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T/18P part II*

Bass Strait Oil & Gas N.L.
153 Dorcas Street,
South Melbourne, 3205

Report 705/5

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REF. No.				

BBS.81 SEISMIC PROGRAMME
FOR
PETROLEUM EXPLORATION PERMIT
T.18P

T/18P part II*

Work Order 705

October 1980

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1.00

INTRODUCTION

As mentioned in the Quarterly Report for the period ending September, 30th 1980, (Report 705/4), a preliminary seismic programme has been formulated for Permit TAS. T.18P. This is to take the form of a marine seismic survey of 708.5km. The reasons for and the details of this programme are the basis of this report.

This report is also to inform Geophysical Services Inc., who will be conducting the survey of the details and parameters which have formed the basis of their successful tender for the work.

2.00

Petroleum Exploration Permit T 18P is in the Bass Basin on the continental shelf of southeastern Australia. The basin trends northwest to south east and the southwestern boundary of the permit area co-incides approximately with the southwestern margin of the basin.

Previous geophysical work includes preliminary aeromagnetic surveys between 1962 and 1975. Early surveys used a dynamite source for single fold coverage with an analog recording system. Dynamite continued to be used as a source after 1967 and the latest seismic survey available to Bass Strait Oil and Gas N.L. was shot by Hematite Petroleum Pty. Ltd. during January, 1975. General specifications were:-

Data Acquisition

Source	1,200 cu. in. airgun array
Cable	3,200 m. 48 groups
Recording	DFS 111, binary gain

Digital Processing

3:1 Vertical Stack
 24 fold CDP Stack
 Deconvolution before and after stack.

The interpretation report:- "Flinders Seismic Survey", by J.I. Denham, M. McNicol and E. Urschel of Hematite Petroleum Pty. Ltd. - includes maps of three horizons:-

1) Yellow Horizon

Correlated to the top of the Eastern View Coal Measures.

2) Red Horizon

Marker within the coal section of the Eastern View Group.

3) Blue Horizon

Deepest event mapped but limited to the Aroo area. Its position in the stratigraphic column was not determined. Its depth near the Aroo No. 1 location was estimated as 3430 metres. The deepest depth contour mapped was 3960 metres.

Limited success was therefore achieved in mapping the section below the Eastern View Group where a prospective 3,000 metres of Early Cretaceous sediments is believed to exist in some of the troughs near the centre of the basin. In the conclusions to their report the authors believe that improved field methods and equipment will be necessary to yield adequate reflection data from below the Eastern View Coal Measures.

The current survey, planned by Bass Strait Oil and Gas N.L., will use more sophisticated equipment in the field:-

Source	2,000 cu. in. airgun array
Cable	2,400 metre, 96 groups
Recording	DFS V floating point gain

Improved data should result. The network of lines planned ties all wells in the permit area and most of the more recent seismic traverses. The new assignment should allow a better evaluation of prospects in the Eastern View Group as well as as appraisal of the deeper Early Cretaceous section.

3.00

SPECIFICATION FOR MARINE SEISMIC SURVEY

3.10 General

A total of 708.5 km. are required to be shot. This survey is to be known as B.B.S. 81 and the lines are shown on the accompanying plan BAS 705/5 (Scale 1:100,000).

Details of the lines are as follows:-

Line numbering convention

ODD SW - NE

EVEN NW - SE

<u>LINE</u>	<u>LENGTH(KM)</u>	<u>REMARKS</u>
BBS 81-1	62.8	Tie Toolka No. 1 well
BBS 81-3	63.6	
BBS 81-5	85.8	Tie Cormorant No. 1 well
BBS 81-7	23.2	Tie Aroo No. 1 well
BBS 81-9	40.0	Tie Bass No. 1 well
BBS 81-11	13.0	
BBS 81-13	22.8	
BBS 81-15	24.2	
BBS 81-15A	11.0	
BBS 81-17	17.0	
BBS 81-2	51.0	
BBS 81-4	19.0	Tie Cormorant No. 1 well
BBS 81-6	92.5	Tie Aroo No. 1, Tarook No. 1 wells and extend south to Pelican field via BCS 81 traverses
BBS 81-8	11.6	
BBS 81-10	15.0	
BBS 81-12	45.0	
BBS 81-14	111.0	
17 lines	708.5 km	

Tas T.18P

BBS.81 Survey

Cable	: 2400 metres, 96 trace, 48 fold 12 metre (40ft + 5ft) depth
Shot	: 1 pop per shotpoint, every 25 metre
Sample Rate	: 2 milliseconds all lines
Record Length	: 5 seconds
Filters	: 2 millisecond sample rate
High Cut	
Low Cut	: (8 Hertz/18dB octave..
High Cut	: 128 Hertz/72dB per octave
Cable Noise	: 3 microbars (to be monitored at board riders discretion but on no account is maximum
Swell Noise	: 4 microbars (allowable to apply to more than 30% of any line.
Monitor Records Displayed	: Every 50 shotpoints Defloat monitors on request
EPC Shipboard Section	: Trace 92
Runout at End of Lines	: Has been allowed for on survey plan map
Navigation Specifications	: Masivan Shore Stations as per Contractors' specifications
Feathering Angle to be listed	: Every 100 shotpoints when less than 6° Every 50 shotpoints when 6° to 10° not to exceed 10°
Shotpoint Location to be Annotated by Navigation System	: Every 10 shotpoints
Cable Offset	: Measured every start of line, and every 40 shotpoints
Magnetics and Gravity	: Not required

B. Data Processing

By discussion following acquisition.

For your survey we shall provide the following:

1. Vessel (Appendix A)

We will make available our vessel the "Eugene McDermott 11". Subject to prior commitments and also to delays outside GSI's control in the vessel's current program schedule, we anticipate that the vessel should be able to commence your survey in December 1980.

2. Energy Source (Appendix B)

GSI's 2000 cubic inch tuned airgun array will be provided as the seismic energy source.

3. Recording Cables (Appendix C)

GSI's Acceleration Cancelling Hydrophone Marine Streamer cable which can be made up of 96 twenty-five metre or thirty three metre groups or 48 fifty metre groups would be used.

4. Seismic Data Recording Instrument System

For the recording of the seismic data, DFS V instruments. Recording would be on $\frac{1}{2}$ inch magnetic tape, packing density 1600 BPI, in SEG-B format.

5. Shooting Geometry

Data would be recorded at a 25 metre pop interval, hence, with 96 groups (2400m cable), a 48 fold, 96 group recording would result.

6. Monitors

EPC 4600 Graphic Recorder for onboard single coverage sections.
A 63 trace oscillograph camera display for onboard monitoring and

playback quality control.

The vessel will be equipped with radar, a continuous recording fathometer capable of recording depths of up to 1,000 fathoms and radio communications equipment for regular liaison with shore based personnel.

7. Personnel

A crew complement of seismic vessel operating personnel experienced in marine seismic operations.

8. Supplies

All operating supplies necessary to operate and maintain the field unit including fuels, lubricants, food and provisions, magnetic tapes and ancillary recording supplies.

9. Quality Control

We will furnish a shipboard Vessel Controller whose responsibility is to ensure that Quality Control standards are within specifications.

10. Water Depths

Water depths to be not less than 12 metres at the vessel and at all points along the cable.

11. Horizontal Survey Positioning System

GSI will provide a Maxiran shore based positioning system for primary horizontal survey control. The system will be comprised of one shipboard mobile unit and a minimum of 3 base stations and sufficient personnel to operate all stations on a 24 hour

basis. Not included in prices quoted are costs for any extraordinary survey logistics such as helicopters, boats, etc.

12. Compensation for Data Acquisition

Basic System

- 2000 cubic inch tuned airgun array
- All necessary personnel and supplies, including field tapes
- Texas Instruments DFS V Recording Systems. Recordings to be made on ½ inch magnetic tape in SEG-B format
- 96 trace recording
- 5 second record length
- Maxiran shore based positioning system

13. a. Mobilisation

Australian Dollars 30,000.00

b. Turnkey Rate (assumes 400 kms, average line 50 kms)

<u>Cable Length</u>	<u>No. of Traces</u>	<u>Shot Interval</u>	<u>Fold Coverage</u>	<u>Sample Rate</u>	<u>A\$/km</u>
2400	96	25m	48	2	466.00

Kilometres of coverage will be computed based on the number of "pops" or shots per line multiplied by the "pop" or shot interval.

c. Daily Rate

A daily rate or standby charge of A\$19,680.00 per day or prorated on a twenty-four hour basis for lesser periods.

Daily rate shall be payable for: time during which the survey vessel is unable to conduct operations due to any cause beyond GSI's reasonable control (except damage to the vessel), including but not limited to, time spent waiting on instructions or services to be provided by Bass Strait and standby due to weather and feathering.

14. Items to be Furnished by Cue Minerals

Bass Strait shall furnish all other personnel, equipment, supplies and services required for the performance of this survey over and above those furnished in connection with the field unit as described above, such as but not limited to the following:

- a. All permits necessary to conduct the operations including those required for: entry into the operations area, entry of the personnel and material of the field unit and supply operations.
- b. Import duties (or taxes in lieu thereof) and agents' fees that may be levied on or incurred by the field unit or survey control stations, or their supplies and provisions.
- c. Program charts, base maps and preplots which will be delivered to GSI at least ten days prior to anticipated commencement of operations. The program charts shall give the end points on each line segment in co-ordinates in the same co-ordinate system as that used for control stations.
- d. All extra personnel required by local laws and regulations, such as, but not limited to services of local marine pilots, standby vessel crews, and the like.

- e. Fisheries Inspector or other Governmental agents, if required as condition of permits, including vessel and other expenses for them.
- f. A support vessel for such uses as logistical support and relocation of Maxiran base stations, at-sea data drops and other operational requirements if necessary.

For those above items furnished by GSI upon Bass Strait's request, GSI is to be reimbursed at cost plus a 12 percent handling fee.

- 15. This proposal assumes that Bass Strait will make available sufficient light diesel to GSI for the performance of this survey. Our prices are based on the current price of A\$00.26/litre. If the actual price during the survey exceeds this price, then Bass Strait is to reimburse GSI for the actual price in excess of A\$00.26/litre.

APPENDIX A

Survey VesselM.V. "EUGENE McDERMOTT 11"

Flag	: Panama
Homeport	: Panama
Trade	: Foreign Going-Seismic Exploration
Owners	: Geophysical Service Inc.
Call Sign	: HO 9376
Length	: 52.73 metres L.O.A.
Breadth	: 12.19 metres
Depth	: 4.27 metres
Draft	: 3.05 - 3.24 metres
Official Number	: 7062 - PEXT - 1
Gross Tonnage	: 929.89 tonnes
Net Tonnage	: 249.09 tonnes
Engine Power	: 2 x 839.25 HP engines

APPENDIX B

M.V. EUGENE McDERMOTT II

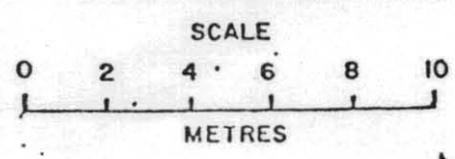
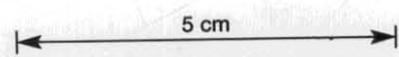
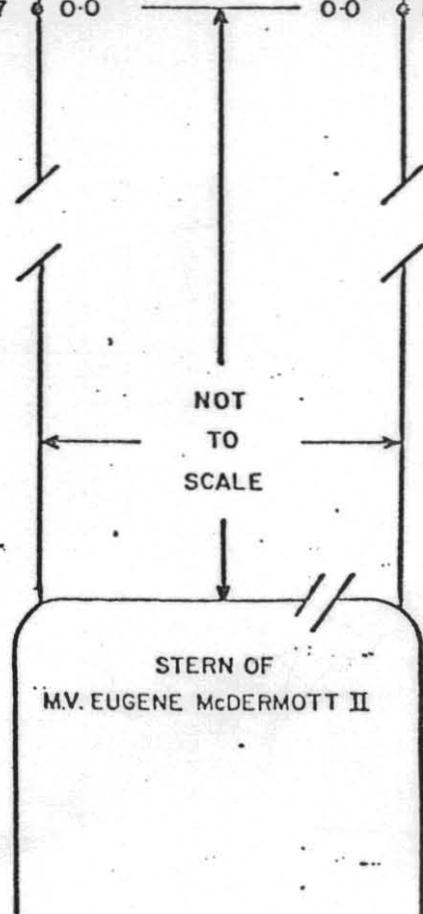
AIRGUN ARRAY

32.77 LITRES CAPACITY (≈2000 CUBIC INCHES)

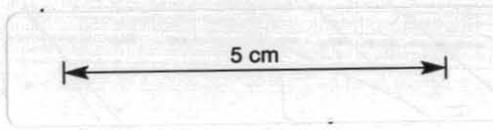
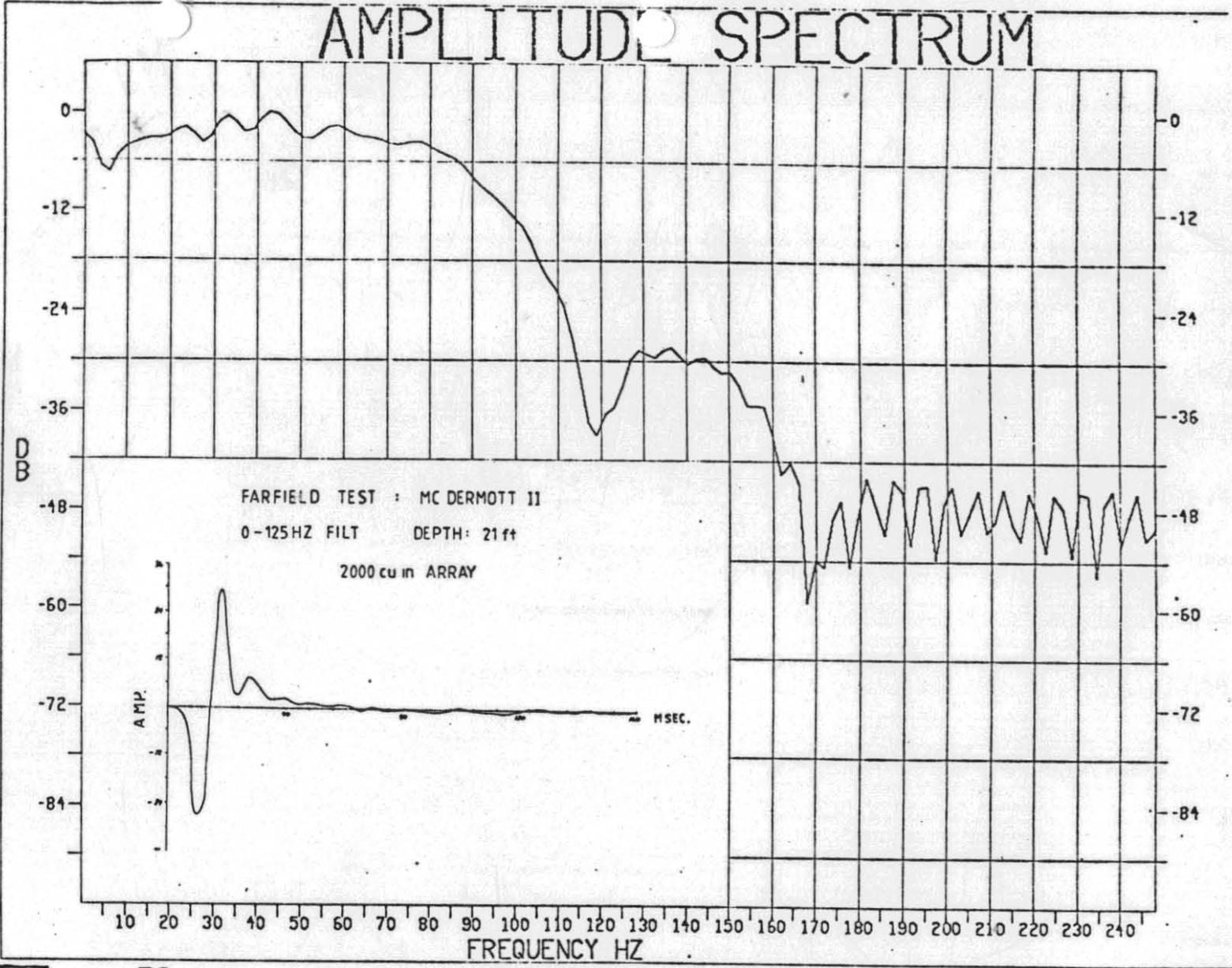
13800 KILOPASCAL AIR PRESSURE (≈2000 PSI)

TOWED AT 6-7 METRES DEPTH

CAPACITY IN LITRES	DISTANCE FROM GUN CLOSEST TO STERN	CAPACITY IN LITRES	
164	18.286	18.542	328
164	17.448	17.501	328
328	16.407	16.205	655
328	15.365	14.910	655
328	14.324	13.614	655
328	13.283	12.319	655
655	11.987	10.840	1311
655	10.692	9.271	1.64
655	9.400	7.620	1.97
1311	6.629	5.969	1311 SPARE
164	5.054	5.512	1311 SPARE
SPARE	164	5.055	1311 SPARE
SPARE	164	3.479	1.64 SPARE
SPARE	164	3.022	1.64 SPARE
SPARE	197	1.371	1.97 SPARE
SPARE	197	.914	1.97 SPARE
SPARE	197	.457	1.97 SPARE
SPARE	197	0.0	1.97 SPARE

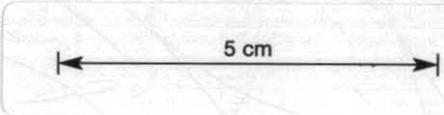
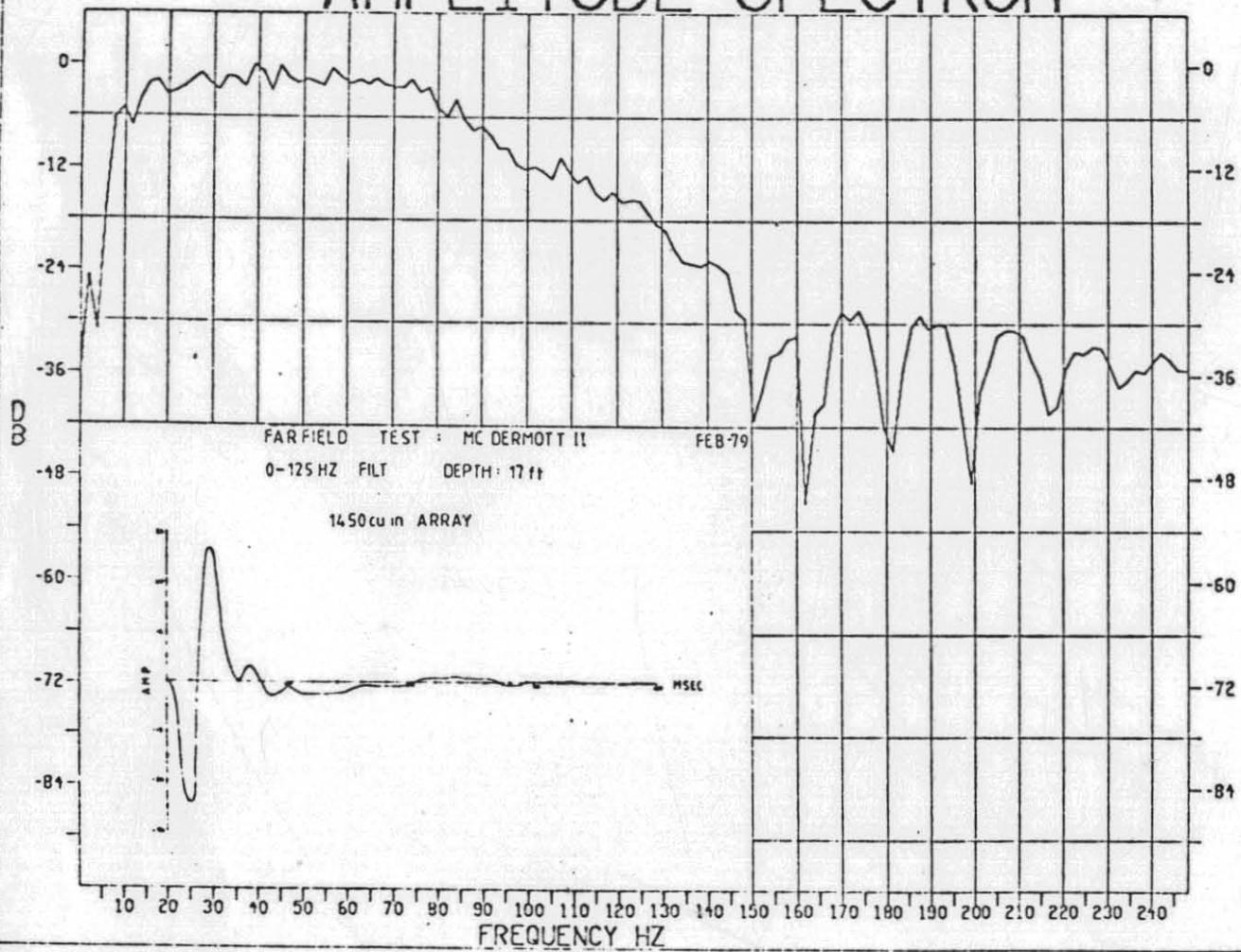


AMPLITUDE SPECTRUM



APPENDIX B

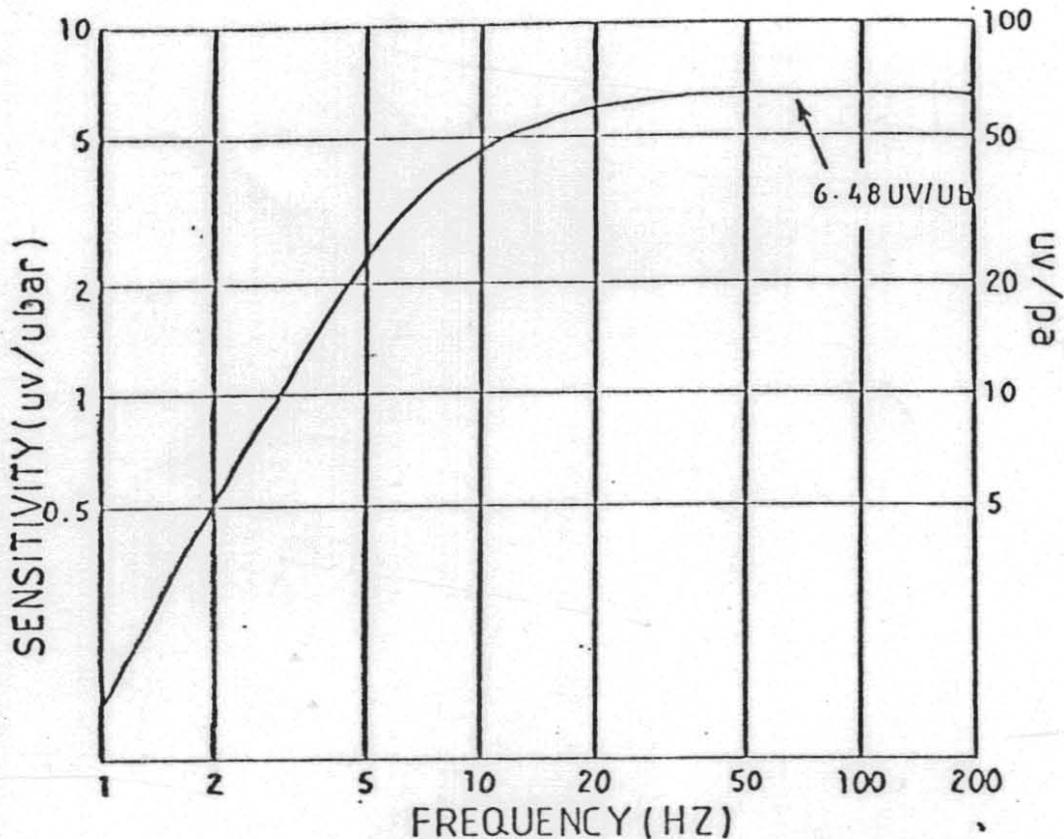
AMPLITUDE SPECTRUM



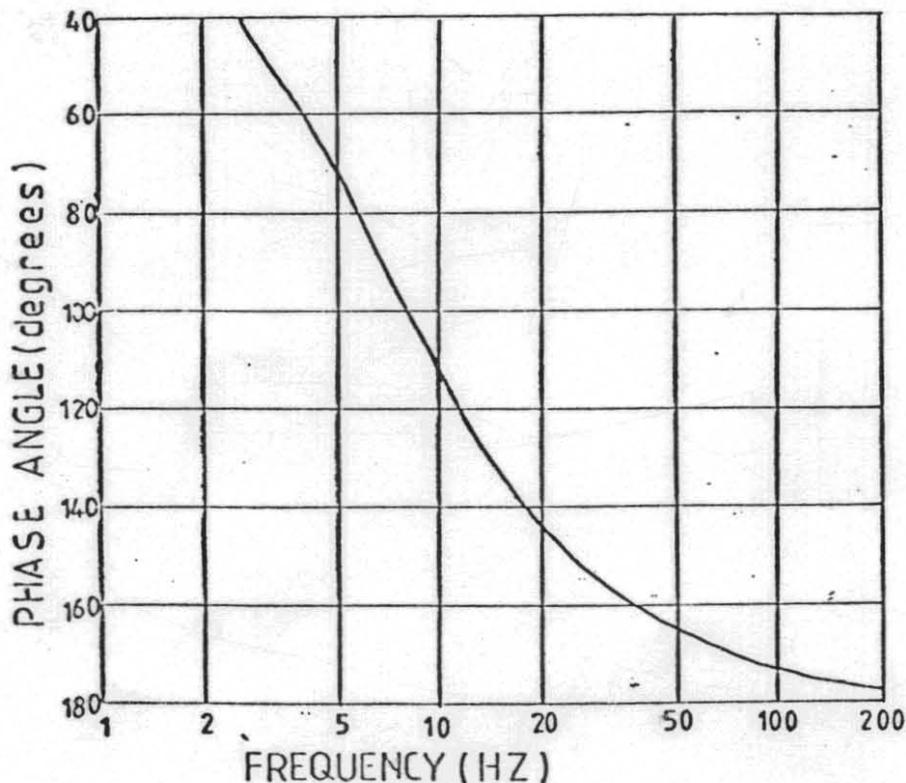
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APPENDIX C



96 trace streamer sensitivity response, DFS V, 25M & 50M groups



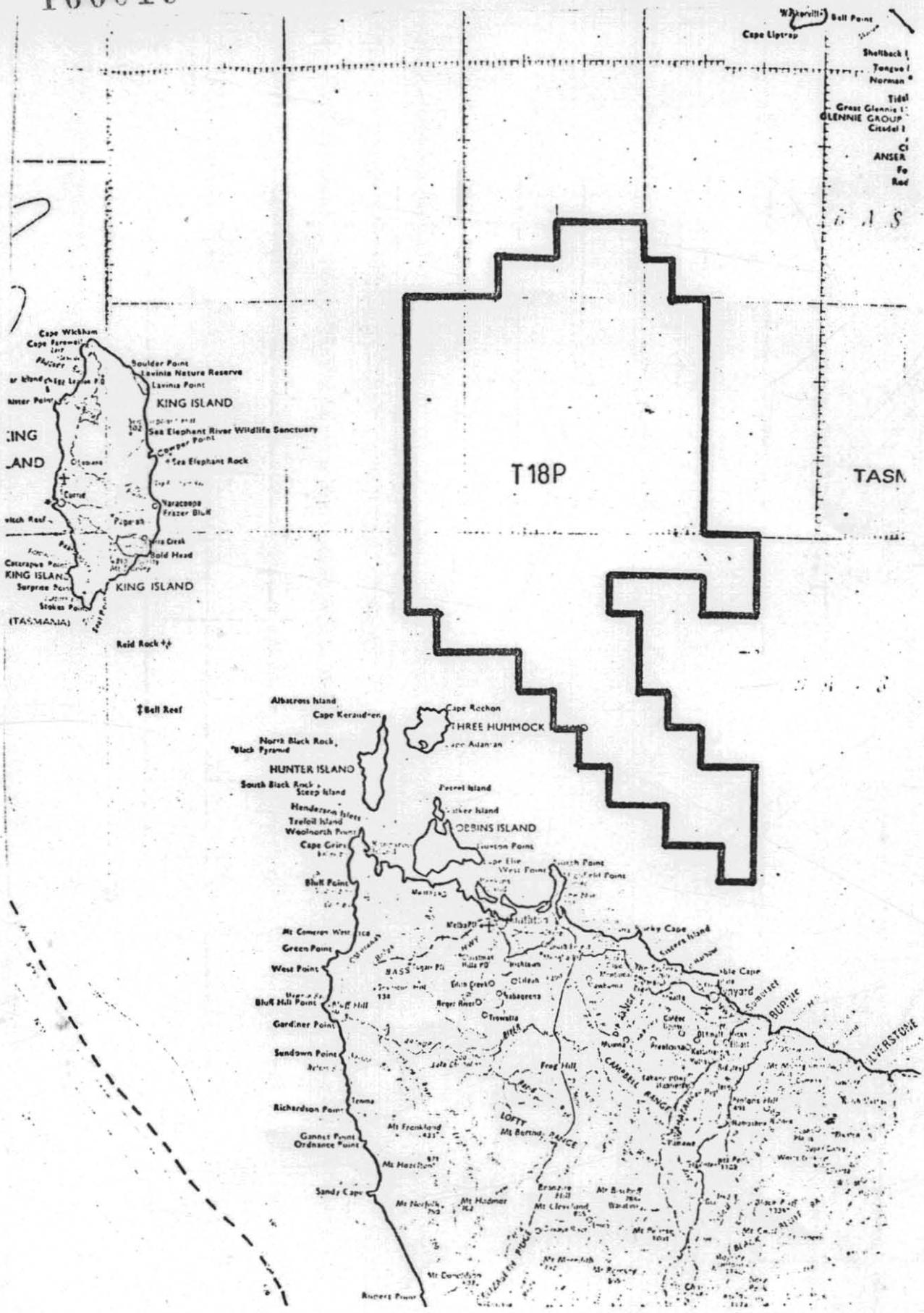
96 trace streamer phase angle response, DFS V, 25M & 50M groups

160018

4.00

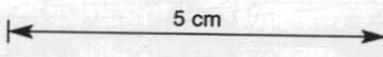
ILLUSTRATIONS ACCOMPANYING REPORT

166019



LOCATION OF SEISMIC SURVEY B.B.S.81

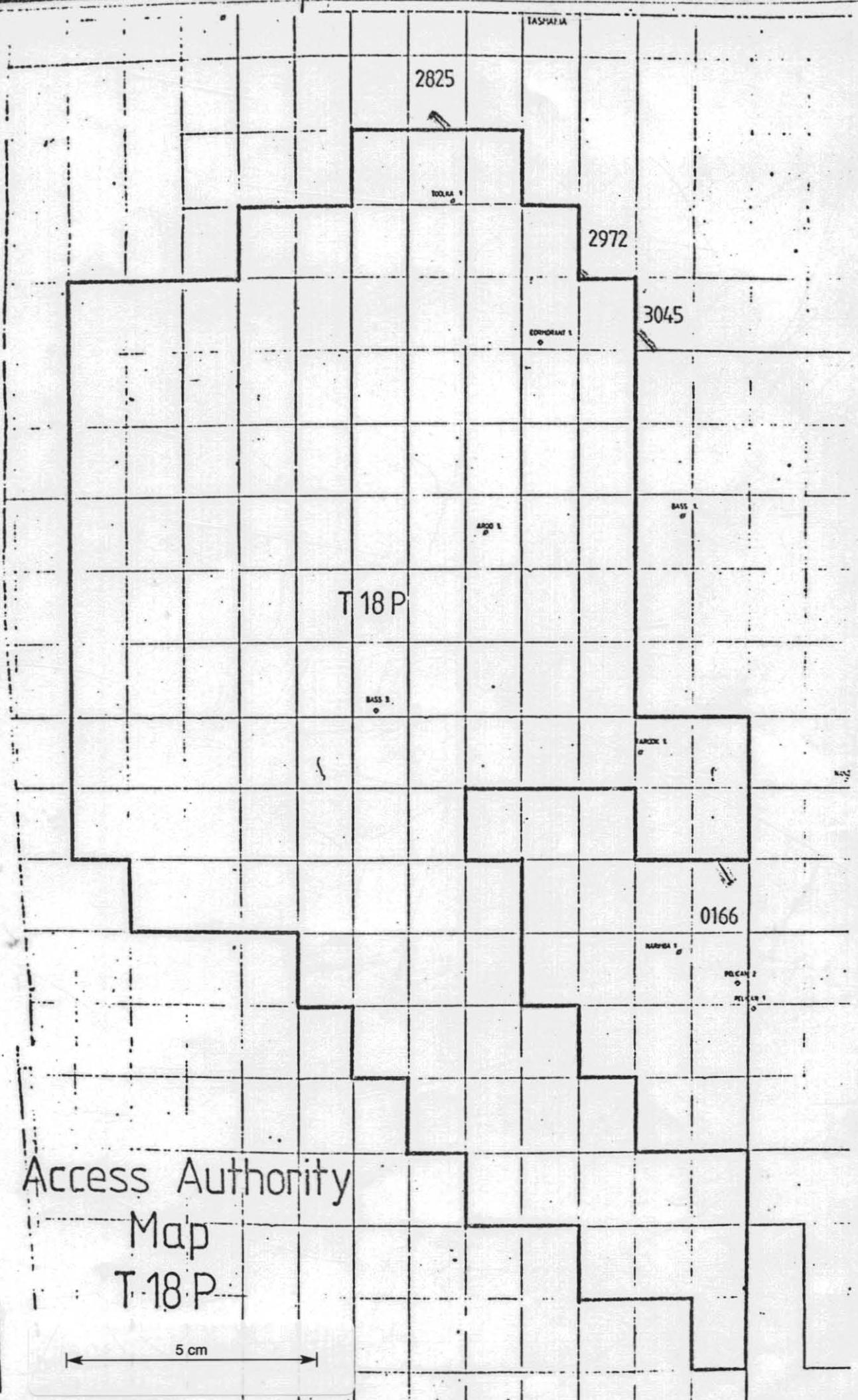
BASS STRAIT OIL AND GAS N.L. CORMORANT PROSPECT



BSO.705/4
SCALE 1:1,000,000

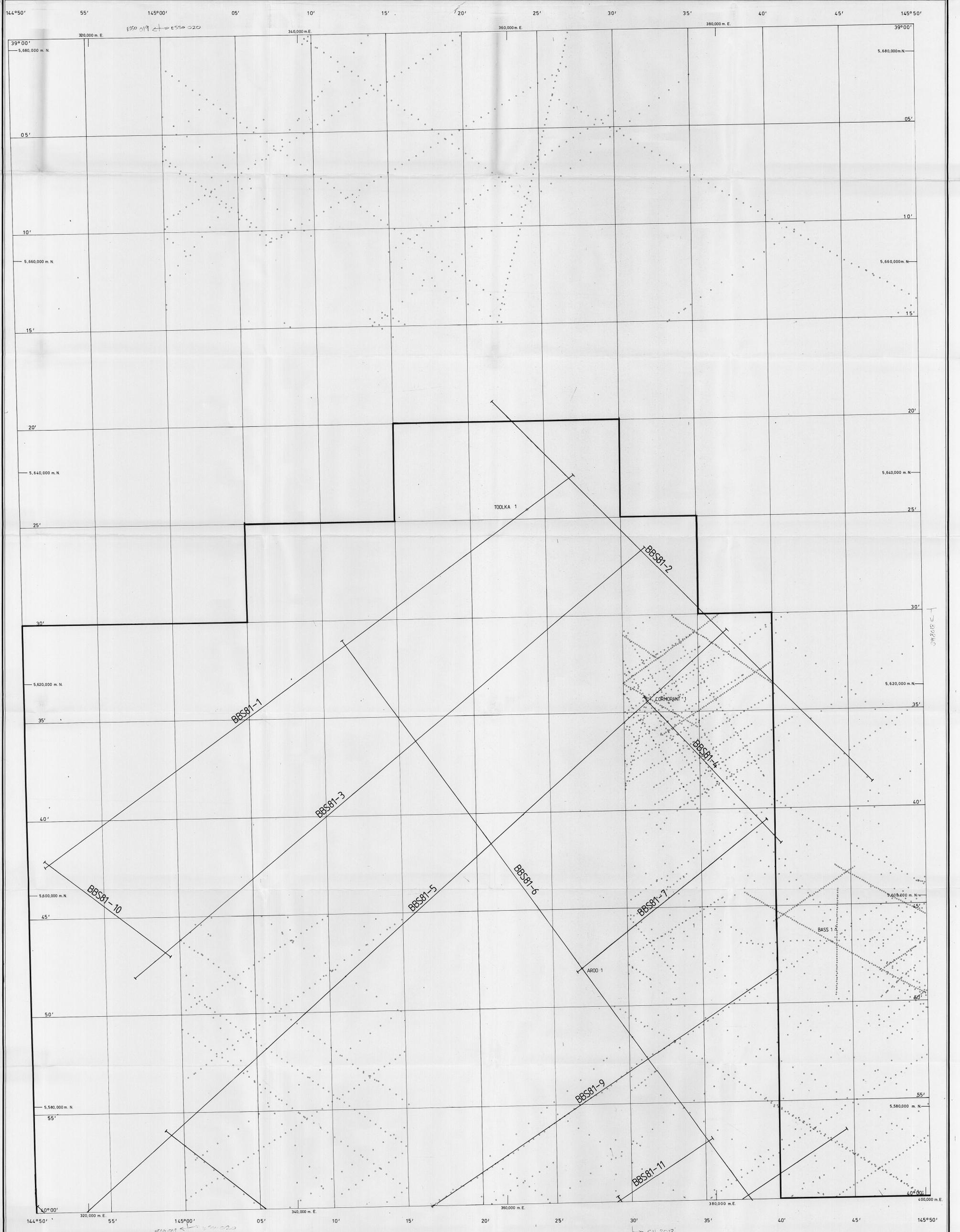
PART OF MELBOURNE SJ.55
& TASMANIA SK.55

166020



Access Authority
Map
T.18.P.

5 cm



Scale 1:100,000

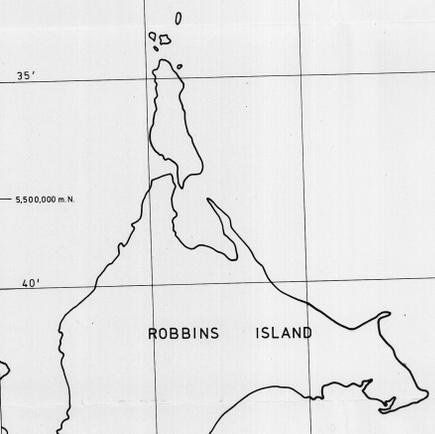
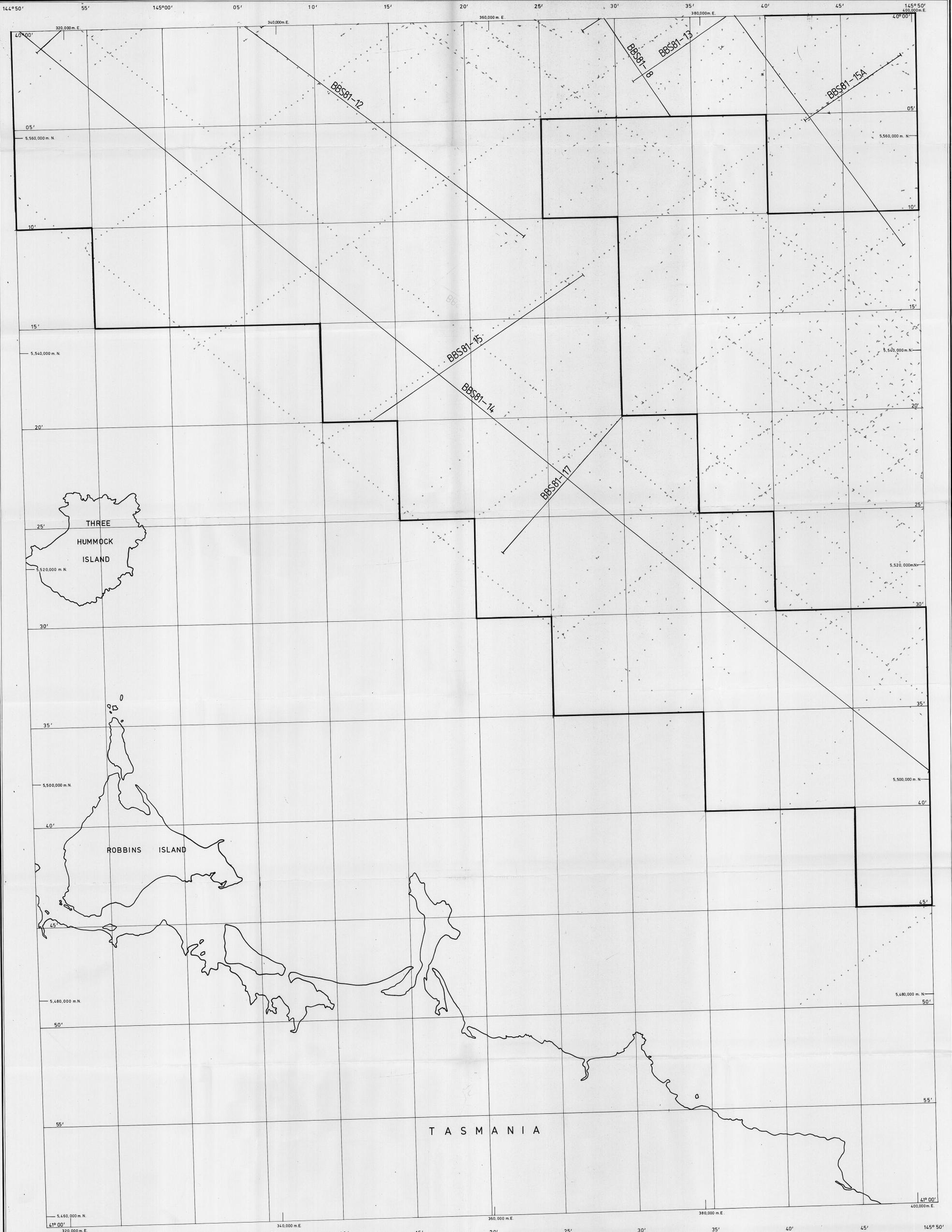


SEISMIC PROGRAMME MAP 1
T18P



705/5A

100021



T A S M A N I A

Scale 1 : 100,000
 0 1 2 3 4 5 6 7 8 9 10
 KILOMETRES
 Projection UTM Zone 55 GM 147°E
 Compiled by Bass Strait Oil & Gas NL

SEISMIC PROGRAMME MAP 2
 T18P



MAPPING INFORMATION GENERAL		MAPPING INFORMATION DEPTH	MAPPING INFORMATION TIME
Oil Well	Oil Show	Contour in metres	Times in msec below sea level
Gas Well	Gas Show	Isopach contour in metres	Contour interval 50 msec
Oil & Gas Well	Oil & Gas Shows	Contour based on fair seismic data	Contour based on conjecture
Analog Seismic Shot Point	Drilling	Fault, 'D' downthrown side	
Digital Seismic Shot Point	Dry Hole (abandoned)		
Block No	Petroleum Tenement Boundary		

Datum: Sea Level
 Contour Interval:
 Author: C. GLAZEBROOK
 Date:
 Drawn:
 Checked by:
 Revised:

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