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SML 316

SEVEN MILE SWAMP - CHUNDIE SWAMPS AREA

PROGRESS REPORTS TO LICENCE EXPIRY/RENEWAL FOR THE PERIOD 16/6/1969 TO 15/6/1970

Submitted by
Australasian Mining Corp. Ltd
1970

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Government of South Australia
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132°30'

132°40'

31°00'

31°05'

13

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07

132°50'

Rockhole

SCALE 1:250000

AUSTRALASIAN MINING CORPORATION LTD.

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TENEMENT HOLDER: Australian Mining Corp. Ltd.

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AUSTRALASIAN MINING CORPORATION LTD.

Uranium Investigation Project

Pidinga Lakes Area

South Australia

Report No. 1

by

Michael D. Campbell
MINOIL SERVICES, ADELAIDE

May 1969.

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SUMMARY

A preliminary field reconnaissance northwest of Ceduna, South Australia, in the Pidinga Lake - Lake Tallacootra - Red Lake - Seven Mile Swamps Areas has revealed significantly high radioactivity in the sedimentary rocks of Tertiary age on the eastern edge of the Nullarbor Plain.

Complete mineralogical studies are presently in progress but radium in minor proportions has been tentatively identified as the major radioactive source. Other radioactive minerals are present and are geochemically anomalous.

Investigations completed to date suggest that while the anomalous radioactivity was found to be restricted to minor discontinuous outcrops and to minor intervals found at the near surface of saline lagoons, many of the classical lithological prerequisites for a sedimentary uranium deposit nearby are present in the areas inspected.

Since only a relatively few shallow auger holes were completed during the reconnaissance, additional work is highly recommended to test selected areas in and around the reconnaissance localaties.

GENERAL

This report is a brief summary of the results obtained from a preliminary field reconnaissance northwest of Ceduna, South Australia, (See Plate 1).

A scintillometer with detachable probe for down-hole logging of shallow holes as well as for background reconnaissance was used throughout the investigation. Starting from Penong, (See Plate 1), occasional stops were made to check the lithologic nature and radioactive character of the Quaternary, Tertiary and Precambrian rocks. Continuous scintillometer traverses were made during travel; background gamma levels, mileage and geographic comments were recorded to aid in future investigations of the area, (See Appendix 1).

In areas having high gamma backgrounds, detailed scintillometer traverses were completed on foot and auger holes were hand drilled in selected areas of notably high radioactivity.

In general, hand augering was not successful. In many cases the water table was within four feet of the surface and when intersected, made sample recovery difficult, if not impossible. Also owing to the very tight clays encountered, the augering device was twisted off several times.

When water was not a problem, only a penetration of approximately eight feet was usually possible with the auger and therefore limited the scope of the investigations.

Tertiary outcrops, excluding limestones which are locally numerous are scarce. However, when Tertiary clastics were encountered, they were generally above background gamma radiation levels. It became clear early in the reconnaissance that where found, a ferruginous, possibly laterised, sandstone locally exhibited very high gamma radiation. Also, associated with the sandstone, yellow clay and sand were found in auger holes in and around the saline lagoons to be similarly high in radiation, i.e., many instances greater than 50,000 counts per minute. However, based only on the information available, the anomalous radioactivity appears to be restricted to isolated areas from five feet to 200 feet in extent and may be directly related to relatively recent lagoonal deposition, especially if the highly insoluble secondary detrital mineral radium is found to be the major constituent of the radioactive sediments. Therefore, the specific areas of high radiation encountered during the reconnaissance are considered to be only useful as a guide to areas of interest in the immediate vicinity and surrounding areas.

At this early stage of regional exploration, and since the field data obtained is limited in scope, only preliminary implications will be discussed here. Further investigations on sample mineralogy and a microscopic study of the samples recovered is necessary before the level of confidence can be raised above a preliminary status.

Details regarding field data of auger holes drilled in the reconnaissance areas, and a list of designations for the samples recovered are included in Appendix 2 and 3 respectively.

REGIONAL GEOLOGY

The saline lagoons bordering the eastern edge of the Nullarbor Plain form a northwest-southeast striking former strand line of the Eucla Basin during early Miocene and Oligocene times. The sediments are mainly of shallow marine to shallow lacustrine origin, with calcareous silts, alunitic clays, sands and lignites having been deposited on an irregular Precambrian erosional surface, (See Figure 1). A shallow marine, Middle Miocene limestone transgressed in an eastwardly direction eroding in part, some of the earlier lacustrine deposits down to erosion-resistant Precambrian level. The Middle Miocene limestone overlies in many areas Precambrian intrusives without any observable transitional clastic beds. A partially clastic basal interval is suggested as being widespread, however, west of the indicated strand line of Oligocene to early Miocene age, (King, 1950).

During Pleistocene time, high rainfall, heavy run-off and therefore rapid erosion of Miocene sediments began a drainage system now observed in subdued form in the saline lagoonal areas. These lagoons, once extending for tens of square miles were, and still are, sites of groundwater recharge into the limestones and

FIGURE 1

Generalised Stratigraphic Succession of Pidinga Lake

MAXIMUM OBSERVED THICKNESS	SECTION	DESCRIPTION OF STRATA	PALAEONTOLOGICAL DATA	AGE AND ENVIRONMENT
4'-0"		Flour gypsum & sand gypsum - wind blown		RECENT Terrestrial
12'-0"		Fossiliferous silicified limestone - abundant quartz grit.	Foraminifera: Austrotrillina, Miogypsinoides, Parrinella etc. (Crespin)	MIDDLE MIOCENE Shallow Marine
6'-0"		Porcellanised claystone and grit, surface quartzite etc.		
3'-0"		Pale yellow and green gypseous quartz sand and grit	Radiolaria: Canosphaera (Crespin)	
5'-0"		White friable gypseous clay - some selenite crystals		
4'-0"		Pale grey sandy clay patches of ironstone and ferruginous sandstone		
26'-0"		White and variegated alunitic clay	Lower beds are carbonaceous	LOWER MIOCENE Mainly shallow lacustrine
7'-0"		Red, brown and yellow fine ochreous sand or ochreous sandstone crust.		
2'-6"		Yellow, red and grey mottled clay - sandy.		
6'-6"		Vari-coloured iron stained mottled clay		
3'-0"		Yellow grey and brown clay, some gypsum crystals.		
2'-0"		Carbonaceous sandy clay stained with iron oxide		
46'-0"		Lignitic Series Carbonaceous clay and sand with fragments of decomposed wood and pyrites.	Pollen & Spores of families: Proteaceae, Myrtaceae, Eucalyptaceae, Fagaceae (Pine)	OLIGOCENE Lacustrine
1'-0"+		Grey clay with some carbonaceous material		
13'-0"		White and iron-stained gritty alunitic clay with the texture of decomposed gneiss		DECOMPOSED PRE-CAMBRIAN
		Gneissic granite, epi-diorite and amphibolite etc.		PRE-CAMBRIAN Metamorphic

After KING, 1958

possible basal sandstones of the Nullarbor Plain - - Eucla Basin to the west, (King, 1949).

Very little is known of the detailed geology in the area, but King, 1950, and 1968, has investigated the area for a university study (M.Sc.) and recently with respect to the alunite he reported in 1950. Lignite was discovered during the early 1900's. Subsequent drilling and exploration have proved that both the alunite and lignite are of little commercial value.

Some general prospecting has been done in the area for copper mineralization during the 1940's. General prospecting by locals has also been done during the early 1950's and old lease pegs were noted at several localities visited. Reportedly, some of the highly radio-active areas have been previously investigated by a geologist engaged by a local landowner (Mr. Laws) during 1954. No scout drilling or exploration surrounding the lagoonal areas have been done however.

FIELD RECONNAISSANCE

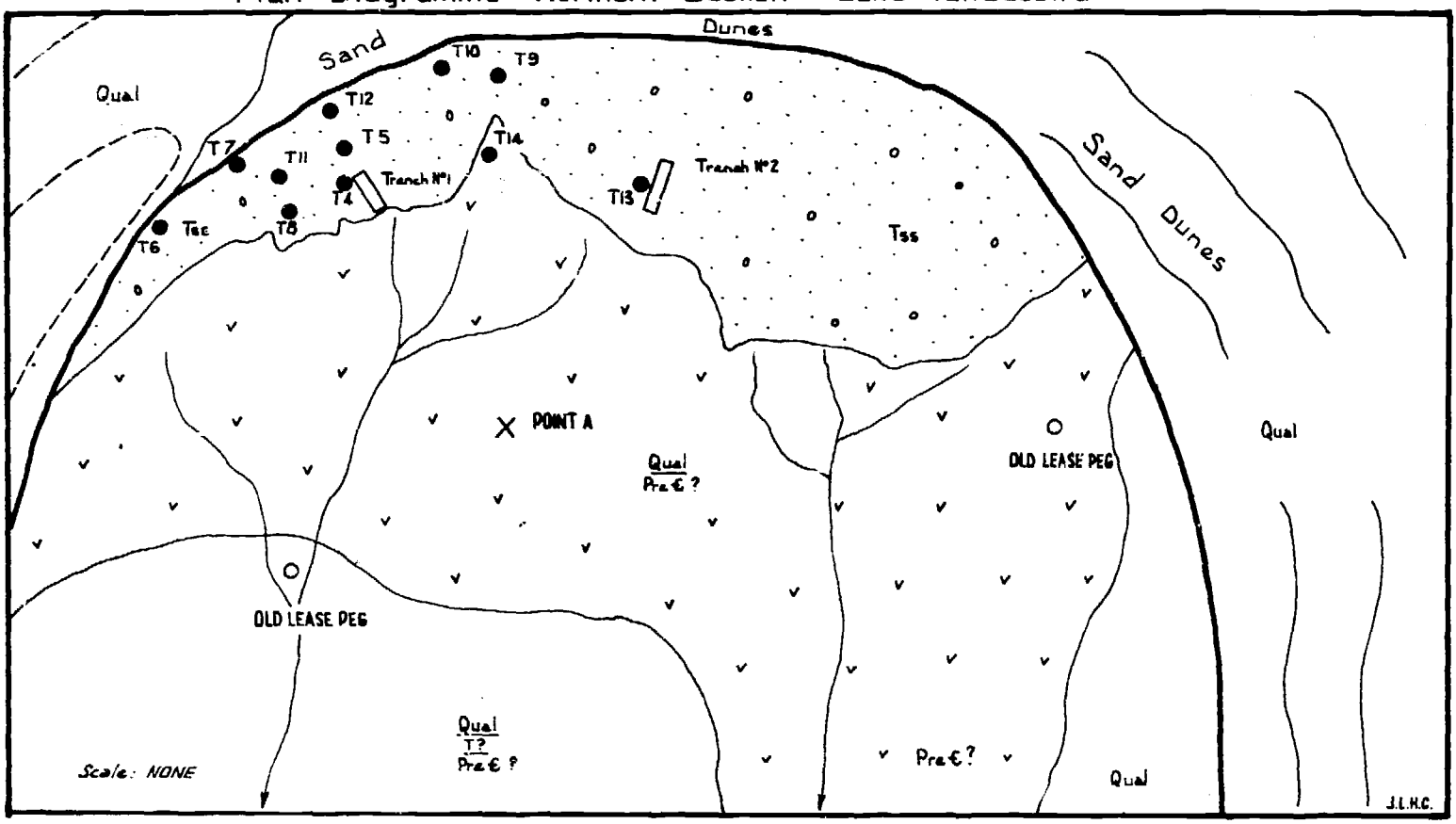
TALLACOOTRA LAKE AREA

General access to the Lake Tallacootra Area is good, (See Plate 11). Numerous scintillometer traverses were completed, sixteen auger holes were drilled and two trenches dug. Of major interest were areas at the northeastern end of the main Tallacootra Lake. The previously mentioned ferruginous sandstone was observed at this location and its high radioactivity first noted, see Plates II-A and 11-A1 for auger hole and trench placements, and Appendix 2A for detailed lithology and relative radioactivity.

Trenches were dug in the areas of highest radioactivity, i.e., more than 50,000 counts per minute. Trench No. 1 encountered a microfacies complex including yellow sandy clays, grey clayey sands, brown partly consolidated clean sands, and ligneous sands, underlain by white to light grey clay, (See Figure 2). The age of the underlying clay is in doubt: its close proximity to known Precambrian rocks, its characteristic weathering pattern in the lake bed-erosion resistant- non resistant vertical beds, and its lithology of weathered clay containing possible relic structures of gneiss or schist leads to the supposition

PLATE II·A

Plan Diagramme Northern Section - Lake Tallacoota



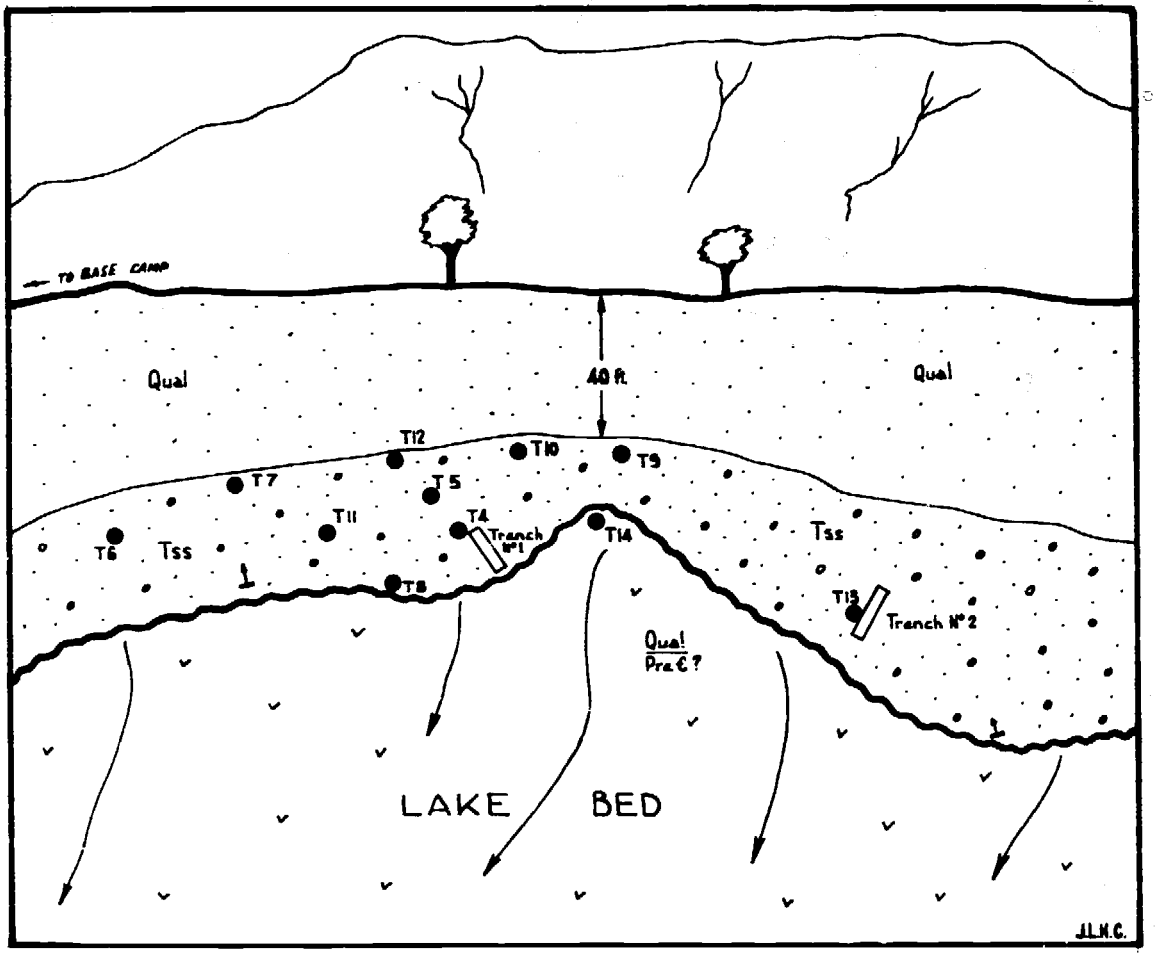
LEGEND

Qual	Quaternary Sediments, Alluvium, soil, etc.
Tss	Tertiary Sandstone, Laterised
Pre€?	Undifferentiated Precambrian rocks

●T4 Auger Holes

PLATE II-A1

Sketch of Northern Section Lake Tallacootra *(Looking Northward from point A - PLATE II-A)*



Scale : None

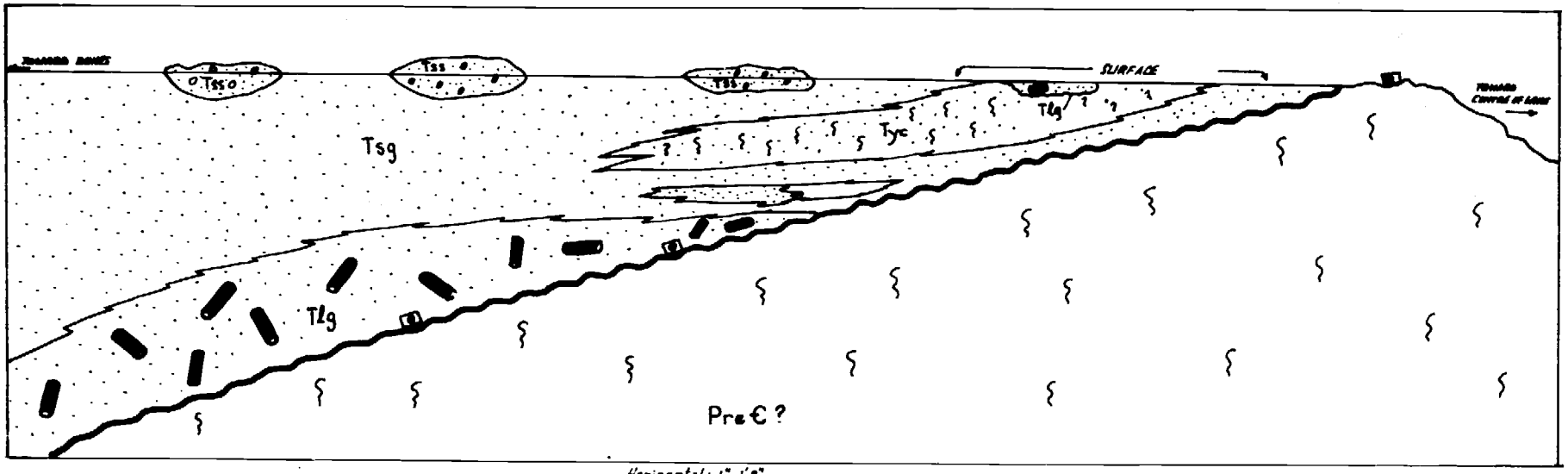
LEGEND

Qual	Quaternary Dunes		Trenches (See text)
Tss	Tertiary, Ferruginous laterised Sandstone, unconsolidated sands, lignite & allunitic clays	●T12	Auger Holes (See text)
? ~~~ ?	Angular Disconformity ?		Direction of Spring Flow
Pre €?	Precambrian, undifferentiated weathered gneisses, quartz dikes.		Indicated direction of Dip

FIGURE 2.

TALLACOOTRA AREA

TRENCH No 1 CROSS SECTION



SCALES: Horizontal: 1" = 1'-0"
Vertical: 1" = 1'-0"

LEGEND

? Tyc	Tertiary, clay, light to dark yellow w/abundant quartz sand, well rounded, med. grained. HIGHLY RADIOACTIVE. i.e. ≥ 50000 c/m (Samples)
Tsg	Tertiary - Sand, unconsolidated, light grey to light brown, med. grained, well sorted & well rounded. RADIOACTIVE. i.e. 50000 c/m (Samples)
Tsb	Tertiary - Sand, unconsolidated to partly consolidated, light to med. brown. med. grained. well rounded & well sorted. HIGHLY RADIOACTIVE i.e. ≥ 50000 c/m (Samples)
Tss	Tertiary, Sandstone, dark red, ferruginous, laterised(?). med. grained - Outcrops as Boulders, RADIOACTIVE: 1000 - 15000 c/m. (Samples)
Tlg	Tertiary, sand, ligneous, w/ fragments of Brown to Black lignite; sand, well rounded. well sorted. fine to med. grained. NON RADIOACTIVE (Sample)
? Pre € ?	Precambrian? Clay, white to pale yellow, relic vertical bedding (?) - large pieces of milky quartz at top contact. i.e. to 2" NON RADIOACTIVE.

J.L.H.C.

that it is of Precambrian age. The ferruginous sandstone, therefore could be Oligocene in age. However, according to King, (See Figure 1), a thick interval of alunitic clay underlies a ferruginous sand interval many feet above the clayey decomposed Precambrian interval. See T Slides No. 2 and 3 -- Appendix 4. The ramifications of this problem should be solved after laboratory investigations have been completed; suffice it to say here that an early Miocene age could be more favourable with respect to uranium deposition than an age of Oligocene. 17

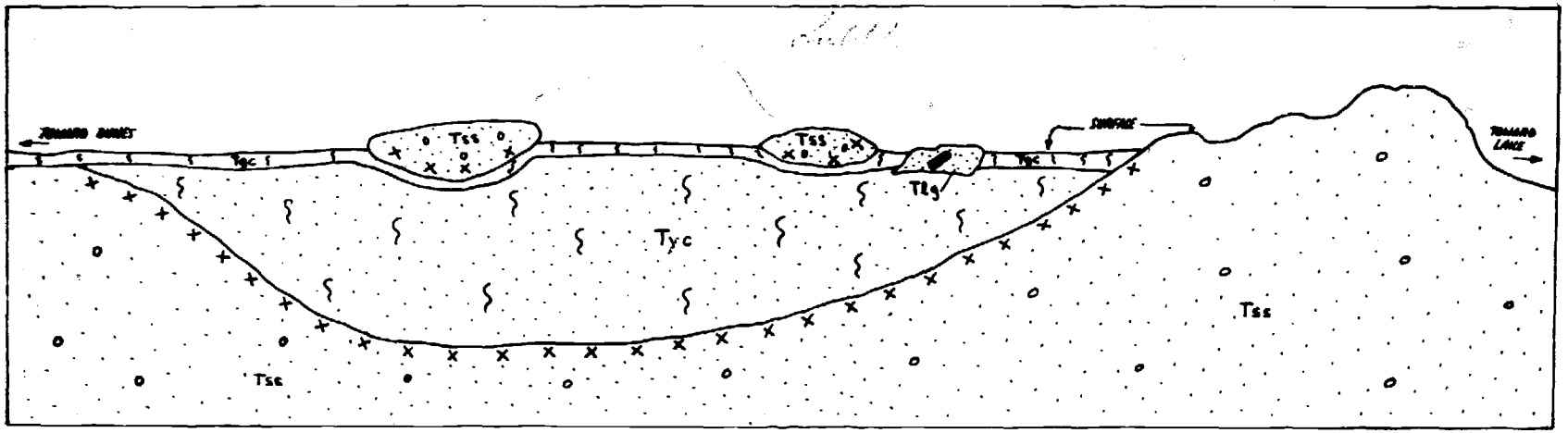
Trench No. 2, (See Figure 3), encountered a similar though less complex section than Trench No. 1. Yellow sandy clays underlain by a consolidated ferruginous sandstone were both highly radioactive, i.e., more than 50,000 counts per minute. Trench No. 2 is approximately 300 feet east of Trench No. 1 (See Appendix 4).

A dip of less than 5° striking NE-SW was observed in the trench area on the ferruginous sandstone. This may be of local extent. This may, however, be an important indication as to the geohydrologic control of groundwater movement in the area immediately north of Lake Tallacootra. Many springlets appear at the ferruginous sandstone - white clay contact and may be what is left of the geohydrologic system which was in

FIGURE 3

TALLACOOTRA AREA

TRENCH N°2 CROSS SECTION



SCALES: Horizontal: 1" = 1'-8"
Vertical: 1" = 1'-0"

Tgc — Tertiary, clay, light grey to light blue. RADIOACTIVE: ?

Tyc — Tertiary, clay, light to dark yellow to yellow-brown w/ abundant quartz grains, well rounded, med. size, well sorted. HIGHLY RADIOACTIVE: i.e. ≥ 50000 c/m (Sample)

Tlg — Tertiary, lignite, sandy, blocky w/ large pieces of Carbonised Wood. NON RADIOACTIVE

Tss / Tss — Tertiary, sandstone, dark red, very ferruginous, Laterised; X- Radioactive areas of sandstone; Other parts NON RADIOACTIVE. (Samples)

J.L.H.C.

operation after early Miocene times and prior to recent times.

Numerous Precambrian outcrops of biotite gneiss, hornblende gneiss, etc., occur throughout the lake area, usually in feeder creek beds and on hill sides, i.e., in the valley of the Base Camp. Other outcrops were observed to underlie Middle Miocene limestone or Quaternary cover.

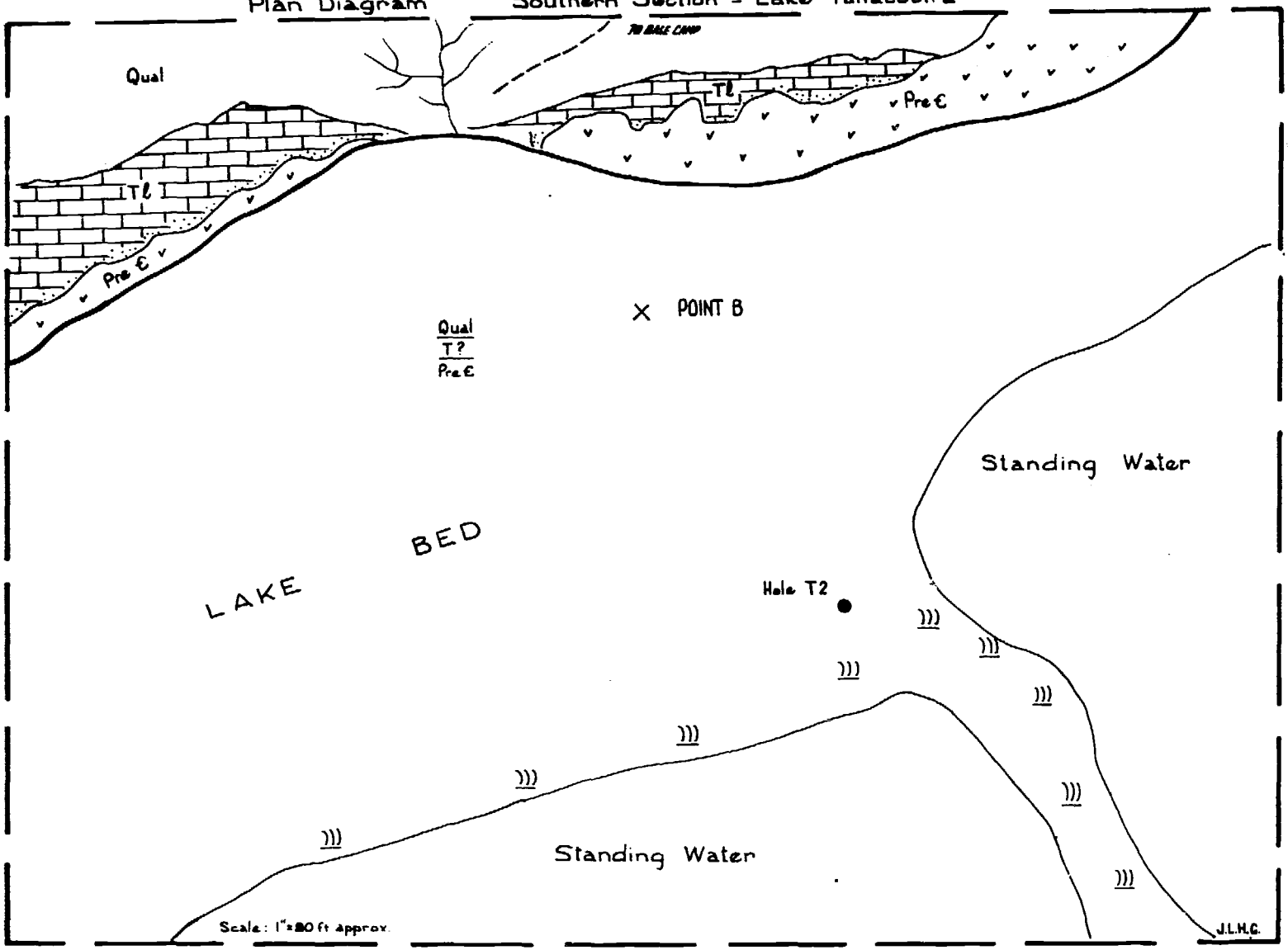
A scintillometer reading of two to three times background was recorded immediately north of the Base Camp around weathered Precambrian outcrops, not on fresh rock but in the residue soil nearby, hence suggesting a possible source for the radioactive material found concentrated elsewhere. Only one such occurrence was recorded but it is suggested that other very minor occurrences would be expected. The Precambrian rocks were not examined in detail and were mapped as undifferentiated. The radioactivity level and possible metallic mineralization were however examined during scintillometer traverses.

Outcrops of Tertiary and Precambrian rocks were inspected to the south along the northwestern margins of the main lake, (See Plates II, IIB and IIB1). Here Middle Miocene limestone overlies Precambrian rocks with possible minor faulting or highly irregular contact.

No indications of the ferruginous sandstone were observed. The limestone is however quite

PLATE II B

Plan Diagram — Southern Section - Lake Tallacootra



Qual — Quaternary Sediments Alluvium, Soils, etc.

Tl — Tertiary Limestone

Pre € — Undifferentiated Precambrian Rocks

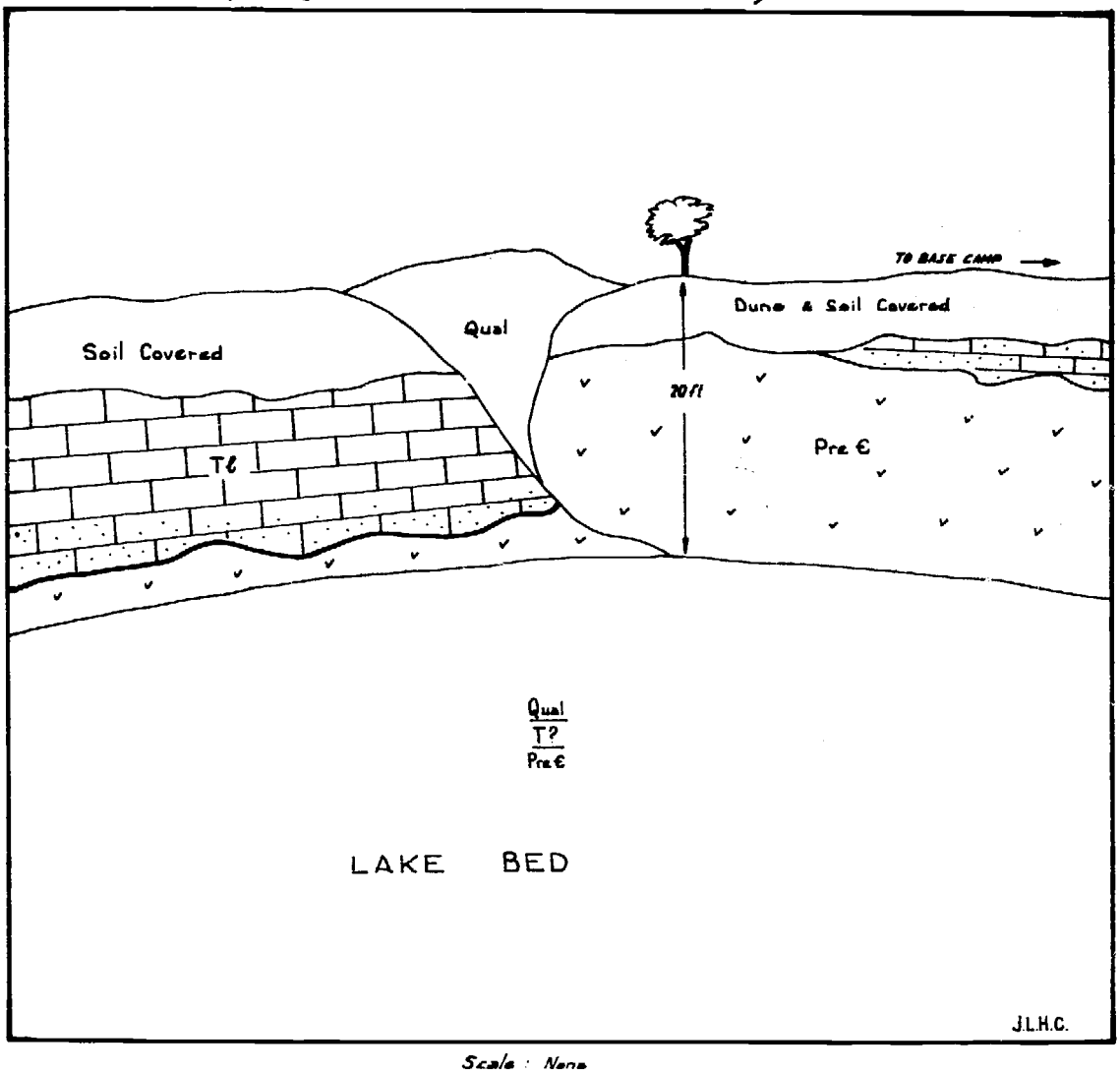
● T2 = Auger Hole

PLATE II B1

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Sketch of Southern Section Lake Tallacootra

(Looking Northwestward from Point B PLATE II B)



Scale : None

Qual — Quaternary. Alluvial sands, calcareous soils, Drift sands

Tℓ — Tertiary, Limestone, Siliceous sandy at base,
[Sands, clays and lignites - subcrop only]

Angular Disconformity

Pre € — Precambrian, undifferentiated, granites, basalts (?) quartz dikes

sandy in places, (siliceous laterisation?).

Auger Holes T2 and T3 encountered only a thin bed of ligneous material which was similar to the auger lithologies of the northern section of the Lake. Radioactivity levels were recorded as approximately 200-300 c/m (general background for Tertiary limestones and Quaternary cover in the general vicinity).

The area of standing water shown on the maps probably represents an area of recharge to the existing groundwater systems, being dammed by an impermeable Precambrian bed not observed in outcrop, (See Appendix 4).

PIDINGA LAKE AREA

Access to the Pidinga Lake Area was also good, (See Plate III and P Slides Nos. 1 and 2, Appendix 4). Although not conspicuous, a ferruginous sandstone was again encountered in scattered areas at subcrop and was also found to be radioactive in places, but not on the order of magnitude as was found in the Lake Tallacootra area. Numerous scintillometer traverses, twelve auger holes and one pit were completed, (See Appendix 2B).

Precambrian outcrops are widespread in the northern areas while Tertiary limestones outcrop in the central and southern areas of Pidinga Lake.

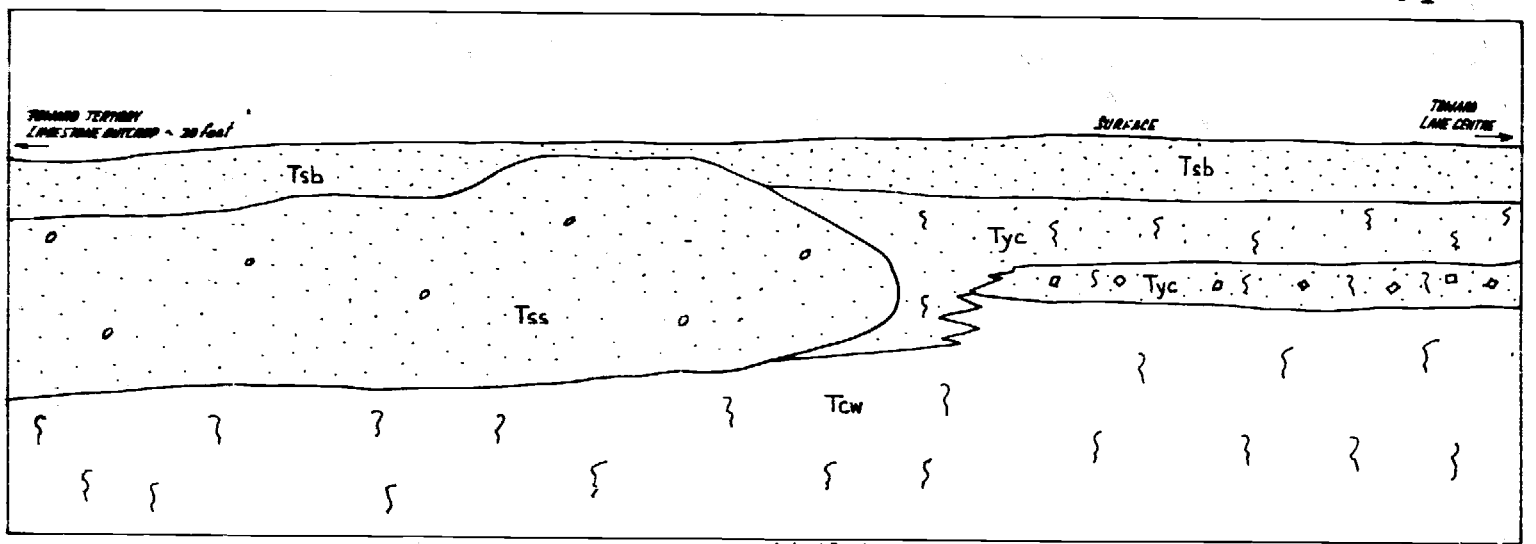
Auger hole P-7 encountered a radiation level of 15,000 counts per minute in a relatively unusual tight, plastic yellow clay. Augering was generally difficult in the area due to hard ground and hence the data obtained reveals only higher than background radioactivity in very limited areas. Heavier drilling equipment is required in order to penetrate the consolidated sandstone and tight clays encountered in the area as well as in the other areas inspected.

Figure 4 depicts Trench No. 1 and shows lithologies similar to those found in the Lake

FIGURE 4

PIDINGA AREA

TRENCH #1 CROSS SECTION



SCALES: Horizontal: 1/2" = 1'-0"
Vertical: 1/2" = 1'-0"

LEGEND

Tsb — Tertiary, sand, medium brown, well sorted, silty.
NON RADIOACTIVE

Tyc / Tyc — Tertiary, clay, light to dark yellow w/ quartz greens, well sorted, well rounded, clear: □ w/ blocky pebbles of ferruginous sand siltstone within yellow clays, HIGHLY RADIOACTIVE ie. 5000 c/m (Sample PT-1)

Tss — Tertiary, Sandstone, semiconsolidated, dark red, very ferruginous, laterised, medium grained - Outcrops nearby, Slightly RADIOACTIVE in places only, ie. to 5000 c/m

Tcw — Tertiary, clay, white to light red, very plastic

J.L.H.C.

Tallacootra Area.

P Slide No. 3 shows island outcrop (See Plate III). King report (1968) on Alunite deposits will be useful for future stratigraphic studies.

RED LAKE (EAGLE LAKE) AREA

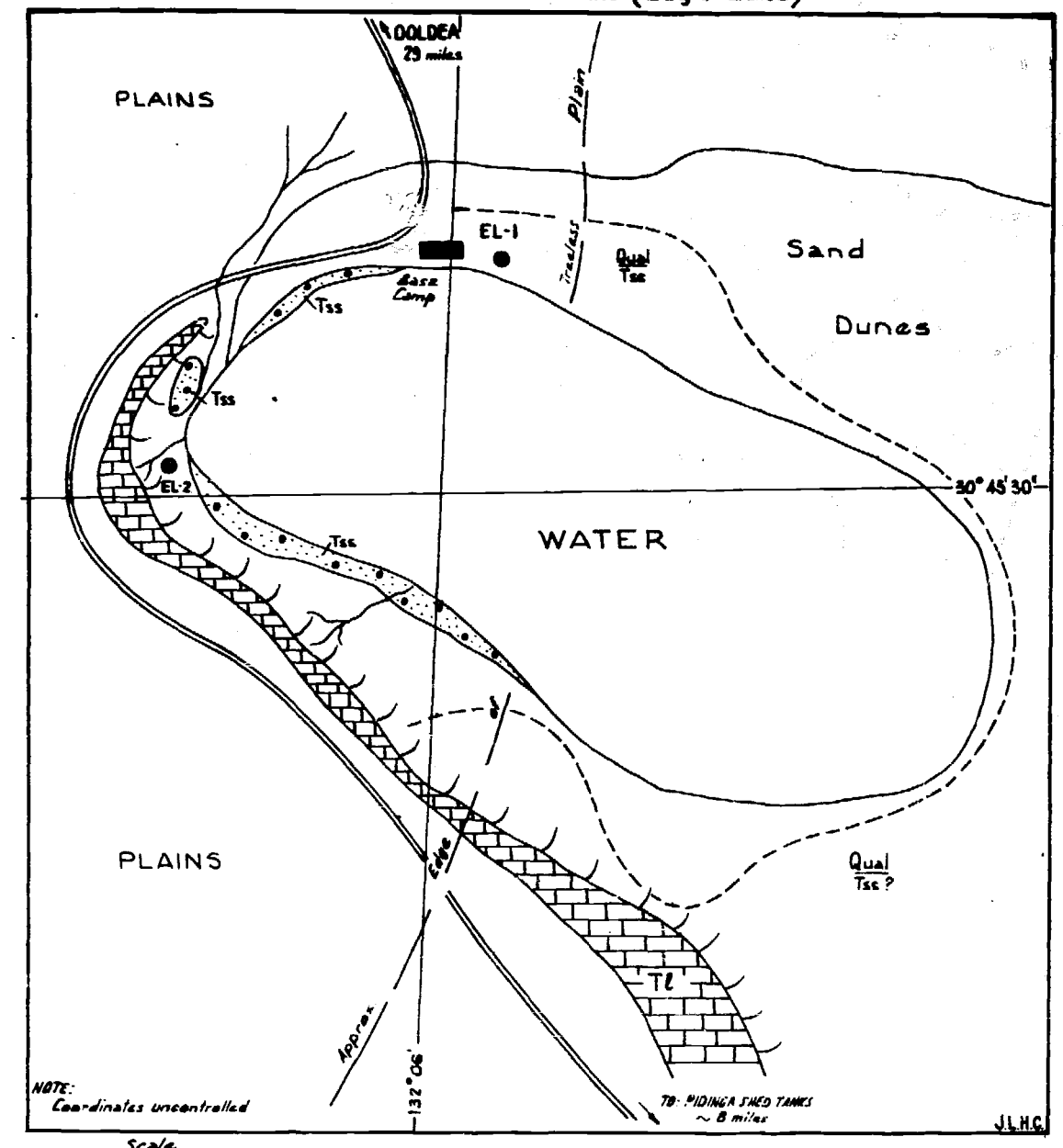
Along the main road to Ooldea, approximately eight miles north of the Pidinga Shed Tanks, a highly radioactive ferruginous sandstone was again encountered in auger holes EL-1 and EL-2 (See Plate IV and Appendix 2C). Additional auger holes were not possible due to hard ground and malfunctioning of the auger device.

An interesting aspect of this area is that of the very distinctive red appearance of the entire lake area. High aluminium has been reported in the ferruginous sands. Major bauxite formation appears possible as the result of the laterization proposed by King (1950). This possibility should not be overlooked in any future exploration of the entire reconnaissance areas.

PLATE IV

Reconnaissance Area Red Lake (Eagle Lake)

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LEGEND

Qual — Quaternary, sand dunes, Alluvium, Calcareous soil	Cliff
Tl, Tss — Tertiary, Limestone, very silty, Sandstone, ferruginous laterised (?)	EL-1 Auger Hole
	Main Road
	Side Track

SEVEN MILE SWAMPS AREA

Located approximately 50 miles southeast of the Lake Tallacootra Area and approximately 33 miles north of the Eyre Highway, along a difficult track, the lower section of the Seven Mile Swamps was inspected and once again high radioactivity was encountered in yellow sandy clays and dark brown to dark red ferruginous sandstone. As previously mentioned, complete chemical and mineralogical analysis have not to date been completed. However, since similar lithologies have been encountered in the Lake Tallacootra Area, similar depositional environments are indicated and hence large areas become suspect with respect to uranium deposition.

There are, however, some important lithologic differences. Highly micaceous radioactive sediments occur in the Seven Mile Swamps Area and were not encountered, though possibly present nearby, in the Tallacootra Lake Area.

Numerous scintillometer traverses, five auger holes, two trenches and four pits were completed. Additional auger holes were planned but the augering device became inoperable and further augering was impossible, though indicated in selected areas to the north.

Precambrian rocks outcrop in creeks of the south west portion of the reconnaissance area, (See Plate V). Schists, granites and gneisses occur but appear to be minor in extent.

Non-ferruginous sandstone was encountered and may be Tertiary in age but until studies on the samples recovered are completed only a tentative field evaluation can be made. However, since the non-ferruginous sandstone is only partly consolidated and since the known Tertiary limestone outcropping northwest of the Base Camp is unusually siliceous, possibly laterised, the actual age of the sandstone is very much in doubt. And, again, the age is very important with respect to possible uranium deposition.

Ferruginous outcrops occur at various locations on the banks of the saline lagoon but do not exhibit abnormal gamma radiation. Ferruginous sandstone with discernable clastic quartz grains do however occur in the southeast lobe of the reconnaissance area, as a continuous ring and isolated regions of high radioactivity, i.e., more than 50,000 counts per minute. Non-radioactive ferruginous outcrops occur nearby on the banks of the lagoon, these however contain no discernable quartz grains.

Auger holes SML-1, SML-2 and SML-4 encountered significant radiation over relatively minor intervals of yellow sandy clay, (See Appendix2D).

Trench No. 1 and Trench No. 2 intersect similar lithologies, both encountered a medium red to dark brown siliceous (?) sandstone. Only the top of the sandstone was penetrated; the highest radiation was recorded on the top of this sandstone. The Yellow clays produced high gamma radiation though lower than the underlying sandstone, (See Figures 5 and 7).

Four pits were dug near Trench No. 1 to test the lithology and radioactivity at depth. Results indicate complex facies relationships on a near-micro scale, (See Plate V and Figure 6). The brown sandstone was not encountered, but may be at depth. See Appendix 4 for slides of general area and trenches.

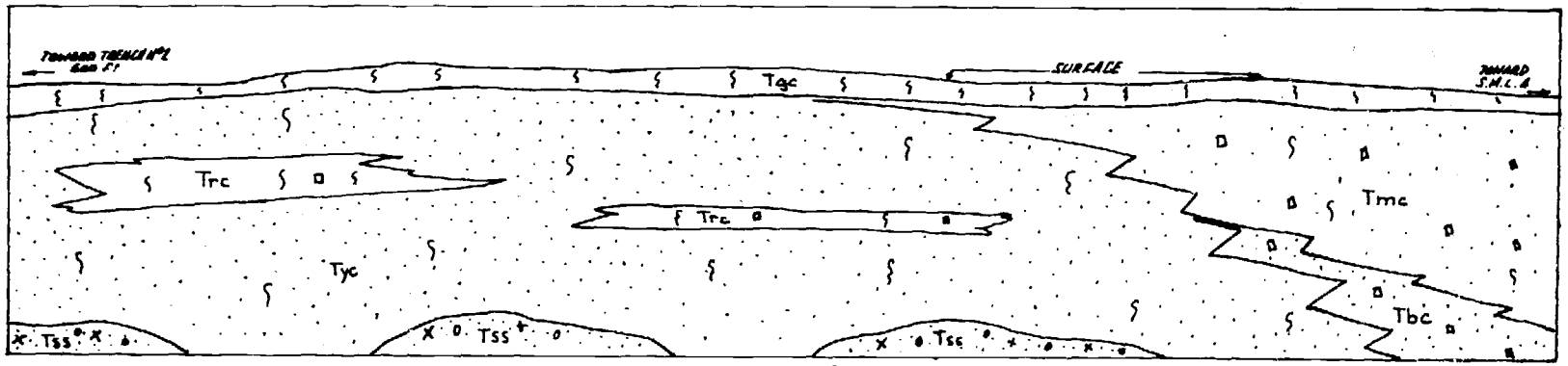
Local folding or faulting is indicated in Trench No. 2. The implications of this are not fully understood at this date. Only further field evaluations and mineralogic studies may clarify this problem.

The identification of a black to yellow-green mineral lining small cavities in the highly radioactive brown sandstone of Trench No. 2 may prove to be very informative, although possibly

FIGURE 5

SEVEN MILE SWAMPS AREA

TRENCH N°1 CROSS SECTION



SCALES: Horizontal: 1" = 1'-0"
Vertical: 1" = 1'-0"

LEGEND

Tgc — Tertiary, clay, light grey to light blue. RADIOACTIVE ?

Trc — Tertiary, clay, med. red, partly micaceous, sandy, well rounded. Slightly RADIOACTIVE?

? Tmc — Tertiary- clay, med. grey to light yellow to light red interfingering, sandy, well sorted, well rounded; very Micaceous (muscovite ?) - NON RADIOACTIVE

Tbc — Tertiary, clay, med. brown to dark brown, very micaceous, sandy, well rounded, well sorted. NON RADIOACTIVE.

Tyc — Tertiary, clay, light to dark yellow to yellow brown, quartz grains well rounded & sorted HIGHLY RADIOACTIVE i.e ≥ 50000 c/m (Samples)

Tss — Tertiary - Sandstone, dark brown to med. red, clayey in part, Siliceous ? in part, well sorted. VERY RADIOACTIVE i.e ≥ 50000 c/m (Sample)

FIGURE 6

SEVEN MILE SWAMPS AREA
TRENCH N°1 PITS
see Plate V a. fig. 5

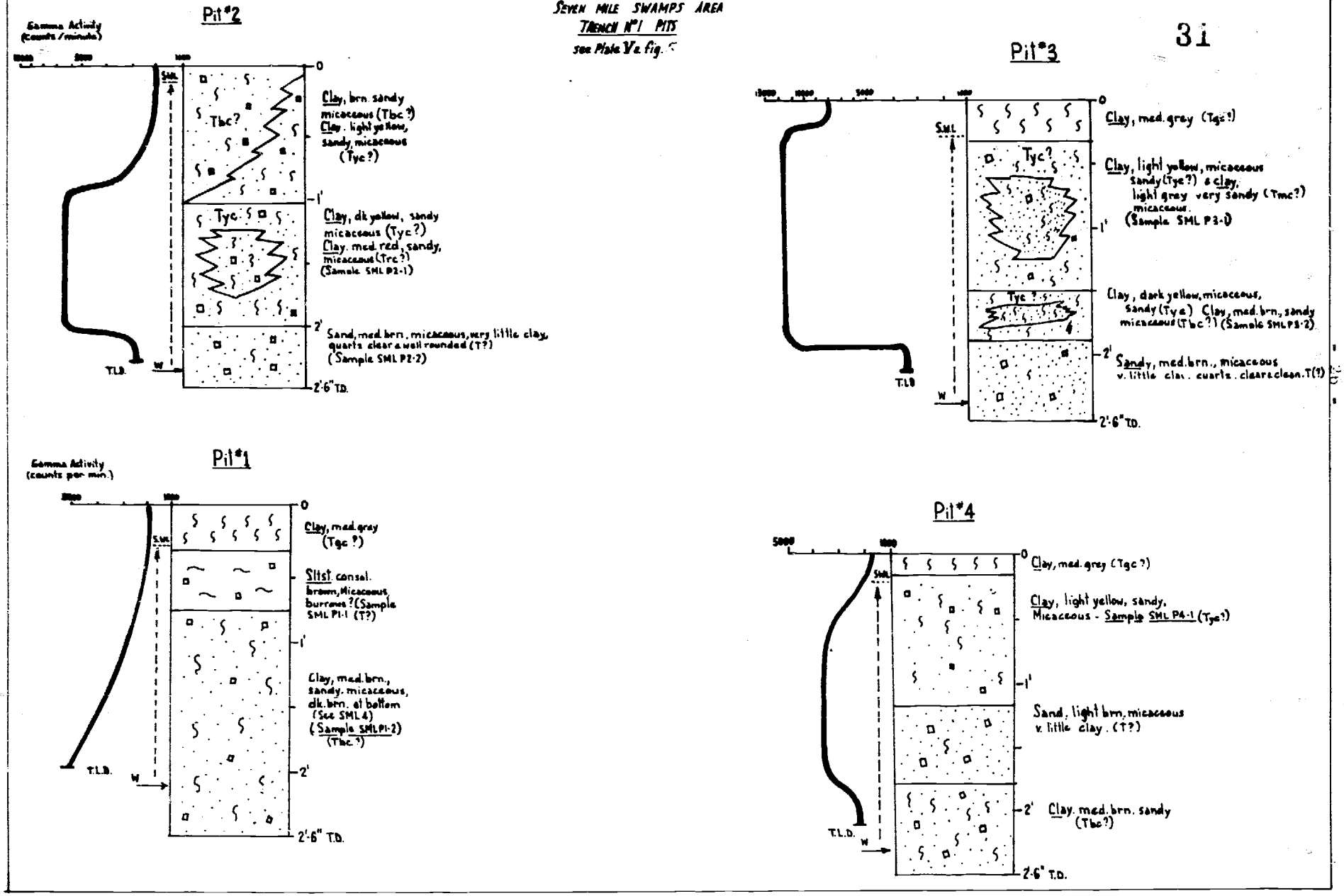
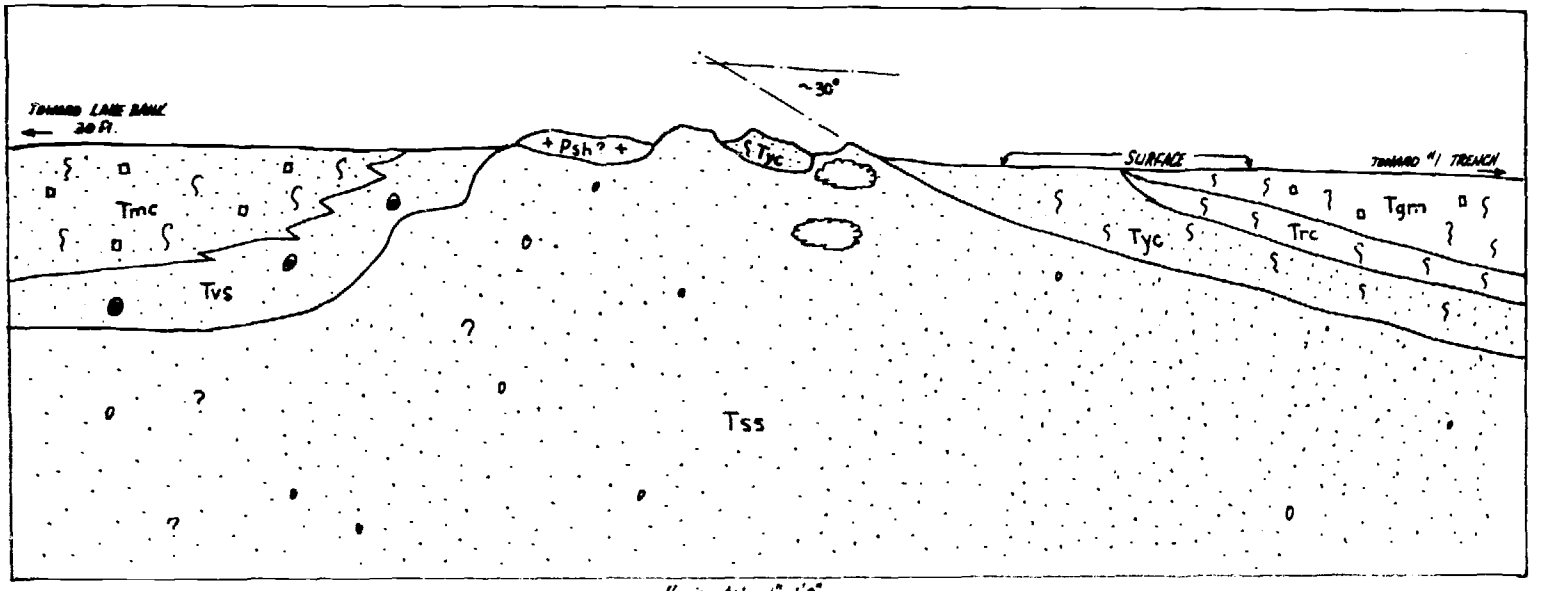


FIGURE 7

SEVEN MILE SWAMPS AREA

TRENCH N° 2 CROSS SECTION



SCALES: Horizontal: 1"=1'0"
Vertical: 1"=1'0"

LEGEND

Tgm — Tertiary, clay, med. grey, micaceous, slightly sandy, NON RADIOACTIVE

Tvs — Tertiary, sand, very ferruginous & dark red, unconsolidated to consolidated. NON RADIOACTIVE

Trc — Tertiary, clay, med. red, partly micaceous, Sandy, well rounded, Slightly RADIOACTIVE

Tss — Tertiary- Sandstone, dark red to dark brown, clayey (Tyclin part. HIGH RADIOACTIVITY i.e. ≥ 50 000 c/m

Tyc — Tertiary clay, light to dark yellow to yellow brown, quartz grains well rounded & sorted. HIGHLY RADIOACTIVE

+ Psh + — Precambrian(?) - Mica shist - muscovite(?) in ferruginous matrix - mica flake orientation parallel. NON RADIOACTIVE

Tmc — Tertiary - clay, med. yellow to light yellow, sandy, well rounded, well sorted, very micaceous (muscovite?) NON RADIOACTIVE

Cavities in Tss w/ light green to black mineral lining - RADIOACTIVE

a mineral related to laterisation and iron-rich groundwater perculation.

Abnormal background radiation was recorded south of the reconnaissance area in mapped Quaternary sediments. Detailed follow-up field work is indicated, (See Appendix 1).

Again, chemical and mineralogical studies should clarify many of the problems of a field evaluation.

CONCLUSIONS

Although the specific areas of high radioactivity may not upon further investigation reveal additional zones of interest in the lagoonal areas, the presence of the secondary mineral radium may indicate that a uranium concentration exists in the general vicinity. However, until analyses have been completed, little can be postulated as to where such a uranium concentration may exist. Furthermore, since the general area contains few, if any, water bores, hydrological data will need to be obtained via future exploration drilling. Hydrological data is very important and would supply indications of the present direction of groundwater movement reflecting at least in a subdued form the geohydraulics of early Miocene times.

In brief, sedimentary uranium deposition is controlled by groundwater movement through specific size clastic sediments at a speed which would allow precipitation of uranium minerals. Nearshore channeling of clastic sediments associated with impermeable clays, lignites and "granite" sediment sources, all combine to form uranium enrichments.

The possibility cannot be overlooked, however, that the Precambrian rocks in the general vicinity may contain uranium mineralization having upon

weathering released radium as a secondary detrital product now mixed with detritus in areas of relatively recent deposition, i.e., the saline lagoons.

RECOMMENDATIONS

Lease procurement over large areas and further work is highly recommended. Scout drilling is indicated for selected areas where relatively thin Tertiary limestones are thought to occur. Precambrian rocks should be penetrated approximately 20 feet in order to test for other mineralization. Hydrological data should be carefully obtained, including water sampling for U+ analysis. Down hole gamma logging is recommended to assure that any thinly bedded radioactive intervals are not missed.

It is recommended that the Seven Mile Swamps area be given first priority with respect to exploration, and especially the area between it and Lake Tallacootra. The area immediately north of Lake Tallacootra, and northwestern side of Fidinga Lake and around Red Lake should also be given consideration.

Detailed lithologic studies should also be completed and broad chemical analyses run on the samples obtained from this preliminary reconnaissance in order to fully support any future exploration.

Respectfully submitted,

J.L.H. Campbell, Geologist.
for: Michael D. Campbell

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APPENDIX 1

Generalized

ROAD

LOG

GENERALIZED ROAD LOG
(Pidinga - Tallacootra - Seven Mile Swamp Areas)

Mileage (miles) Accumulative	Mileage (miles) Point to point	Location (See Plate I)	Scintillometer Reading (background only)	Comments (See text for details)
START		Ceduna, Eyre Highway westward	200-250 c/m	Quaternary, calcareous soils and calcrete, ribbon and nodular limestone.
47	47	to:Penong	200-250 c/m	
107	60	to:Colona Homestead north side of road then past Colona Bore pick up Ooldea Road northwards and take all track forks to the right,i.e. numerous roads to other areas take left forks.	200-250 c/m	
114	7	to: Gate	200-250 c/m	
123	9	to:Gate (with hub caps)	200-250 c/m	
123+	+	to:Old Pit on west side of road	200-250 c/m	Tertiary limestone under-lain by reddish siltstone Samples DWF 1 and DWF 2.
133	10	to:Vermin Proof Fence	200-250 c/m	
144	11	to:Moondrah Shed Tanks	200-250 c/m	Edge of Plains with sand dunes.
149	5	to:Lake Tallacootra Turn-off Old Henry Tanks-NE onto Track	200-250 c/m	
158	9	to Lake Tallacootra Base Camp Site	200-250 c/m	In valley north of main lake, small clay pan.
END				

SEE LAKE TALLACOOTRA RECONNAISSANCE - PLATE II

Mileage (miles) Accumulative--	point to point	Location (See Plate I)	Scintillometer Reading (Background only)	Comments (See text for details)
START		Lake Tallacootra Base Camp Site	250-300 c/m	
2	2	to: Track turn-off to southern end of Lake Tallacootra	250-300 c/m	
9	7	to: Main Ooldea Road then northwards	250-300 c/m	
19	10	to: Pidinga Lake crossing	250-300 c/m	
22	3	to: Pidinga Shed Tanks and Base Camp Site 1	250-300 c/m	
END				
		SEE LAKE PIDINGA RECONNAISSANCE - PLATE III		
START		Pidinga Shed Tanks and Base Camp	250-300 c/m	
9	9	to: Red Lake (Eagle Lake) Base Camp	250-300 c/m	
END				
		SEE RED LAKE RECONNAISSANCE - PLATE IV		
START		Red Lake Base Camp		
29	29	to: Ooldea Station	250-300 c/m	Tertiary limestone rise 19 miles south of Ooldea, trending southwest, mostly covered with rubble.
END				
START		Penong (westward)	250-300 c/m	
		to: Seven Mile Swamps turn-off old ice box on right-hand corner used as mail box.	250-300 c/m	

Mileage (miles) Accumulative --	point to point	Location (See Plate I)	Scintillometer Reading (Background only)	Comments (See text for details)
11¼	¼	to: Gate	250-300 c/m	
11½	¼	to: Gate	250-300 c/m	
11¾	¼	to: Gate (Bore on east side of road)	250-300 c/m	
12	¼	to: Gate	800-1000 c/m	Quaternary with limestone rubble Tertiary? (Sample QCA? Limestone not similar to samples DWF 1 and DWF 2
16	4	to: Gate	800-1000 c/m	
18½	2½	to: Vermin Proof (then westward) along fence	800-1000 c/m	
19	½	to: Fence Gate	800-1000 c/m	
21	2	to: Fence Gate	800-1000 c/m	
23	2	to: Gate	800-1000 c/m	
26	3	to: Gate with bore and yards on north side	800-1000 c/m	
27	1	to: Fence corner - bear north along fence track	200-300 c/m	Less "limestone" outcrops.
28	1	to: Fence Gate	200-300 c/m	
31½	3½	to: Fence Gate	200-300 c/m	
31¾	¼	to: North West turn along Fence, Earthen Dam on right	200-300 c/m	
36¾	5	to: Old Rock Hole with Tank turn north past old sheds on right	200-300 c/m	
43	7¼	to: Seven Mile Swamp Base Camp Site	200-300 c/m	

SEE SEVEN MILE SWAMPS RECONNAISSANCE -- PLATE V

APPENDIX 2

AUGER HOLES -- LITHOLOGY and RADIOACTIVITY

A. Tallacootra Lake Area

B. Pidinga Lake Area

C. Red Lake (Eagle Lake) Area

D. Seven Mile Swamps Area

APPENDIX 2A

TALLACOOTRA LAKE

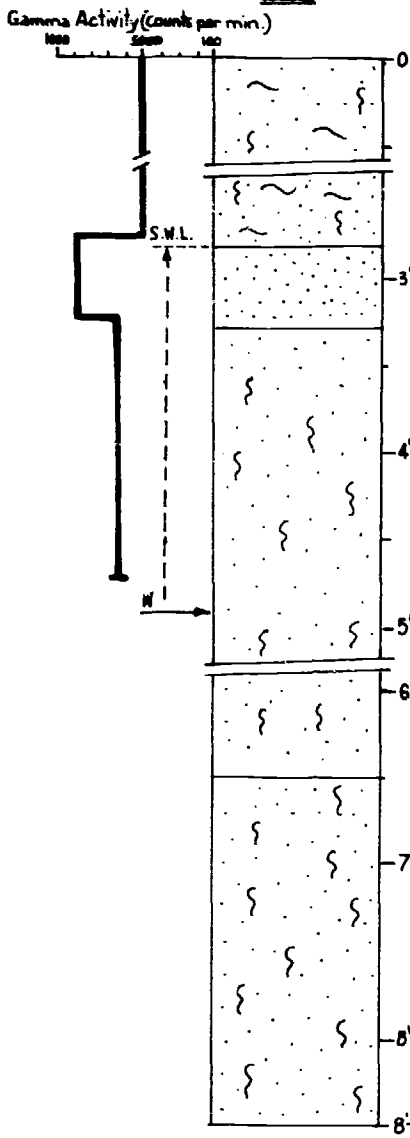
RECONNAISSANCE

AREA

Auger Holes -- Lithology and Radioactivity

T1
T2
T3
T4
T5
T6
T7
T8
T9
T10
T11
T12
T13
T14
T15
T16

T-1



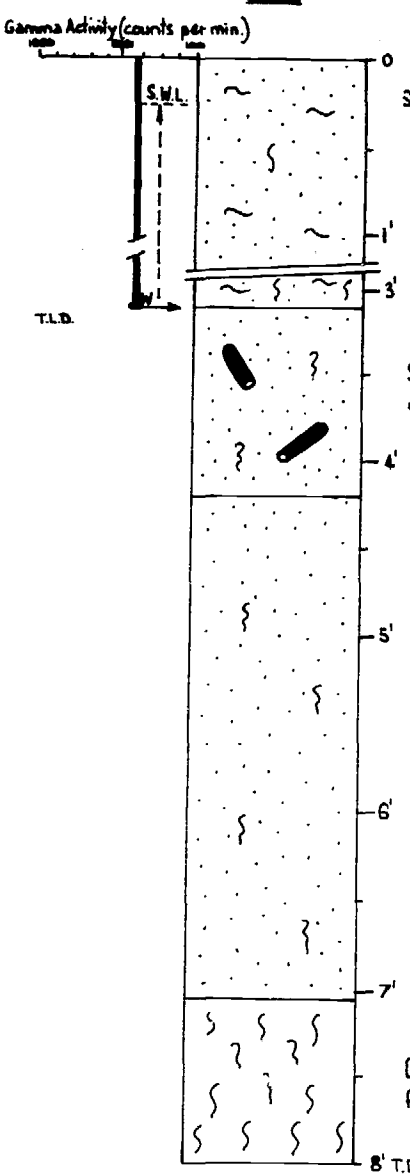
Sand, light to med brown, silty, clayey in part, poorly sorted w/ larger fragments of angular milky quartz & "fresh" feldspar.

Sand, large grained, poorly sorted, lt. to med. orange, clean. large frags. of milky white quartz. (Sample T-1-1)

Clay, white, w/ subangular quartz grains, milky, ferruginous staining in clay throughout interval. (Sample T-1-2)

Clay, light red to light Kaki, w/ angular quartz greens, frags. of milky quartz & weathered feldspar, ferruginous staining throughout interval. (Sample T-1-3)

T-2



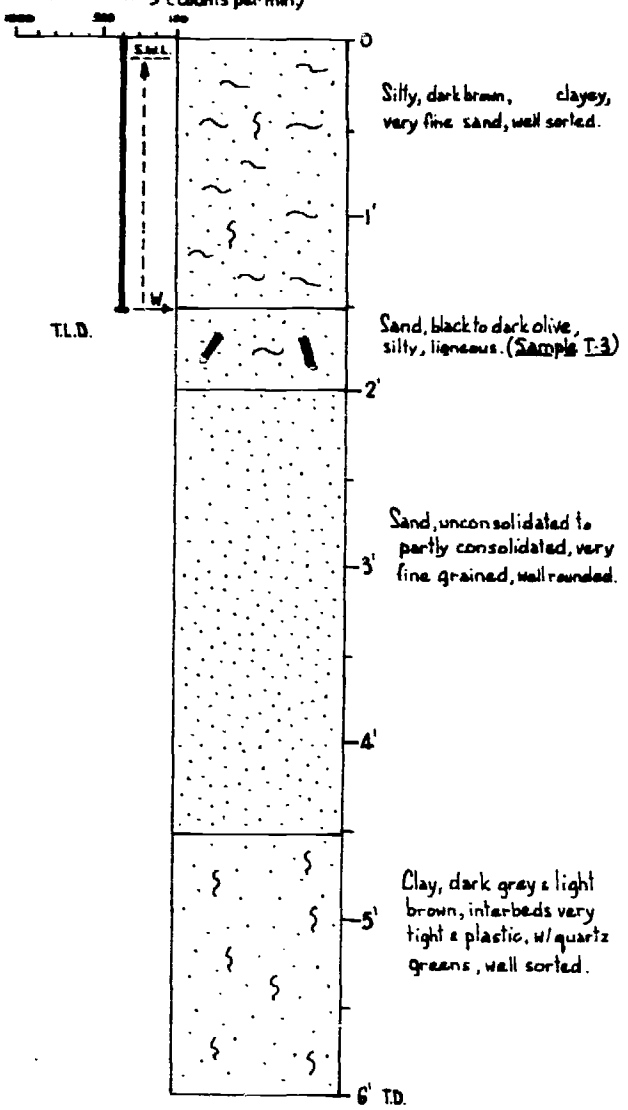
Silt, dark brown, clayey, w/ very fine quartz greens.

Sand; partly consolidated, black to dark olive, clayey in part, ligneous. (Sample T-2)

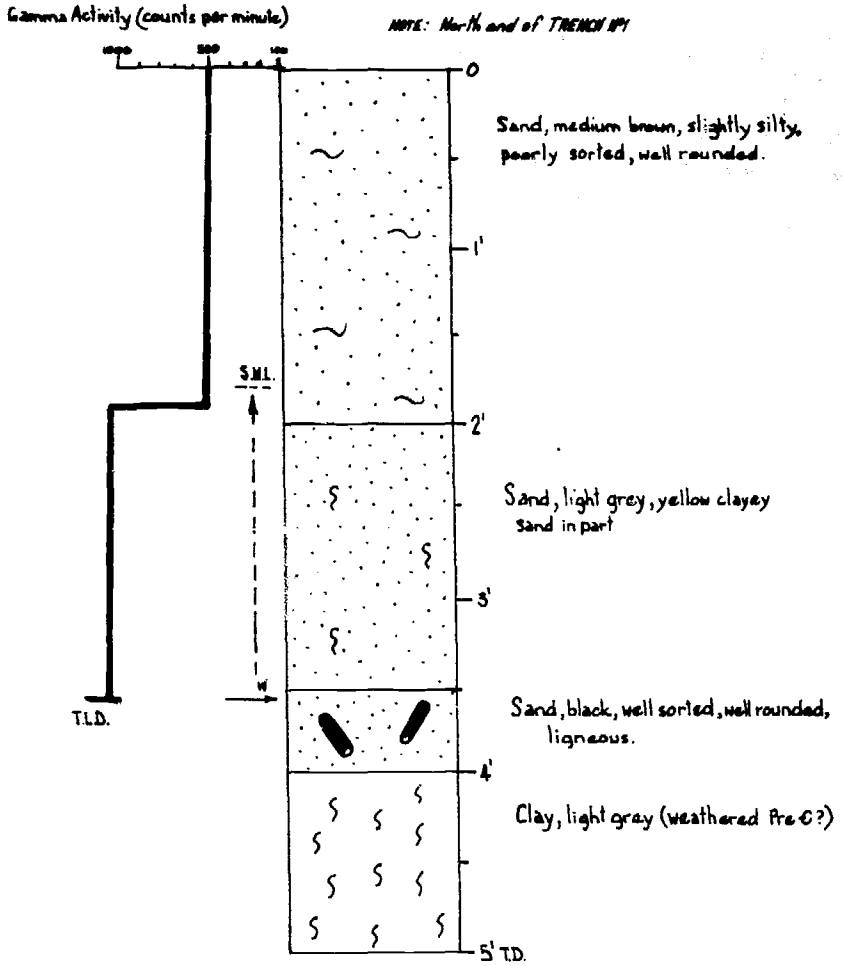
Sand, unconsolidated to partly consolidated at 6', well sorted, very fine grained, clayey in part.

Clay, light grey, plastic, with ferruginous stains.

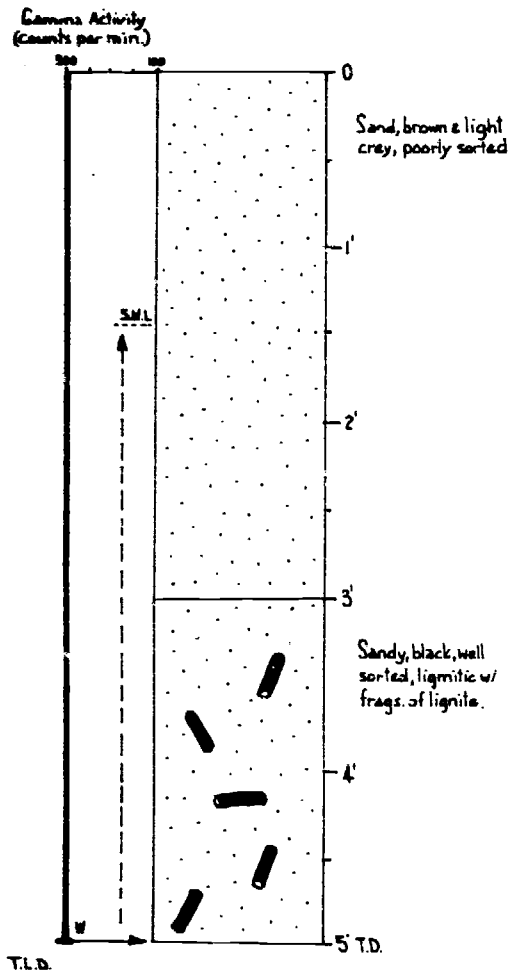
T-3


Gamma Activity (counts per min)
S.W.L.
W
T.L.D.
0
1'
2'
3'
4'
5'
6' T.D.
Silty, dark brown, clayey, very fine sand, well sorted.
Sand, black to dark olive, silty, ligneous. (Sample T-3)
Sand, unconsolidated to partly consolidated, very fine grained, well rounded.
Clay, dark grey & light brown, interbeds very tight & plastic, w/ quartz greens, well sorted.

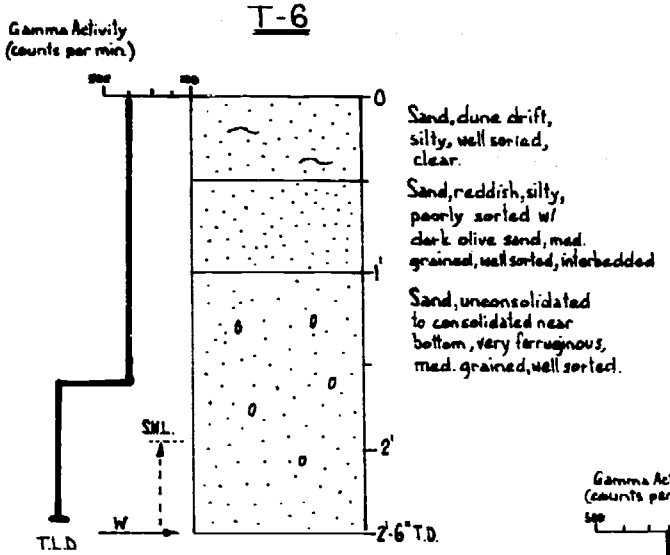
T-4


Gamma Activity (counts per minute)
NOTE: North end of TRENCH #1
S.W.L.
W
T.L.D.
0
1'
2'
3'
4'
5' T.D.
Sand, medium brown, slightly silty, poorly sorted, well rounded.
Sand, light grey, yellow clayey sand in part
Sand, black, well sorted, well rounded, ligneous.
Clay, light grey (weathered Pre C?)

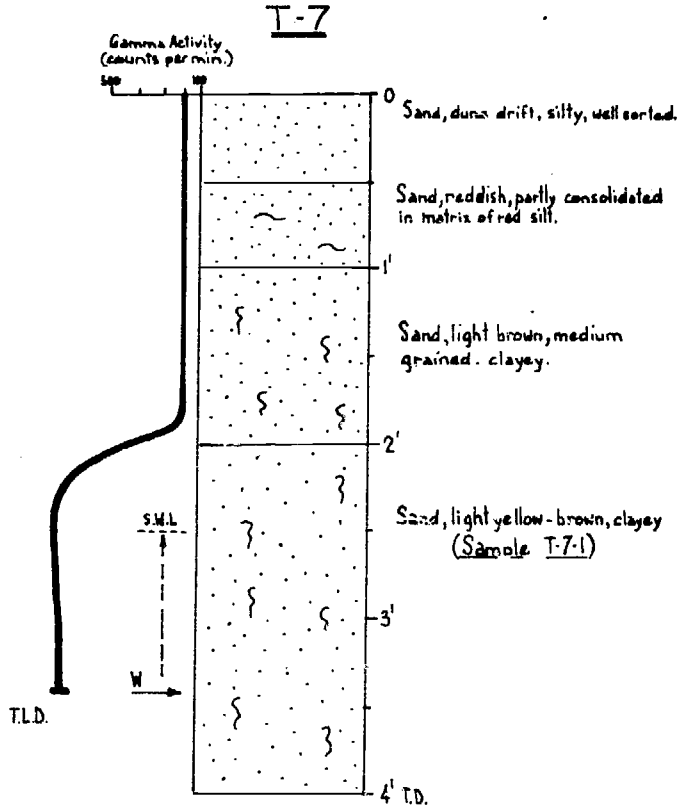
T-5


Gamma Activity
(counts per min.)
200
100
0
1'
2'
3'
4'
5' T.D.
S.W.L.
W
T.L.D.
Sand, brown & light gray, poorly sorted
Sandy, black, well sorted, lignitic w/ frags. of lignite.

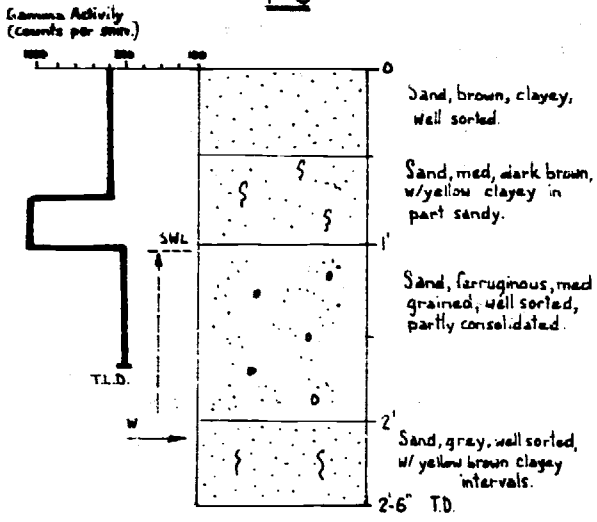
T-6


Gamma Activity
(counts per min.)
200
100
0
1'
2'
2'-6" T.D.
S.W.L.
W
T.L.D.
Sand, dune drift, silty, well sorted, clear.
Sand, reddish, silty, poorly sorted w/ dark olive sand, med. grained, well sorted, interbedded
Sand, unconsolidated to consolidated near bottom, very ferruginous, med. grained, well sorted.

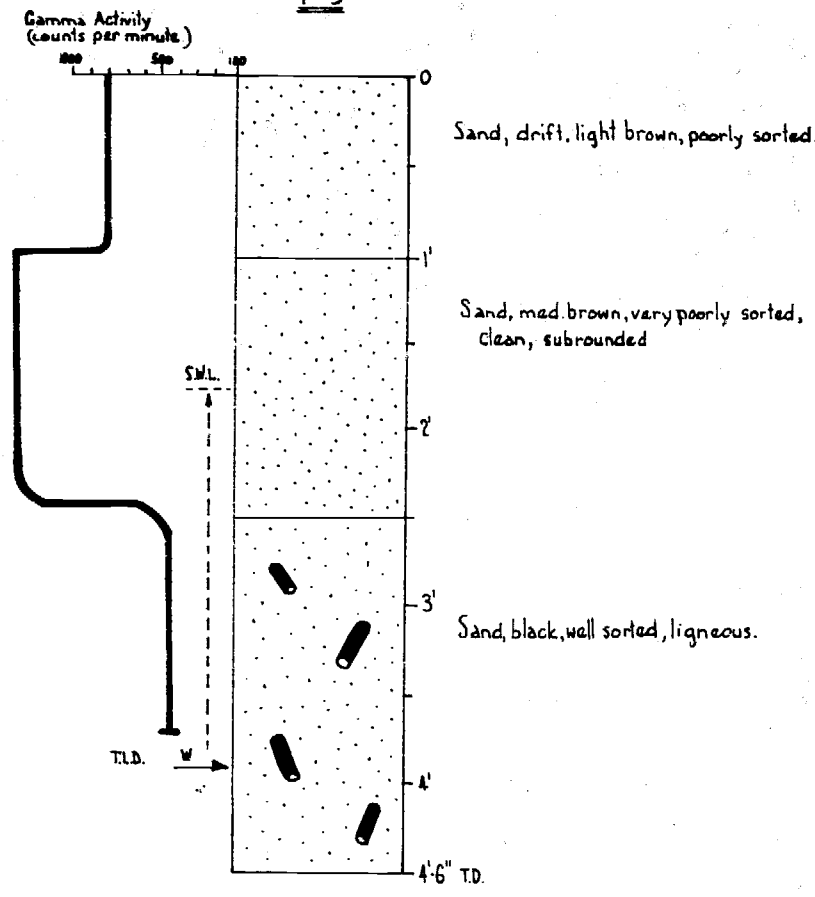
T-7


Gamma Activity
(counts per min.)
200
100
0
1'
2'
3'
4' T.D.
S.W.L.
W
T.L.D.
Sand, dune drift, silty, well sorted.
Sand, reddish, partly consolidated in matrix of red silt.
Sand, light brown, medium grained. clayey.
Sand, light yellow-brown, clayey
(Sample T-7-1)

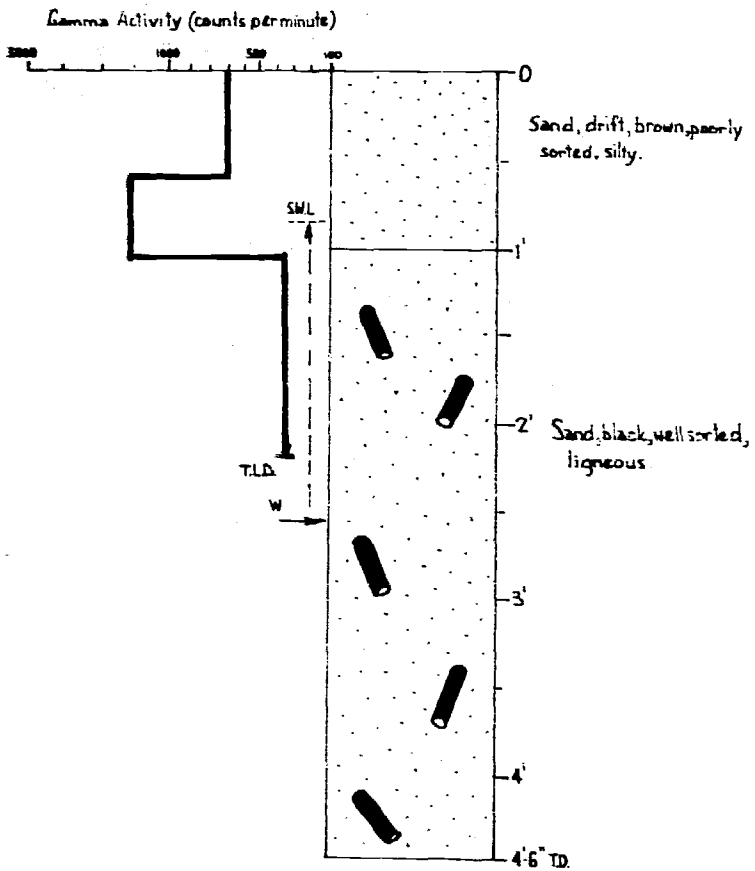
T-8


Gamma Activity
(counts per min.)
1000
500
100
0
1'
2'
SWL
T.L.D.
W
Sand, brown, clayey, well sorted.
Sand, med, dark brown, w/yellow clayey in part sandy.
Sand, ferruginous, med grained, well sorted, partly consolidated.
Sand, gray, well sorted, w/ yellow brown clayey intervals.
2'-6" T.D.

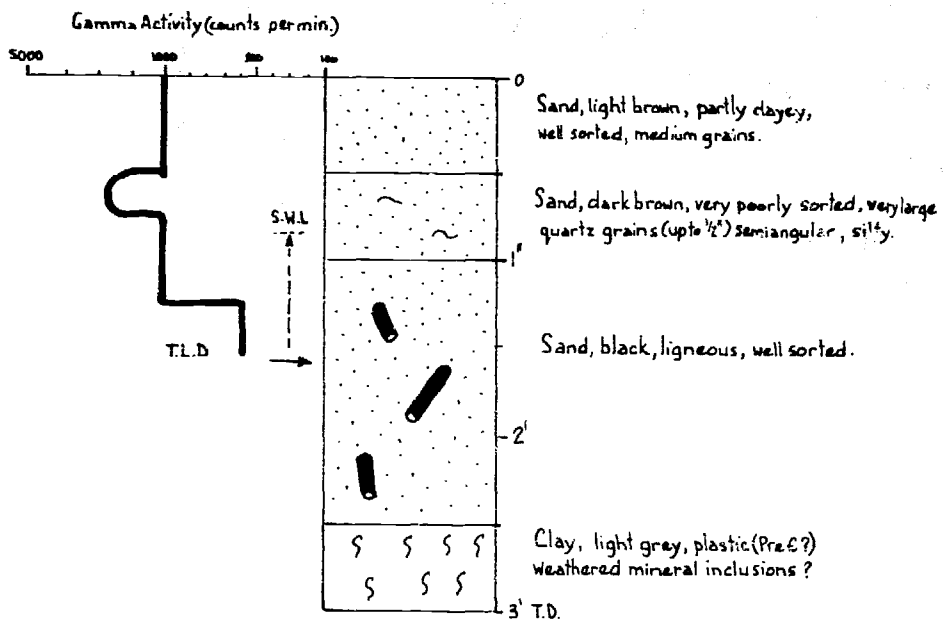
T-9


Gamma Activity
(counts per minute)
1000
500
100
0
1'
2'
3'
4'
SWL
T.L.D.
W
Sand, drift, light brown, poorly sorted.
Sand, med. brown, very poorly sorted, clean, subrounded
Sand, black, well sorted, ligneous.
4'-6" T.D.

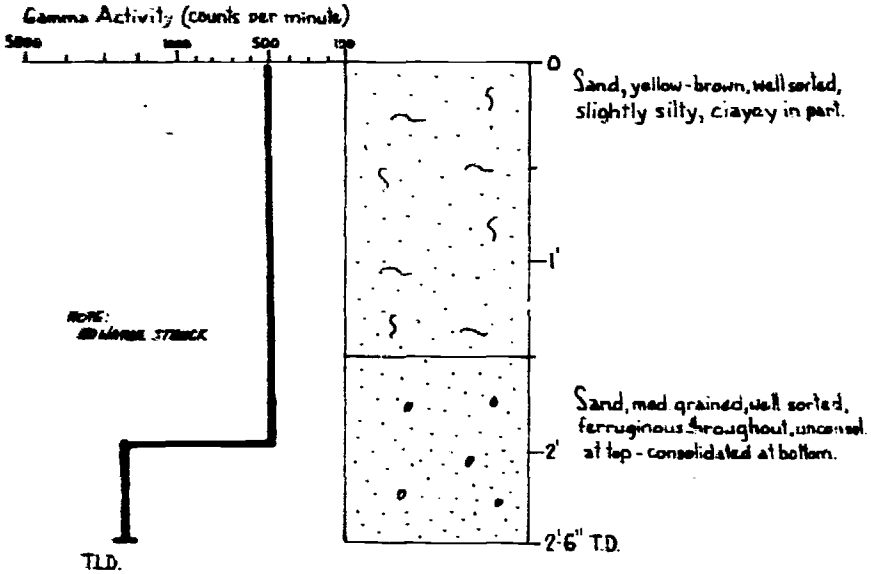
T-10


Gamma Activity (counts per minute)
5000
1000
500
100
0
1'
2'
3'
4'
4'6" T.D.
S.W.L
T.L.D.
W
Sand, drift, brown, poorly sorted, silty.
Sand, black, well sorted, ligneous

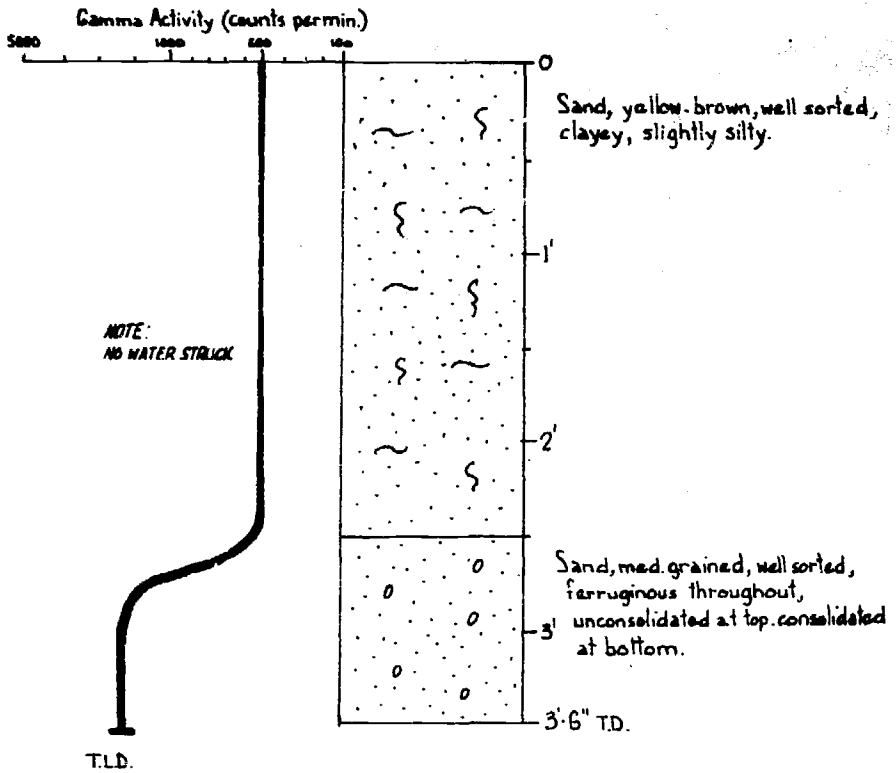
T-11


Gamma Activity (counts per min.)
5000
1000
200
100
0
1'
2'
3' T.D.
S.W.L
T.L.D
Sand, light brown, partly clayey, well sorted, medium grains.
Sand, dark brown, very poorly sorted, very large quartz grains (upto ½") semiangular, silty.
Sand, black, ligneous, well sorted.
Clay, light grey, plastic (Pre £?) weathered mineral inclusions ?

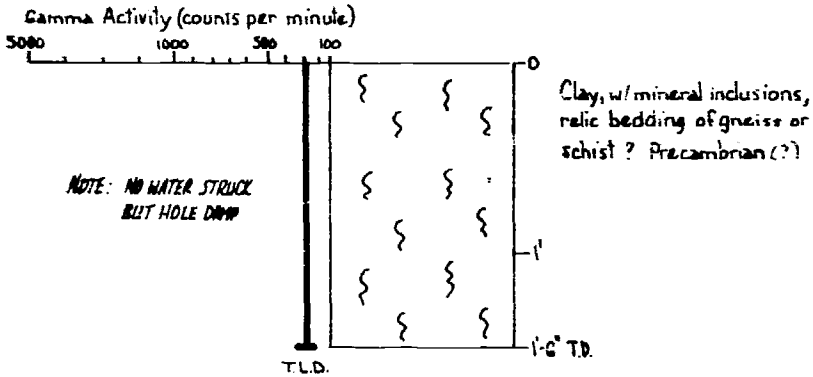
T-12


Gamma Activity (counts per minute)
5000
1000
500
100
0
1'
2'
2'6" T.D.
T.L.D.
NOTE:
NO WATER STRUCK
Sand, yellow-brown, well sorted, slightly silty, clayey in part.
Sand, med grained, well sorted, ferruginous throughout, unconsol. at top - consolidated at bottom.

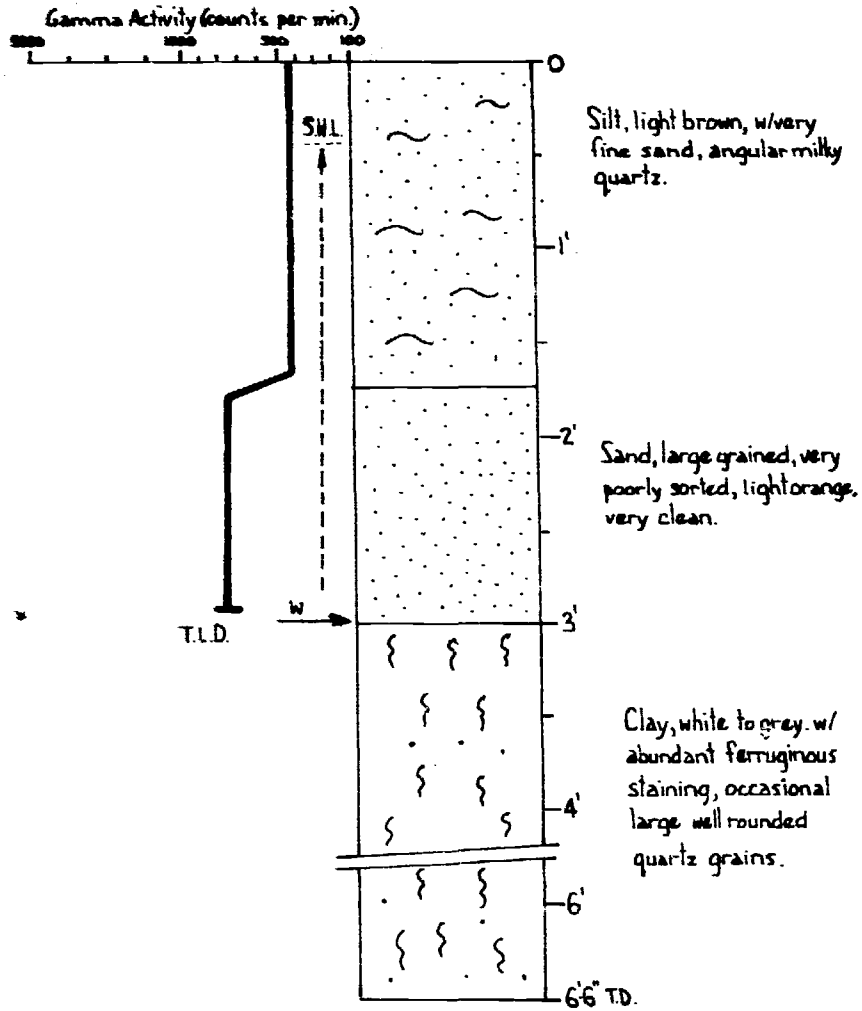
T-13


Gamma Activity (counts per min.)
5000
1000
500
100
0
1'
2'
3'
3'6" T.D.
T.L.D.
NOTE:
NO WATER STRUCK
Sand, yellow-brown, well sorted, clayey, slightly silty.
Sand, med. grained, well sorted, ferruginous throughout, unconsolidated at top. consolidated at bottom.

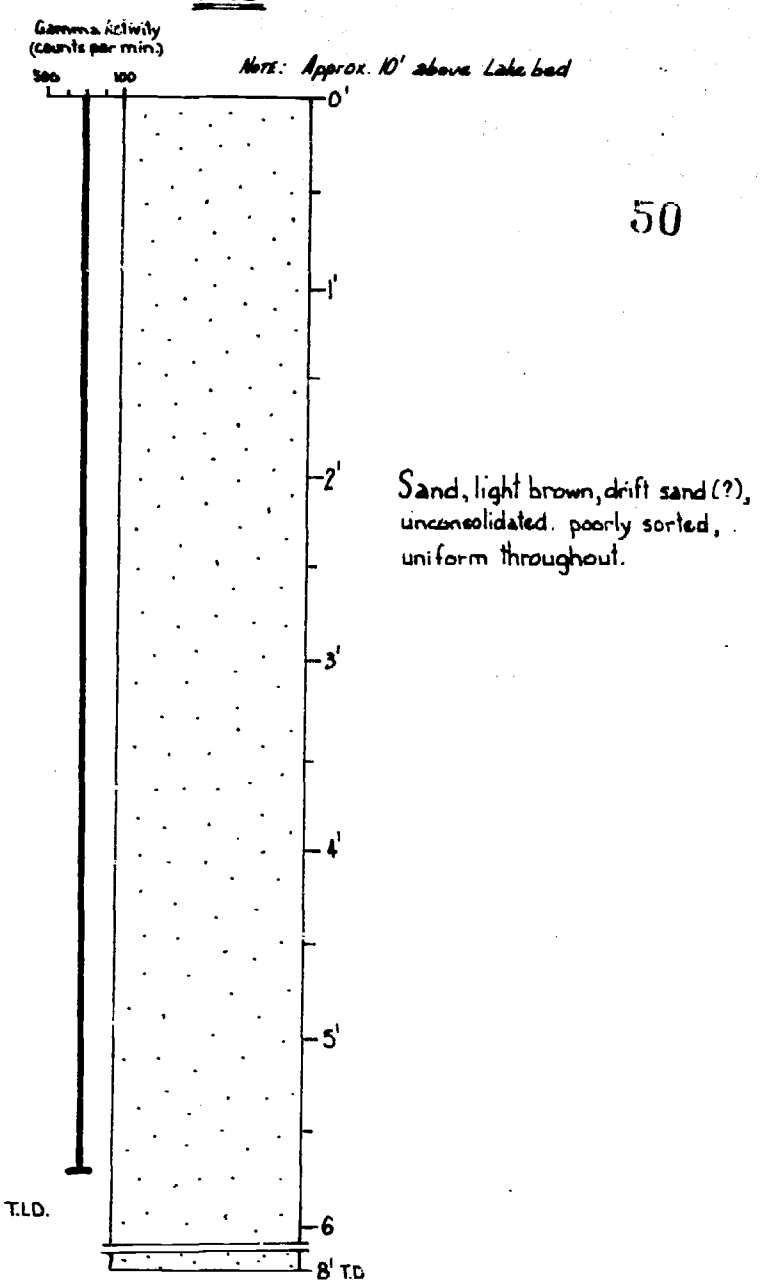
T-14


Gamma Activity (counts per minute)
5000
1000
500
100
0
1'
1'6" T.D.
T.L.D.
NOTE: NO WATER STRUCK
BUT HOLE DAMP
Clay, w/ mineral inclusions, relic bedding of gneiss or schist ? Precambrian (?)

T-15


Gamma Activity (counts per min.)
5000
1000
500
100
SWL
W
T.L.D.
0
1'
2'
3'
4'
6'
6'6" T.D.
Silt, light brown, w/very fine sand, angular milky quartz.
Sand, large grained, very poorly sorted, light orange, very clean.
Clay, white to grey. w/ abundant ferruginous staining, occasional large well rounded quartz grains.

T-16


Gamma Activity (counts per min.)
500
100
Note: Approx. 10' above Lake bed
T.L.D.
0'
1'
2'
3'
4'
5'
6
8' T.D
Sand, light brown, drift sand (?), unconsolidated. poorly sorted, uniform throughout.

50

APPENDIX 2B

PIDINGA LAKE

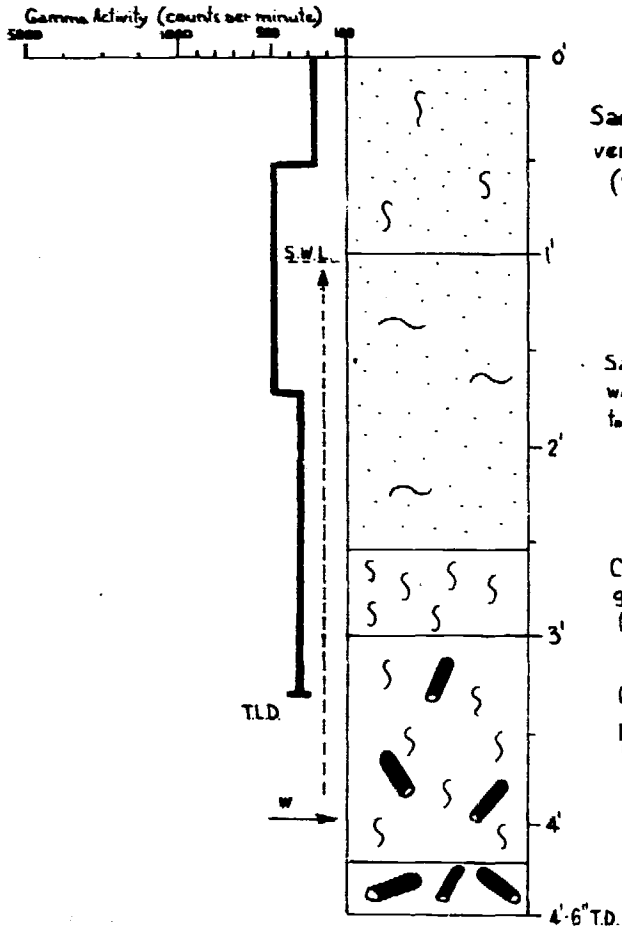
RECONNAISSANCE

AREA

Auger Holes -- Lithology and Radioactivity

P1
P2
P3
P4
P5
P6
P7
P8
P9
P10
P11
P12

P-1



Sand, medium brown, clayey very fine grained. (Sample P-1-1)

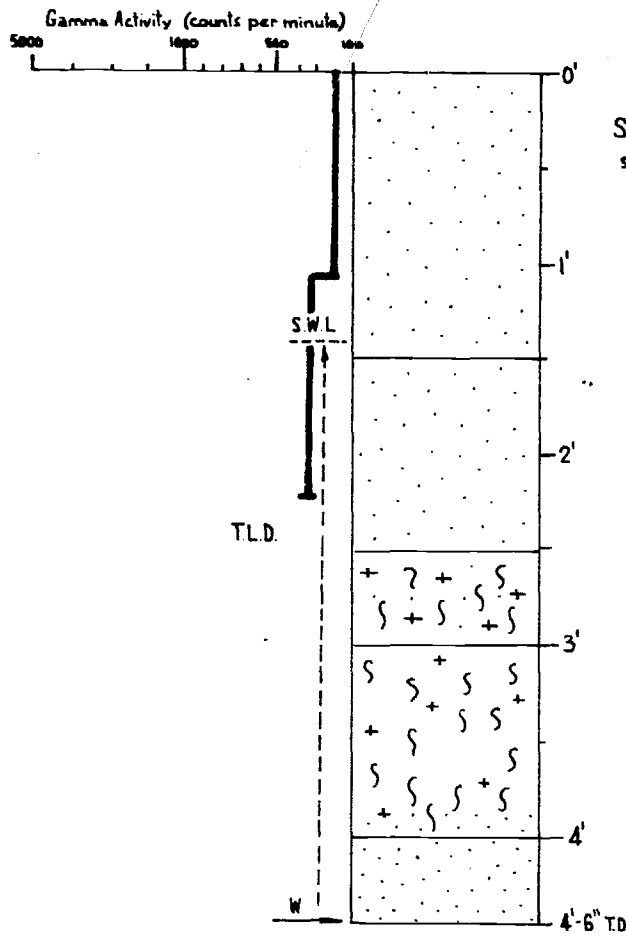
Sand, light grey, silty, well rounded, fine to to medium grained.

Clay, light brown to light grey to light yellow. (Sample P-1-2)

Clay, medium grey, very plastic, fragments of lignite.

Lignite, brown to black, blocky (Sample P-1-3)

P-2



Sand, medium to light brown well sorted, silty, very fine grained.

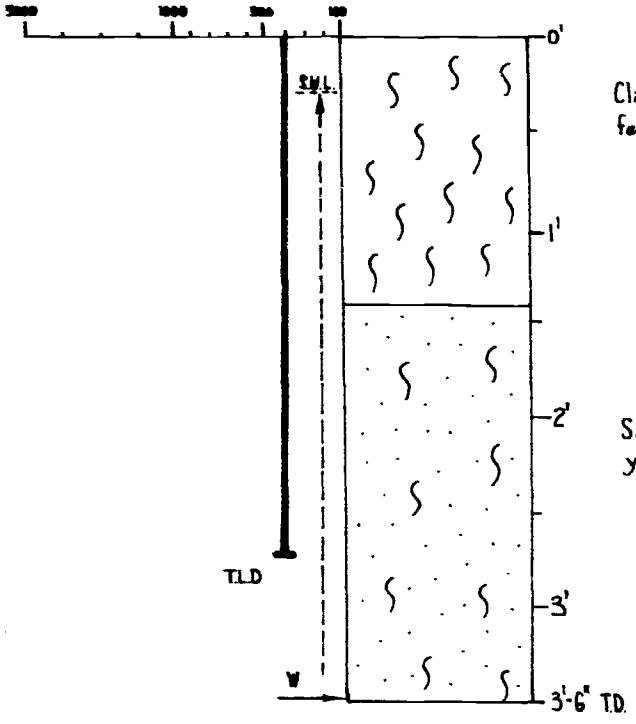
Sand, light to medium yellow, well sorted, well rounded & fine to medium grained.

Clay, blue w/large selenite xls, with light to medium yellow sand clay. (Sample P-2-1)

Clay, blue, w/small selenite xls, sandy at bottom.

Sand, light pink to light brown, very well sorted and clean.

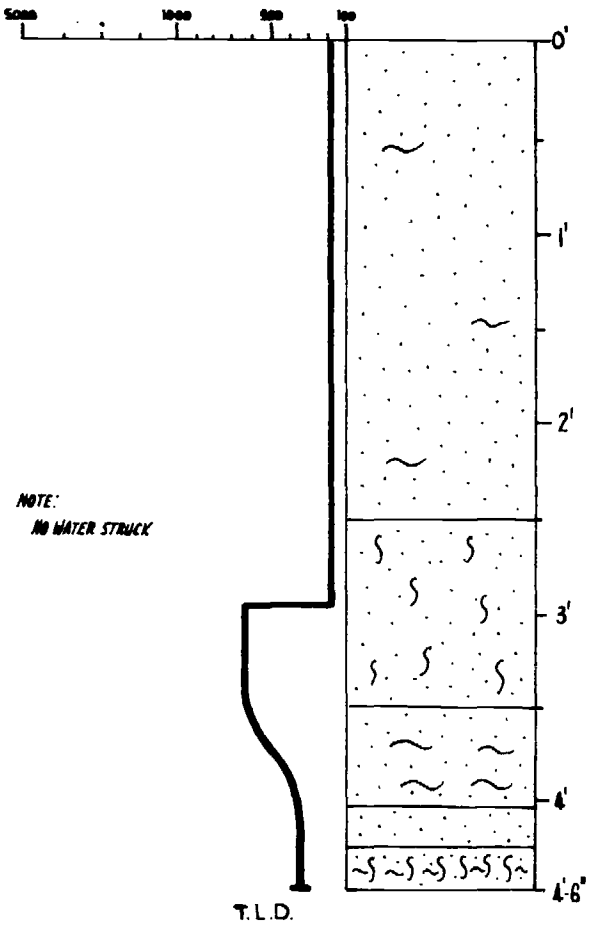
P-3



Clay, white to offwhite plastic, ferruginous staining throughout.

Sand, very fine grained, light yellow clayey in part.

P-4



NOTE:
NO WATER STRUCK

Sand, light brown, very fine grained, unconsolidated to slightly consolidated, slightly silty.

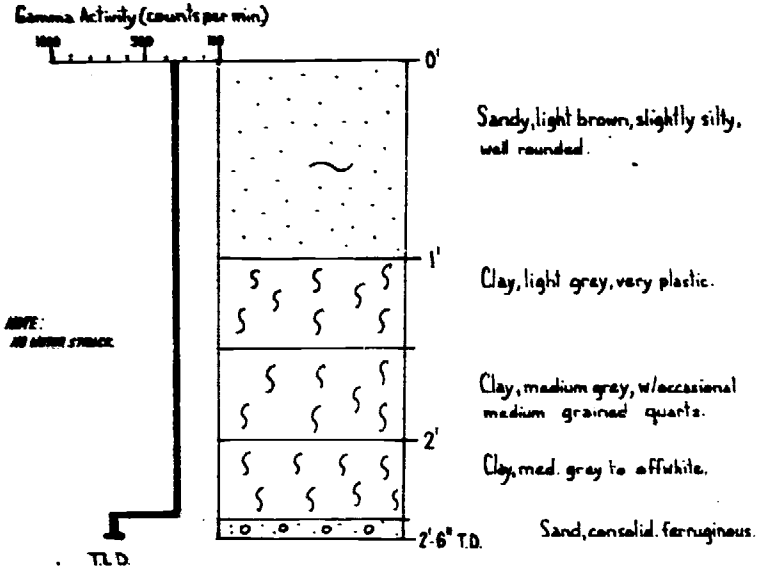
Clay, light brown to medium grey, sandy, w/ ferruginous staining in part.

Sandy, light grey, poorly sorted, very silty.

Sand, med. brown, well sorted & clean.

Clay, reddish brown, w/ large quartz grains (¼d) in silty matrix.

P-5



Sandy, light brown, slightly silty, well rounded.

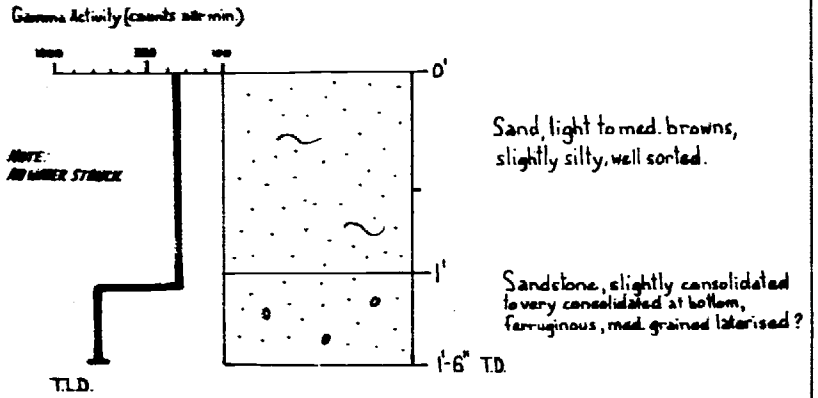
Clay, light grey, very plastic.

Clay, medium grey, w/occasional medium grained quartz.

Clay, med. grey to offwhite.

Sand, consolid. ferruginous.

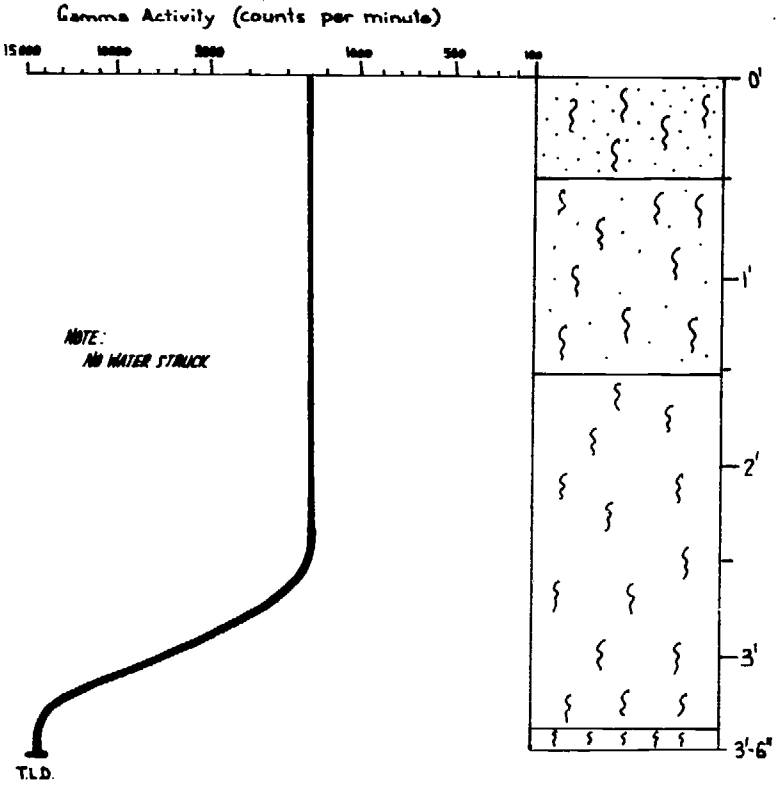
P-6



Sand, light to med. browns, slightly silty, well sorted.

Sandstone, slightly consolidated to very consolidated at bottom, ferruginous, med. grained laterised?

P-7



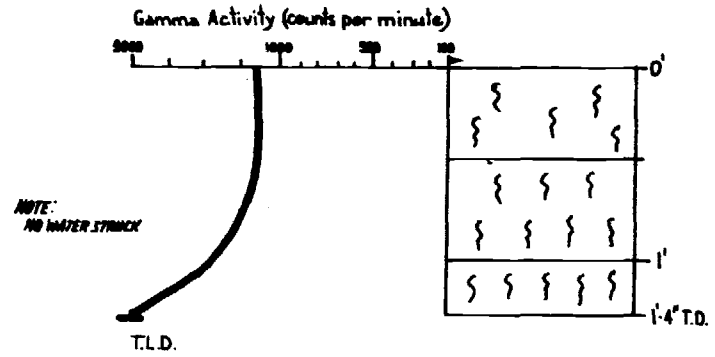
Sand, clayey, reddish brown, tight.

Clay, dark yellow, w/clean well rounded quartz grains.

Clay, medium brown clay, very plastic, ferruginous staining throughout.

Clay, dark yellow, very tight. (Sample P-7-1)

P-8

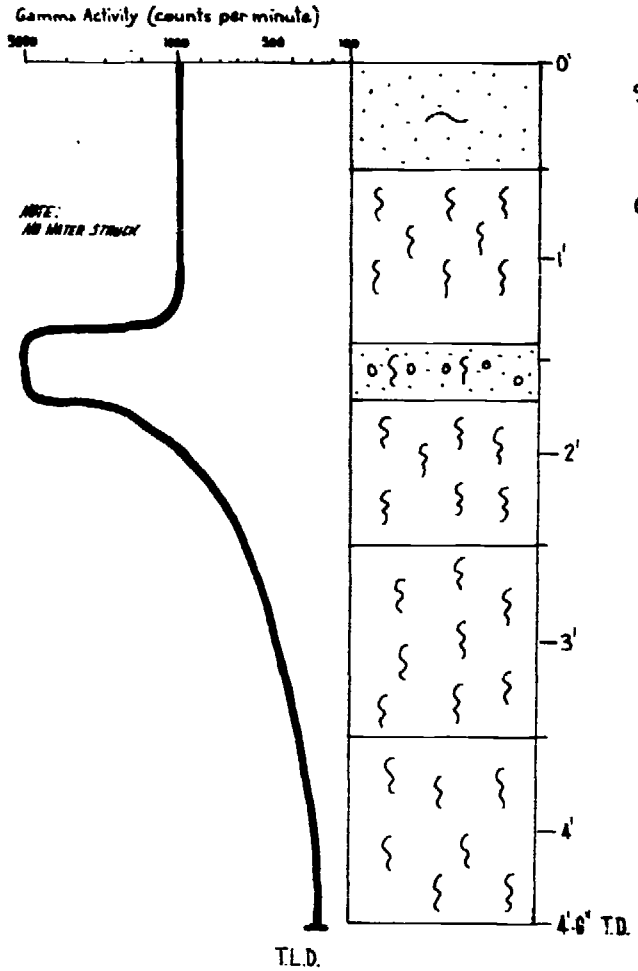


Clay, white, plastic.

Clay, dark yellow, plastic.

Clay, light grey & dark yellow, plastic, w/ ferruginous streaks.

P-9



Sand, medium brown, slightly silty, well rounded.

Clay, medium brown to yellow brown, plastic.

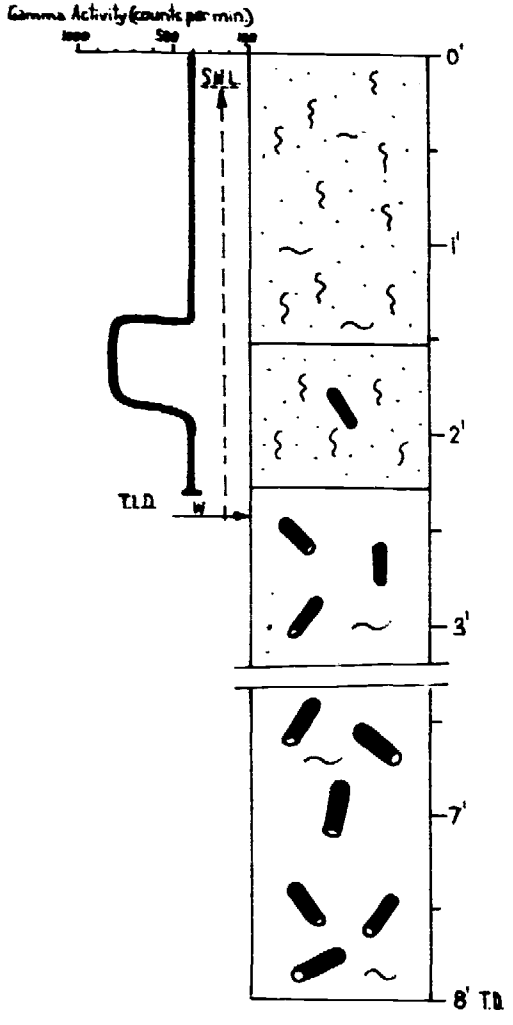
Pebbles, large, ferruginous, med. red staining in matrix of above clay. (Sample P-9-1)

Clay, medium brown to yellow brown, plastic.

Clay, light grey, plastic

Clay, medium red, very plastic. (Sample P-9-2)

P-10

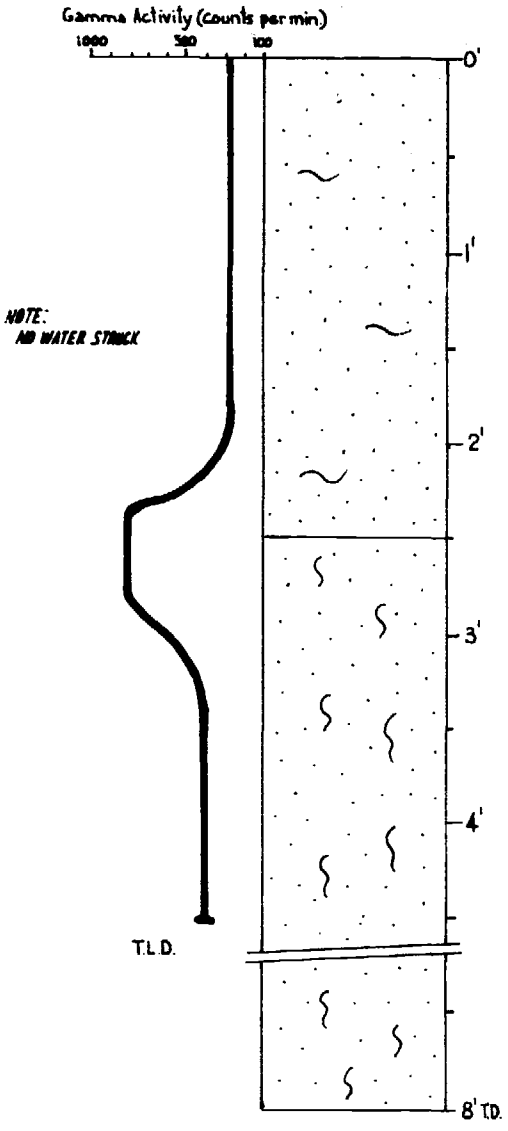


Clay, med. reddish-brown, silty and sandy.

Clay, med. gray, sandy in part, w/ lignite fragments.

Lignite, blocky in places, w/ fine structures, i.e. leaves, twigs, etc., clayey, med. to dark gray, in part.

P-11

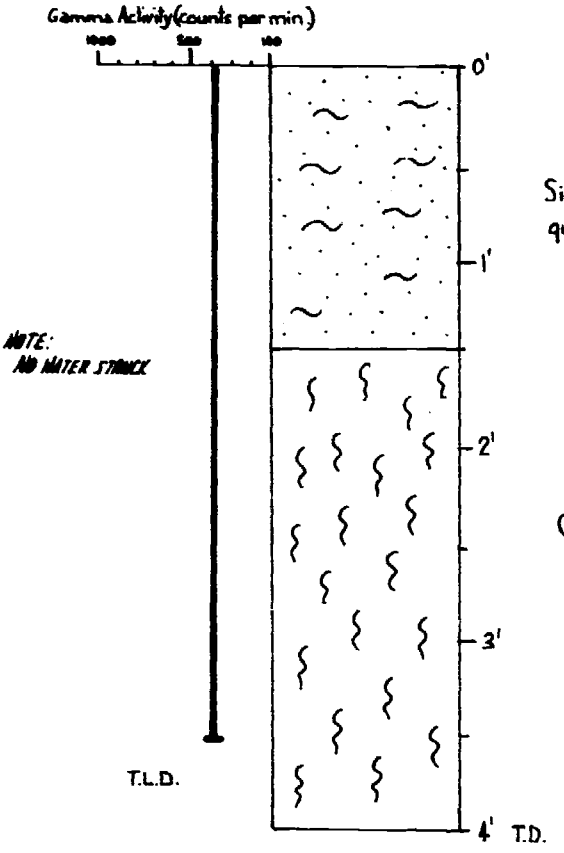


Sand, medium brown, well sorted, fine to medium grained, silty in part.

Clay, medium gray, w/ well rounded to subround quartz grains, clean, fragments of milky quartz at top. (Sample P___)

57

P-12



Silt, light brown, w/medium grained quartz, well rounded.

Clay, white to light grey, relic bedding of gneiss?

APPENDIX 2C

RED LAKE (EAGLE LAKE)

RECONNAISSANCE

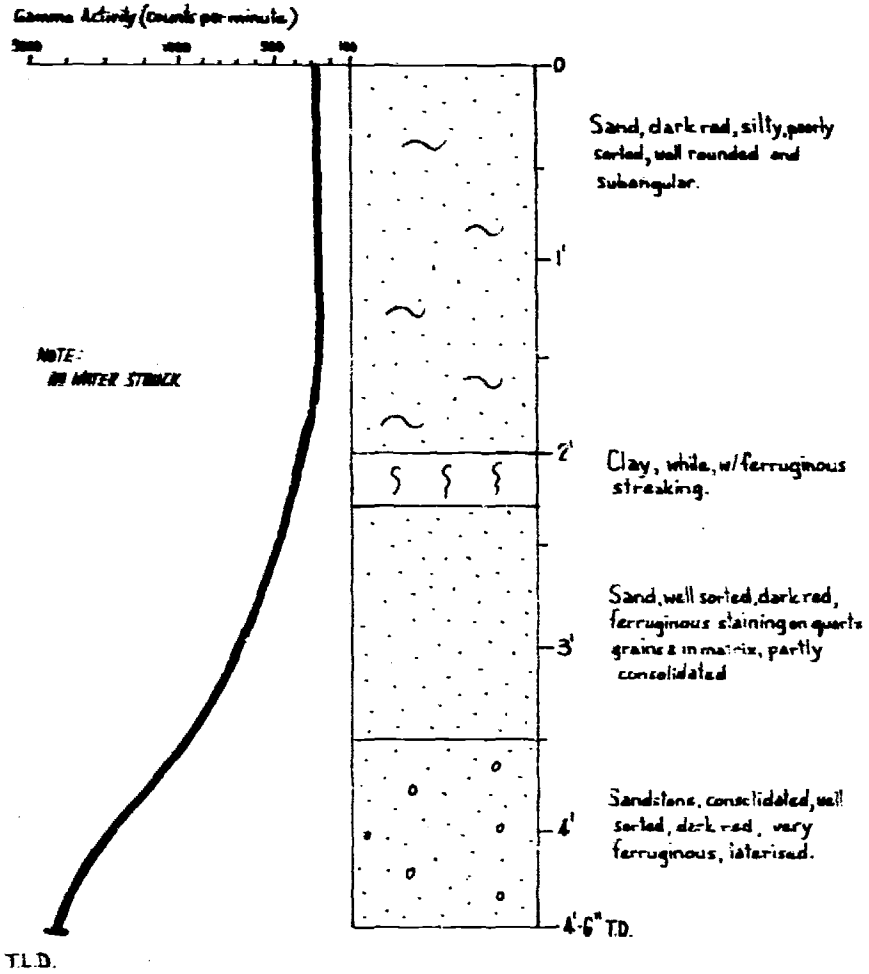
AREA

Auger Holes -- Lithology and Radioactivity

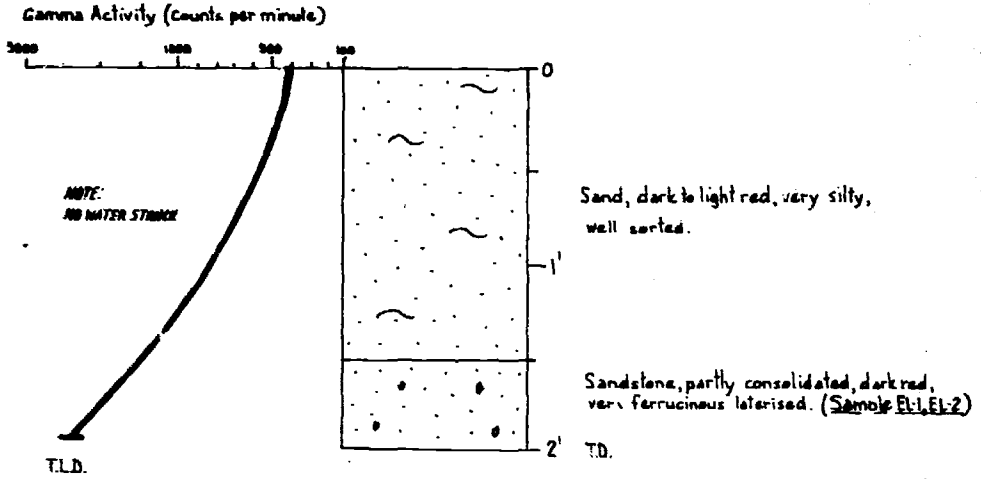
EL1

EL2

EL-1


Gamma Activity (counts per minute)
5000
1000
500
100
0
1'
2'
3'
4'
4'-6" T.D.
NOTE:
NO WATER STRUCK
Sand, dark red, silty, poorly sorted, well rounded and subangular.
Clay, white, w/ ferruginous streaking.
Sand, well sorted, dark red, ferruginous staining on quartz grains & in matrix, partly consolidated
Sandstone, consolidated, well sorted, dark red, very ferruginous, laterised.
T.L.D.

EL-2


Gamma Activity (counts per minute)
5000
1000
500
100
0
1'
2'
NOTE:
NO WATER STRUCK
Sand, dark to light red, very silty, well sorted.
Sandstone, partly consolidated, dark red, very ferrucinous laterised. (Sample EL-1, EL-2)
T.D.
T.L.D.

APPENDIX 2D

SEVEN MILE SWAMPS

RECONNAISSANCE

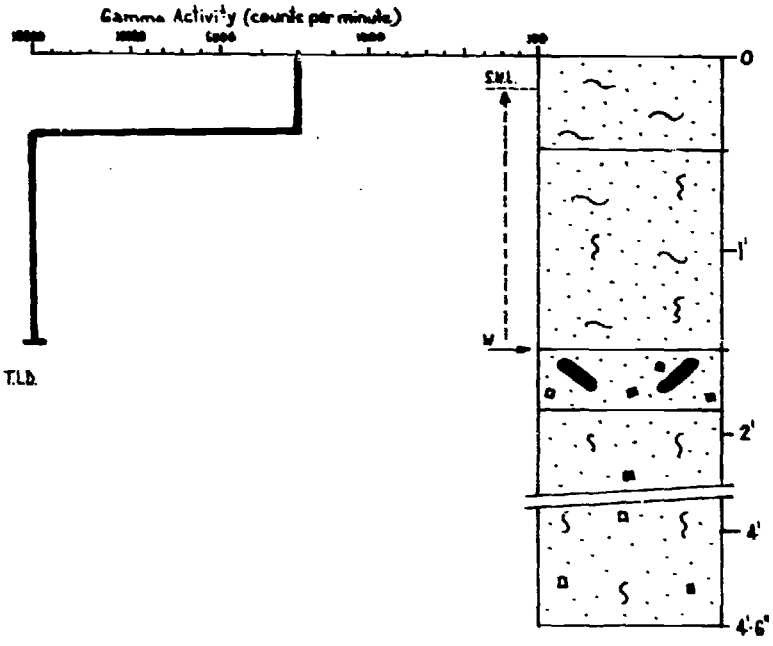
AREA

Auger Holes -- Lithology and Radioactivity

SML1
SML2
SML3
SML4
SML5

61

SML-1



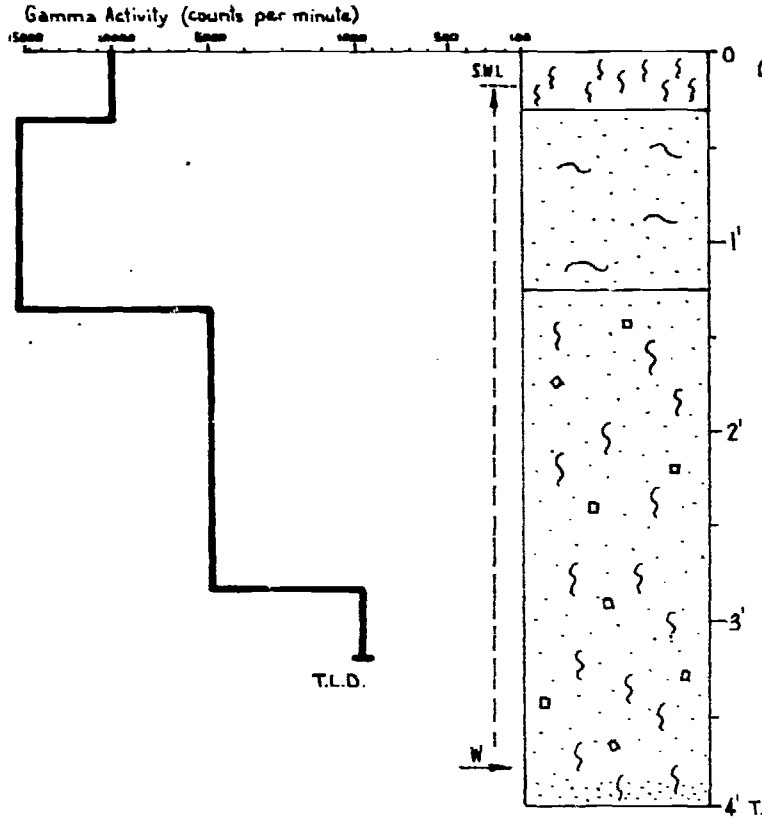
Sand, silty, light reddish brown.

Sand, silty, clayey in part, light yellow to light orange. (Sample SML1-1)

Sand, silty, light brown, w/abundant ligneous fragments & muscovite flakes.

Clay, medium brown, micaceous w/fine gn. sand. (Sample SML1-2)

SML-2



Clay, dark grey w/quartz grains.

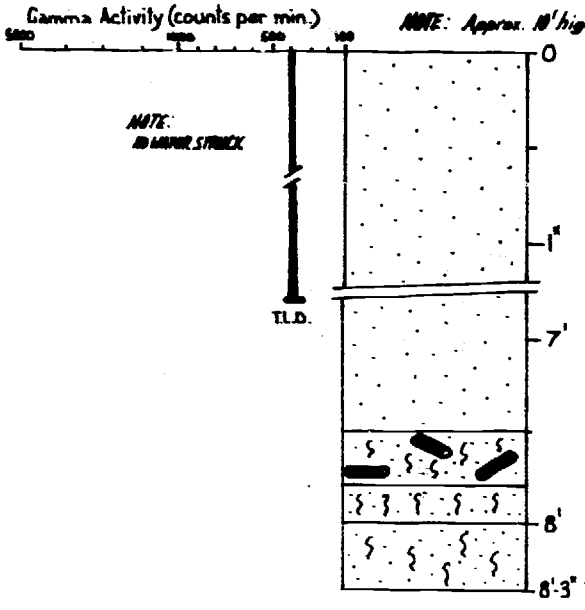
Sand, light to medium Kaki to yellow, silty dark yellow at base. (Sample SML2-1)

Clay, medium brown, micaceous w/fine grained quartz. (Sample SML2-2)

very sandy at base.

SML-3

62



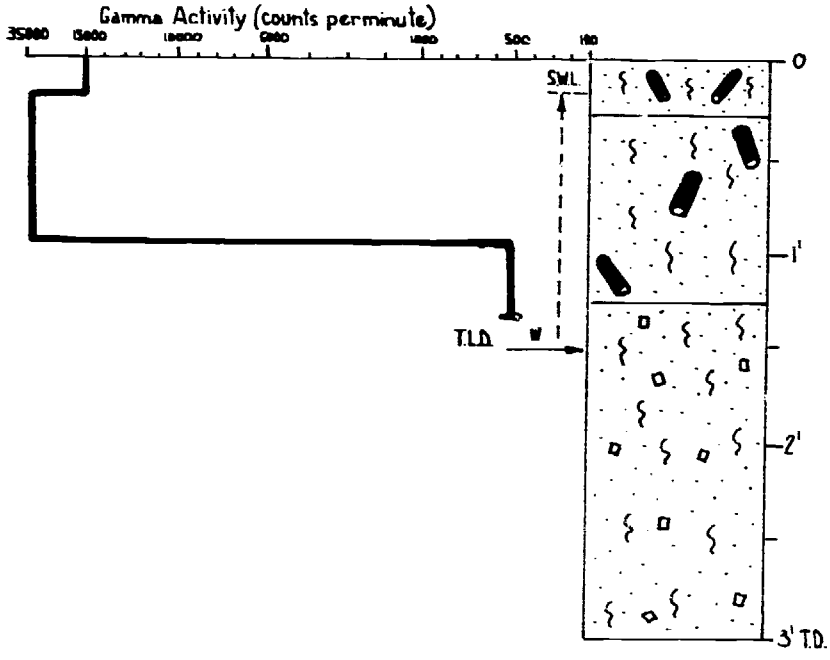
Sand, partly consolidated, light to med. brown, well sorted, fine to med. grained, silty in part.

Clay, med. red, w/quartz grains & lignite fragments in clay. (Sample SML3-1)

Clay, dark red, sandy.

Clay, white, sandy in part, w/weathered mineral inclusions. (Sample SML3-2)

SML-4

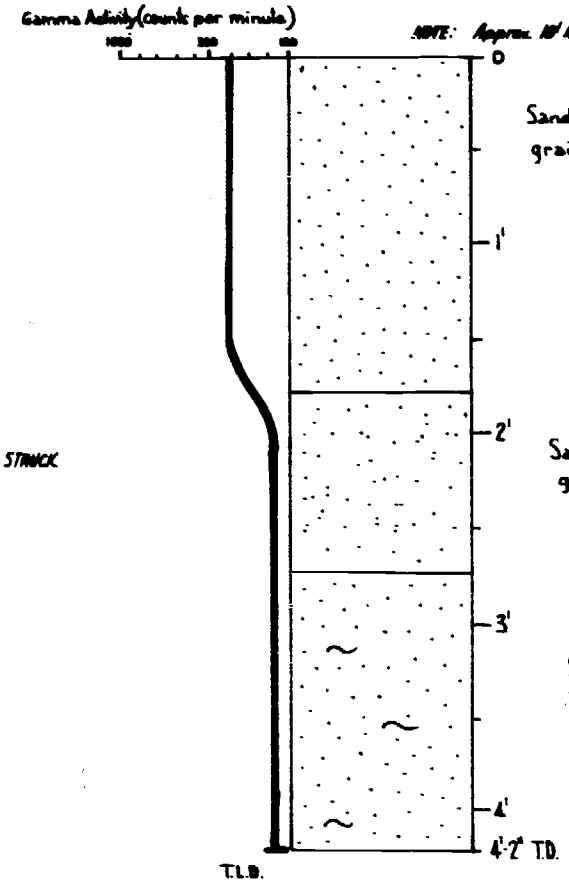


Clay, ligneous, light red, sandy in part. (Sample SML4-1)

Sand, light red, clayey w/lignite fragments. (Sample SML4-2)

Clay, med. brown, micaceous, sandy, med. to fine grained, well sorted & well rounded. (Sample SML4-3)

SML-5



NOTE:
NO WATER STRUCK

Sand, well sorted, very slightly silty, fine to medium grained - unconsolidated to slightly consolidated, yellow.
(Sample SML5-1)

Sand, well sorted, only slightly silty, fine to medium grained - red unconsolidated to slightly consolidated
(Sample SML5-2)

Sand, as above, but white sands w/slightly ferruginous intervals, light red, silty in part.
(Sample SML5-3)

APPENDIX 3

Sample Designations

SAMPLE DESIGNATIONS

Tallacootra Reconnaissance Area

From Outcrop:	DWF-1
	DWF-2
	QCA?
	OT-1
	OT-2
	TB?
	T-Th1-O
From Auger Holes:	T1-1
	T1-2
	T1-3
	T2
	T3
	T7-1
From Trench No 1:	T-Th-1
From Trench No 2:	T-Th-2

Pidinga Reconnaissance Area

From Outcrop:	P1O
From Auger Holes:	P1-1
	P1-2
	P1-3
	P2-1
	P3-1
	P7-1
	P9-1
	P9-2
	P1O-1 (P-11-1)
From Trench No 1:	PT-1

Red Lake (Eagle Lake) Reconnaissance Area

From Outcrop	EL-1
	EL-2

Seven Mile Swamps Reconnaissance Area

From Outcrop:	SML-QY
	SML-Fe1
	SML-Lms1
	SML-Lms2
From Auger Holes:	SML1-1
	SML1-2
	SML2-1
	SML2-2
	SML3-1
	SML3-2
	SML4-1
	SML4-2
	SML4-3
	SML5-1
	SML5-2
	SML5-3
From Trench No 1:	SML Th-1
From Trench No 1 Pits:	SML P1-1
	SML P1-2
	SML P2-1
	SML P2-2
	SML P3-1
	SML P3-2
	SML P4-1
From Trench No 2:	SML Th-2

APPENDIX 4

Photographic Slides

PHOTOGRAPHIC SLIDES

See enclosed slides. Correct slide orientation must be with "T Slide No. 1" facing viewer.

TALLACOOTRA LAKE AREA

Slide Number	Location and Description
T Slide No. 1	From northern end of main lake, at end of track, on top of sand dune, looking southward. Ferruginous sandstone seen in lower third of picture, base of dune; Northward arm of main lake seen upper third to the right (See Plate II, IIA, IIA1).
T Slide No. 2	At northern end of lake; Contact of Ferruginous sandstone and white clay (Precambrian) contact? - Trench No. 1 in upper third right hand corner. Note large milky quartz fragments at contact. (See Plate II, IIA and IIA1).
T Slide No. 3	As above, only closer -- Ferruginous sandstone - white clay (Precambrian?) contact.
T Slide No. 4	Trench No. 1 -- Note facies. Hammer indicates area of high radiation, i.e., more than 50,000 c/m (See Plates IIA, IIA1 and Figure 2).
T Slide No. 5	Trench No. 1 -- same as above but to the right. Cigarette lighter indicates one area of high radioactivity. Note yellow to yellow-brown intervals are also highly radioactive, more than 50,000 c/m--lignites at bottom of pit -- below lighter (See Plates IIA, IIA1 and Figure 2).
T Slide No. 6	Trench No. 2 area; looking southward from behind Trench No. 2. Note outcrops of ferruginous sandstone around trench; upper third left of picture outcrops of known Precambrian rocks; note white and yellow clays on far side of ferruginous sandstone in lake bed. (See Plates IIA, IIA1 and Figure 3).
T Slide No. 7	As above -- Trench No. 2 looking southward from behind trench -- note lithology and relation to out-crops (See Figure 3).

T Slide No. 8 ..... As above -- Trench No. 2 but looking northward, standing on ferruginous sandstone; note proximity to sand dunes.

T Slide No. 9 ..... As above -- Trench No. 2, looking toward Trench No. 1 - Note lithology and outcrops in background, i.e., sandstone overlying white clay.

T Slide No. 10 ..... Looking southeastward from Trench No. 1. Note Trench No. 2 in middle foreground note ferruginous outcrops in distance.

T Slide No. 11 ..... At southern end of Iake Tallacootra looking from northwestern banks. (See Plate II, IIB).

T Slide No. 12 ..... Taken of northwestern bank. Note topography and outcrops.

T Slide No. 13 ..... A close-up view of above outcrops. Note Tertiary limestone on left -- Precambrian intrusives on right. (See Plate IIB1).

T Slide No. 14 ..... Taken from hole T2 looking towards northwestern bank. Note proximity.

T Slide No. 15 ..... Taken from hole T3 looking toward northwestern bank. Note limestone outcrops in bank and proximity.

T Slide No. 16 ..... Same area, outcrop in northwestern bank. Tertiary limestone overlying Precambrian rocks, a basalt?

T Slide No. 17 ..... As above same outcrop.

T Slide No. 18 ..... Same area, outcrop of near vertical Precambrian rocks, located at right in Slide No. 13.

PIDINGA LAKE AREA

P Slide No. 1 ..... Taken at main Iake crossing. Note non-indiginous Precambrian rocks used as road metal. Note also topography (See Plate III).

P Slide No. 2 ..... As above, at main lake crossing, looking north east up the length of Pidinga Lake. (See Plate II).

P Slide No. 3 ..... Taken at Island outcrop (See Plate III).

SEVEN MILE SWAMPS AREA

S Slide No. 1 ..... Taken from Base Camp looking eastward toward Trench areas (See Plate V).

S Slide No. 2 ..... Trench No. 1 looking toward Trench No. 2 (in the distance). Note pits and their lithologies. Also note pattern on lake bed. (See Plate V).

S Slide No. 3 ..... Trench No. 2 looking along strike of sandstone beds in outcrop. Note pattern on lake bed (See Plate V).

S Slide No. 4 ..... Trench No. 2 looking away from Trench No. 1 toward bank. Note pattern in lake bed (outcrops of radioactive sandstone) and general topography (See Plate V).

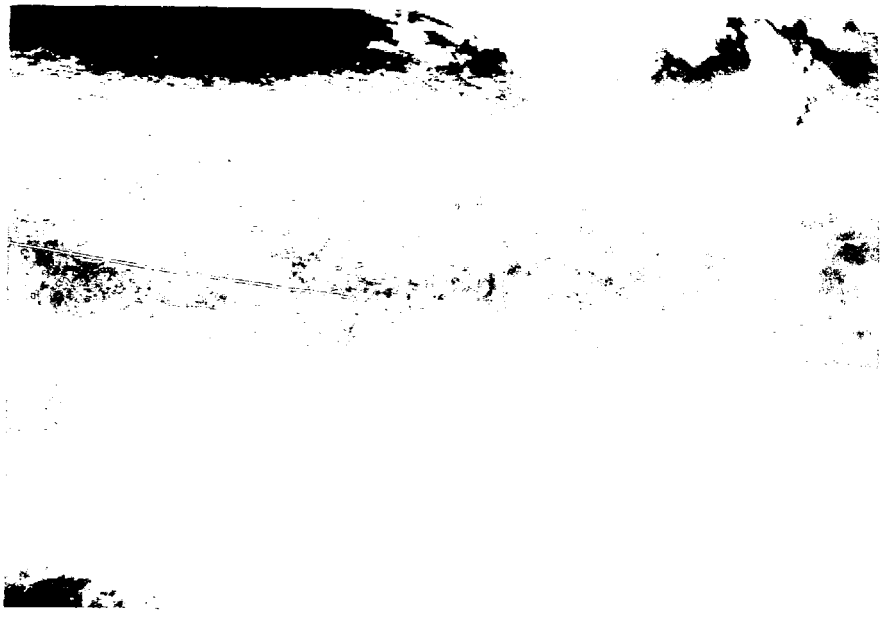
S Slide No. 5 ..... Trench No. 2 close-up. Dip is to right toward Trench No. 1. Note: Hammer indicates area of black to yellow-green minerals occurrence.



T1



T2



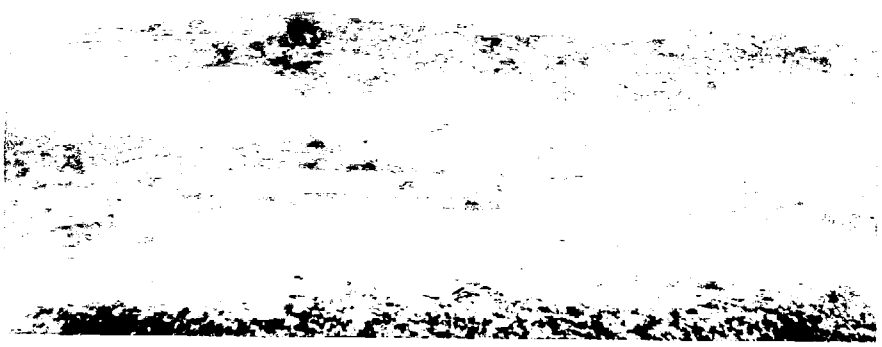
T3



T4



T5



T6



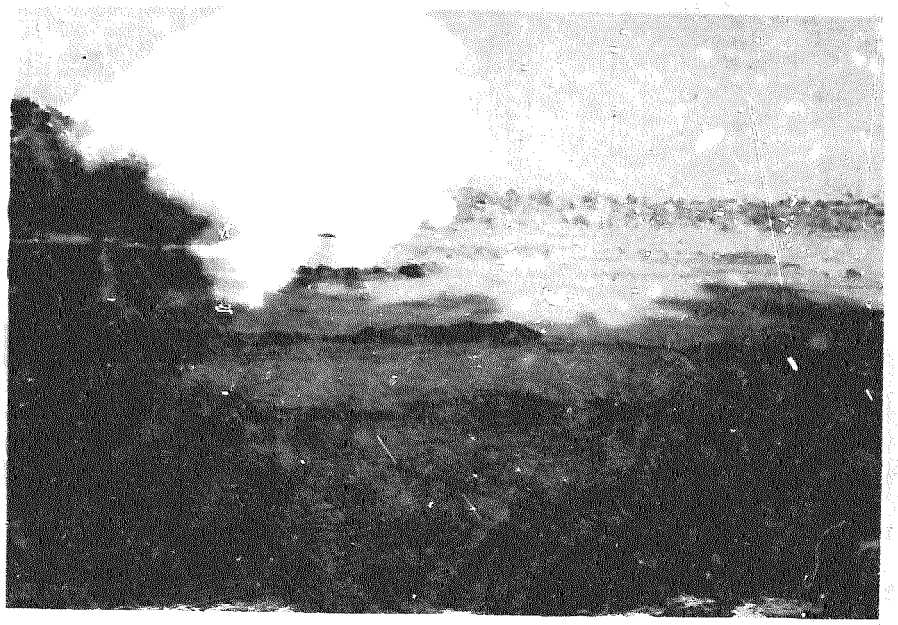
T7 .



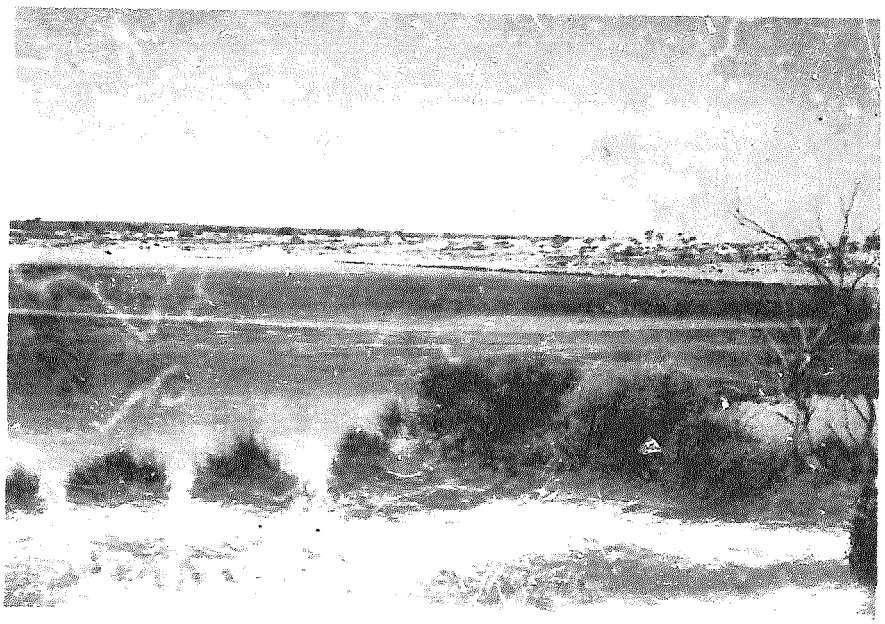
T8 .



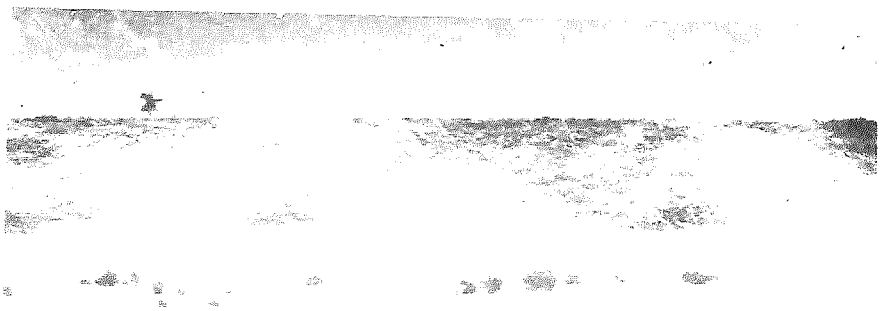
T9 .



T10

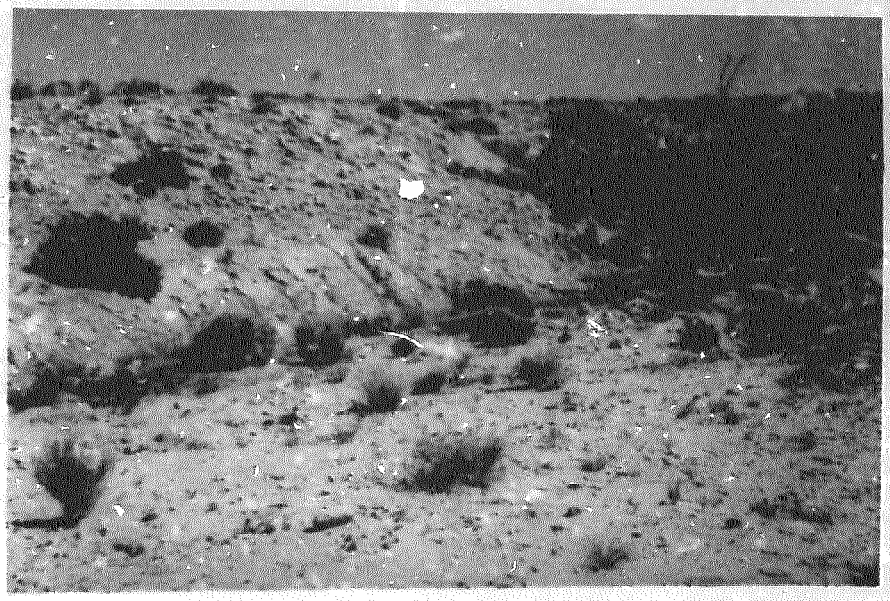


T11

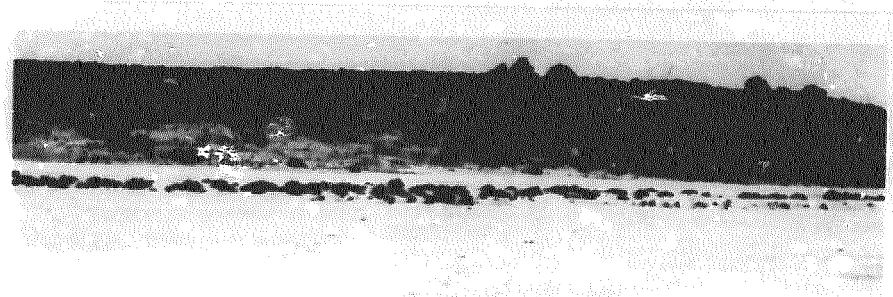


T12



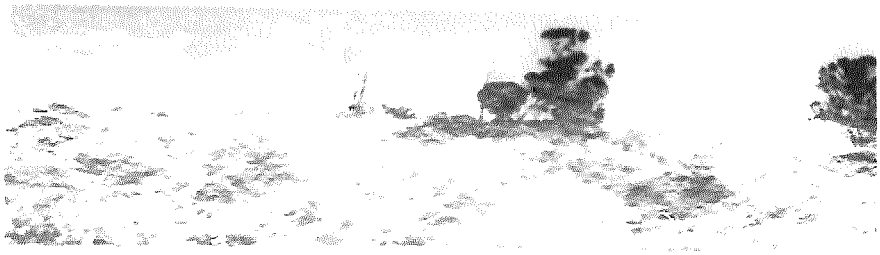


T13

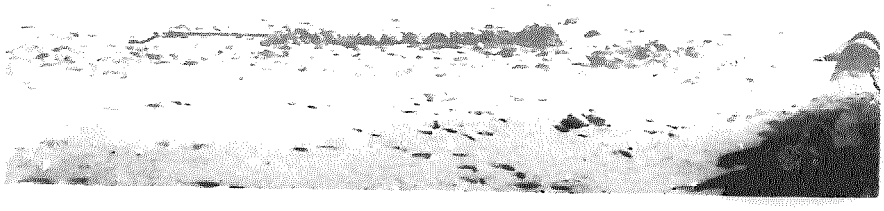




T14



T15





T16



T17



T18



P1



P2



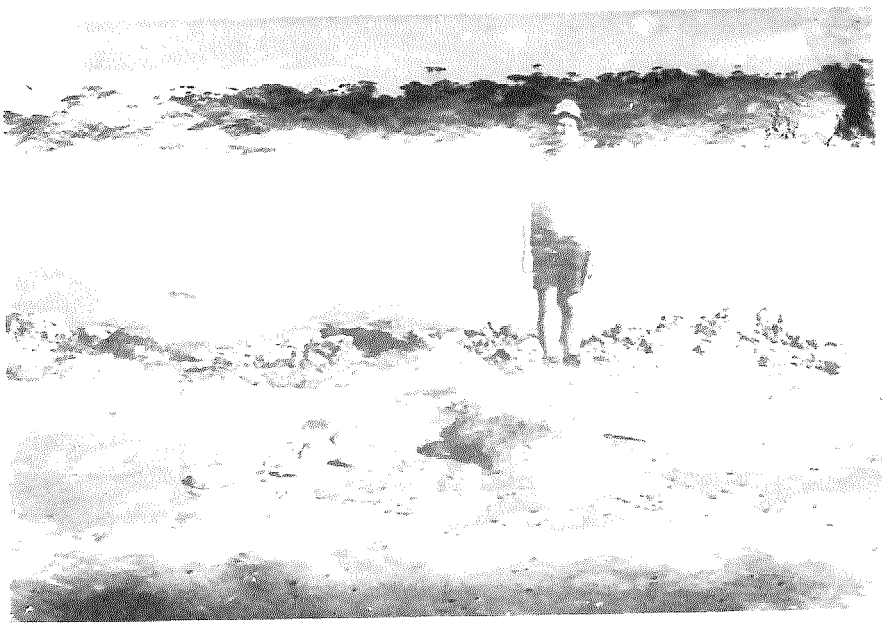
P3



S1



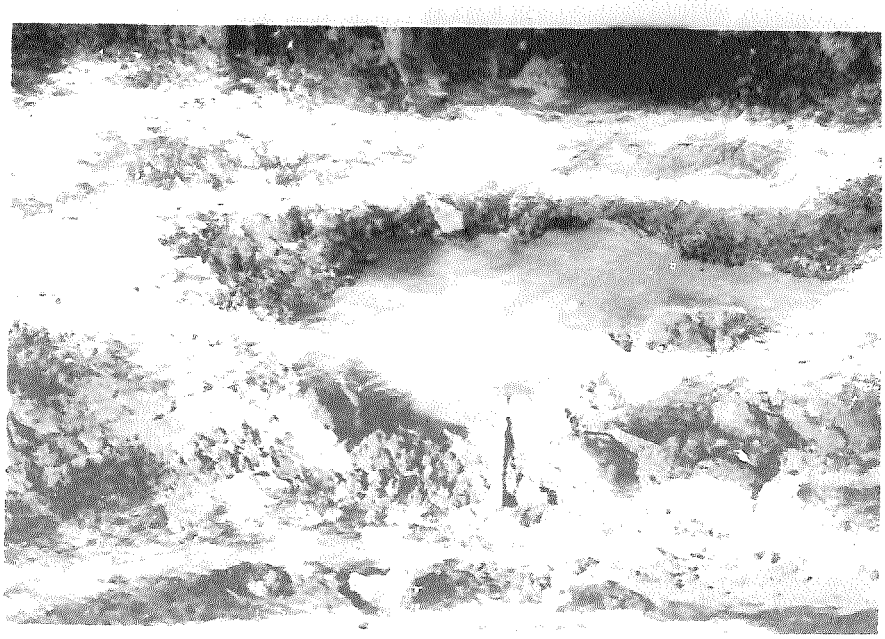
S2



S3



S4



S5

EHU 1200.

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Australasian Mining Corporation Ltd.

S.M.L. 316

South Australia

Report on Exploratory Activities for the three months ending 15th September, 1969.

Clarke 1969

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80

SUMMARY.

The writer continued the exploration previously commenced on behalf of the company by M. D. Campbell. Ground and airborne reconnaissance scintillometer traverses were carried out and several additional radioactive areas were located. Recommendations are made for further exploration.

INTRODUCTION.

Following Campbell's recommendation in his reconnaissance survey earlier this year, Australasian Mining Corporation Ltd. applied for, and was granted Special Mining Lease 316. This covers approximately 963 square miles around Seven Mile Swamps. The south eastern corner is twenty four air miles from Penong and the lease is twenty miles wide in an east west direction. It's greatest north-south extent is 53 miles (Plan AMC 316-1).

The present survey is an attempt to locate uranium mineralization of economic significance within, or near Special Mining Lease 316. The work is being carried out by Minoil Services on behalf of Australasian Mining Corporation Ltd.

Access to Seven Mile Swamps is by a relatively good two-wheel track. The sandy, gently undulating country is thickly covered with well grown mallee and native pine. Treeless grassy plains varying from very small to twenty square miles in area break up the otherwise featureless scrub. In the Broom sheet the country changes to fixed seif type sand dunes (often covered with scrub) trending generally E.S.E. This type of country was found to continue throughout the Inilia, Poondinga, Oolabinna and Mowling sheets to the east and the Pylebung sheet to the north. S.M.L. 316 itself covers parts of the Euria, Moornaba and Broom sheets.

PREVIOUS INVESTIGATIONS.

Early exploration for gold and base metals is indicated by occasional shallow pits in Proterozoic outcrop. Alunite was reported in 1948 by the then Director of Mines, S.B. Dickinson in an investigation into the lignite deposits near the Pidinga Rockhole.

In 1948 a borehole sunk by the Dept. of Mines penetrated 45' of carbonaceous material above grey clay. Approximately one square mile was found to be underlain at shallow depth by beds of low grade lignite, ligneous sand and clay. Brown coal was in fact found within three feet of the surface but analyses revealed that even the most promising horizons were very high in ash.

In 1949, eleven holes aggregating 211 feet were drilled in Pidinga Lake "C". A probable reserve of 233,000 tons of alunite assaying 7.33% potash was indicated.

In his Master of Science project in 1950, King carried out detailed work on the Geological Succession in the Pidinga Area (Trans. Roy. Soc. S. Aust 74 (1) March 1951). In 1967 as manager of Associated Mining he investigated the possibility of using lake sediments and/or brines for the production of potash alum. Eight holes aggregating 284' were drilled by a Dept. of Mines rig. Limited quantities of sediment and brines of only average potash content were revealed. In 1954, T.A. Barnes (the present Director of Mines) inspected the Nine Mile Swamps and Lake Tallacootra Areas. Abnormal radioactivity was found associated with a brown ferruginous sandstone which he described as possibly a weathered gneiss. The samples when analysed did not contain appreciable amounts of uranium and no further action was taken.

GEOLOGY.

Lower Proterozoic (previously thought to be Archean) granite - gneiss occurs as basement throughout the region. Outcrop of these ancient highly metamorphosed and intruded rocks are sporadic and at present little is known of their structure or composition. These metasediments are mostly covered by Oligocene lacustrine deposits of grey and carbonaceous clays. Compaction and subsequent loss of water have rendered some of these beds lignitic and they have shown minor brown coal development.

The continuous deposition into the non-carbonaceous Lower Miocene is also thought to have taken place mainly in a lacustrine environment. Sedimentation was slow with typically white alunitic clays. The ferruginous sandstone found by Campbell (1969) to exhibit anomalous radiation may owe its existance to facies variations within the Alunitic clays. The mid-Miocene silicified and richly fossiliferous Nullarbor Limestone was deposited during a shallow marine transgression. This flat lying unit has a maximum known thickness of 4 feet in this area.

The Geology of this part of Eyre Peninsula has been described in detail by King (1950) and Campbell (1969).

THE SURVEY.

Eight days were spent in the field during this survey. Approximately half of the time was spent on the ground.

A. GROUND TRAVERSES.

A four wheel drive vehicle and an assistant were hired in Ceduna. The survey was commenced on Saturday August 9, 1969. A good road has been constructed by the landholder from the Eyre Highway through Marandilla Rockhole directly north to the vermin proof fence. A well used track was followed along the fence to Kroonilla Rock Hole (known locally as Miller's Camp). At this point some time was lost in locating a disused track heading east. This was followed for some three miles. A more northerly path was then made through scrub towards some suspected Precambrian outcrop. From these hills a very slow two miles progress was made in a north westerly direction through thick scrub to the southern most lake of the Seven Mile Swamps. A scintillometer survey was made around the perimeter of the lake (plan AMC 316-3) and two pits and a trench were dug in areas of locally high radioactivity. Traverses across the lake were not made due to an average depth of one foot of water.

Slow progress was then made due west for a mile and a half to the main Seven Mile Swamps track. This was followed to the south western lobe of the lake. Here Campbell's auger holes were examined visually and with a scintillometer.

However, conclusions were difficult to draw as most holes and samples were under at least a few inches of water. Campbell's trench 1 and pits 1-4 were found to be under approximately a foot of water and were not examined. Some time was spent inspecting his trench No. 2 and the circular outcrop of ferruginous micaceous sandstone.

The Precambrian outcrop adjacent to the lake, north west of hole S.M.L. 1 was sampled from an old pit. Other basement samples were taken. Vehicular scintillometer traverses were then made along the lake periphery and along the lake centre where the surface allowed. The main track was rejoined at the northern end of the main lake. A grassy plain (locally known as "Little Nullarbor") about 2 miles across separates the two main lakes. Scintillometer surveys were made of the southern lobe of the second main lake as far as water and approaching darkness would allow. Camp was made a mile to the north.

Pelecypod fossils were discovered in a flat ironstone outcrop in the lake bed. Northwards a white pink granite outcrop (striking E.N.E.) was also encountered (in the lake bed). Once again a prospectors presence was evidenced by a 3 feet deep pit. To the north in the same lake bed a brown sandstone outcrop (non-radioactive) yielded possible burrow fossils. Soon after sampling this outcrop the survey was terminated and the party reached Ceduna that night (Tuesday 12/8/69).

B. AIRBORNE TRAVERSES.

August 13, 1969.

A Cessna 172 light aircraft was chartered from Commodore Aviation in Port Lincoln and the writer was picked up at Ceduna on Wednesday morning 13/8/69. Penong airstrip was made the base for the survey. A flight was made that afternoon over all lakes in the area (see Plan AMC 316-1) and northwards to two precambrian outcrops on the Broom sheet.

August 14, 1969.

The northern most Broom granite was used as a reference point amongst the otherwise featureless sandhills to locate the granite-gneiss exposures to the east. All suspected outcrops directly east of the Broom sheet were examined. After refueling at Penong all suspected Poondinga Precambrian was inspected at low altitude.

August 15, 1969.

A final enveloping flight was made well away from the margins of the lease. Tallowan, Tallacootra and part of the Trench sheets were crossed at low altitude and a granite gneiss outcrop was located on the Tallacootra-Pidinga sheet boundary. The pilot was able to land on the treeless area surrounding the gneiss, samples were taken and ground radioactivity checked. The Pylebung sheet was crossed at height and although a number of likely areas were examined from low altitude, no outcrop was discovered. Two outcrops were spotted on the eastern border of the Mowling sheet before returning to Penong.

RESULTS.

A. GROUND TRAVERSES.

(i) Two hills to the south east of Seven Mile Swamps were found to have limestone scattered on the surface. There was no Precambrian outcrop.

(ii) The small lake to the south east of the main lake was found to be covered by water to a depth of 18". The lake exhibited radiation as strong as any encountered in the lease area. A ground scintillometer survey was made along the perimeter of this lake and the results are shown in plan AMC 316-3 (a). In contrast to this the lake was later covered by a low height airborne survey and using the same scintillometer the results shown on AMC 316-3 (b) were obtained. Definite correspondence appears to exist, although variations are by no means proportional. Plan AMC 316-3 (c) shows the geology noted (from outcrops and from trenches) in a reconnaissance of the lake. A pit 18" deep was dug at Point "A". A red-grey banded silty clay containing some carbonaceous material was found (up to 1500 c.p.s.).

At point B a light yellow sandy plastic clay was found a few inches beneath the surface (up to 1000 c.p.s.) .

A trench 12" deep and 3' long was dug at point C. A fawn coloured clayey sand was found at this depth, (up to 4000 c.p.s.) Sample 1.2 was taken.

Point D. A foot deep pit was dug here. Red, yellow and grey clayey sands were excavated, a maximum reading of 700 c.p.s. was found inside the pit. Sample 1.1 was taken.

Readings of up to 4000 c.p.s. were recorded inside a twelve inch deep trench i.e. 200 x background. In comparison Barnes (in 1954) found up to 100 x background in a pit 1'-2' below the surface at Seven Mile Swamps. Campbell recorded 50,000 c.p.m. in Trench No 2 against a background of 250-300 c.p.m. i.e. 170-200 x background.

(iii) As far as could be determined the highest readings from the cores of Campbell's S.M.L. 1,2 & 4 auger holes came as expected from a yellow brown sand.

(iv) Precambrian outcrop to the north west of hole S.M.L. 1 is a slightly weathered gneiss. This appears to give a 2 x background count in situ but emits no detectable radiation from any one sample. Floaters of quartz pegmatite and mica schist were collected although no outcrop was found.

(v) A pink-white granite outcrop causes a 3-4 x background reading when a large specimen is tested, but nothing above background in a small sample.

(vi) Pelecypod and possible burrow fossils in two distinct ferruginous members may prove helpful for correlation purposes.

B. AIRBORNE TRAVERSES.

(i) Airborne scintillometer readings were compared to ground counts from the small most

southerly lake and were found consistent. However, high point readings on the ground only registered in dampened form on the air (i.e. 1600 c.p.s. registered as 250 c.p.s.). Background was identical wherever checked. (The dampening effect was mainly due to the elevation difference (a Department of Civil Aviation dispensation was obtained to fly at 100') and the speed of the aircraft (50-60 knots) coupled with some inertia within the instrument.

(ii) Over the lakes the survey confirmed that the surface radioactivity is strongest at the southern end of the swamps. Other areas of interest are indicated in plan AMC 316-1 and the survey thus provides a good guide for further ground exploration.

(iii) Precambrian in the western and northern sectors of the searched area showed only small increases over background radiation. This could be attributed to potassium isotope decay with little or no heavy radioactive elements necessarily present. However, outcrop in the eastern area (Oolabinna and Poondinga sheets) gave responses of up to 4 x background (65 c.p.s.) and must be regarded as a possible primary source of radioactive material. For a full list of airborne scintillometer readings please see plans AMC 316-1, 2 and 3.

CONCLUSIONS.

Radioactivity is strongest at the southern end of Seven Mile Swamps where the lakes are deepest and most pronounced.

This would indicate that the water is radioactive itself and/or that the radiation may come from recent deposits within the lake.

The substance causing the radioactivity has not yet been identified; but Amdel have suggested radium. This theory appears possible and further it is supported by the fact that in a sulphate-rich environment such as that at the Seven Mile Swamps, any radium present would be precipitated as insoluble radium sulphate, and this would then accumulate in the lake sediments. Uranium on the other hand, is much more soluble and would probably move with the ground water until it came in contact with suitable reducing agents where it would be deposited as secondary uranium mineralization.

The present exploratory activities are thus designed to attempt locate secondary uranium deposits as well as their possible primary source or sources.

RECOMMENDATIONS.

Ground scintillometer traverses along the perimeters of the lakes which display anomalous radioactivity are recommended. These may reveal abnormal radiation in tributary creeks which could lead to a primary source. 91

An analysis of the 4 x background Jellabinna Rocks could confirm this area as a likely primary uranium source. A ground investigation of this and other selected Precambrian outcrops nearby is suggested.

Since the Tertiary drainage is at present only doubtfully established as south westerly, concentrations of secondary uranium resulting from almost any direction of water movement are possible. In this respect a very roughly circular drill hole pattern weighted in the south west is suggested to encircle Seven Mile Swamps. Basement is expected to be considerably less than one hundred feet in depth in most places.

Sites warranting drilling may be revealed by the close ground survey in and around the lakes.

The recommendations are therefore -

1. A ground investigation and analysis of selected Precambrian outcrop to the east of S.M.L. 316.
2. Detailed ground scintillometer work around the lakes.

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3. Test drilling to encircle the lakes showing anomalous radiation (approx. 2,000 feet).

4. Follow up, by drilling if necessary, of any radioactive inlets possibly leading to a primary source.

Adelaide.
30/9/69.

D. B. C. for R.G

D. B. CLARKE
MINOIL SERVICES.

EMW 1200.

AUSTRALASIAN MINING CORPORATION LTD.

SIX MONTHLY REPORT

SPECIAL MINING LEASE 316

PIDINGA LAKES AREA

SOUTH AUSTRALIA

RECEIVED
2 FEB 1970
DEPT. OF MINES
REGISTRY

INTRODUCTION

S.M.L. ~~304~~ 316 covers ~~936~~ 963 square miles north of Penong.

Minoil Services has managed the exploration programme for Australasian Mining Corporation.

Project geologist is D. Clarke.

The S.A. Dept. of Mines and H. C. Thompson Pty. Ltd. were drilling contractors.

The S.A. Dept. of Mines has provided well logging equipment.

A.M.D.E.L. has supplied mineralogical services.

EXPLORATION

Scintillometer Survey

a. Ground traverses

A reconnaissance survey was carried out using a hand held scintillometer on a four wheel drive vehicle. The survey commenced at Kroonilla rockhole and proceeded northerly thence around the Seven Mile Lakes area.

b. Airborne

The area was flown in a light aircraft at low level using a hand held scintillometer. The Broom granites were used as a reference point and all of the lakes and most of the Precambrian outcrops were covered.

DRILLING

Approximately 4000' of rotary drilling has been completed near the Seven Mile Lakes. Holes were spaced approximately ½ mile apart. All holes have been gamma logged.

Several radioactive horizons have been intersected but in most cases the radiation has not been due to uranium or thorium. However, up to 250 parts/million uranium has been assayed in cuttings from hole M5.

SUMMARY

Anomalous radioactivity has been located in several areas within the lease.

Radioactivity has been recorded in several drill holes and low grade uranium mineralization found in one hole.

Further drilling is in progress.

28th January, 1970.

E. R. Hillwood,
Chief Geologist,
MINOIL SERVICES.

EHV 12011

AUSTRALASIAN MINING CORPORATION LTD.

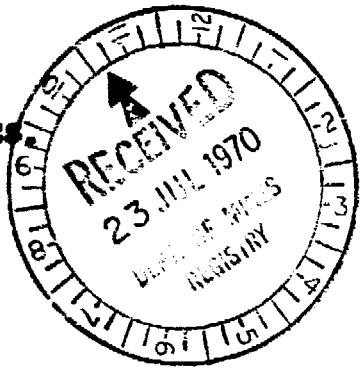
S.M.L. 316

REPORT ON EXPLORATION FOR THE YEAR ENDED 15-6-70

by

D. CLARKE

MINOIL SERVICES



[redacted] [redacted]

[redacted] 1

[redacted] 1

[redacted] 2

(a) [redacted]
(b) Tertiary-Recent

[redacted] 3

(a) [redacted]
(b) Tertiary
(c) Plio-Pleistocene
(d) Pleistocene-Recent

DRILLING 5

EXCAVATIONS 5

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1. A.M.D.E.L. Reports
2. Gamma Logs & Lithological Logs
3. Locality Plan MISSING.
4. Drill Hole Location Plan
5. Drill Hole Location Plan (enlargement)
6. Plan Showing Airborne Scintillometer Surveys
7. Plan Showing Ground & Airborne Scintillometer Surveys
8. Radiometric Values Southerly Lake Seven Mile Swamp
9. Radioactivity Traverses

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SUMMARY

A low level airborne scintillometer survey has been completed over the lease and surrounding areas. This was followed up by ground scintillometer surveys over the anomalous areas revealed by the aerial survey. Subsequently 97 holes totalling 11,392'5" were drilled.

This programme established the presence of low grade uranium mineralisation at shallow depths over a large area and further work is recommended.

INTRODUCTION

Special Mining Lease 316 covers an area of approximately 963 square miles and is located in the Seven Mile and Chundie Swamps districts. The lease is partly in Euria Station and the southern boundary is within 25 miles of Penong.

In May 1969 a reconnaissance ground survey for uranium mineralisation was carried out in the Pidinga Lakes and Seven Mile Swamps area. High radioactivity was encountered in salt lakes over a large area so lease procuration and further exploration was recommended.

Samples with high radiation counts were taken from Seven Mile Swamps and submitted to A.M.D.E.L. for analysis. A report prepared by D & R Davey of A.M.D.E.L. included the following comments:-

" It is suggested therefore that secondary daughter products of uranium are present. The most likely element to be present is radium of mass number 226. This will precipitate out of solution as $RaSO_4$ and leave uranium as the uranyl (UO_2^{++}) ion free to move further. It may therefore be expected that secondary uranium will be found downstream from the daughter products and that primary uranium may be present upstream from the sample site ".

Lignites, which form in a suitable environment for the reduction of the uranyl ion and the deposition of uranium, have been recorded at Seven Mile Swamp and Lake Pidinga by King (1950) and Campbell (1969). These sediments may therefore prove to contain higher uranium concentrations than the surface samples. 99

SURFACE GEOLOGY

(a) Precambrian

Basement outcrops of probable Precambrian age were encountered adjacent to South Lake, at two locations in North Lake, and near hole 316-84. All of these are granite except for the outcrop of gneiss in South Lake. Granites were also found immediately east of the lease area at Mitcherie Rockhole and Euria Well.

(b) Tertiary - Recent

Tertiary rocks are exposed well along the shores of the lakes and consist of a ferruginous sandstone overlain by the Nullarbor Limestone. Fossils are found in both layers and those in the Nullarbor Limestone indicate a Miocene age for the unit. Shallow hand augering revealed soft brown and black lignitic beds immediately beneath the ferruginous sandstone. King (1950) assigned an Oligocene age to these lignitic beds. If this is correct, the overlying sandstone must be Oligocene to Miocene in age.

The maximum thickness of each exposed unit approaches 10 feet, but thicknesses of 1 foot are more common. Minor warping and buckling of the beds was observed.

In areas away from the exposures along the lake shores, soft white kopi caps the Nullarbor Limestone and a residual layer of black ironstone gibbers characterises the weathering surface

formed on the ferruginous sandstone. In addition to the above described Tertiary sediments an outcrop of red aeolian sands of presumed Plio-Pleistocene age was found at one locality in Chundie Swamps.

Superficial deposits of Pleistocene to Recent fawn-brown sandy and silt blanket most of the lease area except in the immediate vicinity of the lakes.

SUBSURFACE GEOLOGY

(a) Precambrian

Basement rocks of granite, gneiss and schist were encountered in a few of the holes. These rocks are assumed to be Lower Proterozoic in age.

Variations in the depth to basement suggest that the Teriary? sediments were deposited on an undulating topography.

(b) ? Tertiary

A gravel unit consisting of subangular, slightly weathered felspar and quartz fragments, overlies the basement rocks. This gravel is thought to have been derived from the erosion of the Precambrian basement. Poor rounding of the clastics suggests a short distance of travel, but the degree of rounding and sorting increases toward the top of the unit, suggesting a longer transport. In addition most of the felspar in the upper unit has been decomposed to a white kaolinitic clay.

The age of this unit is not known, carbonaceous clays and lignitic beds with occasional well sorted gritty bands overlie the above mentioned gravel. In several holes a thin fossiliferous limestone member was encountered. These lithologies indicate deccomposition in a paralic environment within a shallow basin. As previously stated, these beds were assigned an oligocene age by King (1950).

The test drilling indicates that this carbonaceous sequence lenses out between holes 316-M10 and 316-M11 and does not extend into the eastern part of the lease. To the west the lignitic sequence is continuous except where "islands" of granite rise above the Oligocene depositional surface. 10i

Stratigraphically above the lignitic sequence is a red and white sandstone. Toward the eastern part of the lease area where the lignitic sequence lenses out, this sandstone rests directly on the basal conglomerate. The sandstone thins in the swamp areas due to erosion and is often completely removed in the lake beds. Pelecypod remains and fossil burrows suggest that this sandstone was deposited in a shallow marine environment. No definite age has been assigned to this unit but its stratigraphic position indicates Oligocene to Miocene deposition.

The hard white, silicified Nullarbor Limestone directly overlies the sandstone unit. A Miocene age has been established for this limestone. The fossil content also suggests a shallow marine environment of deposition.

The Nullarbor Limestone does not extend east of hole 316-M3C, probably due to erosion.

(c) <u>Plio-Pleistocene</u>

In the eastern part of the area where the Nullarbor Limestone has been removed, red and orange fine-grained sands were intersected. These overlie the Tertiary sandstone unit and are thought to represent Plio-Pleistocene aeolian dunes.

(d) <u>Pleistocene - Recent</u>

Thin deposits of Pleistocene - Recent sands and silts form the youngest deposits in the area and form much of the present day land surface.

DRILLING

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Drilling contractors were E. C. Thompson & Co. Pty. Ltd., who used a rotary Mayhew 1000 rig with air or water drilling fluid. Samples were taken at 5 feet intervals and the holes were gamma logged inside the drill string with a Department of Mines Geiger-tube logger. This instrument was operated by the wellsite geologist.

Twenty four holes were completed between 6/10/69 and 4/11/69.

Drilling resumed on 18/11/69 with a Department of Mines Mayhew 1000 rig, which used water circulation almost entirely. This programme was completed on 14/2/70.

The geiger tube logger was used for the first ten holes, but a Failing logmaster owned and operated by the Department of Mines was used thereafter to gamma-log the open holes.

EXCAVATIONS

A bulldozer, hired primarily to push tracks through the scrub was also used to excavate pits in Chundie Swamps for drilling water.

RESULTS

(a) Scintillometer traverses

These traverses revealed that the anomalous radioactivity is confined to the lake surfaces; background values being encountered within 20 yards of the lake shore.

Particularly high counts were measured on the eastern lobe of south lake (Campbell 1969). The ferruginous sandstone found to be radioactive in this area by Campbell, is the gently warped Oligo-Miocene sandstone, directly underlying the Nullarbor Limestone. In outcrop this sandstone is quite hard, but where intersected in the lake it is relatively soft.

This unit appears to have no significance as a possible uranium source, despite its high radioactivity in the lake bed.

Radioactivity in the lakes is greatest where water covers the surface, particularly at the southern extremities of North and South Lakes. However, the creeks that flow into the lake are poorly defined and exhibit low radioactivity.

Augering within the lakes indicates that the Tertiary lignitic sequence is overlain by only a few feet of white and yellow clay, which may account for the anomalous radioactivity.

(b) Subsurface Radioactivity

Significant radioactivity was not recorded in the granite, gneiss and schist that was intersected in the drill holes. However, the gravel at the base of the Tertiary sequence showed high radioactivity in the eastern part of the lease; especially in hole 316-M13. An analysis of the cuttings from this hole revealed minor amounts of uranium and thorium.

Low grade uranium mineralization was also found over a large area within the upper part of the Oligocene lignitic unit and in the clays immediately above. However, although the depth of intersection is often only 20'-30', the concentrations are not economic (approximately 300 ppm U_3O_8).

The overlying Oligo-Miocene sandstone and limestone units did not have above background radiation counts in the subsurface, despite the high readings obtained from surface outcrops of the sandstone by Campbell.

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Large reserves of lignite and lignitic clay were located during the drilling programme, but these will warrant consideration only if economic uranium is discovered.

White, possibly alunitic clay was commonly found on top of the lignitic sequence and within the basal gravel, but these occurrences are not considered to be of economic interest at this stage.

CONCLUSIONS & RECOMMENDATIONS

The Precambrian bedrock, where intersected in drilling, did not show any anomalous radiation and further exploration does not appear warranted at this stage.

Small amounts of uranium were found in the basal conglomerate and further drilling to explore this section is warranted.

The Miocene-Recent deposits do not appear to be favourable host rocks for uranium minerals.

The Oligocene lignites contain low grade uranium in a number of holes and are considered to be the most interesting prospect in the area. Further drilling of the uraniferous lignites discovered at Chundie Swamps is recommended. Initially 10 holes, numbered W1-W10, at 1 mile spacings to test for north easterly and south westerly extensions of the uranium mineralisation are suggested. Holes W1 & W8 should be continued to basement for additional information. This would involve 1000' of drilling.

It is possible that large areas between Seven Mile Swamp and Lake Fidings are underlain by lignites which may also contain some uranium mineralisation.

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In the southern part of the lease systematic reconnaissance drilling with all holes taken to basement is recommended. Suggested drill sites are shown on plan. Total footage, excluding a few cored holes, is 4000'.

Adelaide
22/6/70

for D. Clarke
Geologist
NIMOIL SERVICES.

CONYNGHAM ST. FREWVILLE SOUTH AUSTRALIA 5063 TELEPHONE 79 1600 TELEGRAMS "AMIDEL" TELEX

106

THE AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

PLEASE ADDRESS ALL CORRESPONDENCE TO THE DIRECTOR.

OUR REFERENCE: AN3/0/0 - 3711/69

YOUR REFERENCE:

2nd May, 1969

The Geologist in Charge,
Australasian Mining Corp Ltd,
c/- Minoil Services,
8 Bransby Avenue,
NORTH PLYMPTON. S.A. 5037.

REPORT AN3711/69

YOUR REFERENCE:	Application dated 15/4/69
MATERIAL:	Trench cuttings
IDENTIFICATION:	As listed
DATE RECEIVED:	15/4/69

Enquiries quoting AN3711/69 to Officer in Charge please.

Analysis by: G.R. Holden

Officer in Charge, Analytical Section: A.B. Timms

N. Draper,
Director.

Kp

REPORT AN3711/69

ANALYSIS
%

Sample mark	Uranium oxide U_3O_8	Thorium oxide ThO_2
Th 1-1	<0.005	<0.005
1-2	<0.005	<0.005
1-3	<0.005	<0.005
1-4	<0.005	<0.005
2-1	<0.005	<0.005
2-2	<0.005	<0.005
2-3	<0.005	<0.005
2-4	<0.005	<0.005
2-5	<0.005	<0.005

NOTE: 1. All samples submitted have been analysed for U_3O_8 and ThO_2 by x-ray fluorescence spectroscopy which is a specific but not extremely sensitive method of analysis. One can say with some certainty that both metals, if present all are in concentrations of less than 50 ppm.

2. On the other hand the total γ radioactivity, if expressed as U_3O_8 would indicate concentrations of U_3O_8 ranging from close to zero in Sample Th 1-4 to approximately 1.0 % in Sample Th 2-3.

3. γ ray spectra of the three samples showing highest radioactivity i.e. No. Th 2-2, Th 2-3 and Th 2-4 confirm the presence of radioactive materials which are identified as daughter products in the radioactive decay series of $^{238}_{92}U$.

4. For a further discussion please refer to the attached report which has been prepared by Dr R. Davy.

THE BEHAVIOUR OF URANIUM AND ITS DAUGHTER PRODUCTS

There are four main isotopes of Radium. These with their half lives are as follows.

		Decay by.
^{234}Ra	3.64 days	α emission
^{226}Ra	1620 years	α
^{225}Ra	14 days	β
^{223}Ra	11.2 days	α

(Ref. Barnett & Wilson p 20-24)

If Radium is present in a rock at all, it is likely to be present as radium with a mass number of 226 units.

Radium is commonly found in nature in pitchblende and in nearly all known cases it is associated with uranium. Indeed the fact that it exists at all can only be because of the proximity of uranium, since, with its relatively short half life, over long periods of (geological) time, it will decay completely unless regenerated by the decay of uranium.

The relevant decay series is as follows, starting with the parent, and longest living, isotope $^{238}_{92}U$

		Decay	Half Life
$^{238}_{92}U$		α	4.5×10^9 years
$^{234}_{90}Th$	(UX_1)	β	24.5 days
$^{234}_{91}Pa$	(UX_2)	β	1.14 minutes
$^{234}_{92}U$	(U_{II})	α	2.69×10^5 years
$^{230}_{90}Th$	(Io)	α	8.3×10^4 years
$^{226}_{88}Ra$		α (mainly)	1620 years (approx)

Eventually this series reaches stability at $^{206}_{82}Pb$

The emission by which elements are transmuted is either α or β. Several of the elements of this series, however, also emit γ radiation, and ^{226}Ra is one of these. Thus in a γ-ray radiometric count Ra will be distinguished and shown as a peak on a curve of relative counts versus energy level of emission at an energy level of 188 KeV. This energy level is characteristic for ^{226}Ra and for no other element. Other decay products in the same series which

produce γ radiation do so at other energy levels.

In the specimens being analysed it is believed that little uranium and thorium are present, but that peaks indicating daughter products of uranium are present. The only daughter products of ^{238}U which give peaks in the energy range chosen are ^{214}Bi and ^{214}Pb. Since ^{235}U is always associated with ^{238}U this is also likely to be present if ^{238}U is also present. In these samples all daughter products appear to be present (though the peak for ^{226}Ra has been slightly transposed).

The high radioactivity, therefore, of the samples may be due to ^{214}Bismuth, ^{214}Lead or ^{226}Radium.

The purpose of this report is to discuss whether uranium can be separated from its daughter products in nature. The environment for the samples under analysis was that of an arid, saline sand or sandstone.

There are two main possibilities, either the uranium has been leached from its original site leaving its daughter products behind or, alternatively, both uranium and its daughter products have been continuously leached, but, at the place represented by the samples, there has been a change of conditions which has caused precipitation of the daughter products.

If the first alternative is chosen, it implies that there must have been a drastic change in climatic conditions. For many years there must have been a stable, non-leaching environment, then in comparatively recent geological time conditions have changed to allow the uranium to be leached out yet leave daughter products in sufficient quantities for the results obtained.

It is not possible to be categorical but the following factors are valid:

Uranium

(a) Uranium is highly mobile in alkaline, oxidising conditions except in the presence of vanadium and phosphate ions.

(b) Uranium will move in carbonated water as a complex uranyl carbonate. If the "primary" U-mineral is carnotite, this is not soluble. Normal conditions for movement of U in carbonated waters are reducing and alkaline/acid.

(c) Uranyl hydroxide is slightly soluble in both acid and alkaline conditions. Solubility increases in strongly alkaline solutions.

(d) Uranyl ions (UO_2) are "somewhat mobile" in weakly acid solutions (and in neutral and alkaline solutions in the presence of CO_2).

(e) Uranium may be later removed by organic matter or by a number of reducing agents (such as H_2S).

(f) Uranyl nitrate, sulphate and chloride are all quite soluble, especially the nitrate and sulphate.

Radium

(a) Radium is associated with uranium as a daughter product and can only be regenerated by decay of uranium.

(b) Its equilibrium ratio with uranium is 3.4×10^{-7} g Ra/g U.

(c) Its chemistry is that of an alkaline earth element.

(d) This means that its sulphate and carbonate are insoluble; its nitrate and chloride slightly soluble and its fluoride very soluble.

(e) In the presence of gypsiferous solutions, therefore radium will precipitate as the sulphate together with barium. The common ion effect will render this precipitation more complete.

(f) Radium is believed to be removed from solution by adsorption on clay (Hawkes and Webb 1962)

Lead

(a) Lead sulphate is very insoluble

(b) In conditions with $SO_4^{=}$ in solution, lead will be precipitated as the sulphate.

(c) The half life of ^{214}Pb is 26.8 minutes.

(d) The concentration of ^{214}Pb in equilibrium with 1 g U is of the order of 10^{-10}-10^{-11} g/g U.

In the given conditions therefore - that of a saline environment with SO_4 present - both radium and lead will be precipitated and uranium has a chance to continue migrating.

Bismuth

(a) Bismuth compounds are insoluble in neutral waters or weakly acid or alkaline solutions with the formation of the basic oxide.

(b) Under the conditions noted above bismuth will remain as the oxychloride except when the solutions are highly saline.

It is suggested therefore that secondary daughter products of uranium are present. The most likely element to be present is radium of mass number 226.

This will precipitate out of solution as $RaSO_4$ and leave uranium, as the uranyl (UO_2^{++}) ion free to move further. It may therefore be expected that secondary uranium will be found downstream from the daughter products and that primary uranium may be present upstream from the sample site.

Despite these remarks it is very unusual to find uranium daughter products with the uranium so thoroughly leached out. When leaching occurs there is disequilibrium but usually sufficient uranium remains for detection.

It is recommended that the detection of uranium and thorium be attempted in the samples in question by the most sensitive chemical techniques, notwithstanding the fact that X.R.F. analyses have confirmed the virtual absence of both metals in concentrations of economic interest.

REFERENCES

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Radium and Uranium Content of Ocean and River Waters.
Am. J. Sci. V 250 p241-262

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CONYNGHAM ST. FREWVILLE SOUTH AUSTRALIA 5063 TELEPHONE 79 1662 TELEGRAMS 'AMDEL' ADELAIDE

THE AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

1 4

PLEASE ADDRESS ALL CORRESPONDENCE TO THE DIRECTOR.

OUR REFERENCE: MP 3/409/0
YOUR REFERENCE:

28th May, 1969

The Geologist in Charge,
Australasian Mining Corporation,
C/- Minoil Services,
8 Bransby Avenue,
NORTH PLYMPTON S.A. 5037

Attention: Mr R. Grasso.

REPORT MP 3777/69

YOUR REFERENCE:	Application dated 21/4/69.
MATERIAL:	Radioactive rock sample.
IDENTIFICATION:	SML Th2-5
DATE RECEIVED:	21/4/69.
WORK REQUIRED:	Electron-probe micro-analysis scan for U, Th and Ra.
Electron-probe Analysis by:	P.K. Schultz.
Investigation and Report by:	A. Kelly.
Manager, Exploration Services:	A.H. Spry.

for N. Draper
Director.

INVESTIGATION OF RADIOACTIVE ELEMENT OCCURRENCE IN JAROSITE

INTRODUCTION

A single sample of a mildly radioactive, soft, brown-yellow, secondary mineral material of botryoidal structure was received by Amdel with instructions to "scan" it for U, Th and Ra.

Assays available on the material indicate values for both U_3O_8 and ThO_2 of less than 0.005%. The possible presence of radium was suspected.

RESULTS TS 23178 PS 12726

A thin section was prepared and this and the sectioned rock were autoradiographed for three days.

The autoradiograph indicated an overall, diffuse radioactivity with higher activity concentrated in thin, marginal rims which range in thickness up to 1 mm.

Microscopic examination showed the material to consist predominantly of jarosite with minor muscovite, goethite and detrital quartz grains. The jarosite is microgranular with a maximum size of 7 microns. No specific radioactive minerals were recognised.

A polished section was prepared for electron-probe microanalysis. Probing detected no Th, U or Ra at the limit of detection of the instrument (approximately 1%).

CONCLUSIONS

1. The radioactive elements occur diffusely throughout the jarosite and are concentrated in the weathered, goethitic margins of the material.
2. No specific radioactive mineral species were identified.
3. The concentration of the radioactive elements in the samples is too low for detection by electron-probe microanalysis.

ct

CONYNGHAM ST. FREWVILLE SOUTH AUSTRALIA 5063 TELEPHONE 79 1662 TELEGRAMS 'AMDEL' ADELAIDE

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THE AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

PLEASE ADDRESS ALL CORRESPONDENCE TO THE DIRECTOR.

OUR REFERENCE: AN3/409/0 1052/70

YOUR REFERENCE:

23rd September, 1969.

The Geologist,
Australasian Mining Corporation.
C/- Minoil Services,
8 Bransby Avenue,
NORTH PLYMPTON 5037.

REPORT AN1052/70

YOUR REFERENCE: Application dated 16.9.69

MATERIAL: Rock and Sand

IDENTIFICATION: As listed

DATE RECEIVED: 16.9.69

RADIOMETRIC ANALYSIS
%

Sample Mark	Uranium U	Thorium Th
1-2	0.10	<0.005
1-1	0.015	<0.005
Pidinga Granite Sample 1	<0.003	<0.005
SML 4 (2)	0.02	<0.005
SML 4 (1)	0.01	<0.005

Enquiries quoting AN1052/70 to Officer in Charge please.

Analysis by: G.R. Holden

Officer in Charge, Analytical Section: A.B. Timms

for N. Draper
Director.

pkm

CONYNGHAM ST. FREWVILLE SOUTH AUSTRALIA 5063 TELEPHON 79 1662 TELEGRAMS 'AMDEL' ADELAIDE

THE AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

PLEASE ADDRESS ALL CORRESPONDENCE TO THE DIRECTOR.
Amended Report

OUR REFERENCE: AN3/409/0 1052/70
YOUR REFERENCE:

9th October, 1969.

The Geologist,
Australian Mining Corp.,
C/- Minoil Services,
8 Bransby Avenue,
NORTH PLYMPTON 5037.

AMENDED REPORT AN1052/70

YOUR REFERENCE: Telephone request from R.Grasso for reanalysis.

IDENTIFICATION: Samples SML4-1, SML4-2 and 1-2

DATE RECEIVED: 16.9.69

ANALYSIS
parts per million

Sample Mark	Uranium U	
SML4-1	< 10	Fluorometric
SML4-2	< 10	Fluorometric
1-2	< 50	X.R.F.

Enquiries quoting AN1052/70 to Officer in Charge please.

Analysis by: G.R. Holden

Officer in Charge, Analytical Section: A.B. Timms

for N. Draper
Director.

pkm

THE AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

FORM 38

REPORT AN 1438/70.

XRF

Sample No.		% U	% TL							
Hole 316-9	30-35'	<0.005	<0.005							
	35-40'	"	<0.005							
	40-45'	"	"							
	45-50'	"	"							
	50-55'	"	"							
	55-60'	"	"							
	60-65'	"	"							
	65-70'	"	"							
316-10	85-90'	"	"							
	90-95'	"	"							
	95-100'	"	"							
	100-105'	"	"							
316-11	75-80'	"	"							
	80-85'	"	"							
	85-90'	"	"							
	90-95'	"	"							
		SBA								

CORNISH ST. PRINCE VILLE SOUTH AUSTRALIA 5033 TELEPHONE [illegible] 1662 TELEGRAMS "MINERAL" ADELAIDE

THE AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

PLEASE ADDRESS ALL CORRESPONDENCE TO THE DIRECTOR.

OUR REFERENCE: AN3/409/0 1438/70

YOUR REFERENCE:

29th October, 1969.

The Geologist,
Australasian Mining Corporation,
C/- Minoil Services,
8 Bransby Avenue,
NORTH PLYMPTON 5037.

S.M.L. 316

REPORT AN1438/70

YOUR REFERENCE:	Application dated 15.10.69
IDENTIFICATION:	As listed
DATE RECEIVED:	15.10.69

Enquiries quoting AN1438/70 to Officer in Charge please.

Analysis by: G.R. Holden

Officer in Charge, Analytical Section: A.B. Timms

A. B. Timms
for N. Draper
Director.
20.10.69

pkm

CONYNGHAM ST. FREWVILLE SOUTH AUSTRALIA 5063 TELEPHONE 79 1662 TELEGRAMS

THE AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

PLEASE ADDRESS ALL CORRESPONDENCE TO THE DIRECTOR.

OUR REFERENCE: AN3/409/0 1522/70

YOUR REFERENCE:

13th November, 1969.

The Geologist,
Australasian Mining Corporation Ltd,
C/- Minoil Services,
8 Bransby Avenue,
NORTH PLYMPTON. 5037.

REPORT AN1522/70

YOUR REFERENCE:	Application dated 20.10.69
IDENTIFICATION:	AMC 316-15
DATE RECEIVED:	20.10.69

Enquiries quoting AN1522/70 to officer in Charge please.

Analysis by: D.L. James

Officer in Charge, Analytical Section: A.B. Timms

A. B. Timms

for N. Draper
Director.
P.P.

pkm

ANALYSIS

Parts per million

Sample Mark		Uranium oxide U_3O_8
AMC 316-15	65-70	< 10
	70-75	< 10
	75-80	< 10
	80-85	20
	85-90	< 10
	90-95	< 10
	95-100	< 10

CONYNGHAM ST. FREWVILLE SOUTH AUSTRALIA 5063 TELEPHONE 79 1662 TELEGRAMS "MINEX" ADELAIDE

THE AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

PLEASE ADDRESS ALL CORRESPONDENCE TO THE DIRECTOR.

OUR REFERENCE: AN3/409/0 1855/70

YOUR REFERENCE:

24th November, 1969.

The Geologist,
Australasian Mining Corporation,
C/- Minoil Services,
8 Bransby Avenue,
NORTH PLYMPTON 5037.

REPORT AN1855/70

YOUR REFERENCE: Application dated 14.11.69

IDENTIFICATION: AMC316-15 80-85

DATE RECEIVED: 14.11.69

ANALYSIS

Parts per million

Sample Mark	Uranium U	Thorium Th
AMC316-15		
80-85 (1)	x30	x50
80-85 (2)	x30	x50

x = Less than

Enquiries quoting AN1855/70 to Officer in Charge please.

Analysis by: G.R. Holden

Officer in Charge, Analytical Section: A.B. Timms

per D. K. Rowley

for N. Draper
Director.

CONYNGHAM ST. FRENVILLE SOUTH AUSTRALIA 5063 TELEPHONE 79 1662 TELEGRAMS 'AMDEL' ADELAIDE

THE AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

23

PLEASE ADDRESS ALL CORRESPONDENCE TO THE DIRECTOR.

OUR REFERENCE: AN3/409/0 2019/70
YOUR REFERENCE:

10th December, 1969.

The Geologist,
Australasian Mining Corporation,
C/- Minoil Services,
8 Bransby Avenue,
NORTH PLYMPTON 5037.

REPORT AN2019/70

YOUR REFERENCE: Application dated 26.11.69

IDENTIFICATION: As listed

DATE RECEIVED: 26.11.69

Enquiries quoting AN2019/70 to Officer in Charge please.

Analysis by: G.R. Holden

Officer in Charge, Analytical Section: A.B. Timms

for N. Draper
Director.

pkm

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X.R.F. ANALYSIS
%

Sample Mark		Uranium U	Thorium Th
316M3A	20-25	<0.005	<0.005
	25-30	<0.005	<0.005
	30-35	<0.005	<0.005
316M20A	90-95	<0.005	<0.005
	95-100	<0.005	<0.005
	100-105	<0.005	<0.005
316M26A	55-60	<0.005	<0.005
	60-65	<0.005	<0.005
	65-70	<0.005	<0.005
316M26	20-25	<0.005	<0.005
	25-30	<0.005	<0.005
	30-35	<0.005	<0.005
316M5	66-67	0.005	<0.005
	67-68	0.01	<0.005
	68-	0.01	<0.005
	68-69	0.02	<0.005
	69-	Not received	
	69-70	0.025	<0.005
	69-70A	0.025	<0.005
	69-70B	0.01	<0.005
316M3A	24'6"-27'8" Core 1	0.005	<0.005
	11	0.01	<0.005
	111	0.005	<0.005
	1V	0.005	<0.005
	28'8"-29'8" A	0.005	<0.005
	B	<0.005	<0.005
316M3A(B)	30'8"-31'8" Core 2	<0.005	<0.005
M3B	29'8"-30'8" 1	<0.005	<0.005
	29'8"-30'8" 2	<0.005	<0.005
	30'8"-31'8" 1	<0.005	<0.005
	2	Not received	
Rock	A	<0.005	<0.005
	B	<0.005	<0.005
	C	<0.005	<0.005
Bag	(no marks)	0.005	<0.005

CONTINGHAM ST. FRENVILLE SOUTH AUSTRALIA 5063 TELEPHONE 79 1662 TELEGRAMS "AMDEL" ADELAIDE

THE AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

25

PLEASE ADDRESS ALL CORRESPONDENCE TO THE DIRECTOR.

OUR REFERENCE: AN3/409/0 2245/70
YOUR REFERENCE:

Part Report 1

23rd December, 1969.

Australasian Mining Corporation Limited,
C/- Minoil Services,
8 Bransby Avenue,
NORTH PLYMPTON, S.A. 5037.

REPORT AN2245/70

YOUR REFERENCE: Application dated 15/12/69

IDENTIFICATION: As listed

DATE RECEIVED: 15/12/69

Enquiries quoting AN2245/70 to Officer in Charge please

Analysis by: D. L. James

Officer in Charge, Analytical Section: A.B. Timms

for N. Draper
Director.

sl

ANALYSIS

ppm

Sample No.		Uranium Oxide U_3O_8	Sample No.		Uranium Oxide U_3O_8
M5A	65-66A	95	M13	195-200	20
	65-66B	95		200-205	< 5
	66-67	200		205-210	< 5
	67-68A	95		210-215	5
	67-68B	90		215-220	< 5
	68-69	260	M13B	160-161½	15
	69-70	240		161½-162½	20
	70-71	220		162½-163½	15
	71-72A	70		163½-164½	20
	71-72B	65		164½-165½	25
	72-73	220	M14A	250-255	5
	73-74	200		255-260	5
	74-75	300		260-265	< 5
	75-80	25		265-270	< 5
	80-85	10		270-275	< 5
	85-90	15	M15	130-135	< 5
	90-95	10		135-140	< 5
M13	140-145	< 5		140-145	< 5
	145-150	< 5		145-150	< 5
	150-155	< 5		150-155	< 5
	155-160	5		155-160	< 5
	160-165	10		160-165	< 5
	165-170	10		165-170	< 5
	170-175	20		170-175	< 5
	175-180	20		175-180	< 5
	180-185	40		180-185	< 5
	185-190	35		185-190	< 5
	190-195	35		190-195	< 5

CONYNGHAM ST. FREWVILLE SOUTH AUSTRALIA 5063 TELEPHONE 79 1662 TELEGRAMS 'AMDEL' ADELAIDE

THE AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

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PLEASE ADDRESS ALL CORRESPONDENCE TO THE DIRECTOR.

OUR REFERENCE: AN3/409/0 2245/70

YOUR REFERENCE:

31st December, 1969.

The Manager,
Australasian Mining Corporation Limited,
C/o Minoil Services,
8 Bransby Avenue,
NORTH PLYMPTON, SA. 5037.

REPORT AN2245/70

YOUR REFERENCE:	Application dated 15/12/69
IDENTIFICATION:	As listed
DATE RECEIVED:	15/12/69

Enquiries quoting AN2245/70 to Officer in Charge please.

Analysis by: G.R. Holden

Officer in Charge, Analytical Section: A.B. Timms

for N. Draper
Director.

sl

RADIOMETRIC ANALYSIS
Parts per million

Sample No.	Uranium U	Thorium Th
316 M5A		
65-66 (A)	100	< 50
65-66 (B)	50	< 50
66-67	100	50
67-68 (A)	50	< 50
67-68 (B)	30	100
68-69	150	< 50
69-70	150	< 50
70-71	150	< 50
71-72 (A)	30	< 50
71-72 (B)	30	50
72-73	50	100
73-74	50	50
74-75	50	50
75-80	< 30	< 50
80-85	< 30	< 50
85-90	< 30	< 50
90-95	< 30	< 50
M13		
140-145	< 30	< 50
145-150	< 30	50
150-155	< 30	< 50
155-160	< 30	< 50
160-165	< 30	< 50
165-170	< 30	< 50
170-175	< 30	< 50
175-180	< 30	< 50
180-185	< 30	< 50
185-190	< 30	< 50
190-195	< 30	< 50
195-200	< 30	< 50
200-205	< 30	< 50
205-210	< 30	< 50

RADIOMETRIC ANALYSIS

Parts per million

Sample No.	Uranium U	Thorium Th
M13		
210-215	< 30	< 50
215-220	< 30	< 50
M13B		
160-161½	< 30	< 50
161½-162½	< 30	50
162½-163½	< 30	50
163½-164½	< 30	50
164½-165½	< 30	50
M14A		
250-255	< 30	< 50
255-260	< 30	< 50
260-265	< 30	< 50
265-270	< 30	< 50
270-275	< 30	< 50
M15		
130-135	< 30	< 50
135-140	< 30	< 50
140-145	< 30	< 50
145-150	< 30	< 50
150-155	< 30	< 50
155-160	< 30	< 50
160-165	< 30	< 50
165-170	< 30	< 50
170-175	< 30	< 50
175-180	< 30	< 50
180-185	< 30	< 50
185-190	< 30	< 50
190-195	< 30	< 50

THE AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

PLEASE ADDRESS ALL CORRESPONDENCE TO THE DIRECTOR.

OUR REFERENCE: AM3/409/0 2528/70

YOUR REFERENCE: 1306

20th January, 1970.

The Geologist,
Australasian Mining Corporation,
C/- Minoil Services,
8 Bransby Avenue,
NORTH PLYMPTON SA 5037.

REPORT AN2528/70

YOUR REFERENCE: Application dated 13.1.70

IDENTIFICATION: As listed

DATE RECEIVED: 13.1.70

RADIOMETRIC ANALYSIS
Parts per million

Sample Mark	Uranium U	Thorium Th
ANC 316-M13B		
175-178	<30	<50
178-181	<30	<50
181-187	<30	<50
187-190	<30	<50

Enquiries quoting AN2528/70 to Officer in Charge please.

Analysis by: G.R. Holden

Officer in Charge, Analytical Section: A.B. Timms

for N. Draper
Director.

pkm

4 CONYNGHAM ST. FRENVILLE SOUTH AUSTRALIA 5063 TELEPHONE 79 1668 TELEGRAMS: ANDEL, ADELAIDE

THE AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

PLEASE ADDRESS ALL CORRESPONDENCE TO THE DIRECTOR.

OUR REFERENCE: AN3/409/0 3053/70

YOUR REFERENCE:

131

13th February, 1970.

The Geologist,
Australasian Mining Corporation,
C/- Minoil Services,
8 Bransby Avenue,
NORTH PLYMPTON SA 5037.

REPORT AN3053/70

YOUR REFERENCE:	Application dated 25.2.70
IDENTIFICATION:	As listed
DATE RECEIVED:	25.2.70

Enquiries quoting AN3053/70 to Officer in Charge please.

Analysis by: G.R. Holden

Officer in Charge, Analytical Section: A.B. Timms

A.B. Timms
for N. Draper
Director.

pkm

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Sample Mark		ANALYSIS % Uranium oxide U_3O_8
AMC 316		
R4 P	18-19A	<0.005
	18-19B	<0.005
4	65-70	<0.005
	70-75	<0.005
	75-80	<0.005
12	55-60	<0.005
	60-65	<0.005
	65-70	<0.005
	70-75	<0.005
26A	70-75	<0.005
14	70-75	<0.005
	75-80	<0.005
	80-85	<0.005
	85-87	<0.005
10	85-90	<0.005
	90-95	<0.005
	95-100	<0.005
	100-105	<0.005
	105-110	<0.005
M5(B)	no footage	<0.005
	70-75	<0.005
	75-80	<0.005
M14(A)	245-250	<0.005
	250-255	<0.005
	255-260	<0.005
	260-265	<0.005
	265-270	<0.005
	270-275	<0.005
M15	140-145	<0.005
	145-150	<0.005
	150-155	<0.005
	155-160	<0.005
	160-165	<0.005
	165-170	<0.005
	170-175	<0.005
	175-180	<0.005

CONYNGHAM ST. FREWVILLE SOUTH AUSTRALIA 5063 TELEPHONE 79 1[illegible]62 TELEGRAMS 'AMD[illegible] ADELAIDE

THE AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES



PLEASE ADDRESS ALL CORRESPONDENCE TO THE DIRECTOR.

OUR REFERENCE: AN3/409/0 3156/70

YOUR REFERENCE:

17th March, 1970

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Australasian Mining Corporation Ltd,
C/- Minoil Services,
8 Bransby Avenue,
NORTH PLYMPTON, SA 5038.

REPORT AN3156/70

YOUR REFERENCE:	Application dated 3/3/70
MATERIAL:	Drill Cuttings
IDENTIFICATION:	As listed
DATE RECEIVED:	4/3/70

Enquiries quoting AN3156/70 to Officer in Charge please.

Analysis by: G.R. Holden

Officer in Charge, Analytical Section: A.B. Timms

for N. Draper
Director.

sl

XRF
ANALYSIS
%

Sample No	Footages	Uranium oxide U_3O_8
R4N	20-25	0.005
	25-30	0.005
4M	20-25	<0.005
	25-30	0.01
2D	25-30	<0.005
	30-35	0.015
M13B	167-170A	<0.005
	167-170B	<0.005
	167-170C	<0.005
	167-170D	<0.005
20-I9A 26B	19-20A	<0.005
	19-20B	<0.005
	32-35A	<0.005
	32-35B	<0.005
	23-24A	<0.005
	23-24B	<0.005
	20-21	<0.005
	21-22	<0.005
M6	75-76	<0.005
	76-77	<0.005
	77-77½	<0.005
	78-79	<0.005
	90½-91½	<0.005
	92-93	<0.005
	93-94	<0.005
	94-95	<0.005
R4I	16-17	<0.005
	19-20	<0.005
	20-26A	<0.005
	20-26B	0.005
	Scraps D-A	0.01
	" D-B	0.005
R4F	50-55	<0.005
	55-60	<0.005
R4F	60-65	0.005
R4I	20-25A	0.005
	20-25B	<0.005
	20-25C	0.005
	20-25D	0.005
	20-25E	<0.005
	15-20	<0.005
M3C	305-310	<0.005
	310-315	<0.005
	315-320	<0.005
	320-325	<0.005
	325-330	<0.005
	330-335	<0.005
R4E	16-19 Core	<0.005
	10-15	<0.005
	15-20	<0.005
	20-25	0.005
	25-30	<0.005
R5	40-45	<0.005
	45-50	<0.005
	50-55	<0.005
	55-60	<0.005
	60-65	<0.005
	65-70	<0.005
Q10	305-310	<0.005
	310-315	<0.005
Q2	75-80	<0.005
	80-82	<0.005
Q3	120-125	<0.005
	130-133	<0.005
Q8	115-120	<0.005
	120-121	<0.005
Q9	140-145	<0.005
	145-150	<0.005

XRF

ANALYSIS

%

Sample No	Footages	Uranium oxide U_3O_8
Q7	315-320	<0.005
	320-323	<0.005
Q1	135-140	<0.005
	140-143	<0.005
R4L	15-20	<0.005
	20-25	0.005
R4K	10-15	<0.005
	15-20	<0.005
	20-25	0.005
R4P	10-15	<0.005
	15-20	<0.005
	20-25	<0.005
	25-?	<0.005
R4J	10-15	<0.005
	15-20	<0.005
R4G	5-10	<0.005
	10-15	<0.005
R4C	20-25	<0.005
R4C	25-30	0.005
R4H	10-15	<0.005
	15-20	0.005
Q6	165-170	<0.005
	170-174	<0.005
R4O	15-20	<0.005
R6	20-25	<0.005
R2E	10-15	<0.005
M14A	130-135	<0.005
M3	260-265	<0.005
	265-270	<0.005
M13B	160-161'6"	<0.005
	153'6"-153'6" A	<0.005
	153'6"-153'6" B	<0.005
	161½-162½	<0.005
	145-153'6"	<0.005

Sample No	Footages	Uranium oxide U_3O_8
M13B	145 Core	<0.005
DH	Bottom Sample BROWN SST	<0.005
	Sample (2) Red Clay	<0.005
	Second Sample from top BROWN SST	<0.005
	3rd Sample BROWN SST	<0.005
	Red Clay Sample (1)	<0.005
	Limonite In Red Sand	<0.005
	316-20A 105-110	<0.005
	Mitcherie Granite	<0.005
	Red Sand (Gypeous)	<0.005

CONYNGHAM ST. FREWVILLE SOUTH AUSTRALIA 5063 TELEPHONE 79 1302 TELEGRAMS 2530

THE AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

PLEASE ADDRESS ALL CORRESPONDENCE TO THE DIRECTOR.

OUR REFERENCE: AN3/409/0-3219/70
YOUR REFERENCE:

26th March, 1970

The Geologist,
Australasian Mining Corporation,
C/- 8 Bransby Avenue,
NORTH PLYMPTON, S.A. 5038

REPORT AN3219-70

YOUR REFERENCE:	Application dated 6/3/70
MATERIAL:	Drill cuttings and core
IDENTIFICATION:	As listed
DATE RECEIVED:	6/3/70

Enquiries quoting AN3219/70 to Officer in Charge please.

Analysis by: G.R. Holden

Officer in Charge, Analytical Section: A.B.Timms

for N. Draper
Director.

ta:

Sample No. AMC		Footage	XRF % U_3O_8		Sample No. AMC		Footage	XRF % U_3O_8
316	R3	10-15	<0.005		316	R4B	50-51	<0.005
	"	15-20	"			"	51-52A	"
	"	20-25	"			"	51-52B	"
	"	25-30	0.01			"	52-53	"
	R5	35-40	<0.005			"	~~53-54~~ 54-55	"
	M3B	24'6"-27'8"	"			R3	15-20	"
	R2B	15-20	"			"	20-25	"
	"	20-25	"			"	25-30	"
	"	25-30	0.005			R4P	Core 16	"
	"	30-35	0.005			"	Core 16½	"
	R2C	20-25	<0.005			"	Core 17	"
	R4E	16-17	"			"	16-17	"
	"	17-18	"			"	17-18	"
	"	18-19	"			"	18-19	not received
	"	16-19 Bag TI	"			"	19-20	"
	"	19-19½	"			"	20-21A	"
	"	19½-20	"			"	20-21B	"
	"	20-21	0.025			M3C	60-61	"
	"	21-22	0.03			"	61-62	"
	"	22-23	<0.005			"	62-63	"
	"	23-24	"			"	63-64	"
	"	24-25	"			"	64-65	"
	"	Scrape 22-25	"			"	65-66	"
	R4B	49'-49'6"	"			"	66-67	"
	"	49'6"-50'	"			"	67-68	"
						"	68-69	"

THE AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

REPORT AN 3219/70

XRF

Sample No. MC			% U_3O_8
16	M3C	69-70	0.005
	R4E4	19'6"-20'6"	0.005
	R4	50-55	<0.005
	"	55-60	"
	"	60-65	"
	R8A	18-19	"
	"	19-20	"
	"	20-21	0.005
	R4C	19-20	<0.005
	"	20-21	0.005
	"	21-21½	0.01
	"	21½-22	0.005
	"	22-23	0.01
	"	23-25A	0.01
	"	23-25B	0.01
	R4D	FALLEN 50-53A	<0.005
	"	FALLEN 50-53B	0.01
	"	FALLEN 50-53C	<0.005
	"	51½-53A	0.005
	"	51½-53B	0.01
	"	53-56A	0.01
	"	53-56B	0.01
	"	56-58½A	<0.005
	"	56-58½B	"
	"	58½-59½	"

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australian Mining Corporation Ltd.

DRILLER M. G. Thompson

WELL No. 316-1D

WELL LOG 4/11/69

139

DATE LOGGED

TOTAL DEPTH 124'0"

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	sand	50	Red-orange medium grained sand [illegible]
	clay	30	followed by a thin band of grey-fawn
	limestone	20	siliceous Nullarbor limestone. Orange micaceous sandy clay, grey micaceous sandy clay then yellow medium grained sand.
5'-10'	clay	90	Orange & red micaceous clay with dark red
	silt	10	silty micaceous clay
10'-15'	sand	50	Light yellow micaceous sand, minor
	lignite	50	light greyclay, dark brown & black lignite
15'-20'	sand	45	Yellow brown micaceous sand, minor
	clay	5	light grey clay, lignite
	lignite	50	
20'-25'	clay	90	Light grey very micaceous clay, yellow
	lignite	10	micaceous clay, lignite.
25'-30'	clay	80	Light grey weakly micaceous clay
	lignite	20	White and bluish micaceous clay lignite
30'-35'	clay	70	Light grey micaceous clay, lignite
	lignite	20	
35'-40'	sand	90	Fawn brown micaceous sand, quartz
	grit	5	grit lignite
	lignite	5	
40'-45'	sand	100	Fawn brown micaceous sand, minor quartz grit
45'-50'	sand	95	Fawn brown micaceous sand, grey
	clay	5	micaceous clay
50'-55'	sand	95	Orange micaceous sand, brown micaceous
	clay	5	clay
55'-60'	sand	100	Orange micaceous sand
60'-65'	sand	100	Orange micaceous sand, minor red sand
65'-100'	sand	100	Brown orange, some red micaceous sand
100'-105'	sand	100	Brown micaceous sand minor ferruginous sandstone
105'-110'	sand	70	Brown micaceous sand, red and yellow
	sandstone	30	micaceous sandstone

MINOIL SERVICES

GEOLOGIST [illegible] CLIENT [illegible]

DRILLER [illegible] WELL No. [illegible]

WELL LOG

DATE LOGGED 4/11/69 TOTAL DEPTH [illegible]

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd.

DRILLER E. C. Thompson Pty. Ltd.

WELL No. 116-18

WELL LOG

DATE LOGGED 4/11/69

TOTAL DEPTH 49'4" 140

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	sand	100	Medium grained orange sand
5'-10'	clay	75	Orange silty clay
	silt	25	
10'-15'	sand	85	Light brown sand and clay
	clay	15	followed by dark brown medium - fine grained sand
15'-20'	clay	50	Dark brown clay followed by
	sand	50	yellow medium coarse sand
20'-25'	lignite	30	Lignite dark brown and black
	clay	70	and chocolate brown clay
25'-30'	clay	60	Lignitic black-brown clay
	sand	40	and coarse yellow sand
30'-35'	clay	30	Micaceous brown clay and lignite
	lignite	40	quartz grit
	grit	30	
35'-40'	clay	30	Micaceous brown & yellow clay
	lignite	40	lignite and quartz grit.
	grit	30	
40'-45'	lignite	40	Micaceous sandy lignite and brown
	clay	40	clay
	sand	20	
45'-50'	lignite	75	Interlayered black and dark brown
	grit	25	lignite and quartz grit.

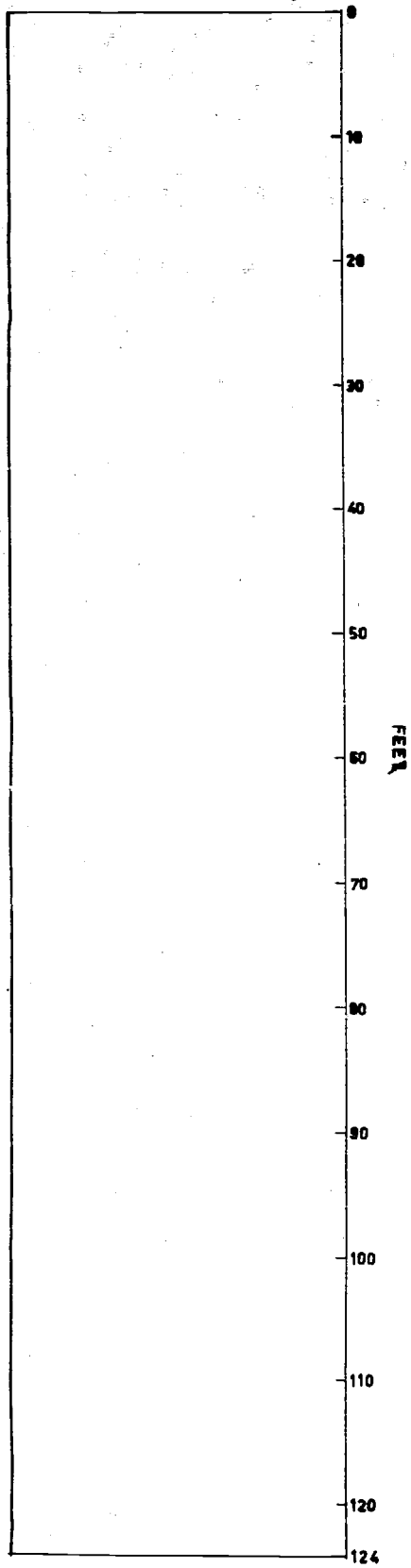
WELL LOG

WELL No. 316— 1D		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 124'0"	DATE: 4·11·69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY

→ Increasing radioactivity



Detailed lithologic logs attached.

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

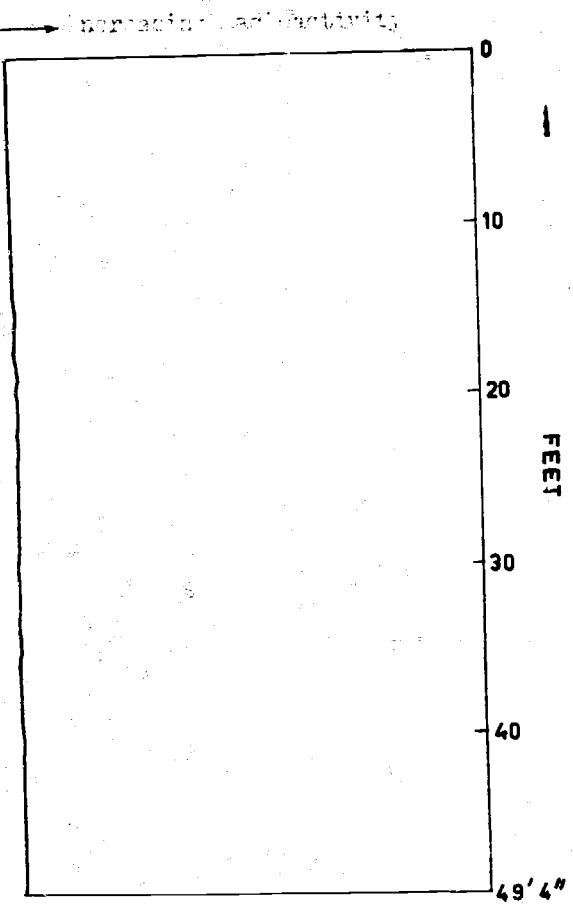
142

WELL LOG

WELL No. 316— 1E		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 49'4"	DATE: 4·11·69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



Detailed lithological logs attached.

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd.

DRILLER M. C. Thompson & Co.

WELL No. 316-2

WELL LOG

143

DATE LOGGED 12/10/69

TOTAL DEPTH 95'10"

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	sand	100	Orange medium grained sand
5'-10'	sand	80	Orange medium grained sand then white
	kunkar	20	brown kunkar.
10'-20'	clay	50	Brown and white sandy, very silty
	silt	35	clay
	sand	15	
20'-25'	sand	70	Light brown medium fine clayey sand
	clay	30	
25'-30'	sand	80	Red fine sand, some clay
	clay	20	
30'-45'	sand	90	Fine to medium bright red "falling type"
	clay	10	sand, clayey
45'-50'	clay	90	Orange fine clayey sand then
	sand	10	hard red-purple clay with white clay
50'-55'	clay	100	Brown and white clay
55'-60'	clay	95	Purply clay followed by white stiff
	sand	5	clay and then yellow sandy clay
60'-65'	sand	85	micaceous purple sand and
	grit	15	grit.
65'-70'	clay	100	Purple red-very micaceous clay
70'-75'	clay	70	Purple extremely micaceous clay
	sand	30	dark brown micaceous clay then pink-red and white fine sand.
75'-80'	sand	100	Light brown and red micaceous fine sand then yellow micaceous sand.
80'-85'	clay	100	Yellow white and red micaceous clay
85'-90'	sand	80	Brown and light grey gritty sand
	grit	20	
90'-95'	sand	100	Grey and yellow micaceous sand
95'-97'	gneiss		Gneissic (quartz mica) fragments Probable basement

AUSTRALIAN [illegible]

SPECIAL MINERS [illegible]

WELL LOG

WELL No. 316— 2		GEOLOGIST: D. R. CLARKE
TOTAL DEPTH 96' 10"	DATE: 12·10·69	MINOIL SERVICES PTY. LTD.

GAMMA LOG

LITHOLOGY

[illegible] Increasing radioactivity

0
10
20
30
40
50
60
70
80
90
97

FEET

[illegible]trolled lithologic logs attached.

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining [illegible]

DRILLER H. C. Thompson Pty. Ltd.

WELL No. 116-3

WELL LOG

Logged 56'5"
Sampled 95'

DATE LOGGED 12/10/69

TOTAL DEPTH drilled 105'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-10'	sand	100	Orange medium grained sand
10'-15'	sand	60	Orange medium grained sand with
	kunkar	40	white and brown kunkar nodules
15'-20'	sand	100	Orange fine grained sand
20'-25'	clay	85	Orange clay, sandy
	sand	15	
25'-30'	clay	90	Red, red-orange stiff silty clay
	silt	10	
30'-35'	clay	30	Red and orange clay then fine red-
	sand	70	orange sand
35'-40'	sandstone	100	White sandstone, red and orange & white sand as sample
40'-45'	sandstone	70	White hard sandstone then red
	sand	30	fine sand
45'-50'	sand	100	Yellow then brown red then yellow sand
50'-55'	sandstone	60	Sandstone band very hard, sample of
	clay	40	red and white sand, then soft brown yellow clay.
55'-60'	sandstone	100	Hard white sandstone and sample of red and white sand.
60'-65'	sand	100	Bright red medium - fine grained "falling type" sand
65'-95'	sand	100	Medium - fine grained "falling type" bright red sand.
95'-105'			No sample recovered

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

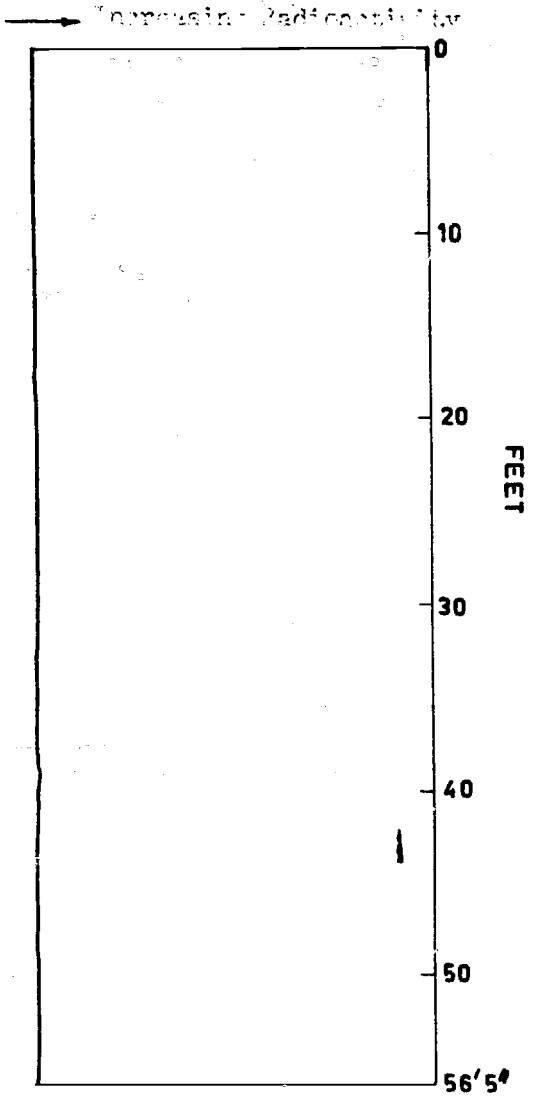
WELL LOG

146

WELL No. 316— 3		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 105′	DATE: 12·10·69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd.

DRILLER N. C. Thompson Pty. Ltd.

WELL No. 316-4

WELL LOG

DATE LOGGED 13/10/69

TOTAL DEPTH 87'5"

147

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	silt	40	Light brown sand and silt, nodules
	sand	30	of brown and white kunkar
	kunkar	30	
5'-10'	silt	10	As above then grey and brown silty
	kunkar	20	limestone, some (fallen?) kunkar
	limestone,	70	
10'-15'	limestone	100	Brown and grey limestone showing concretionary structures
15'-20'	sand	85	Orange - brown medium grained sand
	kunkar	15	and some (fallen?) kunkar
20'-25'	sand	95	Orange sand, some kunkar fragments
	kunkar	5	
25'-30'	sand	75	Fine grained orange sand, clayey
	clay	25	
30'-35'	sand	100	Orange sand then in last inch white hard sandstone
35'-40'	sandstone	25	Hard white sandstone, then white and
	silt	25	brown silt then red sand
	sand	50	
40'-45'	sand	65	white clayey sandstone, then red brown
	sandstone	35	sand and white sandstone
45'-50'	sand	50	Dark red sand with white and dark
	sandstone	25	red sandstone. In last foot stiff white
	clay	25	and brown clay
50'-65'	sandstone	40	Poor samples - partially lost circulation
	clay	60	Red sandstone and sticky orange clay
65'-70'	clay	40	Orange sticky sandy clay, then in
	sand	20	last two feet brown and black lignite
	lignite	40	
70'-75'	sand	20	Lignitic coarse orange sand then
	clay	30	grey clay and lignite
	lignite	50	
75'-80'	clay	40	Grey clay, and lignite then in last foot
	lignite	60	brown and black lignite
80'-87'5"	clay	90	Dark and lighter grey clay, lignitic
	sand	10	Some orange sandy clay

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd.

DRILLER H. C. Thompson Pty. Ltd.

WELL No. 316-5

WELL LOG

148

DATE LOGGED 14/10/69

TOTAL DEPTH 161'11"

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0-15'	sand	70	Yellow and orange medium fine sand
	kunkar	30	with light fawn brown kunkar
15'-20'	silcrete	20	Red silcrete with orange sandy
	clay	60	clay
	sand	20	
20'-25'	silcrete	20	Hard red and white silcrete then red
	sandstone	30	sand and sandstone and white sand
	sand	50	and sandstone
25'-30'	sand	70	Red and white sand, chips of
	sandstone	30	brown ferruginous sandstone then white sand and sandstone
30'-35'	clay	75	white silty clay then purple and white
	silt	25	very silty stiff clay
35'-40'			No sample recovered
40'-45'			No sample recovered
			Following samples probably not completely reliable
45'-50'	lignite	30	Lignite brown and black and yellow
	limestone	70	very fossiliferous limestone
50'-55'	quartz	10	Rounded quartz gravel, brown and
	sand	55	black lignite, light brown fine
	limestone	35	fallen sand, yellow orange limestone
55'-80'	limestone	20	Fossiliferous limestone containing
	gravel	5	calcite, quartz, gravel, fallen white clay
	clay	15	lignite, light brown fallen fine sand
	lignite	15	some minor mica
	sand	45	
80'-90'	clay	70	Yellow and brown sandy clay, fallen
	sand	20	lignite, minor mica
	lignite	10	
90'-165'	sand	100	Chocolate brown micaceous sand

AUSTRALASIAN MINING CORPORATION LTD

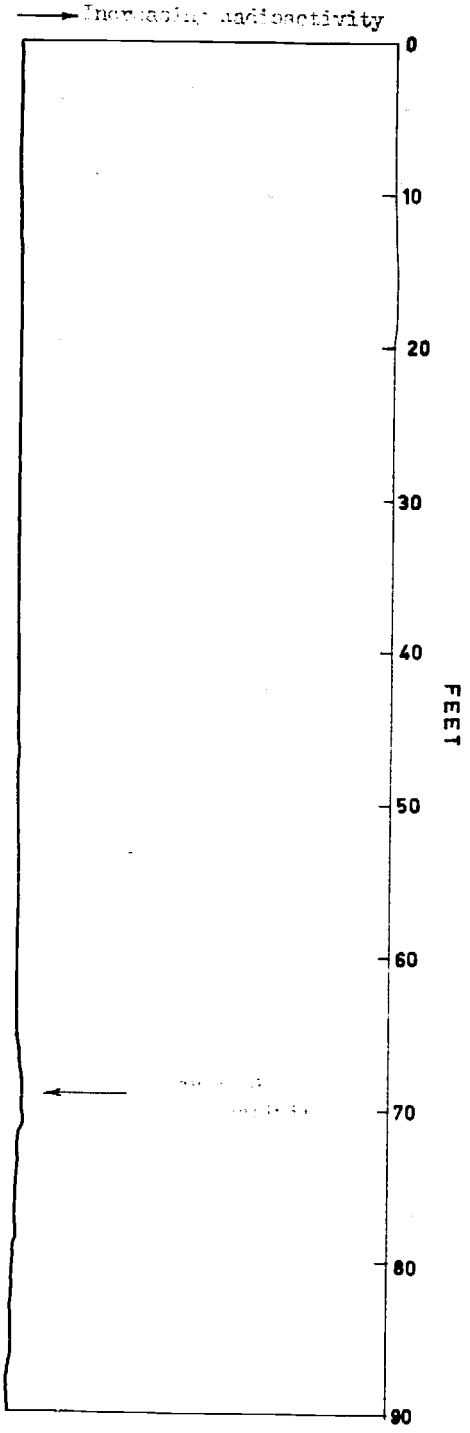
SPECIAL MINING LEASE 316

WELL LOG

WELL No. 316— 4		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 87'5"	DATE: 13·10·69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



Detailed lithological log attached.

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

WELL LOG

130

WELL No. 316— 5		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 161' 11"	DATE: 14 · 10 · 69	MINOIL SERVICES ADELAIDE

GAMMA LOG

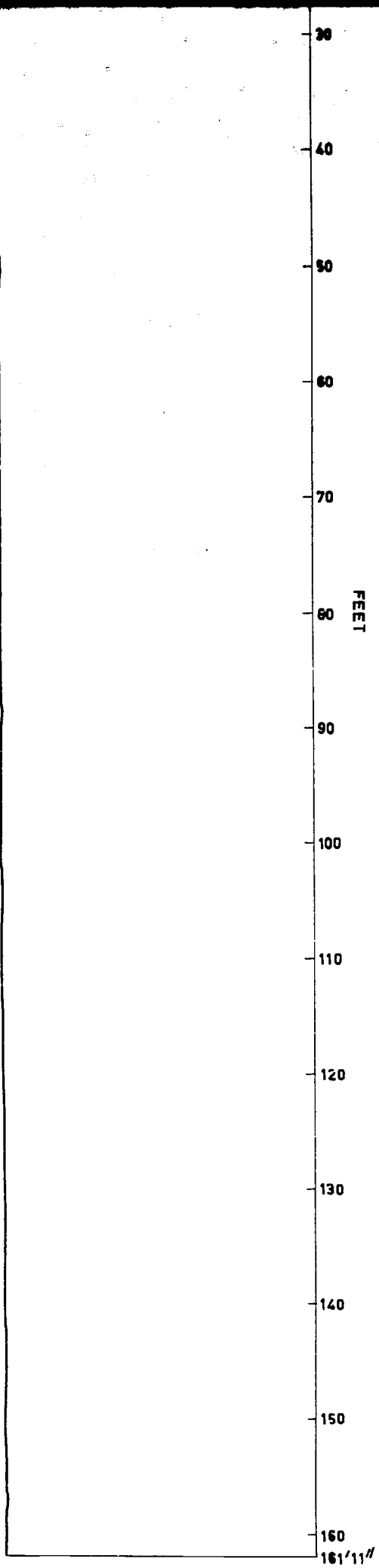
LITHOLOGY

1

Increasing radioactivity →

0
10
20
30
40
50
60
70
80
90
100

FEET


30
40
50
60
70
80
FEET
90
100
110
120
130
140
150
160
161'11"

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd.

DRILLER E. C. Thompson Pty. Ltd.

WELL No. 316-6

WELL LOG

DATE LOGGED 18/10/69

TOTAL DEPTH 52'0" in gneiss

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-10'	sand	75	Light yellow medium fine grained sand
	kunkar	25	some light brown kunkar
10'-15'	limestone	25	Hard brown'grey limestone then
	clay	55	stiff red sandy clay
	sand	20	
15'-20'	clay	90	Stiff sandy red clay with light green
	sand	10	and white clay
20'-25'	sand	20	Dark red stiff sandy clay
	clay	80	
25'-30'	clay	60	As above then orange quartz sand and grit
	sand	30	then orange clay minor brown ferruginous
	grit	10	sandstone
30'35'	clay	100	Red and white micaceous clay
			texture of decomposed gneiss
35'-50'	clay	95	White, some red clay becoming
	quartz	5	very micaceous, texture of decomposed
			gneiss, some quartz grit
50'-55'			As above then at 51' basement of
			gneiss (green, micaceous, hard)

AUSTRALASIAN MINING CORPORATION LTD.

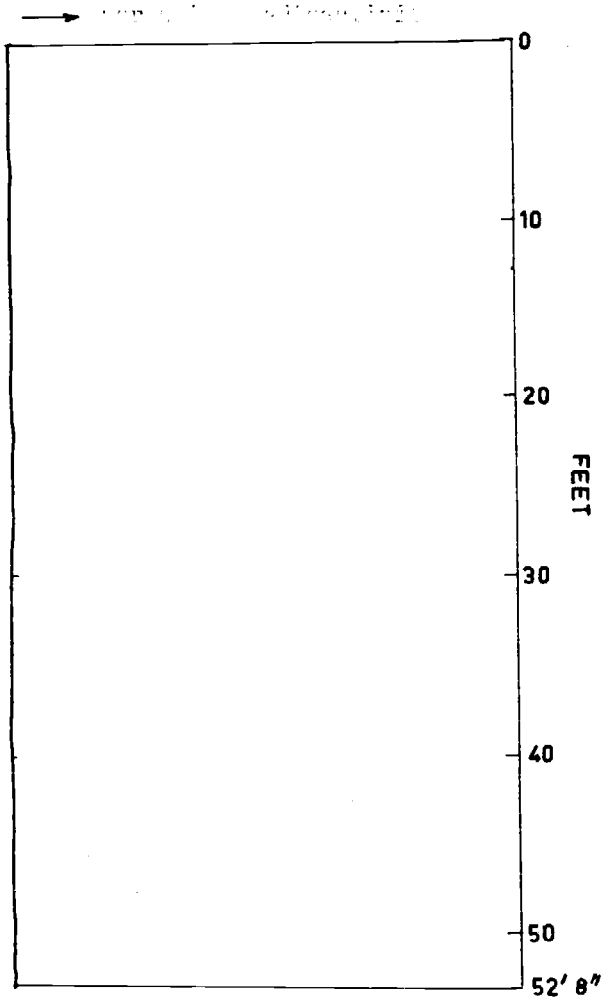
SPECIAL MINING LEASE 316

WELL LOG

WELL No. 316— 6		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 52′ 8″	DATE: 18·10·69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd

DRILLER H. C. Thompson Pty. Ltd.

WELL No. 316-9

WELL LOG

153

DATE LOGGED 6/10/69

TOTAL DEPTH 68'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	silt	25	Light fawn brown silt and nodules
	kunkar	75	of light brown and white kunkar
5'-10'	kunkar	50	Brown and white nodular kunkar
	sand	50	and red-orange medium grained sand
10'-15'	sandstone	80	White sand and sandstone
	sand	20	Some medium fine orange red sand
15'-20'	limestone	20	White hard limestone
	sandstone	35	brown red ferruginous sandstone
	clay	25	white - orange silty sandy clay
	sand	20	
20'-25'	clay	85	white and orange red gritty
	grit	15	clay
25'-30'	clay	100	Orange red, some white stiff clay
30'-35'	clay	95	Dark red and white in part gritty
	grit	5	clay
35'-40'	clay	90	White and brown red in part gritty
	grit	10	clay
40'-45'	clay	60	Red and white clay, quartz, feldspar
	granitic fragments	40	and granite chips
45'-50'	clay	75	Decomposed granitic material
	quarts,felds grit	25	white clay, micaceous, quartz and feldspar fragments
50'-55'	clay	50	
	granitic frag.	50	as above
55'-70'	granitic frag.	80	Granitic fragments covered in silt
	silt	20	

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd.

DRILLER E. C. Thompson Pty. Ltd.

WELL No. 216-10

WELL LOG

15½

DATE LOGGED 10/10/69

TOTAL DEPTH 116'1"

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	sand	100	Yellow medium grained sand
5'-10'	sand	70	Yellow sand with brown and white
	kunkar	30	kunkar nodules
10'-30'	sand	95	Yellow brown sand with brown and white
	kunkar	5	nodules of kunkar
30'-50'	sand	95	Orange red medium fine sand
	clay	5	slightly clayey in part
50'-60'	sandstone	100	Red and white sand as sample from a hard white & pink sandstone
60'-65'	sandstone	100	White sandstone, sand and sandstone as sample
65'-70'	sandstone	50	Some white sandstone and orange and white
	sand	50	sand
70'-80'	sand	100	Orange and white medium grained sand
80'-110'	sand	85	Light brown fine medium grained
	silt	5	sand, silty and clayey in part
	clay	10	
110'-115'			No sample
			Bottom hole sample - fine grained light brown silty sand

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd.

DRILLER E. C. Thompson & Co.

WELL No. 216-11

WELL LOG

DATE LOGGED 10/10/69

TOTAL DEPTH 160'4"

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-30'	sand	65	Yellow fine grained sand, clayey in part with white and brown concretionsly
	clay	10	
	kunkar	25	layered kunkar
30'-40'	sand	90	Yellow orange sand, some kunkar
	kunkar	10	
40'-45'	sand	100	Orange sand, minor kunkar
	sandstone	20	Red sand and white hard sandstone
45'-50'	sand	80	
	clay	20	Red and orange sand, some white clay
50'-55'	sand	75	
	sandstone	25	Red orange sand, harder sandstone then white sand
55'-60'	sandstone	30	
	sand	70	sandstone white, white sand deep red and white, red and white sand
60'-65'	sandstone	100	Hard red sandstone
65'-70'	sandstone	30	
	sand	70	White and red sand and sandstone
70'-75'	sand	80	
	clay	20	Purple red sand, then white clayey sand
75'-80'	sand	70	
	clay	30	Purple red fine sand, white sand and clay
80'-85'	clay	100	Orange and white clay
85'-95'	clay	75	Orange clay, white hard clay
	lignite	25	brown and black lignite
95'-115'			No reliable sample used wet lignitic material
115'-160'			Spasmodic circulation. Samples of fine grained sand, some lignite, some quartz grit. Probably cavings from some depth in hole.

WELL LOG

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corp. Ltd.

RIG, etc. P. Pigmitter S.A. Dept of Mines WELL No. 316-SEA

~~WELL LOG~~

DATE LOGGED 5/2/70 TOTAL DEPTH 22' no gamma log

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	silt	50	Light fawn brown sand and silt
	limestone	50	then hard grey white Nullarbor
			limestone
5'-10'	limestone	100	Hard white-grey limestone
	clay	60	Red-brown and white clay, quartz
	grit	10	sand and grit.
	sand	30	
15'-16'			Red clay, quartz grit with sandy
			bands (1"-2")
16'-17'			Yellow and red stiff clay
17'-18'			Yellow orange stiff clay, 2 sandy
			bands (½")
18'-19'			Light brown sticky clay mixed
			with fine to medium grained
			sand consisting mainly of
			quartz with a little muscovite
19'-22'			Dark brown to black sticky
			carbonaceous clay grading into
			black lignite. Traces of sand sized
			flakes of muscovite throughout.

WELL LOG

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corp. Ltd.

DRILLER F. Pignitter S.A. Dept of Mines WELL No. 316-R8

~~WELL LOG~~

DATE LOGGED 4/2/70 TOTAL DEPTH 269' 157

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	silt	50	Light fawn brown fine sand & silt (2')
	limestone	50	then hard grey Nullarbor limestone
5'-10'	limestone	100	Hard white - grey limestone
10'-15'	clay	60	Red-brown and white clay
	grit	10	Quartz sand and grit
	sand	30	
15'-20'	clay	75	Purple and yellow orange stiff
	lignite	25	clay (18') then dark chocolate
			brown stiff clay and lignite
20'-150'	lignite	100	Black and dark brown lignite
			and brown coal, sometimes slightly micaceous.
150'-155'	lignite	60	Black and dark brown (micaceous) lignite
	clay	30	with white and dark brown clay
	grit	10	some quartz grit.
155'-210'	clay	30	Blue-white clay subangular
	quartz	30	quartz grit with subrounded
	gneiss	40	gneiss fragments of grit size
210'-230'	clay	30	Green-blue chlorite clay
	grit	60	Plagioclase and quartz coarse and
	gravel	10	medium grit, some quartz gravel
230'-235'	clay	30	Green chlorite clay
	grit	50	plagioclase & quartz grit and gravel
	gravel	18	size. Pyrite and darker hard
	pyrite	2	mineral (? - after style of pyrite)
235'-255'	clay	20	Green chlorite clay (& fallen lignite)
	grit	75	Quartz and plagioclase grit. Much
	pyrite	5	pyrite and darker (marcasite?)
			also in weather gneiss (?)
255'-269'	clay	40	Green chlorite clay. Quartz and
	gravel	10	plagioclase gravel, plagioclase, quartz
	grit	45	and much orthoclase as grit (pyrite
	quartz	5	and marcasite (?) nodules)
			Becomes very hard. Probable basement.

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd.

DRILLER F. Pignitter S.A. Dept of Mines WELL No. 316-R7A

WELL LOG 158

DATE LOGGED 4/2/70 TOTAL DEPTH 150' in lignite

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	sand	25	Light fawn brown sand & silt
	silt	50	some nodular kunkar
	kunkar	25	
5'-10'	sand	35	light brown calcareous(?) sand and silt
	silt	35	and white kunkar
	kunkar	30	
10'-15'	sand	100	Fawn brown fine sand
15'-20'	limestone	60	Fawn brown and black limestone
	sand	40	and calcareous fragments sand size.
20'-25'	limestone	30	Brown and black limestone and calcareous
	lignite	15	sand then lignite (poor)
	sand	55	and brown - red sand
25'-40'	sand	100	Red-white (brown) medium grained "beach" type sand
40'-50'	sandstone	100	White and yellow sandstone (sample as sand)
50'-55'	clay	75	Dark brown clay and silt and lignite
	lignite	25	
55'-65'	clay	30	Dark brown chocolate clay and soft
	lignite	70	(and some hard-brown coal bands) black and dark brown lignite
65'-150'	lignite	100	Soft black micaceous lignite
			lost circulation - falling hole abandoned.

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd.

DRILLER F. Pignitter S.A. Dept of Mines

WELL No. 316-W7

WELL LOG

DATE LOGGED 3/2/70

TOTAL DEPTH 35'

150

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	sand	80	Medium fine grained silty sand
	silt	20	
5'-10'	sand	40	Medium fine sand on soft sticky
	clay	60	yellow and dark red (sandy in part) clay
10'-15'	sandstone	25	(sandstone very hard at 12')
	sand	75	Yellow fine sand then very silicified pink white & blue sandstone & then yellow & red medium-fine sand
15'-20'	sand	50	Red fine sand and clay
	clay	50	
20'-25'	sand	100	Brown medium - fine sand
25'-35'	lignite	70	Brown sand and clay and lignite 3m
	sand	10	
	clay	20	

AUSTRALASIAN MINING CORPORATION LTD.

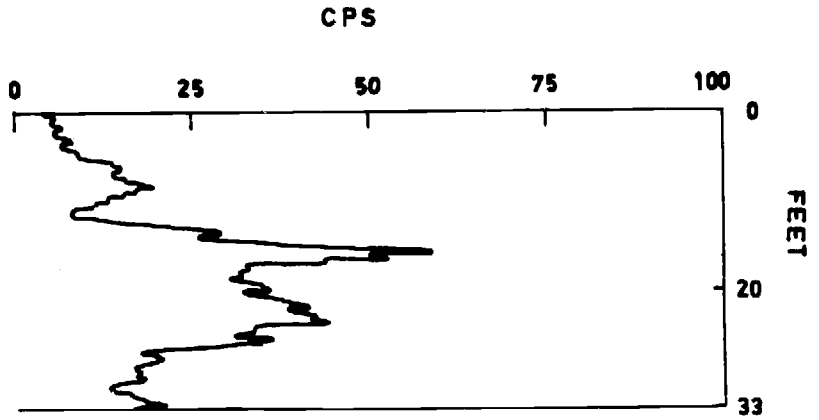
SPECIAL MINING LEASE 316

WELL LOG

160

WELL No. 316—R 7		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 33′	DATE: 3·2·70	MINOIL SERVICES ADELAIDE

GAMMA LOG



LITHOLOGY

Detailed lithologic logs attached.

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd

DRILLER F. Pignitter S.A. Dept of Mines WELL No. 316-B6

161

WELL LOG

DATE LOGGED 3/2/70 TOTAL DEPTH 183' in gneiss

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	clay	40	White dendritic limestone (& syvelanite)
	limestone	35	grey (calcareous?) clay and silt
	sand	25	quartz sand
5'-10'	limestone	35	White dendritic limestone &
	ferrug.sandstone	30	white "calcareous" clay. Dark blue
	clay	35	black ironstone (ferruginous sandstone with some grains dissolved out - looks vesicular) minor red clay
10'-15'	clay	80	Red "lateritic" clay with creamy
	ironstone	20	yellow "chalky" alunite clay. Some black ironstone.
15'-20'	clay	90	White, red - majority orange clay.
	ironstone	10	Some black ironstone
20'-25'	clay	100	Yellow-orange andchocolate brown (carbonaceous) clay
25'-30'	lignite	30	Some light brown and orange clay
	clay	70	dark brown carbonaceous clay (with spots of white clay) some lignite.
30'-60'	lignite	100	Dark brown & black lignite & brown coal (often micaceous)
60'-65'	lignite	100	Lignite and white "alunitic?" clay
65'-80'	lignite	100	Dark brown & black lignite & brown coal
80'-85'	grit	75	Coarse subrounded quartz grit
	lignite	25	and dark brown lignite
85'-95'	lignite	100	Dark brown and black lignite
95'-110'	clay	100	Creamy yellow clay and black colouration from mud.
110'-160'	clay	70	Yellow cream clay with quartz & feldspar
	grit	30	grit, fallen lignite and black colouration from mud.
160'-183'	grit	85	Subrounded quartz & feldspar
	clay	15	& gneissic fragments of grit size. white clay. Some pyrite (some in cylindrical form)

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd

DRILLER F. Pignitter S.A. Dept of Mines WELL No. 316-RSA

162

WELL LOG

DATE LOGGED 5/2/70 TOTAL DEPTH 45'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	silt	50	Light fawn brown silt and clay
	clay	50	
5'-15'	silt	25	Light fawn brown silt and clay and
	clay	25	kunkar
	kunkar	50	
15'-20'	silt	30	Fawn silt then Nullarbor limestone and
	limestone	70	hard grey&white
20'-25'	limestone	100	Grey - white and brown Nullarbor
			limestone
25'-30'	limestone	30	grey white and brown Nullarbor
	clay	70	limestone then dark grey carbonaceous
			some yellow silty clay
30'-35'	clay	80	Light grey, white and yellow clay.
	limestone	20	Some red clay. Some fallen limestone
35'-40'	clay	100	Fawn grey, mostly red orange clay
40'-45'			No sample, loss of circulation.
			Hole abandoned 45' (Kelly hose
			burnt by exhaust)

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SPECIAL MINING LEASE 316

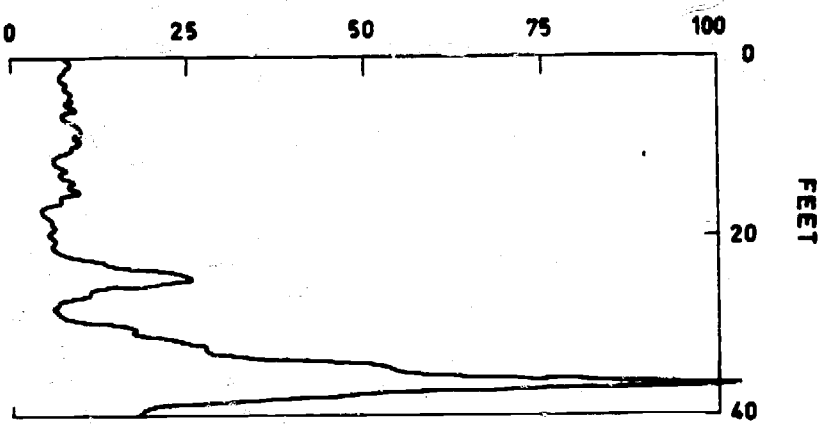
WELL LOG

163

WELL No. 316—R5A		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 40′	DATE: 5·2·70	MINOIL SERVICES ADELAIDE

GAMMA LOG

CPS



LITHOLOGY

Detailed lithologic logs attached.

MINOIL SERVICES

WELL LOG

GEOLOGIST D. E. Clarke CLIENT Australasian Mining Corp. Ltd.

DRILLER F. Pignitter S.A. Dept of Mines WELL No. 316-R5

WELL LOG

DATE LOGGED 2/2/70 TOTAL DEPTH 350'

104

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
135'-145'	clay	65	White and grey clay, quartz
	grit	35	grit generally subrounded
145'-245'	clay	50	White and white grey clay
	grit	50	generally subrounded quartz grit
245'-250'	grit	50	Grey and white clay, quartz grit
	clay	50	some minor orange clay
250'-350'	grit	80	Quartz grit, white and grey clay
	clay	20	
			Driller unable to continue

MINOIL SERVICES

WELL 165

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corp. Ltd.

DRILLER P. Pigattar W.A. Dept of Mines WELL No. 216-65

165

WELL LOG

DATE LOGGED 2/2/70 TOTAL DEPTH 350'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-20'	kunkar	80	Kunkar (brown and white) and
	silt	20	orange silt
20'-25'	kunkar	60	Kunkar orange silt hard
	silt	15	grey and red Mullarbor limestone
	limestone	25	
25'-35'	limestone	35	Hard grey Mullarbor limestone brown
	kunkar	45	and white kunkar, orange brown silt
	silt	20	
35'-40'	limestone	30	Hard grey Mullarbor limestone,
	silt	70	red and grey brown silt
40'-43'	silt	75	bright red clayey silt, some white clay
	clay	25	
43'-55'	clay	100	Predominantly light brown
			clay, some white and orange clay
55'-60'	clay	25	light brown clay, orange clay,
	grit	75	subangular quartz grit
60'-65'	clay	50	Darker brown carbonaceous clay
	grit	50	subangular quartz grit
65'-70'	lignite	20	Lignite, brown clay, subangular
	clay	30	quartz grit
	grit	50	
70'-75'	lignite	100	Dark grey brown lignite 75%
75'-100'	lignite	95	Poor quality brown dark grey 7%-
	clay	5	lignite, micaceous in part occasional
			orange and white hard silty clay
100'-110'	lignite	40	Dark brown and dark grey lignite with
	grit	60	subrounded quartz grit
110'-115'	sand	80	Coarse quartz sand, some
	silt	20	black (fallen)silt
115'-120'	grit	75	Coarse subangular quartz grit
	clay	25	grey and white clay
120'-125'	clay	50	White and grey clay, subrounded
	grit	50	quartz grit, some fallen lignite
125'-135'	lignite	25	Quartz grit (fallen?) hard
	grit	75	black and softer brown lignite.

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

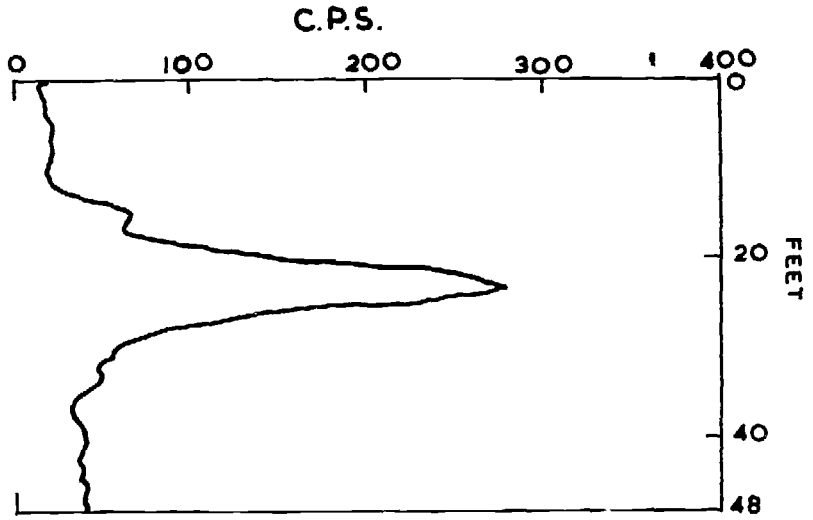
WELL LOG

166

WELL No. 316—R 4 Q		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 48'	DATE: 14-2-70.	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



Detailed litholoric logs attached.

WELL LOG

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corp. Ltd.

DRILLER

WELL No. 316-R40

~~WELL LOG~~

167

DATE LOGGED

TOTAL DEPTH 50'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	clay	60	Brown silt and clay and creams clay
	silt	40	
5'-10'	sand	25	Red gypseous sand then red and
	gypsum	70	yellow hard limestone
	limestone	5	
10'-15'	limestone	100	Hard red and yellow Nullarbor limestone
15'-20'	clay	60	Red clay and silt
	silt	40	
20'-35'			No sample
35'-50'			Lignite probably - very poor samples
			(no circulation)

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

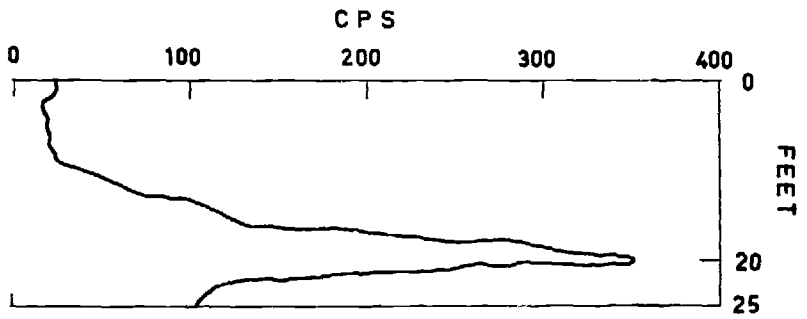
WELL LOG

168

WELL No. 316—R 4 P 11		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 25′	DATE: 14 · 2 · 70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



WELL 169

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd.

DRILLER F. Pignitter S.A. Dept of Mines WELL No. 316-26P (11)

169

Well-169

DATE LOGGED 14/2/70 TOTAL DEPTH 25'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
16'-17'			Red clayey sand with patches of yellow brown clay and light grey sand
17'-18'			2" of clayey sand as above, followed by light greenish grey clay mixed with a little quartzic sand with traces of muscovite.
18'-19'			Light brown clay with red yellow and white mottles. Small amounts of silt and sand of quartz and muscovite in places.
19'-20'			Clay as above, slightly silty in places
			Drilled to 25'
			No other reliable samples were recovered from this hole.

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

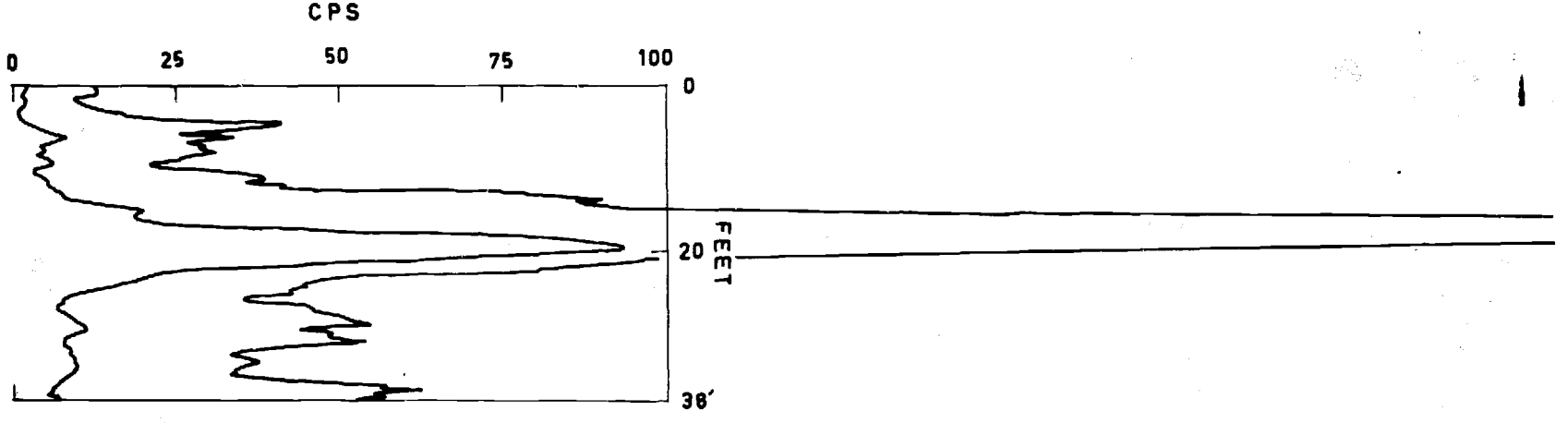
WELL LOG

170

WELL No. 316— R4 P 1		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 38′	DATE: 14 · 2 · 70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

WELL LOG

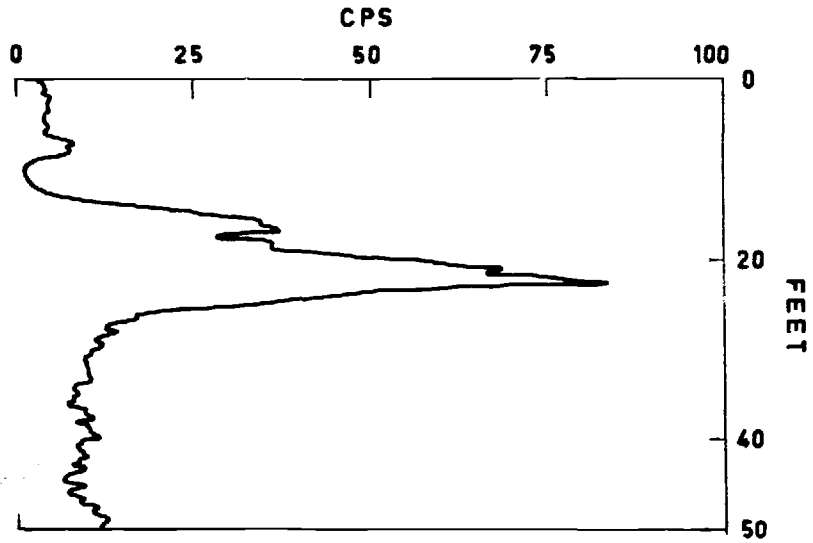
171

WELL No. 316— R 4 N		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 50'	DATE: 12 · 2 · 70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY

Detailed lithologic logs attached.



MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd

DRILLER F. Pigmitter S.A. Dept of Mines WELL No. 16-24P (1)

172

WELL LOG

DATE LOGGED 14/8/70 TOTAL DEPTH 40'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	clay	20	Brown silty clay then
	silt	30	very gypseous brown sand
	sand	30	
	gypsum	20	
5'-10'	sand	70	Gypsum rich sand grey Mallarbar
	gypsum	20	limestone and black ferruginous
	limestone	5	sandstone
	sandstone	5	
10'-15'	sand	45	Brown gypsum sand, minor fallen
	gypsum	50	limestone
	limestone	5	
15'-40'			Gypseous sand samples
			for-lee unreliable as shown
			by next coring hole for which
			samples were not taken until
			tubing at 16'
			(is in fact a dusy red and white
			clay 12'-16')
			Lost circulation for 20'.

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd

DRILLER F. Pignitter S.A. Dept of Mines WELL No. 316-MS

173

WELL LOG

DATE LOGGED 12/2/70 TOTAL DEPTH 50' in lignite

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-10'	sand	100	Medium to fine grained bright red sand
10'-15'	sand	100	Silver grey red coarse grained "beach" sand
15'-20'	sand	50	Fawn grey red medium grained "beach"
	clay	50	sand then green - grey clay
20'-25'	clay	20	White light brown clay, light brown
	sand	30	medium grained sand, black dark brown
	lignite	50	lignite
25'-50'	sand & sandstone	10	Soft black lignite, fallen sand,
	lignite	90	occasional yellow sandstone 76m

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

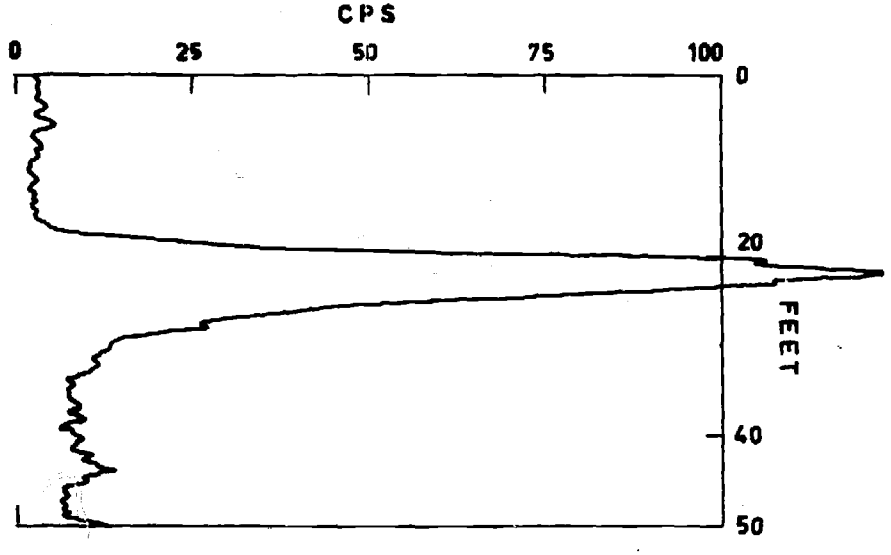
WELL LOG 174

WELL No. 316— R 4 M		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 50′	DATE: 12·2·70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY

Detailed litholopic logs attached.



MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd

DRILLER F. Pignitter S.A. Dept of Mines WELL No. 316-R4M

WELL LOG 175

DATE LOGGED 12/2/70 TOTAL DEPTH 50' in lignite

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	silt	30	Fawn brown silt and white clay
	sand	30	then bright red fine sand and
	clay	30	silt with some deep red ferruginous
	sandstone	10	sandstone
5'-15'	sand	100	Bright red medium-fine (falling!) sand
15'-20'	sand	100	Silver grey medium grained sand
20'-25'	sand	50	Silver grey sand then brown and
	clay	20	white clay and lignite
	lignite	30	
25'-30'	clay	25	Brown and white clay and lignite and
	lignite	55	grey sand
	sand	20	
-50'	lignite	85	Lignite with white and brown clay
	clay	15	

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

WELL LOG

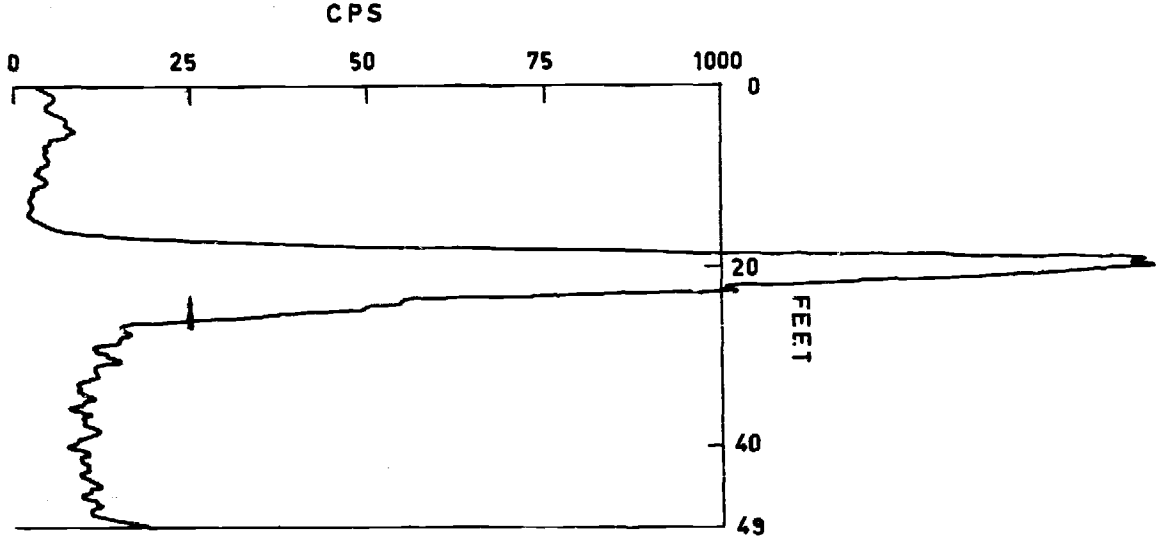
176

WELL No. 316—R 4 L		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 50′	DATE: 12 · 2 · 70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY

Detailed Lithologic Logs attached.



MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd

DRILLER F. Pignitter S.M. Dept of Mines WELL No. 316-24L 177

WELL LOG

DATE LOGGED 12/2/70 TOTAL DEPTH 50' in lignite

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	sandstone	15	Fawn silt then red gypseous sand
	silt	40	and dark red ferruginous sandstone
	sand	45	
5'-15'	sandstone	15	Dark ferruginous sandstone and yellow
	sand	85	orange medium to coarse quartz sand
15'-20'	sand	100	White - some yellow clean "beach"
			coarse sand. Minor fallen ferruginous
			sandstone
20'-25'	sand	40	Fine white and yellow sand
	clay	10	then white clay and lignite
	lignite	50	
25'-30'	clay	25	White clay, lignite, minor yellow
	lignite	75	sandstone
30'-35'	lignite	90	Soft black lignite, minor 15 m
	sand & sandstone	10	sand and yellow sandstone
35'-50'	lignite	100	Pure black lignite 45 m

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd

DRILLER F. Pignitter S.A. Dept of Mines WELL No. 316-R4K A

WELL LOG

DATE LOGGED 12/2/70 TOTAL DEPTH 20' 176

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	silt	50	Fawn brown silt and clay
	clay	50	
5'-10'	silt	60	Fawn silt, grey hard limestone chips
	limestone	30	gypsum crystals
	gypsum	10	
10'-15'	sand	100	Brown and orange medium coarse
			grained sand, some fine grained
			brown sand
15'-20'	sand	60	Fawn and orange medium and fine
	clay	20	grained sand, light brown
	lignite	20	greasy and lignitic clay
			(fallen limestone and gypsum chips)
			Hole fallen - no gamma log

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

WELL LOG

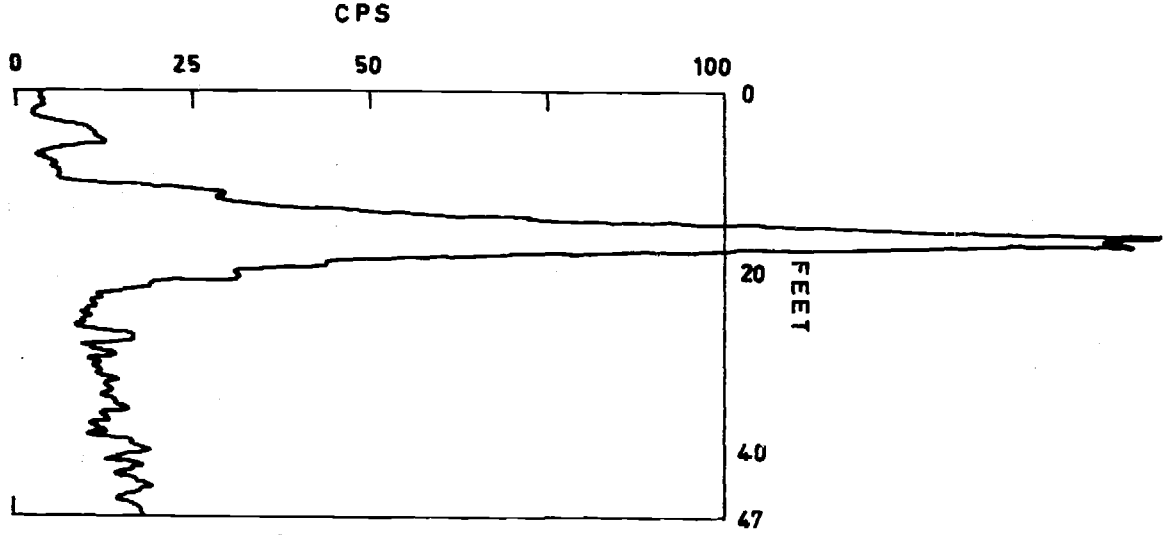
12.1

WELL No. 316— R 4 K		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 50	DATE: 12 · 2 · 70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY

Detailed lithologic logs attached.



MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd.

DRILLER F. Pignitter S.A. Dept of Mines WELL No. 316-R4X

WELL LOG 180

DATE LOGGED 12/2/70 TOTAL DEPTH 50' in lignite

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	silt	50	Fawn silt then hard red and grey limestone
	limestone	40	gypsum crystals
	gypsum	10	
5'-10'	limestone	30	Hard red and grey limestone and gypsum
	clay	35	crystals then yellow orange clay and
	sand	20	limestone then at 10' white sandy
	gypsum	15	clay
10'-15'	sand	90	White clayey sand and yellow
	clay	10	orange sand fallen limestone and
			ferruginous sandstone
15'-20'	sand	50	Yellow orange sandy and white
	clay	30	clayey sand. Then brown clay
	lignite	20	and lignite.
20'-25'	clay	65	White orange and largely light brown
	lignite	35	clay and lignite
25'-30'	lignite	70	Soft black lignite and yellow-orange
	clay	20	sandstone, brown and white clay
	sandstone	10	
30'-35'	lignite	75	Soft black and dark brown lignite
	clay	20	some light brown and white clay
	sandstone	5	Minor orange ferruginous sandstone
35'-50'	lignite	80	Soft black lignite with white
	clay	20	and minor brown clay

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

WELL LOG

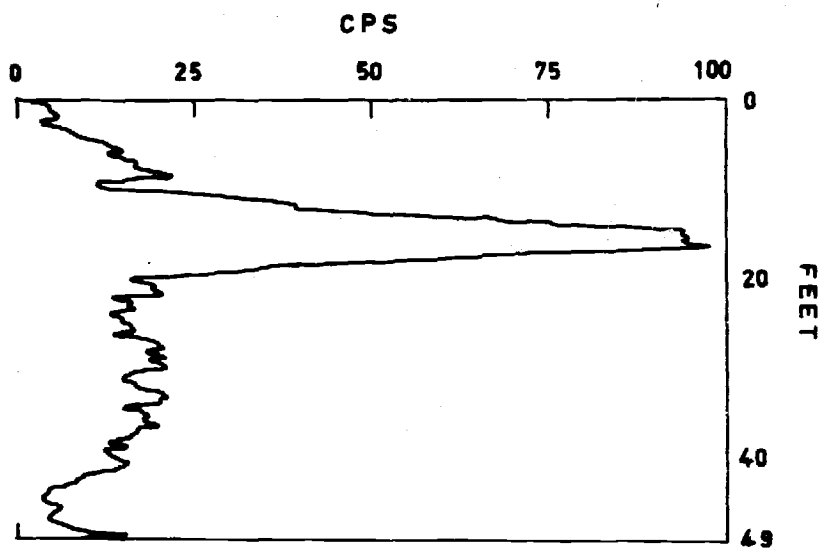
181

WELL No. 316— R 4 J		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 50′	DATE: 11 · 2 · 70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY

Detailed lithologic logs attached.



MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd

DRILLER F. Pignitter S.A. Dept of Mines WELL No. 316-24J

WELL LOG

DATE LOGGED 11/2/70 TOTAL DEPTH 50' in lignite 182

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	silt	70	Red silty clay and fawn silt.
	clay	30	White clay. Some granite fragments
5'-10'	clay	80	Yellow orange clay (decomposed
	sandstone	20	Nullarbor limestone?) then red ferruginous clay and red and black ferruginous sandstone
10'-15'	sandstone	30	Red black ferruginous sandstone and
	sand	30	clay, light brown clay, white - fawn
	clay	40	"beach" sand
15'-20'	clay	35	Light brown and white clay and
	lignite	65	greasy black lignite
20'-25'	clay	15	Ditto
	lignite	85	
25'-50'	lignite	100	Soft black lignite 15m 7.6m

WELL LOG

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd

DRILLER F. Pigmitter S.A. Dept of Mines WELL No. 316-MI (11)

WELL LOG

DATE LOGGED 11/2/70 TOTAL DEPTH 30' in lignite 180

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	clay	40	Fawn and darker brown silt and clay
	silt	60	some white clay
5'-10'	clay	75	Red clay and yellow sandy clay. Minor
	sand	25	sandstone
10'-15'	sand	85	Yellow and silver white medium grained
	sandstone	15	"beach sand". Dark red ferruginous
			sandstone.
			From hole tube cores
16'-17'			Brown "beach" sand and white clay (50/50)
19'-20'			As above
20'-23'			No recovery
23'-26'			Interbbed lignite and chocolate
			brown clay
			Drilling
26'-30'	clay	50	Light and chocolate brown clay and
	lignite	50	lignite
30'-50'	lignite	80	Soft black lignite, some brown and
	clay	20	white clay

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

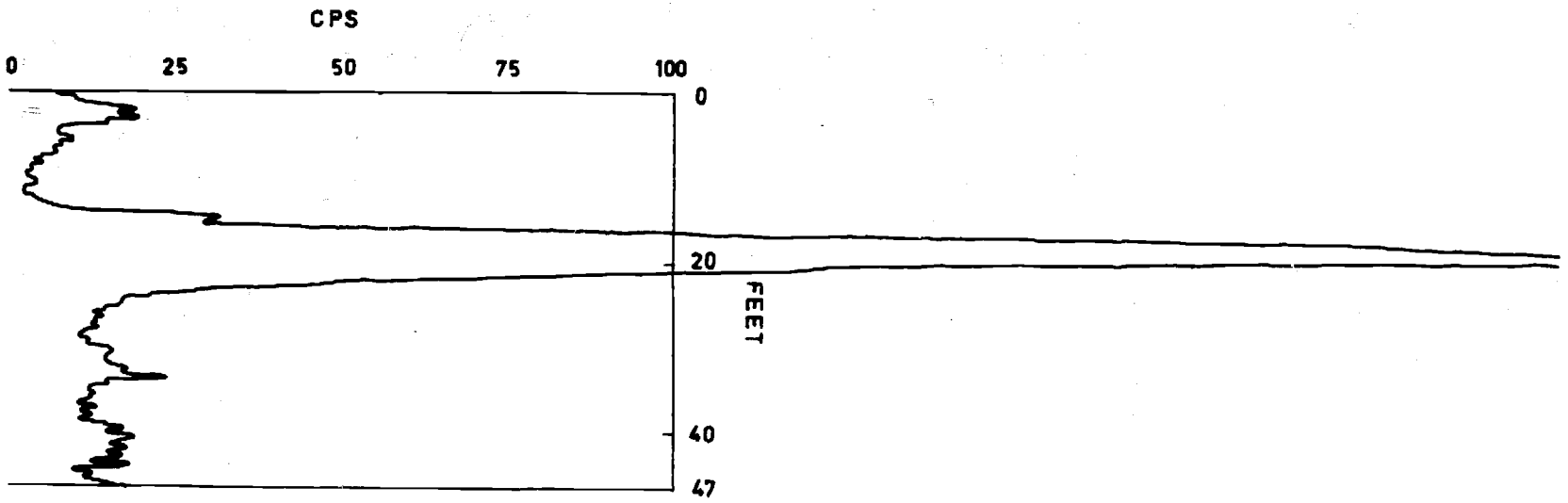
WELL LOG

184

WELL No. 316— R 4 191		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 47'	DATE: 11 · 12 · 70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd

DRILLER D. Pignitter S.A. Dept of Mines WELL No. 116-Mar (1) 185

WELL LOG

DATE LOGGED 11/2/70 TOTAL DEPTH 50' in lignite

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	clay	40	Fawn and darker brown silt & clay
	silt	60	some white clay
5'-10'	clay	75	Red clay and yellow sandy clay
	sand	25	some lignite (from previous hole?)
			and ferruginous sandstone (from previous
			hole?)
10'-15'	sand	85	Yellow & silver white medium grained
	sandstone	15	"beach" sand. Dark red ferruginous
			sandstone
15'-20'	sand	90	Silver - white "beach" sand, some
	sandstone	10	orange sand, some ferruginous sandstone
20'-25'	sand	50	White & orange sand, light & chocolate
	clay	40	brown clay, some lignite
	lignite	10	
25'-30'	clay	50	Light and chocolate brown clay & lignite
	lignite	50	
30'-50'	lignite	80	Soft black lignite, some brown
	clay	20	and white clay

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

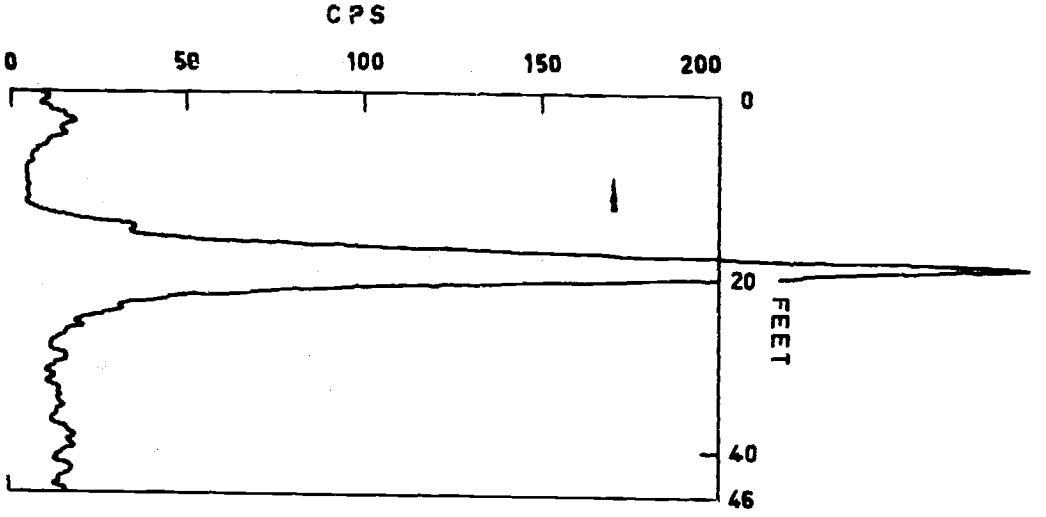
WELL LOG

186

WELL No. 316— R 4 1 1		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 46	DATE: 11 · 2 · 70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd.

DRILLER F. Pignitter S.A. Dept of Mines WELL No. 316-D43

187

WELL LOG

DATE LOGGED 11/2/70 TOTAL DEPTH 50' in lignite

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	sandstone	10	Ferruginous silty clay, white micaceous
	clay	90	clay (decomposed granite) red brown ferruginous sandstone
5'-10'	clay	60	White grey and fawn silty clay, some
	silt	30	ferruginous sandstone
	sandstone	10	
10'-15'	clay	70	Light brown and red greasy clay, some
	sandstone	15	lignite, ferruginous sandstone
	lignite	15	
15'-20'	lignite	40	Greasy black and brown lignite, brown
	clay	60	greasy clay
20'-25'	lignite	75	Lignite and white clay and some light 1.5m
	clay	25	brown clay
25'-35'	lignite	85	Soft black lignite, some white and 3m
	clay	15	brown clay. Occasional crystals of gypsum some yellow sandstone
35'-50'	lignite	85	Soft black lignite with some brown 4.5m
	clay	15	lignitic clay

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

WELL LOG

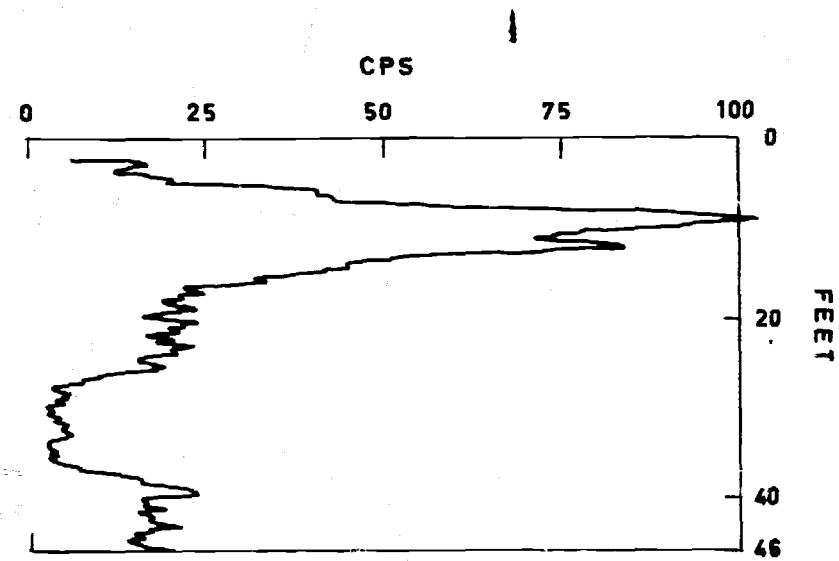
188

WELL No. 316— R4G		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 50′	DATE: 11·2·70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY

Detailed lithologic logs attached.



MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd

DRILLER Pa. Pigniter, Dept. Of Mines WELL No. 316-MM 189

WELL LOG

DATE LOGGED 11/2/72 TOTAL DEPTH 50' in lignite

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	clay	90	Red and white sandy stiff clay
	sand	10	
5'-10'	sand	75	silver white medium grained "beach"
	sandstone	25	sand and black ferruginous sandstone
			some red sand
10'-15'	clay	60	White - grey & yellow clay and black
	sandstone	25	ferruginous sandstone, white sand
	sand	15	
15'-20'	lignite	30	Chocolate brown and white clay
	clay	70	and lignite
20'-25'	lignite	70	Soft black lignite, white and red 5m
	clay	15	clay, sand and sandstone
	sand	10	
	sandstone	5	
25'-35'	lignite	85	Soft black lignite, some white & 5m
	clay	15	brown clay. Minor red sandstone.
35'-50'	lignite	100	Soft black lignite. 15m

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

WELL LOG

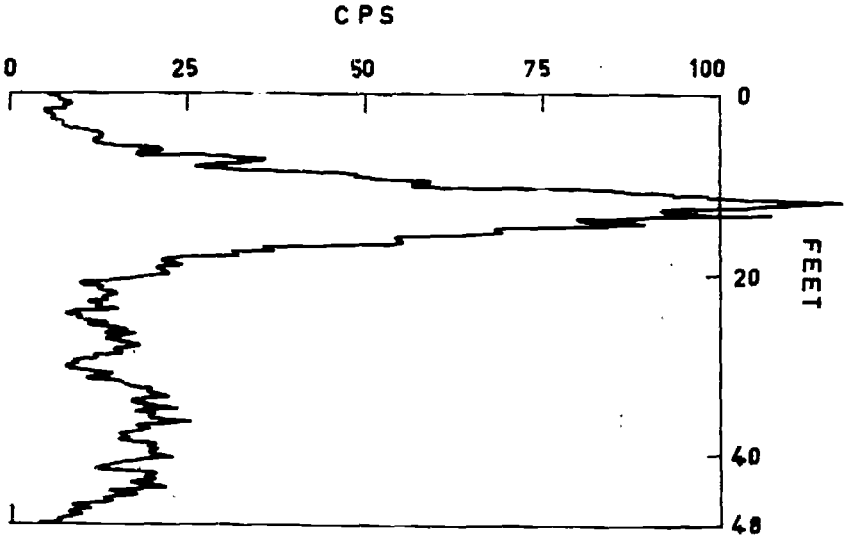
150

WELL No. 316—R4H		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 50	DATE: 11·2·70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY

Detailed litholegic logs attached.



AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

WELL LOG

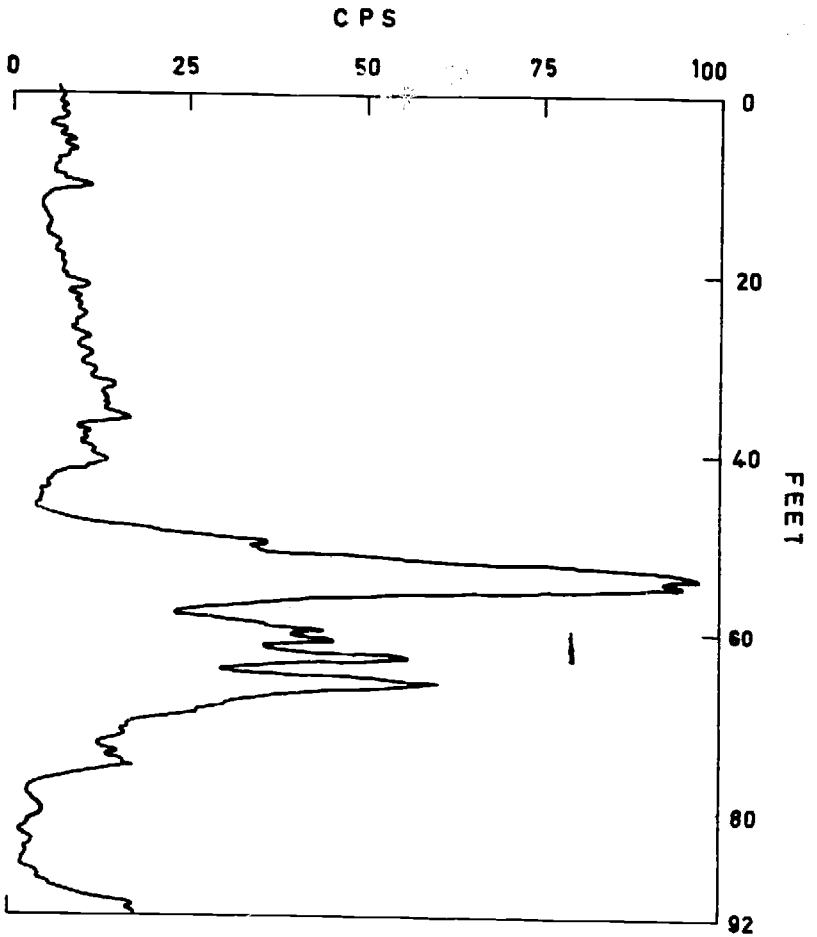
191

WELL No. 316— R 4 F		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 95′	DATE: 10 · 2 · 70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY

[illegible] lithologic log attached.



WELL LOG

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corp. Ltd.

DRILLER P. Pigmitter S.A. Dept of Mines WELL No. 31G-262 (111)

192

WELL LOG

DATE LOGGED 10/2/70 TOTAL DEPTH 50'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	clay	60	Dark green-grey (carbonaceous)? silty
	silt	40	clay and red brown silty clay
			plus fine brown clay and silt
5'-10'	clay	35	and ferruginous silty clay and
	sand	65	white medium grained sand.
10'-15'	sand	75	Red, yellow and white clayey sand
	clay	25	then yellow and white "beach" sand
15'-20'	sand	100	Yellow white medium grained
			"beach" type sand
20'-25'	sand	30	Yellow-white "beach"sand
	clay	40	dark brown white clay
	lignite	30	black and brown lignite
25'-35'	lignite	75	Black greasy lignite and dark
	clay	25	brown and white clay
35'-50'	lignite	100	Pure black lignite

No gamma log

WELL LOG

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corp. Ltd.

DRILLER F. Pignitter S.A. Dept of Mines WELL No. 316-R434

~~WELL LOG~~ 195

DATE LOGGED 10/2/70 TOTAL DEPTH 21'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	clay	60	Dark green-grey (carbonaceous)? silty
	silt	40	clay and red brown silty clay
			plus fawn brown clay and silt
5'-10'	clay	35	Red ferruginous silty clay and
	sand	65	white medium grained sand.
10'-15'	sand	75	Red, yellow and white clayey sand
	clay	25	then yellow and white "beach" sand
15'-20'	sand	100	Yellow white medium grained
			"beach" type sand
20'-21'			Chocolate coloured clay with occasional
			sandy layers.

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd.

DRILLER F. Pignitter S.A. Dept of Mines WELL No. 316-RAF

WELL LOG

DATE LOGGED 10/2/70 TOTAL DEPTH 95' in lignite

194
FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-25'	sand	65	Light fawn brown sand
	silt	35	and silt
25'-35'	sand	70	Red brown sandy and clay
	clay	30	
35'-45'	clay	30	Red brown sand with fawn
	sand	70	and light grey clay
45'-50'	clay	50	Stiff white grey and yellow sandy
	sandstone	10	clay in part very carbonaceous
	sand	40	Ferruginous red sandstone and sand
50'-55'	limestone	## 50	Orange yellow soft fossiliferous
	clay	35	Nullarbor limestone - grit. Green - grey
	grit	15	and yellow clay
55'-60'	clay	70	Orange yellow clay & nullarbor limestone
	limestone	5	& light brown clay & impure lignitic
	lignitic clay	25	clay
60'-65'	lignite	75	Black - brown "greasy" lignite
	clay	25	& brown clay
65'-70'	grit	60	White quartz grit and coarse grit
	lignite	40	micaceous and lignite
70'-75'	grit	40	Micaceous white quartz grit and coarse
	lignite	60	grit and black and brown lignite
75'-80'			ditto
80'-85'	lignite	75	black & brown lignite and white
	grit	25	micaceous quartz grit
85'-95'	lignite	100	Soft black & brown lignite

AUSTRALASIAN MINING CORPORATION LTD.

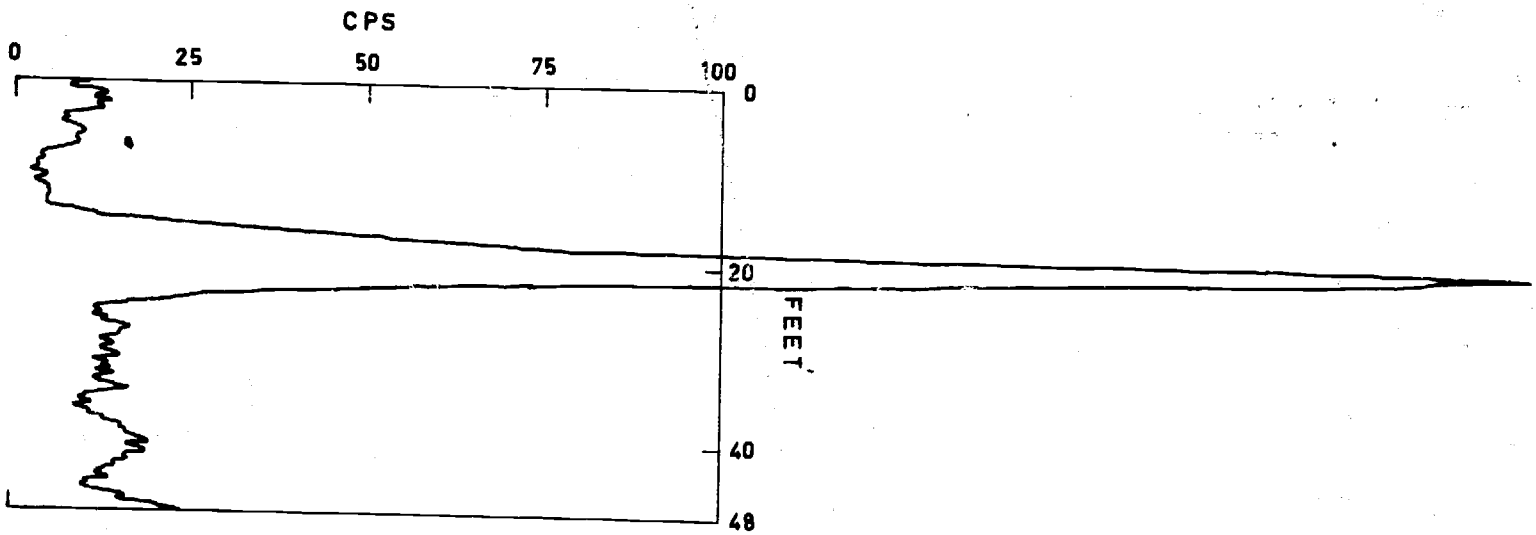
SPECIAL MINING LEASE 316

WELL LOG 195

WELL No. 316—R 4 E 2		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 50′	DATE: 10·2·70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



~~WELL LOG~~

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corp. Ltd.

DRILLER P. Pignitter S.A. Dept of Mines WELL No. 316-262 (11) 196

~~WELL LOG~~

DATE LOGGED 10/2/70 TOTAL DEPTH 30' in lignite

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	clay	60	Dark green-grey carbonaceous silty
	silt	40	clay and red brown silty clay
			plus fawn brown clay and silt
5'-10'	clay	35	Red ferruginous silty clay and white
	sand	65	medium grained sand
10'-15'	sand	75	Red, yellow and white clayey sand then
	clay	25	yellow and white "beach" sand
			From here Tube cores
16'-17'			Medium grained quartzic sand with
17'-18'			a little light grey clay
			Fine to medium grained quartzic sand,
18'-19'			with fawn coloured sticky clay
19'-20'			As above, but with more clay
			Top 6" as above, but grades into dark
20'-21'			brown sandy clay at base
			6" of dark brown clay, mixed with
			a little sand of quartz and muscovite
			This grades into black lignite containing
21'-22'			muscovite flakes
22'-23'			Black lignite with muscovite flakes
23'-24'			Black to brown micaceous lignite
24'-25'			As above
25'-30'	lignite	100	As above
			Soft black lignite

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

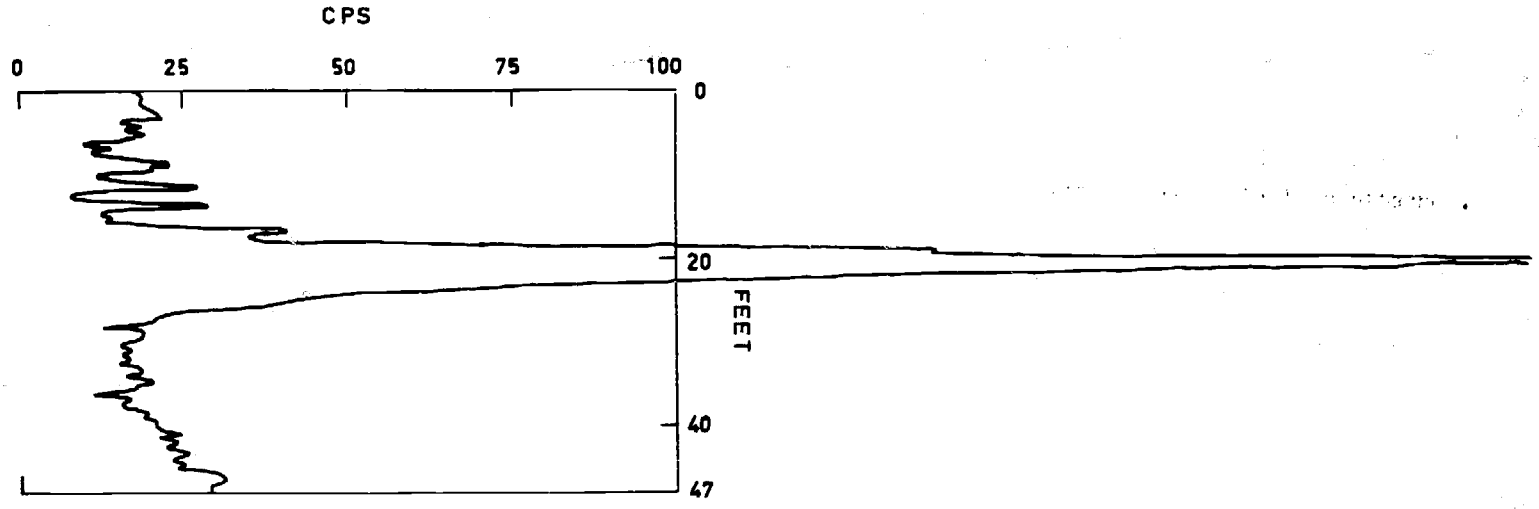
WELL LOG

197

WELL No. 316— R4E 1		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 50	DATE: 10 · 2 · 70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



WELL LOG

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corp. Ltd.

DRILLER P. Pigmitter S.A. Dept of Mines WELL No. 316-262 (1)

196

~~WELL LOG~~

DATE LOGGED 10/2/70 TOTAL DEPTH 50'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	clay	60	Dark green-grey (carbonaceous)? silty
	silt	40	clay and red brown silty clay
			plus fawn brown clay and silt
5'-10'	clay	35	Red ferruginous silty clay and
	sand	65	white medium grained sand.
10'-15'	sand	75	Red, yellow and white clayey sand
	clay	25	then yellow and white "beach" sand
15'-20'	sand	100	Yellow white medium grained
			"beach" type sand
20'-25'	sand	30	Yellow - white "beach" sand
	clay	40	dark brown white clay
	lignite	30	black and brown lignite
25'-35'	lignite	75	Black greasy lignite and dark
	clay	25	brown and white clay
35'-50'	lignite	100	Pure black lignite

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

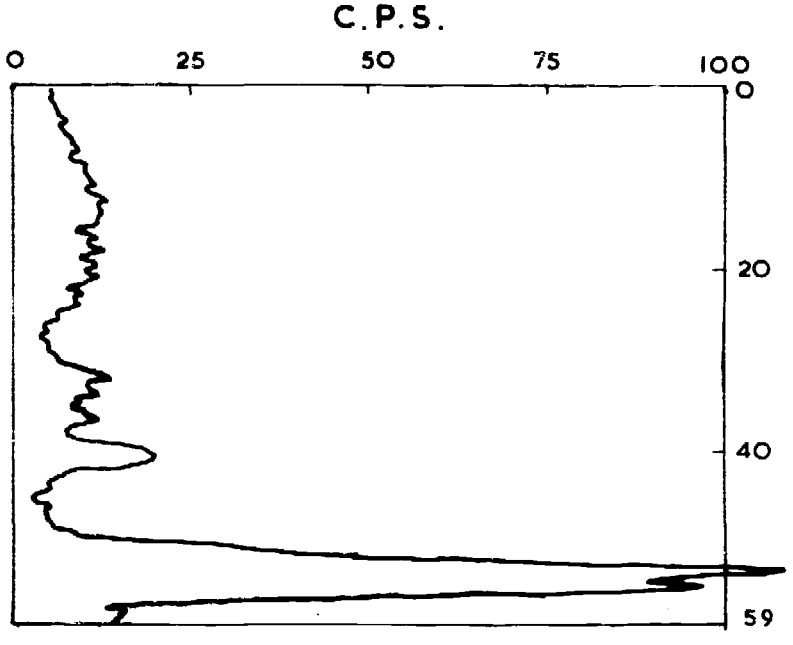
WELL LOG

195

WELL No. 316-R. 4 D		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 59'	DATE: 7-2-70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



WELL LOG

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corp. Ltd.

DRILLER F. Pignitter S.A. Dept of Mines WELL No. 316-R4C (11)

~~WELL LOG~~ 200

DATE LOGGED 6/2/70 TOTAL DEPTH 25'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	silt	100	Light brown and white silt
5'-10'	limestone	35	White grey sandy limestone and yellow
	clay	50	green sandy clay
	sand	15	
10'-15'	clay	25	Limestone and yellow orange medium
	limestone	20	grained clayey sand
	sand	55	
15'-19'	sand	100	Fawn brown medium grained "beach" sand
19'-25'	sand	100	Medium grained brown "beach" sand
			no gamma log

WELL 203

MINOIL SERVICES

GEOLOGIST D. B. Zierke CLIENT Australasian Mining Corporation Ltd

DRILLER F. Pigmitter S.A. Dept of Mines WELL No. 316-RAD

WELL LOG 201

DATE LOGGED 7/2/73 TOTAL DEPTH 58'6"

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-15'	silt	50	Light brown silt and humus
	humus	50	
15'-20'	clay	75	Red brown & white silty sandy stiff clay
	silt	15	
	sand	10	
20'-25'	clay	60	Red brown silty clay then grey brown
	silt	10	limestone chips
	limestone	30	
25'-30'	limestone	100	Green grey limestone chips
30'-35'	limestone	30	Green grey limestone then red brown
	sandstone	30	and yellow ferruginous sandstone and
	clay	40	red yellow ferruginous clay.
35'-40'	sandstone	100	Red yellow and black ferruginous sandstone
40'-45'	sandstone	75	Ferruginous sandstone and orange
	clay	25	brown clay
45'-49'	sand	75	Red medium grained sand and sandstone
	sandstone	10	same grey clay carbonaceous
	clay	15	
51½'-53'			Tube cored A 1" boulder layer underlain by brown to black lignite with micaceous and chloritic layers
53'-56'			Black and brown lignite with occasional quartzitic and micaceous layers
56'-58½'			As above, with numerous quartzitic boulders in upper 4".

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

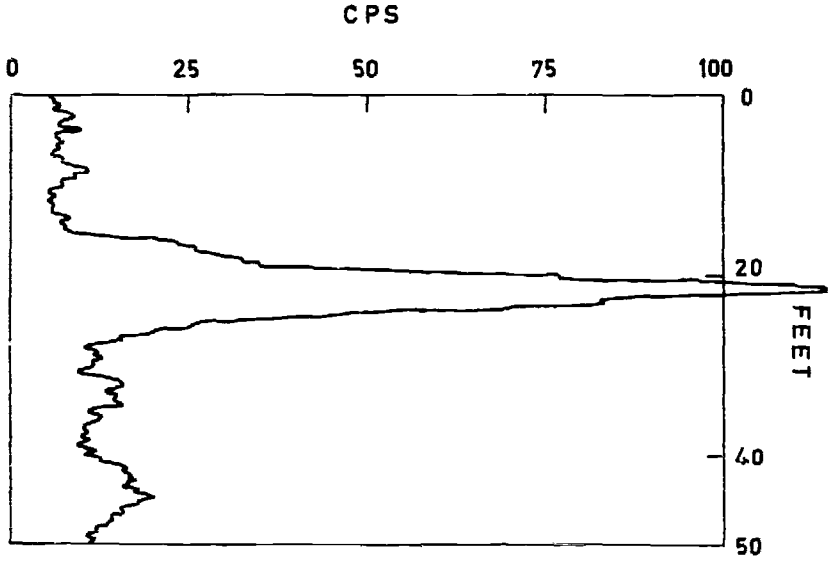
WELL LOG

202

WELL No. 316—R 4 C (1)		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 50'	DATE: 6·2·70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

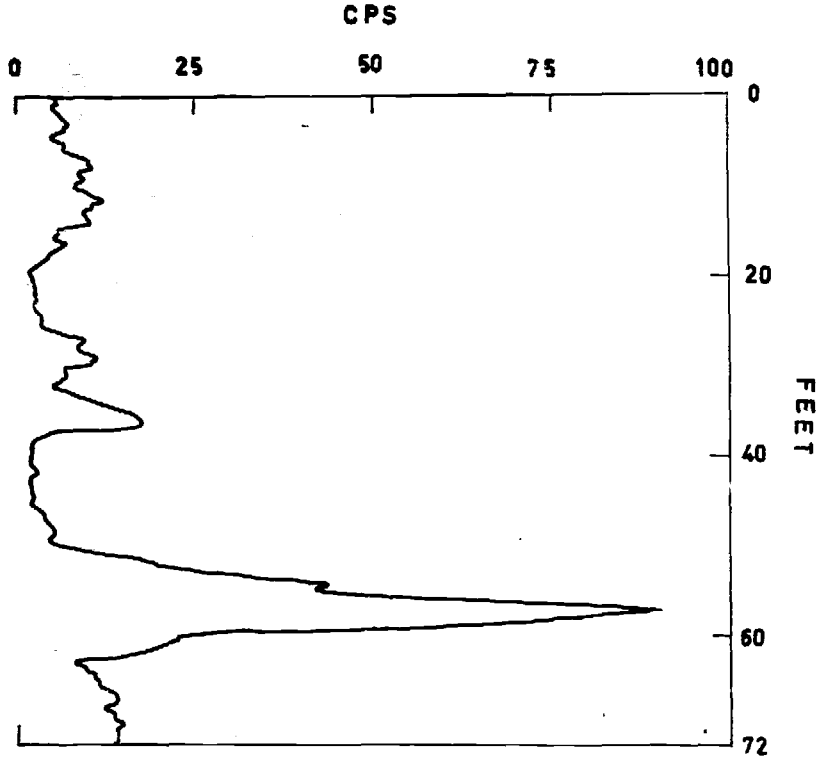
WELL LOG

203

WELL No. 316— R 4 B		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 80'	DATE: 6 · 12 · 70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd.

DRILLER F. Pignitter S.A. Dept of Mines WELL No. 316-M4C (1)

WELL LOG

DATE LOGGED 6/2/70 TOTAL DEPTH 50' 204

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	silt	100	Light brown and white silt
5'-10'	limestone	35	White grey sandy limestone &
	clay	50	yellow green sandy clay
	sand	15	
10'-15'	clay	25	Limestone and yellow orange medium grained
	limestone	20	clayey sand
	sand	55	
15'-20'	sand	100	Fawn brown medium grained "beach" sand
20'-25'	sand	100	Medium grained brown "beach" sand slightly lignitic
25'-40'	sand	50	Brown sand (medium grained) & lignite
	lignite	50	
40'-50'	lignite	100	soft black lignite

~~LOG CORE~~

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corp. Ltd.

DRILLER P. Pigmitter S.A. Dept of Mines WELL No. 316-243 205

~~LOG CORE DRILLING~~

DATE LOGGED 5/3/76 TOTAL DEPTH 80'

FORM RF

INTERVAL	RECOVERY FOOTAGE	%	DESCRIPTION
49'-49'6"			Variecloured conglomerate with
			subangular to subrounded grit
			to gravel sized fragments of quartzite
			in a matrix of clayey sand
49'6"-50'			As above but completely unconsolidated
			and brown in colour.
50'-51'			As above, but now with few gravel
			fragments
51'-52'			Brown to redbrown clayey sand
			with subrounded grit to gravel
			sized fragments of quartzite, sandstone
			and siltstone.
52'-53'			As above, but with more clay and much
			less sand, grit and gravel
53'-5?'			Predominantly orange clay mottled
			with purple and white clay
			sandstone pebble

WELL LOG

205 A

MINOIL SERVICES

GEOLOGIST D.B. Clarke CLIENT Australasian Mining Corp. Ltd.

DRILLER F. Pignitter S.A. Dept of Mines WELL No. 316-R4B

~~WELL LOG~~

DATE LOGGED 6/2/70 TOTAL DEPTH 80' in lignite

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	silt	50	Light brown silt and kunkar
	kunkar	50	
5'-15'			ditto
15'-20'	clay	75	Red brown and white silty sandy
	silt	15	stiff clay
	sand	10	
20'-25'	clay	60	Red brown silty clay then grey brown
	silt	10	limestone chips
	limestone	30	
25'-30'	limestone	100	Green grey limestone chips
30'-35'	limestone	30	Green grey limestone then red brown
	sandstone	30	and yellow ferruginous sandstone and red
	clay	40	yellow ferruginous clay
35'-40'	sandstone	100	Red-yellow and black ferruginous sandstone
40'-45'	sandstone	75	Ferruginous sandstone and orange brown
	clay	25	clay
45'-49'	sand	75	Red medium grained sand and sandstone
	sandstone	10	some grey clay, carbonaceous
	clay	15	
49'-50'	See attached core log		From here tube coring Hard red gritty sand and ferruginous sandstone
			Both tubes containing approx. 50% fallen sediment
50'-53'			Red gritty ferruginous clay
53'-54'			Probably drilled away in cleaning out
54'-55'			Yellow purple and white clay, gritty bands
			Drill 55'-65'
55'-60'	sand	100	Yellow red ferruginous sand medium grained
60'-65'	clay	50	yellow clay and dark brown lignite
	lignite	50	
65'-80'	lignite	100	Dark brown and black lignite

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd.

DRILLER P. Pignitter W.A. Dept of Mines WELL No. 216-RHA

206

WELL LOG

DATE LOGGED 5/2/70 TOTAL DEPTH 11' (not gauge logged)

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	silt	30	Fawn brown silt and brown white kunkar
	kunkar	70	
5'-10'	kunkar	100	Brown white kunkar
10'-11'	kunkar	100	kunkar - granite chips

MINOIL SERVICES

GEOLOGIST D. B.Clarke CLIENT Australasian Mining Corpr. Ltd.

DRILLER F. Pignitter S.A. Dept of Mines WELL No. 316-M4 207

WELL LOG

DATE LOGGED 31/1/70 TOTAL DEPTH 225'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
185'-190'	clay	80	Yellow and red clay with
	grit	20	White and green clay, quartz grit
190'-195'	clay	100	Red brown and green and white clay
195'-200'	clay	100	As above with some fallen lignite
200'-220'	clay	100	Predominantly green - white clay with some red - brown clay
220'-225'	clay	100	As above but with chips of feldspar, quartz and biotite.

MINOIL SERVICES

GEOLOGIST D. E. Clarke CLIENT Australasian M ning Corporation Ltd

DRILLER F. Pignitter S.A. Deptof Mines WELL No. 316-R4

WELL LOG 206

DATE LOGGED 31/1/70 TOTAL DEPTH 225'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-10'	kunkar	50	Fawn brown limey kunkar
	silt	50	silt
10'-20'	clay	80	Brown orange silty clay
	silt	20	
20'-30'	limestone	90	Hard fawn grey limestone
	silt	10	some fallen, fawn silt
30'-35'	clay	50	orange silt and clay
	silt	50	
35'-40'	sandstone	100	Yellow and red ferruginous
			sandstone, fallen limestone and kunkar
			silt
40'-50'	sandstone	100	Red, yellow and black
			ferruginous sandstone
50'-55'	sand	100	Yellow medium fine sand
55'-60'	sand	50	Yellow sand, brown clay
	clay	50	
60'-65'	lignite	15	Brown clay, hard black
	clay	80	lignite, orange yellow silt
	silt	5	and clay
65'-70'	clay	50	Brown and white clay and black
	lignite	50	lignite
70'-105'	lignite	100	Dark brown and black weakly micaceous in part lignite
			Minor white clay
105'-130'	lignite	100	Black minor dark brown lignite, micaceous in part
130'-135'	sand	30	Coarse quartz sand, black
	lignite	25	lignite and grey clay micaceous
	clay	45	
135'-140'	clay	80	White and light grey micaceous
	silt	20	silty clay, some fallen lignite
140'-185'	clay	65	As above but with subrounded
	silt	20	quartz grit
	grit	15	

MINOIL SERVICES

GEOLOGIST P. S. Clarke CLIENT Australasian Mining Corporation Ltd

DRILLER P. Pigaitter S.A. Dept of Mines WELL No. 316-32 209

WELL LOG

DATE LOGGED 31/1/70 TOTAL DEPTH 245'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	sandstone	10	Hard white silicified sandstone
	silt	90	grey and red silt
5'-20'	sand	50	Bright red medium grained sand
	sandstone	50	and sandstone
20'-30'	sand	35	Brown silt and sand
	silt	65	
30'-40'	clay	65	light brown clay, dark brown clay
	lignite	35	and lignite
40'-45'	clay	20	light brown clay and black
	lignite	80	hard lignite and brown shaly coal.
45'-50'	lignite	100	Black hard lignite and brown coal
50'-55'	lignite	100	Black lignite, spots of white clay
55'-75'	lignite	100	Brown finely interlayered brown clay and lignite
75'-90'	lignite	100	Brown lignite, very minor occasional white clay
90'-100'	lignite	100	Black weakly micaceous lignite
100'-135'	lignite	100	Brown minor black lignite
135'-140'	lignite	100	Black (50%) and dark brown lignite
140'-150'	grit	95	Subangular quartz grit
	lignite	5	some (fallen?) lignite
150'-155'	grit	60	Subangular quartz grit, whites
	clay	35	dark grey clay (silty)
	silt	5	
155'-170'	clay	60	White and dark grey brown clay
	grit	40	quartz grit
170'-195'	clay	95	White and grey clay, quartz
	sand	5	sand.
195'-205'	clay	85	light green and white silty
	silt	15	clay
205'-240'	clay	100	Dark green and light green laminated clay
240'-245'	clay	100	As above, but with fragments of quartz, feldspar and biotite.

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

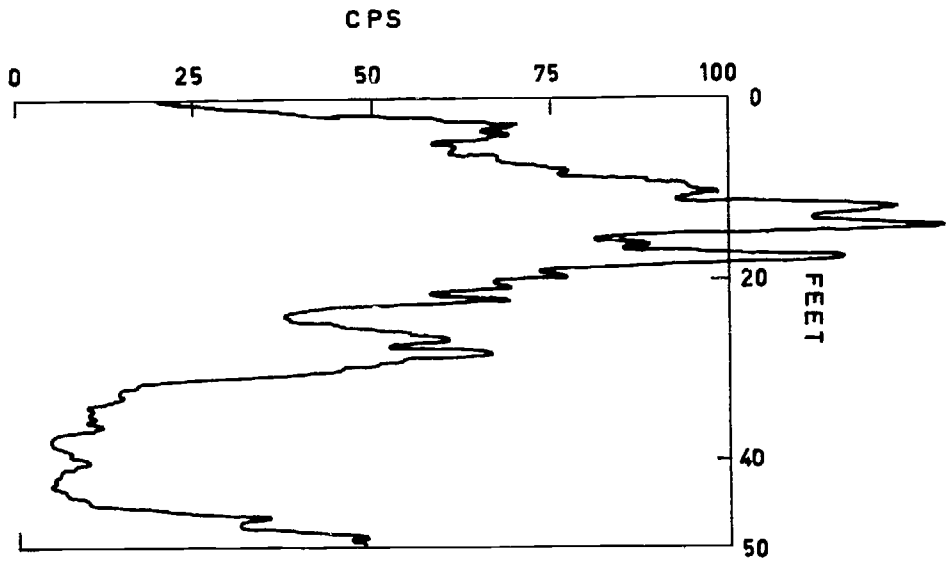
WELL LOG

210

WELL No. 316— R 2 E		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 50	DATE: 14 · 2 · 70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd.

DR. ER F. Pignitter S.A. Dept of Mines WELL No. 316-RED

WELL LOG 211

DATE LOGGED 13/2/70 TOTAL DEPTH 50' in lignite

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	silt	30	Red brown & white silty clay
	clay	70	and fawn brown silt
5'-10'	sandstone	10	white and purplish "beach" sand
	sand	90	medium grained. Purple ferruginous sandstone. Bright red (falling type) sand
10'-15'	sand	95	yellow - orange & red medium grained
	sandstone	5	sand, some dark purple ferruginous sandstone
15'-20'	clay	40	White - yellow "alunite" clay
	sand	55	with yellow - green medium grained
	sandstone	5	"beach" sand and sandstone
20'-25'	clay	95	White and light brown clay some
	sandstone	5	(fallen) ferruginous sandstone
25'-30'	clay	95	Light brown and chocolate brown and
	lignite	5	some white clay. Minor lignite
30'-50'	lignite	100	Pure black lignite

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

WELL LOG

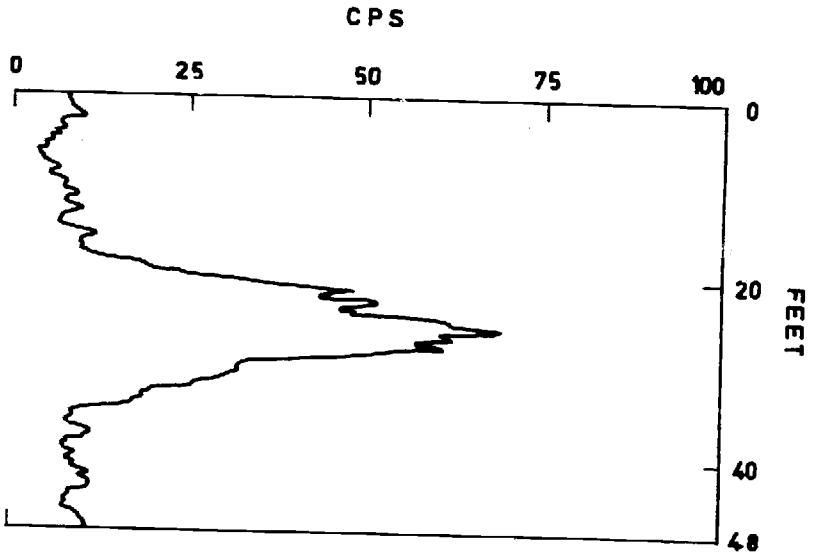
212

WELL No. 316—R2D		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 50	DATE: 13·2·70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY

Detailed lithologic logs attached.



MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd

DRILLER F. Pigmitter S.A. Dept of Mines WELL No. 316-22E

WELL LOG

213

DATE LOGGED 14/2/70 TOTAL DEPTH 50' in lignite

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	silt	30	Red silt then yellow and reddish
	clay	70	soft clay.
5'-10'	clay	100	Yellow clay then light brown clay
10'-15'	clay	100	Yellow clay, light brown then dark chocolate brown clay
15'-20'	clay	95	Yellow & light brown largely
	lignite	5	dark chocolate brown clay. Minor lignite
20'-25'	clay	70	Dark chocolate brown clay, less yellow
	lignite	30	clay, soft black lignite
25'-30'	clay	50	Soft brown carbonaceous clay
	lignite	50	and lignite
30'-35'	clay	100	Soft brown micaceous carbonaceous clay
35'-50'	lignite	100	soft black lignite and brown coal

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

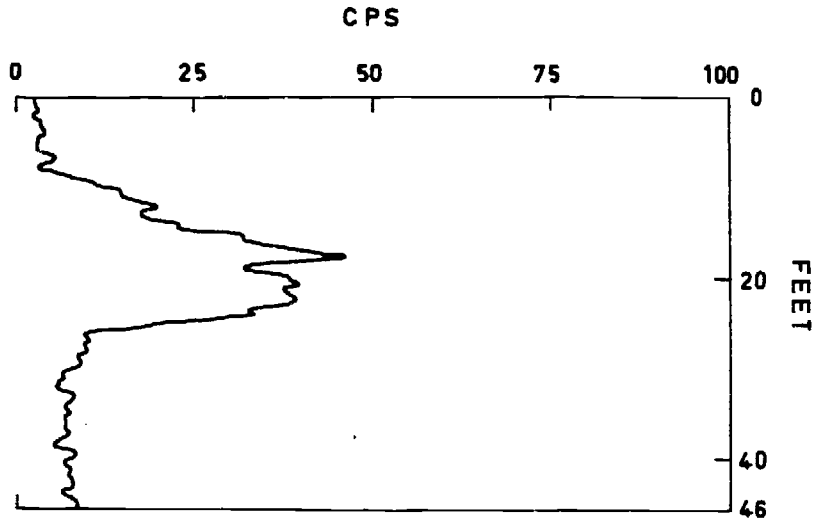
WELL LOG

214

WELL No. 316—R 2C		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 50	DATE: 13 · 2 · 70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd.

DR. ER P. Pigmitter, S.A.D ept of Mines WELL No. 316-R2C

WELL LOG 215

DATE LOGGED 13/2/70 TOTAL DEPTH 50' in lignite

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5@	sand	100	Bright red (falling type) sand
5'-10'	sand	100	white & (red brown minor) medium grained "beach type" sand
10'-15'	sand	65	Silver grey medium grained "beach type"
	clay	30	sand. Cream dense clay some
	sandstone	5	light brown clay. Minor yellow sandstone
15'-20'	sand	60	Brown sand, cream and light
	clay	35	brown clay, some lignite
	lignite	5	
20'-25'	sand	45	Brown sand, cream and light brown
	clay	20	clay lignite
	lignite	35	
25'-30'	clay	50	Brown and white clay and lignite
	lignite	50	
30'-35'	clay	20	Ditto and some yellow sandstone
	sandstone	5	
	lignite	75	
35'-50'	lignite	100	Pure black lignite very minor white clay

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

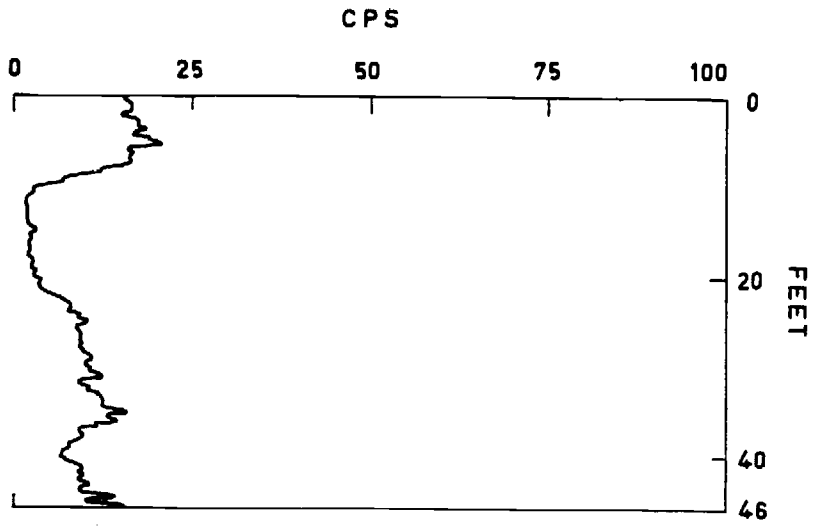
WELL LOG

216

WELL No. 316— R 2 A		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 50′	DATE: 13·2·70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

WELL LOG

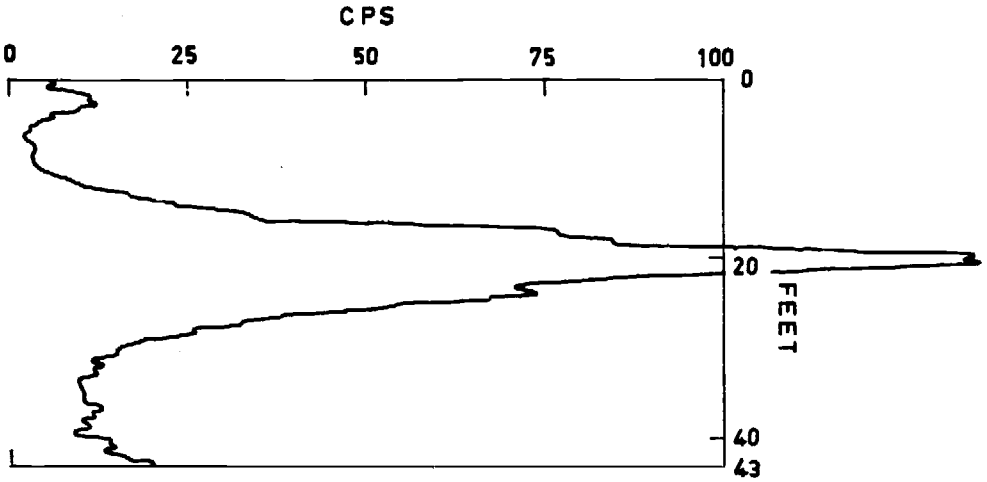
217

WELL No. 316— R 2 B		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 50'	DATE: 13·2·70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY

[illegible] lithologic
logs attached.



MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd.

DR. ER F. Pignitter S.A. Dept of Mines WELL No. 316-328

WELL LOG 218

DATE LOGGED 13/2/70 TOTAL DEPTH 50' in lignite

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	sand	70	fine brown sand and silt
	silt	30	
5'-10'	sand	70	Brown medium grained sand, some
	sandstone	10	yellow sandstone and yellow
	clay	20	and white clay.
10'-15'	sand	100	silver grey medium grained sand
15'-20'	sand	55	Silver grey medium grained sand light
	clay	35	brown and dark brown clay, some
	lignite	10	lignite.
20'-25'	sand	40	Medium grained brown sand, chocolate
	clay	40	brown clay, some lignite
	lignite	20	
24'-40'	lignite	80	Lignite with fallen sand 4-6.
	sand	15	
40'-50'	lignite	100	Pure black lignite 3.

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd

DRILLER F. Pignitter SA. Dept of Mines WELL No. 316-R2A

WELL LOG 219

DATE LOGGED 13/2/70 TOTAL DEPTH 50' in lignite

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	silt	25	Red and brown silt, yellow brown
	clay	75	clay
5'-10'	clay	100	Yellow brown clay
10'-15'	clay	70	Yellow brown clay, light brown
	lignite	30	clay, lignite
15'-20'	lignite	100	soft black lignite 1.5m
20'-45'	lignite	100	soft and hard black & brown lignite & brown coal 7.6m
45'-50'	clay	90	Micaceous brown and grey clay
	lignite	10	and lignite

MINOIL SERVICES

GEOLOGIST B. B. Clarke CLIENT Australasian Mining Corpr. Ltd.

DRILLER F. Pignitter S.A. Dept of Mines WELL No. 316-R2

WELL LOG

220

DATE LOGGED 30/1/70 TOTAL DEPTH 300'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
205'-270'	light grey &		Light grey, dark grey, light
	white clay	50	orange, brown clay and white clay
	light orange clay	15	all silty
	dark grey clay	15	
	silt	20	
270'-275'	clay	80	Green white silty clay, grey
	silt	20	clay minor orange brown clay
275'-290'	clay	50	Green white silty clay, grey
	silt	40	clay and silt
290'-300'	clay	55	As above but with quartz grit
	silt	30	very minor pyrite
	grit	15	

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corp. Ltd.

DRILLER F. Pignitter S.A. Dept of Mines WELL No. 316-R2

221

WELL LOG

DATE LOGGED 30/1/70 TOTAL DEPTH 300'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	sandstone	100	Hard silicified dark brown and light brown sandstone
5'-10'	sandstone	40	As above then white medium grained
	sand	30	sand and white clay
	clay	30	
10'-25'	clay	60	White, some brown clay, medium
	sand	40	grained quartz sand
25'-30'	clay	85	lignitic in part light brown
	lignite	10	clay. Some white fallen clay
	white clay & sand	5	and sand
30'-60'	clay	75	Dark brown clay light brown
	lignite	25	clay and black lignite
60'-85'	clay	90	Chocolate brown clay
	lignite	10	occasional spots of white clay some black lignite
85'-105'	light clay	70	Light brown clay, dark
	lignitic clay	30	brown lignitic clay, minor white clay
105'-135'	light clay	95	Light brown clay, sometimes
	white clay	5	weakly micaceous white clay
135'-140'	white clay	10	Dark brown lignitic clay
	lignite	10	some white clay, light brown
	dark brown clay	20	clay
	light brown clay	60	
140'-170'	clay	80	Light grey and white silty clay
	silt	20	
170'-175'	clay	80	White and light grey silty clay
	silt	20	light orange brown clay (15%) (fallen?)
175'-195'	clay	80	White and light grey silty
	silt	20	clay

WELL LOG

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corp. Ltd.

DRILLER F. Pignitter S.A. Dept of Mines WELL No. 316-R1

~~WELL LOG~~ 222

DATE LOGGED 29/1/70 TOTAL DEPTH 186'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	silt	55	Light reddish brown silt and sand
	sand	40	some ferruginous sandstone
	sandstone	5	
5'-10'	clay	100	Yellow - white (some brown-red)
			brittle"alunite?"clay.
10'-15'			as above
15'-20'	clay	100	Dark chocolate brown, light brown and
			white clay
20'-25'	clay	25	
	sand	50	
	lignite	25	
25'-30'	lignite	40	as above
	clay	20	
	sand	40	
30'-35'			as above
35'-40'	lignite	100	Black - dark brown soft lignite
40'-45'	lignite	75	Black - brown lignite with medium
	sand	25	quartz sand
45'-75'	lignite	100	Black - dark brown lignite and
			brown coal (more coal near base)
75'80'	lignite	75	Brown - black lignite and medium quartz
	sand	25	sand
80'-185'	sand	40	Quartz and mainly plagioclase
	clay	20	feldspar, sand and grit and white
	grit	40	clay. Some fallen lignite throughout.
185'-186'			Quartz, plagioclase, some orthoclase, Biotite, fallen white clay. Assumed basement of granodiorite.

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd

DRILLER F. Pignitter Dept of Mines S.A.

WELL No. 316-Q10

WELL LOG 24/1/70

223

DATE LOGGED

TOTAL DEPTH 315'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
135'-140'	sand	100	Yellow - red coarse medium quartz sand
140'-145'	sand	95	Yellow - red medium grained quartz sand
	sandstone	5	Some dark red micaceous ferruginous
			sandstone (as in 1st Main Lake)
			Some ferruginous sandstone no mica
145'-150'			as above
150'-155'	sand	90	Yellow - orange medium grained quartz
	sandstone	10	sand. Some (fallen) white sandstone
			and ferruginous and micaceous sandstone.
55'-175'	sand	100	Fine to medium grained yellow - brown
			quartz sand.
'5'-185'	sand	100	Grey white and yellow medium coarse
			quartz sand
5'-195'	sand	80	Medium grained yellow - brown quartz
	grit	20	sand, subrounded quartz grit
195'-200'	sand	60	Medium coarse yellow grey quartz
	grit	40	sand with subangular grey quartz grit
200'-205'	grit	30	Subangular - subrounded quartz grit
	sand	70	with medium coarse yellow sand (fallen
			overnight?)
205'-220'	grit	90	Red (ferruginous) and grey subangular
	sand	10	quartz grit. Yellow (fallen?)
			quartz sand.
220'-290'	clay	30	White - light fawn (alunitic?) clay with
	grit	70	sub(angular - rounded) quartz and
			feldspar grit. (Feldspar angular - subangul
290'-300'	clay	20	Light fawn brown clay, quartz
	grit	80	and feldspar grit. Some light
			green (decomposed gneiss?) clay.
300'-310'	clay	5	Light green clay with books of biotite
	grit	95	(decomp. gneiss) Grit mainly of
			orthoclase & quartz. Some plagioclase.
			Black diotite or orthoclase.
310'-315'			Fragments of granite (plagioclase,
			orthoclase, quartz, biotite).

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd

S.A.

DRILLER F. Pignitter, Dept. of Mines

WELL No. 316-Q10

WELL LOG

DATE LOGGED 24/1/70

TOTAL DEPTH 315'

224

FORM 1

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	silt	70	Light fawn brown silt and white
	kunkar	30	kunkar.
5'-10'			as above
10'-15'	clay	70	Dark red-brown silty stiff clay
	silt	30	
15'-20'			as above
20'-25'	clay	20	Red clayey sand and silt
	silt	20	
	sand	60	
25'-30'	sand	30	Red-orange fine sand and silt
	silt	70	
30'-35'			as above
35'-40'	sand	100	Orange fine medium sand
40'-45'			as above
45'-50'	sand	100	Yellow medium grained sand
50'-55'			as above
			from here mud drilling
55'-60'	sand	90	Red-orange sand, some white sandstone
	sandstone	10	
60'-65'	sandstone	80	Hard silicified medium grained white
	sand	20	- grey quartz sandstone. Reddish white sand.
65'-70'	sandstone	80	some hard white sandstone, some softer
	sand	20	less silicified white sandstone
			occasional ferruginous sandstone
			white and yellow sand
70'-75'	sandstone	50	Soft white sandstone (medium grained)
	sand	50	and white quartz sand
75'-80'	sand	60	White "beach" sand of medium grained
	sandstone	40	soft white sandstone
80'-105'			White clean medium grained "beach" sand. (Occasional reddish traces)
105'-125'	sand	70	Grey & pale yellow medium to
	grit	30	coarse grained quartz sand
			subangular - subrounded quartz grit
125'-130'	sand	100	Yellow coarse quartz sand
130'-135'	sand	100	Yellow - red coarse medium quartz sand

WELL LOG

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corp. Ltd.

DRILLER F. Pignitter S.A. Dept. of Mines WELL No. 316-09 225

~~WELL LOG~~

DATE LOGGED 23/1/70 TOTAL DEPTH 150'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-15'	sand	100	Fawn brown and grey medium grained quartz sand with some white kunkar nodules.
15'-25'	sand	70	As above with light brown stiff clay
	clay	30	
25'-30'	sand	60	Yellow brown redium grained sand and
	clay	35	bright red stiff silty clay
	silt	5	
30'-50'	fine sand	45	Bright red fine grained sand and silt,
	silt	40	some clay, some medium grained quartz sand.
	clay	10	
	medium sand	5	
50'-65'	fine sand	45	As above but orange in colour
	silt	40	
	clay	10	
	medium sand	5	
65'-100'	fine sand	50	Orange medium and fine grained
	medium sand	50	quartz sand
100'-110'	sand	80	As above but with blue grey subrounded
	grit	15	quartz grit with hard white clay
	clay	5	"porcellanite"
110'-120'	sand	30	As above
	grit	50	
	clay	20	
120'-150'	grit	85	Blue grey subangular quartz grit with
	clay	5	minor white clay and yellow sand.
	sand	10	Grit becoming slowly coarser

WELL LOG

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd.

DRILLER F. Pignitter S.A. Dept of Mines WELL No. 316-08

~~WELL LOG~~ 226

DATE LOGGED 22/1/70 TOTAL DEPTH 121'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-25'	silt	25	Orange brown fine silt and clay -
	clay	70	minor quartz sand
	sand	5	
25'-30'	clay	80	Red silty clay, minor quartz sand
	silt	15	
	sand	5	
30'-50'	fine sand	75	Bright red fine grained sand with some
	clay	10	clay, some medium grained quartz sand
	medium sand	15	
50'-80'	fine sand	75	As above but more orange in colour
	clay	10	
	medium sand	15	
80'-90'	sand	30	Orange fine sand, rounded quartz sand and
	grit	40	grit, some white clay, orange clay, minor
	clay	30	red brown sandstone
90'-95'	sand	30	As above with white, yellow and red hard
	grit	40	sandstone
	clay	20	
	sandstone	10	
95'-105'	sand	25	As above with more sandstone and some
	grit	35	white "Alunitic" clay
	clay	10	
	sandstone	30	
105'-121'	clay	40	White alunitic clay with blue grey
	gravel	20	subrounded quartz gravel and grit
	grit	40	Quartz, feldspar, biotite at 121'
			Very hard, presumed granitic basement.

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corp. Ltd.

DRILLER F. Pignitter S.A. Dept of Mines WELL No. 316-Q7

WELL LOG 227

DATE LOGGED 21/1/70 TOTAL DEPTH 223'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-20'	clay	20	Light fawn brown clayey silt
	silt	80	
20'-30'	clay	80	Dark red brown hard silty clay
	silt	20	
30'-35'	clay	30	Dark red brown silty clay, red fine sand
	sand	50	
	silt	20	
35'-50'	silt	70	Red fine sand and silt
	sand	30	
50'-60'	sand	50	Orange fine - coarse sand and silt
	silt	50	
60'-70'	sand	100	Yellow fine - coarse sand
70'-90'	sand	100	Yellow brown medium to coarse quartz sand
)'-95'	sand	100	Yellow light grey medium to coarse sand
95'-110'	sand	100	Light grey coarse sand
110'-185'	sand	100	Light grey and yellow coarse sand
185'-190'	sandstone	15	Yellow brown coarse sandstone, yellow
	sand	60	brown sand, quartz grit, some yellow clay
	grit	10	
	clay	15	
190'-195'	sandstone	10	White and yellow brown sandstone and sand
	sand	65	Yellow clay, subrounded quartz grit.
	clay	15	
	grit	10	
195'-200'	clay	90	Yellow clay, subrounded quartz grit
	grit	10	
200'-223'	clay	85	Alunitic white clay, subrounded quartz grit
	grit	15	
			223' granite fragments. T.D.

WELL LOG

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corp. Ltd.

DRILLER W. Pignitter S.A. Dept of Mines WELL No. 116-68

~~WELL LOG~~ 226

DATE LOGGED 21/1/70 TOTAL DEPTH 174'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
100'-106'	clay	80	Fawn (red & white) clay with quartz
	grit	20	grit.
106'-174'	clay	70	White to light fawn (alunitic?)
	quartz	30	clay, quartz sand to grit sized.
			155'-174' - hard, 173'-174' granite chips
			(plagioclase and quartz)
			T.D. 174'

~~WELL LOG~~

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corp. Ltd.,

DRILLER F. Pigmitter S.A. Dept of Mines WELL No. 316-G6

~~WELL LOG~~ 225

DATE LOGGED 21/1/70 TOTAL DEPTH 174'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-15'	silt	40	Light fawn-brown clay and silt
	clay	50	some kunkar
	kunkar	10	
15'-20'	silt	20	Light and darker brown silty clay
	clay	80	
20'-30'	silt	20	Stiff red-brown sandy silty clay
	sand	10	
	clay	70	
30'-35'	sand	40	Red-orange fine sand and silt, clayey
	silt	40	in part.
	clay	20	
35'-50'	sand	50	Orange fine sand and silt
	silt	50	
)'-55'	sand	100	Yellow orange fine sand
55'-60'	sand	80	Yellow & brown coarse quartz sand
	sandstone	20	some yellow - brown coarse sandstone
60'-65'	sandstone	70	Fine grained white - grey sandstone
	sand	30	Some yellow - brown sandstone. White and yellow sand.
65'-70'	sandstone	50	Yellow (soft, fine grained) sandstone and
	sand	50	white hard sandstone and yellow and white sand
70'-75'	sand	100	Fine grained white sand
75'-80'	sand	75	Yellow fine sand, rounded quartz,
	grit	25	grit, some white clay
80'-85'	sand	100	Grey-white quartz sand (medium - coarse)
85'-90'	sand	75	Grey-white quartz sand and grit.
	grit	25	grit subrounded
90'-95'	clay	50	Yellow - orange clay, sand and grit
	sand	25	
	grit	25	
95'-100'	clay	60	Orange - brown and white clay, quartz
	sand	20	sand and grit.
	grit	20	

WELL 106

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corp. Ltd.

DRILLER P. Pigmitter S.A. Dept of Mines WELL No. 216-65 2.5"

WELL-LOG

DATE LOGGED 30/1/70 TOTAL DEPTH 131'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
100'-105'	clay	60	Alunitic clay streaked red (overall
	grit	40	pinkish). Subrounded quartz grit.
			Cream - white alunitic clay
105'-110'	grit	40	Subrounded quartz grit.
	clay	60	
110'-115'	Clay	60	Alunitic clay (brown stained) subrounded
	grit	40	quartz grit.
115'-120'	clay	60	White cream alunitic clay
	grit	40	subrounded quartz grit.
120'-125'	clay	70	White alunitic clay. Plagioclase,
	quartz	10	Orthoclase and subrounded quartz grit
125'-130'	feldspar	20	130'-131' Granite & gneiss chips

WELL LOG

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corp. Ltd.

DRILLER F. Pigmitter S.A. Dept of Mines WELL No. 316-GS

~~WELL LOG~~ 231

DATE LOGGED 20/1/70 TOTAL DEPTH 131'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-10'	sand	40	Light fawn brown sand and silt
	silt	50	some humbar
	humbar	10	
10'-15'	clay	50	Light to darker brown silty clay
	silt	50	light brown silt
15'-20'	clay	60	Red brown stiff sandy and silty
	silt	30	clay. Some light brown silty clay
	sand	10	
20'-30'	clay	50	Red brown and orange very silty clay
	silt	50	
30'-35'	sand	30	Red fine sand and silt
	silt	70	
35'-50'	sand	55	Orange - orange brown fine sand and
	silt	30	silt, clayey in part.
	clay	15	
50'-55'	sand	100	Orange yellow fine sand
55'-60'	sand	100	Yellow fine sand
60'-65'	sandstone	40	White grey sandstone. White and
	sand	60	light fawn sand.
65'-70'	sand	100	Light yellow - brown sand, medium - fine
			Mud drilling from here
70'-80'	sandstone	30	Yellow orange sand and white sandstone
	sand	70	
80'-90'	sand	40	Yellow brown medium grained sand. White,
	sandstone	30	some ferruginous sandstone. Blue-white
	grit	30	subrounded quartz and grit.
90'-95'	sandstone	20	Brown ferruginous sandstone (some white
	Porcellanite	20	sandstone). "porcellanite". Yellow brown
	sand	40	sand subrounded quartz grit.
	grit	20	
95'-100'	sandstone	20	Dark brown and orange ferruginous
	sand	35	sandstone. White and light brown
	grit	15	sandstone, white "porcellanite",
	porcellanite	20	white kaolinitic clay, subrounded quartz
	clay	10	grit. Yellow sand.

~~WELL LOG~~

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corp. Ltd.

DRILLER F. Pignitter S.A.Dept of Mines WELL No. 316-94

~~WELL LOG~~

DATE LOGGED 20/1/70 TOTAL DEPTH 62' 232

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-15'	clay	50	Light fawn very silty clay
	silt	50	
15'-25'	clay	95	Dark red brown sandy stiff clay
	sand	5	some white clay
25'-30'	clay	90	Red-brown orange stiff sandy/silty
	silt	10	clay.
30'-35'	sand	50	Red fine sand and silt
	silt	50	
35'-40'	sand	50	Orange-red fine sand and silt
	silt	50	
40'-45'	sand	100	Orange fine sand
45'-50'	sand	70	White and brown sand and sandstone
	sandstone	30	
50'-55'	sandstone	50	White and brown sandstone. Red and
	sand	50	white sand.
55'-60'	clay	80	"Porcellanite" powdered white clay, quartz,
	grit	20	grit and fallen sandstone
60'-62'			Granite chips T.D. 62'.

~~WELL LOG~~

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corp. Ltd.

DRILLER F. Pigmitter S.A. Dept of Mines WELL No. 316-93

~~WELL LOG~~ 233

DATE LOGGED 20/1/70 TOTAL DEPTH 133'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-20'	silt	100	Light brown clayey silt. Minor white clay
			15'-20' light brown clayey silt, more white clay.
20'-25'	clay	95	Dark red brown sandy stiff damp
	sand	5	clay.
25'-30'	clay	75	Dark red brown stiff clay then fine-
	sand	25	medium red sand.
30'-35'	sand	95	Fine to fine-medium red sand.
	clay	5	Some minor white clay.
35'-50'	sand	100	Medium to medium fine grained red sand. Clay on grains (inestimable)
50'-60'	sand	100	Red sand (medium fine - coarse) red clay on surface (inestimable)
60'-65'	sand	50	Bright orange silt and sand
	silt	50	
65'-70'	sandstone	40	Minor orange sand then dark brown
	sand	60	ferruginous sandstone, white - brown sand- stone, conglomeratic in part, white - red sand. Layer of brown sand.
70'-75'	sandstone	30	White - yellow and ferruginous sandstone
	sand	70	
75'-80'	sandstone	25	White and red brown sandstone then red
	sand	50	and white sand (medium - coarse) and
	silt	25	silt.
80'-85'	sand	90	Fine red and white sand, some
	sandstone	10	white and ferruginous sandstone
85'-90'	sand	100	Fine - medium yellow sand.
90'-95'	sandstone	50	Light fawn-white sand with
	sand	50	yellow and white sand.
95'-100'	grit	75	Yellow brown quartz grit then
	clay	25	pale pink clay with quartz grit.
100'-105'	clay	60	Pale pink clay (purple and white clay)
	grit	40	with quartz grit.
105'-125'	clay	60	White (some red) clay, quartz grit
	grit	40	
125'-133'			Granite chips, quartz grit, white clay. Very hard.

~~WELL LOG~~

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corp. Ltd.

DRILLER F. Pignitter S.A. Dept of Mines WELL No. 316-92

~~WELL LOG~~ 234

DATE LOGGED 19/1/70 TOTAL DEPTH 83'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	clay	70	Light brown silty clay
	silt	30	
5'-10'	silt	80	Light brown clayey silt
	clay	20	
10'-15'	clay	75	Light brown red silt then dark
	silt	25	red brown damp silty clay
15'-25'	clay	80	Dark red brown silty sandy damp clay
	sand	10	
	silt	10	
25'-30'	clay	20	Dark red brown silty damp clay then
	sand	80	medium-fine red sand.
30'-45'	sand	90	Fine to medium - fine bright red silt
	silt	10	and sand
45'-50'	sand	100	Orange red medium fine sand
50'-55'	sand	100	Orange (yellow-red) medium grained quartz sand.
55'-60'	sand	75	Medium-fine yellow quartz sand
	grit	25	with subrounded quartz grit.
60'-65'	sand	50	Red-brown sand then grey white
	sandstone	50	reasonably hard sandstone (quite coarse) Minor brown ferruginous sandstone.
65'-70'	sand	50	Red-white sand and white-grey
	sandstone	50	sandstone. Some ferruginous sandstone.
70'-80'	clay	70	Creamy - white "alunitic"clay with
	grit	30	coarse subrounded quartz grit.
80'-83'			Biotite, feldspar, quartz fragments. - granite very hard

WELL LOG

MINOIL SERVICES

GEOLOGIST P. B. Clarke CLIENT Australasian Mining Corp. Ltd.

DRILLER F. Pigmitter S.A. Dept of Mines WELL No. 316-Q1

~~WELL LOG~~

DATE LOGGED 19/1/70 TOTAL DEPTH 143' 235

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
105'-110'	quartz & grit	50	Blue white quartz grit - streaks of
	sandstone	30	white clay. Above this brown, red
	"Porcellanite"	20	and yellow sandstone (Fallen?).
			Fallen(?) cream "porcellanite"
110'-135'	clay	50	Rounded blue white quartz grit with
	grit	50	white (Kunite?) clay.
135'-140'	grit	75	White clay, coarse blue - white quartz
	clay	25	grit.
			Granite chips - T.D. 143'.

WELL LOG

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd

DRILLER F. Pigmitter S.A. Dept of Mines WELL No. 316-Q1

236

~~WELL LOG~~

DATE LOGGED 19/1/70 TOTAL DEPTH 143'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-10'	limestone	70	Light brown kunkar and sand
	sand	30	
10'-20'	clay	50	Red brown stiff sandy silty clay
	sand	30	kunkar and light brown sand (fallen)
	kunkar	20	
20'-25'	clay	65	Red-brown damp sandy silty stiff clay
	sand	35	some red sand
25'-30'	sand	100	Light red fine - medium grained sand clayey on grains
35'-45'	sand	100	Orange (yellow - red) medium - fine clayey sand (clayey on grains - impossible to give % - will omit)
45'-50'	sand	100	Yellow - orange medium coarse quartz sand
50'-55'	sand	100	Red-orange sand then mustard yellow medium grained quartz sand.
55'-60'	sand	50	Yellow - orange quartz sand then white
	sandstone	50	grey (reasonably hard) quartz sandstone
60'-65'	sandstone	75	White grey quartz sandstone (+ ground
	sand	25	up sandstone as sand & fallen yellow sand)
65'-70'	sandstone	50	Yellow orange brown coarse quartz sandstone
	sand	50	and yellow medium coarse quartz sand
70'-75'	sand	95	Fine to medium fine light yellow quartz
	sandstone	5	sand (falls in). Some (fallen) yellow sandstone (change to mud drilling)
75'-90'	sand	70	Yellow medium - coarse sand with
	sandstone	30	white, grey and yellow sandstone
90'-95'	sandstone & sand	100	Medium - coarse yellow quartz sand & sandstone then dark brown quartz sand and sandstone (soft)
95'-100'	Brown sand & sandstone	45	Dark brown quartz sand and soft sandstone rounded quartz grit. Then white - cream
	quartz & grit	15	chips of what looks like porcellanite -
	"Porcellanite"	40	- is actually softer - a white clay
100'-105'	"Porcellanite"	65	Cream coloured "porcellanite" - clay
	sandstone	25	(harder) Brown ferruginous sandstone
	grit	10	(fallen) white-blue quartz grit.

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd

DRILLER E. Murphy S.A.Dept of Mines

WELL No. 316-M15

WELL LOG

237

DATE LOGGED 6/12/69

TOTAL DEPTH 242'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
165'-170'	quartz	65	Coarse quartz grit and gravel Pink
	feldspar	20	orthoclase and green plagioclase
	clay	15	angular fragments. White clay
170'-175'	quartz	75	as above
	feldspar	5	
	clay	20	
175'-180'	quartz	80	as above
	feldspar	5	
	clay	15	
180'-195'	quartz	60	Coarse quartz grit and gravel, green and
	plagioclase	10	white plagioclase angular fragments,
	clay	30	white clay.
195'-200'	quartz	80	as above
	plagioclase	10	
	clay	10	
200'-205'	quartz	70	as above
	plagioclase	10	
	clay	20	
205'-210'	quartz	60	Coarse quartz grit and gravel
	clay	40	white soft and hard siliceous clay
210'-240'	quartz	50	Coarse quartz gravel and grit
	feldspar	25	Pink and grey green feldspar
	clay	25	white clay
240'-242'			as above plus granitic chips

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd

DRILLER E. Murphy S.A. Dept of Mines

WELL No. 316-M15

WELL LOG

DATE LOGGED 6/12/69

TOTAL DEPTH 242' 236

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	silt	75	Brown silt and sand
	sand	25	
5'-10'	kunkar	100	Buff coloured kunkar
10'-15'	clay	85	Red stiff silty clay
	silt	15	
15'-40'	sand	100	Red orange fine "falling type" sand
40'-70'	sand	100	Orange, some red "falling type" sand
70'-75'	sand	90	Brown red and white sand minor
	sandstone	10	white and red orange sandstone
75'-100'	sandstone	60	Grey and yellow unconsolidated
	sand	40	sandstone. Sample often as brown, grey or orange sand.
100'-105'	sand	100	Clean yellow and white medium grained "beach type" sand
105'-115'	sandstone	100	Dark brown and red hard consolidated sandstone
115'-120'	sandstone	100	Black and yellow brown very hard sandstone
120'-130'	clay	50	White alunitic clay and coarse
	grit	50	quartz grit
130'-135'	clay	40	as above
	grit	60	
135'-140'	porcellanite	20	White siliceous porcellanite
	clay	25	white clay, blue coarse quartz
	grit	55	grit, some fallen black sandstone
140'-155'	clay	40	White and yellow clay, blue coarse
	grit	60	quartz grit
155'-160'	quartz	80	Blue coarse quartz grit and gravel
	clay	20	and white clay
160'-165'	quartz	60	Coarse quartz grit and gravel
	feldspar	15	Pink feldspar angular fragments
	clay	25	white clay

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd.

DRILLER E. Murphy S.A. Dept of Mines WELL No. 316-MG4A

239

WELL LOG

DATE LOGGED 8/12/69 TOTAL DEPTH 275'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	silt	75	Fawn brown silt and fine sand
	sand	25	
5'-10'	clay	75	Red brown clay, white brown
	kunkar	25	kunkar
10'-20'	clay	85	Deep red stiff sandy clay
	sand	15	
20'-25'	sand	50	As above then deep red fine sand
	clay	50	
25'-60'	sand	100	Red and orange fine "falling type" sand
60'-80'	sand	85	Yellow white medium grained "beach
	sandstone	10	type" sand, minor yellow red
	porcellanite	5	unconsolidated sandstone bands
			and white siliceous porcellanite
80'-85'	sandstone	80	Yellow red sandstone (sample
	porcellanite	20	as sand) porcellanite
85'-90'	clay	40	White (minor red) alunitic clay
	grit	60	coarse quartz grit
90'-95'	clay	50	as above
	grit	50	
95'-100'	clay	25	as above
	grit	75	
100'-105'	clay	50	as above
	grit	50	
105'-110'	clay	60	as above
	grit	35	
	plagioclase	5	
110'-115'	clay	10	White clay, coarse quartz grit, green and
	grit	60	white plagioclase, brown and yellow
	plagioclase	10	sandstone
	sandstone	20	
115'-120'	clay	25	as above
	grit	55	
	plagioclase	10	
	sandstone	10	

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd.

DRILLER E. Murphy W.A. Dept of Mines

WELL No. 316-RLA

WELL LOG

240

DATE LOGGED 8/12/69

TOTAL DEPTH 275'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
120'-125'	grit	50	Coarse quartz grit white
	plagioclase	30	plagioclase, white clay
	clay	30	
125'-130'	grit	70	as above
	plagioclase	15	
	clay	15	
130'-135'	grit	75	as above
	plagioclase	15	
	clay	10	
135'-140'	grit	70	as above
	plagioclase	20	
	clay	10	
140'-145'	grit	80	as above
	plagioclase	15	
	clay	5	
145'-150'	grit	70	as above
	plagioclase	20	
	clay	10	
150'-160'	grit	50	Coarse quartz grit pink and white
	feldspar	35	feldspar, white and brown clay
	clay	15	
160'-170'	grit	40	Coarser quartz grit, pink brown feldspar
	feldspar	40	white clay
	clay	20	
170'-175'	grit	40	Purple microcline coarse quartz grit
	microcline	20	fawn white feldspar, white clay
	fawn feldspar	20	
	clay	20	
175'-180'	grit	45	as above
	microcline	30	
	feldspar	10	
	clay	15	
180'-185'	grit	35	as above
	microcline	40	
	feldspar	10	
	clay	15	

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd.

DRILLER E. Murphy S.A. Dept of Mines WELL No. 216-WAA 241

WELL LOG

DATE LOGGED 8/12/69 TOTAL DEPTH 275'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
185'-190'	grit	35	Purple microcline coarse quartz grit
	microcline	40	fine white feldspar, white clay
	feldspar	20	
	clay	5	
190'-195'	grit	40	as above
	microcline	30	
	feldspar	25	
	clay	5	
195'-200'	grit	40	as above
	microcline	30	
	feldspar	20	
	clay	10	
200'-205'	grit	50	as above
	microcline	20	
	feldspar	20	
	clay	10	
205'-210'	grit	55	as above
	microcline	10	
	feldspar	25	
	clay	10	
210'-215'	grit	55	as above
	microcline	15	
	feldspar	25	
	clay	5	
215'-220'	grit	50	as above with some green white clay
	microcline	15	
	feldspar	25	
	clay	10	
220'-225'	grit	55	as above with some biotite flakes.
	microcline	15	
	feldspar	25	
	clay	5	
225'-230'	grit	60	as above
	microcline	5	
	feldspar	35	

MINOIL SERVICES

GEOLOGIST D. E. Clarke CLIENT Australasian Mining Corporation Ltd.

DRILLER E. Murphy S.A. Dept of Mines WELL No. 316-M4A

WELL LOG

242

DATE LOGGED 8/12/80 TOTAL DEPTH 275'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
230'-235'	grit	55	Purple microcline coarse quartz grit
	microcline	5	fawn white feldspar, white clay
	feldspar	35	
	clay	5	
235'-240'	grit	50	as above
	microcline	5	
	feldspar	40	
	clay	5	
240'-245'	grit	40	Coarse quartz grit. Fawn pink
	fawn feldspar	35	feldspar, white feldspar
	white feldspar	15	white green clay and biotite
	clay	10	flakes.
245'-250'	grit	45	as above
	feldspar	35	
	white feldspar	10	
	clay	10	
250'-255'	grit	35	as above
	feldspar	45	
	white feldspar	10	
255'-260'	grit	45	as above
	feldspar	40	
	white feldspar	10	
	clay	5	
260'-265'	grit	45	as above
	feldspar	35	
	white feldspar	15	
	clay	5	
265'-270'	grit	35	as above
	feldspar	50	
	white feldspar	5	
	clay	10	
270'-275'			as above, basement presumed granitic at 273'.

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd.

DRILLER E. Murphy S.A. Dept of Mines WELL No. 316-M14

WELL LOG

DATE LOGGED 5/12/69 TOTAL DEPTH 195'

243

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
115'-120'	clay	30	White alunitic clay, red,orange
	grit	40	and clear quartz grit and gravel
	gravel	30	
120'-135'	clay	40	White alunitic clay red, orange and
	quartz	60	clear quartz grit and gravel
135'-140'	clay	30	Yellow orange and white clay
	gravel	30	red and clear quartz gravel and grit
	grit	40	
140'-145'	clay	20	White clay, red and clear quartz
	gravel	60	gravel and grit
	grit	20	
145'-150'	clay	60	As above
	gravel	10	
	grit	30	
150'-155'	clay	50	As above
	gravel	10	
	grit	40	
155'-160'	quartz	90	Quartz gravel and grit, minor white clay
	clay	10	
160'-165'	clay	40	Deep red and white clay, quartz gravel and
	quartz	60	grit
165'-170'	clay	40	White clay (minor blue grey clay)
	quartz	60	quartz gravel and grit
170'-175'	clay	50	Grey and white (minor green) clay
	quartz	50	quartz gravel and grit
175'-180'	clay	40	Green white (minor orange and
	grit	60	brown) clay, quartz grit
180'-190'	quartz	30	Decomposed gneiss Green and dark
	clay	70	brown biotite clay, quartz gravel
			and grit.
190'-195'			As above At 194' quartz biotite
			gneiss.

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd.

DRILLER E. Murphy S.A. Dept of Mines WELL No. 316-M14

WELL LOG

244

DATE LOGGED 5/12/69 TOTAL DEPTH 195'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	sand	20	Orange sand and silty fawn
	silt	60	coloured kunkar nodules
	kunkar	20	
5'-10'	clay	75	Red very silty clay. Minor white sandstone
	silt	10	and kunkar
	sandstone	5	
	kunkar	10	
10'-20'	clay	90	deep red sandy stiff cohesive clay
	sand	10	
20'-25'	sand	100	Deep red fine sand
25'-55'	sand	100	Orange fine grained sand
			"falling type"
55'-60'	sand	85	Loose orange sand, white hard
	sandstone	15	consolidated sandstone
60'-65'	sand	70	Fawn brown and orange sand
	sandstone	30	light grey and fawn consolidated sandstone
65'-70'	sandstone	20	Red-yellow and light grey sandstone
	quartz	20	quartz gravel and grit, orange sand
	sand	60	
70'-75'	porcellanite	20	White siliceous "porcellanite" quartz,
	quartz	70	gravel and grit, fallen sandstone
	sandstone	10	
75'-85'	porcellanite	100	Hard white siliceous porcellanite
85'-90'	clay	70	Soft white and red (alunitic?) clay
	quartz	20	with quartz grit, fallen porcellanite
	porcellanite	10	
90'-95'	clay	80	Soft white (alunitic?) clay - some
	quartz	20	red orange. Red and clear quartz
			gravel and grit.
95'-115'	clay	70	Soft white (some deep red and
	quartz	30	orange alunitic clay.) Red and
			clear quartz gravel and grit.

WELL LOG

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corpoation Ltd

DRILLER E. Murphy S.A. Dept of Mines

WELL No. 316-M13B

245

~~WELL LOG~~

DATE LOGGED 17/12/69

TOTAL DEPTH 300'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
160'-167'			Very poor recovery of white clay with 30 ft quartz grit
167'-170'			White alunitic clay, quartz gravel and grit, varying from 25% to purely grit bands
170'-190'			As above with occasional small amounts of dark blue clay
190'-300'			Green and white biotitic clay, quartz-feldspathic grit and gravel.

WELL LOG

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corp Ltd.

DRILLER E. Murphy S.A. Dept of Mines

WELL No. 316-M13B

~~WELL LOG~~

246

DATE LOGGED 17/12/69

TOTAL DEPTH 300'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-10'	silt	60	Fawn brown clayey silt
	clay	20	some white - brown kunkar
	kunkar	20	nodules.
10'-20'	clay	50	Red brown silt and clay
	silt	50	
20'-40'	sand	100	Red medium fine grained sand
40'-60'	sand	100	Orange medium fine grained sand
60'-65'	sand	100	Yellow and white quartz sand
65'-70'	sand	50	As above and white sandstone
	sandstone	50	
70'-90'	sandstone	100	White, red anddark red hard consolidated sandstone
			Sample often as sand
'-95'	sand	85	Yellow and dark brown sand
	grit	15	and grit
95'-100'	sand	50	Gold, yellow and dark brown
	grit	20	sand, grit and dark
	sandstone	30	brown sandstone
100'-105'	sandstone	100	Black, dark brown and golden yellow sandstone. Sample partly as sand and grit.
105'-110'	clay	50	Soft white (alunitic) clay with
	sandstone	50	yellow brown sandstone (sample as sand)
110'-120'	clay	60	
	sandstone	40	as above
120'-130'	clay	50	Stiff white clay with quartz sand
	sand	25	gravel and grit
	gravel	15	
	grit	10	
130'-155'	clay	40	Stiff white clay, sand, quartz
	sand	15	gravel and grit
	gravel	25	
	grit	20	
160'			

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd.

DRILLER E. Murphy S.A. Dept of Mines WELL No. 316-MB3A

WELL LOG

247

DATE LOGGED 4/12/69, 9/12/69, 17/12/69 TOTAL DEPTH 105' in granite

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
85'-90'	biotite	10	as above
	plagioclase	25	
	orthoclase	35	
	grit	25	
90'-95'	biotite	10	as above
	plagioclase	15	
	orthoclase	35	
	grit	40	
95'-100'	biotite	5	as above
	plagioclase	15	
	orthoclase	30	
	grit	50	
100'-105'	biotite	5	as above
	plagioclase	15	
	orthoclase	30	
	grit	50	

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd

DRILLER E. Murphy S.A. Dept of Mines WELL No. 316-M13A 246

WELL LOG

DATE LOGGED 9/12/70 TOTAL DEPTH 105'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	sand	20	Red brown silty sand
	silt	80	
5'-10'	clay	70	Red and white stiff silty and
	silty	20	sandy clay
	sand	10	
10'-25'	clay	85	Dark red very stiff sandy clay
	sand	15	
25'-30'	sand	85	Red orange sand - some clay
	clay	15	
30'-35'	sand	100	Loose red orange sand
35'-50'	sandstone	100	Red, yellow and white sandstone
			sample often as sand
50'-60'	sandstone	90	Red, yellow sand as sample
	porcellanite	10	of sandstone. Some white hard
			"porcellanite"
60'-65'	biotite	10	Small biotite "books" white
	plagioclase	30	plagioclase, coarse quartz grit
	grit	60	
65'-70'	biotite	10	As above with some white hard
	plagioclase	20	"porcellanite"
	grit	50	
	porcellanite	20	
70'-75'	biotite	5	as above
	porcellanite	10	
	feldspar	20	
	grit	65	
75'-80'	biotite	10	as above
	feldspar	40	
	quartz grit	50	
80'-85'	biotite	10	as above
	plagioclase	25	
	orthoclase	30	
	grit	35	

WELL LOG

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corp. Ltd.

DRILLER B. Murphy S.A. Dept of Mines WELL No. 316-M13

243

~~WELL LOG~~

DATE LOGGED 4/12/69, 9/12/69, 17/12/69 TOTAL DEPTH 235'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
155'-200'			As above but containing some minor blue grey clay
200'-235'	clay	40	Green and white biotitic clay
	grit	30	quartzo-feldspathic grit and
	gravel	30	gravel.

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd.

DRILLER K. Murphy S.A. Dept of Mines WELL No. 316-M13 235'

WELL LOG 4/12/69, 9/12/69, 17/12/69 250

DATE LOGGED 4/12/69, 9/12/69, 17/12/69 TOTAL DEPTH

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-10'	silt	60	Fawn brown clayey silt
	clay	20	some white - brown kunkar
	kunkar	20	nodules.
10'-20'	clay	50	Red brown silt and clay
	silt	50	
20'-40'	sand	100	Red medium fine grained sand
40'-60'	sand	100	Orange medium fine grained sand
60'-65'	sand	100	Yellow and white quartz sand
65'-70'	sand	50	As above and white sandstone
	sandstone	50	
70'-90'	sandstone	100	White, red and dark red hard consolidated sandstone
			Sample often as sand
'-95'	sand	85	Yellow and dark brown sand
	grit	15	and grit
95'-100'	sand	50	Gold, yellow and dark brown
	grit	20	sand, grit and dark
	sandstone	30	brown sandstone
100'-105'	sandstone	100	Black, dark brown and golden yellow sandstone. Sample partly as sand and grit
105'-110'	clay	50	Soft white (alunitic) clay with
	sandstone	50	yellow brown sandstone (sample as sand)
110'-120'	clay	60	
	sandstone	40	as above
120'-130'	clay	50	Stiff white clay with quartz sand
	sand	25	gravel and grit
	Gravel	15	
	grit	10	
130'-155'	clay	40	Stiff white clay, sand, quartz
	sand	15	gravel and grit
	gravel	25	
	grit	20	

MINOIL SERVICES

GEOLOGIST [redacted] CLIENT [redacted]

DRILLER [redacted] WELL No. [redacted]

WELL LOG

DATE LOGGED 13/12/69 TOTAL DEPTH 126'

251

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
110'-115'	[redacted]	95	Red black and yellow ferruginous
	silt	30	[redacted]. Purple brown silt
	sand	5	quartz sand
115'-120'	[redacted]	70	Red yellow hard fine grained
	silt	25	ferruginous [redacted] with sand
	clay	5	white clay. Purple brown silt
120'-126'	[redacted]	70	As above but with green plagioclase
	silt	25	and quartz chips. Very hard
	clay	5	Probable basement

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd

DRILLER E. Murphy S.A. Dept of Mines WELL No. 316-M12A

WELL LOG 252

DATE LOGGED 15/12/69 TOTAL DEPTH 126'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	sand	20	Orange sand and silt
	silt	80	
5'-15'	silt	10	As above with white and
	sand	70	brown kunkar nodules
	kunkar	20	
15'-20'	sand	20	Orange sand and silt
	silt	80	
20'-25'	clay	50	Stiff dark red clay then
	sand	50	loose "falling type" red sand
25'-40'	sand	100	Loose yellow orange fine
			falling type sand
40'-45'	sand	30	As above then at 42' yellow red and white
	sandstone	70	hard sandstone
45'-50'	sandstone	60	Hard white sandstone then at 48'
	sand	40	Soft yellow white very fine sand
50'-75'	sand	100	Pale yellow loose very fine sand
			(silt)?
75'-80'	silt	80	Mustard coloured loose clean silt
	sandstone	20	some white sandstone
80'-85'	silt	100	Loose red silt
85'-90'	silt	50	Purple red and brown sand
	sand	50	and silt
90'-95'	sand	50	Red and white sand and silt
	silt	50	
95'-105'	grit	25	Brown quartz sand
	silt	45	grit and silt
	sand	30	
105'-110'	sandstone	25	white sandstone weakly consolidated
	clay	75	white and purple brown clay

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd

DRILLER E. Murphy S.A. Dept of Mines

WELL No. 316-312

WELL LOG

253

DATE LOGGED 11/12/69

TOTAL DEPTH 135' in granite.

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-15'	clay	20	Light brown orange clayey silt
	silt	80	
15'-20'	clay	85	Dark red silty stiff clay
	silt	15	
20'-25'	sand	80	Fine red sand clayey
	clay	20	
25'-50'	sand	100	Fine red "falling type" sand
50'-55'	sand	100	Red orange fine sand
55'-60'	sand	100	Orange sand (some red & yellow sand)
60'-90'	sandstone	100	Yellow, red and brown soft becoming very hard sandstone (sample often as sand)
90'-95'	sandstone	80	Light grey (white) sandstone
	sand	20	grey sand
95'-100'	sand	70	yellow fine sand and silt
	silt	30	
100'-105'	clay	100	Yellow (light grey) clay
105'-110'	clay	40	yellow and white clay, quartz grit
	grit	60	
110'-130'	grit	90	quartzo-feldspathic grit, white
	clay	10	clay
130'-135'			As above but with granite fragments

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd.

DRILLER E. Murphy S.A. Dept of Mines

WELL No. 316-M10 85'
M10A 95'
M10B 285'

254

WELL LOG

DATE LOGGED 27/11/69, 28/11/69, 29/11/69, 14/12/69 TOTAL DEPTH

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-20'	silt	60	Fawn brown light silt and
	sand	20	sand, some kunkar nodules
	kunkar	20	
20'-25'	silt	15	Dark red stiff silty clay
	clay	85	
25'-30'	silt	15	As above, some gypsum
	clay	75	crystals, kunkar nodules
	kunkar	10	
30'-45'	sand	100	Dark red fine sand (falling)
45'-55'	sand	100	Red medium grained sand
55'-65'	sand	90	Orange red fine sand some
	sandstone	10	layers of hard silicified white sandstone
5'-85'	sandstone	100	Silicified sandstone
			T.D. 316-M10 = 85' Two drill pipes lost down hole.
85'-95'	sandstone	100	Dark red - purple sandstone and white sandstone
			T.D. 316-M10A = 95' Bit lost down hole
95'-105'	sandstone	100	Black brittle ferruginous sandstone and red and light brown sandstone
105'-115'	clay	50	White hard siliceous clay, brown
	sand	50	sand, red and yellow (fallen)? sandstone
115'-125'	Porcellanite	40	White hard "porcellanite" and brown
	sand	60	sand, some fallen sandstone
125'-140'	sand	80	Fine, light brown quartz sand
	clay	20	some softer white clay
140'-145'	sand	70	Brown quartz sand and grit
	lignite	20	some soft black lignite
	grit	10	

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd

DRILLER E. Murphy S.A. Dept of Mines

WELL No. 316-M10 85'
-M10A 95'
-M10B 285' 255

WELL LOG

DATE LOGGED 27/11/69. 28/11/69. 29/11/69, 14/12/69

TOTAL DEPTH

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
145'-160'	clay	55	Green black micaceous clay
	lignite	20	with lignite and quartz gravel
	gravel	10	and grit
	grit	15	
160'-165'	grit	75	Coarse quartz grit and brown black
	lignite	25	micaceous lignite.
165'-170'	lignite	90	Brown-black micaceous lignite 1.5m
	grit	10	minor quartz grit
170'-185'	grit	100	Coarse subrounded quartz grit (some fallen lignite)
185'-190'	grit	85	Subrounded quartz grit with white
	clay	15	clay. Some fallen lignite
190'-195'	clay	80	White sticky clay (minor greenish
	grit	20	clay) quartz grit some fallen lignite
195'-205'	grit	50	Coarse quartz grit and white grey clay
	clay	50	
205'-220'	clay	50	White and blue grey sticky clay and
	grit	25	blue-white quartz grit and gravel
	gravel	25	Very minor ~~xxx~~ pyrite.
220'-225'	clay	35	White stiff clay and blue white
	grit	65	quartz grit
225'-235'	clay	65	Green and white biotite clay
	grit	35	and blue white quartz grit
235'-240'	gravel	60	Quartz gravel, green and white
	clay	40	biotitic clays
240'-245'	quartz	40	Quartz gravel and coarse grit
	plagioclase	10	white plagioclase White and
	clay	50	green biotitic clay
245'-250'	quartz	30	ditto
	plagioclase	20	
	clay	50	
250'-255'	quartz	40	ditto
	plagioclase	20	
	clay	40	

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corp. Ltd.

DRILLER E. Murphy S.A. Dept of Mines

WELL No. 316-M10 85'
-M10A 95'
-M10B 285'

WELL LOG 27/11/69, 28/11/69
29/11/69, 14/12/69

256

DATE LOGGED

TOTAL DEPTH

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
255'-260'	quartz	30	Quartz gravel and coarse grit
	plagioclase	15	white plagioclase. White and
	clay	55	green biotitic clay
260'-265'	quartz	20	ditto
	plagioclase	20	
	clay	60	
265'-270'	quartz	30	ditto
	plagioclase	3o	
	clay	40	
270'-275'	quartz	35	ditto
	plagioclase	30	
	clay	35	
275'-280'	quartz	20	ditto
	plagioclase	20	
	clay	60	
280'-285'	quartz	25	
	plagioclase	35	
	clay	40	ditto and gneissic chips.

MINOIL SERVICES

GEOLOGIST B. R. Clarke

CLIENT Australasian Mining Corporation Ltd.

DRILLER B. Murphy S.A. Dept of Mines

WELL No. 316-M11

WELL LOG

DATE LOGGED 3/12/69

257

TOTAL DEPTH 290'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-15'	clay	20	Light brown clay and silt some
	silt	65	kunkar nodules
	kunkar	15	
15'-20'	silt	60	Light brown silt and sand, kunkar
	sand	25	
	kunkar	15	
20'-35'	clay	85	Dark red-brown silty clay
	silt	15	
35'-40'	silt	10	Red brown silty clay and fine sand
	clay	40	
	sand	50	
40'-50'	sand	100	Fine red brown sand
50'-55'	clay	85	Red brown clay and silt
	silt	15	
55'-70'	silt	100	Light brown "falling type" silt
70'-75'	silt	80	light brown silt with sand
	sand	20	
75'-80'	clay	60	Coarse white sand and light brown clay
	sand	40	
80'-85'	sand	50	Coarse white sand and light
	silt	50	brown silt
85'-90'	clay	60	Light brown clay and sand
	sand	40	
90'-95'	sand	90	Light brown sand and clay
	clay	10	
95'-110'	clay	80	Dark brown clay and sand
	sand	20	
110'-125'	clay	90	As above but greyer in colour
	sand	10	

MINOIL SERVICES

GEOLOGIST B. R. Clarke

CLIENT Australasian Mining Corporation Ltd

DRILLER M. Murphy S.A. Dept of Mines

WELL No. J16-M11

WELL LOG

DATE LOGGED 3/12/69

TOTAL DEPTH 290' 256

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
125'-135'	clay	100	Light grey clay
140'-180'	clay	95	Light grey clay minor quartz sand
	sand	5	
180'-190'	No sample		
190'-210'	clay	95	Light grey clay minor quartz sand
	sand	5	
210'-290'	clay	90	Light grey clay, minor quartz sand
	sand	10	

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd

DRILLER E. Murphy, S.A. Dept of Mines WELL No. 316-M6

WELL LOG

DATE LOGGED 25/11/69 TOTAL DEPTH 300' 259

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
170'-175'	clay	40	As above with white quartz sand
	lignite	30	
	sandstone	5	
	sand	25	
175'-185'	sand	30	White quartz sand and grit
	grit	30	orange and yellow coarse sandstone
	sandstone	10	fallen(?) grey clay and lignite
	clay	15	
	lignite	15	
185'-215'	sand	90	White quartz sand minor yellow
	sandstone	10	and orange sandstone
215'-225'	grit	85	Fine quartz grit, minor yellow
	sandstone	15	and red sandstone
5'-260'	grit	85	Blue-white quartz grit generally
	clay	10	subrounded, some white clay
	sandstone	5	minor yellow sandstone and fallen lignite
260'-270'	grit	70	Blue white quartz grit often
	clay	30	blackened (pyrolusite? iron staining?) white clay
270'-280'	grit	60	As above but white clay
	clay	40	now contains biotite.
280'-285'	grit	70	Quartz feldspar grit, white
	clay	30	clay with biotite.
285'-290'	plagioclase	15	Green and white plagioclase
	clay	15	biotite. Quartz gravel, white clay
	biotite	10	
	gravel	60	
290'-295'	plagioclase	10	Green and white biotitic clay,
	grit	80	quartz grit, green & white plagioclase
	clay	10	
295'-300'	plagioclase	30	As above, chips of gneiss
	gravel	40	
	biotite	10	
	clay	20	

WELL LOG

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd.

DRILLER E. Murphy S.A. Dept of Mines WELL No. 316-M5

~~WELL LOG~~ 260

DATE LOGGED 25/11/69 TOTAL DEPTH 300'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
75'-76'			Light brown and carbonaceous lignitic dark brown fine sand interlayered
76'-77'			As above
77'-77½'			as above
78'-79'			as above
90½'-91½'			Dark brown and black very sandy lignite
92'-93'			As above
93'-94'			Dark brown and black very sandy lignite finely micaceous
94'-95'			Dark brown and black sandy lignite

MINOIL SERVICES

GEOLOGIST D. B.Clarke CLIENT Australasian Mining Corporation Ltd

DRILLER E. Murphy S.A. Dept of Mines WELL No. 316-M6 261

WELL LOG

DATE LOGGED 25/11/69 TOTAL DEPTH 300'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-10'	silt	70	Orange clayey silt, some
	clay	10	kunkar
	kunkar	20	
10'-15'	silt	70	Red clayey silt, some kunkar
	clay	15	nodules
	kunkar	15	
15'-55'	sandstone	100	Hard sandstone predominantly red, white or orange but can be almost any colour. Sample largely as sand.
55'-60'	sand	100	Light brown and red sand
60'-65'	sand	100	Light then dark brown sand
65'-70'	sand	100	Losing circulation - poor samples Dark brown fine sand
70'-75'			NO SAMPLE See attached logs
75'-80'	TUBE CORE		of dark chocolate brown fine sand
80'-90'	sand	75	Fine brown sand, soft black lignite
	lignite	25	
90'-94'	TUBE CORE		of black micaceous lignite 12.2
95'-100'	sand	100	White fine sand
100'-105'	sand	65	White fine sand yellow sandstone
	sandstone	10	soft black lignite
	lignite	25	
105'-110'	lignite	80	Soft black lignite, brown fine
	sand	10	sand, white and orange sandstone
	sandstone	10	
110'-150'	lignite	90	Soft black lignite some 12
	sandstone	10	minor orange sandstone
150'-160'	lignite	60	Soft black lignite and light
	clay	40	grey greasy clay
160'-170'	clay	55	Light grey clay, soft black
	lignite	40	lignite, yellow and orange sandstone
	sandstone	5	

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd.

DRILLER B. Murphy S.A. Dept of Mines

WELL No. [illegible] 262

WELL LOG

DATE LOGGED 13/12/70

TOTAL DEPTH 170'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	sand	75	Grey and yellow-orange
	silt	25	fine sand and silt
5'-15'	sand	100	Yellow-orange fine sand
15'-20'	sand	85	Fine orange sand, gypsum
	gypsum	15	crystals
20'-35'	sand	70	Brown medium grained sand and chips of
	porcellanite	30	hard clay / Porcellanite
35'-45'	porcellanite	100	Very poor sample white porcellanite chips, probably from [illegible]ole
45'-50'	porcellanite	15	Fine red-brown sand, some
	sand	85	white porcellanite chips
50'-55'	sand	60	Poor sample. White clayey sandstone
	clay	40	minor red colouration, minor white porcellanite
55'-60'	sand	75	Red fine to medium grained sand
	clay	25	white clay
60'-70'	sand	100	Red brown medium to fine grained sand
70'-75'	clay	30	light chocolate brown clay
	sand	70	red brown fine to medium grained sand
75'-80'	sand	75	Black carbonaceous silt and
	silt	25	sand
80'-95'	sand	100	Black carbonaceous fine to medium grained quartz sand
95'-130'	sand	100	Dark brown medium to coarse grained quartz sand
			Samples probably not reliable
			Poor circulation falling sand
130'-170'	sand	80	Dark brown fine sand and silt
	silt	20	
			Very poor samples
			Hole abandoned due to loss of circulation

MINOIL SERVICES

GEOLOGIST J. B. Westhoff

CLIENT Australasian Mining Corporation Ltd.

DRILLER E. Murphy, S.A. Dept of Mines

WELL No. 316-K5B

263

WELL LOG

DATE LOGGED 12/12/69

TOTAL DEPTH 295'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
125'-130'	lignite	100	Lignite and brown coal 1.5m
130'-175'	lignite	100	Black and dark brown lignite 13.7m
175'-185'	sand	75	Dark grey and grey brown carbonaceous
	lignite	25	sand with black lignite
185'-190'	clay	100	Grey silty lignitic clay
190'-195'	clay	50	Grey clay with subrounded quartz
	sand	40	sand and grit
	grit	10	
195'-200'	clay	25	Subangular to subrounded coarse
	sand	50	quartz sand and grit with
	grit	25	grey carbonaceous clay.
200'-205'	lignite	85	Dark grey and dark brown silty 1.5m
	silt	15	lignite
2[illegible]'-215'	lignite	20	Quartz sand and grit with lignite
	sand	40	as above
	grit	40	
215'-220'	lignite	30	As above, now with poorly consolidated
	sand	55	red and white silty sandstone
	sandstone	15	
220'-240'	sand	30	Coarse sand and grit with grey
	grit	60	and white carbonaceous silty
	silt	10	sand
240'-265'	sandstone	75	Grey and white poorly
	silt	25	consolidated silty sandstone
265'-295'			As above, with minor gypsum crystals.

MINOIL SERVICES

GEOLOGIST J. B. Westhoff CLIENT Australasian Mining Corporation Ltd.

DRILLER E. Murphy, S.A. Dept of Mines WELL No. 316-MSB

WELL LOG 264

DATE LOGGED 12/12/69 TOTAL DEPTH 295'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-10'	sand	20	Fine sand and silt mostly
	silt	60	red brown with some grey brown
	kunkar	20	and occasional kunkar nodules
10'-15'	sandstone	60	Red brown poorly consolidated silty
	silt	20	sandstone with some grey
	kunkar	20	carbonaceous patches and some
			calcite and kunkar nodules.
15'-20'	sandstone	75	Red brown poorly consolidated
	silt	25	silty sandstone, calcareous in part
			with some grey carbonaceous patches.
20'-25'	sandstone	75	As above with some (fallen?) kunkar
	silt	20	and white sandstone
	kunkar	5	
2 -40'	sandstone	70	White silty sandstone with some
	silt	30	sandy nodules and some red brown
			silt - probably cavings.
40'-55'	sandstone	40	Red and grey medium grained quartzitic
	sand	60	sand with some white sandstone chips
55'-60'	sandstone	30	As above with some grey carbonaceous
	sand	70	patches.
60'-65'	sand	100	Grey and white sand with minor
			plant material.
65'-70'	sand	65	As above with red, yellow and white
	sandstone	35	poorly consolidated sandstone
70'-75'	sand	65	Sand and silty sandstone as above
	sandstone	35	with dark carbonaceous patches
75'-80'	sand	100	Grey and brown sand with
			plant material.
80'-85'	sand	100	As above with much dark
			carbonaceous matter
85'-95'	sand	50	Black lignite with grey and brown
	sandstone	10	sand and sandstone
	lignite	40	
95'-125'	lignite	100	Black lignite

WELL LOG

MINOIL SERVICES

GEOLOGIST J. B. Westhoff

CLIENT Australasian Mining Corp Ltd.

DRILLER E. Murphy S.A. Dept of Mines

WELL No. 316-M5A

265

WELL LOG

DATE LOGGED 11/12/69

TOTAL DEPTH 277'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	clay	80	Pink and brown silty sandy clay
	silt	10	
	sand	10	
5'-15'	silt	25	Pink silt and fine sand with
	sand	50	small kunkar nodules
	kunkar	25	
15'-25'	sandstone	100	Red brown and white poorly
			consolidated sandstone
25'-45'	sand	80	White clayey sand with a
	clay	20	little coloured red brown
45'-55'	silt	10	Brown and white silt and fine sand
	sand	90	subrounded medium grained quartz
			sand
55'-65'	sandstone	100	Grey-brown poorly consolidated
			sandstone
65'-75'	See core sheet	attached	Tube cored
75'-125'	sandstone	100	Dark grey brown carbonaceous
			sandstone
125'-135'	sandstone	75	Dark grey brown carbonaceous
	lignite	25	sandstone with lignitic nodules
135'-205'	sandstone	100	Carbonaceous sandstone
206'-220'	sandstone	80	Carbonaceous sandstone with
	silt	20	white silty patches
220'-277'	sandstone	100	carbonaceous sandstone.

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd.

DRILLER E. Murphy S.A. Dept of Mines

WELL No. 316-MS

266

WELL LOG

DATE LOGGED 22/11/69

TOTAL DEPTH 80'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-15'	silt	80	Yellow orange silt, some clay
	clay	20	
15'-20'	clay	85	Dark red silty clay some white
	silt	15	clay
20'-25'	clay	85	Dark red and orange silty clay
	silt	15	
25'-45'	sand	80	Yellow white fine clayey sand
	clay	20	
45'-50'	sand	80	Fine white and fawn brown sand
	clay	20	clayey in part
50'-55'	clay	60	Loss of circulation. Sample
	silt	40	tubed. White very silty clay.
55'-60'	clay	100	Poor sample - brown clay
60'-65'	clay	85	Dark and light brown clay, black
	sand	15	sandy clay
65'-70'			Tube samples taken
66'-67'			Dark chocolate coloured sandy clay
			then chocolate brown sand
67'-68'			Chocolate brown sand mottling
			to black stiff lignite
68'-69'			Soft black-brown lignite.
69'-70'			Soft black-brown lignite
70'-75'			Very poor sample
75'-80'	sand	25	Brown sandy clay, lignite
	clay	50	
	lignite	25	

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd

DRILLER E. Maryby S.A. Dept of Mines WELL No. 316-W4 267

WELL LOG

DATE LOGGED 22/11/69 TOTAL DEPTH 96'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	silt	50	Red orange silty sand
	sand	50	
5'-10'	silt	70	Red orange silt, some white brown
	kunkar	30	kunkar
10'-15'	clay	80	Bright red and light brown clay
	kunkar	20	kunkar
15'-20'	silt	55	Bright red silt and clay, some
	clay	30	kunkar
	kunkar	15	
20'-25'	clay	100	Red, then orange clay
25'-35'	clay	90	Orange brown sandy clay then
	sand	10	white clay
35'-40'	clay	100	Brown red and orange clay
'-45'	clay	100	Brown red clay then silver white clay
45'-50'	clay	100	Plasticine like yellow red clay
50'-55'	clay	85	Yellow and red brown clay, some
	grit	15	quartz grit.
55'-65'	clay	65	White clay and quartz grit
	grit	35	
65'-70'	clay	70	Circulation lost. Tube sample (65'-66']
	grit	30	of light yellow gritty clay
70'-75'	clay	70	Samples poor, core 70'-71' grey and
	grit	30	white gritty clay.
75'-80'	clay	70	Samples poor core 75'-76'
	grit	30	white and grey alunitic clay rounded quartz grit
80'-90'	clay	75	As above
	grit	25	
90'-96'	clay	75	Tube core 90'-91' white grey gritty clay
	grit	25	

3 Moo stations for this

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd

DRILLER F. Pignitter S.A. Deptof Mines WELL No. 316-M3C

WELL LOG

266

DATE LOGGED 27/1/70 TOTAL DEPTH 335'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
115'-120'	sand	80	Dark and lighter brown medium grained sand
	lignite	20	lignitic
120'-125'			as above
125'-130'	lignite	60	Black soft lignite and some brown coal and
	sand	40	dark brown medium fine sand
130'-145'	lignite	100	Lignite (faintly micaceous?) some
			brown coal 4.5m
145'-150'	grit	100	Quartz grit, generally subangular
			well sorted
150'-155'	grit	95	As above, some white clay
	clay	5	
155'-235'	grit	70	Generally subangular well sorted
	clay	30	quartz grit with fawn white
			"alunitic"? clay.
235'- 240'	clay	30	Clay has blue-green colouration
	grit	70	sometimes white fawn. Quartz grit
			with much feldspar (some pyrite at
			315'-320')
240' -335'	gravel	60	Quartz-feldspar gravel
	grit	30	and grit, biotite and green
	clay	10	clay minor (occasional grains
			of pyrite)
			T.D. in gneiss (assumed) 335'.
			(very hard)

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd

DRILLER F. Pignitter S.A. Dept of Mines WELL No. 316-M3C

WELL LOG

269

DATE LOGGED 27/1/70 TOTAL DEPTH 335'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	silt	70	Light fawn brown (Calc?) silt and
	clay	30	white calcareous clay
5'-10'	silt	30	as above
	clay	70	
10'-15'	sand	100	Yellow medium grained quartz sand
15'-20'	sandstone	10	Red yellow unconsolidated sandstone
	sand	90	and sand then white fine medium clayey
			sand
20'-25'	clay	50	White and less red very silty
	silt	40	loose friable clay. Some ferruginous
	sandstone	10	sandstone
25'-30'	sand	60	Green - brown glauconitic sand
	sandstone	10	and sandstone, white friable clay.
	clay	30	
30'-35'			As above
35'-40'	sand	100	Yellow fine grained sand
40'-45'			dark brown red grained sand
45'-50'	sand	100	Light and dark brown fine - medium
			grained sand
50'-55'			Brown - black (lignitic? poor sample)
			sand and yellow sandstone
55'-60'			as above
	See core sheet attached		Tube 60 - 70 (lignite)
70'-90'	sand	100	Light silver brown fine - medium grained
			sand
90'-95'	sand	100	Dark brown medium fine sand
95'-100'	sand	85	Dark brown medium fine sand, lignite
	lignite	15	
100'-105'	sand	75	as above
	lignite	25	
105'-110'			as above
110'-115'	sand	65	as above
	lignite	35	

WELL LOG

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd

DRILLER E. Murphy S.A. Dept of Mines

WELL No. 316-M3B

270

~~WELL LOG~~

DATE LOGGED 21/11/69

TOTAL DEPTH 27'8"

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	kopi	100	White kopi (calcium hydroxide)
5'-10'	kopi	40	Lime then red stiff clay
	clay	60	
10'-15'	clay	100	Red stiff silty clay
15'-20'	clay	70	White and red sandy and gritty clay
	sand	20	
	grit	10	
20'-25'	clay	60	Red clay then yellow-brown sand
	sand	40	
24'6"-27'8"			Tube core Dark brown carbonaceous clay, white and orange clay in spots.

WELL LOG

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corp. Ltd.

DRILLER E. Murphy S.A. Dept of Mines

WELL No. 316-M3A

~~WELL LOG~~

271

DATE LOGGED 21/11/69

TOTAL DEPTH 100'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	Lime	100	White powdery calcium hydroxide
5'-10'	Lime	40	Lime then red stiff clay
	clay	60	
10'-15'	clay	100	Red stiff silty clay
15'-20'	clay	70	White and red sandy and gritty clay
	sand	20	
	grit	10	
20'-25'	sand	40	
	clay	60	Red clay, then yellow sand. Poor sample
25'-30'	clay	100	Red clay. poor sample lost circulation
30'-35'	lignite	75	Dark brown clayey lignite, yellow
	sand	25	sand
35'-40'	lignite	80	Dark brown clayey lignite, some
	clay	20	orange clay
40'-45'	lignite	100	Greasy clayey lignite, slightly micaceous 1.5m
45'-55'	lignite	95	Brown "greasy" lignite minor 5m
	clay	5	yellow orange clay
55'-60'	lignite	70	Black "hard" lignite - smaller chips 1.5
	grit	20	rounded quartz grit some
	clay	10	yellow orange clay
60'-65'	lignite	85	Black hard lignite 1.5m
	clay	15	brown orange clay
65'-75'	lignite	95	Black hard lignite, white 3m
	sandstone	5	soft sandstone
75'-80'	lignite	100	Black "greasy" lignite
80'-85'	lignite	70	Black "greasy" lignite quartz 3m
	sand	15	sand and grit
	grit	15	
85'-90'	lignite	90	Black hard lignite, minor 1.5m
	sand	10	quartz sand
90'-100'	grit	50	Subangular quartz grit, lignite
	lignite	50	(possibly cavings)

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd

DRILLER E. Murphy Dept of Mines

WELL No. 316-M3

WELL LOG

272

DATE LOGGED 19/11/69

TOTAL DEPTH 270'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
235'-240'			As above, minor pyrite
240'-270'	Gravel	30	Blue white quartz grit and gravel white
	grit	40	clay fallen lignite.
	clay	30	

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd.

DRILLER R. Murphy Dept of Mines WELL No. 216-MB 273

WELL LOG

DATE LOGGED 19/11/69 TOTAL DEPTH 270'.

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	sand	100	Brown orange and white sand
5'-10'	clay	60	White clay, brown and white
	sand	40	medium grained sand
10'-15'	sand	100	Red brown medium grained sand
15'-20'	sand	100	Red brown sand, light brown fine sand
20'-65'	sand	80	Lignitic dark and light brown
	lignite	20	fine sand. Probably largely cavings
65'-80'	sand	80	Lignitic dark brown sand
	lignite	20	some light yellow coarse sand
80'-125'	lignite	100	Dark brown and black lignite 13.7m
125'-140'	grit	100	Blue - white rounded quartz. grit, lignite (from here assumed to be cavings)
140'-150'	grit	100	Blue white coarse rounded quartz grit and fallen lignite.
150'-170'	grit	90	Blue white quartz grit, minor
	clay	10	white clay, fallen lignite
170'-180'	grit	50	Blue white quartz grit and gravel
	gravel	40	minor white clay, some fallen lignite
	clay	10	
180'-185'			As above with minor ferreginous orange sandstone
185'-195'	grit	50	Blue white coarse quartz grit and
	gravel	40	gravel, some white clay; fallen lignite
	clay	10	
195'-200'	grit	55	as above
	gravel	20	
	clay	25	
200'-205'	gravel	40	White and chocolate brown clay
	grit	20	with blue-white quartz grit & gravel
	clay	40	
205'-235'	gravel	50	Blue white quartz grit and gravel
	grit	20	white clay, fallen lignite.
	clay	30	

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd.

DRILLER E. C. Thompson Pty. Ltd.

WELL No. 316-28

WELL LOG

274

DATE LOGGED 2/11/69

TOTAL DEPTH 73'5"

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-10'	silt	70	Orange silt with white brown
	kunkar	30	kunkar
10'-15'	silt	75	Red-orange silt and clay
	clay	25	
15'-25'	limestone	85	White hard and softer clayey
	clay	15	limestone
25'-30'	limestone	80	Soft white clayey limestone and
	clay	20	limey powder
30'-35'	limestone	90	Yellow bryozoal micaceous
	sandstone	10	limestone some ferruginous sandstone
35'-40'			No sample recovered
40'-60'	sand	70	Fine dark brown sand and dark
	lignite	30	brown and black lignite
(-65'	sand	100	Dark brown fine sand minor lignite
65'-75'	sand	100	Chocolate brown fine
			micaceous sand, minor fallen
			lignite.

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd

DRILLER H. C. Thompson Pty. Ltd.

WELL No. 316-27

WELL LOG

DATE LOGGED 2/11/69

TOTAL DEPTH 75'5"

275

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-20'	silt	50	Orange silt and clay
	clay	15	nodules of kunkar
	kunkar	35	
20'-25'	silt	75	Red clayey silt
	clay	25	
25'-30'	clay	75	Dark red very silty clay
	silt	25	
30'-35'	silt	10	Red and white silty clay and white clay
	clay	90	
35'-40'	limestone	100	Grey white hard silicious limestone and calcareous powder
40'-50'	limestone	100	Yellow hard silicious in part, fossiliferous in part, limestone
)'-55'	sand	100	Light fawn brown fine sand
55' -75'	sand	100	Dark brown and black fine sand slightly lignitic

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd

DRILLER E. Murphy S.A. Dept of Mines WELL No. 316-26C

WELL LOG

276

DATE LOGGED 18/11/69 TOTAL DEPTH 40'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-10'	kunkar	80	White and brown concentrically layered
	sand	20	kunkar, some fine orange sand
10'-40'	limestone	100	White, grey and green silicified
			Mullarbor limestone. Sample often
			as powder. Very hard
			Driller unable to continue.

WELL LOG

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corp. Ltd.

DRILLER E. Murphy Dept of Mines

WELL No. 316-26B

~~WELL LOG~~

277

DATE LOGGED 18/11/69

TOTAL DEPTH 35'

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-10'	limestone	80	Grey and fawn Nullarbor limestone
	clay	10	green (Glauconitic?) in places, with
	silt	10	fawn brown silty clay
10'-15'	sandstone	15	Orange brown, fine sand with
	sand	85	white and brown, ferruginous sandstone
15'-20'	sandstone	20	Dark brown ferruginous sandstone,
	sand	80	light and darker brown sand.
			From here tube coring was attenpted to 35' with very poor recovery. No reliable samples.

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd

DRILLER K. C. Thompson WELL No. 316-26A

WELL LOG

DATE LOGGED 2/11/69 TOTAL DEPTH 161'8" 270

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-20'	silt	35	Fawn brown silt, sand and
	clay	10	white clay, pebbles often
	kunkar	35	rounded of light brown and white
	sand	20	kunkar.
20'-25'	sand	50	Red brown sand silt and
	silt	20	white brown kunkar
	kunkar	30	
25'-30'	limestone	80	white and red brown angular
	kunkar	20	chips of Nullarbor limestone. Some
			white brown after kunkar
30'-35'	limestone	100	white and reddish Nullarbor
			limestone
35'-40'	limestone	20	white hard limestone and
	sand	80	Brown sand (calcareous)
40'-45'	sand	50	Yellow sand, yellow orange sandstone
	sandstone	20	white clay and fallen kunkar
	clay	20	
	kunkar	10	
45'-50'	sandstone	40	Yellow hard sandstone, chocolate
	sand	60	brown medium grained sand
50'-55'	sandstone	25	yellow hard sandstone medium fine grained
	sand	60	light brown sand, specks of
	lignite	15	lignite.
50'-80'	sand	65	Brown medium grained sand, some
	sandstone	10	sandstone, dark brown and black
	lignite	25	lignite.
80'-100'	sand	65	Brown medium grained sand, minor sandstone
	lignite	35	dark brown and black lignite
100'-135'	sand	50	(poor samples) brown sand and
	lignite	50	dark brown and black lignite
135'-145'	sand	35	Medium grained brown sand, yellow sandstone
	sandstone	15	and dark brown and black lignite
	lignite	50	
145'-150'	clay	20	Light grey greasy clay yellow
	sandstone	20	coarse soft sandstone and dark brown
	lignite	60	and black lignite

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corp. Ltd.

DRILLER M. C. Thompson Pty. Ltd.

WELL No. 316-26

279

WELL LOG

DATE LOGGED 1/11/69

TOTAL DEPTH 56'7"

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	silt	20	Orange silt, red and grey nodular
	limestone	80	hard Nullarbor limestone
5'-10'	limestone	70	Grey and fawn hard Nullarbor
	clay	30	limestone (glauconitic?)
			green silty clay, brown silty clay
10'-15'	sand	85	Orange brown fine sand
	sandstone	15	ferruginous sandstone
15'-20'	sandstone	20	Dark brown ferruginous sandstone, light
	sand	80	and darker brown shaly sand
20'-25'	sand	100	Fawn and orange fine sand
25'-30'	sand	100	Orange and brown fine sand
30'-35'	sand	80	As above, lignite in last foot
	lignite	20	
3. -45'	sand	80	Brown fine (falling?) sand
	lignite	20	
45'-60'	lignite	10	Micaceous lignitic fine brown
	sand	80	sand, some quartz grit.
	grit	10	

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd.

DRILLER E. C. Thompson Pty. Ltd.

WELL No. 316-25

WELL LOG

DATE LOGGED 3/11/69

TOTAL DEPTH 40'3" 280

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	sand	25	Orange sand, kunkar, Nullarbor
	kunkar	50	limestone
	limestone	25	
5'-10'	sand	10	Red sand, brown kunkar
	limestone	30	hard brown sandy limestone
	kunkar	60	
10'-20'	limestone	100	Nullarbor limestone fawn brown silty
20'-25'	limestone	70	Brown and grey hard silty
	kunkar	20	limestone, fallen kunkar
	clay	10	yellow clay
25'-30'	clay	60	White & yellow clay, white
	sandstone	40	sandstone, ferruginous brown sandstone
30'-35'	clay	40	White clay, white sandstone,
	sandstone	20	green gneissic fragments
	gneiss	40	
35'-40'	gneissic fragments	100	Green micaceous weathered gneiss or schist fragments

MINOIL SERVICES

GEOLOGIST D. B. Clarke CLIENT Australasian Mining Corporation Ltd.

DRILLER W. C. Thornton Pty. Ltd. WELL No. 316-24

WELL LOG

DATE LOGGED 3/11/69 TOTAL DEPTH 28'5" 281

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-10'	kunkar	70	Orange silt and kunkar
	silt	30	
10'-20'	kunkar	40	Kunkar (brown) fragments of
	silt	20	brown ferruginous sandstone, grey
	sandstone	10	siliceous limestone (Wallarbor)
	limestone	20	Quartz subangular grit, orange
	quartz grit	10	silt.
20'-25'	kunkar	50	Green grey siliceous clay.dark
	sandstone	40	red gritty silicified
	clay	10	sandstone (fallen) kunkar
25'-28'5"	sandstone	50	Hard, red gritty sandstone, fallen
	kunkar	15	kunkar, quartz mica feldspar
	granitic		fragments - granite.
	fragments	35	

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd.

DRILLER H. C. Thompson Pty. Ltd.

WELL No. 316-13

WELL LOG

282

DATE LOGGED 11/10/69

TOTAL DEPTH 87'2"

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-15'	sand	100	Red-orange and yellow sand
15'-20'	sandstone	65	Orange yellow fine sand with
	sand	35	white fine grained sandstone
20'-30'	sandstone	60	White fine grained sandstone with
	sand	40	yellow fine sand
30'-35'	sandstone	25	Fine medium grained white yellow
	sand	75	sand, some fallen(?) sandstone
35'-40'	sand	100	White - yellow medium fine grained sand
40'-65'	sand	100	Chocolate brown and white fine grained sand
65'-87'	sand	80	Black and chocolate brown (fallen?)
	sandstone	20	carbonaceous sand some white fine grained (fallen?) sandstone
			samples possibly unreliable

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd.

DRILLER H. C. Thompson Pty. Ltd.

WELL No. 316-16

WELL LOG

283

DATE LOGGED 11/10/69

TOTAL DEPTH 90'2"

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	sand	80	Yellow sand and white brown
	kunkar	20	kunkar
5'-10'	sand	15	Kunkar and orange sandy clay
	clay	65	
	kunkar	20	
10'-15'	clay	75	Orange sandy clay
	sand	25	
15'-25'	clay	90	Stiff red silty sandy clay
	sand	10	
25'-35'	clay	100	Red and white stiff clay
35'-40'	clay	80	Pure white stiff clay then yellow
	sand	20	Orange fine sand and white cly
	clay	20	White and yellow clay some dark brown sand
50'-55'	lignite	25	Lignite yellow brown sand minor
	sand	55	White clay
	clay	20	
55'-65'	sand	100	Brown and Black lignitic fine sand
			Ca loss possibly not reliable
65'-90'	clay	50	Lignitic fine sand and clay
	sand	50	Grey clay weakly micaceous
			Some of sand in sample yellow - orange. Possibly all originally was also yellow.

WELL LOG

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corp. Ltd.

DRILLER H. C. Thompson & Co.

WELL No. 316-11a

~~WELL LOG~~

284

DATE LOGGED 9/10/69

TOTAL DEPTH 46'1"

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-15'	sand	75	Light yellow medium-fine sand with
	kunkar	25	white-brown kunkar nodules
15'-30'	sand	100	Medium fine grained orange sand
30'-40'	sand	90	Yellow and white medium grained sand
	sandstone	10	minor white poorly consolidated
			sandstone
40'-46'	sandstone	50	Hard red and white sandstone red and
	sand	50	white medium grained sand

MINOIL SERVICES

GEOLOGIST D. R. Clarke

CLIENT Australasian Mining Corporation Ltd.

DRILLER N. C. Thompson Pty. Ltd.

WELL No. 316-14

WELL LOG

285

DATE LOGGED 11/10/69

TOTAL DEPTH 70'5"

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-15'	sand	75	Yellow orange sand, brown and white
	kunkar	25	kunkar
15'-30'	sand	100	Orange and red sand
30'-35'	sand	15	Red and orange sandy clay - some
	clay	80	kunkar nodules
	kunkar	5	
35'-40'	sand	90	Red and white fine clayey sand
	clay	10	
40'-45'	sand	50	Brown ferruginous sandstone and brown
	sandstone	50	sand
45'-55'	sandstone	50	White and red sandstone and sand
	sand	50	
55'-60'	sand	45	Silty micaceous white clay and
	silt	15	yellow sand
	clay	40	
60'-65'	clay	20	Red and white fine clayey in
	sandstone	80	part sandstone
65'-70'	gravel	10	Rounded quartz gravel
	clay	30	White and yellow clay, brown
	sand	60	fine sand

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corp. Ltd.

DRILLER M. C. Thompson Pty. Ltd.

WELL No. S16-15

WELL LOG

286

DATE LOGGED 12/10/69

TOTAL DEPTH 143'9"

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-5'	sand	100	Yellow medium grained sand
5'-15'	sand	70	Yellow orange sand with some
	kunkar	30	white and brown kunkar
15'-45'	sand	100	Orange fine to medium grained sand
45'-50'	sand	65	Red sand red and white fine
	sandstone	35	grained sandstone
50'-55'	sand	70	Orange and purple fine sand, white
	sandstone	30	and brown fine grained sandstone
			minor dark brown ferruginous sandstone
55'-65'	sand	40	White sand and sandstone, red
	sandstone	25	and white clay
	clay	35	
65'-70'	sand	100	White, dark red then white and brown
			fine sand
70'-75'	sand	100	Brown, yellow brown mustard
			coloured fine sand
75'-80'	sand	60	mustard coloured fine sand then red
	clay	40	brown sandy clay
80'-90'	lignite	85	Slightly micaceous lignite and
	sand	15	white sand fallen from walls
90'-95'	sand	100	Black brown muscovite rich
			ilmenite sand

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd.

DRILLER N. C. Thompson Pty. Ltd.

WELL No. 316-15

287

WELL LOG

DATE LOGGED 12/10/69

TOTAL DEPTH 143'9" in quartz, biotite gneiss

INTERVAL	LITHOLOGY	%	DESCRIPTION
95'-100'	lignite	80	Lignite and yellow sandy clay plus 15m.
	sand	10	sandstone fragments (uphole)
	clay	5	
	sandstone	5	
100'-105'	lignite	100	Black and dark brown lignite 15m.
105'-110'	lignite	50	Lignite and dark grey clay
	clay	50	
110'-125'	clay	75	Lignite, grey sandy clay, some
	sand	15	yellow sandy clay
	lignite	10	
125'-140'	clay	75	Grey and yellow silty clay
	silt	25	minor pyrite, quartz grit, lignite
140'-145'	clay	90	Quartz, green micas, grey and
	gneiss frags.	10	red clay

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd.

DRILLER H. C. Thompson Pty. Ltd.

WELL No. 316-19

286

WELL LOG

DATE LOGGED 4/11/69

TOTAL DEPTH 25'2"

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-10'	silt	80	Orange silt and clay
	clay	20	
10'-15'	granite	100	Chips of weathered granite
15-25'	granite	100	Chips of harder less weathered granite
25'-25'	granite	100	Very hard granite (small chips)

AUSTRALASIAN MINING CORPORATION LTD.

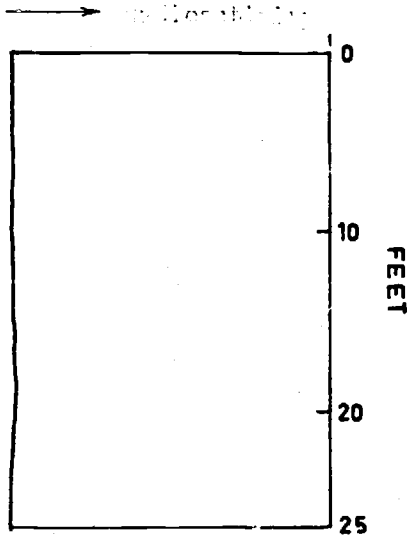
SPECIAL MINING LEASE 316

WELL LOG

WELL No. 316— 19		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 25' 2"	DATE: .4·11·69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd.

DRILLER N. S. Thompson Pty. Ltd.

WELL No. 216-20

290

WELL LOG

DATE LOGGED 3/11/69

TOTAL DEPTH 22'5"

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-10'	sand	70	Orange sand and white brown
	kunkar	30	kunkar.
10'-20'	clay	50	Red orange clay, quartz and
	quartz & feldspar	10	feldspar, kunkar
	kunkar	40	
20'-22'	quartz & feldspar	30	Quartz, feldspar, white hard
	porcellanite	20	"porcellanite" like clay and kunkar
	kunkar	50	possible basement: very hard

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

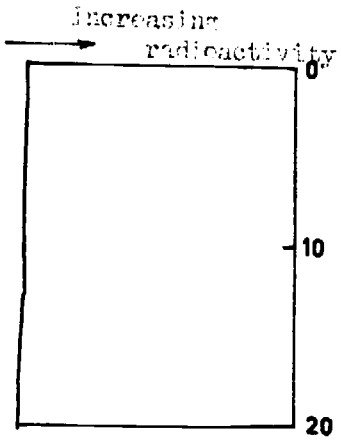
WELL LOG

291

WELL No. 316— 20		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 22′ 5″	DATE: 3·11·69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



Detailed lithologic log attached.

MINOIL SERVICES

GEOLOGIST D. B. Clarke

CLIENT Australasian Mining Corporation Ltd.

DRILLER N. C. Thompson Pty. Ltd.

WELL No. 316-20A

WELL LOG 3/11/69

292

DATE LOGGED 3/11/69

TOTAL DEPTH 122'10"

FORM L

INTERVAL	LITHOLOGY	%	DESCRIPTION
0'-15'	silt	70	Orange fine sand and silt
	sand	20	some kunkar
	kunkar	10	
15'-40'	silt	80	Orange silt some fine sand
	sand	20	
40'-50'	clay	80	Red sandy clay, some
	sand	20	white sandy clay
50'-55'	clay	60	White, some red silty sandy clay
	silt	20	
	sand	20	
55'-60'	sandstone	50	Red silty sandy clay plus
	clay	40	chips of hard gritty white
	sand	10	medium grained sandstone
60'-65'	sandstone	90	Hard white and red brown
	clay	10	gritty sandstone, some fallen red clay
65'-70'	sand	60	Yellow brown sand, purple
	sandstone	20	sandstone, yellow clay
	clay	20	
70'-75'	sand	85	Yellow brown fine sand
	silt	15	and silt
75'-80'	clay	75	Orange and white silt and
	silt	25	clay
80'-110'	grit	70	Light chocolate brown clay on
	clay	30	subrounded coarse quartz grit
110'-122'10"	grit	70	Chocolate brown clay on
	clay	30	subrounded coarse quartz grit
			Very minor lignitic material

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

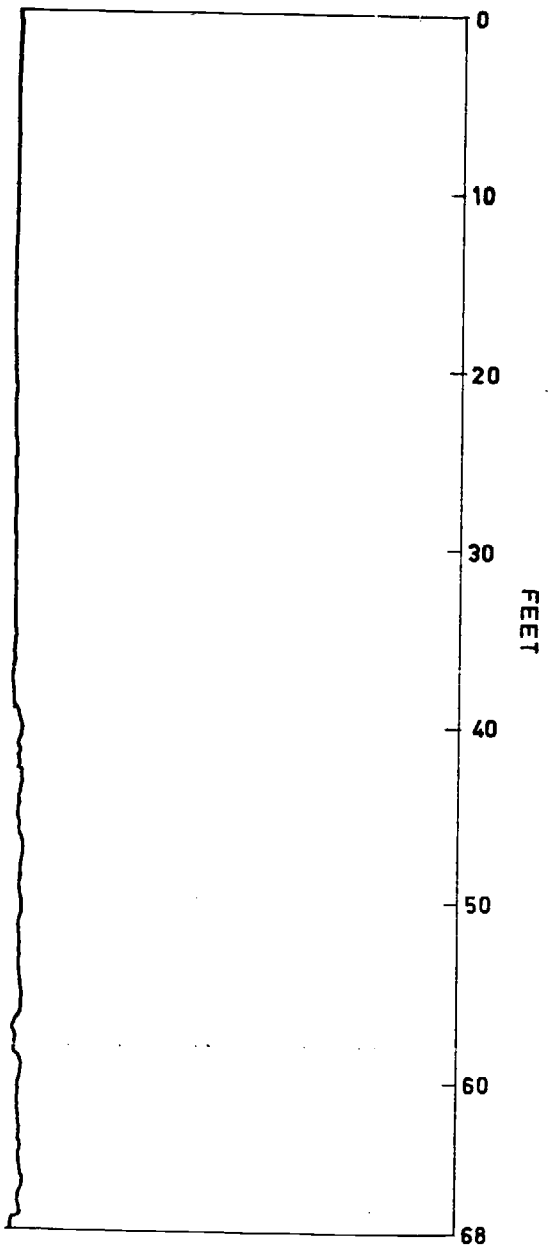
293

WELL LOG

WELL No. 316— 9		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 68′	DATE: 6·10·69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION Ltd.

SPECIAL MINING LEASE 316

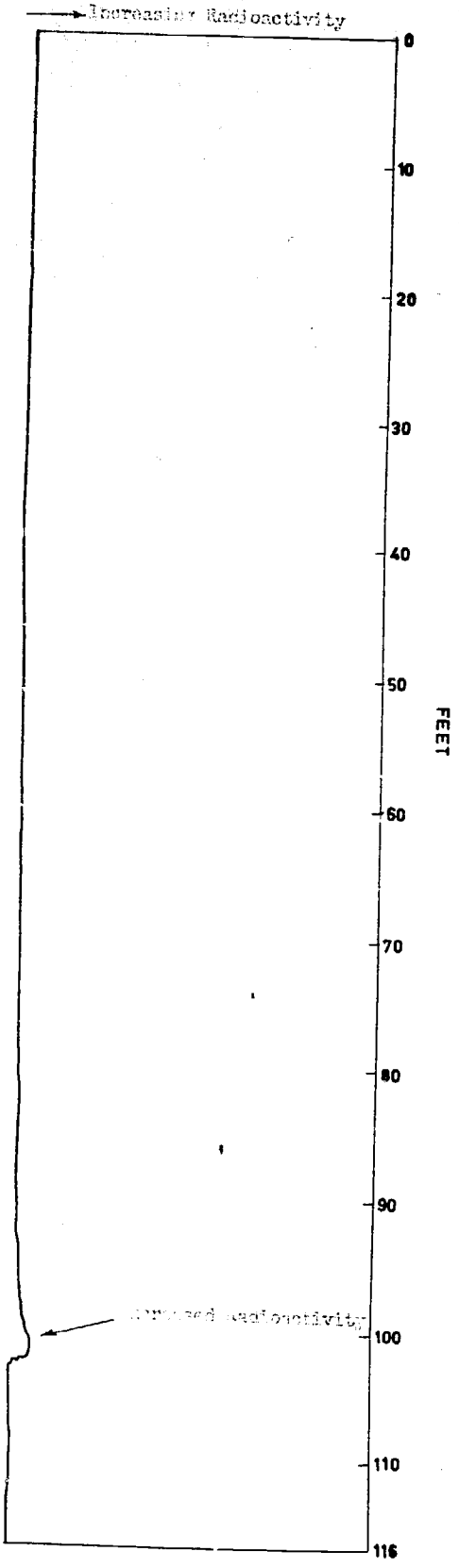
294

WELL LOG

WELL No. 316—10		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 116'1"	DATE: 10·10·69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



Detailed lithologic log attached.

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

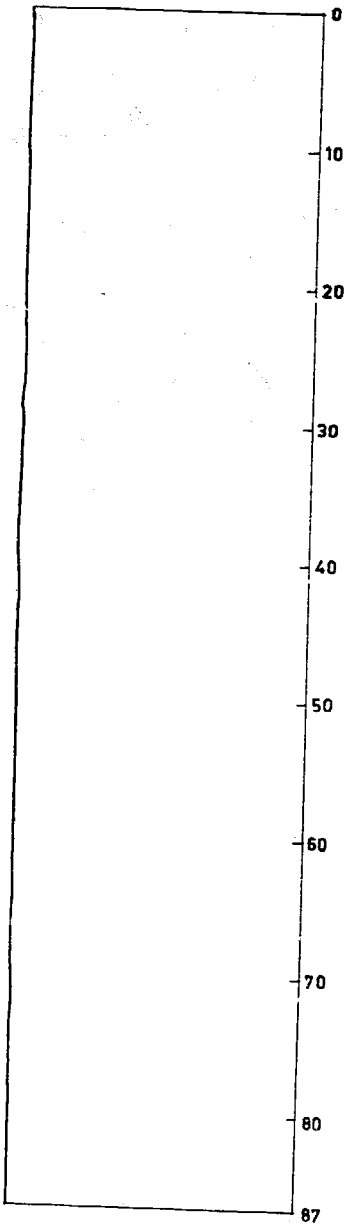
WELL LOG

295

WELL No. 316—13		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 87'2"	DATE: 11 - 10 - 69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

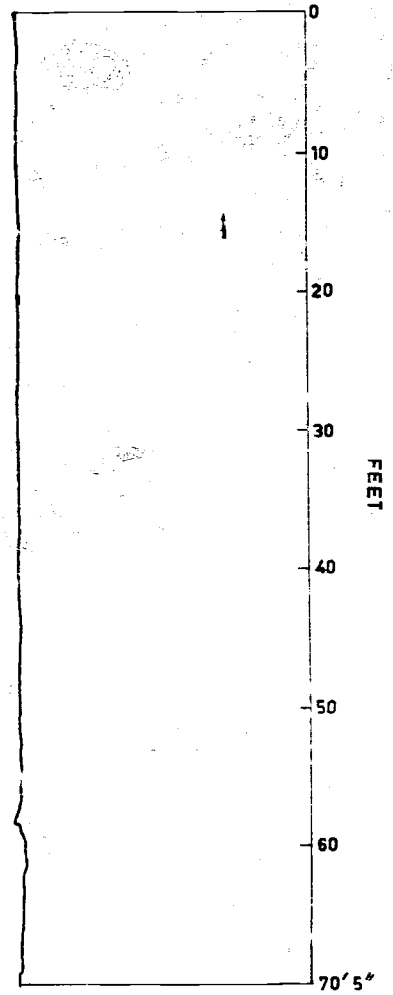
296

WELL LOG

WELL No. 316— 12		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 70' 5"	DATE: 11 · 10 · 69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

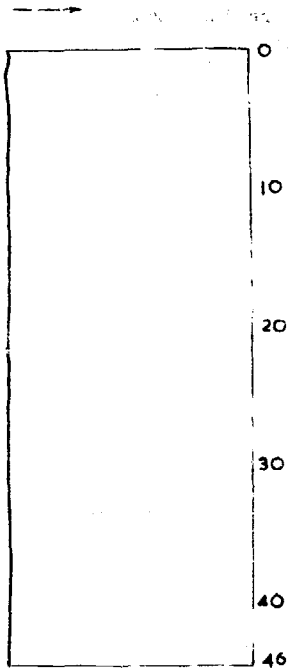
297

WELL LOG

WELL No 316— 11A		GEOLOGIST: D. B CLARKE
TOTAL DEPTH 46'	DATE: 9-10-69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

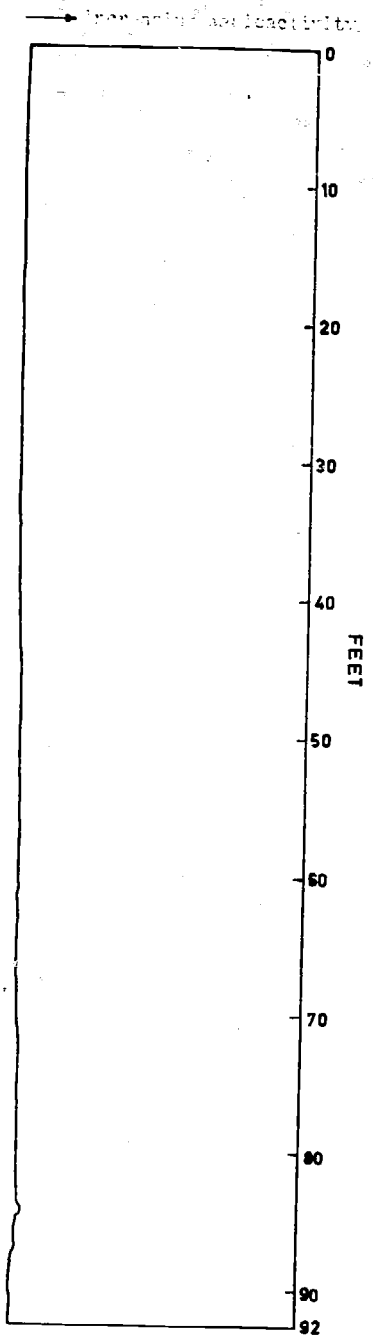
WELL LOG

296

WELL No. 316— 14		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 90' 2"	DATE: 11 · 10 · 69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



Detailed lithologic logs attached.

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

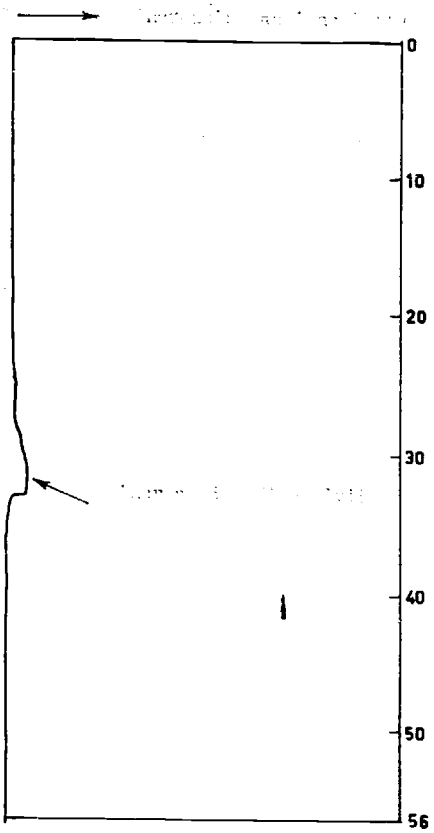
WELL LOG

293

WELL No. 316— 26		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 56' 7"	DATE: 1·11·69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

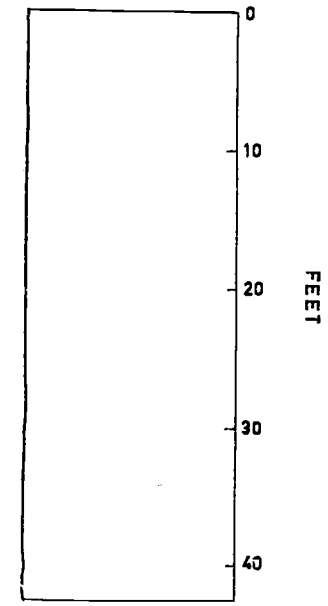
WELL LOG

306

WELL No. 316— 25		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 40' 3"	DATE: 3 · 11 · 69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

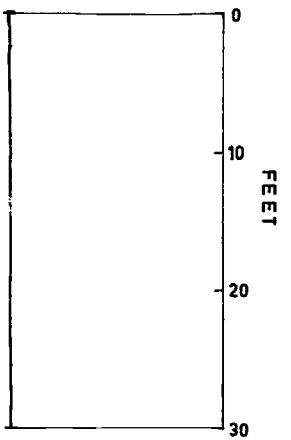
WELL LOG

301

WELL No. 316— 24		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 28' 5"	DATE: 3·11·69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

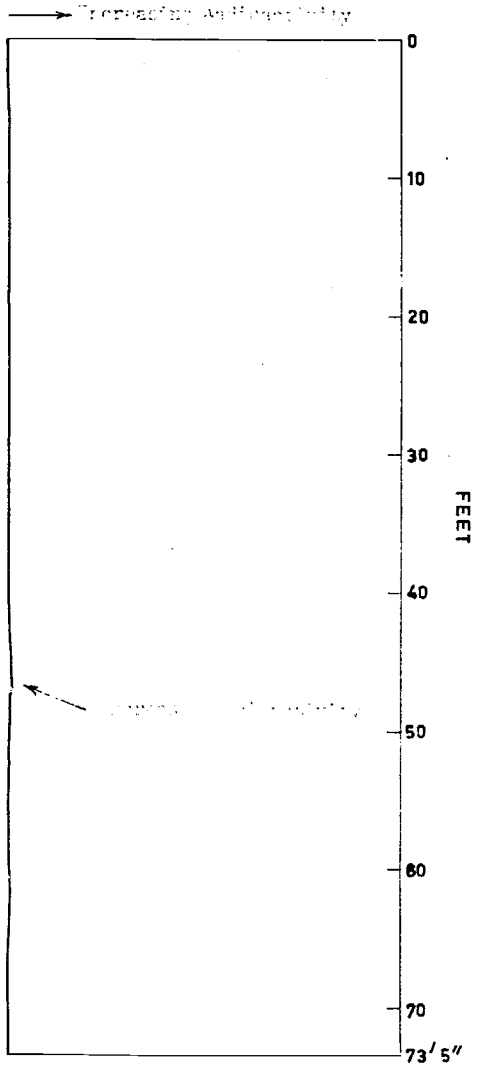
SPECIAL MINING LEASE 316

WELL LOG 302

WELL No. 316— 28		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 73·5′	DATE: 2 · 11 · 69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

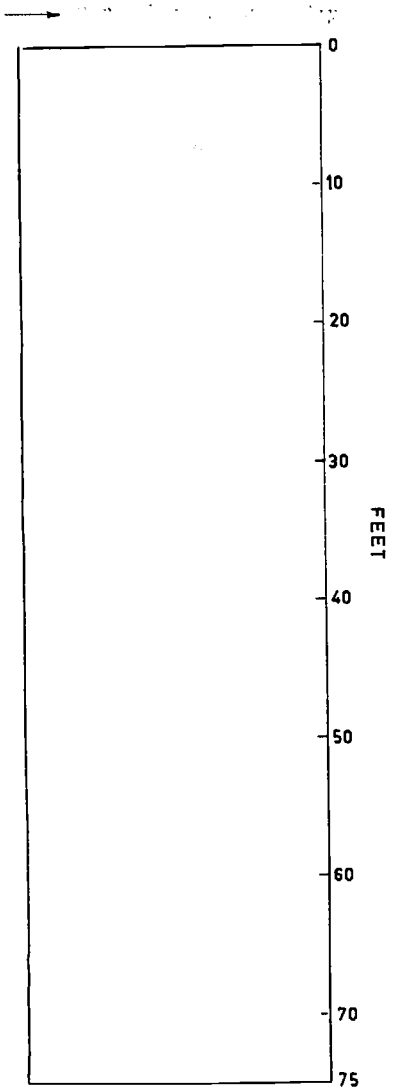
WELL LOG

303

WELL No. 316— 27		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 75' 5"	DATE: 2·11·69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

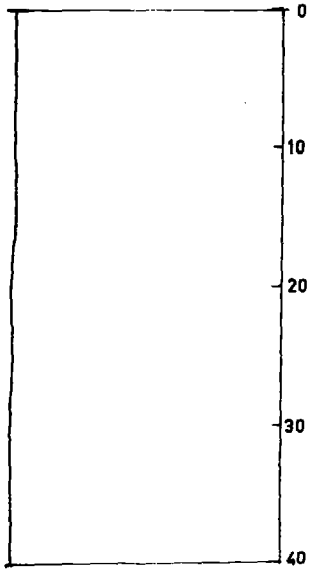
WELL LOG

304

WELL No. 316— 26 C		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 40'	DATE: 18·11·69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

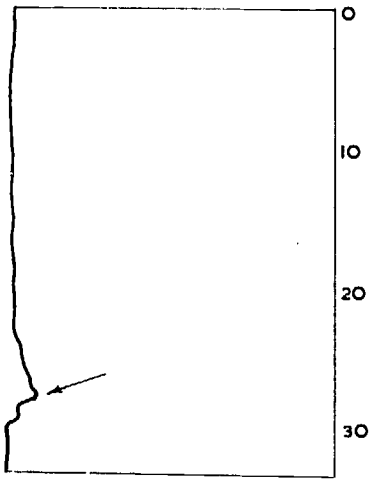
WELL LOG

305

WELL No. 316— **26 B**		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH **35'**	DATE: **18-11-69**	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

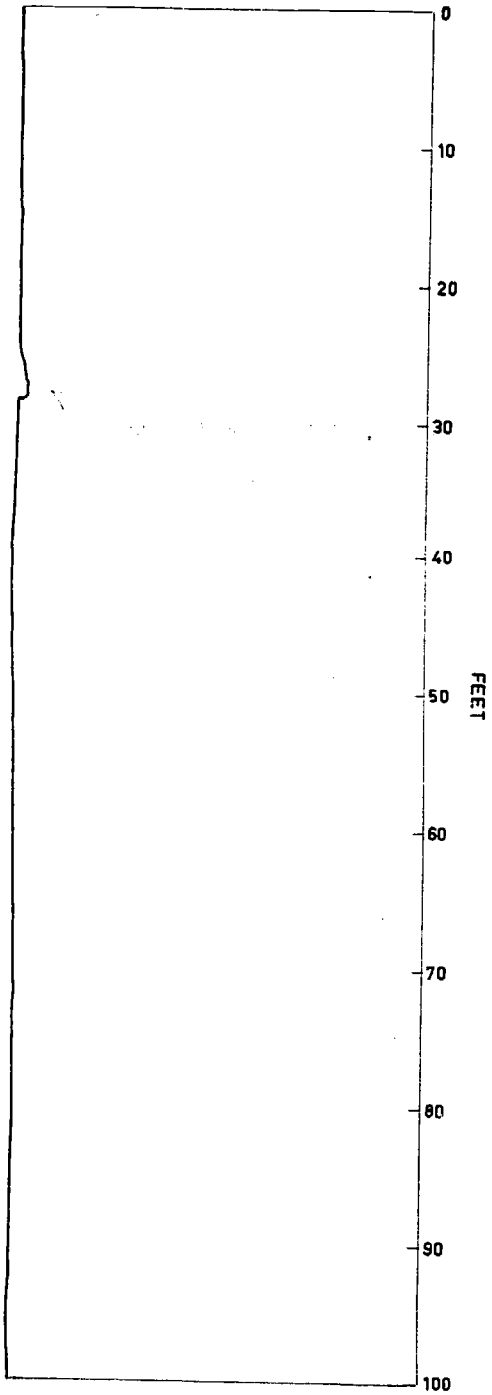
WELL LOG

306

WELL No. 316— M 3 A		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 100′	DATE: 21·11·69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

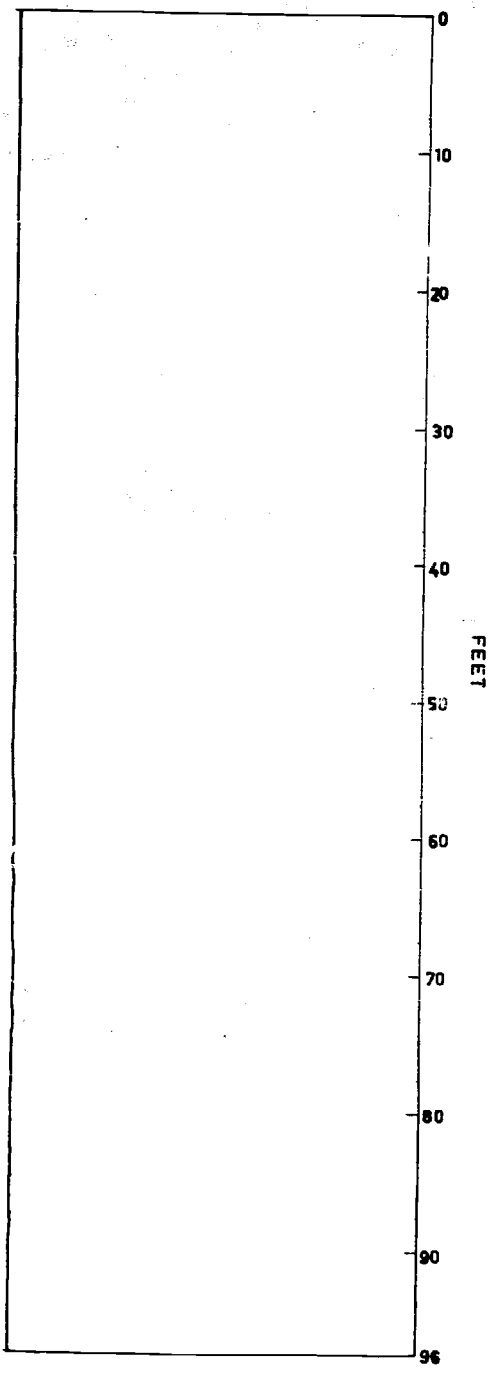
WELL LOG

307

WELL No. 316— M 4		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 96'	DATE: 22·11·69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

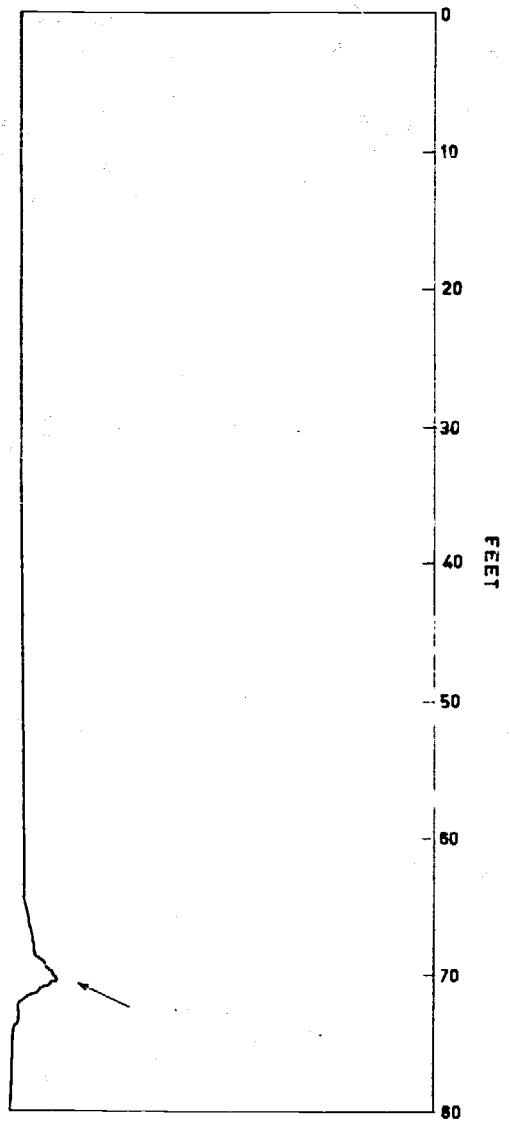
WELL LOG

306

WELL No. 316— M 5		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 80'	DATE: 22·11·69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

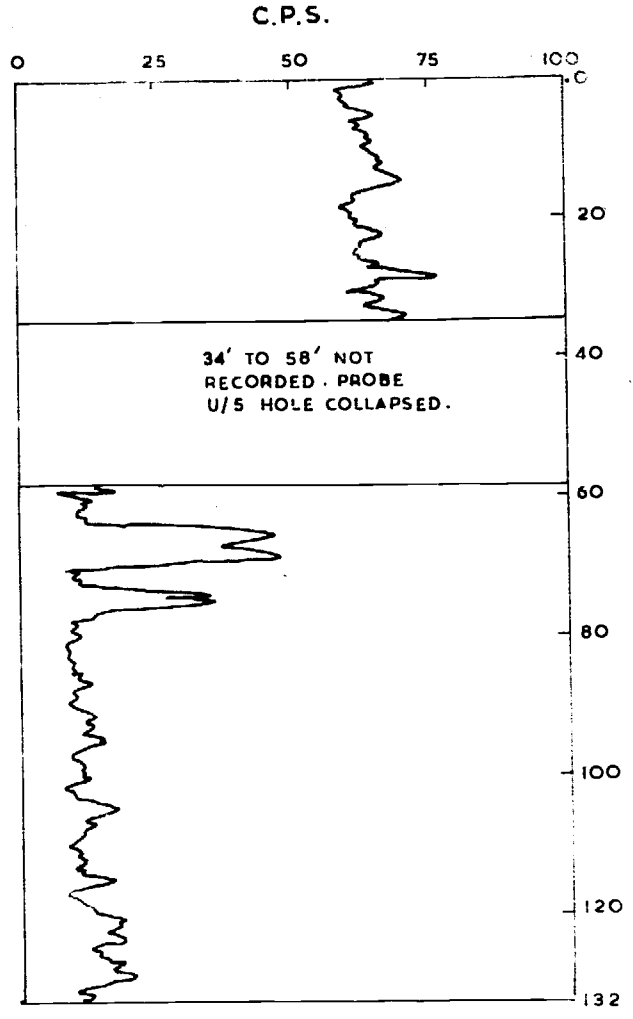
WELL LOG

309

WELL No. 316– M5C		GEOLOGIST. D. B. CLARKE
TOTAL DEPTH 132'	DATE: 13-12-69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

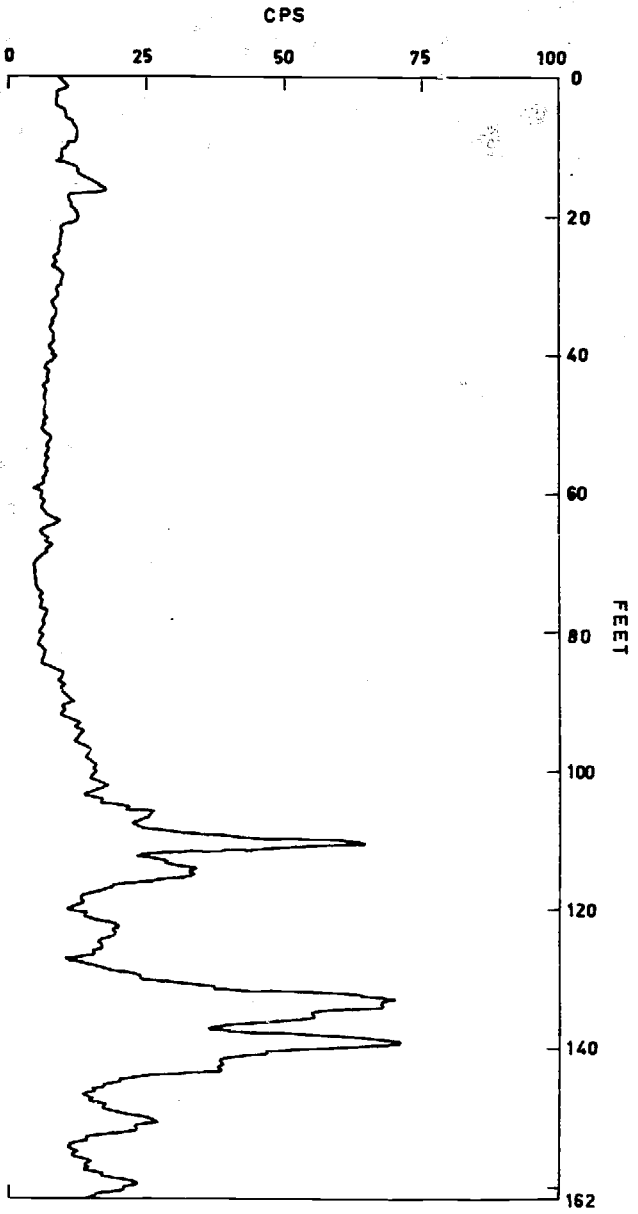
SPECIAL MINING LEASE 316

WELL LOG 310

WELL No. 316— M 10 B		GEOLOGIST: D B. CLARKE
TOTAL DEPTH 162′	DATE: 16 · 12 · 69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

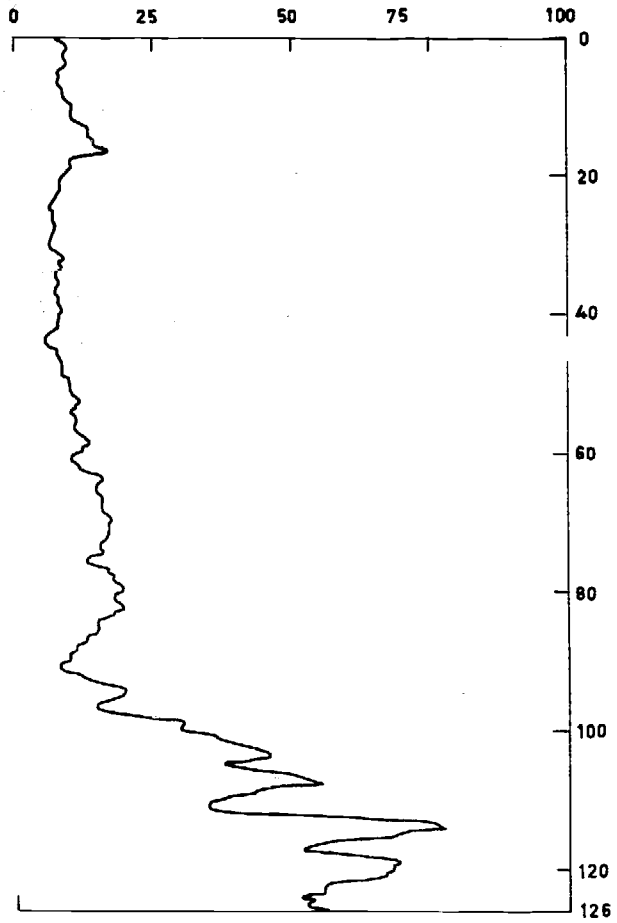
WELL LOG

311

WELL No. 316— M 12 A		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 126′	DATE: 15 · 12 · 69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

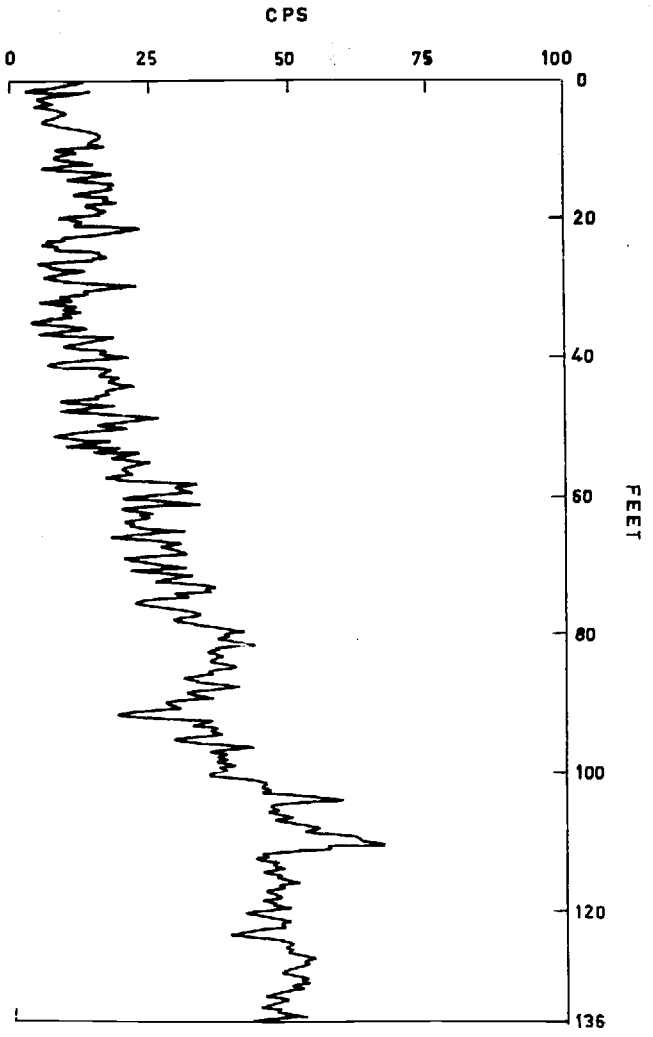
SPECIAL MINING LEASE 316

WELL LOG 312

WELL No. 316— M12		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 135′	DATE: 11 · 12 · 69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

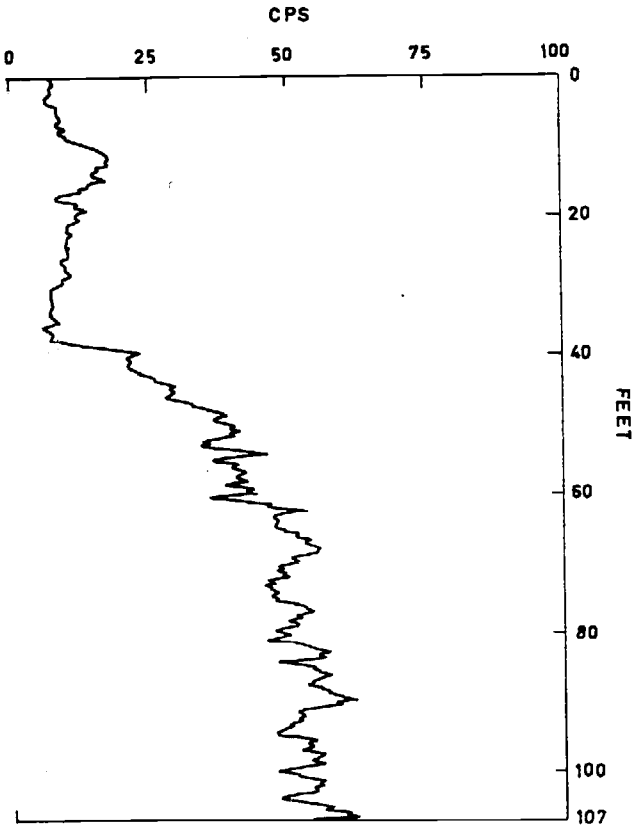
WELL LOG

316

WELL No. 316— M 13 A		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 107'	DATE: 9,16 · 12 · 69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

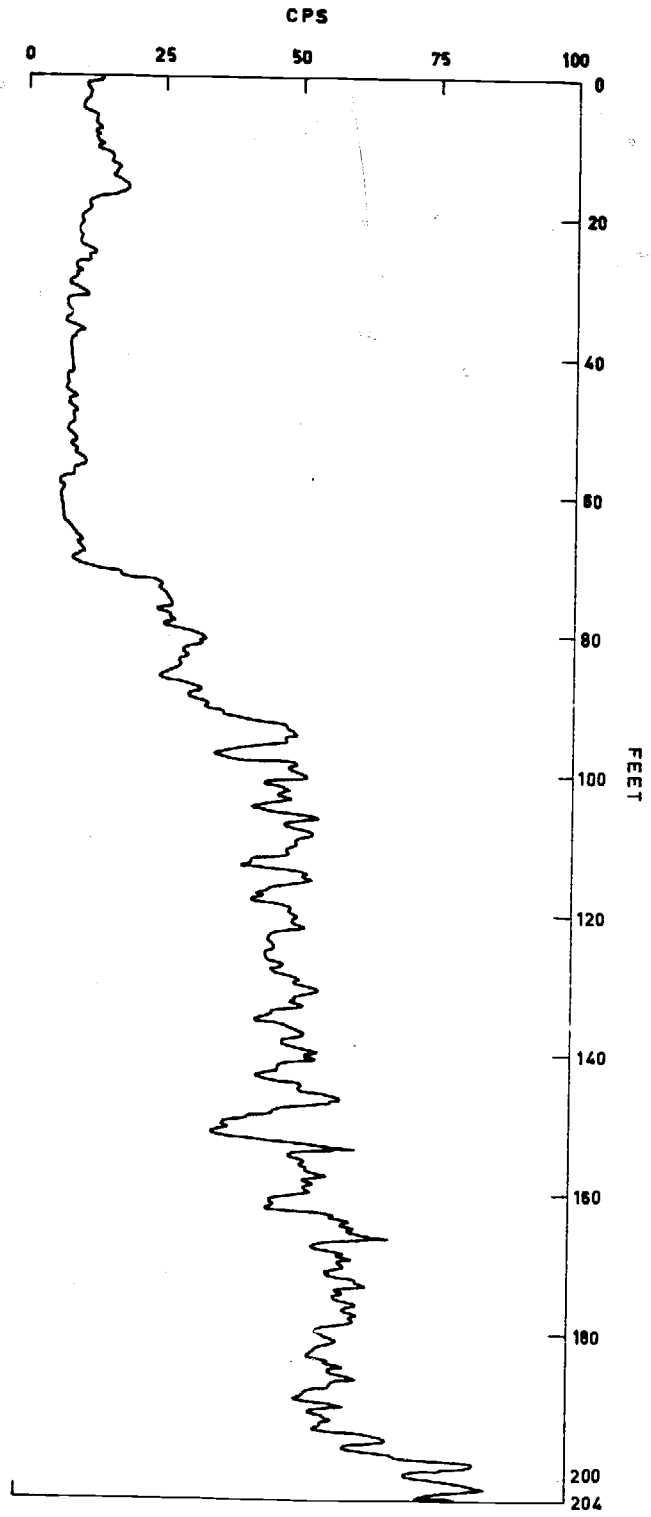
WELL LOG

314

WELL No. 316— M14		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 195′	DATE: 5 · 12 · 69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

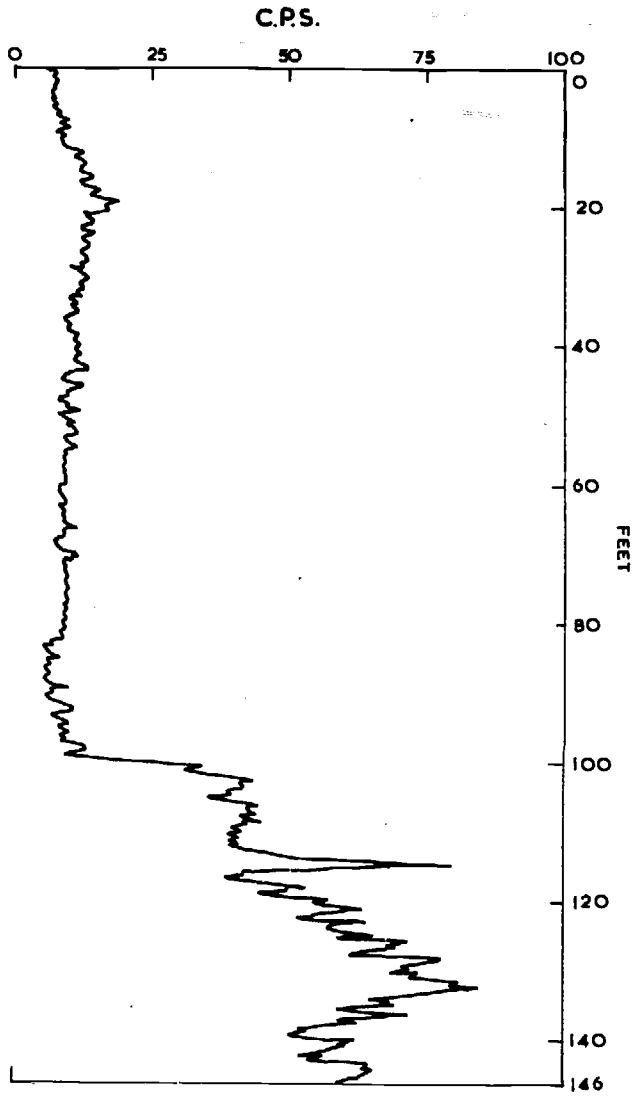
SPECIAL MINING LEASE 316

WELL LOG 315

WELL No. 316—Q9		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 146'	DATE: 23-1-70.	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



Detailed lithologic log attached.

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

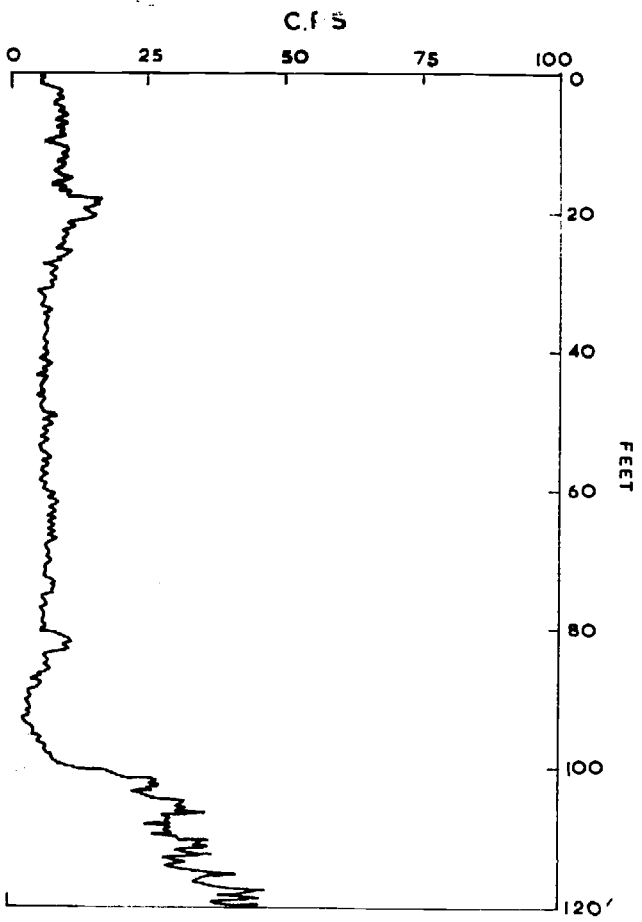
WELL LOG

316

WELL No. 316— Q 8		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 120′	DATE: 22-1-70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



[illegible] lithologic [illegible] recorded.

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

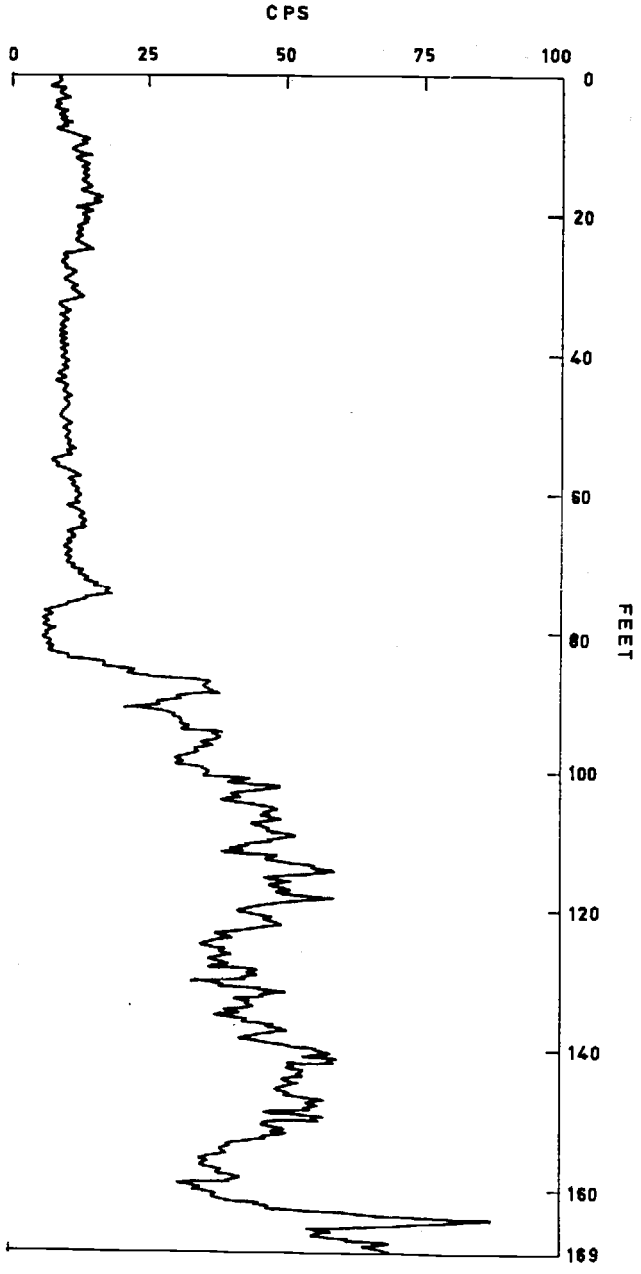
317

WELL LOG

WELL No. 316— Q6		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 169′	DATE: 21·1·70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

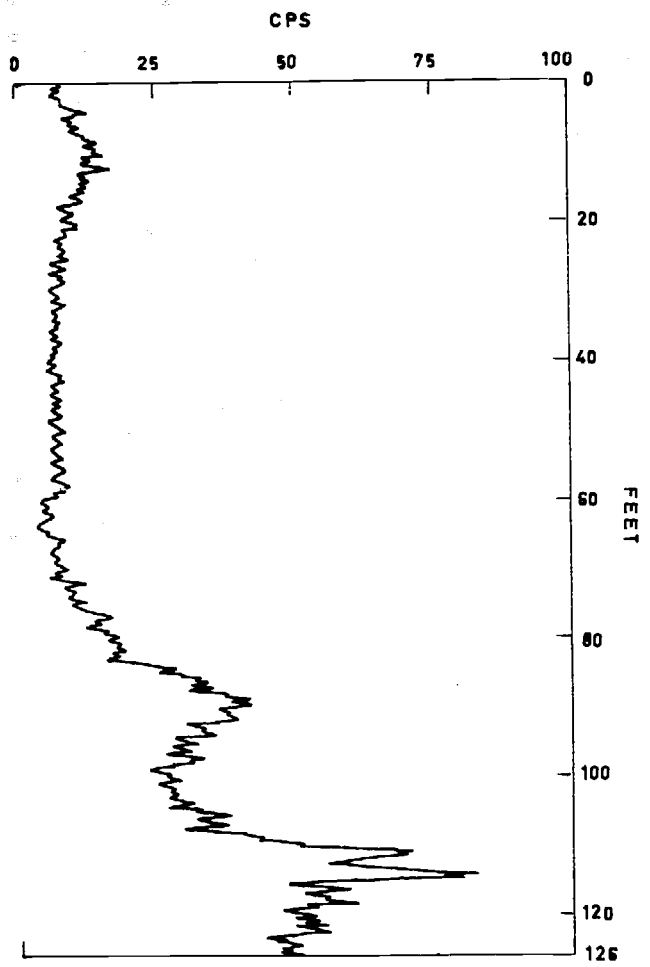
SPECIAL MINING LEASE 316

WELL LOG 316

WELL No. 316— Q5		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 126′	DATE: 20·1·70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

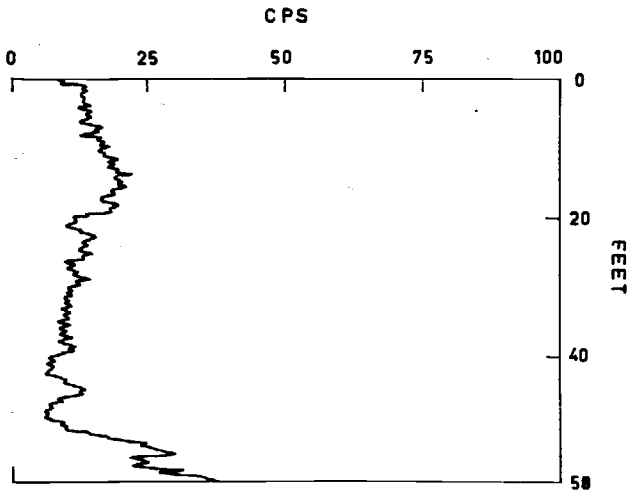
315

WELL LOG

WELL No. 316— Q4		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 58'	DATE: 20 · 1 · 70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

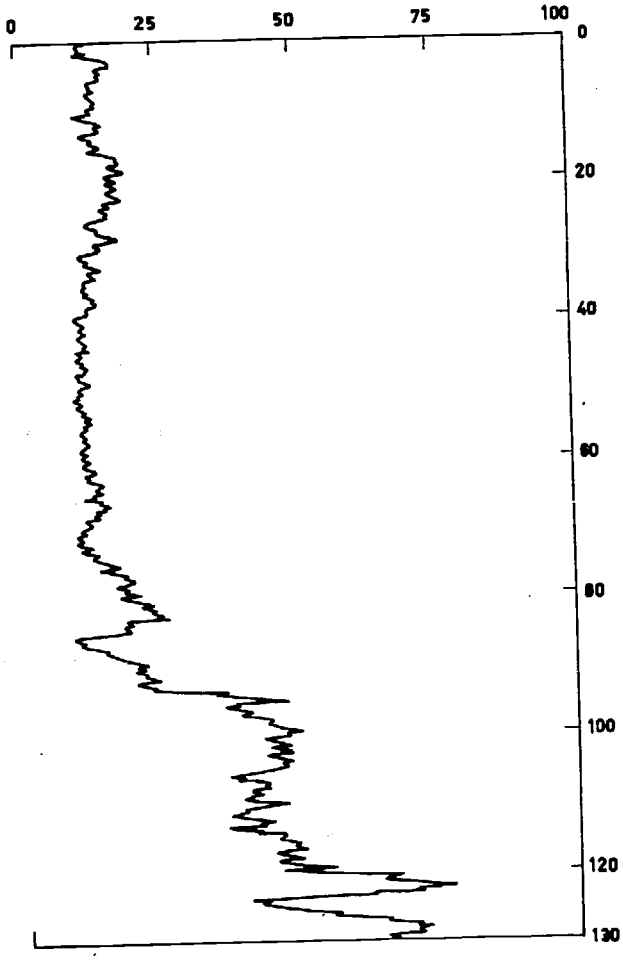
WELL LOG

320

WELL No. 316— Q 3		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 130′	DATE: 20·1·70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

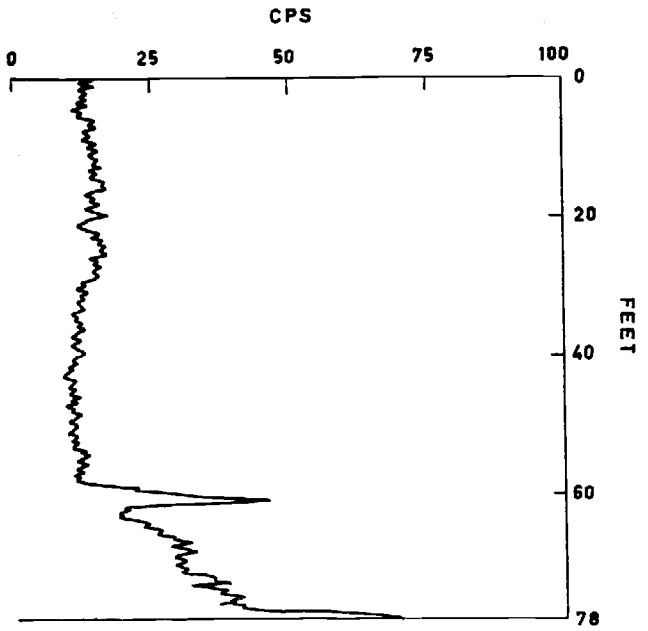
WELL LOG

321

WELL No. 316—Q2		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 78	DATE: 19·1·70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

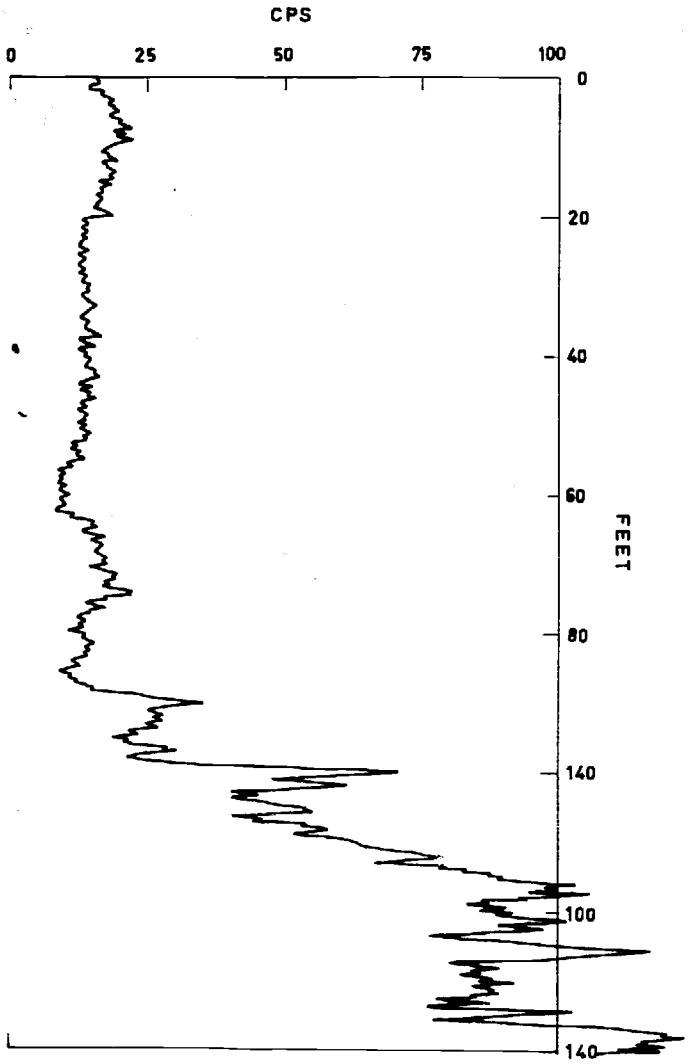
SPECIAL MINING LEASE 316

WELL LOG 322

WELL No. 316— Q1		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 140'	DATE: 19·1·70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

WELL LOG

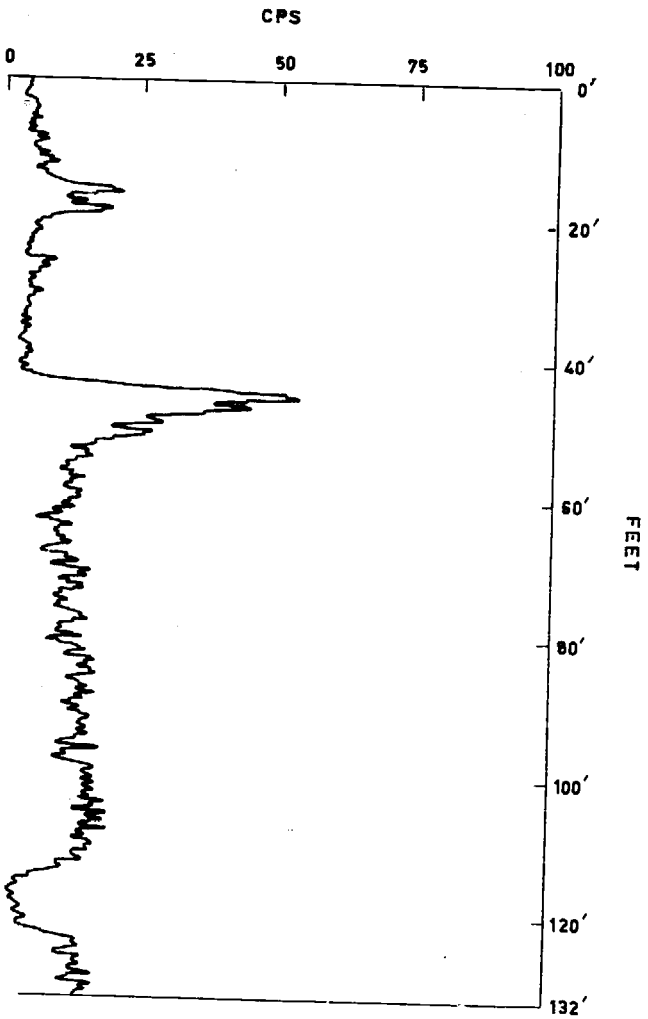
323

WELL No. 316— R7A		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 132′	DATE: 4·2·70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY

Detailed lithologic log attached.



AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

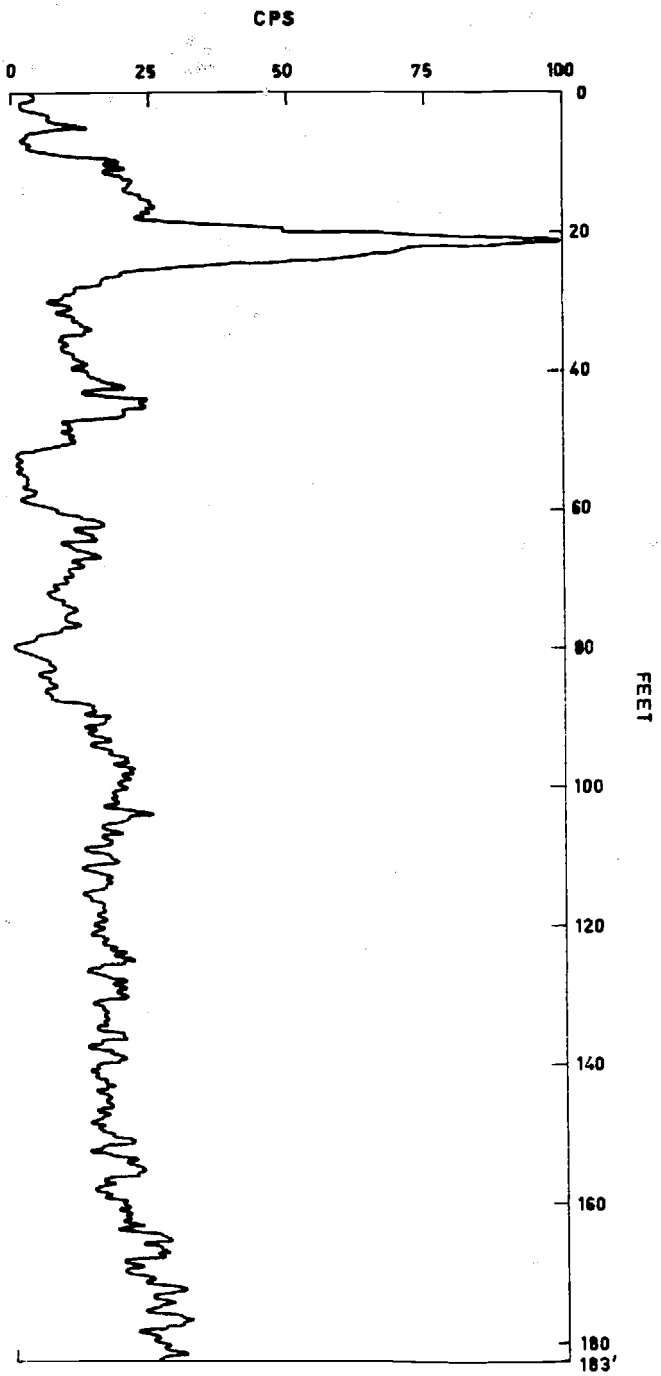
WELL LOG

324

WELL No. 316— R 6		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 183'	DATE: 3 · 2 · 70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

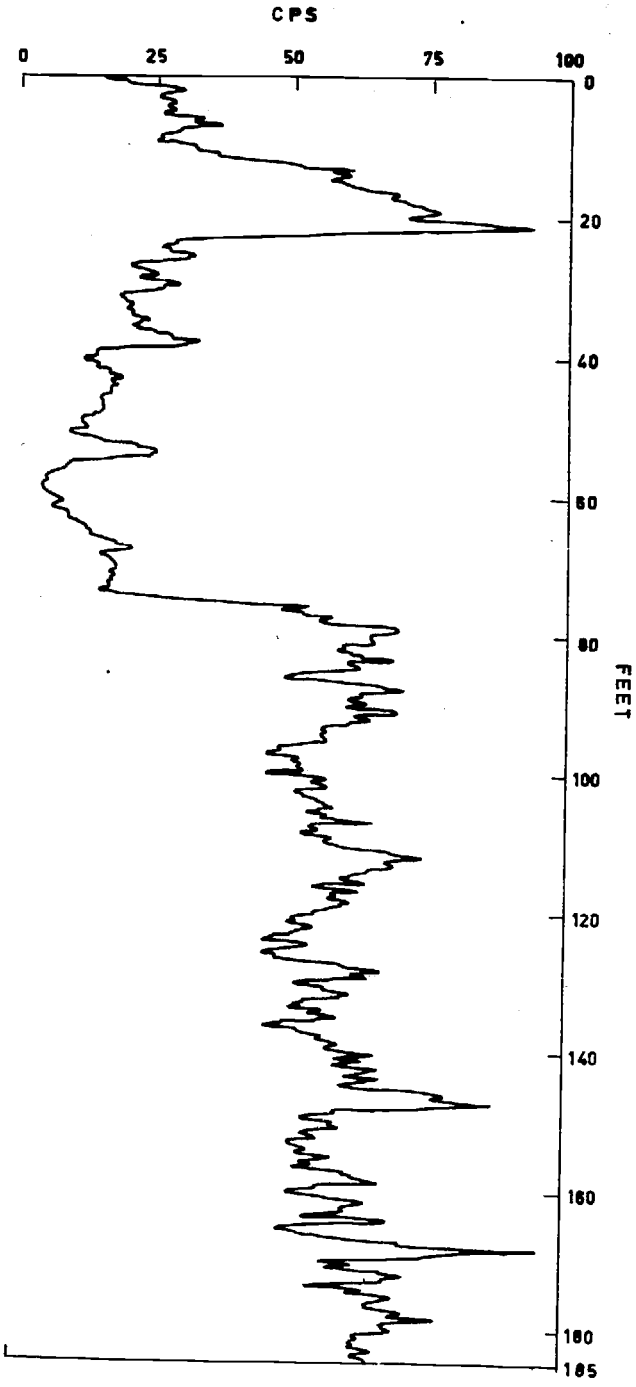
WELL LOG

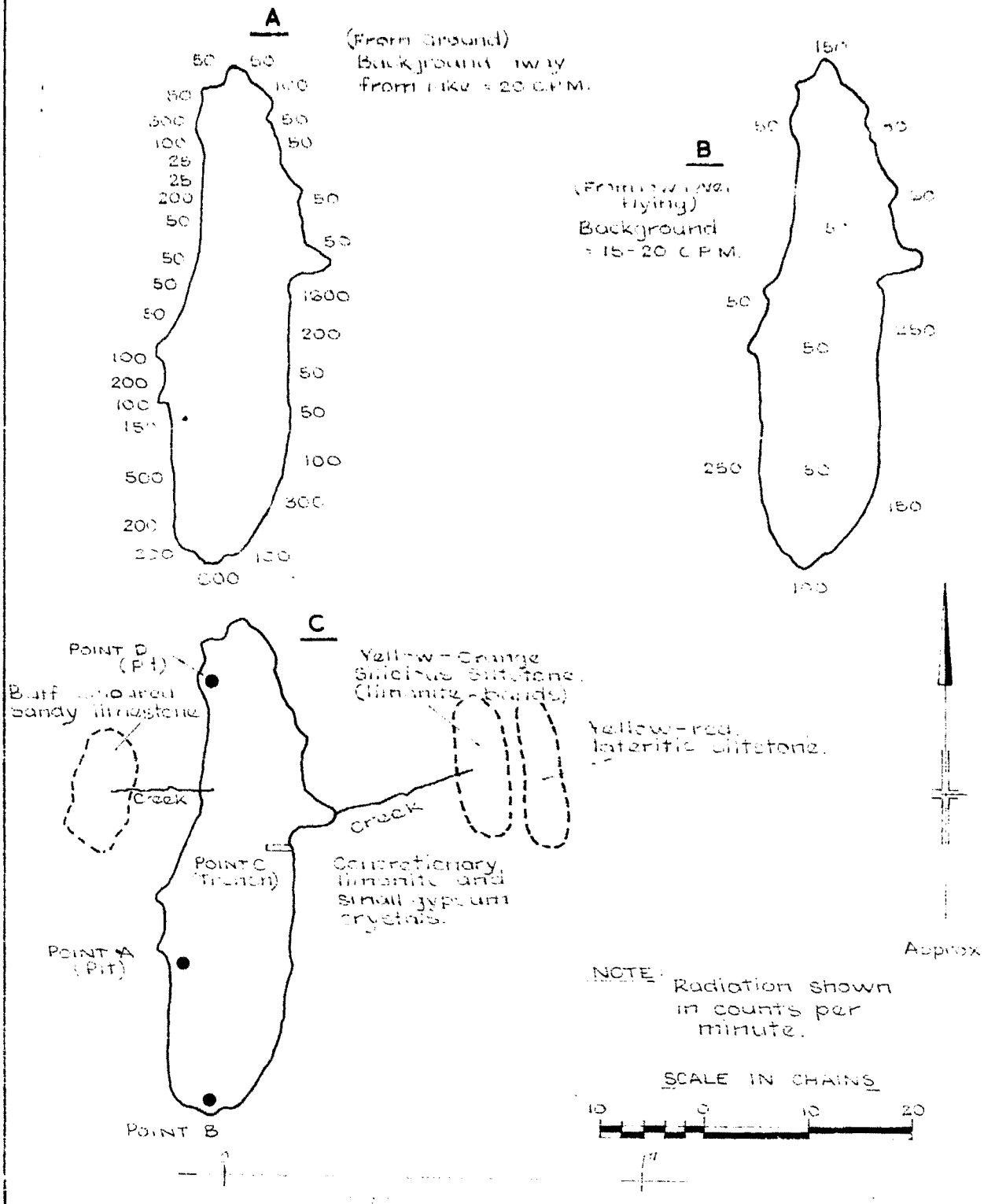
325

WELL No. 316— R1		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 186'	DATE: 29·1·70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY





AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316.

PLAN SHOWING

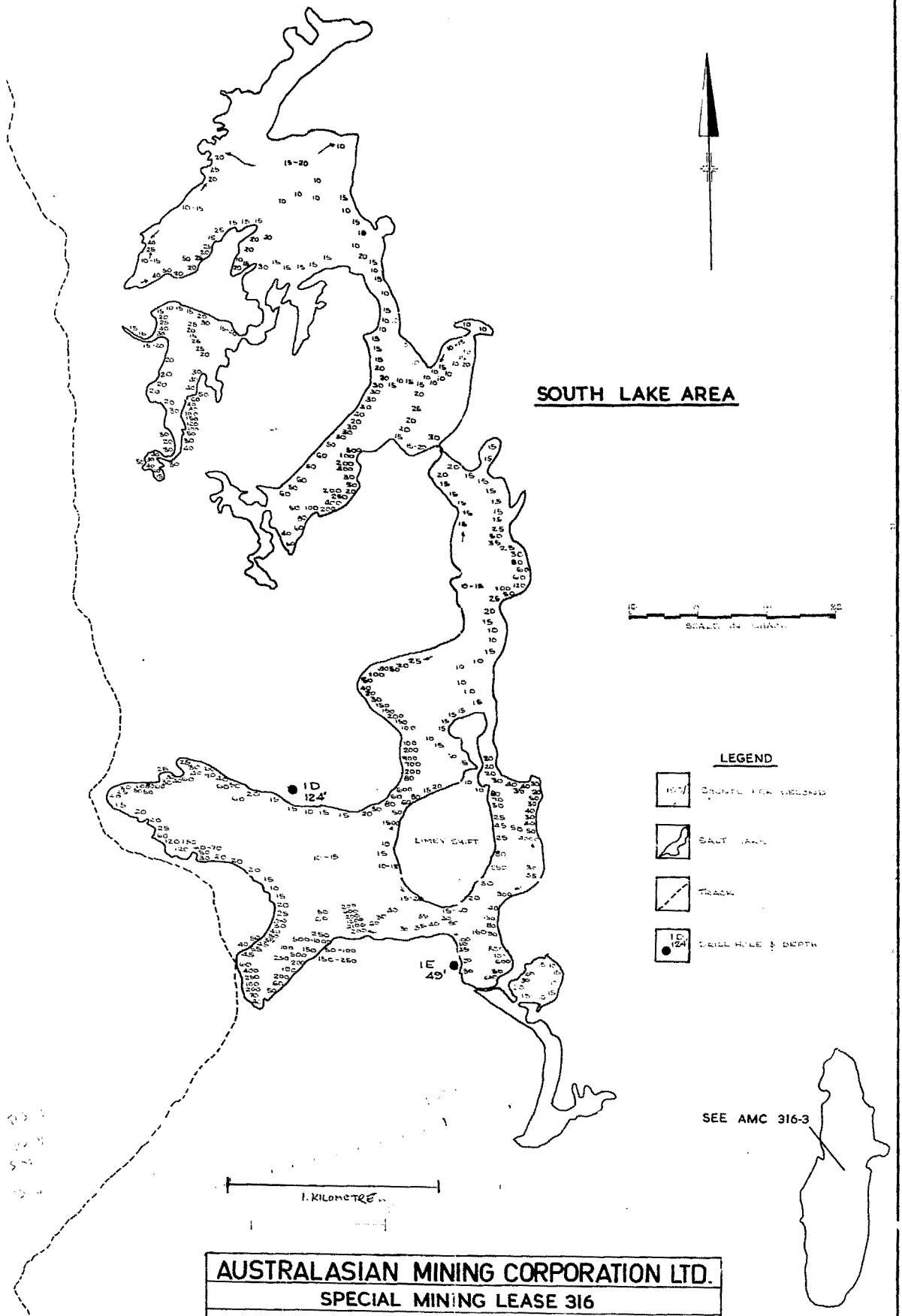
RADIOMETRIC VALUES

MOST SOUTHERLY LAKE — SEVEN MILE SWAMP AREA

	URANIUM PROJECT.	GEOLOGIST D. [illegible] LAKE
DATE: SEPTEMBER 1969.	SOUTH AUSTRALIA.	MINOIL SERVICES PTY. LTD.

RECEIVED 23 JUL 1970 DEPT. OF MINES REGISTRY ADELAIDE

1200-1
ENV 1200/1 AMC 316-3
VOL III



AUSTRALASIAN MINING CORPORATION LTD.		
SPECIAL MINING LEASE 316		
PLAN SHOWING RADIO-ACTIVITY TRAVERSES		
SOUTH LAKE AREA	URANIUM PROJECT	GEOLOGIST: D. CLARKE
DATE: May 1970	SOUTH AUSTRALIA	MINOIL SERVICES ADELAIDE.

RECEIVED 23 JUL 1970 DEPT. OF MINES REGISTRY

1200-72
ENV 1200/1 VOL III
AMC 316-6

PIDINGA

PYLEBUNG

MOWLING

TALLACOOTRA

BROOME

OOLABINNA

TALLOWAN

MOORNABA

POONDINGA

TRUNCH

EURIA

INMAN

COORABIE

BOOKABIE

PENONG

SML 316

25 BROOME GRANITES

See Plan AMC 316-2 for details

VERMIN PROOF FENCE

COLONA HOMESTEAD

LEOONILLA ROCKHOLE

EYRE HIGHWAY

FOWLERS BAY

LEGEND

Flight traffic

Boundary of M.L. 316

SCALE IN MILES

0 5 10

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316.

PLAN SHOWING PATHS OF AIRBORNE SCINTILLOMETER SURVEYS.

	URANIUM PROJECT	GEOLOGIST : D.B. CLARKE
DATE: SEPTEMBER 1970	SOUTH AUSTRALIA	MINOL SERVICES ADELAIDE

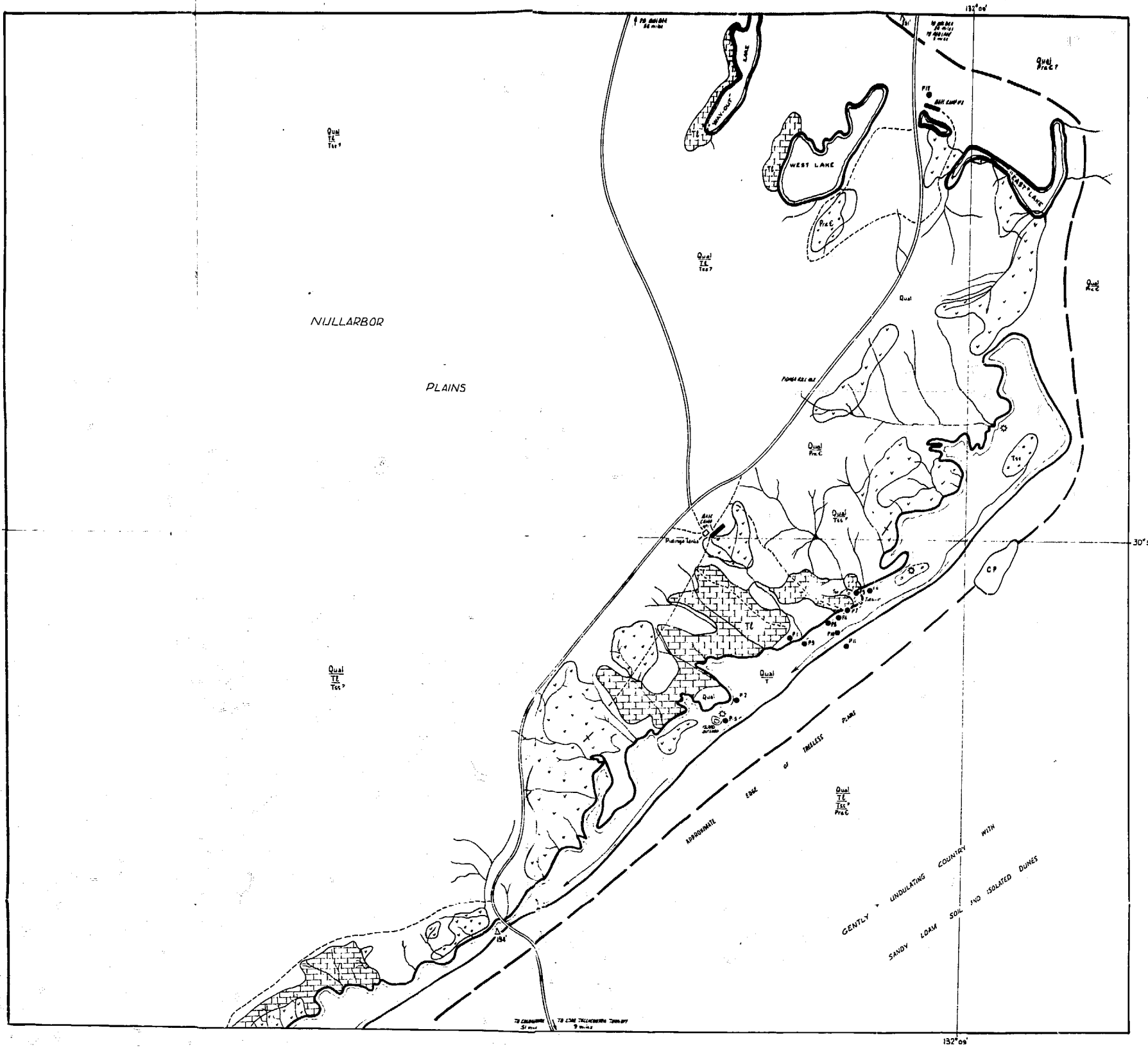
RECEIVED 20 OCT 1970 DEPT. OF MINES REGISTRY

VOL III

ENV. 1200-3

AMC. 316-1

RULEX—TRUELINE NO. 6 MADE IN AUSTRALIA



LEGEND

- Qual — Quaternary, sediments, alluvium, soil, gypsum, etc
- Tl — Tertiary Limestone, partly siliceous, sandy in part; Sandstone, laterised ferruginous, medium grained; [Clays, Sands & Lignites (known only)]
- Pr∈ — Precambrian, undiff granites, granodiorites, batholithic gneisses & granite gneisses
- Base Camp Sites
- Trenches
- PS Auger Holes (Scales)
- Previous Bore Holes (Scales)
- Improved tracks
- Unimproved tracks
- CP Clay Pans
- Vertical lineation
- Direction of Drainage flow
- △ Spot Elevations (AHD)
- Qual / Tl / Tss? / Pr∈ — Quaternary cover presumably underlain by Tertiary Limestone, possibly underlain by Tertiary basal sandstone probably lineation strong enough to show at shallow dipping

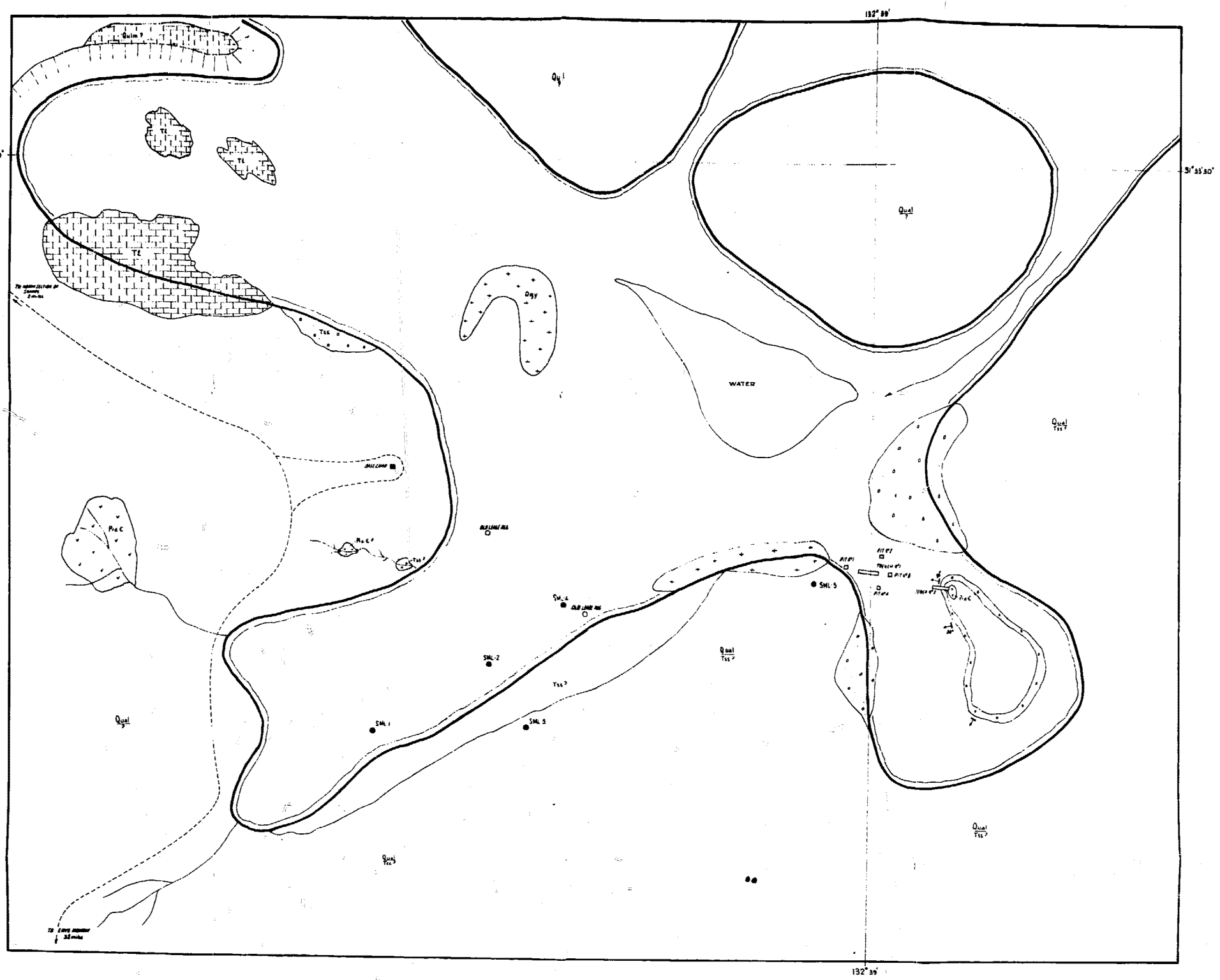
Scale Approximate

PLATE III

RECEIVED 20 FEB 1970 DEPT. OF MINES REGISTRY

AUSTRALASIAN MINING CORPORATION LTD		
Pidinga Lakes Area SOUTH AUSTRALIA	RECONNAISSANCE AREA PIDINGA LAKE	Uranium Investigation Project
GEOLOGIST J.L.H. CAMPBELL	DATE 27 APRIL, 1969	MINOIL SERVICES, ADELAIDE

1200-4 ENV 1200 Vol II



LEGEND

- Qual — Quaternary, alluvium, calcareous soil
- Qgy — Quaternary, gypsum, crystalline & sand
- Quln? — Quaternary, ribbon limestone, very silty
- T2 — Tertiary, Limestone, silicified
- Tss / Tss — Tertiary, Sandstone, ferruginous, Laterised, mod qn Sandstone, unlaterised, Lt grey to Lt brown to Lt red, med to med fine qn [Unconsolidated sands; clays & lignites subcrop only]
- Pre C — Precambrian; undifferentiated, granites, gneisses and Mica shists (?)

- Base Camp Site
- Trenches (See text)
- SML1 — Auger Holes (See text)
- Unimproved Track
- Direction of Drainage flow
- Escarpment

Scale Approximate

1000 500 0 1000 ft

NOTE Coordinates uncontrolled

PLATE V

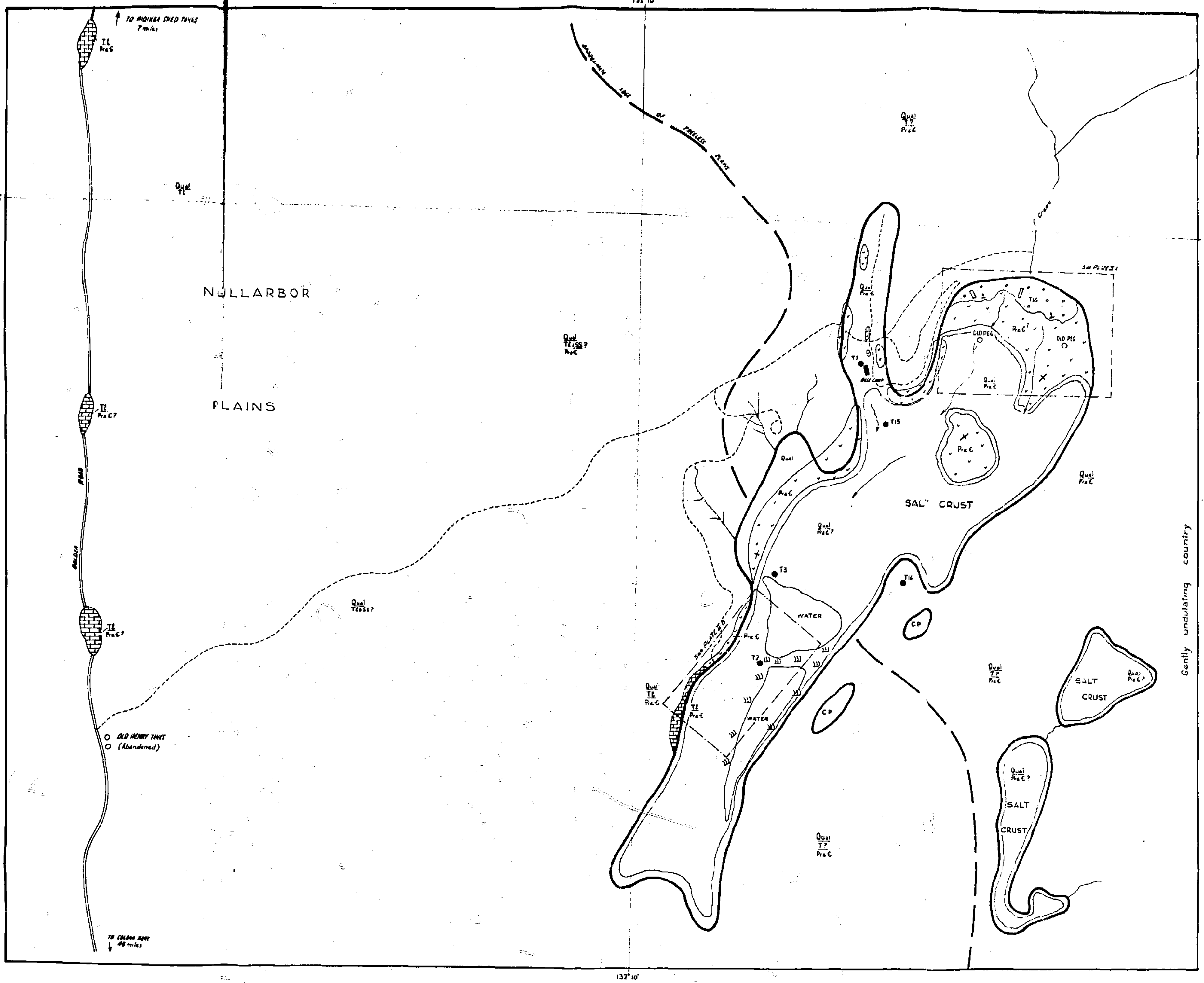
RECEIVED 20 FEB 1970 DEPT. OF MINES REGISTRY

AUSTRALASIAN MINING CORPORATION LTD

Pidinga Lakes Area SOUTH AUSTRALIA	*RECONNAISSANCE AREA* *SEVEN MILE SWAMPS*	Uranium Investigation Project
GEOLOGIST: *J L H CAMPBELL*	DATE: *27 APRIL, 1969*	MINOIL SERVICES, ADELAIDE

MADE IN AUSTRALIA RULEX-TRUELINE No 500/ME

1200-5 ENV-1200 VOL



LEGEND

- Qual — Quaternary, sediments, alluvium, soil, etc
- Tertiary, Limestone, partly siliceous, sandy at base; Sandstone laterised ferruginous, medium grained, [Clays, Sands & Lignites (subcrop only)]
- Pre€ — Precambrian, undifferentiated granites, granodiorites, gneisses, schists (?)
- Base Camp Site
- Trenches (See text)
- T5 Auger Holes (See text)
- Improved track
- Unimproved track
- CP Clay Pans
- Vertical Lineation
- Dip, less than 5°
- Direction of Drainage flow
- Qual / T? / Pre€ — Quaternary alluvium & soil, possibly underlain by Tertiary Sediments, probably underlain by Precambrian rocks at shallow depth

Scale Approximate

NOTE Coordinates uncertain

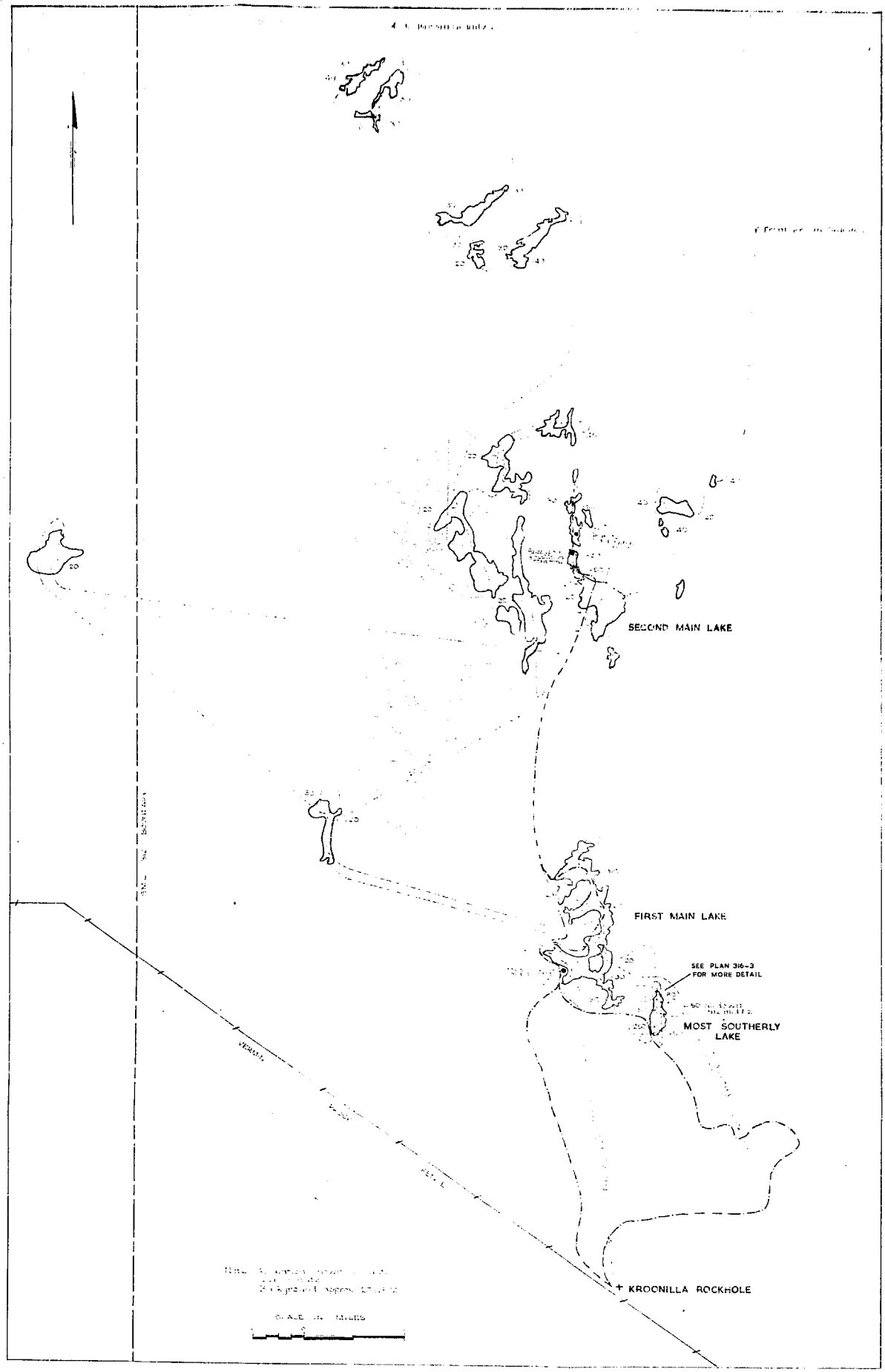
PLATE II

RECEIVED 20 FEB 1970 DEPT. OF MINES REGISTRY

AUSTRALASIAN MINING CORPORATION LTD.		
Pidinga Lakes Area SOUTH AUSTRALIA	RECONNAISSANCE AREA LAKE TALLACOOTRA	Uranium Investigation Project
GEOLOGIST: J L H CAMPBELL	DATE: 27 APRIL, 1969	MINOIL SERVICES, ADELAIDE

1200-6 ~~ENV 1200~~ Vol III

MADE IN AUSTRALIA RULEX-TRUELINE No 500/M



LEGEND

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316.

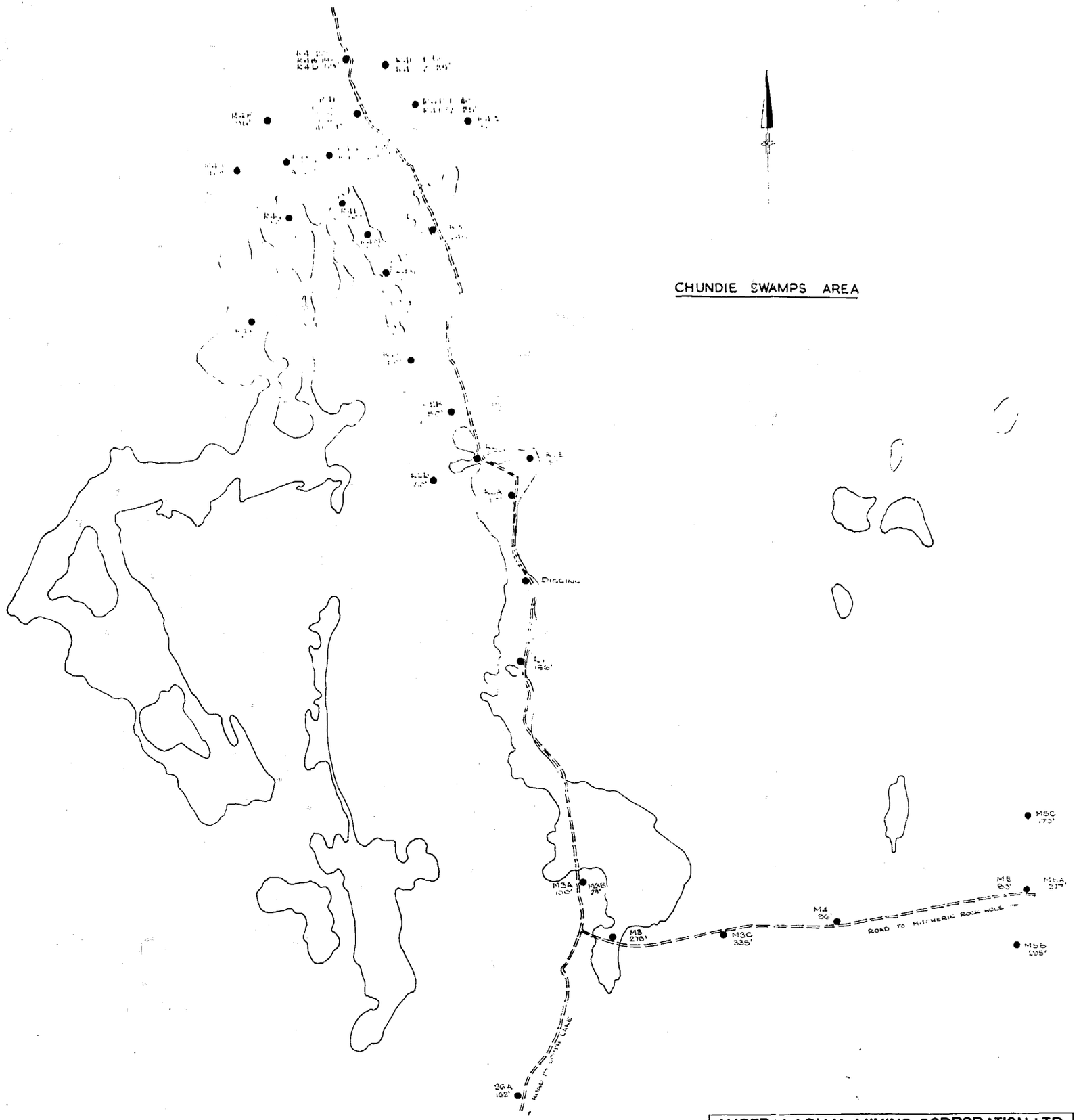
PLAN SHOWING
PATHS OF GROUND AND AIRBORNE
SCINTILLOMETER SURVEYS.

	URANIUM PROJECT	GEOLOGIST
DATE	SOUTH AUSTRALIA	MINOIL SERVICES ADELAIDE

RECEIVED
23 JUL 1970
DEPT. OF MINES
REGISTRY

AMC 316-2

1200-7 EL 1200 VOL III



AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316.

PLAN SHOWING

LOCATION OF DRILL HOLES

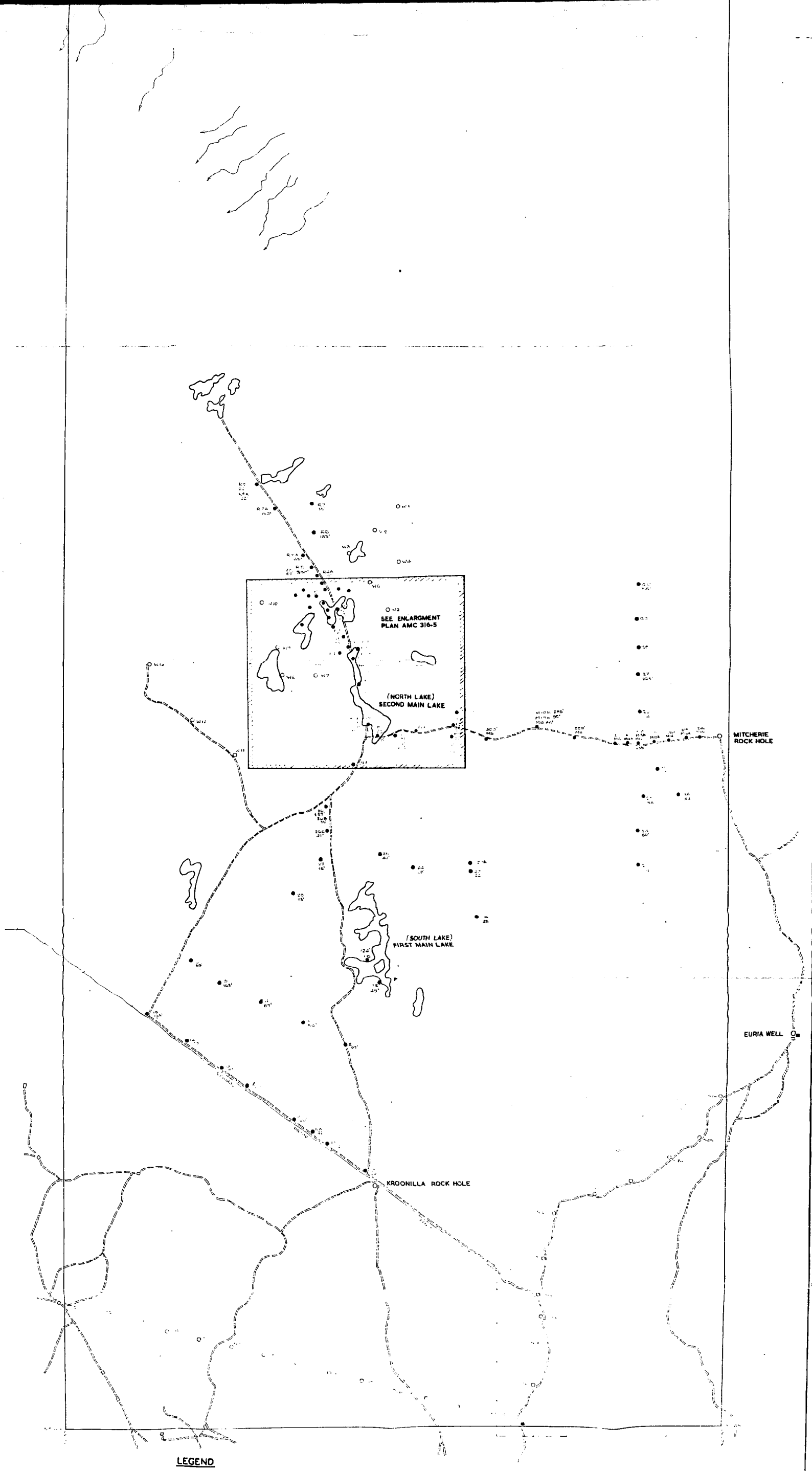
NORTH LAKE AREA	URANIUM PROJECT	GEOLOGIST D. CLARKE.
DATE	SOUTH AUSTRALIA	MINOIL SERVICES ADELAIDE

RECEIVED 23 JUN 1971

MADE IN AUSTRALIA RULEX-TRUELINE

1200-8

AMC 316-5



AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316.

PLAN SHOWING

LOCATION OF DRILL HOLES

URANIUM PROJECT

SOUTH AUSTRALIA

1200-9

AMC 316-4

MADE IN AUSTRALIA

RULEX-TRUELINE

SEE ENLARGMENT
PLAN AMC 316-5

(NORTH LAKE)
SECOND MAIN LAKE

(SOUTH LAKE)
FIRST MAIN LAKE

MITCHERIE
ROCK HOLE

EURIA WELL

KROONILLA ROCK HOLE

RULER-TRUETYPE
MADE IN AUSTRALIA

AUSTRALASIAN MINING CORPORATION LTD.

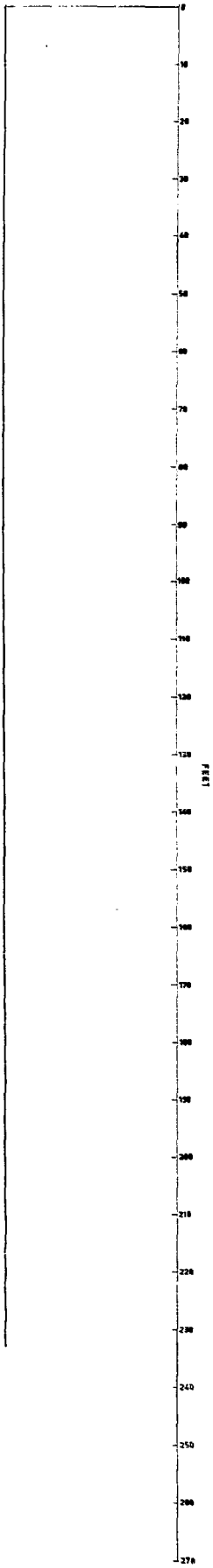
SPECIAL MINING LEASE 316

WELL LOG

WELL No. 316 — M3		GEOLOGIST D H CLARKE
TOTAL DEPTH 270'	DATE 19-11-88	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY





1200-10

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316

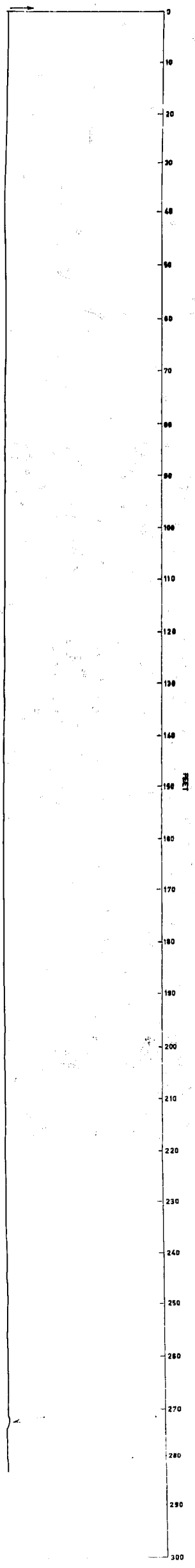
WELL LOG

WELL No. 316— M6		GEOLOGIST: D B CLARKE
TOTAL DEPTH 300'	DATE: 25 · 11 · 69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY





1200-11

AUSTRALASIAN MINING CORPORATION LTD.

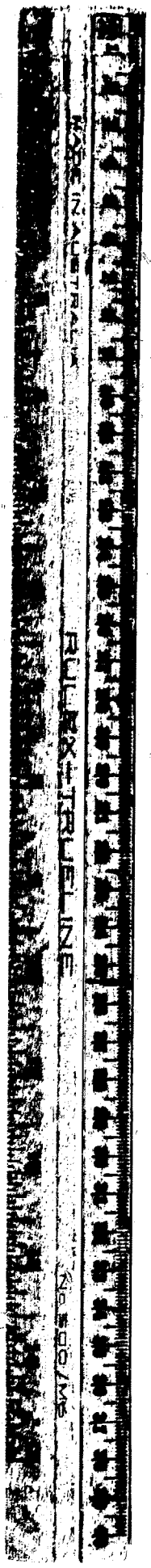
SPECIAL MINING LEASE 316

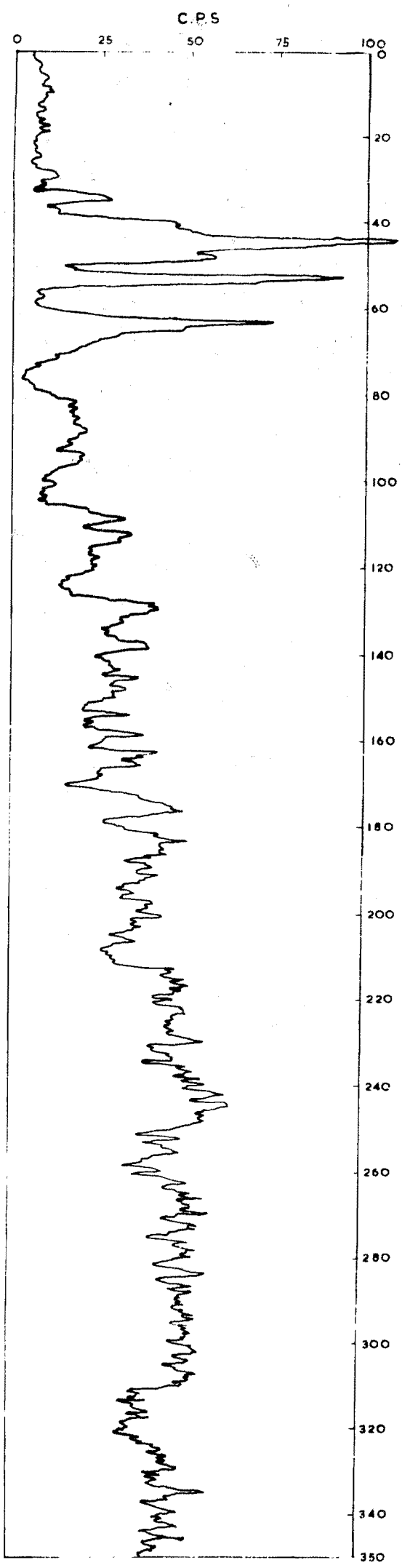
WELL LOG

WELL No. 316 R5			GEOLOGIST. D. B. CLARKE
TOTAL DEPTH	350′	DATE 2-2-70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY





1200-12.

AUSTRALASIAN MINING CORPORATION LTD.

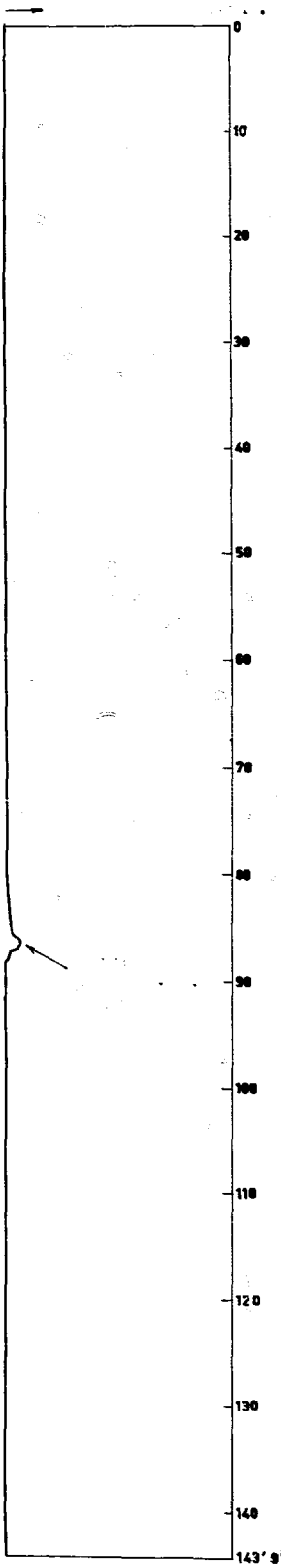
SPECIAL MINING LEASE 316

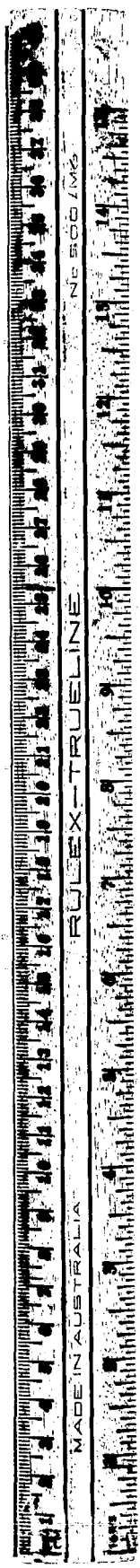
WELL LOG

WELL No. 316— 16		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 143'9"	DATE: 12 · 10 · 69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY





1200 - 13

AUSTRALASIAN MINING CORPORATION LTD.

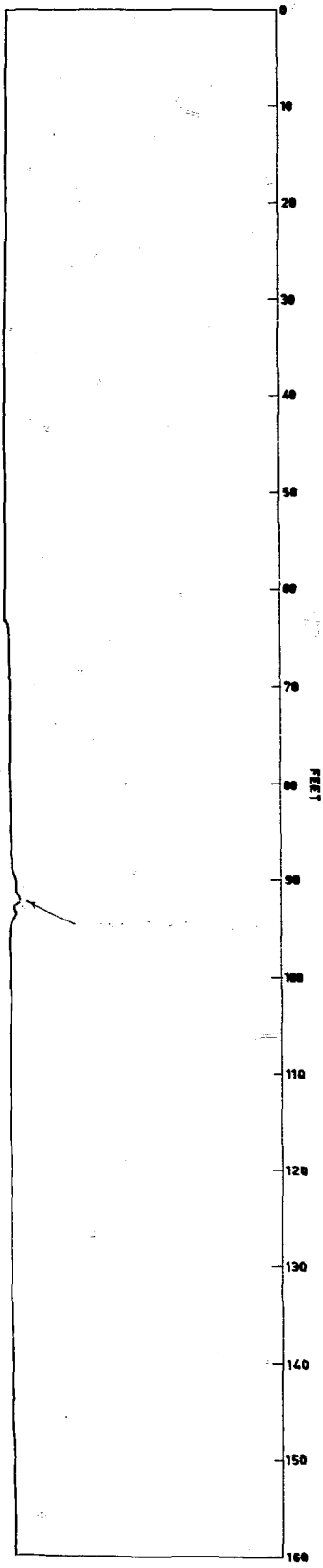
SPECIAL MINING LEASE 316

WELL LOG

WELL No. 316— 11		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 160'4"	DATE: 10·10·69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY





1200 -14'

AUSTRALASIAN MINING CORPORATION LTD.

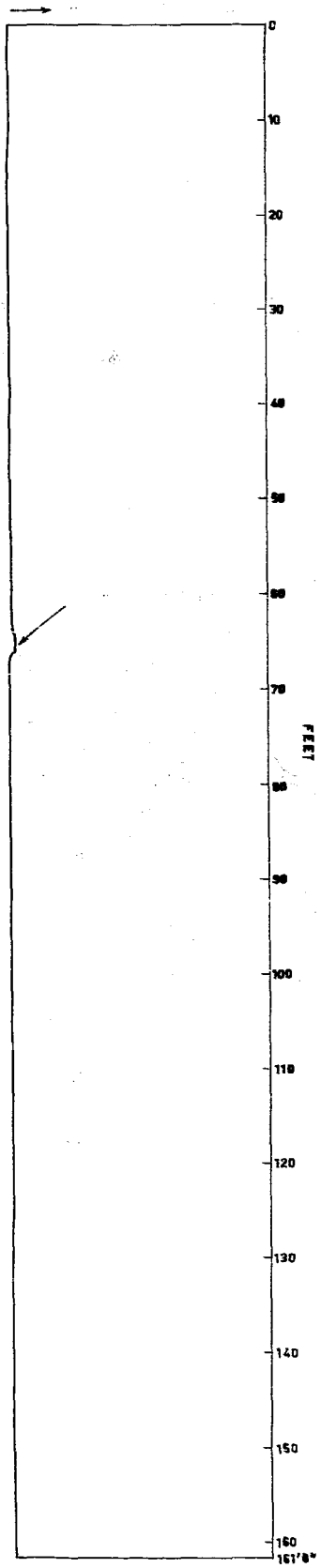
SPECIAL MINING LEASE 316

WELL LOG

WELL No. 316— 26A		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 161' 8"	DATE: 2-11-69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY





1200 - 15

AUSTRALASIAN MINING CORPORATION LTD.

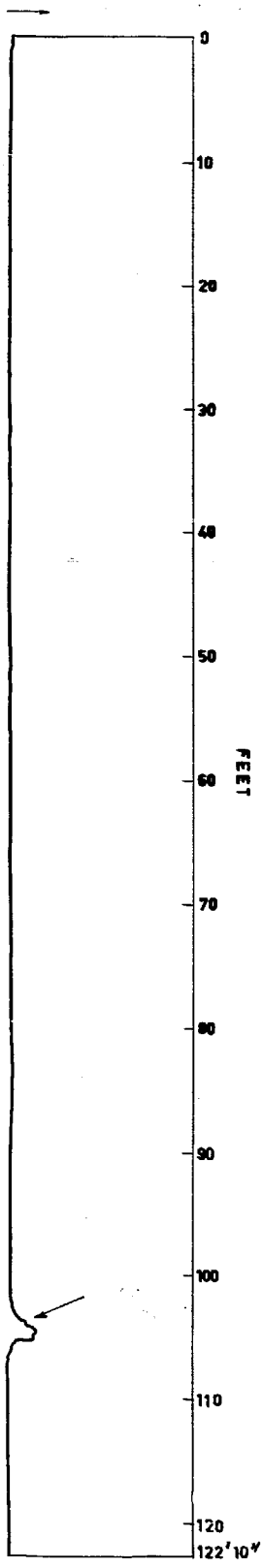
SPECIAL MINING LEASE 316

WELL LOG

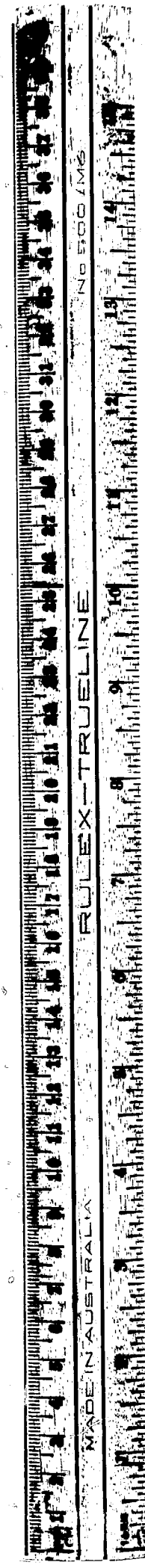
WELL No. 316— 20A		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 122' 10"	DATE: 3·11·69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



1200 -16



AUSTRALASIAN MINING CORPORATION LTD.

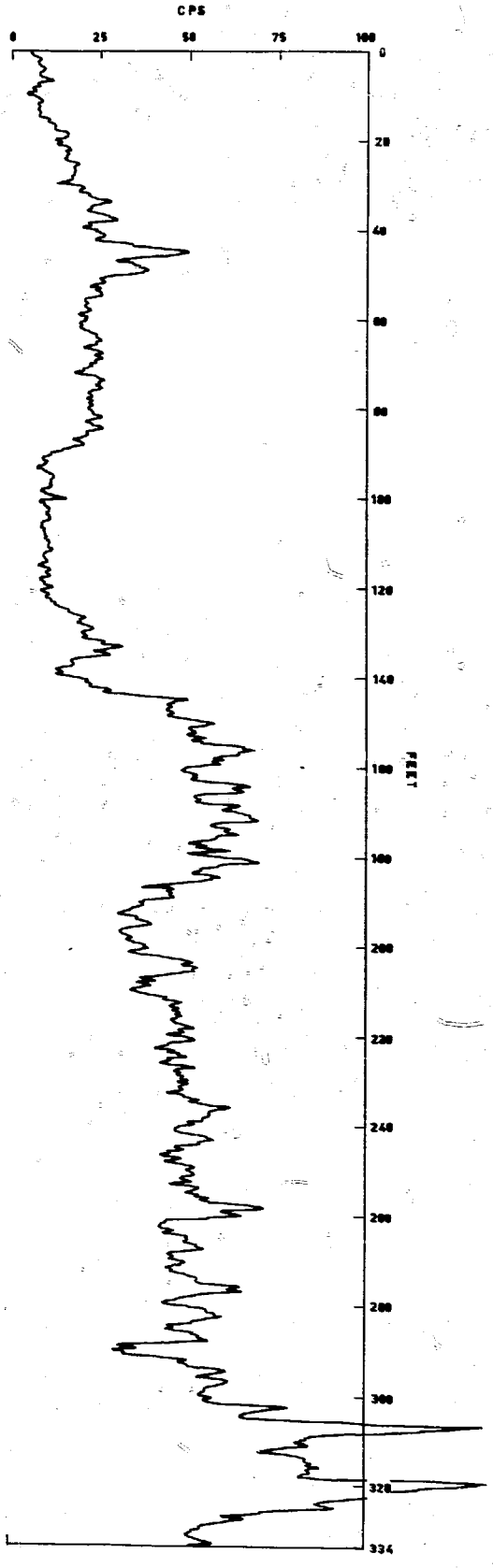
SPECIAL MINING LEASE 316

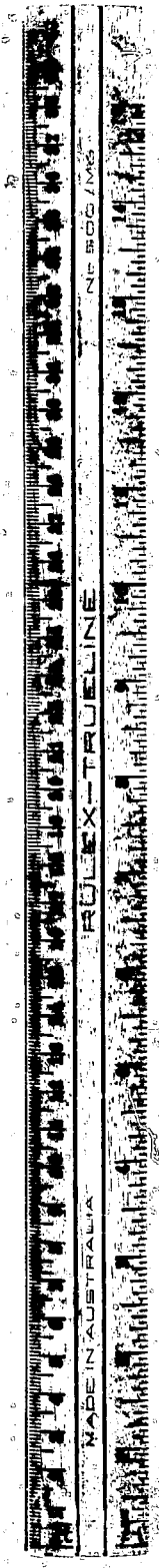
WELL LOG

WELL No. 316— M3C		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 335'	DATE: 27·1·70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY ·





1200-17

AUSTRALASIAN MINING CORPORATION LTD.

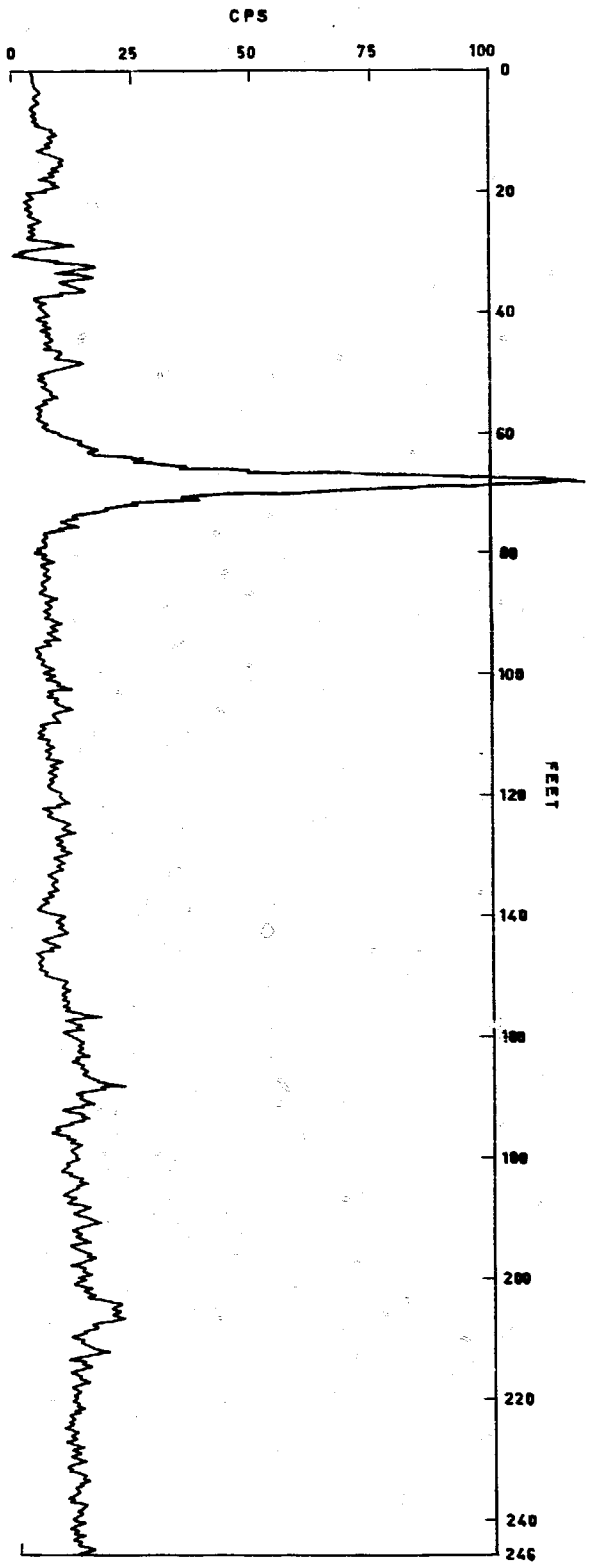
SPECIAL MINING LEASE 316

WELL LOG

WELL No. 316— M5A		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 227'	DATE: 11 · 12 · 69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



1200-18

AUSTRALASIAN MINING CORPORATION LTD.

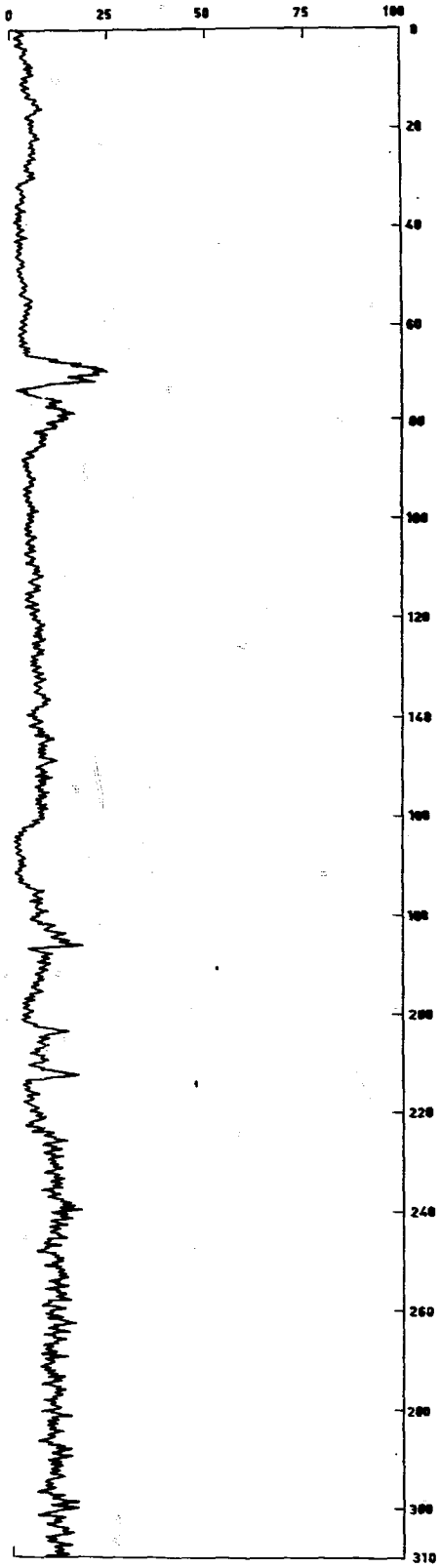
SPECIAL MINING LEASE 316

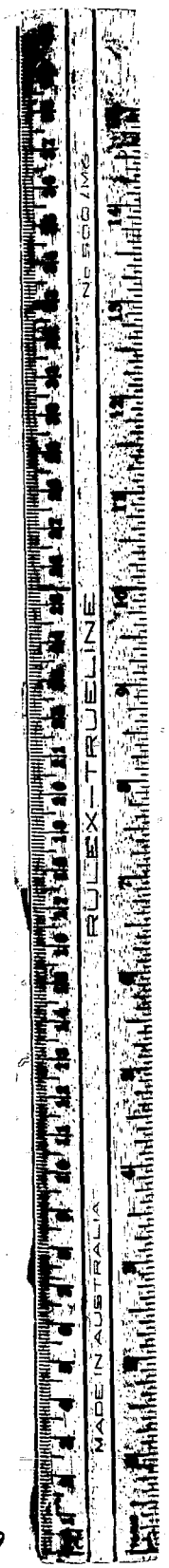
WELL LOG

WELL No. 316— M S B		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 295'	DATE: 12 · 12 · 69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY





1200-19

AUSTRALASIAN MINING CORPORATION LTD.

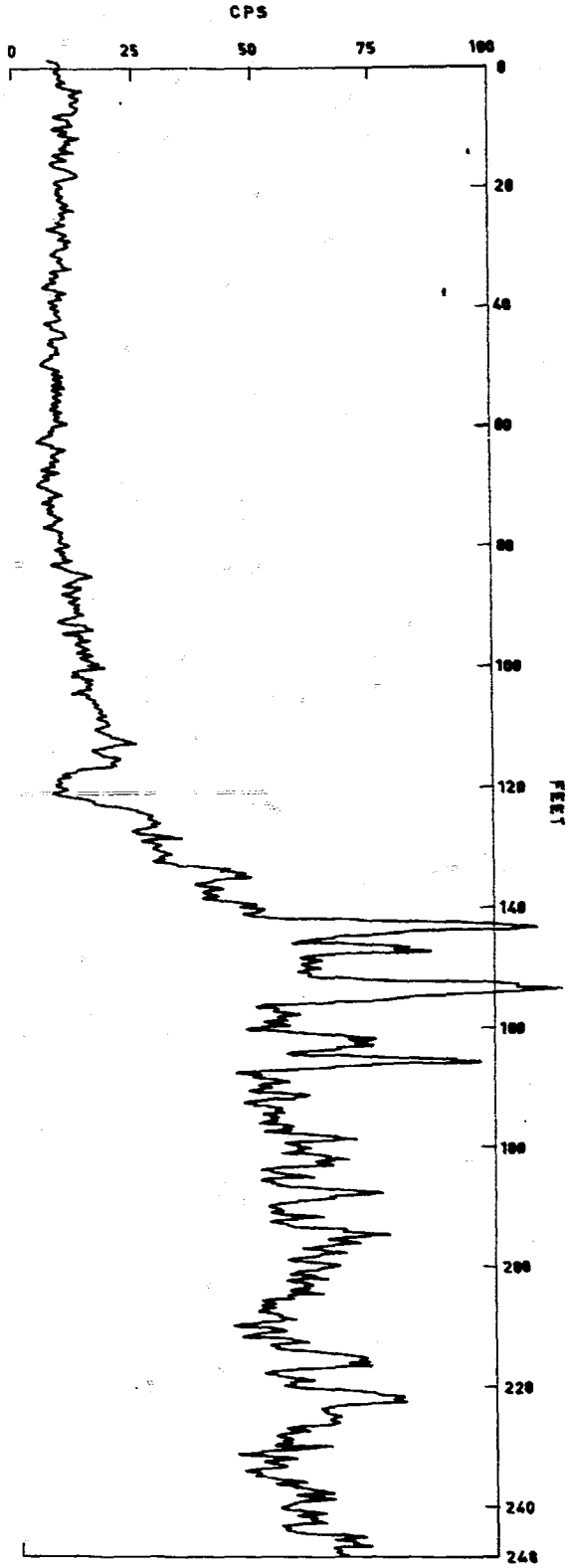
SPECIAL MINING LEASE 316

WELL LOG

WELL No. 316— M 15		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 242'	DATE: 6 · 12 · 69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



1200-20

AUSTRALASIAN MINING CORPORATION LTD.

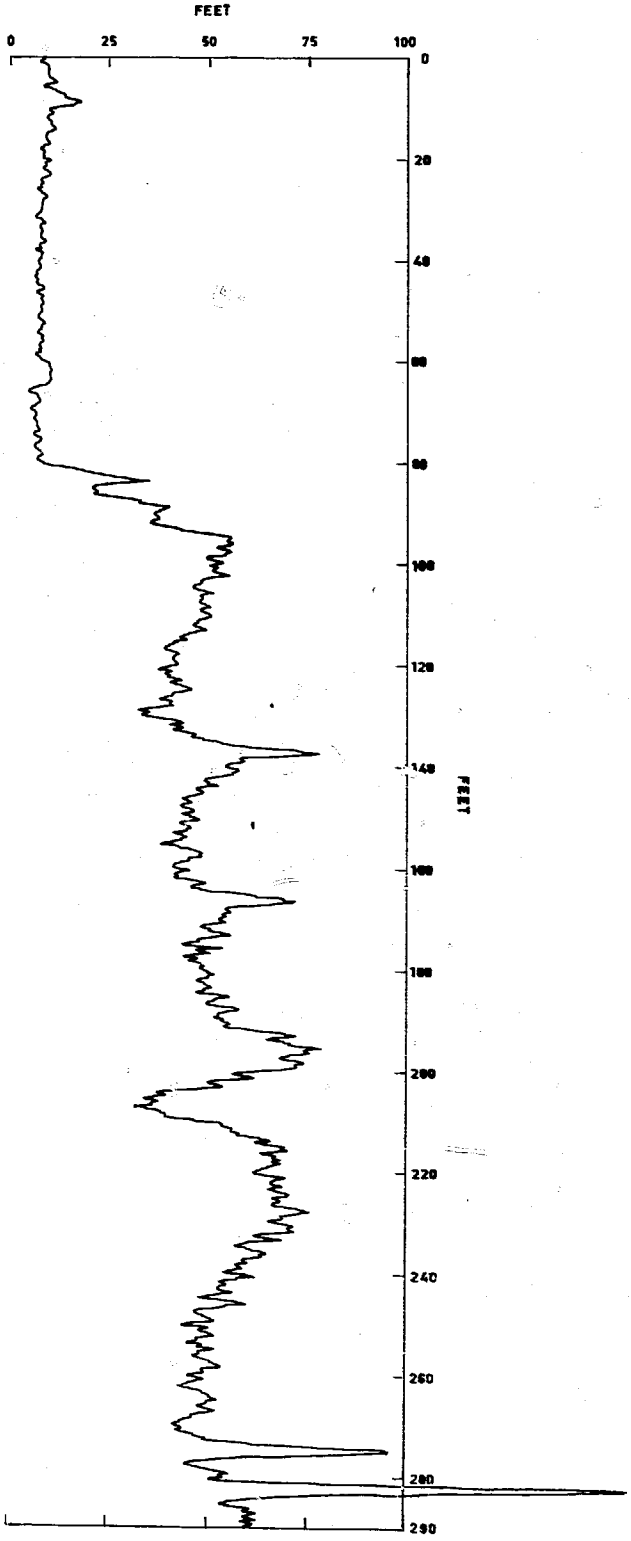
SPECIAL MINING LEASE 316

WELL LOG

WELL No. 316— M 14 A		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 275′	DATE: 8 · 12 · 69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY





1200-21

AUSTRALASIAN MINING CORPORATION LTD.

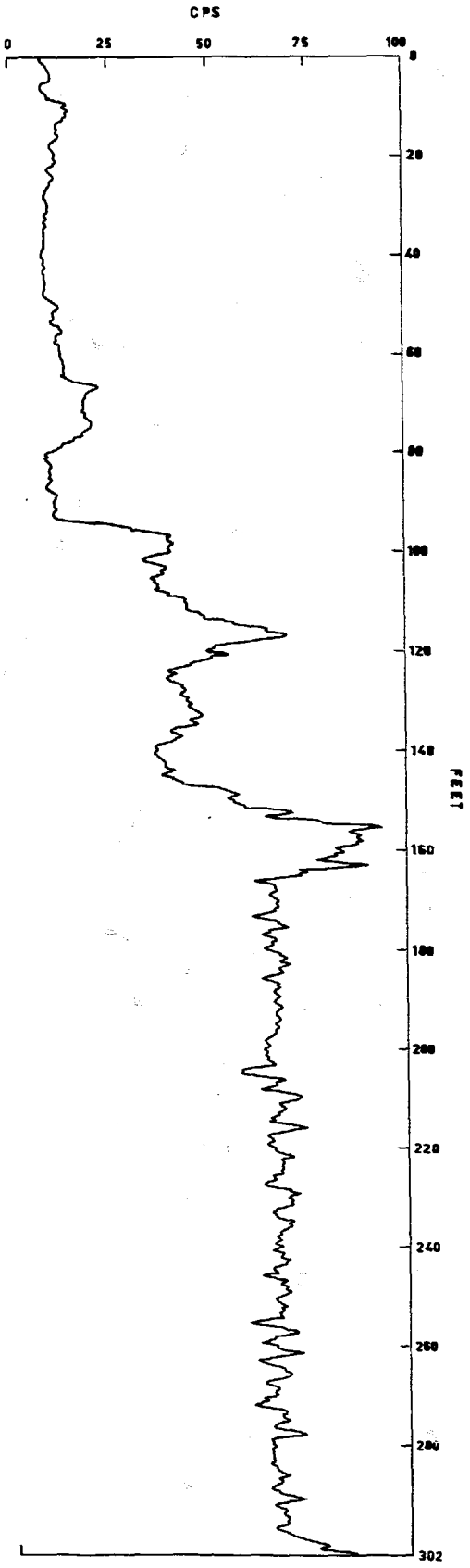
SPECIAL MINING LEASE 316

WELL LOG

WELL No. 316— M 13 B		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 302'	DATE: 16 · 12 · 69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY





1200-22

AUSTRALASIAN MINING CORPORATION LTD.

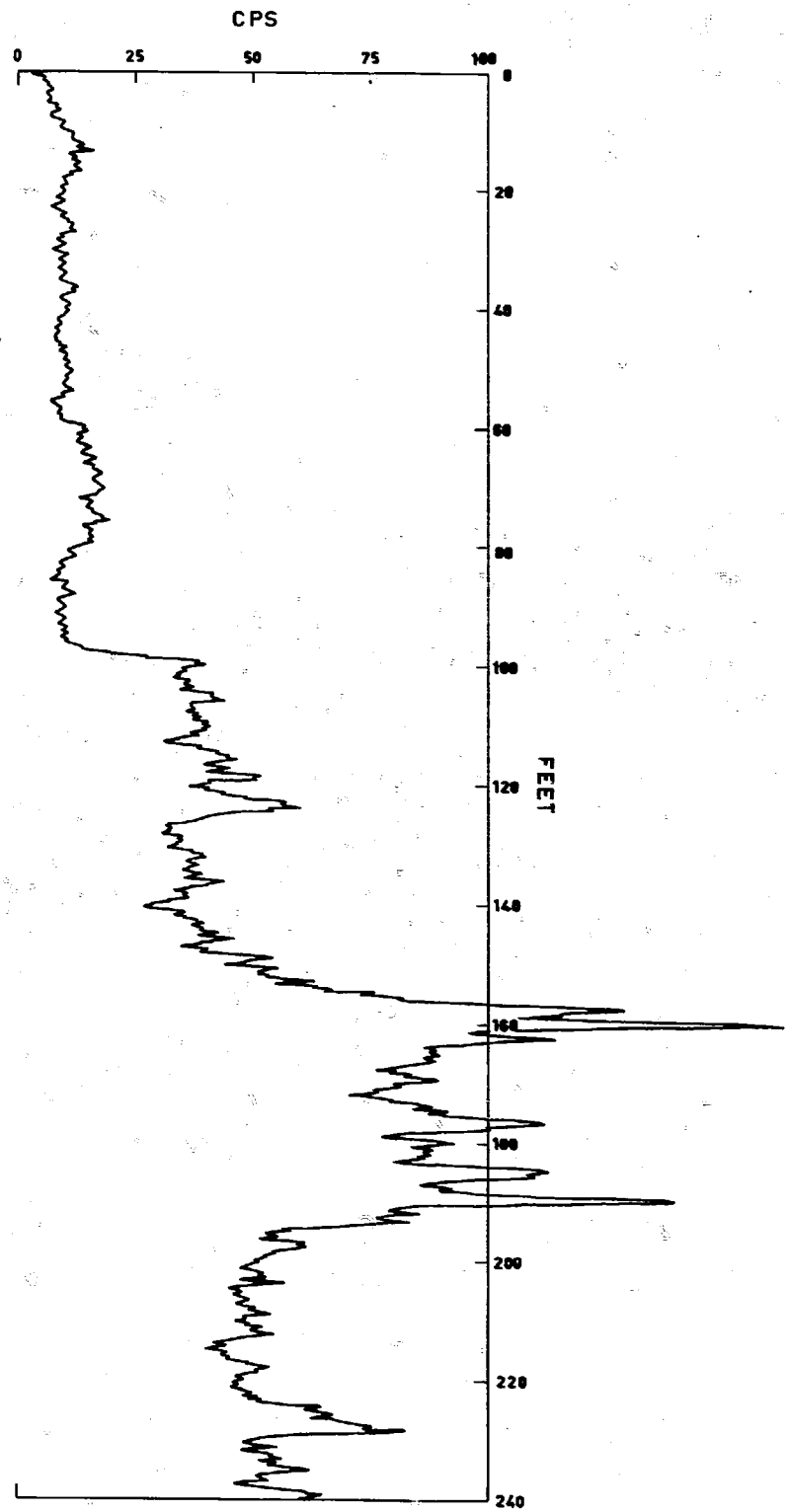
SPECIAL MINING LEASE 316

WELL LOG

WELL No. 316— M 13		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 240′	DATE: 5·2·69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY





1200-23

AUSTRALASIAN MINING CORPORATION LTD.

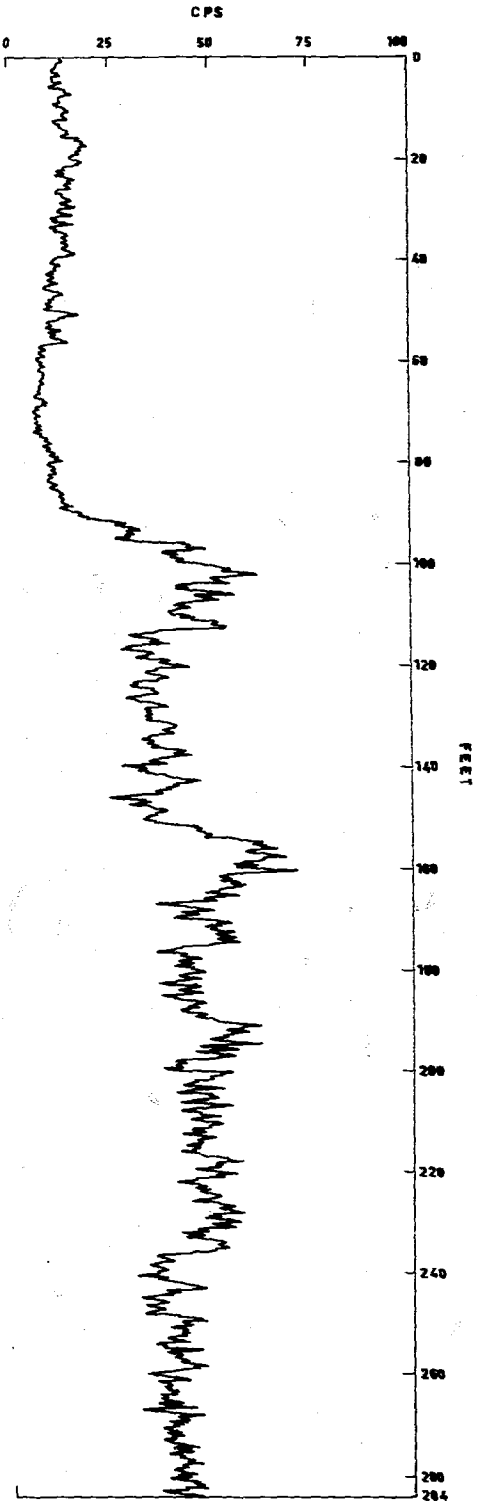
SPECIAL MINING LEASE 316

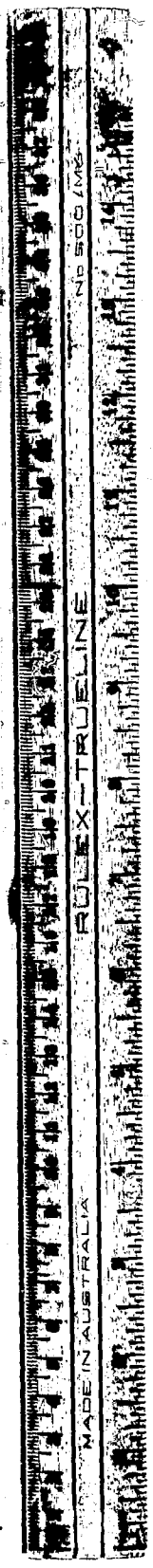
WELL LOG

WELL No. 316— M11		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 290′	DATE: 3·12·69	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY





1200-24

AUSTRALASIAN MINING CORPORATION LTD.

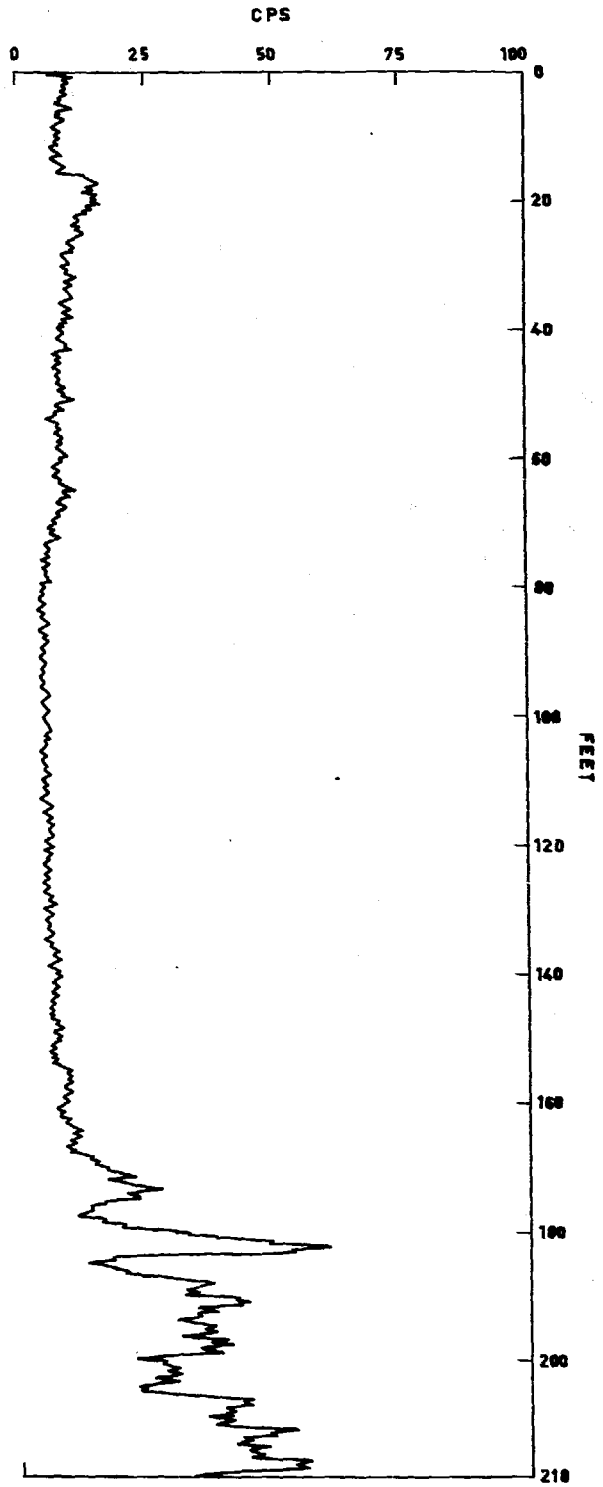
SPECIAL MINING LEASE 316

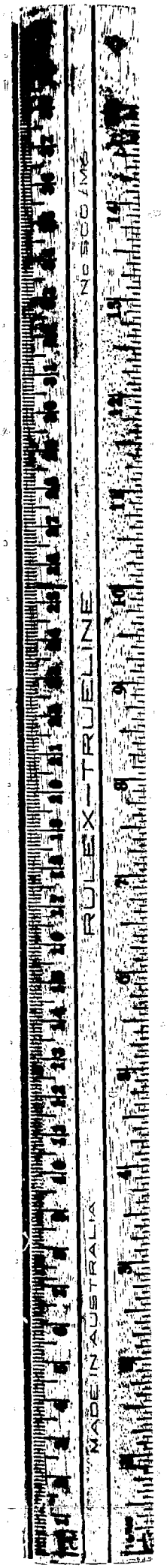
WELL LOG

WELL No. 316—Q7		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 218	DATE: 22·1·70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY





1200-25

AUSTRALASIAN MINING CORPORATION LTD.

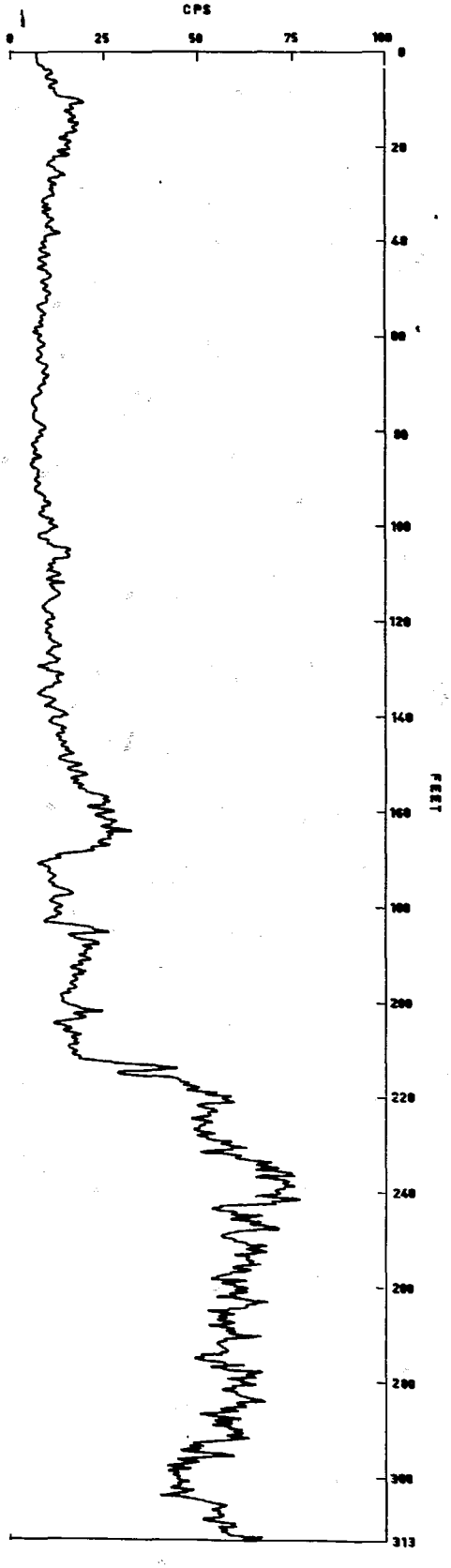
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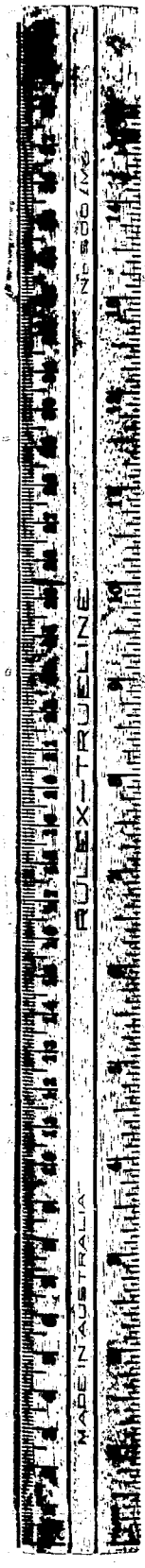
WELL LOG

WELL No. 316— Q 10		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 315	DATE: 24·1·70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY





1200-26

AUSTRALASIAN MINING CORPORATION LTD.

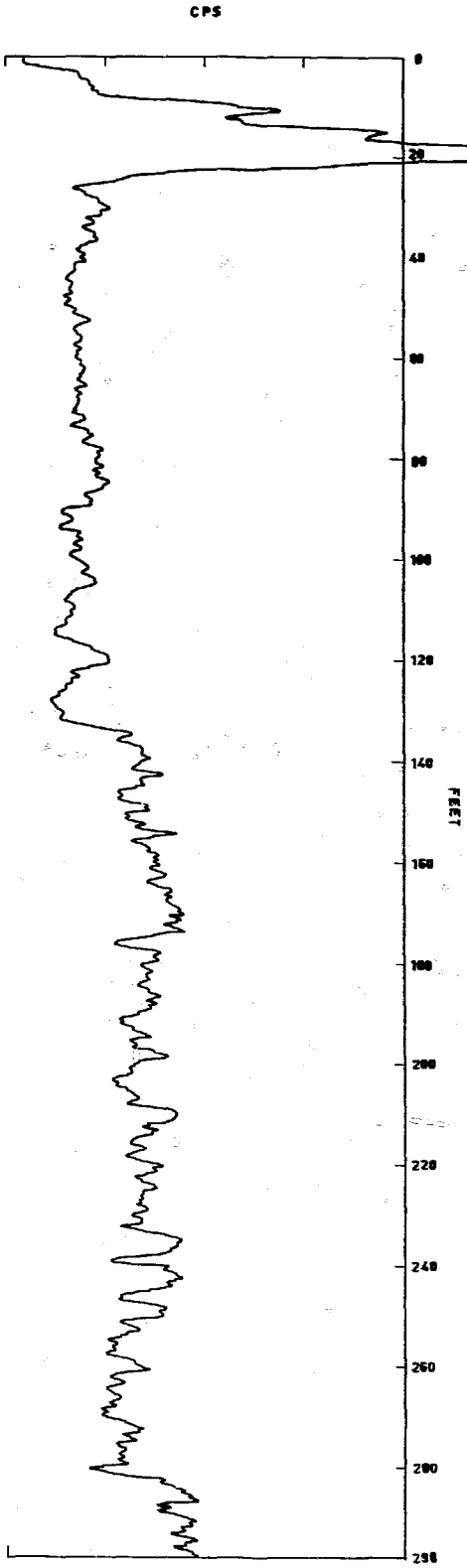
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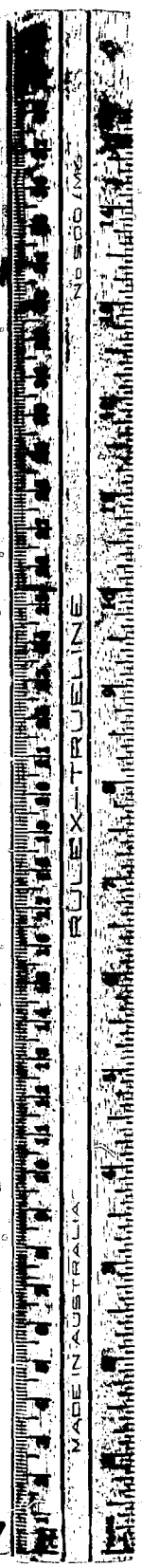
WELL LOG

WELL No. 316—R2		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 300	DATE: 30·1·70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY





1200-27

AUSTRALASIAN MINING CORPORATION LTD.

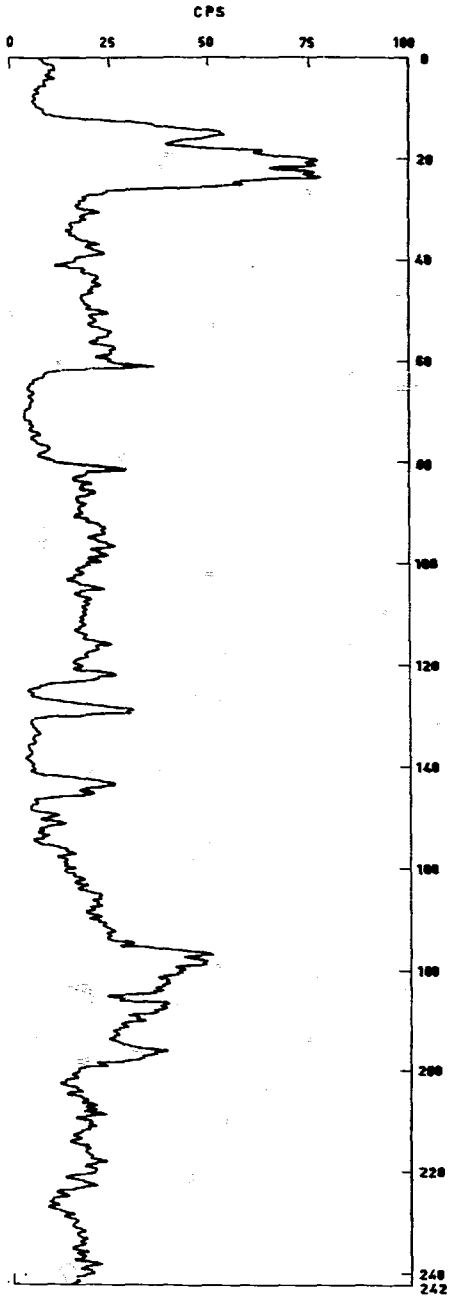
SPECIAL MINING LEASE 316

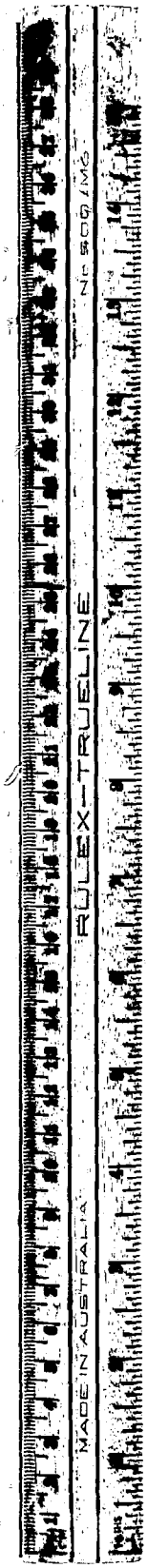
WELL LOG

WELL No. 316— R3		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 245'	DATE: 31·1·70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY





1200-28

AUSTRALASIAN MINING CORPORATION LTD.

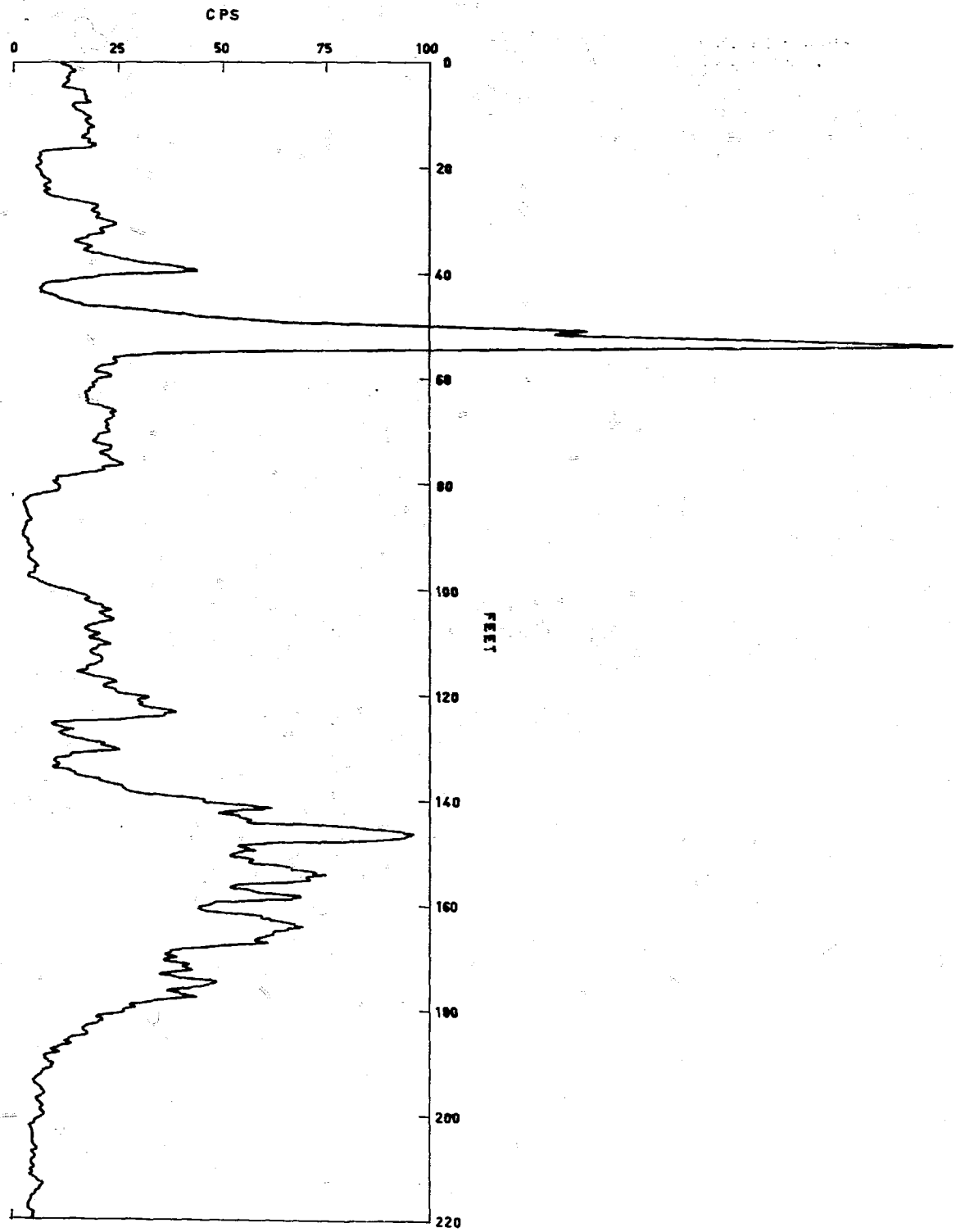
SPECIAL MINING LEASE 316

WELL LOG

WELL No. 316— R 4		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 225′	DATE: 31·1·70	MINOIL SERVICES ADELAIDE

GAMMA LOG

LITHOLOGY



1200-29

AUSTRALASIAN MINING CORPORATION LTD.

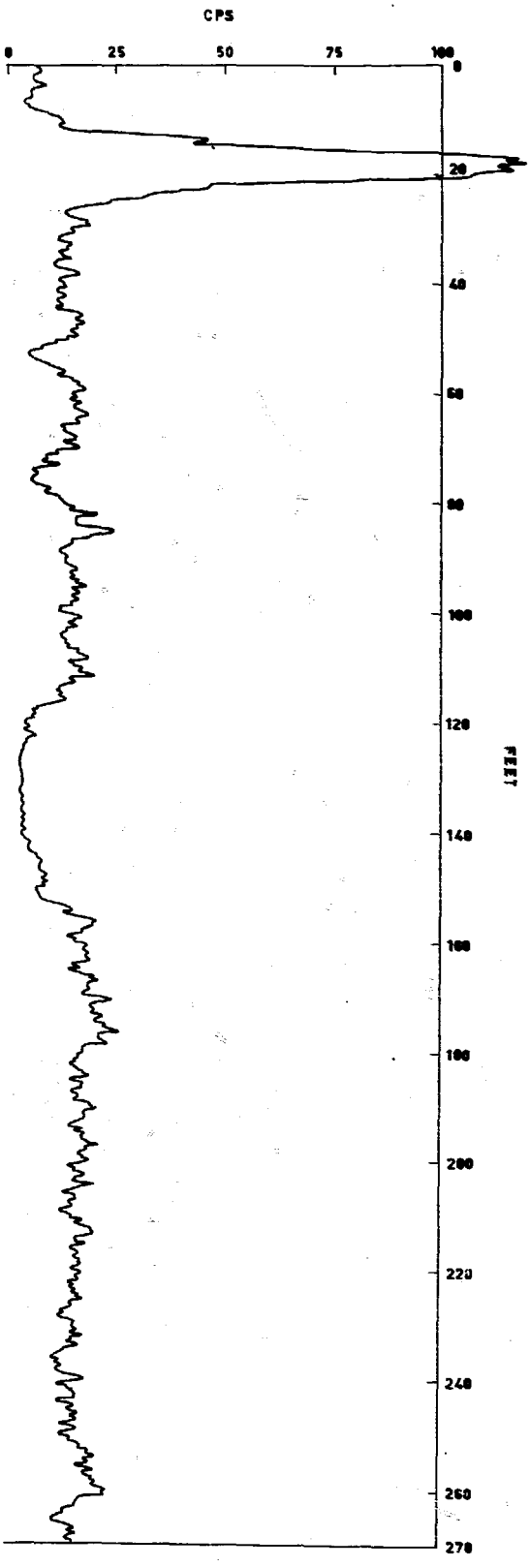
SPECIAL MINING LEASE 316

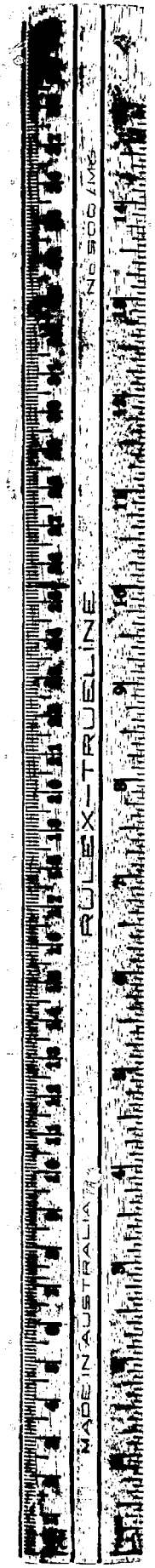
WELL LOG

WELL No. 316— R 8		GEOLOGIST: D. B. CLARKE
TOTAL DEPTH 270	DATE: 4·2·70	MINOIL SERVICES ADELAIDE

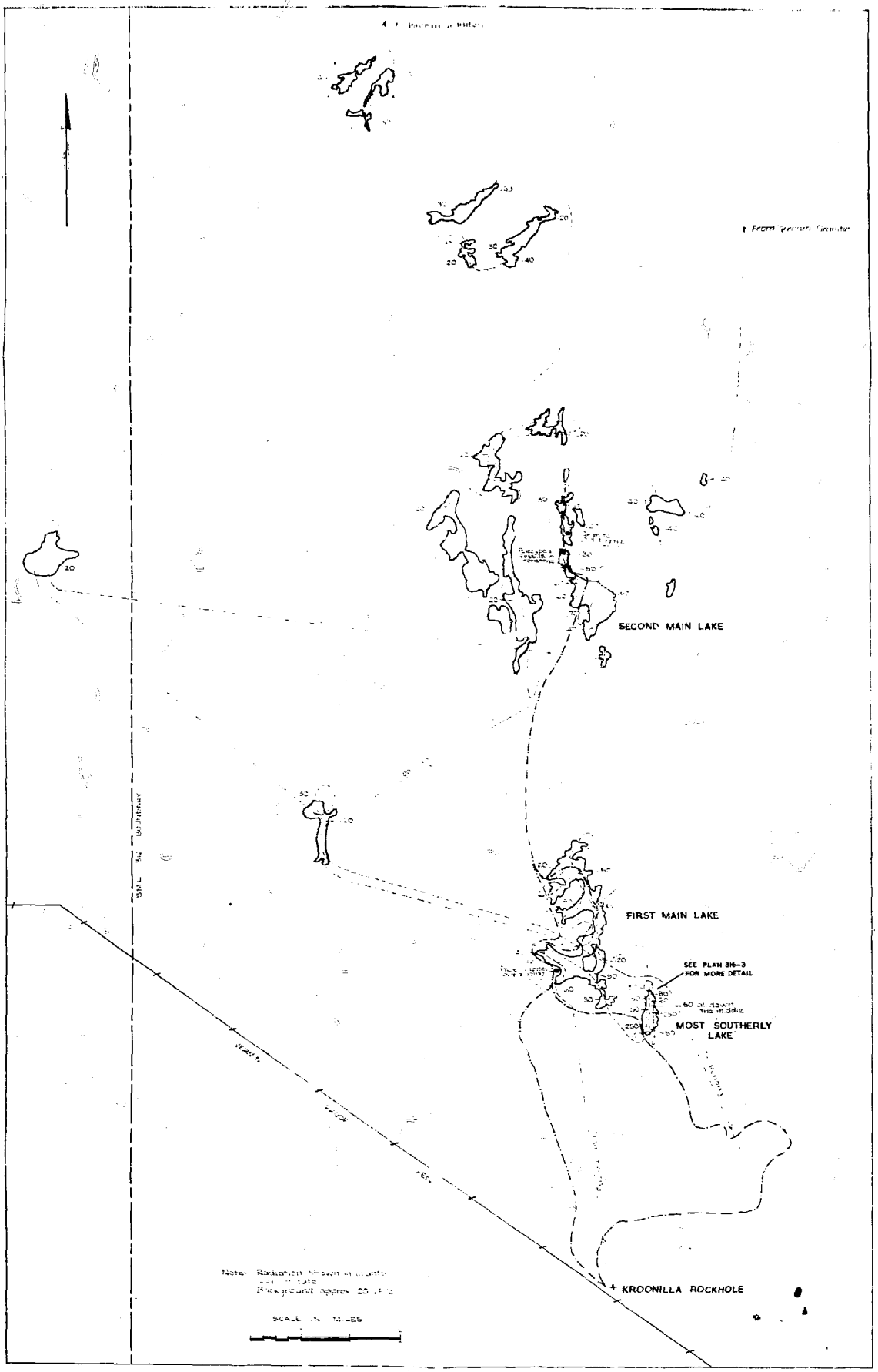
GAMMA LOG

LITHOLOGY





1200-30



LEGEND

Lines

Ground Traverses

Airborne Traverses Flight Paths

Airborne Radiometric Contours

AUSTRALASIAN MINING CORPORATION LTD.

SPECIAL MINING LEASE 316.

PLAN SHOWING
PATHS OF GROUND AND AIRBORNE
SCINTILLOMETER SURVEYS.

	URANIUM PROJECT	GEOLOGIST D.B. CLARKE
DATE: SEPTEMBER 1970	SOUTH AUSTRALIA	MINOIL SERVICES ADELAIDE.

RECEIVED 2 OCT 1970 DEPT. OF MINES ADELAIDE

RULEX-TRUELINE MADE IN AUSTRALIA

AMC 316-2

1200-31 EH√ 1200 VOL I

Boundary of Prohibited Area

WATSON

OOLDEA

TRANS AUSTRALIA RAILWAY

Immarna

Barton Siding

Mt Christie Siding

SEE PLATE IV
DETAILED RECONNAISSANCE AREA
RED LAKE AREA

NULLARBOR

PLAIN

SEE PLATE III
DETAILED RECONNAISSANCE AREA
PIDINGA LAKE

Pidinga Tank

IFOULD LAKE

SEE PLATE II
DETAILED RECONNAISSANCE AREA
LAKE TALLACOOTRA

APPROX. BOUNDARY OF SAND DUNES

APPROX. BOUNDARY OF TREELESS PLAIN

12M to Ivy Tanks

VERMIN PROOF FENCE

AIRSTRIP
YATALA MISSION

EYRE

Colona Well
"Colona"

HIGHWAY

SEE PLATE V
DETAILED RECONNAISSANCE AREA
SEVEN MILES SWAMP AREA

GREAT

AUSTRALIAN

BIGHT

AIRSTRIP
PENONG

33M to Ceduna

FOWLERS BAY

32°00'
131° 30'

ABNORMAL RADIOACTIVITY

SCALE

MILES 4 2 0 4 8 12 16 20 MILES
KILOMETRES 5 0 5 10 15 20 25 30 KILOMETRES

AREA UNDER INVESTIGATION

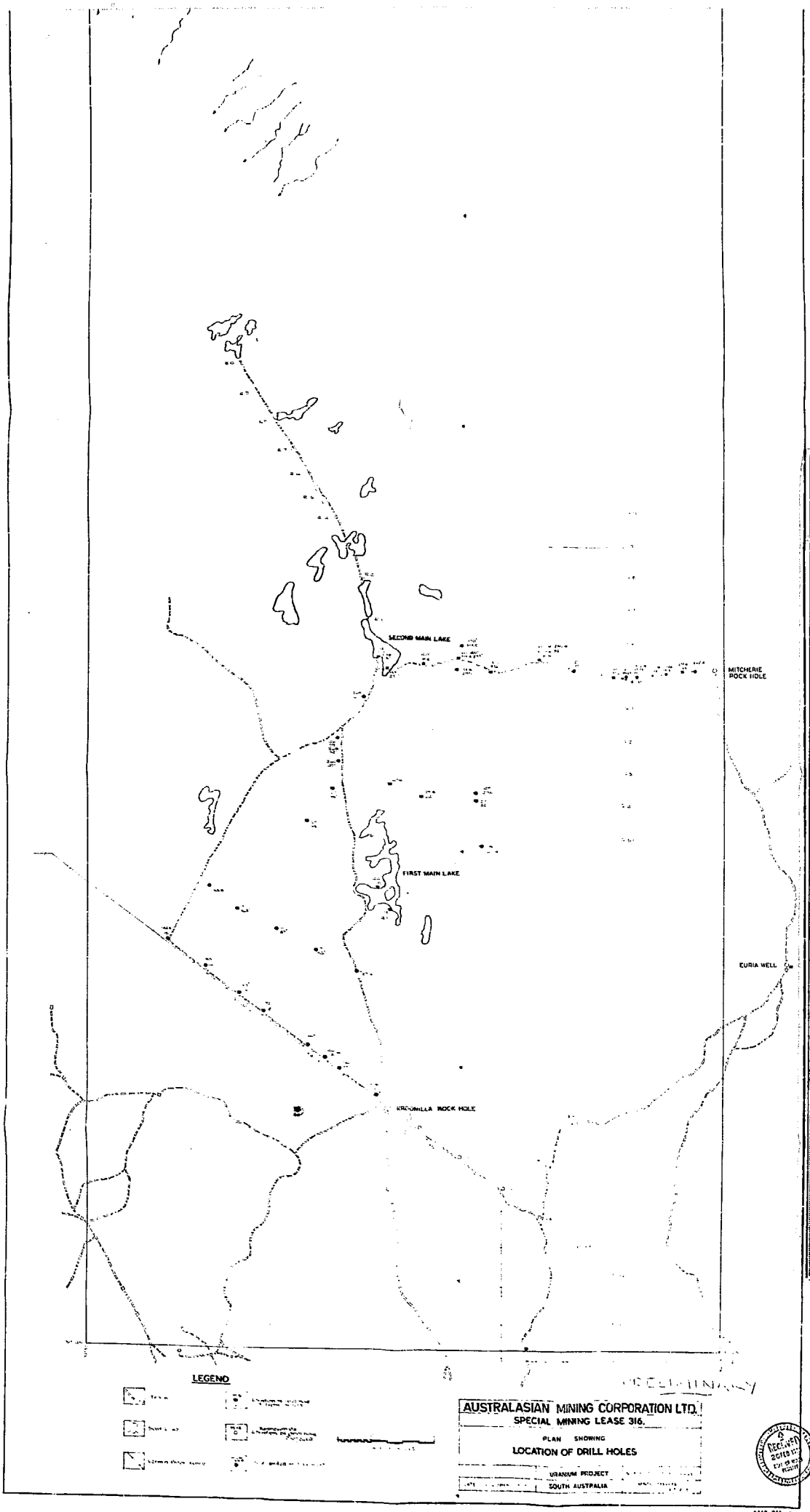
PLATE I

AUSTRALASIAN MINING CORP. LTD.		
PIDINGA LAKES AREA SOUTH AUSTRALIA	PLAN SHOWING AREAS OF ABNORMAL RADIOACTIVITY AS LOCATED DURING RECONNAISSANCE SURVEY	URANIUM INVESTIGATION PROJECT
GEOLOGIST: J.L.H. CAMPBELL	DATE: 2 APRIL 1969	MINOIL SERVICES ADELAIDE

RECEIVED 20 FEB 1970 Dept of Mines ADELAIDE

1200-32

ENV 1200-32



1200-33
AMC 316-4
ENV 1200 VOL I