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T/14P part VI*

Cue Minerals N.L.
153 Dorcas Street,
SOUTH MELBOURNE, 3205

Report 701/8

BCS.81 SEISMIC PROGRAMME
FOR
PETROLEUM EXPLORATION PERMIT
TAS 14P

WORK ORDER 701

October, 1980

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1.00 INTRODUCTION

As mentioned in the Quarterly report for the period ending September 30th, 1980, (Report 701/7, a preliminary seismic programme has been formulated for Permit Tas T 14P.

This is to take the form of a marine seismic survey of 537.0 kilometres. 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

CURRENT INTERPRETATION

Petroleum Exploration Permit TAS T 14P, lies in the central portion of the Bass Basin. Five wells have been drilled in the permit area, all without success, but the Pelican gas/condensate discovery lies approximately 30 kilometres to the Wouth. To the West, significant hydrocarbon shows were recorded in the Bass No. 3, Aroo No. 1 and Cormorant No. 1 wells. The prospective section to date has been the late reservoir and cap rocks.

Although a thick prospective Early Cretaceous sedimentary sequence is believed to underlie the Eastern View Group in the central basin area, it has never been explored as all marine seismic surveys shot so far have failed to record adequate reflections from horizons below the coal measures.

Previous geophysical surveys in the area include initial aeromagnetometer surveys and a series of marine seismic surveys shot between 1965 and 1975. The earliest seismic surveys used a dynamite source and analog recording for single fold CDP coverage. The latest seismic data available was shot by Hematite Petroleum Pty. Ltd. and utilized:-

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

Data were processed for 24 fold CDP coverage with deconvolution before and after stack. Similar equipment and processing was used by Hematite for their seismic survey of September, 1873 and data were of similar quality. Hematit's report:-

"Flinders Seismic Survey". March 1974, by J.I. Denham, M. McNicol and E. Urschel-is available for this survey. Only two horizons were mapped in TAS T 14P, the deepest being within the Eastern View Group. In the Aroo area to the West an unidentified horizon was mapped below the Eastern View Group but this was not extended eastwards into TAS T 14P. Hematite's geophysicists concluded that improved data acquisition techniques will be required to record reflection data from below the coal measures.

For this current survey, Cue Minerals N.L. propose to use the G.S.I. vessel "Eugene McDermott 11" equipped with:-

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

By using this more sophisticated equipment over the proposed 549 kilometre grid, is hoped that early Cretaceous horizons may be mapped as well as the Tertiary and Eastern View group.

3.00

SPECIFICATIONS FOR MARINE SEISMIC SURVEY3.10 General.

A total of 537.0 kilometres are required to be shot. This survey is to be known as BCS 81 and the lines are shown on the accompanying plan CUE 701/13.
(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>
BCS 81-1	22.6	
BCS 81-3	32.3	Tie Bass No. 1 well
BCS 81-5	32.5	
BCS 81-7	45.3	
BCS 81-9	70.5	Tie Dondu No. 1, Poonboon No. 1 and extension to Pelican gas field.
BCS 81-11	34.0	
BCS 81-13	10.5	
BCS 81-2	21.0	
BCS 81-4	35.4	Tie Bass No. 2 well
BCS 81-6	4.3	Tie Yurongi No. 1 well
BCS 81-8	64.5	Tie Dondu No. 1 well
BCS 81-10	64.2	
BCS 81-12	54.2	Tie Nangkero No. 1 well to Bass No. 1 well
BCS 81-14	29.4	
BCS 81-16	16.3	Tie Pelican No's 1 and 2 wells to BCS 81 assignment.
15 lines	537.0	

3.20 A. Acquisition Parameters and Specifications

Tas T14P

BCS.81 Survey

Cable : 2400 metres, 96 trace, 48 fold,
12 metre (40ft + 5ft) depth

Shot : 1 pop per shotpoint, every 25 metres

Sample Rate : 2 milliseconds all lines

Record Length : 5 seconds

Filters : 2 millisecond sample rate .

 Low Cut : 8 Hertz/18dB octave..

 High Cut : 128 Hertz/72dB per octave

Cable Noise : 3 microbars (to be monitored at boat
(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 : Trace 92
 Section

Runout at End of
 Lines : Has been allowed for on survey
 plan map

Navigation
 Specivications : Maxiran Shore Stations as per
 Contractors' specifications

Feathering Angle to
 be listed : Every 100 shotpoints when less than
 6^o Every 50 shotpoints when 6^o to
 10^o, not to exceed 10^o

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 January 1981.

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 ½ 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

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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

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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.

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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 Cue Minerals and standby due to weather and feathering.

14. Items to be Furnished by Cue Minerals

Cue Minerals 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.

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- 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 Cue Minerals' request, GSI is to be reimbursed at cost plus a 12 percent handling fee.

15. This proposal assumes that Cue Minerals 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 Cue Minerals is to reimburse GSI for the actual price in excess of A\$00.26/litre.

APPENDIX A

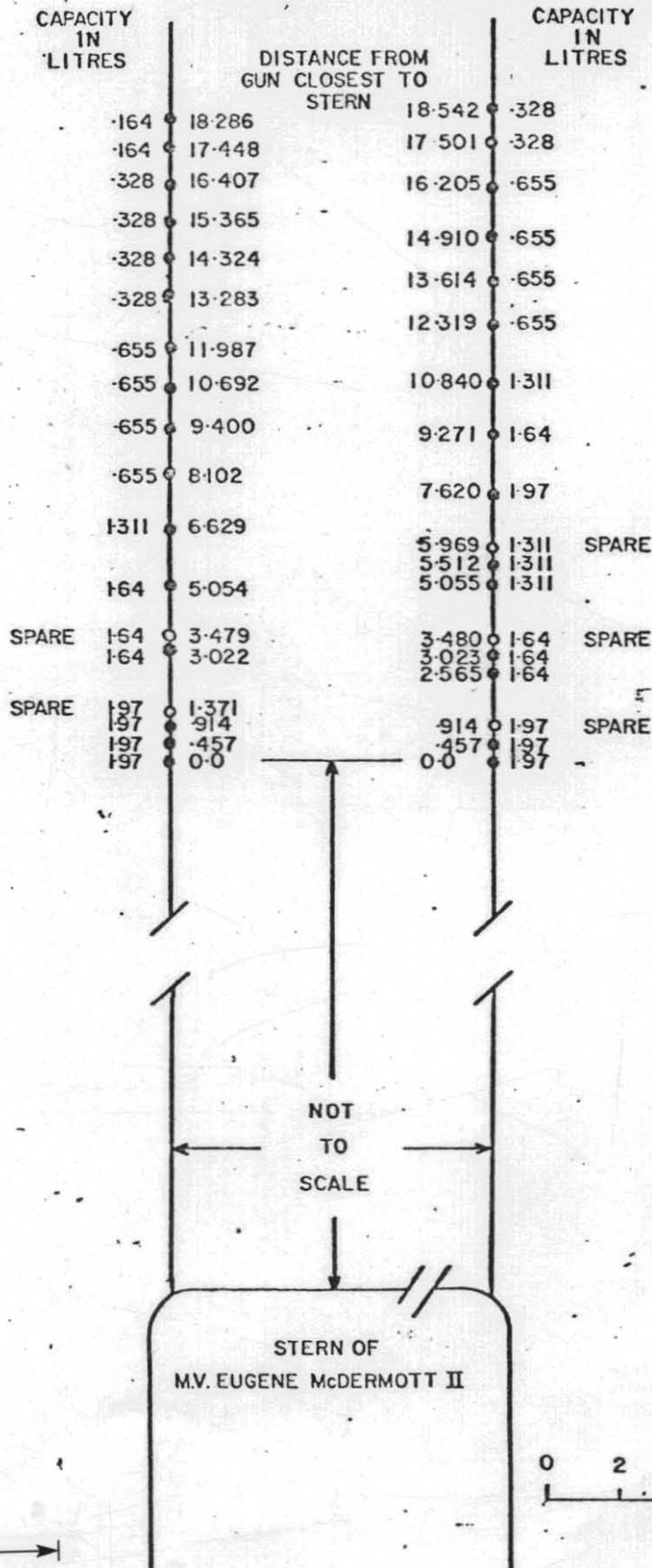
Survey VesselM.V. "EUGENE McDERMOTT 11"

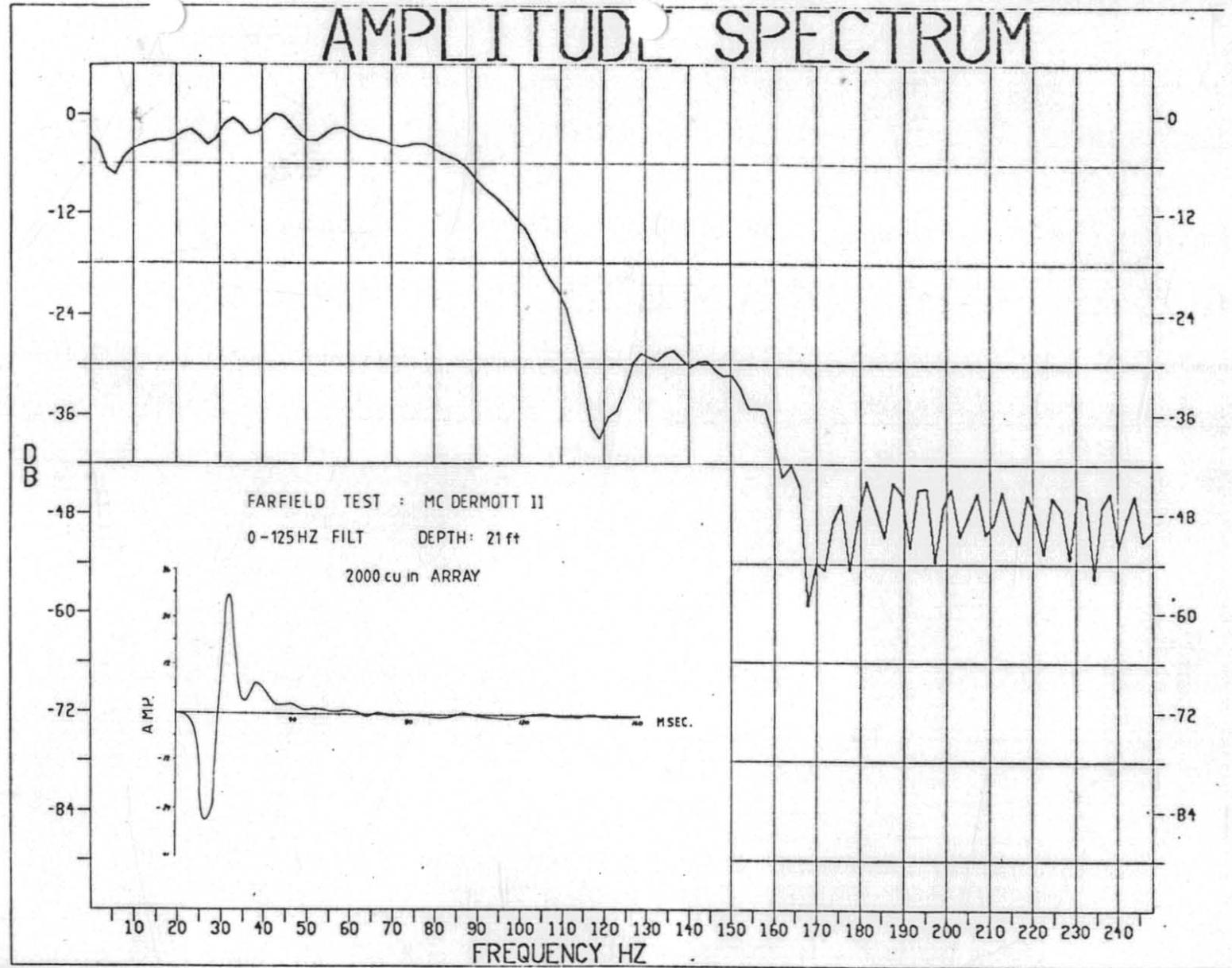
Flag	: Panama
Homeport	: Panama
Trade	: Foreign Going-Seismic Exploration
Owners	: Geophysical Service Inc.
Call Sign	: HO 9376
Length	: 52.73 metres L.O.A.
Breadth	: 12.19 metres
Depth	: 4.27 metres
Draft	: 3.05 - 3.24 metres
Official Number	: 7062 - PEXT - 1
Gross Tonnage	: 929.89 tonnes
Net Tonnage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

APPENDIX B

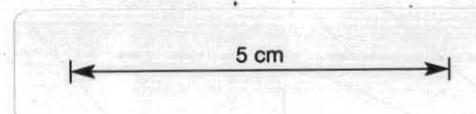
M.V. EUGENE McDERMOTT II

AIRGUN ARRAY
 32.77 LITRES CAPACITY (≈2000 CUBIC INCHES)
 13800 KILOPASCAL AIR PRESSURE (≈2000 PSI)
 TOWED AT 6-7 METRES DEPTH



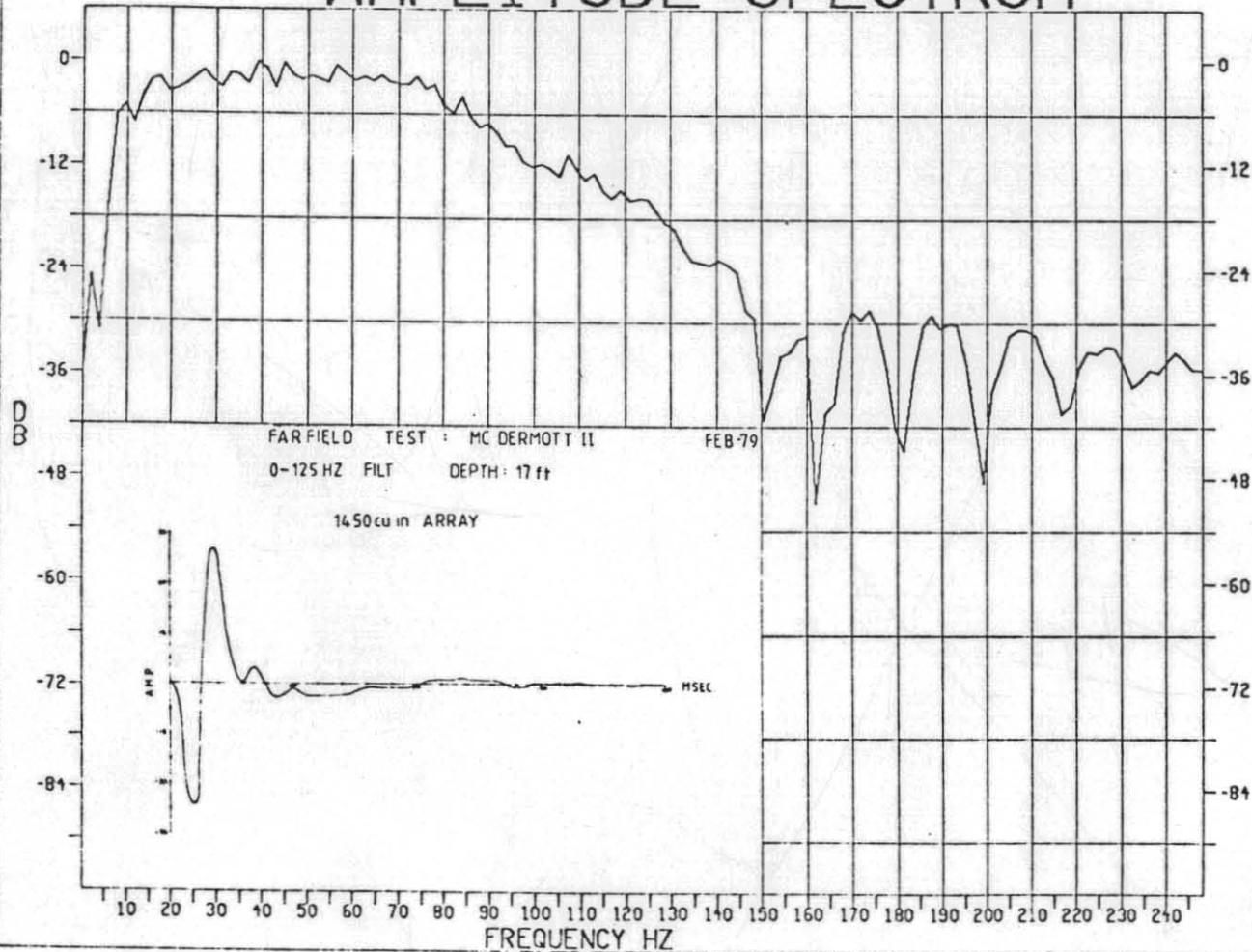


Appendix B.



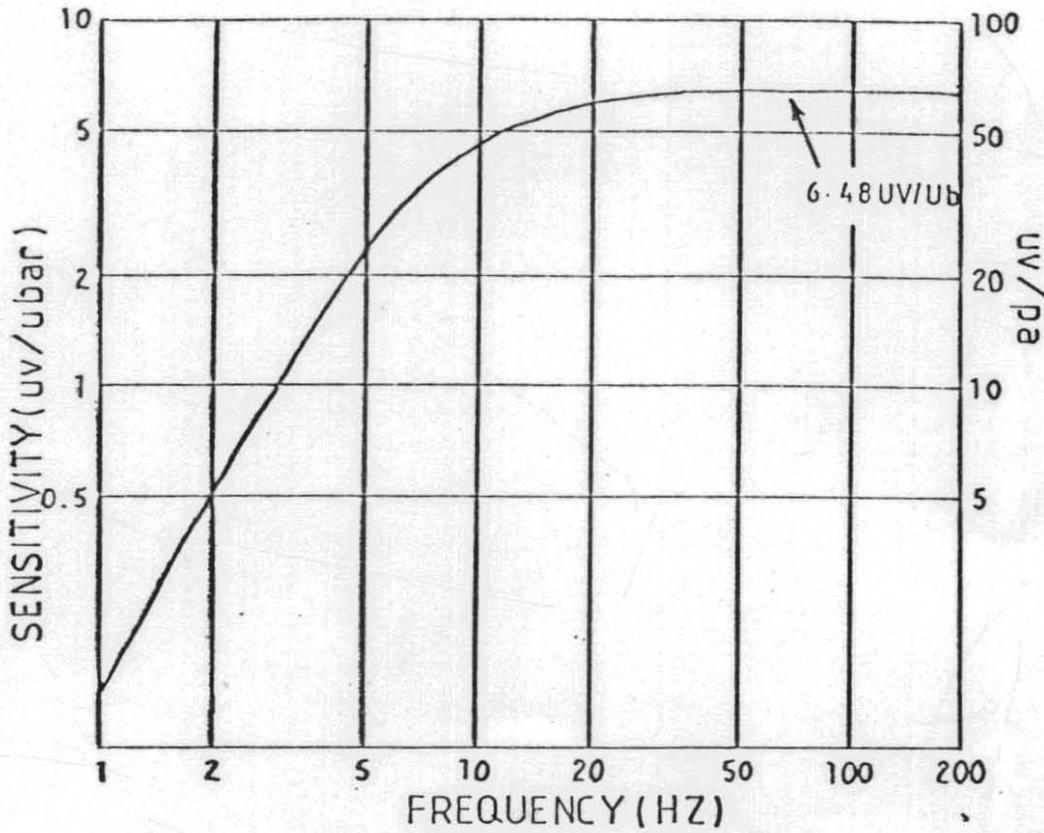
APPENDIX B

AMPLITUDE SPECTRUM

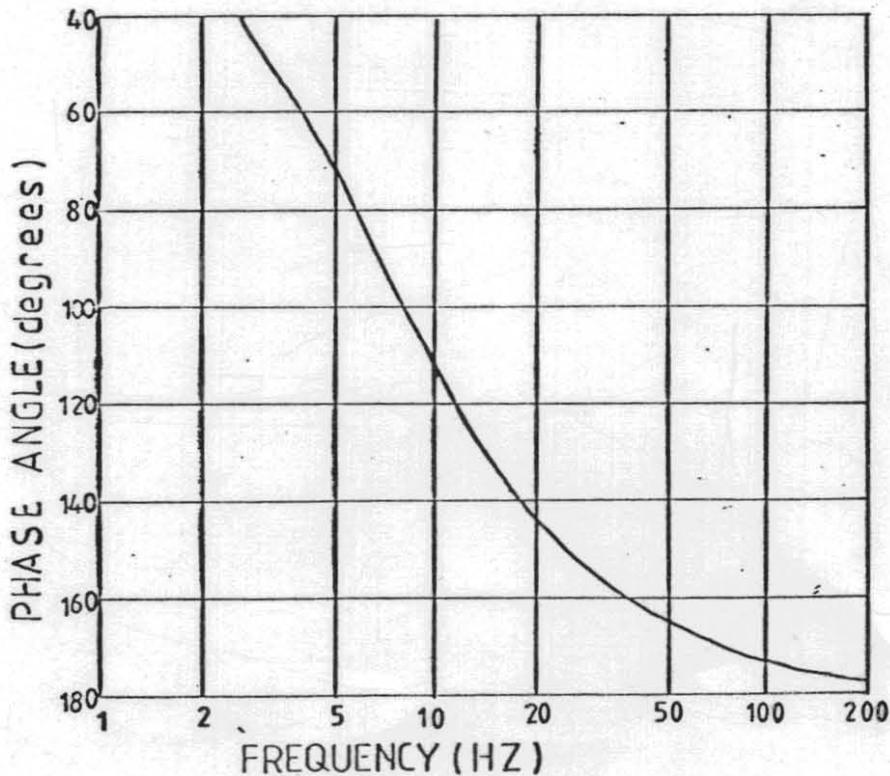


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APPENDIX C



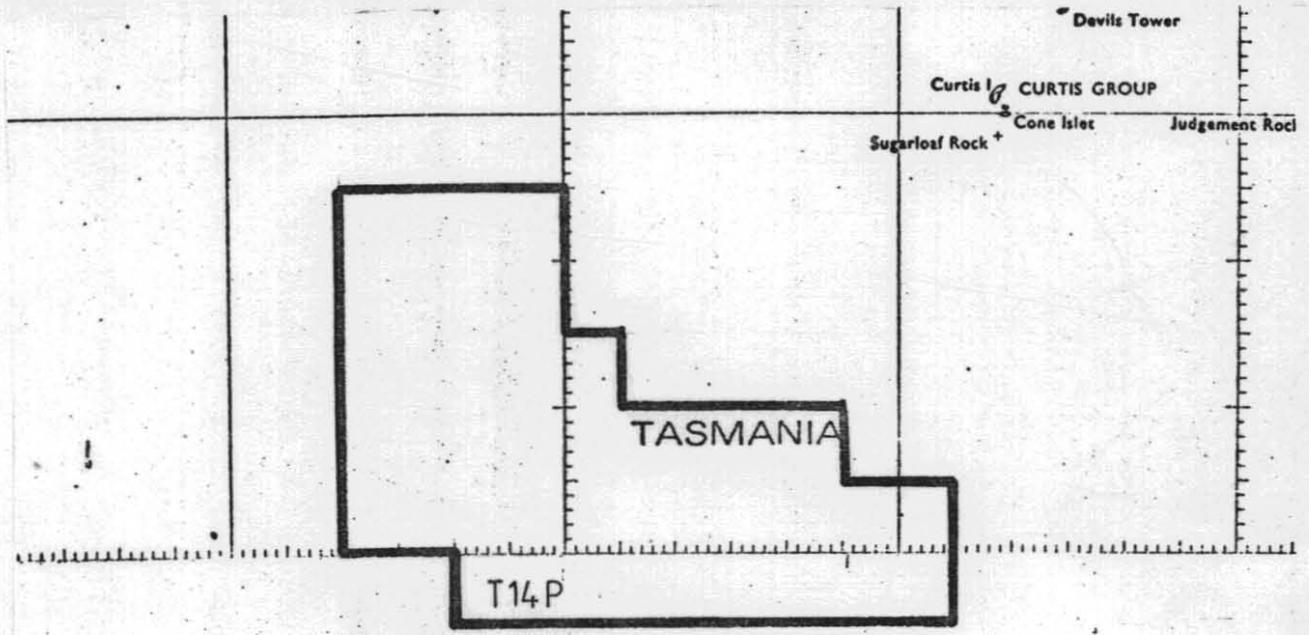
96 trace streamer sensitivity response, DFS V, 25M & 50M groups



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

4.00

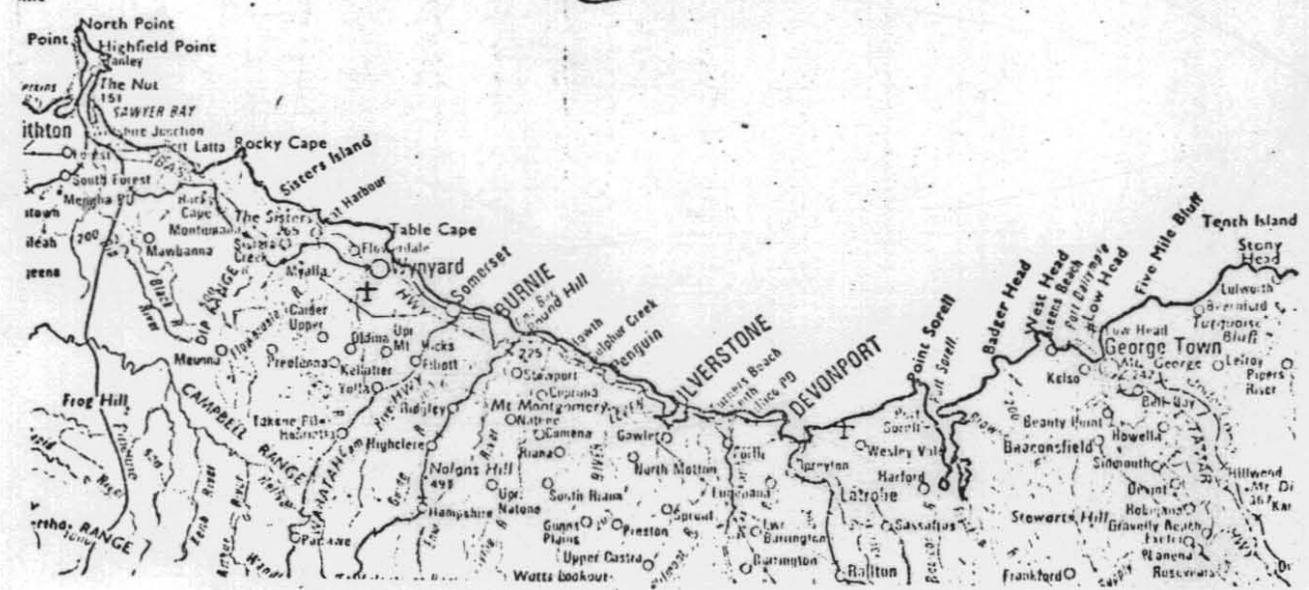
ILLUSTRATIONS ACCOMPANYING REPORT



BASS STRAIT

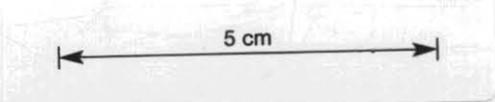
OCK ISLAND

ND
int

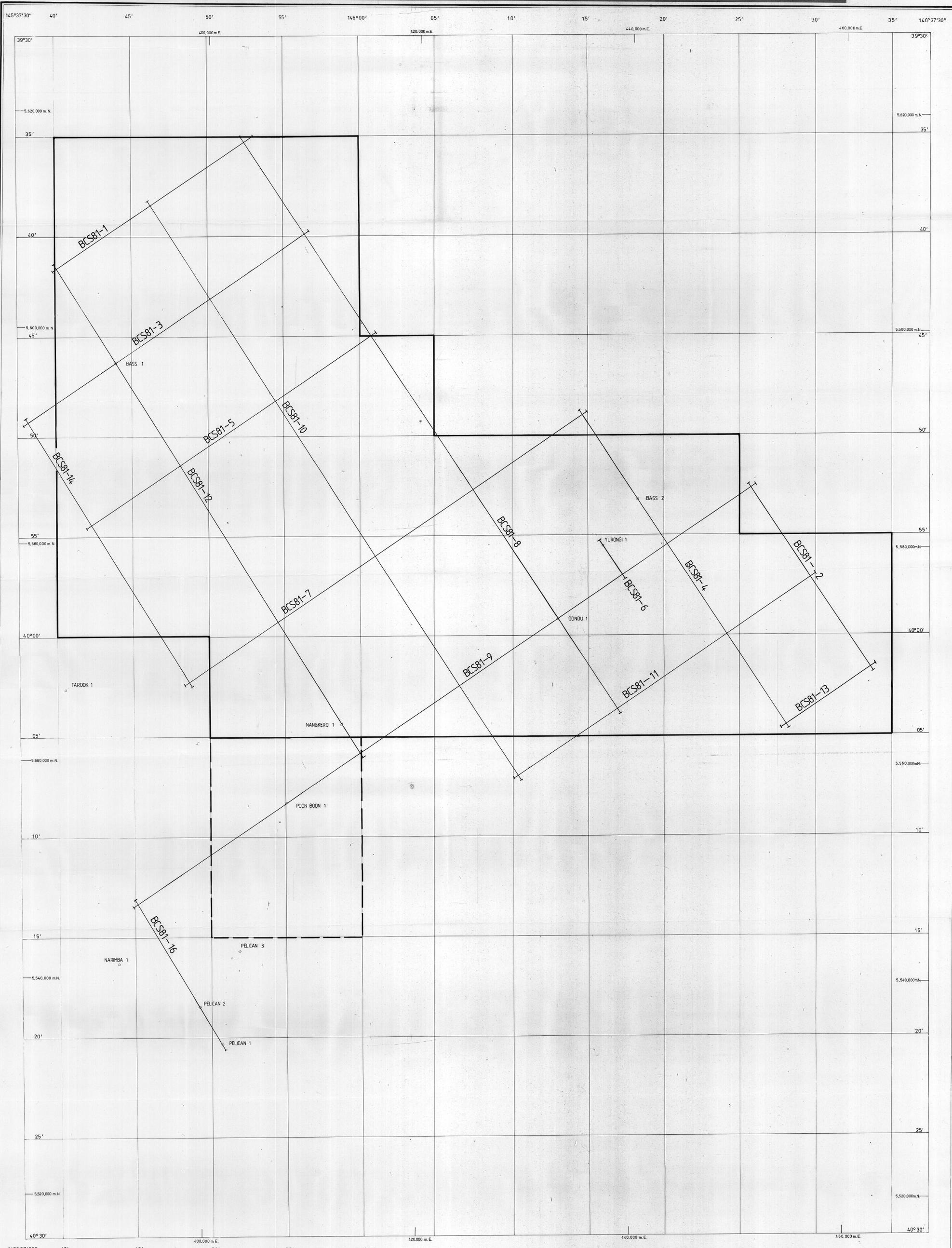


LOCATION OF SEISMIC SURVEY B.C.S. 81
CUE MINERALS N.L.

CUE. 701/12
SCALE 1:1,000,000



PART OF MELBOURNE SJ.55
& TASMANIA SK.55

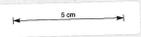


SCALE 1:100,000



SEISMIC PROGRAMME MAP

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