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Report on Q2A, 15

OFF-SHORE DRILLING - TASMANIA

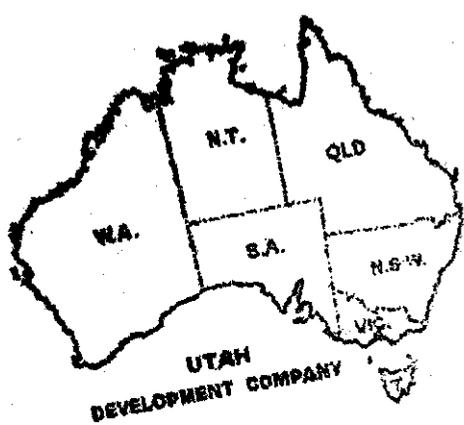
for  
UDC - BHP

(3)

May, 1968.

C. R. 583.

by  
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Melbourne,  
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AMG REFERENCE POINTS ADDED

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## INTRODUCTION

During the period February 27, 1968 - May 1, 1968, an off-shore drilling programme was carried out on behalf of UDC and BHP in their respective off-shore exploration licence areas in Deep Bay off Cape Barren Island and Ringarooma Bay, and Ansons Bay off N. E. Tasmania.

After investigations of various contractors, the drilling contract was awarded to Australian Dredging and General Works Pty. Ltd.

The vessel to carry the drilling rig was hired by the drilling contractor, from Gavin B. Youl, Symmons Plains, via Launceston.

A launch was hired to provide personnel transport and was used to mark out drill sites. The crew consisted of -

- a) three men provided by the contractor,
- b) field engineer and field assistant, sample washer for UDC-BHP.

The programme was largely carried out as planned, except at Ansons Bay, where the prevailing weather conditions prevented any of the planned holes being drilled.

## RESULTS

From the point of tin values, the exercise was most disappointing. In none of the areas drilled were economic values encountered. From the drilling point of view, it has been proved that drilling on water using conventional equipment is possible and relatively economic.

## COSTS

At this stage, not enough detailed information is to hand as to the total cost of the programme. However, it is anticipated that budget figures will not be exceeded apart from labour costs, which were calculated on a six day 60 hour week; in practice, seven days per week were worked and twelve hours per day, to take advantage of the suitable weather conditions.

CHRONOLOGICAL ORDER OF PROGRAMMEFebruary 27, 1968 - May 1, 1968

Feb. 27 - March 1	Catamaran "Phoenix" fitted out	( 4)
March 2 - March 5	Catamaran waited for suitable weather and arrived at anchorage off Cape Portland	( 4)
March 6	Repairs to Catamaran	( 1)
March 7 - March 27	Drilled 15 holes in Ringarooma Bay. During this period drilling took place on 13 days, 4 days were lost due to adverse weather, 4 days were lost due to crew leave(Plate 1).	(21)
March 28	Catamaran sailed to Flinders Island	( 1)
March 29 - April 16	Drilled 20 holes in Deep Bay. During this period drilling took place on 14 days, 3 days were lost due to lack of casing and repairs to rig, 2 days were lost due to adverse weather (Plate 2).	(19)
April 17 - April 24	Prepared Catamaran to move across to Eddystone Point (1) Crew on leave (4) Unsuitable weather conditions (2) Sailed from Cape Barren to Eddystone Point (1)	( 8)
April 25 - May 1	Off Ansons Bay, took Catamaran out to drilling site (3); on each occasion too rough to drill. Unsuitable weather (3)	( 6)
		<u>(64)</u>

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SUMMARY:Fitting out 4 daysSailing Catamaran to drill areas, including delays

Launceston - Cape Portland	4 days	
Cape Portland - Cape Barren Island	1 day	
Cape Barren Island - Eddystone Point	<u>3</u> days	8 days

Leave crew (2x) 8 daysDrilling

Ringarooma Bay	13 days	
Deep Bay	<u>14</u> days	27 days

Delays due to unsuitable drilling conditions

Ringarooma Bay	4 days	
Deep Bay	2 days	
Ansons Bay	<u>6</u> days	12 days

Repairs to rig and lack of casing at Deep Bay 5 daysTotal: 64 days

	Ringarooma Bay	Deep Bay	Ansons Bay	Total
Total number of days	17	19	6	42
Days drilled	13	14	-	27
Days delay	4	5	6	15
Number of holes drilled	15	20	-	35
Total footage drilled	421'	674'	5'	1,100'

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REMARKSRingarooma Bay

From the commencement of actual drilling operations in this location until the completion of this stage, four days were lost due to unsuitable weather conditions. This resulted in a time efficiency of 76%.

Deep Bay

From the commencement of drilling until the completion, a time efficiency of 75% was attained.

Over the whole programme, 42% of time was spent drilling, 25.5% of time was lost due to unsuitable weather conditions. The remaining 32.5% of time was made up of fitting out, repairs, and the sailing of the rig to various areas.

PLANT

The plant used was a conventional percussion rig, a Goldfields G66, using 6" O. D. flush jointed casing.

The rig was mounted on the Catamaran "Phoenix", a twin hulled vessel. The dimensions of each hull are approximately 30' long x 7' wide at deck level x 4' 6" deep. The hulls are spaced 9' 6" apart. The whole gave an effective clear deck area of 27' long x 23' 6" wide. Average draught in loaded conditions was 3' 6". Propulsion is provided by two 60 H. P. Fordson Diesels, one mounted in each hull, each engine driving a propellor, mounted inside the space between the hulls.

A wheel house is situated aft of the deck area. The rudders are hydraulically controlled. The effectiveness of the rudders was greatly reduced because they were outside the wash of the propellers.

For mooring purposes, four hand-operated winches were welded on the deck, one in each corner, and swivelling fair leads welded on bow and stern of each pontoon. The anchors supplied weighed 5 cwt. each

and were connected to the winches through 400 ft. of  $\frac{3}{4}$ " dia. wire rope, and each anchor equipped with a buoy on a 40 ft. neuring. Due to the presence of an overhead gantry beam along the centre line of the deck, it was not possible to mount the rig along the centre line. The rig was placed slightly crosswise, so the mast could be raised alongside the gantry.

The rig, with the working end towards the bow, was placed on the deck in road condition and fastened to the deck by means of two pairs of cross chains and turn buckles welded to each axle and the deck. The mast was guyed to existing bollards. A hole was cut in the deck to allow drilling through the deck.

### HOLE LOCATIONS

Hole locations were determined from the intersection of two shore based lines for each individual hole. Each line was marked by two beacons. Stations were established on shore and lines radiated from each station. The intersections of the appropriate radiating lines of two stations designated the hole location on the water surface. In practice, the beacons were placed on the appropriate lines and the launch travelled along one line until the other line was intersected and a buoy dropped. A tolerable accuracy of 100' - 200' was achieved by this method.

The limitations of this method are light conditions and distance from the shore. It was found that accuracy diminished rapidly at distances offshore greater than one mile. This could be overcome by using illuminated beacons and placing the buoys at night.

### MOORING PROCEDURE

In practice, three anchors were used, one stern anchor and two bow anchors. Location of the hole was denoted by a buoy, placed in position by launch. When steaming toward the site, the stern anchor was dropped first in such a position as to have the vessel lying with the stern towards the wind and sea and approximately 150 to 200 feet away from the hole. The vessel steamed passed the hole, with the stern line reeling off the winch.

The starboard bow or port bow anchor was dropped next, depending on current and wind conditions, by steaming approximately 100 to 150 feet past the hole to starboard or port as the case might be. The other bow anchor was then dropped by reversing the vessel back towards the stern

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anchor, with the bow anchor rope reeling off. When enough slack was obtained this way, the vessel steamed forward to port or starboard, as the case might be, to 100 to 150 feet past the hole to drop the third anchor. Once the third anchor was in place, the vessel was winched over the hole by winding in the stern anchor line and the anchor line of the first bow anchor dropped. This procedure generally took about one half to one hour to complete, depending on conditions such as current, wind and depth of water. The same method was used to lift the anchors, two winches reeled off, while the wire of the third anchor was wound in, etc. Where possible, the engines assisted and the time occupied by this was roughly the same as when laying anchors. The whole operation would be less time consuming and more flexible if the winches had been mechanically operated.

### DRILLING PROCEDURE

The drilling was carried out along the same lines as drilling on land of this type.

Casing was driven as far ahead as practicable and excavated by normal methods to within 6" to 12" of bottom of casing, to avoid contamination of sample. This only applied in the sand strata where run-ins could occur. In harder strata, it was necessary to dig in front of the casing to achieve progress. Some run-ins occurred especially in loose coarse sand, notwithstanding the fact that an attempt was made to keep casing full of water. On two occasions, difficulties were encountered in pulling casing. On the first hole when hammering the casing out, thread pulled out 13 feet below water and the remaining 62 feet was lost. On the second occasion, hammering the casing out produced no results after more than one hour, springing up of rough seas hampered this operation and finally vessel had to be slipped over casing; 65 feet was lost.

On another occasion, casing was bent due to peculiar swell and current conditions.

### EFFECTS OF SEA CONDITIONS ON DRILLING

It was found that the Catamaran was an extremely stable platform for its size and weight. Movement of the vessel along the casing during 10-15 knot winds, with wind wave conditions only, was very small, - 3" to 4" only. However, swell conditions, with moderate 2' to 3' swell, made vessel move along casing from 1' 6" to 2' and apart from the dangers of

entering the tools in the casing, cancelled out the spudding action. It also induced a horizontal movement in the vessel and made it surge against the casing; tightening up of the anchor ropes could not overcome this. This was more apparent where the water was deep - 30' - 50'.

From the experience gained in the three different locations, it can be stated that where swell conditions exist in water depths exceeding 10 feet, drilling with the above method is extremely difficult, if not impossible.

#### SUGGESTED IMPROVEMENTS TO PLANT AS USED

1. Drill rig placed so that vessel can be removed from casing if necessary and brought back to casing, thus not limiting the depth which can be drilled. This means -
  - (a) casing situated in a slot in the deck instead of a hole. This aspect was considered before drilling commenced. However, it would have meant substantial alterations to the vessel and at the time this was not thought warranted.
  - (b) mechanical winches and a tender capable of running out the anchors when vessel comes back to casing.
2. Drill rig which can rotate casing as well as hammer casing. This method would facilitate pulling of casing. The use of hydraulic jacks would be very limited due to the fact that the platform floats.
3. To combat moderate swell conditions, a vibratory-impact method and airlift excavation of casing would have to be employed as this rig is suspended and when in operation is virtually self-supporting.

#### SAMPLING

Samples were collected by emptying the pump directly into 12 gallon drums. Each 5' drive was collected separately. Contents of drum were measured and measurement recorded. Contents were reduced in volume by conventional panning methods, to volumes ranging from .5 lb to 1.5 lb in weight.

These samples were sent to the Mines Department Laboratories in Launceston for assay.

As a rule, no great variation existed between theoretical and actual volumes. In Deep Bay, however, most of the first 10 to 15 feet of sample was deficient, due to the extremely loose and soft nature of the ground in situ.

### DRILLING RESULTS

#### Ringarooma Bay:

Out of 15 holes, Nos. 1 and 5 were of nil depth into sea bottom, rock.

No. 7 - bottom was reached at 17' 9" below sea floor and in No. 9, bottom was reached at 27' 3" below sea floor.

None of the other holes were bottomed.

No tin values of any significance were encountered in any of the holes drilled.

#### Deep Bay:

Out of 20 holes, 12 holes bottomed on rock; the remaining holes were not bottomed.

No tin values of any significance were encountered.

Drilling Results (Continued)

\* HB = Hard Bottom  
NB = Not Bottomed

Ringarooma Bay

<u>No. of Hole</u>	<u>Water Depth</u>	<u>Depth Drilled</u>	<u>Bottom</u> *	<u>Value</u>
1	37'	-	HB	Traces only, the highest value in any one section was in Hole 12 <sup>b</sup> - 40' - 45'; this section gave a value of .09 lb/cu. yd.
2	38'	-	HB	
3	60'	30'	NB	
5	42'	-	HB	
7	39'	21'	HB	
8 <sup>a</sup>	12'	26'	NB	
9	30'	30'	HB	
9 <sup>a</sup>	12'	33'	NB	
11	31'	30'	NB	
11 <sup>a</sup>	15'	33'	NB	
12 <sup>a</sup>	16'	45'	NB	
12 <sup>b</sup>	18'	50'	NB	
13	29'	30'	NB	
13 <sup>a</sup>	18'	46'	NB	
14 <sup>b</sup>	22'	47'	NB	
		<u>421'</u>		

Deep Bay

1	8'	38'	Rock	Assay results from 5 holes only are available; these indicate that traces of tin only are present.
2	9'	31'	Rock	
3	28'	11' 6"	Rock	
4	18'	11'	Rock	
5	6'	41'	Rock	
6	27'	31'	Rock	
7	6'	35'	Rock	
8	8'	23' 6"	Rock	
9	4'	18'	Rock	
10	15'	40'	NB	
11	5'	35'	NB	
12	15'	48'	NB	
13	6'	42'	NB	
14	7'	15'	Rock	
15	4'	11'	Rock	
16	3'	43'	Soft granite	
17	6'	45'	NB	
18	7'	45'	NB	
19	3'	65'	NB	
20	2'	45'	NB	
		<u>674'</u>		

RESULTS OF ANALYSES FROM  
DEPARTMENT OF MINES, LAUNCESTON

Ringarooma Bay

<u>Reg. No.</u>		<u>Footage etc.</u>	<u>Weight Grams</u>	<u>Percent Sn</u>
680526	3RB	0 - 5'	60	0.20
680527		5' - 10'	125.6	0.04
680528		10' - 15'	153.5	0.05
680529		15' - 20'	236.0	0.04
680530		20' - 25'	167.8	0.12
680531		25' - 30'	130.9	0.08
680532		Sample of washstream		
680533	5RB	Bottom sample	56.2	0.05
680534	7RB	0 - 5'	68.6	0.06
680535		5' - 10'	91.8	0.04
680536		10' - 15'	81.1	0.06
680537		15' - 17' 6"	48.8	0.01
680538		17' 9" - 21'	78.9	0.05
680539	9RB	0 - 5'	21.1	0.06
680540		5' - 10'	38.9	0.03
680541		10' - 15'	128.5	0.04
680542		15' - 20'	134.7	0.05
680543		20' - 25'	61.5	0.27
680544	11RB	0 - 5'	105.4	0.04
680545		5' - 10'	59.6	0.05
680546		10' - 15'	53.7	0.04
680547		15' - 20'	199.5	0.04
680548		20' - 25'	123.6	0.05
680549	11RB	25' - 30'	193.8	0.04
680550	13RB	0 - 5'	187.1	0.06
680551		5' - 10'	106.4	0.03
680552		10' - 15'	89.9	0.05
680553		15' - 20'	156.2	0.07
680554		20' - 25'	134.4	0.03
680555		25' - 30'	529.0	0.04
680556		Sample wash 27' below ground level		

Ringarooma Bay (continued)

<u>Reg. No.</u>		<u>Footage etc.</u>	<u>Weight Grams</u>	<u>Percent Sn</u>
680568	9ARB	0 - 5'	57.8	0.13
680569		5' - 10'	64.4	0.07
680570		10' - 15'	85.2	0.10
680571		15' - 20'	168.1	0.04
680572		20' - 25'	69.9	0.04
680573		25' - 30'	120.7	0.04
680574		30' - 33'	103.3	0.07
680575	11ARB	0 - 5'	168.4	0.04
680576		7' - 12'	149.6	0.04
680577		12' - 17'	86.8	0.04
680578		17' - 22'	221.5	0.03
680579		22' - 27'	312.2	0.03
680580		27' - 32'	215.7	0.14
680581		32' - 33' Run in	98.6	0.54
680582		Wash		
680583	12ARB	0 - 5'	157.7	0.05
680584		5' - 10'	152.9	0.04
680585		10' - 15'	238.5	0.03
680586		15' - 20'	323.6	0.03
680587		20' - 25'	156.4	0.03
680588		25' - 30'	87.7	0.09
680589		30' - 35'	262.2	0.04
680590		35' - 40'	169.2	0.05
680591		40' - 45'	239.1	0.04
680592	12BRB	0 - 5'	90.6	0.04
680593		5' - 10'	118.0	0.04
680594		10' - 15'	147.3	0.03
680595		15' - 20'	135.0	0.03
680596		20' - 25'	193.2	0.03
680597		25' - 30'	120.1	0.04
680598		30' - 35'	475.9	0.04
680599		35' - 40'	227.6	0.11
680600		40' - 45'	223.3	0.16
680601		45' -	104.6	1.07
680602	13ARB	0 - 5'	89.2	0.07
680603		5' - 10'	115.3	0.05
680604		10' - 15'	162.2	0.04
680605		15' - 20'	215.4	0.03
680606		20' - 25'	276.3	0.04

Ringarooma Bay (continued)

<u>Reg. No.</u>		<u>Footage etc.</u>	<u>Weight Grams</u>	<u>Percent Sn</u>
680607		25' - 30'	235.5	0.03
680608		30' - 35'	172.8	0.06
680609		30' - 35' Wash		
680610		35' - 40'	109.8	0.05
680611		40' - 45'	90.3	0.08
680612		Sample of wash at 45'		
680613		45' - 46'	87.7	0.17
680626	8ARB	0 - 5'	87.5	0.26
680627		5' - 10'	162.7	0.07
680628		10' - 15'	123.8	0.04
680629		15' - 20'	159.4	0.03
680630		20' - 25'	168.7	0.03
680631		25' - 26'	26.0	0.05
680632	14BRB	0 - 5'	46.9	0.05
680633		5' - 10'	104.3	0.04
680634		10' - 15'	161.3	0.04
680635		15' - 20'	213.2	0.04
680636		20' - 25'	105.7	0.04
680637		25' - 30'	120.1	0.05
680638		30' - 35'	129.3	0.05
680639		35' - 40'	128.3	0.06
680640		40' - 45'	60.3	0.20
680641		45' - 47'	53.7	0.21

Deep Bay, Cape Barren Island

680684	12DB	0 - 5'	136.7	0.04
680685		5' - 10'	145.4	0.04
680686		10' - 15'	155.6	0.03
680687		15' - 20'	61.9	0.04
680688		20' - 25'	108.4	0.04
680689		25' - 30'	172.0	0.04
680690		30' - 35'	245.2	0.03
680691		35' - 40'	101.7	0.04
680692		40' - 45'	116.2	0.04

Deep Bay, Cape Barren Island (continued)

<u>Reg. No.</u>		<u>Footage etc.</u>	<u>Weight Grams</u>	<u>Percent Sn</u>
680693	13DB	0 - 10'	187.9	0.03
680694		15' - 20' Sample U/S	19.1	0.05
680695		20' - 25' Sample U/S	74.1	0.03
680696		25' - 30'	45.3	0.01
680697		30' - 35'	102.6	0.03
680698		35' - 42'	191.1	0.03
680699	15DB	0 - 5'	38.5	0.04
680700		5' - 10'	71.6	0.25
680701		10' - 11' 6	84.4	0.06
680702	18DB	0 - 15'	41.3	0.03
680703		15' - 20'	83.0	0.04
680704		20' - 25'	92.4	0.05
680705		25' - 30'	75.2	0.05
680706		30' - 35'	92.2	0.03
680707		35' - 40'	107.3	0.03
680708		40' - 45'	89.5	0.03
680709	19DB	0 - 5'	112.3	0.04
680710		5' - 15'	132.2	0.03
680711		15' - 20'	99.2	0.04
680712		20' - 25'	193.5	0.03
680713		25' - 30'	156.7	0.04
680714		30' - 35'	235.0	0.06
680715		35' - 45'	41.3	0.13
680716		45' - 50'	78.9	0.13
680717		50' - 55'	135.9	0.08
680718		55' - 60'	191.5	0.04
680719		60' - 65'	128.1	0.03
680720	20DB	0 - 10'	81.5	0.02
680721		10' - 15'	61.4	0.04
680722		15' - 20'	141.5	0.01
680723		20' - 25'	119.5	0.03
680724		25' - 30'	184.1	0.03
680725		30' - 35'	95.8	0.03
680726		40' - 45'	203.4	0.03
680736		35' - 40'	72.4	0.03

Deep Bay, Cape Barren Island (continued)

<u>Reg. No.</u>		<u>Footage etc.</u>	<u>Weight Grams</u>	<u>Percent Sn</u>
680737	1DB	0 - 10'	202.6	0.04
680738		10' - 15'	132.0	0.05
680739		15' - 20'	116.3	0.04
680740		20' - 25'	251.4	0.04
680741		25' - 30'	159.1	0.03
680742		30' - 35'	219.5	0.04
680743	5DB	0 - 10'	135.8	0.03
680744		10' - 15'	164.2	0.03
680745		15' - 20'	153.9	0.04
680746		20' - 25'	257.8	0.03
680747		25' - 30'	269.4	0.04
680748		30' - 35'	177.5	0.04
680749		35' - 40'	215.3	0.03
680750		40' - 41'	71.0	0.04
680751		Sample rock at 41'. Not assayed		
680752	7DB	0 - 10'	240.6	0.03
680753		10' - 15'	181.3	0.04
680754		15' - 20'	269.1	0.04
680755		20' - 25'	214.9	0.04
680756		25' - 30'	154.8	0.04
680757		30' - 35'	96.6	0.05
680758	8DB	0 - 10'	318.1	0.03
680759		10' - 15'	317.2	0.03
680760		15' - 20'	146.9	0.04
680761		20' - 23' 6"	73.9	0.03
680762	9DB	0 - 10'	107.6	0.05
680763		10' - 15'	19.9	0.09
680764	10DB	0 - 10'	247.9	0.03
680765		10' - 15'	263.3	0.03
680766		15' - 20'	277.8	0.03
680767		20' - 25'	193.3	0.03
680768		25' - 30'	358.9	0.03
680769		30' - 35'	181.8	0.04
680770		35' - 40'	213.6	0.04
680771	11DB	0 - 10'	125.8	0.04
680772		10' - 15'	153.7	0.03
680773		15' - 20'	177.3	0.04
680774		20' - 25'	282.0	0.04

Deep Bay, Cape Barren Island (continued)

<u>Reg. No.</u>	<u>Footage etc.</u>	<u>Weight Grams</u>	<u>Percent Sn</u>
680775	25' - 30'	334.7	0.03
680776	30' - 35'	264.3	0.03
680777	14DB 0 - 10'	101.9	0.05
680778	10' - 15' 3 Sample	35.6	0.03
680780	16DB 0 - 10' U/S	76.1	0.04
680781	10' - 15'	320.9	0.04
680782	15' - 20'	268.7	0.04
680783	20' - 25'	164.4	0.04
680784	25' - 30'	186.2	0.04
680785	30' - 35'	121.8	0.05
680786	35' - 40'	122.0	0.04
680787	40' - 43'	130.3	0.06
680788	17DB 0 - 10'	25.2	0.04
680789	10' - 15'	68.8	0.03
680790	15' - 20'	65.6	0.05
680791	20' - 25'	66.0	0.04
680792	25' - 30'	153.7	0.05
680793	30' - 35'	173.3	0.05
680794	35' - 40'	224.1	0.04
680795	40' - 45'	157.7	0.05
680829	1DB 35' - 38'	278.7	0.03
680830	2DB 0 - 10'	244.6	0.03
680831	10' - 15'	284.5	0.03
680832	15' - 20'	227.7	0.02
680833	20' - 25'	253.0	0.03
680834	25' - 30'	151.8	0.03
680835	3DB 0 - 5'	186.8	0.08
680836	5' - 10'	186.2	0.03
680837	4DB 0 - 10'	251.0	0.03
680838	6DB 0 - 10'	265.3	0.04
680839	10' - 15'	178.2	0.04
680840	15' - 20'	267.5	0.04
680841	25' - 30' (A)	551.1	0.03
680842	25' - 30' (B)	255.5	0.04
680843	5 Ansons Bay 0 - 5'	107.9	0.05

Report on

TIN - TASMANIA

INVESTIGATION OF PROPOSED OFF-SHORE DRILLING PROGRAMME  
IN B. H. P. AND U. D. C. EXPLORATION AREAS.

December 1967.

John VOLKER,  
37 Dorothy Street,  
EAST BURWOOD.

## INTRODUCTION

A visit was made to the three proposed drilling areas:

Ringarooma Bay, Tasmania.  
Ansons Bay, Tasmania.  
Deep Bay, Cape Barren Island.

Enquiries were made as to the time of the most suitable weather conditions in which to execute the programme.

The proposed drilling barge was inspected.

The three drilling contractors were visited.

## CONCLUSIONS

Conclusions reached were:

1. Best weather conditions exist in this area in March, April, May and into June. It is thus recommended to commence the drilling programme on or about February 26, 1968, and the surveying one week before this.
2. That Australian Dredging and General Works Pty. Limited be awarded the drilling contract.
3. Estimate of total cost of the programme is \$26,567 or \$22.14 per foot drilled.

PROPOSED TIME SCHEDULE

Week No.	1	2	3	4	5	6	7	8	9	10	11
Surveying											
Arrival Drill Launceston											
Installation											
Drill and Catamaran to site											
Commence Ringarooma Bay											
To Ansons Bay											
Drill Ansons Bay											
To Deep Bay											
Drill Deep Bay											
Deep Bay - Launceston:											

## WEATHER CONDITIONS

Enquiries from local fisherman in Bridport, Eddystone Point and from St. Helens revealed that the best weather conditions can be expected from the end of February to the end of April. Conditions should be stable, winds light, and changes sufficiently slow moving so as to give enough time to take precautions.

## LOCALITIES

### Ringarooma Bay

Ringarooma Bay is subject to westerly and north-westerly weather. Good anchorage is available at Foster's Inlet, adjacent to Cape Portland. Drilling will take place no further than 9 miles from this shelter and can be reached within one hour from the furthest drill location.

Cape Portland is easily accessible by road and it is proposed to provide accommodation for the crew in two caravans parked at Cape Portland. The nearest town, Gladstone, is approximately 25 miles to the south.

### Ansons Bay.

Ansons Bay is subject to easterly and south-easterly weather and long swell conditions do exist there at times. Safe anchorage is available north and south of Eddystone Point approximately six miles to the north of the drilling area.

The coastline is accessible by road from Ansons Bay or Eddystone Point and it is proposed to locate two caravans either at Eddystone Point or Ansons Bay.

### Deep Bay, Cape Barren Island.

Deep Bay is subject to westerly and north-westerly weather. Several safe anchorages are available in close vicinity of the drilling area.

The area is virtually unapproachable from the landward side and it is proposed to locate the drill crew at the settlement, where accommodation is available, and use a tender as transport.

It is thus recommended that the drilling programme should commence on 26th February, 1968, and with an expected duration of 10 weeks (60 working days, providing for 40 drilling days and 20 days or 33% of lost time due to adverse conditions) should conclude in the last week of April.

### HOLE LOCATION

It is proposed to mark the hole location by buoys before drilling operations commence. This can be accomplished by a three-man survey team equipped with a small boat.

Fixed marks are available at Ringarooma Bay and Ansons Bay and with the use of two theodolites and walkie-talkie radio communication, hole locations can be marked out with reasonable accuracy. At Deep Bay it is proposed to mark the holes by long poles, due to shallow conditions existing there. Surveying in Ringarooma Bay and Ansons Bay is expected to be accomplished in one week and thus should be timed to commence on 19th February, 1968.

### DRILLING BARGE

Catamaran "Phoenix", belonging to Mr. Gavin B. Youl of Symmons Plains, was inspected at Bridport. The craft seems suitable to mount a drilling rig on it. Due to the location of an overhead beam along the centre line, the drill has to be located off-centre and a hole made in the deck to drill through. This is not ideal, but in case of bad weather, location can be left by removing the last length of casing and in an emergency, casing can be burned off to permit fast escape.

The catamaran seems very seaworthy; the only doubt is that it might be too light on the water and consequently might move very easily; however suitable ballasting might overcome this.

It is proposed to make a final decision on the suitability of this craft in consultation with the selected drilling contractor.

### SAMPLING

Samples will be collected in five foot drives measured and recorded. A concentrate will be produced by cradling on board of the drilling barge. This concentrate can be further treated at the laboratories of the Tasmanian Mines Department in Launceston to supply weight and assay of mineral content.

Equipment needed for sampling:

- 12 - half 44-gallon drums.
- 1 - graduated measuring bucket.
- 1 - cradle complete with different mesh sieves *at Miner Dept.*
- 3 - prospecting dishes.
- 1 - small petrol driven pump.
- 200 - sample containers - plastic bags or jars and log sheets.
- 6 - plastic 2-gallon buckets.

PERSONNEL

- 1 Supervisor )
- 1 Sampler ) partnership to supply.
- 1 Skipper for catamaran supplied by owner.
- 1 Driller )
- 1 Off-sider ) supplied by drilling contractor.

An experienced sampler can be obtained from north-eastern Tasmania. One likely candidate was contacted and expressed interest.

Tasman Rainbow, C/o Banka Mine, Winnaleah.

SURVEYING

A quotation from Engineering Surveys (Aust.) Pty. Ltd. is detailed below:

"Having considered your requirement and the chart showing locations at Ringarooma Bay and Bay of Fires, we consider that there are approximately 16 working days on site, exclusive of travelling.

We would propose to carry out the work by astronomical observations at two points, fixing the offshore locations by theodolite from pegs located along the beach line. Absolute accuracy of the block of locations would be 200' - 300' but relative to one another the individual locations would be correct within 10' - 20'. We consider that this would be in keeping with the accuracy required, assuming that the geographical co-ordinates of the locations have been scaled from the chart. Greater accuracy could be achieved by the use of more refined equipment but would prove more expensive.

Our fees would be:

Survey and instrument man at \$96 per day.

Living expenses at \$8.40 per man per day (unless provided by yourselves).

Air fares Melbourne-Launceston and return.

This is on the assumption that transport from Launceston to the sites and on site would be provided by yourselves.

An inclusive lump sum figure could be quoted if you require it, but would have to include a contingency element. "

It is felt that the accuracy proposed is not warranted at this stage and the fixing of hole locations from fixed points on shore should be sufficient and the estimates are based on this.

#### TENDER

It is proposed to hire a 16 to 18 foot boat with outboard motor for the period. These boats are available in Launceston.

#### ACCOMMODATION

It was originally proposed to hire two caravans and locate these as close as possible to the drilling sites at Ringarooma Bay at Cape Portland and at Ansons Bay at the Bay or Eddystone Point. Location of the crew at the Gladstone Hotel seems to be cheaper, but involves more travelling. A final decision will be made in conjunction with the drilling contractor. For estimating purposes the higher figure has been used.

#### COSTS

Broken Hill Proprietary Coy. Ltd.  
- Utah Development Company.

#### Programme:

14 holes Ringarooma Bay.

6 holes Ansons Bay.

20 holes Deep Bay, Cape Barren Island.

Total 40 holes, each 30 ft. below ground level,

Total 1,200 feet.

Time:

## Assume:

1. 30 ft. drilling per day = 40 days drilling.
2. 20 days lost due to adverse conditions.
3. 6 days, 10 hours per day working,  
60 hour working week.

Thus - total programme duration 10 weeks.

Catamaran "Phoenix":

Hire rate including skipper \$1,030/month	\$2,575.00
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## Running time:

1. 2 hours day while drilling, 40 x 2 x \$6.	\$480.00
---	----------

2. Launceston - Ringarooma Bay 12 hours.	
---	--

Ringarooma Bay - Ansons Bay 8 hours.	
---	--

Ansons Bay - Cape Barren Island 12 hours.	
--	--

Launceston - Cape Barren Island 12 hours.	
--	--

—	
44 hours x \$6. =	<u>\$264.00</u>

\$ 744.00
-----------

<u>\$3,319.00</u>
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Accommodation: (5 men)

Hire of 2 caravans for 6 weeks @ \$16 each per week - 2 x 6 x 16	\$192.00
---	----------

Transport of caravans Launceston to Cape Portland and return - 400 miles @ 20 cents per mile	\$ 80.00
--	----------

Hire of accommodation Cape Barren Island - \$12 per week for 5 weeks	\$ 60.00
---	----------

Sustenance for 5 men - 10 weeks - \$5 per day.	<u>\$1,750.00</u>
---	-------------------

\$2,070.00
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or alternatively:

Gladstone Hotel:

5 men - 5 weeks @ \$25 per week	\$625.00	
300 miles per week @ 10 cents	<u>\$150.00</u>	\$ 875.00
5 men - 5 weeks Cape Barren Island		\$ 875.00
5 x 5 x 35		
Hire accommodation \$12 per week		\$ 60.00
5 x 12		<u>60.00</u>
		\$1,810.00

Supervision and Sampler:

Supervision @ \$250 per week	\$2,500.00	
Sampler @ \$100 per week.	<u>\$1,000.00</u>	\$3,500.00

Samples:

40 x 6 x \$3 (Tasmanian Mines Department Laboratory)		\$ 720.00
--	--	-----------

Surveying:

Ringarooma Bay.

Ansons Bay.

8 days @ \$100/day	\$ 800.00	
Supervision	\$ 250.00	
Accommodation 3 x 8 x \$5.	\$ 120.00	
Air fares	\$ 150.00	
Transport 8 x 50 x 10 cents	\$ 40.00	
Boat - hire	\$ 50.00	
Buoys, etc.	<u>\$ 200.00</u>	\$1,610.00

Boat Hire and Running:

Hire for 10 weeks @ \$25 per week	\$250.00	
Fuel and oil	<u>\$250.00</u>	\$500.00

Modifications to Catamaran:

Fixing of winches and positioning rig		\$400.00
--	--	----------

<u>Air fares, charter aircraft, &amp; road transport.</u>		\$1,000.00
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	\$	
Catamaran "Phoenix"	3,319.00	+ ?
Accommodation	2,070.00	-
Supervision and sampler	3,500.00	-
Samples	720.00	-
Surveying	1,610.00	-
Boat hire	500.00	
Modifications to catamaran	400.00	
Air fares, charter aircraft and road transport	<u>1,000.00</u>	-
B. H. P. and U. D. C. costs, excluding drilling costs	<u>\$13,119.00</u>	

DRILLING CONTRACTORS

Three contractors submitted quotations, namely:

1. Australian Dredging and Geeneral Works Pty. Ltd.,  
437 St. Kilda Road, Melbourne.
2. Foundation Engineering (Australia) Pty. Ltd.,  
147 Eastern Road, South Melbourne.
3. W. L. Sides & Son Pty. Ltd.,  
Wellington Road, Clayton.

1. Australian Dredging and General Works Pty. Ltd.

This company intends to use a Goldfields G66, conventional percussion rig, with 6" flush jointed casing.

The drill is fairly new and seems in good order. Personnel is very experienced in working on water but their actual drilling experience might be limited, however adequate supervision should overcome this disability.

2. Foundation Engineering (Australia) Pty. Ltd.

This company intends to use a Conrad Pioneer rig, which essentially consists of a friction winch; stroking action is obtained by manipulating the winch and this requires very experienced operators. Assurances were given that these would be supplied and sufficient over water experience was claimed.

3. W. L. Sides & Son Pty. Ltd.

This organisation intends to use a Goldfields G33 and has vast experience in alluvial drilling; however very restricted over water experience. Their equipment is generally old and mechanical reliability is suspect.

Considering the equipment, experience and costs of the three contractors, it seems that Australian Dredging and General Works Pty. Ltd. is the most reasonable:

- a. Equipment is relatively new and well maintained.
- b. Personnel has vast over water experience.

It is therefore recommended that the contract be awarded to Australian Dredging and General Works Pty. Ltd.

COMPARISON OF DRILLING TENDERS

	Australian Dredging Rig G66 \$	Foundation Engineering Conrad Pioneer \$	W. L. Sides & Son G33 \$
Hire rates drill	960	4,032	4,480
Drill working	1,920	-	-
Operator' s wages	4,700	9,000	-
Stand down	-	-	1,280
Freight Melbourne - Launceston and return	500	500	500
Anchors, winches and ropes	700	-	700
Air fares	240	240	240
	<u>\$9,020</u>	<u>\$13,772</u>	<u>\$7,200</u>

Total cost for the programme is thus estimated to be :

	\$
B. H. P. - U. D. C. costs	13, 119
Drilling contractor	9, 020
	<hr/>
Total	22, 139
add contingencies	4, 428
	<hr/>
	\$26, 567
	<hr/> <hr/>

( )  
Therefore total cost per foot drilled is expected to be \$22. 14 per foot.

( )

UTAH DEVELOPMENT COMPANY/BROKEN HILL PROPRIETARY CO. LTD.

JOINT VENTURE - CAPE BARREN ISLAND

OFF SHORE DRILLING PROJECT

	<u>Estimated Expenditure</u> \$	<u>Actual Expenditure</u> \$	<u>Variance</u> \$
Drilling	9,020	12,218	(3,198)
Catamaran	3,319	2,914	405
Accommodation	2,070	3,134	(1,064)
Supervisor & Sampler	3,500	3,774	( 274)
Samples	720	612	108
Surveying	1,610	560	1,050
Boat - Hire & Running Cost	500	777	( 277)
Modifications to Catamaran	400	153	247
Airfares - Charter Plane - Car Hire	1,000	956	44
Miscellaneous - Freight, Telephone, etc.	4,428	138	4,290
	<u>\$ 26,567</u>	<u>\$ 25,236</u>	<u>\$ 1,331</u>

Invoice No.	17	21,894.69
" "	14	1,523.13
" "	13	1,074.07
" "	12	33.60
" "	11	44.00
" "	9	666.94
		<u>\$ 25,236.43</u>

68-514

U.D.C. - B.H.P. Joint Venture

SAMPLE HOLE LOCATIONS

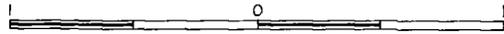
RINGAROOMA BAY

N.E. Tasmania

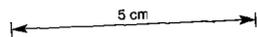
Plate I

125018

Scale of miles



1 : 31,680

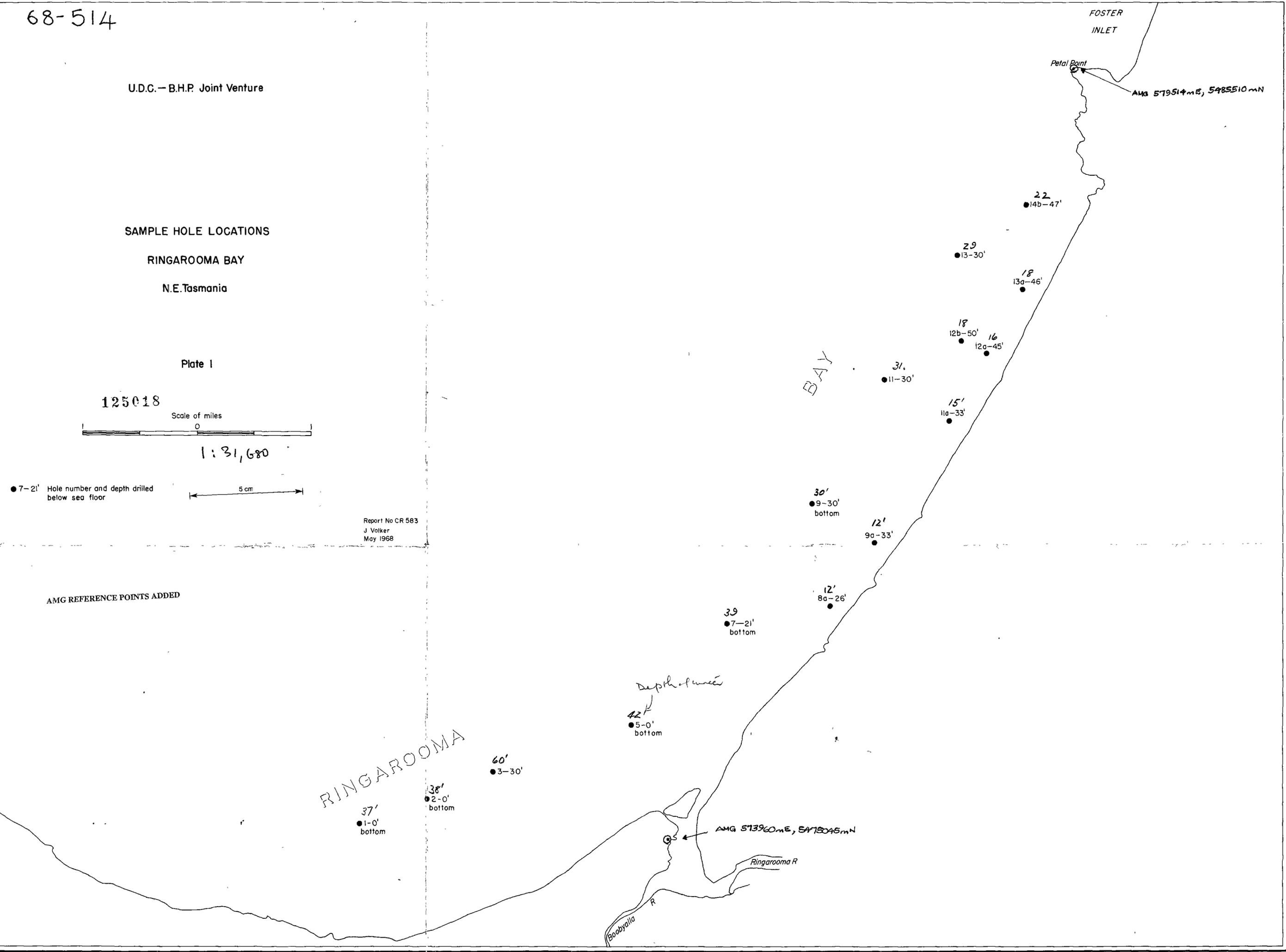


● 7-21' Hole number and depth drilled below sea floor

Report No CR 583  
J Volker  
May 1968

AMG REFERENCE POINTS ADDED

FOSTER INLET  
Petal Point  
AMG 579514mE, 5985510mN



RINGAROOMA

BAY

Depth of water

37' ● 1-0' bottom

38' ● 2-0' bottom

60' ● 3-30'

42' ● 5-0' bottom

39 ● 7-21' bottom

12' ● 8a-26'

12' ● 9a-33'

30' ● 9-30' bottom

15' ● 11a-33'

31 ● 11-30'

18 ● 12b-50'

16 ● 12a-45'

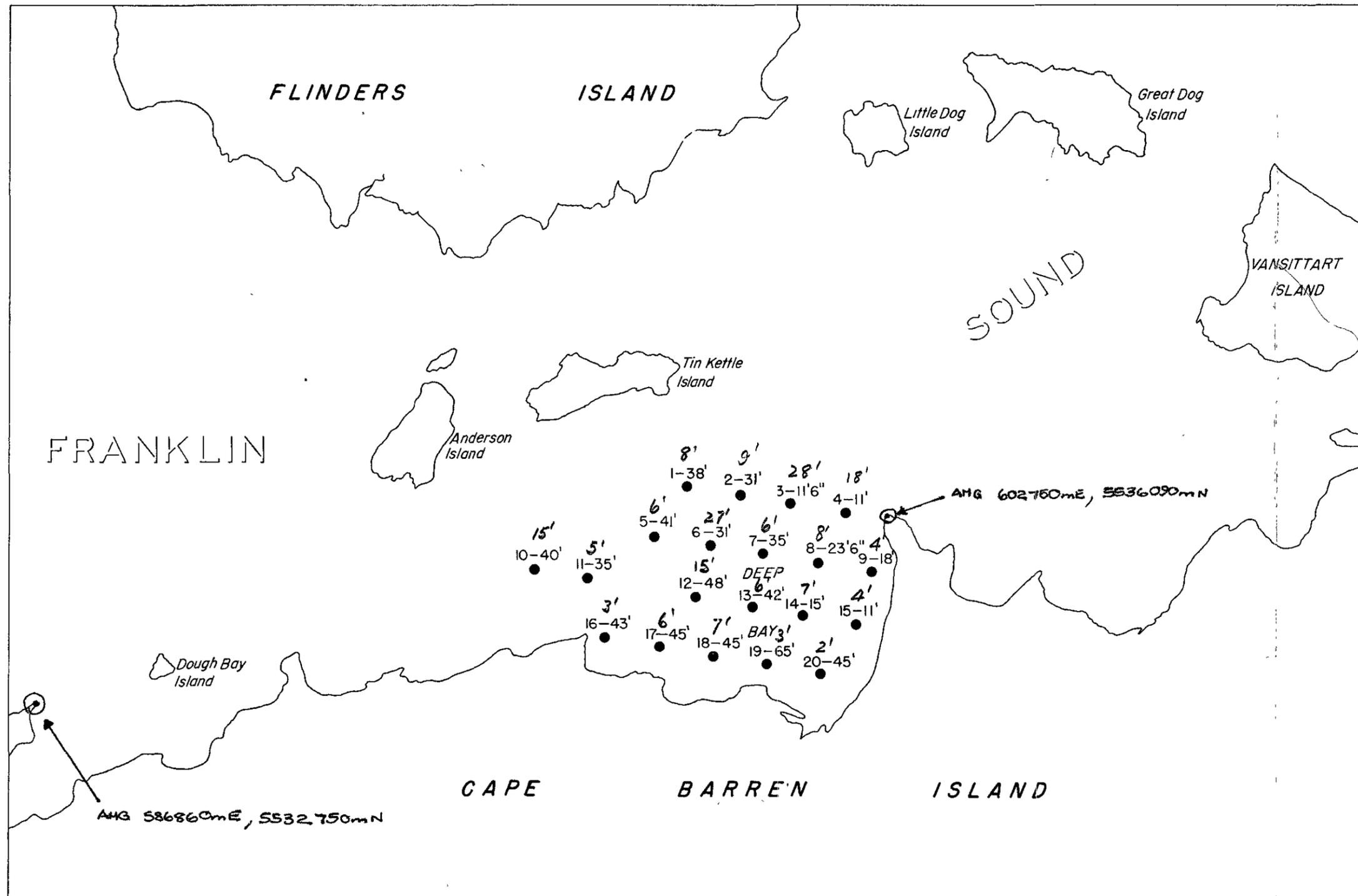
18 ● 13a-46'

29 ● 13-30'

22 ● 14b-47'

AMG 573960mE, 5975045mN

Boobyalla R  
Ringarooma R



U.D.C.— B.H.P. Joint Venture

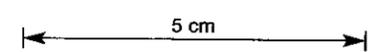
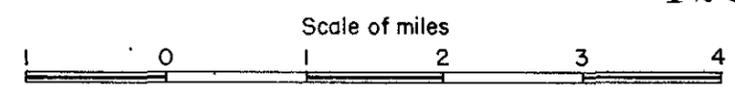
SAMPLE HOLE LOCATIONS

DEEP BAY

Cape Barren Island

Plate 2

125019



● 10-40' Hole number and depth drilled below sea floor

AMG REFERENCE POINTS ADDED