

1994 T/18P ROCKY CAPE MARINE SEISMIC SURVEY

FINAL REPORT

PART B - SEISMIC INTERPRETATION

T/18P TASMANIA

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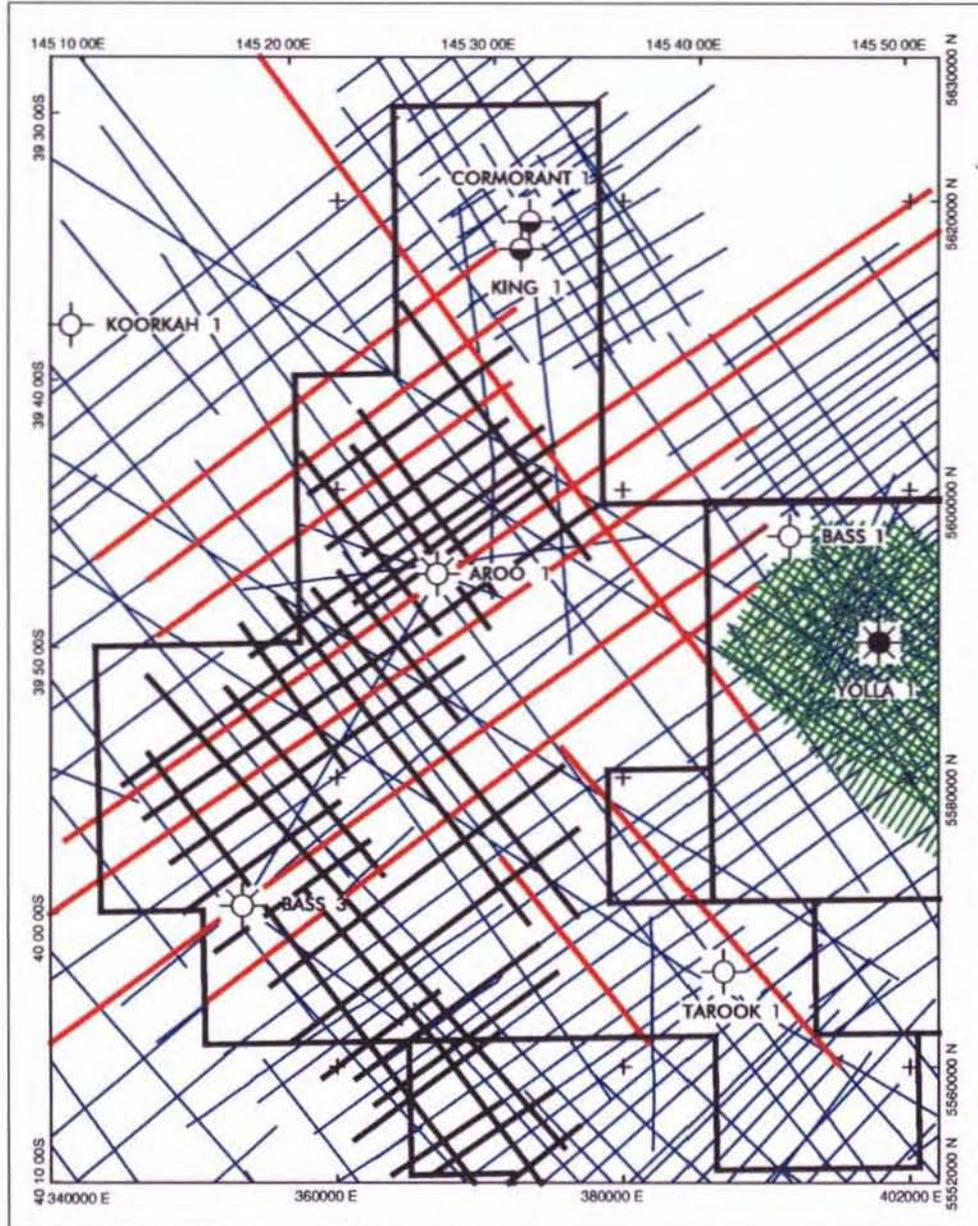
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SUMMARY

The 1994 Rocky Cape Seismic Survey was acquired over two Tasmanian offshore permits, T/18P and T/25P, targetting several leads one of which straddled the common boundary.

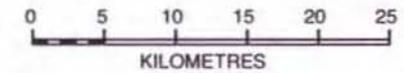
The T/18P portion of the survey comprised 541 km of acquisition and in addition 565 km of stack data from Amoco's 1984 and 1985 surveys were migrated for geophysical workstation input (Fig 1.0).

Amoco mapping from 1985 and a Geoquest workstation interpretation of the southern portion of T/18P had identified leads updip of Bass 3 and also a flank play on the same structure; possible updip potential from Aroo 1; and the Aroo East, Trefoil and Furneaux Leads. The semi-regional infill coverage acquired and the availability of migrations for several key lines allowed a better understanding of the leads targetted. Unfortunately, the extra coverage downgraded many of the leads and further work needs to be done to formalise the Bass 3 flank play. However, several robust leads have matured which will be targetted by the 1996 Hummock Seismic Survey. These are Ibis (updip Bass 3), Trefoil, Chappell and Aroo East.



SEISMIC STATUS

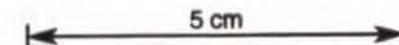
- EXISTING
- ROCKY CAPE SURVEY
- REPROCESSED
- YOLLA 3D



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T18P BASS BASIN TASMANIA

SEISMIC
 LOCATION MAP



1 INTRODUCTION

1.1 Location

Permit T/18P is located in the offshore waters of Bass Strait, northwestern Tasmania, approximately 120 km north of the coastal town of Burnie (Figure 1.1). The Permit is located on the western flank of the Cretaceous and Tertiary aged Bass Basin covering an area of approximately 1975 square kilometres. Water depths within T/18P vary from 58 metres in the west to 80 metres in the southeast.

1.2 Current Permit Interests

Boral Energy Resources Limited	85% (Operator)
Cultus Petroleum (Australia) NL	15%

1.3 Work Commitments & Permit Status

The 1994 Rocky Cape Seismic Survey, reprocessing and interpretation projects were conducted to fulfil the requirements of Year 1 and Year 2 in the work commitment schedule (Table 1.1).

EXPENDITURE AND WORK COMMITMENT SUMMARY

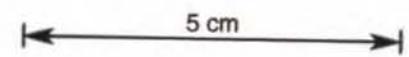
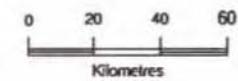
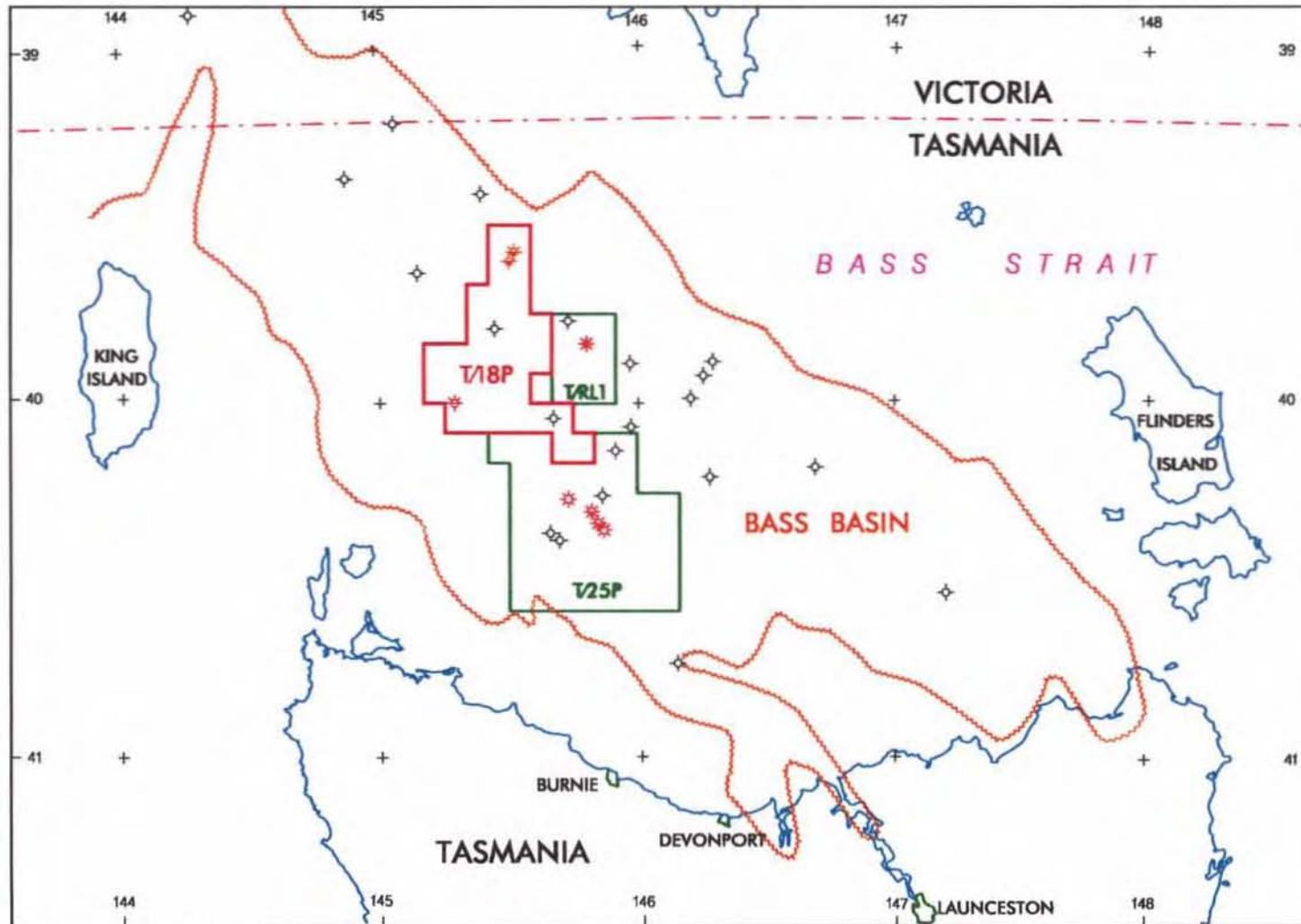
SECOND TERM RENEWAL PROGRAM

Table 1.1

		COMMITMENT		COST	
YEAR	ENDING	GOVERNMENT	ACTUAL	ESTIMATED	ACTUAL
1	21/12/94	G&G review	541 seismic	200,000	500,770
2	21/12/95	500km seismic	565 km reprocessing	1,000,000	
3	21/12/96	500km seismic		1,000,000	
4	21/12/97	G&G review		200,000	
5	21/12/98	1 Well		8,000,000	

Note:

- Year 1 to 3 comprise a guaranteed work program and may not be reduced. Surrender may only be agreed if this total 3 year program is completed.
- No later than 3 months (or earlier than 6 months) before end of Year 3, a revised secondary work program may be submitted for consideration. If lower in work content and agreement cannot be reached, the permit may be surrendered.
- On commencement of the 4th Year, the secondary program becomes guaranteed on a year by year basis and must be carried out in the designated year. Surrender is only possible if the guaranteed work for that year has been completed.



T/18P BASS BASIN TASMANIA

T/18P

LOCATION MAP

1.4 Previous Exploration

No discoveries have been made in the current Permit area which is adjacent to the Yolla 1 retention Lease, T/RL1. A promising gas show occurred in the Esso operated 1967 well, Bass 3, which was the first well drilled in T/18P. The Bass 3 high is the most prominent basement involved high in the Permit and the well had targetted the top EVCM closure, but failed to encounter hydrocarbons in any of the EVCM section apart from the above gas show which occurred in the Palaeocene section. Cormorant 1 was drilled by Esso in 1970 on a major inversion feature in the duly named Cormorant Trough. A FIT recovered oil from the top EVCM but no accumulation occurs in the structure due to early Miocene keystone faulting which not only breached the top seal, but also allowed biodegradation to occur. A follow up well, King 1, was drilled by SAGASCO Resources (now Boral Energy Resources Limited) in 1992 but it encountered very minor oil shows.

Tarook 1, drilled by Esso in 1972, was aimed at a prominent top EVCM closure in the southern part of the Permit, but was subsequently plugged and abandoned with no shows. The Tarook feature results from early Miocene inversion and in addition appears to have a sill implaced just below the well's TD in the M.diversus section. The structure probably postdates hydrocarbon migration at this position in the basin. Hematite operated the Aroo 1 well in 1974 which intersected a non-commercial 7 metre gas condensate zone in the Palaeocene section and was plugged and abandoned. No closure is present at the Aroo 1 location on current mapping.

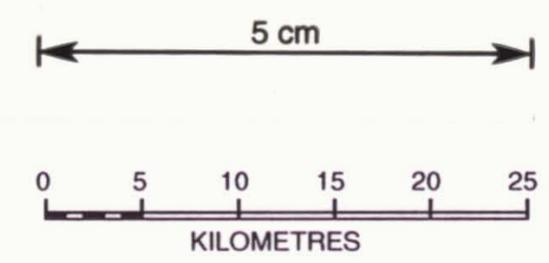
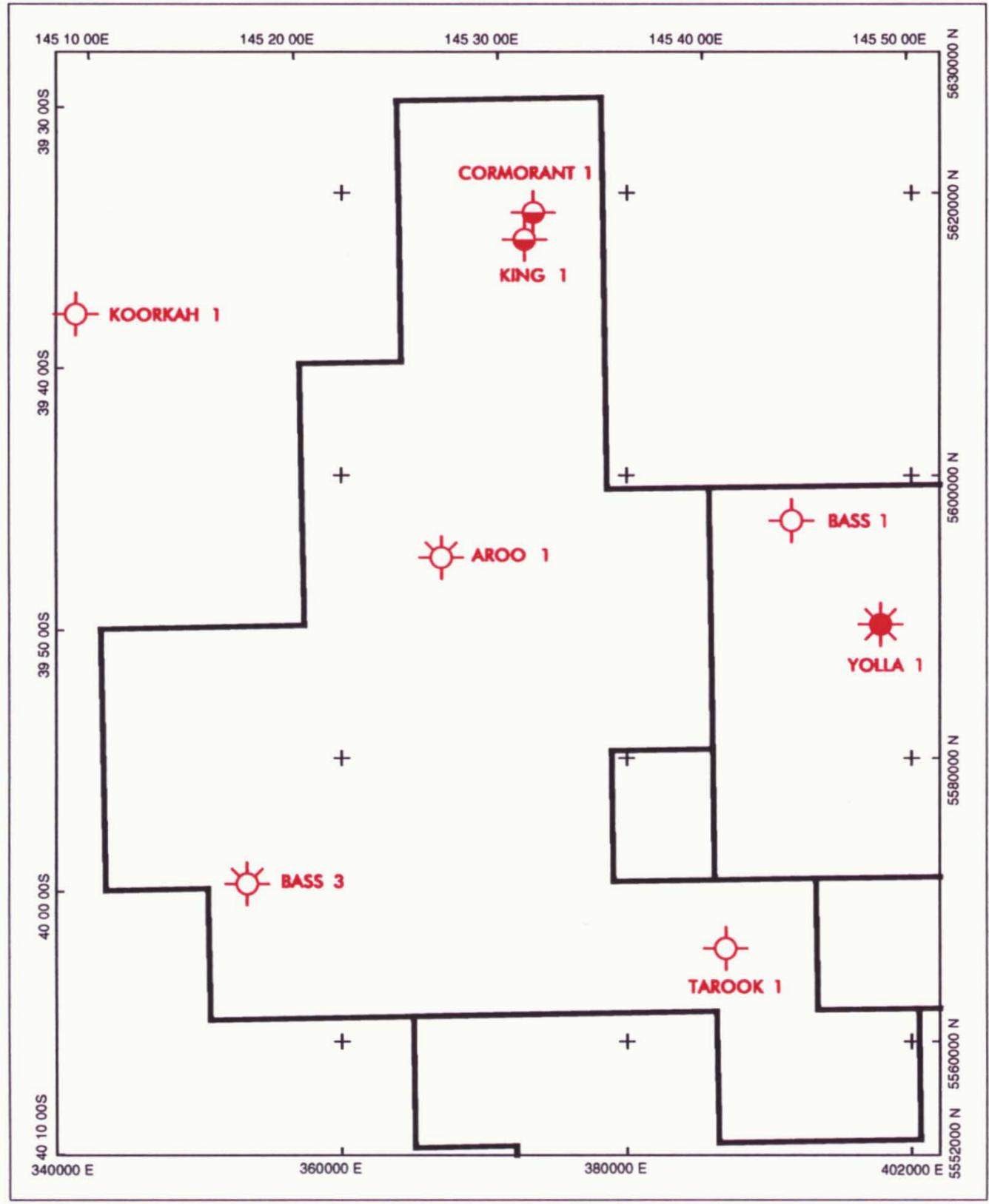
The T/18P permit, therefore, has a long history, but with only four independent well tests (Table 1.2, Figure 1.2) in the 1975 square kilometre area, exploration is relatively immature, particularly since only two wells have penetrated the prospective Palaeocene level.

EXPLORATION SUMMARY

Table 1.2

WELLS DRILLED

YEAR	WELL NAME	OPERATOR	WELL TYPE	TARGET	TOTAL DEPTH (m)	RESULT	FLOW RATE/RECOVERY
1967	Bass 3	Esso	Expl	EVCN	2432	P&A	Gas Shows
1970	Cormorant 1	Esso	Expl	Mid EVCN	3001	P&A	FIT Oil Recovery
1972	Tarook 1	Esso	Expl	Top EVCN	2774	P&A	-
1974	Toolka 1A	Esso	Expl	EVCN	2715	P&A	Shows Gas & Condensate
1974	Aroo 1	Hematite	Expl	Mid EVCN	3692	P&A	Shows Gas & Condensate
1985	Koorkah 1	Amoco	Expl	Basal EVCN	3147	P&A	-
1992	King 1	SAGASCO	Expl	Upper EVCN	2223	P&A	Oil & Gas Shows



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T/18P BASS BASIN TASMANIA

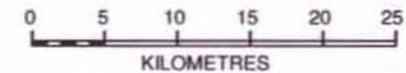
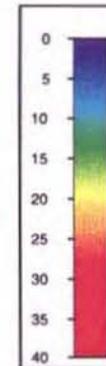
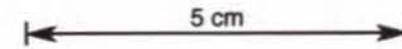
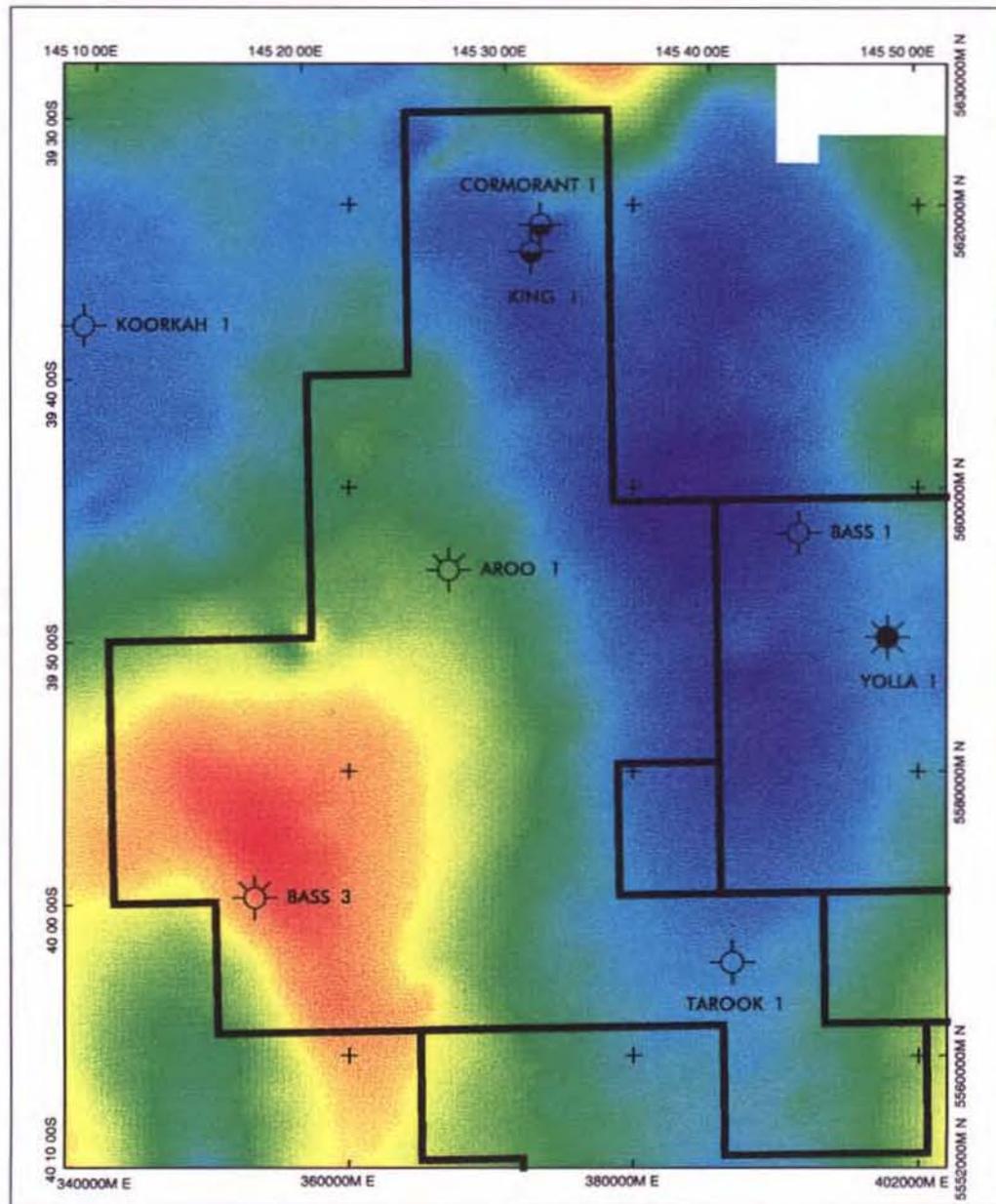
T/18P

WELL LOCATION MAP

Seismic surveying commenced in 1963 (Table 1.3) and grids have been gradually infilled with fourteen subsequent surveys. The irregular grid of "modern" (post 1976) data has dip line spacing varying from 1 to 5 km and strike lines spaced between 1 and 8 km apart. As one would gauge from these figures, some of the permit is poorly controlled by seismic. Not all vintages are available in digital format as stack data and therefore only a selection of pre-1984 lines have been loaded into Geoquest. Post 1983 lines are nearly all available and were loaded accordingly. The Amoco 1984 and 1985 surveys were extremely extensive and form the framework of a regional grid which all data has been related to. Shipborne gravity and magnetic surveys were conducted in unison with the Amoco seismic surveys and these give some insight into regional trends (figure 1.3 and 1.4).

1.3 TABLE

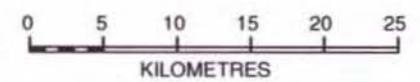
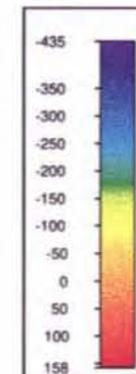
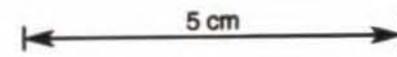
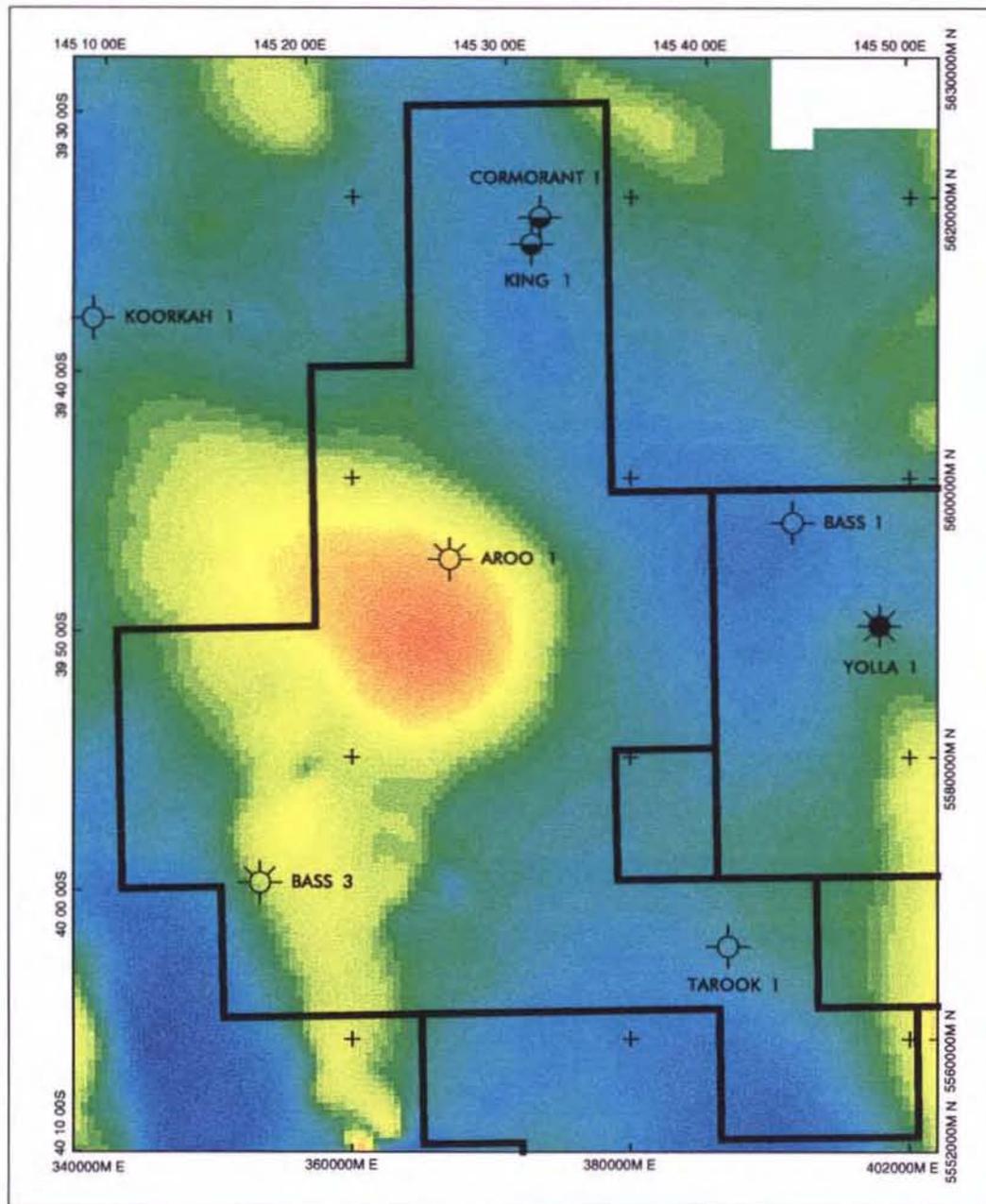
SEISMIC ACQUIRED (within current permit boundaries)		
YEAR	SURVEY NAME	NO KILOMETRES
1963	B	146.3
	B63	263.8
1965	EB	62.0
	EK	80.2
1966	ES	29.5
1969	B69B	100.0
1971	B71A	230.5
1972	B72A	582.5
1973	HB73A	297.3
1975	HB75A	440.5
1977	HB77A	318.75
1981	BBS81	419.75
	BCSS81	14.75
1982	82BMR	178.0
	BB82A	34.5
1984	TNK4	660.5
1985	TP05	304.25
	TQH5	1135.25
1990	BS90B	201.5
1994	SB94A (Rocky Cape)	541.0
	TOTAL	6040.85



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T18P BASS BASIN TASMANIA

AMOCO SHIP
 BORNE GRAVITY



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T/18P BASS BASIN TASMANIA

AMOCO SHIP
 BORNE MAGNETICS

1.5 Previous mapping

Amoco produced regional EVCM, Top Middle M.diversus & Palaeocene maps covering the entire permit (old boundaries) in 1985. The Bass 3 High was mapped by R. Smit in 1986 and the Aroo area by A. Waldron in 1991. The southern part of T/18P was the subject of a Geoquest mapping project in 1992 and was documented in February 1993 in the internal report "1992 Interpretation Project Southern T/18P, Northern T/25P and Western T/RL1, Bass Basin, Tasmania" by DJ Knowles. In this report Top EVCM, Upper M.diversus, Middle M.diversus and Lower L.balmei time structure maps were produced together with various interval maps. This Geoquest interpretation was refined following incorporation of the Rocky Cape and reprocessed data to produce the most recent mapping.

2 INTERPRETATION

2.1 Stratigraphic Control

The well distribution as seen in Figures 1.1 and 1.2 provides reasonable well control for the T/18P permit. Several wells failed to penetrate the Palaeocene, however, leaving only Aroo 1 and Bass 3 as control for this section within the Permit. Yolla 1, Nangkero 1, Poonboon 1, Flinders 1 and the Pelican wells provide Palaeocene control on the margins of T/18P.

All T/18P wells have detailed electric log suites, lithology and palynology descriptions. Synthetic seismograms were prepared using Geoquest SYNVIEW software on the geophysical workstations. A generalised stratigraphic table for the Bass Basin can be found in Fig 2.1; Well Information with Palynology in Appendix 1 and Checkshot Data in Appendix 2.

2.2 Interpretation Method

The seismic character below the robust top EVCM marker is monotonous and at times poorly correlatable. No significant events correspond with any of the relevant palynological zones, hence several events were used in an effort to constrain the interpretation to be more robust and geologically reasonable. Due to the highly variable character chasing individual events was fraught with pitfalls and was often misleading. Most of these interpretation dilemmas could be resolved with better seismic coverage.

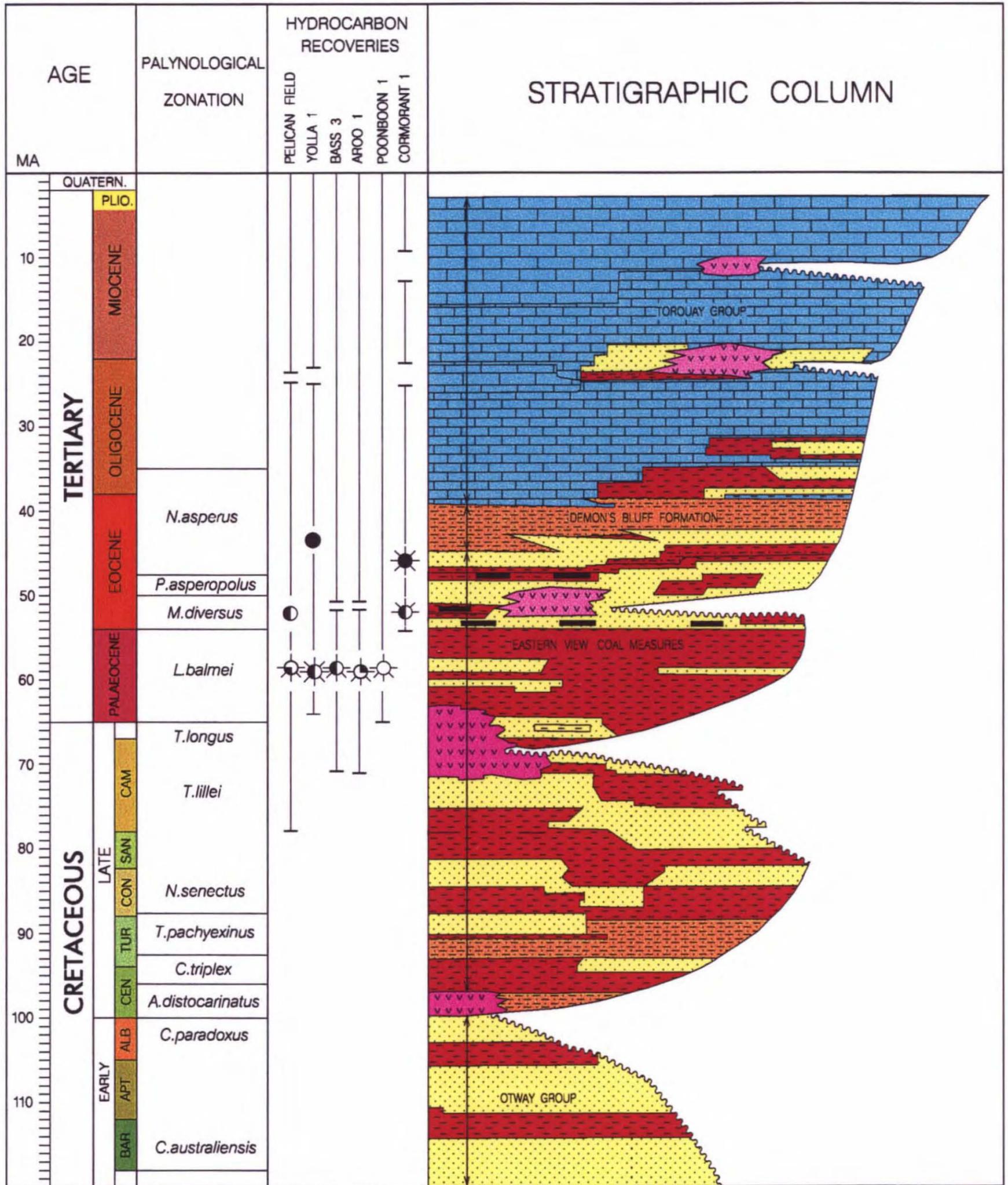
In the areas where well control is reasonable it became obvious early in the interpretation that the palynological zonation is at times inconsistent, and often allows latitude as far as picking "time lines" between wells is concerned. For this reason horizon terminology should be considered generalised, each name reflecting an arbitrary allocation of the top within a zone of its possible location.

The data was interpreted on Geoquest software installed on a Sun Sparc 2 platform, which was upgraded to a Sparc 5 late in the interpretation.

The Rocky Cape data and the reprocessed lines contribute to some 4100km of migrated seismic data which have been interpreted in the T/18P region. Only the portion of this data particularly associated with the new data will be presented in this report. The interpreted horizons were loaded into the Sattlegger mapping system for analysis and presentation. Sattlegger grids and faults were loaded into the Petrosys package to produce high quality maps for this report.

BASS BASIN – TASMANIA STRATIGRAPHIC COLUMN

511016



LEGEND

- OIL FLOW
- ☀ GAS FLOW
- ⦿ ASSOCIATED CONDENSATE
- ◐ OIL RECOVERY
- ☀ GAS RECOVERY
- ◑ TRACE CONDENSATE
- ◒ OIL TRACE
- ☀ GAS TRACE

5 cm

2.3 Data Quality

Much reprocessing effort went into making available migrated stacks for most lines within the permit. Only post 1969 data was considered viable for workstation use. A few lines in this category proved elusive and it may be necessary to scan these in the future.

The 1994 Rocky Cape data is of generally good quality. In T/18P line lengths were generally longer than in T/25P and the data were better migrated accordingly. The slightly "wormy" nature of the seismic character seen in T/25P reflected the poor signal to noise ratio there, but the areas targeted in T/18P have much better continuity suggesting a significant change in the stratigraphy of the EVCM. The 1990 Shell Survey covering the north-eastern portion of the Basin Edge is of good quality but suffers from having short line lengths.

The Amoco 1984 & 1985 surveys set up a regional framework for interpretation within T/25P. The lines were shot with a 2 - 3km dip line and 4 -6km strike line spacing and line lengths up to 55km. This extensive grid is of fair to good quality with reasonably consistent character. There is probably a 90° phase difference between the 1984 & 1995 data and this leads to a small bulk time shift from one vintage to the other. Some lines which were previously available as stacks only (on tape) were successfully migrated for the mapping project. Some 1977 lines were available from a reprocessing project done prior to the 1992 King 1 well and these were of reasonable quality although once again were quite short.

Amoco was approached for any digital data from the T/18P area and were forthcoming with several stacks from 1971, 1972 and 1975. These data were disappointing with the quality well down from the later vintages. Some of the data were corrupted with low frequency bands of noise which may have been a transcription or transportation problem. These vintages were migrated with fair to poor results. Band pass filtering helped to improve the signal to noise ratio in most instances.

2.4 Mistie Analysis and Distribution

The Sattlegger system was used for mistie analysis and the subsequent mapping. Misties within vintages were generally small as would be expected with marine data, although some variability is present in the early vintage data. Additionally fault interpretation may indicate that some of these early lines are out of position, perhaps in a variable way. Following the loading of all lines into Geoquest their time shift compared to the regional TQH5 grid was compensated by a vintage consistent (generally) bulk shift. The Rocky Cape data were 30ms high (shallow) compared to the regional grid which may be due to a different reference being used but this has not been resolved yet. The intersections of all vintages were checked for misties in Sattlegger and bulk shift corrections were then computed and applied. These were generally quite small given the initial vintage adjustments and reflect the slight frequency and phase differences between surveys. Local residual misties due to high dips or faults were small and are reasonably compensated for in the gridding process.

3 RESULTS

3.1 Introduction

The Rocky Cape seismic data were interpreted in two passes. The first project was to identify if the large Clarke Lead was viable and the second was to extend this interpretation northwards incorporating the 1994 reprocessing.

The improved grid spacing gained by the acquisition together with the better data quality from the reprocessing project allowed a significant improvement in the understanding of the structural geology of T/18P. Several prospects and leads have been confirmed, while the extra work did downgrade the Clarke & Aroo 1 updip Leads.

3.2 Regional Structure

3.2.1 Clarke Area

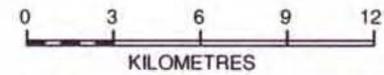
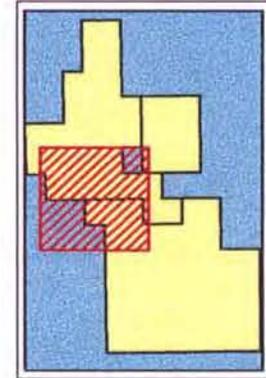
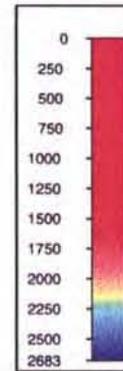
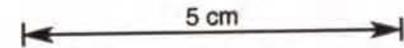
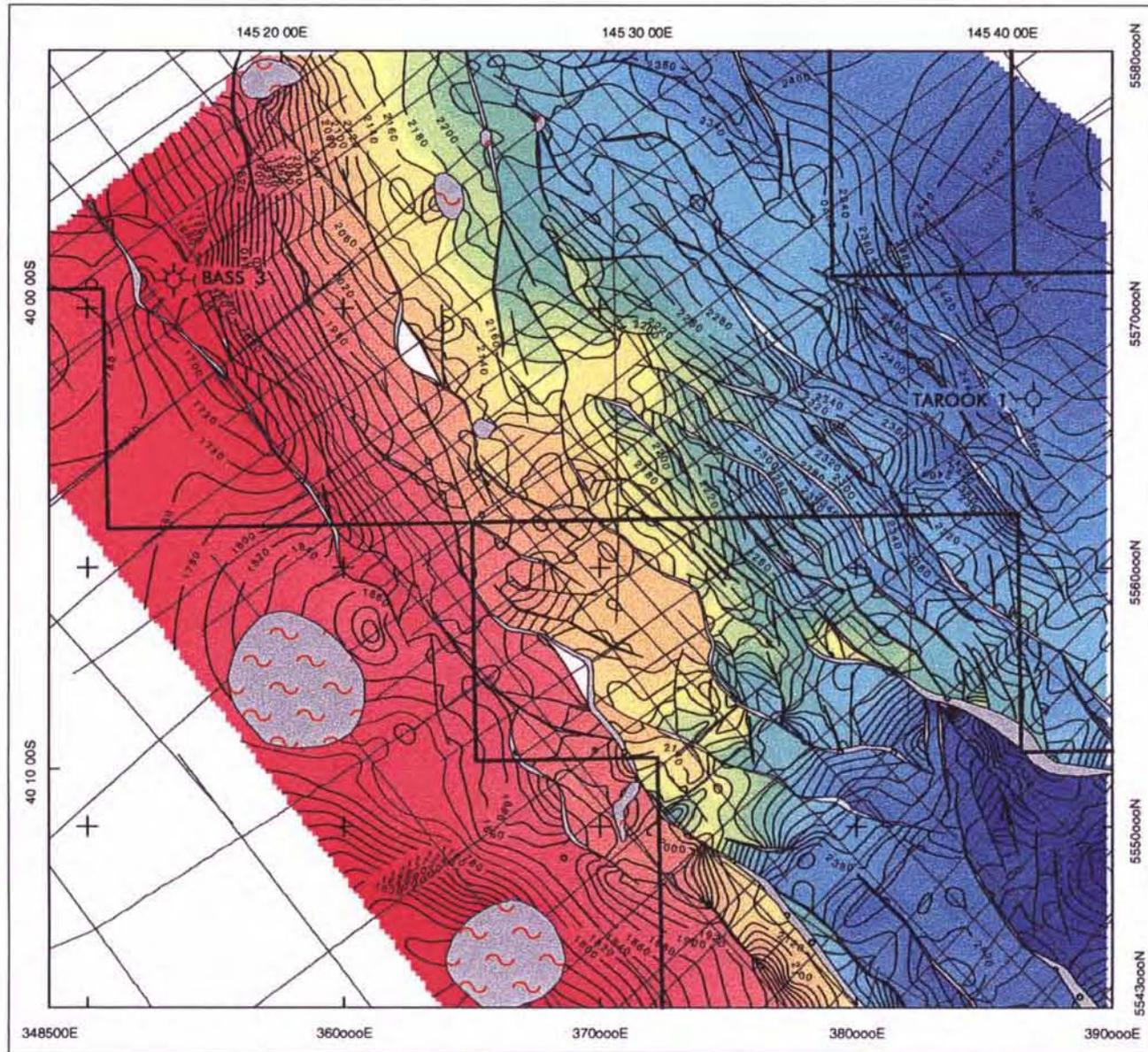
The Clarke Lead is located in northern T/25P and straddles the T/18P permit boundary. It falls where the northern end of the NW-SE trending ridge, which separates the Pelican Trough from the Yolla Trough, meets the basin edge ramp.

The Lead was thought to be a massive low-side fault closure against a major bounding fault prior to the Rocky Cape Survey. Unfortunately, the greater infill coverage provided by the Rocky Cape data showed that the fault style is more likely to be a complicated arrangement of en echelon faults and relay ramps (Figures 3.1 to 3.4). Very little of the original closure remains after this interpretation however, potential exists for stratigraphic traps in the Clarke area, particularly in the deeper section which onlaps the basement ramp.

3.2.2 Bass 3 High

The Rocky Cape Seismic Survey had a two fold target on the Bass 3 High. Firstly the updip potential from Bass 3 was to be identified and secondly a better understanding of the flank geometries was sought. Structural mapping of the key Palaeocene horizon confirmed that more than 30ms updip potential from Bass 3 was possible with closure covering approximately 23 square kilometres (Figures 3.5 and 3.6). The lead had been mapped by R. Smit in 1986 and called Ibis. Bass 3 had been drilled on a small half graben (Fig 3.7) in the greater structure but a FIT had recovered 29 cubic feet of gas and 800 cc of condensate from a Palaeocene aged sand at 2054mKB (Fig 3.8). The possible pay zone is capped by a regionally extensive shale seen also in Aroo 1, Koorkah 1 and Yolla 1 which should represent a robust top seal on the updip culmination. Clearly Bass 3 may have intersected the perimeter of a gas field which is developed further updip and therefore Ibis probably represents the lowest risk prospect in the T/18P inventory.

The EVCM thins dramatically over the Bass 3 high to the extent that the well was able to penetrate basement which consisted of Cambrian meta-sediments. The prominence and longevity of the Bass 3 high is reflected in the stratal geometries seen on the flanks of it (Fig 3.7). The thinning of the EVCM may allow pinchout type stratigraphic traps to develop particularly for Late Cretaceous strata which initially onlapped the Bass 3 High before eventually being deposited over the crest where they were intersected by the Bass 3 well. The trapping potential of the

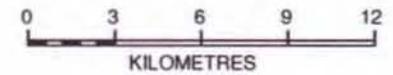
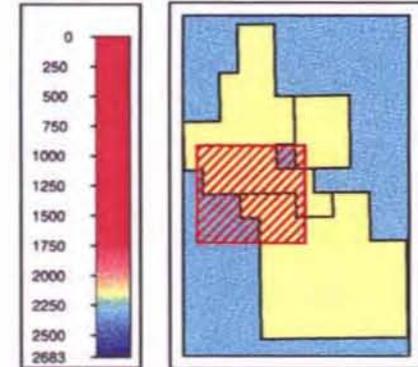
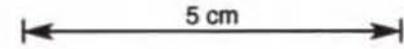
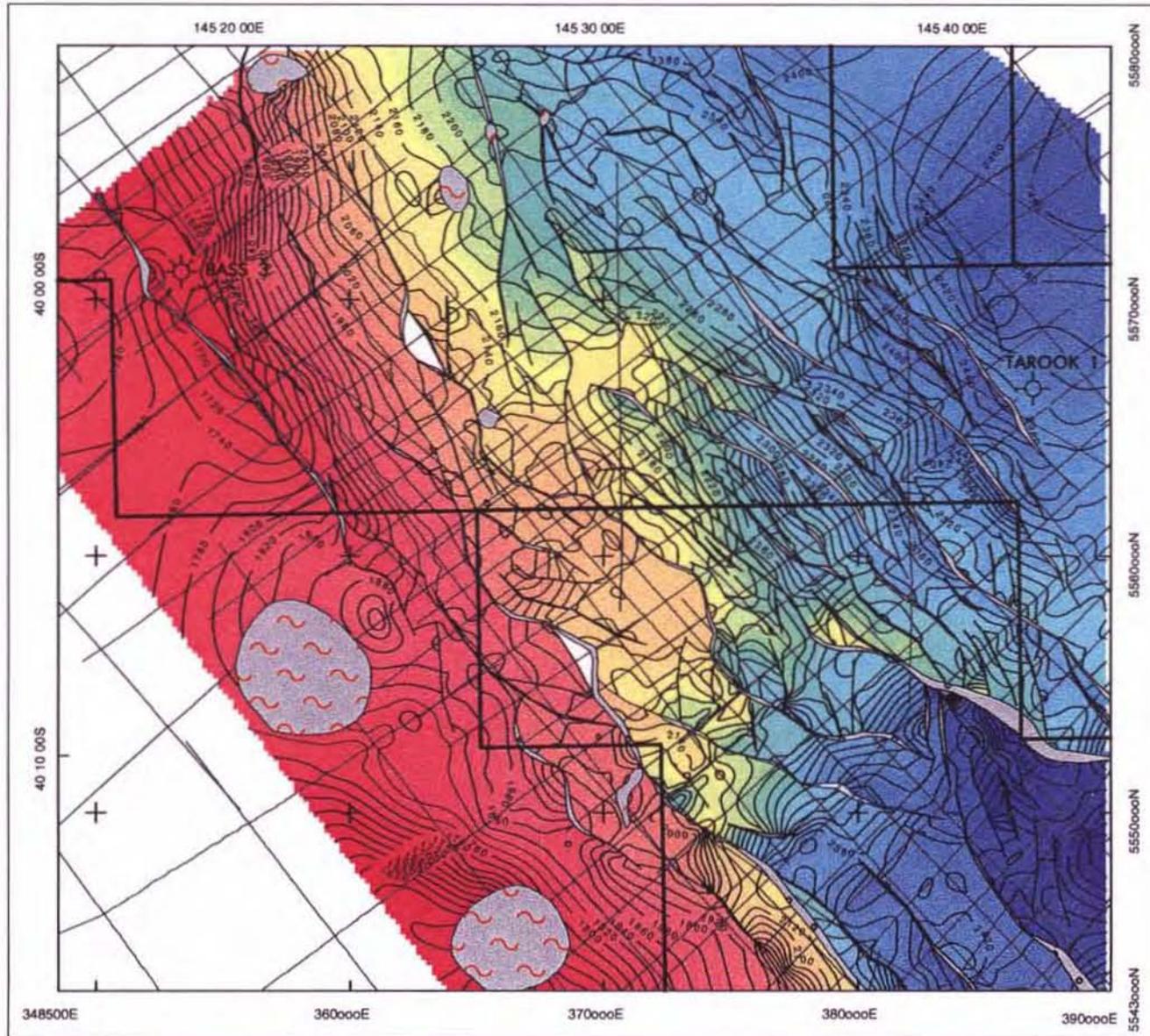


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BASS BASIN TASMANIA

CLARKE LEAD
TOP CRETACEOUS
TIME STRUCTURE

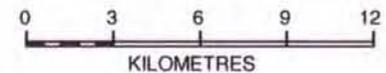
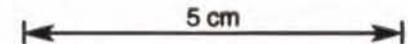
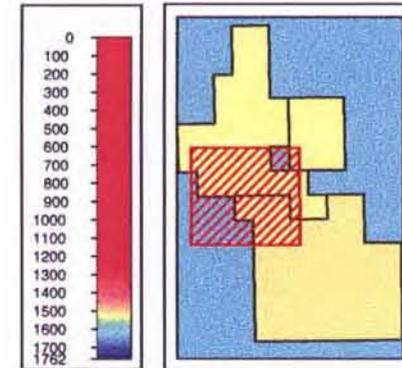
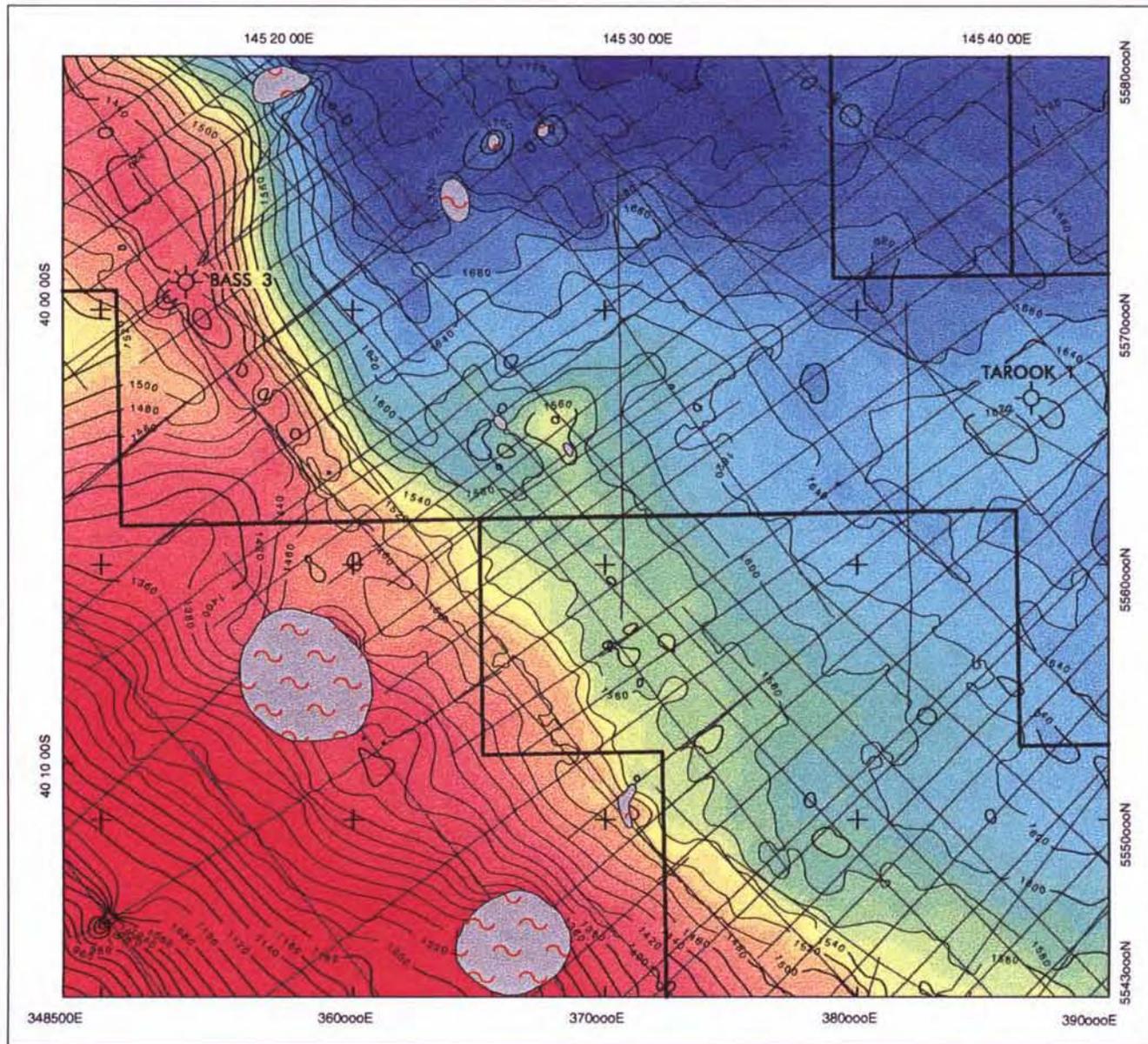
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BASS BASIN TASMANIA

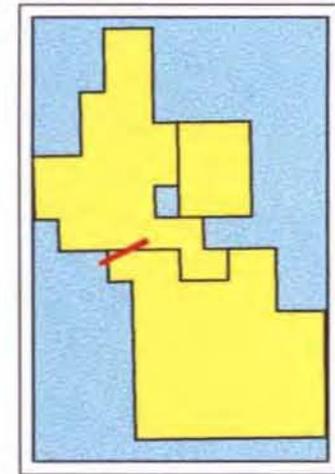
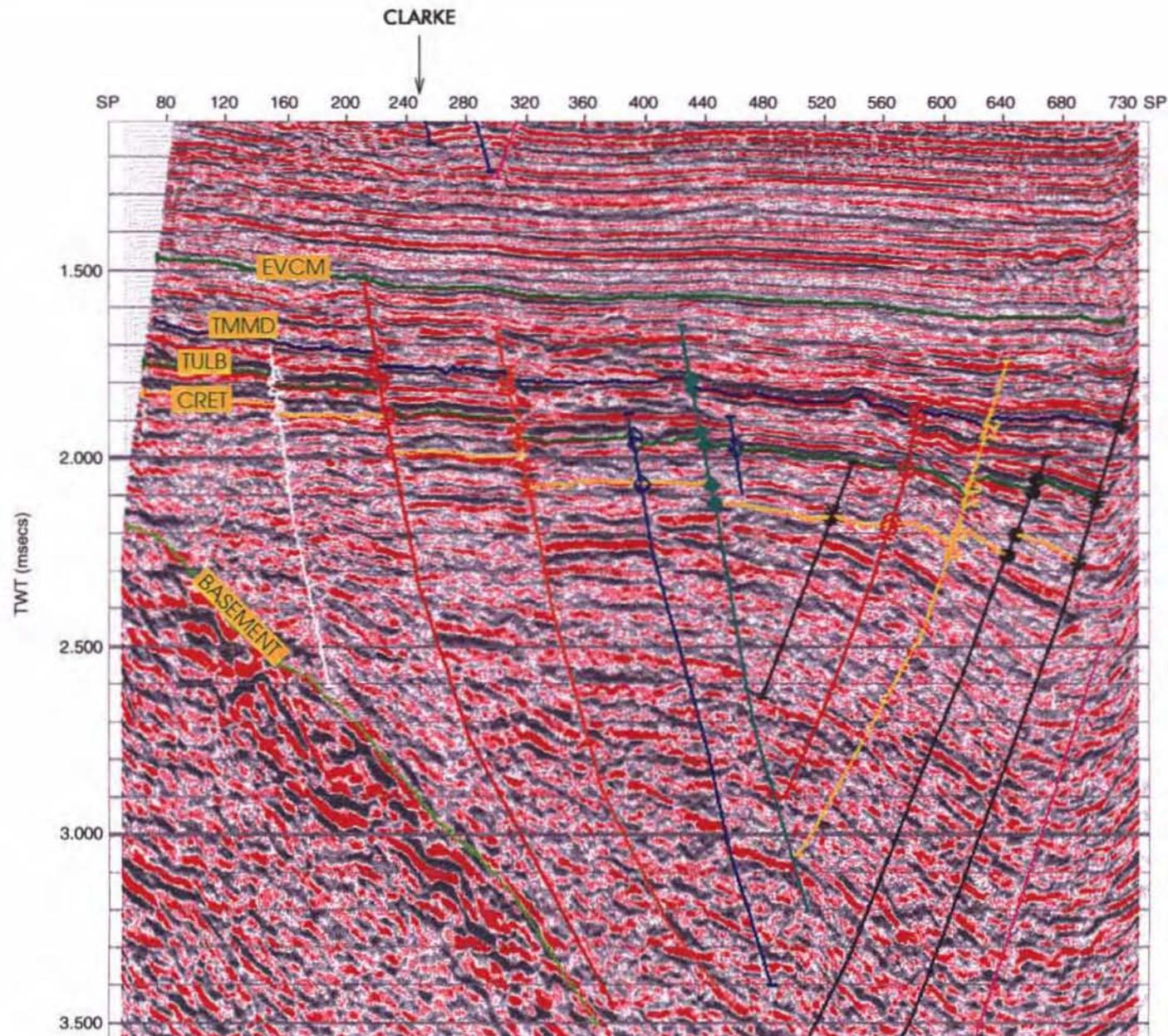
CLARKE LEAD
TOP PALAEOCENE
TIME STRUCTURE



UNIVERSAL TRANSVERSE MERCATOR PROJECTION
 AUSTRALIAN NATIONAL SPHEROID
 CENTRAL MERIDIAN 147 00 00E

BASS BASIN TASMANIA

**CLARKE LEAD
 TOP EVCM
 TIME STRUCTURE**

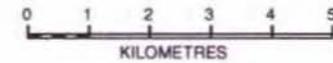
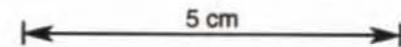
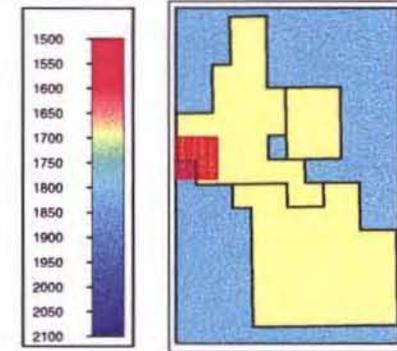
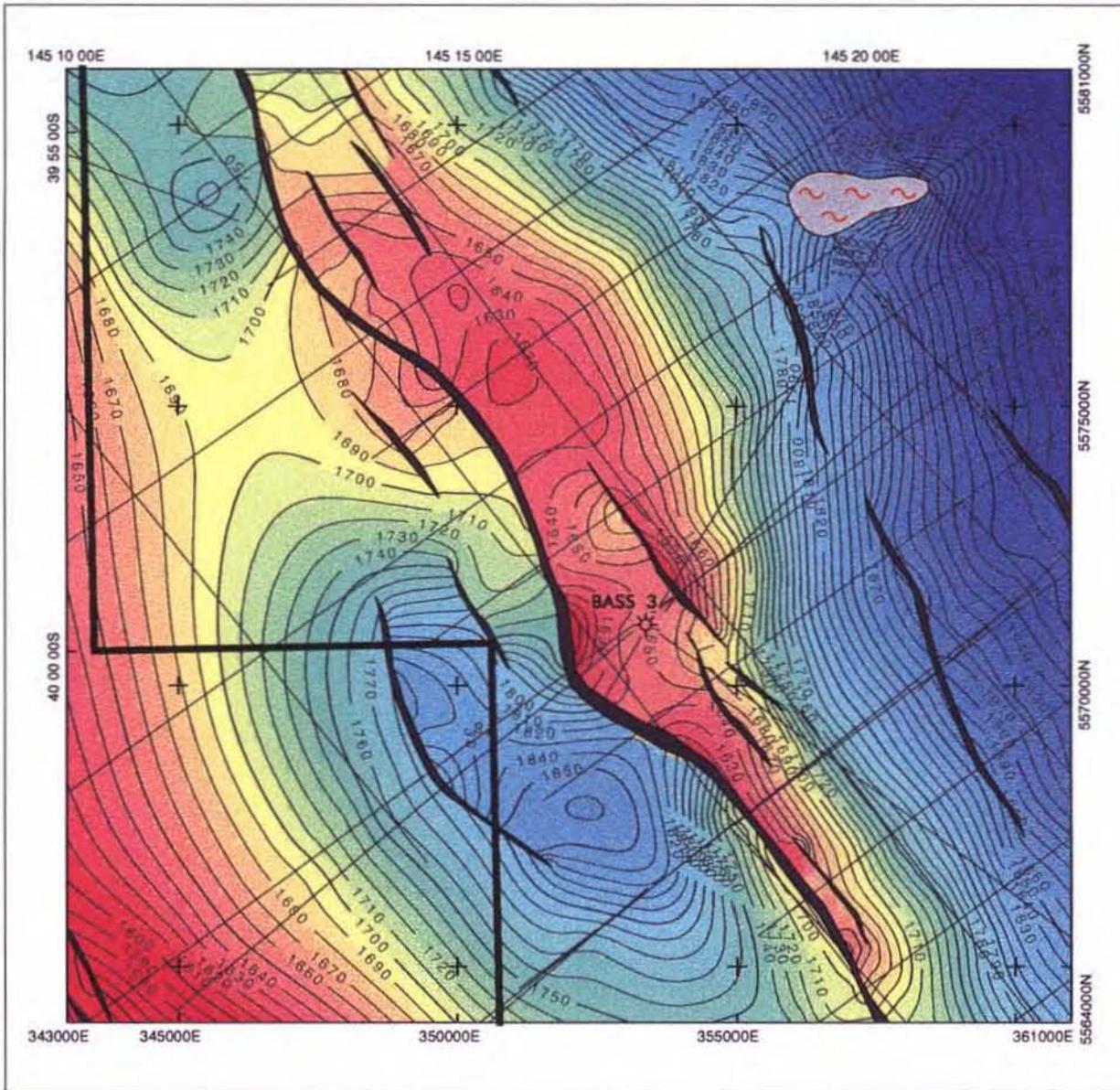


5 cm

T25P BASS BASIN TASMANIA

CLARKE LEAD

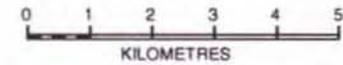
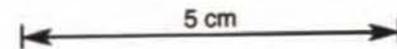
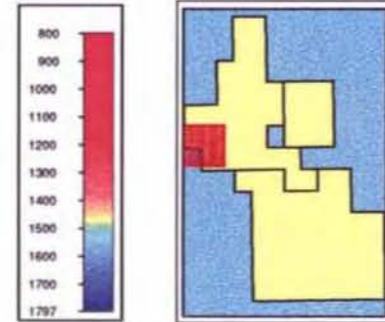
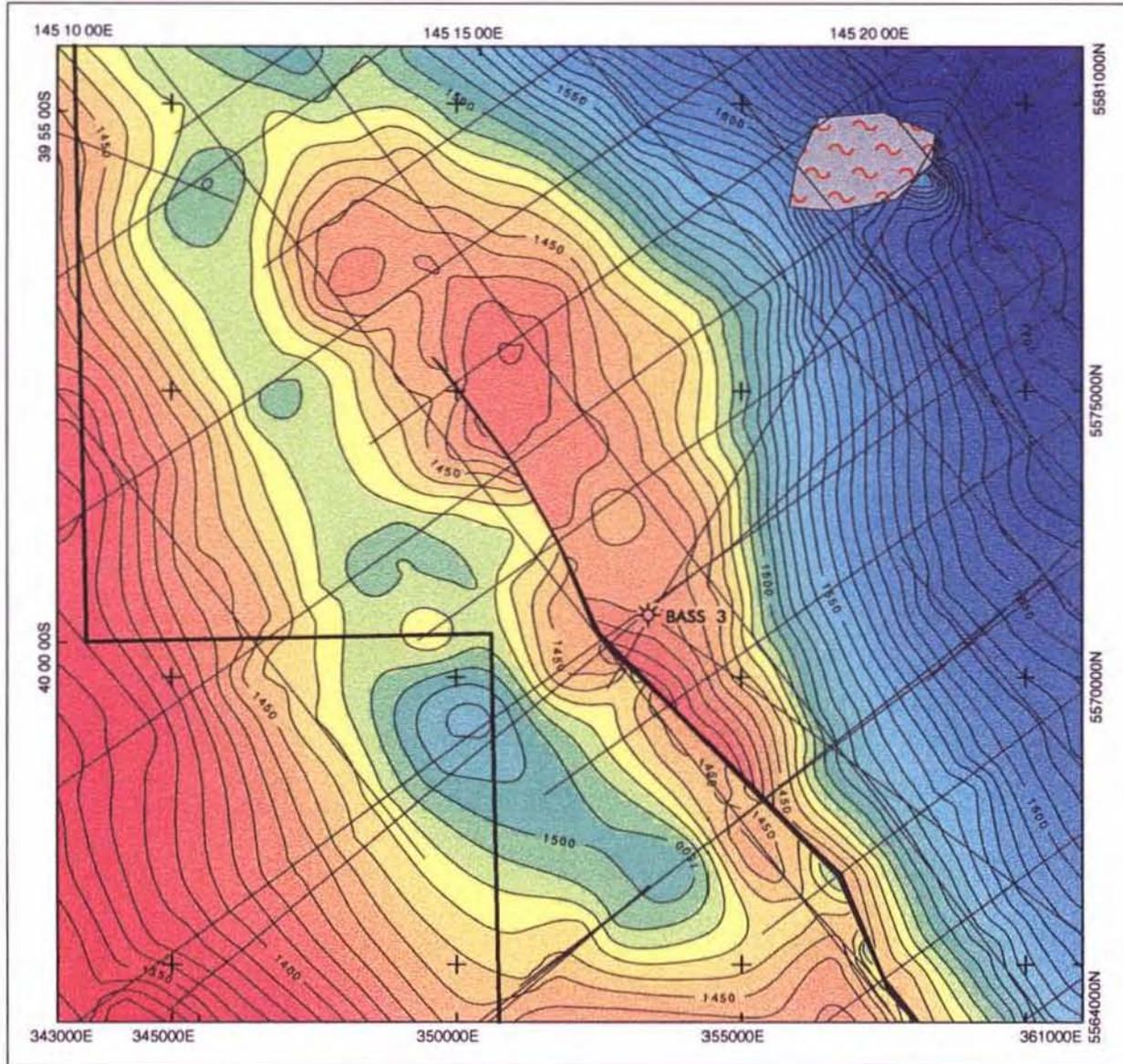
DIP LINE (SB94A-129)



UNIVERSAL TRANSVERSE MERCATOR PROJECTION
 AUSTRALIAN NATIONAL SPHEROID
 CENTRAL MERIDIAN 147 00 00E

T/18P BASS BASIN TASMANIA

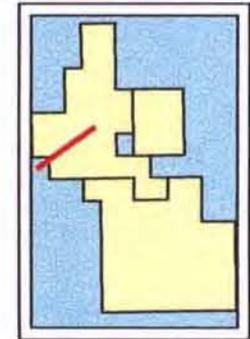
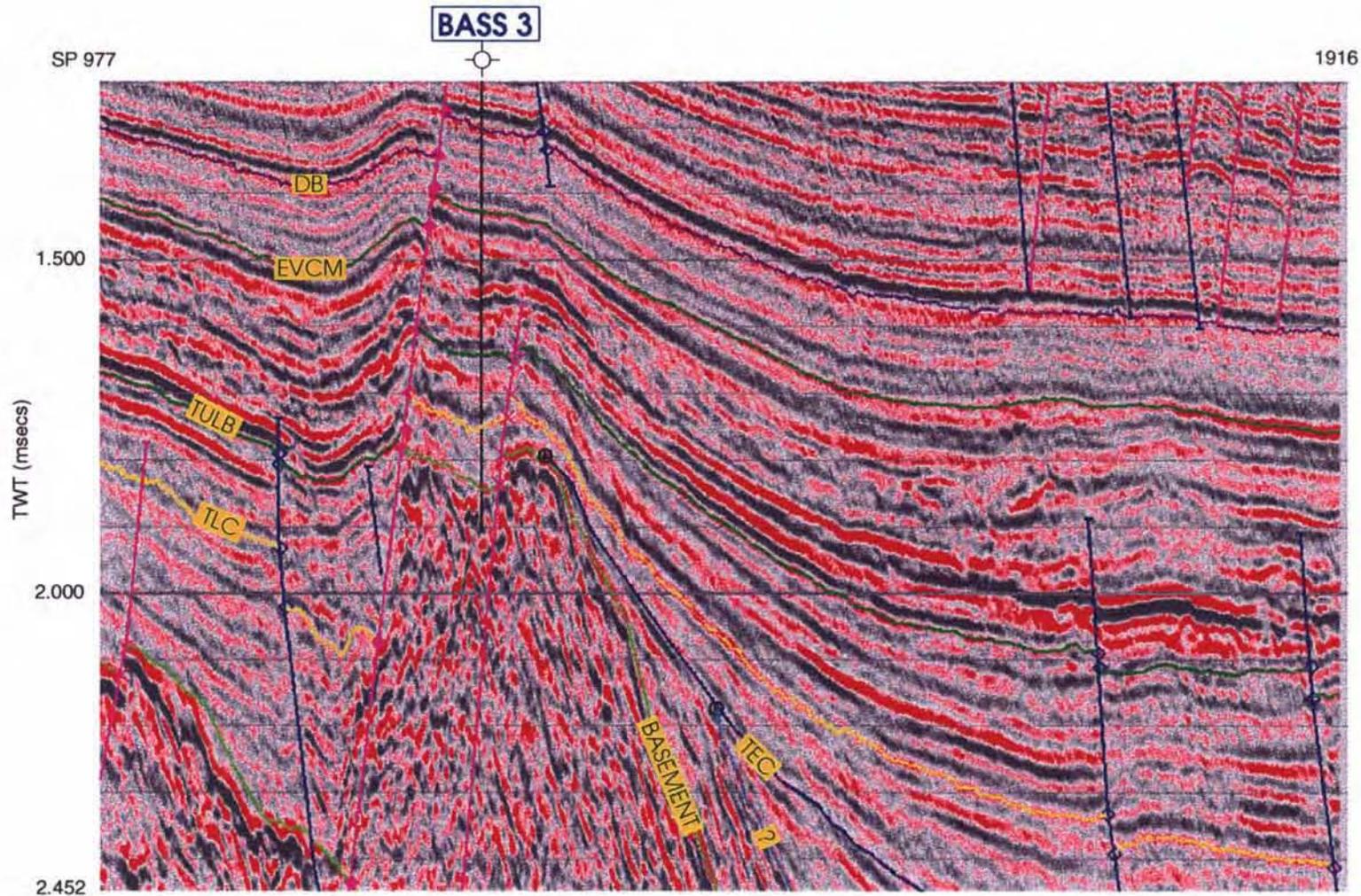
**BASS 3 HIGH
 TOP PALAEOCENE
 TIME STRUCTURE**



UNIVERSAL TRANSVERSE MERCATOR PROJECTION
 AUSTRALIAN NATIONAL SPHEROID
 CENTRAL MERIDIAN 147 00 00E

T18P BASS BASIN TASMANIA

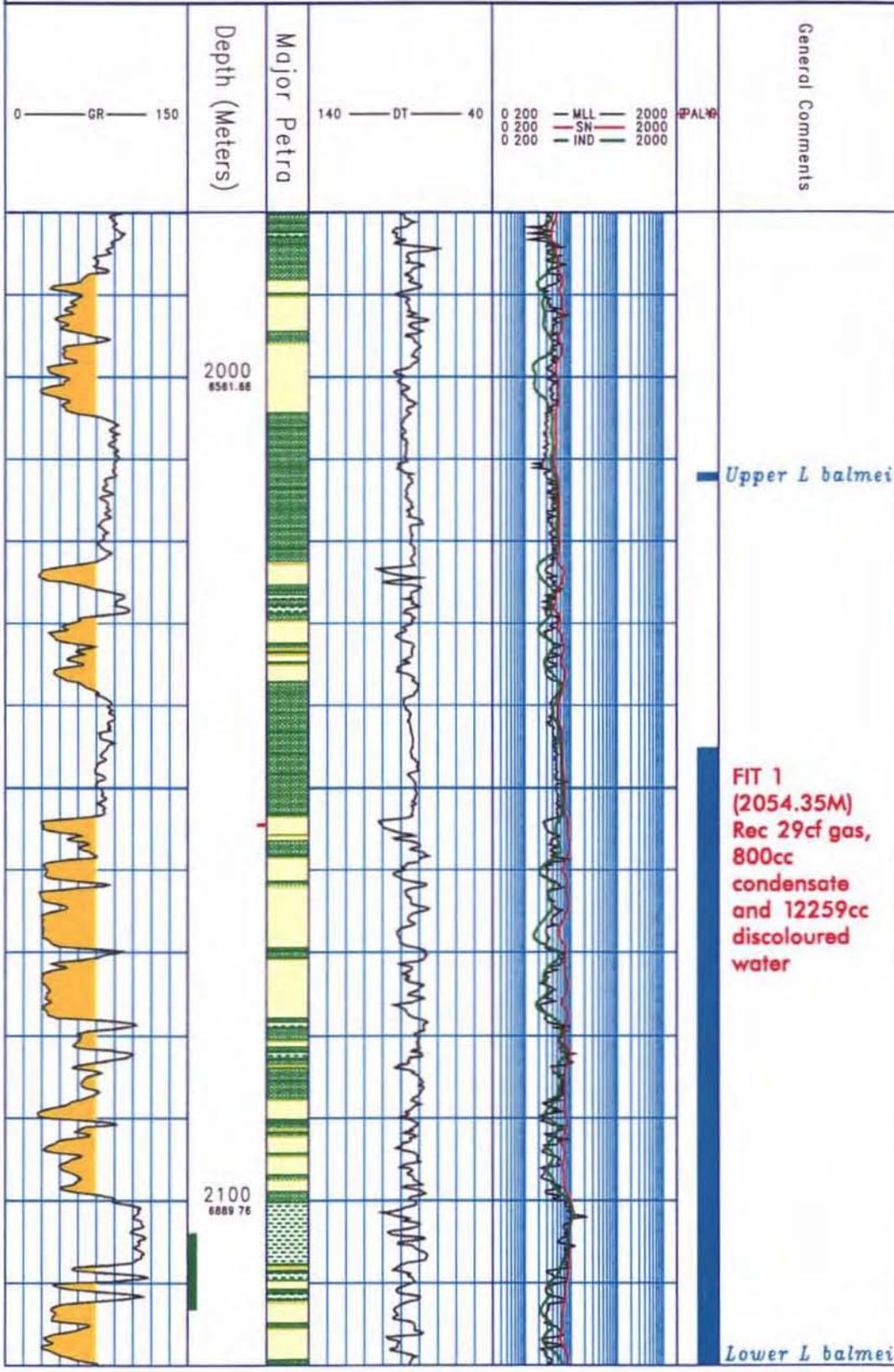
**BASS 3 HIGH
 TOP EVCM
 TIME STRUCTURE**



T18P BASS BASIN TASMANIA
BASS 3 HIGH
DIP LINE (TQH5-35)

BASS 3

Operator	Esso Exploration and Production Australia Inc	Spud Date	11 February 1967
Area	Bass Basin	TD Logger - MD	2431.69
Permit	T/18P	KB to GL/MSL	9 4488



flanks of the Bass 3 high is still being investigated. Further downdip the Early Cretaceous subcrops under the basal Late Cretaceous unconformity which may also allow trapping geometries to develop.

3.2.3 Trefoil Area

The Trefoil Prospect consists of a simple four-way dip closure in the northwestern part of the Yolla Trough (Figures 3.9 & 3.10). The broad low relief dome is set up by dip reversal on a prominent Early Eocene to Cretaceous aged E-W trending nose. Subtle drape over an Early Cretaceous culmination is seen but the present day Palaeocene closure appears to be set up by a zone of sag located west of Trefoil. This sag is manifested by thickening of the Demon's Bluff Formation. A localised area in this zone of sag was uplifted and intersected by Late Miocene intrusives leaving a most unusual seismic signature (Fig. 3.11). Distortion around this corrupted zone leads to uncertainty in the structural integrity of the critical spill area of Trefoil. The most optimistic interpretation only gives 20ms of closure but a significant amplitude anomaly is present in the Late Cretaceous section coincident with it. If this feature is merely a tuning effect due to stratal thinning, it gives credibility to Trefoil indicating early enough closure for migrating hydrocarbons to accumulate there, but the anomaly could also be a direct hydrocarbon indicator.

3.2.4 Aroo-Chappell Area

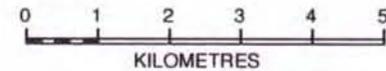
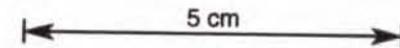
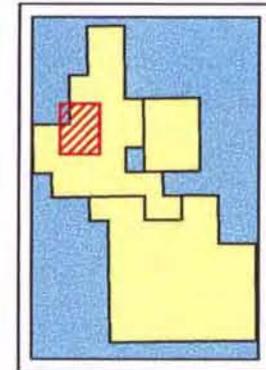
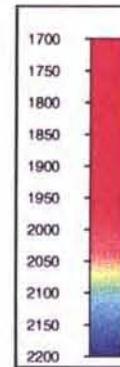
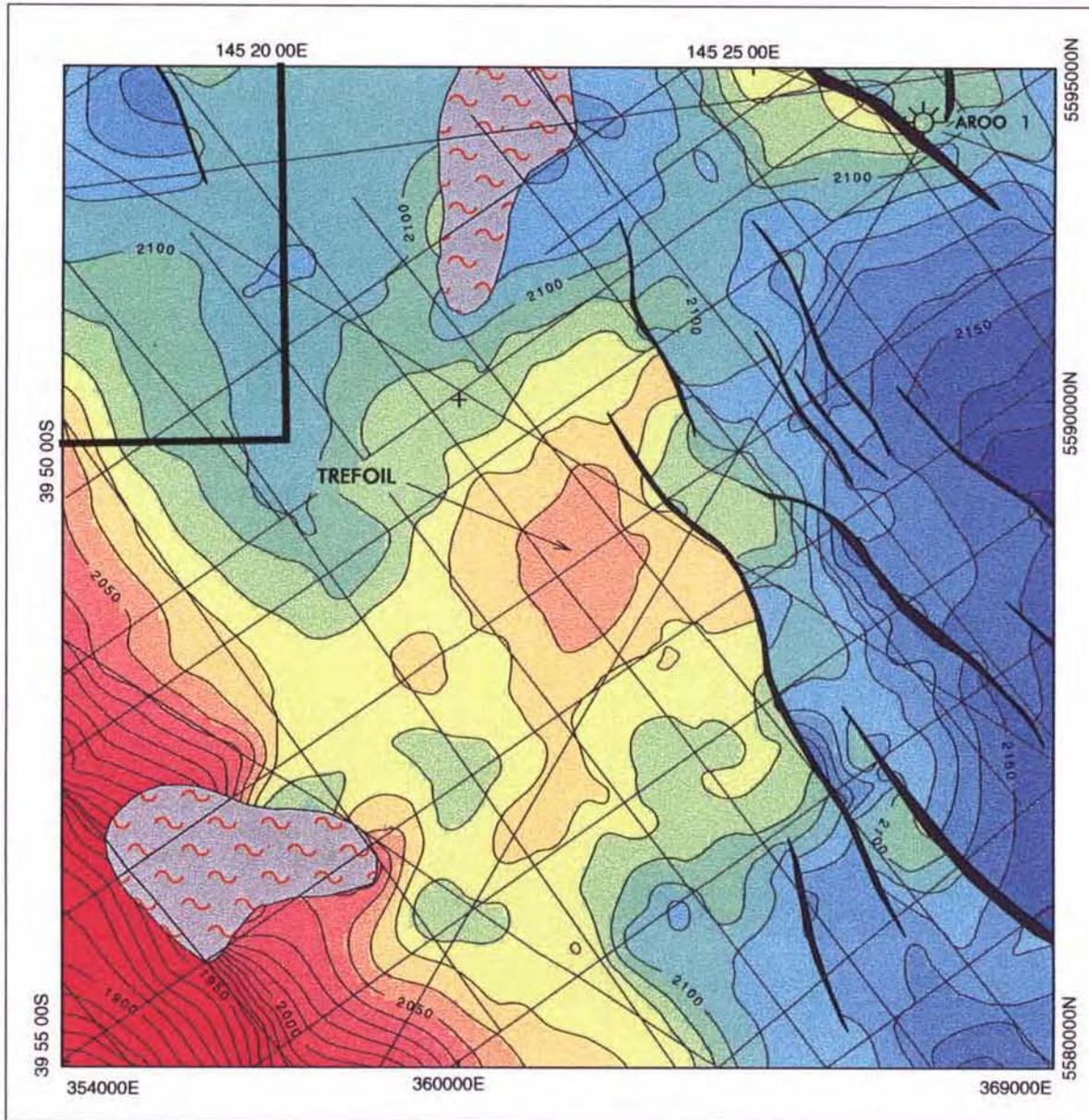
The updip potential from the Aroo 1 well, previously called Aroo North Lead was significantly downgraded by the Rocky Cape Seismic Survey. A new Lead, Aroo West, with over 50ms of relief was identified, however, it will be too small for follow-up being only 6 square kilometres in area.

Aroo East Lead, identified on previous mapping, was also downgraded by the new seismic, having been reduced to 12 square kilometres in area (Figures 3.12 and 3.13). This Lead is essentially a lowside fault play (Figure 3.14) and is well placed to receive a charge from the Cormorant Trough, although reservoir quality seen in Cormorant 1 for the Middle M. diversus section was poor. It is significant however, that the Palaeocene has not been tested in this trough giving scope for more reasonable reservoir quality.

East of Aroo 1 and located nearby to the Yolla 1 discovery the Chappell Lead is well placed to access similar source rocks. The Lead was not targetted by the Rocky Cape Survey but key lines were migrated for geophysical workstation interpretation. Nevertheless, the Lead is only controlled by two dip lines with little strike control, hence the area may change from the current 19 square kilometres. The Chappell structure is a tilted fault block with a "trap door" geometry (Figure 3.15). It is located on a basement ridge which separates the Yolla and Cormorant Troughs and therefore is a relatively long-lived feature, comfortably pre-dating hydrocarbon migration which probably occurred in the early Miocene.

3.3 Prospectivity

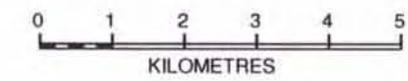
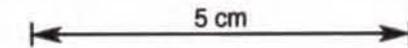
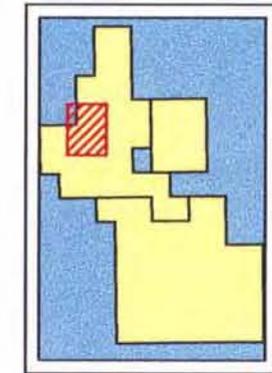
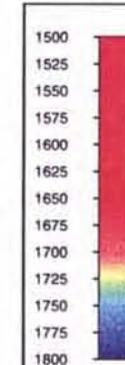
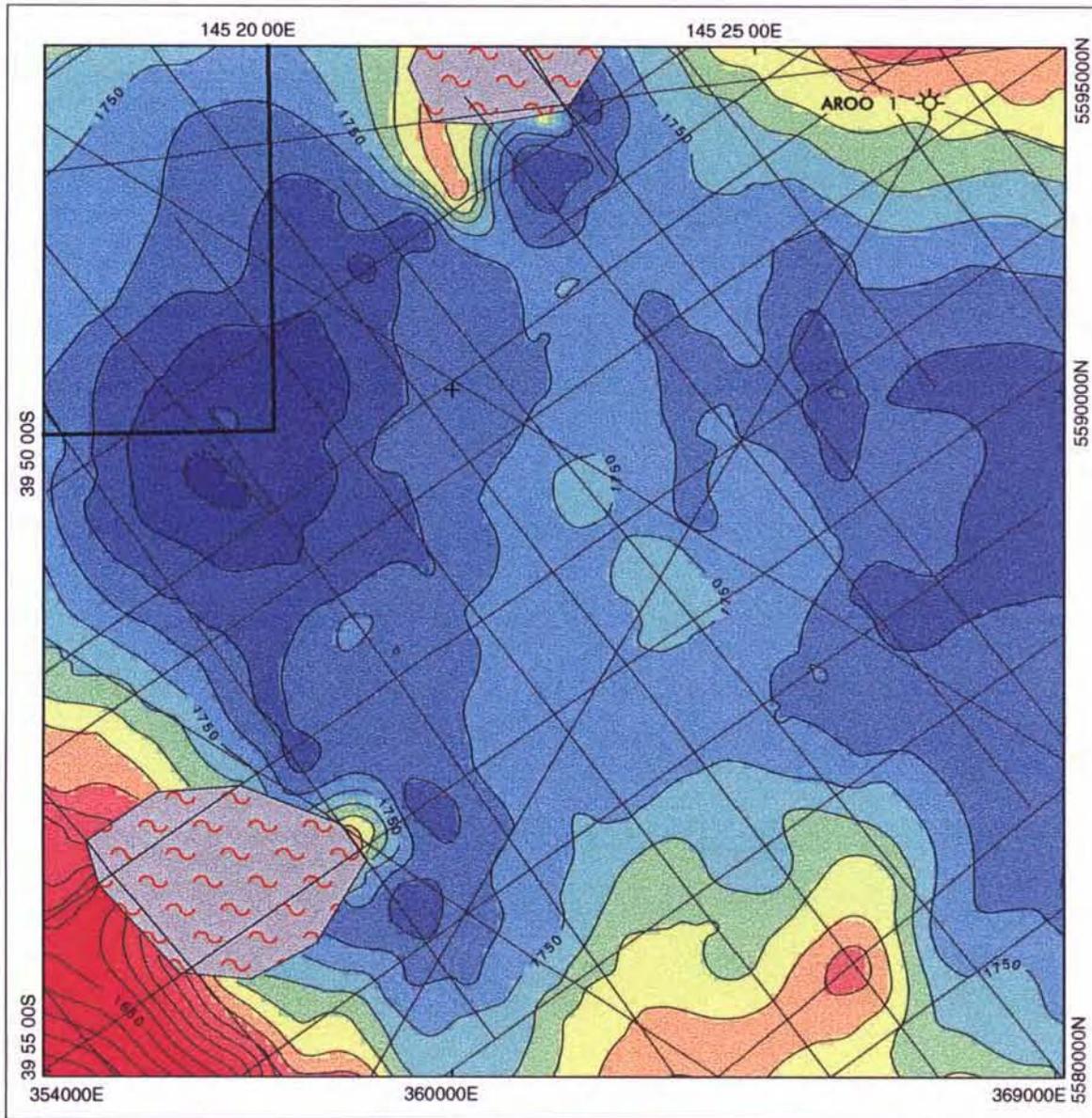
The objective of the 1994 Rocky Cape Seismic Survey was to provide semi-regional infill coverage over major leads identified in previous mapping allowing them to be evaluated and ranked prior to recording of detailing lines over the best prospects as the Year 3 seismic commitment.



UNIVERSAL TRANSVERSE MERCATOR PROJECTION
 AUSTRALIAN NATIONAL SPHEROID
 CENTRAL MERIDIAN 147 00 00E

T/18P BASS BASIN TASMANIA

TREFOIL AREA
TOP PALAEOCENE
TIME STRUCTURE



UNIVERSAL TRANSVERSE MERCATOR PROJECTION
 AUSTRALIAN NATIONAL SPHEROID
 CENTRAL MERIDIAN 147 00 00E

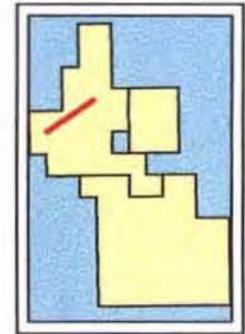
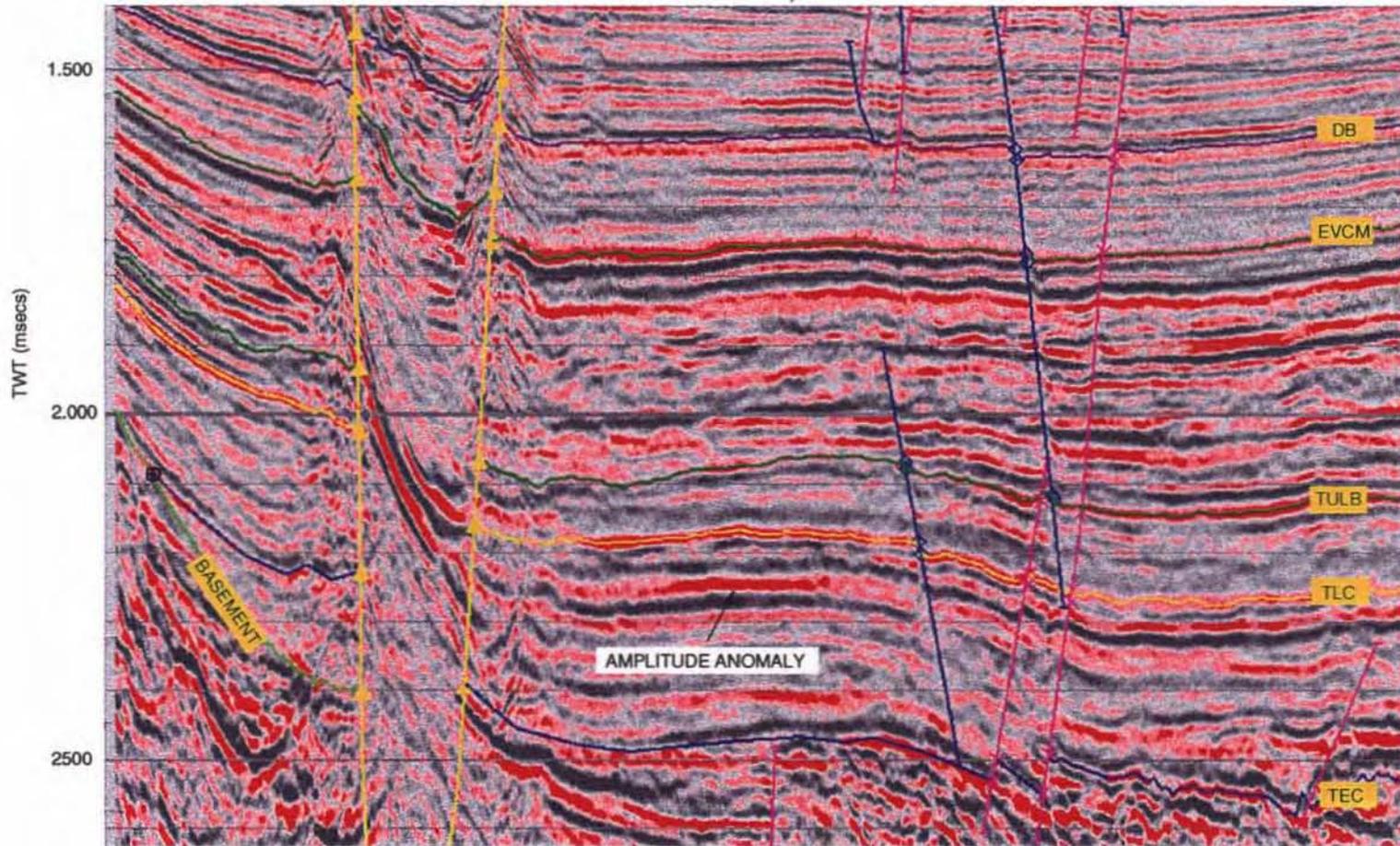
T/18P BASS BASIN TASMANIA

TREFOIL AREA
 TOP EVCM
 TIME STRUCTURE

TREFOIL
↓

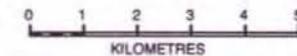
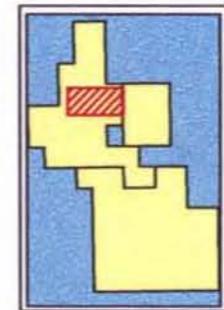
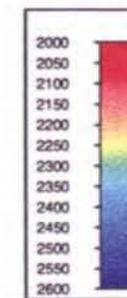
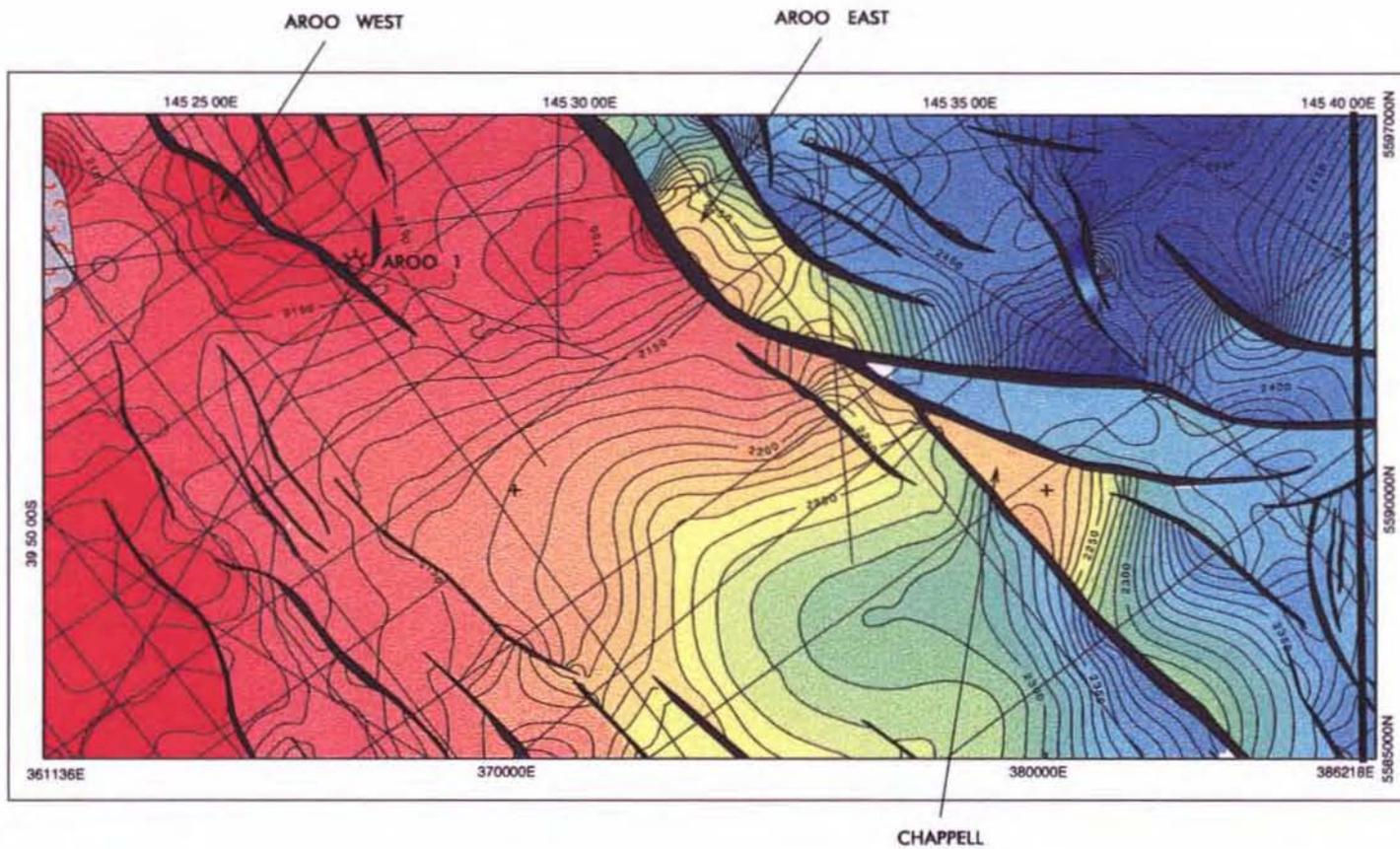
SP 334

1273

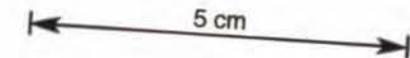


T/18P BASS BASIN TASMANIA
TREFOIL AREA
DIP LINE (SB94A-113)

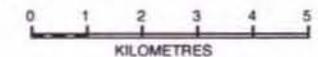
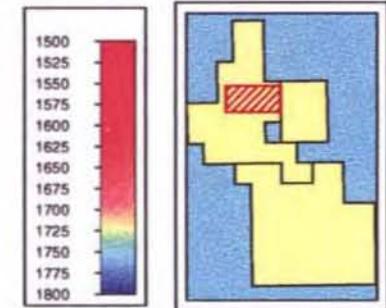
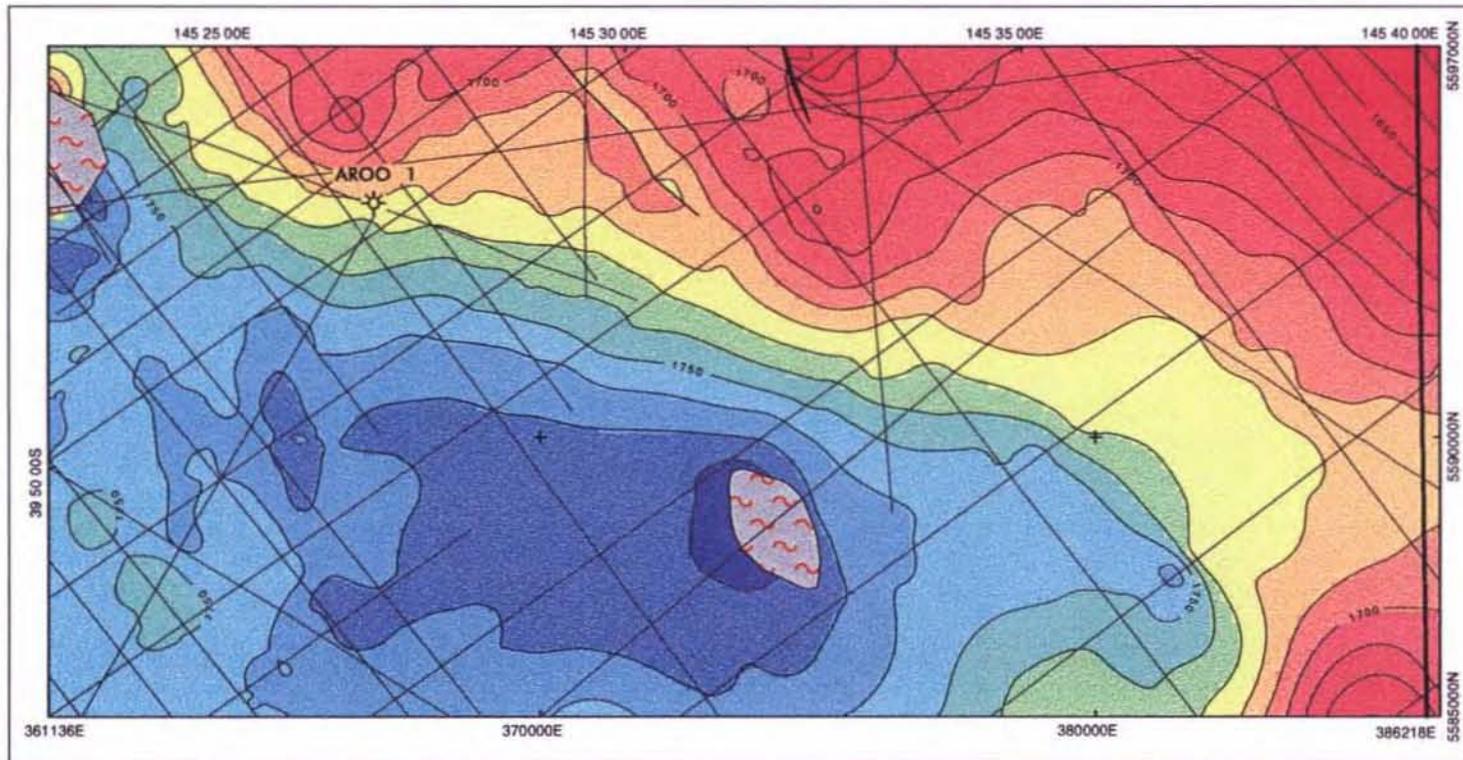
5 cm



UNIVERSAL TRANSVERSE MERCATOR PROJECTION
 AUSTRALIAN NATIONAL SPHEROID
 CENTRAL MERIDIAN 147 00 00E



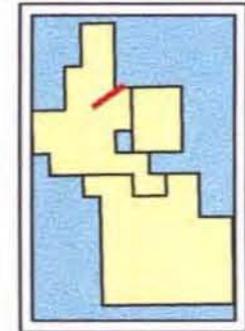
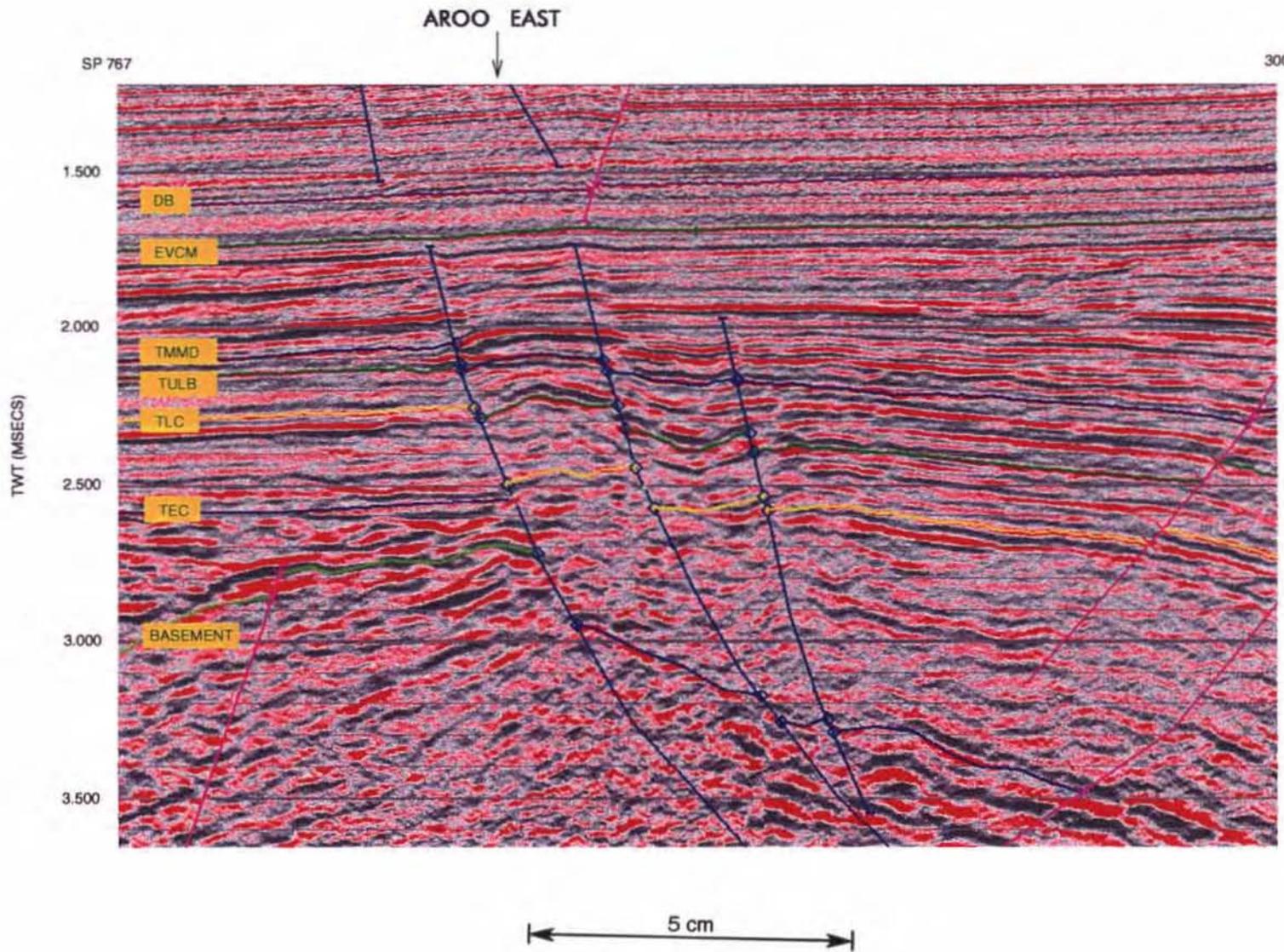
T18P BASS BASIN TASMANIA
 AROO CHAPPELL AREA
 TOP PALAEOCENE
 TIME STRUCTURE



UNIVERSAL TRANSVERSE MERCATOR PROJECTION
 AUSTRALIAN NATIONAL SPHEROID
 CENTRAL MERIDIAN 147 00 00E

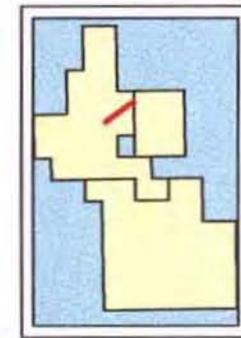
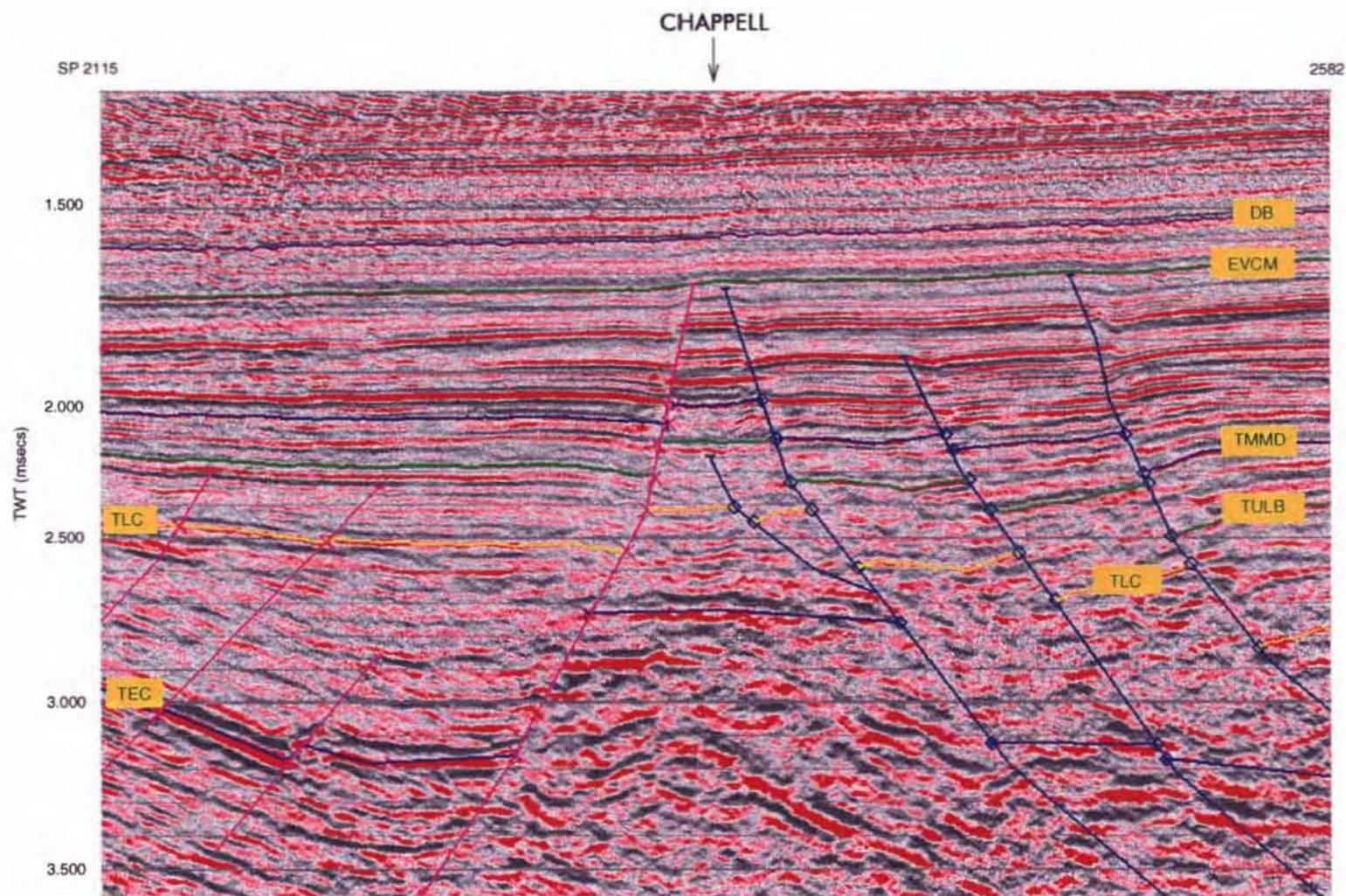
5 cm

T/18P BASS BASIN TASMANIA
 AROO CHAPPELL AREA
 TOP EVCM
 TIME STRUCTURE



T/18P BASS BASIN TASMANIA

AROO EAST
DIP LINE (TQH5-31)



T/18P BASS BASIN TASMANIA
CHAPPELL LEAD
DIP LINE (TQH5-35)

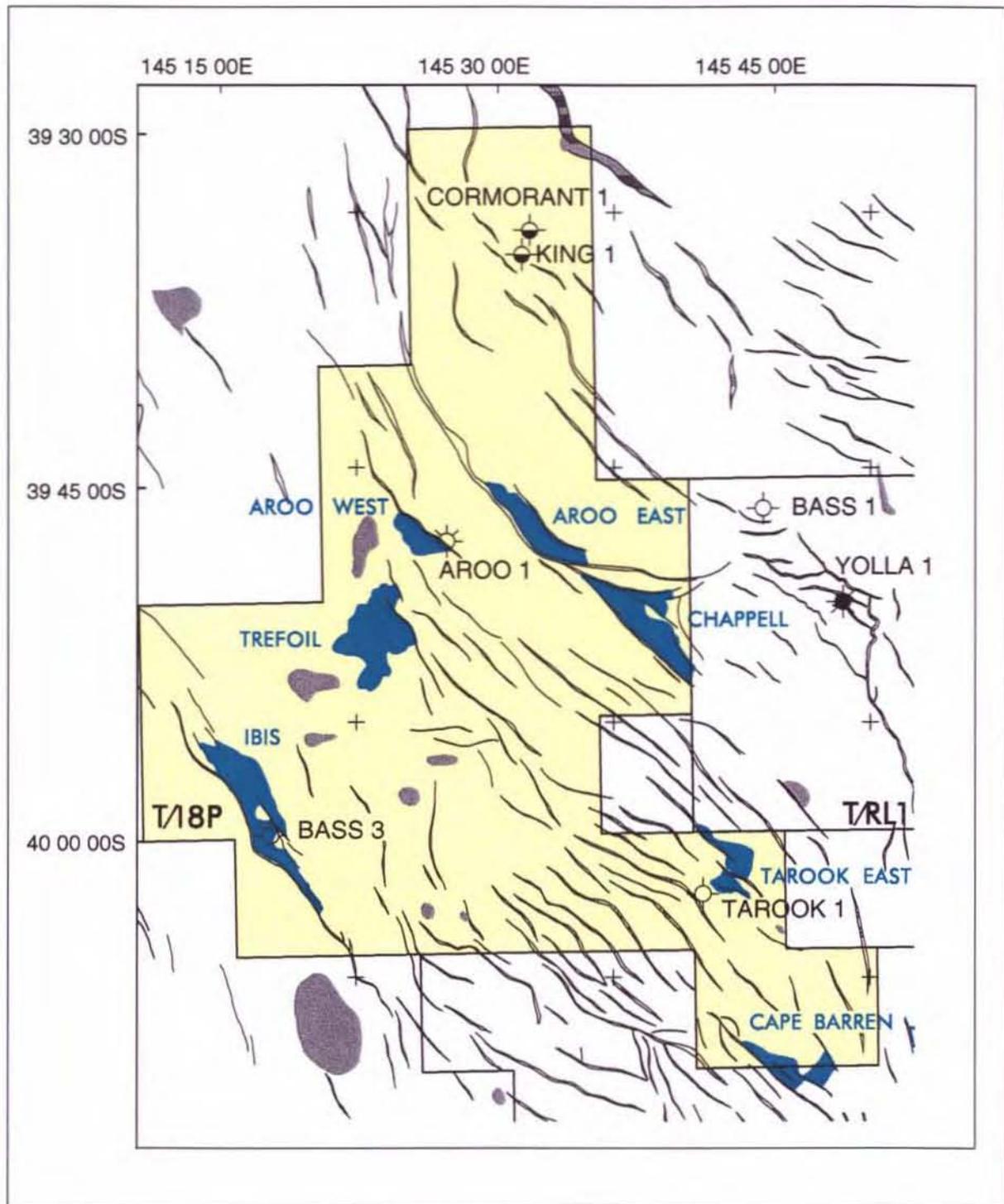
5 cm

Reprocessing allowed improved interpretation of other leads not specifically addressed by the Rocky Cape acquisition. The three robust prospects which resulted from the mapping project are Ibis, Trefoil and Aroo East. The Chappell lead is poorly controlled at present but is well located and of reasonable size. Many tilted fault blocks are located in the southern portion of the permit but current mapping indicates no significant closures are present, however, the grid spacing is generally greater than one kilometre leading to some ambiguity in fault interpretation. Semi-regional infill could possibly lead to another prospect in this area.

Approximate reserve calculations suggest that commercially viable hydrocarbon accumulations could be accommodated in the prospects and leads identified.

The geographic distribution of prospects and leads based upon the Palaeocene Time Structure map is presented in Fig 3.16.

5 cm



0 Kilometres 20

**BASS BASIN
T/18P
LEADS & PROSPECTS**

4 CONCLUSIONS & RECOMMENDATIONS

The 1994 Rocky Cape Seismic Survey and associated reprocessing allowed improved structural interpretation of the T/18P permit. The data quality was generally superior to previous acquisition.

Several leads were degraded by the better seismic coverage and subsequently Clarke, Aroo North, Furneaux & Robbins will be removed from the inventory. The remaining prospects and leads namely Ibis, Trefoil, Aroo East & Chappell will be detailed by the 1996 Hummock Seismic Survey upgrading them to drillable status.

Further work will be done to determine if possible stratigraphic traps exist on the flanks of the Bass 3 High and this will be aided by the extra infill lines from the 1996 acquisition. The possibility of this style of trap does add some "blue sky" potential for the permit which is presently considered to have good prospectivity and reasonable chances of success for the identified prospects and leads.

APPENDIX 1: WELL INFORMATION WITH PALYNOLOGY

The palynology information provided was extracted from "PALYNOLOGICAL REVIEW OF PREVIOUS OIL DRILLING, BASS BASIN, AUSTRALIA" by Roger Morgan for Amoco Australia (20 February 1985).

All other information provided was taken from the well completion reports.

AROO 1GENERAL INFORMATION

Latitude:	-39.7918	Longitude:	-145.4466
KB:	9.8m	WD:	76m
TD:	3692m	SPUD:	4/3/74
RIG:	Glomar Conception	STATUS:	P&A
Top Demon's Bluff	1814m	Top EVCM	2049m

PALYNOLOGY

(NB Score: 0 = Excellent, 1 = Good, 2 = Poor Confidence)

Zone	Top Range	Score	Base Range	Score
Middle <i>N.asperus</i>	6715'(2046.7m)	1	6825'(2080.3m)	1
Lower <i>N.asperus</i>	6920'(2109.2m)	1	7431'(2265.0m)	1
<i>P.asperopolus</i>	8189'(2496.0m)	2	8615'(2625.9m)	1
Upper <i>M.diversus</i>	Not Sampled			
Middle <i>M.diversus</i>	Not Sampled			
Lower <i>M.diversus</i>	8944'(2726.1m)	1	8944'(2726.1m)	1
Upper <i>L.balmei</i>	8990'(2740.2m)	1	9080'(2767.6m)	1
Lower <i>L.balmei</i>	9166'(2793.8m)	2	10294'(3137.6m)	1
<i>T.longus</i>	10650'(3246.1 m)	1	10818'(3297.3m)	1

IGNEOUS ROCK OCCURRENCES

Description	Top of Interval	Base of Interval
Volcanics	3144mKB	3220mKB
Volcanics	3315mKB	3692mKB

BASS 3**GENERAL INFORMATION**

Latitude	-39.9975	Longitude	-145.2825
KB	9.4m	WD:	58.52m
TD	2432m	SPUD:	11/2/67
RIG:	National	STATUS:	P&A
Top Demon's Bluff	1444m	Top EVCM	1598m
Quartzite Basement	2408m		

PALYNOLOGY

(NB Score: 0 = Excellent, 1 = Good, 2 = Poor Confidence)

Zone	Top Range	Score	Base Range	Score
Middle <i>N.asperus</i>	4731'(1442.0m)	1	5465'(1665.7m)	1
Lower <i>N.asperus</i>	5540'(1688.6m) or 5811'(1771.2m)	2 1	5907'(1800.5m)	1
<i>P.asperopolus</i>	6021'(1835.2m) or 6155'(1876.0m)	2 1	6155'(1876.0m)	1
Upper <i>M.diversus</i>	Not Sampled			
Middle <i>M.diversus</i>	6421'(1957.1m)		6437'(1962.0m)	1
Lower <i>M.diversus</i>	Not Sampled			
Upper <i>L.balmei</i>	6600'(2011.7m)	1	6600'(2022.7m)	1
Lower <i>L.balmei</i>	6710'(2045.2m)	1	7203'(2195.5m) or 7150'(2179.3m)	2 1
<i>T.longus</i>	7311'(2228.4m)	1	7710'(2350.0m) or 7443'(2268.6m)	2 1

IGNEOUS ROCK OCCURRENCES

NIL

CORMORANT 1GENERAL INFORMATION

Latitude:	39.5730	Longitude:	-145.5266
KB(RT):	30.5m	WD:	73.2m
TD:	3000.8m	SPUD:	11/6/70
RIG:	Ocean Digger	STATUS:	Abandoned with shows of hydrocarbons
Top Demon's Bluff	1029.6mSS	Top EVCM	1224.7mSS

PALYNOLOGY

Score: 0 = Excellent, SWC or Core
 1 = Good, SWC or Core
 2 = Poor Confidence, SWC or Core

Zone	Preferred Top Range	Score	Preferred Base Range	Score
Middle <i>N. asperus</i>	3700'(1127.8m)	0	3920'(1194.8m)	0
Lower <i>N. asperus</i>	4305'(1312.2m)	1	4999'(1523.7m)	1
<i>P. asperopolus</i>	5356'(1632.5m)	1	5990'(1825.8m)	0
Upper <i>M. diversus</i>	6518'(1986.7m)	0	7154'(2180.5m)	2
Middle <i>M. diversus</i>	7284'(2220.2m)	2	7635'(2327.1m)	1
Lower <i>M. diversus</i>	8820'(2688.3m)	1	9825'(2994.7m)	1

IGNEOUS ROCK OCCURRENCES

Description	Top of Interval	Base of Interval
Intrusive	2444mKB	2521mKB

KING 1GENERAL INFORMATION

Latitude:	39°35'24.331"S	Longitude:	145°31'08.780"E
KB(RT):	22.3m	WD:	72.5m
TD:	2223MRT	SPUD:	30/10/92
RIG:	Ocean Epoch	STATUS:	P&A
Top Demon's Bluff	1028.7MSS	Top EVCM	1269MSS

PALYNOLOGY

No samples were submitted for palynology because of the nearby palynological control at Cormorant 1 and good wireline and lithological correlation.

IGNEOUS ROCK OCCURRENCES

Nil

TAROOK 1GENERAL INFORMATION

Latitude:	-40.0436	Longitude:	-145.6746
KB(RT):	32'(9.8m)	WD:	80m
TD:	9100'(2774m)	SPUD:	3/10/72
RIG:	Glomar Conception	STATUS:	P&A
Top Demon's Bluff	5792'(1765m)	Top EVCM	6110'(1862m)

PALYNOLOGY

(NB Score: 0 = Excellent, 1 = Good, 2 = Poor Confidence)

Zone	Preferred Top Range	Score	Preferred Base Range	Score
Middle <i>N. asperus</i>	5792'(1765m)	0	6323'(1927m)	1
Lower <i>N. asperus</i>	6436'(1962m)	2	7028'(2142m)	2
	or 6650'(2027m)	1	or 6834'(2083m)	1
<i>P. asperopolus</i>	7130'(2173m)	2	7725'(2355m)	1
	or 7440'(2268m)	1		
Upper <i>M. diversus</i>	7384'(2387m)	1	8575'(2614m)	1
Middle <i>M. diversus</i>	8680'(2646m)	1	9098'(2773m)	1

IGNEOUS ROCK OCCURRENCES

Description	Top of Interval	Base of Interval
Volcanics	2761mKB	2765mKB

APPENDIX 2 : CHECKSHOT DATA

AROO 1CHECKSHOT DATA

DEPTH (mSS)	TIME (ms OWT, BSL)
213.4	112
365.8	187
518.2	252
670.6	311
887.0	394
1036.3	455
1219.2	543
1371.6	602
1524.0	661
1712.4	735
1859.3	799
2075.1	856
2243.3	904
2404.9	950
2590.8	1001
2809.6	1060
2937.7	1095
2956.6	1099
3143.4	1146
3395.5	1206
3510.7	1235
3678.3	1275

BASS 3**CHECKSHOT DATA**

DEPTH (mSS)	TIME (ms OWT, BSL)
612.6	284
1066.8	485
1432.6	632
1691.6	720
2324.1	851
2386.6	918

CORMORANT 1**CHECKSHOT DATA**

DEPTH (mSS)	TIME (ms OWT, BSL)
1030.2	498
1380.7	638
1609.3	712
2124.5	887
2407.9	982
2612.1	1043

KING 1VSP DATA (SUBSET)

DEPTH (mSS)	TIME (ms OWT, BSL)
277.7	152.1
477.7	252.0
577.7	304.3
677.7	354.4
777.7	399.5
877.7	445.6
977.7	488.7
1077.7	532.8
1177.7	572.8
1277.7	613.8
1377.7	647.9
1477.7	682.9
1577.7	716.9
1677.7	751.0
1777.7	785.0
1877.7	817.0

TAROOK 1
CHECKSHOT DATA

DEPTH (mSS)	TIME (ms OWT, BSL)
1057.7	472
1377.7	613
1713.0	738
1850.1	786
2063.5	851
2286.0	918
2476.5	978
2731.0	1048

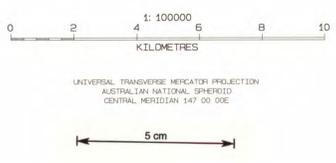


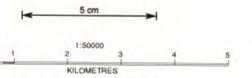
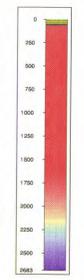
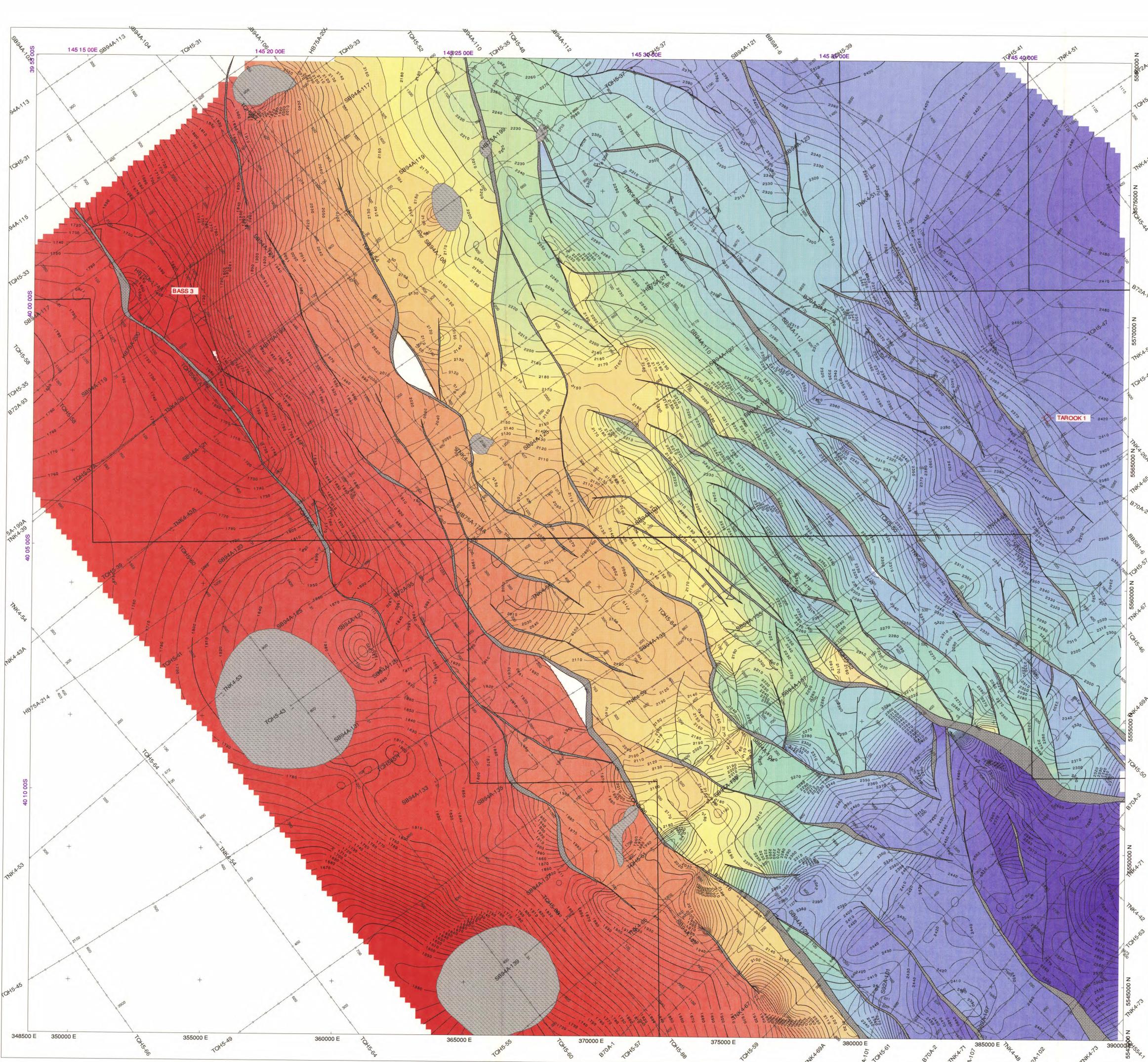
BORAL ENERGY

T/1BP, BASS BASIN, TASMANIA
LEADS AND PROSPECTS
PALAEOCENE TIME STRUCTURE
(ms twt)

511049

Author	Drawn	Checked
Generated By	Grid File	Grid Size
Checked By	Drawing No.	Revision



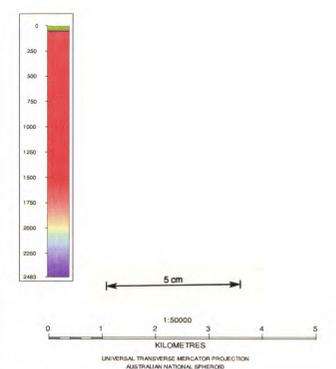
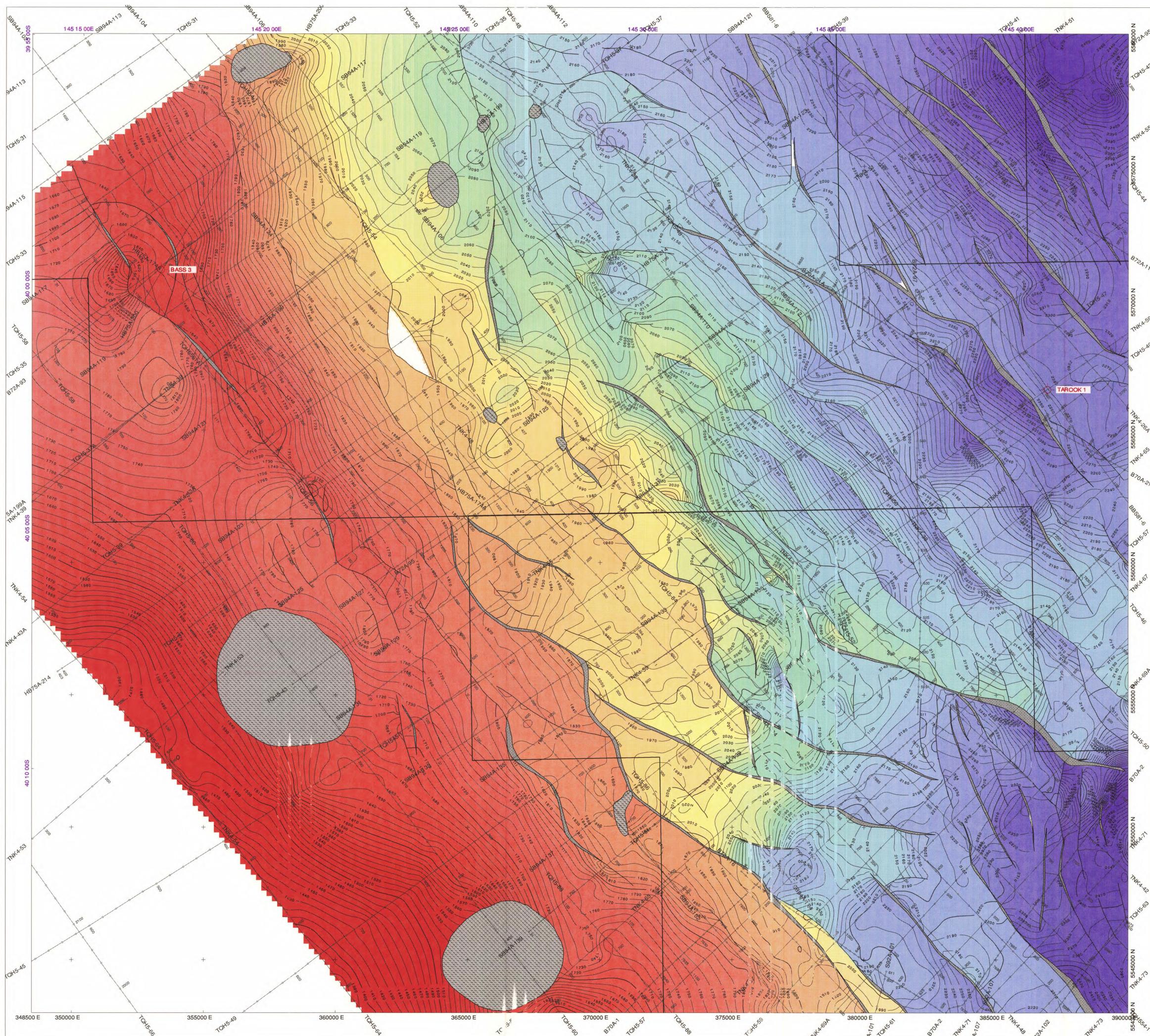


UNIVERSAL TRANSVERSE MERCATOR PROJECTION
 AUSTRALIAN NATIONAL SPHEROID
 CENTRAL MERIDIAN: 147°00'00"E

BORAL ENERGY

BASS BASIN, TASMANIA
 CLARKE LEAD
 TOP CRETACEOUS
 TIME STRUCTURE (ms twt)
 511050

Author:	Date:	Modified/Version:
Drawn by:	Checked by:	Scale:
Checked by:	Drawing No.:	Revised:

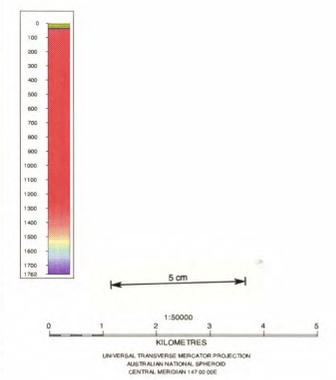
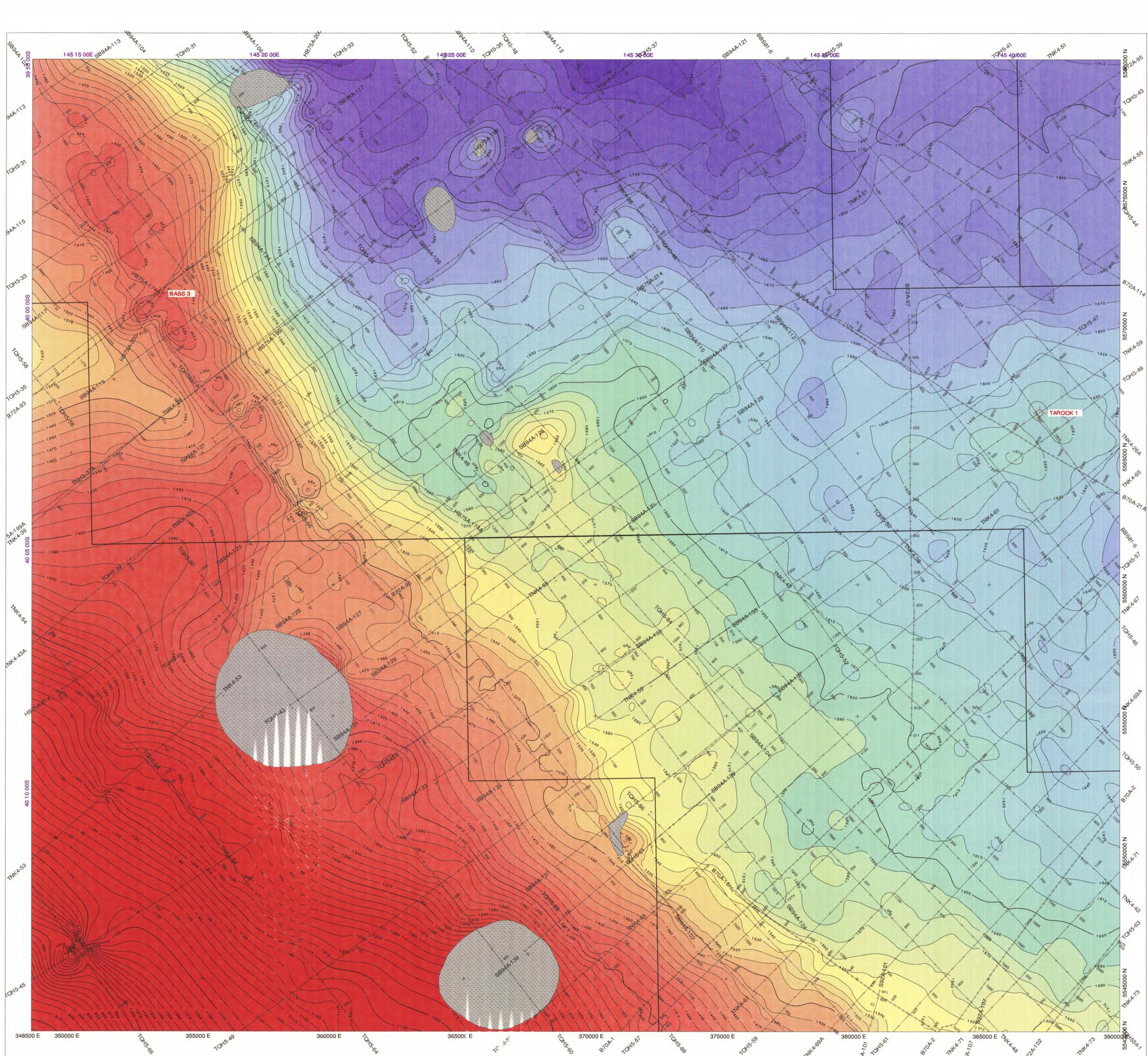


BORAL ENERGY

BASS BASIN, TASMANIA
CLARKE LEAD
TOP PALAEOCENE
TIME STRUCTURE (ms twt)

511051

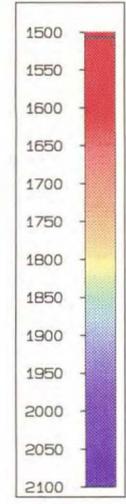
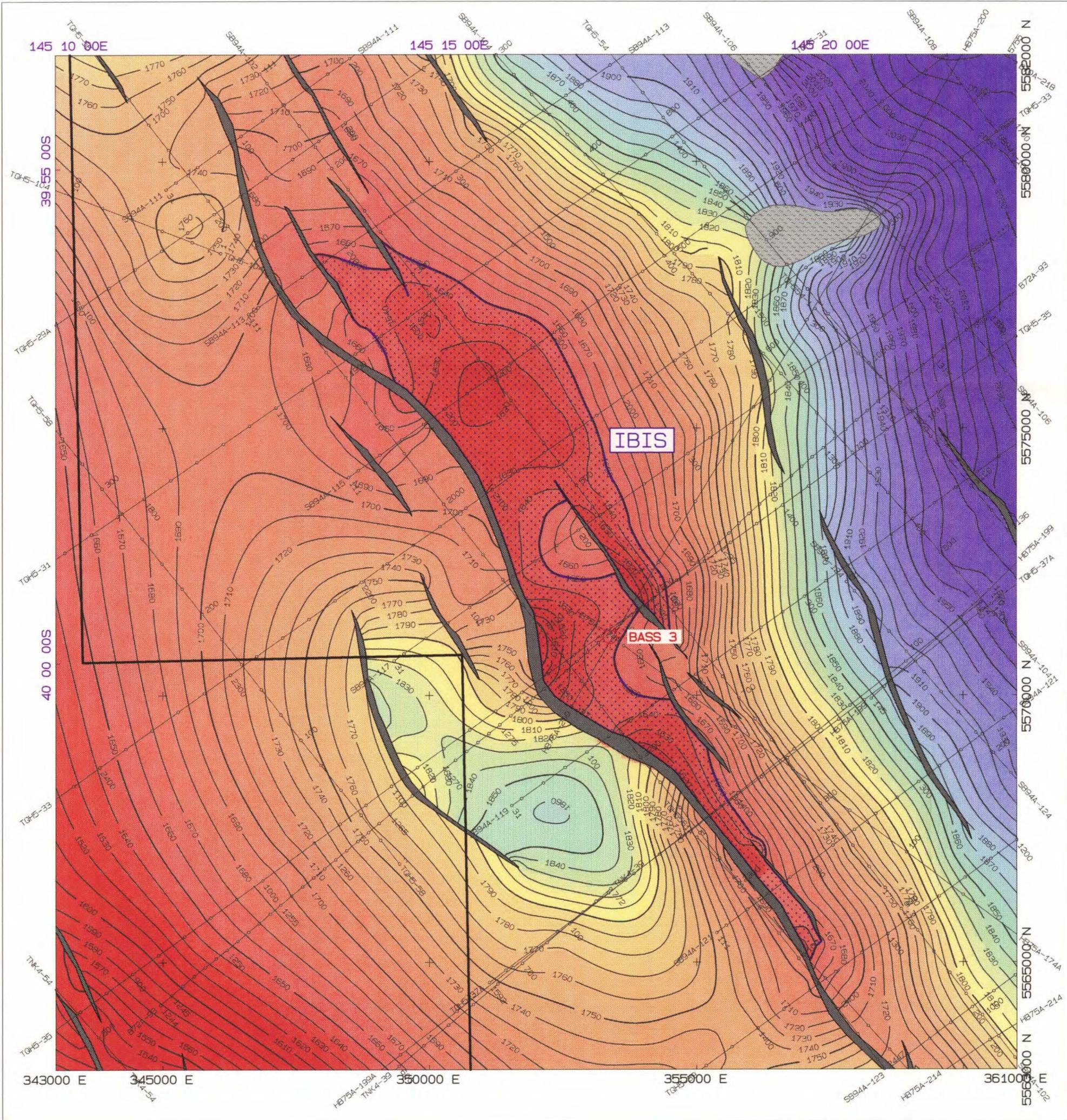
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BORAL ENERGY

BASS BASIN, TASMANIA
 CLARKE LEAD
 TOP EVCM
 TIME STRUCTURE (ms twt)
 511052

Author:	Drawn:	Checked:	Approved:
Reviewed By:	Date:	Scale:	Scale:
Date:	Date:	Date:	Date:
Drawn:	Checked:	Approved:	Drawn:



5 cm



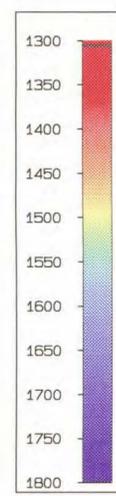
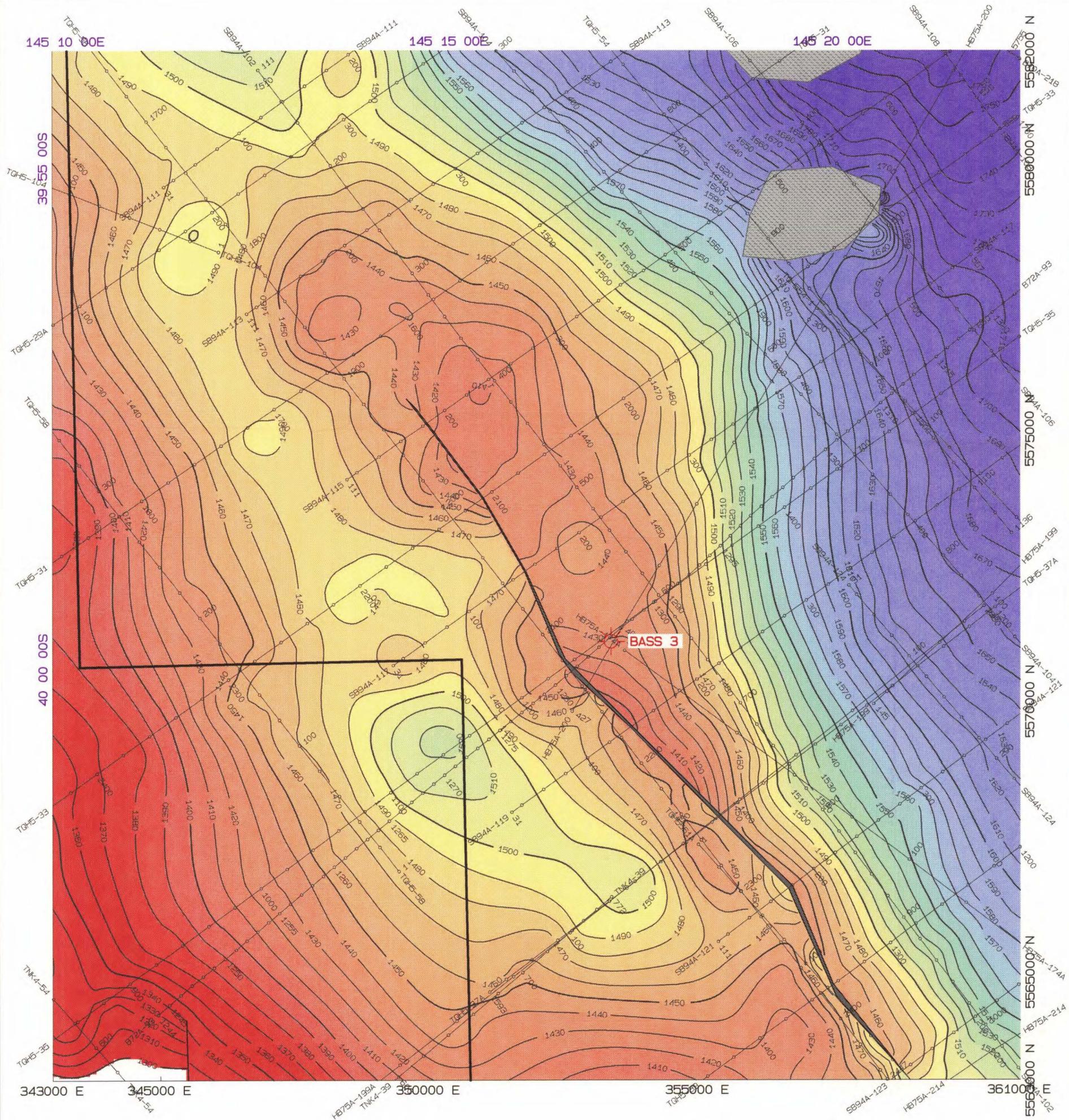
UNIVERSAL TRANSVERSE MERCATOR PROJECTION
 AUSTRALIAN NATIONAL SPHEROID
 CENTRAL MERIDIAN 147 00 00E



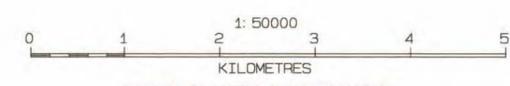
PERMIT T18P, TASMANIA
BASS 3 HIGH
TOP PALAEOCENE
TIME STRUCTURE (MS, TWT)

511053

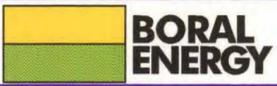
AUTHOR :	DATUM : M.S.L.	MAPSHEET: BASS3-HIGH-60000
GENERATED BY : DJK	CENTROID INT. :	SCALE: 1: 60000
DATE : DECEMBER 5, 1996	GRID FILE :	GRID SIZE :
CHECKED BY :	DRAWING NO. :	REVISED :



5 cm



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 AUSTRALIAN NATIONAL SPHEROID
 CENTRAL MERIDIAN 147 00 00E



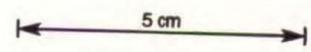
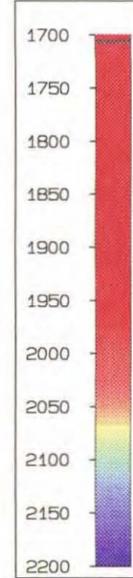
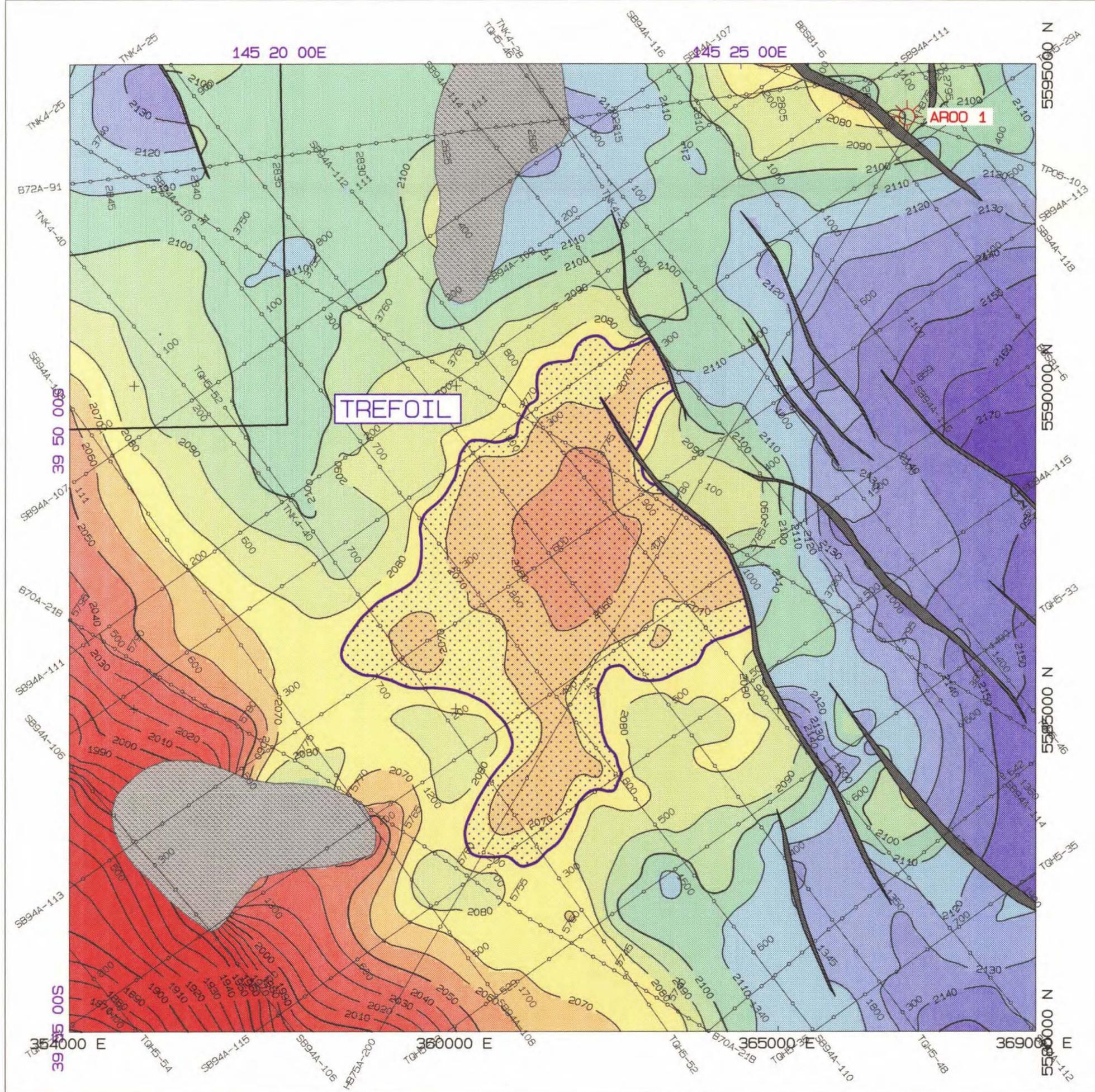
**PERMIT T/18P, TASMANIA
 BASS 3 HIGH
 TOP EVCM
 TIME STRUCTURE (MS TWT)**

511054

AUTHOR :	DATUM : M.S.L.	MAPSHEET: BASS3-HIGH-50000
GENERATED BY : DJK	CONTOUR INT. :	SCALE 1: 50000
DATE : DECEMBER 6, 1996	GRID FILE :	GRID SIZE :
CHECKED BY :	DRAWING NO. :	REVISED :

ENCLOSURE 6

OR-0411



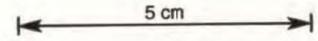
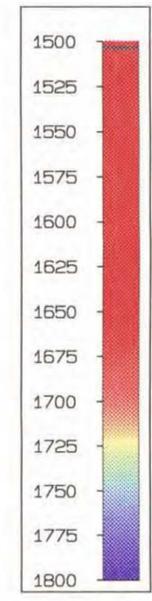
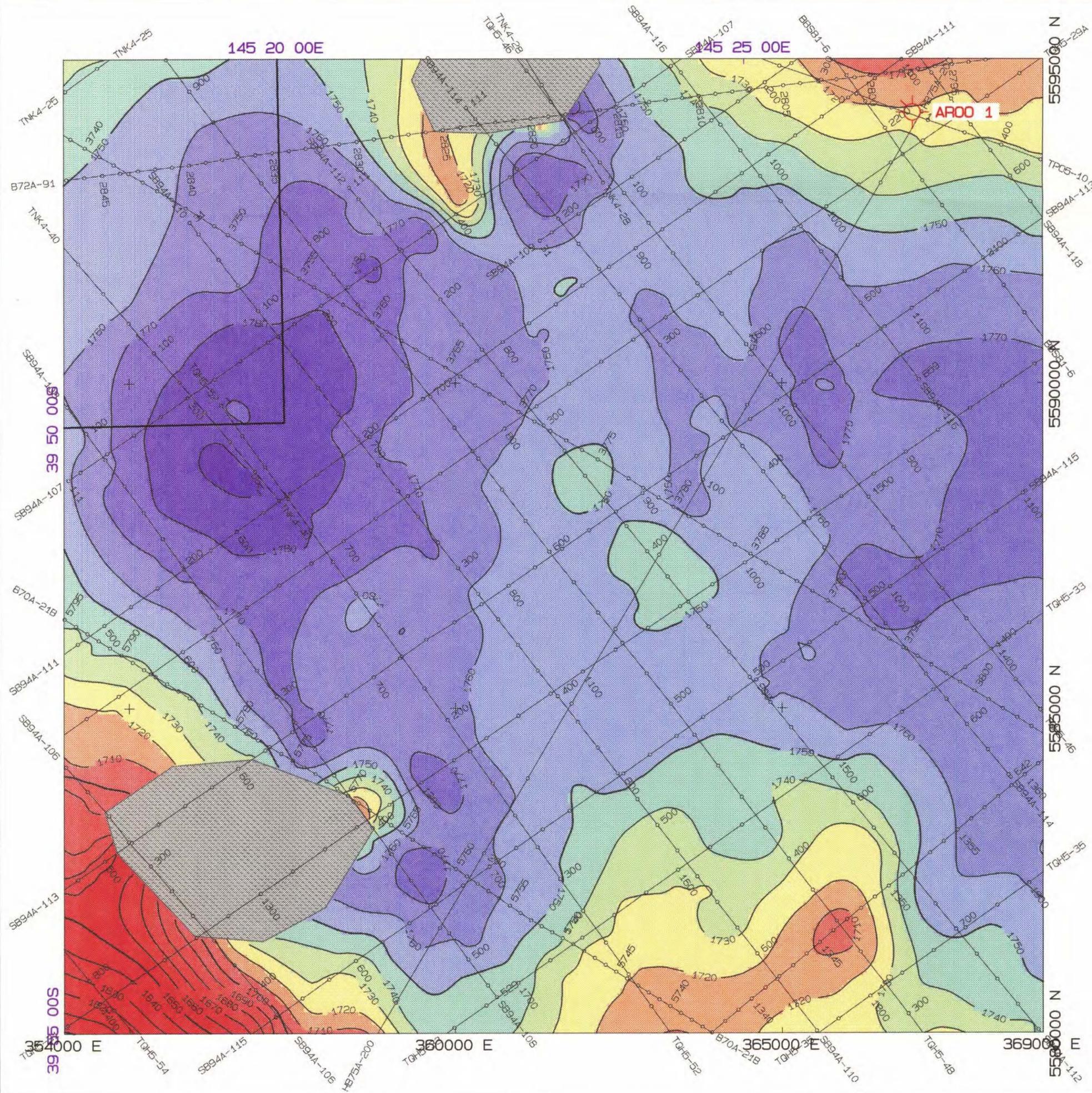
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 AUSTRALIAN NATIONAL SPHEROID
 CENTRAL MERIDIAN 147 00 00E



PERMIT T/18P, TASMANIA
TREFOIL AREA
 PALAEOCENE TIME STRUCTURE
 (MS TWT)

511055

AUTHOR :	DATUM : M.S.L.	MAPSHEET: TREFOIL-50000
GENERATED BY : CLK	CONTOUR INT. :	SCALE: 1:50000
DATE : DECEMBER 5, 1995	GRID FILE :	GRID SIZE :
CHECKED BY :	DRAWING NO.:	REVISED :

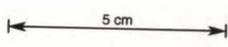
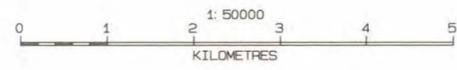
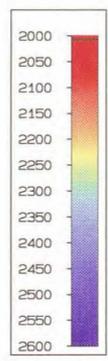
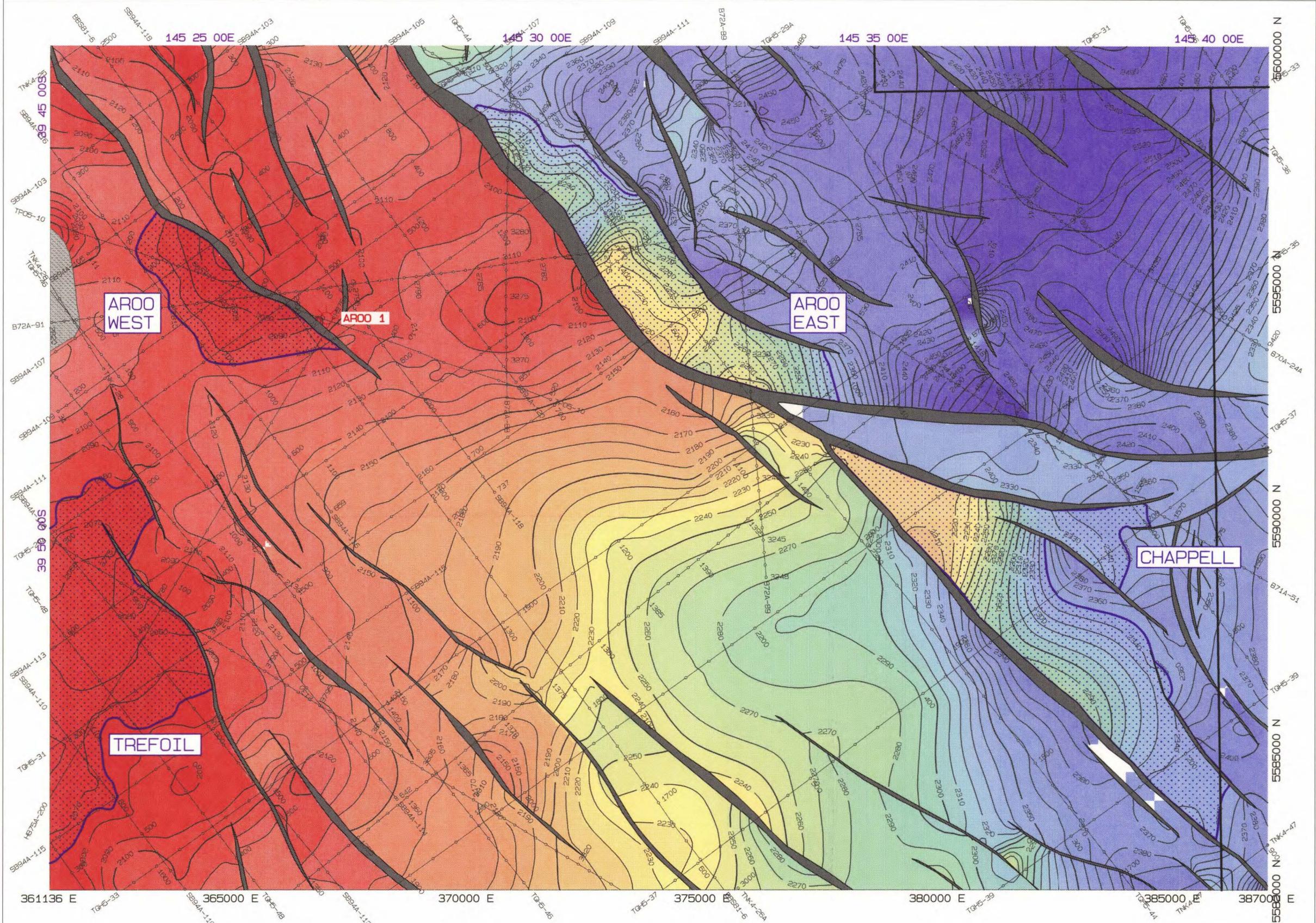


UNIVERSAL TRANSVERSE MERCATOR PROJECTION
 AUSTRALIAN NATIONAL SPHEROID
 CENTRAL MERIDIAN 147 00 00E



PERMIT T/18P, TASMANIA
TREFOIL PROSPECT
 TOP EVCM
 TIME STRUCTURE (MS TWT)
511056

AUTHOR :	DATUM : M.S.L.	MAPSHEET: TREFOIL-60000
GENERATED BY : DJK	CONTOUR INT. :	SCALE 1: 60000
DATE : DECEMBER 5, 1998	GRID FILE :	GRID SIZE :
CHECKED BY :	DRAWING NO.:	REVISED :



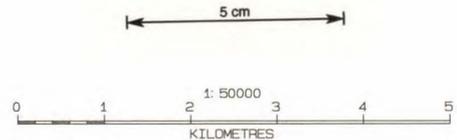
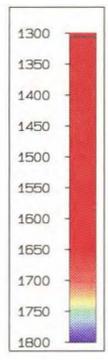
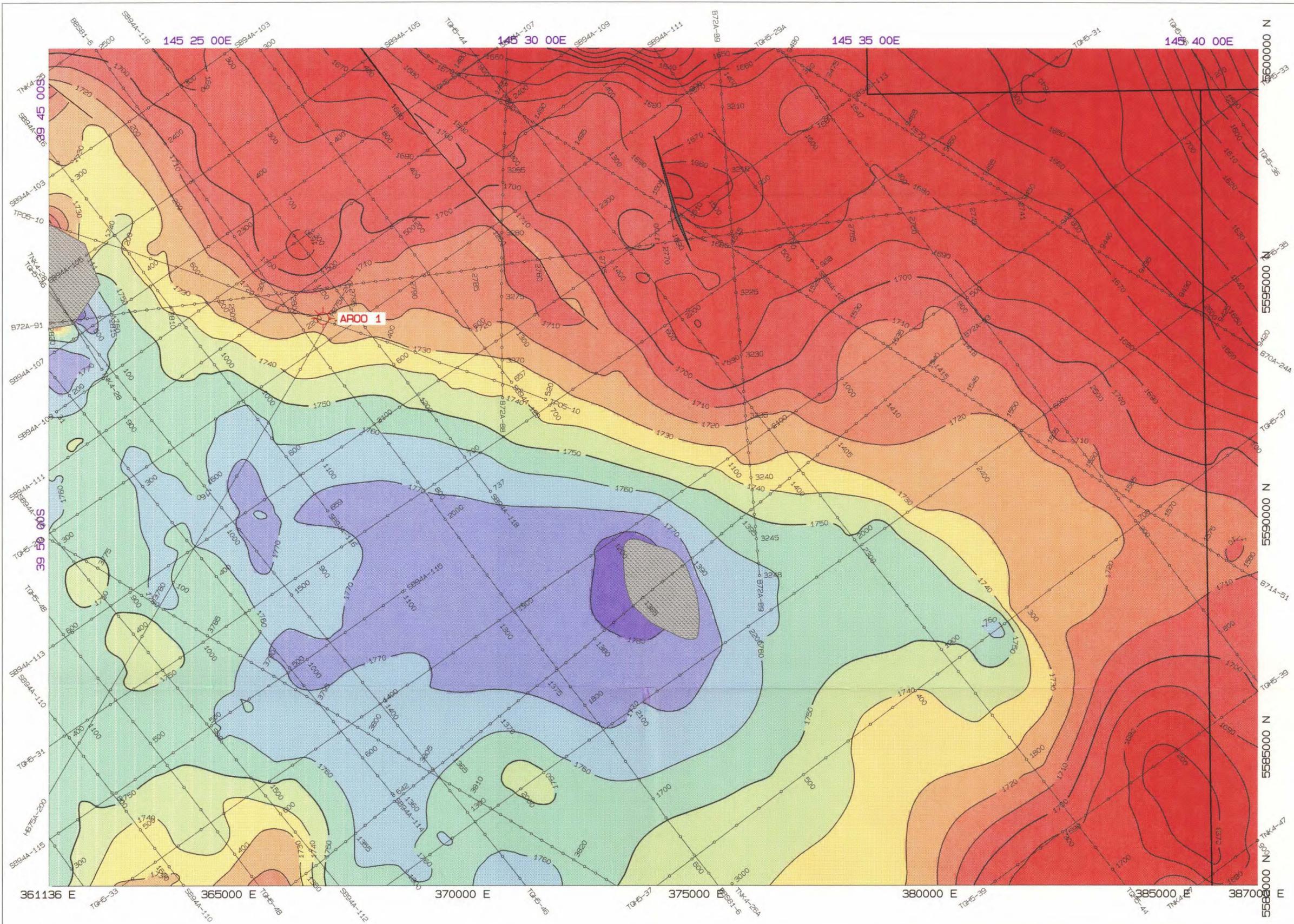
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 CENTRAL MERIDIAN 147 00 00E



PERMIT T/18P, TASMANIA
AROO-CHAPPELL AREA
 PALAEOCENE TIME STRUCTURE
 (MS TWT)

511057

AUTHOR :	DATE :	W.S.L. :	SHEET :
GENERATED BY :	CONTOUR INT. :	SCALE :	1:50000
DATE :	DECEMBER 5, 1985	GRID FILE :	GRID SIZE :
CHECKED BY :	DRAWING NO. :	REVISED :	

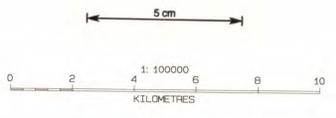
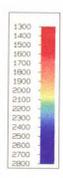
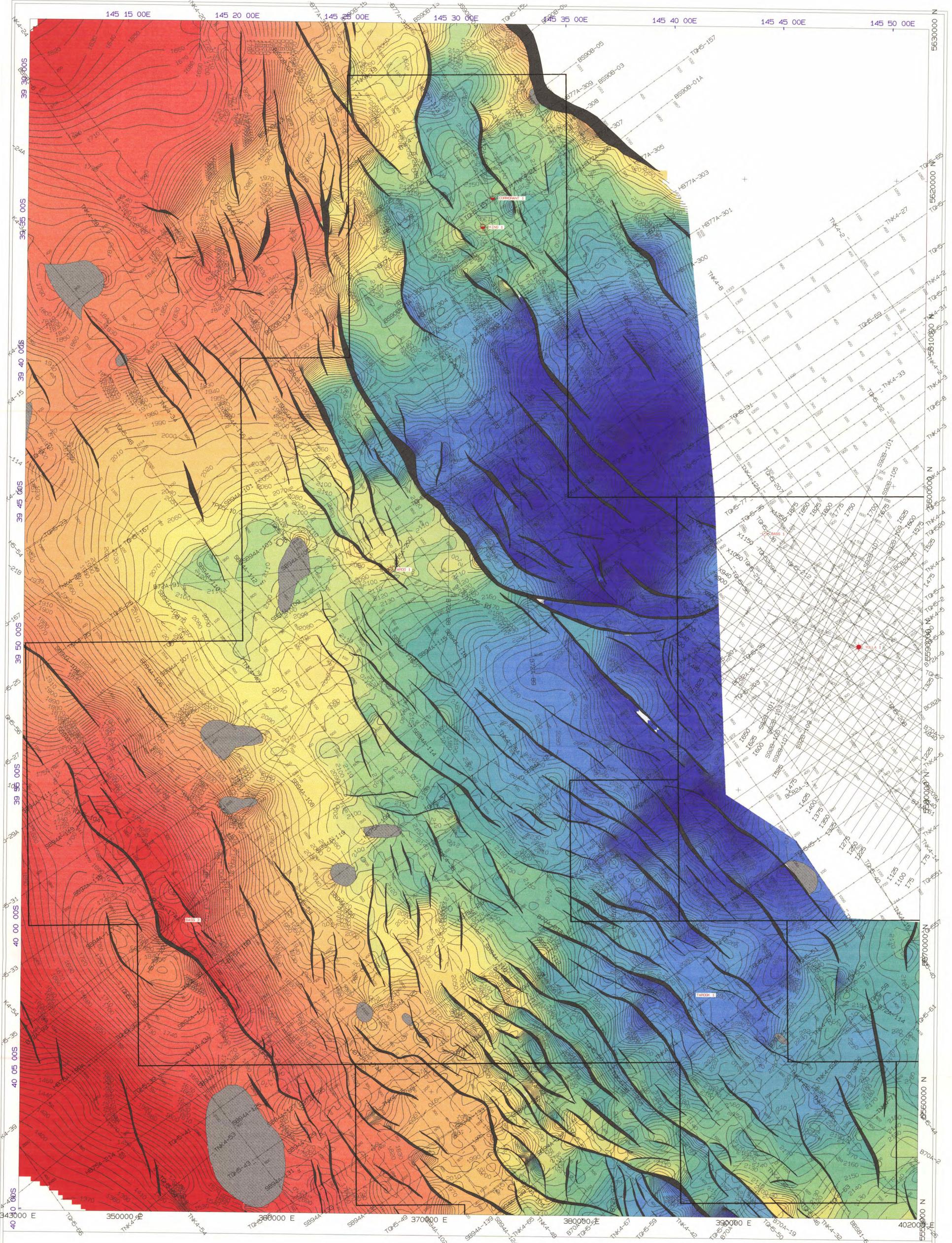


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 AUSTRALIAN NATIONAL SPHEROID
 CENTRAL MERIDIAN 147 00 00E



PERMIT T/18P, TASMANIA
AROO-CHAPPELL AREA
 TOP EVCM
 TIME STRUCTURE (MS TWT)
511058

AUTHOR:	DATUM: M.S.L.	MAPSHEET: AROO-CHAPPELL-5000
GENERATED BY: DLK	CONTOUR INT.: 100	SCALE: 1:50000
DATE: DECEMBER 5, 1998	GRID FILE:	GRID SIZE:
CHECKED BY:	DRAWING NO.:	REVISED:



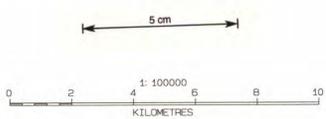
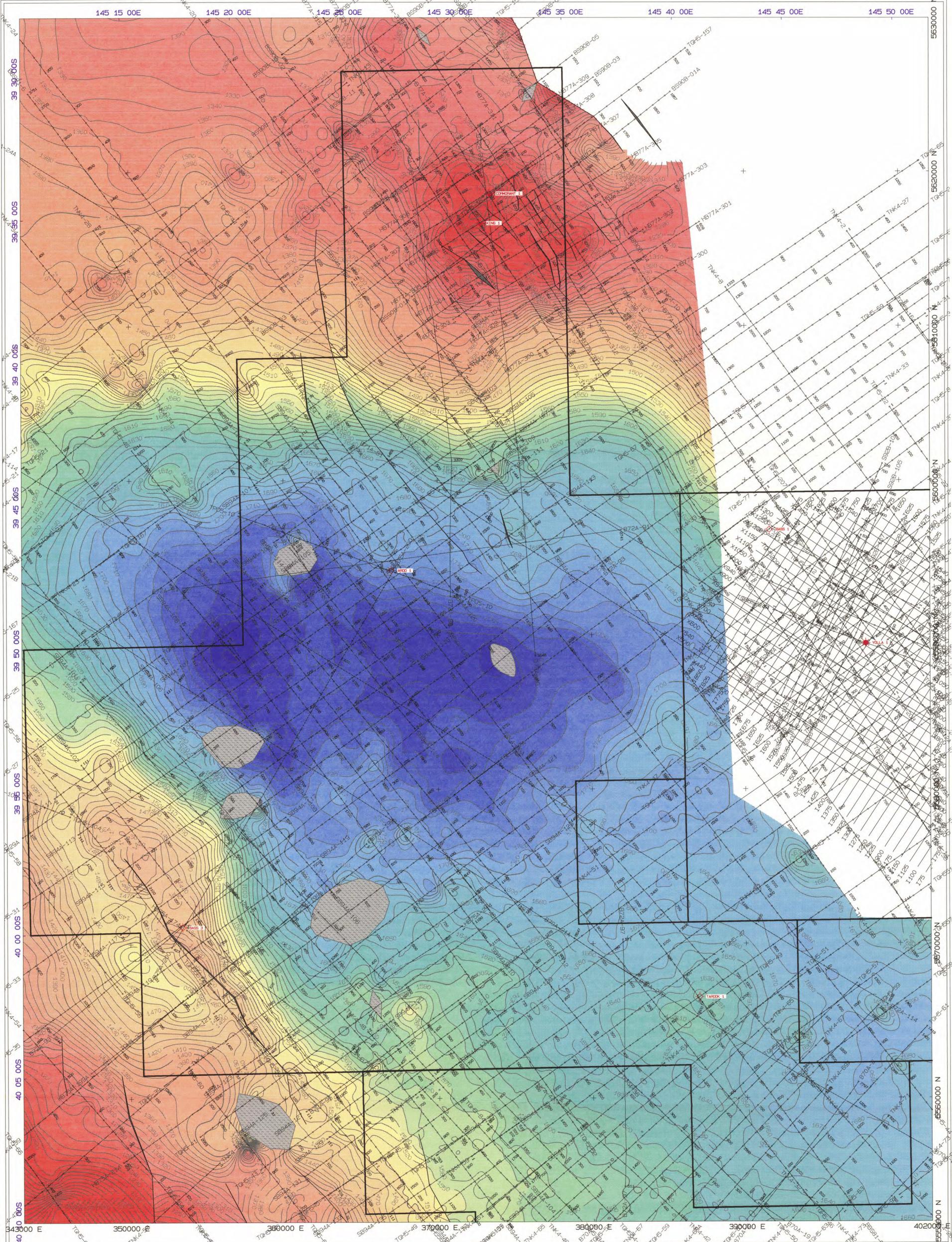
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AUSTRALIAN NATIONAL SPHEROID
CENTRAL MERIDIAN 147 00 00E



**BASS BASIN, TASMANIA
PERMIT T/18P
PALAEOCENE TIME STRUCTURE
(ms twt)**

11659

Author:	John W.S.S.	Revision: 11P-00000
Operator:	John W.S.S.	Scale: 1:100000
Date:	November 24, 1999	Grid File:
Checked by:	John W.S.S.	Revised:



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AUSTRALIAN NATIONAL SPHEROID
CENTRAL MERIDIAN 147 00 00E



BASS BASIN, TASMANIA
PERMIT T/18P
EVCM TIME STRUCTURE
(MS TWT)
511060

AUTHOR	DATE	REVISION
DRAWN BY: DLK	CHECKED BY: DLK	SCALE: 1:10000
DATE: NOVEMBER 2018	DRAWN FILE: T/18P	DRAWN DATE: 11/2018
CHECKED BY:	DRAWING NO.:	REVISION:

ENCLOSURE 12 OR-0411