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REPORT ON LOUISA BAY HEAVY MINERAL SANDS

SPECIAL PROSPECTING LICENCE NO. 68, SOUTH TASMANIA

Geotechnics (Aust) Pty. Ltd.
70 Pitt Street,
Sydney, 2000
NEW SOUTH WALES

2nd September, 1970

demegaard

AMG REFERENCE POINTS ADDED

SUMMARY AND CONCLUSIONS

Two beaches at Louisa Bay on the south coast of Tasmania (Fig. 1) were explored for heavy mineral deposits of rutile, ilmenite, zircon and associated minerals.

The western beach has a relatively high heavy mineral content in small tonnages of sand deposits whereas the eastern beach contains low grades of heavy minerals in large tonnages of beach and dune sands.

The beach in western Louisa Bay (Plate I) contains an estimated 16,500 tons of heavy minerals to give 5,700 tons of ilmenite and 125 tons of rutile in sands averaging 16.3% heavy minerals.

The southern part of the beach in eastern Louisa Bay (Plate II) contains approximately 6,080 tons of heavy minerals to give 1,500 tons of ilmenite and 36 tons of rutile in sands averaging 1.5% heavy minerals.

The total tonnage of heavy minerals in the two beaches indicated by drilling is not large enough to form a commercial heavy mineral deposit . It is possible that

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additional low grade heavy mineral deposits may be present in the eastern beach and dune sand deposits not tested so far which could provide a small profitable mining operation.

In order to assess the commercial potential of the remaining areas on the eastern beach, additional reconnaissance drilling is recommended.

Aerial photographs of the coastal plains around eastern Louisa Bay show evidence of stranded shorelines which may contain heavy mineral deposits of possible commercial significance. This part of the area is outside SPL 68 and a preliminary inspection is recommended to determine whether the special prospectors licence area should be extended to include these shorelines.

RECOMMENDATIONS

The remaining beach and dunal sand deposits of east Louisa Bay should be tested by further reconnaissance hand auger drilling to complete the preliminary assessment of the area.

Approximately 7 holes for 210 feet are recommended

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along two traverses as shown on Plate II. Time estimated for this programme is about 4 days.

The stranded shorelines on the coastal plains around the eastern beach should be inspected for shorelines containing heavy mineral concentrations of possible commercial significance. Anticipated time for a preliminary inspection is 2 days.

INTRODUCTION

Heavy mineral concentrations are present in beach sands of Louisa Bay on the south coast of Tasmania about 90 miles by sea southwest of Hobart. The Louisa Bay Mining Corporation N.L. holds a special prospectors licence No. 68 of 4.5 square miles over Louisa Bay. The licence allows for exploration within the confines of the licence boundary for beach sands containing ilmenite, rutile, zircon and associated minerals.

The area was examined from the air on 9th November, 1969 and was inspected on the ground on 11th November, 1969 by Y. Miezitis of Geotechnics (Aust) Pty. Ltd.

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A scout drilling programme of the heavy mineral bearing sands in Louisa Bay was completed (by Geotechnics (Aust) Pty. Ltd.) during 22nd - 23rd March, 1970. A total of 38 samples were taken from 27 hand auger holes bored for a total length of 199 feet.

PHYSIOGRAPHY

The two main beaches on the western and eastern sides of Louisa Bay are separated by a rocky coastline and small beaches in the north.

Sea cliffs about 50 feet high extend around the northern and western perimeter of Louisa Bay, and similar elevations extend inland for half a mile grading to steeply rising hill country.

The eastern Louisa Bay coastline contains a smooth curved sand spit built across the Louisa River mouth and extending as a land bridge to Louisa Island. High foredunes have been formed over the beach areas to the north and also extend over land areas to the east. The Louisa River flows south along the edge of a north trending scarp which appears to be an inland continuation of the sea cliffs fringing

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northern and western Louisa Bay. The River drains the northwestern edge of a low-lying plain which extends southwards parallel to the coast for 3 miles and inland for about one mile at elevations between 20 and 25 feet above sea level. Higher more dissected hill country then extends inland as foothills of the Ironbound Range.

GEOLOGICAL SETTING

GENERAL

Metamorphosed Precambrian schists comprise the bedrock which crops out in the immediate Louisa Bay area. Beach sand and dune sand accumulations of Recent Age are dispersed around the Louisa Bay coast and aeolian and alluvial sediments veneer areas of the coastal plains.

QUATERNARY DEPOSITS

The Quaternary deposits comprise medium grained, rounded to subangular sands, with minor gravels and shell beds found on the eastern beach. The depth of the sand over bedrock varies from an average 6 feet on the western beach to at least 25 feet on the eastern beach. Foredunes behind

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the eastern beach have an estimated height of 60 feet. On the western beach the foredunes are only 6 feet deep.

Drill holes placed up to 300 feet inland from the western beach of Louisa Bay contained mixed fluvial, soil and wind blown sand accumulations overlying bedrock to depths of 2 feet. Sedimentary deposits overlying sea cliffs south from East Louisa Bay are of a similar composition.

THE CONCENTRATION AND ORIGIN OF HEAVY MINERALS

Concentrations of heavy minerals on the present day beaches are probably a result of wave action.

Two other trends in the heavy mineral concentrations were noted :-

1. Concentrations were higher near the river outlets.
2. The greatest concentrations were on the western side of Louisa Bay. This factor can be best explained by the dominant westerly winds removing lighter sand fractions to the eastern side, enriching sands of the western beach in the heavier fractions.

The origin of the heavy minerals is unknown, but may have been derived from the Precambrian schist.

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HEAVY MINERAL DEPOSITS

WEST LOUISA BAY

A sand beach on the western side of Louisa Bay is over 1800 feet long with an average width of 92 feet (Plate I). Over the southern half of the beach, sand deposits extend inland for 100 feet over a length of 1000 feet. Over the northern 800 foot length of the beach, sand deposits terminate at the foot of sea cliffs rising up to 70 feet. Two small streams flow through the dune and beach areas and discharge into Louisa Bay.

Hand auger holes were drilled across the beach and dune areas along two traverses 600 feet apart with holes spaced at 50 feet. Nine more auger holes were bored along the beach line at 200 feet intervals.

The average depth of beach and dune sand is 6 feet. The thickness of sand deposits ranges from a maximum of 10 feet to a minimum of 3 feet. The greatest depths of sand were found near the two small streams in the south half of the beach. Average depth of sand cover is shallow in the northern half of the beach where the bedrock is close to the surface.

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The volume and the tonnage of sand in the beach and dune areas of West Louisa Bay was estimated from the hand auger results using a conversion factor of 20 cubic feet of sand equivalent to 1 ton.

The total tonnage of sand is about 90,000 tons.

Representative sand samples were taken for every 5 foot of hole drilled, or to the nearest portion, and the heavy mineral percentages of these samples are shown in the hand auger logs, and also in Plates I and II. The highest grade obtained is 53.00% H.M. and the lowest value is 0.20% H.M. The average grade of heavy mineral is 16.30% (by weight) for a total of 129 feet drilled. A heavy mineral seam with an average concentration of 28.80% H.M. was located in the upper parts of most of the south half of the beach. This seam extends beneath the foredune for a distance of 50 to 60 feet. Large heavy mineral percentages were also obtained near the outlets of the two streams.

The total tonnage of heavy minerals is 16,600tons.

Results for analysis of the heavy mineral fractions are tabulated in Appendix 1. The heavy mineral fraction

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contains an average of 34.35% ilmenite and 0.76% rutile. The remaining fractions were not identified. The chrome content in the ilmenite was determined in two samples and averaged 247 ppm.

The total tonnage of ilmenite and rutile in West Louisa Bay is 5,700 tons and 125 tons respectively.

EAST LOUISA BAY

The eastern beach of Louisa Bay extends in a broad curve for 6,000 feet from Louisa Bay Island in the south and to sea cliffs in the north. The beach area averages 600 feet in width between Louisa Bay and the Louisa River. Overlying the northern third of the beach are dunes up to 50 feet high. Along the eastern bank of the Louisa River, similar dunal areas up to 60 feet in height extend inland for 3000 feet.

The main heavy mineral concentrations appear to occur at the south end of the beach near the outlet of the Louisa River. Two traverses of 3 drill holes each were placed 600 feet apart across the sand spit at the south end of the beach. The holes were spaced at intervals of

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300 feet along the traverses.

Bedrock was intersected in Hole 1 at 25 feet. In shallower drill holes 2 to 6, bedrock was not intersected. Rock outcrops on the east bank of the Louisa River suggest a gradual shallowing of the depth of sand from west to east. Cross sections of the hand auger holes indicate an average depth of between 25 feet on the western side to 20 feet on the eastern side.

At the south end of the beach the indicated volume of sand is 400,000 tons.

Samples taken from the auger holes showed the average grade of heavy mineral is 1.52% (by weight) for a total of 70 feet drilled. The heavy mineral grades tend to increase slightly to the east and south nearer the mouth of the Louisa River.

The total tonnage of heavy minerals is 6080 tons.

The heavy mineral fraction contains an average of 24.4% ilmenite and 0.6% rutile. The chrome content of the ilmenite was 332 ppm.

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The total tonnage of ilmenite and rutile at the south end of East Louisa Bay is 1,500 tons and 36 tons respectively.

The remaining sections of the beach were reconnoitred but not drilled. No further heavy mineral concentrations were seen. Assuming that the beach areas over the remaining length of East Louisa Bay contain similar depths of sand, and if the sand dunes at the north end of the beach are included a further 7 million tons of sand may be found.

GEOTECHNICS (AUST) PTY. LTD.

for H.J. WARD
Managing Director

2nd September, 1970.

Plates:

I Scout drilling map of W. Louisa Bay
IA W. Louisa Bay Cross Section 00NS to 1800N
II E. Louisa Bay
IIA E. Louisa Bay Cross Section 00NS to 600N

APPENDIX 1

APPENDIX 1.

ANALYSIS OF HEAVY MINERAL FRACTIONS

LOCATION	HOLE NO.	SAMPLE NO.	DEPTH INTERVAL	HEAVY MINERAL PERCENTAGE	HEAVY MINERAL FRACTIONS		
					ILMENITE%	RUTILE%	CHROME ppm
W.Louisa Bay	1	69466A	0' - 4'	14.60 (15.8)	39.0	0.4	
W.Louisa Bay	2	69467A	0' - 4'	8.20			
W.Louisa Bay	3	69468A	0' - 3'	13.20	14.8	0.3	
W.Louisa Bay	4	69469A	0' - 4'	31.70	33.4	0.6	
W.Louisa Bay	5	69470A	0' - 4'	1.20			
W.Louisa Bay	6	69474A	0' - 6'	1.10			
W.Louisa Bay	7	69475A	0' -4'	4.80	19.7	1.7	
W.Louisa Bay	8	69476A	0' -10'	4.10	29.6	Tr.	
W.Louisa Bay	9	69477A	0' - 10'	2.80			
W.Louisa Bay	10	69478A	0' - 3'	0.20			
W.Louisa Bay	11	69471A	0' - 4'	13.40			
W.Louisa Bay	12	69472A	0' - 5'	4.00			
W.Louisa Bay	12	69479A	5' - 7'	31.00			
W.Louisa Bay	13	69482A	0' - 5'	5.90	48.4	0.7	
W.Louisa Bay	13	69483A	5' - 10'	18.50	33.6	Tr.	
W.Louisa Bay	14	69480A	0' - 5'	36.40 (31.5)	36.5	0.5	300
W.Louisa Bay	14	69481A	5' - 8'	42.00			
W.Louisa Bay	15	69489A	0' - 5'	53.00 (49.0)	34.0 (37.5)	0.6 (0.5)	
W.Louisa Bay	15	69490A	5' - 10'	37.00	36.7	0.6	
W.Louisa Bay	16	69491A	0' - 5'	4.60			
W.Louisa Bay	17	69484A	0' - 10'	39.60	42.4	1.0	
W.Louisa Bay	18	69485A	0' - 5'	27.90			
W.Louisa Bay	20	69486A	0' - 8'	14.80			
W.Louisa Bay	21	69487A	0' - 5'	15.60	30.9	0.9	
W.Louisa Bay	22	69488A	0' - 5'	12.90			194

APPENDIX 1.

ANALYSIS OF HEAVY MINERAL FRACTIONS

LOCATION	HOLE NO.	SAMPLE NO.	DEPTH INTERVAL	HEAVY MINERAL PERCENTAGE	HEAVY MINERAL FRACTIONS		
					ILMENITE%	RUTILE%	CHROME ppm
E.Louisa Bay	1	69452A	0' - 5'	0.60			
E.Louisa Bay	1	69453A	5' -10'	0.65			
E.Louisa Bay	1	69454A	10' - 15'	0.52			
E.Louisa Bay	1	69455A	15' - 20'	1.21			
E. Louisa Bay	1	69458A	20' - 25'	2.10	8.8	Tr.	
E.Louisa Bay	2	69457A	0' - 5'	0.30			
E.Louisa Bay	3	69459A	0' - 5'	1.60	25.4	0.7	
E.Louisa Bay	3	69460A	5' - 10'	0.72			
E.Louisa Bay	4	69464A	0' - 5'	1.20			
E.Louisa Bay	4	69465A	5' - 10'	1.50			
E.Louisa Bay	5	69463A	0' - 10'	2.50			
E.Louisa Bay	6	69461A	0' - 5'	3.30			
E.Louisa Bay	6	69462A	5' - 10'	2.70 (2.62)	39.1 (22.5)	Tr. (0.5)	332

NOTE: Results of Check Assays Shown in Brackets.

APPENDIX 2

016

969017

AREA : WEST LOUISA BAY

PROJECT NO. : P512.2 HOLE NO. : 1

LOGGED BY : G. HOLDGATE CO-ORDS : OON
OOW

DEPTH From	DEPTH To	DESCRIPTION
0'	4'	Brown beach sand, schist bedrock at 4 feet.

		SAMPLE NO.	H.M.%	H.M. FRACTION	
				Ilmenite%	Rutile%
0'	4'	69466A	14.60	39.0	0.4

AREA : WEST LOUISA BAY

PROJECT NO. : P512.2 HOLE NO. : 2

LOGGED BY : G. HOLDGATE CO-ORDS : 100N 00W

DEPTH From	DEPTH To	DESCRIPTION
0'	4'	Light brown sand, schist bedrock at 4 feet.

DEPTH From	DEPTH To	SAMPLE NO.	H.M.%
0'	4'	69467A	8,20

018

969019

AREA : WEST LOUISA BAY

PROJECT NO. : P512.2 HOLE NO. : 3

LOGGED BY : G. HOLDGATE CO-ORDS : 200N 100E

DEPTH From	DEPTH To	DESCRIPTION
0'	3'	Light brown sand, schist bedrock at 3 feet.

		SAMPLE NO.	H.M.%	H.M. FRACTION	
				Ilmenite%	Rutile%
0'	3'	69468A	13.10	14.8	0.3

019

969020

AREA : WEST LOUISA BAY

PROJECT NO. : P512.2 HOLE NO. : 4

LOGGED BY : G. HOLDGATE CO-ORDS : 200N 50E

DEPTH From	DEPTH To	DESCRIPTION
0'	4'	Light brown sand, schist bedrock at 4 feet.

		SAMPLE NO.	H.M.%	H.M. FRACTION	
				Ilmenite%	Rutile%
0'	4'	69469A	31.70	33.4	0.6

020

969021

AREA : WEST LOUISA BAY

PROJECT NO. : P512.2 HOLE NO. : 5

LOGGED BY : G. HOLDGATE CO-ORDS : 200N
OOW

DEPTH		DESCRIPTION
From	To	
0'	4'	Light brown sand, schist bedrock at 4feet.

		SAMPLE NO.	H.M.%
0'	4'	69470A	1.20

021

969022

AREA : WEST LOUISA BAY

PROJECT NO. : P512.2 HOLE NO. : 6

LOGGED BY : G. HOLDGATE CO-ORDS : 200N 50W

DEPTH		DESCRIPTION
From	To	
0'	6'	Light brown sand and alluvium - schist bedrock at 6 feet.

		SAMPLE NO.	H.M.%
0'	6'	69474A	1.10

022

969023

AREA : WEST LOUISA BAY

PROJECT NO. : P512.2 HOLE NO. : 7

LOGGED BY : G. HOLDGATE CO-ORDS : 200N 100W

DEPTH From	DEPTH To	DESCRIPTION
0'	4'	Black peat and sand, schist bedrock at 4 feet. Water table at 0 feet.

DEPTH From	DEPTH To	SAMPLE NO.	H.M.%	H.M. FRACTION Ilmenite%	H.M. FRACTION Rutile%
0'	4'	69475A	4.80	19.7	1.7

023

969024

AREA : WEST LOUISA BAY

PROJECT NO. : P512.2 HOLE NO. : 8

LOGGED BY : G. HOLDGATE CO-ORDS : 200N 150W

DEPTH From	DEPTH To	DESCRIPTION
0'	10'	Black peat, sand and gravel, schist bedrock at 10 feet. Water table at 0 feet.

DEPTH From	DEPTH To	SAMPLE NO.	H.M.%	H.M. FRACTION Ilmenite%	H.M. FRACTION Rutile%
0'	10'	69476A	4.10	29.6	Tr.

024

969025

AREA : WEST LOUISA BAY

PROJECT NO. : P512.2 HOLE NO. : 9

LOGGED BY : G. HOLDGATE CO-RDS : 200N
200W

DEPTH		DESCRIPTION
From	To	
0'	10'	White sand, alluvium and gravel, schist bedrock at 10 feet. Water table at 0 feet.

		SAMPLE NO.	H.M.%
0'	10'	69477A	2.00

025

969026

AREA : WEST LOUISA BAY

PROJECT NO. : P512.2 HOLE NO. : 10

LOGGED BY : G. H[illegible]LDGATE CO-ORDS : 200N 250W

DEPTH		DESCRIPTION
From	To	
0'	3'	Peat, gravel and sand, schist bedrock at 3 feet. Water table at 0 feet.

		SAMPLE NO.	H.M.%
0'	3'	69478A	0.20

026

969027

AREA : WEST LOUISA BAY

PROJECT NO. : P512.2 HOLE NO. : 11

LOGGED BY : G. HOLDGATE CO-ORDS : 400N
00W

DEPTH		DESCRIPTION
From	To	
0'	4'	Light brown sand, schist bedrock at 4 feet.

		SAMPLE NO.	H.M.%
0'	4'	69471A	13.40

027

969028

AREA : WEST LOUISA BAY

PROJECT NO. : P512.2 HOLE NO. : 12

LOGGED BY : G. HOLDGATE CO-ORDS : 600N
00W

DEPTH		DESCRIPTION
From	To	
0'	5'	Light brown sand, water table at 5 feet.
5'	7'	Medium black sand, schist bedrock at 7 feet.

		SAMPLE NO.	H.M.%
0'	5'	69472A	4.00
5'	7'	69479A	31.00

028

969029

AREA : WEST LOUISA BAY

PROJECT NO. : P512.2 HOLE NO. : 13

LOGGED BY : G. HOLDGATE CO-ORDS : 800N 50E

DEPTH From	DEPTH To	DESCRIPTION
0'	5'	Dark grey sand. Water table at 5 feet.
5'	10'	Light grey sand.

DEPTH From	DEPTH To	SAMPLE NO.	H.M.%	H.M. FRACTION Ilmenite%	H.M. FRACTION Rutile%
0'	5'	69482A	5.90	48.4	0.7
5'	10'	69483A	18.50	33.6	Tr.

029

969030

AREA : WEST LOUISA BAY

PROJECT NO. : P512.2 HOLE NO. : 14

LOGGED BY : G. HOLDGATE CO-ORDS : 800N 00W

DEPTH From	DEPTH To	DESCRPPTION
0'	5'	Light brown sand.
5'	8'	Dark grey sand, schist bedrock at 8 feet. Water table at 7 feet.

DEPTH From	DEPTH To	SAMPLE NO.	H.M.%	H.M. FRACTION Ilmenite%	Rutile%	Chrome%
0'	5'	69480A	36.40	36.5	0.5	0.0300
5'	8'	69481A	42.00	-	-	-

030

969031

AREA : WEST LOUISA BAY

PROJECT NO. : P512.2 HOLE NO. : 15

LOGGED BY : G. HOLDGATE CO-ORDS : 800N 50W

DEPTH		DESCRIPTION
From	To	
0'	5'	Light grey sand.
5'	10'	Light grey sand, schist bedrock at 10 feet.

DEPTH		SAMPLE NO.	H.M.%	H.M. FRACTION	
				Ilmenite%	Rutile%
0'	5'	69489A	53.00	34.0	0.6
5'	10'	69490A	37.00	36.7	0.6

031

969032

AREA : WEST LOUISA BAY

PROJECT NO. : P512.2 HOLE NO. : 16

LOGGED BY : G. HOLDGATE CO-ORDS : 800N 100W

DEPTH		DESCRIPTION
From	To	
0'	5'	Brown sand - schist bedrock at 5 feet.

		SAMPLE NO.	H.M.%
0'	5'	69491A	4.60

032

969033

AREA : WEST LOUISA BAY

PROJECT NO. : P512.2 HOLE NO. : 17

LOGGED BY : G. HOLDGATE CO-ORDS : 1000N
00W

DEPTH From	DEPTH To	DESCRIPTION
0'	10'	Dark grey sand, schist bedrock at 10 feet.

DEPTH From	DEPTH To	SAMPLE NO.	H.M.%	H.M. FRACTION Ilmenite%	H.M. FRACTION Rutile%
0'	10'	69484A	39.60	42.4	1.0

033

969034

AREA : WEST LOUISA BAY

PROJECT NO. : P512.2 HOLE NO. : 18

LOGGED BY : G. HOLDGATE CO-ORDS : 1200N 00W

DEPTH		DESCRIPTION
From	To	
0'	5'	Dark grey sand and pebbles, schist bedrock at 5 feet.

		SAMPLE NO.	H.M.%
0'	5'	69485A	27.90

034

969035

AREA :WEST LOUISA BAY

PROJECT NO. : P512.2 HOLE NO. : 19

LOG ED BY : G. HOLDGATE CO-ORDS : 140ON
OOW

DEPTH		DESCRIPTION
Froj	To	
O'	6"	Sand, bedrock at 6 inches.

035

969036

AREA : WEST LOUISA BAY

PROJECT NO. : P512.2 HOLE NO. : 20

LOGGED BY : G. HOLDGATE CO-ORDS : 1500N
OOW

DEPTH		DESCRIPTION
From	To	
0'	8'	Dark grey sand andppebbles, schist bedrock at 8 feet.

		SAMPLE NO.	H.M.%
0'	8'	69486A	14.80

036

969037

AREA : WEST LOUISA BAY

PROJECT NO. : P512.2 HOLE NO. : 21

LOGGED BY : G. HOLDGATE CO-ORDS : 1600N 00W

DEPTH From	DEPTH To	DESCRIPTION
0'	5'	Light grey sand, schist bedrock at 5 feet.

DEPTH From	DEPTH To	SAMPLE NO.	H.M.%	H.M. FRACTION Ilmenite%	H.M. FRACTION Rutile%
0'	5'	69487A	15.60	30.9	0.9

037

969038

AREA : WEST LOUISA BAY

PROJECT NO. : P512.2 HOLE NO. : 22

LOGGED BY : G. HOLDGATE CO-ORDS : 1800N 00W

DEPTH From	DEPTH To	DESCRIPTION
0'	5'	Light grey sand, schist bedrock at 5 feet.

DEPTH From	DEPTH To	SAMPLE NO.	H.M.%	H.M. FRACTION Ilmenite%	Rutile%	Chrome%
0'	5'	69488A	12.90	-	-	0.0194

038

969039

AREA : EAST LOUISA BAY

PROJECT NO. : P512.2 HOLE NO. : 1

LOGGED BY : G. HOLDGATE CO-ORDS : 600N 300W

DEPTH From	DEPTH To	DESCRIPTION
0'	5'	Light brown sand. Water table at 2 feet 6 inches.
5'	10'	Medium black sand.
10'	15'	Medium black sand.
15'	20'	Medium black sand.
20'	25'	Dark black sand, Schist bedrock at 25 fee

		SAMPLE NO.	H.M.%	H.M. FRACTION		
				Ilmenite%	Rutile%	Chrome
0'	5'	69452A	0.60	-	-	
5'	10'	69453A	0.65	-	-	
10'	15'	69454A	0.52	-	-	
15'	20'	69455A	1.21	-	-	
20'	25'	69458A	2.10	8.8	Tr,	

039

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AREA : EAST LOUISA BAY

PROJECT NO. : P512.2 HOLE NO. : 2

LOGGED BY : G. HOLDGATE CO-ORDS : 600N
00W

DEPTH		DESCRIPTION
From	To	
0'	5'	Light brown sand.Water table at 2 feet.

		SAMPLE NO.	H.M.%
0'	5'	69457A	0.30

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969041

AREA : EAST LOUISA BAY

PROJECT NO. : P512.2 HOLE NO. : 3

LOGGED BY : G. HOLDGATE CO-ORDS : 600N 300E

DEPTH From	DEPTH To	DESCRIPTION
0'	5'	Light brown sand. Water table at 2 feet.
5'	10'	Light brown sand.

DEPTH From	DEPTH To	SAMPLE NO.	H.M.%	H.M. FRACTION Ilmenite%	H.M. FRACTION Rutile%
0'	5'	69459A	1.60	25.4	0.7
5'	10'	69460A	0.72	-	-

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969042

AREA :EAST LOUISA BAY

PROJECT NO. : P512.2 HOLE NO. : 4

LOGGED BY : G. HOLDGATE CO-ORDS : OON 300W

DEPTH		DESCRIPTION
From	To	
0'	5'	Light brown sand. Water table at 1 foot 6 inches.
5'	10'	Light grey sand.

		SAMPLE NO.	H.M.%
0'	5'	69464A	1.20
5'	10'	69465A	1.50

042

969043

AREA : EAST LOUISA BAY

PROJECT NO .: P512.2 HOLE NO. : 5

LOGGED BY : G. HOLDGATE CO-ORDS : OON
OOW

DEPTH		DESCRIPTION
From	To	
0'	10'	Light brown sand. Water table at 1 foot 6 inches.

		SAMPLE NO.	H.M.%
0'	10'	69463A	2.50

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AREA : EAST LOUISA BAY

PROJECT NO. : P512.2 HOLE NO. : 6

LOGGED BY : G. HOLDGATE CO-ORDS : 00N 300E

DEPTH From	DEPTH To	DESCRIPTION
0'	5'	Light brown sand. Water table at 1 foot.
5'	10'	Light brown sand.

DEPTH From	DEPTH To	SAMPLE NO.	H.M.%	H.M. FRACTION Ilmenite%	Rutile%	Chrome%
0'	5'	69461A	3.30	-	-	-
5'	10'	69462A	2.70	39.1	Tr.	0.0332

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Lodged by W.B. Forster 22/1/70

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SPL 68

REPORT ON LOUISA BAY HEAVY MINERAL SANDS, SPECIAL PROSPECTORS LICENCE NO. 68 SOUTH-WEST TASMANIA.

SUMMARY

Special prospectors licence No. 68 covers 4.5 square miles of Louisa Bay in southwestern Tasmania and is held by Sub-Oceanic Mining Corporation N.L. Heavy mineral concentrations averaging at around 15.13% are confined to the western beach which is about 700 to 800 yards long.

The eastern beach is about 2,500 yards in length but heavy mineral concentrations are confined to a short stretch of some 200 yards at the southern end of the spit.

At this stage the heavy mineral reserves on the western beach alone are too small to support an economic mining operation. Substantial reserves of additional ilmenite and rutile would have to be found before a mining proposition can be considered.

A closer reconnaissance and scout drilling of the eastern beach is recommended to assess the economic potential.

Scout drilling of the western beach is also recommended.

INTRODUCTION

Heavy mineral concentrations occur on south coast of Tasmnia about 90 miles by sea south-west of Hobart. Sub-Oceanic Mining Corporation N.L. holds a special prospectors licence No. 68 of 4.5 square miles over Louisa Bay. The area was examined from air on 9th November, 1969 and was inspected on ground on 11th November, 1969 by Geotechnics (Aust.) Pty. Ltd.

THE BEACHES AND HEAVY MINERAL DEPOSITS.

Two beaches are present in Louisa Bay.

The western beach is 700 to 800 yards long and 50 to 80 yards wide. Depth of the beach sands and the distance of inland extension of dunes and the possible occurrence of former shorelines is not known.

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Concentrations of heavy minerals are visible on the present beach and eight grab samples were collected and submitted for examination of the heavy mineral fraction. The samples were split and one portion was forwarded to Geochemical and Mineralogical Laboratories Pty. Ltd. The other portion was submitted to Cargo Superintendents Co. (A'asia) Pty. Ltd. Results of the analyses are listed in the table below, with results obtained from Geochemical and Mineralogical Laboratories Pty. Ltd. shown in brackets.

Sample No.	Depth	% H.M. (by weight)	Cargo Surveyors.	Geochemical & Mineralogical Lab.		Remarks
69326A	0-3'	4.4 (3.31)	30.6%	(15.5%)	Ilmenite	South end of west beach
			1.1%	(1.0%)	Rutile	
			1.6%	(Nil%)	zircon	
			45.9%	(32.0%)	garnet	
			20.8%	-	others	
69322A	0-3'	28.4 (25.29)	42.1%	(34.5%)	Ilmenite	Samples taken 200 yards north across the beach
			0.4%	(1.0%)	rutile	
			2.1%	(Tr%)	zircon	
			48.1%	(50.0%)	garnet	
			7.3%	-	others	
69323A	0-3'	35.0 (35.20)				
69324A	0-3'	9.8 (7.79)	27.9%	(11.5%)	Ilmenite	
			1.1%	(0.5%)	rutile	
			1.2%	(0.5%)	zircon	
			46.4%	(32.5%)	garnet	
			23.4%	-	others	
			0.044%	-	chromium in ilmenite fraction.	
69325A	0-3'	2.7 (3.39)				
69327A	0-3'	25.6 (24.70)				Sample taken 400 yds. north.

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Sample No.	Depth	% H.M. (by weight)				Remarks
69328A	0-3'	15.30 (15.00)	21.1%	(15.0%)	Ilmenite	
			2.3%	(Nil%)	Rutile	
			6.4%	(Tr%)	zircon	
			26.1%	(43.0%)	garnet	Sample
			44.1%	-	others	taken
69329A	0-3'	5.40 (6.34)	26.3%	(5.5%)	Ilmenite	600
			0.2%	(Tr%)	rutile	yards
			0.5%	(0.5%)	zircon	north
			49.5%	(19.0%)	garnet	
			23.5	-	others	
			0.04%	-	chromium in ilmenite fraction.	

The average heavy mineral content of the samples collected is 15.8% (15.13%)

The heavy mineral fraction contains an average of 29.6% (12.4%) ilmenite, 1.0% (0.5%) rutile, 2.5% (0.3%) zircon, 41.2% (38.8%) garnet, and the remainder of the fraction is made up of other heavy minerals not identified.

The eastern beach is 2,500 yards long and comprises a spit across the Louisa River about 250 yards wide. Five grab samples were collected in this area and with the exception of one sample, all contained low heavy mineral values.

Sample No.	Depth	% H.M. (by weight)		Remarks
69330A	0-18"	3.6	(4.37)	Samples
69331A	0-18"	2.1	(2.08)	taken
69333A	0-18"	3.5	(3.41)	across
69335A	0-18"	2.1	(1.43)	the spit

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Sample No.	Depth	% H.M. (by weight)				
69336A	0-1'	27.6 (27.3)	37.6%	(23.0%)	ilmenite	Sample taken south end of the spit
			0.6%	(0.25%)	rutile	
			1.3%	(Nil %)	zircon	
			39.6%	(34.5%)	garnet	
			20.9%	-	others	
			0.12%	-	chromium in ilmenite fraction.	

The high grade sample was collected from the southern end of the spit where the heavy mineral concentrations occur for a length of approximately 200 yards.

It is evident from the figures above that although there is a reasonable agreement on the heavy mineral fraction content determined by the two analysts, the ilmenite content in the fractions quoted by Cargo Superintendents is much higher than that give by Geochemical and Mineralogical Laboratories. Attention is drawn here to analyses on other samples collected from the western beach in Louisa Bay. Heavy minerals concentrates from five samples were bulked and examined by the Tasmanian Department of Mines. The composition of the composite sample was stated to comprise of the following contituents. ? from both West + East Louisa Bay ??

	% Weight in : Sand as Received	Heavy Mineral Concentrate
Ilmenite	10.7	38.0
Rutile	0.7	2.6
Zircon	0.7	2.4
Garnet	13.0	49.0
Cassiterite	Trace	0.02 (approx)
Others	74.9	8.0

Chromium content of the ilmenite was of the order of 0.03%.

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Two samples from this area were also analysed by R.K. Newman & Co. Pty. Ltd. A summary of their results is presented hereunder :

	Composition of the Heavy Mineral Fraction Samples 1801	Sample 1802	Ave
Ilmenite	33.9%	46.8%	40.35
Rutile	0.5%	0.3%	0.4
Zircon	2.1%	1.1%	1.6
Garnet	54.4%	44.7%	49.55

The ilmenite content as determined by Cargo Superintendents in samples collected by Geotechnics is much more comparable to earlier results obtained in this area than those given by Geochemical and Mineralogical Laboratories. The Geochemical and Mineralogical Laboratories have been requested to re-examine their results, however a reply is not expected for another 7 days. In the meantime, it seems reasonable to accept the results given by Cargo Superintendents as being more accurate.

A flat plain extends inland across Louisa River for 200 to 300 yards behind the eastern beach. Remnants of a backslope in this area suggest that former shorelines may be present. However, this part of the special prospectors licence application covers a scenic reserve and is still under consideration by the Department of Mines.

CONCLUSIONS & RECOMMENDATIONS

The heavy mineral concentrations on the western beach indicate that deposits of ore grade ilmenite could occur in this area. It is possible that the grade improves in depth but additional tonnages of heavy ilmenite would have to be found in this area before a mining proposition can be considered.

Furthermore, the chromium content in the ilmenite would have to be watched closely as some of the assays show amounts up to 0.12% which is above the acceptable level of 0.03%.

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Scout drilling is required in this area to obtain an estimate of potential ore tonnages. Further reconnaissance is also required to examine areas where former shore lines may be present. Further work is recommended as follows :

1. Scout drilling of the western beach is required to determine the depth of the heavy mineral concentrations. Traverses should be 800 feet apart and holes spaced as close as 50 feet. The traverses should extend inland to determine the width and depth of any further heavy mineral concentrations inland from the present beach. Some 15 to 30 holes totalling up to 600 feet of drilling may be required for this phase of the programme. Say 10 days for $2,500.

2. Closer reconnaissance of the eastern beach and the inland area of this is required to assess the economic potential. Some 10 scout holes for up to 200 feet may be required to determine whether heavy mineral concentrations improve in depth in selected areas of this beach. Say 4 days for $1,000.

The detailed reconnaissance and scout drilling may outline areas where additional drilling may be warranted.

GEOTECHNICS (AUST.) PTY. LTD.

Y. MINZITIS
Sydney Manager.

18.12.69

Louisa Mining Corp. Mines Dept.
(Sub Oceanic Mining) M. Forster?

PROGRESS REPORT ON HEAVY MINERAL DEPOSITS

969051

SPL.68 SOUTHERN TASMANIA

INTRODUCTION

Deposits of heavy minerals were investigated by aerial reconnaissance in Louisa Bay, southern Tasmania. Four surface samples taken indicated heavy mineral concentrations of possible commercial grade. Two days scout drilling using hand auger on the western bay of Louisa Bay was undertaken along with a scattered scout drilling programme on the eastern beach to determine possible quantity and grade of the heavy minerals.

(a) Western Louisa Bay

The western bay beach is 1,800 feet long with an average width of 92 feet. Drill holes were placed along a base line 00W at 200 foot intervals and two traverses at right angles to the beach line were drilled at positions 200 feet north and 800 feet north so as to extend east to the waters edge and westwards to determine the inland extension of the sand deposits.

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Steep rock outcrops extending westwards from the beach along the northern 1,000 feet meant drilling was limited only to the beach itself.

RESULTS : Drill hole data on the present beach showed an average depth of 6 feet before bedrock was intercepted. The indicated reserves of sand along this beach are estimated to be in the vicinity of 44,160 tons.

Auger drilling inland along traverses from the present beach showed an inland extension of sand dune deposits for an average width of 60 feet. The sand dunes extend for 1,000 feet in length. Drill hole data showed an average depth of sand to be 6 feet. The estimated quantity of sand is 15,840 tons.

Total tonnage of sand for western Louisa Bay is approximately 60,000 tons.

The heavy mineral fraction for drill holes on

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the beach contained an average grade of 19.22%. The estimated reserves of heavy minerals are 8,475 tons.

The heavy mineral fraction for drill holes on the sand dunes contained an average grade of 19.50%. The estimated reserves of heavy minerals are 3,088 tons. The total estimated reserves of heavy minerals for western Louisa Bay are 11,563 tons.

(b) Eastern Louisa Bay

The eastern beach of Louisa Bay is 2,500 yards long with an average width of 100 yards. The southern half is bounded to the east by the Louisa River; the northern half by 70 foot high bush covered sand dunes.

Further to the east of the Louisa Bay River, sand dune deposits may possibly extend for a distance of 1,000 yards. Two surface samples were taken during an aerial survey at the mouth of the Louisa River and contained heavy mineral concentrations.

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Six hand auger drill holes were drilled on the beach spit at the mouth of the Louisa River. The spit at this point was 200 yards wide. Two traverses of three drill holes each were placed 200 yards apart. The holes were spaced at intervals of 100 yards. Bedrock was not intercepted in any of the six drill holes, a maximum depth of 25 feet was reached in hole No. 1. The remaining holes, numbers 2 to 6, were drilled to 10 feet.

Heavy mineral fractions for drill holes 1 and 4 averaged 2.27%.

Further results are awaited.

Louisa Mining Corp (Sub Oceanic Mining) Mines Dept.. M. Forster? 969055

PROGRESS REPORT ON HEAVY MINERAL DEPOSITS

SPL.68 SOUTHERN TASMANIA

Shepherd

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M.N.

SEA CLIFFS

PARALLEL DUNES

PARALLEL DUNES

Base Line 00E-W

Base Line 00E-W

WEST LOUISA BAY

TRAVERSE B

TRAVERSE A

800N

200N

West Louisa Bay Stream

22 1800N 00W 0-5' 12·90

21 1600N 00W 0-5' 15·60

20 1500N 00W 0-8' 14·80

19 1400N 00W 0-6'

18 1200N 00W 0-5' 27·90

17 1000N 00W 0-10' 39·60

16 100W 0-5' 4·60

15 50W 0-5' 53·00 5-10' 37·00

14 800N 00W 0-5' 36·40 5-8' 42·00

13 50E 0-5' 5·90 5-10' 18·50

12 600N 00W 0-5' 4·00 5-7' 31·00

11 400N 00W 0-4' 13·40

3 100E 0-3' 13·20

4 50E

5 200N 00W 0-4' 31·70 0-4' 1·20

6 50W 0-6' 1·10

7 100W 0-4' 4·80

8 150W 0-10' 4·10

9 200W 0-10' 2·80

10 250W 0-3' 0·20

2 100N 00W 0-4' 8·20

1 000N 00W 0-4' 14·60

70 60 50 40 30 20 10 0

45°

50°

75°

REFERENCE

QUATERNARY

Beach and dune sand

PRECAMBRIAN

Schist, Quartzite

Strike and dip of schistosity

Geological boundary (approx.)

Hand auger hole

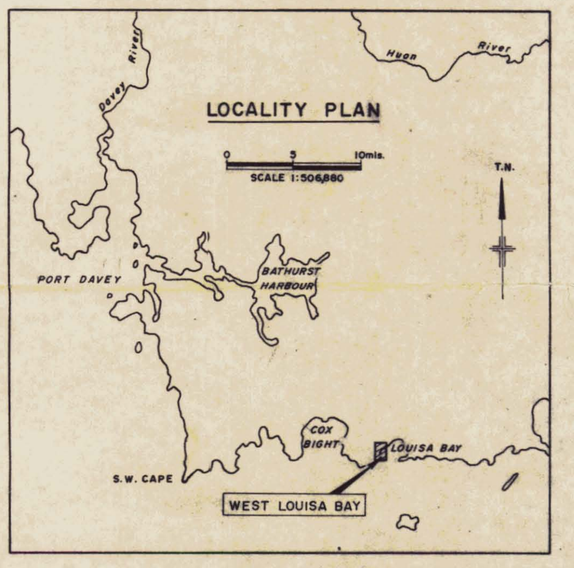
600N 00W — Auger hole co-ordinates in feet

0-5' — Hole sample depth interval in feet

4·00 — % heavy mineral fraction

70 60 — Form line intervals in feet (approximate)

5 cm



70-670

LOUISA BAY MINING CORPORATION N.L.

SCOUT DRILLING MAP OF WEST LOUISA BAY

LOUISA BAY

SOUTH COAST TASMANIA

0 100 200 300

SCALE: 1 INCH = 100 FEET

PROJECT No P 512·2		
	BY	DATE
DRAWN	G.H.	6.4.70
DRAFTED	E.W.	9.4.70
CHECKED	G.H.	28·5·70
APPROVED		
REVISED		

PLATE 1

969059 2151

250 W | 200 W | 150 W | 100 W | 50 W | 00 EW | 50 E | 100 E

1800 N — 12·90

1600 N — 15·60

1500 N — 14·80

1200 N — 27·90

1000 N — 39·60

800 N — 4·60; 53·00; 37·00; 36·40; 42·00; 5·90; 18·50

600 N — 4·00; 31·00

400 N — 13·40

200 N — 0·20; 2·80; 4·10; 4·80; 1·10; 1·20; 31·70; 13·20

100 N — 8·20

00 NS — 14·60

REFERENCE

QUATERNARY

Beach and dune sand

PRECAMBRIAN

Schist and quartzite

Geological boundary

Water table

2 / 8·20 — Hand auger hole with hole number and heavy mineral content (8·20%)

<0·50% heavy mineral content

0·50-1·00% heavy mineral content

1·00-5·00% heavy mineral content

>5·00% heavy mineral content

5 cm

70-670

LOUISA BAY MINING CORPORATION N.L.

WEST LOUISA BAY

HEAVY MINERAL DEPOSITS

CROSS SECTIONS

00NS TO 1800N

HORIZONTAL SCALE 1 INCH = 50'

VERTICAL SCALE 1 INCH = 20'

PROJECT Nº P512·2	BY	DATE
DRAWN	G.H.	1·6·70
DRAFTED	E.W.	22·6·70
CHECKED	G.H.	22·6·70
APPROVED		
REVISED		

PLATE I (A)

969060 2152

Louisa Creek

AMG
447200E
5182500N

LOUISA RIVER

LOUISA PLAINS

M.N.

BASE LINE 00EW

BASE LINE 00NS

EAST LOUISA BAY

LOUISA ISLAND

600N 300W	600N 00EW	600N 300E
0-5' 0·60 5-10' 0·65 10-15' 0·52 15-20' 1·21 20-25' 2·10	0-5' 0·30	0-5' 1·60 5-10' 0·72
1	2	3
00NS 300W	00NS 00EW	00NS 300E
0-5' 1·21 5-10' 1·50	0-10' 2·50	0-5' 3·30 5-10' 2·70
4	5	6

Holes 2-6 not bottomed.

AMG REFERENCE POINTS ADDED

REFERENCE

QUATERNARY

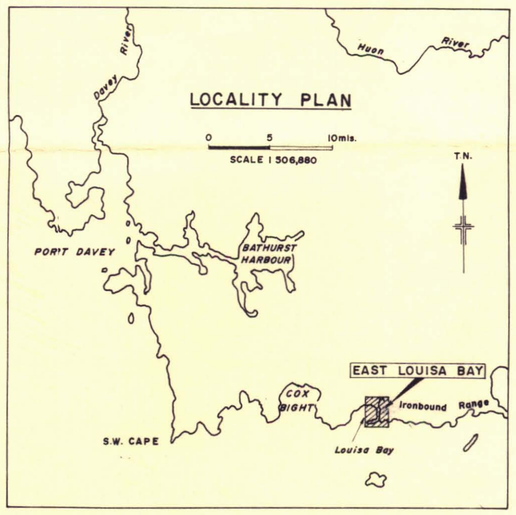
- Sand dunes
- Beach sands
- Coastal Plain

PRECAMBRIAN

- Quartzites and schists
- Rocky coastline
- Cliffs

- 3 ⊙ — Hand auger hole
- 00 NS 300 E — Auger hole co-ordinates in feet
- 0-5' — Hole sample depth interval in feet
- 1·60 — % heavy mineral fraction
- ○ — Proposed auger hole

LOCALITY PLAN



5 cm

70-670

LOUISA BAY MINING CORPORATION N.L.

SCOUT DRILLING MAP OF EAST LOUISA BAY

LOUISA BAY

SOUTH COAST TASMANIA

969061

600 0 600 1200

SCALE: 1 INCH = 600 FEET

PROJECT Nº P512·2	BY	DATE
DRAWN	G.H.	28·5·70
DRAFTED	E.W.	24·6·70
CHECKED	G.H.	24·6·70
APPROVED		
REVISED		

GEOTECHNICS (AUST.) PTY. LTD.
10TH FLOOR, CENTURY HOUSE,
70 PITT STREET, SYDNEY, N.S.W. 2000.

2153 PLATE II

REFERENCE

QUATERNARY

Beach and dune sand

PRECAMBRIAN

Schist and quartzite

Geological boundary

Water table

0·30 — Hand auger hole with hole number and heavy mineral content (0·30%)

< 0·50% heavy mineral content

0·50 - 1·00% heavy mineral content

> 1·00% heavy mineral content

5 cm

969062 70-670

LOUISA BAY MINING CORPORATION N.L.

EAST LOUISA BAY

HEAVY MINERAL DEPOSITS

CROSS SECTIONS

00N TO 600N

HORIZONTAL SCALE 1 INCH = 50'

VERTICAL SCALE 1 INCH = 20'

PROJECT No P512·2		
	BY	DATE
DRAWN	G.H.	5·6·70
DRAFTED	E.W.	29·7·70
CHECKED	G.H.	29·7·70
APPROVED		
REVISED		

2154 PLATE II (A)