

HALL, RELPH & ASSOCIATES PTY LTD
GEOLOGICAL & EXPLORATION CONSULTANTS

SAMPLING H MINERALS

EL 1 / 70

LAGOONS AREAS

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998001 849
HALL, RELPH & ASSOCIATES PTY. LTD.
GEOLOGICAL & EXPLORATION CONSULTANTS

9TH FLOOR
36-38 CLARENCE STREET,
SYDNEY, 2000, AUSTRALIA
TEL: 29-5631

L. R. HALL. M.Sc., M.A.A.P.G., M.Aus.I.M.M.
R. E. RELPH. B.Sc., M.Aus.I.M.M.

June 8, 1970

The Manager
Inland Exploration N.L.
c/- R. Morris
93 York Street
LAUNCESTON 7250

Dear Sir, Reference: EL 1/70, Tasmania

During January 1970 three grab samples were collected from the beach between Lagoons and Piccaninny Point within the area which was subsequently granted as Exploration Licence 1/70. The samples were submitted for analysis for heavy mineral content and then resubmitted when the various heavy minerals were not separated into individual percentages. Both of these Minex reports are attached.

Grain count of the constituent minerals in the heavy mineral concentrate compares closely with the deposits worked successfully in northern New South Wales. However it must be stressed that the samples collected should not be taken as representative of the average mineral content of the beach sands in EL 1/70.

The variation between the two separations in samples 2 and 3 is probably due to poor mixing prior to cutting out a test sample. However an average of the varying results should be an approximate indication of the heavy mineral constituents. The results would then be:

	No.1	No.2	No.3
Separation %	5.6	0.75	0.55

Large scale dredging operations in New South Wales can profitably work sand deposits containing 0.6% of heavy minerals, equivalent to 0.2-0.25% rutile in the deposits.

The following are some heavy mineral percentages of the total sample using the average figure above:

001

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		<u>Ilmenite</u>	<u>Rutile</u>	<u>Zircon</u>
Sample No.1	%	0.84	1.96	1.68
Sample No.2	%	0.075	0.30	0.30
Sample No.3	%	0.027	0.165	0.275

In view of the results of this preliminary sampling, which indicates grades approaching grades of known operations, the Exploration Licence warrants further investigation by systematic scout drilling. The objective of this would be to obtain truly representative samples and to assure the quantity of workable sand present.

It is recommended that the scout drilling be confined to the beach and frontal dunes. At the same time an examination should be made of the area between the frontal dunes and the western boundary of the Exploration Licence.

A suggested drilling programme is by bore lines one mile apart with holes spaced at 33 feet intervals in the lines. At present it is anticipated that this work could be carried out relatively cheaply with conventional hand operated equipment.

The recommended programme is only a preliminary investigation and if results are sufficiently encouraging detail drilling would be necessary. Scout drilling of any likely areas west of the frontal dunes could be carried out in conjunction with this.

Yours faithfully,
 HALL, RELPH & ASSOCIATES PTY. LTD.

Pen J. D. Whiting

MJM/mt
 Enc.

998003

MINEX ANALYTICAL LABORATORIES PTY. LTD.
ANALYSTS AND CONSULTANTS TO MINING, AGRICULTURE AND INDUSTRY

4-8 GWYNNE STREET, RICHMOND, VIC. 3121

PHONE: 42 4706, 42 4707

TELEGRAMS & CABLES: MINEXLABS, MELBOURNE

11th May, 1970.

70/16

Messrs. Hall, Relf & Associates Pty. Ltd.,
9th Floor,
36-38 Clarence Street,
SYDNEY. N.S.W. 2000

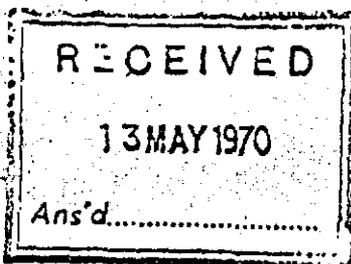
Attention : Mr. B.L. Wood

Dear Mr. Wood,

Please find enclosed a more detailed report on your three (3) samples, as requested in your letter dated the 22nd April, 1970.

Yours faithfully,

J. Hopper
(Mrs.) I. Hopper
Manager.



A MEMBER OF THE MINEX GROUP

003

998004



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TELEGRAMS & CABLES: MINEXLABS, MELBOURNE

11th May, 1970.

70/16

A second heavy mineral separation has been made for these three specimens. It has been observed that a different percentage has been obtained for Nos. 2 and 3. The percentages obtained were as follows :-

		No. 1	No. 2	No. 3
FIRST SEPARATION	%	5.6	0.31	0.69
SECOND SEPARATION	%	5.6	1.2	0.43

The variability may be caused by a non-homogeneity of sample, or because of small amounts of sample. (15g of first; 40g for second separation).

A split into a magnetic and non-magnetic fractions using an isodynamic separator was unsuccessful, because the garnets were mingled with the ilmenite fraction. Grain counts were employed as the only practical solution. The zircon figure could be in doubt because monazite and xenotime are also present. X

		<u>Ilmenite</u>	<u>Rutile</u>	<u>Zircon</u>
Sample No. 1	%	15	35	30
Sample No. 2	%	10	40	40
Sample No. 3	%	5	30	50

The totals do not reach 100% because of abundant garnet, tourmaline etc. as well as monazite and xenotime (not counted).

J. Hopper
(Mrs.) I. Hopper
Manager

A MEMBER OF THE MINEX GROUP

004

998005



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TELEGRAMS & CABLES: MINEXLABS, MELBOURNE

14th April, 1970.

70/16

J. Whiting Esq.,
Hall Relf & Associates Pty. Ltd.,
9/36 Clarence Street,
SYDNEY. N.S.W. 2000

Dear Sir,

Please find enclosed the report on the heavy mineral content of your sample numbers 1, 2, and 3.

We apologise for the delay, and hope that the enclosed report gives you sufficient information about the nature of your samples.

Yours faithfully,

J. Hopper
(Mrs.) I. Hopper
Manager.

A MEMBER OF THE MINEX GROUP

005

998006

22nd April, 1970.

Your Reference. 70/16

The Manager,
Minex Analytical Laboratories Pty. Ltd.,
4-8 Gynno Street,
RICHMOND. VICTORIA. 3121.

Dear Madam,

We believe that your heavy mineral content report, dated 14th April, 1970, on the three samples we sent in early January should be more detailed. The overall heavy mineral percentage is of some use but we really need to know the individual percentages of at least Rutile, Zircon and Ilmenite in each of the samples.

We would be obliged if you could forward this information to us as soon as possible.

Yours faithfully,
HALL, RELPH & ASSOCIATES PTY LTD.

MJM/rv

006

998007

70/16 Nos. 1 - 3.

These three specimens were separated by a conventional heavy liquid separation technique using bromoform of specific gravity 2.80. This lower specific gravity was chosen to ensure that only quartz and feldspar would be floated. A set weight of dry material was taken (15.0000g.). The heavy mineral separate was washed with alcohol, dried and weighed. The heavy mineral separates were examined by X-ray diffraction and also petrologically. This latter method has shown the minerals to be very well rounded. In all cases a small amount of quartz has carried through, as dust, into the heavy separate, hence the weight percentage of heavy minerals is slightly high in all cases.

	No. 1.	No. 2.	No. 3
Weight of Minerals, g.	5.6	0.31	0.69
	Rutile	Rutile	Rutile
	Zircon	Zircon	Zircon
	Ilmenite	Ilmenite	Ilmenite
	Garnet	Garnet	Garnet
	Xenotime (very rare)	Sillimanite	Tourmaline (rare)
	Tourmaline (rare)	Tourmaline (rare)	Sillimanite
	Sillimanite (rare)		

Using grain-counts, the predominant minerals are rutile, zircon and ilmenite in all three specimens. Garnet is next in abundance and the other minerals recorded are rare. The X-ray diffraction records would indicate more sillimanite than observed petrologically, because of preferred orientation of cleaved fragments.

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998008
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June 8, 1970

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Duplicate

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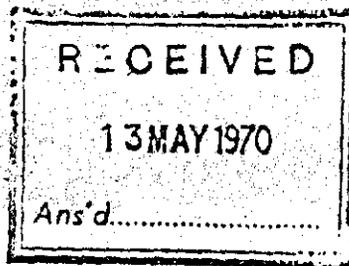
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