



PETROLLUM SIRESAN

VIC/P27 INTERPRETATION REPORT

VOLUME I

VIC/P27 Box

2 3 AUG 1990

English to a long and and an as to wood will

VIC/P27 INTERPRETATION REPORT

VOLUME I

V10/P27 Box

23 AUG 1990

A. F. McCutcheon February, 1990

Esso Australia Ltd.

Esso House, 127 Kent Street, Sydney 2000 GPO Box 4047, Sydney 2001 Phone: (02) 236 2911 Fax: (02) 236 5085 Telex: (AA) 120549

SYDNEY:

August 22, 1990

Director Energy Petroleum Division

YOUR REF:

D.I.E.P. 6th Floor

OUR REF:

61:AJM/smf (MGT)

151 Flinders Street
Melbourne VIC 3000

SUBJECT:

VIC/P27

2 3 AUG 1990



Dear Sir.

Attached are two copies of the "VIC/P27 Interpretation Report" by Esso Australia Resources Limited.

This report details the integrated geophysical interpretation of the VIC/P27 permit following acquisition of the G88A seismic survey. It complements the work described in the "Mulloway Well Completion Report" submitted in 1989.

The results of this mapping indicate that the only two drillable prospects, Mulloway and Snook, have been tested, and only the very high risk Mado lead remains.

Discussions on further plans for exploration in VIC/P27 are underway.

TAIL

Regards

GA. SHORT

Eastern/Regional
Division Manager

Attach.

0890GN:14

CONTENTS

		PAGE
1.	INTRODUCTION	1
2.	SEISMIC COVERAGE	1
3.	INTERPRETED HORIZONS	1
4.	DATA QUALITY	2
5.	WELL TIES	3
6.	TIME INTERPRETATION	3
7.	DEPTH CONVERSION AND VELOCITY ANALYSIS	5
8.	STRUCTURE/DEPTH MAPS	7
9.	CONCLUSION	7

TABLES

1.	WELL DATA	FLYING FISH-1
2.	WELL DATA	GOLDEN BEACH-A1
3.	WELL DATA	WHIPTAIL-1
4.	WELL DATA	MULLOWAY-1
5.	WELL DATA	WEST SEAHORSE-2
6.	INTERVAL VELOCI	TIES FOR DEPTH CONVERSION OVER PROSPECTS

DRAWING NO.

ENCLOSURES

ENCLOSURE	1	Seismic Data Coverage	10/-/8/03
LNOLOSOKE	2		104/B/93
`	3	Golden Beach-1A Synthetic Seismogram	2460/OP/30
		Whiptail-lA Synthetic Seismogram	2460/OP/31
	4	West Seahorse-2 Synthetic Seismogram	2460/OP/32
	5	Well Cross-Section Flying Fish-1 to Whiptail-1A	2463/OP/34
	6a	Interpreted Seismic Section G88A-9042	2453/OP/1
	6Ъ	Uninterpreted Seismic Section G88A-9042	2453/OP/2
	7 a	Interpreted Seismic Section 85E-05	2460/OP/33
	7Ъ	Uninterpreted Seismic 85E-05	2460/OP/35
	8a .	Interpreted Seismic Section G88A-9006	2460/OP/27
	8ъ	Uninterpreted Seismic Section G88A-9006	2460/OP/28
	9	Time Structure Map to Top "Coarse Clastics"	2460/0P/3
•	10	Time Structure Map to Mid N. asperus	**
		Seismic Marker	2460/OP/15
	11	Time Structure Map to Lower N. asperus	
		Seismic Marker	2460/OP/1
	12	VNMO to Top "Coarse Clastics"	2460/OP/18
	13	Conversion Factor to Top "Coarse Clastics"	2460/OP/19
	14	Average Velocity to Top "Coarse Clastics"	2460/OP/5
	15	Structure to Top "Coarse Clastics"	2460/OP/4
	16	Interval Velocity Top "Coarse Clastcis" to Mid	
•		N. asperus Seismic Marker	2460/OP/17
	17	Structure to Mid <u>N. asperus</u> Seismic Marker	2460/OP/16
	18	Interval Velocity Top "Coarse Clastics" to Lower	
•		N. asperus Seismic Marker	2460/OP/29
	19	Structure to Lower N. asperus Seismic Marker	2460/OP/2

1. <u>INTRODUCTION</u>

Mapping of VIC/P27 was undertaken in order to better define the two known prospects in the block and to search for new leads. The permit had been mapped in 1986 (for the gazettal of the block) using a $2 \, \text{km} \times 2 \, \text{km}$ grid of GSI spec. seismic. Shooting of the G88A survey provided a tighter grid of improved data quality. A 3D survey, also shot in 1988, covers the Whiptail and Mulloway oil discoveries in the south-eastern corner of the permit. This was interpreted in 1988.

The latest interpretation has produced more detailed maps of the two prospects, Snook and Mado, and has shown that Mado is actually two smaller structures. No new leads or prospects were identified.

2. **SEISMIC COVERAGE**

The G88A lines were planned based on the earlier interpretation of the GGSI-85A survey recorded by GSI. Dip lines run orthogonal to the interpreted fault orientation. Together, the two surveys form an approximately lkm x lkm grid of modern data over the permit, with a closer line spacing of 250m over the prospect leads (Enclosure 1). Some 1970 vintage lines also cross the permit but these were of such poor quality that they were not used in the interpretation. A few G80A lines were used to tie to wells outside the permit. All of the data were migrated.

3. **INTERPRETED HORIZONS**

Interpreted horizons were the base of the Miocene channel within the post-Latrobe section, the top "Coarse Clastics", the middle and lower N. asperus seismic markers and the P. asperopolus seismic marker.

The base of Miocene channel was a useful horizon for understanding depth conversion in the northern part of the permit. It was interpreted as a peak on seismic and carried over the entire area of the permit.

The top of "Coarse Clastics" of the Latrobe Group was defined as the zero crossing from a white trough to a black peak (Enclosures 2,3 & 4). This event is generated by the impedance contrast of the "Coarse Clastics" underlying the mudstones and siltstones of the Gurnard Facies. At Golden Beach-lA this marks the top of the gas reservoir.

The Middle N. asperus seismic marker is a strong continuous peak generated by a coal. It is conformable with reservoirs in the Seahorse and West Seahorse wells and is equivalent to the 40.5Ma sequence boundary, (Enclosure 5).

The Lower N. asperus seismic marker is also followed as the centre of a peak that is generated by a coal. At Mulloway-1 and Whiptail-1A the oil reservoirs lie directly beneath this coal. As such, the marker will define the primary objective for the southern part of VIC/P27. This horizon corresponds to the 48.5Ma sequence boundary.

The <u>P. asperopolus</u> marker is yet another event associated with a coal, 50Ma sequence boundary. This marker was interpreted in order to see if there is any change in the structuring with depth.

4. DATA QUALITY

The G88A survey was recorded by GSI using a 150 trace cable with 12.5m group interval and 25m shotpoint interval. The cable depth of 6m reduced the attenuation of the higher frequencies in the signal, see Enclosure 6b. This produced sections of superior quality to the previously recorded GSI data, see Enclosure 7b, which were recorded with an average streamer depth of 12m. This difference in frequency content resulted in some minor misties which were resolved by staying true to the G88A data and following the form of the GSI lines. Over the two prospects the grid at G88A lines was dense enough so as not to have to use earlier vintages of data.

Data quality was very good for the upper part of the Latrobe section, however, below the \underline{N} , asperus coals the quality deteriorates. This is probably due to attenuation of the signal by coals and the effects of additional interbed multiples. Continuity of nearly all the

interpreted horizons, except the <u>P. asperopolus</u> marker, is fairly good. The top "Coarse Clastics" reflection becomes weaker in the north of the permit probably because the section is less sandy so the impedance contrast between it and the overlying Gurnard Formation is not as great. Although the reflections from the coal markers at the <u>N. asperus</u> are generally strong and continuous, in the south-west near Flying Fish-1 and again in the north, the Middle <u>N. asperus</u> marker almost fades completely. This may be due to erosion of the coal that is producing the reflection or lithological variation of the section overlying it. The <u>P. asperopolus</u> marker is a weaker, more discontinuous event due to the previously mentioned problem of signal attenuation.

Fault definition is only fair, and becomes more difficult to interpret deeper in the section.

5. WELL TIES

Well depths for each horizon came from Gippsland Group well correlations, see Tables 1 to 4. Synthetic seismograms were generated for Whiptail-1A, Golden Beach-1A and West Seahorse-2 using the SINSYN programme (Enclosures 2,3 and 4). There is no velocity survey or sonic log for Flying Fish-1. The velocity survey for Golden Beach-1A is considered unreliable as it is necessary to apply a lag of 30msec to fit the synthetic to the seismic. There was good agreement between the seismic and the synthetics for Whiptail-1A and West Seahorse-2.

6. TIME INTERPRETATION

There is a moderate to high degree of confidence in the time interpretations for each of the horizons. The base of Miocene channel is a relatively poorly defined event on seismic and there is no marked change in log character with which to tie it down at the wells. However, one can still ascribe a moderate degree of confidence to the interpretation.

At the top of "Coarse Clastics" a relatively high degree of confidence can be assigned to the interpretation. The event is continuous and well defined despite losing amplitude in the north of the permit (Enclosure 8a,b). Very few faults cut the horizon.

The middle and lower \underline{N} . $\underline{asperus}$ seismic markers both have relatively high degrees of confidence. The reflections are fairly strong and continuous, with only minor faulting.

The <u>P. asperopolus</u> marker is a somewhat discontinuous and lower amplitude event which is broken by more faulting. Thus the confidence in the interpretation must diminish accordingly. Regionally the Middle and Lower <u>N. asperus</u> and <u>P. asperopolus</u> seismic markers are generally conformable. Therefore, no map was produced for this horizon.

There were primarily two surveys used in the mapping of the permit: the G88A survey and GSI's GGSI-85A spec shoot; the GSI-85A lines generally lagged the higher frequency G88A lines by 10msec. This amount was therefore subtracted from the 85E lines before the maps were contoured. Where minor misties still remained between the two sets of data the values from the G88A survey were honoured and the form of the GSI-85A lines was followed. In the case of small misties between dip and strike lines, the dip lines were honoured. The Whiptail-1A and West Seahorse-2 synthetic seismograms tied to the G88A data with no lag.

The regional interpretation of VIC/P27 was tied to the 3D mapping over Whiptail and Mulloway (Mulloway-1 Authorisation to Drill), and to interpreted lines around Seahorse.

Although the fault definition is only fair to poor, there can still be reasonable confidence in the fault correlations. The major faulting occurs in the south of the permit along the Whiptail-Mulloway-Flying Fish trend and in the north of the permit where the Rosedale Fault runs along the Seahorse-West Seahorse trend. Both of these areas are

covered by a relatively tight (250m line spacing) grid of G88A data, perpendicular to the fault orientation. Correlation from line to line can be made with a reasonable degree of confidence.

The new time mapping (Enclosures 9, 10 & 11) has not greatly altered the general form of the mapping completed immediately prior to the gazettal of the block. Most of the permit is dominated by the massive Golden Beach anticline. This feature was drilled in 1967 and encountered 18.75m of dry gas at the top of "Coarse Clastics". The structure is not full to spill. A DHI is produced by the gas-water contact. It is expressed as a flat lying strong trough and at the flanks the amplitude top of "Coarse Clastics" reflection decreases. The gas does not extend into VIC/P27, as shown on Enclosure 15.

In the south at VIC/P27 the structural trend of exploration interest is the Whiptail-Mulloway-Snook-Flying Fish anticlinal trend. This "anticlinal trend is set up by a series of east-west trending normal faults, developed as part of the early graben-forming phase, which later underwent compression in the Mid Eocene to Oligocene. This compression inverted the old normal faults and developed force folds along the zone of reactivation. Whiptail-lA, Mulloway-l and Flying Fish tested these structures. Flying Fish was apparently dry but Whiptail and Mulloway found oil reservoired below the coal of the Lower N. asperus marker; 18m in Whitptail-lA and 17.2m in Mulloway-l.

A similar trend exists in the north of VIC/P27. The WNW-ESE trending Rosedale Fault is another early normal fault associated with the graben-forming extensional phase of the basin history. This fault has also undergone Mid Eocene to Oligocene compression. Again, simple anticlinal closures develop along the reactivation zone. The Mado prospect is one of these. To the east of the permit, West Seahorse and Seahorse are other examples.

7. <u>DEPTH CONVERSION AND VELOCITY ANALYSIS</u>

Depth conversion in VIC/P27 was achieved by using a hand smoothed VNMO map (Enclosure 12) together with a conversion factor map (Enclosure

13) to produce an average velocity map (Enclosure 14) to the top of "Coarse Clastics". Interval velocity maps were used to compute isopachs from the top of "Coarse Clastics" to deeper intra-Latrobe horizons.

Velocity analyses were located at 500m intervals on the G88A seismic lines and at 1km intervals on the GSI 85E lines. DEMULT had been applied to the G88A lines before the determination of the VNMO. There were no significant channelling events in the post-Latrobe section so the velocity data were undistorted. Hand contouring and smoothing was a relatively straightforward process. The main feature of the VNMO map was that as the top of "Coarse Clastics" shallowed over the Golden Beach feature, the velocities slowed.

At each of the wells around the permit the average velocity to top "Coarse Clastics" was calculated from the seismic time and depth to the horizon. A conversion factor at each well was then calculated by the ratio of the average velocity to the VNMO. These values were plotted on a map and hand contoured. As the top "Coarse Clastics" shallowed the VNMO became closer in value to the average velocity i.e. the conversion factor approached one, so the time map was used as a guide for the contouring.

The resultant average velocity map looked fairly similar in form to the VNMO map, with slow velocities over Golden Beach, quickening as the top of "Coarse Clastics" became deeper.

To depth convert the mid and lower N. asperus seismic markers, interval velocity maps from the top of "Coarse Clastics" were used. This method was chosen in preference to using a constant well derived interval velocity because of the regional nature of the mapping, the variety of interval velocities from the surrounding wells, and the large differences in the burial depth of the intervals. The computer generated maps of interval velocities derived from the seismic VNMO's showed a large degree of scatter, probably due to the very thin intervals being used, and so were smoothed very heavily by hand using time maps as a guide and tying to the well-derived interval velocities.

Locally over each prospect constant, well derived interval velocities were used (Table 6). The resulting map was almost identical to that produced by the previous method. This occurred because the interval between the top of "Coarse Clastics" and the middle and lower \underline{N} . asperus are only relatively small and thus insensitive to slight variations in velocity.

8. STRUCTURE/DEPTH MAPS

The only significant differences between the time and depth maps of VIC/P27 occur over the two prospects, Snook and Mado.

The time closure of Snook, in the south, at the top of "Coarse Clastics" shows a dramatic reduction in areal extent when converted to depth. This is because the gradual slowing of the average velocity to the northwest over the prospect had created the broad, low relief western lobe to the time structure, while in depth it is in fact gradually shallowing. Similarly the depth maps to the N. asperus seismic markers at Snook have much smaller depth closure than their corresponding time closures.

To the north, the time closure at the top of 'Coarse Clastics' identified as the Mado lead, becomes two separate culminations when converted to depth. This occurs because the average velocity to the top "Coarse Clastics' is faster between the two depth closures than over the crests of the structures (Enclosure 14). This rather more complex structural picture may be related to the bend in the Rosedale Fault at this location. Deeper Intra-Latrobe maps have a similar structural picture, although these horizons are complicated by faulting.

9. CONCLUSIONS

This most recent interpretation of VIC/P27 has not enhanced the prospectivity of the permit. Most of the mapping is based on the G88A

survey data which is of good quality down to the upper Latrobe section, so a fairly high degree of confidence can be placed on the interpretation. No new prospects were found, however the two existing leads were better defined.

Detailed mapping of Snook matured the prospect to a drillable stage. The structure is simple and seismically well controlled, although, being located essentially down dip from a dry well, Flying Fish-1, it still had a high degree of risk. Snook-1 was drilled in January 1990 and was plugged and abandoned with no shows. The small errors in the depth predictions were due to minor differences in predicted and actual velocities, and small timing errors possibly due to the changed reflection character of the horizon. It is believed that the well was dry because there was no migration pathway from the mature source areas to the structure. The drainage area for Snook appears to be from the syncline to the South which would have also been the source area for Flying Fish, rather than from the area to the east which sources the oil for Whiptail and Mulloway.

Mado has now been mapped as two smaller closures. Each would require a separate well to test their oil potential and neither would hold a large volume. There are two main risks associated with the East and West Mado prospects. The first is the access to a mature source, as the prospects are located to the west of discoveries made along the northern fault margin. Secondly, there is a structural risk associated with the prospects. The time closure is relatively subtle and a slight alteration to the velocity model may decrease the amount of closure in depth, or conversely, may result in larger structures. Should it be possible to prove that East and West Mado are part of the larger structure, then the prospect will be more attractive. The current velocity interpretation however does not support this.

Although the seismic quality is poor beneath the N. asperus coals, well results to date do not suggest that there is any deeper potential in VIC/P27.

WELL DATA

WELL; FLYING FISH-1

			SEISMIC/					
	WELL	WELL	MAP	AVERAGE			VINT	
	DEPTH	2WT	2WT	VELOCITY	VNMO	CONVERSION (m/sec)	(m/sec)	
HORIZON (CODE)	(mSS)	(msec)	(msec)	(m/sec)	(m/sec)	FACTOR	from TCC	
								,
Top of 'Coarse Clastics'	,			6	0	Ç		
(2000)	1084	*	626	2331	2503	. 931	1	
								r u
Middle N. asperus				-	•			
Seismic Marker								
(2050)	1232	*	1030	•	ı	. •	2960	
				•				
Lower N. asperus								
Seismic Marker								
(2100)	1360	*	1100	1			3228	

* N.B. No velocity survey

WELL DATA

WELL: GOLDEN BEACH-1A

			SEISMIC/					
	WELL	WELL	MAP	AVERAGE			VINT	
	DEPTH	2WT	2WT	VELOCITY	VNMO	CONVERSION (m/sec)	(m/sec)	
HORIZON (CODE)	(mss)	(msec)	(msec)	(m/sec)	(m/sec)	FACTOR	from TCC	
Top of 'Coarse Clastics'								1
(2000)	635	*610	585	2171	2216	. 980	•	
Middle <u>N. asperus</u>								
Seismic Marker								
(2050)	811	*742	740	ı	1	ı	2270	
N .								
Lower N. asperus								
Seismic Marker								
(2100)	968	*828	830			•	2131	

* N.B. Unreliable checkshot survey

WELL DATA

			SEISMIC/					
	WELL	WELL	MAP	AVERAGE			VINT	
	DEPTH	2WT	2WT	VELOCITY	OMNO	CONVERSION (m/sec)	(m/sec)	
HORIZON (CODE)	(mSS)	(msec)	(msec)	(m/sec)	(m/sec)	FACTOR	from TCC	
op of 'Coarse Clastics'								1
2000)	1131	962	696	2334	2483	. 940	•	
iddle <u>N. asperus</u>								
eismic Marker								
2050)	1181	966	1001	•	•		3125	
ower <u>N. asperus</u>								
eismic Marker								
2100)	1351	1122	1130	•			2733	
				-				

WELL DATA

			SEISMIC/					
	WELL	WELL	MAP	AVERAGE	e.		VINT	
	DEPTH	2WT	2WT	VELOCITY	VNMO	CONVERSION (m/sec)	(m/sec)	·
HORIZON (CODE)	(SSm)	(msec)	(msec)	(m/sec)	(m/sec)	(m/sec) FACTOR	from TCC	
								1
Top of 'Coarse Clastics'								
(2000)	1149	896	616	2347	2462	. 953		
								٠
				•				
Middle <u>N. asperus</u>								
Seismic Marker			-					
(2050)	1194	1000	1015	1	ı	•	2500	
Lower <u>N. asperus</u>								
Seismic Marker								
(2100)	1353	1112	1131		. •		2684	
100)	1353	1112	1131			. •	•	- 2684

2364

1236

1526

Seismic Marker

(2100)

	•	VINT	(m/sec)	from TCC
			CONVERSION (m/sec)	(m/sec) FACTOR
-			VNMO	(m/sec)
		AVERAGE	VELOCITY	(msec) (m/sec)
	SEISMIC/	MAP	2WT	(msec)
		WELL	2WT	(msec)
		WELL	DEPTH	(mSS)
WELL: WEST SEAHORSE-2			•	HORIZON (CODE)

Top of 'Coarse Clastics' (2000)	1396	1134	1132	2466	2654	. 929	
Middle <u>N. asperus</u> Seismic Marker (2050)	1431	1162	1162			•	2333
Lower <u>N. asperus</u>							

INTERVAL VELOCITIES FOR DEPTH CONVERSION OVER PROSPECTS

PROSPECT	VINT TOP 'COARSE CLASTICS' TO MID N. ASPERUS MARKER	VINT TOP 'COARSE CLASTICS' TO LOWER N. ASPERUS MARKER
SNOOK	2815	2793
MADO :	2333	2364

MADO

This is an enclosure indicator page.

The enclosure PE807337 is enclosed within the container PE807336 at this location in this document.

```
The enclosure PE807337 has the following characteristics:
     ITEM_BARCODE = PE807337
CONTAINER_BARCODE = PE807336
             NAME = Seismic Data Coverage VIC/P27
            BASIN = GIPPSLAND
         ONSHORE? = N
        DATA_TYPE = SEISMIC
    DATA SUB TYPE = NAV MAP
      DESCRIPTION = Seismic Data Coverage. 1:25,000,
                    Enclosure 1 within Interpretation
                    Report, Volume 1 [PE807336]. VIC/P27,
                    Esso Exploration and Production
                    Australia Inc. Scale 1:25000
          REMARKS =
     DATE_WRITTEN = 30-MAR-1990
   DATE_PROCESSED =
    DATE_RECEIVED = 23-AUG-1990
    RECEIVED_FROM = Esso Exploration and Production
                    Australia Inc.
        WELL_NAME =
       CONTRACTOR =
           AUTHOR =
       ORIGINATOR =
        TOP_DEPTH =
     BOTTOM DEPTH =
   ROW_CREATED_BY = TK00_SW
```

This is an enclosure indicator page.

The enclosure PE807338 is enclosed within the container PE807336 at this location in this document.

```
The enclosure PE807338 has the following characteristics:
     ITEM_BARCODE = PE807338
CONTAINER_BARCODE = PE807336
            NAME = Time Depth Plot, Golden
                    Beach-IA, VIC/P27
            BASIN = GIPPSLAND
         ONSHORE? = N
        DATA_TYPE = SEISMIC
   DATA_SUB_TYPE = DIAGRAM
      DESCRIPTION = Time Depth Plot, Golden Beach-IA,
                    Enclosure 2 within Interpretation
                    Report, Volume 1 [PE807336]. VIC/P27,
                    Esso Exploration and Production
                    Australia Inc. Scale 1:25000
          REMARKS =
    DATE_WRITTEN = 30-MAR-1990
   DATE_PROCESSED =
   DATE_RECEIVED = 23-AUG-1990
   RECEIVED_FROM = Esso Exploration and Production
                    Australia Inc.
        WELL_NAME =
       CONTRACTOR =
           AUTHOR =
       ORIGINATOR =
        TOP_DEPTH =
     BOTTOM_DEPTH =
```

ROW_CREATED_BY = TK00_SW

This is an enclosure indicator page. The enclosure PE807339 is enclosed within the container PE807336 at this location in this document.

```
The enclosure PE807339 has the following characteristics:
     ITEM_BARCODE = PE807339
CONTAINER_BARCODE = PE807336
            NAME = Time Depth Plot, Whiptail-IA, VIC/P27
            BASIN = GIPPSLAND
         ONSHORE? = N
        DATA_TYPE = SEISMIC
    DATA_SUB_TYPE = DIAGRAM
      DESCRIPTION = Time Depth Plot, Whiptail-IA, Enclosure
                    3 within Interpretation Report, Volume
                    1 [PE807336]. VIC/P27, Esso Exploration
                    and Production Australia Inc. Scale
                    1:25000
          REMARKS =
     DATE_WRITTEN = 30-MAR-1990
   DATE_PROCESSED =
    DATE_RECEIVED = 23-AUG-1990
    RECEIVED_FROM = Esso Exploration and Production
                    Australia Inc.
        WELL_NAME =
       CONTRACTOR =
           AUTHOR =
       ORIGINATOR =
        TOP_DEPTH =
     BOTTOM_DEPTH =
   ROW_CREATED_BY = TK00_SW
```

This is an enclosure indicator page.

The enclosure PE807340 is enclosed within the container PE807336 at this location in this document.

```
The enclosure PE807340 has the following characteristics:
     ITEM_BARCODE = PE807340
CONTAINER_BARCODE = PE807336
            NAME = Time Depth Plot, West Seahorse-2
                    VIC/P27
            BASIN = GIPPSLAND
         ONSHORE? = N
       DATA_TYPE = SEISMIC
    DATA_SUB_TYPE = DIAGRAM
     DESCRIPTION = Time Depth Plot, West Seahorse-2,
                    Enclosure 4 within Interpretation
                    Report, Volume 1 [PE807336]. VIC/P27,
                    Esso Exploration and Production
                    Australia Inc. Scale 1:25000
          REMARKS =
     DATE_WRITTEN = 30-MAR-1990
   DATE_PROCESSED =
    DATE_RECEIVED = 23-AUG-1990
    RECEIVED_FROM = Esso Exploration and Production
                    Australia Inc.
        WELL NAME =
       CONTRACTOR =
           AUTHOR =
       ORIGINATOR =
        TOP_DEPTH =
     BOTTOM_DEPTH =
   ROW_CREATED_BY = TK00_SW
```

This is an enclosure indicator page.

The enclosure PE807341 is enclosed within the container PE807336 at this location in this document.

The enclosure PE807341 has the following characteristics: ITEM_BARCODE = PE807341 CONTAINER_BARCODE = PE807336 NAME = Structural Cross Section, VIC/P27 BASIN = GIPPSLAND ONSHORE? = NDATA_TYPE = WELL DATA_SUB_TYPE = CROSS_SECTION DESCRIPTION = Structural Cross Section, Flying Fish-1 to Whiptail-1A, Snook Post Drill, Enclosure 5 within Interpretation Report, Volume 1 [PE807336]. VIC/P27, Esso Exploration and Production Australia Inc. Vert. Scale 1:3000, Horiz. Scale 1:25000 REMARKS = DATE_WRITTEN = 30-JUN-1990 DATE_PROCESSED = DATE_RECEIVED = 23-AUG-1990 RECEIVED_FROM = Esso Exploration and Production Australia Inc. WELL_NAME = Whiptail-1A CONTRACTOR = AUTHOR = ORIGINATOR = TOP_DEPTH = BOTTOM_DEPTH = ROW_CREATED_BY = TK00_SW

This is an enclosure indicator page. The enclosure PE807342 is enclosed within the container PE807336 at this location in this document.

The enclosure PE807342 has the following characteristics: ITEM_BARCODE = PE807342 CONTAINER_BARCODE = PE807336 NAME = Line G88A-9042, Seismic Section, VIC/P27 BASIN = GIPPSLAND ONSHORE? = N DATA_TYPE = SEISMIC DATA_SUB_TYPE = INTERP_SECTION DESCRIPTION = Line G88A-9042, Seismic Section, Enclosure 6a within Interpretation Report, Volume 1 [PE807336]. VIC/P27, Esso Exploration and Production Australia Inc. REMARKS = DATE_WRITTEN = 30-DEC-1988 DATE_PROCESSED = DATE_RECEIVED = 23-AUG-1990 RECEIVED_FROM = Esso Exploration and Production Australia Inc. WELL_NAME = CONTRACTOR = AUTHOR = ORIGINATOR = TOP_DEPTH = BOTTOM_DEPTH =

(Inserted by DNRE - Vic Govt Mines Dept)

ROW_CREATED_BY = TK00_SW

This is an enclosure indicator page.

The enclosure PE807343 is enclosed within the container PE807336 at this location in this document.

The enclosure PE807343 has the following characteristics: $ITEM_BARCODE = PE807343$ CONTAINER_BARCODE = PE807336 NAME = Line G88A-9042, Seismic Section, VIC/P27 BASIN = GIPPSLAND ONSHORE? = NDATA_TYPE = SEISMIC DATA_SUB_TYPE = SECTION DESCRIPTION = Line G88A-9042, Seismic Section, Enclosure 6b within Interpretation Report, Volume 1 [PE807336]. VIC/P27, Esso Exploration and Production Australia Inc. REMARKS = DATE_WRITTEN = 15-DEC-1988 DATE_PROCESSED = DATE_RECEIVED = 23-AUG-1990 RECEIVED_FROM = Esso Exploration and Production Australia Inc. WELL_NAME = CONTRACTOR = AUTHOR = ORIGINATOR = TOP_DEPTH = BOTTOM_DEPTH =

ROW_CREATED_BY = TK00_SW

This is an enclosure indicator page.

The enclosure PE807344 is enclosed within the container PE807336 at this location in this document.

The enclosure PE807344 has the following characteristics: ITEM_BARCODE = PE807344 CONTAINER_BARCODE = PE807336 NAME = Line G85E-05, Seismic Section, VIC/P27 BASIN = GIPPSLAND ONSHORE? = NDATA_TYPE = SEISMIC DATA_SUB_TYPE = INTERP_SECTION DESCRIPTION = Line G85E-05, Seismic Section, Enclosure 7a within Interpretation Report, Volume 1 [PE807336]. VIC/P27, Esso Exploration and Production Australia Inc. REMARKS = DATE_WRITTEN = 28-OCT-1985 DATE_PROCESSED = DATE_RECEIVED = 23-AUG-1990 RECEIVED_FROM = Esso Exploration and Production Australia Inc. WELL_NAME = CONTRACTOR = AUTHOR = ORIGINATOR = TOP_DEPTH = BOTTOM_DEPTH = ROW_CREATED_BY = TK00_SW

This is an enclosure indicator page. The enclosure PE807345 is enclosed within the container PE807336 at this location in this document.

```
The enclosure PE807345 has the following characteristics:
     ITEM_BARCODE = PE807345
CONTAINER_BARCODE = PE807336
            NAME = Line G85E-05, Seismic Section, VIC/P27
            BASIN = GIPPSLAND
         ONSHORE? = N
        DATA_TYPE = SEISMIC
   DATA_SUB_TYPE = SECTION
      DESCRIPTION = Line G85E-05, Seismic Section,
                    Enclosure 7b within Interpretation
                    Report, Volume 1 [PE807336]. VIC/P27,
                    Esso Exploration and Production
                    Australia Inc.
          REMARKS =
     DATE_WRITTEN = 28-OCT-1985
  DATE PROCESSED =
    DATE RECEIVED = 23-AUG-1990
    RECEIVED_FROM = Esso Exploration and Production
                    Australia Inc.
        WELL_NAME =
       CONTRACTOR =
           AUTHOR =
       ORIGINATOR =
        TOP_DEPTH =
     BOTTOM_DEPTH =
   ROW_CREATED_BY = TK00_SW
```

This is an enclosure indicator page. The enclosure PE807448 is enclosed within the container PE807336 at this location in this document.

The enclosure PE807448 has the following characteristics: ITEM_BARCODE = PE807448 CONTAINER_BARCODE = PE807336

NAME = Line G88A-9006, Seismic Section, VIC/P27

BASIN = GIPPSLAND

ONSHORE? = N

DATA_TYPE = SEISMIC

DATA_SUB_TYPE = INTERP_SECTION

DESCRIPTION = Line G88A-9006, Seismic Section, Enclosure 8a within Interpretation Report, Volume 1 [PE807336]. VIC/P27,

Esso Exploration and Production

Australia Inc.

REMARKS =

DATE_WRITTEN = 13-DEC-1988

DATE_PROCESSED =

DATE_RECEIVED = 23-AUG-1990

RECEIVED_FROM = Esso Exploration and Production

Australia Inc.

WELL_NAME =

CONTRACTOR =

AUTHOR =

ORIGINATOR =

TOP_DEPTH =

BOTTOM_DEPTH =

ROW_CREATED_BY = TK00_SW

This is an enclosure indicator page. The enclosure PE807449 is enclosed within the container PE807336 at this location in this document.

The enclosure PE807449 has the following characteristics: ITEM_BARCODE = PE807449 CONTAINER_BARCODE = PE807336 NAME = Line G88A-9006, Seismic Section, VIC/P27 BASIN = GIPPSLAND ONSHORE? = NDATA_TYPE = SEISMIC DATA_SUB_TYPE = SECTION DESCRIPTION = Line G88A-9006, Seismic Section, Enclosure 8b within Interpretation Report, Volume 1 [PE807336]. VIC/P27, Esso Exploration and Production Australia Inc. REMARKS = DATE_WRITTEN = 13-DEC-1988 DATE_PROCESSED = DATE_RECEIVED = 23-AUG-1990 RECEIVED_FROM = Esso Exploration and Production Australia Inc. WELL_NAME = CONTRACTOR = AUTHOR = ORIGINATOR = TOP_DEPTH =

(Inserted by DNRE - Vic Govt Mines Dept)

BOTTOM_DEPTH =

ROW_CREATED_BY = TK00_SW

This is an enclosure indicator page.

The enclosure PE807450 is enclosed within the container PE807336 at this location in this document.

```
The enclosure PE807450 has the following characteristics:
     ITEM_BARCODE = PE807450
CONTAINER_BARCODE = PE807336
            NAME = Time Structure Map, VIC/P27
            BASIN = GIPPSLAND
         ONSHORE? = N
        DATA_TYPE = SEISMIC
    DATA_SUB_TYPE = HRZN_CONTR_MAP
      DESCRIPTION = Time Structure Map, 1:25,000, Top
                    'Course Clastics'. Enclosure 9 within
                    Interpretation Report, Volume 1
                    [PE807336]. VIC/P27, Esso Exploration
                    and Production Australia Inc. Scale
                    1:25000
          REMARKS =
     DATE_WRITTEN =
  DATE_PROCESSED =
    DATE_RECEIVED = 23-AUG-1990
   RECEIVED_FROM = Esso Exploration and Production
                    Australia Inc.
        WELL_NAME =
       CONTRACTOR =
           AUTHOR =
       ORIGINATOR =
        TOP_DEPTH =
     BOTTOM_DEPTH =
   ROW_CREATED_BY = TK00_SW
```

This is an enclosure indicator page.

The enclosure PE807451 is enclosed within the container PE807336 at this location in this document.

The enclosure PE807451 has the following characteristics: ITEM_BARCODE = PE807451 CONTAINER_BARCODE = PE807336 NAME = Time Structure Map, VIC/P27 BASIN = GIPPSLAND ONSHORE? = NDATA_TYPE = SEISMIC DATA_SUB_TYPE = HRZN_CONTR_MAP DESCRIPTION = Time Structure Map, 1:25,000, Mid N.asperus Seismic Marker, Enclosure 10 within Interpretation Report, Volume 1 [PE807336]. VIC/P27, Esso Exploration and Production Australia Inc. Scale 1:25000 REMARKS = DATE_WRITTEN = DATE_PROCESSED = DATE_RECEIVED = 23-AUG-1990 RECEIVED_FROM = Esso Exploration and Production Australia Inc. WELL_NAME = CONTRACTOR = AUTHOR = ORIGINATOR = TOP_DEPTH = BOTTOM_DEPTH = ROW_CREATED_BY = TK00_SW

This is an enclosure indicator page. The enclosure PE807452 is enclosed within the container PE807336 at this location in this document.

```
The enclosure PE807452 has the following characteristics:
     ITEM_BARCODE = PE807452
CONTAINER_BARCODE = PE807336
            NAME = Time Structure Map, VIC/P27
            BASIN = GIPPSLAND
         ONSHORE? = N
        DATA_TYPE = SEISMIC
    DATA_SUB_TYPE = HRZN_CONTR_MAP
      DESCRIPTION = Time Structure Map, 1:25,000, Lower
                    N.asperus Seismic Marker, Enclosure 10
                    within Interpretation Report, Volume 1
                    [PE807336]. VIC/P27, Esso Exploration
                    and Production Australia Inc. Scale
                    1:25000
          REMARKS =
     DATE_WRITTEN =
   DATE_PROCESSED =
    DATE_RECEIVED = 23-AUG-1990
    RECEIVED_FROM = Esso Exploration and Production
                    Australia Inc.
        WELL_NAME =
       CONTRACTOR =
           AUTHOR =
       ORIGINATOR =
        TOP_DEPTH =
     BOTTOM_DEPTH =
   ROW_CREATED_BY = TK00_SW
```