539001

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90-3071 O/F

MINES
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REPORT NO. 26/89 TCR 90-3071

MINES RECEIVED

E.L. 43/87 TASMANIA

RELINQUISHMENT REPORT ON EXPLORATION COMPLETED IN THE CAPE PORTLAND - MUSSELROE BAY AREA OF NORTH - EASTERN TASMANIA

OPEN FILE

Prepared for Bach Holdings Pty. Ltd
and Pennant Holdings Ltd.

A. Dove
December, 1989

90-3071 O/4

AMG REFERENCE POINTS ADDED

539002

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SYNOPSIS

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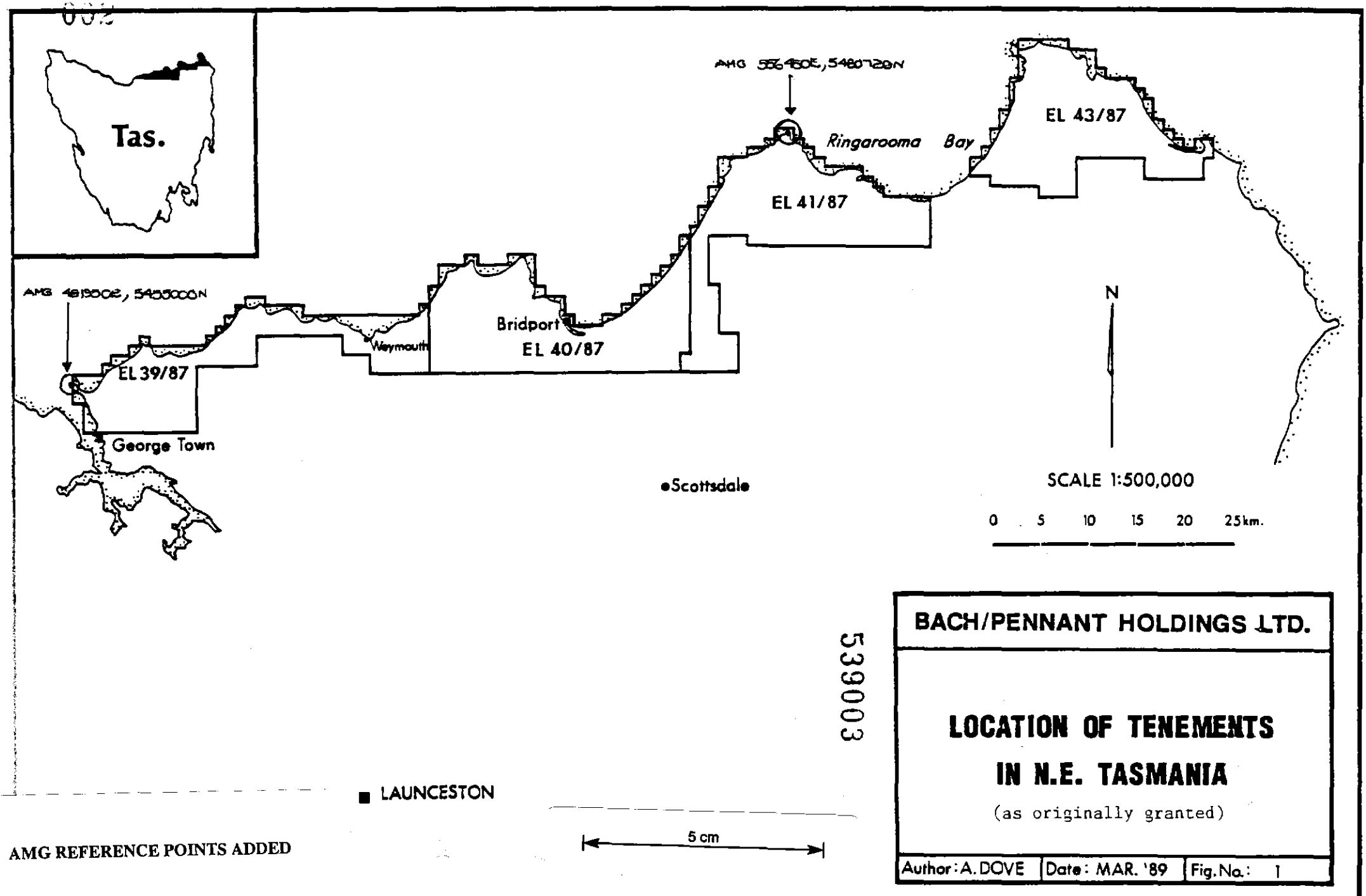
OPEN FILE


Tas.
AMG 556450E, 5480720N
Ringarooma Bay
EL 43/87
EL 41/87
AMG 461900E, 5455000N
Bridport
Weymouth
EL 40/87
EL 39/87
George Town
Scottsdale
N
SCALE 1:500,000
0 5 10 15 20 25km.
LAUNCESTON
5 cm
AMG REFERENCE POINTS ADDED
BACH/PENNANT HOLDINGS LTD.
LOCATION OF TENEMENTS
IN N.E. TASMANIA
(as originally granted)
Author: A. DOVE
Date: MAR. '89
Fig. No.: 1
5390003

539004

SYNOPSIS

1. AIM

To examine the Tasmanian north coast around Cape Portland - Musselroe Bay area for economic heavy mineral sand occurences.

2. REASON

Increases in the price of mineral sand commodities, particularly rutile and zircon, over recent years has resulted in a resurgence of exploration activity for these mineral commodities. The price rises, combined with technological advances in processing mineral sands have given impetus to the examination of areas previously considered to be unattractive.

3. SUMMARY AND CONCLUSIONS

3.1 Exploration Licence 43/87 orginally covered an area of 200 km^2 in the Cape Portland - Musselroe Bay area of north eastern Tasmania.

3.2 Upon licence renewal in 1989 the area was reduced to 160 km^2 following aerial photography studies and ground reconnaissance.

3.3 Exploration activities were confined to the dune system at the north end of Boobyalla Beach.

3.4 One east - west traverse line containing twelve (12) drillholes was drilled using hand auger and hand operated cased sludging techniques.

3.5 All samples were tested by the Tasmanian Department of Mines Metallurgical Laboratory in Launceston.

3.6 Heavy mineral grades greater than 1.0% were confined to two drillholes, PP-0 and PP-4. These holes represent the area of the high water mark and the frontal dune system.

3.7 The heavy mineral content in PP-0 and PP-4 was greatest in the lower intervals.

3.8 The remaining Aeolian dune system returned heavy mineral grades of less than 0.5%.

3.9 The work carried out confirmed that there are no deeper strand line concentrations present below the water table.

4. RECOMMENDATIONS

It is recommended that this exploration licence be relinquished since:

- results obtained to date have indicated that a deposit of higher grade than is likely to occur would be needed to achieve economic viability.

- the prevailing uncertain situation with respect to future exploration and subsequent mining within reserves, protected and conservation areas mitigates against continued expenditure on projects which depend upon significant resources within such land categories.

539007

REPORT

5. INTRODUCTION

A preliminary programme of exploration was carried out by Peter H. Stitt & Associates on behalf of Pennant Holdings Ltd. and Bach Holdings Pty. Ltd. on their jointly held Exploration Licence 43/87 located on the north east coast of Tasmania. The work is recorded in Report No. 3/89, prepared by Peter H. Stitt & Associates Pty. Ltd.

The exploration was principally directed at testing the coastal dunes for heavy mineral sand deposits, containing economic minerals: particuarly rutile, leucoxene, ilmenite (TiO_2 raw materials), zircon and monazite. In addition exploration was carried out to recognize any other detrital minerals if they occured in economic quantities.

During the past four years the world market has been dominated by a short fall in supply, particularly for the TiO_2 pigment minerals, zircon and the rare earth heavy minerals. As a consequence the price for these minerals has risen to historically high levels.

This combined with technological advances and the greater understanding of heavy mineral deposits has resulted in a re-evaluation of propective areas.

6. TENEMENT INFORMATION

Exploration Licence 43/87 was orginally granted to Bach Holdings Pty. Ltd. and Minproc Mining (Tasmania) Pty. Ltd. The licence covered an area of 200 square kilometres in the Land District of Dorset between Cape Portland in the west and Musselroe Point in the east (see figure 1). Pennant Holdings Ltd later replaced Minproc Mining as joint title holder with Bach Holdings.

Upon licence renewal on the 22/3/89 only an area of 160 square kilometres was retained. The area relinquished generally represented hard rock basement outcrop with no or little development of coastal sand dunes or shore lines. These areas were recognised following aerial photography studies and ground reconnaissance.

539009

7. FIELD INVESTIGATIONS

Exploration activities within the licence were confined to the north end of Boobyalla Beach, just to the south of Point Petal Nature Reserve.(see figure 2) Orginally it was planned to drill 48 holes in this area, however due to the nature of the sand deposit this was found to be impossible.

Only twelve (12) drillholes were drilled on one east-west traverse line, located at the far north end of the beach. All drilling was carried out by hand auger and hand operated cased sludging, using Dormers Engineering equipment. Holes were hand augered to water table using a 50mm. diameter hand auger. When water table was reached 50mm. casing was inserted into the hole and the hole advanced by sludging using a whistle top sludger on aluminium extension rods. Samples were logged and bagged at two metre intervals and delivered to the laboratory for heavy mineral test work.

Drilling was terminated when gravel and pebbles impeded drilling operations or when the loose free flowing nature of the sand caused holes to continually cave in. The drilling completed a total of 82.1 metres over a traverse length of 560 metres.

A brief descriptive log for each drillhole showing heavy mineral assay data is included as Appendix 1 of this report.

539010

8. LABORATORY INVESTIGATIONS

All samples were treated by the Tasmanian Department of Mines, Metallurgical Laboratory in Launceston. The test procedure adopted is as follows:

1. Dry sample as recieved.
2. Screen on a coarse sieve (say 2mm.) to break up agglomerated lumps.
3. Riffle split to obtain an approximately 100 gm. working sample.
4. Re-pack balance of sample.
5. Weigh working sample.
6. Screen on a 1mm. seive and weigh plus 1mm. fraction.
7. Using TBE, seperate heavy minerals.
8. Dry and weigh heavy minerals.
9. Calculate heavy minerals as a percentage of the sample weighed in step 6 above.
10. Package heavy mineral for despatch.

Copies of the laboratory result certificates are included as Appendix 2 of this report.

9. DISCUSSION

While reasonable sand depths were intersected in all drill holes along the traverse line, heavy mineral grades were restricted to drillholes PP-0 and PP-4. These two holes represent the area of the modern high water mark and the frontal dune system extending some 40 metres inland. In these two holes it is only the lower intervals that returned mineral grades of 1.0% and greater.

The remaining Aeolian dune system returned assays of less than 0.5%, and in all of these holes drilling problems occured due to the free flowing nature of the sand.

The limited work carried out however confirms the results reported by Bernussi (1976), and also indicates that there are no deeper strand line concentrations present below water table, covered by this Aeolian dune system.

Although mineralogical work was not carried out on the heavy mineral samples, earlier work carried out only recorded the presence of 9% rutile and 6.5% zircon. (Report No. 3/89., Peter H. Stitt & Associates Pty. Ltd.)

It is recommended that this exploration licence be relinquished since:

- results obtained to date have indicated that a deposit of higher grade than is likely to occur would be needed to achieve economic viability.

- the prevailing uncertain situation with repect to future exploration and subsequent mining within reserves, protected and conservation areas mitigates against continued expenditure on projects which depend upon significant resources within such land categories.

APPENDIX 1

DRILLHOLE DESCRIPTIVE LOGS

0 / 3

CLIENT :BACH/PENNANT HOLDINGS

TITLE No. :EL 43/87

AREA :POINT PETAL

LINE No. :1

LOGGED BY :A. DOVE

HOLE No. :PP-0

METHOD :HAND

DRILL DATE:11.4.89

INTERVAL (m)	DRY Wt. (kg)	DESCRIPTION	SLIMES %	+1000um %	H.M. %
0 - 2.0		SAND, fine to medium grained, amber. Fine shell present.		0.1	0.1
2.0 - 4.0		SAND, coarse to very coarse grained, amber. Abundant fine shell.		0.3	0.7
4.0 - 6.0		AS ABOVE, hit WT 4.5m. Started sludging 4.7m.		1.3	1.1
		E.O.H. 6.0m. Hit rock.			
		DOWN HOLE AVERAGE			0.63

539014

11

014

CLIENT :BACH/PENNANT HOLDINGS

TITLE No. :EL 43/87

AREA :POINT PETAL

LINE No. :1

LOGGED BY :A. DOVE

HOLE No. :PP-4

METHOD :HAND

DRILL DATE:11.4.89

INTERVAL (m)	DRY Wt. (kg)	DESCRIPTION	SLIMES %	+1000um %	H.M. %
0 - 2.0		SAND, fine to medium grained, amber. Fine shell, becomes coarser with depth.		0.2	0.3
2.0 - 3.0		SAND coarse to very coarse grained, amber. Fine shell. Hit WT 2.2m. Started sludging 2.5m. Hit rock. E.O.H. 3.0m.		6.5	1.0
		DOWN HOLE AVERAGE			0.53

539015

12

CLIENT :BACH/PENNANT HOLDINGS

TITLE No. :EL 43/87

AREA :POINT PETAL

LINE No. :1

LOGGED BY :A. DOVE

HOLE No. :PP-8

METHOD :HAND

DRILL DATE:11.4.89

INTERVAL (m)	DRY Wt. (kg)	DESCRIPTION	SLIMES %	+1000um %	H.M. %
0 - 2.0		SAND, medium to coarse grained, amber, abundant shell, becomes coarser with depth.		0.1	0.2
2.0 - 4.0		AS ABOVE, slightly orange in colour. Hit WT at 3.8m.		1.6	0.2
4.0 - 4.6		SAND, coarse to very coarse grained, amber. Would not go any further, possibly due to gravel.		0.3	0.1
		E.O.H. 4.6m.			
		DOWN HOLE AVERAGE			0.19

533016

016

CLIENT :BACH/PENNANT HOLDINGS

TITLE No. :EL 43/87

AREA :POINT PETAL

LINE No. :1

LOGGED BY :A. DOVE

HOLE No. :PP-12

METHOD :HAND

DRILL DATE:11.4.89

INTERVAL (m)	DRY Wt. (kg)	DESCRIPTION	SLIMES %	+1000um %	H.M. %
0 - 2.0		SAND fine to medium grained, amber. Grades to coarse to very coarse. Hit dark grey layer at base		2.5	0.2
2.0 - 4.0		SAND, coarse to very coarse grained, amber. Grades to light grey. Hit WT 3.5m. Started sludging 4.0m.		0.9	0.1
4.0 - 5.3		AS ABOVE, hit hard very coarse indurated layer.		1.1	0.1
		E.O.H. 5.3m.			
		DOWN HOLE AVERAGE			0.14

539017

14

CLIENT :BACH/PENNANT HOLDINGS

TITLE No. :EL 43/87

AREA :POINT PETAL

LINE No. :1

LOGGED BY :A. DOVE

HOLE No. :PP-16

METHOD :HAND

DRILL DATE:11.4.89

INTERVAL (m)	DRY Wt. (kg)	DESCRIPTION	SLIMES %	+1000um %	H.M. %
0 - 2.0		SAND, fine - medium grained, amber, slightly organic.		trace	0.2
2.0 - 4.0		SAND, medium to coarse grained, amber. Fine shell present.		trace	0.2
4.0 - 6.0		AS ABOVE went through dark grey layer.		0.1	0.2
6.0 - 8.0		SAND, medium to coarse grained, amber, grades to coarse to very coarse, granules present.		0.6	0.2
8.0 - 8.4		Hit WT. SAND, coarse to very coarse grained, light grey, abundant granules. Tried to sludge but would not go down due to gravel etc.		0.5	0.2
		E.O.H. 8.4m.			
		DOWN HOLE AVERAGE			0.2

533918

CLIENT :BACH/PENNANT HOLDINGS

TITLE No. :EL 43/87

AREA :POINT PETAL

LINE No. :1

LOGGED BY :A. DOVE

HOLE No. :PP-20

METHOD :HAND

DRILL DATE:11.4.89

INTERVAL (m)	DRY Wt. (kg)	DESCRIPTION	SLIMES %	+1000um %	H.M. %
0 - 2.0		SAND medium grained, amber.		0.1	0.2
2.0 - 4.0		AS ABOVE		0.2	0.2
4.0 - 6.0		AS ABOVE, hit dark grey layer at base. Becomes coarser with depth.		0.1	0.2
6.0 - 8.0		AS ABOVE, hit dark brown layer at 7.0m., medium grained with occasional granules. Grades to orange brown at 7.5m. then to amber at 7.7m.		2.6	0.2
8.0 - 9.2		SAND, coarse to very coarse grained, light grey granules (+2mm) present. Hit WT 9.0m.		2.2	0.1
		E.O.H. 9.2m.			
		DOWN HOLE AVERAGE			0.21

533019

CLIENT :BACH/PENNANT HOLDINGS

TITLE No. :EL 43/87

AREA :POINT PETAL

LINE No. :1

LOGGED BY :A. DOVE

HOLE No. :PP-24

METHOD :HAND

DRILL DATE:10.4.89

INTERVAL (m)	DRY Wt. (kg)	DESCRIPTION	SLIMES %	+1000um %	H.M. %
0 - 2.0		SAND, fine grained, white, fine shell present becomes coarser with depth, amber.		0.3	0.2
2.0 - 4.0		SAND, fine to medium grained, light grey. Went through dark grey layer		0.5	0.2
4.0 - 6.0		SAND, medium to coarse grained, light grey.		2.3	0.3
6.0 - 7.3		AS ABOVE, grades to amber/orange. Coarse at base.		8.5	0.1
		E.O.H. 7.3m. Cave-in			
		DOWN HOLE AVERAGE			0.21

530020

020

CLIENT :BACH/PENNANT HOLDINGS

TITLE No. :EL 43/87

AREA :POINT PETAL

LINE No. :1

LOGGED BY :A. DOVE

HOLE No. :PP-28

METHOD :HAND

DRILL DATE:11.4.89

INTERVAL (m)	DRY Wt. (kg)	DESCRIPTION	SLIMES %	+1000um %	H.M. %
0 - 2.0		SAND, fine to medium grained, amber. Fine shell present.		0.2	0.2
2.0 - 4.0		AS ABOVE, grades to coarse to very coarse grained.		0.1	0.2
4.0 - 6.0		SAND, coarse to very coarse grained, amber, becoming coarser with depth. Hit grey medium-grained layer at 5.5m.		0.2	0.2
6.0 - 7.2		SAND, coarse grained, light grey, occasional well rounded granules (+2mm). Hit dark brown layer at 6.6m. Abundant granules.		5.9	0.2
		E.O.H. 7.2m.			
		DOWN HOLE AVERAGE			0.2

539021

02.

CLIENT :BACH/PENNANT HOLDINGS

TITLE No. :EL 43/87

AREA :POINT PETAL

LINE No. :1

LOGGED BY :A. DOVE

HOLE No. :PP-32

METHOD :HAND

DRILL DATE:10.4.89

INTERVAL (m)	DRY Wt. (kg)	DESCRIPTION	SLIMES %	+1000um %	H.M. %
0 - 2.0		SAND, fine - medium grained, amber at surface, grades to medium grained grey then to coarse to very coarse, amber.		0.3	0.3
2.0 - 4.0		SAND, coarse to very coarse grained, amber.		0.4	0.3
4.0 - 6.0		SAND, coarse grained, brown, grey orange mottle, abundant well rounded granules.		16.0	0.1
6.0 - 8.0		SAND, coarse grained, amber, abundant, well-rounded granules.		10.1	0.1
8.0 - 9.8		AS ABOVE, grades to grey. Hit WT 9.2m.		1.6	0.2
		E.O.H. 9.8m.			
		DOWN HOLE AVERAGE			0.2

539022

19

CLIENT :BACH/PENNANT HOLDINGS

AREA :POINT PETAL

LOGGED BY :A. DOVE

METHOD :HAND

TITLE No. :EL 43/87

LINE No. :1

HOLE No. :PP-40

DRILL DATE:10.4.89

INTERVAL (m)	DRY Wt. (kg)	DESCRIPTION	SLIMES %	+1000um %	H.M. %
0 - 2.0		SAND, fine grained, grey, organic, grades to coarse grained amber.		0.1	0.2
2.0 - 4.0		SAND, coarse - very coarse grained, amber.		8.0	0.2
4.0 - 5.0		AS ABOVE, grades to dark grey-brown mottle. Abundant granules. Hit rock(?).		35.7	0.1
		E.O.H. 5.0m.			
		DOWN HOLE AVERAGE			0.18

539023

02

CLIENT :BACH/PENNANT HOLDINGS

TITLE No. :EL 43/87

AREA :POINT PETAL

LINE No. :1

LOGGED BY :A. DOVE

HOLE No. :PP-48

METHOD :HAND

DRILL DATE:10.4.89

INTERVAL (m)	DRY Wt. (kg)	DESCRIPTION	SLIMES %	+1000um %	H.M. %
0 - 2.0		SAND, fine - medium grained, grey, grades to orange then to light grey. Coarse to very coarse grains present.		1.2	0.2
2.0 - 4.0		SAND, fine - medium grained, orange, grades to coarse - very coarse grained. Abundant granules.		27.0	0.2
4.0-6.0		SAND, fine - medium grained, amber with abundant granules.		26.0	0.2
6.0 - 8.0		AS ABOVE, sand becoming coarse grained.		5.8	0.1
8.0 - 10.0		AS ABOVE. Hit WT 9.4m.		1.0	0.1
		E.O.H. 10.0m			
		DOWN HOLE AVERAGE			0.16

530024

024

CLIENT :BACH/PENNANT HOLDINGS

TITLE No. :EL 43/87

AREA :POINT PETAL

LINE No. :1

LOGGED BY :A. DOVE

HOLE No. :PP-56

METHOD :HAND

DRILL DATE:10.4.89

INTERVAL (m)	DRY Wt. (kg)	DESCRIPTION	SLIMES %	+1000um %	H.M. %
0 - 2.0		SAND, coarse - very coarse grained, amber.		0.2	0.3
2.0 - 4.0		AS ABOVE		0.2	0.4
4.0 - 6.0		AS ABOVE, becoming light grey		2.5	0.3
6.0 - 6.3		AS ABOVE Hole caved in		1.2	0.4
		E.O.H. 6.3m			
		DOWN HOLE AVERAGE			0.34

530025

22

APPENDIX 2

LABORATORY RESULT CERTIFICATES

025

539027

DEPARTMENT OF MINES

RECEIVED 24-5-89

24

TASMANIA

Launceston Office:
Chemical and Metallurgical Laboratory,
287 Wellington Street,
LAUNCESTON 7249

Enquiries:
Phone:
Your ref.:
Our file:

Peter H. Stitt & Assoc Pty Ltd
5th Floor
32 York Street
Sydney 2000

19.5.89

Attent. Mr. G. Lee

Reg. Nos 893032-55

Dear Sir,

Please find below results of samples submitted to this laboratory for Heavy Liquid separation, from N.E. of Tas.

Reg. No	Description		% + 1.00mm	% Heavy Mineral
893032	Petal Pt. PP 0	0 - 2.0	0.1	0.1
033		2.0 - 4.0	0.3	0.7
034		4.0 - 6.0	1.3	1.1
035	PP 4	0 - 2.0	0.2	0.3
036		2.0 - 3.0	6.5	1.0
037	PP 8	0 - 2.0	0.1	0.2
038		2.0 - 4.0	1.6	0.2
039		4.0 - 4.6	0.3	0.1
040	PP 12	0 - 2.0	2.5	0.2
041		2.0 - 4.0	0.9	0.1
042		4.0 - 5.3	1.1	0.1
043	PP 16	0 - 2.0	Trace	0.2
044		2.0 - 4.0	Trace	0.2
045		4.0 - 6.0	0.1	0.2
046		6.0 - 8.0	0.6	0.2
047		8.0 - 8.4	0.5	0.2
048	PP 20	0 - 2.0	0.1	0.2
049		2.0 - 4.0	0.2	0.2
050		4.0 - 6.0	0.1	0.3
051		6.0 - 8.0	2.6	0.2
052		8.0 - 9.2	2.2	0.1
053	PP 24	0 - 2.0	0.3	0.2
054		2.0 - 4.0	0.5	0.2
055		4.0 - 6.0	2.3	0.3

Metallurgist .....

(P.L. James) for
Chief Chemist & Metallurgist

Fee $336·00

Telephone (003) 44 2431 Fax (003) 44 6565

DEPARTMENT OF MINES 539028

TASMANIA

Launceston Office:
Chemical and Metallurgical Laboratory,
287 Wellington Street,
LAUNCESTON 7249

Enquiries:
Phone:
Your ref.:
Our file:

Peter H. Stitt Pty Ltd
5th Floor
32 York Street
Sydney 2000

4.7.89

Reg. Nos 893056-154 & 893262-280

Dear Sir,

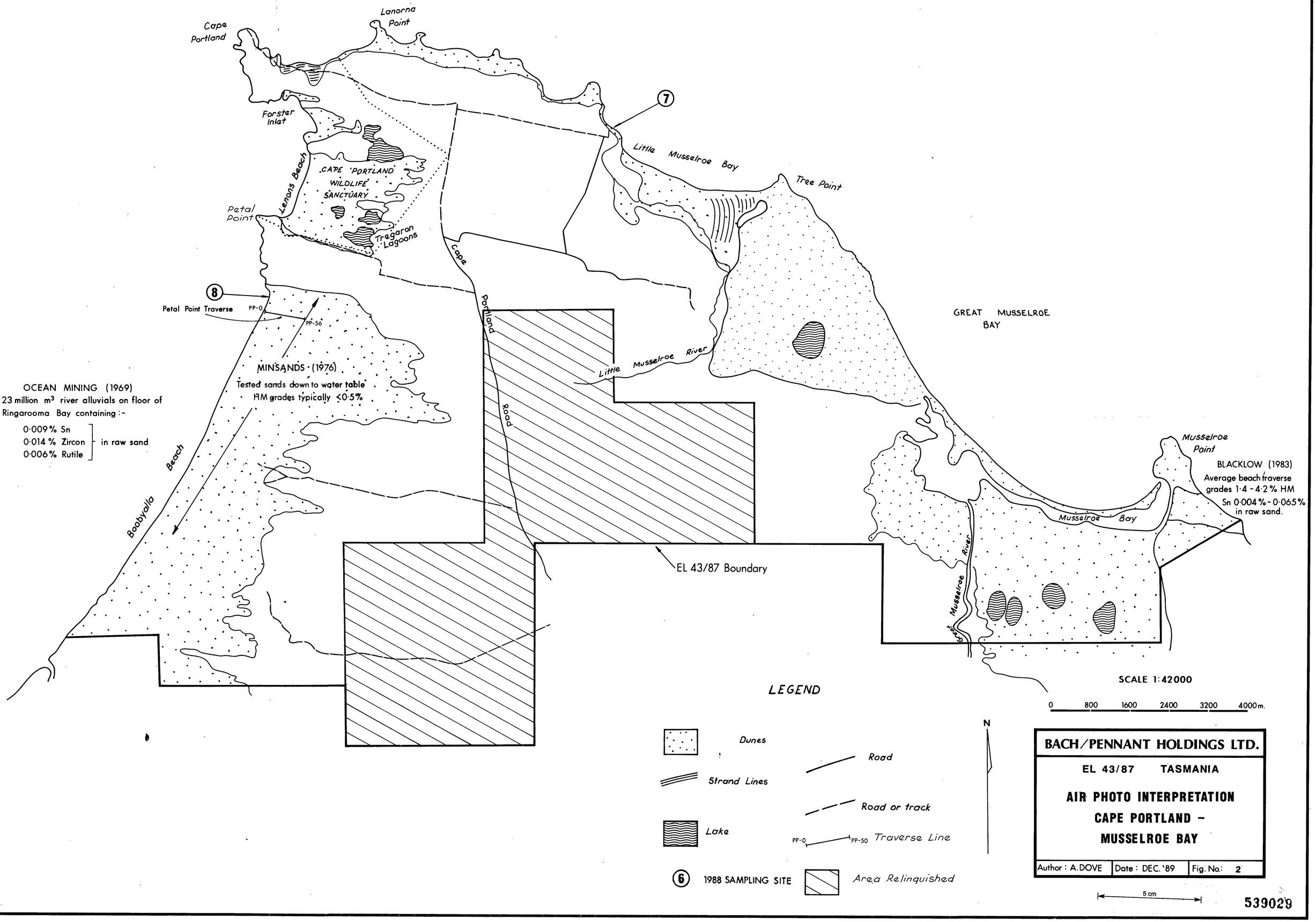
Please find below results of samples submitted to this laboratory.

Reg. No	Desc.		% + 1.00mm	% Heavy Minerals
893056	PP 24	6.0 - 7.3	8.5	0.1
057	PP 28	0 - 2.0	0.2	0.2
058		2.0 - 4.0	0.1	0.2
059		4.0 - 6.0	0.2	0.2
060		6.0 - 7.2	5.9	0.2
061	PP 32	0 - 2.0	0.3	0.3
062		2.0 - 4.0	0.4	0.3
063		4.0 - 6.0	16.0	0.1
064		6.0 - 8.0	10.1	0.1
065		8.0 - 9.8	1.6	0.2
066	PP 40	0 - 2.0	0.1	0.2
067		2.0 - 4.0	8.0	0.2
068		4.0 - 5.0	35.7	0.1
069	PP 48	0 - 2.0	1.2	0.2
070		2.0 - 4.0	27.0	0.2
071		4.0 - 6.0	26.0	0.2
072		6.0 - 8.0	5.8	0.1
073		8.0 -10.0	1.0	0.1
074	PP 56	0 - 2.0	0.2	0.3
075		2.0 - 4.0	0.2	0.4
076		4.0 - 6.0	2.5	0.3
077		6.0 - 6.3	1.2	0.4

[redacted]

Telephone (003) 44 2431 Fax (003) 44 6565

9050


Cape Portland
Lanorna Point
Forster Inlet
Lemons Beach
CAPE PORTLAND WILDLIFE SANCTUARY
Petal Point
Tregaron Lagoons
7
Little Musselroe Bay
Tree Point
GREAT MUSSELROE BAY
8
Petal Point Traverse
PP-0
PP-56
MINSANDS · (1976)
Tested sands down to water table
HM grades typically <0·5%
OCEAN MINING (1969)
23 million m³ river alluvials on floor of Ringarooma Bay containing :-
0·009 % Sn
0·014 % Zircon
0·006 % Rutile
in raw sand
Baobyalla Beach
Cape Portland Road
Little Musselroe River
EL 43/87 Boundary
Musselroe Point
BLACKLOW (1983)
Average beach traverse grades 1·4 - 4·2 % HM
Sn 0·004 % - 0·065 % in raw sand.
Musselroe Bay
Musselroe River
Great Musselroe
SCALE 1:42000
0 800 1600 2400 3200 4000 m.
LEGEND
Dunes
Strand Lines
Lake
Road
Road or track
PP-0 PP-50 Traverse Line
6 1988 SAMPLING SITE
Area Relinquished
N
BACH/PENNANT HOLDINGS LTD.
EL 43/87 TASMANIA
AIR PHOTO INTERPRETATION
CAPE PORTLAND - MUSSELROE BAY
Author : A.DOVE
Date : DEC. '89
Fig. No.: 2
5 cm
539029