

DEPARTMENT OF MINES
SOUTH AUSTRALIA

REPORT ON HEAVY MINERAL SANDS, KANGAROO ISLAND

Hundred Haines

by

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PLATES

PLANS

<u>Plan No.</u>	<u>Title</u>	<u>Scale</u>
66-101	Heavy mineral sands, Kangaroo Island Hd. Haines.	3½ in. to one mile (approx.)
	Locality plan	1 in. to 4 miles
	Cross section	(vertical 1 in. to 20 ft. (horizontal 1 in. to 200ft.

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DEPARTMENT OF MINES
SOUTH AUSTRALIA

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Hundred Haines

INTRODUCTION

Beach sands discovered in 1956 on and adjacent to the southern shores of Nepean Bay, 12 miles southeast of Kingscote, Kangaroo Island have been previously investigated by several companies when the heavy mineral content was considered to be too low for economic recovery of rutile and, perhaps, monazite. Prices for rutile recovered from the eastern Australian coast have fluctuated and there has been an improvement from £20 per ton in mid 1961 until they have now steadied at £40-41 per ton f.o.b., 95% grade concentrate. Having regard to present prices and the possibility of utilising the now closed uranium treatment at Port Pirie for upgrading the product, the Department undertook further drilling in the period 4th August, 1965 to 9th September, 1965 to procure samples for pilot scale separation of rutile. The samples obtained by drilling were submitted to AMDEL for heavy mineral separation and determination of the rutile content of the heavy fractions.

This report summarises previous investigations and details results of the current work.

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GEOLOGICAL SETTING

Recent beach sands, beach-ridged in a low-lying, sheltered, coastal area marginal to the shores of Nepean Bay have accumulated north of the Cygnet Fault scarp (see plan 66-101). Cygnet Fault is a major structural feature which defines the northern limit of a plateau underlain by what were mapped by Sprigg (1953) as Upper Proterozoic phyllites and quartzites and veneered by Cainozoic massive and pisolitic laterite. Quartzites and arkoses which have been exposed by stream erosion marginal to the scarp are now considered (Thomson, 1963) to be extensions of the Cambrian Inman Hill Formation.

The beach sands extend from Western Cove almost to Redbanks and attain a thickness of 42 feet. Adjacent to the fault, in the 25ft. high cliffs at Redbanks and along a fossil cliff are exposed clays, siltstones and ferruginized sands and gravels. The fossil cliff is a prominent physiographic feature marking a former stranded shoreline. Seaward from it, in road-side excavations and in dams, grits, gravels and shell-beds have been disclosed to a depth of at least 11 feet. Superimposed is a sequence of predominantly quartz sands showing subparallel low ridges which rarely rise more than 15 feet from crest to trough. Boring has shown that the sands are gravelly in part; they often contain shell fragments and towards the base include hair-like weed fibres. They pass down into a thin shell bed and

this rests on a constant yellow-green clay, often crowded with shells. The dunes have been truncated in part by fore dunes related to the present shoreline. Offshore sand bars extend along the length of Morrison Beach over a width of $\frac{1}{4}$ to $\frac{1}{2}$ mile. At the western end of the deposit the shelly sands with gravels, underlie swamps adjacent to Western Cove. Shallow boring in this locality showed that the contained waters varied from potable to highly saline (Bleys, 1962).

Wave action has concentrated the constituent heavy minerals along certain sections of Morrison Beach and in several areas along the stranded shore line at the base of the fossil cliff. In these areas, opaque heavy mineral concentrations are obvious but elsewhere the sands are grey or brown with no hint of their heavy mineral content.

PREVIOUS INVESTIGATIONS

Following the discovery of heavy mineral sands on Morrison Beach by T. Amtmanis a special mining lease of three square miles area was sought and granted in November, 1956, to Mr. J.L. Bonython on behalf of the Kangaroo Island Rutile Syndicate; technical advisors to the syndicate were Geosurveys of Australia Ltd. Rutile prices had soared to £140 ton in early 1956, and fell to £40 at the end of that year. The area embraced by S.M.L. No. 23 covered sections 146, 139 and parts 145, 147, 140 and 138, Hd. Haines. The lease was cancelled in January, 1958 at which time rutile was selling for £40 ton.

A report by McCahon (1956) summarised the results of auger drilling undertaken by the leaseholders along the beach and in the back shore dunes of the lease areas; the borehole sites are indicated on the accompanying plan no. 66-101. Approximately 70 scout bores were drilled marginal to the fossil beach cliffs where there are marked concentrations of heavy minerals. Drilling to water level outlined two areas totalling 800 ft. in

length with an average width of 30 ft. and average 2 ft. in thickness; it was considered that this area contained 305 tons of rutile and 237 tons of zircon. Over 100 bores were drilled on the present beach, beneath the parallel fore dunes and along the dune sands following the line of truncated sand dunes on the western end of the beach where concentrations of heavy minerals are evident. Holes were drilled at intervals of 25 ft. to 50 ft. across the deposits on lines 200 ft. apart at the western end while to the east shallow holes were drilled at 25 ft. intervals across the beach and marginal dunes on lines 400 ft. apart. The average width was considered to be about 85 feet and average depth 3 ft.; reserves in this section were estimated to be rutile, 3924 tons and zircon, 3074 tons.

McCahon concluded that "on the beach and beneath the dunes there are heavy mineral deposits containing 4,229 tons of rutile and 3,311 tons of zircon. Approximately 72,000 cub. yds. of barren sands, mainly in the dune area would have to be removed to work the deposits. Then approximately 50,000 tons of sand would have to be shifted and treated to obtain 5,628 cub. yds. of heavy mineral concentrate. This would then yield on separation the above figures for rutile and zircon".

Of the samples taken by McCahon, 47 were reduced with a micro-splitter and the heavy fraction separated in bromoform (S.G. 2.8).

The contents of these samples are summarised below:-

The heavy fraction varied from				<5% to 51% - Average 20%	
% rutile	{	1. of heavy fraction varied from		19% to 41% - Average 27.5%	
		2. of whole	" "	0.1% to 20% - "	4.8%
% zircon	{	1. of heavy fraction	" "	8% to 45% - "	21.4%
		2. of whole	" "	0.5% " 21% - "	3.7%
% monazite	{	1. of heavy fraction	" "	0.4% " 2.2% "	1.0%
		2. of whole	" "	0.05% " 0.5% "	0.2%
% opaques	{	1. of heavy fraction	" "	12% " 32% "	22.7%
		2. of whole	" "	0.5% " 11% "	3.4%

%	{	1. of heavy fraction varied from	6%	to 50%	- average 27.3%
		2. of whole	"	"	0.5% " 12% - " 3.7%

"Opagues" include ilmenite, magnetite, haematite and limonite;
 "others" include kyanite, garnet, allanite, tourmaline, spinel
 staurolite and hornblende.

The light fraction comprised quartz (about 90%) and shell
 fragments.

Demand for rutile waned and then increased in the
 following several years and recovered from £20 per ton in mid
 1961 to £39 per ton at the end of 1962. The collapse of rutile
 prices had adversely affected the potential of the Kangaroo
 Island deposits in view of the ready supply from eastern Australia.

In November 1962 Minoil Services were granted S.M.L.
 No. 46 over 9 square miles of the deposit and this was reduced
 one year later to cover five square miles as S.M.L. No. 61.
 The lease was surrendered in May 1964 after a systematic auger
 boring programme was completed and the heavy mineral content of
 the full extent of the dunes assessed (Grasso, 1964). Forty
 eight proline auger holes (totalling 1,244 ft.) were drilled at
 approximate $\frac{1}{2}$ mile intervals on a modified grid pattern over the
 deposits; 414 samples were dried, sieved, split and submitted
 for mineral determination by grain counts after separation of
 the heavy mineral fraction with tetra bromo ethane (S.G. 2.9).

The sand dunes showed a heavy minerals content of 0.3%
 overall. This fraction consisted of 19% rutile, 10% kyanite,
 36% zircon and 35% others (including ilmenite, magnetite, garnet,
 tourmaline and monazite).

i.e. the sands in situ contain 0.06% rutile, 0.03%
 kyanite and 0.11% zircon.

Grasso estimated that 90 million cub. yds. of sand
 were available and containing 300,000 cub. yds. of heavy
 minerals comprising 125,000 tons of rutile, 66,000 tons of
 kyanite, 238,000 tons of zircon and 231,000 tons of "others".
 There appears to have been confusion in these computations

between percentages by weight and volume in the laboratory determinations. If the estimate of 90 million cub. yards of raw material be accepted and also that 1 cubic yard of "ordinary quartz sand" weighs 1.32 tons then the reserves total 119 million tons. As 0.3% by weight are of heavy minerals, reserves of these would total 357,000 tons, including 70,000 tons rutile, 35,700 tons kyanite and 128,520 tons zircon and 122,000 tons "others" - marked reductions on the earlier estimates.

Though shell beds and gravels have been exposed in roadside excavations, and gravels outcrop in the fossil cliff, bores Nos. RB14, 17, 18, 36 and 38, (between the present beach and the stranded shoreline) and bores Nos. RB19, 20, 39 and 42 (between the stranded shoreline and Cygnet Fault) show heavy mineral contents not unlike those of the main body of sand to the west.

In June 1964 Geosurveys of Australia Ltd. were granted S.M.L. No. 71 but as the deposits appeared to be incapable of the establishment and sustenance of profitable operations on a company scale the lease was forfeited in May 1965. Studies by Sprigg (1965) to seaward "failed to indicate significant concentrations of sub-sea heavy mineral sands. Much of the immediate off shore bottom is underlain by "travertinised" shell beds and beach sands which prevent useful sampling beyond a thin sand veneer".

PRESENT INVESTIGATION

Several days were occupied in examination of the deposit when drilling operations were initiated in August, 1965. To procure samples for trial beneficiation, a line of holes were drilled across the deposit as indicated on plan 66-101 and numbered K1-K20 (K13 and K14 were rendered inaccessible by flooding) at intervals of 200 ft. Samples were taken over

intervals of 5 ft. using $2\frac{7}{8}$ inch open tubes. As difficulty was experienced in procuring samples below the shallow water table casing was run in advance of the sample tube shoe.

Logs of the holes drilled are appended and the lithologies encountered have been illustrated in the cross section (see plan 66-101). In the section, in the absence of surface levels, the constant clay stratum at the base of the sand was used as a datum. The clay is yellow, green and occasionally bluish in colour; it is sandy in part and usually contains numerous shells. In previous drilling operations pebbles up to 4 inches in diameter have been recorded (e.g. bores Nos. RB6, 8, 11, 22 and 27). The clays are overlain by a shell bed (with abundant Mollusca) up to 4ft. 6 ins. thick - these have been examined by N.H. Ludbrook (See Appendix). These pass up into grey sands which attain a thickness of 20 feet; they are clayey in part, they contain hair-like weed fibres and include shell fragments. The succeeding sands are grey or brownish in colour and contain shell fragments, quartz grit and rounded pebbles over one inch in diameter. The uppermost quartz sands are of fine, even grain and carry organic matter.

The section described is generally in accord with logs of boreholes previously drilled.

LABORATORY INVESTIGATIONS

Borehole samples over intervals of 5 ft. were submitted to AMDEL for separation of the heavy minerals in tetrabromo ethane (S.G. 2.96) and determination of the heavy mineral content. These fractions were then examined under the microscope and estimates made of the rutile contents. Laboratory investigation was carried out by I.F. Scott - the results are tabulated with the logs of the boreholes (see Appendix).

The weighted average heavy mineral content of 0.32% for all intersections of sand compares with the overall average

of 0.31% for the 1963 drilling (Grasso, 1964). In the current investigation rutile content of the heavy fractions has been expressed as "abundant", "common", "sparse", "rare", or "trace" and the presence of other heavy minerals has been noted, whereas previously rutile (19%), kyanite (10%), zircon (36%) and "others" (35%) have been more precisely determined. The estimates of Scott are generally lower than those previously reported. Minor minerals include opaque iron ores (ilmenite, limonite and magnetite), tourmaline and garnet with traces of monazite, spinel, staurolite, andalusite and apatite.

The heavy mineral contents, rutile etc. which have been determined are tabulated with the logs. It is apparent that heavy mineral and rutile content is fairly constant throughout the deposits and that there are no marked concentrations at depth or over particular areas except for near-surface enrichments in the areas indicated on the plan.

CONCLUSIONS, RECOMMENDATIONS

Sands of Recent age which have accumulated in shallow water adjacent to the present shore of Morrison Beach have a heavy mineral content of 0.31%. The recently completed drilling programme has defined a sequence of fine to medium grained quartz sands, pebbly sands and a shell bed above a continuous stratum of clay.

The heavy mineral content of 0.31% is confirmed though present estimates are generally lower than those previously determined for rutile (19%), zircon (36%) and kyanite (10%); the remainder comprises opaque iron oxides, garnet and tourmaline. The 'light' fraction comprises quartz sand, quartzite pebbles and shell fragments.

Except for small areas adjacent to the present shore and fringing a stranded shore line there are no concentrations of heavy minerals and the deposits are fairly uniform throughout.

Reserves of sand are now estimated at 70 million cub. yards. Accepting that 1 cub. yd. of sand weighs 1.32 tons, that rutile and zircon contents are 19% and 36% respectively of the heavy fraction and applying concentrate values as reported in The Australian Mineral Industry Quarterly Review, June 1965, the following tonnages (with values) are present -

rutile 52,000 tons (£2 million) and
zircon 91,000 tons (£2 million).

Though the reserves and grade appear insignificant in comparison with deposits which are at present being exploited on eastern Australian coasts it is recommended that samples be submitted to AMDEL to determine recovery of the heavy minerals and costs likely to be incurred.

Limited deposits of heavy-mineral sands, which have also been derived from erosion and concentration of metamorphosed sediments of the Kanmantoo Group that underlie Kangaroo Island and Fleurieu Peninsula, occur near Parndana (Daw's diggings), at Moana, Normanville and between Victor Harbour and Goolwa. Further investigation of these appears to be warranted and it is recommended that sampling be extended along the Ninety Mile Beach.



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Plate I

Morrison Beach, looking Easterly

14209



Plate II

Looking northerly along line of drillholes K1-K20 across sand deposits, from Cygnet Fault scarp.

14106



Plate III

Drilling operations, bore K1.

14207



Plate IV Looking southerly to stranded shoreline (foreground)
and Cygnet Fault Scarp beyond.

14211



Plate V. Gravelly, ferruginous and clayey sandstones at Redbanks,
westerly to Morrison Beach, beyond cliffs.

APPENDIX 1

PALAEONTOLOGIST'S REPORT

1. Sample No. F77/65 - taken from road side excavation
near bore R.B. 14.

Partly cemented gravelly shell sand with abundant
Mollusca, some retaining original colour.

Mollusca

Polinices (Conuber) conicus, Diala lauta, Salinator
fragilis, Velacumantus australis, Gazameda iredalei,
Eubittium lawleyanum, Austrocochlea torri,
Cominella eburnea, Equichlamys bifrons,
Katelysia scalarina, Mysella donaciformis,
Kellia australis, Ostrea angasi.

Foraminifera

Elphidium macellum, E. advenum, E. crispum,
Discorbis dimidiatus, D. mira, Vertebralina striata.

This is a beach assemblage of a shallow bay or inlet,
of Recent Age.

2. Sample No. F78/65 - from bore K1 at 27 ft. - 28 ft.

Grey sandy clay, with Diala lauta, Bittium
(Semibittium) granarium, Hypotrochus monachus and
a small microfauna containing Elphidium advenum
E. macellum, Peneroplis planatus, Discorbis
dimidiatus. Deposition took place in a shallow
protected bay or inlet. The age is Recent,
possibly a little older than F77/65.

N. H. LUDBROOK
SENIOR PALAEONTOLOGIST

Date: 27.10.1965.

LOG OF KANGAROO ISLAND BOREHOLE NO. K.1

PROJECT: Beach Sands

SECTION: 146-139

HUNDRED: Haines

COUNTY: Carnarvon

COMMENCED: 4.8.1965.

DEPTH: 28ft.

DRILLER: D.J. Keeble

COMPLETED: 5.8.1965.

WATER CUT: 5ft.

LOGGED BY: R.K. Johns

DATE: 25.8.1965.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>
From	To	
0	5	Grey quartz sand with organic matter.
5	10	Buff quartz sand, occasional rounded quartz grit to $\frac{1}{2}$ inch.
10	15	Brown quartz sand with shell fragments, weed fibre.
15	27	Grey-brown sand with occasional shell fragments, weed fibre.
27	28	Green-brown clay with shells.

		<u>% heavy fraction</u>	<u>Estimate - % Rutile</u>
0	5	0.20	5-10
5	10	0.30	1-5
10	15	0.35	1-5
15	20	0.30	1-5
20	25	0.30	1-5
25	27	0.30	1-5

LOG OF KANGAROO ISLAND BOREHOLE NO. K.2

PROJECT: Beach Sands

SECTION: 146-139

HUNDRED: Haines

COUNTY: Carnarvon

COMMENCED: 6.8.1965.

DEPTH: 28ft.

DRILLER: D.J. Keeble

COMPLETED: 7.8.1965.

WATER CUT: 5ft.

LOGGED BY: R.K. Johns

DATE: 25.8.1965.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>
From	To	
0	5	Grey quartz sand with organic matter.
5	10	Brown-grey pebbly quartz sand with occasional shell fragments and rounded quartz pebbles upto $1\frac{1}{2}$ ins.
10	15	Brown-grey quartz sand, occasional shell fragments and rounded quartz pebbles to one inch; weed fibre at 13-15ft.
15	20	Grey brown quartz sand, little weed fibre.
20	26	Grey sand with shells and weed fibre.
26	28	Green-brown clay with shells.

		<u>% heavy fraction</u>	<u>Estimate - % Rutile</u>
0	5	0.30	1-5
5	10	0.70	5-10
10	15	0.60	1-5
15	20	0.20	5-10
20	26	0.35	1-5

LOG OF KANGAROO ISLAND BOREHOLE NO. K.3

PROJECT: Beach Sands

SECTION: 146-139

HUNDRED: Haines

COUNTY: Carnarvon

COMMENCED: 9.8.1965.

DEPTH: 27ft.

DRILLER: D.J. Keeble

COMPLETED: 10.8.1965.

WATER CUT: 4ft.6ins.

LOGGED BY: R.K. Johns

DATE: 25.8.1965.

DEPTH (FEET)

DESCRIPTION

From	To	
0	5	Grey quartz sand with organic matter.
5	10	Brown pebbly sand with occasional shell fragments; rounded grit to $\frac{1}{2}$ inch.
10	15	Grey-brown quartz sand with occasional shell fragments and occasional quartz grit to $\frac{1}{4}$ inch.
15	20	Pale grey-brown quartz sand.
20	26	Grey sand with occasional shell fragments and some weed fibre.
26	27	Green-brown clay with shells.

% heavy fraction

Estimate - % Rutile

0	5	0.50	5-10
5	10	0.50	1-5
10	15	0.45	1-5
15	20	0.40	1-5
20	26	0.30	5-10

LOG OF KANGAROO ISLAND BOREHOLE NO. K.4

PROJECT: Beach Sands

SECTION: 146-139

HUNDRED: Haines

COUNTY: Carnarvon

COMMENCED: 11.8.1965.

DEPTH: 35ft.

DRILLER: D.J. Keeble

COMPLETED: 13.8.1965.

WATER CUT: 15ft.

LOGGED BY: R.K. Johns

DATE: 25.8.1965.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>
From	To	
0	5	Grey sand with organic matter.
5	10	Buff sand.
10	15	Brown quartz sand.
15	20	Grey-brown quartz sand with occasional shell fragments and rounded quartz pebbles to one inch.
20	30	Grey clean quartz sand.
30	34	Grey quartz sand with abundant shell fragments.
34	35	Green-brown clay with shells.

		<u>% heavy fraction</u>	<u>Estimate - % Rutile</u>
0	5	1.60	20-40
5	10	1.05	20-40
10	15	0.85	10-20
15	20	0.30	1-5
20	25	0.30	1-5
25	30	0.10	1-5
30	34	0.10	1-5

LOG OF KANGAROO ISLAND BOREHOLE NO. K.5

PROJECT: Beach Sands

SECTION: 146-139

HUNDRED: Haines

COUNTY: Carnarvon

COMMENCED: 14.8.1965.

DEPTH: 27ft.

DRILLER: D.J. Keeble

COMPLETED: 16.8.1965.

WATER CUT: 4ft.

LOGGED BY: R.K. Johns

DATE: 1.9.1965.

DEPTH (FEET)

DESCRIPTION

From	To		
0	5	Brown sand with organic matter.	
5	10	Brown sand with rounded quartz pebbles to one inch and occasional shell fragments.	
10	15	Grey sand with shell fragments.	
15	25	Grey sand, few shell fragments, at base.	
25	27	Green-brown sandy clay with shells.	
		<u>% heavy fraction</u>	<u>Estimate - % Rutile</u>
0	5	0.30	10-20
5	10	0.45	1-5
10	15	0.35	1-5
15	20	0.10	1-5
20	25	0.10	1-5

LOG OF KANGAROO ISLAND BOREHOLE NO. K.6

PROJECT: Beach Sands

SECTION: 146-139

HUNDRED: Haines

COUNTY: Carnarvon

COMMENCED: 17.8.1965.

DEPTH: 30ft.

DRILLER: D.J. Keeble

COMPLETED: 19.8.1965.

WATER CUT: 7ft.

LOGGED BY: R.K. Johns

DATE: 1.9.1965.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>
From	To	
0	10	Brown sand with organic matter, occasional rounded quartz pebbles to $\frac{3}{4}$ inch at 9ft.
10	15	Brown sand, occasional rounded quartz pebbles to $\frac{3}{4}$ inch and few shell fragments.
15	25	Light grey sand.
25	29	Dark grey sand, shells at base.
29	29 $\frac{1}{2}$	Dark grey sand, shells.
29 $\frac{1}{2}$	30	Yellow-green clay with shells.

		<u>% heavy fraction</u>	<u>Estimate - % Rutile</u>
0	5	0.25	10-20
5	10	0.20	5-10
10	15	0.30	1-5
15	20	0.15	1
20	25	0.10	1-5
25	26	0.10	1

LOG OF KANGAROO ISLAND BOREHOLE NO. K.7

PROJECT: Beach Sands

SECTION: 146-139

HUNDRED: Haines

COUNTY: Carnarvon

COMMENCED: 20.8.1965.

DEPTH: 46ft.

DRILLER: D.J. Keeble

COMPLETED: 23.8.1965.

WATER CUT: 7ft.

LOGGED BY: R.K. Johns

DATE: 1.9.1965.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>
From	To	
0	5	Brown sand with organic matter.
5	10	Brown sand with occasional shell fragments and quartz grit.
10	15	Brown sand with rounded quartz pebbles to 1½ inches.
15	20	Light grey-brown sand with few quartz grains to ¼ inch.
20	25	Light grey quartz sand.
25	35	Dark grey sand with shell fragments.
35	45	Yellow-green sandy-clay with abundant shells.
45	46	Brown-grey sand with shells.

		<u>% heavy fraction</u>	<u>Estimate - % Rutile</u>
0	5	0.15	5-10
5	10	0.15	5-10
10	15	0.25	5-10
15	20	0.10	1-5
20	25	0.10	1-5
25	26	0.10	1-5
26	35	0.15	1-5
35	40	-	-
40	45	-	-
45	46	0.10	5-10

LOG OF KANGAROO ISLAND BOREHOLE NO. K.8

PROJECT: Beach Sands

SECTION: 146-139

HUNDRED: Haines

COUNTY: Carnarvon

COMMENCED: 23.8.1965.

DEPTH: 34ft.

DRILLER: D.J. Keeble

COMPLETED: 24.8.1965.

WATER CUT: 10ft.

LOGGED BY: R.K. Johns

DATE: 1.9.1965.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>
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From	To	
0	5	Grey sand with organic matter.
5	20	Brown sand with occasional quartz pebbles to $\frac{1}{2}$ inch and shell fragments.
20	25	Light grey quartz sand.
25	32	Light grey-brown sand.
32	33	Dark grey sand, shell fragments.
33	34	Yellow-brown and green clayey sand.

		<u>% heavy fraction</u>	<u>Estimate - % Rutile</u>
--	--	-------------------------	----------------------------

0	5	0.30	< 1
5	10	0.15	5-10
10	15	0.95	5-10
15	20	0.20	1-5
20	25	0.10	< 1
25	30	0.05	1-5
30	33	0.10	1-5

LOG OF KANGAROO ISLAND BOREHOLE NO. K.9

PROJECT: Beach Sands

SECTION: 146-139

HUNDRED: Haines

COUNTY: Carnarvon

COMMENCED: 25.8.1965.

DEPTH: 29ft.

DRILLER: D.J. Keeble

COMPLETED: 26.8.1965.

WATER CUT: 4ft.

LOGGED BY: D.K. Johns

DATE: 14.9.1965.

DEPTH (FEET) DESCRIPTION

From	To	
0	5	Grey sand with organic matter.
5	15	Grey-brown sand with occasional rounded quartz pebbles to $\frac{3}{4}$ inch and few shell fragments.
15	25	Grey sand.
25	28	Dark grey shelly sand.
28	29	Green-yellow and blue-grey clay; sandy with abundant shells.

		<u>% heavy fraction</u>	<u>Estimate - % Rutile</u>
0	5	0.30	5-10
5	10	0.30	1-5
10	15	0.40	1-5
15	20	0.20	1-5
20	25	0.15	1-5
25	28	0.15	1-5

LOG OF KANGAROO ISLAND BOREHOLE NO. K.10

PROJECT: Beach Sands

SECTION: 146-139

HUNDRED: Haines

COUNTY: Carnarvon

COMMENCED: 27.8.1965.

DEPTH: 36ft.

DRILLER: D.J. Keeble

COMPLETED: 28.8.1965.

WATER CUT: 11ft.

LOGGED BY: R.K. Johns

DATE: 14.9.1965.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>
From	To	
0	5	Grey sand with organic matter.
5	10	Grey-brown sand, occasional shells.
10	20	Brown sand with rounded laterite and quartz pebbles, shell fragments.
20	30	Grey sand.
30	35	Dark grey shelly sand with weed fibre.
35	36	Yellow-green sandy clay with shells.

		<u>% heavy fraction</u>		<u>Estimate - % Rutile</u>	
0	5	0.35		5-10	
5	10	0.30		5-10	
10	15	0.90		1-5	
15	20	1.10		10-20	
20	25	0.15		1-5	
25	30	0.10		1-5	
30	35	0.15		1-5	
35	36	0.15		1-5	

LOG OF KANGAROO ISLAND BOREHOLE NO: K.11.

PROJECT: Beach Sands

SECTION: 146-139

HUNDRED: Haines

COUNTY: Carnarvon

COMMENCED: 20.8.1965

DEPTH: 28ft.

DRILLER: D.J. Keeble

COMPLETED: 30.8.1965

LOGGED BY: R.K. Johns

WATER CUT: 3ft.

DATE: 14.9.1965

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>
From	To	
0	5	Grey sand with organic matter.
5	10	Brown sand with rounded quartz grit to $\frac{1}{2}$ inch.
10	25	Grey-brown sand.
25	27 $\frac{1}{2}$	Dark grey shelly sand.
27 $\frac{1}{2}$	28	Yellow-green sandy clay.
<hr/>		
		<u>% heavy fraction</u>
		<u>Estimate - % rutile</u>
0	5	0.40
5	10	0.25
10	15	0.35
15	20	0.85
20	25	0.10
25	27 $\frac{1}{2}$	0.15

LOG OF KANGAROO ISLAND BOREHOLE NO: K.12

PROJECT: Beach Sands

SECTION: 146-139

HUNDRED: Haines

COUNTY: Carnarvon

COMMENCED: 30.8.1965

DEPTH: 32ft.

DRILLER: D.J. Keeble

COMPLETED: 31.8.1965

WATER CUT: 1ft.

LOGGED BY: R.K. Johns

DATE: 14.9.1965

DEPTH (FEET)

DESCRIPTION

From To

0 5 Grey sand with organic matter.

5 10 Grey-brown sand with shell fragments, occasional quartz sand.

10 31 Grey sand, occasional shell fragments. Dark grey and increasing carbonate content towards base.

31 31½ Shell bed.

31½ 32 Yellow-green clay.

0

% heavy fraction

Estimate - % rutile

0 5 0.40 5-10

5 10 0.55 5-10

10 15 0.20 1-5

15 20 0.15 1-5

20 25 0.20 1-5

25 31 0.25 1-5

31 31½ 0.20 1-5

LOG OF KANGAROO ISLAND BOREHOLE NO: K.15

PROJECT: Beach Sands

SECTION: 146-139

HUNDRED: Haines

COUNTY: Carnarvon

COMMENCED: 1.9.1965

DEPTH: 32ft.

DRILLER: D.J. Keeble

COMPLETED: 2.9.1965

WATER CUT: 4ft.

LOGGED BY: R.K. Johns

DATE: 14.9.1965

DESCRIPTION

DEPTH (FEET)

From

To

0

5

Grey sand with organic matter.

5

10

Grey-brown pebbly sand with shell fragments.

10

15

Grey sand with shell fragments.

15

31

Grey sand with shells and weed fibre.

31

31½

Shell bed, little sand.

31½

32

Blue clay with root matter.

% heavy fraction

Estimate - % rutile

0

5

0.45

10-20

5

10

0.25

1-5

10

15

0.20

1-5

15

20

0.20

1-5

20

25

0.15

1-5

25

31½

0.15

5-10

31½

32

0.15

1-5

LOG OF KANGAROO ISLAND BOREHOLE NO: K.16

PROJECT: Beach Sands

SECTION: 146-139

HUNDRED: Haines

COUNTY: Carnarvon

COMMENCED: 3.9.1965

DEPTH: 29ft.

DRILLER: D.J. Keeble

COMPLETED: 3.9.1965

WATER CUT: 3ft.

LOGGED BY: R.K. Johns

DATE: 14.9.1965

DESCRIPTION

DEPTH (FEET)

From

To

0

5

Brown-grey sand with organic matter.

5

10

Brown pebbly sand, rounded quartz pebbles to 1 inch, occasional shell fragments.

10

20

Grey-brown sand, occasional shell fragments.

20

28 $\frac{3}{4}$

Dark grey sand, shell fragments and weed fibre.

28 $\frac{3}{4}$

29

Yellow-brown and blue mottled clayey sand.

% heavy fraction

Estimate - % Rutile

0

5

0.25

5-10

5

10

0.65

1-5

10

15

0.30

1-5

15

20

0.20

1-5

20

25

0.15

1-5

25

28 $\frac{3}{4}$

0.15

5-10

28 $\frac{3}{4}$

29

0.15

1-5

LOG OF KANGAROO ISLAND BOREHOLE NO: K.17

PROJECT: Beach Sands

SECTION: 146-139

HUNDRED: Haines

COUNTY: Carnarvon

COMMENCED: 4.9.1965

DEPTH: 26ft.

COMPLETED: 6.9.1965

WATER CUT: 4ft.

LOGGED BY: R.K. JOHNS

DATE: 14.9.1965

DESCRIPTION

DEPTH (FEET)

From	To	
0	5	Brown-grey gritty sand, little organic matter to 2ft.
5	10	Brown pebbly sand, occasional shell fragments.
10	15	Grey-brown sand, few pebbles and shell fragments to 12ft.
15	25 $\frac{1}{2}$	Black-grey sand, fine shell fragments and weed fibre.
25 $\frac{1}{2}$	26	Yellow-green, blue sandy clay.

% heavy fraction

Estimate - % Rutile

0	5	0.15	1-5
5	10	0.10	1-5
10	15	0.20	< 1
15	20	0.15	< 1
20	25 $\frac{1}{2}$	0.20	1-5
25 $\frac{1}{2}$	26	0.15	1-5

LOG OF KANGAROO ISLAND BOREHOLE NO: K.12

PROJECT: Beach Sands

SECTION: 146-139

HUNDRED: Haines

COUNTY: Carnarvon

COMMENCED: 6.9.65

DEPTH: 25ft.

DRILLER: D.J. Keeble

COMPLETED: 7.9.1965

WATER CUT: 3ft.

LOGGED BY: R.K. Johns

DATE: 24.9.1965

DESCRIPTION

DEPTH (FEET)

From	To	
0	5	Grey-brown sand with organic matter.
5	10	Brown pebbly sand, occasional shell fragments; pebbles to $\frac{3}{4}$ inch.
10	20	Grey-brown sand, few shell fragments.
20	24 $\frac{1}{2}$	Shells with littly grey sand.
24 $\frac{1}{2}$	25	Blue, yellow-green sandy clay.

% heavy fraction

Estimate - % rutile

0	5	0.10	1-5
5	10	0.15	1-5
10	15	0.15	< 1
15	20	0.30	1-5
20	24 $\frac{1}{2}$	0.20	1-5
24 $\frac{1}{2}$	25	0.20	1.5

LOG OF KANGAROO ISLAND BOREHOLE NO: K.19

PROJECT: Beach Sands

SECTION: 146-139

HUNDRED: Haines

COUNTY: Carnarvon

COMMENCED: 7.9.1965

DEPTH: 24ft.

DRILLER: D.J. Keeble

COMPLETED: 8.9.1965

WATER CUT: 5ft.

LOGGED BY: R.K. Johns

DATE: 24.9.1965

DESCRIPTION

DEPTH (FEET)

From	To	
0	5	Grey sand with organic matter.
5	15	Brown pebbly sand with shells; rounded pebbles over 1 inch - passing down into medium-grained sand with bunches of weed fibre.
15	22	Grey-brown sand.
22	23	Shell bed, little sand.
23	24	Green-yellow, blue sandy and gritty clay with root matter.

% heavy fraction

Estimate - % Rutile

0	5	0.60	10-20
5	10	0.70	< 1
10	15	0.35	5-10
15	22	0.30	5-10
22	23	0.15	1-5
23	24	0.15	1-5

LOG OF KANGAROO ISLAND BOREHOLE NO: K.20

PROJECT: Beach Sands

SECTION: 146-139

HUNDRED: Haines

COUNTY: Carnarvon

COMMENCED: 9.9.1965

DEPTH: 19ft.

DRILLER: D.J. Keeble

COMPLETED: 9.9.1965

WATER CUT: 4ft.

DATE: 14.9.1965

DESCRIPTION

DEPTH (FEET)

From

To

0	5	Brown pebbly sand with organic matter.
5	10	Brown pebbly sand; rounded pebbles over 1 inch, few shell fragments.
10	15	Grey-brown sand, few quartz pebbles and shell fragments.
15	18	Grey sand, few shells and some weed fibre.
18	18½	Dark grey sand, weed fibre and abundant shell fragments.
18½	19	Blue-green sandy clay.

% heavy fraction

Estimate - % Rutile

0	5	0.25	10-20
5	10	0.60	< 1
10	15	0.85	1-5
15	18½	0.25	5-10
18½	19	0.85	1.5

LOG OF KANGAROO ISLAND BOREHOLE NO: R.B.1

SECTION: 137

HUNDRED: Haines

COUNTY: Carnarvon

DATE DRILLED: 27.8.1963

DEPTH: 44ft.

DRILLER: P. Corto-
lezzis.

LOGGED BY: K. Poclock,
Minoil Services.

DATE: August 1963.

DESCRIPTION

DEPTH (FEET)

From	To	
0	4	Grey sand.
4	20	Red-brown sandy clay.
20	44	?

		% H.F.	% of heavy fraction			
			Rutile	Kyanite	Zircon	Others (inc. opa- ques).
0	2	0.25	19	16	28	37
2	4	0.15	15	18	25	42
4	6	0.3	21	12	21	46
6	8	0.2	12	23	27	38
8	10	0.75	18	21	19	42
10	12	0.2	20	17	17	46
12	14	0.35	13	12	25	50
ge to	4 ft.	0.31	17	17	23	43

LOG OF KANGAROO ISLAND BOREHOLE NO: R.B.2

SECTION: 147

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: K. Pocock,
Minoil
Services.

DEPTH: 42ft.

DRILLER: P. Corto-
lezzis

DATE: August 1963

DESCRIPTION

DEPTH (FEET)

From	To	
0	2	Grey sand.
2	10	Orange-brown clayey silt.
10	20	Clean yellow quartz sand.
20	42	Yellow-brown sandy clay.

		% H.F.	% of heavy fraction			
			Rutile	Kyanite	Zircon	Others
0	2	0.15	18	11	32	39
2	4	0.2	26	10	42	22
6	8	0.3	23	14	25	38
8	10	0.25	25	10	31	34
10	12	0.2	19	18	19	44
16	18	0.2	21	20	23	36
18	20	0.25	23	17	21	39
20	22	0.25	24	11	18	47
Average		0.23	22	14	26	37

LOG OF KANGAROO ISLAND BOREHOLE NO: R.B.3

SECTION: 144

HUNDRED: Haines

COUNTY: Carnarvon

DEPTH: 36ft.

DRILLER: P. Cortolezzis

LOGGED BY: No log available

DATE: August 1963.

DESCRIPTION

DEPTH (FEET)

From To

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B.4

SECTION: 144 HUNDRED: Haines

COUNTY: Carnarvon

LOGGED: No log available.

DEPTH: 26ft.

DRILLER: P. Corto-
lezzi.

DATE: Aug. 1963.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>
From	To	

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B.6

SECTION: 147

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: K. Pocock
Minoil
Services

DEPTH: 16ft.

DRILLER: P. Cortolezzis

DATE: Aug. 1963.

DEPTH (FEET)

DESCRIPTION

From

To

0

4

Clayey sand.

4

16

Red-brown clay and pebbles.

%

HF

% of heavy fraction

Rutile

Kyanite

Zircon

Others

0

2

0.25

18

13

31

38

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B.7

SECTION: 145

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: K. Pocock
Minoil
Services

DEPTH: 26ft.

DRILLER: P. Cortolezzis

DATE: Aug. 1963.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>				
From	To					
0	4	Grey sand.				
4	12	Clayey sand, shell fragments.				
12	24	Grey medium grained sand.				
24	26	Stiff yellow clay.				
		% H.F.	Rutile	% of heavy fraction Kyanite	Zircon	Others
0	2	0.15	23	15	29	33
2	4	0.25	17	11	19	53
4	6	0.15	12	13	25	50
6	8	0.5	39	2	30	29
8	10	0.15	29	9	21	41
10	12	0.6	23	12	17	48
12	14	0.3	19	5	29	47
14	16	0.2	19	9	48	24
16	18	0.25	22	12	37	29
20	22	0.3	17	11	31	41
22	24	0.35	10	8	62	20
24	26	0.2	19	8	42	31
Average		0.28	21	10	33	37

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B.8

SECTION: 291

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: K. Pocock
Minoil
Services

DEPTH: 26ft.

DRILLER: P. Corto-
lezzis.

DATE: Aug. 1963.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>				
From	To					
0	2	Coarse grey quartz sand, shell fragments.				
2	12	Yellow sand.				
12	20	Medium grained grey sand, some pebbles.				
20	26	Stiff pebbly grey-yellow clay.				
		% H.F.	Rutile	% of heavy fraction		Others
				Kyanite	Zircon	
0	2	0.05	23	11	43	23
2	4	0.25	28	1	39	32
4	6	0.2	19	9	37	35
6	8	0.3	24	7	28	41
8	10	0.25	17	12	36	35
10	12	0.25	18	13	43	26
12	14	0.2	21	8	51	20
14	16	0.35	15	7	60	18
20	22	0.15	17	15	48	20
22	24	0.35	21	7	37	35
24	26	0.15	29	8	29	34
Average		0.23	21	9	41	29

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B. 9

SECTION: 145

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: K. Pocock
Minoil
Services

DEPTH: 36ft.

DRILLER: P. Cortolezzis

DATE: Aug. 1963.

DEPTH (FEET)

DESCRIPTION

From	To					
0	10	Coarse yellow sand, pebbly, shell fragments.				
10	12	Coarse yellow sand, becoming grey.				
12	18	Coarse yellow sand.				
18	20	Medium grained grey sand.				
20	26	Fine-medium grey sand, shell fragments.				
26	28	Fine-medium grey sand, increasing clay.				
28	32	Silty clay, yellow-grey in colour.				
32	36	Stiff yellow clay.				
		% H.F.	% of heavy fraction			
			Rutile	Kyanite	Zircon	Others
0	2	0.3	17	11	43	29
2	4	0.55	11	4	66	19
4	6	0.55	15	5	51	29
6	8	0.2	19	9	48	24
8	10	0.3	23	11	37	29
10	12	0.25	18	8	41	23
12	14	0.1	19	8	29	44
14	16	0.25	25	7	38	30
16	18	0.75	22	13	41	24
22	24	0.1	20	7	36	37
24	26	0.2	18	8	51	23
30	32	0.25	19	10	36	35
Average		0.32	19	8	43	29

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B.10

SECTION: 145

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: K. Pocock
Minoil
Services

DEPTH: 42ft.

DRILLER: P. Cortolezzis

DATE: Aug. 1963.

DEPTH (FEET)		DESCRIPTION				
From	To					
0	4	Coarse grey sand.				
4	20	Yellow sand.				
20	38	Fine medium grained grey sand.				
38	42	Clayey sand.				
		% H.F.	% of heavy fraction			
			Rutile	Kyanite	Zircon	Others
22	24	0.15	23	9	39	29

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B.11

SECTION: 145

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: K. Pocock
Minoil
Services

DEPTH: 8ft.

DRILLER: P. Cortolezzi

DATE: Aug. 1963.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>
From	To	
0	6	Pebbly grit.
6	8	Pebbly clay.

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B.12

SECTION: 140

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: K. Pocock
Minoil
Services

DEPTH: 14ft.

DRILLER: P. Cortolezzis

DATE: Aug. 1963.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>				
From	To					
0	6	Weathered bedrock and little sand.				
6	14	? Sand.				
		% H.F.	% of heavy fraction			
			Rutile	Kyanite	Zircon	Others
0	2	0.3	22	11	44	23
2	4	0.2	18	9	41	32
4	6	0.15	13	12	37	38
6	8	0.3	17	11	43	29
8	10	0.3	18	8	29	45
10	12	0.35	21	14	33	32
12	14	0.45	24	7	31	38
Average		0.29	19	10	37	34

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B.13

SECTION: 139

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: K. Pocock
Minoil
Services

DEPTH: 28ft.

DRILLER: P. Cortolezzis

DATE: Aug. 1963.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>
From	To	

0	2	Coarse grey sand.
2	8	Yellow-brown sand, coarse grained, pebbly.
8	10	Yellow-brown sand.
10	12	Mottled blue-grey and brown clay.
12	28	? Sand.

		% H.F.	% of heavy fraction			
			Rutile	Kyanite	Zircon	Others
0	2	0.3	25	10	31	34
2	4	0.4	29	13	29	29
4	6	0.7	19	9	19	53
6	8	0.25	15	8	33	44
8	10	0.4	23	14	27	36
10	12	0.15	21	12	19	48
12	14	0.4	14	6	37	43
16	18	0.45	17	11	41	31
18	20	0.3	23	9	21	47
22	24	0.5	14	13	35	38
26	28	0.25	21	9	51	19
Average		0.37	20	10	31	38

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B.14

SECTION: 140

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: K. Pocock
Minoil
Services

DEPTH: 30ft.

DRILLER: P. Cortolezzis

DATE: Aug. 1963.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>					
From	To						
0	2	Grey sand.					
2	6	Coarse yellow-brown sand.					
6	24	Fine-medium grained grey sand.					
24	26	Fine-medium grained grey sand, clayey.					
26	28	Grey-brown mottled clay.					
28	30	?					
			% H.F.	% of heavy fraction			
				Rutile	Kyanite	Zircon	Others
0	2	0.35	25	6	41	28	
2	4	0.3	19	11	37	23	
6	8	0.55	23	8	51	18	
10	12	0.35	27	5	38	30	
14	26	0.05	26	7	29	38	
16	18	0.1	19	13	33	35	
20	22	0.3	18	4	41	37	
24	26	0.2	25	10	43	22	
28	30	0.15	26	5	40	29	
Average		0.26	23	8	39	29	

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B.15

SECTION: 139

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: K. Pocock
Minoil
Services

DEPTH: 32ft.

DRILLER: P. Cortolezzis

DATE: Aug. 1963.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>				
From	To					
0	4	Coarse grey sand.				
4	10	Coarse yellow-grey sand, pebbles, shell fragments.				
10	30	Fine-medium grey sand.				
30	32	Blue-grey clay.				
		% H.F.	% of heavy fraction			
			Rutile	Kyanite	Zircon	Others
0	2	0.5	24	8	29	39
2	4	0.35	19	7	42	32
4	6	0.35	16	11	32	41
8	10	0.55	21	9	41	29
10	12	0.2	31	6	27	36
12	14	0.35	19	5	37	39
14	16	0.4	15	8	36	41
16	18	0.4	27	2	31	40
18	20	0.25	22	6	45	27
Average		0.37	22	7	36	36

LOG OF KANGAROO ISLAND BOREHOLE NO: R.B.17

SECTION: 139

HUNDRED: Haines

COUNTY: Carnarvon

DEPTH: 28ft.

DRILLER: P. Cortolezzis

LOGGED BY: No logs available.

DATE: August 1963.

DESCRIPTION

<u>DEPTH (FEET)</u>						
From	To					
		% H.F.	% of heavy fraction			
			Rutile	Kyanite	Zircon	Others
0	2	0.65	17	14	40	29
2	4	0.5	21	12	40	27
4	6	0.35	19	11	37	33
6	8	0.15	23	8	28	41
8	10	0.45	17	14	40	29
10	12	0.45	14	13	43	30
12	14	0.5	15	11	27	47
14	16	0.3	21	9	34	36
18	20	0.45	16	13	42	29
20	22	0.45	10	7	25	28
22	24	0.35	13	8	47	32
24	26	0.4	15	12	32	41
Average		0.42	17	12	39	32

LOG OF KANGAROO ISLAND BOREHOLE NO: R.B. 18

SECTION: 139 HUNDRED: Haines

COUNTY: Carnarvon

DEPTH: 6ft.

DRILLER: P. Cortolezzis

LOGGED BY: No logs available.

DATE: August 1963

DESCRIPTION

<u>DEPTH (FEET)</u>						
From	To					
		% H.F.	Rutile	% of heavy fraction		
				Kyanite	Zircon	Others
0	2	0.25	18	11	42	29
2	4	0.15	21	7	37	35
4	6	0.2	19	6	34	41
Average		0.20	19	8	38	35

LOG OF KANGAROO ISLAND BOREHOLE NO: R.B. 19

SECTION: 137

HUNDRED: Haines

COUNTY: Carnarvon

DEPTH: (?) 28 ft.

DRILLER: P. Cortolezzis

LOGGED BY: No log available

DATE: August 1963

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>				
From	To					
		% H.F.	% of heavy fraction			
			Rutile	Kyanite	Zircon	Others
0	2	0.45	24	7	50	19
2	4	0.3	19	8	50	23
6	8	0.35	23	11	35	31
8	10	0.25	21	7	45	27
10	12	0.35	20	10	34	36
12	14	0.35	17	5	46	32
14	16	0.1	18	15	40	27
16	18	0.2	23	10	32	35
20	22	0.4	18	14	42	26
22	24	0.3	21	7	51	21
24	26	0.4	19	8	30	43
26	28	0.35	25	10	31	34
Average		0.32	21	9	41	29

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B.20

SECTION: 137

HUNDRED: Haines

COUNTY: Carnarvon

DEPTH (?) 32ft.

DRILLER: P. Cortolezzis

LOGGED BY: No log available

DATE: August 1963

DESCRIPTION

<u>DEPTH (FEET)</u>						
From	To					
		% H.F.	Rutile	% of heavy fraction		
				Kyanite	Zircon	Others
4	6	0.25	19	8	36	37
12	14	0.3	23	7	29	41
30	32	0.5	17	13	27	43
Average		0.35	20	9	31	40

LOG OF KANGAROO ISLAND BOREHOLE NO: R.B.21

SECTION: 139

HUNDRED: Haines

COUNTY: Carnarvon

DEPTH: 34ft.

DRILLER: P. Cortolezzis

LOGGED BY: K. Pocock,
Minoil Services.

DATE: September, 1963.

DESCRIPTION

<u>DEPTH (FEET)</u>						
From	To					
0	8	Coarse - medium yellow-brown sand, few pebbles.				
8	14	Medium - coarse grey sand.				
14	32	Fine - medium grey sand.				
32	34	Grey clay.				
		% H.F.	% of heavy fraction			
			Rutile	Kyanite	Zircon	Others
0	2	0.4	19	8	40	33
2	4	0.6	18	14	39	29
4	6	0.25	23	8	42	27
6	8	0.45	15	11	40	34
8	10	0.15	18	7	51	24
10	12	0.35	21	5	37	37
12	14	0.25	18	9	50	23
14	16	0.5	20	6	33	41
16	18	0.7	23	12	28	37
18	20	0.15	17	7	47	29
20	22	0.2	14	10	33	43
22	24	0.3	25	5	34	36
24	26	0.4	28	11	41	20
26	28	0.75	19	13	50	18
28	30	0.3	21	4	48	27
30	32	0.15	15	11	40	34
32	34	0.35	14	5	53	28
Average		0.37	19	9	41	31

LOG OF KANGAROO ISLAND BOREHOLE NO: R.B.22

SECTION: 139

HUNDRED: Haines

COUNTY: Carnarvon

DEPTH: 28ft.

DRILLER: P. Cortolezzis

LOGGED BY: K. Pocock,
Minoil Services

DATE: September 1963.

DESCRIPTION

DEPTH (FEET)		
From	To	
0	4	Sand and alluvium.
4	16	Coarse orange-brown sand, pebbles, shell fragments.
16	26	Medium - coarse grey sand, becoming finer and more clayey with depth.
26	28	Mottled clay with pebbles up to 4 inch diameter.
		% of heavy fraction
	% H.F.	Rutile Kyanite Zircon Others
20	22	0.45 19 10 38 33

LOG OF KANGAROO ISLAND BOREHOLE NO: R.B.23

SECTION: 146

HUNDRED: Haines

COUNTY: Carnarvon

DEPTH: 34ft.

DRILLER: P. Cortolezzi

LOGGED BY: K. Pocock,
Minoil Services.

DESCRIPTION

<u>DEPTH (FEET)</u>						
From	To					
0	8	Coarse pebbly sand with shell fragments.				
8	14	Medium - coarse sand, occasional pebbles.				
14	24	Medium - coarse sand, occasional pebbles; up to 20% clay.				
24	30	Yellow sandy clay.				
30	34	Stiff red clay.				
		<u>% M.F.</u>	<u>Rutile</u>	<u>% of heavy fraction</u>		
				<u>Kyanite</u>	<u>Zircon</u>	<u>Others</u>
0	2	0.1	21	7	45	27
4	6	0.24	12	5	45	38
10	12	0.4	17	4	48	31
12	14	0.5	20	11	34	35
14	16	0.5	23	0	39	29
18	20	0.85	19	5	43	33
22	24	0.45	22	10	28	40
Average		0.44	19	7	40	33

LOG OF KANGAROO ISLAND BOREHOLE NO: R.B.24

SECTION: 146

HUNDRED: Haines

COUNTY: Carnarvon

DEPTH: 36ft.

DRILLER: P. Cortolezzis

LOGGED BY: K. Pocock, Minoil Services

DATE: September 1963.

DESCRIPTION

<u>DEPTH (FEET)</u>						
From	To					
0	4	Sand and alluvium.				
4	12	Coarse yellow-brown sand, with pebbles, shell fragments.				
12	20	Coarse yellow-brown and grey sand, becoming finer.				
20	34	Medium - fine dark grey sand.				
34	36	Stiff blue-grey clay.				
		% H.F.	Rutile	% of heavy fraction		
				Kyanite	Zircon	Others
0	2	0.25	14	22	22	42
2	4	0.35	19	12	40	29
4	6	0.35	21	15	30	34
6	8	0.2	17	9	43	31
8	10	0.25	18	6	26	50
10	12	0.1	20	11	42	27
12	14	0.15	19	10	24	47
14	16	0.2	19	10	34	37
16	18	0.45	16	8	34	42
18	20	0.45	21	5	41	33
22	24	0.15	16	11	38	35
24	26	0.25	10	7	54	29
28	30	0.25	21	8	44	27
30	32	0.35	15	5	49	31
32	34	0.6	18	4	39	39
Average		0.29	18	10	37	36

LOG OF KANGAROO ISLAND BOREHOLE NO: R.B. 25

SECTION: 146

HUNDRED: Haines

COUNTY: Carnarvon

DEPTH: 34ft.

DRILLER: P. Cortolezzis

LOGGED BY: No log available.

DATE: September 1963

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>				
From	To					
		% H.F.	Rutile	% of heavy fraction Kyanite	Zircon	Others
0	2	0.35	19	11	36	34
2	4	0.6	21	6	45	28
4	6	0.25	20	0	44	27
6	8	0.25	14	4	45	37
8	10	0.1	19	12	38	31
10	12	0.4	18	8	24	50
12	14	0.9	15	3	29	53
14	16	2.1	23	7	41	29
16	18	0.65	18	9	38	35
18	20	0.61	20	12	37	31
22	24	0.65	14	7	32	47
26	28	0.75	18	13	33	36
28	30	0.35	22	10	33	35
Average		0.61	19	0	37	36

LOG OF KANGAROO ISLAND BOREHOLE NO: R.B.26

SECTION: 146

HUNDRED: Haines

COUNTY: Carnarvon

DEPTH: 46ft.

DRILLER: P. Cortolezzis

LOGGED BY: K. Pocock,
Minoil Services.

DATE: September, 1963.

DESCRIPTION

<u>DEPTH (FEET)</u>						
From	To					
0	12		Coarse yellow-brwon sand.			
12	40		Fine - medium grey sand.			
40	42		Fine - medium grey sand, increase in clay content.			
42	44		Sandy clay.			
44	46		Yellow-brown clay.			
		$\%$ H.F.	% of heavy fraction			
			Rutile	Kyanite	Zircon	Others
0	2	0.2	18	6	47	29
2	4	0.2	19	11	39	31
4	6	0.2	21	4	40	35
6	8	0.45	15	9	42	34
8	10	0.2	19	13	39	29
10	12	0.55	17	4	32	27
14	16	0.3	22	5	48	25
16	18	0.45	22	11	36	31
18	20	0.35	31	7	21	41
24	26	0.45	19	16	42	29
26	28	0.35	18	9	36	37
36	38	0.35	20	9	53	18
40	42	0.3	13	3	49	35
Average		0.33	20	8	42	31

LOG OF KANGAROO ISLAND BOREHOLE NO: R.B. 27

SECTION: 145 HUNDRED: Haines COUNTY: Carnarvon
 DEPTH: 16ft. DRILLER: P. Cortolezzis
LOGGED BY: K. Pocock,
 Minoil Services DATE: September 1963.

DESCRIPTION

<u>DEPTH (FEET)</u>						
From	To					
0	8	Coarse orange-brown sand with numerous clay pellets.				
8	12	As above, with pebbles up to 2 inch diameter.				
12	14	As above, with an increase in clay and pebbles.				
14	16	Stiff red pebbly clay.				
		% H.F.	Rutile	% of heavy fraction		
				Kyanite	Zircon	Others
0	2	0.15	19	7	41	33
2	4	0.25	21	5	37	37
4	6	0.4	18	11	42	29
6	8	0.4	15	12	46	27
8	10	0.2	23	9	37	31
10	12	0.1	19	7	48	36
12	14	0.2	10	14	45	31
Average		0.24	18	9	42	31

LOG OF KANGAROO ISLAND BOREHOLE NO: R.B.28

SECTION: 145 HUNDRED: Haines COUNTRY: Carnarvon
DEPTH: 36ft. DRILLER: P. Cortolezzis
LOGGED BY: K. Pocock,
Minoil Services DATE: September 1963

DESCRIPTION

DEPTH (FEET)

From	To	
0	6	Grey sand and alluvium.
6	10	Dark grey-brown coarse sand, pebbles, shell fragments.
10	22	Medium - coarse grey-brown sand.
22	34	Brown-yellow sandy clay.
34	36	Stiff yellow-brown mottled clay.

		% H.F.	Rutile	% of heavy fraction		
				Kyanite	Zircon	Others
0	2	0.8	22	20	27	31
2	4	0.7	17	15	28	40
4	6	1.0	14	18	18	50
6	8	0.05	18	11	32	39
8	10	0.6	21	5	33	41
10	12	0.15	20	8	43	29
12	14	0.4	15	12	40	33
14	16	0.05	17	13	33	37
16	18	0.3	24	10	32	34
18	20	0.4	19	5	35	41
20	22	0.35	21	11	41	27
22	24	0.25	16	9	40	35
24	26	0.3	19	14	38	29
26	28	0.25	22	11	36	31
28	30	0.35	15	9	39	37
30	36	0.45	12	5	55	28
Average		0.40	18	11	36	35

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B. 29

SECTION: 145

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: K. Pocock
Minoil
Services

DEPTH: 44ft.

DRILLER: P. Cortolezzis

DATE: Sept. 1963.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>				
From	To					
0	14	Coarse yellow-brown sand, with pebbles, shell fragments.				
14	26	Grey sand, medium-coarse, forams present.				
26	30	Fine-medium grey sand.				
30	42	Brown-grey, fine grained sand and clay.				
42	44	Stiff mottled clay.				

		% H.F.	Rutile	% of heavy fraction		
				Kyanite	Zircon	Others
0	2	0.15	13	6	13	68
2	4	0.15	21	11	28	40
4	6	0.15	18	7	34	41
6	8	0.3	17	8	46	29
8	10	0.3	22	1	40	37
10	12	0.3	23	9	30	38
12	14	0.1	15	5	49	31
14	16	0.2	17	10	33	40
16	18	0.35	20	4	24	52
18	20	0.25	19	5	43	33
20	22	0.3	21	12	35	32
22	24	0.25	17	8	36	39
24	26	0.15	23	7	39	31
26	28	0.25	14	13	41	32
28	30	0.15	11	4	35	50
30	32	0.25	9	5	47	39
32	34	0.25	18	9	43	30
34	36	0.2	15	11	29	45
36	38	0.15	8	8	35	49
40	42	0.25	18	7	25	50
Average		0.22	17	8	35	40

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B. 30

SECTION: 144

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: K. Pocock
Minoil
Services

DEPTH: 30ft.

DRILLER: P. Corto-
lezzis

DATE: Sept. 1963.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>				
From	To					
0	10	Coarse grey sand, pebbles, shell fragments.				
10	12	Coarse yellow-brown sand.				
12	14	Coarse yellow-brown clayey sand; 20% clay.				
14	24	Even grained medium brown clayey sand; 10% clay.				
24	28	Yellow-brown sandy clay.				
28	30	Yellow-brown mottled clay.				
		% H.F.	Rutile	% of heavy fraction		
				Kyanite	Zircon	Others
0	2	0.2	12	8	41	39
2	4	0.15	13	4	41	42
4	6	0.25	17	7	33	43
6	8	0.05	14	5	37	44
8	10	0.15	19	11	41	29
10	12	0.1	11	2	43	44
12	14	0.2	17	3	29	51
14	16	0.2	19	9	37	35
16	18	0.35	17	6	33	44
18	20	0.3	22	8	35	35
20	22	0.35	14	10	31	45
22	24	0.2	20	5	39	36
24	26	0.3	17	4	38	41
26	28	0.25	19	7	39	35
Average		0.22	17	6	37	40

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B.31

SECTION: 144

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: K. Pocock
Minoil
Services

DEPTH: 30ft.

DRILLER: P. Corto-
lezzis.

DATE: Sept. 63.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>				
From	To					
0	6	Medium-coarse yellow-brown sand.				
6	14	Dark red-brown coarse gritty sand.				
14	16	Yellow-brown medium-fine sand; 10% clay.				
16	26	Grey medium grained sand.				
26	28	Grey medium grained clayey sand; 50% yellow clay.				
28	30	Stiff yellow-brown clay.				
		% H.F.	% of heavy fraction			
			Rutile	Kyanite	Zircon	Others
0	2	0.2	21	5	35	39
2	4	0.1	15	12	32	41
4	6	0.15	19	7	39	35
6	8	0.1	22	8	38	32
10	12	0.1	13	4	46	37
12	14	0.1	18	15	27	40
14	16	0.2	19	11	41	29
16	18	0.1	23	7	27	43
18	20	0.1	13	15	36	36
20	22	0.2	20	6	32	42
22	24	0.15	19	8	37	36
24	26	0.15	21	5	41	33
26	28	0.15	20	1	59	20
Average		0.13	19	8	37	36

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B. 32

SECTION: 144

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: K. Pocock
Minoil
Services

DEPTH: 32ft.

DRILLER: P. Corto-
lezzis.

DATE: Sept. 1963.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>				
From	To					
0	4	Grey medium grained sand.				
4	10	Fine medium grained sand with dark red silty clay.				
10	20	Clean grey medium grained sand.				
20	30	Fine grained sand in yellow clay.				
30	32	Stiff yellow clay.				
		% H.F.	% of heavy fraction			
			Rutile	Kyanite	Zircon	Others
2	4	0.1	19	8	24	49
4	6	0.1	21	5	35	39
6	8	0.15	15	7	27	51
8	10	0.1	17	4	29	50
10	12	0.2	22	13	11	54
12	14	0.2	25	11	31	33
14	16	0.15	19	7	26	48
16	18	0.1	25	8	42	25
18	20	0.05	31	6	28	35
20	22	0.15	17	3	27	53
22	24	0.25	21	11	35	33
24	26	0.1	23	5	31	41
26	28	0.1	14	9	33	44
28	30	0.15	19	12	40	29
Average		0.14	21	8	30	42

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B. 33

SECTION: 144

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: K. Pocock
Minoil
Services

DEPTH: 16ft.

DRILLER: P. Cortolezzis

DATE: Sept. 1963.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>				
From	To					
0	4	Grey medium-coarse sand.				
4	14	Dark brown-red medium grained sand; 5% brown clay.				
14	16	Fine medium grained grey sand.				
		$\%$ H.F.	$\%$ of heavy fraction			
			Rutile	Kyanite	Zircon	Others
0	2	0.1	15	4	29	52
2	4	0.25	20	8	20	52
4	6	0.1	19	5	31	45
6	8	0.2	21	11	37	31
8	10	0.1	17	9	33	41
10	12	0.1	14	4	38	44
12	14	0.1	19	8	41	32
14	16	0.15	23	9	29	39
Average		0.14	19	7	33	41

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B. 34

SECTION: 144

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: R. Pocock
Minoil
Services

DEPTH: 26ft.

DRILLER: P. Cortolezzis

DATE: Sept. 1963.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>
From	To	
0	10	Coarse yellow-grey sand with pebbles, shell fragments.
10	16	Medium grained grey sand.
16	22	As above, becoming finer and more clayey.
22	26	Yellow-grey clay.

		% H.F.	% of heavy fraction			
			Rutile	Kyanite	Zircon	Others
0	2	0.1	21	8	37	34
2	4	0.15	19	4	33	44
4	6	0.55	22	7	27	44
6	8	0.2	14	8	44	34
8	10	0.3	17	11	39	33
10	12	0.1	23	5	28	44
12	14	0.1	19	14	37	30
14	16	0.15	14	23	24	39
16	18	0.15	17	11	41	31
18	20	0.1	19	9	33	39
20	22	0.1	6	5	45	44
22	24	0.15	21	21	29	29
24	26	0.1	21	7	31	41
Average		0.17	18	10	34	37

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B. 35

SECTION: 144

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: K. Pocock
Minoil
Services

DEPTH: 26ft.

DRILLER: P. Cortolezzis

DATE: Sept. 1963.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>				
From	To					
0	4	Medium coarse grey sand.				
4	8	Fine-medium dark brown-red sand; 5% clay.				
8	14	Brown, fine-medium sand.				
14	24	Medium grained grey sand.				
24	26	Grey clay.				

		% H.F.	% of heavy fraction			
			Rutile	Kyanite ⁹	Zircon	Others
0	2	0.45	19	11	43	27
2	4	0.25	23	5	37	35
4	6	0.2	16	9	48	27
6	8	0.1	14	12	31	43
8	10	0.1	18	11	39	32
10	12	0.15	15	15	23	47
12	14	0.05	21	5	44	30
14	16	0.15	19	9	52	20
16	18	0.25	15	3	72	10
18	20	0.2	23	4	41	32
20	22	0.25	14	9	39	38
22	24	0.2	19	7	43	31
Average		0.19	18	8	43	31

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B. 36

SECTION: 138

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: K. Pocock
Minoil
Services

DEPTH: 32ft.

DRILLER: P. Cortolezzis

DATE: Sept. 1963.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>
From	To	
0	4	Coarse-medium sand, pebbles.
4	16	Dark brown silt.
16	24	Fine grained brown sand with pebbles and clay pellets.
24	26	Fine grained brown sand: 10% clay.
26	30	Yellow sandy clay.
30	32	Stiff yellow clay.

		% H.F.	Rutile	% of heavy fraction Kyanite	Zircon	Others
0	2	0.6	34	3	43	20
2	4	0.2	19	15	37	29
4	6	0.4	23	4	33	40
8	10	0.4	17	17	42	24
10	12	0.25	14	8	29	49
12	14	0.3	21	11	32	36
14	16	0.55	23	10	41	26
16	18	0.3	25	26	22	27
18	20	0.3	16	14	35	35
20	22	0.5	23	17	39	21
22	24	0.5	16	16	40	28
24	26	0.3	10	13	37	40
Average		0.38	20	13	36	31

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B. 37

SECTION: 138

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: K. Pocock
Minoil
Services

DEPTH: 12ft.

DRILLER: P. Cortolezzis

DATE: Sept. 1963.

DEPTH (FEET)

From	To	
0	2	Grey silty sand.
2	4	Hard red clay.
4	6	Fine red gritty clay.
6	12	Red-brown silty clay.

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B. 38

SECTION: 350

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: No log available

DEPTH: 24ft.

DRILLER: P. Cortolezzis

DATE: Sept. 1963.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>				
From	To					
		% H.F.	Rutile	% of heavy fraction		
				Kyanite	Zircon	Others
0	2	0.3	23	13	22	42
2	4	0.15	21	6	31	42
4	6	0.4	19	11	40	30
6	8	0.2	17	5	29	49
8	10	0.35	24	16	16	44
10	12	0.2	23	14	31	32
12	14	0.2	18	11	27	44
14	16	0.2	21	5	41	33
16	18	0.3	17	10	15	18
18	20	0.5	19	9	38	34
20	22	0.45	15	7	29	49
Average		0.30	20	10	33	37

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B. 39

SECTION: 137

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: No log available.

DEPTH: 14 ft.

DRILLER: P. Cortolezzi

DATE: Sept. 1963.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>				
From	To					
		% H.F.	% of heavy fraction			
			Rutile	Kyanite	Zircon	Others
0	2	0.45	20	14	35	31
2	4	0.5	23	8	52	17
4	6	0.1	19	5	43	33
6	8	0.1	15	11	37	37
8	10	0.15	19	13	38	30
10	12	0.5	20	15	45	20
12	14	1.5	21	9	29	41
Average		0.33	20	11	40	29

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B. 40

SECTION: 136

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: K. Pocock
Minoil
Services

DEPTH: 20ft.

DRILLER: P. Cortolezzi.

DATE: Sept. 1963.

DEPTH (FEET)		<u>DESCRIPTION</u>				
From	To					
10	20	Hard red clays				
		% H.F.	Rutile	% of heavy fraction Kyanite	Zircon	Others
0	2	0.55	19	7	35	39
	</					

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B. 41

SECTION: 136

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: K. Pocock
Minoil
Services

DEPTH: 16 ft.

DRILLER: P. Cortolezzis

DATE: Sept. 1963.

DEPTH (FEET)		DESCRIPTION				
From	To					
10	16	Hard red clays.				
		% H.F.	Rutile	% of heavy fraction Kyanite	Zircon	Others
0	2	0.7	23	14	39	24

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B. 42

SECTION: 135

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: K. Pocock
Minoil
Services

DEPTH: 26 ft.

DRILLER: P. Cortolezzis

DATE: Sept. 1963.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>				
From	To					
20	26	Hard red clays. (?)				
		% H.F.	Rutile	% of heavy fraction Kyanite Zircon		Others
0	2	0.35	15	17	49	19
6	8	0.35	19	5	41	35
10	12	0.45	21	11	37	31
12	14	0.25	18	4	53	25
14	16	0.5	23	9	42	26
18	20	0.45	14	12	38	36
24	26	0.15	12	8	33	47
Average		0.36	17	9	42	47

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B. 43

SECTION: 351

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY:

DEPTH: 22 ft.

DRILLER: P. Cortolezzis

DATE: Sept. 1963.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>
From	To	
12	22	In hard red clays.

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B. 44

SECTION:

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: No log
available

DEPTH: 4 ft.

DRILLER: P. Cortolezzi

DATE: Sept. 1963.

[illegible]

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B. 45

SECTION: 139

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: No log
available

DEPTH: 36 ft.

DRILLER: P. Cortolezzis

DATE: Sept. 1963.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>				
From	To	% H.F.	% of heavy fraction			
			Rutile	Kyanite	Zircon	Others
0	2	0.45	8	5	59	28
2	4	0.15	13	11	41	35
4	6	0.05	17	6	45	32
6	8	0.4	15	9	39	37
8	10	0.6	21	10	40	29
10	12	0.6	13	8	55	24
12	14	0.6	19	7	37	37
14	16	0.4	13	12	33	42
16	18	0.35	23	13	41	23
18	20	0.4	15	7	29	49
20	22	0.35	22	10	30	38
22	24	0.55	17	5	38	40
24	26	0.1	19	12	43	26
26	28	0.35	21	9	35	35
28	30	0.55	14	10	39	37
30	32	0.45	12	8	41	39
32	34	0.35	21	2	54	23
Average		0.39	17	8	41	34

LOG OF KANGAROO ISLAND BOREHOLE NO. 46

SECTION: 139

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: K. Pocock
Minoil
Services

DEPTH: 38 ft.

DRILLER: P. Cortolezzis

DATE: Sept. 1963.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>				
From	To					
0	4	Clean grey medium grained quartz sand.				
4	12	Orange-brown medium grained sand, becoming clayey.				
12	32	Grey medium grained sand, fibres, shell fragments.				
32	38	Stiff grey clay.				

		% H.F.	Rutile	% of heavy fraction		Others
				Kyanite	Zircon	
0	2	0.3	16	29	26	29
2	4	0.1	19	15	33	33
4	6	0.15	17	12	39	32
8	10	0.15	12	6	34	48
10	12	0.3	21	8	41	30
12	14	0.25	14	7	40	39
14	16	0.3	19	9	43	29
16	18	0.2	14	7	30	49
18	20	0.15	11	12	38	39
20	22	0.1	19	15	31	35
22	24	0.15	21	11	41	27
24	26	0.15	11	23	20	46
26	28	0.25	19	9	37	35
28	30	0.15	13	5	29	53
30	32	0.25	17	14	41	28
32	34	0.2	21	11	39	29
34	36	0.2	19	12	31	38
Average		0.20	16	12	35	37

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B. 47

SECTION: 146

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: K. Pocock
Minoil
Services

DEPTH: 34 ft.

DRILLER: P. Cortolezzis

DATE: Sept. 1963.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>				
From	To					
0	2	Grey sand.				
2	12	Medium grained orange-brown to grey sand.				
12	32	Medium grained grey sand, with fibres, shells.				
32	34	Clayey grey sand; clay up to 50%.				
		% H.F.	% of heavy fraction			
			Rutile	Kyanite	Zircon	Others
0	2	0.4	19	11	29	41
2	4	1.1	23	8	24	45
4	6	0.7	17	7	31	45
6	8	0.7	12	13	23	52
8	10	0.4	22	8	28	42
10	12	0.25	15	11	39	35
12	14	0.5	19	5	31	45
14	16	0.35	14	12	27	47
16	18	0.2	21	13	35	31
18	20	0.2	14	24	17	45
20	22	0.25	18	8	29	45
22	24	0.1	19	12	29	40
24	26	0.1	15	15	31	39
26	28	0.1	17	23	11	49
28	30	0.25	21	9	23	47
30	32	0.2	23	13	25	39
Average		0.30	18	12	27	43

LOG OF KANGAROO ISLAND BOREHOLE NO. R.B. 48

SECTION: 146

HUNDRED: Haines

COUNTY: Carnarvon

LOGGED BY: K. Pocock
Minoil
Services

DEPTH: 38 ft.

DRILLER: P. Cortolezzis

DATE: Sept. 1963.

<u>DEPTH (FEET)</u>		<u>DESCRIPTION</u>				
From	To					
0	2	Grey sand.				
2	12	Coarse orange-brown sand.				
12	36	Grey sand with fibres, some shells and pebbles.				
36	38	Stiff grey clay.				
		% H.F.	% of heavy fraction			
			Rutile	Kyanite	Zircon	Others
0	2	0.5	19	8	33	40
2	4	0.3	21	13	29	37
4	6	0.4	19	15	35	31
6	8	0.75	18	12	27	43
8	10	0.55	24	26	11	39
10	12	0.2	17	11	31	41
12	14	0.2	15	8	25	52
14	16	0.15	12	28	32	28
16	18	0.2	19	9	35	37
18	20	0.1	21	13	41	25
20	22	0.1	15	10	35	40
22	24	0.05	5	12	38	45
24	26	0.1	12	13	31	44
26	28	0.05	19	15	29	37
28	30	0.2	17	8	35	40
30	32	0.3	15	3	61	21
32	34	0.1	16	8	36	40
Average		0.29	17	13	33	37

