W860

WCR
CHIMAERA-1
(W860)

SHELL-AUSTRALIA E. & P. OIL AND GAS

OIL and GAS DIVISION

SDA 610

CHIMAERA-1
WELL COMPLETION REPORT
GIPPSLAND BASIN
OFFSHORE VICTORIA
(VIC/P19)

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SHELL DEVELOPMENT (AUSTRALIA) PTY LTD

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1. SUMMARY

Chimaera-1 was the seventh well to be drilled in Permit VIC/P19. It was spudded on 28/3/84 by the semi-submersible rig "Nymphea" and plugged and abandoned on 17/5/84 after reaching a total depth of 3826m with no significant hydrocarbons encountered.

The well was drilled about 1km to the north of Manta-1, which found 28.3m net oil sand and 73.1m net gas/condensate sand in Campanian/Santonian sediments. The main objectives in Chimaera-1 were the coastal plain sandstones between the intra and Lower Campanian markers which contained oil in Manta-1, and alluvial sandstones within the volcanic sequence which contained gas and condensate in Manta-1.

The upper objective in Chimaera-1 was found to be water wet. Log interpretation indicates 4.3m of possible gas in a 54m sandstone within the volcanics.

Lack of lateral seal is seen as the main reason for the failure of Chimaera-1 to contain significant hydrocarbons. This was a high risk associated with the prospect. Repeat Formation Test data indicate the Manta fault is sealing below 3230m. This may provide a lateral seal for the 39m gas/condensate accumulation at 3274m in Manta-1, which appears to be juxtaposed against a sandy sequence in the Chimaera block. The possibility also exists that minor rollover into the fault combined with partial juxtaposition of volcanics could result in the Manta gas being trapped in a small fault-assisted dip closure.

2. INTRODUCTION

Chimaera-1 was the seventh well to be drilled by Shell in offshore exploration permit VIC/P19, in partnership with News (20%), TNT (20%), Crusader (15%), and Mincorp (5%).

Chimaera-1 was drilled 1km to the north of Manta-1 to test the hydrocarbon potential of the Campanian/Santonian sequence which contained hydrocarbons in Manta-1.

Lateral seal was a high risk associated with the prospect as a facies change within the Campanian sequence to a more sandy facies north of the Chimaera fault was predicted from seismostratigraphic interpretation.

The objectives were the Campanian coastal plain sequence above the volcanics which contained oil in Manta-1 and the Campanian/Santonian sandstones within the volcanics, one of which contained gas and condensate in Manta-1. Upthrown, tight, Strzelecki Group sediments were predicted as the lateral seal for the deeper objective. As the stratigraphy was predicted to become more sandy to the north the possibility existed that the hydrocarbon accumulations in Manta-1 continued across into the Chimaera block.

3. WELL HISTORY CHIMAERA-1

3.1 Summary of Well Data

Well Classification	: Expendable exploration well
Location Co-ordinates	: Lat: 38°15' 56.37" S
	: Long: 148°43' 19.16" E
Contractor/Rig	: Foramer/Nymphea
Derrick Floor Elevation	: 25m above MSL
Water Depth	: 129.6m
BOP Stack	: 10,000 psi 18-3/4" Cameron
Start of Operations	: 1715 hrs 23.03.84
Spudded	: 2315 hrs 28.03.84
Abandoned	: 2400 hrs 17.05.84
End of Operations	: 2230 hrs 19.05.84
Objective	: Upper Cretaceous Sandstones in the Latrobe Group
Total Depth	: 3826m
Formation at TD	: Upper Cretaceous Sandstones of the Latrobe Group
Results	: Dry hole, P&A
Casing Record	: 30" at 202m 20" at 653m 9-5/8" at 1957m

Logs

DLL/MSFL/GR/SP/CAL 200 + 500 : 1936-653m
LDL/GR/CAL 200 + 500 : 1932-653m
LSS/GR 200 + 500 : 1932-653m
CBL/CCL/VDL/GR : 1933-300m

DLL/MSFL/GR/SP/CAL : 3183-1957m
LDL/CNL/GR/CAL : 3186-1957m

DLL/MSFL/GR/SP/CAL 200 + 500 : 3556-3100m
LDL/CNL/GR/CAL 200 + 500 : 3560-3100m
BHCS/GR 1:200 + 500. : 3558-1957m
HDT 200 : 3558-1957m
WST : 24 levels
RFT : 3544-2016.5m (23 pre-tests)
RFT : Segregated sample at 3101m

DLL/MSFL/GR/SP/CAL : 3822-3495m
LDL/CNL/GR/CAL : 3825-3495m
BHCS/GR : 3824-3495m
HDT : 3825-3495m
CST : Fired 100, recovered 85

Production Testing

None.

3.2 Site Survey

A site survey over the Chimaera and Manta locations was included in the post-drill clearance surveys over Basker-1 and Hammerhead-1.

As the objective of the clearance survey was to locate any material left on the seabed after drilling only side scan sonar was proposed. Adequate knowledge of the seabed regarding anchor-holding capabilities had been obtained in previous surveys and it was not considered necessary to carry out further shallow seismic investigations.

Previous use of side scan sonar on surveys in the permit had given inadequate results due to the retrieval winch and length of tow cable used. Hence for the tender for this operation, particular attention was paid to obtaining a remote controlled high speed winch with 1000m of cable. This enabled the side scan fish to be maintained at a distance above the seabed that would give the resolution required.

The contract was awarded to Geomex Surveys for the provision of the side scan, while the positioning for the line navigation was carried out under the existing positioning contract with Geometra Survey Services.

The equipment was installed on board the supply vessel "Herdentor" and timed at a period when the boat was not fully utilised in its supply task. The operation was carried out between 2nd and 15th October, 1983.

Problems were encountered with cross-talk between the two channels due to the poor quality and length of the cable. However the results produced were a significant improvement over those obtained previously. Chain scours and areas of slumping were clearly visible, and the method proves an economical and effective means of identifying this type of danger to drilling.

The region around the Chimaera site was shown to be well away from the slumped zones, in a flat, featureless environment.

Detailed description of this survey is described in References 1 and 2.

3.3 Rig Navigation and Positioning

3.3.1 General

Positioning was provided by Geometra Survey Services (previously known as BTW) using a Syledis B radio positioning system interfaced to a Hewlett Packard 25 computer. Software was provided by the contractor using their "Hydronav" package. Computations were checked throughout the operation using a NC PC8201A computer.

The time taken for the move was excessive due to unfortunate incidents in the logistics, and bad weather conditions. The positioning was supervised by G.M. Mason, Survey Consultant to Shell Development and details of the operations are found in Reference 3.

3.3.2 Operations

As the rig only needed to be moved due north by about 900m from the Manta location, it was decided that the normal method of moving the rig would not be used. A plan was adopted to lift all the anchors leaving chasers on nos. 3 and 6 attached to the two supply vessels, the Lady Penelope and the Herdentor. The rig would then be moved using the power of the thrusters over to where anchor no. 7 was to be dropped. After releasing this anchor the rig would then be navigated along to the well location, laying out the chain. The remainder of the anchors could be run conventionally.

The rig was navigated using a Syledis positioning system interfaced to a Hewlett-Packard 9825 computer. The main antenna was installed on the top of the derrick directly over the drill-floor. Hence no buoys were used to pre-mark the positions which were clearly represented on the graphics display and plotter.

With anchors nos. 1,2,4,5 and 8 racked, the Lady Penelope on no.3 and the Herdentor on no.6, no.7 was left as the last to be retrieved. By winching in on this chain, the rig would reverse over to its location where the anchor could be picked up directly from the seabed without the use of any supply vessels.

This operation commenced with a wind of 23 knots from 80° with moderate seas, and the first 1200m of chain on no.7 was hauled in without any difficulty. Using the navigation facilities in the control room it was then deduced that the amount of chain left was some 300m greater than the calculated distance to the anchor position. Hence there would be some slack chain on the seabed. At the same time the Herdentor, which was on the starboard side, was having some difficulties in obtaining sufficient lateral movement with her thrusters to keep up with the rig movement. She requested that she be given time to catch up and winching was ceased. For reasons which can not be fully understood, the rig commenced a clockwise rotation from its original heading of 225°. It was not possible for the supply vessels on the anchors to rotate at the same rate and they were forced closer to the side of the rig.

The Herdentor managed to apply sufficient thrust to keep itself from touching the starboard side. The Lady Penelope however was forced onto the port side and reduced the tension on the anchor chain. The anchor then fell out of the chaser ring around it's shank, onto the seabed.

The rig rotation eventually stopped when it had passed through some 225° and settled on a heading of 165°.

The Penelope reversed herself along the chain to the front of the rig and was eventually detached from the penant chaser. Unfortunately in the process it was dropped into the water and not racked. While attempting to haul in on anchors no.7 and no.3, it became obvious they were entangled.

The Lady Penelope was then attached to the bridle to maintain stability. Attempts to disentangle by heaving alternatively on the two anchors were unsuccessful. Eventually no.7 anchor was brought into its position on the cow catcher with no.3 anchor cradles in its fluke.

With steadily worsening sea conditions, the rig which had been swung to a heading of 80°, heaved to into weather.

In order to create a lee on the port side the rig was turned to a northerly heading. Attempts were then made to grapple the no.3 anchor foul of no.7. During this process, the rig drifted slowly towards the Esso 'Tuna' production platform, and into a restricted shipping zone. Maritime authorities were informed and communications with the platform maintained in order to explain the situation.

Anchor no.3 was successfully grappled, and the attached cable was passed to the Herdentor. By tugging in various directions, and letting out chain on no.7 the two anchors were separated and returned to their racks.

Meanwhile Esso decided to abandon the Tuna platform as the Nymphea, although under control, was heading directly for it.

Having encroached approximately 1 mile into the restricted area, the rig was then turned around and towed east out of the zone.

With slight improvement of the weather, the rig was set on a course to drop off anchor no.6 in its required position for the Chimaera location. Following a 10km run-in line, it was deposited approximately 1500m from the well location.

Sea conditions were not sufficiently improved to run additional anchors, and the rig was held on location using the thrusters, and the Lady Penelope still on the bridle.

With improvement of the weather, all the remaining anchors except no.3 (whose pennant was in the water) were run. The swell was too great to allow divers to operate, and it was fortunately grappled with the crane. Extreme weather conditions meant that it could only be run some two days later, when the positioning and final anchor tensioning was completed.

The final anchor pattern set out is somewhat distorted due to the positioning of anchor nos. 3 and 5. These were run by the Lady Penelope whose gyro was malfunctioning during the move, and their position is only estimated.

3.3.3 Gyro Reference Marker Directions

For gyro surveys made on the Nymphea, the direction of a line from the drill floor to a reference marker needed to be accurately determined.

From the position of this well, a number of Esso production platforms could be seen. These have been accurately surveyed by means of a laser traverse, and their co-ordinates are known to within a metre. Ideally, these should be used as reference markers as their directions from the 'Nymphea' are stable and accurate to within a minute of arc.

Using these as accurate indicators, the direction of the line was determined using a sextant to measure the angle between the line and the bearing to the platform positions. The final direction is:

Chimaera-1 (drill floor) to reference marker = 276° 34'

3.3.4 Rig Orientation

A rig heading of 270° as used for the majority of previous locations was adopted. It had been found satisfactory, and no significant change in the wind patterns were expected.

3.4 Drilling History

Following the end of operations at Manta-1, at 1715 hours on 23/3/84, Nymphea was towed to the Chimaera-1 location (1km). Due to the poor weather conditions at the time, approximately 4 days were lost, and a total of 5 days were spent on the rig shift and anchoring operation.

After completing the running of the anchors and pretensioning to 180-200 tons, the temporary guide base was run and set at 155 mbdf. The 36" BHA was made up, and Chimaera-1 spudded at 2315 hours on 28/3/84. The 36" hole was drilled to 208m and circulated to viscous mud. Four joints of 30" casing together with permanent guide base were run and the casing cemented with returns to the seabed.

The shoetrack and pocket were cleaned with a 26" bit and then a 12-1/4" pilot hole was drilled to 662m. The 26" BHA was made up and the hole opened to 26" using seawater and viscous pills. The hole was displaced to mud, and 40 joints of 20" casing were run and landed with the shoe at 653m. The casing was then cemented with returns to the seabed. After waiting on cement for 8 hours, the running tool was released and pulled out of the hole. The divers inspected the wellhead and found excess cement piled up to within 1 foot of the top of the wellhead. It was not possible to remove the excess cement with the diving bell, and it was necessary to jet the cement away from the wellhead using a 12-1/4" bit.

The BOP and riser were run, landed and tested in 24 hours. After making up the 17-1/2" drilling assembly and tagging cement at 647m, the shoe track and pocket were drilled out with seawater. The hole was displaced to mud, and a leak off test performed, giving an equivalent maximum mud gradient of 1.58 sg. A 12-1/4" assembly was made up, and 12-1/4" hole drilled to 1965m in 2 bit runs and 4 days. The main problem experienced with this hole section was sticky hole, and hydrating clays in the Lakes Entrance Formation.

On the first attempt to run Schlumberger, the logging tool held up at 1355m. A checktrip was carried out and the section 1340-1365m washed and reamed. Thereafter the following logging runs were made: DLL/MSFL/GR/CAL/SP, LDL/GR/CAL, LSS/GR. On each of the logging runs, the tool held up at 1930-1940m.

After waiting for 10 hours on an AWU union meeting, a checktrip to bottom was carried out, and the hole circulated clean. 154 joints of 9-5/8" 47 lb/ft N80 casing were run and landed with the shoe at 1957m. The casing was cemented and the cement displaced with mud. The top plug failed to bump during the displacement. The seal assembly was energised and the BOP stack tested. The running tool was pulled and laid down with the top plug still attached. The 9-5/8" wearbushing was set and the 8-1/2" BHA made up and run in hole to the top of the float collar at 1933m. On circulating bottoms up the mud was found to be heavily contaminated with cement. The decision was made not to proceed immediately with drilling out the shoe track, and the bit was pulled out of the hole.

An Eastman gyro multishot survey was carried out, followed by a Schlumberger CBL/CCL/VDL/GR run. The CBL indicated that the bottom 10 joints of casing were inadequately cemented. The interval 1857-1857.3m was perforated and after setting an EZ drill packer at 1931m, attempts were made to establish circulation. Despite reaching 3000 psi, circulation was not achieved. An 8-1/2" bit was made up and the EZ drill packer and shoe track carefully drilled out. After pulling out of the hole, an RTTS packer was picked up and set at 1500m. The casing was tested to 3500 psi. The RTTS packer was run in the hole again and set at 1925m. Attempts to establish circulation failed and the RTTS packer was laid down. The decision was made to drill ahead without further attempts at remedial cementing. In total approximately 4 days had been lost in attempting to provide better cement bond around the casing shoe.

New formation was drilled to 2015m and a leak off test carried out (EMG 1.66 sg). 8-1/2" hole was drilled to 3188m in 14 days using 6 bit runs. No special drilling problems were encountered during this section, except for occasional overpulls (up to 40 t) whilst making roundtrips/checktrips. Intermediate logs were run as follows: DLL/MSFL/GR/SP/CAL, LDL/CNL/GR.

Schlumberger was rigged down, and a BOP stack test carried out. The interval to 3560m was drilled in 6-1/2 days and 3 bit runs. The following logs were then run: DLL/MSFL/GR/CAL/SP, LDL/CNL/GR/CAL, BHCS/GR, HDT, WST (24 levels), RFT (1 run, 23 pre tests, sample at 3101m).

The decision was made to continue drilling and the interval to 3826m (TD) drilled in 5 days and 2 bit runs. The following TD logs were run: DLL/MSFL/GR/CAL/SP, LDL/CNL/GR/CAL, BHCS/GR, HDT, CST (2 runs, fired 102, recovered 85)

The decision was made to plug and abandon and the following cement plugs were set: Plug 1: 3150-2950m
2900-2750m
1987-1763m (tagged with 5t)
208-202m

The riser and BOP were retrieved and secured. Four runs were required with the Halliburton JRC explosives to retrieve the wellhead housing, casing and PGB/TGB. The divers carried out a seabed survey and found no debris.

All Shell equipment and service company equipment was backloaded and anchors pulled. At 2230 hours 19/5/84 the Nymphea was off charter to Shell and on tow to South Africa.

3.5 List of Contractors, Service Companies and Main Equipment

The Nymphea was brought into Australian waters under a one year contract between Shell Development (Australia) Pty. Ltd. and Foramer S.A.

The following contractors and service companies had contracts with Shell Development (Australia) for the duration of the one year drilling programme:

Drilling Contract	:	Foramer S.A.
Supply Vessels	:	Australian Offshore Services Vessels used - Herdentor - Lady Penelope
Helicopter Services	:	Commercial Aviation 2 x Bell 212 Helicopters
Electric Logging	:	Schlumberger
Mud Logging	:	Exlog Gemdas Unit
Subsea Support Services	:	Solus Ocean Systems OMBV System
Surface Production Testing	:	Flopetrol Schlumberger
Cementing Services	:	Halliburton Australia
Mud Service and Materials	:	Baroid Australia Pty. Ltd.

Main Equipment

Drilling Vessel Design Semi-submersible	: Enhanced Pacesetter
Drilling Vessel Built	: 1982 Hitachi Zosen
Derrick	: 160 ft, 1,000,000 lbs
Drawworks	: National 1625DE 16,000-25,000 ft rating
Mud Pumps	: National 12P 150 7*12
BOP's	: Cameron 18-3/4" 10,000 psi
Wellhead Equipment	: Vetco SG-5
Anchors	: 8 x 20 Stevin type anchors 8 x 3" chain 3 - breaking load 474 MT
Cementing Unit	: Halliburton
Solids Control Equipment	: - Harrisburg triple tandem shale shaker - Pioneer Sandmaster Desander T8-6 capacity 800 GPM - Pioneer Siltmaster Desilter T16-4 800 GPM - Thule VMS 200 Mud Cleaner 16 cones - 1 Swaco degasser

3.6 Drilling Data

3.6.1 Bit Record

See Table 1: Bit Record

3.6.2 Casing Summary

See Table 2: Casing Summary

3.6.3 Cement Summary

See Table 3: Cement Summary

TABLE 1: BIT RECORD SUMMARY - CHIMAERA-1

Run No.	Bit No.	Hole Size (ins)	Bit Type	Jet Size			Depth Out (m)	Metres	Hours	WOB (mt)	RPM	Flow (1/min)	Press. (psi)	Mud Wt SG	Mud Vis (sec)	Dull Code T	Dull Code B	Dull Code G	Remarks
1	1	26	DSJ	20	20	20	208	53	4.25	0/2	30/40	3300	700	Seawater		2	4	I	
2	1	26	DSJ																Drilled cement
3	2	12-1/4	SDS	20	20	20	662	454	20.75	0/2	100	3300	1350	Seawater		1	1	I	Pilot hole
4	1	26	DSJ	20	20	20	660	452	31.5	5/8	75	3200	2000	Seawater		2	5	I	Opened hole
5	2	12-1/4	SDS																Jetted cement around wellhead
6	3	17-1/2	DSJ	16	16	16	663	3	0.25	5/7	70	3300	1000	1.07	38	2	8	I	Drilled shoe etc. Two cones locked
7	4	12-1/4	SDS	13	13	13	1470	807	45.25	18	160	3300	3050	1.10	39	3	7	I	31.25 hours on bottom
					12														
8	5	12-1/4	SDS	13	13	13	1965	495	28.75	15/18	160	3300	3050	1.10	41	2	3	I	POH to log
					12														
9	5	12-1/4	SDS	12	12	12	1965							1.13	41				Clean out trip
					12														
10	5	12-1/4	SDS	13	13	13	1965							1.13	37				Wipertrip
11	6	8-1/2	SDS	11	11	11	1933							1.13	34				Clean out trip
12	7	8-1/2	SVH	16	16	16	1965		7.5	2/4	40/70	1600	1600	1.10	35	8	2	I	Drilled shoe etc.
13	8	8-1/2	FDGH	11	11	11	2015	50	9.0	5/8	80	1570	1600	1.12	44	4	2	I	8.5 hours on bottom
14	9	8-1/2	F2	10	11	11	2172	157	14.25	8/15	60/70	1560	2250	1.12	45	1	2	I	11.7 hours on bottom
15	10	8-1/2	S226	TFA: 0.60			2290	118	22.75	3/10	80/115	1470	1300	1.12	45	25% worn			20.6 hours on bottom
16	11	8-1/2	F2	10	11	11	2584	294	50.5	15/17	70	1500	2500	1.12	42	3	6	I	44.8 hours on bottom
17	12	8-1/2	F2	10	11	11	2818	234	48	17	70	1500	2500	1.12	45	3	6	1	43.8 hours on bottom
18	13	8-1/2	F3	10	11	11	3008	190	51.25	16	65	1500	2600	1.13	43	2	5	1	47.7 hours on bottom
19	14	8-1/2	F3	10	11	11	3188	180	51.25	16	65	1500	2600	1.14	46	8	8	1	47.3 hours on bottom
20	15	8-1/2	SVH	10	11	11	3201	13	5.75	8/12	70	1500	2600	1.13	44	6	2	I	Drilled junk
21	16	8-1/2	F4	10	11	11	3370	169	48.75	17	60	1550	2800	1.14	44	6	4	½	45.5 hours on bottom
22	17	8-1/2	F4	10	11	11	3560	190	57.25	17	60	1550	2800	1.14	42	5	4	I	52.9 hours on bottom
23	18	8-1/2	F4	10	11	11	3743	183	59.75	18	65	1500	2200	1.14	43	2	4	I	53.7 hours on bottom
24	19	8-1/2	F4	10	11	11	3826	83	19.75	18	65	1500	2800	1.15	43	2	2	I	17.8 hours on bottom

TABLE 2: CASING SUMMARY - CHIMAERA-1

29.03.84	30	B	310	ATD	208	4 joints
02.04.84	20	X52/X56	133	Vetco LS/ Cameron LW	653	3515 joints. 18-3/4" 10,000 psi SG-5 wellhead system
11.04.84	9 5/8	N80	47	BTC	1957	154 joints.

TABLE 3: CEMENT SUMMARY - CHIMAERA-1

Date	Job Description (mbdf)	Hole Size / Depth (mbdf)	Casing Shoe (mt)	Cement Used (mt)	Slurry Weight SG	Mixwater/ Additives	Remarks
29.03.84	30" csg	36" / 208	202	6.8 Class G 9.1 Class G	1.54 1.9	Freshwater plus 2% $CaCl_2$ 2.5% Gel, Total 14.15 m^3 Neat seawater 8.9m^3	Returns to seabed observed by diving bell Design Figures: Lead: 1.27m^3 slurry/mt cement 0.48m^3 mixwater/mt cement Tail: 0.76m^3 slurry/mt cement 0.44m^3 water/mt cement
02.04.84	20" csg	26" / 662	653	37.6 Class G 10.9 Class G	1.48 1.9	2% BWOC $CaCl_2$ 3% BWOW bentonite freshwater 94m^3 10.6m^3 drillwater	Returns observed to seafloor Design Figures: Lead: 1.46m^3 slurry/mt cement 1.13m^3 mixwater/mt cement Tail: 0.76m^3 slurry/mt cement 0.44m^3 water/mt cement
11.04.84	9-5/8" csg	12-1/4" / 1965	1957	42.5 Class G 5 Class G	1.48 1.9	3% BWOW Bentonite freshwater 48m^3 0.2% BWOC HR-7 in drillwater 2.2m^3	TOC $\pm$500m Design Figures: Lead: 1.46m^3 slurry/mt cement 1.13m^3 water/mt cement Tail: 0.76m^3 slurry/mt cement 0.44m^3 water/mt cement
15.05.84	Abandonment Plug 1	8-1/2"	1957	12.6 Class G	1.9	0.2% BWOC HR-12 freshwater 5.6m^3	Plug 1: 3150-2950m
15.05.84	Plug 2	8-1/2"	1957	10.6 Class G	1.9	0.2% BWOC HR-12 4.7m^3 freshwater	Plug 2: 2900-2750m

TABLE 3: CEMENT SUMMARY - CHIMAERA-1 CONT'd

15.05.84	Plug 3	8-1/2" / 9-5/8" csg	1957	10.4	Class G	1.9	4.6m^3 freshwater	Plug 3: 1987-1763m Plug tagged and held 10mt
16.05.84	Plug 4	9-5/8" csg		3.3	Class G	1.9	2.0% BWOC $CaCl_2$ 1.4m^3 seawater	Plug 4: 255-190m

3.6.4 Mud Summary

See also Table 4: Mud Record

36" and 26" Hole Section

The 36" and 26" holes were drilled with seawater and viscous pills with minimum control of properties. Before running the 20" casing, the 26" hole was displaced to viscous mud (prehydrated bentonite).

12-1/4" Hole Section

The 12-1/4" hole was drilled with a seawater-bentonite-polymer system. A mud weight of 1.09-1.11 sg was used and the MBC was kept less than 12 lb/bbl. Celpol was used to keep the yield point in the range 10-16 lb/100 sq.ft. A continuous addition of seawater was required to maintain the mud weight less than 1.11 sg (2-5 m^3/hr seawater). The mud was weighted up to 1.14 sg with barite, at the finish of the 12-1/4" hole section; in order to help stabilise the Lakes Entrance Formation.

No hole problems were experienced and the mud properties were easy to maintain.

8-1/2" Hole Section

Mud weight was run at 1.11-1.14 sg, MBC 8-13 lb/bbl, yield point 12-17 lb/100 sq.ft, and API water loss less than 5cc/30min. Water loss and rheology were controlled by additions of Dextrid and CMC.

In general this section was trouble free. The high and fluctuating torque problem encountered whilst drilling Volador-1 was also evident, but was effectively controlled by using a six point roller reamer and shock sub in the BHA.

TABLE 4: MUD RECORD - CHIMAERA-1

Depth (mbdf)	Weight (SG)	Vis (API) sec	PV (CP)	YP	Gels 10 sec	Gels 10 min	Filtrate (cc)	Filtrate Analysis Ca++ ppm	Filtrate Analysis Cl- ppl-	Sand (%)	Retort Analysis Water %	Retort Analysis Solids %	pH
36" and 26" hole drilled with seawater and viscous slugs													
1089	1.06	38	9	7	2	17	4.7	100	13	TR	95	5	9.5
1440	1.07	38	11	11	8	30	9.0	100	15	TR	95	5	10.0
1718	1.10	42	11	11	4	27	11.0	80	16	TR	95	5	10.0
1965	1.11	39	9	9	5	23	10.0	120	18	TR	95	5	10.0
2015	1.12	44	13	14	4	15	4.5	180	16	TR	94	6	10.0
2172	1.12	45	14	13	4	15	4.5	60	17	TR	94	6	10.5
2250	1.12	44	18	11	5	10	4.0	100	16	TR	94	6	10.0
2332	1.12	45	15	13	3	18	4.8	150	16.5	TR	94	6	9.5
2480	1.12	42	13	15	4	18	4.5	100	17	TR	94	6	10.0
2584	1.12+	42	11	12	3	14	4.5	150	17	TR	94	6	9.5
2620	1.12+	43	11	15	3	15	4.3	200	17.5	TR	94	6	9.5
2720	1.12	42	12	14	3	14	5.0	120	17.5	TR	94	6	9.5
2819	1.12	45	18	17	4	17	4.6	100	17.5	TR	94	6	10.5
2885	1.11+	45	15	14	3	16	4.8	80	16.5	TR	94	6	9.5
2963	1.12	44	15	16	3	13	6.0	100	19	TR	94	6	9.5
3018	1.13+	45	15	13	2	10	4.8	80	19	TR	93	7	9.0
3087	1.13	45	16	15	3	13	5.2	100	19.5	TR	93	7	10.0
3175	1.14	43	14	12	3	12	5.5	100	20	TR	92	8	10.0
3188	1.14	46	18	15	3	13	5.0	120	20	TR	92	8	10.0
3201	1.13+	44	15	17	4	16	5.1	120	20	TR	92	8	10.0
3274	1.13	45	14	20	5	17	5.2	120	20	TR	93	7	10.0
3350	1.14	47	14	18	6	16	4.9	120	20	TR	92	8	10.0
3391	1.14	44	14	15	6	18	5.0	180	19.5	TR	92	8	10.0
3465	1.14	45	14	18	6	18	4.6	120	20	TR	92	8	10.0
3540	1.14	43	14	15	5	15	4.4	120	20	TR	2	8	9.5
3560	1.14	42	12	14	4	14	4.4	120	20	TR	92	8	10.0

3.6.5 Formation Intake Test

Formation intake tests were carried out on drilling out the 20", and 9-5/8" casing shoes. The following results were obtained:

Depth (m)	Surface Pressure (psi)	Mud (sg)	EMG (sg)	Formation
663	522	1.03	1.58	Marl
1957	1508	1.12	1.74	Lower Flounder

3.6.6 Lost Circulation

None

3.6.7 Perforations

The following intervals were perforated whilst attempting to carry out remedial cement repairs.

Type Gun 2-1/8" Enerjet, 4 spf

1857-1857.3m

1915-1915.3m

3.6.8 Fishing

None

3.6.9 Side Tracking

None

3.6.10 Deviation

See Table 5 - Deviation Record

See Figure 3 - Well Path

3.6.11 Abandonment

See Figure 4 Well Status

TABLE 5: DEVIATION RECORD - CHIMAERA-1

See Figure 3 for a plot of well path.

DEPTH (M)	INCLINATION DEGREE	AZIMUTH DEGREE	REMARKS
522	1/4	-	Totco
660	1/2	-	"
797	0	-	"
1024	0	-	"
1470	3/4	-	"
1717	1	-	"
1965	2-1/2	-	"
2015	2	-	"
2162	2	309	Eastman
2280	2-1/2	288	"
2464	2	83	"
2574	2	50	"
2723	1-1/2	178	"
2808	1-3/4	92	"
2912	2	288	"
2998	2	73	"
3174	2	148	"
3290	2	218	"
3360	2	-	"
3479	2	-	"
3548	2	201	"

3.7 Formation Evaluation

3.7.1 Mudlogging Services

The mudlogging services on the Nymphea were provided by Exploration Logging Australia.

The unit was crewed by two mudloggers and one 24 hour Gemdas computer operator.

Services included collection, washing, drying and packing of cuttings samples, routine examination of cuttings and checking for hydrocarbon indications; continuous monitoring of drilling parameters (ROP, WOB, torque, pump rate), mud tank levels, and mud weight; continuous monitoring and chromatographic analysis of gas. These values were recorded at one metre for 8-1/2" and 5 metre intervals (in top hole) by an on-line computer which also produced real-time prints and plots (against driller's depth) of this data. Logged depths were calculated automatically by the computer.

A package of interactive programs to assist in drilling control, drilling optimisation, pressure evaluation and formation evaluation were available from the Gemdas unit. Examples of these programs include hydraulics analysis, D exponent analysis, kick analysis, fracture gradient analysis. A summary of this data can be found in Reference 4.

3.7.2 Cuttings

Ditch cuttings were collected every 10m below 20" casing (653m) down to 9-5/8" casing depth and thereafter every 3m to total depth. The samples were bagged and distributed as follows:

(a) Four sets of washed and dried samples (in 100gm packets) were prepared; one set each was sent to the Bureau of Mineral Resources and the Victorian Department of Minerals and Energy, and two sets were sent to Corelab, Perth to be stored on behalf of Shell Development.

(b) An additional set of washed and dried samples was packed into miniature plastic samplex trays and sent to Shell Development in Perth for office use.

(c) Two sets of unwashed cuttings packed in half-kilogram bags were sent to Corelab, Perth (for Shell).

Descriptions are given in Reference 5.

3.7.3 Sidewall Samples

A total of 102 shots were fired with a total recovery of 85 samples. For descriptions of samples see Reference 5.

3.7.4 Velocity Survey

The velocity survey, carried out by Schlumberger was performed at 24 levels. The results are shown in Reference 5.

3.8 Petrophysics

3.8.1 Wireline Logs

The following wireline logs were run:

Date	Hole Size	Interval	Type
09.04.84	12-1/4"	: 1936-653m	DLL/MSFL/GR/SP/CAL
10.04.84		: 1932-653m	LDL/CNL/GR/CAL
		: 1932-653m	LSS/GR
12.04.84	9-5/8" casing	: 1933-300m	CBL/VDL/CCL/GR
29.04.84	8-1/2"	: 3183-1957m	DLL/MSFL/GR/SP/CAL
		: 3186-1957m	LDL/CNL/GR/CAL
06.05.84	8-1/2"	: 3556-3100m	DLL/MSFL/GR/SP/CAL
		: 3560-3100m	LDL/CNL/GR/CAL
07.05.84		: 3558-1957m	BHC/GR
		: 3558-1957m	HDT
		:	WST (24 levels)
		: 3544-2016.5m	RFT (23 pretests)
08.05.84		: 3101m	RFT (segregated sample)
13.05.84	8-1/2"	: 3822-3495m	DLL/MSFL/GR/SP/CAL
		: 3825-3495m	LDL/CNL/GR/CAL
		: 3824-3495m	BHC/GR
14.05.84		: 3825-3495m	HDT
		: 3809.7-1966.8	CST (fired 100, rec. 85, bought 83, lost 5, empty 5, misfire 7)

3.8.2 Evaluation

3.8.2.1 General

Log evaluation indicated all penetrated formations to be water bearing except for the intervals 3100-3104m (hydrocarbon saturations of 40-50% and 2828-2845m (marginal hydrocarbon saturations ranging between 25 to 40%).

3.8.2.2 Formation Water Resistivity (Rw)

Values of formation water resistivity were derived from resistivity/porosity crossplots. These tie in with the measured valves from production tests in nearby wells (Basker-1, Manta-1, Volador-1 and Bignose-1).

3.8.2.3 LDT/CNL Gas Diagnosis

The LDT/CNL over the interval 3100-3104m does not show any separation that would indicate gas. However indications whilst drilling strongly suggest the presence of a gas column rather than oil (refer also section 3.8.2.6). A RFT segregated sample taken at 3101.5m failed to recover any hydrocarbons, most probably due to high invasion of mud filtrate. Calculated invasion is approximately 22 inches, which is beyond the depth of investigation of the LDT and CNL logging tools.

3.8.2.4 Method of Evaluation

See Appendix 7.1

3.8.2.5 Petrophysical Parameters Used in Evaluation

(Refer Table 6 for details)

3.8.2.6 Evaluation Results

Final logging evaluation produced the following net figures:

Interval	Net (m)	Avg Porosity (%)	Avg Hysat (%)
3100-3104.3	4.3*	16.6	48.2

* Inferred gas, from gas indications whilst drilling. Above figures are based on a 10% porosity and 30% hydrocarbon saturation cutoffs.

Refer to enclosure 1 for the depth plot of the Petrophysical Evaluation.

3.8.3 RFT Sampling Results

The following segregated sample was taken:

Depth : 3101.5m
Type : segregated
Recovery : a) bottom chamber
22 litres of mud filtrate
R sample 0.216 ohm.m at 19°C
b) top chamber
3.5 litres mud filtrate
R sample 0.22 ohm.m at 18°C

TABLE 6: Petrophysical Parameters used in Evaluation

PARAMETER		INTERVAL											
		2025-2300m	2300-2338m	2338-2375m	2375-2410m	2410-2430m	2430-2500m	2500-2750m	2750-2950m	2950-3250m	3250-3550m	3550-3700m	3700-3814m
GR minimum	(API units)	30	30	30	30	30	30	30	30	30	30	30	30
GR maximum	(API units)	130	130	130	130	130	130	130	130	130	130	130	130
ρ_{mf}	(g/cc)	1	1	1	1	1	1	1	1	1	1	1	1
ρ_{ma}	(g/cc)	2.66	2.66	2.66	2.66	2.66	2.66	2.66	2.66	2.66	2.66	2.66	2.66
R_{mud}	(ohm.m)	0.102	0.095	0.095	0.095	0.095	0.095	0.088	0.083	0.078	0.072	0.066	0.066
R_{mc}	(ohm.m)	0.22	0.196	0.196	0.196	0.196	0.196	0.183	0.175	0.162	0.115	0.112	0.112
R_{sh}	(ohm.m)	5	5	5	5	15	15	15	25	25	25	25	40
R_w	(ohm.m)	0.138	0.138	0.13	0.148	0.165	0.143	0.143	0.14	0.135	0.138	0.138	0.145
m		2.098	2.098	2.098	2.098	2.098	2.098	2.098	2.098	2.098	2.098	2.098	2.098
A		0.584	0.584	0.584	0.584	.584	0.584	0.584	0.584	0.584	0.584	0.584	0.584
n		1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83
ρ_h	(g/cc)	1	1	1	1	1	1	1	1	1 0.11 (in gas)	1	1	1

GR = Gamma Ray Reading
ρ_{mf} = Mud Filtrate Density
ρ_{ma} = Matrix Density
ρ_h = Hydrocarbon Density
R_{mud} = Mud Resistivity
R_{mc} = Mud Cake Resistivity
R_{sh} = Shale Resistivity
R_w = Formation Water Resistivity

m = Cementation Factor
A = Constant
n = Saturation Exponent

3.8.4 RFT Pressure Interpretation

A total of 23 successful RFT pressure tests (Table 7) were made over the intermediate log interval 1965-3560m. No RFT run was made in the TD logging suite.

Apart from one (tight or supercharged?) reading, all pressures lie on a hydrostatic gradient of 1.019 sg (0.441 psi/ft) (See Fig. 5).

Manta-1, approximately 1km to the south in a separate fault block, was clearly overpressured below 3230m. This means the fault between Manta-1 and Chimaera-1 is sealing below 3230m. However, as the gradients in the two wells above 3230m are virtually the same, no conclusions on the sealing capacity of the fault above this level can be drawn.

3.9 Well Costs, Time Allocations

See Figure 6	: Drilling Time Graph
See Table 8	: Chemical Consumption Cost
See Table 9	: Time Allocation
See Table 10	: Well Cost

TABLE 7: RFT FORMATION PRESSURE MEASUREMENTS

DEPTH (M)	FORMATION PRESSURE (PSIG)	COMMENTS
2016.5	2876	Good permeability
2200	3133	"
2350	3349	"
2479	3537	"
2571	-	Tight
2570.8	-	"
2585.3	3676	"
2610.5	-	"
2611	3717	Poor permeability
2680.5	3827	Good permeability
2829.5	-	No seal
2843	4133	Tight
2885.5	-	"
2885.2	-	"
2996	4290	Good permeability
3033	4343	Good permeability
3100.5	4437	"
3103	4438	"
3108	4443	"
3113.5	4450	"
3151	4504	"
3205	4582	"
3275	4694	"
3326.5	4764	"
3379.5	4837	"
3421.5	4895	"
3466	4961	"
3516	5032	"
3544	5086	Poor

TABLE 8: CHEMICAL CONSUMPTION COST - CHIMAERA-1

Interval: Surface - 208m

Casing size: 30"

Product	Quantity
Caustic	5 drums
Gel	16 mt
Total Cost:	$ 4,266.84
Cost/Metre:	$ 80.51

Interval: 208 - 662m

Casing size: 20"

Product	Quantity
Caustic	9 drums
Gel	16 mt
Lime	8 sacks
Total Cost:	$ 4,573.12
Cost/Metre:	$ 10.08

Interval: 662-1965m

Casing size: 9-5/8"

Product	Quantity
Barite	160 sx + 31 mt
Caustic	55 drums
CMC EHV/HV	34 sacks
Celpol	50 sacks
Dextrid	77 sacks
Gel	13 mt
Lime	7 sacks
Q-Broxin	32 sacks
Soda Ash	12 sacks
Total Cost:	$25,913.38
Cost/Metre:	$ 19.89

TABLE 8: CHEMICAL CONSUMPTION COST - CHIMAERA-1 CONT'D

Interval: 1965 - 3826m

Product	Quantity
Barite	89 mt
Caustic	89 drums
Celpol	88 sacks
CMC HV	89 sacks
CMC LV	159 sacks
Dextrid	408 sacks
Gel	15.5 mt
Gel	163 sacks
Lime	23 sacks
Monpac	10 sacks
NF-1	2 cans
Q-Broxin	69 sacks
Soda Ash	14 sacks
Sodium Bicarbonate	12 sacks
Sunflo	1 drum

Total Cost: $73,648.22
Cost/Metre: $ 39.57

Abandonment Phase

Product	Quantity
Gel	37 sacks

Total Cost: $ 347.80
Total Cost Drilling Mud Chemicals Chimaera #1 $1,054.62

Cement/Cement Chemicals

Product	Quantity
Cement (Class G)	230 mt
Calcium Chloride	92 sacks
Gel	160 sacks
HR-12	3 sacks
NF-1	1/2 can

Total Cost of Cement and Cement Chemicals $62,823

TABLE 9: TIME ALLOCATION - CHIMAERA-1

		Hours	%
I.	Preparation		
		-	-
			0.0
II.	Mobilisation/Moving etc.		
	Moving	26.5	
	Rigging up/down	8.25	
	Wait time	91.25	
		126.0	9.7
III.	Making Hole		
	Drilling	548.5	
	Adding pipe	7	
	Surveys	15.75	
	Checktrip	23.25	
	Roundtrip - bit change	147.25	
	Circulation	21.25	
	Reaming/washing	0.5	
	Rig service	9	
	Wait time	15	
	Miscellaneous	24.25	
		811.75	62.6
IV.	Securing Hole		
	Drilling cement	17.75	
	Adding pipe	3.5	
	Surveys	5.5	
	Checktrip	22.75	
	Roundtrip - cement drilling	13.25	
	- before casing	5	
	Circulation	8.25	
	Reaming/washing	1.5	
	Rig service	0.25	
	Wait time	7	
	Miscellaneous	34.25	
	Casing - run and cement	41	
	Flanging up BOPs	27.25	
	Standing cement	17	
		204.25	15.8

TABLE 9: TIME ALLOCATION - CHIMAERA-1 CONT'D

		Hours	%
V.	Formation Evaluation		
	Checktrip	6.5	
	Roundtrip - logging	5.5	
	Reaming/washing	5.25	
	Formation strength test	2.75	
	Rig service	0.25	
	Logging - open hole	84.25	
		104.50	8.1
VII.	Plug-back/Abandonment		
	Rig service	0.25	
	Wait time	2	
	Miscellaneous	1.5	
	Abandonment	46.5	
		50.25	3.9
			100%

TABLE 10: WELL COST - CHIMAERA-1

	Cost Type	$ Million
0	Preparation/mobilisation	0.060
1	Drilling - installation	4.278
2	Mud	0.174
3	Bits	0.056
4	Casing and cement	0.557
5	Evaluation	1.073
6	Production testing	0.126
7	Abandonment	0.053
8	Transportation	2.364
9	Recoveries/recharges	0.185
		8·926

Note: Rig contract or cost = $3,485,458

Open hole logging cost = $889,083

4. GEOLOGY

4.1 Regional Setting

Permit VIC/P19 lies at the north-eastern margin of the Gippsland Rift (Fig. 1), a failed rift arm associated with the opening of the Tasman Sea.

The geological history of the rift is interpreted as follows:

- Early Cretaceous: deposition of continental Strzelecki Group sediments in a 'pre-' or 'infra-rift' basin.

- Cenomanian to Mid-Campanian: deposition of 'rift-phase' alluvial plain and fan facies and volcanogenic lower Latrobe Group sediments (cf. the Upper Cretaceous Golden Beach Fm 100km west).

- Mid-Campanian: culmination of volcanic activity immediately preceding the Tasman Sea break-up (c. 78 m.y. BP).

- Mid-Campanian to Mid-Late Maastrichtian: coastline transgressed north-westwards from the newly opening Tasman Sea (i.e. 'Tasman Drift' phase). Paludal, coastal plain facies were deposited landward of back-barrier and lagoonal sediments. The existing rift faults continued to grow slightly, but probably as a result only of compaction of the underlying rift phase sediments. This phase could be described as a 'failed-rift' stage.

- Late Maastrichtian: first major marine transgression into southern VIC/P19.

- Paleocene: transgressive/regressive cycle sedimentation with a net transgressive effect. Tasman Sea drift ceased in Late Paleocene.

- Early Eocene: Southern Ocean began to open ('Southern Drift'); submarine channelling of the eastern seaward margin of the Gippsland Basin. NO

- Early Eocene to Early Oligocene: limited subsidence and deposition during the 'early Southern Drift' phase.

- Mid-Oligocene to present: rapid subsidence recommenced during the 'late Southern Drift' phase; bioclastic marls and carbonates prograded across the area during the Miocene and Pliocene.

4.2 Stratigraphic Table

Age	Biozone	Formation	Depth bdf (m)	Depth ss (m)
		Sea level	25	0
		Sea floor	155	130
Pliocene - Miocene		GIPPSLAND LIMESTONE	155-1493	130-1468
Mid Miocene - Late Eocene		LAKES ENTRANCE FORMATION	1493-1923	1468-1898
Eocene	M.diversus	Flounder Formation	1923-2003	1898-1978
		LATROBE GROUP		
Paleocene	L.balmei		2003-2271	1978-2246
Maastrichtian	T. longus	Latrobe Coarse Clastics	2271-2570	2246-2545
Campanian	T.lilliei		2570-?2895	2545-?2870
Campanian/ Santonian	N. senectus		?2895-3364	?2870-3339
Santonian/ Coniacian	T. pachyexinus		3364-3826	3339-3801
			TD 3826	3801

4.3 Well Stratigraphy

The stratigraphic sequence in Chimaera-1 is shown on Enclosures 2 and 3 and summarised in section 4.2. Formation tops and ages are based on lithological and palynological information from cuttings and sidewall samples, together with wireline log characteristics.

4.3.1 Gippsland Limestone 155-1493m

155-1493m Light to medium grey, fine-grained, fossiliferous calcarenite with traces of glauconite, pyrite and carbonaceous detritus, grading downwards into soft, fossiliferous marl.

4.3.2 Lakes Entrance Formation 1493-1923m

1493-1923m Grey, soft fossiliferous marl becoming less calcareous with depth and grading into claystone below 1880m. The claystone becomes silty with depth.

Both the Gippsland Limestone and Lakes Entrance Formation are shelf and slope deposits. No palaeontological work was done in Chimaera so no estimates of water depth are available and the depositional environment has been determined by analogy with nearby wells.

4.3.3 Latrobe Group 1923-3826m (T.D.)

Flounder Formation 1923-2003m

1923-1957m Light grey, unconsolidated, very fine to coarse-grained, pyritic sandstone.

1957-2003m Brownish grey, blocky, calcareous, micaceous, siltstone.

Latrobe Coarse Clastics 2003-3826m

2003-2105m Interbedded barrier and shallow marine sandstones and siltstones. The sandstones are unconsolidated, medium to coarse-grained with traces of pyrite and glauconite. The siltstones are grey to brownish, glauconitic near the top of the interval and carbonaceous near the base.

2105-2232m Beach barrier sandstones, light grey, coarse-grained, pyritic, with traces of argillaceous matrix and silica cement.

2232-2271m Shallow marine siltstone and silty, glauconitic, pyritic claystone. The base of this unit corresponds to the Lower Paleocene seismic marker.

2271-2339m Interbedded back barrier and lagoonal siltstones, sandstones and claystones. The siltstones and claystones are grey to brownish grey, micaceous and partly carbonaceous, the sandstones unconsolidated, fine to coarse-grained, moderately sorted with traces of argillaceous matrix, silica cement and pyrite.

2339-2371m Beach barrier sandstone, light grey medium to coarse-grained with traces of silica and pyrite cement.

2371-2392m Shallow marine grey to greenish brown, micaceous, pyritic siltstone. The base of this transgressive unit corresponds to the Maastrichtian Marker seismic horizon.

2392-2510m Interbedded back barrier and lagoonal grey, partly carbonaceous, micaceous and pyritic siltstone and claystone and medium to very coarse-grained, poorly sorted sandstone.

2510-2699m Interbedded lower coastal plain siltstone, claystone, sandstone and coal. The sandstone is medium to coarse-grained, well sorted with traces of silica and pyrite cement. The sandstones in this interval are interpreted to be mainly fluvial point bar deposits up to 6m thick. The expected thickening of units compared to Manta-1 where the maximum thickness was 17m has not occurred. This interval which constituted the upper objective is bounded by the intra and Lower Campanian Markers.

2699-2817m Volcanics, brownish grey to greenish black, trachytic, with amygdales and phenocrysts in fine-grained to glassy groundmass, tuffaceous and weathered in part.

2817-3017m Interbedded volcanics, light grey argillaceous, micaceous and partly carbonaceous siltstone and very fine to fine-grained argillaceous sandstone.

3017-3050m Sandstone, light grey, fine to medium-grained, well sorted, lithic, argillaceous with traces of silica, pyrite and calcareous cement.

3050-3100m Volcanics and minor claystone.

3100-3233m Light grey, fine to coarse-grained, dominantly medium, lithic sandstone with minor, thin, interbeds of siltstone.

3233-3261m Grey to greenish grey volcanics, tuffaceous in part, with a remnant flow structure weathered in places to siltstone and claystone.

3261-3334m Lithic and pyritic sandstone as above with minor interbedded claystone.

3334-3427m Interbedded sandstone, light grey, angular to subrounded, poorly sorted, with common silica, pyrite and dolomite cement, argillaceous and lithic; siltstone, brown, micaceous argillaceous and sandy in part; claystone dark grey, subfissile, micaceous; minor coal, black, hard, with a conchoidal fracture and volcanics.

3455-3671m Sandstone as above, interbedded with minor siltstone.

3671-3755m Volcanics, green to pinkish grey, orange brown where weathered, pilotaxitic, tuffaceous and amygdaloidal in places. From 3733m the volcanics contain abundant glass shards and amygdales and are probably largely pumice.

3755-3826m Interbedded sandstone, light grey, dominantly medium-grained, angular to subangular, poorly sorted, argillaceous with common volcanic clasts, abundant silica and moderate dolomite cement.

4.4 Structure and Seismic Markers

The results from Chimaera-1 have shown that the throw on the Manta fault is not as great as predicted in the Chimaera-A well proposal (Ref.6) for the sequence below the top of the volcanics. The throw on the fault increases with depth and at the level of the gas/condensate sandstone in Manta-1 (3274m) it is about 250m.

The pre-drill trap configuration has not changed (Fig.7) and it seems likely that closure does not exist at levels above the Lower Campanian Marker. A detailed match of the seismic and the stratigraphy from the time/depth curve (Fig.8) is shown in Figure 9.

The major seismic markers with the depths and times to these are listed below.

Marker	Time (secs)	Depth (m, bdf)
Base Gippsland Limestone	1.167	1493
Top Flounder Formation	1.475	1923
Base Flounder Formation	1.520	2003
Mid Paleocene Shale	1.567	2093
Lower Paleocene Shale	1.670	2271
Maastrichtian Marker	1.745	2392
Intra Campanian Marker	1.810	2510
Lower Campanian Marker	1.910	2699
Top Volcanics	1.910	2699
Top Manta gas/condensate sand	2.075	3026

4.5 Hydrocarbon Indications

Gas levels in the Gippsland Limestone were higher than those seen in any previous VIC/P19 wells, with values up to 1.9%. Gas decreased throughout the Lakes Entrance Formation however and was down to less than 0.1% in the upper part of the Latrobe Group. Ditch gas began to increase again below about 2508m with maximum values up to 0.96% in the section above the volcanics. The gas was wet with an average composition of 84% C1, 11% C2, 4% C3 and 1% C1. Peaks up to 1.1% were recorded from thin zones within the volcanics (probably fractures) and 3.7% from thin interbedded sandstones. The top 8m of the sandstone at 3100m had readings up to 1.7% with 88% C1, 8% C2, 3% C3 and 1% C4. Gas levels were less than 0.1% from 3200m to total depth.

Traces of spotty white fluorescence with a weak cut fluorescence were reported from thin sandstones between 2840 and 3000m.

4.6 Reservoirs

Sandstones in the coastal plain sequence between the intra and Lower Campanian markers are fine to coarse-grained and well sorted with a maximum thickness of 6m. This interval was less sandy than expected, comprising about 32% sandstone, which is the same percentage as in Manta-1. The individual sands were also thinner than expected from facies predictions to the north of Manta-1. Maximum sandstone thickness in Manta-1 was 17m.

Sandstones within the volcanic section are generally lithic, with varying amounts of argillaceous matrix and silica and dolomite cement. The porosity appears to be better where the argillaceous matrix has inhibited the growth of the cements. The sandstones near the base of the well had porosities of up to 14%, which was higher than that predicted from the porosity/depth trends of the other VIC/P19 wells.

4.7 Seals

The failure of the upper objective in Chimaera-1 is thought to be due to lateral seal problems and the fact that closure may not exist throughout that level. A prognosed change to a more sandy facies within this section is now thought to take place north of the Chimaera fault.

The gas sand at 3274m in Manta-1 appears to be juxtaposed against a sandstone in the Chimaera block. The lack of any shows in Chimaera at this level suggests, on this basis, that the Manta fault is sealing effectively. This is supported by RFT pressure data which indicate the fault is sealing below 3230m. However, less simply, minor rollover into the fault combined with partial juxtaposition of volcanics could result in the Manta gas being trapped in a small fault-assisted dip closure.

The Manta fault may have a smear seal operating in the more shaley sequence above the Lower Campanian marker, as the hydrocarbon-bearing sandstones in Manta-1 are sealed from the Chimaera block and juxtaposition alone appears unlikely to account entirely for the sealing.

4.8 Well Correlation and Strzelecki Penetration

The throw on the Manta fault in the section below the top of the volcanics is not as great as that predicted in the Chimaera-1 well proposal (Ref.6). The gas-bearing sand at 3274m in Manta-1 is most likely equivalent to the water-bearing sand at 3026m in Chimaera-1, not at 2810m as predicted.

Neither the "A marker" nor the "B marker" seismic reflector corresponds to the top of the Strzelecki Group. Before Chimaera-1 was drilled it was thought that one of these strong seismic reflectors may correspond with the top of the Strzelecki Group. The results from Chimaera-1 show both these reflectors arise from volcanic/sediment interfaces and although northerly dips were suggested by the dipmeter in sandstones below the "B marker" (dips above this are southerly), palynology shows the sediments are of Santonian/Coniacian age.

4.9 Conclusions and Contributions to Geological Knowledge

1. Chimaera-1 tested the fault block immediately to the north of Manta-1, where hydrocarbons had been found in the Campanian coastal plain section and in a Campanian/Santonian sandstone within the volcanics. Chimaera-1 failed to find economic quantities of hydrocarbons in either of the two objectives.

2. Lack of lateral seal is seen as the main reason for the failure of the trap. A facies change to a more sandy Campanian coastal plain section had been predicted north of the Chimaera fault.

3. Repeat Formation Test data indicate the Manta fault is sealing below 3230m. This may provide a lateral seal for the gas/condensate accumulation at 3274m in Manta-1, which appears to be juxtaposed against a sandy sequence in the Chimaera block. The possibility also exists that minor rollover into the fault combined with partial juxtaposition of volcanics could result in the Manta gas being trapped in a small fault-assisted dip closure.

4. Before drilling Chimaera-1 it was thought that one of the "A" or "B" seismic markers may correspond to the top of the Strzelecki Group. The results from Chimaera show both these reflectors arise from volcanic/sediment interfaces and although northerly dips were suggested by the dipmeter in sandstones below the "B marker" (dips above this are southerly), palynology shows the sediments are of Santonian/Coniacian age, too young to be part of the Strzelecki Group.

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APPENDIX 7.1

PETROPHYSICAL EVALUATION

7.1 PETROPHYSICAL EVALUATION METHOD

7.1.1 Method Used

The Simandoux method rather than the Waxman-Smit technique was used due to the absence of core data.

1) $$S_w = \left[A.R_w \; \emptyset^{-m} \left(\frac{1}{R_t} - \frac{V_{sh} \, S_w}{R_{sh}} \right) \right]^{1/n}$$

2) $$S_h = 1 - S_w$$

where:

S_w	=	water saturation in the virgin zone as fraction of pore volume
S_h	=	hydrocarbon saturation in the virgin zone as fraction of pore volume
A	=	constant from Archie's formula
R_w	=	formation water resistivity in ohm.m
$\emptyset$	=	porosity as fraction of bulk volume
m	=	cementation factor
R_t	=	true resistivity in ohm.m
V_{sh}	=	fraction of shale
R_{sh}	=	shale resistivity in ohm.m
n	=	saturation exponent

7.1.2 Deck Card Structure

The following steps were used in the petrophysical evaluation of Chimaera-1:

- Correction for borehole effect of the Gamma Ray and Density Logs

- Calculation of shale content (V_{sh}) log by means of Gamma Ray log.

- Identification of coal layers and volcanics based on the response of the density and neutron logs together with ditch cuttings/sidewall samples description.

- Differentiation of sands and shales based on a 50% cut off of shale content (after elimination of coal and volcanics).

- Correction for borehole effect of the Dual Laterolog deep and shallow readings as well as the Microspherical focused log.

- True resistivity (R_t) determination.

- Porosity calculation from density log over the water/oil bearing zones in sand layers.

- Porosity calculation from density log/neutron log over the gas zones in sand layers (corrected for gas and shale effects).

- Calculation of hydrocarbon saturations by means of Simandoux equation over the sand intervals.

APPENDIX 7.2

PALYNOLOGICAL ANALYSIS OF CHIMAERA-1

APPENDIX

PALYNOLOGICAL ANALYSIS OF CHIMAERA-1
(GIPPSLAND BASIN, PERMIT VIC/P19)

BY

JAN van NIEL

1. SUMMARY

Depth (m)	DINOFLAGELLATE ZONES	SPORE-POLLEN ZONES	AGE
1996.8-2001.6	A. HYPERACANTHUM	Lower M. DIVERSUS	Early EOCENE
2256-2266	T. EVITTII	Lower L. BALMEI	Early PALEOCENE
2272.2-2452	-	T. LONGUS	MAASTRICHTIAN
2328	prob. I. DRUGGII	-	Late Maastrichtian
2475.8-2534	-	prob. T. LONGUS	prob. MAASTRICHTIAN
2589-2695	-	T. LILLIEI	CAMPANIAN
2958-3319	-	N. SENECTUS	SANTONIAN/CAMPANIAN
3340	-	prob. N. SENECTUS	prob. SANTONIAN/ CAMPANIAN
3404-3804	-	prob. T.PACHYEXINUS	CONIACIAN/SANTONIAN

(T.D. 3826)

SPORE COLOUR/DEGREE OF ORGANIC METAMORPHISM (D.O.M.)/SOURCE ROCK QUALITY

Transmitted (white) light: from pale yellow (1996.8m) to deep yellow/very light brown (3804m).

Incident U.V. light: bright yellow to golden yellow and orange to dull light brown.

D.O.M.: from immature at 1996.8m to early mature at 3804m.

ENVIRONMENT OF DEPOSITION

1996.8 - 2266m: Marginal marine
2272-3804m : Non-marine (swamp, lake or fluvial deposits)

(3508m : common small acritarchs may indicate brackish conditions).

2. INTRODUCTION AND METHODS

The interval examined palynologically ranged from 1996.8m down to 3804m (T.D. is at 3826m, bdf). A total of 51 sidewall cores and 4 ditchcuttings were selected on the basis of lithology. Grey to black, fine-grained sediments (mudstones, shales) are generally richer in palynomorphs than sediments such as silts and sands deposited in higher energy environments. Where mudstones or shales were not available, siltstone samples were prepared. The quality of the sidewall cores was fair to excellent. Several sample gaps of 100-150m were due either to unfavourable lithology or to non-recovery during operations.

Samples were prepared in Perth by Exploration Consultants Ltd (ECL) using the "standard" technique for siliciclastic sediments, i.e. hydrochloric and hydrofluoric acid treatment followed by heavy-liquid separation to remove mineral matter; controlled oxidation with nitric acid to reduce unwanted organic constituents and thus concentrate the palynomorphs; and finally washing with sodium hydroxide to remove humic acids. The resulting acid-insoluble residue was mounted in Elvacite to produce permanent microscope preparations. A slide on the non-oxidised residue was used for palynomaceral studies. Most of the oxidized preparations were stained using Bismarck Brown to enhance contrast of the palynomorphs.

All samples yielded an organic fraction but some proved to be poor to very poor in organic microfossils and did not contribute to the overall interpretation. Preservation was excellent to fair in most samples. Diversity of assemblages varied but was generally good in the Tertiary and good to poor in the Cretaceous part of the examined section.

The palynomorphs were recorded semi-quantitatively. To provide continuity with the work of Harris, 1983, the biostratigraphic interpretation of assemblages follows the zonal characteristics given in his "Biostratigraphic Summary" (Harris, undated). The range charts in this "Summary" are largely based on published and unpublished work of Stover and Evans (1974), Stover and Partridge (1973), Partridge (1975), (1976) and Helby, et. al. ("in press").

Reworked palynomorphs were regularly encountered, mostly as single occurrences. Almost all were Permo-Triassic in age, with an occasional Jurassic grain. It is not clear how to interpret the regular occurrences of Early and Mid Cretaceous spores. They could be reworked, but, although found in younger sediments than their published ranges would indicate, they may in fact belong. Because the quality of samples in this well was excellent mud contamination was rare.

3. ANALYSIS OF ZONES

A. DINOFLAGELLATE ZONES

1996.8-2001.6m (2 SWS): APECTODINIUM HYPERACANTHUM Zone, Early EOCENE.

Chorate dinoflagellate cysts were common in the assemblages. Other marine indicators present were microforams: chitinous inner linings of foraminifera. The nominate species and A. homomorphum were both well-represented. Fibrocysta bipolare was quite common while Muratodinimum cf. fimbriatum and Deflandrea spp. were present as well. An unknown Glaphyrocysta, tentatively identified as G. reticulosa by Cookson (1965, p138) has been found in Manta-1 at a similar stratigraphic level (2040m).

(2101.8m: no dinoflagellates).

2256.7-2266m (2 SWS): TRITHYRODINIUM EVITTII Zone, Early PALEOCENE.

Both samples were very poor and contained just a few specimens of T. evittii, Palaeoperidinium pyrophorum, Paralecaniella indentata, Eisenackia crassitabulata, Spinidinium sp. and Glaphyrocysta retiintexta. A single specimen of a Renidinium was present also.

2328m (1 SWS): probably ISABELIDINIUM DRUGGII Zone, late Maastrichtian

The nominate species itself was not found but another Deflandrea type that usually accompanies it was present. Although all conform to the same basic morphology, the Deflandria/Isabelidinium group normally found at this stratigraphic level is quite variable in details. A Spinidinium sp. and a chorate cyst were the only other dinoflagellates present.

2381-3804m: no dinoflagellate cysts. Small acritarchs were found at 2452m (a single specimen), 3508m (common) and 3540m (a single specimen).

B. SPORE-POLLEN ZONES

1996.8-2001.6m: Lower MALVACIPOLLIS DIVERSUS Zone, Early EOCENE.

Spinizonocolpites prominatus, Malvacipollis diversus, Matonisporites gigantis, Lycopodiumsporites circiniidites, Proteacidites spp., P. annularis, Nothofagidites spp., and a variety of spores are just a few of the sporomorphs found. The apparent absence of large Proteacidites, such as P.grandis and P. incurvatus, normally prominent in the Early Eocene is puzzling in view of the clear dating that the dinoflagellates gave. It is unlikely to be an environmental question as sporomorphs and other land-derived materials are common.

2101.8m (1 SWS). This sample is practically barren and could not be dated, but it did contain a very curious pollen grain with a triangular opening at each pole and a rather coarse sculpture in the interradial areas. It is, perhaps, syncolpate but this is by no means obvious. It could not be traced in the available literature.

2256-2266m (2 SWS): The samples are almost barren and could only be dated by dinoflagellates. A single specimen of Tricolpites phillipsii, having a base in the LYGISTEPOLLENITES BALMEI Zone, would seem to confirm the Early Paleocene age.

2272-2452m (10 SWS): TRICOLPITES LONGUS Zone, MAASTRICHTIAN.

One sample proved to be barren (2399m) and one too poor (2410m) but the other assemblages were rich, diverse and well preserved. The main markers, T. longus, Tricolpites lilliei and Triporopollenites sectilis were all present as was Quadraplanus brossus, "Grapnelispora evansii", Proteacidites "clinei", P. "gemmatus", P. "wahooensis", P. "reticuloconcavus", P. angulatus, Lygistepollenites balmei, Australopollis obscurus, Stereisporites(Tripunctisporis) sp., S. regium, Kraeuselisporites sp., Ceratosporis equalis, Cicatricosiporites spp., and of course Microcachryidites antarcticus, Phyllocladidites spp. (a.o. P. verrucosus), Gambierina rudata, G. edwardsii, Tricolpites confessus and T.gillii.

2475.8-2534m (4 SWS): probably TRICOLPITES LONGUS ZONE, prob. MAASTRICHTIAN

The ratio of Nothofagidites spp. to Gambierina spp. is clearly in favour of the former which would seem to indicate that the T. LILLIEI Zone has penetrated from 2475.8m down. T. longus is however still present down to 2534m, and so are "Grapnelispora evansii" and Proteacidites "gemmatus". It is therefore likely that the T. LONGUS Zone has its base at 2534m.

(2568.5m: barren of palynomorphs, little organic matter).

2589-2695m (6 SWS): TRICOLPITES LILLIEI ZONE, CAMPANIAN.

The nominate species is present throughout and markers for the T. LONGUS Zone are absent. Assemblages are fairly rich and diverse, and basically of similar composition as those of the overlying zone. A few species not mentioned so far as Gephyrapollenites wahooensis, Baculatisporites comaumensis, Proteacidites amolosexinus, P. palisadus, Tricolpites fissilis,and Caytonipollenites sp.

(2840 and 2886m: too poor in palynomorphs).

2958-3318m (10 SWS): NOTHOFAGIDITES SENECTUS ZONE, SANTONIAN-CAMPANIAN.

5 samples out of 10 were too poor but the others contained reasonably diverse assemblages although not rich in specimens. Nothofagidites spp., mostly N. senectus, occur throughout the interval but are poor in the deeper samples. Other types present include Tricolpites sabulosus, T. gillii, T. confessus, Proteacidites spp., P. amolosexinus, P. scaboratus, Gephyrapollenites wahooensis and Australopollis obscurus. A coarsely reticulate, monosulcate pollen grain, perhaps related to Retimonocolpites peroreticulatus (Brenner) Doyle was present also. It was found in a similar stratigraphic position in Manta-1.

3340m (1 SWS): probably NOTHOFAGIDITES SENECTUS ZONE, prob. SANTONIAN-CAMPANIAN.

The assemblage was not only poor in specimens but poor in preservation as well.

It did contain 2 probable Nothofagidites sp. and some of the grains that could not be determined because of poor preservation may in fact be Nothofagidites as well.

(3365 and 3370m: practically barren).

3404-3804m (8 SWS and 4 ditchcuttings) probably TRICOLPITES PACHYEXINUS ZONE, proably CONIACIAN-SANTONIAN.

Nothofagidites no longer occur in this deepest part of the section but Proteacidites spp. and Phyllocladidites spp. (mostly P. mawsonii) are still present. This puts a lower limit to the interval as both genera have a base occurrence in the CLAVIFERA TRIPLEX Zone (Turonian-Coniacian). It is more difficult to decide if both the T. PACHYEXINUS and the CLAVIFERA TRIPLEX Zones are represented, or, if only one of them, which one. The assemblages are poorly preserved and poor in specimens. Most common are P. mawsonii and other bisaccates, and Lycopodiumsporites circiniidites. Relatively rare were Lygistepollenites cf balmei, Clavifera triplex, Baculatisporites comaumensis, Kraeuselisporites sp., Dictyotosporites speciosus, Phimopollenites pannosus, Ceratosporis equalis, and Cicatricosisporites spp.. It was, however, the occurrence of Proteacidites scaboratus and P. amolosexinus that decided in favour of the TRICOLPITES PACHYEXINUS Zone.

4. SPOROMORPH COLOUR, DEGREE OF ORGANIC METAMORPHISM (D.O.M.) AND SOURCE ROCK POTENTIAL

The colour of palynomorphs changes when subjected to the increasing or prolonged temperatures such as occur during burial. These changes in colour are irreversible and therefore indicate the maximum level of maturity reached. The different stages, yellow to golden-yellow through orange and brown to black can be correlated with changes in chemical composition as hydrocarbons are generated from the organic matter (see Fuchs, 1979; standard Legend, 25.5.10). The sporomorph colour scale is more subjective than the more commonly used vitrinite reflectance scale. Ideally, a long-ranging sporomorph type should be selected as different types of sporomorph within the same sedimentary section show variations in colour. As observed in transmitted white light the change in colour from light yellow to golden-yellow or orange corresponds with the onset of oil generation, whereas the onset of gas generation is associated with a change in colour from orange to brown. Post-mature source rocks contained black sporomorphs and organic fragments only.

In incident ultraviolet light palynomorphs (and some palynomacerals) exhibit fluorescence colours that not only help in their identification but also increase and decrease according to rank. Fluorescence is maximal at the threshold of the "oil window", decreases with increasing rank and disappears at the end of the "oil window" (1-1.3% R_o, see Robert, 1981).

In Chimaera-1 sporomorph-colour in transmitted (white) light ranged from pale yellow at 1996.8m to deep yellow/very light brown at 3804m. Over the same interval fluorescence-colours of sporomorphs ranged from light yellow to golden yellow and orange to dull brown. Both estimates seem to indicate immature conditions over most of the sections studied, although it is possible that early mature conditions were reached in the deepest part, below 3500m.

Palynomaceral determination was carried out on a sieved, non-oxidised preparation. The sieving (with a 10 micrometer mesh sieve) was necessary to concentrate the large palynomacerals that otherwise would be diluted by fine, amorphous organic matter. This fine fraction is undoubtedly important for source rock characterisation but its nature and origin cannot be determined by ordinary means.

In Chimaera-1 a rough estimate during preparation (i.e. after the acid treatment but before oxidation) showed that, over the interval studied, total organic matter varied from 0.1 to 4.0 millilitre per 10 grams of sample. Highest amounts not surprisingly occurred in carbonaceous shales.

It should be remembered that these estimates may not reflect the true picture, as they are based on samples selected for palynology (e.g. disregarding coarser grained sediments on the one hand and coals on the other). The interval 1996.8m to 2266m is rich in inertinite while plant tissues, pollen, spores and dinoflagellates are present in various amounts, but the fairly low estimates for total amount of organic matter per 10 grams of sample classifies them as poor source rocks. The interval 2272.2m-3804m (again, considering the palynological samples only) shows higher organic matter estimates and probably contains good source rocks. The types of palynomacerals present suggest gas-prone rather than oil-prone sourcerocks.

5. ENVIRONMENT OF DEPOSITION/PALYNOFACIES

The relationship between organic matter and grainsize of the sediments has been well-documented and is used to deduce depositional environment (palynofacies) from the type of palynomorphs and palynomacerals present.

The palynomorphs can be divided into marine organisms such as dinoflagellates and Tasmanites (both algae), and foraminiferal test linings; fresh and brackish water organisms such as Botryococcus and acritarchs; and land derived pollen and spores (sporomorphs).

Breakdown products of plants (woody fragments, epidermal tissues, cork cells, resin) algal and bacterial remains, animal tissue and many indeterminate organic fragments are collectively known as palynomacerals.

Although wind transport is an important aspect of the initial dispersal of sporomorphs, water transport then carries the sporomorphs and palynomacerals until they settle out of the water column. A continuous process of mechanical abrasion, biological degradation and wave and current action sorts and grades the particles during this transportation phase. Less buoyant, heavy or larger organic particulars tend to characterise environments close to source while lighter, more buoyant and smaller particles are carried further afield. Very low sporomorph diversity indicates authochthonous environments (marsh, swamps); allochthonous environments are characterised by more diverse assemblages. Marine microplankton diversity increases in an offshore direction (Whitaker, 1979).

In Chimaera-1 the interval 1996.8-2266m is clearly marine because dinoflagellates and some microforams are present in most samples. The presence of sporomorphs and particularly of plant tissues indicates a near source/near shore, rather than an open marine environment.

Between 2272.2 and 3804m marine indicators are absent, except at 2328m. This assemblage is marginal marine or perhaps even brackish lagoonal because it lacks diversity in dinoflagellates while plant tissues and sporomorphs are abundantly present. Acritarchs are fairly common at 3508m although only one species is present. The value of acritarchs as marine indicators is debatable: in the Mesozoic they seem to occur in brackish, or even freshwater environments. Single specimens were found at 2452m and 3540m. All other samples between 2272.2m and 3804m are considered to be non-marine (swamp, lake or fluvial deposits).

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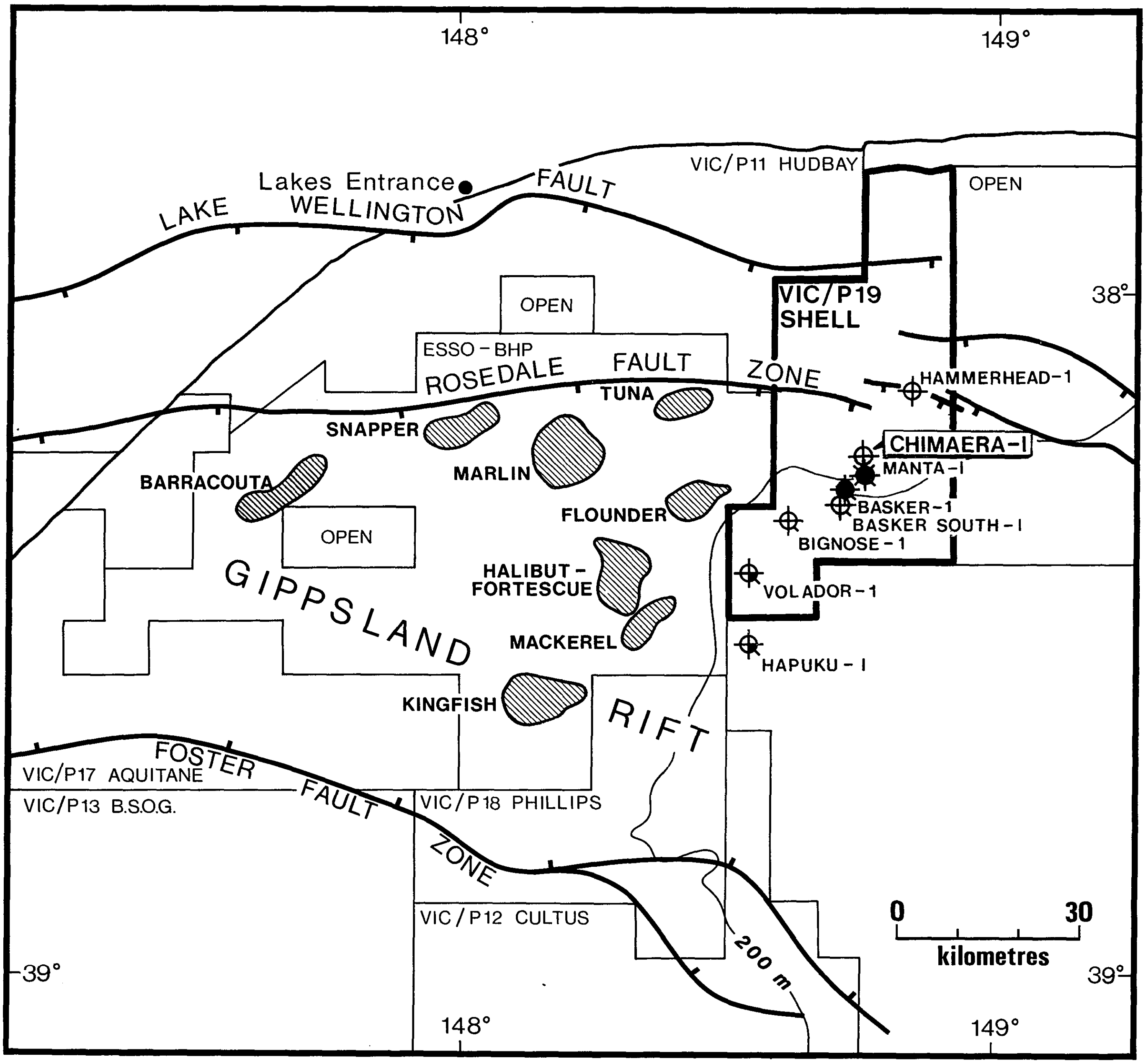


SHELL - AUSTRALIA E.& P. OIL AND GAS.

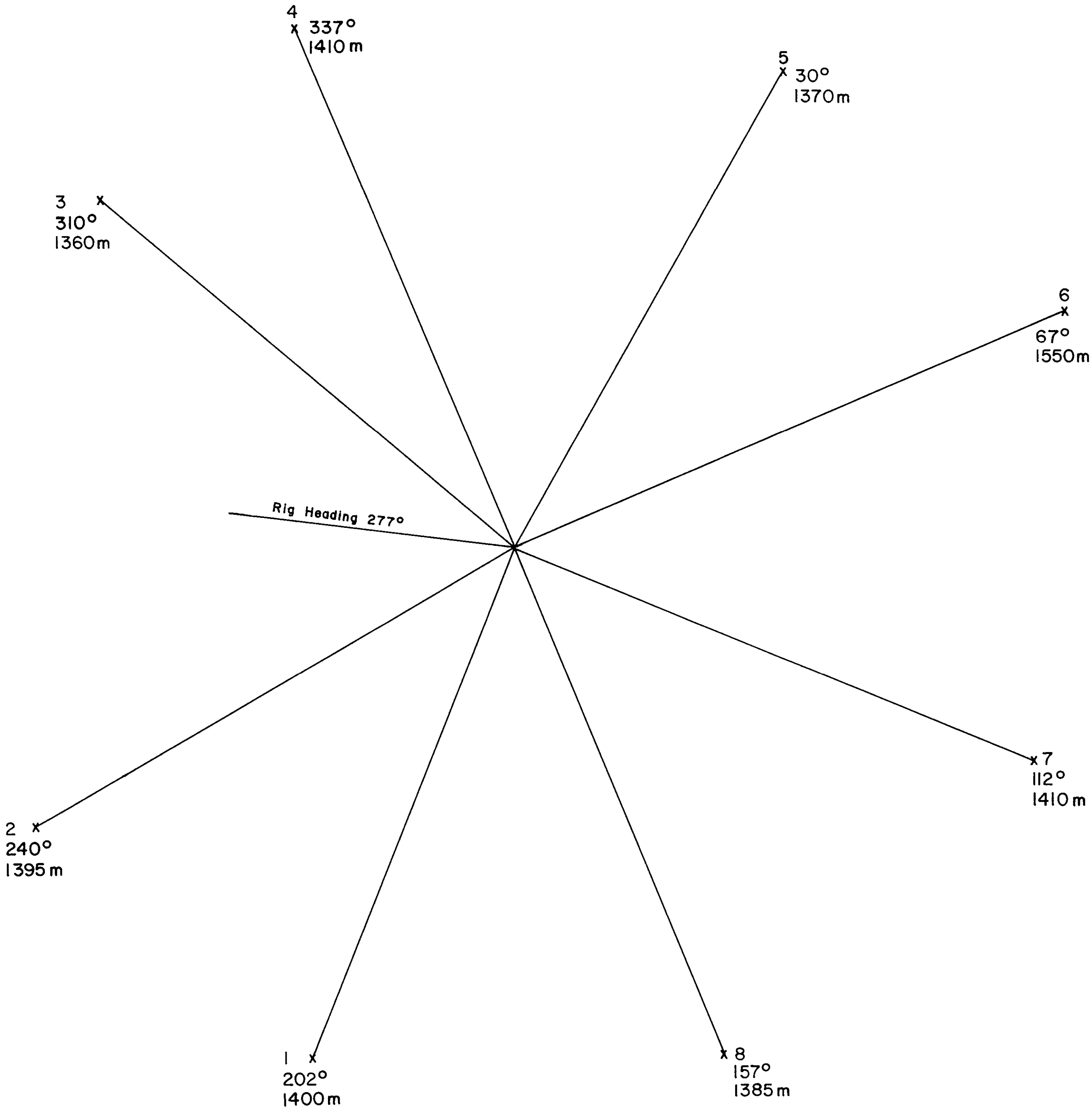
GIPPSLAND BASIN

CHIMAERA - I

LOCATION MAP

SCALE 1:1000 000

Author: E XH/4	Date: October 1984	Fig. I
Report No.: SDA 610	Drawing No.: 19927	



Note: Distances shown are horizontal from centre of rig.

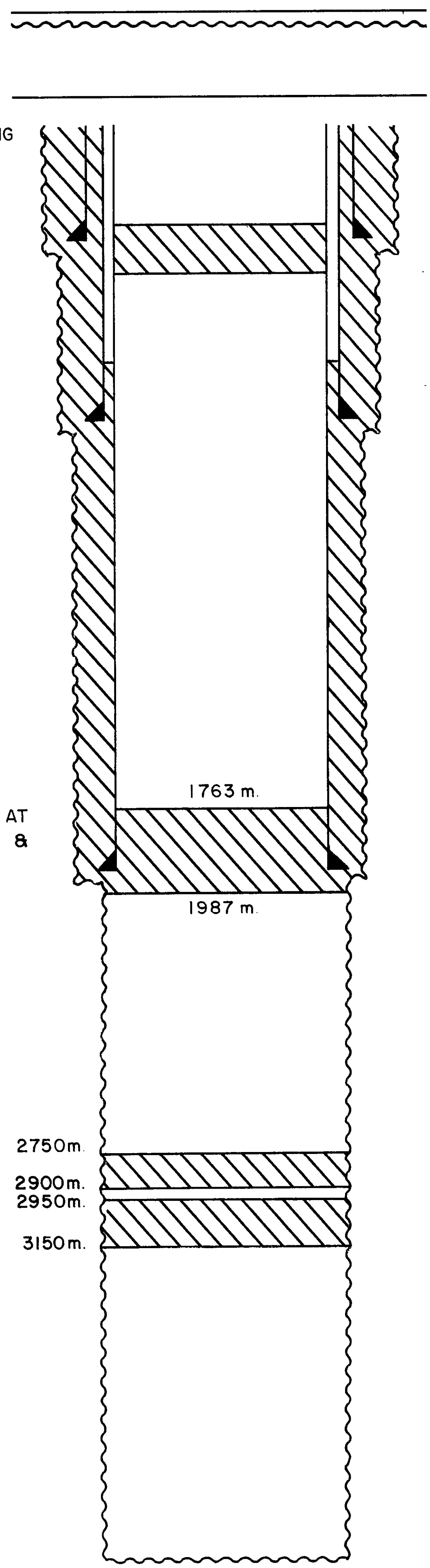
FINAL COORDINATES
38°15'56·37"S 148°43' 19·16"E

SHELL - AUSTRALIA E.& P. OIL AND GAS.

GIPPSLAND BASIN

ANCHOR PATTERN AND HEADING OF NYMPHEA AT CHIMAERA-1

Author: EPE/1	Date: June 1984	Fig. 2
Report No.: SDA 610	Drawing No.: 19176	



FINAL CO-ORDS : 38°15'56·37"S 148°43'19·16"E

SPUDDED : 28·03·84 at 2315hrs

ABANDONED : 17·05·84 at 2400hrs

SHELL - AUSTRALIA E.& P. OIL AND GAS.

GIPPSLAND BASIN

CHIMAERA - 1

WELL STATUS DIAGRAM

Author: EPE / 1	Date: October 1984	Fig. 4
Report No.: SDA 610	Drawing No.: 19928	

PE904813

This is an enclosure indicator page.
The enclosure PE904813 is enclosed within the container PE902489 at this location in this document.

The enclosure PE904813 has the following characteristics:

ITEM_BARCODE =	PE904813
CONTAINER_BARCODE =	PE902489
NAME =	Horizontal Projection of Well Path
BASIN =	GIPPSLAND
PERMIT =	VIC/19
TYPE =	WELL
SUBTYPE =	DIAGRAM
DESCRIPTION =	Chimaera 1 Horizontal projection of well path. Figure 3 of WCR.
REMARKS =	
DATE_CREATED =	30/06/84
DATE_RECEIVED =	19/11/84
W_NO =	W860
WELL_NAME =	Chimaera-1
CONTRACTOR =	
CLIENT_OP_CO =	Shell Australia

(Inserted by DNRE - Vic Govt Mines Dept)

PE904814

This is an enclosure indicator page.
The enclosure PE904814 is enclosed within the container PE902489 at this location in this document.

The enclosure PE904814 has the following characteristics:

ITEM_BARCODE =	PE904814
CONTAINER_BARCODE =	PE902489
NAME =	RFT Pressures vs Depth
BASIN =	GIPPSLAND
PERMIT =	VIC/19
TYPE =	WELL
SUBTYPE =	DIAGRAM
DESCRIPTION =	Chimaera 1 RFT Pressures versus depth. Figure 5 of WCR.
REMARKS =	
DATE_CREATED =	31/10/84
DATE_RECEIVED =	19/11/84
W_NO =	W860
WELL_NAME =	Chimaera-1
CONTRACTOR =	
CLIENT_OP_CO =	Shell Australia

(Inserted by DNRE - Vic Govt Mines Dept)

PE904815

This is an enclosure indicator page.
The enclosure PE904815 is enclosed within the container PE902489 at this location in this document.

The enclosure PE904815 has the following characteristics:

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     ITEM_BARCODE = PE904815
CONTAINER_BARCODE = PE902489
             NAME = Chimaera 1 Drilling Time Graph
            BASIN = GIPPSLAND
           PERMIT = VIC/19
             TYPE = WELL
          SUBTYPE = DIAGRAM
      DESCRIPTION = Chimaera 1 Drilling Time Graph. Figure
                    6 of WCR
          REMARKS =
     DATE_CREATED = 31/10/84
    DATE_RECEIVED = 19/11/84
             W_NO = W860
        WELL_NAME = Chimaera-1
       CONTRACTOR =
     CLIENT_OP_CO = Shell Australia
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(Inserted by DNRE - Vic Govt Mines Dept)

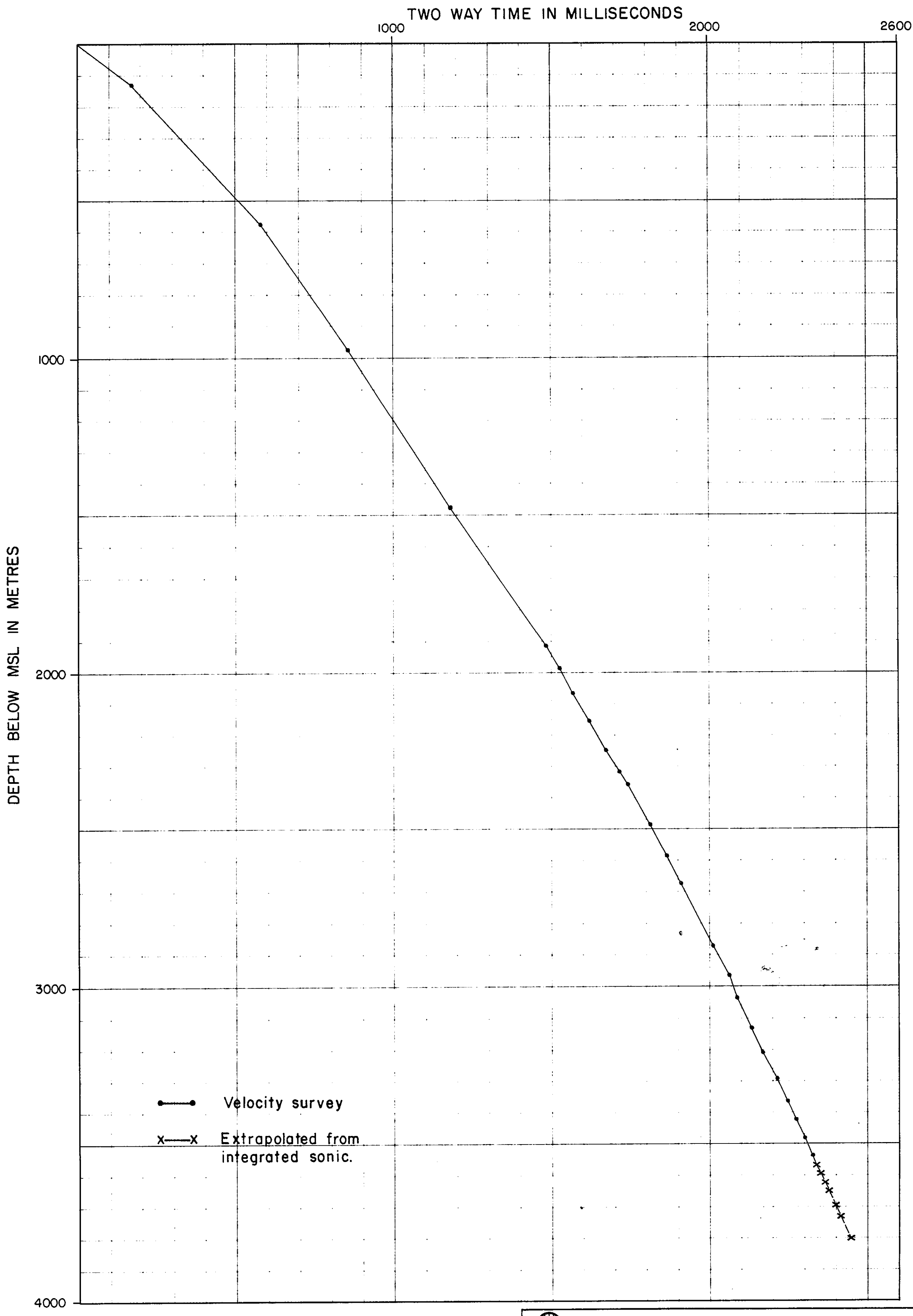
PE904816

This is an enclosure indicator page.
The enclosure PE904816 is enclosed within the container PE902489 at this location in this document.

The enclosure PE904816 has the following characteristics:

ITEM_BARCODE =	PE904816
CONTAINER_BARCODE =	PE902489
NAME =	Migrated Depth Map
BASIN =	GIPPSLAND
PERMIT =	VIC/19
TYPE =	SEISMIC
SUBTYPE =	HRZN_CONTR_MAP
DESCRIPTION =	Migrated depth map, (M SS) Lower Campanian Marker Basker-Manta-Chimaera area.
REMARKS =	
DATE_CREATED =	30/11/84
DATE_RECEIVED =	19/11/84
W_NO =	W860
WELL_NAME =	Chimaera-1
CONTRACTOR =	
CLIENT_OP_CO =	Shell Australia

(Inserted by DNRE - Vic Govt Mines Dept)



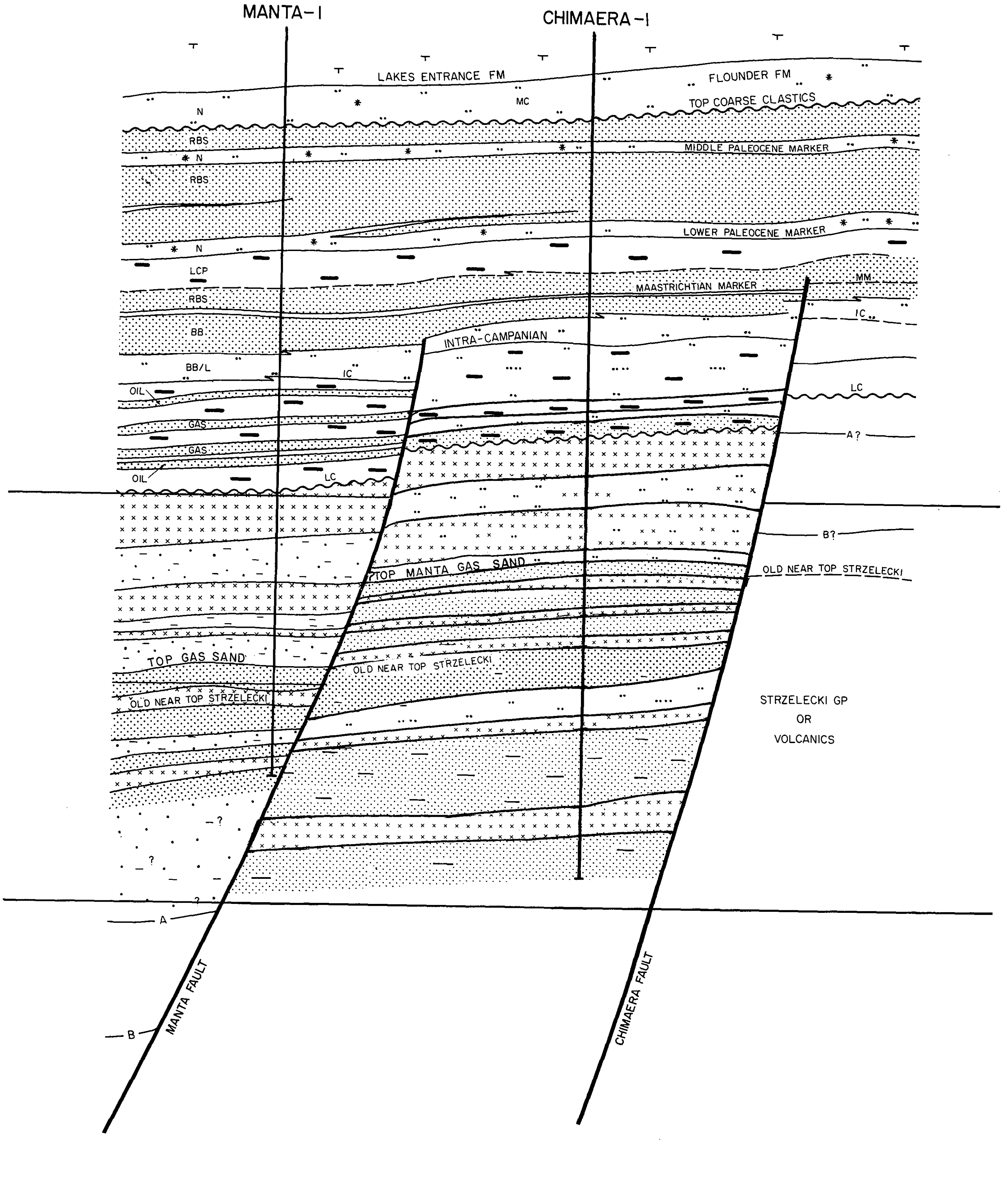
SHELL-AUSTRALIA E.& P. OIL AND GAS.

GIPPSLAND BASIN

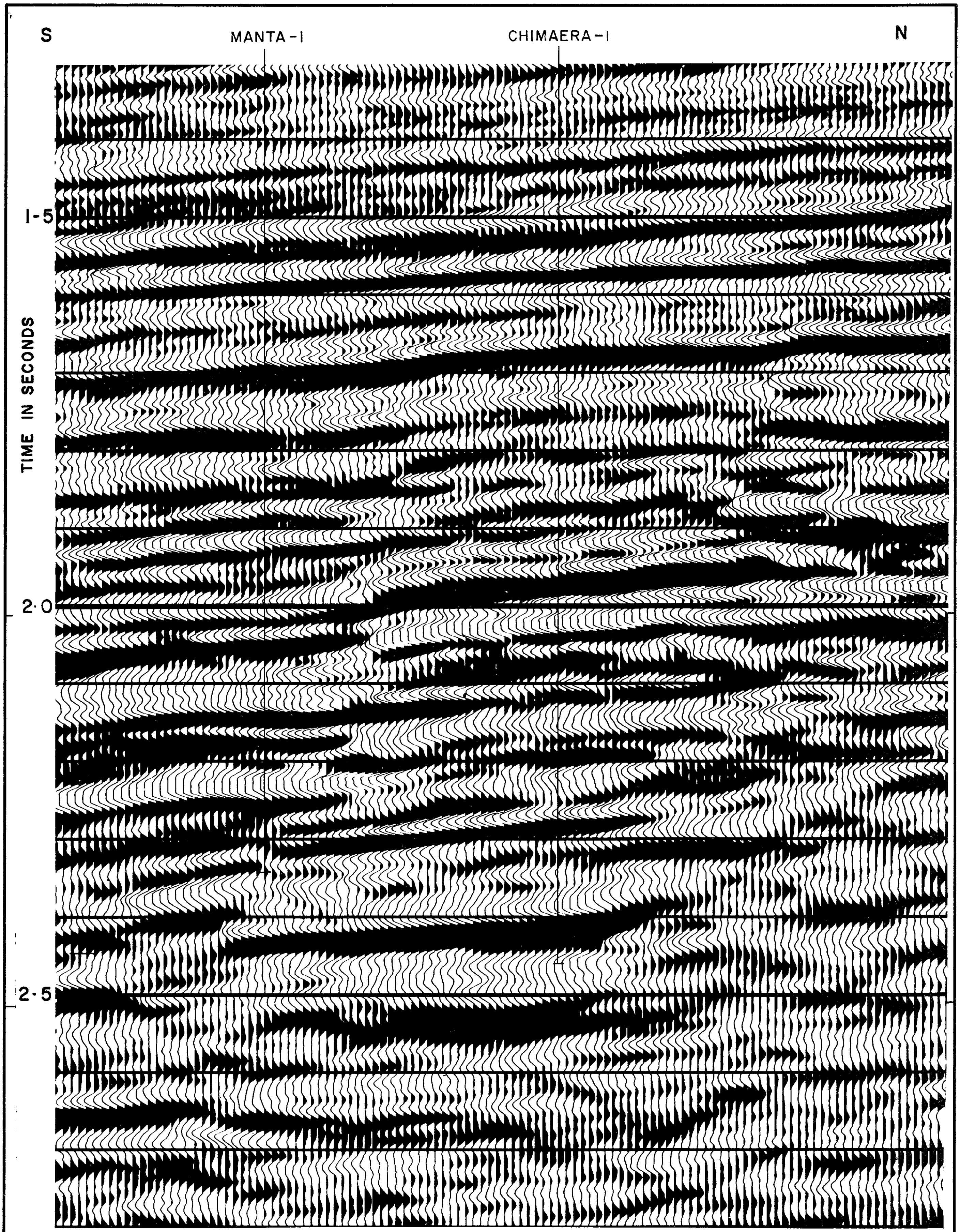
CHIMAERA - 1

TIME DEPTH CURVE

Author: EXH/4	Date: October 1984	Fig. 8
Report No.: SDA 610	Drawing No.: 19930	



MANTA-1
CHIMAERA-1
LAKES ENTRANCE FM
FLOUNDER FM
MC
TOP COARSE CLASTICS
N
RBS
MIDDLE PALEOCENE MARKER
LOWER PALEOCENE MARKER
LCP
MAASTRICHTIAN MARKER
MM
BB
IC
INTRA-CAMPANIAN
BB/L
OIL
GAS
LC
A?
B?
TOP MANTA GAS SAND
OLD NEAR TOP STRZELECKI
TOP GAS SAND
STRZELECKI GP
OR
VOLCANICS
A
B
MANTA FAULT
CHIMAERA FAULT



FACIES

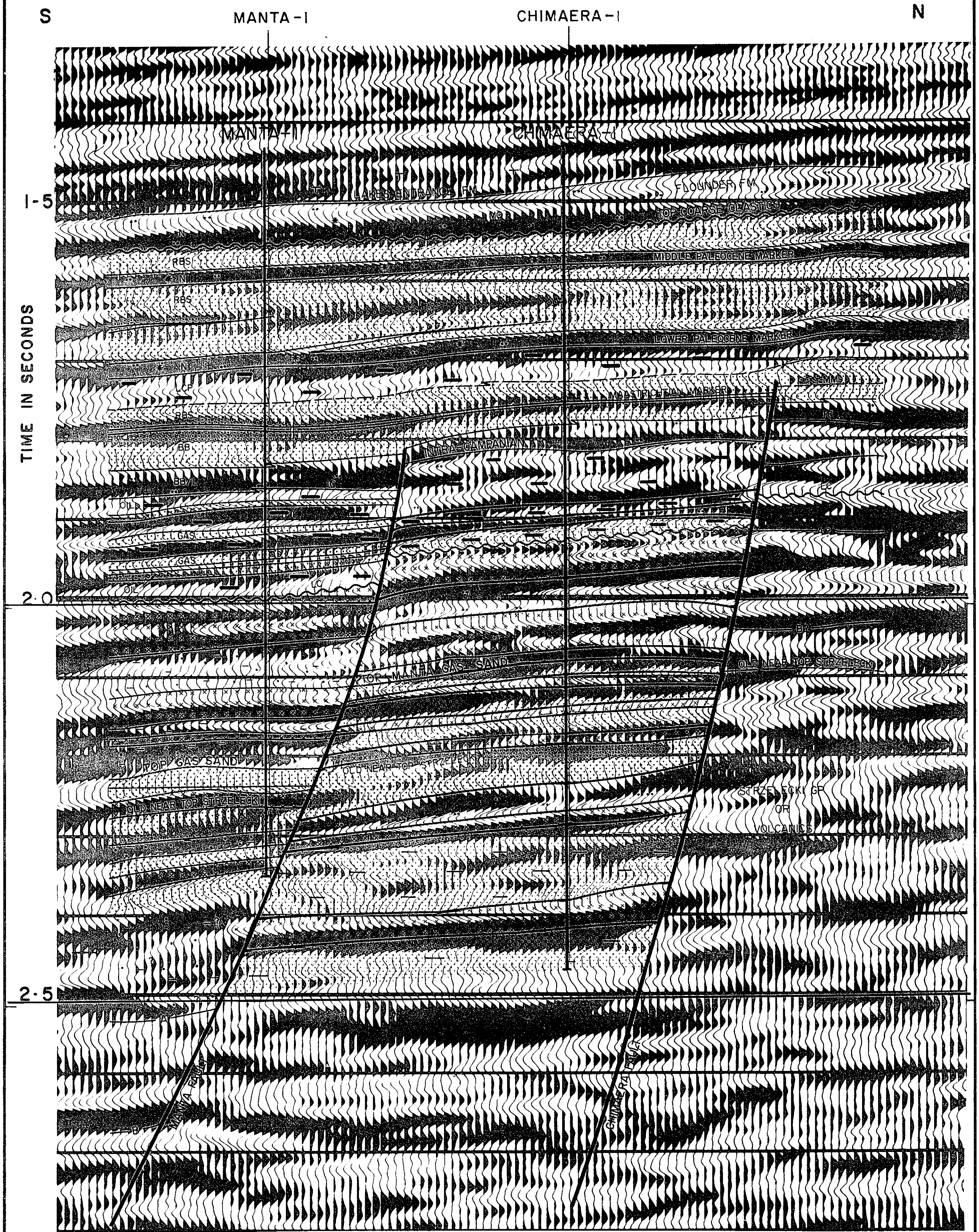
N	Neritic
RBS	Regressive Barrier Sand
BB	Back-Barrier
L	Lagoonal
LCP	Lower Coastal Plain

SHELL - AUSTRALIA E.& P. OIL AND GAS.

GIPPSLAND BASIN

DETAIL OF SEISMIC LINE GS81A-71A, SP. 5538-5441 SHOWING CORRELATION INTO CHIMAERA BLOCK

Author: EXH/4	Date: October 1984	Fig. 9
Report No.: SDA 610	Drawing No.: 19938	



FACIES

N	Neritic
RBS	Regressive Barrier Sand
BB	Back-Barrier
L	Lagoonal
LCP	Lower Coastal Plain

SHELL-AUSTRALIA E.& P. OIL AND GAS.

GIPPSLAND BASIN

DETAIL OF SEISMIC LINE GS81A-71A, SP. 5538-5441 SHOWING CORRELATION INTO CHIMAERA BLOCK

Author: EXH/4	Date: October 1984	Fig. 9
Report No.: SDA 610	Drawing No.: 19938	

PE601214

This is an enclosure indicator page.
The enclosure PE601214 is enclosed within the container PE902489 at this location in this document.

The enclosure PE601214 has the following characteristics:

ITEM_BARCODE =	PE601214
CONTAINER_BARCODE =	PE902489
NAME =	Petrophysical Evaluation
BASIN =	GIPPSLAND
PERMIT =	
TYPE =	WELL
SUBTYPE =	WELL_LOG
DESCRIPTION =	Petrophysical Evaluation
REMARKS =	
DATE_CREATED =	30/06/1984
DATE_RECEIVED =	19/11/1984
W_NO =	W860
WELL_NAME =	Chimaera-1
CONTRACTOR =	SHELL
CLIENT_OP_CO =	SHELL

(Inserted by DNRE - Vic Govt Mines Dept)

PE601213

This is an enclosure indicator page.
The enclosure PE601213 is enclosed within the container PE902489 at this location in this document.

The enclosure PE601213 has the following characteristics:

ITEM_BARCODE =	PE601213
CONTAINER_BARCODE =	PE902489
NAME =	Estimated Palynomaceral Distribution
BASIN =	GIPPSLAND
PERMIT =	
TYPE =	WELL
SUBTYPE =	DIAGRAM
DESCRIPTION =	Estimated Palynomaceral Distribution for Chimaera-1
REMARKS =	
DATE_CREATED =	31/10/1985
DATE_RECEIVED =	23/02/1988
W_NO =	W860
WELL_NAME =	Chimaera-1
CONTRACTOR =	SHELL
CLIENT_OP_CO =	SHELL

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PE601215

This is an enclosure indicator page.
The enclosure PE601215 is enclosed within the container PE902489 at this location in this document.

The enclosure PE601215 has the following characteristics:

ITEM_BARCODE =	PE601215
CONTAINER_BARCODE =	PE902489
NAME =	Well Correlation
BASIN =	GIPPSLAND
PERMIT =	
TYPE =	WELL
SUBTYPE =	CROSS_SECTION
DESCRIPTION =	Well Correlation for Chimaera-1
REMARKS =	
DATE_CREATED =	30/11/1984
DATE_RECEIVED =	19/11/1984
W_NO =	W860
WELL_NAME =	Chimaera-1
CONTRACTOR =	SHELL
CLIENT_OP_CO =	SHELL

(Inserted by DNRE - Vic Govt Mines Dept)

PE904812

This is an enclosure indicator page.
The enclosure PE904812 is enclosed within the container PE902489 at this location in this document.

The enclosure PE904812 has the following characteristics:

ITEM_BARCODE = PE904812
CONTAINER_BARCODE = PE902489
NAME = Chimaera 1 Well Summary Sheet
BASIN = GIPPSLAND
ON_OFF = OFFSHORE
PERMIT = VIC/P19
TYPE = WELL
SUBTYPE = MONTAGE
DESCRIPTION = Chimaera 1 Well Summary Sheet. Enclosure 2 of WCR
REMARKS =
DATE_CREATED = 19/11/84
DATE_RECEIVED = 19/11/84
W_NO = W860
WELL_NAME = Chimaera 1
CONTRACTOR =
CLIENT_OP_CO = Shell Australia

(Inserted by DNRE - Vic Govt Mines Dept)

PE604483

This is an enclosure indicator page.
The enclosure PE604483 is enclosed within the container PE902489 at this location in this document.

The enclosure PE604483 has the following characteristics:

ITEM_BARCODE =	PE604483
CONTAINER_BARCODE =	PE902489
NAME =	Composite Well Log
BASIN =	GIPPSLAND BASIN
PERMIT =	VIC/P19
TYPE =	WELL
SUBTYPE =	COMPOSITE_LOG
DESCRIPTION =	Composite Log (from WCR) for Chimaera-1
REMARKS =	
DATE_CREATED =	31/10/84
DATE_RECEIVED =	19/11/84
W_NO =	W860
WELL_NAME =	CHIMAERA-1
CONTRACTOR =	SHELL DEVELOPMENT (AUSTRALIA) PTY LTD
CLIENT_OP_CO =	SHELL DEVELOPMENT (AUSTRALIA) PTY LTD

(Inserted by DNRE - Vic Govt Mines Dept)