054001

Bass Basin part X

BASS B69A MARINE SEISMIC AND MAGNETIC SURVEY

FINAL SUBSIDY REPORT

BY

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Esso Standard Oil (Australia)Ltd.
Sydney, N.S.W., Australia
May 1969

OR-010

TABLE OF CONTENTS

C54003

ABSTRACT

The Bass Basin covers an area of 25,000 square miles and is located between the Australian mainland and Tasmania. It is bounded on the east by the Bassian Rise and on the west by the King Island-Mornington High.

Deposition was initiated in the southeastern part of the basin in Lower Cretaceous time and before true basin inception. The basin as now known began to form later in the Lower Cretaceous with gentle subsidence accompanied by an en echelon system of normal basement faulting. Upthrown basement fault blocks remained as stable areas and caused much of the local structure presently found in Bass. General subsidence continued throughout the Tertiary and was greatly accelerated during the Miocene.

The lithology and age of Pre Upper Cretaceous sediments in the area are presently unknown. Continental deltaic deposition prevailed from Upper Cretaceous to Upper Eocene. Near the close of the Eocene, the seas transgressed to the east and marine sediments were deposited during the remainder of the Tertiary.

The B69A Seismic Survey covers an area of more than 3000 square miles in the southeastern part of the basin. The information derived from this programme has greatly altered previous concepts regarding the geologic history of the basin.

LIST OF ILLUSTRATIONS

VARIABLE DENSITY SECTIONS

Lines	Shot Points
B69A-1	1323-1664
B69A-2	1206-4285
B69A-3	2473-2799
B69A-4	3657-3945
B69A-5	2129-4164
B69A-6	5201-5701
B69A-7	1856-3946
B69A-8	4696-4846
B69A-8A	4849-5200
B69A-9	447-1010
B69A-10	3055-3400
B69A-11	1-1205
B69A-12	2800-3054
B69A-13	4286-4695
B69A-14	1665-1855
B69A-15	3401-3656

T DELTA T VELOCITY GATHERS

Lines	Shot Points
B69A-1	1350, 1405, 1450, 1500, 1550, 1625
B69A-2	1245, 1310, 4190, 4250, 4280
B69A-3	2510, 2575, 2660, 2740
B69A-4	3670, 3710, 3770, 3810, 3850, 3900
B69A-5	2170, 2230, 2300, 2360, 2400, 2470, 4140
B69A-6	5300, 5360, 5400, 5440, 5480, 5530, 5600 5660
B69A-7	1880, 1920, 1960, 2000, 2040, 3990, 4045, 4080
B69A-8	4740, 4800
B69A-8A	4855, 4905, 4945, 4985, 5065, 5105
B69A-9	545, 590, 640, 690, 750, 800, 850, 890, 955, 990
B69A-10	3090, 3130, 3170, 3240, 3300
B69A-11	55, 90, 135, 175, 215, 255, 295, 330, 375, 415, 450, 1035, 1100, 1140, 1185
B69A-12	3010, 2890, 2930, 2970
B69A-13	4320, 4380, 4420, 4460, 4500, 4540, 4580
B69A-14	1700, 1765, 1805, 1840
B69A-15	3470, 3550, 3590, 3630, 3510

1. INTRODUCTION

The B69A Seismic and Magnetic Survey was carried out for Esso Exploration and Production Inc., Australia, by the Western Geophysical Company. The survey covered a large area located in Tasmanian Petroleum Permits TP4 and PT6. Field work commenced December 21, 1968 and was completed January 16, 1969. A total of 711.62 miles of 12 fold Aquapulse common depth point data was recorded.

2. OBJECT OF SURVEY

The B69A programme was designed to obtain common depth point seismic and magnetic reconnaissance control over the southeastern portion of the Bass Basin, where previous control mainly consisted of single fold analog data.

3. GENERAL GEOLOGIC HISTORY

The Bass Basin developed on the southern end of the Paleozoic Tasman Geosyncline. This broad trough extended from Northern Queensland to Tasmania. More than 40,000 feet of sediments were deposited and subjected to several periods of complex folding and faulting accompanied by local volcanism and metamorphism. This sequence of rocks is probably the main source of the Cretaceous Tertiary sediments which were later deposited in the Bass Basin.

The age of the basement rocks in the Bass Basin is postulated to vary from Precambrian to Triassic. The positive area forming the north and east flank of the basin is predominantly granite. The south and west flank is mainly composed of metamorphic rocks of varying grades.

During Lower Cretaceous time, a large regional syncline began to develop in a general east-west direction over an area which now includes the Otway, Bass and Gippsland basins. It is well knownthat many thousand feet of Lower Cretaceous greywackes and sub-greywackes were deposited in the Gippsland and Otway basins, but until the advent of recent seismic data the oldest sedimentation in Bass was believed to be Upper Cretaceous in age. It is now postulated that, at least in the southeastern part of the basin, several thousand feet of Lower Cretaceous sediments were deposited contemporaneously with the first phases of basin inception, initiated by large scale block faulting. The faults have a dominant northwest-southeast trend.

During the Upper Cretaceous the Bass Basin began to assume its present shape and more typical structural character. The southeastern part of the basin gradually tilted to the northwest and the large scale basement faulting began to die out. Continental deposits began at least as early as the Upper Cretaceous and prevailed to Upper Eocene. This section generally, is a deltaic-complex of interbedded sandstone, siltstone, shale and coal. The source of the Upper Cretaceous basin infill was the Precambrian and younger metamorphics on the south and west sides of the basin.

General regional subsidence continued during Paleocene and Eocene while basement faulting was sharply attenuated. Northeastern Tasmania was a positive area and shed the bulk of the clastic sediments during this period. Local unconformities were prevalent throughout this period of sedimentation. Esso Bass 2 indicates a significant unconformity occurred near the end of the Paleocene in the general area of this well. Upper Eocene was marked by the occurrence of widespread adjustment faulting in the sedimentary cover of the basin. Near the end of the Upper Eocene there was a transition from Continental to restricted marine deposition as the seas transgressed to the east. Marine shales were deposited conformably over shallow water sandstones, which overlaid continental sands, shales and coals. Eocene deposition transgressed the west flank of the basin over the King Island-Mornington High.

During the Oligocene, basin subsidence and marine transgressive deposition continued. These sediments are composed of shale, mudstone with small amounts of sand and volcanic tuffite. The volcanics were deposited mostly in the central and western part of the basin near the end of the Oligocene.

Subsidence greatly accelerated during the Miocene and marine deposition continued with some volcanic activity. Over 4000 feet of Miocene and younger sediments were deposited in the basin centre. Older Upper Cretaceous fault blocks were slightly rejuvenated resulting in most of the present Tertiary structure in the basin. The King Island-Mornington High experienced its last period of movement during the late Miocene. The late Miocene seas completely transgressed the Bassian Rise to the east and this was the first deposition across the divide between the Bass and Gippsland Basins.

A thin veneer of Quarternary sediments cover the Tertiary deposits.

4. INTERPRETATION

The previous interpretations of the Bass Basin covered by this survey were based largely on regional single fold seismic data. The Bass Basin was previously explored by Hematite's: The Bass Strait and Encounter Bay Aeromagnetic Survey, and The Bass Basin Marine Seismic Survey; and by Esso's: Bass Basin Marine Seismic Survey, The King Island East Marine Seismic Survey, Eastern Bass Strait Marine Seismic Survey, Bass ED-67 Marine Seismic Survey and Bass EF-68 Marine Seismic Survey. The information derived from the B69A seismic survey has enhanced the geolgical knowledge and changed the previous regional interpretation of the southeastern end of the basin.

Horizons Mapped - Five regional structure maps and a Total Magnetic Intensity map are submitted with this report. These structure maps are Top of Oligocene, Top of Eocene, Top of Paleocene, a Cretaceous Unconformity map and Basement. These horizons are discussed indivdually below.

Oligocene - The Top of Oligocene horizon dips gently from the shallow basin edge into the centre of the basin. There are no local anomalies observed within the mapped area. The up dip limit of the Oligocene is well defined along the northeastern flank where it pinches out on shallow basement. The Oligocene is too shallow to map accurately in the southeastern end of the basin, but is postulated to be present on or very near the surface. This is thought to be the only area in the Bass Basin where the Oligocene is not overlain by Miocene or younger sediments. Several igneous extrusives are present within the Oligocene formation in the southwest part of the map area.

Eocene - The structure on Top of Eocene is similar to that of the Oligocene. The Eocene structural configuration consists of gentle regional dip toward the centre of the basin. No anomalous structures, with the exception of occasional minor faulting, are evident on the Eocene horizon. The shallow data required to map the southeastern limits of the Eocene is questionable due to the seismic techniques used for recording the deeper data. The oldest volcanic extrusives in the Bass Basin are observed near the Top of Eocene in the southwestern part of the map.

Paleocene - The structure map on Top of Paleocene is based on a fairly continuous seismic reflection that ties the Esso Bass 2 well at an angular unconformity which breaches the Paleocene formation. Whether this seismic event actually reflects the Top of Paleocene and/or the unconformity throughout the area is open to question. However, for this report, the reflection is considered a marker for the Top of Paleocene and the unconformity is not necessarily present over the whole basin. The structure on the Paleocene is similar to that of the Eocene and is generally without local structure.

Cretaceous Unconformity - The age of this unconformity horizon is only postulated since it is deeper than existing well control. Seismic evidence suggests that it is probably early Upper Cretaceous or top of the Lower Cretaceous in age. The unconformity is regional in extent and can be mapped with reasonable confidence except in the southwestern part of the map. This horizon shallows in the southeastern end of the basin and overlies an unknown sedimentary section up to 18,000 feet thick. This section below the unconformity thins onto the basin flanks and basement highs. Most of the faulting in the basin occurs below the unconformity although large basement faults cutting the unconformity surface mark its western limits.

Basement - The structure map on basement reveals this part of the Bass Basin to be extremely faulted with basement ranging to deeper than 20,000 feet. Major faults have vertical displacements in excess of 10,000 feet. Most of the minor faulting occurred in the early stages of basin evolution and only cut a relatively thin section of the sedimentary cover. The most dominant basement anomaly in the area begins near the coast of Tasmania and extends northwest, parallel to seismic line B69A-8A. It is interpreted as a large, basement horst block that has been complexly faulted on the crest and northwest flank. There is evidence of uplift and displacement throughout the Cretaceous period with most of it probably occurring in the Lower Cretaceous. The sedimentary section on the southwest flank of the high thins rapidly toward the crest. Prominent lows appear on the downthrown sides of the major faults. Paralleling this positive feature to the southwest is a large southeast-northwest trending basement fault which forms the west and southwest limits of the structural province. Regional basement is much shallower on the upthrown side.

The seismic event reflecting basement is difficult to correlate over much of the area and therefore, many suspected minor faults were left off the basement map for simplification.

Total Magnetic Intensity Map - The final map of the B69A Magnetic Survey is very similar to that of the aeromagnetic survey of 1961, but is generally inconsistent with the seismic map on basement. Depths to basement calculated from the magnetics are usually only 30% - 50% of those depths recorded by seismic. The conclusion is that the basement is generally non-magnetic. The observed anomalies on the magnetic map are largely due to lateral magnetic susceptibility changes rather than a reflection of basement topography. The volcanic extrusives present in the Tertiary are also apparently non-magnetic.

5. CONCLUSIONS

The B69A Seismic Survey has accomplished its objectives. It has established the frame work of good quality seismic data that is necessary before detailed prospecting can proceed.

The structural history of the surveyed area involved large scale Lower Cretaceous tectonic movement and displacement. The area gradually stabilized through the Upper Cretaceous and was in a state of slow, orderly subsidence by the begining of the Tertiary. This persisted throughout the Tertiary to recent, therefore, structural anticlines of Tertiary age are probably not present in this particular area. There is relatively minor Tertiary faulting and associated closures will possibly be defined with seismic detail.

APPENDIX A

054008

FINAL OPERATIONS REPORT

AUSTRALIAN MARINE SEISMIC SURVEY

B69A

FOR

ESSO STANDARD OIL (AUSTRALIA) LIMITED

BY

WESTERN GEOPHYSICAL COMPANY OF AMERICA

PARTY 64

DECEMBER 1968 AND JANUARY 1969

WESTERN GEOPHYSICAL

TABLE OF CONTENTS

PLATES

APPENDIX

I. SUMMARY

A continuous reflection seismic survey using the AQUAPULSE System was conducted in the B69A offshore Tasmania area. Operations commenced on December 21st, 1968.

II. GENERAL INFORMATION

A. Contractors

The survey was conducted by Western Geophysical Company of America, 933 North La Brea Avenue, Los Angeles, California, and 69 Berry Street, North Sydney, New South Wales, Australia. Positioning control was provided by Offshore Navigation, Incorporated, 413-417 New South Head Road, Double Bay, New South Wales, Australia.

B. Base of Operations

Devonport, Tasmania was used as the base of operations for the B69A prospect. Good harbour facilities and daily air service was available and the town, though small, provided a good source of supply.

C. Weather

Weather conditions were generally good with no

January 1, 1969 : Berthed in Devonport to take off high priority Gippsland area tapes and load oxygen.

January 2, & 3, 1969 : Berthed in Devonport for A/D trouble. Instrument Supervisor Orval Brannon in from Singapore. A/D trouble corrected.

January 6, 1969 : Started shooting on Line A-1.

January 16, 1969 : At 1625 hours completed B69A area.

III. RECORDING OPERATIONS

A. Survey Vessel: M/V "Western Spruce" - 119 feet steel hull twin-screw vessel of American registry, powered by two General Motors V-16 Marine Diesel engines, capable of 11 knots cruising speed, and fitted with two Decca 202 Radar, Raytheon fathometer, and Apelco ship-to-shore radio.

B. Instrumentation

Digital Recorder - SDS 1010, 30-channel, 9-track, IBM compatible, EPRCO preferred, ½ inch gapless tape format, binary gain controlled amplifiers.

On-board Display - Raytheon Precision Depth Recorder, driven by output of trace 22, through TFA-1 amplifier.

Magnetometer - Varian Proton Marine.

Magnetometer - Model V-4937.

C. Detector Cable

A neutrally-buoyant oil-filled streamer cable equipped with four depth detectors, three special water break detectors, and 24 seismic detector groups was used throughout the survey. Each seismic detector group consisted of 32 crystal geophones in a tapered noise cancelling array, and were 230 feet in length. Dead sections 100 feet in length separated each "live" group, giving a group centre spacing of 330 feet. Refer to Plate II. The streamer cable buoyancy was adjusted to run at an average depth of 45 feet, and depth was maintained by eight CONDEP pressure cable depth controllers, to plus or minus 7 feet.

D. Recording Technique

With the AQUAPULSE system, four "guns", in a rectangular array, were trailed at a depth of about 30 feet. The gun pulse monitoring system was used in conjunction with MP-8 Geospace phones and 300 Hz galvos. Tests were made to ascertain the optimum gas pressure and fill time in order to obtain as near as possible a 3:1 gun pulse ratio of the first positive peak to the second. The pressures decided on were Oxygen 50 lbs. sq. in., Propane 20 lbs. sq. in. with a fill time of 1.5 seconds. Under continuous tow operations, a metered oxygen/propane mixture was fired electrically at intervals such that four pulses per 330 feet, or approximately 64 pulses per mile were produced. This pulse density allows certain options in so-called vertical summing and horizontal stacking, such as 4-sum 12-stack, or 8-sum 6-stack. Refer to Plate II for a detailed diagram of the streamer cable, AQUAPULSE gun array, and navigation antenna-gun array-cable relationship.

IV. DATA PRESENTATION

A. Field

A variable density section was made by recording the output of group 22 on the Raytheon Precision Depth Recorder. It was found that the vertical to horizontal exaggeration was about 5 to 1 when recording single pops. Wiggly trace, read-after-write monitors were produced by a Dri-Write camera every 8 pulses, or 200 meters. This monitor displayed data from the 24 seismic data channels, time break, individual gun pulse signatures, and direct water arrivals to the three water break detectors.

B. Processing

The digital tapes were air-shipped to Geophysical Services International for processing in Sydney.

V. KEY FIELD PARTY PERSONNEL

A. Esso Standard Oil (Australia) Limited

Name	Position
I. Criss	Client Representative

B. Western Geophysical Company of America

Name	Position
V. Smith	Supervisor
V. Hearon	Operations Manager
P. Cooper	Co-ordinator
K. Dunwoody	Observer
R. Adams	Gun Captain
A. Shirley	Instrument Supervisor

WESTERN GEOPHYSICAL

C. Offshore Navigation, Incorporated

Name	Position
I. Easterbrook	Party Chief
D. Hackenbruck	Mobile Operator
H. Adams	Mobile Operator

VI. STATISTICAL SUMMARY

A. B69A Area.

Cable length - 7590 feet.

Line length measured from first to last Shoran position.

Constants:

1 interval	- 0.1250 miles plus 330 feet
	- .0625 miles
Gun array centre to group 24 centre	- 896 feet
Pop rate	- 4 per 330 feet
Record length	- 5 seconds

Line	SP - SP	Profiles	Statute Miles
A-11	1-445, 1011 - 1205	640	79.94
A-9	446 - 1010	565	70.56
A-2	1206 - 1323 4165 - 4285	239	29.81

Line	SP - SP	Profiles	Statute Miles
A-1	1324 - 1664	341	42.56
A-14	1665 - 1855	191	23.81
A-7	1856 - 2128		
	3946 - 4098	426	53.19
A-5	2129 - 2472		
	4099 - 4164	410	51.19
A-3	2473 - 2799	327	40.81
A-12	2800 - 3054	255	31.81
A-10	3055 - 3400	346	43.19
A-15	3401 - 3656	256	31.94
A-4	3657 - 3945	289	36.06
A-13	4286 - 4695	410	51.19
A-8	4696 - 4848	153	19.06
A-8A	4849 - 5200	352	43.94
A-6	5201 - 5701	501	62.56
	TOTAL:	5701	711.62

054017

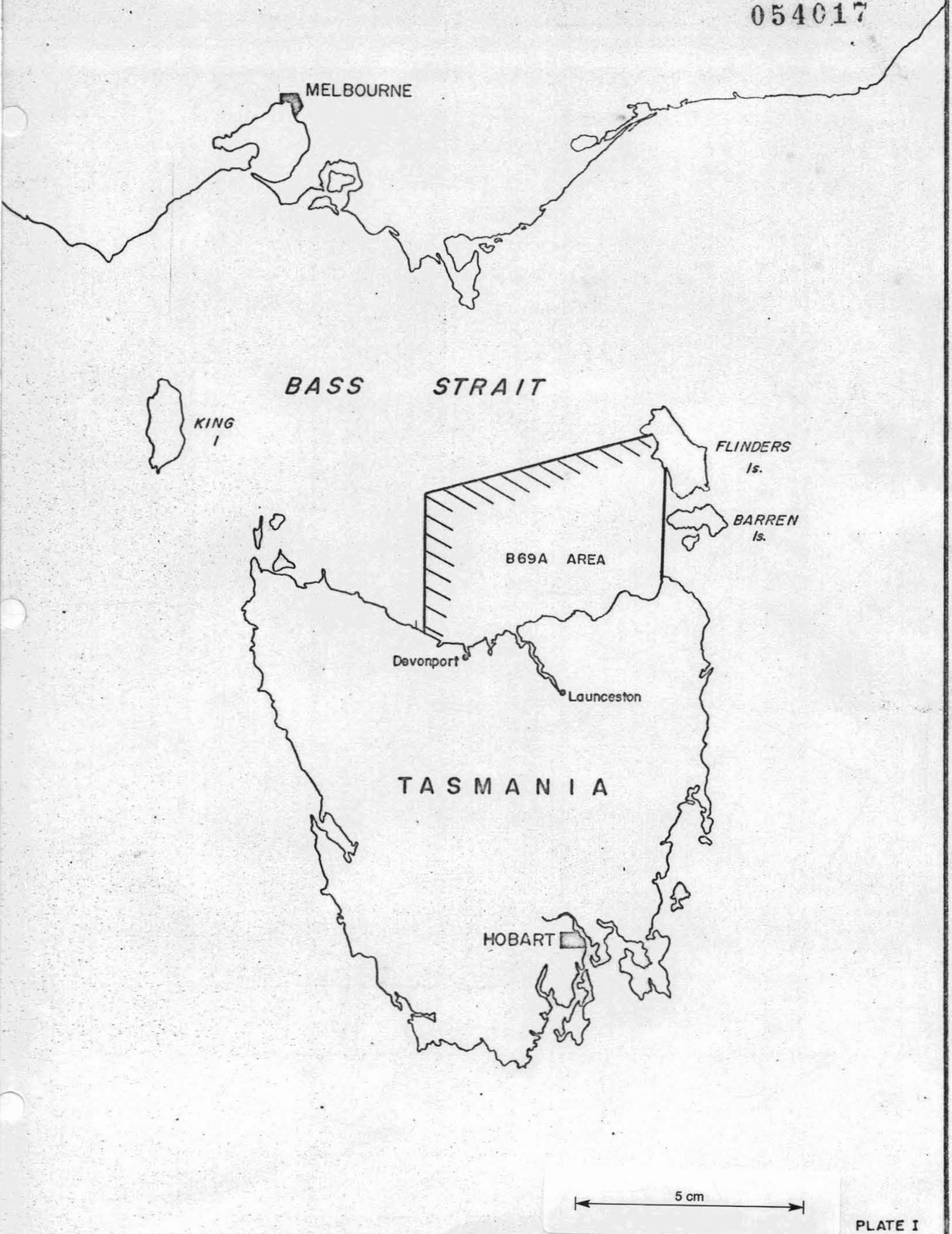


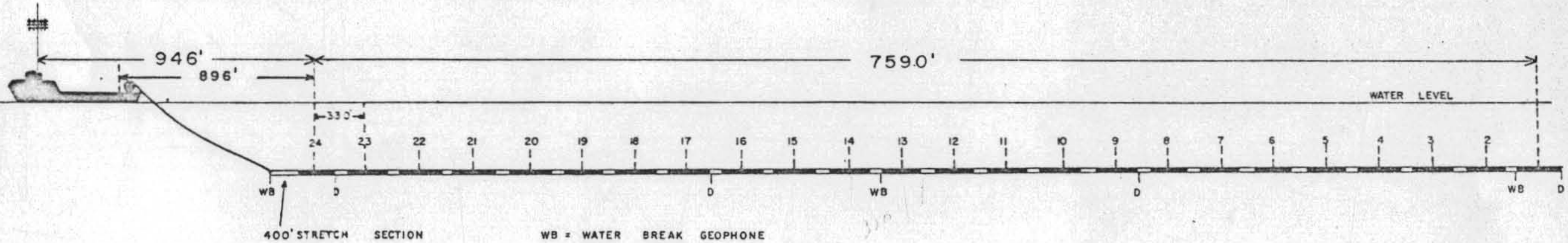
PLATE I

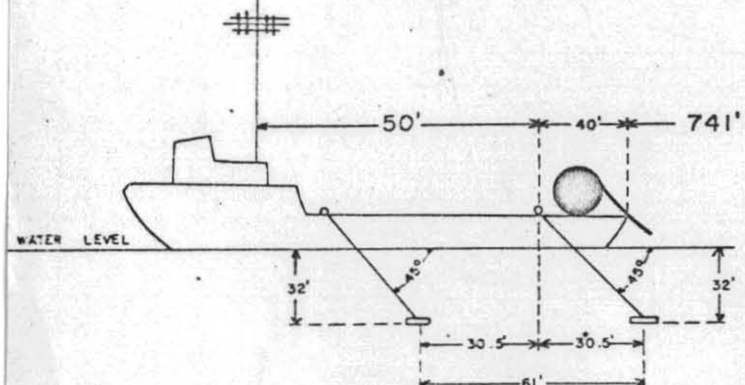
054018

ESSO
SEISMIC SURVEY
1969

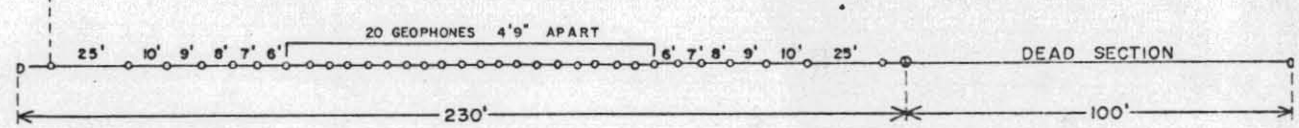
DIAGRAM OF 7590 Ft. STREAMER CABLE

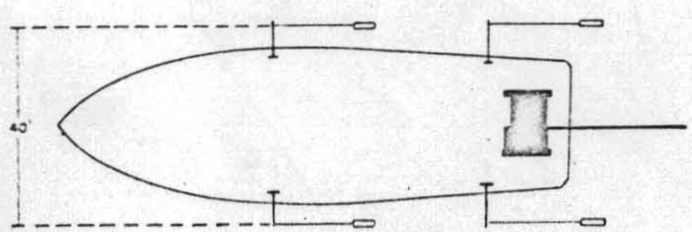
NOTE : Distance from Centre of Guns to Centre Grp. 24 = 891' for Lines 9, 10, 14 and Part of 11 only.





DETAIL OF NOISE CANCELLING ARRAY





5 cm

THE AQUAPULSE SYSTEM

WESTERN GEOPHYSICAL
DIVISION OF LITTON INDUSTRIES

PLATE II

APPENDIX B

DATA PROCESSING PROCEDURES

Processing of field data was carried out at the Geophysical Services International Digital Processing Centre located in St. Leonards, N.S.W.

The Centre consists of two digital computers designed and built by the Texas Instrument Company especially for geophysical data reduction with the necessary I/O units.

1. TIAC MODEL 827A: This is a modified version of the TIAC 837 computer with increased storage capacity, a faster convolver unit and a more efficient supervisory programme. All GSI processing programmes that are in use can be run on this computer.

2. TIAC MODEL 870: The newest of the TIAC series which is capable of processing 7,9 and 21 track field tapes. This unit is used for format conversions, analog to digital transcriptions, general seismic processing, and controls the on-line camera plotter unit for section presentation.

Processing of field data included EPR to TIAC format conversion, gain recovery and record summing on the TIAC 870, general processing with GSI-400 process package on the TIAC 827A, and TIAC 870 controlled plotting on the SIE plotter Model PL 605. The 400 process package is composed of a series of optional programmes processed in continual sequence for maximum operational efficiency. The programmes are comprised of the following routines:

1. WMT: Write intermediate output records.

2. LEANMO or MEANMO: Automated edit, true amplitude recovery, static corrections and normal moveout corrections for Land or Marine records.

3. RNM: Residual moveout corrections, edit and static corrections.

4. ARD: Time-invariant deconvolution with maximum of 64 points per filter and without filter normalisation.

5. DCN: Time-invariant deconvolution with a miximum of 510 points per filter and filter normalisation.

6. TVD: Time-variant deconvolution with a maximum of 58 points per filter and optional filter normalisation

7. ARD2:Deconvolution for reverberations in the water layer.

8. DGF: Time-invariant digital or antialias filtering.

9. TVF: Time-variant digital filtering

10. DPS: N-fold CDP stacking of records from continuous spread (all group intervals equal) and exponential scaling and trace equalisation of output.

11. MXG: N-fold mixing and exponential scaling and trace equalisation of output.

12. SOS: Split offset stack to correct for variation in group intervals and offset distances.

For general processing of recorded field data routines 1,2,5,6,8,9 and 10 were used in various combinations. Additional routines were used in filter evaluations, deconvolution analysis, power density spectrum analysis, autocorrelation functions and data quality evaluations.

The computation of the Time Vs. Avge. Velocity curves used in the NMO routine were derived from velocity gathers of the field tapes. Final corrected velocities were computed for each area of shooting. These calculations were carried out by Esso Personnel.

In the processing of the twelve-fold CDP data velocity gathers every five miles were displayed before and after stacking to insure that the best possible velocity control had been used.

The final section plotting was done on film using the variable density mode. A high precision densitometer was used to keep the zero signal density level at the mid point of the linear portion of the film exposure scale. All sections were plotted at 3.75 inches per second vertical scale and 24 traces per inch horizontal scale.

APPENDIX C

ESSO BASS 2

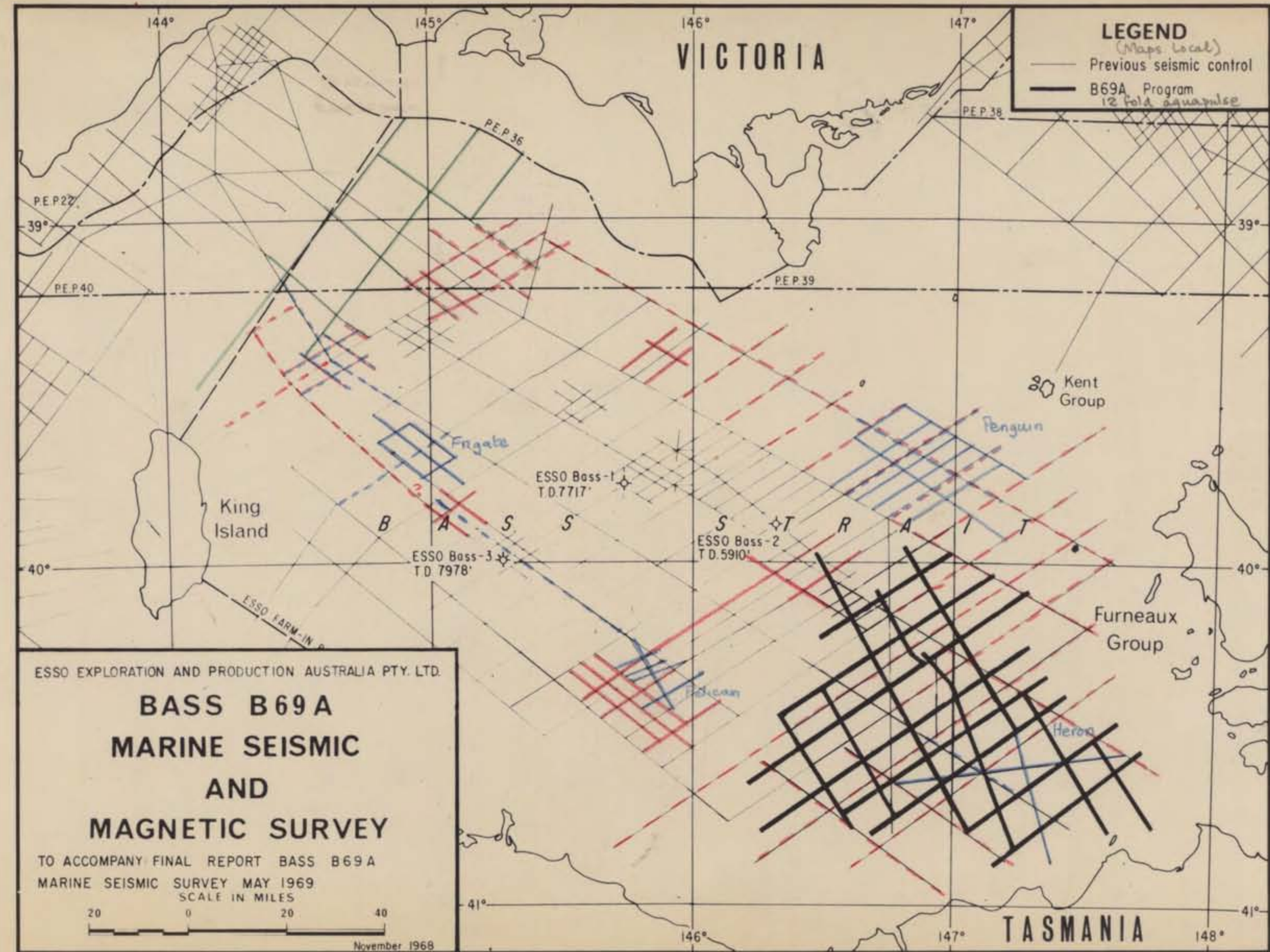
054021

Time vs Depth Chart
(Projected to 22,000 ft)

Depth	Two Way Time	Depth	Two Way Time	Depth	Two Way Time
100	.041	3600	1.016	8200	1.890
200	.080	3700	1.038	8400	1.932
300	.115	3800	1.060	8600	1.962
400	.147	3900	1.085	8800	2.000
500	.179	4000	1.108	9000	2.030
600	.213	4100	1.129	9200	2.063
700	.246	4200	1.150	9400	2.092
800	.275	4300	1.170	9600	2.129
900	.300	4400	1.193	9800	2.160
1000	.328	4500	1.215	10000	2.190
1100	.357	4600	1.235	10500	2.270
1200	.380	4700	1.244	11000	2.360
1300	.400	4800	1.274	11500	2.437
1400	.425	4900	1.293	12000	2.514
1500	.450	5000	1.312	12500	2.602
1600	.475	5100	1.332	13000	2.690
1700	.500	5200	1.353	13500	2.770
1800	.525	5300	1.371	14000	2.850
1900	.550	5400	1.390	14500	2.929
2000	.580	5500	1.409	15000	3.008
2100	.603	5600	1.428	15500	3.084
2200	.626	5700	1.444	16000	3.160
2300	.655	5800	1.460	16500	3.236
2400	.687	5900	1.476	17000	3.312
2500	.718	6000	1.492	17500	3.386
2600	.745	6200	1.532	18000	3.461
2700	.776	6400	1.570	18500	3.537
2800	.810	6600	1.610	19000	3.612
2900	.835	6800	1.642	19500	3.691
3000	.860	7000	1.680	20000	3.770
3100	.885	7200	1.715	20500	3.850
3200	.910	7400	1.750	21000	3.930
3300	.935	7600	1.787	21500	4.015
3400	.962	7800	1.822	22000	4.100
3500	.990	8000	1.857		

054022

Bass Basin part X



ESSO EXPLORATION AND PRODUCTION AUSTRALIA PTY. LTD.

BASS B69A MARINE SEISMIC AND MAGNETIC SURVEY

TO ACCOMPANY FINAL REPORT BASS B69A MARINE SEISMIC SURVEY MAY 1969

SCALE IN MILES

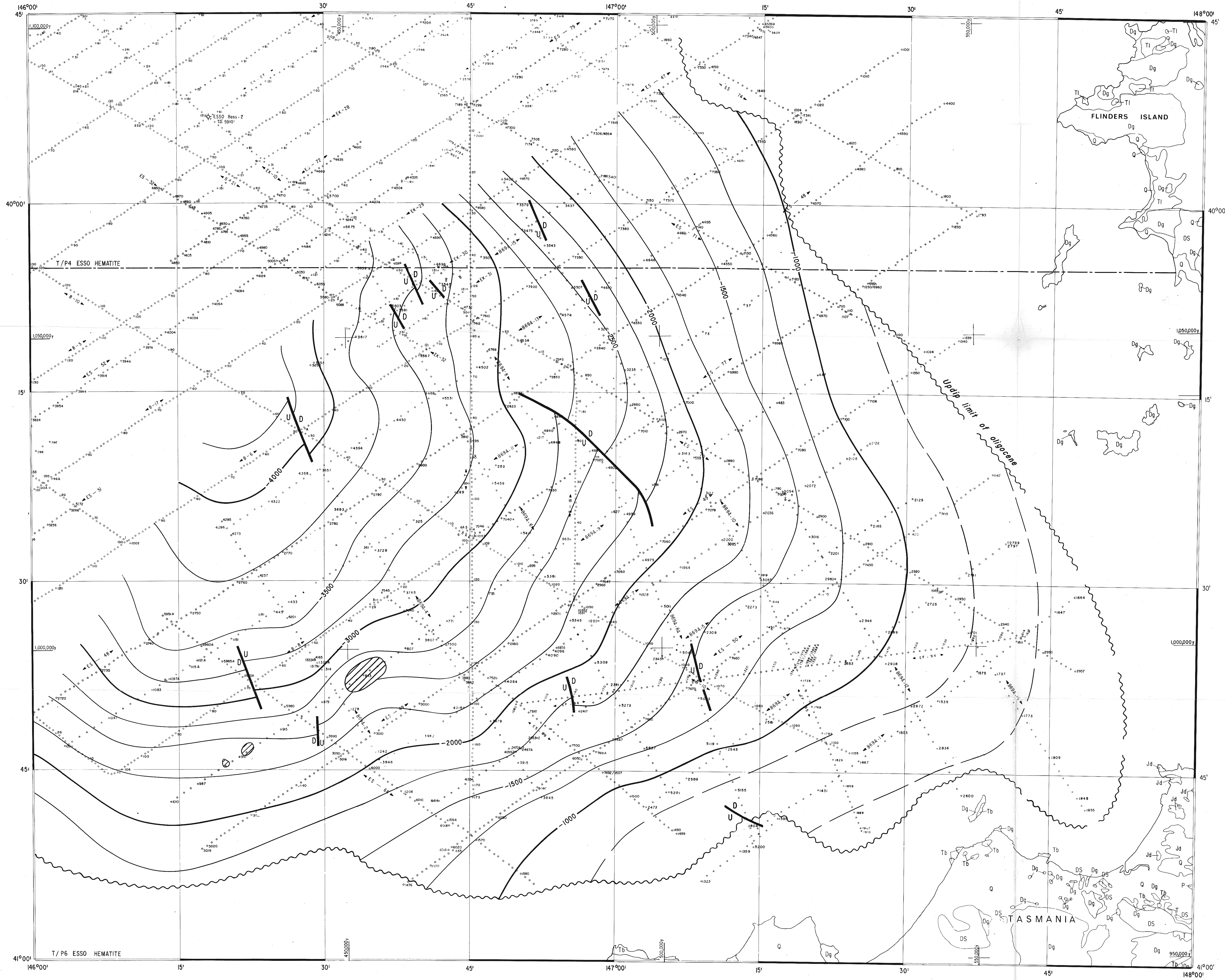
20 0 20 40

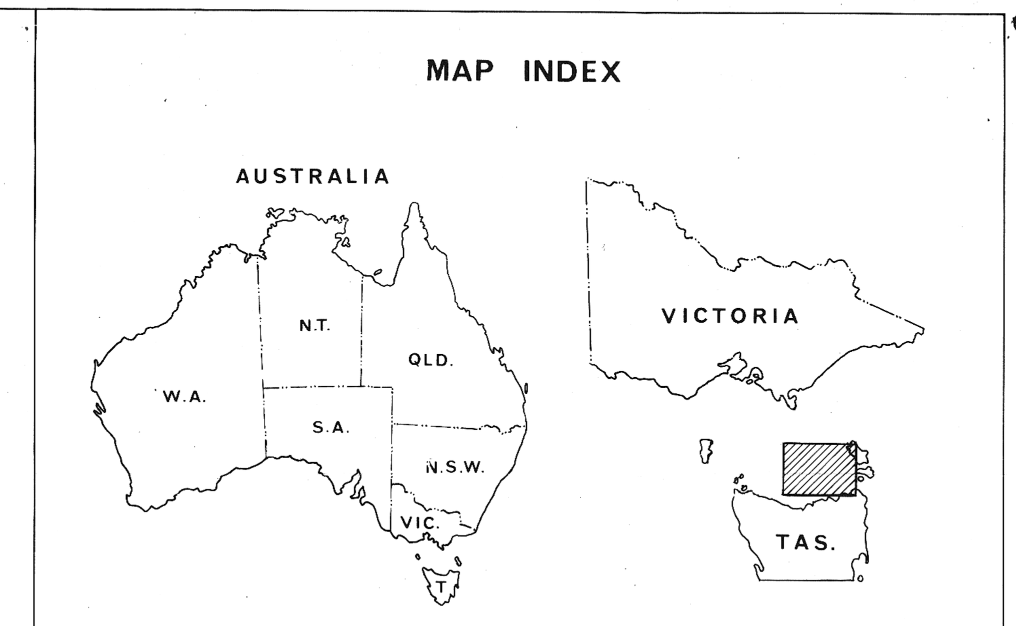
November 1968

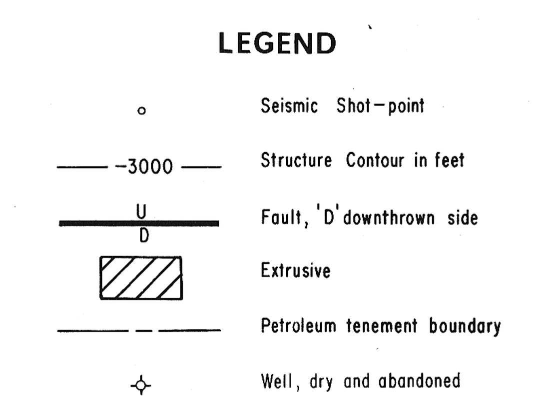
Dwg. 1138/G/1

OR010

FIGURE I







ESSO EXPLORATION AND PRODUCTION AUSTRALIA INC.

THE BASS BASIN
TASMANIA

STRUCTURE CONTOUR MAP ON TOP OF OLIGOCENE

5 cm

054023

CONTOUR INTERVAL : 250 FEET

DATUM : SEA LEVEL

Scale 1:250,000

4 0 4 8 12

MILES

AUTHOR : N.C HIGGINS J BEIN

DRAFTED BY : M R CHÂTENAY

TO ACCOMPANY : FINAL SUBSIDY REPORT OF THE BASS B69A MARINE SEISMIC AND MAGNETIC SURVEY

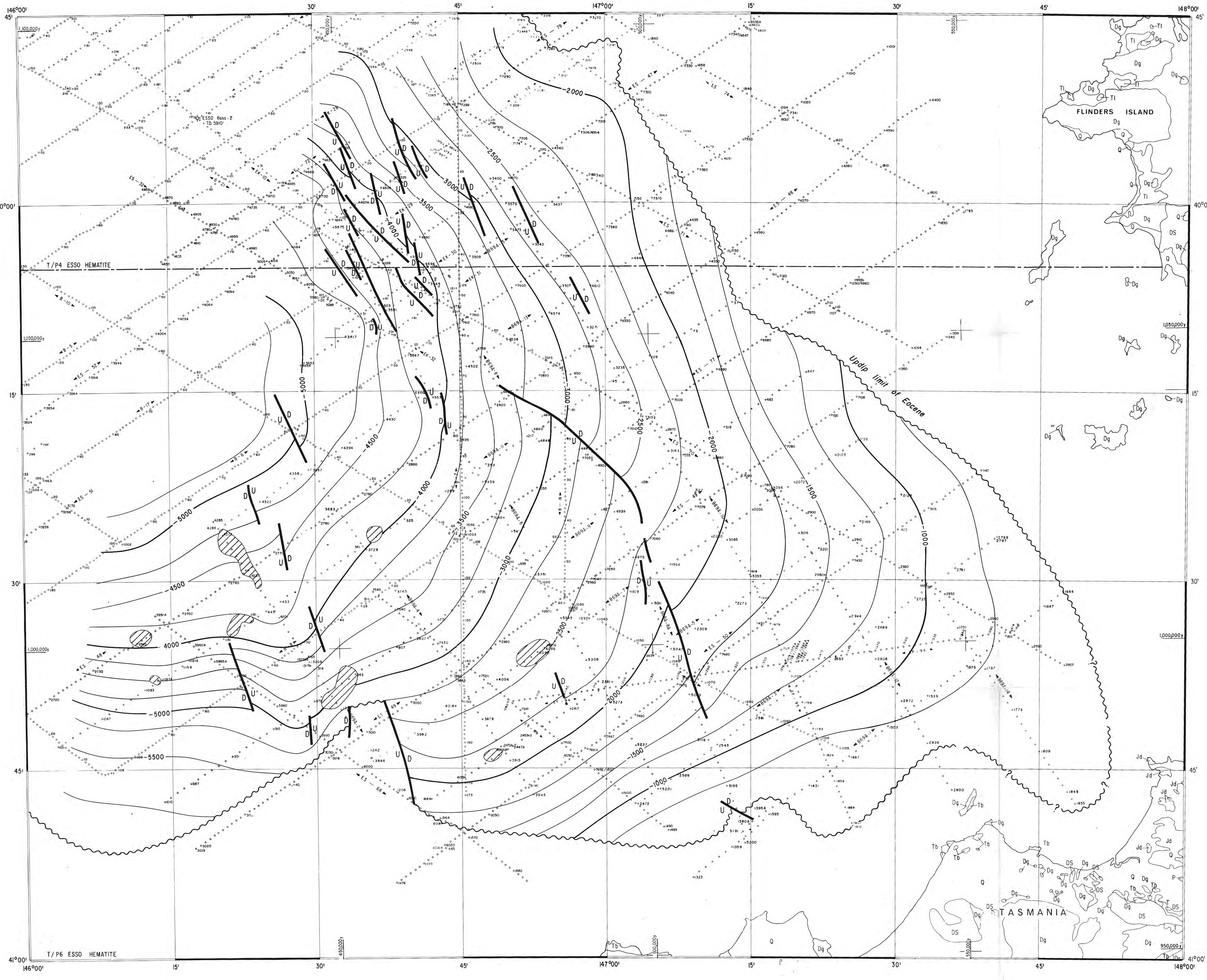
DATE : MAY, 1969

PLATE I

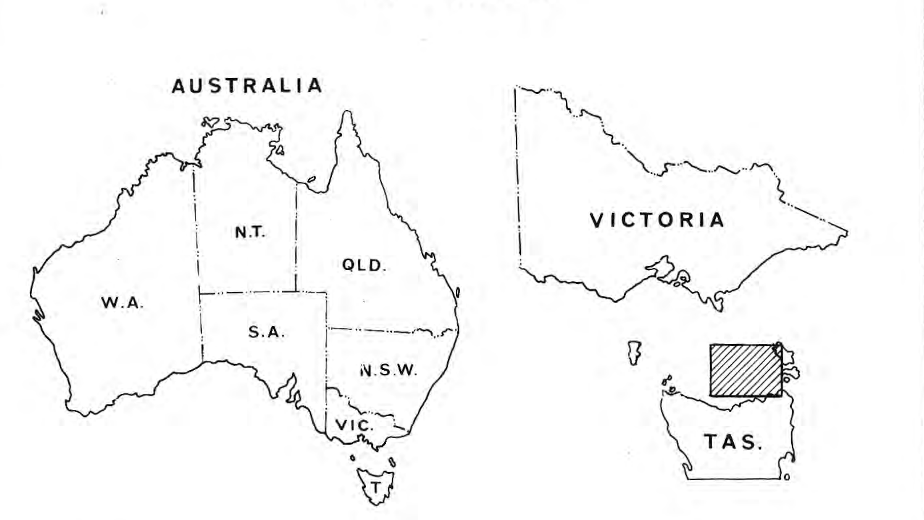
OR 010

Bass Basin part X

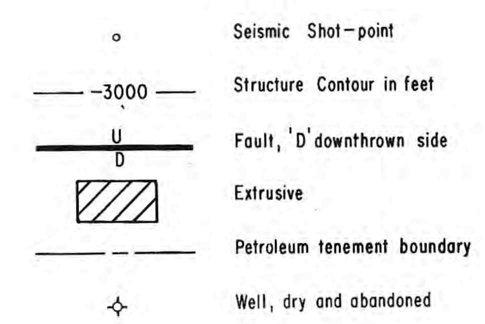
Dwg. 1138/G/2



MAP INDEX



LEGEND



ESSO EXPLORATION AND PRODUCTION AUSTRALIA INC.

THE BASS BASIN
TASMANIA

STRUCTURE CONTOUR MAP ON TOP OF EOCENE

5 cm

054024

CONTOUR INTERVAL: 250 FEET

DATUM : SEA LEVEL

Scale 1:250,000

4 0 4 8 12 MILES

AUTHOR : N.C HIGGINS

DRAFTED BY : M.R. CHÂTENAY

TO ACCOMPANY : FINAL SUBSIDY REPORT OF THE BASS B69A MARINE SEISMIC AND MAGNETIC SURVEY

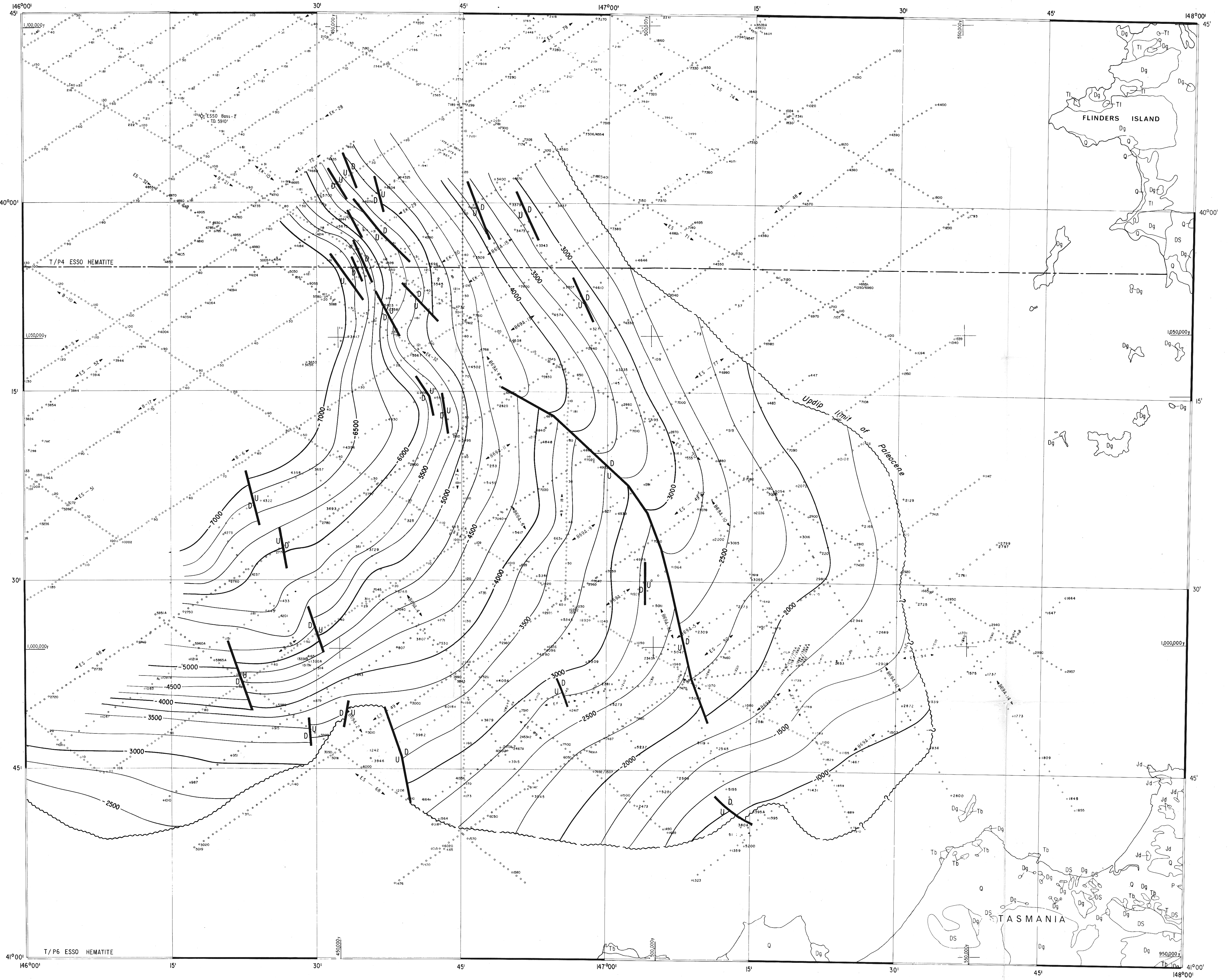
DATE : MAY, 1969

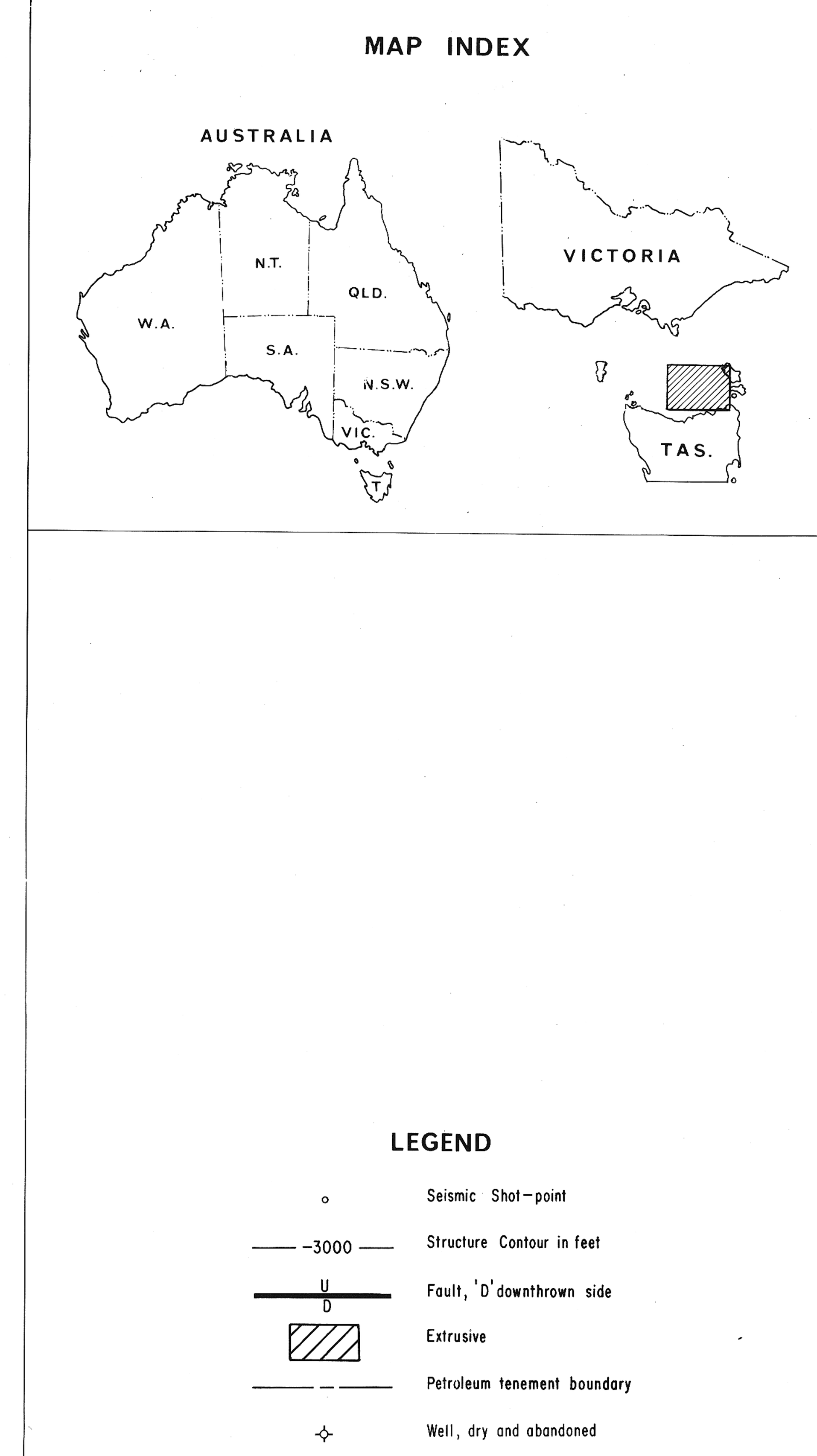
PLATE II

OR 010

Dwg 1138/G/3

Bass Basin part X





ESSO EXPLORATION AND PRODUCTION AUSTRALIA INC.

THE BASS BASIN
TASMANIA

STRUCTURE CONTOUR MAP ON TOP OF PALEOCENE

5 cm

054025

CONTOUR INTERVAL : 250 FEET

DATUM : SEA LEVEL

Scale 1 : 250,000

4 0 4 8 12

MILES

AUTHOR : N.C HIGGINS

DRAFTED BY : M.F. WEETMAN

TO ACCOMPANY : FINAL SUBSIDY REPORT OF THE BASS B69A MARINE SEISMIC AND MAGNETIC SURVEY

DATE : MAY, 1969

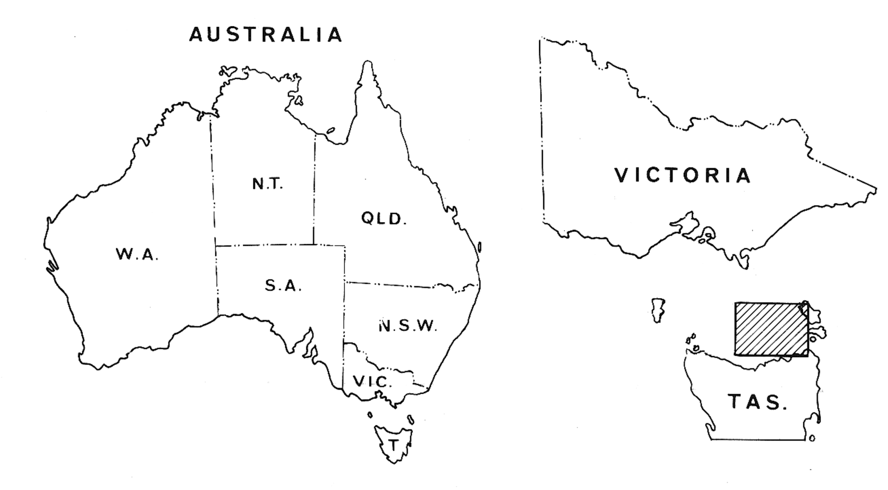
PLATE III

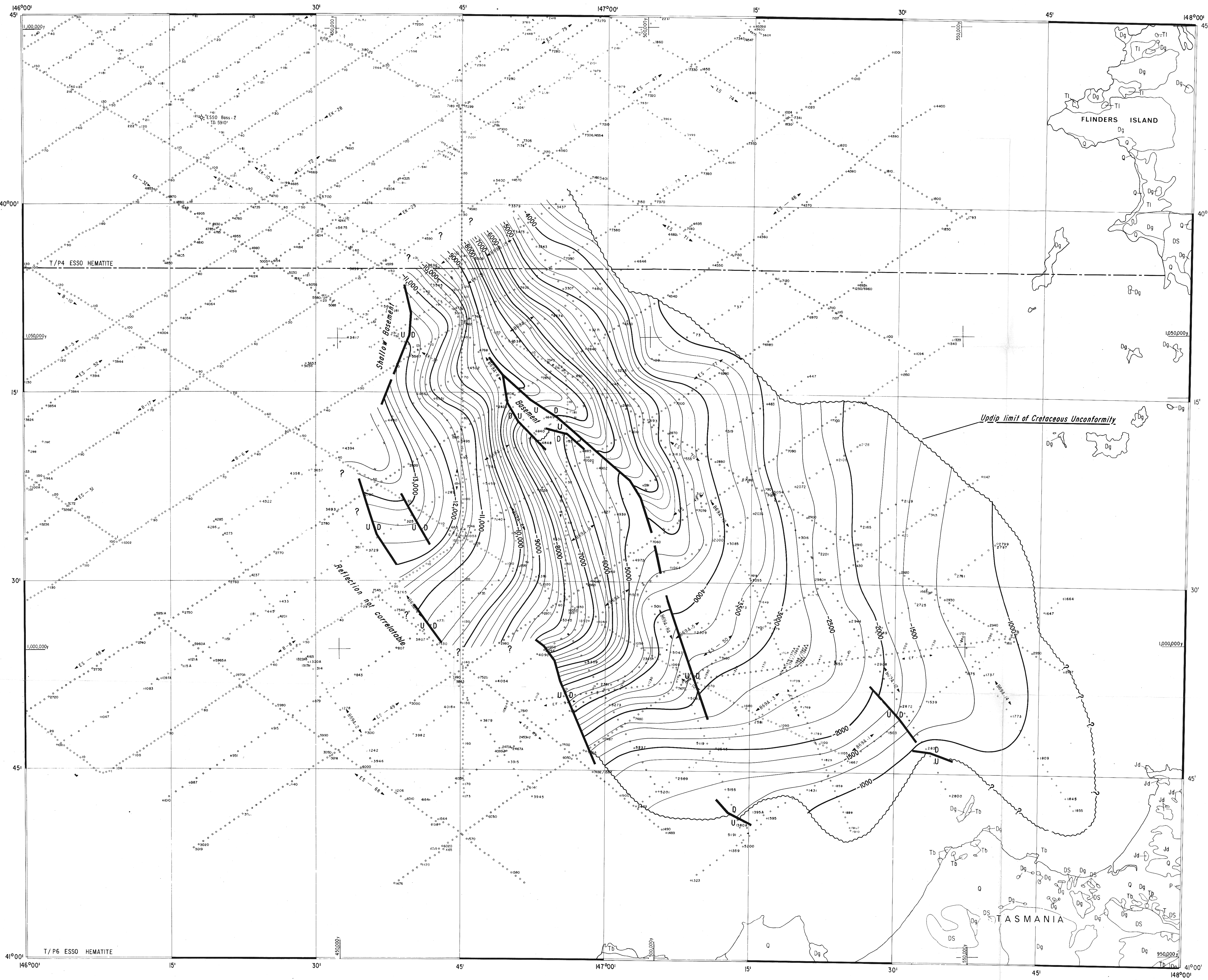
OR 010

Bass Basin part X

Dwg. 1138/G/4

MAP INDEX





LEGEND

- Seismic Shot-point
- —3000— Structure Contour in feet
- Fault, 'D' downthrown side
- Extrusive
- Petroleum tenement boundary
- Well, dry and abandoned

ESSO EXPLORATION AND PRODUCTION AUSTRALIA INC.

THE BASS BASIN

TASMANIA

STRUCTURE CONTOUR MAP ON CRETACEOUS UNCONFORMITY

5 cm

CONTOUR INTERVAL 250 FEET DATUM SEA LEVEL 054026

Scale 1:250,000

MILES

AUTHOR: N.C. HIGGINS

DRAFTED BY: M.F. WEETMAN

TO ACCOMPANY FINAL SUBSIDY REPORT OF THE BASS B69A MARINE SEISMIC AND MAGNETIC SURVEY

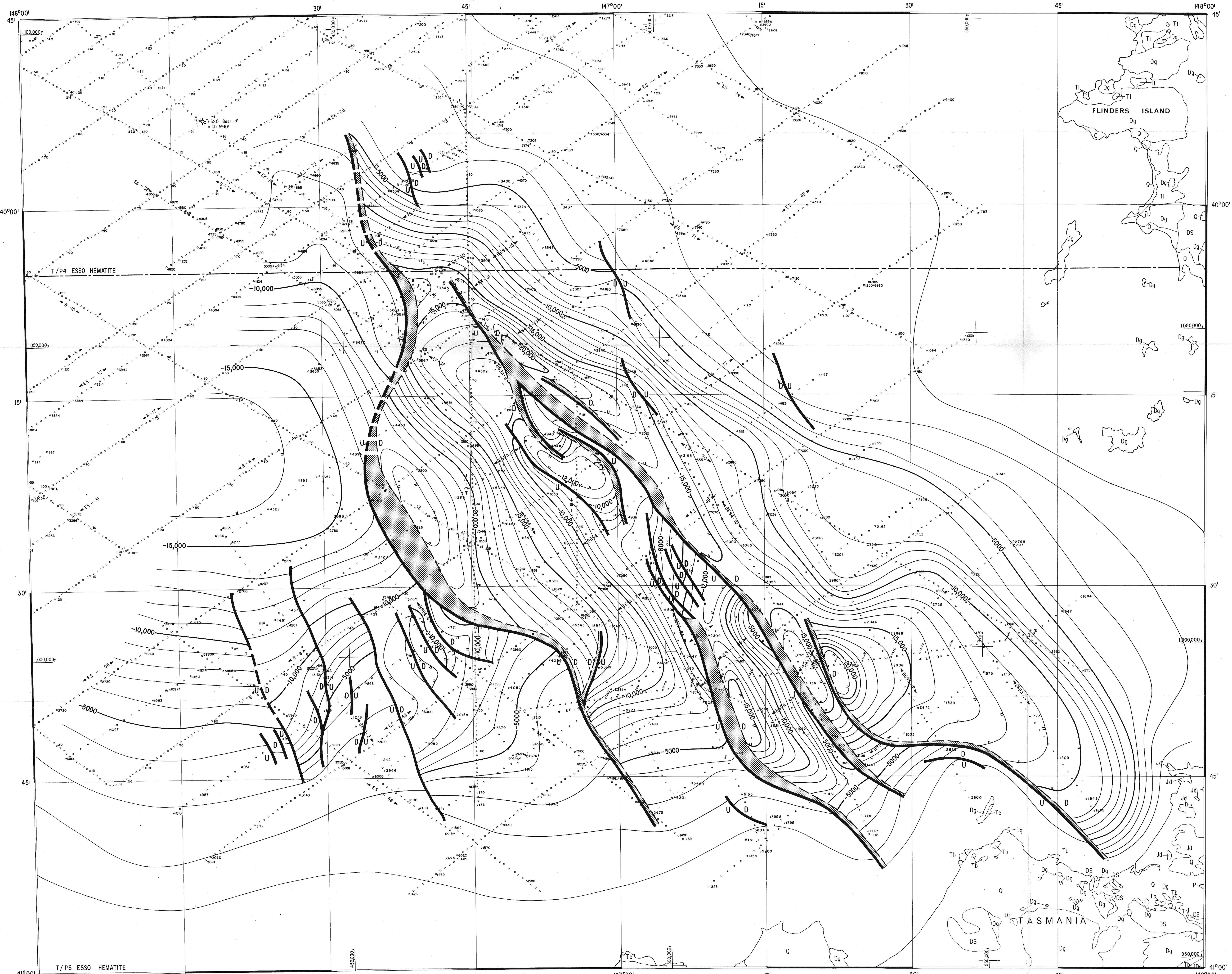
DATE: MAY, 1969

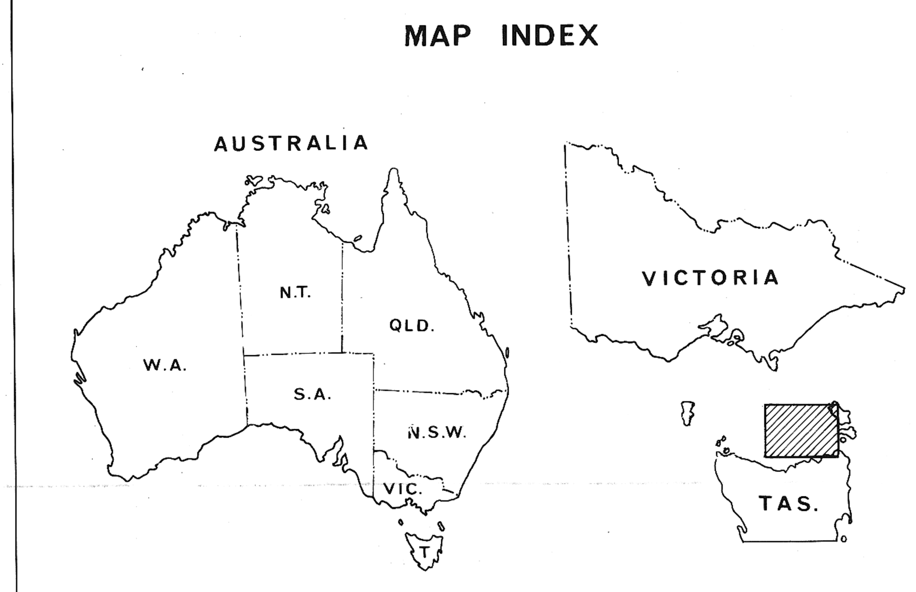
PLATE IV

OR 010

Bass Basin part X

Dwg. 1138/G/5





LEGEND

- Seismic Shot-point
- —3000— Structure Contour in feet
- Fault, 'D' downthrown side
- Extrusive
- Petroleum tenement boundary
- Well, dry and abandoned

ESSO EXPLORATION AND PRODUCTION AUSTRALIA INC.

THE BASS BASIN

TASMANIA

STRUCTURE CONTOUR MAP ON BASEMENT

5 cm

054027

CONTOUR INTERVAL : 1000 FEET

DATUM : SEA LEVEL

Scale 1 : 250,000

MILES

AUTHOR : N.C HIGGINS

DRAFTED BY : M.F.WEETMAN

TO ACCOMPANY : FINAL SUBSIDY REPORT OF THE BASS B69A MARINE SEISMIC AND MAGNETIC SURVEY

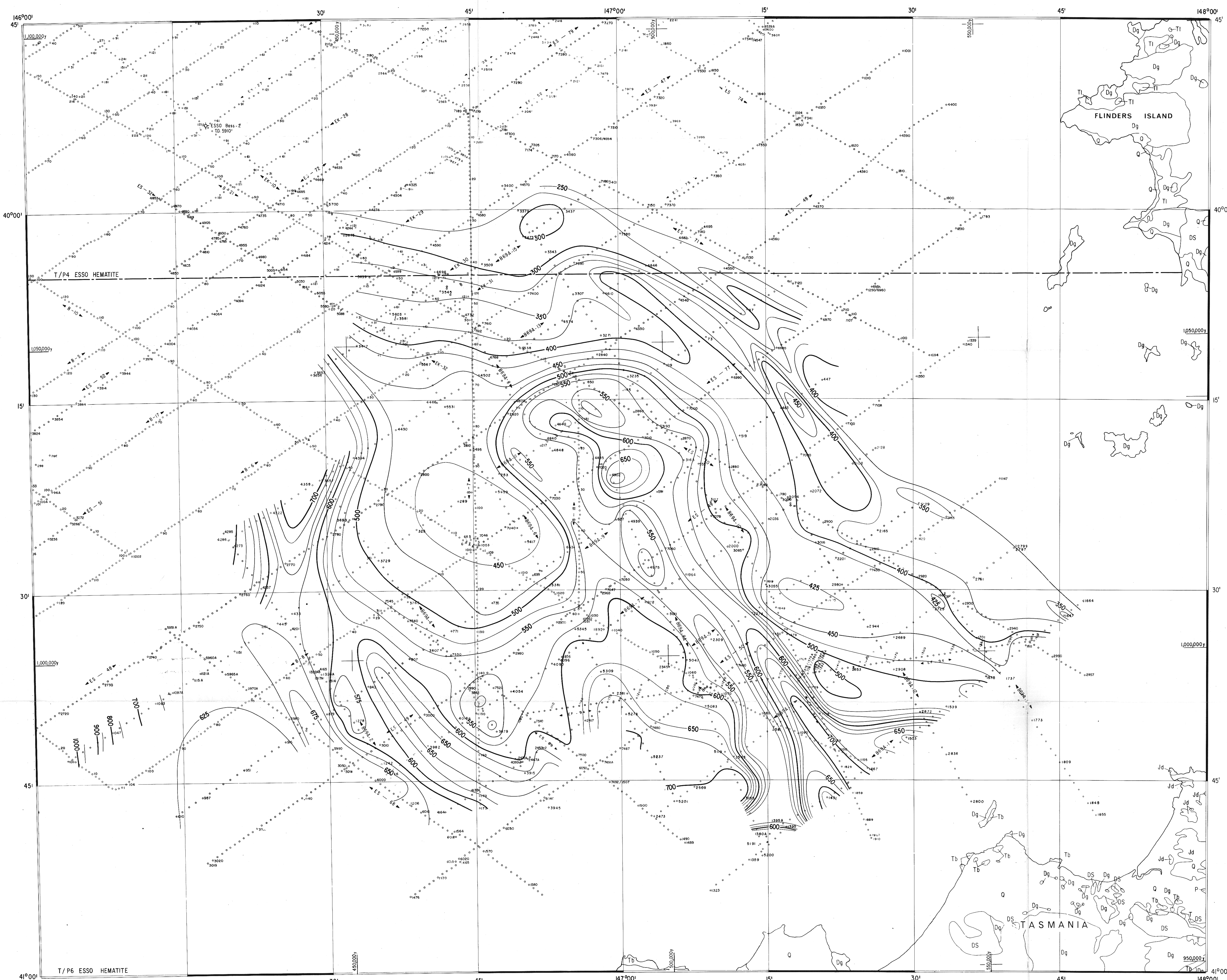
DATE : MAY, 1969

PLATE V

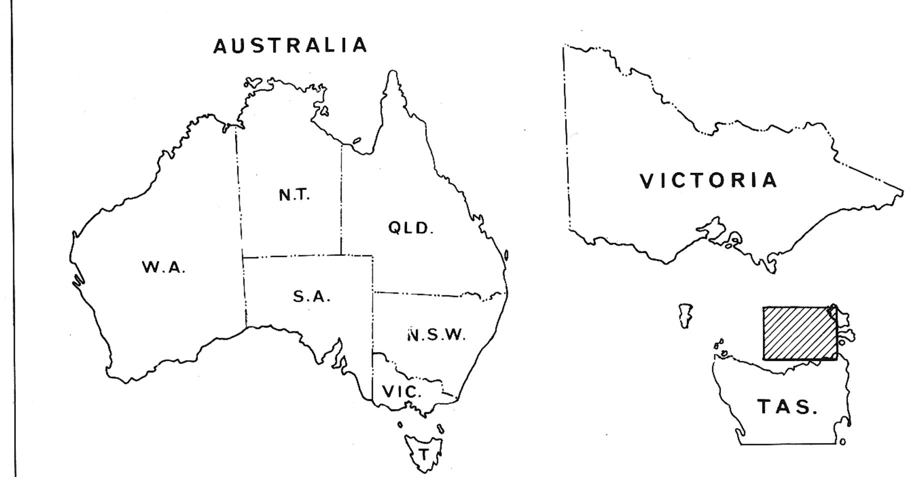
OR 010

Dwg 1138/G/6

Bass Basin part X



MAP INDEX



LEGEND

- Seismic Shot-point
- 550 Total Magnetic Contour in Gammas
- Fault, 'D' downthrown side
- Extrusive
- Petroleum tenement boundary
- Well, dry and abandoned

ESSO EXPLORATION AND PRODUCTION AUSTRALIA INC.

THE BASS BASIN

TASMANIA

TOTAL MAGNETIC INTENSITY

5 cm

054028

CONTOUR INTERVAL 25 GAMMAS

DATUM · SEA LEVEL

Scale 1:250,000

4 0 4 8 12

MILES

AUTHOR : P. COONEY

DRAFTED BY : M F WEETMAN

TO ACCOMPANY : FINAL SUBSIDY REPORT OF THE BASS B69A MARINE SEISMIC AND MAGNETIC SURVEY

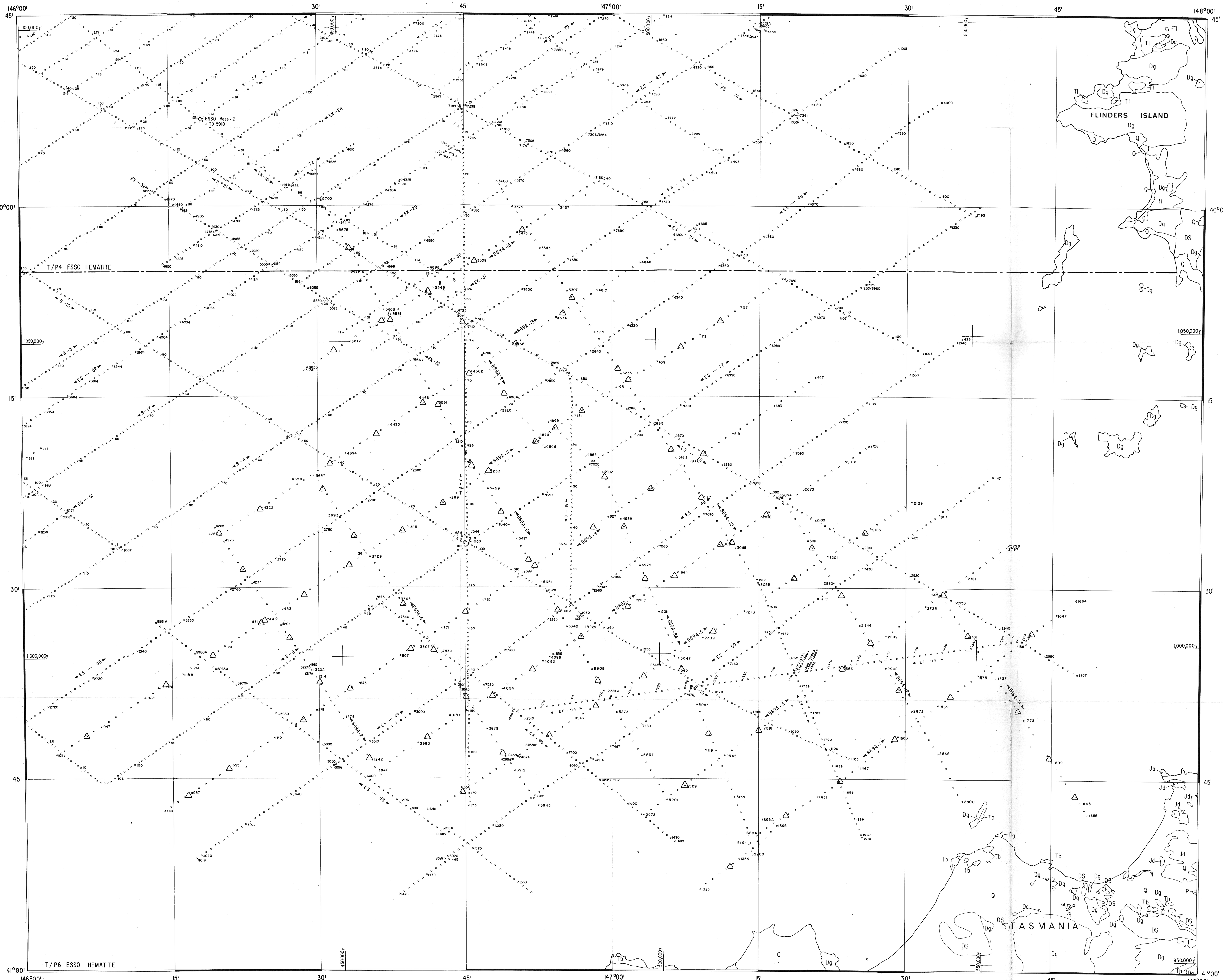
DATE : MAY, 1969

PLATE VI

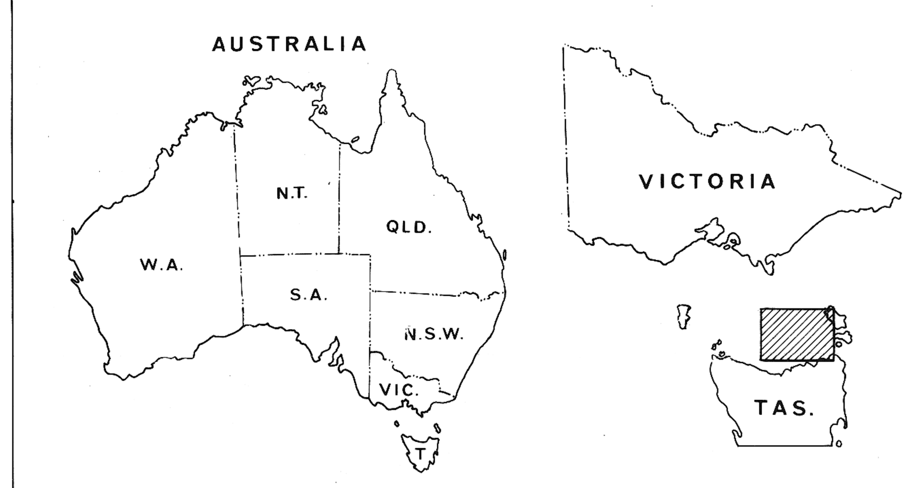
OR 010

Dwg 1138/G/7

Bass Basin part X



MAP INDEX



LEGEND

○	Seismic Shot-point
—— -3000 ——	Structure Contour in feet
U / D	Fault, 'D' downthrown side
(hatched box)	Extrusive
—— — ——	Petroleum tenement boundary
✧	Well, dry and abandoned
△	Velocity Gathers

ESSO EXPLORATION AND PRODUCTION AUSTRALIA INC.

THE BASS BASIN
TASMANIA

SHOT POINT MAP

5 cm

054029

Scale 1:250,000

4 0 4 8 12

MILES

AUTHOR:

DRAFTED BY: A.F STRAHAN

TO ACCOMPANY: FINAL SUBSIDY REPORT OF THE BASS B69A MARINE SEISMIC AND MAGNETIC SURVEY

DATE: MAY, 1969

PLATE VII

OR 010

Bass Basin part X

Dwg. 1138/G/8