068 Nonda West	38 Mi E	504	1901	Flowing						T.D.1300 N.O.I.
2069 Eurabba	42 Mi ENE	495		Flowing						T.D.1300 N.O.I.
2070 Eurabba	45 Mi ENE	491	1901	Flowing						S & sh, slight odour of gas. T.D. 1300 N.O.I.

A	B	C	D	E	F	G	H	I	J	K
2071 Franchar Downs	48 Mi ENE		1922	Flowing	250) 850) 870) Static head 68'6"	Surface	309,577	S	104	0-9 Surface soil -80 Y.sh -200 Gy.sh. -230 Gvl-like lst -330 Br.sh -850 Bl.sh -880 Water-bearing S.rk -900 P.cl & S. -904 Hd. lime s.rk -930 Br.sh & S.
2310 [illegible]algonally		305	1890		220	Surface	32,700	-	87	0-100 ?S.rk T.D. 108 N.O.I.
23[illegible] Cathan	41 Mi NW	308	1891	Flowing	336		9,700	-	90	0-336 ?Sh.
2312 Consentes	32 Mi NNW	355	1891		292	Surface	3,900	-	88	T.D. 450. N.O.I.
2[illegible]3 Co[illegible]entes	22 Mi NNW	L337	1891		300	Surface	20,550		122	T.D.300 N.O.I.
2314 Lands End		339	1901							T.D.917. N.O.I.
2[illegible]5 Ho[illegible]y Joe Caiwarra	30 Mi WNW	352		Flowing				Gas in flow. Excellent water.		T.D. 981. N.O.I.
2316 Williams. Dalgonally	46 Mi NNW	358	1902	Flowing						T.D.1024 N.O.I.
2317 Dalgonally	42 Mi NW	L312	1902	Flowing						T.D.970 N.O.I.
2318 Homelands		328	1904							N.O.I.
2319 Dalgonally		312	1904							Abandoned bore. N.O.I.

DRILLERS LOG

A	B	C	D	E	F	G	H	I	J	K
2320 Caleewa	36 Mi NW	320	1911	Flowing				Excellent drinking water		0-706 Sh -887 S.rk.
2321 Opossum Ck. Cammeray	37 Mi WNW	360	1911	Flowing	709	Surface				0-704 Cl & Sh. -709 Sst.
2322 Iona Dalgonally	54 Mi NW.	L383		S.A.	900 932 942 952	800) 300) Surface) Surface)	75,000	F		0-78 y.cl. -932 Bl.sh. -952 Sst -1132 R.cl. -1134 Hd.rk. -1150 R.cl. -1152 hd.rk. Bottomed in granite.
2323 Maiden Camp Dalgonally	53 Mi NW	L302	1913	Flowing	814 913 1006	Surface) Surface) Surface)	1,500,000			0-90 y.cl. -250 Sh. -350 Kerosene sh. -814 Sh -1006 Sst.
2325 Dalgonally	50 Mi NW		1919	Flowing	210 694 700	 Surface Surface	Small	S		0-70 Cl -380 Bk.sh -390 Sh.rk -684 Bl.sh -700 Hd.r.burnt sst. -701 Granite
2326 Box Creek Carjoan	30 Mi W		1919	S.A.	550 730	Surface Surface	43,000	B F		0-?5 Surface soil -90 Y.cl. -730 Bl.sh. -780 S.rk. -822 Hd.bk.fmn.
2328 Dalgonally			1926							N.O.I.
2329 Lorne	38 Mi NW	349	1926	Flowing	892) 942) 997)	Surface				0-100 Y.sh. -150 Gy.sh. -892 Bl.sh. -902 S.rk. -932 P.cl. - 947 S.rk. -997 P.cl. 1017 S.rk 1035 P.cl. 1055 Qtzite -1106 R.rk.
2331 Sunny Plains	15 Mi N	375	1912	Flowing	850 1020	Surface) Surface)	480,000			0-850 Sh -1020 S.rk. -1026 P.cl.

A	B	C	D	E	F	G	H	I	J	K.
2332 - Consentes	29 Mi. NNW	356	1912	Flow-ing	930 1130	Surface) Surface)	700,000			0- 55 Y.cl. - 88 R.cl. - 924 Bl.sh. - 927 S. - 950 Sh. - 1130 Sst. - 1140 P.cl.

A	B	C	D	E	F	G	H	I	J	K DRILLERS LOG
2333 Cornwall Downs	35 Mi NW	L362	1927	Flowing	632 904 964	Surface " "	8000 138,500			0-10 Sub soil - 20 Y.sh -25 S.rk - 45 Y.sh - 48 Rk -68 Y.sh - 70 Rk -100 Y.sh -104 Rk -109 Y.sh -149 Gy.sh -152 Rk -157 Gy.sh. -159 Rk -179 Gy.sh -182 Rk -201 Gy.sh -204 Rk -261 Gy.sh -500 Sy.Gy.sh. -660 Gy.sh -700 Dk.sh -800 V.dk.sh. -803 Marl -830 Sy -872 Sst. -874 Like gn.bld. -964 Sst. -1009 Hd.rk.like qtz. -1066 Hd.rk. -1074 Bed.rk.
2334 9-mile Alva Downs	22 Mi N	370		Flowing	580 786 855 916	Surface Surface) Surface) Surface)	Small 20,000	F	*50 Lst.	0-4 Surface sh *-34 y.sh. -113 Bl.sh -181 Gy.sh -246 Hd.gy.sh -580 Bl.sh. -599 S.rk. -621 Sy.p.cl. -735 Bl.sh -745 S.rk -759 Hd.rk -768 S.rk -775 Wh.rk -798 Sy.p.cl. -814 S.rk. -825 Hd.rk. -832 Br.p.cl. -841 Hd.S.rk. -860 Hd.rk. -880 S.rk. -900 Br.cl. -993 S.p.cl. -1200 Dk.Shy.cl.
2335 Caleewa	31 Mi NW		1924	Flowing	695-698 760 800	Small soak Surface) Surface)	 110,000			0-8 Bk.sh. -100 Y.cl -275 Sh -300 Sy.sh -330 Dk.Sh. -421 Lt.Sh -498 Gy.sh -523 Sy.sh -598 Gy.sh -693 Hd.bk.rk -696 Bk.caving sh. -705 Bk.sh.with bar of sy sh -730 Sy.sh -750 Dk.sh -760 Sst. -779 Dk.sh -789 Sy.sh -818 Hd.r.sst.with soft sms -915 Interbedded sst with soft spots. r in color making water appear red. -920 Granite.

DRILLERS LOG

A	B	C	D	E	F	G	H	I	J	K
2336 Osbert Downs	12 Mi N	408	1926	Flowing	800 985	Surface Surface	Small 105,000			0-367 Gy sh. -400 Sst. -408 Cl -500 Y.sh. -651 Bl.sh. -708 Br.rk. -792 Br.sh. -836 Gy.sh -851 P.cl. -856 S & cl -881 Wh.qtz. -906 Hd.s.rk -909 S.rk.bars Wh.qtz. -913 Wh.qtz -915 Sst.pk.qtz. -917 Pk.qtz. -918 Sst -919 Pk.qtz. -939 S.rk. -943 Wh.qtz. -945 Pk.qtz -952 Hd.S.rk. -965 S & cl. -970 Wh.qtz. -980 Hd.s.rk. -982 Wh.qtz. -990 S.rk. -991 W.qtz -996 S.rk. -998 Pk.qtz -1002 Rd qtz.
2337 Homelands	31 Mi NW		1929	Flowing	304 660 850 873 895	SA. Surface " "				0-298 Sh.with 2' rk bands. -329 Br.rk. -823 Bl.Sh. -828 Sst. -846 P.cl.& sst. -850 SSt -857 P.cl. & sst. -873 Hd.W.sst. -880 Cs. sst. -895 Sst & P.cl. -900 Cs. .sst. -928 Hd.gy.sst. -948 Gy.rk. -952 Pk.rk.-V.hd. -958 Rd.rk. -984 Gy.rk. -1040 Rd.rk -1049 Rd.rk.carrying schist & mica. -1064 Gy.rk.-Pk.tinge -1098 Granite.

A	B	C	D	E	F	G	H	I	J	K
2338 Warrina	24 Mi NW		1933	Flowing	366 498 756 859) 876) 908) 921) 932) 942) 951)	 Surface	Small	S B B		0-6 Soil & cl -126 Y.sh. -160 Bk.sh -162 Rk -212 Gy.sh -214 Rk -254 Bl.sh -257 Rk -297 Bl.sh -299 Rk -349 Gy.sh -352 Rk -364 Gy.sh -366 Rk -418 Gy.sh -498 Gy.rk -538 Gy.sh -541 Rk -561 Gy.sh -563 Rk -593 Gy.sh -596 Rk -636 Gy.sh -639 Rk -692 Gy.sh -713 Hd.gy.sh -746 Gy.sh -751 Br.sh -759 Lst. -815 Br.sh -835 S & sh -841 Sst. -855 S & sh -859 S -864 Qtz -871 S & Cl. -873 Qtz -876 S -881 Qtz -895 S -903 Granite -956 Qtz & granite
2443 Garomna	5 Mi ESE	400'	1891	Flowing	300	Surface	152		80	T.D. 300 N.O.I.
2444 Garomna	5 Mi ESE	400'	1891							T.D.30 N.O.I. (Adjacent 2443)
2447 Eddington	17 Mi WSW	370		Flowing	580 786 855 916	Surface) Surface) Surface) Surface)	Small [illegible] [illegible] 20000	[illegible] F		0-4 Surf sh. -34 Y.sh -50 lst -113 Bl.sh -181 Gy.sh -246 Hd.gy.sh -580 Bl.sh -599 S.rk -621 Sy.P.Cl -735 Bl.Sh. -745 S.rk -759 Hd.rk -768 S.rk -775 Wh.rk -798 Sy.P.cl -814 S.rk -825 Hd.rk. -832 Br.p.cl. -841 Hd.s.rk -860 Hd.rk -880 S.rk. -900 Br.cl. -993 Sy.P.cl. -1200 Dk.Shy. cl.

A	B	C	D	E	F	G	H	I	J	K
2448 Kamerooka Longford Plains	8 Mi S	469	1893	Flowing	889) 1045)	Surface				0-889 No info. -1045 S.rk. at 1279 bedrock.
2449 Argyle	7 Mi NNE	420	1898	Flowing						Determined in granite at 1066'.
2450 Kevin Downs	35 Mi SW	498		SA	850) 950)	Surface				0-850' Sh little gas -1000 S.rk. -1106 reported bedrock reached.
2451 Box Ck. St.Andrew	32 Mi WSW	449	1899	SA						TD.1155 N.O.I.
2452 Eddington (7) Bindoora	23 Mi WSW.	402	1899	Flowing	870) 950)	Surface				T.D. 964 N.O.I.
2453 Innisfail Downs	13 Mi ESE	475	1899	Flowing						T.D.1020 Determined in granite
2454 Eddington(9) Eddington	7½Mi SW	419	1900	Flowing	1043) 1170)	Surface				Determined in bedrock.
2455 Eddington(10) Gilliat Town	17 Mi W	413	1901	SA						T.D. 986. N.O.I.
2456 Eddington(11) Ivellen	32 Mi SW	490	1904	SA	889 945	Surface)) Surface)	416,500 1906- 217,300 1914			0-100 Y.sh -465 Bl.sh -565 Bk.Sh -845 Bl.Sh -870 S & sh -1000 s.rk. -1054 p.cl.& cong.
2457 Eddington(12) Eddington	12Mi WNW	407	1901	Flowing	978	Surface	92,050-(1909) 84,920-(1914)			0-978 sh -1081 Sst & p.cl. -1097 Rotten granite.

A	B	C	D	E	F	G	H	I	H	K
2458 Eddington Melvie Downs	28Mi (13) WSW	446	1913	Flow- ing	335 837 880	Sur- face Surface Surface	256,300 (1913) 217,300 (1914)	Slightly B		0- 92 Y.cl. - 427 Bl.sh. - 550 Bk.oil sh. - 600 Bk.sh. - 800 Hd.Lt.sh.w.s. - 837 Patches of S. - 900 Sst. -1055 Bk.s.
2459 Eddington Eddington	11Mi (14) WNW	401	1915	Flow- ing	200 247 987	Surface Surface Surface	299,300 (Est)	B B		0- 6 Surface - 76 Cl - 154 Bl.sh. - 156 Hd.gn.st. - 167 Bl.sh. - 177 Hd.St. - 217 Bl.sh. - 267 Hd.bl.sh. - 984 Bl.sh. -1084 Hd.St.& P.cl. -1134 Sst.w.bands of coal.
2460 Armadale	13 Mi S	451	1915	S.A.	1902	Surface	85,000			0- 160 Y.sh. - 320 Br.sh. - 323 Hd.st. - 573 Bl.sh. -973 Bkish, kerosene sh. -1090 Bl.sh. -1190 Sst. -1196 R.granite- basement
2461 Carrum No.2 Armadale	15 Mi S	451	1924	S.A.	1184 1256 1278 1286 1355	1144 Surface) Surface) Surface) Surface)	 30,000 70,000 140,000 200,000			0- 5 Surface - 84 Y.sh. - 112 Pk.sh. - 132 Purple sh. - 181 S.rk.with hd.stks - 252 S.& sh. - 255 Hd.bd. - 285 Sh.& S. - 288 Hd.rk. - 400 Bk.sh.w.hd & sy stks. - 431 Sy.sh. - 447 Bk.sh. - 484 Choc.sh.w. stks.lst. - 558 Bk.sh. - 605 Choc.sh. - 607 Hd.stk. cap rock of oil bed - 666 Petrified & Hd.tar sh. - 672 Choc.shale - 770 Bl.sh. - 825 Bk.sh. - 938 Bl.sh. - 959 Br.sh. - 983 Bl.sh. - 1031 Bk.sh. - 1061 Br.sh. -1083 Bk.sh. -1107 Bl.sy.sh. -1117 Bk.sh. -1162 Bl.sy.sh. -1171 P.cl.& sh. -1189 S.& p.cl. -1216 Sy.sh. -1305 S.& p.cl. -1318 Hd.p.cl.& qtz. -1326 Qtzite & sst. -1355 Hd.sst. -1367 Hd.sst. & pk.qtz. -1380 Congl. -1394 Hd.s.rk&qtz -1400 Pk.qtz.

A	B	C	D	E	F	G	H	I	J	K
2462 Leilavale Carjoan	34Mi (16) WSW		1915	S.A.	130 600 635	Surface Surface		 123,700		0- 78 Y.sh. - 600 Bl.sh. - 635 S.rk. - 755 S & p.cl. - 860 S & bl.rk.mica, also gy.rk.
2463 Leilavale Barnsdale	38 Mi SW		1924	S.A.	200 257	140 Surface		 400	F F	0- 62 Lt.coloured cl. - 257 Gy.sh. - 267 Rk. - 430 Bk.sh. - 432 Hd.rk. - 460 Sst. & sh. - 472 SSt. - 510 Sst.& cl. - 538 Gy.rk. - 679 Hd.bk.rk.

A	B	C	D	E	F	G	H	I	J	K
2464 Eddington 18 Clifton Park	19 Mi WNW	-	1927	Flowing						T.D. 362. N.O.I.
2465 Eddington	15 Mi SW	-	1927	Flowing	1060 1080					0-505 Sh.y.bl.gy.w.hd stks. -540 Br.sh.& fossils -1052 Br.bk.bl.sh. -1089 S & p.cl. -1091 Qtz.
2466 Carjoan	35 Mi WSW	472	1926	SA	144 206 289 335 490	Soak Surface "	Small 20,000 60,000	[illegible] F		0-20 Surface sh. -50 y.cl. -90 Bk.sh. -92 Bench of rk -144 Bk.sh -204 Gy.sh -206 Bench of rk -266 Bk.sh -272 Bench of bk.rk -326 Gy.sh. -336 Bk.sh -465 Bk.sh -485 Wh.bd.rk -506 Wh.p.cl.
2468 Stratbyrne	26 Mi SW	-	1897	SA						T.D. 1000' N.O.I.
2469 Maori Downs	34 Mi SW	437	1910	flowing						T.D.1050 N.O.I.
2473 Malvie Downs	25 Mi SW		1925	SA	976 979	Surface	27,000	F		0-4 Soil. -16 S -84 Dk.Sh -184 Gy.sh -244 Sy.mixture -248 Gy.rk -404 Gy.sh -464 Dk.Sh -564 Gy.sh -925 - Dk.sh. -965 Gy.sh. -975 Sy.gy.sh -978 Hd.rk. -985 Sharp sst. -1010 Water-bearing sst. -1020 Hd.r. cong. -1031 V.hd.cong.
2474 No.1. Kamerooka	19 Mi SSW	462	1900	Flowing						T.D. 1388 N.O.I.

<u>DRILLERS LOG</u>

A	B	C	D	E	F	G	H	I	J	K
2475 No.2. Kamarooka	26 Mi SSW	492	1904	SA						T.D. 1380 N.O.I.
2476 Rutchillo	31 Mi SW		1921	Flowing						0- 4 Surface sh -297 Gy.sh. -1034 Gy.sh. - 77 y.sh. -465 Bl.sh. -1043 Sy.sh. -140 Lt.gy.sh. -931 Gy.sh. -1069 S.rk. *- 1096 s.rk. -1006 Dk.sh. -1076 p.cl.*
2477 Homestead Leilavale	37 Mi W	446	1911	Flowing	542	Surface	160,000			0-400 Deepening existing bore -532 Bk.sh. -645 S.rk.
2478 No.2. Leilavale	42 Mi W	442	1914	SA	180 640 790	Soak Surface Surface	15,000	S		0-100 y.sh. -641 Bk.rk -160 Bk.sh. -650 Gy.s. -180 Kerosene sh -690 Wh.s. -400 Bk.sh -750 Wh.p.cl. -560 Gy.sh -790 S.rk.& p.cl. -585 Bk.sh -796 Bk.rk. -610 Gy.sh -640 Bk.s.& sh.
2479 No.3 Leilavale	37 Mi WSW	465	1914	Flowing	416 530	S.A Surface	400,000			0-9 y.sh -420 Gy.sh. -15 Soft s. -425 Bk.cong. -68 y.sh. T.D.591. 8" caseing -185 Bk.sh 4' into wh cong. -191 Cong. N.O.I. -240 Kerosene sh -370 Bk.sh.
2481 Bodell Bodell	12 Mi SSE		1920	Flowing	? 960	Surface	119,400	G	129	0-5 Bk.soil -796 Bk.sh -75 y.cl. -856 Gn.sst.w.water -77 Rk -977 Sst.w.water. -133 Lt.sh. -997 V.hd.pk.sst. -185 Sy.sh -1005 Rk. -187 Rk -270 Bk.sh. -277 Hd.gn.sst. -544 Sy.bk.sh -546 Rk

DRILLERS LOG

A	B	C	D	E	F	G	H	I	J	K
2482 Belgravia	8 Mi SSW	L461	1925	Flowing		Flow gradually increased up to 1207'				0-130 y.sh.w.rk.at 526-605 Soft br.rk 30-33;43-45; -610 Hd.gy.rk 50-54;70-75; -760 Gy.sh. 90-91;9[illegible]-100; -768 Hd.s & rk. 120-122; -880 Gy sh 130-250 ?Bk[illegible].w.rk at -990 Hd.gy.sh 145-150;1[illegible]0-172; -1085 Sst 176-180;2[illegible]0-213½; -1209 Sst w seams 230-231½;[illegible]45-248; of qtz. 250-258 S & cl. -1229 Qtzite. 270 Sst.w.rk at 260-263;. 270-380 S & cl.with rk at 271-280;320-320; 340-342;355-358. 380-526 Gy.sh.w.rk at 380-382;400-404; 417-419.
2483 Garomna	10 Mi ES		1946	Flowing	175 705 782 815 820 840	43 Surface " " " "	Small 80,000	F		0-3 Bk.soil -318 Br.sh -9 Cl -690 Gy.sh -48 y.sh -715 Water s -68 Gy.sh 773 Cl.w.hd.rk -72 Rk 862 Water s -165 Bk.sh 870 Qtz -175 Gy.rk 876 Qtzite 177 Water S 900 Qtzite w water. 205 Gy.rk
2580 Kevin Downs	42 Mi SW	470	1890	Well						T.D. 59 N.O.I.
2589 Barnsdale	47 Mi SW	573	1896	SA	115 380	Soak Surface				0-75 Y.cl. -475 Rotten granite -100 Bl.sh. -530 Hd granite. -360 Bk.sh -400 Drift & wh.s.

DRILLERS LOG

A	B	C	D	E	F	G	G	I	J	K
2590 Holy Joe Barnsdale	44 Mi SW	L534	1896	S.A.	240	Surface	62,580	-	92	0-75 y.cl. -200 Bl.sh -240 Drift -275 Hd.rk -300 Qtz & mica
2591 Berwick Longford	47 Mi SW	537	1896	S.A.	25 520	Soak Surface	6,200			0-5 Sy.loam -30 Drift S. -444 Sh -534 Water rk -552 Qtz -690 Hd.wh.s.rk -692 Granite.
2592 Lower Fullaton Oorindi Park	44 Mi WSW	504	1896	S.A.	480	Surface				0-18 Sy.loam,s. -40 y.cl. -400 Bk.sh. -402 Hd.stk -480 Bk.Sh -540 Water rk -562 Hd.sst.
2593 Stony Creek 2 Kevin Downs	40 Mi SW	501	1897	S.A.	800 840	Surface "	)Originally) 85,000)Trickle in 1937			0-70 Cl -800 no info. -890 Water rk -916 Sst.
2597 Birdcage Beenfields	38 Mi SW	[illegible]7	1907	S.A.	836 860	Surface Surface				0-30 Br cl. -135 y.soap.st. -500 Bk & gy sh -750 Bk.sh. -830 Br.mud & drift -835 lst. -889 S. rk -910 Bl.primary rk.
2598 Copi Longford	42 Mi SW	498	1907	S.A.	401	Surface				0-401 No info. -544 Sst. Bottomed in granite.
2599 Lower Fullarton 18 Oorindi Park	42 Mi WSW	476	1908	S.A.	406	Surface	2,700 (1000 in 1937)			0-39 Caving strata -41 Drift s -174 Bk.cl.w.pieces of flint. -484 Bk.sh -619 Sst,cl. & s. to Gn.st.at bottom.

DRILLERS LOG.

A	B	C	D	E	F	G	H	I	J	K
2619 Ivellern	36 Mi SW		1925	S.A.	850 858	Surface) Surface)	7000		cold	0-5 Br.soil -13 Gul & r. soil -60 y.sh -63 1st.bld. -118 y.sh. -120 rk -142 Sh -379 Bl.sh -436 Bl.sh.& S. -850 Bl.sh -858 V.hd.sy.sh.w. water. -886 Gy.sst. -1098 Sh.w.falcose minerals.
2733 Drilling Bore Arolla		503	1911							T.D.533. N.O.I.
2737 Spanish Vale Arolla		476	1910							0-10 Soil - 90 Y.sh. - 150 Bk.sh. - 580 Bl.sh. - 600 Sst. - 608 Bed rk.probably reached.
2738 Spanish Vale 2 Arolla	48 Mi WSW	473	1910	S.A.	630	Surface				0-10 soil -20 1st -90 y.sh. -150 Bk.sh -500 Bl.sh.some gas.good water. -550 Bk.sh -600 Bl.sh. -630 Sst & s. Bedrock probably reached. T.D.672. [illegible]
2756 Greenwood	48 Mi W	440	1908	 Flowing	300 380 530	? Surface "				0-10 Soil -86 Y.cl.& sh. -380 Bl.sh. -389 Sst. -530 Bl.sh -680 Sst Bottomed in qtzite & diorite.
2758 No.1 Cooyal	49 Mi W		1917	S.A.	444	S.A.		F		0-10 loam -75 Y.cl. -425 Bk.sh. 444 Thin seam s. rk. -495 Bk. sh. Bore abandoned.
2759 No.1. Cooyal	50 Mi W		1922	S.A.						T.D. 603. N.O.I.

A	B	C	D	E	F	G	H	I	J	K
2760 No.3 Oorindi Park	46 Mi WSW		1925	SA	275 351 665) 682)	198	Soak 14,400	S F		0-124 y.cl. -132 Bl.sh -212 Sst. -266 Puggy bl sh -275 Sy.sh -341 Sst -351 Rk.sst -357 Gy.sh -367 Br.sh -421 Gy.sh -423 Gy.rk -471 Bk.sh -545 Gy.sh.rk alternating -582 P.cl & s. -602 Gy.sh -612 P.cl. & s. -647 Gy.sh. -665 Bk.Sh.p.cl. -682 Banks of s & sh -694 P.cl. -696 Wh.rk -700 Gy.sh.
2761 No.4 Oorindi Park	40 Mi WSW		R.L.Jeffreys 1929	SA	510 625) 632)	Surface	soak 3000			0-10 Soil -20 s.cl.gvl. -90 y.cl. -210 bl.sh. -350 Bk.Kerosene sh -510 Gy.sh. -620 Bk.sh. -625 Sh.S -632 Wh.s.rk. -650 soft.s.rk. -720 bl.cl & fine s -757 p.cl. & qtzite -758 hd.rk.
3112 Woolscour Julia Creek	2 mi W		1924	Flowing	450 1018) 1030) 1050) 1120) 1133)	Surface	soak 10142 193700	S		0-80 y.sh -118 Bl.sh -120 s.rk -199 sh -202 s.rk. -242 sh. -244 s.rk. -279 sh -283 S.rk -300 sh -429 sh.w.bd.rk. -450 hd.bl.sh.bd.rk -950 hd.bl.sh. -1018 sh -1133 S & sst.
3505 Bauhinia Downs		438'	1888		165	Surface	500		87	0-165 sh
3507 Mazeppa		420'	1884							Boring abandoned. T.D. 200' N.O.I.

DRILLERS LOG

A	B	C	D	E	F	G	H	I	J	K
3508 Bauhinia Downs	-	L398	1889							T.D. 130' N.O.I.
3513 Bauhinia Downs	-	L438	1890		203	Surface			94	Abandoned T.D.203' N.O.I.
3517 Bauhinia Downs	34 Mi NNW	L365	1889	Flowing	678	Surface	34,370		105	-60 Alluvium -638 sh. -678 sst.
3518 Mazeppa	21 Mi NNE	L421	1889	Flowing	430 760	Surface Surface	180,300		109	0-430 sh -665 sst -675 bd.of sh. -760 sst.
3519 Mazeppa	25 Mi NNE		1924	Flowing						T.D.725' N.O.I.
3520 Mazeppa	22 Mi NNE	-	1928	Flowing	208 1007 1084	Surface) Surface)	72,000	S		0-4 Soil -42 y.cl. -44 rk -124 cl. -808 sh.w.2' bds of rk. -809 sst. -1003 bl.bk.br.sh -1015 c.s & fine sst. -1049 p.cl.& sst. -1050 rubble w water -1091 Fine hd.sst. -1109 Mica sst. -1121 Mica sl. -1123 hd.rk. -1139 hd.sl.
3521 Burwood	16 Mi NNE	446	1889	SA	390 707	Surface) ")	80,830		100	0-60 Alluvium -390 Sh. -394 bk.sst. -602 sh. -707 sst. T.D. 760'
3522 Lindfield	14 Mi NE	L441	1890	Flowing	733	Surface	113,600		115	0-60 Alluvium -70 sh -110 rotten sst. - 655 sh - 733 sst.
3524 Bauhinia Downs	29 Mi N	L339	1891		680	Surface	26,600		112	0-72 Alluvium -624 sh -670 sst. -690 hd.rk.

DRILLERS LOG

A	B	C	D	E	F	G	H	I	J	K
3525 Bauhinia Downs	30 Mi NNW	-	1927	Flowing	763' to bottom	Surface	140,000	-	-	0-4 cl. - 5 rk -15 y.sh -20 rk -64 y.sh -146 bl.sh -198 br.rk. -300 br.sh -510 gy.sh -516 hd.gy.sh -520 rk -531 hd.gy.sh -533 rk -645 gy.sh -658 s & sh -661 s.rk. -710 sy.sh -870 sst. -877 qtz -878 Granite.
3526 Bauhinia Downs	27 Mi NNW	-	1926	Flowing						T.D. 728 N.O.I.
3527 Auckland Downs	28 Mi N	458	1899	Flowing	590 700	Surface "				0-75 sh -700 sst. -1036 Granite.
3528 Bauhinia Downs		L392	1899		150 450	Surface "				0-450 sh -580 sst. -670 Granite -680 hd.rk. -700 Granite
3529 Bauhinia Downs		L392	1899		605	Surface				0-83 sh. -605 sst. -650 Granite.
3530 Lindfield	20 Mi NE	453	1899	Flowing	100' 670) 825) 966)	Surface				0-60 Y.sh. Drift at 100' -670 Sh. Sst. at 670',825' & 966' ?Granite at 1008
3531 Maria Downs	26 Mi NNE	407	1899							0-56 sh. -625 sst. -835 cs. s. & pebbles.
3532 Lara	47 Mi NNW	L355	1888	Flowing	98	Surface	16000			0-30 R.S. -32 ? gvl. -98 Sh Bore abandoned.
3534 Lara			1888							T.D. 288 N.O.I.
3538 Lara		L356	1915							T.D.835 N.O.I.

DRILLERS LOG

A	B	C	D	E	F	G	H	I	J	K
3539 Lara	37 Mi NNW	-	1922	Flowing	333) 618) 711)	† Surface				0-5 Soil -75 y.sh -330 bk.sh -590 bl.sh. -618 S.rk -648 bl.sh. -693 gy.cl. -711 S.rk. -738 S & gvl. -800 bed.rk.
3540 Oxton Downs (15) Oxton Downs	14 Mi N.E.	L463	1891	Flowing	680 900 1075	Surface " "	99,100		129	0-60 Alluvium -665 Sh -800 sst. -1076 Granite T.D. 1176'
3541 Oxton Downs (16) Oxton Downs	16 Mi ENE	500	1891	Flowing						T.D. 890 N.O.I.
3542 Quarrell's Siding	16 Mi ENE	504		Flowing	870 1040 1100 1140	Surface) ") ") ")	Estimated 500,000			0-13 R.cl. -93 y.cl. -120 gy.cl. -220 bk.cl -300 bl.cl. -312 gn.rk. -847 bl.sh. -852 sst & sh. -1000 sst. -1020 hd.gy.rk. -1140 sst. -1354 patches sst & hd.rk. to bottom - with granite.
3671 Rodley	39 Mi ESE	693		Flowing	130 1181 1203) 1338) 1538)	 20' Surface) ") ")	100 2,000,000	S		0-90 Y.sh -161 bl.sh. -503 gy.sh -533 hd. ck.rk -743 bk.sh. -889 gy.sh -1000 bl.sh -1070 bk.sh -1176 p.cl -1200 p.cl. & rk. -1338 S.rk. -1364 p.cl. & s.rk. -1430 s.rk. -1437 p.cl. -1538 S.rk.
3704 Millungera	42 Mi NNE	L418	1900	Flowing	470	Surface				0-156 Sh -561 No.info. -661 Bl.sh. -857 sh. & s.
3709 Millungera	36 Mi NNE	L410	1903	Flowing						T.D. 850 N.O.I.

DRILLERS LOG.

A	B	C	D	E	F	G	H	I	J	K	
3713 Wingera	39 Mi NNE	L446	1912	Flowing	150 760 920 1095	?60 Surface	1,846,600	S	106.5	0-14 y.cl. -20 s -86 y.cl. -120 Bl sh. -125 Oily bk.sh -155 Silt -650 Bl.sh. -760 Sst.	-800 p.cl. -840 Br.sh. -890 P.cl. & s. -920 sst. -950 p.cl. -1035 sst. T.D. 1095 N.O.I.
3716 Wingera	44 Mi NNE		1929	Flowing						T.D.822 N.O.I.	
3768 Fairlea	28 Mi NE	-	1926	Flowing	192 750 900 950	Surface " "	80,000 1,169,000	S		0-20 y.cl. -40 y.sst. -42 Br.rk. -66 [illegible].sh -80 Br.sh -84 Bl.sh. -100 Sst. -190 Gy.sh. -220 Br.rk -370 Bk.sh.	-375 Rk -510 Gy.sh -520 Rk -560 Gy.sh. -680 Bk.sh. -750 Sy. sh. -784 Sst -900 p.cl. -970 s.rk.
4023 Nelia Ponds	21 Mi ESE	485	1899	Flowing				a little gas in water		Bottomed in bed rk. T.D. 1154. N.O.I.	
4025 Proa	31 Mi SE	558	1900	Flowing						T.D.1318 N.O.I.	
4026 Nelia Ponds	34 Mi ENE	471	1901	Flowing						T.D.1300 N.O.I.	
4027 Nelia Pond	30 Mi ENE		1902							T.D.1078 N.O.I.	
4330 Glengalla	62 Mi NE	-	1393	Flowing	525	Surface	436,000	-	99	0-10 Alluvium -525 Sh -543 Sst.	

DRILLERS LOG

A	B	C	D	E	F	G	H	I	J	K
4336 Saxby Downs	64Mi NE	L.629	1908	Flowing	400 850	Surface "		Some gas		At 400 Marl -850 Hd.sst. At 850 mud spring. T.D.1335 N.O.I.
4366 Watheim	-	L.575	1912							T.D.847 N.O.I.
4367 Sutherland	54 Mi NE	L627	1911	Flowing						T.D.1088 N.O.I.
4368 Dover Downs	58 Mi NE	-	1923	Flowing	326 595 947	Surface " "	1,100,000			0-4 S -66 y.s. -93 y.cl. -198 Bk.sh. -326 Bl.sh. -342 Bk.s.rk. -595 Bl.sh. -715 S.rk -750 P.cl. -875 Fine s.rk. -900 P.cl. & s. 1006 Cs.s.rk.
4459 Minamere	37 Mi SE	515	1910	Flowing						T.D.1700 N.O.I.
4972 Knaresborough Yorkshire Downs	38 Mi SSE.	535	1907	Flowing	1116 1190 1291 1379 1405					0-117 Hd.surface -226 Bk.sh -449 Bl.gy.sh -621 Gy.sh -1042 Bk.sh -1145 Bk.gy.sh.& p.cl. -1379 S.rk. & p.cl. -1433 S.rk.
4973 No.2.shed Wensley	19 Mi ESE	498	I.B.C. 1911	Flowing	863 877 975 1042 1063	Surface " " " "	Slight 10,000 225,000			0-39 y.sh. -323 Gy.sh -340 S.rk. -350 Bk.sh -597 Br.sh. -619 Gy.sh -687 Hd.gy.sh -739 Gy.sh -867 Hd.sh -892 s.rk. -908 S.rk. & p.cl. -1012 p.cl. -1063 S.rk. -1164 Dk.gn.rk. -1201 Qtz.
4974 Wensley	24 Mi SE	504	1911	Abd	161 200			S S		0-88 y.cl. -181 Sy.gy.sh -263 Gy.sh.w.hd.stks -413 Hd.br.sh. -530 Gy.sh.w.hd.stks. -910 Gy.sy.sh. Boring abandoned, cable and hook in bore.

DRILLERS LOG.

A	B	C	D	E	F	G	H	I	J	K
4975 [illegible]nsley	24 Mi SE	504	1911	Flowing	140 913	 Surface	Soak			0-25 Surface cl. -181 cl. -417 Gy.sh. -460 Bk.sh -693 Gy.sh. -917 Gy.sh. Granite at 917.
5010 Lindfield	13 Mi NNE		1938		160	40		F		0-13 Bk.soil & y.cl -27 Y.sst. & y.sy.cl. -31 rotten sst. -40 y.cl. -60 Bk.sh -67 Gy.sh -105 Gy.sy.sh -125 Bk.sh. -178 Bk.gy.sh -480 Gy.sh -481 Br.rk. -556 Gy.sh -562 Sst -575 S.rk. -576 Sst. -608 Lt.gy.sh -783 Hd.r.rk.
5016 Lara	40 Mi NNW		1935	Flowing	80 124 342 365 485	RSA Surface " " "	 Small - 5,000 38,000	F	-44 Rk.	0-3 Surface *-40 [illegible].sh -70 Cl -120 Br.sh. -200 Lt gy.sh -206 Rk -274 Lt.gy.sh. -277 Rk -337 Lt.gy.sh. -339 Rk. -396 Bl.sh. -398 Rk. -416 Bl.sh. -426 Sy.sh. -429 Rk -449 Bl.sh. -451 Rk -465 sy.sh. -467 Rk -473 Gy.sh -475 Qtz -478 Sh -537 Qtz -540 Mica -545 Qtz -548 Mica
5028 Gladevale	51 Mi NE	-	1936	 Flowing	424 815 826 830 838 871 887 898 906	175 Surface " " " " " " "	 10,000 24,000 30,000 50,000 85,700 120,000 146,000 410,000		*-423 By.sh.	0-57 Lst & y.cl. *-180 Bk.sh. -428 Gn.s.rk. -455 Sh & bds.rk -458 Gn.s.rk. -607 Sh & bds. rk -618 Sh -622 Gn.s.rk. -698 Sh.w.bds rk -702 Qtzite -710 Gy.s.rk. -724 Fine.S.rk. -766 S.rk -769 P.cl. & s. -774 S.rk. -800 Sh. -807 P.cl.rk -845 s.rk. -858 P.cl. & s. -906 S.rk.

DRILLERS LOG.

A	B	D	D	E	F	G	H	I	J	K
5154 Loryford Plains	10 Mi S		1938	SA	1063 1117 1175	Surface " "	134,823			0-65 y.cl. -380 Bl.sh. -530 Gy.sh -960 Bk.sh. * -1020 Gy. sh. -1213 Interbedded bld. s.rk.p.cl. -1058 Bk.sh. -1063 p.cl.
5355 Oorindi Simplex Beaufields	42 Mi SW		1933	SA	878	29	12,672			0-2 Soil -20 R. gvl. -76 y.sh. -77 Rk -100 y.sh. -129 Bk.sh -160 Gy.sh. -165 Rk -207 Gy.sh -217 Rk -262 Gy.sh -265 Rk -315 Gy.sh -316 Rk -373 Gy.sh. -403 Rk -435 Gy.sh. -488 Bk.sh. -491 Rk -571 Gy.sh -573 Rk -663 Gy.sh -759 Br.sh -763 Rk -861 Br.sh -870 Sy.sh -880 Sst. -890 Cl. -960 Mica & rk.
5357 Kevin Downs	40 Mi SW		1926	SA						T.D.920 N.O.I.
6013 No.2. Caiwarra	26 Mi WNW		1937	Flowing	289 761 802 830	220 Surface " "	81,042			0-405 No info. -410 Sh.w.bd.rk -508 Sh -519 sh.rk -545 sh -552 Sh & bds rk -560 sh -570 sh & bds rk -685 Sh -756 Sh (mud springs) -761 Sy.sh -770 S.rk. -790 Sy.p.cl. -802 Sh -805 Qtz rubble -842 S.rk -844 R.qtzite.

DRILLERS LOG.

A	B	C	D	E	F	G	H	I	J	K
6195 Malvie Downs	29 Mi WSW		1938	SA	850 957	Surface "	1000 6000	Good		0-2 soil 120 y.cl. w. bds.rk -172 Gy.sh. -178 Rk.sh. -195 Sh -199 Rk -223 Sh -224 Rk -336 Sh -351 Gy.s.rk. -365 Broken qtz.w. water -370 Gy.rk. -400 Br.sh. -877 S.rk -882 P.cl. -887 S.rk -888 Gy.rk -889 P.cl -890 Gy.rk -898 Gy.cl. -974 Water sst. -994 Muddy sst. -1025 Sy.mud st. -1042 Mud. st. -1100 Muddy.sst.
6840 Gilliat Town	17 Mi WSW		1938	SA	253 990	Surface	63,000			0-4 Bk. soil -55 y.cl. -70 y.cl. & bld. -83 y.cl. -110 y.cl. & bld. -120 y.cl. -250 Gy.sh -253 Hd.rk -260 Gy.sh -320 Gy.sy.sh -732 Gy.sh. -750 Sh -855 Gy sh. -865 Rk.sh (bars of hd.gy.rk) -930 Gy.sh. -940 Sy.sh -970 Gy.sh -990 Sy.sh -1000 Water-bedding sst. -1012 Hd.rk.
7294 Land's End	28 Mi NW		1939	Flowing	860	Surface	6,912			0-5 Soil -30 y.cl. -105 Slippery rk -115 y.cl -335 Gy.sh -345 Lst -370 Gy.rk -445 Dk.sh -510 Gy.sh -600 Dk.sh -685 Gy.sh. -845 Dk.sh -860 Sy.sh -870 Sst. -872 Br.stky sh & p.cl. -892 Sh -895 S. -903 R.sst. -904 Qtz. -913 R.sst. -917 Qtz.

DRILLERS LOG

A	B	C	D	E	F	G	H	I	J	K
7577 Cooyal(2) Cooyal	46 Mi WNW	-	1939	SA	730 735	Surface "	21,000			0-80 y.cl. -141 Bl.sh. -146 Rk -455 Gy.sh -465 Gvl -605 Br.sh -700 Dk.gy.sh -735 Sy.sh -745 S.w.stk.p.cl. -793 Hd.s.rk. -868 Hd.br.rk. -840 Bk.rk.
8396 Malham West Malham	16 Mi SSE	-	1941	Flowing	998 1011 1098 1157 1169	Surface " " " "	10,000 12,000 5,000 7,000 46,000	80,000		0-8 soil -62 y.sh. -65 y.rk -80 Sh -118 Gy.sh. -120 Gy.rk. -133 Gy.sh. -135 Gy.rk. -157 Gy.sh. -158 Gy.rk. -280 Gy.sh -283 Gy.rk -315 Gy.sh -317 Gy.rk -475 Gy.sh -485 Qtz.rk -627 Bk.sh. -667 Gy.sh. -727 Bk.sh. -811 Gy.sh. -830 Bk.sh. -840 Gy.sh. -894 Bk.sh. -912 Bl.sh. -928 Bk.sh. -951 Gy.sh. -960 Bk.sh. -966 Dk.gn.rk. -973 Bk.sh. -997 stks,gn.rk. -1000 Hd.s.rk. -1004 P.cl. -1008 Gn.s.rk. -1010 P.cl.s. -1013 S.rk. -1018 P.cl. -1029 Fine hd.s.rk. -1066 P.cl. s.rk. -1076 S.rk. -1086 Lst. -1098 S.rk -1099 Qtz pebbles. -1125 Qtz sst. -1151 Cs.s.rk. -1154 Lst. -1157 Qtz.s. -1160 Qtz -1163 Lst. -1169 Qtz sst. -1173 Lst. -1176 Hd.rk.w.specks of. mica.

DRILLERS' LOG

A	B	C	D	E	F	G	H	I	J	K
9083	33MI	428	1942	Flowing	460 560	60 Surface				0- 3 Surface - 90 Y.sh. - 260 Dk.sh. - 263 Rk. - 288 Sh - 294 Rk. - 322 Sh. - 325 Rk. - 362 Sh - 364 Rk. - 378 Sh. - 381 Rk. - 417 Sh. - 421 Rk. - 466 Sh - 478 Rk. - 500 Sh. - 555 Hd.sh. - 576 Sst. - 580 Qtz. - 586 Cl. & qtz. - 609 Rk. - 653 Granite
9166 - Bauhinia Downs	32 Mi N	E.Emblem 1943	Flowing		490 576) 584) 690) 707)	120 Surface				0- 34 Rd & wh.cl. - 80 Y.cl. - 346 Gy.sh. - 474 Alternating rk.w.sh. - 575 sh. - 588 s. - 679 Cl.w.s.bds. granite - 686 Cong. - 690 Hd.rk. - 707 s.rk.w.qtz - 720 No.info.
10785 Elrose	45Mi.		1946	S.A.	201	140) 60)	24,000			0- 5 Dk.soil - 93 Y.cl. - 197Dk.sh. - 201 Rk. - 206 Dk.sh. - 290 Rk. - 316 Dk.sh. - 336 Sst. - 366 S.rk. - 374 Qtz. - 380 Hd.sst.& qtz.

A	B	C	D	E	F	G	H	I	J	K	
10849 Proa	31 Mi SE	-	1947	 Flowing	310 876 948 968 977 980	 576 Surface Surface " "	Soak))25,000))			0-2 Surface soil -65 y.cl. -276 Gy.sh.w.rk at 100,106,146,178, 187, 216. -330 Br.rk. -424 Dk.sh. -489 Gy.sh. & rk at 454,488. -577 Sh.w.rk at 51[illegible],566,574. -871, Hd sh.w.rk at 595,632,705, 718,720,756,788, 817,855, stks s at 722 & 774. -901 S & qtz. -939 Cl & qtz. -986 Granite & qtz. Samples examined by Government Geologist. -873. Gy.sh.w.sy patches. -876 Gy wh.sst.	-879 Sst & Sh. -910 Gy.sh. -917 Sh & small proportion of sst. -941 Pk qtzite & frequent sst. -950 Moderately cs.wh.sst. -982 Mainly hd qtz. -986 Granite
11047 No.2 Caleewa	33 Mi NW			 Flowing	210 615) 788) 820) 860) 876)	S.A. Surface				0-125 y.cl. -185 Gy.sh -215 Br.rk. -615 Dk.sh. -890 Sst. -950 Qtz.	

DRILLERS LOG

A	B	C	D	E	F	G	H	I	J	K	
11110 Hilton Park	3 Mi SE		1948	Flowing			75,000 (controlled to 36,000)			0-?14 Surface -66 y.cl. -74 Rk -108 Gy.sh. -110 Rk -124 Sh -125 Rk -135 Sh -139 Rk -158 Sh -159 Rk -210 Sh -213 Rk -238 Sh -242 Rk -258 Sh -260 Rk -279 Sh	-283 Rk -431 Sh -486 Rk -632 Sh -634 Rk -659 Sh -823 [illegible].sh. -826 Rk.[illegible]. -855 [illegible].sh. -[illegible] Rk.[illegible]. -882 Hd.sh. -925 Rd. -1004 Hd.sh. -1030 Hd.br.sh. -1123 Qtz. -1167 Hd.s.rk.
11284 Lydia Downs	44 Mi NNE		1949	Flowing	666 694 797 806 819	Surface " " " "	20,000 42,000 97,000 163,000 218,000			0-5 cl -38 rk -44 y.cl. -60 Dk.sh -63 Rk -146 Dk.sh -191 Gy.sh -192 Rk -193 Sh -219 Gy.sh -222 Rk -313 Gy.sh -315 Rk -350 Gy.sh -353 Rk -365 Gy.sh -366 Rk -388 Gy.sh -390 Rk -460 Gy.sh -463 Rk.	-479 Gy.sh -481 Rk -511 Gy.sh -529 Hd.sh -531 Rk -591 Hd.sh. -594 Rk -618 Hd.sh. -620 Rk -645 Hd.sh -647 Rk -664 Hd.rk -666 Qtz -699 S -702 Hd.sst. -724 S & qtz -749 Cl. -751 S -763 Qtz -819 S

DRILLERS LOG.

A	B	C	D	E	F	G	H	I	J	K
11400 No.3. Proa	30 Mi SE		E.Emblem 1950	 Flowing	1007 1041 1105 1130	 Surface	8,000 50,000 100,000 160,000 (Controlled at 52,208)			0-2 Surface soil -93 y.sh. -105 Dk.gn.sh -177 Gy.sh -180 Rk -214 Gy.sh -250 Gy.sh.w. bars of rk -280 Gy.sh. -318 Rk -446 Dk.sh -448 Rk -479 Gy.sh -481 Rk -542 Gy.sh -544 Rk -580 Gy.sh. -583 Rk. -610 Gy.sh -614 Rk -631 Gy.sh -636 Rk -944 Gy.sh -949 hd.s.rk -955 S.rk -1002 Br.cl. -1004 Rk -1005 Br.cl. -1013 S.rk -1016 Qtz. -1039 S.rk -1040 Iron pyrites -1041 Qtz to 1129 S.rk -1130 S -1144 S.rk.
11473 Dalgonally	60 Mi NW		1954	S.A.	1057	40				0-5 Bk. soil -145 y.sh. -855 Bl.sh. -925 Gy.sh -990 Bl.sh. ?1005 Sst -1057 Hd.gy.sh -1096 Gvl. -1190 Hd.r.sst. -1250 Hd.creamy qtz.like rk. -1355 Gy.slatey sh. -1630 Hd.r.sl.like sh.

DRILLERS LOG

A	B	C	D	E	F	G	H	I	J	K	
11632 Lara	38 Mi NNW		1951	Flowing	679 850	Surface "	38,426 (controlled at 18,000)			0-2 Hd.cl. -8 cl. -25 S -32 Cl -70 Y.cl. -106 Gy.sh. -140 Bk.rk -176 Dk.gy.sh -178 Hd.rk -475 Gy.sh -486 Rk -505 Gy.sh -510 Hd.gy.sh	-512 Gy. rk -554 Gy.sh. -556 Rk -586 Gy.sh. -662 Sh. -706 Rk -720 S.rk -740 Qtz -772 S.rk -823 Rk -850 Hd.rk
11706 Dalgonally	47 Mi NW		1951	 Flowing	182 472 690	6 Surface "	 9,250	B B G		0-4 Surface soil. -64 y.cl. -122 Bl.sh. -226 Bk.sh -478 Bl.sh -480 Gn.sh -652 Bl.sh.	-690 Bl.sh.w.sst. -700 Sst -710 Sst.w.hd. seams -742 Bk.st. -760 Bk.rk.
11747 Ernestina Ernestina Plains	44 Mi WNW		1951	SA	661 731	Surface "	40,000			0-3 Surface soil -26 Br.sst. -35 Woody y.cl -54 y.sh.w.mica seams. -195 Bl.sh -208 Bk.sh. -520 Bl.sh. -560 Bl.sh.w.s. seams.	-565 Bl.sh. -590 Bk.sh. -630 Bl.sh & wh.s. -691 Wh.sst. -740 Sst. -744 Pyrites of sh.

A	B	C	D	E	F	G	H	I	J	K
11783 Cammeray Cammeray	36 Mi WNW	-	1951	Flowing	470 480 616	Surface " "	34,000			0-4 Surface soil 94 Y.cl. 100 Bk.sh 120 Br.lst. 137 Bk.sh 472 Bl.sh 480 Gy.sh. 505 Bl.sh. 559 Bl.woody sh. 561 Dk.br.st. 690 Bk.woody sh. 615 Gy.sh. & wh.S. 616 Qtz. 636 Wh.sst. 666 Wh.sst.w.hd.seams 672 Hd.S. 722 Qtzite.
11800 Iyellen No.2 Iyellen	34 Mi SW.		1951	Flowing	405 853 870	305 Surface "	Small 7500 8,000 Sept 1961.	B		0-5 Br. soil -18 Sy.r.cl. -42 y.sh. -77 y.sh.w.bld. -100 y.sh. -115 y. & gy.sh -380 Gy.sh. -420 Br.sh.w.wh.rk -697 Gy.sh -700 Gy.rk -703 Gy.sh. -723 Sh.w.seams of rk. -738 Sh -743 Sh & rk -750 Sh -841 Gy.sh. -853 Sy.sh. -873 Sst. -878 Hd.cl.sst.
11927 Lara	42 Mi NNW		1952	SA	155 202	50 "				0-5 Surface soil -55 y.cl. -75 R.cl. -107 Y.cl -160 Gy.sh. -178 Br.sh -207 Br.rk -274 Br.sh. -352 Rk -490 Gy.sh -492 Rk -524 Gy.sh. -525 Rk -613 Gy.sh -662 Hd.br.sh. -708 Gy.sh. -722 S. -737 Qtz -777 S -785 Cl -787 Qtz -791 S -797 Qtz.rk. -831 S. -874 Rk

DRILLERS LOG

A	B	C	D	E	F	G	H	I	J	K
12547 eantha	37Mi NE			Flowing	777 1012	Surface "	 729,530			0-8' Soil -31 y.cl -33 Rk -84 y.cl -131 Gy.sh -132 Rk -141 Gy.sh -172 Hd.Rk -197 Gy.sh -290 Dk.Sh -369 Gy.Sh -371 Rk -397 Gy.sh -399 Rk -403 Hd.Sh -404 Hd.rk. -408 Gy.Sh -409 Hd.rk -414 Sh -495 Gy.sh. -498 Rk -529 Gy.Sh -530 Rk -535 Sh -566 Gy.Sh. -568 Rk -574 Sh -575 Rk -585 Sh -637 Gy.Sh -651 Hd.br.sh. -652 Rk -671 Hd.br.sh -673 Rk -679 Hd.br.sh -694 Rk -777 Hd.br.sh -783 S.rk. -812 S -815 Qtz - 819 S & cl. -822 Qtz -854 Qtz & cl. -870 Qtz -971 Qtz cl. -972 Qtz. -1032 S
12605 Iuellen No.3 Iuellen	32 Mi SW		1954	 Flowing	840 844 869	Surface " "	6,000 11,000 50,000	Good " "		0-5 Br. soil -20 Y.cl. -40 y.sh. -60 y.sh.w.rks -80 y.sh. -126 Gy.sh. -132 Gy.rk -150 Gy.sh -350 Sh.W.rk. seams. -405 Br.sh.w.rk.seams -461 Sticky sh. -510 Caving Sh -820 Sh.w.rk.seams. -840 Sy.sh. -841 Drift s. -855 Sst. -869 Sst. & p.cl. -909 wh.sst. -910 Hd.gy.s.rk.
12642 Scrubby Dalgonally	58 Mi NW		1954	Flowing	1044	60 Flowing 1961	21,600			0-4 Soil -98 Cl -1000 Sh -1088 Sst. -1098 Rk.

DRILLERS LOG

A	B	C	D	E	F	G	H	I	J	K
12672 Dalgonally	46 Mi NW	305	1954	Flowing	228 420 524	Soak Surface "	 5,000 30,000			0-6 Top soil -20 Br.cl. -38 S & gvl -80 Y.cl -104 Bl.sh. -144 Bk.sh. -522 Bl.sh. -524 S.rk. -550 Sst. -552 R.rk.
12784 Osbert Dns	12 Mi N		1955	Flowing	938 1019 1145 1184	Surface " " "	291,700 (controlled 102,030 1955)			0-5 Surface soil -10 y.cl. -15 Rk -55 y.cl. -60 Rk -83 y.cl. -156 Gy.sh -157 Rk -230 Gy.sh -237 Rk -270 Gy.sh -272 Rk -320 Gy.sh -380 Hd.rk -449 Bk.sh. -451 Rk -573 Gy.sh. -575 Rk -748 Gy.sh -756 Gy & bk.sh -789 Bk.sh -791 Rk -825 Bk.sh. -910 Hd.bk.sh. -935 Gy.sh. -958 s.rk. -968 S & cl. -992 cl. -1184 S.rk.
12912 Alva Dns	18 Mi NNW	-	1955		350	Surface	80,000			0-4 soil -352 sh.
12957 Gairloch	44 Mi ESE	-	1955	Flowing	1360 1385 1435 1600	Surface " " "	10,000 20,000 300,000 713,000 (controlled 207,400 1956)			0-5 Bk.soil -100 y.cl -375 Gy.sh -475 Br.sh -630 Gy.sh -800 Br.sh -985 Gy.sh -1065 Bl.sh -1240 Gy.sh. -1280 Rk.br.sh -1325 Gy.sh -1330 Br Sh -1340 Gy.sh. -1360 Sy.gy.sh -1370 Sst. -1385 Sy.wh.cl. -1410 Sst -1435 Sy.wh.cl. -1455 sst. -1600 Sy.wh.cl. -1620 Sst. & wh.cl.

A	B	C	D	E	F	G	H	I	J	K
13188 Land's End Land's End	25 Mi. NW		1957	Flowing	368 983	Soak	? 5000	S G	0-	10 Cl. - 22 S - 80 Y.cl. - 94 Y.cl.w.bars of rk. - 118 Y.cl. - 345 Gy.sh. - 397 Rk. - 414 Gy.sh. - 471 Dk.sh. - 531 Gy.sh. - 535 Rk. - 747 Gy.sh. - 749 Rk. - 838 Gy.sh. - 848 Br.sh. - 849 Rk. - 880 Br.sh. - 934 Gy.sh. - 950 S.rk. - 960 Cl.& s.rk. - 982 S.rk. - 985 S. -1030 Hd.rk.
13387 - Beverley	37 Mi. NE	-	1957	Flowing	216 861 996	30 Surface	Small 10,000 280,000	B G G	0-	4 Soil - 18 Br.cl. - 20 Br.sst. - 110 Y.sh. - 204 Bl.sh. - 240 Bl.lst. - 356 Bk.sh. At least 644' Bl.sh. T.D. 996' N.O.I.
13556 Garomna Garomna	9 Mi ESE		E.Emblem 1958	Flow- ing	1046) 1110) 1131) 1153) 1220)	Surface}	Small increase 50,000 80,000		0-	3 Soil - 80 Y.cl. - 347 Gy.sh. - 401 Br.rk. - 550 Dk.sh. - 678 Gy.sh. - 680 Rk. - 696 Gy.sh. - 721 Rk. - 780 Hd.gy.sh. - 850 Dk.sh., rk. seams - 856 Cl.& s. - 903 Gy.sh. - 923 Rk. - 936 Gy.sh. - 994 Rk. -1043 Cl. -1080 S.rk. -1083 Hd.rk. -1110 S.rk. -1112 Qtz. -1220 S.rk.

A	B	C	D	E	F	G	H	I	J	K
13339 - Lara	39 Mi NNW		1960	Flow- ing	210 946 983 1000 1083	 Sur- face " "		S		0- 94 Soil, s.r & y cl. - 203 Gy.sh. - 255 Rk - 433 Sh - 465 Sh - 466 Rk. - 569 Sh - 571 Rk. - 719 Sh. - 727 Rk. - 900 Sh.w.rk.seams - 931 S.rk. -1013 Rk -1022 S.rk. -1069 Hd.rk. -1090 S.rk. -1112 Bk.rk.
14076 - Barroona	19 Mi NNW		1960	Flow- ing	890 1005 1058 1064 1071 1084	Sur- face " " " "				0- 99 Cls.,br.y.gy. - 890 Shs, gy.br.,bl. - 1070 Sst.gy.wh. - 1110 Wh.rk.
14085 Kamerooka 3 Kamerooka	26Mi SW		1960	Flow- ing						T.D. 1265 N.O.I.
14142 Oorindi Rly Stn. Railway	45 Mi W		W.Week 1960	- 46'	575	Sur- face	3168			0- 28 Rd.cl.& gvl. - 80 Y.cl. - 115 Dk.gy.sh. - 145 Gy.sh. - 268 Br.sh. - 380 Gy.sh. - 383 Rk. - 480 Gy.sh. - 575 Br.sh. - 725 p.cl.& s. - 744 Lst.
14279 Millungera	46 Mi. N		R.Beauchamp 1960	 Flow- ing	476 820) 860)	150 Surface	small 120,000 500,000	? P P		0- 5 Surface s. - 7 S.rk. - 25 Cs.s.& gvl. - 104 y.sh. - 470 Bl.sh. - 476 Bk.sst. - 492 Bk.sh.&s. - 526 Gy.sh. - 736 Bl.sh. - 745 Gn.s. - 764 Bl.sh. - 788 Bl.sh.& sst. - 820 Bl.sh.& s. - 832 Wh.sst. - 842 Wh.s. - 854 Wh.cl. - 860 Wh.s.

A	B	C	D	E	F	G	H	I	J	K
14338 St. Andrew St. Andrew	27Mi. WSW		1960	Flow- ing	825 879	Surface) Surface)	77,000	G		0- 5 Bk.soil - 7 Y.cl. - 8 S - 18 Y.sy.cl. - 53 Y.cl. - 58 Rk. - 80 Y.cl. - 112 Gy.mudst. - 136 Gy.sy.mudst. - 139 Rk. - 200 Gy.sy.mudst. - 328 Gy.mudst. - 331 Rk. - 343 Br.mudst. - 367 Br.sy.mudst. - 498 Gy.mudst. - 500 Rk. - 564 Gy.Mudst. - 566 Rk. - 646 Gy.mudst. - 648 Rk. - 652 Gy.mudst. - 653 Rk. - 794 Gy.mudst. - 796 Rk. - 825 Gn.sst. - 835 Water sst. - 836 Rk. - 871 Sst. - 879 Br.sst. - 901 Water sst. - 907 Slate.
14339 Bullock Holes McKinlay Shire	25 Mi SW		1960	Flow- ing	1030) 1058)	Surface	91,995			0- 96 Y.cl. - 165 Gy.sh. - 196 Gy.sh.bars of rk. - 545 Gy.sh. - 690 Br.sh. -1030 Gy.sh. - 1032 Sst. - 1058 P.cl.& S. - 1061 Sst. - 1072 P.cl.& s.
14611 Carjoan 4 Carjoan	33 Mi W		1961	? SA 1961						T.D. 733 N.O.I.