

484001

BLOCK T/24P
WEST TASMANIA, AUSTRALIA
AN EXPLORATION OPPORTUNITY

Maxus Energy Corporation

1993

OR-0381

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I SUMMARY STATEMENTS

- **Three firm prospects** and **two promising leads** have thus far been identified. **Each prospect** is estimated to hold **150-200 mm bbls** of recoverable reserves. **Further potential** remains within the block.
- The T/24P block **totally encompasses** the entire Strahan Sub-basin.
- Geological and geophysical studies suggest that all **essential exploration elements** are present within the Strahan Sub-basin, involving both continental and marine sections, similar to those found in the **Gippsland** and **Otway** Basins.

II GENERAL DISCUSSION

INTRODUCTION

Maxus Energy currently holds 100% interest in the 1.4 million acre, T/24P block, offshore West Tasmania (Fig. 1). The acreage offers a rare opportunity to participate in a promising, nearly unexplored basin, within a favorable economic and political environment.

The block fully encompasses the early Cretaceous age Strahan Sub-basin (a division of the coastal Sorell Basin) which is tectonostratigraphically similar to the nearby, prolific Gippsland Basin off Tasmania's northeast coast, and to the Otway Basin, northwest of Tasmania, which is actively being explored. Fields within the Gippsland Basin have estimated, combined, ultimate recoveries of nearly 4.0 billion bbls of oil and over 10.0 trillion cf of gas (Fig. 2).

Analysis indicates that a 8,000' test, in 460' of water would cost an estimated 4.37 million \$US, with an additional 2.003 million \$US for a completed well.

CONTRACT OBLIGATIONS

All commitments pertaining to the first four years of the six year exploration phase have been satisfied. Year five (beginning 1/2/94), and year six (both optional), call for one well each (Fig. 3).

PREVIOUS EXPLORATION

While the area has been included in several reconnaissance studies involving seismic, aeromagnetic and geochemical surveys, of greatest significance are 785 kms of seismic data acquired by Amoco in 1981, which prompted the drilling of the single well within the basin, the 11,576' Cape Sorell-1 (Fig. 4). Live oil shows were encountered in the well beneath a Tertiary/Cretaceous age unconformity at 10,200' which demonstrates no closure.

III TECHNICAL REVIEW

As well as reprocessing the Amoco seismic data, Maxus has acquired and processed (in 1991), and recently reprocessed, approximately 810 kms of additional seismic including gravity and magnetics. The evaluation of these data is coupled with a thorough investigation of the exploration concepts of the nearby Gippsland and Otway Basins.

REGIONAL SETTING

The sequence stratigraphic model for intervals of interest within the Strahan Sub-basin, involves a continental early synrift section of late Jurassic/early Cretaceous age, upon which three marine transgressions (late synrift to postrift) occurred, from late Cretaceous through Tertiary time (Fig. 5, Enc. 1). Along with associated highstand and lowstand systems tracts, these sequences, when viewed with an eye toward the Gippsland and Otway Basins, are expected to provide sufficient facies differentiation for effective source, reservoir and seal intervals. Regional mapped horizons (sub-basin wide), as seen on Fig. 6, include: Top Otway Gp. (top yellow section), Base Wangerrip Gp. (top blue/base brown sections), Oligocene/Eocene Unconformity (base green/top orange sections), and Base Nirranda Gp. (base purple section).

Tectonically, episodic separation of Australia and Antarctica during the early and mid Cretaceous, has resulted in two distinct phases of rifting, which are both represented within the T/24P block (Figs. 7, 8). Each is manifested by normal faulting and transfer zone development (Fig. 9). The younger, also exhibits evidence of sinistral wrench movement, as a result of spreading, until the two land masses cleared each other in the Oligocene. Since that time, typical passive margin, listric extension has accentuated earlier forms of deformation.

EXPLORATION ELEMENTS

In the Cape Sorell-1 well, both reservoir and minor seal-capable units are indicated, but generally the drilled interval represents a poorly sorted, marginal marine section, deposited in a very proximal location to a major basin boundary fault (Figs. 6, 10). Hence, it is not considered representative of the type of section expected in the prospective areas. Again, study of the stratigraphic sections encountered in nearby basins, as well as indications clearly evident on the reprocessed seismic, permits the expectation of favorable facies differentiation in the prospective areas, which lie in a more distal position to the major basin-forming faults.

Several lines of evidence point toward the existence of generative source areas within the T/24P block:

- The Cape Sorell-1 well encountered live oil shows below the Sherbrook/Wangerrip interface (an unconformity) which demonstrates no structural closure at the well location (Figs. 6, 10). While no true source rocks were indicated due to poor facies development and marginal thermal maturity (both due to close proximity to a major basin-forming fault), scattered, favorable TOC values were measured below 10,000'.
- A 1992 geochemical study, which included historical bitumen samples (pre Indonesian oil influence) from the west coast of Tasmania, indicates a marine source not associated with known Gippsland, Otway or Bass Basin terrigenous hydrocarbons.
- Thermal maturation modeling (BasinMod), supports the premise that generative conditions have existed (and currently exist), within targeted continental and marine intervals in the block (Figs. 11, 12, 13).
- A marine, sea floor survey detected thermogenic hydrocarbons just off the present day shelf, within the block (Fig. 14).
- Attribute analysis suggests that certain seismic anomalies are indicative of gas charged, vertical shale movement

IV PROSPECTS AND LEADS

MAXUS (1993) vs.

Both conventional and workstation analysis of the available data have led to the identification of prospective areas within the block. Success in the Gippsland Basin has demonstrated the viability of unconformities and facies relationships to provide reservoirs, traps and seals (Figs. 15, 16). These elements are called upon to enhance the structural aspects of the play concepts summarized in Figures 17, 18, 19 and 20.

BRADDON POINT PROSPECT

The erosional remnant aspect of this prospect is familiar as a classic, Gippsland Basin type concept (Fig. 17). Structural dip and fault closure, laterally sealed by Oligocene/Eocene, mid to upper Wangerrip proximal channel facies on two sides, form the trapping mechanism. The target interval lies within the Paleocene lower Wangerrip, marine highstand systems tract section. The mapped horizon is pink, otherwise orange, where the pink is truncated (Figs. 21, 22, 23).

TRIAL HARBOUR PROSPECT

The Trial Harbour Prospect is a downthrown rollover feature with structural dip and fault closure (Fig. 17). Multiple, shallow marine targets within the late Cretaceous Sherbrook, and early Tertiary lower Wangerrip Groups, are involved. The mapped horizon is blue (Figs. 24, 25, 26). A seismic anomaly, believed to be indicative of vertical gas migration, is associated with the location. Additionally, while this prospect appears conceptually similar to the one penetrated by Cape Sorell-1, it is important to note that the non-closing section within which shows were encountered (Sherbrook), is fully involved in the Trial Harbour rollover closure.

SLOOP POINT PROSPECT

This prospect involves a combination rotated fault block/wedgeout concept (Fig. 17). The trapping mechanism is comprised of structural dip and fault closure, coupled with a diapiric barrier to migration. A single location will test two stacked, target intervals, involving marine, late synrift Sherbrook, and generally non-marine, early synrift Otway sequences, of late early Tertiary and late Cretaceous age, respectively (Figs. 27, 28, 29 and 30). On the seismic, the Otway is represented by the yellow section (yellow reflector), and the Sherbrook is the blue section (blue reflector).

CHANNEL SAND FACIES LEAD

Primarily stratigraphic, this lead is augmented by a fault seal (Fig. 17). Oligocene/Eocene age, Wangerrip channel sands within marine mudstones are located on the downthrown side of the mid-basin fault (Figs. 6, 28, 31). The isopached interval is represented by the green section on Figs. 6 and 28.

NORTHERN STRAHAN WEDGEOUT LEAD

A reconnaissance line in the northern portion of the block, shows a major anticline which plunges to the northwest (Fig. 20, Enc. 2). Updip to the southeast, the feature becomes a shallow basement high. The tentatively identified marine Sherbrook section (blue horizon on Enc. 2) which overlies this rotated fault block feature, wedges out through non-deposition on the flanks of the high, thus creating a major, potential stratigraphic trap. This concept requires additional seismic for proper development.

Table-1

Estimated Test Well And Water Depths

PROSPECT/LEAD	Est. Test Depth (Ft.)	Est. Water Depth (Ft.)
Sloop Point	11,000	446
Braddon Point	8,000	460
Trial Harbour	10,000	410
Channel Sd. Facies	11,000	466

RESERVES ESTIMATES

The estimated recoverable reserves in Table-2, have been calculated for prospects thus far defined, in order to provide a measure of the Strahan Sub-basin's exploration potential.

Table-2

Estimated Recoverable Reserves By Prospect

PROSPECT	Most Likely Acreage	Potential Pay (Ft.)	BBL/ Ac.Ft.	Est. Recov. Rsrvs. (BBLs)
Braddon Point Wangerrip	7,800	100	258	201,240,000.
Trial Harbour Sherbrook	11,000	70	258	198,660,000.
Sloop Point Sherbrook	7,500	80	258	154,800,000.
Otway	4,400	80	258	90,816,000.
			TOTAL	645,516,000.

MAXUS
GENERALIZED LOCATION MAP OF
PERTINENT SOUTHERN AUSTRALIAN BASINS



5 cm

Fig. 1

MAXUS

SOUTHERN AUSTRALIAN BASINS PRODUCTION

<u>BASIN</u>	<u>BOPD (MM)</u>	<u>ULT REC BO (MM)</u>	<u>GAS MMCFGPD</u>	<u>ULT REC TCFG</u>
BASS * (1 WELL)		33.0		0.40
OTWAY * (1 WELL)		2.5	3.36	0.27
GIPPSLAND **	0.300	3,900.0	600.00	10.40

7/92

*1989 Figures **1992 Figures

484013

Fig. 2

MAXUS

CONTRACT BRIEF

GENERAL DATA

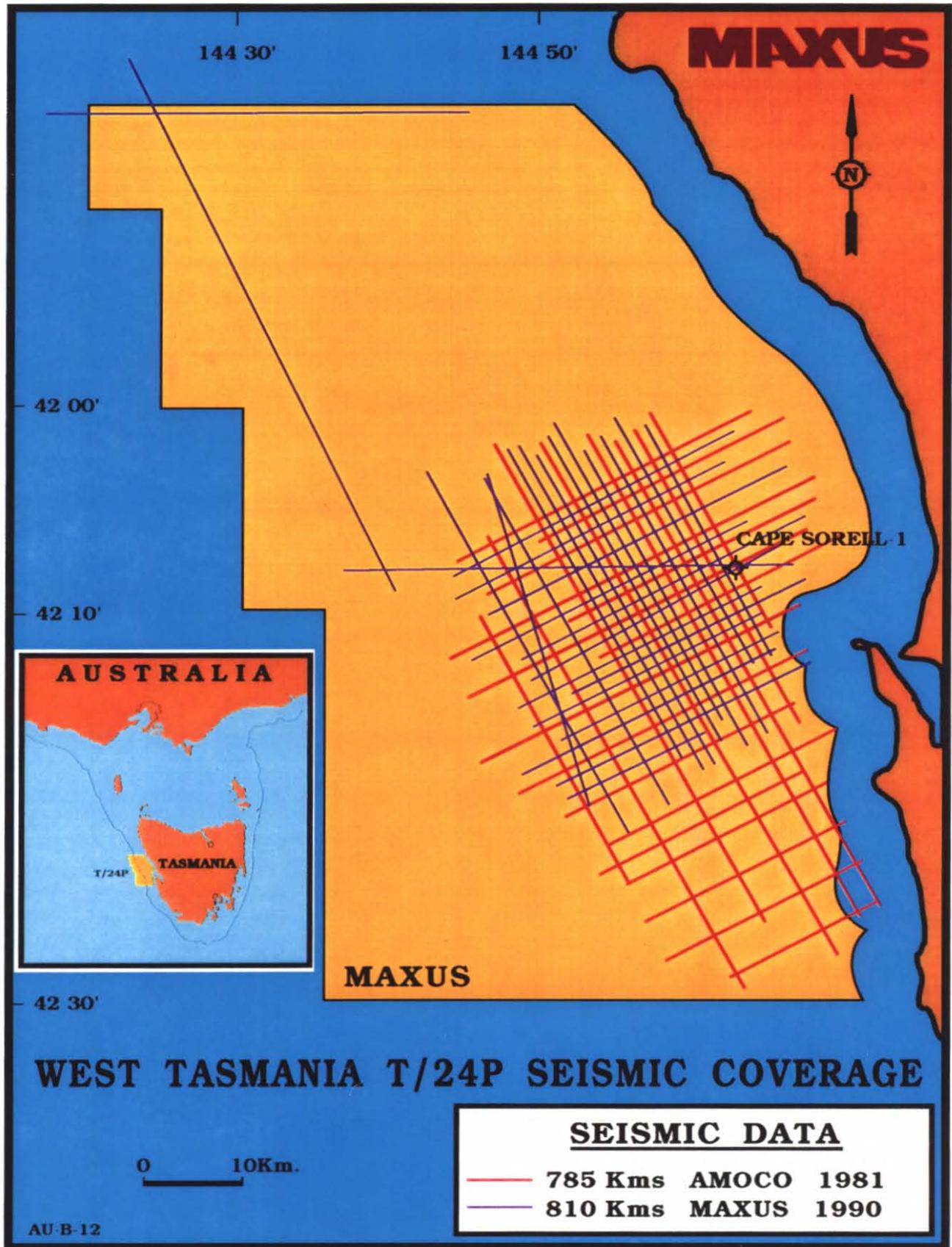
COUNTRY:	AUSTRALIA
PERMIT AREA:	T/24P (1.4 MM ACRES)
CONTRACT TYPE:	INCOME TAX
EFFECTIVE DATE:	JANUARY 2, 1990
TERM:	EXPLORATION TERM - 6 YEARS
	EXPLOITATION PERIOD - 21 YEARS
PARTICIPANTS:	MAXUS 100%

COMMITMENTS

FIRST 3 YEAR PERIOD: (1/2/90 - 1/2/93)	750 Km Seismic Plus Geological Studies (completed)
SECOND 3 YEAR PERIOD: (1/2/93 - 1/2/96)	Yr. 4) Reprocess 400 Km Seismic Yr. 5) One Firm Exploratory Well Yr. 6) One Firm Exploratory Well

NOTE: Contractor May Relinquish After Years 4 and 5.

AU-B-23

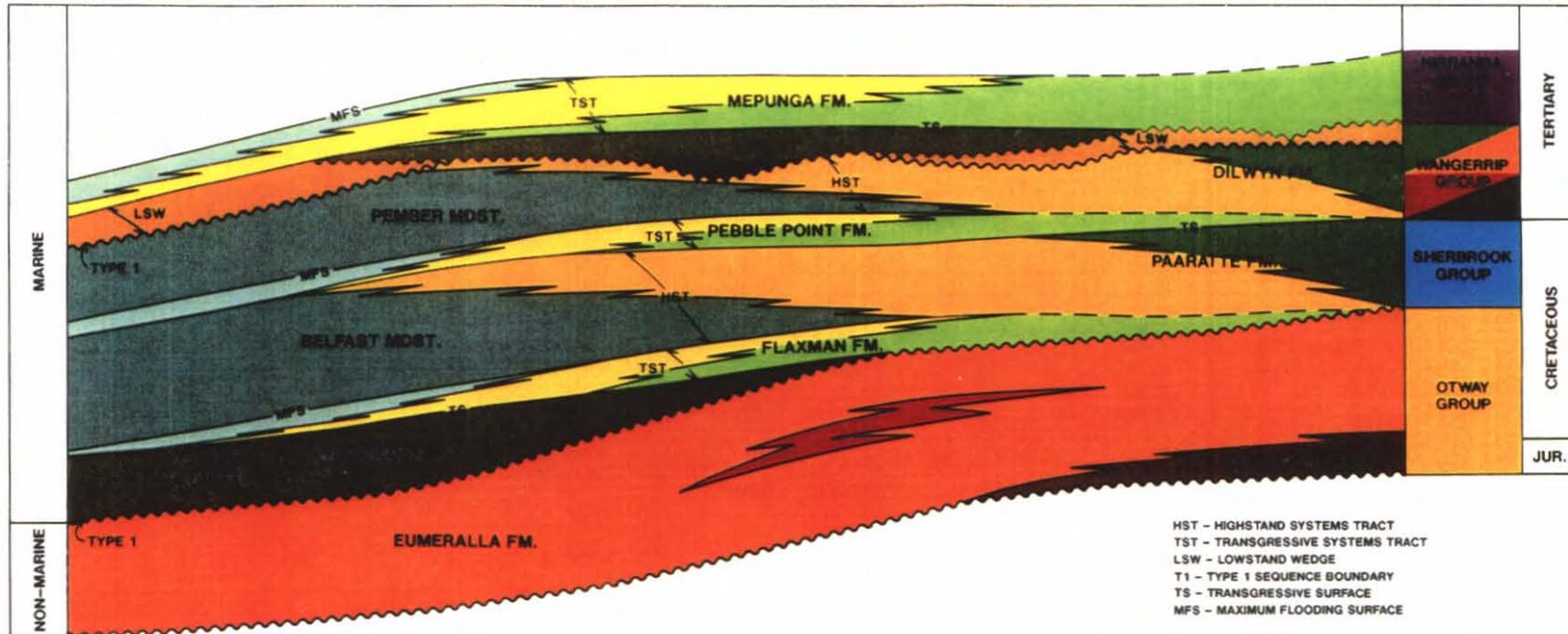


5 cm

Fig. 4

484016

MAXUS
 T/24 P BLOCK
 STRAHAN SUB-BASIN, WEST TASMANIA
 SEQUENCE STRATIGRAPHIC MODEL



5 cm

Fig. 5

484017

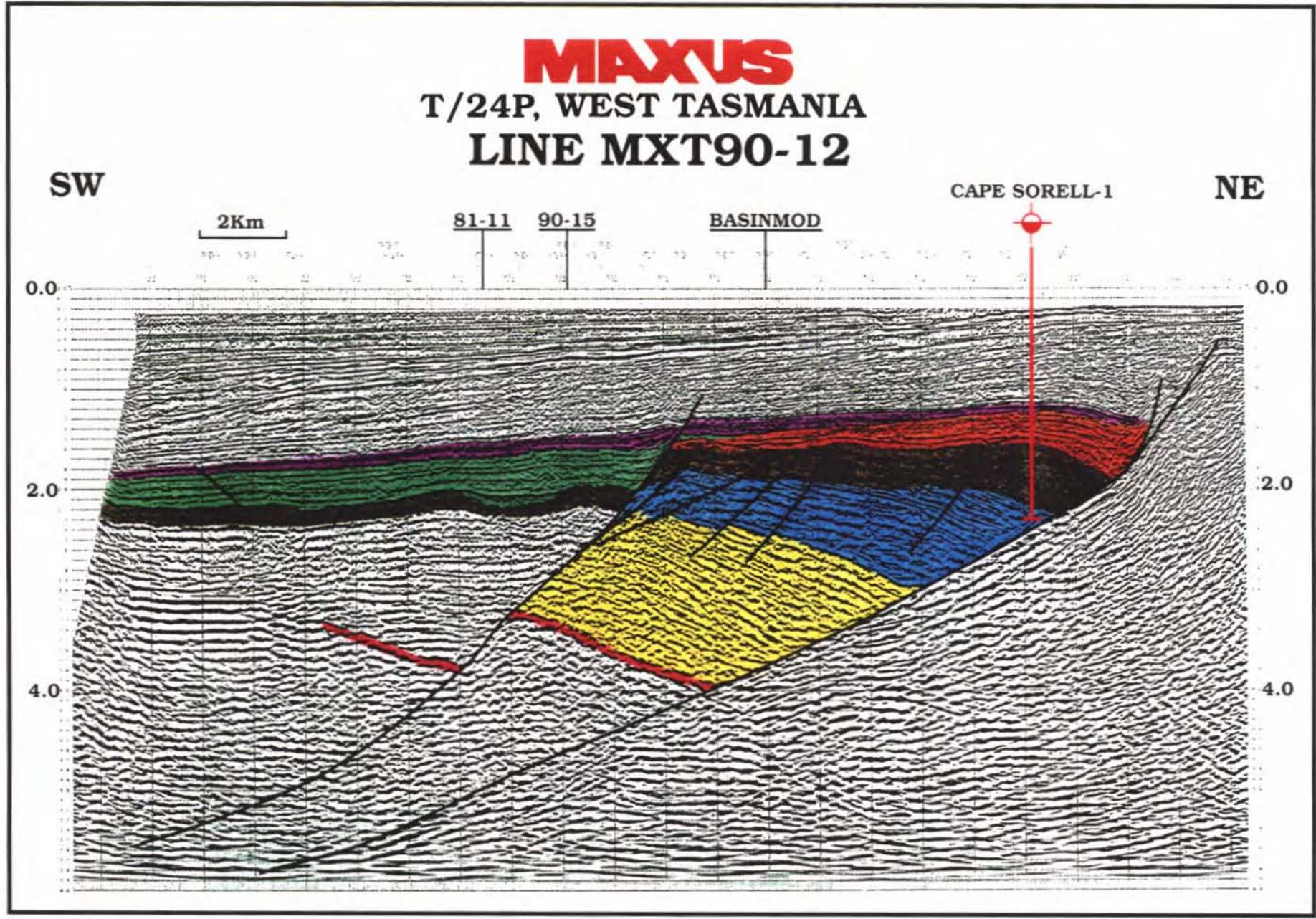
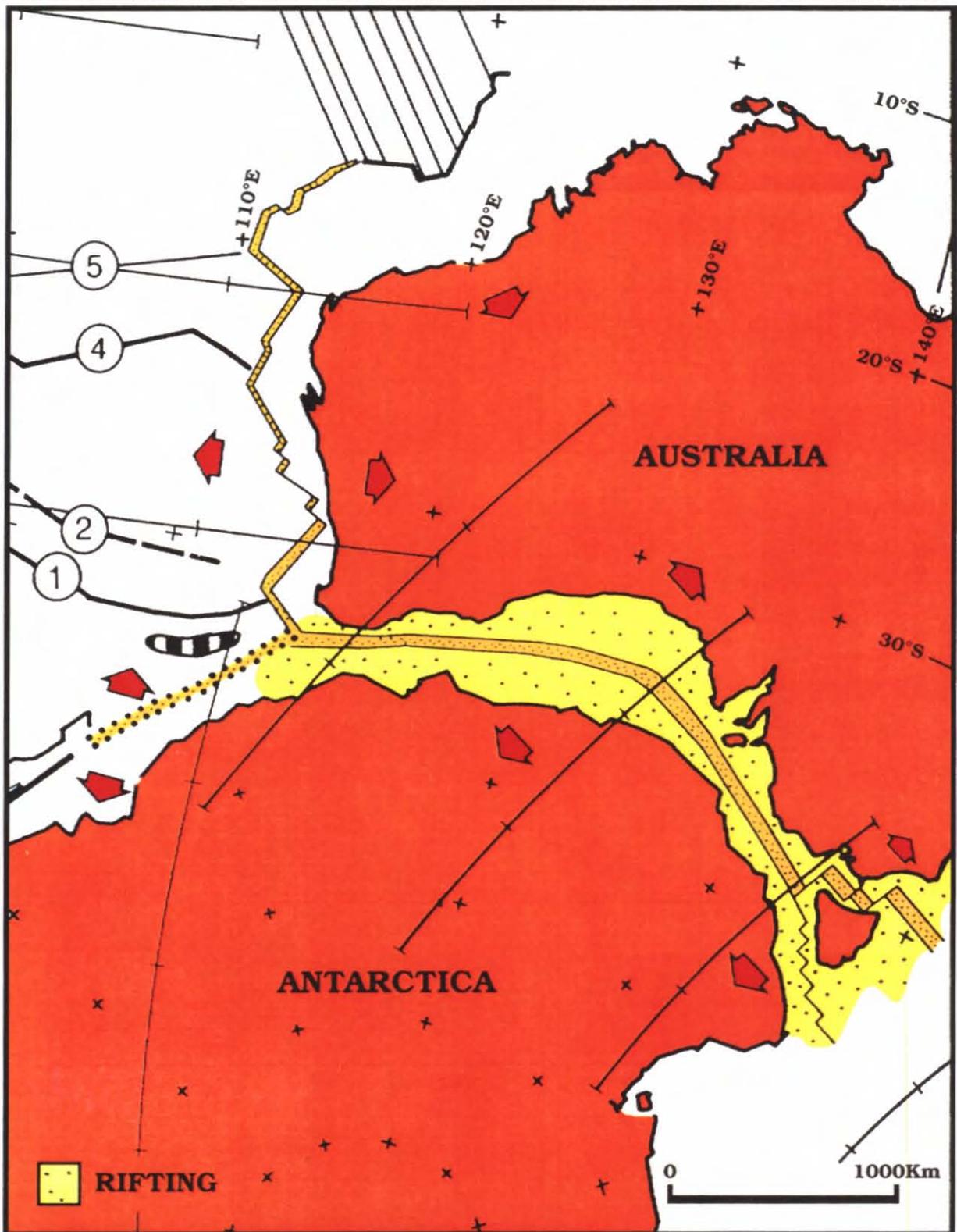


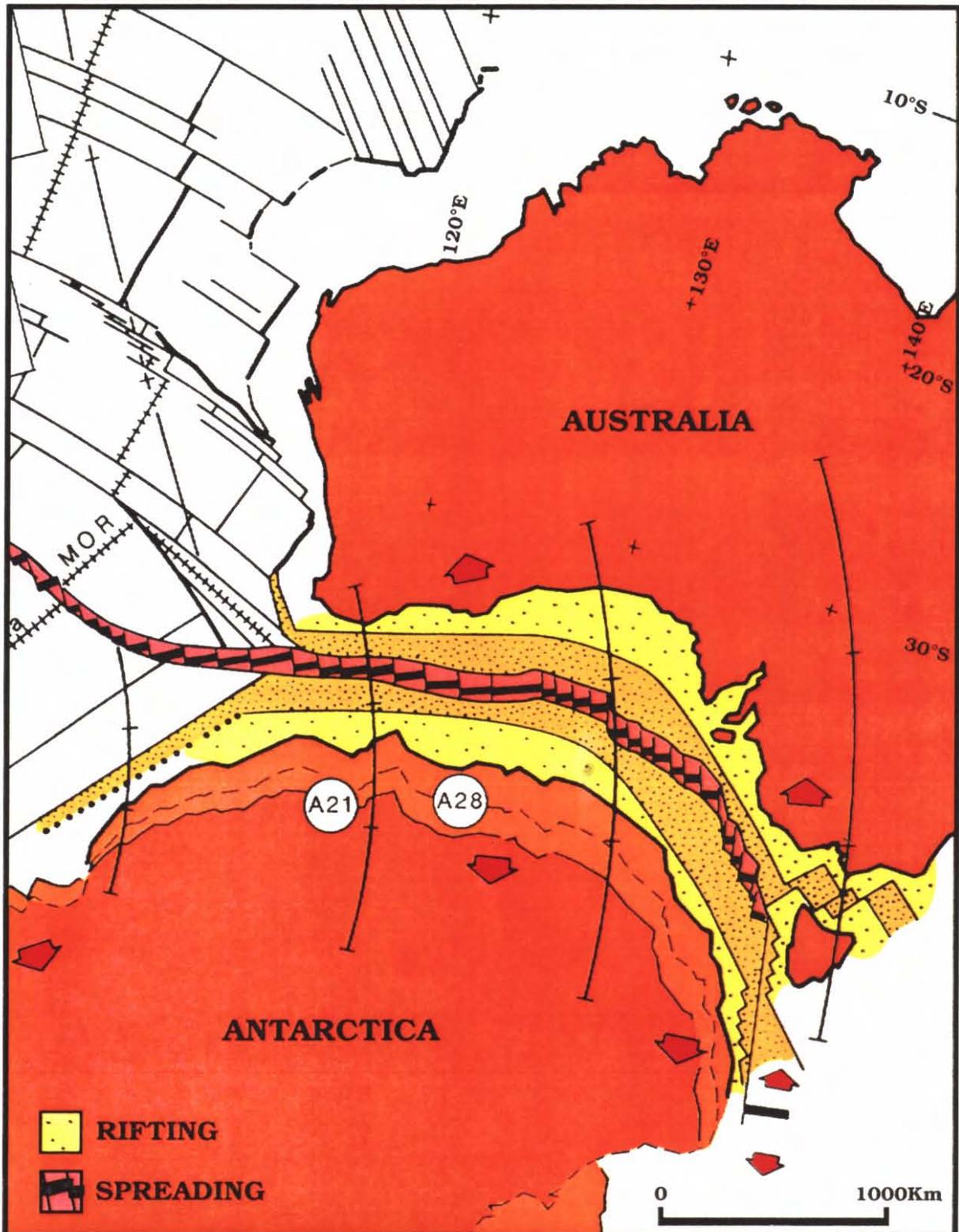
Fig. 6

MAXUS**EAST GONDWANALAND AT 132.5Ma,
RELATIVE SOUTHEASTWARD POLE OF ROTATION**

MODIFIED AFTER POWELL, ET AL. 1988 (FIG. 7)

5 cm

Fig. 7

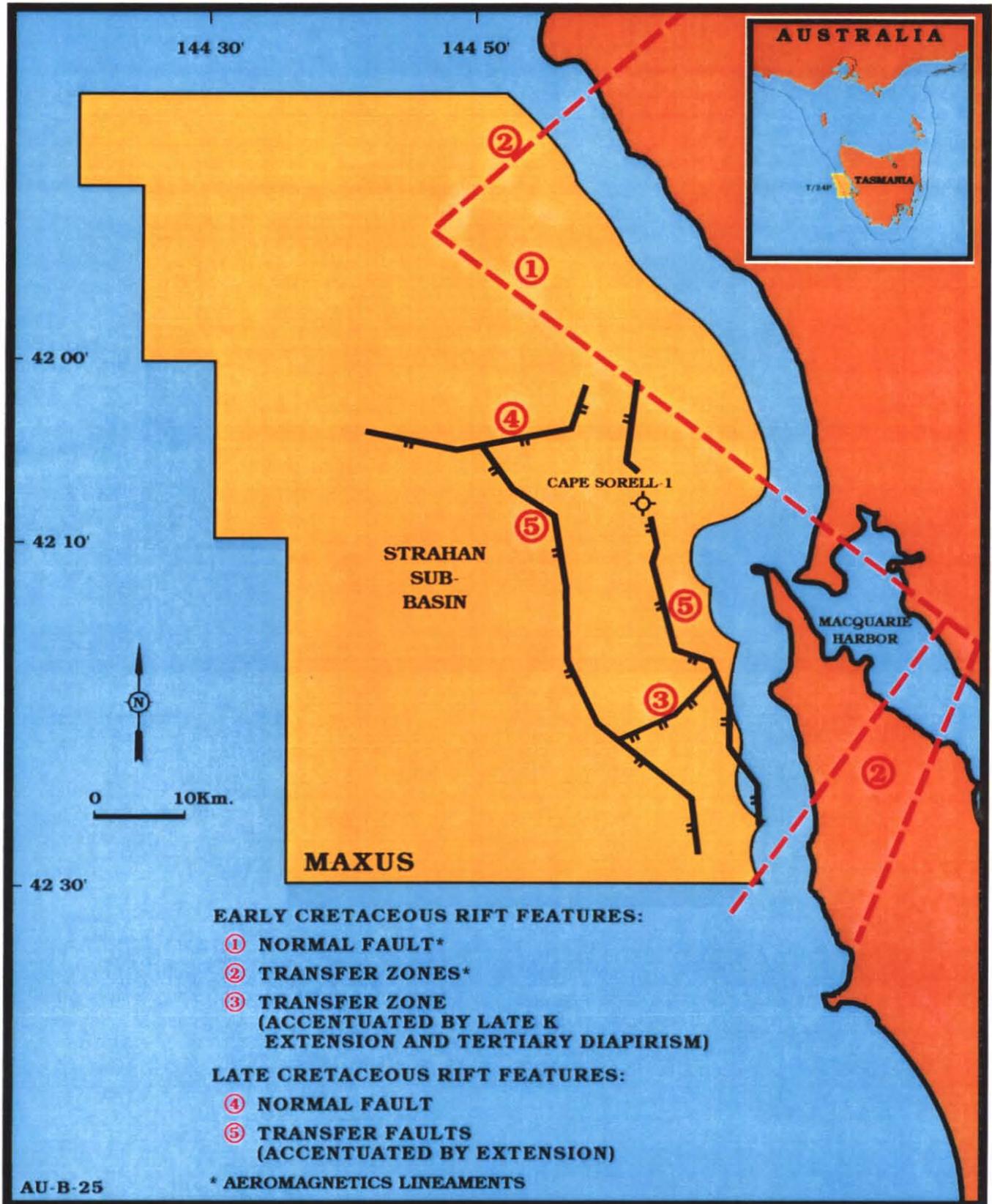
MAXUS**EAST GONDWANALAND AT 84Ma,
RELATIVE WESTWARD POLE OF ROTATION**

MODIFIED AFTER POWELL, ET AL. 1988 (FIG. 10)

5 cm

Fig. 8

WEST TASMANIA T/24P MAJOR TECTONIC ELEMENTS

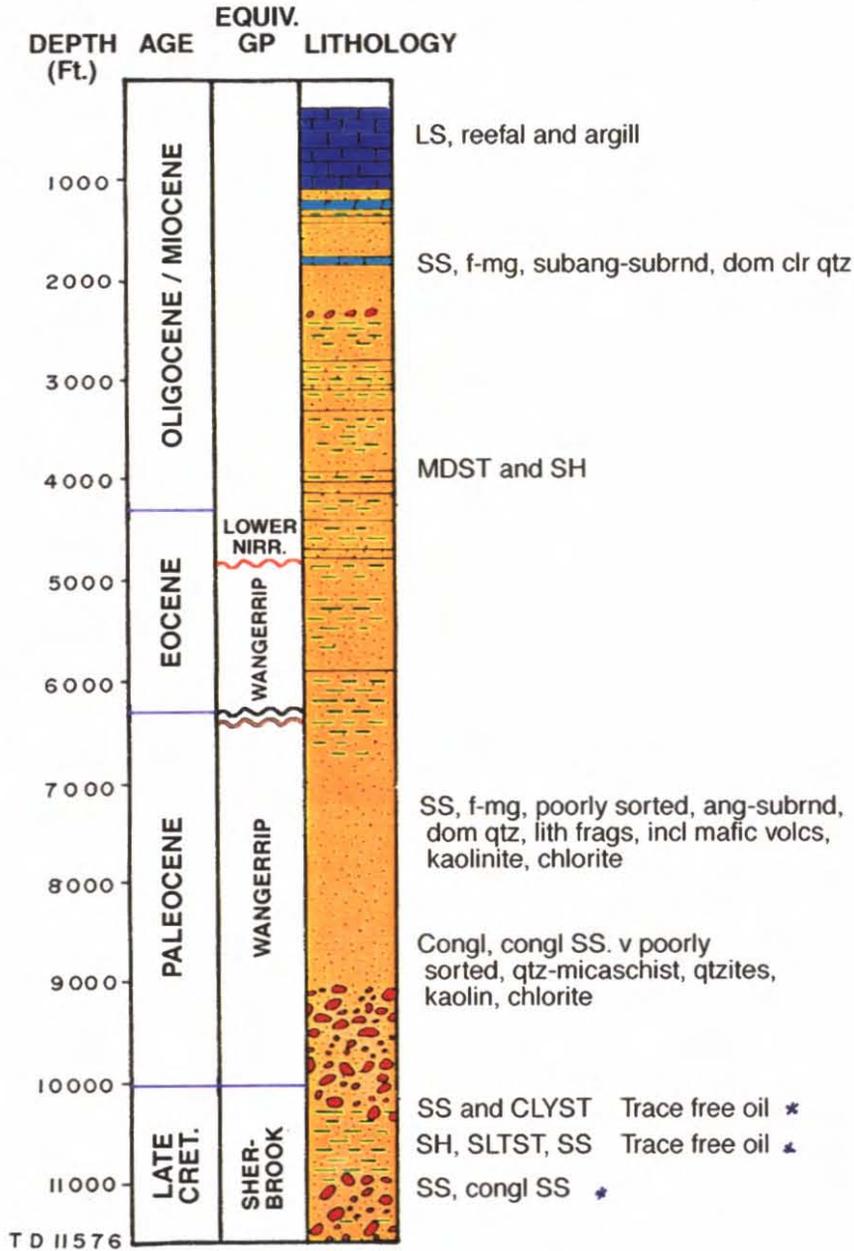


5 cm

Fig. 9

MAXUS

T/24P, WEST TASMANIA CAPE SORELL - 1 (AMOCO, 1982)



SUMMARY OF SHOWS

- * * TRACE FREE OIL - CLEAR CRUSH CUT WITH MED. PALE YELLOW FLUOR.
- * * GOOD TRACE RESIDUAL OIL - LT / MED STRAW CRUSH CUT WITH MOD / INTENSE YELLOW FLUOR.

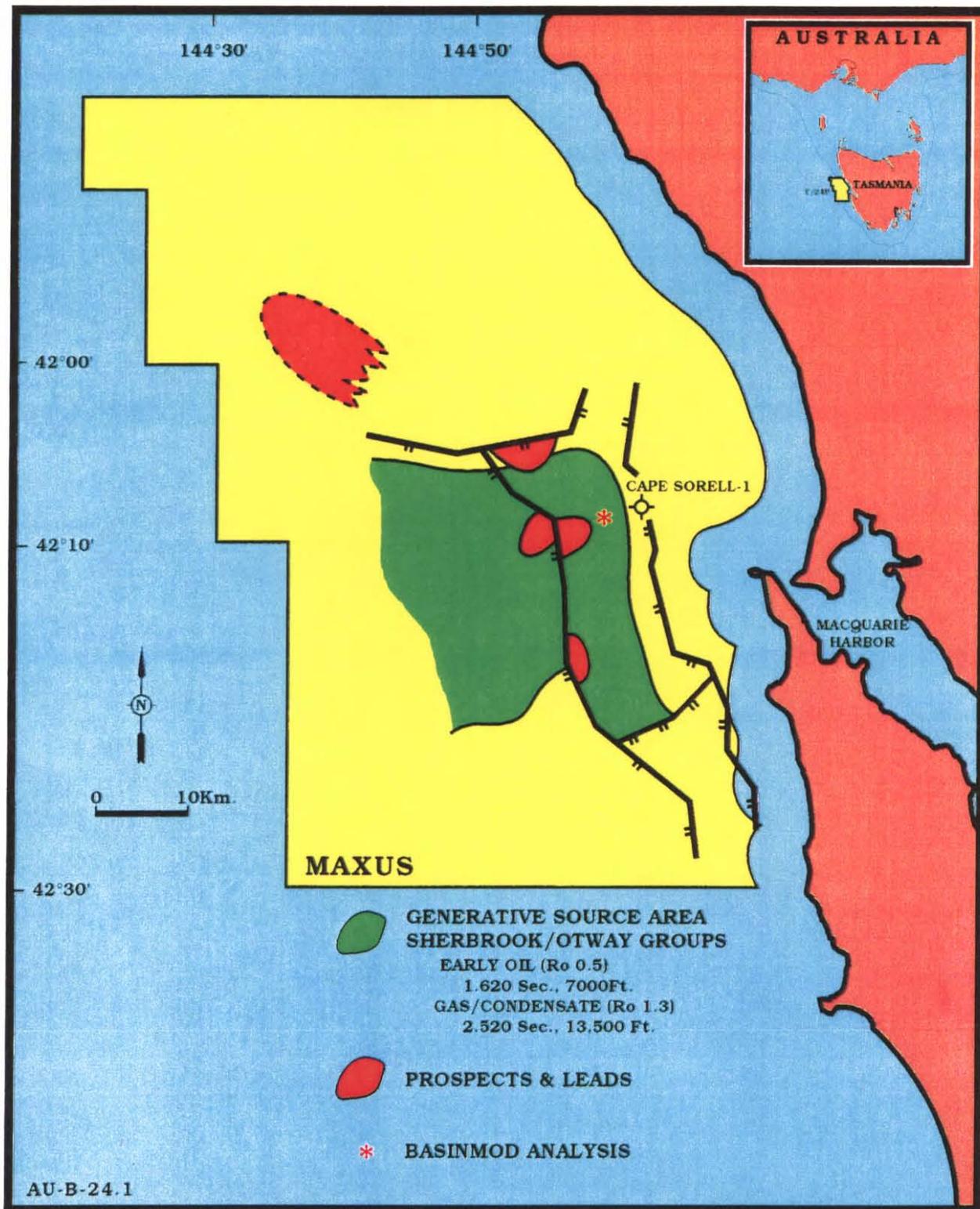
5 cm

Fig 10

MAXUS

484022

T/24P, WEST TASMANIA GENERATIVE SOURCE AREAS



5 cm

Fig. 11

484023

MAXUS**T/24P, WEST TASMANIA****THERMAL MATURITY MODELING - SELECTED INPUT DATA***

<u>GROUP</u>	<u>AGE</u> (Ma)	<u>TOP</u> (FT.)	<u>THICKNESS</u> (FT.)	<u>HEAT FLOW</u> (HFU)	<u>KEROGEN</u> <u>NAME</u>	<u>TOC</u> %
HEYTESBURY / UPPER NIRR.	34	0	5150	1.3		
LOWER NIRRANDA	40	5150	775	1.4		
UPPER WANGERRIP	57	5925	825	1.5	KER 3	0.3
LOWER WANGERRIP	65	6750	1550	1.6		
SHERBROOK	95	8300	3650	1.7	KER 2	2.5
OTWAY	120	11950	11118	1.9	KER 1	2.0

<u>KEROGEN</u> <u>NAME</u>	<u>TYPE I</u> (%)	<u>TYPE II</u> (%)	<u>TYPE III</u> (%)	<u>TYPE IV</u> (%)
KER 1	60	30	10	
KER 2	20	3	50	27
KER 3	15	6	45	34

* BASINMOD SOFTWARE

5 cm

484024

TAS T/24P

SP 850 L-MXT90-09

CMP=FM;TH=SHF;MAT=LL

T6=1;TI=4;EXP=EFF

DI=2000

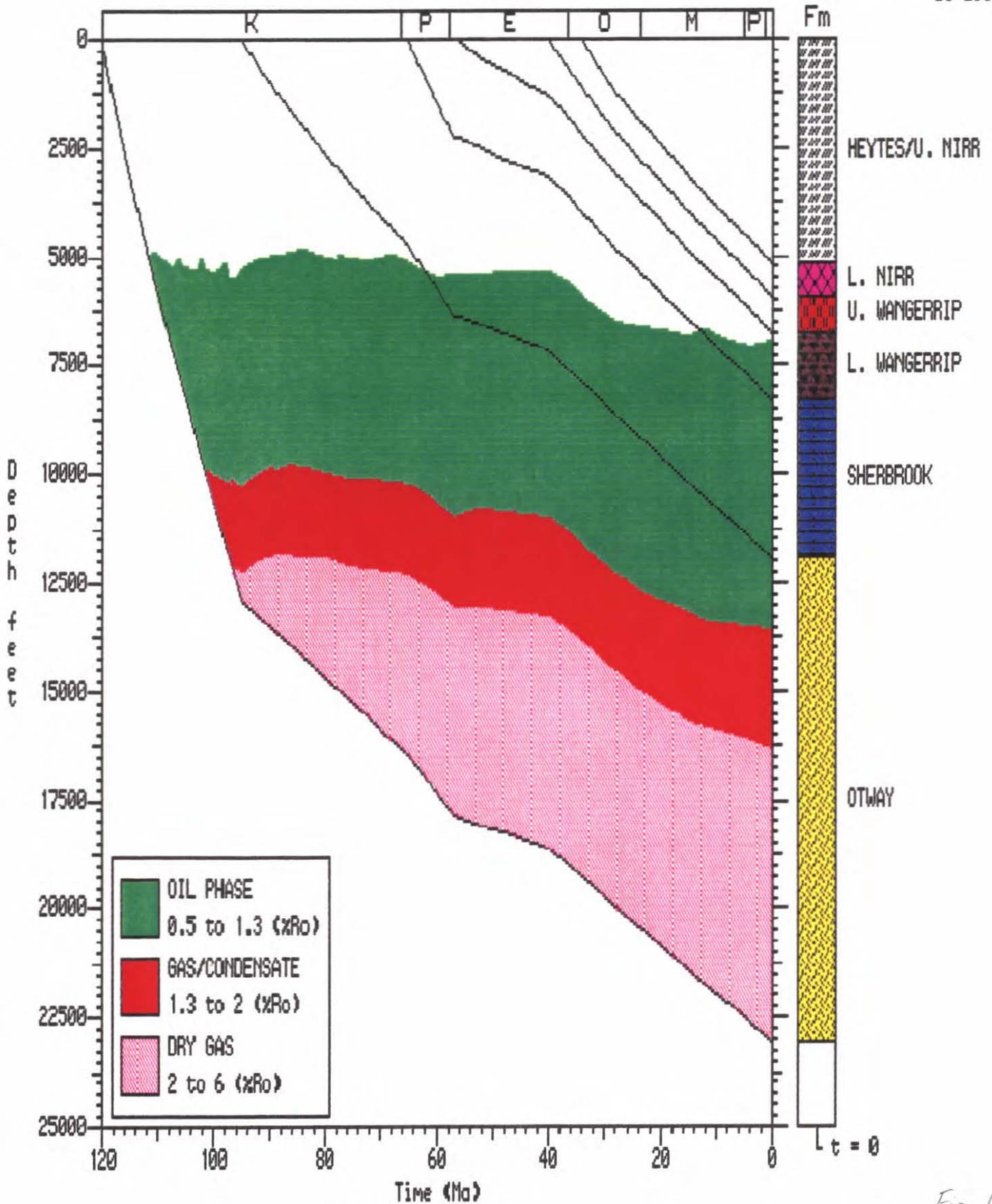


Fig. 13

MAXUS

T/24P, WEST TASMANIA

THERMOGENIC HYDROCARBONS
TOTAL YIELD (ppb) *

EOCENE/OLIGOCENE UNCONFORMITY
TIME STRUCTURE

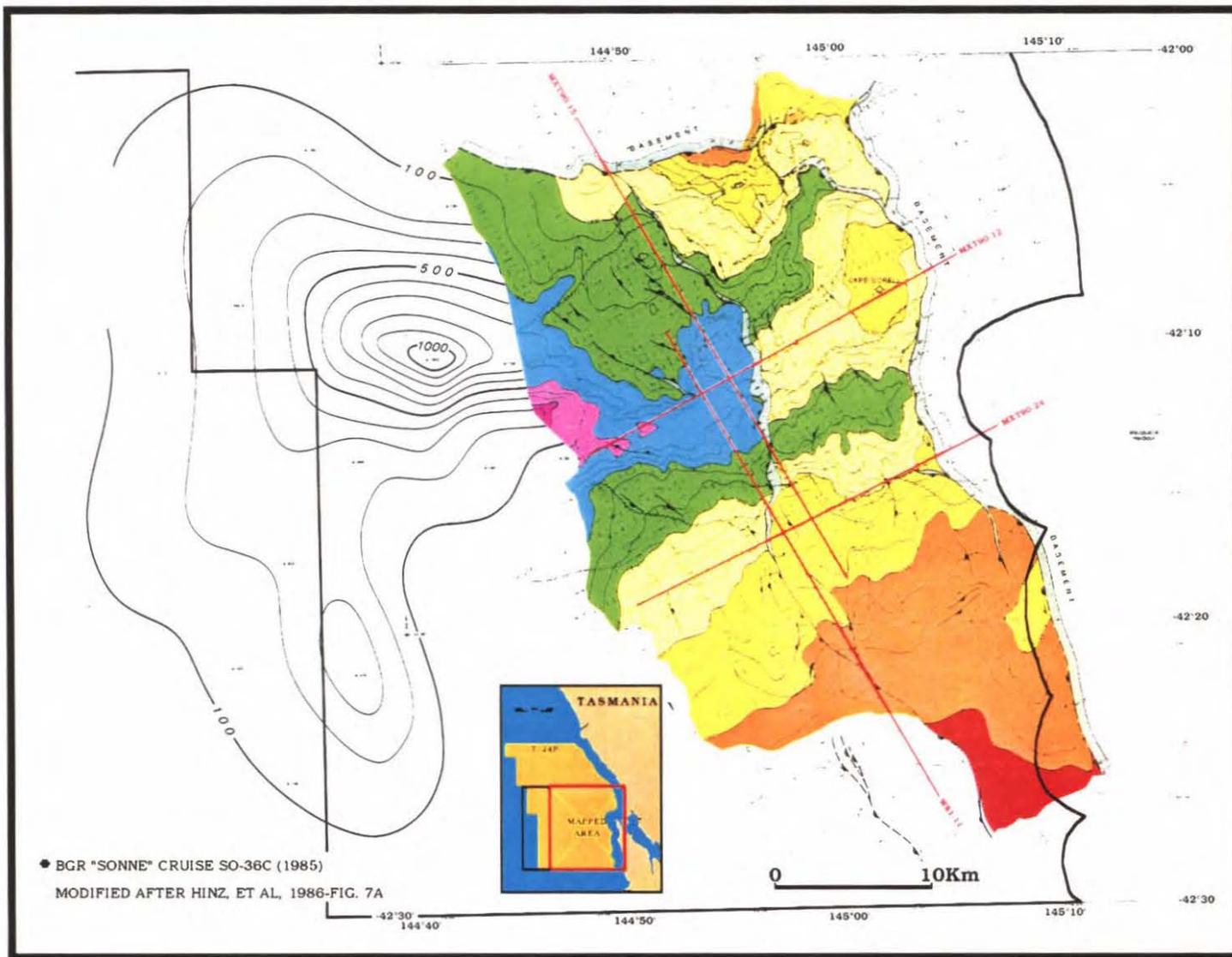


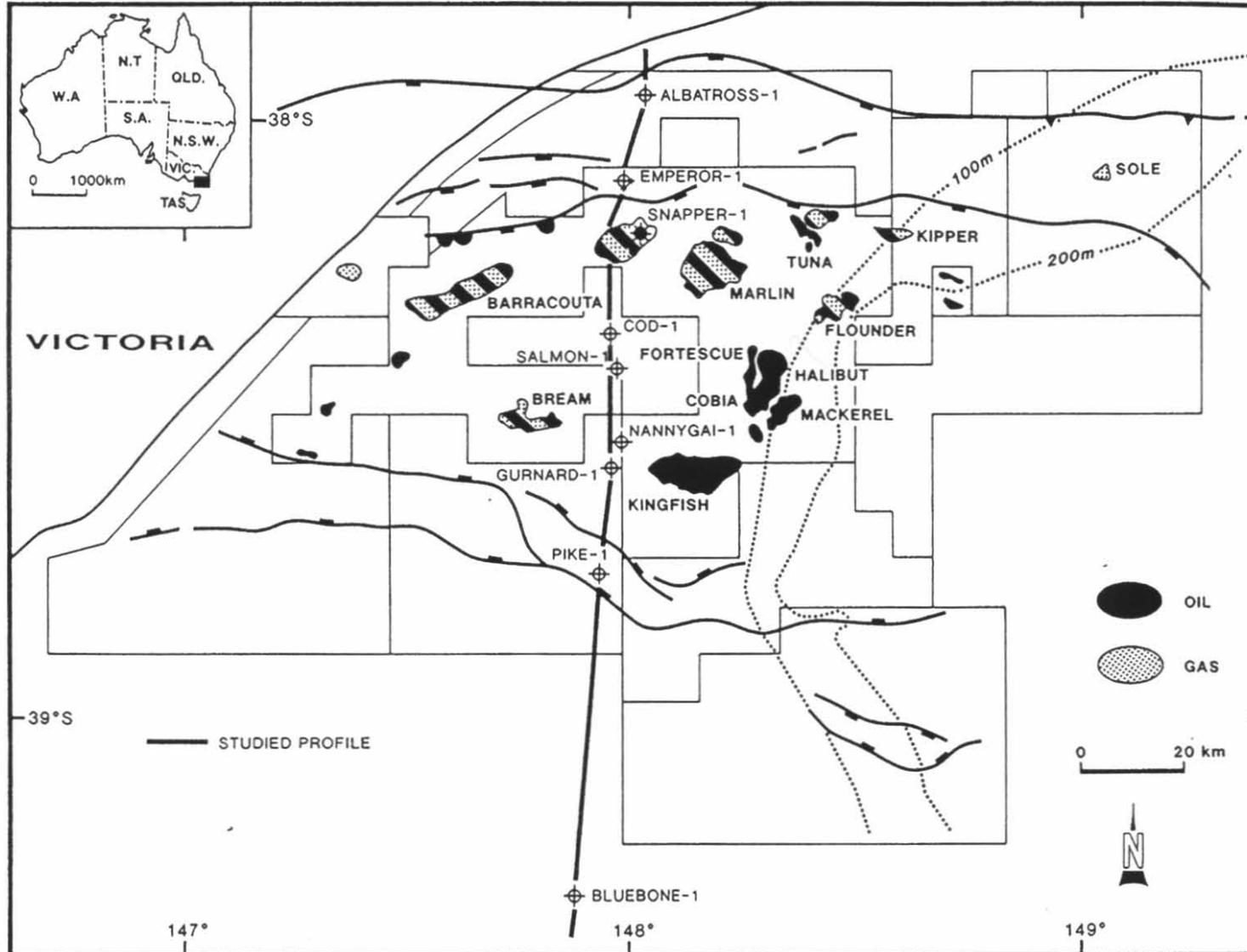
Fig. 14

5 cm

484025

MAXUS GIPPSLAND BASIN FIELD LOCATIONS

484026



AFTER FEATHERSTONE, ET AL, 1991 (FIG. 4)

Fig. 15

5 cm

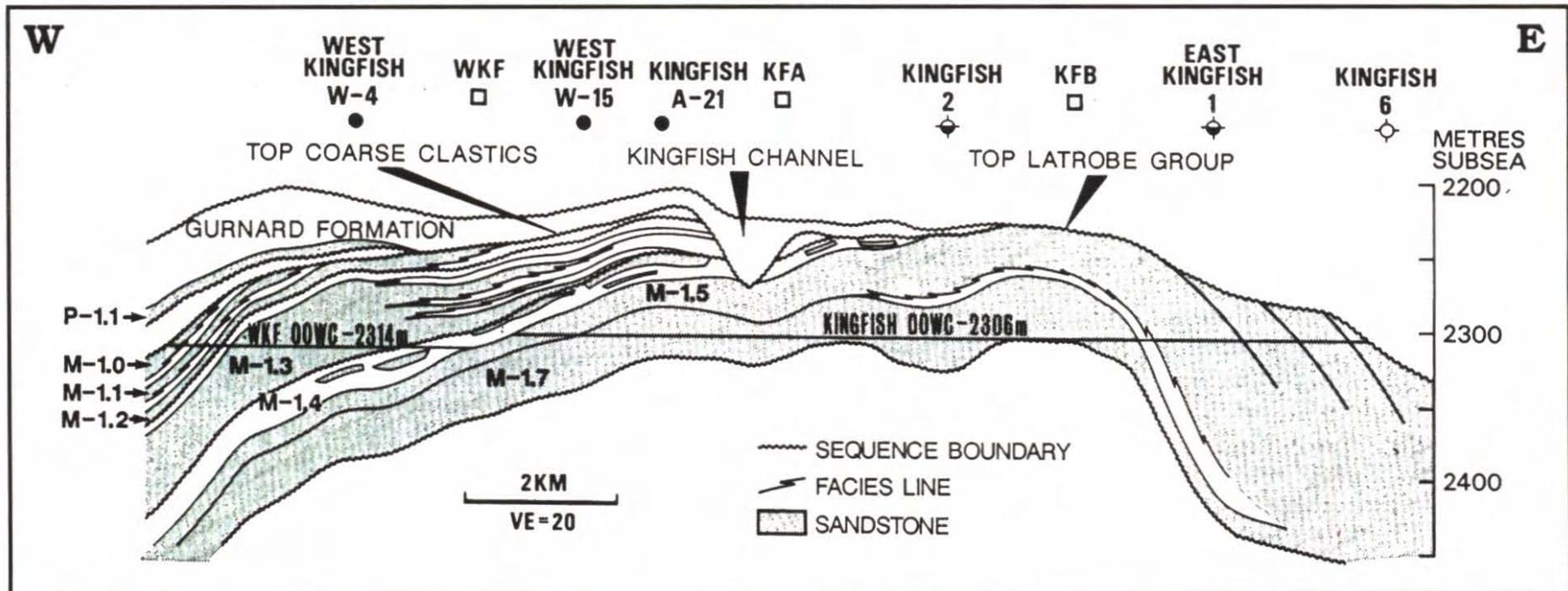
484027

MAXUS

GIPPSLAND BASIN

KINGFISH/WEST KINGFISH FIELDS

STRUCTURAL CROSS-SECTION

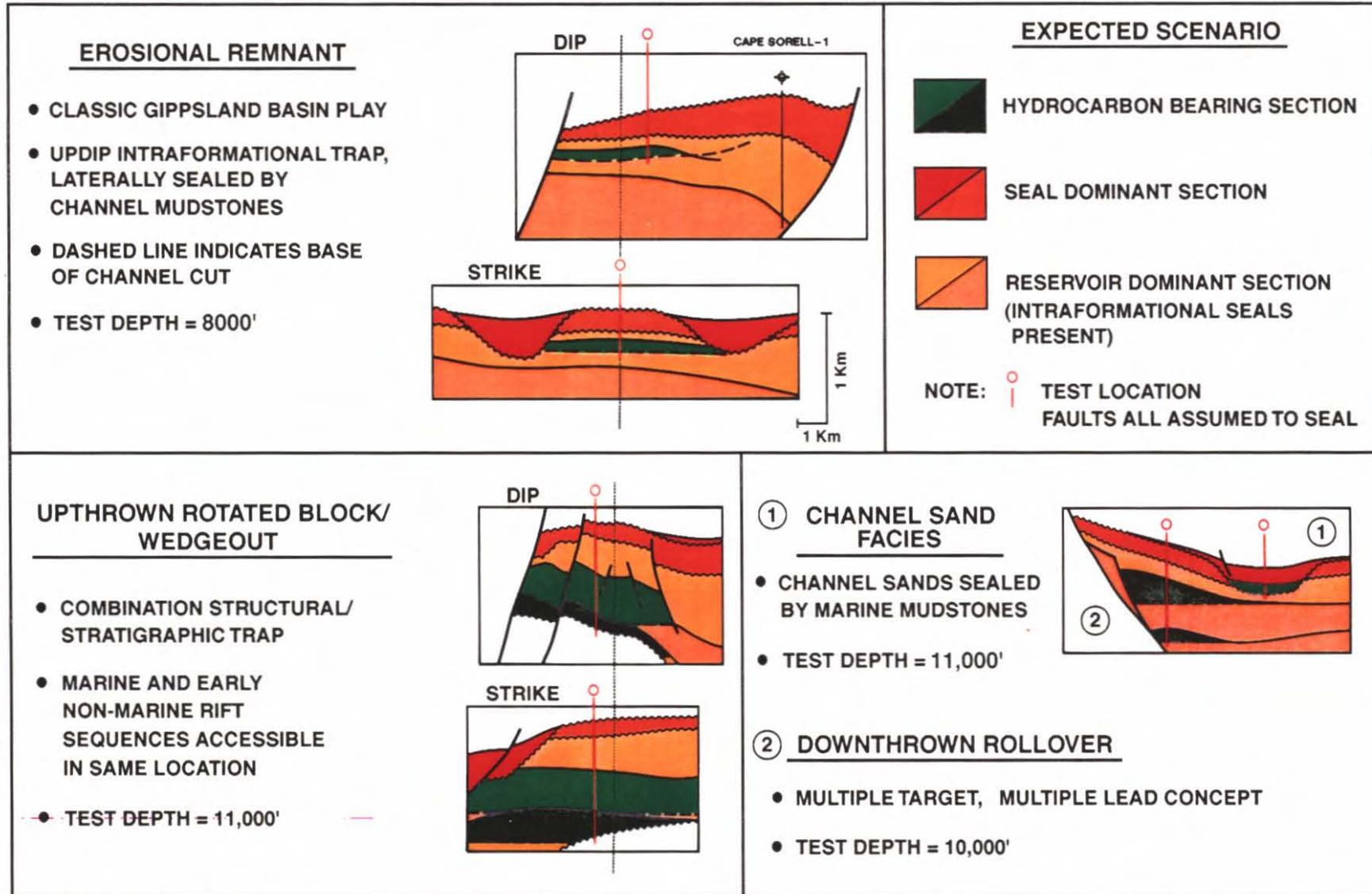


MODIFIED AFTER MUDGE, ET AL, 1992 (FIG. 3)

Fig. 16

MAXUS

T/24P, WEST TASMANIA 484028 SUMMARY OF STRAHAN SUB-BASIN PLAY CONCEPTS



5 cm

Fig. 17

484029

MAXUS
T/24P, WEST TASMANIA
EOCENE/OLIGOCENE UNCONFORMITY, 3-D PERSPECTIVE

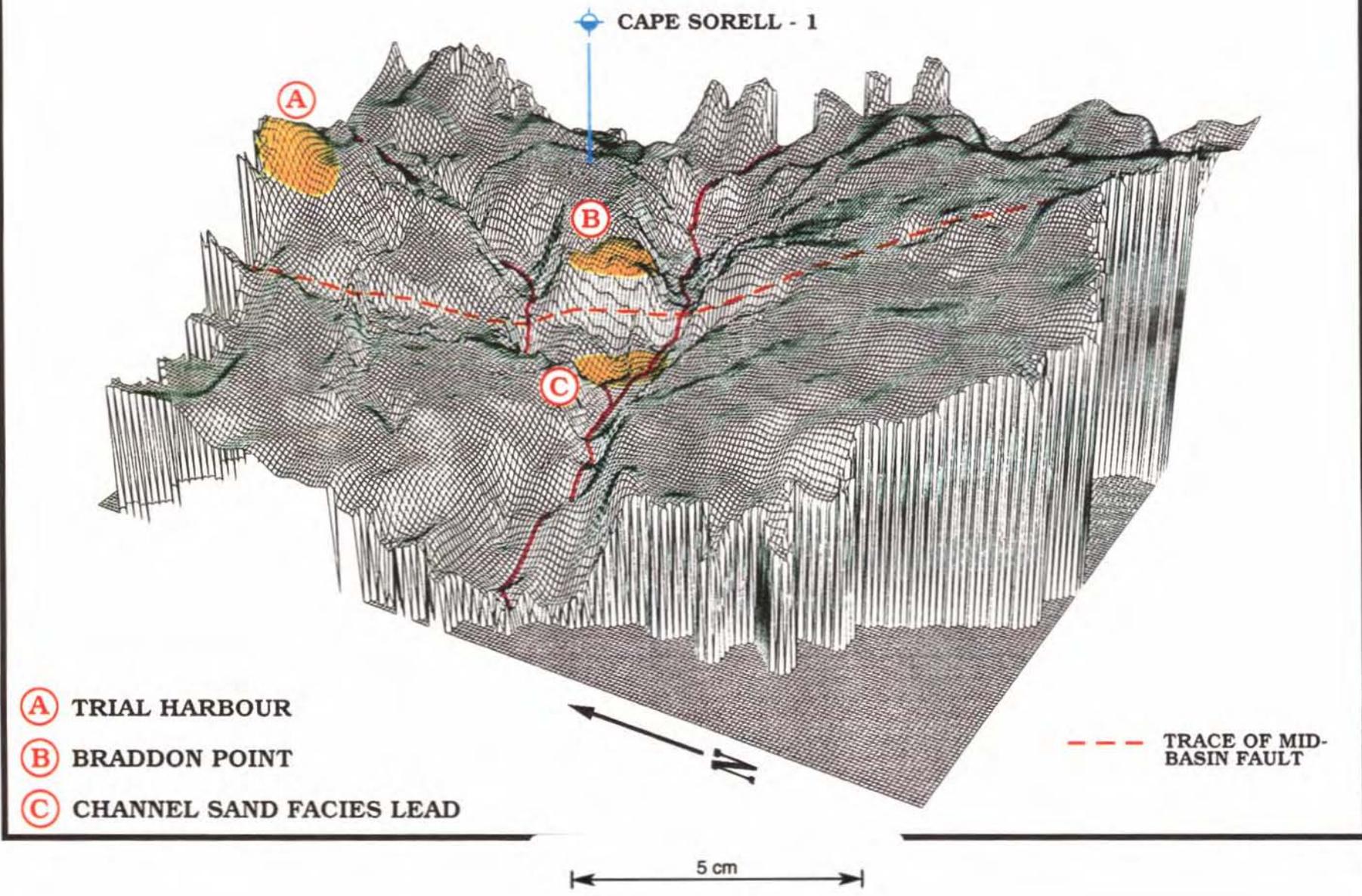


Fig. 18

484030

MAXUS

T/24P, WEST TASMANIA

BASE WANGERRIP GP. (TOP SHERBROOK WHERE PRESENT) 3-D PERSPECTIVE

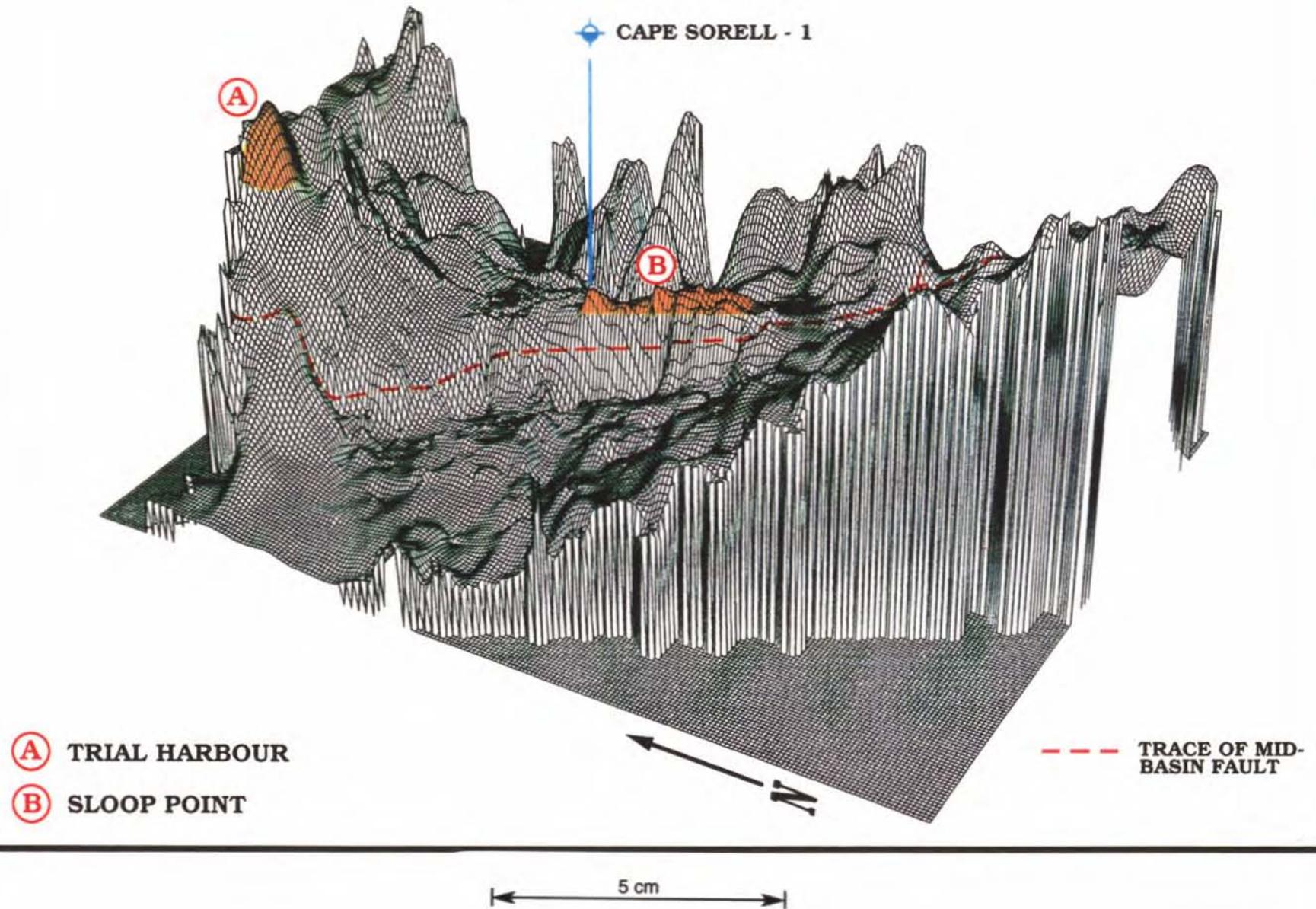


Fig. 19

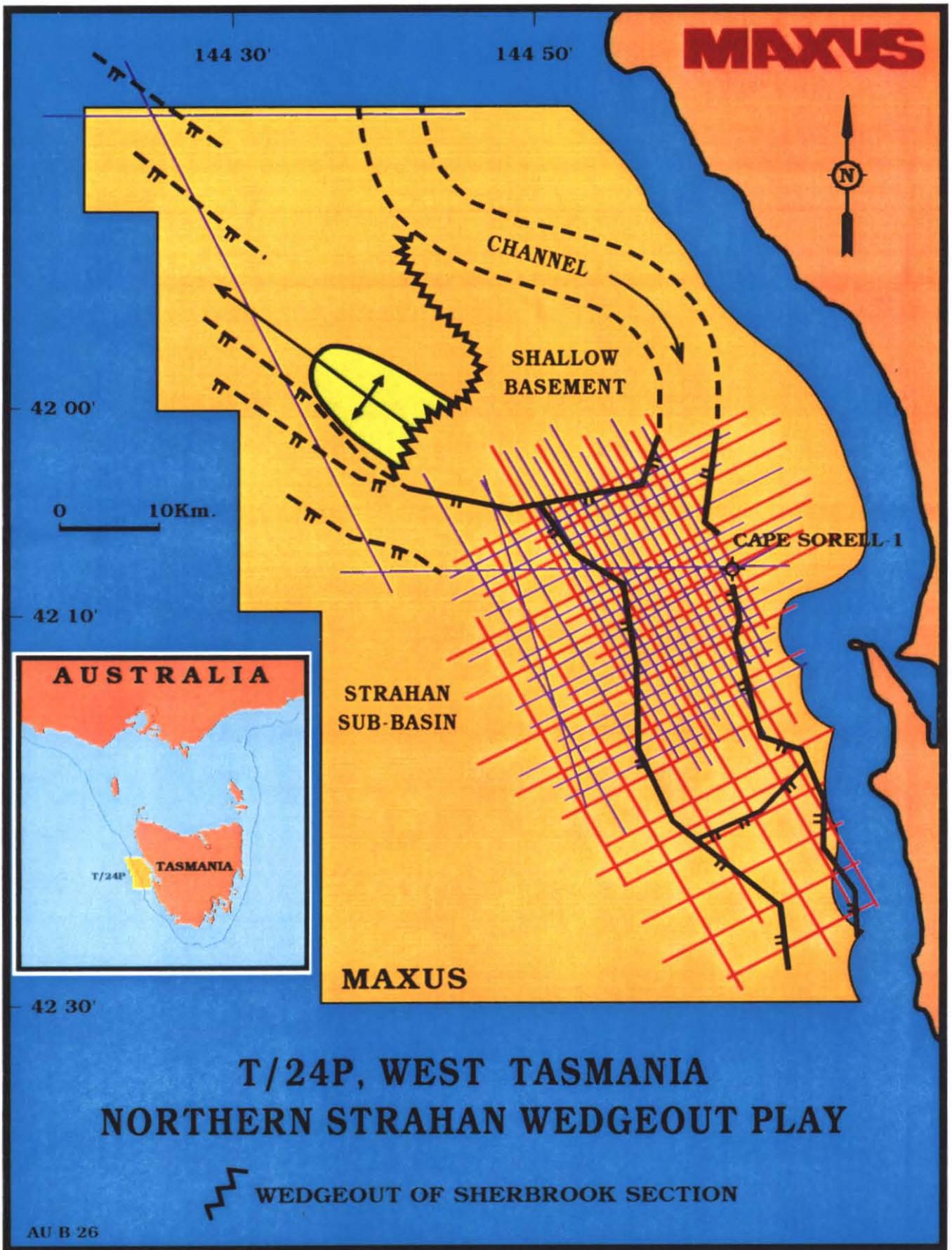
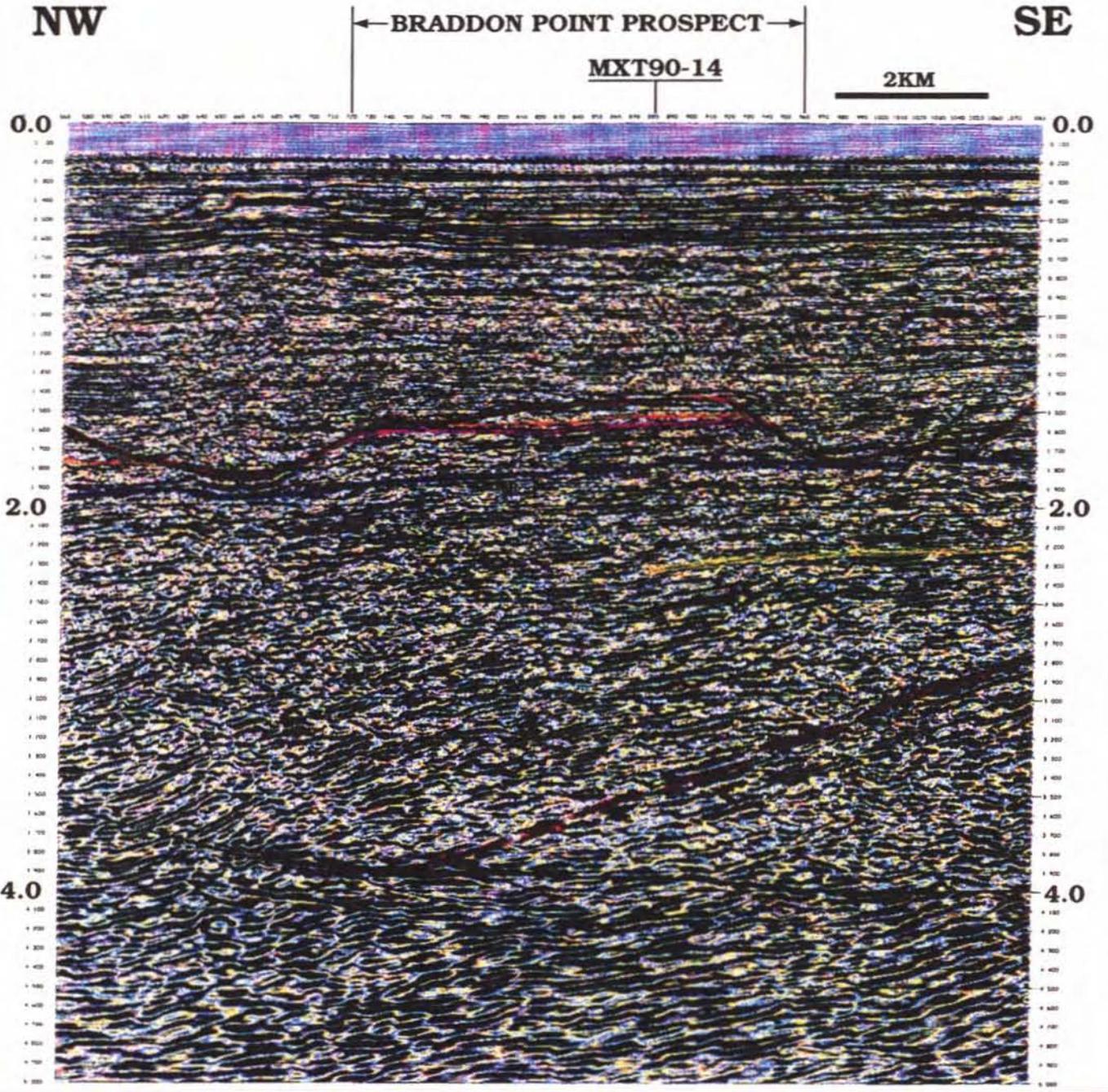


Fig. 20

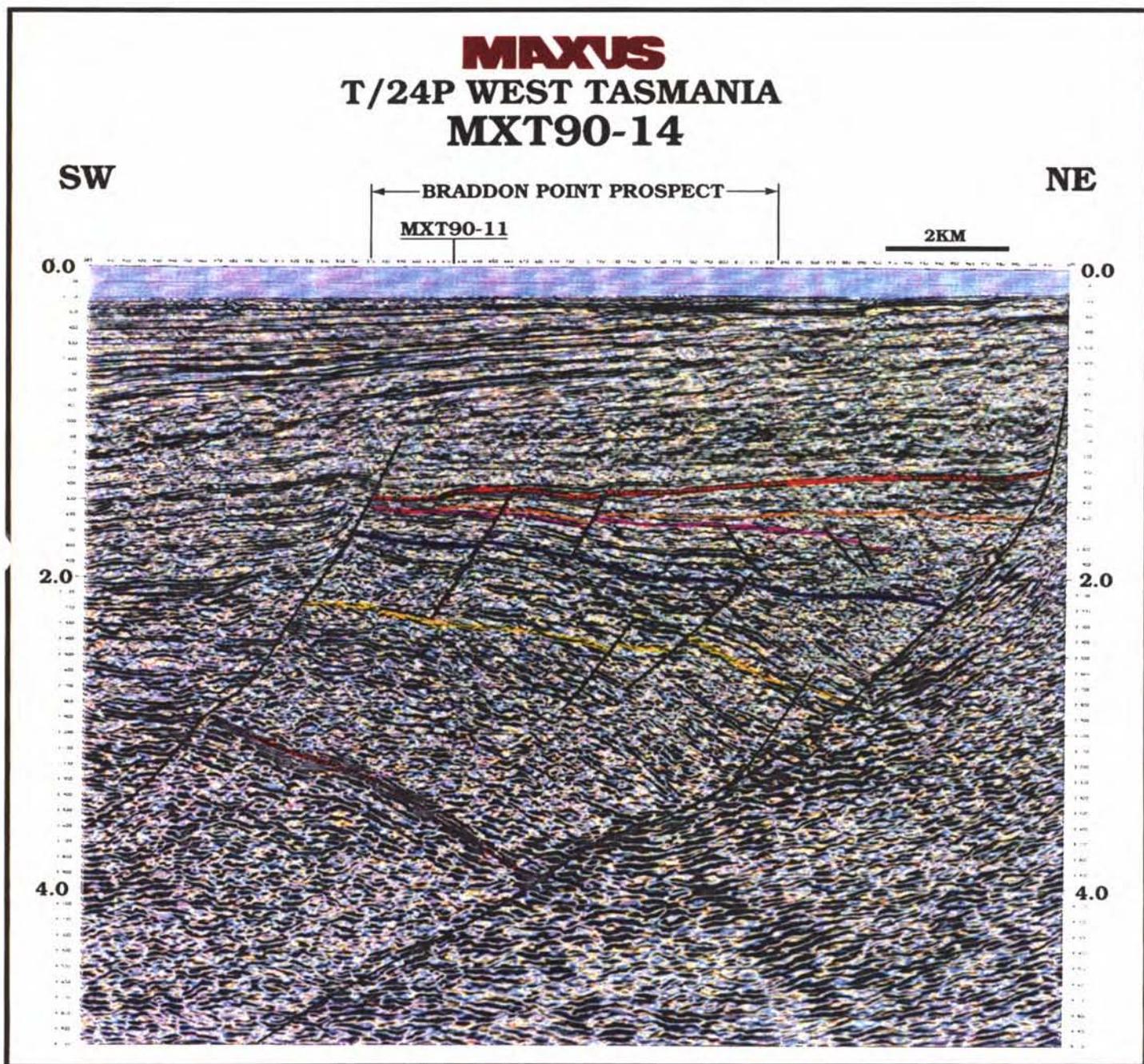
MAXUS T/24P WEST TASMANIA MXT90-11



MAPPED HORIZON = PINK, OTHERWISE ORANGE WHERE PINK TRUNCATED

5 cm

Fig. 21



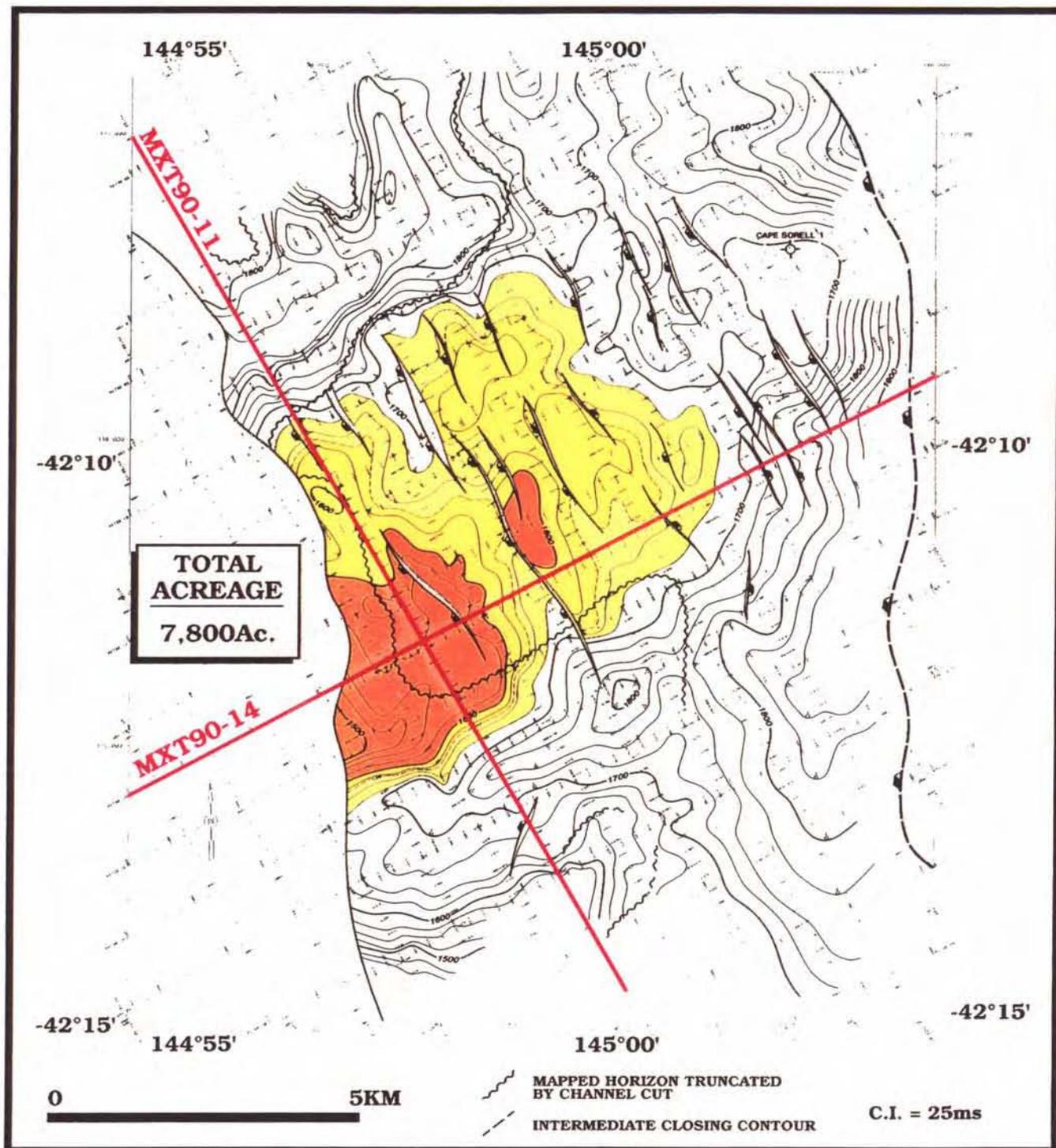
MAPPED HORIZON = PINK

5 cm

Fig. 22

MAXUS
T/24P, WEST TASMANIA
INTRA-WANGERRIP REFLECTOR
TIME STRUCTURE

484034



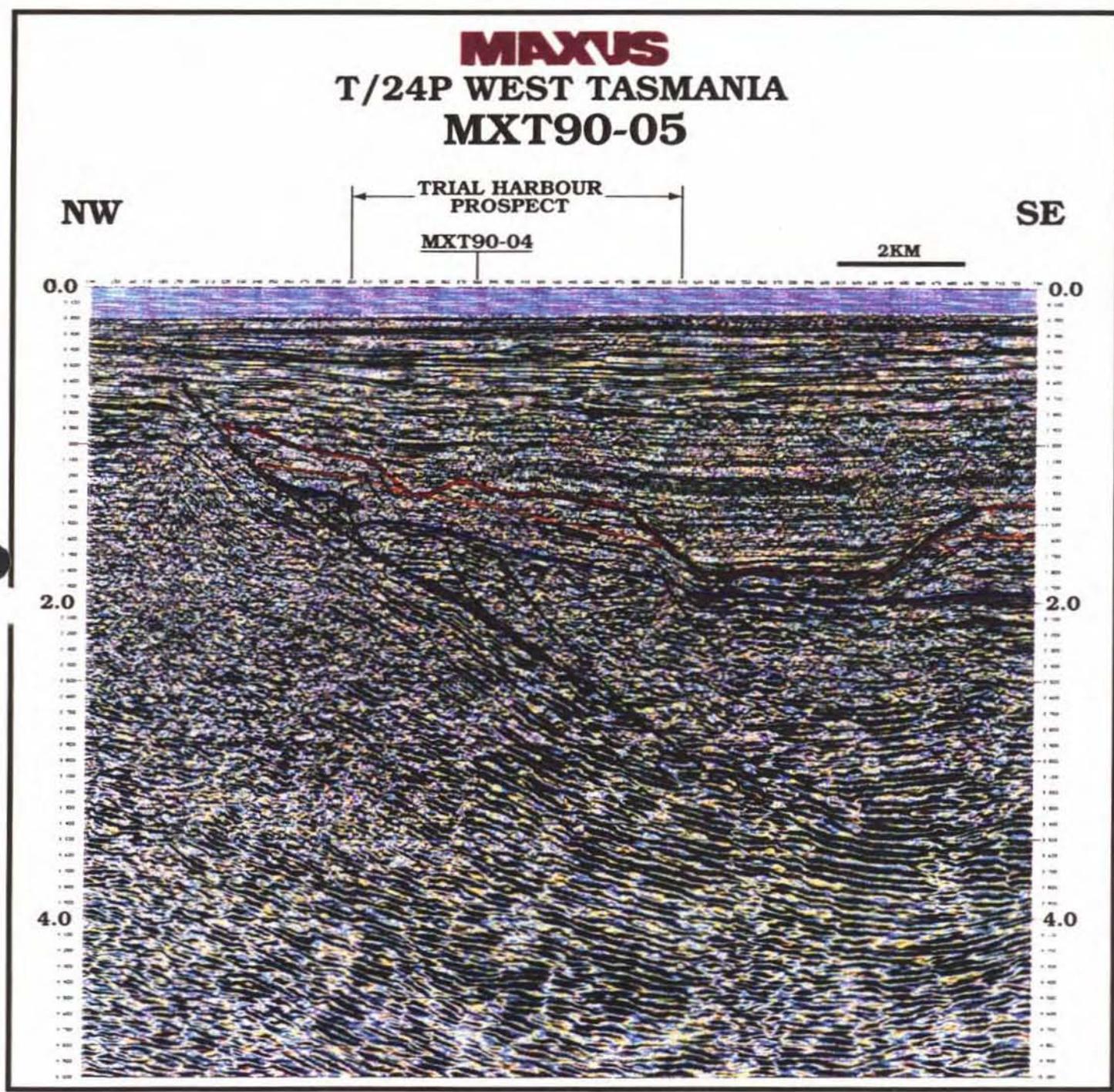
5 cm

Braddon Point Prospect

Fig. 23

Fig 24

484055

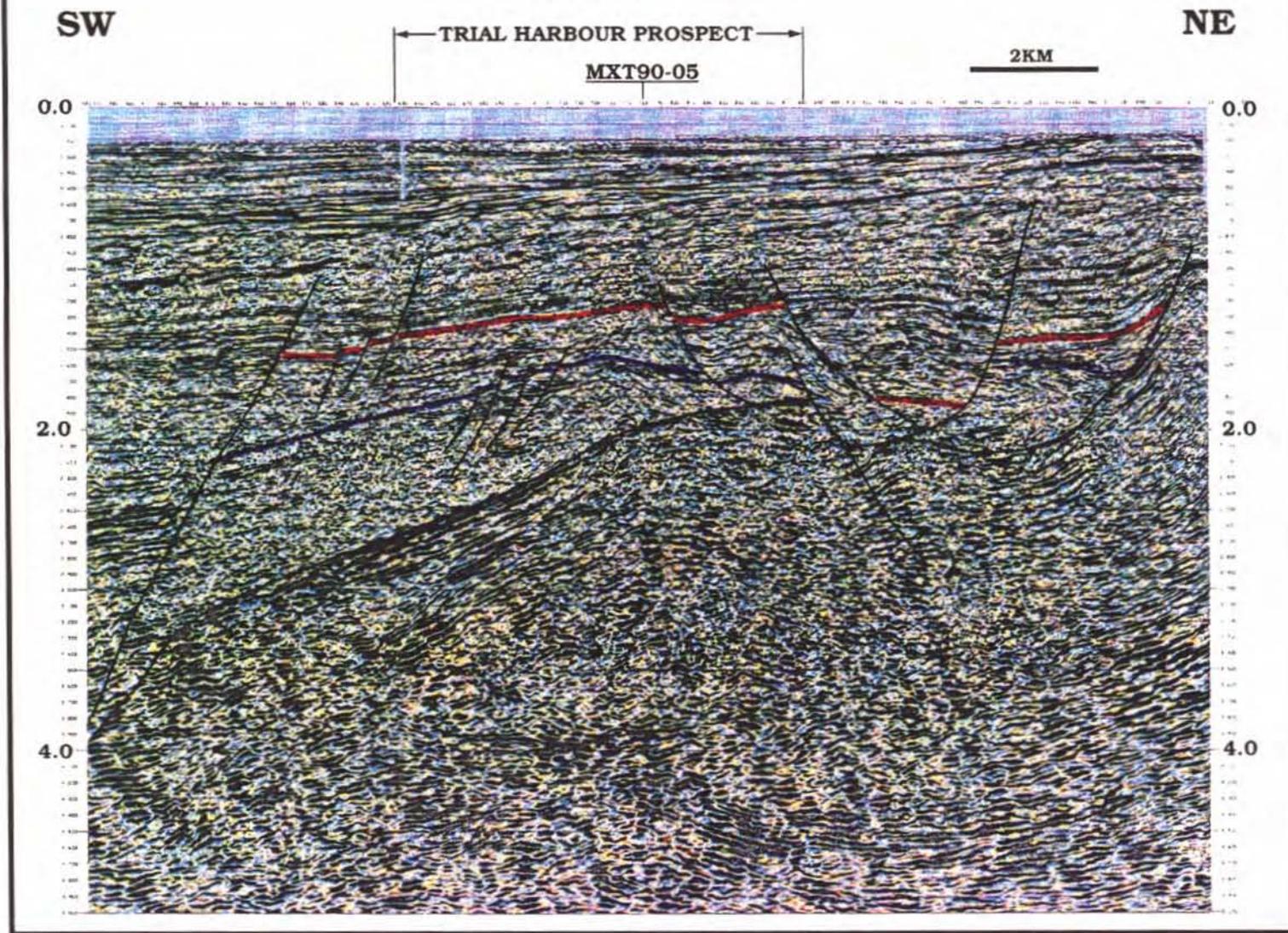


MAPPED HORIZON = BLUE

5 cm

Fig. 24

MAXUS
T/24P WEST TASMANIA
MXT90-04



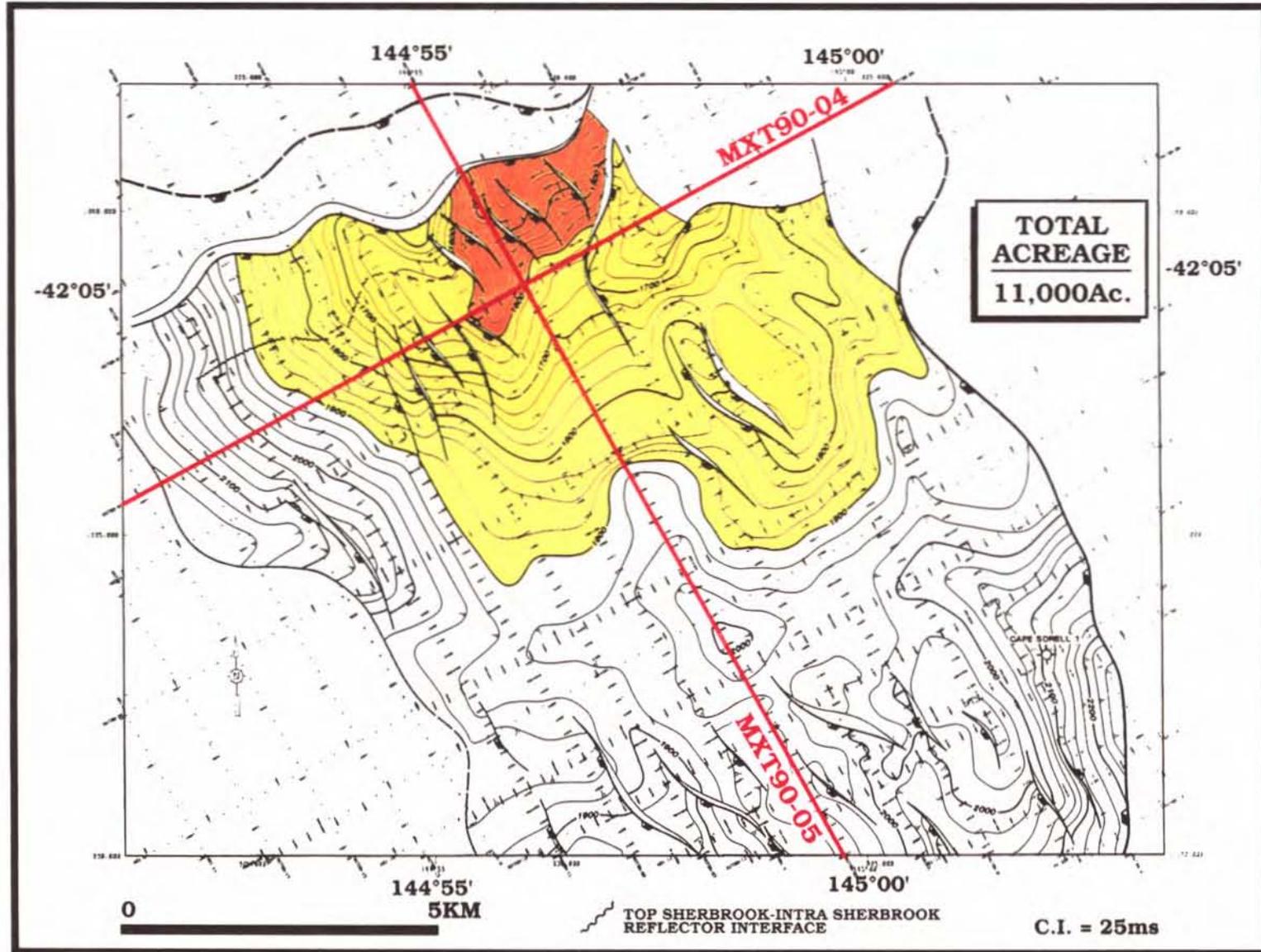
MAPPED HORIZON = BLUE

5 cm

Fig. 25

484036

MAXUS
 T/24P, WEST TASMANIA
**TOP SHERBROOK/
 INTRA SHERBROOK REFLECTOR
 TIME STRUCTURE**



Trial Harbour Prospect

Fig. 26

*Trial
 Harb*

434037

5 cm

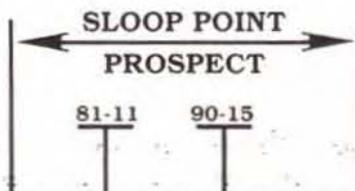
484033

MAXUS

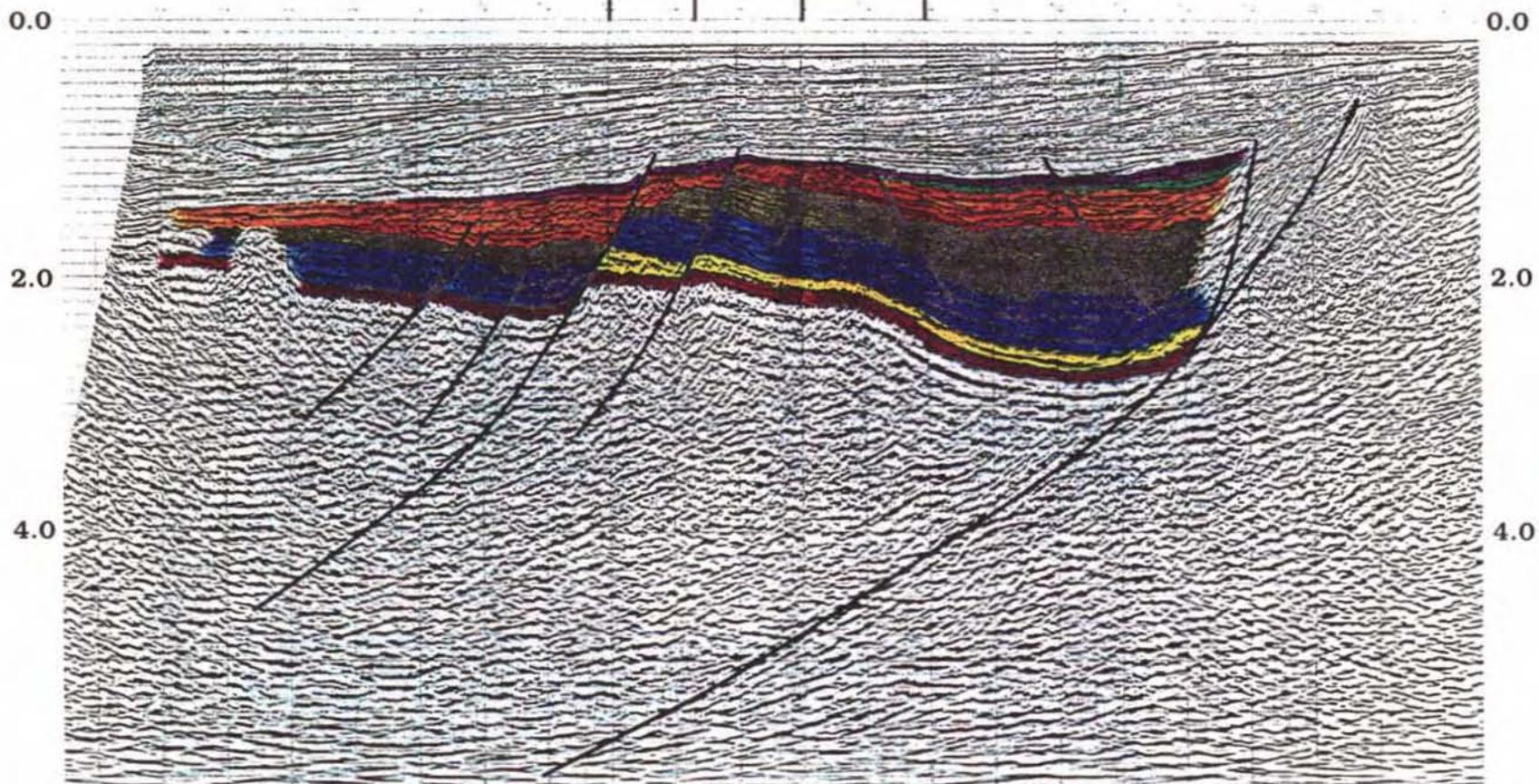
T/24P, WEST TASMANIA LINE MXT90-24

SW

NE



2Km



NOTE: 2.0 seconds equals approx. 10,000'

5 cm

Fig. 27

MAXUS
T/24P, WEST TASMANIA
LINE MXT90-15

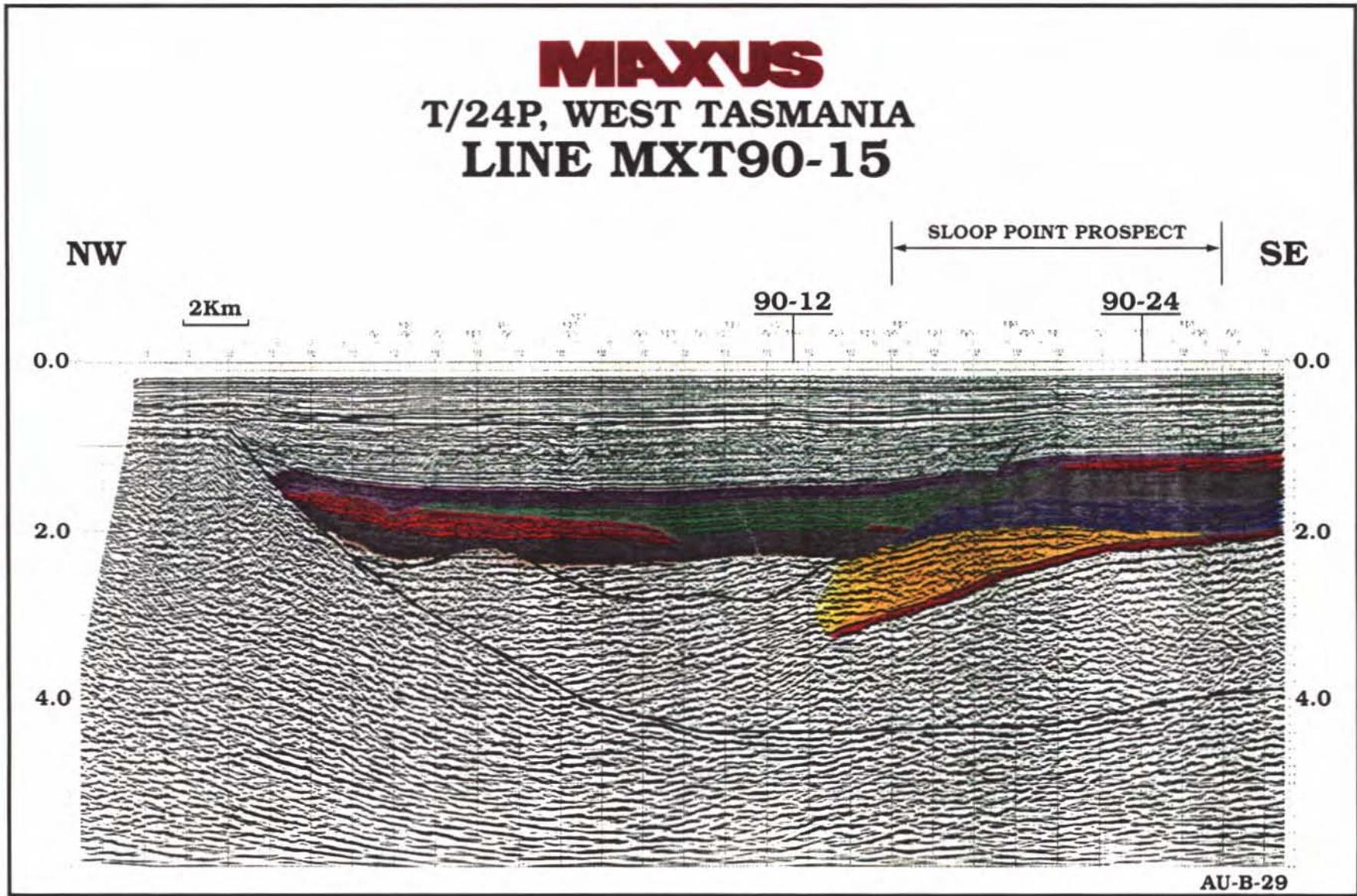
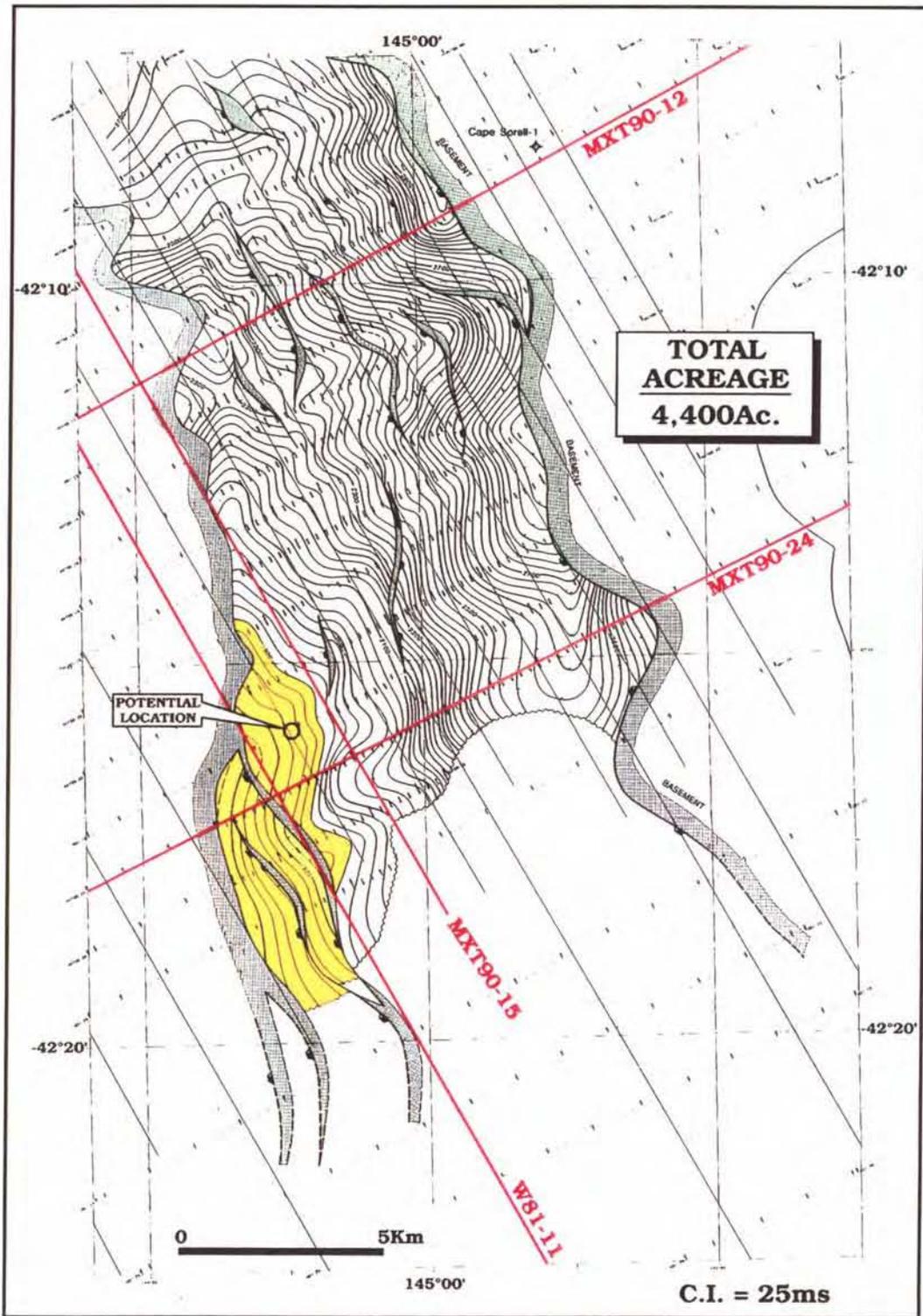


Fig. 28

MAXUS
T/24P, WEST TASMANIA
TOP OTWAY GROUP
(YELLOW REFLECTOR)
TIME STRUCTURE

484039



AU-B-26A

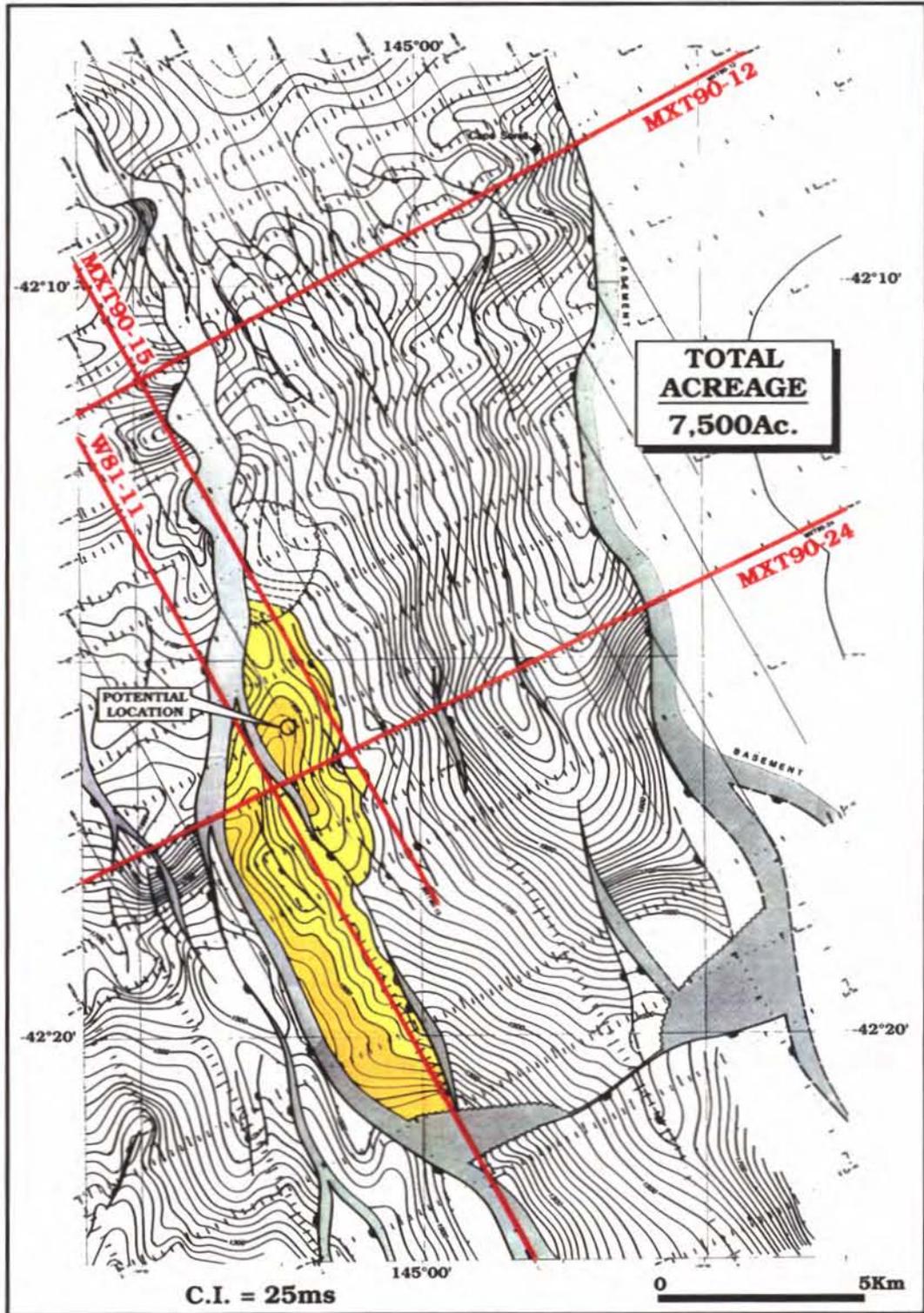
5 cm

Sloop Point Prospect

Fig. 29

MAXUS
T/24P, WEST TASMANIA
BASE WANGERRIP GROUP
(BLUE)
TIME STRUCTURE

484010



AU-B-28C

5 cm

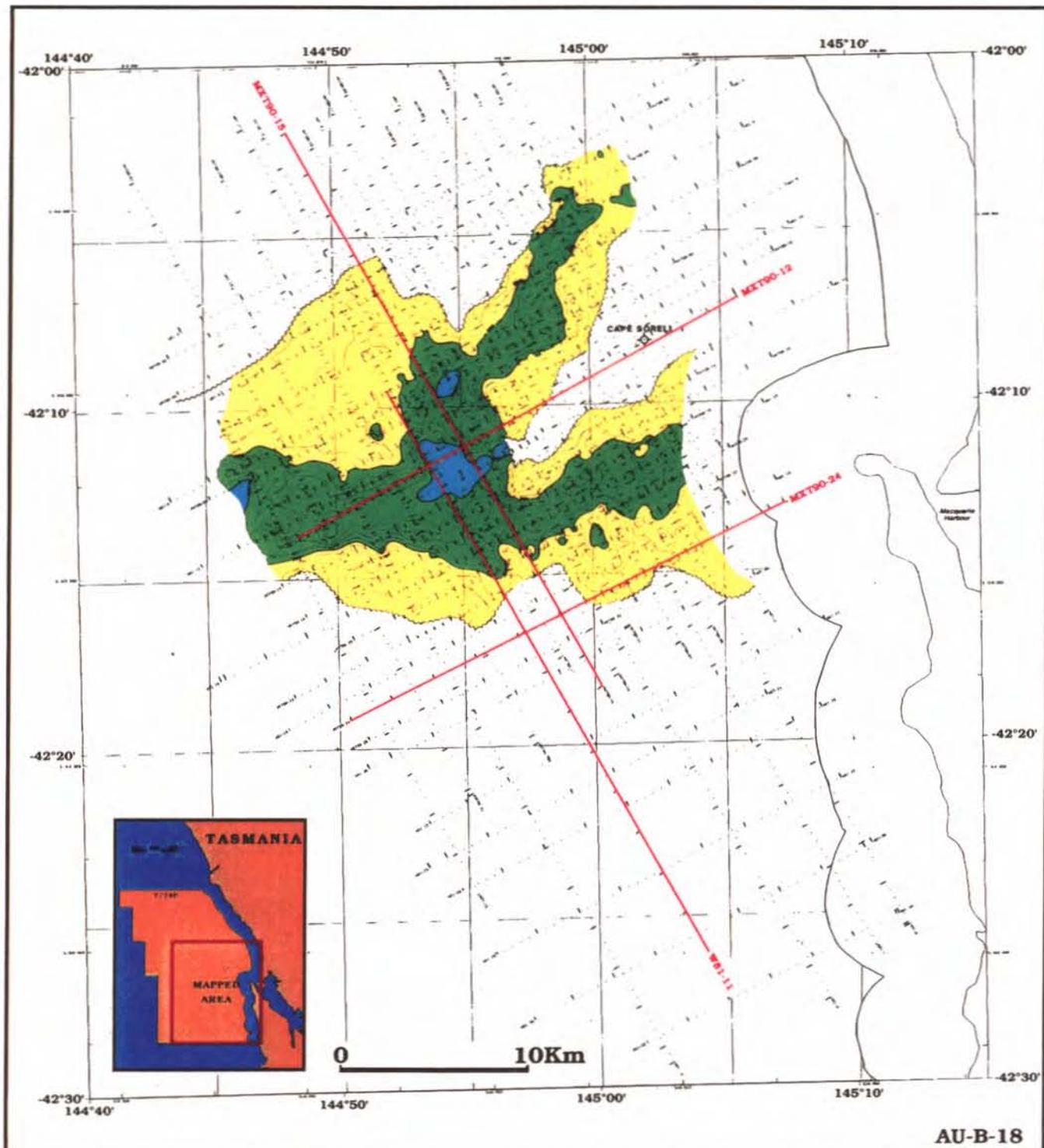
Sloop Point Prospect

Fig. 30

MAXUS

T/24P, WEST TASMANIA EOCENE LOWSTAND CHANNEL FILL (GREEN SECTION) ISOCHRON MAP

484041

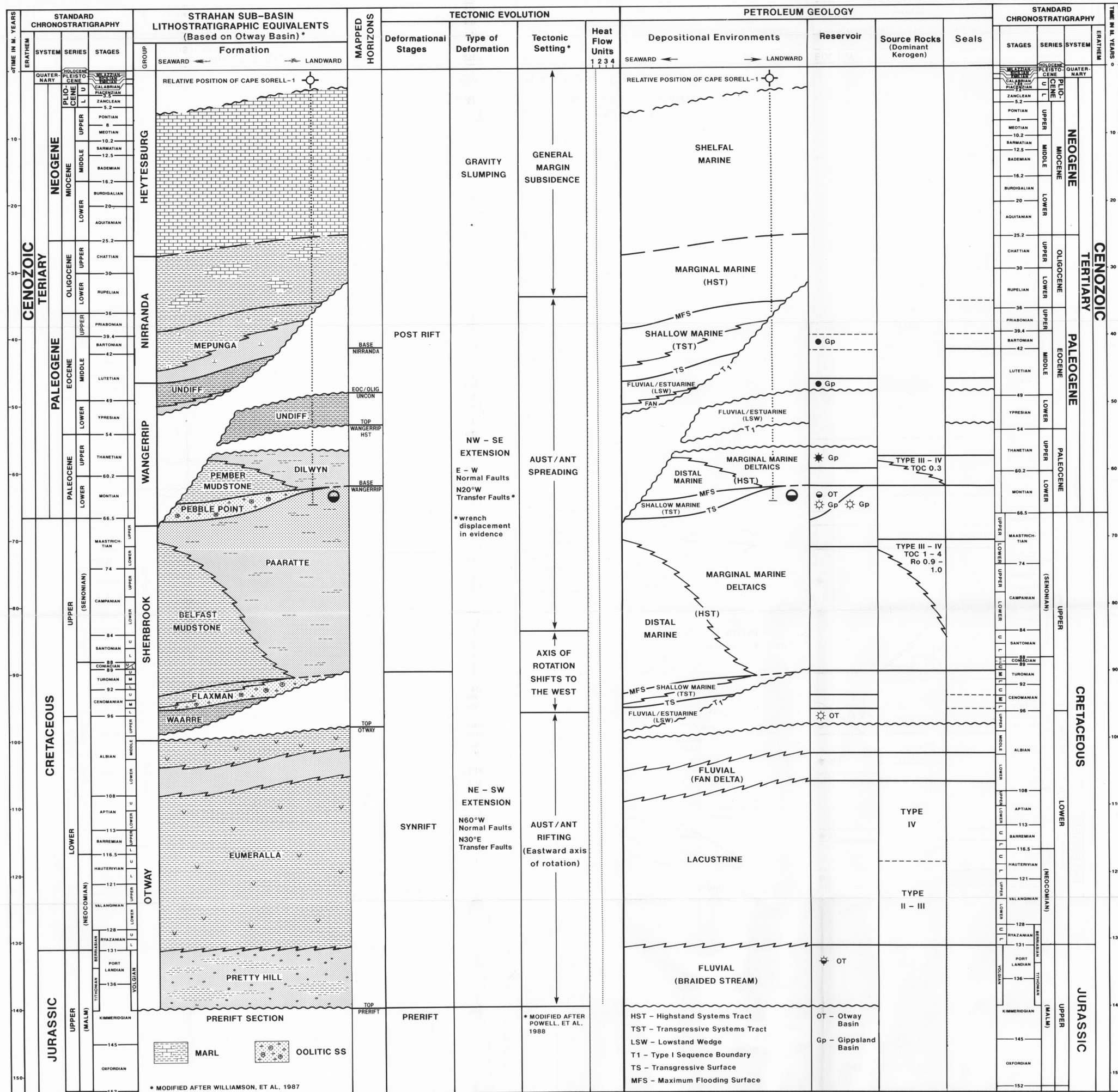


AU-B-18

5 cm

Fig-31

MAXUS
T/2 4 P BLOCK
STRAHAN SUB-BASIN, WEST TASMANIA
EXPLORATION CHART



* MODIFIED AFTER WILLIAMSON, ET AL. 1987

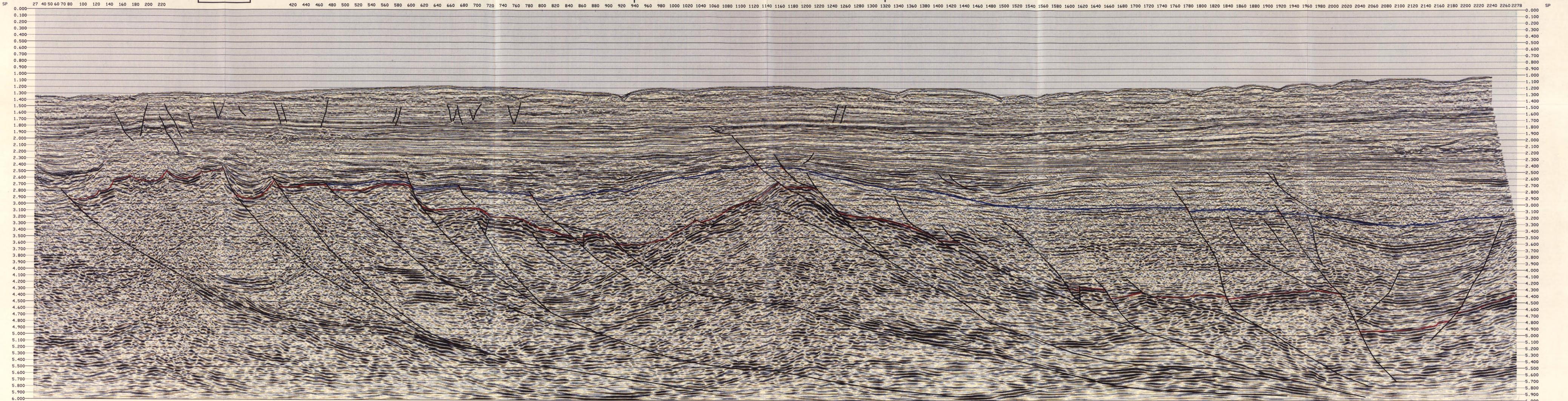
* MODIFIED AFTER POWELL, ET AL. 1988

NW

SE

NORTHERN STRAHAN WEDGEOUT LEAD

2 km



5 cm

MXT90-R1

484042

OR-0381

Enclosure 2