

- 20

## WELL COMPLETION REPORT

13 MAY 1992

PETROLEON LISION

LINDON NO. 2

**PEP 105** 

VICTORIA

## TAIPAN PETROLEUM PTY LTD

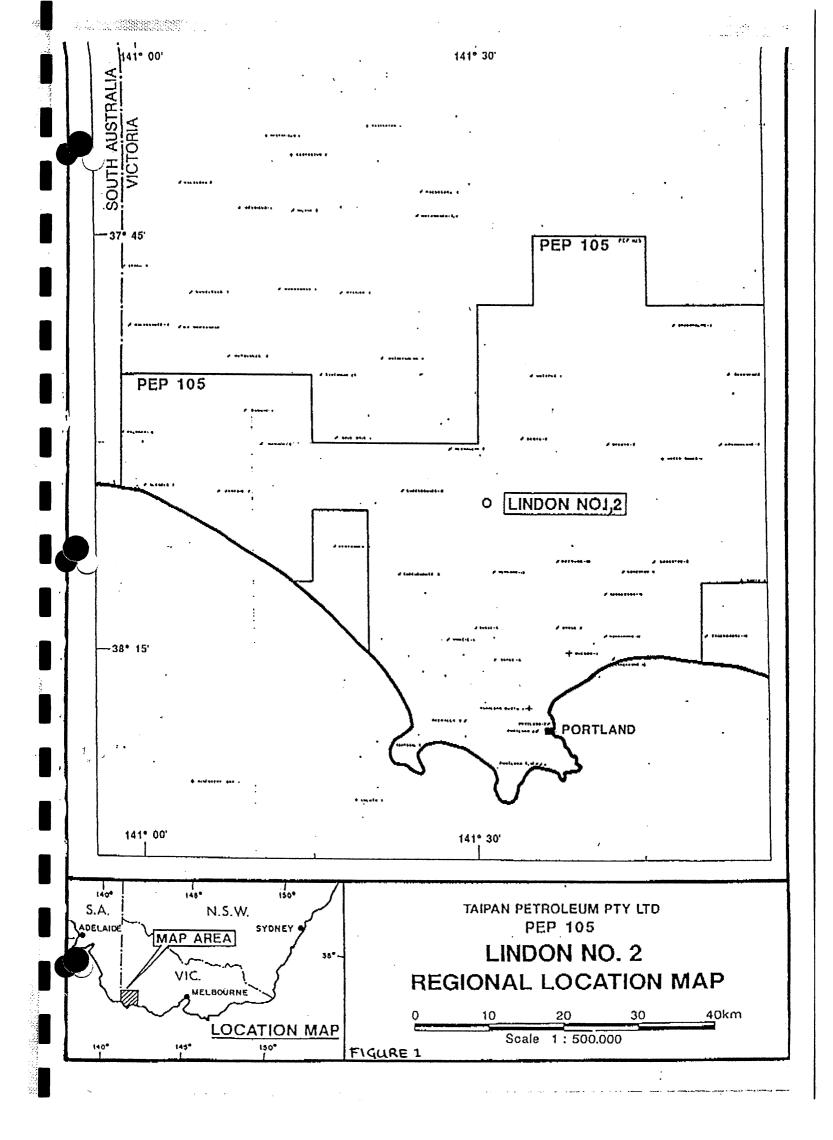
PREPARED BY GEOWESTE PTY LTD

## TABLE OF CONTENTS

						-	-
1.	SUMM. 1.1 2.2	ARY Geological Drilling					3 3 3
2.	INTRO	DUCTION					6
3.	3.1 3.2	STICS AND ENVIE Logistics Landholder Environment	RONMENT	AL CONS	IDERATIONS	3	7 7 7 7
4.	4.1 4.2	RVISION AND REF Company Contractor Reporting	PORTING				8 8 8
5. ,	5.1 5.2 5.3 5.4 5.5 5.6 5.7 5.8 5.9 5.10	ING DATA Well Design Pressure Contr General Data Rig and Equipm Casing and Cem Completion Drilling Fluid Water Supply ROP and Drilli Deviation Reco Time Distribut	nent Spe nenting Is .ng Bits ord		tions	1 1 1 1 1 1 1 1 1	9 9 0 0 2 5 6 6 9 9 9 0 0 2 5 6 6 9 9 9 0 0 2 5 6 6 9 9 0 0 2 5 6 0 9 9 0 0 2 5 6 9 0 0 9 0 0 2 5 0 9 0 0 9 0 0 9 0 0 9 9 0 0 9 9 0 0 9 9 9 0 9 9 9 0 0 9 9 9 9 9 9 9 9 9 9 9 0 9
6.	6.1 6.2 6.3 6.4	OGICAL DATA Objectives Stratigraphy Hydrocarbons Sampling and S Wireline Loggi		Examina	tion	2 2 2 2 2	1 1 2 5 6 7
7	CONTR	ACTORS AND SER	VICES			2	8
APPENDIX 1	-	WELL HISTORY					,
APPENDIX 2	2	DRILL STEM TES	T DATA				
APPENDIX 3	3	PRODUCTIVITY T	EST DAT	'A			
ENCLOSURE	1	COMPOSITE WELL	LOG				
ENCLOSURE	2	WIRELINE LOGS					
ENCLOSURE	3	LITHOLOGICAL L	LOGS (	added	by DNRE)		

page

		TAIPAN PETROL	EUM PTY LTD			LL : LINDON NO.			
		12-5-91 D : 25-5-91				SIN : OTWAY BASIN	•		
r	D. 970 C					NEMENT · PEP 10 T. 38° 04' 6·8'' LONO			
EL	EVATION	GL=63.3m ASM	L, <u>kB = 68</u> ·3m A		ISMIC D				
		FORMATION			(m) SUBSEA	LITHOLOGY	REMARKS / SHO		
	HEYTS	BURY GROUP			1				
	Port Co	mpell Limestone		G.L. 5·Om	63·3				
	Gellibra	nd Marl		187	- 119	-calcarenite, mart			
	Clifton	Formation		244	-176	calcarenite calcilatite			
	NIRRAN	NDA SUBGROUP							
	Narrawa	turk Formation		270	-202	Mart			
	Mepung	a Formation		349	- 281	calcarenite, mari			
	WANGE	RRIP GROUP		1		sandstone, minor	908·0 - 915·0 m		
	Dilwyn	Formation		407	- 33 <del>9</del>	claystone, minor basalt/dolerite	SST:45%-50% fluorescence		
	Pember	Mudstone		6 <b>60</b>	-592	siltstone, minor clay stone, slightly			
Pebble Point Formation				908	-840	carbonaceous sandstone-clayey, silty.	BG 0·5 units 915·0 – 919 m 20% – 5% fluoresco		
	SHERBF	OOK GROUP							
	Paaratte	e Formation		947	-879	sandstone			
-	TO	TAL DEPTH		970·0	-902				
H	surfac <b>e</b> -	-115m : 12 1/4"	C S	Jts 9 <sup>4</sup>	43 lb/1	t JAP K55 set at	111.74m cmtd to sur		
Ļ		Om ∶8½″	le l			Sumitomo J55 LT			
E		T	Ń o				E set at 894.5m		
	RES	NIL	G [ 3						
LOGS	1 suite only 966-100m : Dual laterolog, Microlog, Microlaterolog, sonic, gamma ray, caliper 963-750m : Photo-Density, Neutron, caliper, gamma ray 941-200m : CBL, VDL, GR 988-888m : GRS, CCL								
T E S T		904·3 - 912·85 m 902·7 - 914·1 mł							
ŝ			CON	VPLETIO	N				
ŇPLET-	POTENTI	COMPLETION COMPLETED AND SHUT-IN ON THE PEBBLE POINT FORMATION AS A POTENTIAL HEAVY OIL PRODUCER. INTERVAL PERFORATED 908-1-911-1 m SURFACE COMPLETION : CANADAWERKS 7 <sup>1</sup> / <sub>6</sub> 3000psi CHRISTMAS TREE							



recovered 29 deg API, 30 deg C poor point oil and completion brine without any formation water. The inferred influx rate was 4.5 BOPD.

#### 1.2 DRILLING

Following 5 days rigging up, Lindon No 2 was spudded at 0130hrs on May 12, 1991. The well was drilled to a total depth of 970mKB in 10 days and was completed for production testing on May 25, 1991 (day 14).

Lindon No 2 was drilled using Gearhart Drilling Services Rig No 2, a Superior Model 700E with a nominal depth capacity of 3350m, 4 1/2" drill pipe, 3000 psi annular B.O.P., 5000 psi double gate B.O.P. and SCR electric drive. Mud tank capacity was 400 bbls. Drilling depths were measured in metric units from the kelly bushing 4.8m above ground level. Two 5 man drill crews each worked 12 hr shifts, 7 days per week, supported by a toolpusher, fitter and dayman.

12 1/4" hole was drilled to 115m with ROPs of 20m per hr and 9 5/8" casing run to 111.7m and cemented to surface. B.O.P.s were nippled up and tested. An 8 1/2" bit was run in hole to drill out cement, float collar, casing shoe and 3m of new formation. A formation integrity test leaked off at an equivalent mud weight of 16.2 ppg. 8 1/2" hole was drilled to 891m using two bits. All mud tanks were then dumped and new polymer mud mixed and circulated. 8 1/2" hole was then drilled to 911.8m and the drill string tripped out for DST No 1.

DST No 1 was attempted over the interval 904.3-912.85m. The test head valve was not opened at the commencement of the test resulting in the status of the tool and the test being not determinable. The test was therefore aborted. 8 1/2" hole was then drilled to 914.1m and the drill string tripped out for DST No 2. DST No 2 was attempted over the interval 92.7-914.1m but the test packer failed to seat and the test was aborted. 8 1/2" hole was then drilled to the total well depth of 970m.

Following a 15 stand wiper trip wireline logs were run. Run 1, 966-100m, comprised dual laterolog, microlog, microlaterolog, compensated sonic, gamma ray and caliper. Run 2, 961-750m, comprised photo-density, compensated neutron, gamma ray and caliper.

Following a wiper trip, 7" production casing was run to 962.3m and cemented. The B.O.P.s were re nippled-up and 2 7/8" EUE tubing run in hole with 6" bit and casing scraper to tag plug at 945m. The casing was filled with a 6% KCl brine, the tubing pulled out and CBL log run from 940-200m. The log located the 7" casing radioactive pip tag at 882m and showed a continuous cement bond to 255m.

The bottom hole completion made provision for rod pumping, the rod pump to be landed in top profile of opened sliding sleeve. The packer, BHA and 2 7/8" tubing was strapped in hole under tension to position top gun at 908.8m to perforate interval 908.1-911.1m. A 180m brine cushion was used. The GR/CCL positioning log was run

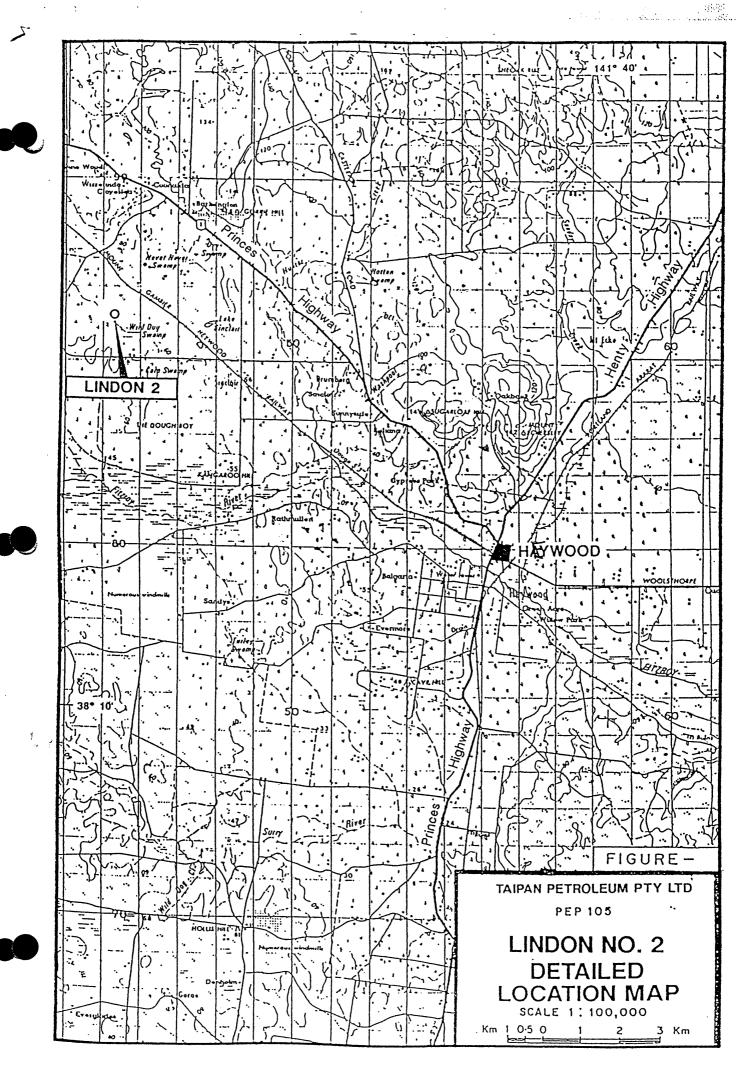


Figure 2

## 2 INTRODUCTION

The Lindon Prospect is located in the onshore Otway Basin, 30kms northwest of Portland in PEP 105 in the southwest corner of Victoria. Wildcat well Lindon No 1, drilled in 1983 by Beach Petroleum N.L. porous Tertiay Pebble Point Formation sandstone with significant oil shows. Although a drill stem test recovered heavily oil cut and gas cut mud, Lindon No 1 was plugged and abandoned. Taipan petroleum Pty Ltd re-evaluated the Lindon No 1 data and approached the PEP 105 permitees with a proposal to retest the Pebble Point Formation by drilling a well close to Lindon No 1. In December 1990 Taipan petroleum reached agreement for a 'Drilling Option' for the 'Lindon Prospect' with the PEP permitees (Gas and Fuel Exploration N.L. - operator, Beach Petroleum N.L., Victoria Exploration Inc., Crusader Resources N.L., Australian Hydrocarbons N.L. and Mosaic Oil N.L.).

Lindon No 2, was located as close as possble to Lindon No 1 (30m to the south), and was drilled during May. 1991. The well was completed for production testing and was tested with a swabbing unit.

## LOGISTICS, LANDHOLDERS AND ENVIRONMENTAL CONSIDERATIONS

### 3.1 LOGISTICS

lindon No 1 is located in a well developed rural area of southwest The region is well serviced with a large vessel deep Victoria. water port, a major rail terminal and an airline serviced airport, located at Portland, 30 km from the well site (see Figure 1). A properly maintained and utilised railway line passes within 1km of the well site and power lines and telephone lines pass immediately adjacent to the site. A sealed road passes within 1km of the site. A small township, Haywood, with motel and hotel accommodation and shops, is located 12km southeast of the well site (see Figure 2). The Lindon No 1 well site required only very minimal preparation. The pre existing Lindon No 1 site had not been fully reclaimed, the pad being still intact Access, requiring only minor extension to the south. The pre existing sump was reopened. Access to the well site was via sealed roads to 1 km from the site. The final 1 km utilised the access road constructed for Lindon No 1 which required only minor upgrading. All site work was completed by the landholder who also operated a gravel quarrying business on the property. No problems were encountered with rig Mobilisation and demobilisation and only minor rainfall occurred during operations. Drilling water was obtained from a bore on the property. No camp was established at the site and crews were accommodated at the hotel and motel in Haywood. The hotel supplied all food. A telecom line was run 1 km from the nearest existing cable and separate telephone and facsimile communications lines established at Taipan Petroleum's site office. Taipan established two caravans at the well site, one to accommodate Taipan site representatives and the other as a site office.

#### 3.2 LANHOLDER

The well site is located on a cattle property owned by Mr. B. Price who lives on the property. Agreement was reached with the landholder for the drilling operations. A satisfactory Compensation Agreement was reached between B. Price and Taipan Petroleum Pty Ltd. The landholder was engaged to construct the well site and to provide drilling water to the rig.

### 3.3 ENVIRONMENT

Lindon No 2 is located on very gently undulating cleared grazing land normally stocked with cattle. Approximately 2 hectares were utilised during drilling operations and this area has no trees or shrubs. Because the site for Lindon No 1 was still usable, very little construction was required for Lindon No 2 and the enviromental impact was minimal. Good weather conditions during drilling operations, a well gravelled access road and lateric soils at the well site, resulted in no disruption of the soil surface by vehicle movements around the drill pad. Following completion the wellsite was fenced and safety drains around the site were checked to ensure that any spillages that may occur would be contained on the site.

#### 4 SUPERVISION AND REPORTING

#### 4.1 COMPANY

Taipan Exploration was represented at the site by Mr. Griff Weste and by Taipan director Mr. Wayne Dimech, who were accommodated at the well site for the duration of the drilling program. Gas and Fuel Exploration, operator for PEP 105, was represented by their observor. Drill stem testing and production testing was supervised by Mr. Bill Waterhouse of Petroleum Engineering Services Pty Ltd.

#### 4.2 CONTRACTOR

Gearhardt Drilling Services provided an experienced toolpusher. Logistical support was provided from Gearhart Drilling Services Brisbane base.

#### 4.3 REPORTING

Approved IADC-API Daily Drilling Reports were completed by each drilling shift and were signed by the Gearhart Drilling Services toolpusher and by the Taipan Petroleum representative. A daily drilling and geological report was faxed daily to Taipan Petroleums Perth Office, to Gas and Fuel Explorations Melbourne office. to each of the other PEP 105 permitees, and to the Petroleum Division, Department of Manufacturing and Industry Development. Daily costs were faxed to Taipan Petroleum Perth office.

#### 5. DRILLING DATA

## 5.1 WELL DESIGN

Lindon No 2 was designed as a redrill of the uppermost 1000m of Lindon No 1. The well was located as close as possible to Lindon No 1, but at a safe distance (40m) to ensure that the Lindon No 1 hole and its zone of invasion was not intersected.

Well design was kept as simple as possible to keep drilling costs to a minimum. The relatively shallow prognosed total depth (940m), and the known drilling conditions required only a simple casing program. Stable surface conditions and the shallow prognosed depth for the 9 5/8" casing point (circa 110m) allowed design of the 12 1/4" hole without running a conductor. The use of a cellar jet was considered sufficient to maintain the surface hole.

Thin section studies of core samples taken from the Pebble Point Formation reservoir in Lindon No 1 indicated the presence of smectite clays and possible formation damage. This may have resulted in a sustantial loss of permeability resulting in only limited volumes of oil being recovered by DST. Lindon No 2 was designed to minimise the possibility of damage to the Pebble Point. At approximately 889m (15m above the top Pebble Foint), the bentonite mud would be dumped and displaced with a polmer - 6% KC1 "drill-in" mud. This would allow the reservoir to be drilled with a clean mud of minimal weight and with a thin tough polmer mud cake. 6% KC1 was considered to provide sufficient inhibition.

The Pebble point was to be drilled slowly (500 lb WOB), at minimal pump rate (55 SPM, 160 gpm), to minimise hydraulic damage to the formation and to maintain an in-guage hole to provide a good DST packer seat.

### PEBBLE POINT FORMATION HYDRAULICS

Jet size	12-11-11
SPM	55
GPM	160
Annular velocity past drill pipe	75 FPM
Annular velocity past drill collars	118 FPM
KCl mud weight	8.7 ppg
Surface pressure	450 psi
Bit pressure loss	234 psi
Nozzle velocity	173
Impact force	124
Bit H.P.	21

Surface	Н.Р.		42

% H.P. at bit

52

In order to ensure that test intervals did not include the oil/water contact, a 3m interval was planned for the first DST, assuming continuous oil shows. The drilling program was to drill 3m into the Pebble Point, conduct DST No 1, then drill metre by metre in an attempt to pick the oil/water contact, conducting further DSTs until the oil/water contact was intersected.

7" casing and 2 7/8" tubing sufficient to complete the well for production testing of the Pebble Point Formation was brought to the well site prior to the completion of testing. Other completion equipment (Christmas tree. etc.), was sourced and held on standby.

#### 5.2 PRESSURE CONTROL

Lindon No 1 intersected no reservoirs or hydrocarbons in the uppermost 110m and therefore no pressure control was considered necessary for the 12 1/4" hole. The BOP stack was to be nippled up on the 9 5/8" casing to provide pressure control for potential reservoirs to be intersected in the 8 1/2" hole. Gearhart drilling Services Rig 2 was equipped with a 13 5/8" 3000 psi spherical annular BOP, a 13 5/8" 5000 psi double gate BOP, a 160 gal accumulator, and 3000 psi choke manifold. The driller on each shift held current well control certificates. Drilling pocedures followed guidelines set out in the approved Drilling Operations Manual and in the Emergency Procedures Manual.

Following cementing of the 9 5/8" casing (returns to surface observed), the BOP stack was nippled up and tested. A leak-off test was carried out when 3m of new formation had been drilled in the 8 1/2" hole. Leak-off occurred at an Equivalent Mud Weight of 16.2 ppg, which was more than sufficient for the prognosed total depth of the well. considering that no abnormal pressures were encountered in Lindon No 1.

Lindon No 2 was completed with a Canadawerks 11" 3000 psi X 7", 3000 psi "C" Tubing Spool, pressure tested to 3000 psi. The BOP stack was nippled up on the "C" tubing spool and tested to 1500 psi prior to running tubing. Prior to perforating, the whole Canadawerks Christmas tree and eah valve separately, were tested to 2000 psi against the two way check valve in the tube hanger. The lines to the wing valve on the "C" tubing spool were tested against the valve to 3000 psi.

5.3 GENERAL DATA

Well Name: Lindon No 2 Status: Completed as possible production well Type of Hole: Appraisal

Operator for tenement: Gas and Fuel Exploration N.L. Operator for well: Taipan Exploration Pty Ltd Tenement: PEP 105 PEP 105 permitees: Gas and Fuel Exploration N.L. (at time of drilling) Beach Petroleum N.L. Victoria Exploration Inc. Crusader Resources N.L. Australian Hydrocarbons N.L. Mosaic Oil N.L. Location: Otway Basin Southwest Victoria 30km northwest of Portland 30m south of Lindon No 1 Latitude 38 04 6.8 Longitude 141 30 54.7 Nearest well: Lindon No 1 Beach Petroleum, PEP 105, 1983/1984 30m north of Lindon No 2 Elevations: ground level 63.3m AMSL Kelly Bushing 68.3m AMSL Drill Floor 68.0m AMSL Drill depths measured from kelly bushing Total well depth: 970.0m (strapped drillers depth) 962m (loggers-unable to reach T.D.) Spud date: 12th May, 1991 @ 0130hrs Total depth date: 20th May, 1991 @ 2130hrs Well completed: 25th May, 1991 @ 1345hrs Rig released: 25th May, 1991 @ 2000hrs Drilling Contractor: Gearhart Drilling Services Pty Ltd Drilling Rig: G.D.S. Rig 2, Superior Model 700E SCR  $\,$ Hole data: GL to KB = 4.98m12 1/4" tricone. cellar jet GL - 115m 115 - 970 m8 1/2" tricone Drilling fluids: supplied by Australian Mud Company Ltd bentonite (Ausgel) GL - 892m 892 - 970 mKCl-polymer Drill Stem tests: Halliburton Reservoir Services/Expertest DST No 1 904.3 - 912.85m DST No 2 902.7 - 914.1m

Wireline logging:	BPB Wireline Services one suite only, at T.D. 966 - 100m Dual Laterolog Microlog Microlaterolog Compensated Sonic Gamma Ray Caliper
	963 - 750m Photo Density Compensated Neutron Caliper
	Gamma Ray 941 - 200m Cement Bond Log Variable Density Log Gamma Ray 988 - 888m Gamma Ray Spec.
	988 - 888m Gamma Ray Spec. CCL
Casing:	5.2 - 111.74m 115m (9 jts) 9 5/8" JAP 43 lb/ft K55 set @ 111.74m, cmtd to surface
Production casing:	4.9 - 962.3m 962m (80 jts) 7" Sumitomo 26 lb/ft J55 set at 962.3m, cmtd to 255m (by CBL log)
Production tubing:	4.8 - 894.5m 899m (91 jts) 2 7/8" 6.5 lb/ft EUE J55 hung above PBTD of 945m
Perforations:	interval 908.1 – 911.1m Vann Systems 5" TCP guns
Surface completion:	Canadawerks type C, 11",3000 psi X 7 1/16" with "S" secondary seal and pressure tested to 2000 psi. Fitted with 2 1/16" 3000 psi flanged gate valve and 2 9/16" and 2 1/16" 3000 psi companion flange.

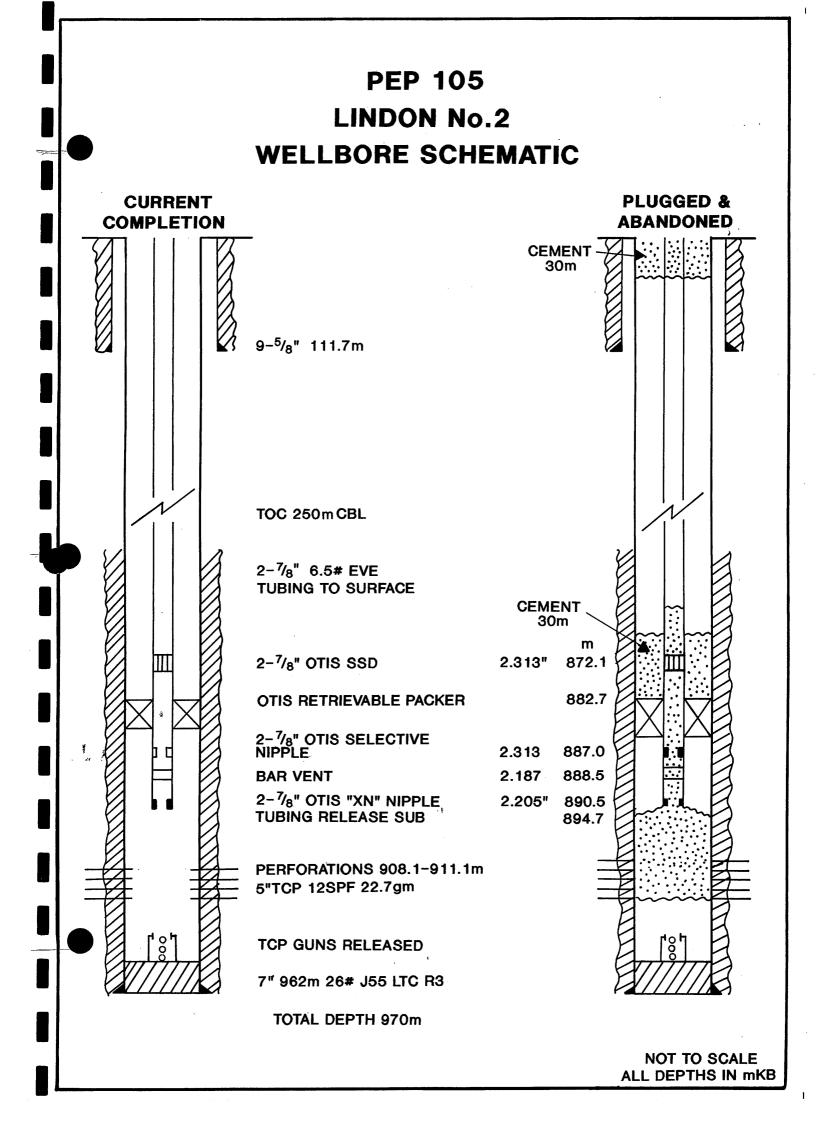
5.4 RIG AND EQUIPMENT SPECIFICATIONS

5.4.1 Drilling Rig

<u>Make/model</u> Superior Model 700E SCR\

Depth capacity 11,000 ft (3350m) with 4 1/2" DP

Drawworks SCR electric driven, complete with auxillary brake and sandreel. Maximum input H.P. 1000, driven by EMD motor. One Foster Model 37 make-up spinning cathead. One Foster Model 24 break-out cathead. Transmission-2 speed with high chain 1 1/4' triple 26t to 24t twin



disc PO218 air clutch -low chain  $1 \frac{1}{4}$  triple 20t to 39t twin disc PO218 air clutch Engines four Caterpillar Model 3412 PCTA diesel Mast Floor mounted cantilever mast Dreco - model No M1273-510 designed in accordance with A.P.I Specification 4E 'Drilling and Well Servicing Structures'. Clear working height - 127 ft Base width - 13 ft 6 ins Hook load - gross nominal capacity 510,000 lbs - capacity with 10 lines = 410,000 lbs with 8 lines = 365,000 lbs 6 lines = 340,000 lbswith with 4 lines = 306,000 lbs Maximum wind load 100 mph - no setback Maximum wind load 84 mph - rated setback Adjustable racking board with capacity for 108 stands of 4 1/2" DP. 10 stands of 6 1/2" DC. 3 stands 8" DC Crown block 215 ton with 5 X 36" sheaves and one fastline sheave grooved 1 1/8" Substructure One piece, 14 ft H X 13 ft 6" W X 50 ft L. 12 ft BOP clearance Set-back 200,000 lbs, casing 210,000 lbs. Rig lighting explosion proof fluorescent. Travelling block One 667 Crosby McKissock 250 the combination block hook Webb Wilson 250 ton Hydra-hook unit 5 - 36" sheaves Kelly drive one 250 HDP Varco kelly drive bushing. Ke<u>lly</u> One square kelly drive 4 1/4" X 40 ft complete with scabbard. Swivel One Oilwell PC-300 ton. Rotary table One Oilwell A 20 1/2" rotary table torque tube driven from drawworks. <u>Air compressors and receivers</u> Two Leroi Dresser Model 660A air ompressor packages with 10 H.P. motors rated at 600 V, 60 HZ, 3 phase. Receivers each 120 gal, fitted with relief valves. Instrumentation One 6 pen Drill Sentry recorder to record: weight - Martin Decker Sealtite, plus Cameron deadline type

penetration
pump pressure
electric rotary torque
rotary speed
pump SPM
One drillers console with:
Martin Decker weight indicator electric rotary torque guage
pit scan
SPM guage (2 per console)
rotary RPM guage
one set of Double Shot
one Baroid mud kit

Drilling line 5000 ft 1 1/8" Tiger brand

<u>Generator</u> Four Brown Boveri 600 V, 3 phase 60 HZ AC generators, powered by 4 Cat 3412 PCTA diesel engines.

<u>Fuel tanks</u> One 140 bbl One 6000 gals

#### 5.4.2 Pressure Control System

BOP's and accumulator One Hydril 13 5/8" 3000 psi spherical annular BOP. One Hydril 13 5/8" 5000 psi flanged double gate BOP. One Galaxie 13 5/8' 5000 psi 3000 double studded daptor flanges. One cup tester. One Wagner model 130-160 3 BND 160 gal accumulator with 16 11 gal bladder bottles, 1.5gal/min auxillary air pump, hydraulic control panel with hydraulic readout guages for annukar pressure, accumulator pressure, manifold pressure. One Wagner model GMSB-5A 5 station remote drillers control.

<u>Kelly cocks</u> One Griffith lower kelly cock One Griffith upper kelly cock

Drill pipe safety valve One Griffith 6 1/2" inside blowout preventers (4 1/2" H) One Griffith 6 1/2' stabbing valve (4 1/2")

<u>Choke manifold</u> One McEvoy choke and kill manifold 2", 3000 psi

#### 5.4.3 Mud System

<u>Mud tanks</u> One 25 bbl pill tank Two 108 bbls mix tanks One 120 bbl reserve tank One 120 bbl desilt tank One 120 bbl desand tank

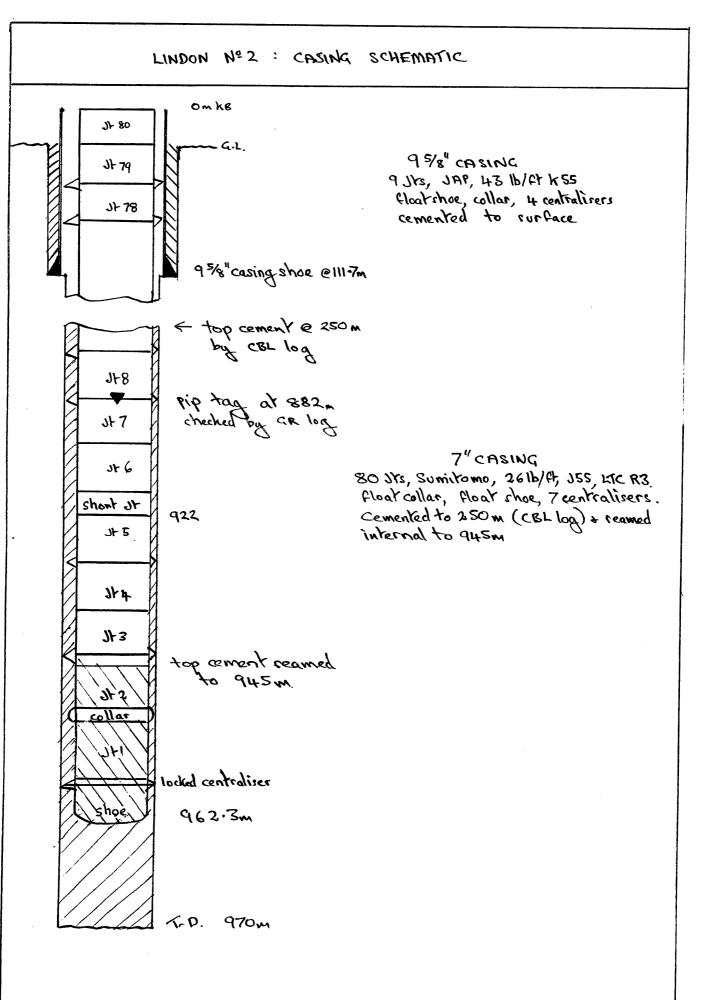


FIGURE 3

One 130 bbl shaker tank One 15 bbl sand trap

Water tanks One 400 bbl

<u>Mud pumps</u> One Gardner Denver model PZHVE 750 driven by 800 HP EMD motor. One National KSH-280 6" X 12" Duplex powered by 2 GM 6-71 engines.

<u>Mixing pumps</u> Five Mission Magnum 5" X 14" centrifugal pumps complete with 50 HP 600 V 3 phase explosion proof electric motors.

<u>Trip tank pump</u> One Mission Magnum 2" X 3" centrifugal with 20 HP expl. proof motor

<u>Mud agitators</u> Six Geolograph/Pioneer 40 TD - 15" "Pitbull" agitators with 15 HP electric motors.

<u>Shale shakers</u> One Brandt dual tandem shale shaker.

Desander One Pioner T8-6 Sandmaster desander.

<u>Desilter</u> One Pioneer T12-4 Siltmaster desilter.

#### 5.4.4 Drill Pipe and Collars

Drill pipe 1000 ft (326 jts) 4 1/2' grade E 16.60 lb/ft hard banded drill pipe

Drill collars 25 X 6 1/2" OD drill collars 3 X 8" OD drill collars 9 jts 4 1/2" Hevi-wate drill pipe

## 5.5 CASING AND CEMENTING

## 5.5.1 Surface Casing

See Figure 3 9 joints (115m) 9 5/8" JAP 43 lb/ft K55 with float collar, float shoe and 4 centralisers. RT-casing head: 5.2m, set at 111.72m Cemented to surface (cement returns observed) 150 sx class A cement in 19 bbls water at 2% CaCl2 (40% excess), displaced with 25 bbls water, 1000 psi Cement tagged at 91m, float at 99.7m, shoe at 111.7m Formation integrity test achieved 16.2 ppg equivalent mud weight

5.5.2 Production Casing

See Figure 3 80 joints (962m) 7" Sumitomo 26 lb/ft J55 LTC R3 with float collar, float shoe, 7 centralisers. Top float collar at 947m Pip tags at 882.7m-driller, 882m-CBL/gamma RT-casing spool 4.9m to casing shoe at 962.3m Cemented to 255m (from CBL log) Internal cement reamed to 945m Lead slurry (750-255m) 12 lb/gal Tail slurry (970-750m) 15.7 lb/gal

### 5.5.3 Production Tubing

See Figure 4 91 joints (899m) 2 7/8" 6.5 lb/ft EUE J55 Pip tag at 882.7m on top of packer (882.8m by GR/CCL log) Hung above PBT of 945m Mechanical tubing release at 894.7m Top shot at 908.1m

#### 5.6 COMPLETION

5.6.1 Bottom Hole Completion

See Figure 4 Completion interval 908.1 - 911.1m - top 3m of Pebble Point Fm. Single packer, single string (2 7/8"EUE) Provision for rod pumping - rod pump to be landed in top profile of opened sliding sleeve. Perforations carried out under drawdown. 5" TCP guns run on dry tubing and loaded at 12 spf with 22.7 gm RDX charges.

5.6.2 Surface Completion

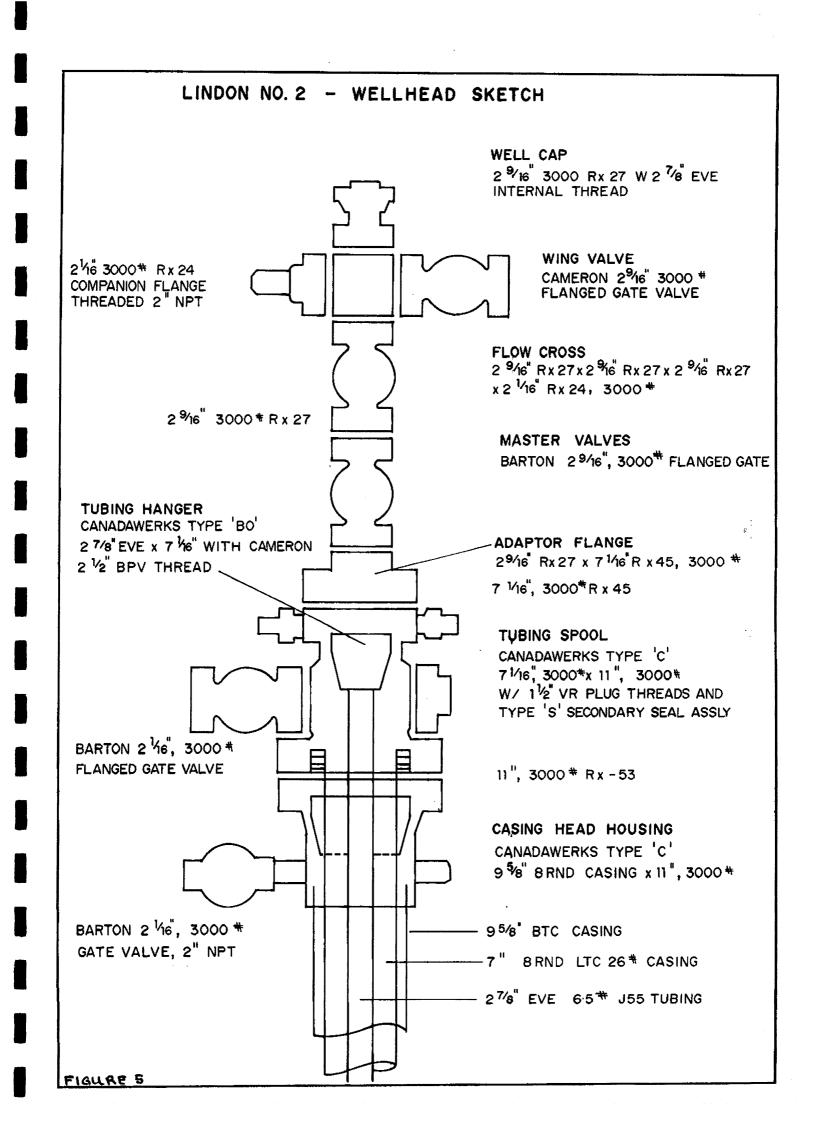
See Figure 5 Canadawerks Type "C" 7 1/16" 3000 psi X 11" with Type "S" secondary seal, Barton 2 1/16" 3000 psi gate valve at 9 5/8" casing head, Barton 2 1/16" 3000 psi flanged gate valve at tubing spool, Barton 2 9/16" 3000 psi flanged gate master valve to Cameron 2 9/16" 3000 psi wing valve and 2 1/16" 3000 psi RX24 companion flange and 2 9/16" 3000 psi well cap.

## 5.7 DRILLING FLUIDS

#### 5.7.1 Supply and Control

All drilling fluids were supplied by Australian Mud Company Limited, which company also provided a recommended mud program. Australian Mud Company also provided an experienced mud engineer who supervised preparation and maintenance of all drilling muds during the drilling operations and prepared a daily mud report. Mud tests were carried out on a routine basis. Full tests were carried out by the mud engineer three times per day and basic parameters checked by the drillers 3 times per drilling shift. Drilling fluids were supplied from Adelaide.

L.,				Company		Wen Name		Field		Type L∕O	
	╈╋╋╋			TAIPA	N PETI	STG Perforation	van # 2	B	TTOM H	OLE (AN	NE FTIM
				Country	•	STG Perforation	าร	Temp		PBTD	
				AUSTI	ALIA	12 SPF					
	╄ <del>╺╋╺┥╸</del> ╋╋╋					omp Test E Single		Fluid Type +	#		6.42 a.m.
						ST Dual		RAM at TOP	Shot		
				Tubing	ze 7/8	Weight	Grade 5-55	Thr	ead	De	pth
┛┼┼┼				Casing	<u>.</u>						<u> </u>
				Liner							
				Workstring	•						
							-		1		<u> </u>
				No.		Description		Depth	Length	O.D.	I.D.
			+	2	<u>1/8 KUE</u>	TUBING TO	SURFACE				
	In R R										
			<u>     </u>	07	75 51101	NG SLEEVE		971.01	0.075	-	
						NY OLLEVA		872.06	0.915	1	
			<u>     </u>				······				
┠┼┼┼			┼┼╊			27/8 EVE		873.04			
		$\mathbf{N}$	┼┼┠			WE MARKER		882.70		=	
			╪╪╉	07	IS RETRI	EVABLE PACK	ER	882.70	1.155		2.50
			╞╧═╋						l	L	
					21/8 EC	UE PUP JOINT	-	883.86	3.085		
				07	<u>'S SELL</u>	ECTIVE LAND	ING NIPPLE	\$86.95	0.37		2.313
			┟┼┨								
	╶┿┼┽╂╎┽╂		+	<u> </u>	27/8 E	UE PUP SOIN	Γ	887.32	1.17		
					•						
				MA	KIMUM D	UFFERENTAL B	ARIJENT	888.49	0.735	3.875	2.187
	┼┼┼┣┿┿╂					UE PUP SOIN		889.22			~ 101
	┿┿┿╋┿┿╋				<u> </u>		· · · · · · · · · · · · · · · · · · ·	001-22	1-2 13		
	╶┼ <del>┊╷╞╻┥╕</del> ┫╴ ╶┼╶┽╴┨╴╧╿╶╧┨			07		NIPPLE		890.47	0 300		
					<u>IS XN</u>	NIPFLE		810.41	0-395		2.205
				10	1 2 - 10						
		┼┼┼┼		<i>i</i> 0		EUE PUP SOL	NT	890-86	3.85		
	┼┼╊┿┿╉								<u> </u>		
				/1£		<u>L TUBING R</u>		894.7/	0.51	3.375	2.25
			╧╧┛╸			LATCH 2-25					
				4'	<u>2 1/8 E</u>	VE PUPSOINT		895.22	1.185		
┠┼┼┼		++++									
			$\pm 1$	X-0	OUER 2	. <u>1/8 EVE BOX X</u>	23/8 EVE PIN	896.41	0.16		1.99
				13	SOINT ;	23/8 EVE TU	RING	896.57	9.665		1.99
			╧╋								
		+	+								
<u></u> <u> </u> <u> </u>			$\mp$	23	18 MEC	HANICAL FIRM	VG HEAD	906-23	1.515	3.375	1.56
		┠╎┼┼┼	#			PACER		907.75		5.00	
		┠┼┼┼┼	ŢΓ						~ ~~		
				TOP	SHOT			908.1	-	_	
	╄╾ <mark>╎╼<mark>┨╶┾╴┝╶┥</mark>╺┥</mark>	┠┼┼┼┼	╪╏								
	╎┼┨┼┼┼┼	┣╪┼┿┾	╧┫	141.	TEDILAI	, 5in 12 SPF, 22	764		3.00	5.00	
╅┿┿	╞╌┼╋╶┼╾┼╶┥┥	┠╌┼┼┥┼	╧┠╴	1	•	, 011 12 017, 22 407		911.1			
╞┼┼┼		┣┼┼┼┿				TION	:				
			╧┠╴			TON			0.23		
		┢╌╁╌┠╌┠╴	╧┠╴	BUL	L PLUG		1951		0.05	5.00	
J <del>  }-}-</del>	$\left  \begin{array}{c} \\ \\ \\ \end{array} \right  \left  \begin{array}{c} \\ \\ \end{array} \right  \left  \begin{array}{c} \\ \\ \\ \end{array} \right  \left  \left  \left  \begin{array}{c} \\ \\ \\ \end{array} \right  \left  \left $	+   + + +			Pr	repared By	LRE 4	Office		Talant	000



### 5.7.2 Hole Above Target Reservoir (surface to 891m)

No hole problems were anticipated for the formations overlying the Pebble Point and a simple, cheap mud was considered adequate. The 12 1/4" hole and 8 1/2" hole to 891m were drilled using a simple bentonite mud system. A full volume of mud (400+ bbls) was used comprising Ausgel with minor soda ash and caustic soda for control of pH and hardness. The high clay content of the formations drilled necessitated heavy dilution to maitain the required mud weight and viscosity. Little control of filtrate loss was possible. From 719m CMC-EHV was added to reduce the filtrate loss. Solids control was limited by breakdown of the desander and desilter and this necessitated some dumping and make up of additional new mud.

#### 5.7.3 Drilling From 891m to T.D.

Evaluation of Lindon No 1 well core from the Pebble Point indicated the presence of smectite clays and that these clays suffered significant swelling by contact with the drilling fluid. The mud program for Lindon No 2 was designed to minimise possible swelling by using a completely fresh KCl-polymer mud to drill the target zone, maintaining strict control of the fluid loss and pH. KOH was used instead of NaCl to reduce dispersive effects.

At 891m the hole was circulated clean, a high viscosity pill pumped and the drill bit pulled to the casing shoe. All mud was dumped, the mud tanks cleaned and a complete new polmer mud comprising KCl, Drill-Pac, Aus-Dex, and KOH. This mud was conditioned and used to drill through the Pebble Point Formation target reservoir with API filtrate at 6.0 cc and 6% KCl. The filter cake was tough and thin. High viscosity pills were pumped prior to both DSTs.

# DRILLING FLUID PARAMETERS

PARAMETER	PREI	FERRE	D RANGE		AC	HIE	VED RANGE
<u>TOP HOLE</u> (surface t	o 891m)						
mud weight (ppg)		8.7	- 9.2			8.5	- 9.2
viscosity (sec/qt)		38	- 48			38 -	- 48
РH		9.0	- 9.5			9.5	
API filtrate (ml/30	min)	bel	ow 15cc			12 -	- 22
yield point (lb/100	sq ft)	8 -	10			10	- 16
sand (%)		0.5				tr -	- 1
<u>RESERVOIR</u> (891m to	T'D)						
mud weight (ppg)		8.9	- 9.1		2	3.7	- 8.9
viscosity sec/qt)		45	- 48			15 -	- 49
рН		9.0			•	9.5	- 9.6
API filtrate (ml/30	min)	bel	ow 8cc			1.2	- 6.0
yield point (1b/100	sq ft)	6 -	8			15 -	- 20
5.7.4 Drilling Flu	id Consump	otion					
ITEM	PROGNOSEI	) CON	SUMPTION	ACTU.	AL.	CON	NSUMPTION
<u>Surface - 891m</u>							
Aus-Gel	250	X 25	kg	236	X	25	kg
CMC-EHV	5	X 25	kg	9	Х	25	kg
Soda ash	3	X 25	kg	3	Х	25	kg
Caustic soda	5	X 25	kg	2	Х	25	kg
<u>891m - TD</u>							
DrillPac	20	X 50	1 b	20	Х	50	1 b
Aus-Dex	48	X 25	kg	60	Х	25	kg
КОН	9	X 25	kg	6	Х	25	kg
KC1	240	X 25	kg	280	Х	25	kg
Aus-Gel		nil					

### 5.8 WATER SUPPLY

Drilling water was supplied from a water bore located approximately 700m from the well site and on the same property. water was carted on request by the landholder using a 10.000 gal tank on a tip truck. analysis data of fthe bore water showed normal salinities and that the water was suitable for drilling and cementing.

## 5.9 ROP AND DRILLING BITS

High rates of penetration (up to 0.5 min/m) were achieved in the predominantly very soft, unconsolidated Tertiary sediments except where bit balling occurred. ROP slowed dramatically in hard basalt/dolerite bands where the stabilisers tended to hang up. ROP was deliberately slowed whilst drilling the target reservoir.

The 12 1/4" hole was drilled with one Reed HP 12J bit. Three bits were used for the 8 1/2" hole, two R.B.I. HP 2 and one used Varel L116. Excessive bit wear in the 8 1/2" hole resulted from bit balling caused by the very sticky nature of the Teriary marls and by damage drilling very hard basalt/dolerite horizons. Bit details are given in the Bit Record.

### 5.10 DEVIATION RECORD

Hole deviation was measured using a Totco "Godevil". Surveys were conducted at 50m intervals in the 12 1/4" hole and at 100m intervals in the 8 1/2" hole. Maximum measured hole deviation was 1 deg. at total depth.

#### DEVIATION RECORD

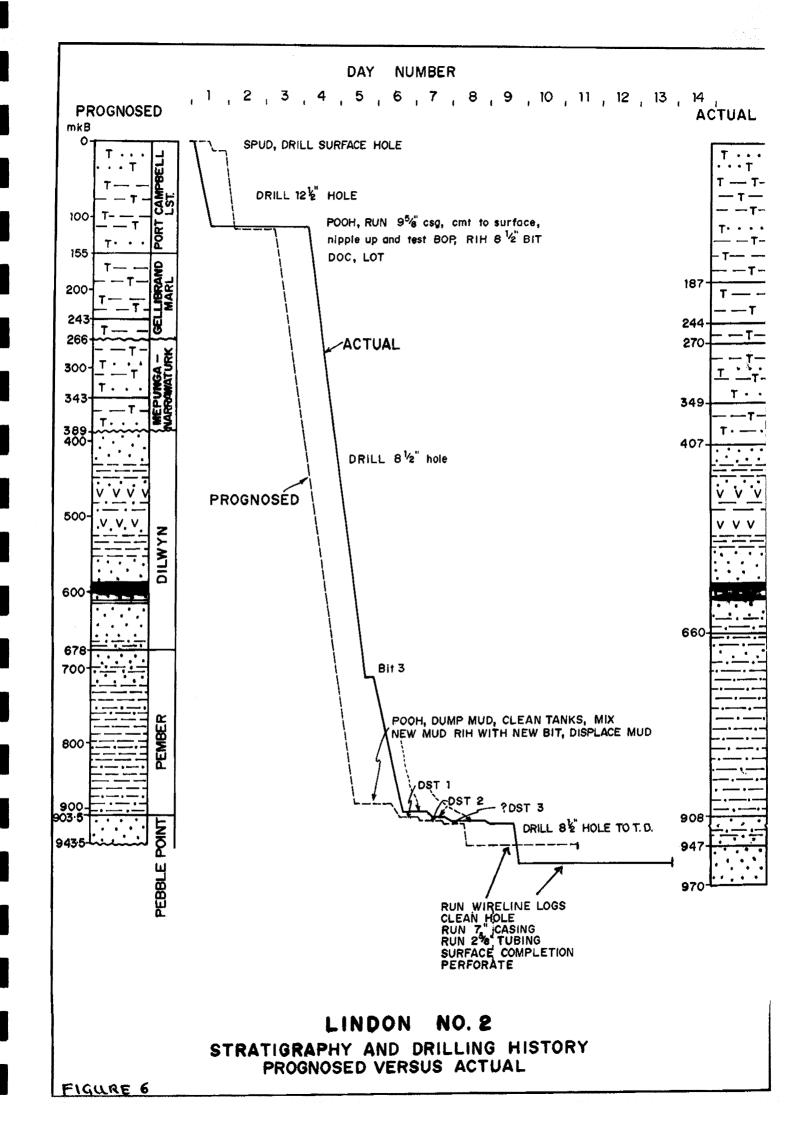
DEPTH (m)	DEVIATION (deg.)
24	0.75
58	0.75
103	0.25
216	0.25
311	1.0
548	1.0
879	0.75
970	1.0

## 5.11 TIME DISTRIBUTION

Lindon No 2 was completed in 14 days from spud-in, 3 days behind schedule. The most significant delays were caused by delays during drilling. The prognosed time to drill to 891m was 4 days. Actual time was 6.7 days. The main causes of drilling delays were repairs to the rigs BOPs and hoke manifold valves (23 hrs), which were seized following 18 months rig stacked time close to the ocean, and problems with the rigs SCR (silicon controlled rectifier) power system. Time distribution is summarised in the table below and in Figure 6.

## DRILLING TIME DISTRIBUTION

ITEM	PROGNOSED TIME (hours)	ACTUAL TIME (hours)
drill 12 1/4" hole drill 8 1/2" hole	8 64	14 85
run, cmt casing, etc	72	117
new mud	24	15.5
drill stem tests	36 for 3 DSTs	26.5 2 DSTs
downtime	8	28.5
spud-in to rig down	10 days	14 days



#### GEOLOGICAL DATA

#### 6.1 OBJECTIVES

## 6.1.1 Outline of Play

Lindon No 2 was drilled to re-test the hydrocarbon occurrence intersected in the Pebble Point Formation by Lindon No 1 drilled in 1983/1984 by Beach Petroleum N.L.

Petrographic studies of a core obtained from the upper portion of the Peble Point Formation in Lindon No 1 (912.5 - 917.0m) identified a matrix of kaolin, smectite and chlorite. The studies indicate that Smectite is a major component in the upper portion of the reservoir. The Pebble Point Formation in Lindon No 1 was drilled using drilling parameters and mud condition which were not well suited to a reservoir containing hygroscopic clays. High pump pressures and rates, together with a high water loss (17.5 cc/30 min), appear to have caused significant reservoir damage. Although cuttings and core from the Pebble Point in Lindon No 1 indicate that the uppermost 6 metres has good porosity and 40% flourescence was observed, two Drill Stem Tests produced very poor results. recovering only oil and gas cut mud.

The Lindon No 2 test was designed around the premise that formation damage resulted in the Pebble point Formation reservoir failing to flow in Lindon No 1. Lindon No 2 was therefore designed to retest the uppermost Pebble Point Formation using drilling and mud parameters which would minimise hydraulic impact and water loss to the reservoir, significantly reducing the possibility of smectite swelling and other formation damage.

#### 6.1.2 Structure

No additional seismic has been carried out to re-evaluate the Lindon Prospect since the drilling of Lindon No 1. The Lindon Prospect is defined by 4 seismic lines of the Beach petroleum 1983 Denhelm survey and by reprocessed data from 2 1972 Shell lines. The seismic data was re-interpreted by Taipan Petroleum to more accurately locate Lindon No 2 over the crest of the local subclosure at Pebble Point level.

Lindon No 1 was located close to the crest of a closed NW-SE anticlinal structure at base Tertiary level (see Figures 7, 9). Seismic mapping of the Pebble Point/ base Teriary horizon shows broad horst-block like structuring in the Lindon Prospect area. Taipan Petroleum mapped subtle NW-SE rollover at Pebble Point level independant of faulting (see Figure 8). Fault independant acrial closure was estimated at approximately 5 sq km with 94m vertical relief.

The seismic data indicates thickening of the Pember Mudstone and Sherbrook Group on the downthrown side of the northern fault indicating development during the Upper Cretaceous and during Pember Mudstone deposition.

Lindon No 2 was located 40m to the south of Lindon No 1 to test the

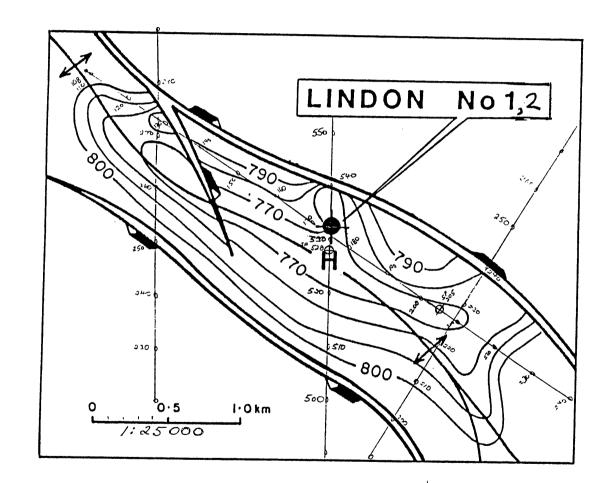
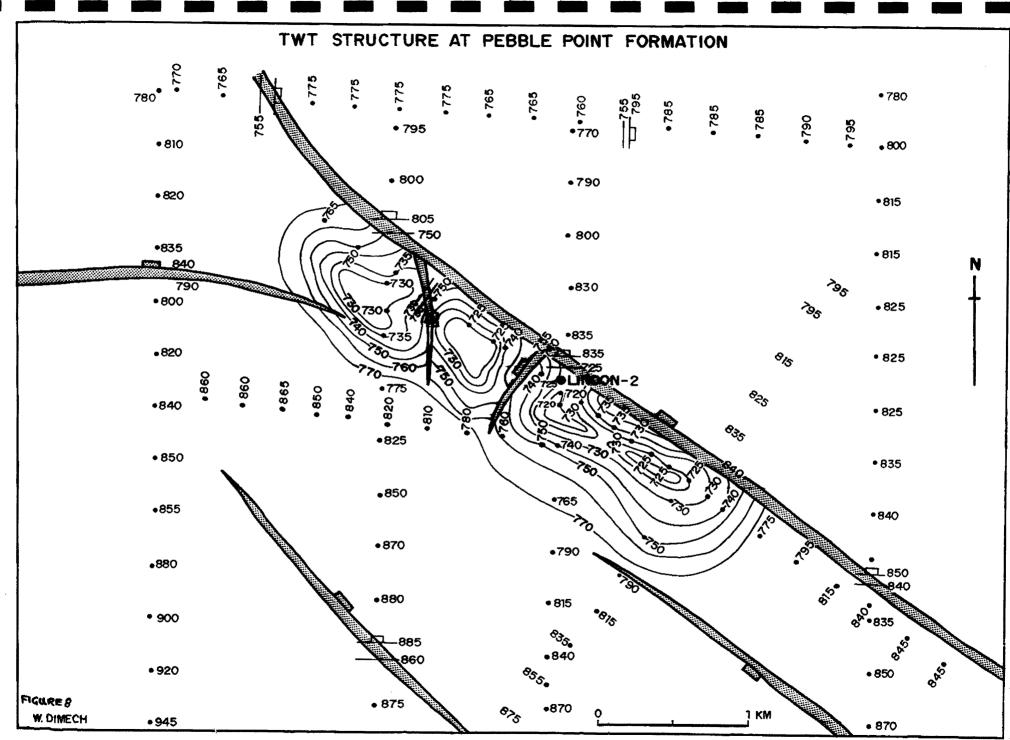


Figure 7: Time structure map on top of the Pebble Point Formation (contour interval: 10 milliseconds).



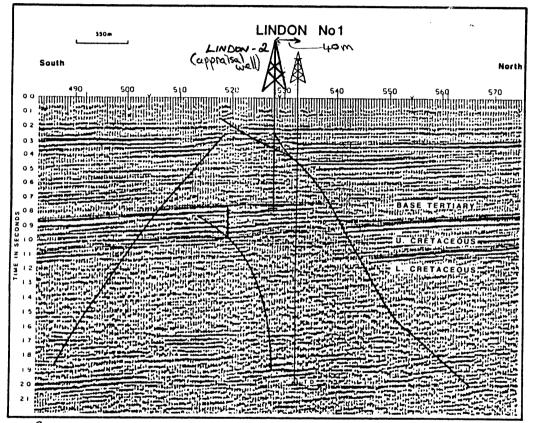


Figure 9: Seismic line over the Lindon structure.



充

same hydrocarbon occurrence at a re-interpreted crest of the structure at Pebble Point level.

## 6.2 STRATIGRAPHY

#### 6.2.1 Introduction

The stratigraphy of Lindon No 2 is the same as that intersected to 970m in Lindon No 1 located 40m to the north. Stratigraphic tops and thicknesses are shown in the Stratigraphic Table and the prognosed Stratigraphy is shown as Figure 10. Lithological descriptions and wireline log data for the formations intersected are shown at 1:1000 scale on the Composite Well Log (Enclosure 1).

No palaeontological examination has been made of Lindon No 2 cuttings and the stratigraphy described here is based on comparison of the cuttings descriptions and wireline logs with those from Lindon No 1 where palaeontology was completed. There are discrepencies between the prognosed and actual stratigraphic tops because the prognosis was based on the Lindon No 1 well summary sheet which gives depths for tops which significantly vary from those determinable from the wireline logs and palaeontology.

## 6.2.2 Upper Cretaceous Sherbrook Group

## Paaratte Formation (947m - 970mTD: 23+m thick)

Lindon No 2 was terminated 23m into the Paaratte Formation to gain sufficient depth to enable a completion in the Pebble Point Formation. The lithology is all sandstone; clear to translucent, generally loose, medium to coarse grained, subround to occasionally subangular and moderately well sorted. There is a trace of argillaceous matrix and minor calcite cement. Pyrite/marcasite nodules are common. During drilling the top of the formation was observed as an abrupt change from siltstone of the overlying Pebble Point to a clean sandstone with an accompanying drilling break.

## 6.2.3 Tertiary Wangerrip Group

## Pebble Point Formation (908m - 947m: 39m thick)

The lowermost 12m of the formation is a dark greyish brown argillaceous and slightly carbonaceous siltstone which occasionally grades to light grey - greyish brown claystone. The upper 27m is sandstone: clear to white, loose to friable, occasionally hard, grained, subangular to subround, poorly to sorted. There is a minor silt matrix and minor fine to coarse moderately well sorted. silica and calcite cements. The distribution of cement is very variable. The uppermost 4m which is probably the best reservoir with the best oil show was described as being clear to frosty, very light grey to light brown in part, loose, occasionally friable to fine to very coarse grained, occasionally granular, firm. dominantly medium to very coarse grained, subangular to subround, poorly sorted quartz, trace to common light greyish brown and occasionally light grey argillaceous matrix, rare siliceous and calcareous cements, rare pyrite. The contacts with the overlying and underlying units. the Paaratte Formation and Pember Mudstone Member are sharp and distinct indicating disconformable or unconformable relationships. During drilling the top of the Pebble

Point was observed as an abrupt change from claystone of the overlying Pember Mudstone to sandstone accompanied by a marked drilling break.

## <u>Pember Mudstone Member</u> (660m - 908m: 248m thick)

This is a fine grained unit. Brownish grey to olive grey dispersive claystone, commonly grading to arenaceous siltstone is dominant. The claystone and siltstone are finely carbonaceous, micaceous and there are common fossil fragments. There is a patchy cacite cement. Minor sandstone is light grey, predominantly fine grained, subangular to subround, moderately well sorted, with an argillaceous matrix. The top of the Pember Mudstone was observed during drilling as a change from sandstone of the Dilwynn Formation to a clayey siltstone with a decrease in ROP.

### Dilwyn Formation (407m - 660m: 253m thick)

The Dilwyn Formation is predominantly quartz sandstones with minor volcanics and minor siltstone. The sandstones are generally clear, loose, medium to very coarse grained, mostly coarse grained, subangular to subround. moderately to poorly sorted. There is trace to minor argillaceous matrix, minor argillaceous flakes and minor pyrite. Thin volcanic layers of basaltic composition are probably extrusive basalts but may be dolerite sillsor dykes. The volcanics are mostly dark greenish grey to black mottled dark greyish brown, very hard, subvitreous, cryptocrystalline to finely crystalline. Dark mafic minerals are abundant with minor possible The volacanic pyroxine and white feldspar. Pyrite is common. layers are very distinctive on the wireline logs and on the Masterlog ROP plot (see Enclosure 1). The silstone is dark greyish brown, soft to firm, carbonaceous, clayey and arenaceous. The top of the formation was identified during drilling by an abrupt change from the firm to moderately hard calcarenite of the overlying Mepunga Formation to uncemented sandstone with an associated moderate drilling break.

#### 6.2.4 Tertiary Nirranda Subgroup and Heytsbury Group

## Mepunga Formation (349m - 407m: 58m thick)

This formation is interbedded calcarenite/limestone and marl. The calcarenite grades to sandy limestone and is orange to light brown and firm to moderately hard with clear, very fine to fine grained, subangular to subround, quartz grains, minor glauconite, fossil fragments and pyrite. The marl is a medium grey to greenish grey very soft claystone. The top of the Mepunga Formation was observed during drilling as a change from the marl of the overlying Narrawaturk Formation to a harder carbonate cemented unit (calcarenite and limestone).

## <u>Narrawaturk Formation</u> (270m - 349m: 79m thick)

In Lindon No 2 the Narrawaturk Formation is marl with minor calcarenite. The marl is a light grey to greenish grey, very soft, sticky, calcareous claystoneand siltstone. The calcarenite is light grey to pale orange, firm, limonitic, and has common fossil fragments. The formation top was difficult to pick during drilling. It is discernable on the wireline logs as the marl underlying the Clifton Formation calcarenite.

<u>Clifton Formation</u> (244m - 270m: 26m thick) This formation is a limestone/calcarenite. It is light grey to greyish orange, hard, finely crystalline with abundant quartz sand grainsand abundant fossils.

<u>Gellibrand Formation</u> (187m-244m: 57m thick) The Gellibrand Formation is very soft marl with minor interbedded calcarenite. The lithologies are very similar to those of the uderlying and overlying units.

<u>Port Campbell Formation</u> (surface - 187m: 187m thick) This formation is dominantly firm calcarenite and minor very soft marl. The lithologies are very similar to those of the underlying units.

# LINDON No 2 STRATIGRAPHIC THICKNESSES

AGE	FORMATION	TOPS DRILL (mKB)	S SUBSEA (m)	THICKNESS (m)
Pliocene ) ) Miocene ) )	HEYTSBURY GROUP Port Campbell Fm. Gellibrand Fm.	5m (G.L.) 187	63 -119	182 57
Oligocene )	Clifton Fm.	244	-176	26
Eocene	NIRRANDA SUB-GROUP Narrawaturk Fm.	270	-202	79
	Mepunga Fm.	349	-281	58
Palaeocene	WANGERRIP GROUP Dilwyn Fm.	407	339	253
	Pember Mudstone Mbr.	660	-592	248
	Pebble Point Fm.	908	-840	39
Cretaceous	SHERBROOK GROUP Paaratte Fm.	947	-879	23+
	TOTAL DEPTH	970	-902	-

note:

M.S.L. = seismic datum KB = 68.3m G.L. = 63.3m drilling depths measured from kelly bushing (KB) maximum well deviation = 1 deg. thicknesses uncorrected for deviation

	LINDON NO. 2 mkB LITHOSTRATIGRAPHIC PROGNOSIS									
10- 100- 186- 200-	T.T.T.T. · T.T.T.T. · T.T.T.T.T. · T.T.T.T.T. · T.T.T.T. · T.T.T.T.T.	PORT CAMPBELL FM.		HEYTSBURY GROUP	OLIGOCENE - MIOCENE - PLIOCENE					
248-		GELLIBRAND FM.								
248-	TTTT	CLIFTON FM.								
300-	<u></u> T-T-T-T-	NARRAWATURK FM.		NIRRANDA	ENE					
348- 400_ 406-	Т. Т. Т. Т. . Т. Т. Т. Т.	MEPUNGA FM.		SUBGROUP	EOCENE					
500- 600- 665-	<u>v v v v</u> <u>v v v v</u>	DILWYN FM.		WANGERRIP GROUP	ENE					
700- 800- 900- 908-5-		PEMBER MUDSTONE	FM.		PALAEOCEN					
948 5 L	himit	PEBBLE POINT FM.			Lunn					
TD 🖛 950m (base of Pebble Point)										
[	ΤΤΤΤ	MARL	[	SANDSTONE						
		CLAYSTONE		COAL						
I	······································	SILTSTONE		V V V V BASALT / DOLERITE						
		FI		LINDON NO. 2 IPAN PETROLEUM						

### 6.3 HYDROCARBONS

#### 6.3.1 Reservoir Potential

The reservoir potential, based on visible porosity observed from cuttings and logs and on seal relationships are described below by formation.

<u>Paaratte Formation</u>: 23m intersection of generally loose, coarse grained, well sorted quartz sand with only a trace of argillaceous matrix and very minor, patchy, calcite cement. Very good to excellent inferred porosity. Neutron porosity curve indicates approximately 25% porosity (limestone units). The Paaratte could be sealed by the 12m siltstone and claystone interval at the base of the Pebble Point, but local faulting may violate the seal. The Paaratte intersected has good reservoir potential.

<u>Pebble Point Formation</u>: uppermost 27m is loose to friable and occasionally hard quartz sandstone. Loose sand grains in cuttings, particularly from 908.0 - 911.0m and 911.3 - 919m, infer a good porosity. Friable to hard silica cemented cuttings fragments, from 911.0 - 911.3m and below 919m, were observed to have a poor porosity. The bimodal grainsize distribution (fine and coarse), poor to moderate sorting, and presence of hygroscopic clay matrix minerals, indicate a variable, but overall moderate reservoir potential for the 27m interval and a good reservoir potential for the interval 908.0 - 911.0 and 911.3 - 915m. The neutron porosity log shows variable porsity values of between 25% and 35% limestone porosity units for this interval. The 248m thick marl of the overlying Pember Mudstone forms an excellent seal to the sands of the Pebble Point.

<u>Dilwyn Formation</u>: Intervals of up 55m thick consisting of loose, mostly coarse grains of quartz with only traces of matrix and cement. inferred porosity is very good. The 400m of marls and calcarenites of the overlying Nirranda Subgroup and Heytsbury Group form an effective seal. The Dilwyn Formation has good reservoir potential.

## 6.3.2 Hydrocarbon Shows

The anticipated oil show was observed in the Pebble Point Formation. Oil stained cuttings were observed over the interval 908 - 919m. Visible hydrocarbon in the cuttings occured as a pale yellowish brown stain on sand grains. 50% natural fluorescence occurred over the interval 980 - 915m, decreasing below 915m to 5% The fluorescence was moderately bright yellowish gold. at 919m. The crush cut was instantly diffusing to streaming, moderately bright pale yellowish white to pale bluish yellow. From 908 - 916m there was a gas show of 28.6 units against a background of 0.5 units with corresponding high values of C1 to C5 on the chromatograph. The wireline log data (see Enclosure 2), shows no definite indication of the presence of hydrocarbons.

### 6.3.3 Testing and Completion

Drill Stem Test data is included as Appendix 2. Drill stem tests No 1 and No 2 failed to test the capability of the Pebble Point reservoir to flow hydrocarbons. Data gained from the drilling of Lindon No 1 and Lindon No 2 indicate a variable quality reservoir containing a high poor point, waxy oil, with an oil/water contact at Lindon No 1, inferred from DST data and core, at 917.5m. Hydrocarbons and an oil/water contact are not evident in the wireline log data for either well. In Lindon No 2, cuttings fluourescence indicated oil only to at least 915m, decreasing fluorescence to 919m and patchy good visible porosity from 908 to 919m with a hard cemented horizon between 911.0 and 911.3m. decision was made to complete Lindon No 2 over the 3m interval The 908.1 to 911.1m to ensure exclusion of the oil/water contact. Following completion over this interval the well did not flow. Swabbing and static gradient surveys indicated a very slow rate of influx.

### 6.4 SAMPLING AND SAMPLE EXAMINATION

### 6.4.1 Well Monitoring

The well was monitored by a standard pressurised mudlogging unit mannned by one mudlogger per shift. The unit monitored hydrocarbon gases by continuous sampling at the possum belly located between the flowline and shale shakers. Analysis was by hot wire detector and by Carlo Erba 4200 automatic gas chromatograph which was regularly calibrated. A kelly bottle system was used to monitor ROP. Alarm activating pit volume indicators measured mud levels in the return and active pits and counters monitored pump strokes on pumps 1 and 2. Chromatograph, total gas, active mud pit level, ROP, and pump stroke data were continuously recorded on chart paper by multipen plotter.

#### 6.4.2 Sampling

Shaker samples were taken at 10m intervals to 400m and at 5m intervals from 400m to total depth. A small portion of each sample was washed for examination. The remaider of each sample was split into 2 portions and placed in properly labelled calico sample bags and dried. On completion of the well, one set of samples was submitted to the Petroleum Group, Victorian Department of Manufacturing and Industrial Development and another set to Gas and Fuel Exploration N.L.

No cores were taken. DST No 1 and No 2 failed and no fluids suitable for sampling were recovered.

### 6.4.3 Sample Examination

Cuttings samples were examined under ultra-violet light for fluorescence and then described following examination undr low powered binocular microscope. The description was entered on the mudlog at 1:500 scale and is included at reduced scale (1:1000) as part of the Composite Log (Enclosure 1).

### 6.5 WIRELINE LOGGING

Because Lindon No 2 was drilled only 40m from Lindon No 1 only limited wireline logging, sufficient to meet the wells objective, was carried out. At total depth 2 conventional oil-field logging runs were completed. The data from these runs is included as Appendix 2. The loggers were able to reach 966m, 4m short of total depth. Run 1 recorded dual laerolog, microlaterolog, sonic, gamma ray and caliper from 966 to 100m. Run 2 recorded density, neutron, caliper and gamma ray acroos the Pebble Point reservoir from 963 to The general characteristics of the log curves agree with 750m. those from Lindon No 1. Formation tops appear 2m shallower than shown on the Lindon No 1 Composite Log which gives a different kelly bushing elevation than the well summary sheet. The Lindon No 2 deep and shallow laterolog curves show little separation and actually overlay each other through the Pebble Point where drilling hydraulics were optomised to reduce formation damage and to produce an in-guage hole.

27

Wireline logging was also used to assist completion of the well. The cementing of the 7" casing and location of radioactive pip tags were checked using the cement bond log, variable density log, and gamma ray. The position of the tubing conveyed perforating guns was checked using the GRS and CC1 logs. Following perforating the loggers wireline was used to detect the fluid level in the tubing and to detect if the fluid was oil or water. CONTRACTORS & SERVICES

7

DRILLING Gearhart Drilling Services Pty Ltd 72 Dowd Street WELSHPOOL WA 6106 CEMENTING Halliburton Cementing Services Halliburton Australia Pty Ltd 44 Churchill Road DRY CREEK SA 5094 MUDLOGGING Halliburton Geodata 17 Musgrave Avenue WELLAND SA DRILLING FLUIDS MUD ENGINEERING Australian Mud Company Limited 15 Spencer Street JANDAKOT WA 6104 DRILL STEM TESTS Halliburton Reservoir Services Halliburton Australia Pty Ltd 44 Churchill Road DRY CREEK SA 5094 Expertest Pty Ltd 138 Richmond Road MARLESTON SA 5033 WIRELINE LOGGING BPB Wireline Services P.O. Box 465 STRATHPINE QLD 4500 COMPLETION Vann Systems Halliburton Australia Pty Ltd 44 Churchill Road DRY CREEK SA 5094 PRODUCTION TESTS Expertest Pty Ltd 138 Richmond Road MARLESTON SA 5033 TESTING SUPERVISION ENGINEERING DESIGN Petroleum Engineering Services (Aust.) Pty Ltd P.O. Box 122 UNLEY SA 5061 WELL SUPERVISION Geoweste Pty Ltd 8 Cumberland Avenue ALDGATE SA 5154 STRATIGRAPHER Tabassi & Associates Pty Ltd 28 Sunline Avenue NOBLE PARK NORTH VIC 3174

### APPENDIX 1

DRILLING HISTORY

(taken from daily report data)

24 HOURS TO 0800HRS 12 MAY, 1991

0800-0130 rig up 0130-0230 drill 12 1/4" hole to 14m 0230-0630 rig up and drill mouse hole 0630-0800 drill 12 1/4" hole to 23m

24 HOURS TO 0800HRS 13 MAY, 1991

0800-0830 run deviation survey 0830-1000 drill 12 1/4" hole to 32m 1000-1100 repair SCR control system 1100-1200 drill 12 1/4" hole to 71m 1200-1230 run deviation survey 1230-1500 drill 12 1/4" hole to 115m 1500-1530 circ bottoms up 1530-1600 run deviation survey 1600-1630 wiper trip, strap out of hole 1630-1800 RIH. circ, POOH 1800-1930 rig up for 9 5/8" casing 1930-2300 run 9 5/8" casing to 111.74m 2300-2330 circ through casing 2330-0030 cement casing 0030-0800 WOC

24 HOURS TO 0800HRS 14 MAY, 1991

0800-0900 WOC 0900-2100 nipple up BOPs 2100-0200 test blind rams, choke manifold, choke valves malfunction accumultor switching coil failed 0200-0800 repair BOPs

24 HOURS TO 0800HRS 15 MAY, 1991

### 24 HOURS TO 0800HRS 16 MAY, 1991

0800-1000 drill to 228m 1000-1030 run deviation survey 1030-1430 drill to 323m 1430-1500 run deviation survey 1500-2330 drill to 427m 2330-2400 run deviation survey 2400-0800 drill to 542m

24 HOURS TO 0800HRS 17 MAY, 1991

0800-0930 drill to 560m 0930-1000 run deviation survey 1000-1830 drill to 719m 1830-1900 circulate 1900-2000 POOH 2000-2030 service rig 2030-2230 make up bit No 3, RIH 2230-2300 ream 18m to 719m 2300-0800 drill to 825m

24 HOURS TO 0800HRS 18 MAY, 1991

0800-1130 drill to 844m 1130-1200 repair rig SCR system 1200-1900 drill to 891m 1900-1930 circulate hole clean 1930-2000 run deviation survey 2000-2130 pump high vis pill. POOH to casing shoe, working tight hole from 891-800m 2130-0700 dump and clean mud tanks, mix new polymer mud 0700-08000 RIH 31

24 HOURS TO 0800HRS 19 MAY, 1991

0930-1030 circulate to condition hole and mud 1030-1300 drill to 904m 1300-1330 circulate 1330-1400 trip 10 stands 1400-1930 circulate at 620m 1930-2000 RIH and wash 9m to bottom 2000-0230 drill to 908.1m - drilling break 0230-0300 flow check - no flow, circulate, pull back 1 stand, circulate bottoms up 0300-0400 drill to 912.85m 0400-0500 flow check - no flow, circulate, pull back 1 stand, circulate bottoms up 0500-0700 strap out of hole 0700-0800 make up DST tool

24 HOURS TO 0800HRS 20 MAY, 1991 0800-0930 make up for DST No 1 0930-1200 RIH 1200-1230 rig up to test 1230-1500 run DST No 1 - misrun, surface valve not opened 1500-1700 POOH 1700-1830 lay out DST tools 1830-2130 make up BHA, RIH, tag fill at 901m 2130-2200 wash to bottom 2200-2230 drill to 914.10m 2230-2300 flow check, circulate out sample, lay out 3 singles 2300-0100 RIH to bottom, sweep hole with 5bbl high vis pill at 100stks, spot 10bbl high vis pill on bottom 0100-0130 pull back 2 stands, pick up kelly, pump slug 0130-0300 POOH, lay out BHA

32

- 0300-0715 make op for DST No 2
- 0715-0800 RIH for DST No 2

24 HOURS TO 0800HRS 21 MAY, 1991

0800-0930 RIH DST No 2 0930-1030 test packer failed to seat 1030-1230 POOH 1230-1430 lay out DST tools, clean 1430-1500 make up BHA, RIH to shoe 1500-1530 slip 40ft drill line 1530-1700 RIH 1700-1830 drill to 922m at 75 stks and 500lb WOB 1830-2130 drill to 970m at 100 stks and 2000lg WOB 2130-2200 circulate prior to wiper trip 2200-2300 wiper trip 15 stands 2300-0030 circulate hole clean 0030-0230 drop survey tool, strap out of hole 0230-0745 run wireline logs Run 1 966-100m 0745-0800 run wireline tools in hole for Run 2

24 HOURS TO 0800HRS 22 MAY, 1991

0800-1200 record wireline logs Run 2 963-750m 1200-1400 RIH 1400-1500 ream 956-970m, circulate 1500-1930 lay out 4 1/2" DP and DC 1930-0030 change pipe rams to 7", rig up to run 7" casing 0030-0800 run 80 joints 26 ppf J55 LTC R3 7" casing to top fill at 950m, circulate, run to 962.3m

24 HOURS TO 0800HRS 23 MAY, 1991

0800-0900 circulate

0900-1000 run cement-test line to 3000psi, pump 10bbls 4% KCl brine, release bottom plug, mix and pump lead slurry of 130 sx class A cement with 48bbls water and 4% bentonite and 4% KCl and 1% CFR-3 (15.5 US gal/SK); immediately followed by tail slurry of 110 sx class A cement with 13.6bbls water and 4% KCl and 25 US gal/10bbls Halad 322L (5.2) US gal/SK), drop top plug, displace with 119bbls water, land plug at 1500 psi, land casing and set slips in ime 13 mins 1000-1800 WOC, open Halliburton valve to casing, no returns 1800-1930 dress 7" stub, lay down cross over and spacer tool 1930-0500 install tubing spool, nipple up BOP 0500-0800 rig up flow line, etc

24 HOURS TO 0800HRS 24 MAY, 1991

0800-0900 circulate 0900-0830 test BOPs to 1000 psi 0830-0930 rig up to run 2 3/8" tubing 0930-1330 run 2 7/8" tubing with 6" bit and casing scraper, tag plug at 945m 1330-1430 circulate fresh water, displace with 6% KCl brine 1430-1630 POOH 1630-2100 run CBL log 940-200m 2100-0300 lay out 6 singles, make up packer BHA, strap in under tension filling lowermost 170m tubing with KCl brine 0300-0600 run GR/CCL positioning log, correlate pip tags-casing and tubing 0600-0800 test packer to 1000 psi, nipple down BOPs

24 HOURS TO 0800HRS 25 MAY, 1991

0800-0930 nipple down BOPs 0930-1200 nipple up 2 9/16" 3000 psi Canadawerks christmas tree 1200-1300 test christmas tree and each valve to 2000 psi 1300-1345 hook up flare line and kill line, put 2000 psi on annulus 1345-1430 drop TCP gun detonating bar, replace well cap, detonation in 37 secs, observe annulus for pressure change, bleed off annular pressure, close tubing spool side valve, 1430-1630 observe for flow, no initial flow 1630-1800 run BPB wireline to determine top of fluid in tubing - water only at 605m 1800-2000 rig down BPB 2000- rig down rig, rig released at 2000hrs APPENDIX 2

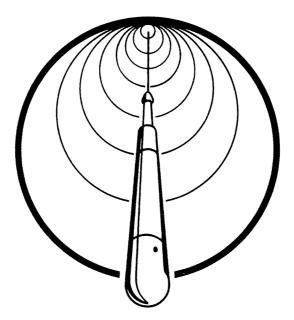
, , 31

DRILL STEM TEST DATA

### EXPERTEST

`¥

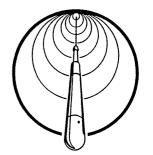
ELECTRIC WIRELINE



### Electronic BHP/BHT Survey

Customer: .	Taipan Petroleum
Location:	Lindon #2
	Pebble Point
Date:	19th to 20th May, 1991

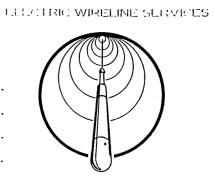
CUSTOMER: .	Taipan Petroleum
LOCATION:	Lindon #2
	Pebble Point
DATE:	19th to 20th May, 1991



EXCERENCES

TIME	DESCRIPTION OF EVENTS
16-05-91	Mobilization of Equipment to Location
17-05-91	Bench Test of CCDST Package
	Standing by for test
18-05-91	Bench Test & Fine Tuning of CCDST Package
	Preparation of Pre-Test Planning Report
19-05-91	
0510	Arrive on Location and rig in CCDST Package
0630	Standing by for test
	DST #1
1250	Tool Opened
	No response observed on surface instrumentation
1300	Tool Closed
1312	Test Head Valve found to be closed
1315	Test Head Valve Opened
	- Still no response on surface instrumentation
	- Some bubbles evident in bucket
1323	Tool Opened for second flow period
1324	Tool skidded 6' downhole
1331	Tool Closed for second Build-up
1400	Chamber Pressure bled down
	– No response observed on SRO gauge
	- Some bubbles observed in bucket
1407	Tested SRO gauge with Rig Air System - OK

CUSTOMER:	Taipan Petroleum
	lindon #2
	Pabble Point
	Pebble Point
DATE:	19th to 20th May, 1991



EXPERTEST

1410       Attempt made to open Hydraspring         Not possible to determine tool status at surface         1440       Release Packer & Rig Down         20/05/91       DST #2         0520       Arrive on location         Checked that SR0 Pressure lines were clear         Checked that SR0 Pressure lines were clear         0540       Manifold was filled with water and pressured up with Rig Air         to test all surface equipment - all OK         0954       Tool Opened - Annulus dropped 40 to 50 feet         0957       An attempt was made to re-seat the packer         1003       Tool re-opened. Annulus dropped again         1004       Picked up to close the tool         End of test       Rigged out CCDST Package         Returned to Adelaide	
1440       Release Packer & Rig Down         20/05/91       DST #2         0520       Arrive on location         Checked that SR0 Pressure lines were clear         Checked calibration of SR0 Gauge up to 50 psi         0940       Manifold was filled with water and pressured up with Rig Air         to test all surface equipment - all 0K         0954       Tool Opened - Annulus dropped 40 to 50 feet         0957       An attempt was made to re-seat the packer         1003       Tool re-opened. Annulus dropped again         1004       Picked up to close the tool         End of test       Rigged out CCDST Package	
2D/05/91       DST #2         0520       Arrive on location         Checked that SRO Pressure lines were clear         Checked calibration of SRO Gauge up to 50 psi         0940         Manifold was filled with water and pressured up with Rig Air         to test all surface equipment - all OK         0954         Tool Opened - Annulus dropped 40 to 50 feet         0957         An attempt was made to re-seat the packer         1003         Tool re-opened. Annulus dropped again         1004         Picked up to close the tool         End of test         Rigged out CCDST Package	
0520       Arrive on location         Checked that SR0 Pressure lines were clear         Checked calibration of SR0 Gauge up to 50 psi         0940       Manifold was filled with water and pressured up with Rig Air         to test all surface equipment - all OK         0954       Tool Opened - Annulus dropped 40 to 50 feet         0957       An attempt was made to re-seat the packer         1003       Tool re-opened. Annulus dropped again         1004       Picked up to close the tool         End of test       Rigged out CCDST Package	
Checked that SRO Pressure lines were clear         Checked calibration of SRO Gauge up to 50 psi         0940         Manifold was filled with water and pressured up with Rig Air         to test all surface equipment - all OK         0954         Tool Opened - Annulus dropped 40 to 50 feet         0957         An attempt was made to re-seat the packer         1003         Tool re-opened. Annulus dropped again         1004         Picked up to close the tool         End of test         Rigged out CCDST Package	
Checked calibration of SRD Gauge up to 50 psi         0940       Manifold was filled with water and pressured up with Rig Air         to test all surface equipment - all OK         0954       Tool Opened - Annulus dropped 40 to 50 feet         0957       An attempt was made to re-seat the packer         1003       Tool re-opened. Annulus dropped again         1004       Picked up to close the tool         End of test       Rigged out CCDST Package	
0940Manifold was filled with water and pressured up with Rig Airto test all surface equipment - all OK0954Tool Opened - Annulus dropped 40 to 50 feet0957An attempt was made to re-seat the packer1003Tool re-opened. Annulus dropped again1004Picked up to close the toolEnd of testRigged out CCDST Package	
0940Manifold was filled with water and pressured up with Rig Airto test all surface equipment - all OK0954Tool Opened - Annulus dropped 40 to 50 feet0957An attempt was made to re-seat the packer1003Tool re-opened. Annulus dropped again1004Picked up to close the toolEnd of testRigged out CCDST Package	
to test all surface equipment - all DK         0954       Tool Opened - Annulus dropped 40 to 50 feet         0957       An attempt was made to re-seat the packer         1003       Tool re-opened. Annulus dropped again         1004       Picked up to close the tool         End of test       Rigged out CCDST Package	
0957     An attempt was made to re-seat the packer       1003     Tool re-opened. Annulus dropped again       1004     Picked up to close the tool       End of test       Rigged out CCDST Package	
1003     Tool re-opened. Annulus dropped again       1004     Picked up to close the tool       End of test       Rigged out CCDST Package	
1003       Tool re-opened. Annulus dropped again         1004       Picked up to close the tool         End of test       Rigged out CCDST Package	
1004       Picked up to close the tool         End of test       Rigged out CCDST Package	
End of test Rigged out CCDST Package	
Returned to Adelaide	
	<u></u>

### CLOSED CHAMBER DST PRE-TEST PLANNING

LOCATION: Lindon #2

INTERVAL: 2962-3002 'KB

DATE: 19/5/91

WELL DATA:

Expected Bottom Hole Pressure : 1255 psia Expected Bottom Hole Temperature: 109 °F

Well-head Fressure : 0 psig Well-head Temperature: 48 °F

Choke Diameter: : 0.500 inches Choke Coefficient: 4.38800

Gas Deviation Factor: 0.950 Gas Specific Gravity: 0.700

Chamber Volume: 37.971 bbls

Internal Diameter of Drill Collars: 2.812 inches Total Footage of Drill Collars: 547 feet

Internal Diameter of Drill Pipe: 3.826 inches

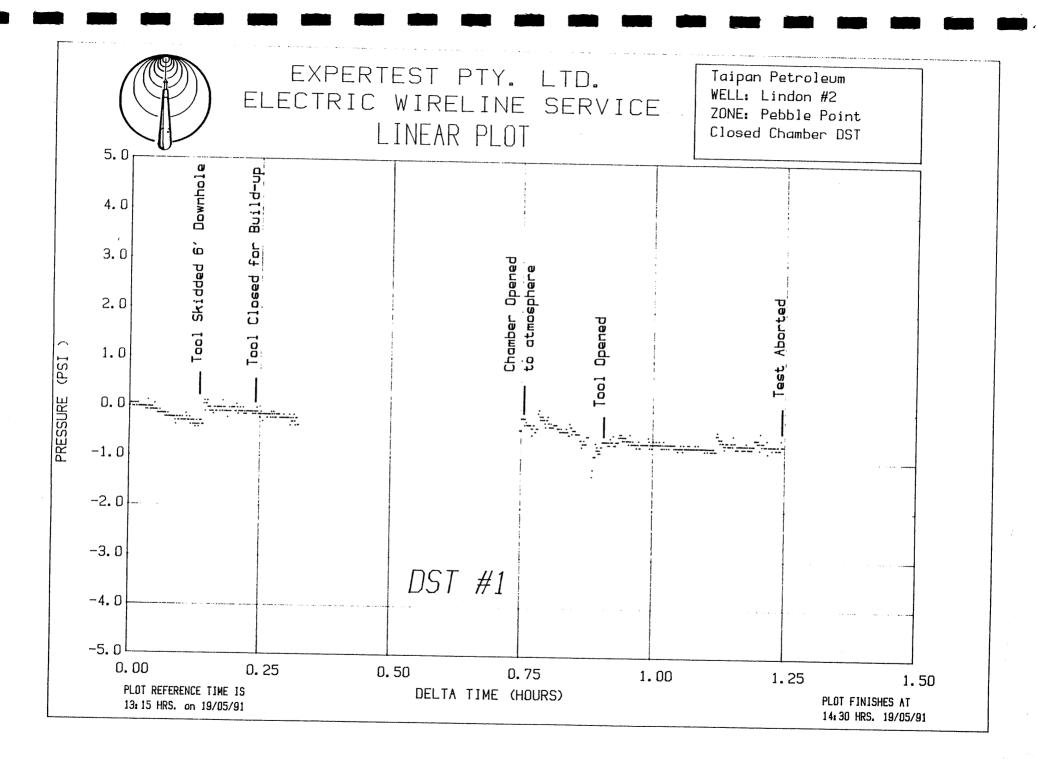
Depth to Top Packer: 2956 feet Length of tools between packer and valve: 34 feet

### <u>CALCULATED</u> VALUES:

· ·	MAX POSSIBLE RATE	MAX SURFACE PRESSURE CHANGE	
PURE GAS	6.458 mmscf/d	304.02 psi/min	
PURE WATER	4437.544 b/d	1.24 psi/min	
GAS SATURATED WATER	4437.544 b/d +	45 mscf/d 3.38 psi/min	

Average Chamber Temperature: 538.17 °R Average Chamber Pressure : 15.27 psia Gas - Water Ratio (GWR) : 1.82

. .



### CLOSED CHAMBER DST PRE-TEST PLANNING

LOCATION: Lindon #2 INTERVAL: 2962-3002 'KB DATE: 20/5/91

WELL DATA:

Expected Bottom Hole Pressure 1255 psia Expected Bottom Hole Temperature: 109 °F

Well-head Pressure : 0 psig Well-head Temperature: 42 °F

Choke Diameter : 0.500 inches Choke Coefficient: 4.38800

Gas Deviation Factor: 0.950 Gas Specific Gravity: 0.700

Chamber Volume: 38.284 bbls

Internal Diameter of Drill Collars: 2.812 inches Total Footage of Drill Collars: 547 feet

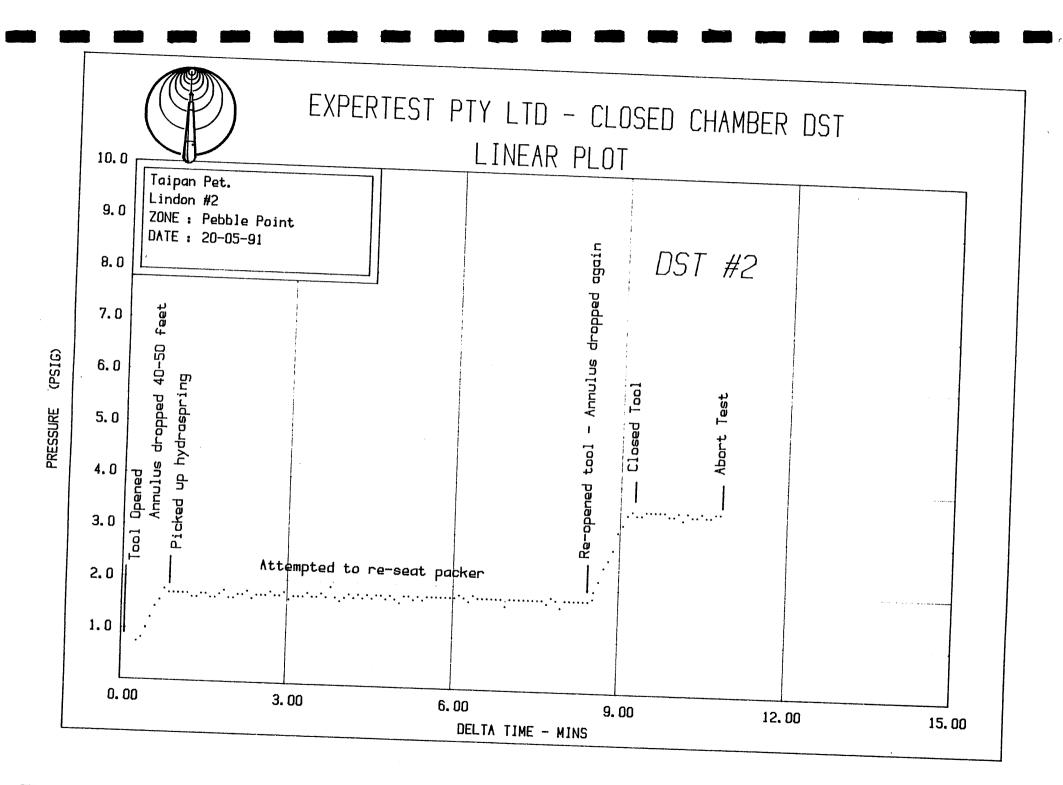
Internal Diameter of Drill Pipe: 3.826 inches

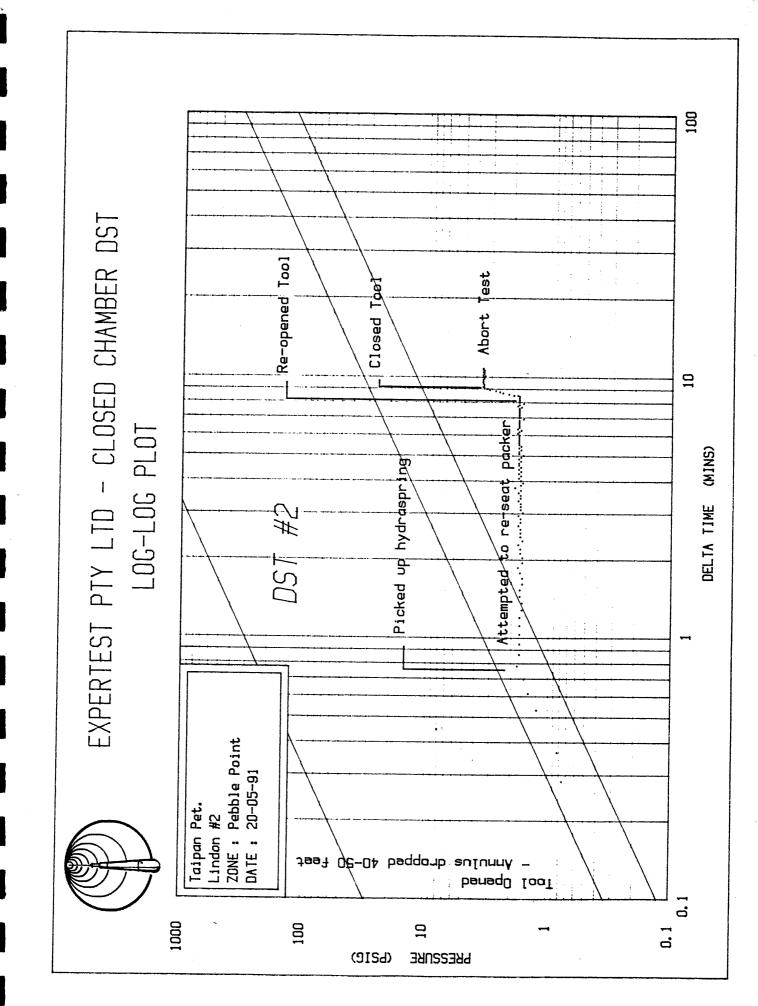
Depth to Top Packer : 2972 feet Length of tools between packer and valve: 28 feet

<u>CALCULNTED VALUES</u>:

	MAX POSSIBLE RATE	MAX SURFACE PRESSURE CHAN	IGE
PURE GAS	6.458 mmscf/d	299.85 psi/min	
PURE WATER	4437.544 b/d	1.23 psi/min	
CAS SATURATED WATER	4437.544 b/d +	45 mscf/d 3.34 psi/min	

Average Chamber Temperature: 535.17 'R Average Chamber Pressure : 15.27 psia Gas - Water Ratio (GWR) : 1.82





. . . . .

# FORMATION TEST REPORT



## HALLIBURTON RESERVOIR SERVICES



A Halliburton Company

Customer: TAIPAN PETROLEUM P/L Well Description: LINDON #2 Field Name: OTWAY BASIN

TEST NO: DST #1 TEST DATE: 19-MAY-91 TICKET NO: 001101

#### HALLIBURTON RESERVOIR SERVICES

REPORT TICKET NO: 001101 BT-GAUGE TICKET NO: 101101 MEMORY GAUGE TICKET NO: 001101 DATE: 19/5/91 HALLIBURTON CAMP: MOOMBA TESTER: T.Stephens D.Schneider WITNESS: G.Weste

1

DRILLING CONTRACTOR: GDS Rig #2 LEGAL LOCATION: see remarks

OPERATOR: TAIPAN PET. P/L LEASE NAME: LINDON WELL NO: 2 TEST NO: 1 TESTED INTERVAL: 905.43 - 912.85 m

FIELD AREA: OTWAY BASIN COUNTY/LSD: STATE/PROVINCE: VICTORIA COUNTRY: AUSTRALIA

**ICE:** THIS REPORT IS BASED ON SOUND ENGINEERING PRACTICES, BUT AUSE OF VARIABLE WELL CONDITIONS AND OTHER INFORMATION WHICH MUST ELIED UPON HALLIBURTON MAKES NO WARRANTY, EXPRESS OR IMPLIED AS THE ACCURACY OF THE DATA OR OF ANY CALCULATIONS OR OPINIONS RESSED HEREIN. YOU AGREE THAT HALLIBURTON SHALL NOT BE LIABLE FOR LOSS OR DAMAGE, WHETHER DUE TO NEGLIGENCE OR OTHERWISE ARISING DF OR IN CONNECTION WITH SUCH DATA, CALCULATIONS OR OPINIONS.

### TABLE OF CONTENTS

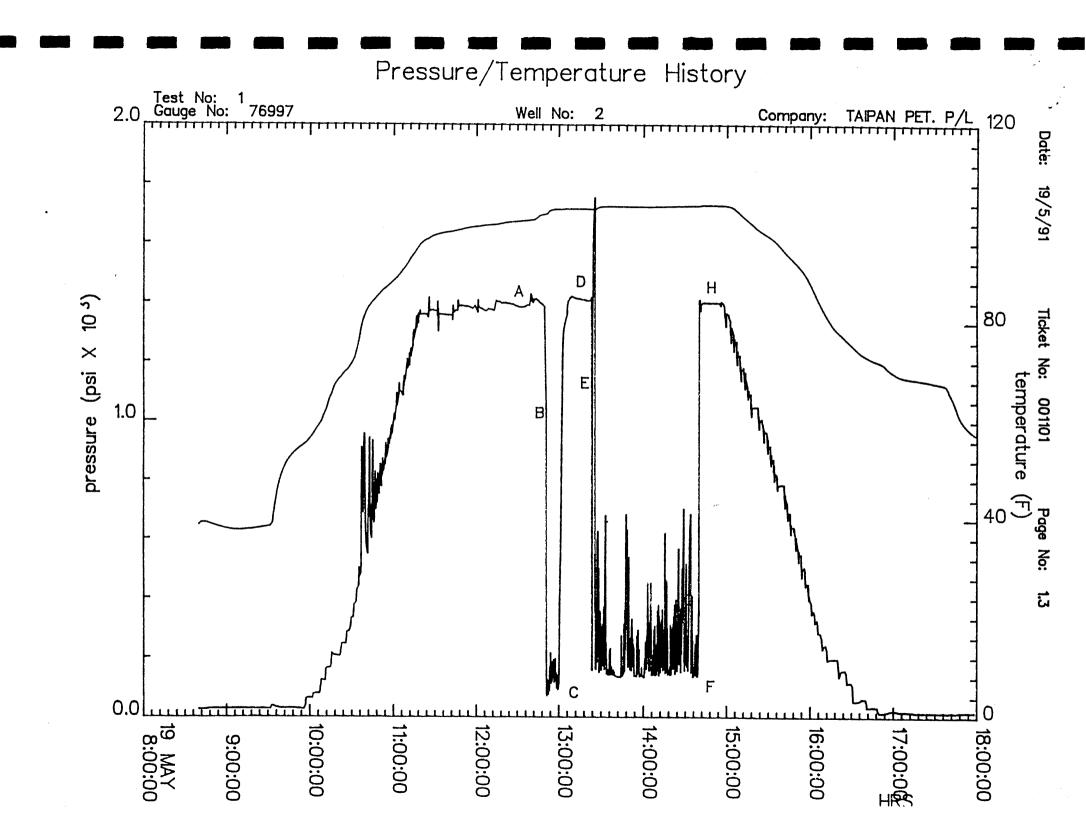
### SECTION 1: TEST SUMMARY & INFORMATION

٦,

Summary of Test Results Test Period Summary Pressure vs. Time Plot Test and Formation Data Rate History Table Tool String Configuration Operator Job Log	1.1 1.2 1.3 1.4 1.5 1.6 1.7
SECTION 2: ANALYSIS	
Plots	2.1
SECTION 3: MECHANICAL GAUGE DATA	
Gauge No. 2171	3.1
SECTION 4: MEMORY GAUGE DATA	
Gauge No. 76997 Gauge No. 72825	4.1 4.2

19/5/91 Ticket No: 001101 Page No: 1.1 SUMMARY OF TEST 3e Owner: TAIPAN PET. P/L Lease Name: LINDON No.: 2 Test No.: 1 ity/LSD: State/Province: VICTORIA try: AUSTRALIA nation Tested: PEBBLE POINT 103.50 F Jemp: ll Depth: 912.85 m Pay: 7.42 m s Tested Interval: 905.43 - 912.85 m orated Interval ( m): **VERY:** APPROXIMATELY 18mtr. OF FILTERCAKE ABOVE D.C.I.P. VALVE TRACES OF HEAVY CRUDE OIL IN LOWER TEST TOOL RKS: ALL DOWNHOLE PRESSURES ARE IN ABSOLUTE PSIA. SEVERE PLUGGING OF TEST TOOL IS EVIDENT BY PRESSURES RECOREDED IN DIFFERENT LOCATIONS IN TEST STRING LEGAL LOCATION: - LAT - 38 04' 06.8" S - LONG- 141 30' 54.7" E

۰.,

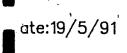


e: 19/5/91

• .

RATE HISTORY TABLE

Period	Test	j	Prod Rate q(j)	Duration	Cum. Time t(j)
No	Type		(bbl/D)	(hrs)	(hrs)
1 2 3 4	DD BU DD BU	0 1 2 3 4	0.0 0.0 0.0 0.0 0.0 0.0	0.00 0.15 0.39 1.25 0.03	0.00 0.15 0.54 1.79 1.81



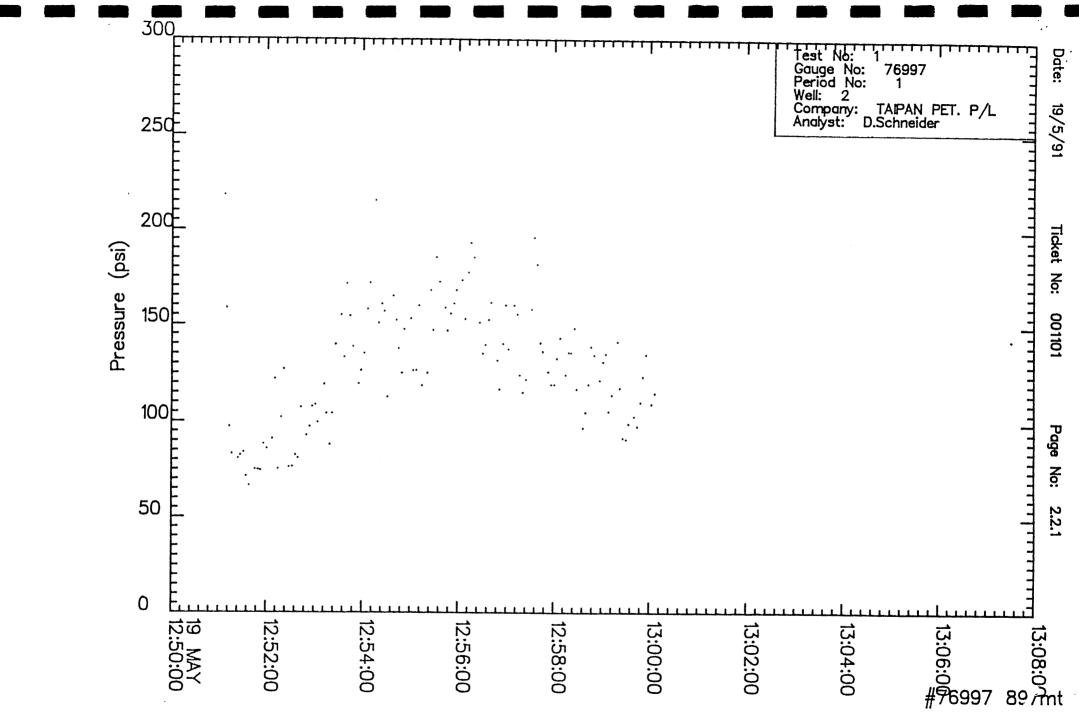
### Ticket no: 001101

TEST STRING CONFIGURATION

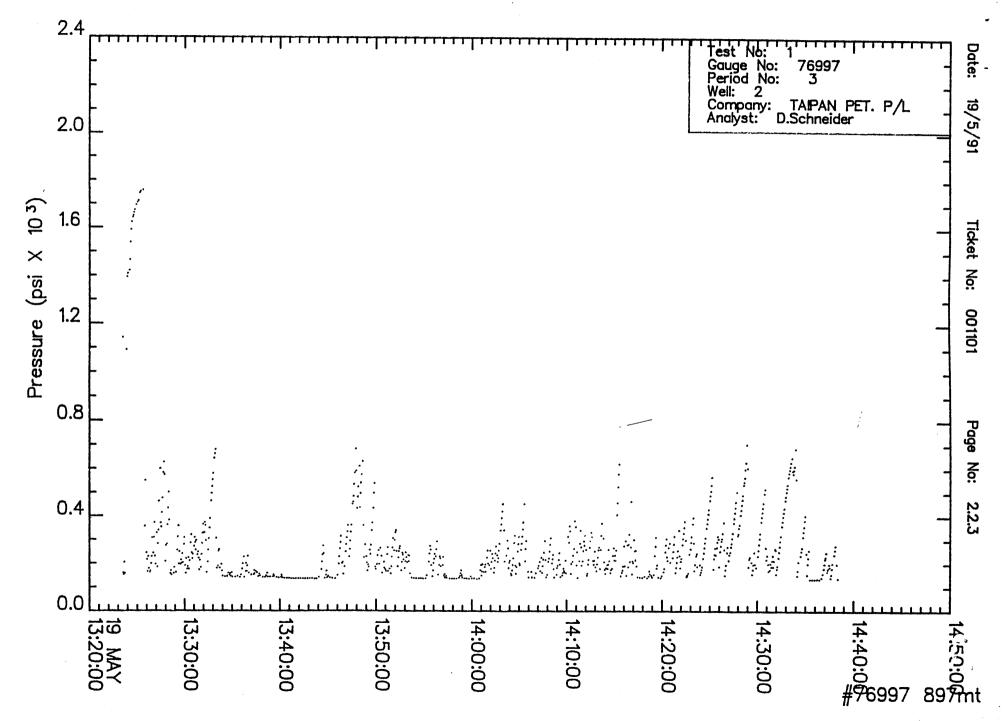
		0.D. (in)	l.D. (in)	LENGTH (m)	DEPTH (m)
0	DISTRIBUTOR VALVE	5.000	1.680	0.610	
	OPEN HOLE PACKER	7.500	1.530	1.771	905.430
	ANCHOR PIPE SAFETY JOINT	5.000	1.500	1.311	
	FLUSH JOINT ANCHOR	5.000	2.370	4.572	
0	BLANKED-OFF RUNNING CASE	5.000	2.440	1.237	911.308
1	TOTAL DEPTH		1		010 95

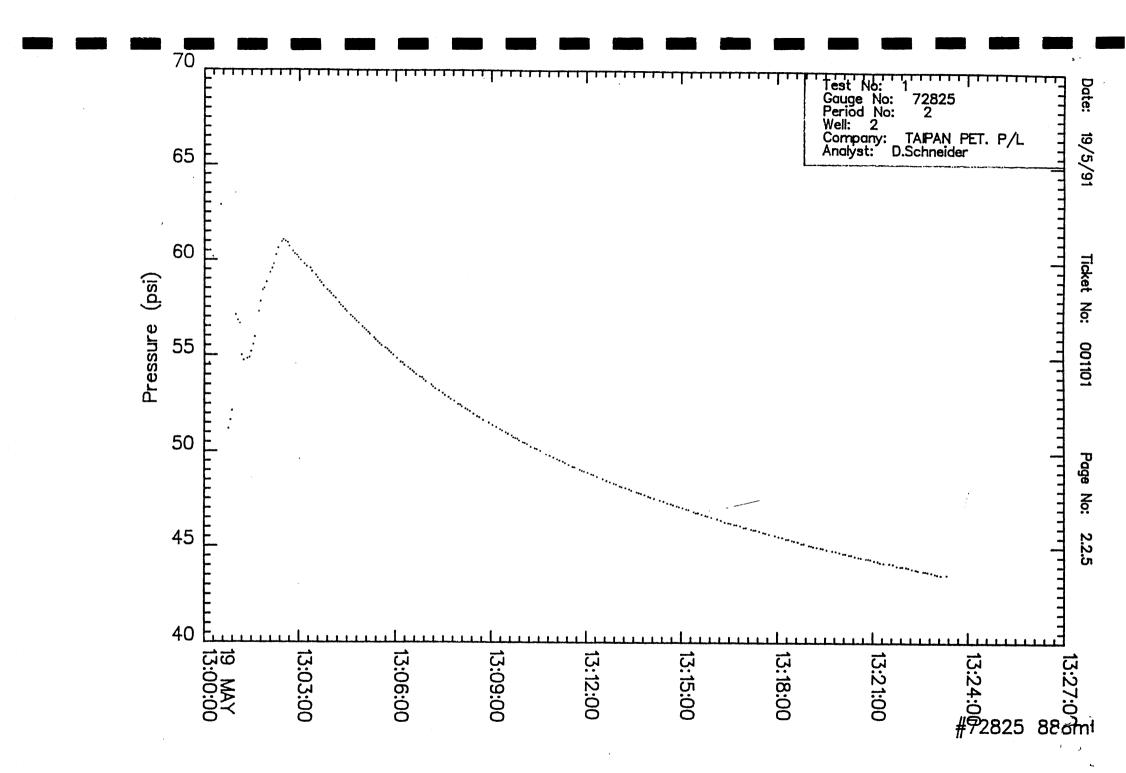
912.85

HRS

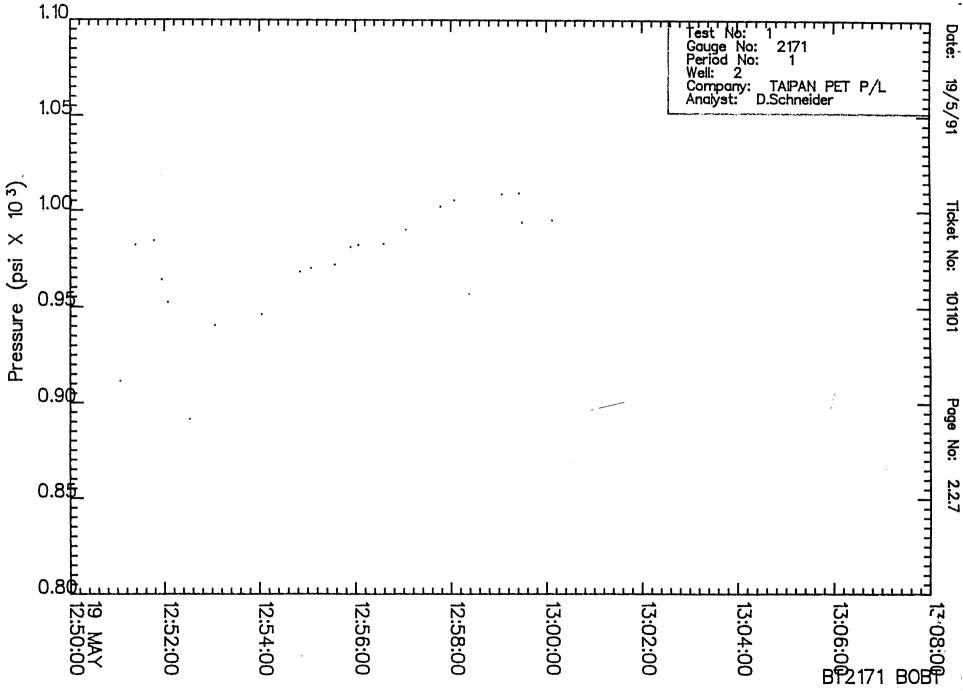


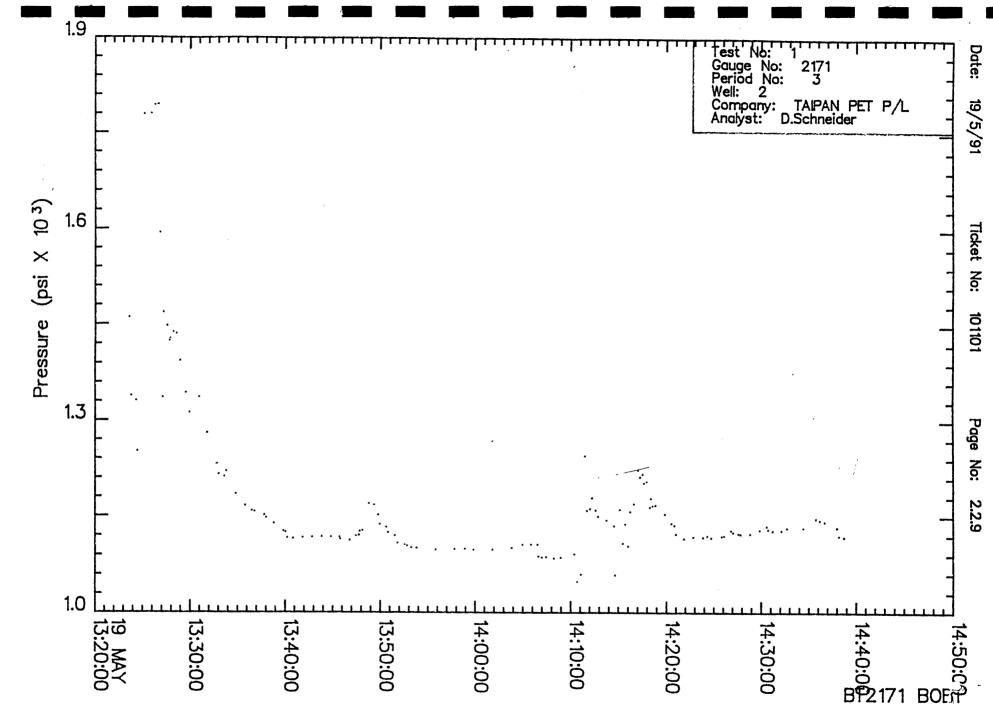
Pressure Vs Time



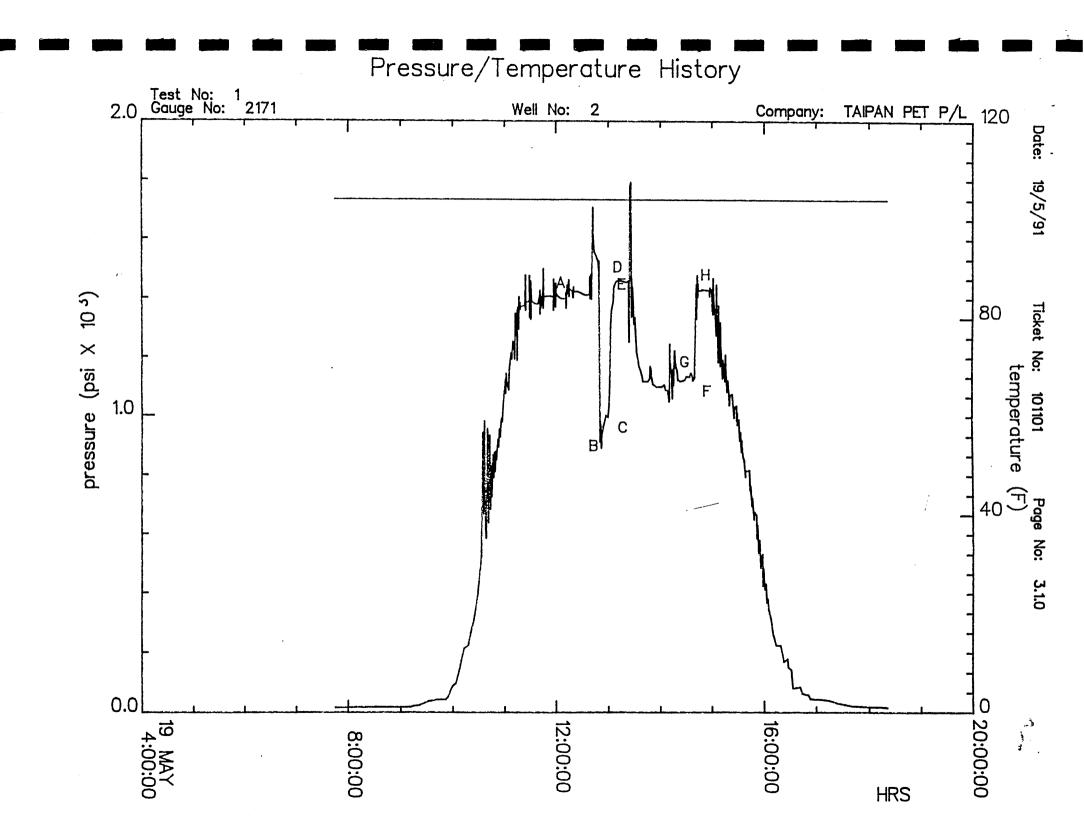


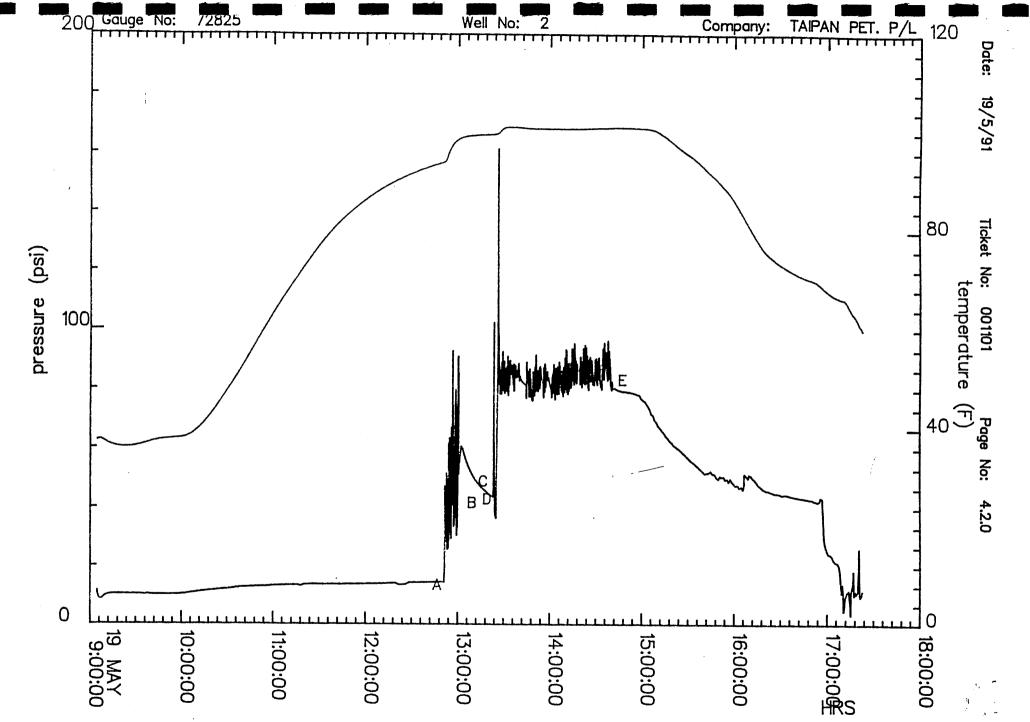
en de la composición Na composición de la c Pressure Vs Time





f





# FORMATION TEST REPORT



# HALLIBURTON RESERVOIR SERVICES



### A Halliburton Company

Customer: TAIPAN PETROLEUM P/L Well Description: LINDON #2 Field Name: OTWAY BASIN

TEST NO: DST #2 TEST DATE: 20-MAY-91 TICKET NO: 001102 HALLIBURTON RESERVOIR SERVICES

- 1

REPORT TICKET NO: 001102 MEMORY GAUGE TICKET NO: 001102 DATE: 20/5/91 HALLIBURTON CAMP: MOOMBA TESTER: T.Stephens D.Schneider WITNESS: G.Weste

DRILLING CONTRACTOR: GDS Rig #2 LEGAL LOCATION: see remarks

OPERATOR: TAIPAN PET LEASE NAME: LINDON WELL NO: 2 TEST NO: 2 TESTED INTERVAL: 902.68 - 914.10 m

FIELD AREA: OTWAY BASIN COUNTY/LSD: STATE/PROVINCE: VICTORIA COUNTRY: AUSTRALIA

NOTICE: THIS REPORT IS BASED ON SOUND ENGINEERING PRACTICES, BUT BECAUSE OF VARIABLE WELL CONDITIONS AND OTHER INFORMATION WHICH MUST BE RELIED UPON HALLIBURTON MAKES NO WARRANTY, EXPRESS OR IMPLIED AS TO THE ACCURACY OF THE DATA OR OF ANY CALCULATIONS OR OPINIONS EXPRESSED HEREIN. YOU AGREE THAT HALLIBURTON SHALL NOT BE LIABLE FOR ANY LOSS OR DAMAGE, WHETHER DUE TO NEGLIGENCE OR OTHERWISE ARISING OUT OF OR IN CONNECTION WITH SUCH DATA, CALCULATIONS OR OPINIONS.

### TABLE OF CONTENTS

### SECTION 1: TEST SUMMARY & INFORMATION

۱

\*

Summary of Test Results Test Period Summary Pressure vs. Time Plot Test and Formation Data Rate History Table Tool String Configuration Operator Job Log	1.1 1.2 1.3 1.4 1.5 1.6 1.7
SECTION 2: ANALYSIS	
Plots	2.1
SECTION 3: MEMORY GAUGE DATA	
Gauge No. 76997 Gauge No. 72825	3.1 3.2

Ticket No: 001102 Page No: 1.1 Date: 20/5/91 SUMMARY OF TEST Lease Name: LINDON Lease Owner: TAIPAN PET Well No.: 2 Test No.: 2 State/Province: VICTORIA County/LSD: Country: AUSTRALIA Formation Tested: PEBBLE POINT Hole Temp: 106.00 F Total Depth: 914.10 m Net Pay: 11.42 m Gross Tested Interval: 902.68 - 914.10 m Perforated Interval (m): **RECOVERY:** 

**REMARKS:** 

· ,

ALL DOWNHOLE PRESSURES ARE IN ABSOLUTE PSIA. DST WAS ABORTED WHEN PACKER SEAT WAS NOT ACHEIVED.

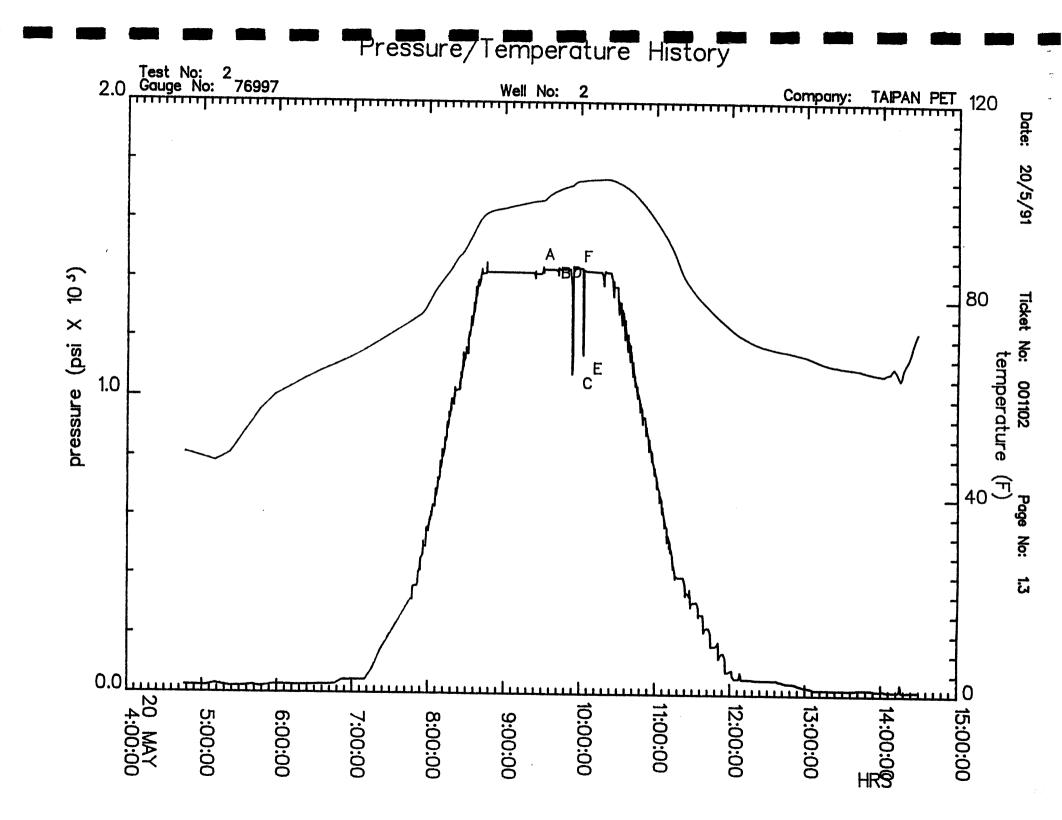
LEGAL LOCATION: - LAT - 38 04' 20" S - LONG- 141 30' 08" E Date: 20/5/91

Ticket No: 001102 Page No: 1.2

### TEST PERIOD SUMMARY

Gauge	No.: 76997	Depth: 907.65 m	Blanked off: Yes	
ID	PERIOD	DESCRIPTION	PRESSURE (psi)	DURATION (min)
A		Initial Hydrostatic	1430.35	
В	1	Start Draw-down	1432.92	
С		End Draw-down	1082.90	0.73
D	2	Start Draw-down	1435.61	
Е		End Draw-down	1132.19	0.65
F		Final Hydrostatic	1424.67	

NOTE: for Pressure vs. Time Plot, see next page.



Date:	20/5/91	Ticket	No:	001102	Page	No: 1.4
	TE	ST AND FO	ORMATI	ION DATA		
All Deg Elevat Total I Net Pay Hole of Gross	Depth: 9	KELLY H 68.76 m 14.10 m 11.42 m 8.500 in 902.		IGS 914.10	m	
	HOLE FLUID			HOLE	TEMPERATURE	
Type: Weight: Viscosi	9.10 lbm/ga	L 1	Esti	h: mated: al:	907.65 m 105.00 F 106.00 F	L
	HYDROCARBON PROPE	RTIES		CI	JSHION DATA	
Oil Gra Gas/Oil Gas Gra	avity (API): L ratio (ScF/STB): avity (SG):	@ 60 F 0.75	TYPE NIL		AMOUNT	WEIGHT
-	FLUID PROPE	RTIES FOR	RECO	VERED MUI	D AND WATER	
SOURCE	RESISTIVI @ @ @ @ @ @ @	TY F F F F F	CHLOR	IDES	SG	РН
•		SAMPL	ER DA	ГА		
	Volume Volume Volume Volume	ce Pressu e of Gas e of Oil: e of Wate e of Mud: Liquids:	:	ps ft cc cc cc	23 2 2	
REMARKS	: ALL DOWNHOLE PRES DST WAS ABORTED W					
•	LEGAL LOCATION: -	- LAT - - LONG- 1				

r

.

# ate:20/5/91

Ticket no: 001102

TEST STRING CONFIGURATION

	0.D. (in)	I.D. (in)	LENGTH (m)	DEPTH (m)
DRLL PIPE	4.500	3.826	726.040	
FLEX WEIGHT	4.500	2.812	55.769	
DRLL COLLARS	6.250	2.812	83.360	
PUMP OUT REVERSING SUB	6.000	3.000	0.305	857.528
DRILL COLLARS	6.250	2.812	9.280	
IMPACT REVERSING SUB	6.000	3.000	0.305	867.113
DRILL COLLARS	6.250	2.812	18.420	
BAR CATCHER SUB	5.750	1.000	0.305	
AP RUNNING CASE	5.000	2.250	1.262	886.340
CROSSOVER	5.000	2.250	0.305	
ELECTRONIC GAUGE RUNNING CASE	5.500	2.250	2.370	889.660
CROSSOVERCROSSOVER	5.000 5.000	2.250 2.200	0.305 0.305	
DUAL CIP VALVE	5.000	0.870	1.484	891.760
SAMPLE CHAMBER	5.000	2.500	1.484	
DRAIN VALVE	5.000	2.200	0.262	
HYDROSPRING TESTER	5.000	0.750	1.618	895.080
AP RUNNING CASE	5.000	2.250	1.262	895.790
JAR	5.000	1.750	1.524	
VR SAFETY JOINT	5.000	1.000	0.847	
OPEN HOLE PACKER	7.500	1.530	1.771	900.490
DISTRIBUTOR VALVE	5.000	1.680	0.610	
OPEN HOLE PACKER	7.500	1.530	1.771	902.680

## )ate:20/5/91

۲

.

Ticket no: 001102

### Page no: 1.6.2

• ,

TEST STRING CONFIGURATION

		0.D. (in)	I.D. (in)	LENGTH (m)	DEPTH (m)
	ANCHOR PIPE SAFETY JOINT	5.000	1.500	1.311	
	FLUSH JOINT ANCHOR	5.000	2.370	4.572	
	EMR GAUGE HANGER	5.000	2.370	0.465	907.650
	BLANK ANCHOR	5.000	2.370	1.518	
	BLANK ANCHOR	5.000	2.370	1.518	
	FLUSH JOINT ANCHOR	5.000	2.370	0.305	
0	BLANKED-OFF RUNNING CASE	5.000	2.440	1.237	912.560

TOTAL DEPTH

914.10

HRS

Date: 20/5/91 Test No: 2

•

۰,

Ticket No: 001102 Page No: 1.7.1

#### OPERATOR JOB LOG

Type of Flow Measuring Device: 6"CERAMIC CHOKE

	TIME HH:MM:SS	SIZE	SURFACE PRESSURE (psi)	RATE	LIQUID RATE ) (bbl/D)	REMARKS
	20 <b>-May-91</b>					
	04:40:00					MAKE UP TOOLS
	07:10:00					TOOLS MADE UP, RUN IN HOLE
	08:45:00					RIG UP SURFACE EQUIPMENT
-	08:55:00					PRESSURE TEST SURFACE EQUIP.
	09:35:00					HEAD UP
	09:47:00					SET WEIGHT ON TOOL
	09:53:22					TOOL OPEN
	09:53:50	·				LOST PACKER SEAT
	09:54:06					PICK UP ON TOOL
	09:56:30					SET WEIGHT ON TOOL
	10:02:00					TOOL OPEN
	10:02:30					LOST PACKER SEAT
	10:02:40					PICK UP ON TOOL
_	10:02:40					TEST TOOL 1.5mtr. OFF BOTTOM
	10:05:00					RIG DOWN SURFACE EQUIPMENT
	10:10:00					LAY OUT TEST HEAD
	10:25:00					PULL OUT OF HOLE
	12:10:00					TOOLS AT FLOOR
	14:30:00					TOOLS LAID OUT

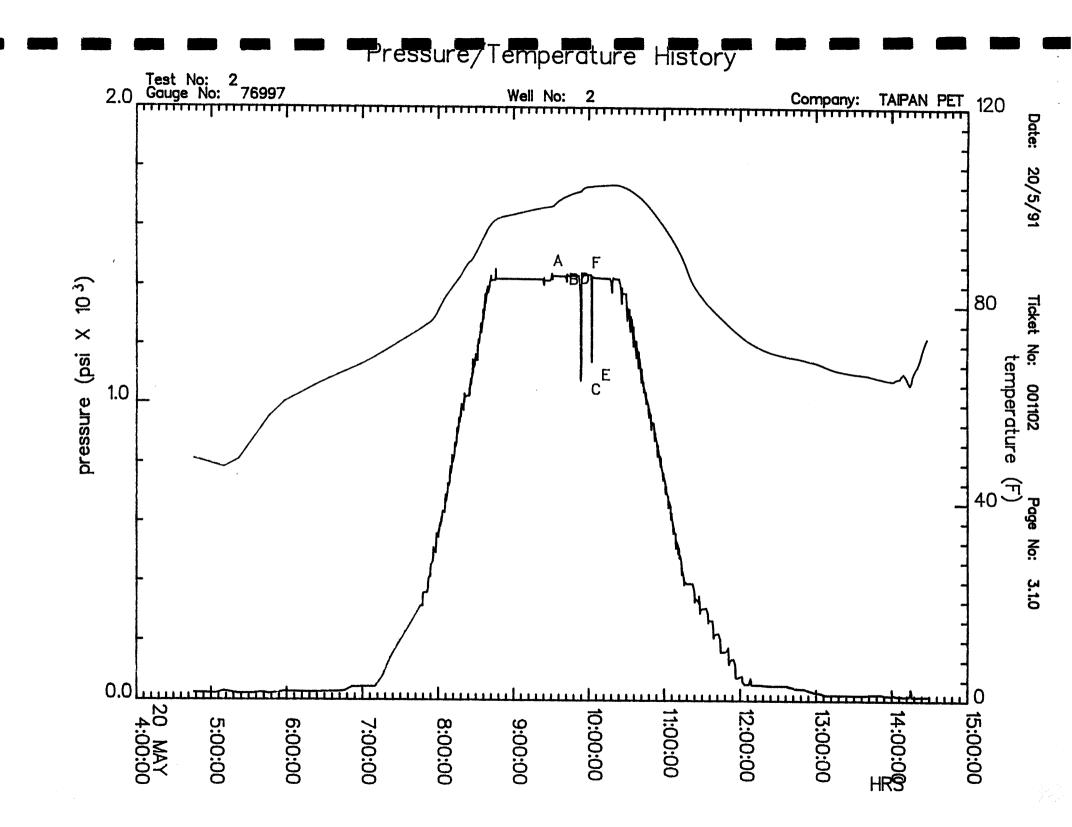
Date: 20/5/91

Ticket No: 001102

#### TEST PERIOD SUMMARY

Gauge	No.: 76997	Depth: 907.65 m	Blanked off: Yes	
ID	PERIOD	DESCRIPTION	PRESSURE (psi)	DURATION (min)
A	· · ·	Initial Hydrostatic	1430.35	
B	1	Start Draw-down	1432.92	
C.		End Draw-down	1082.90	0.73
D	2	Start Draw-down	1435.61	
Е		End Draw-down	1132.19	0.65
F		Final Hydrostatic	1424.67	
		_		

NOTE: for Pressure vs. Time Plot, see next page.



Date: 20/5/91

, .ť

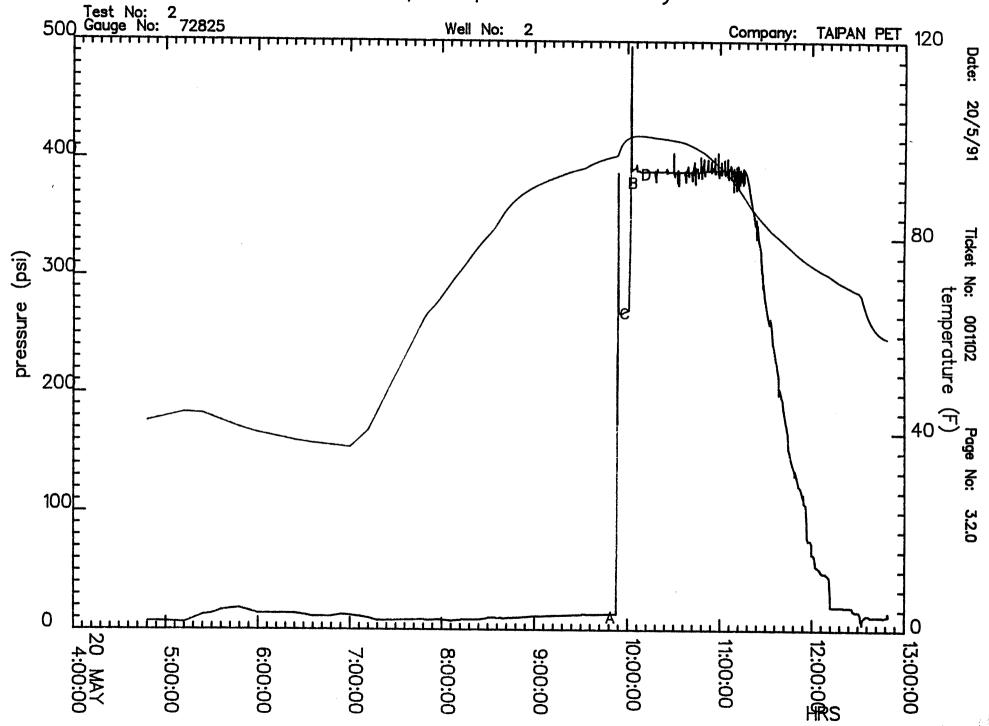
Ticket No: 001102 Page No: 3.2

#### TEST PERIOD SUMMARY

Gauge 1	No.: 72825	Depth: 889.66	m	Blanked off: No	
ID	PERIOD	DESCRIPTION		PRESSURE (psi)	DURATION (min)
A B C D	1 2	Start Draw-down End Draw-down Start Draw-down End Draw-down		13.81 388.54 271.52 395.71	0.72 0.78

NOTE: for Pressure vs. Time Plot, see next page.





1 - 11 -· 4 1 2239 FLow 15 Dst#2 Øst#2. T. 2171 Bobt (BLANKEN OFF) FLOW 6000PSI GANGE 24HRELock 912.56 mith. BT 2270 24HR Chock 3000 BI 895.79mtx. DST#2 3933 REC 24 the Chock 3,000 PSIGNER 886.34 mts.

### APPENDIX 3

PRODUCTIVITY TEST DATA

OPERATIONS REPORT: 1 Covering Daily Operations on: Saturday 8 June, 1991.

14.30 hrs. Wireline/Test Supervisor on location. Unloaded Expertest flow equipment and released truck.

21.00 hrs. Expertest wireline truck and mast arrived in Heywood after delayed departure from Adelaide

- -----

OPERATIONS REPORT: 2 Covering Daily Operations on: Sunday 9 June, 1991.

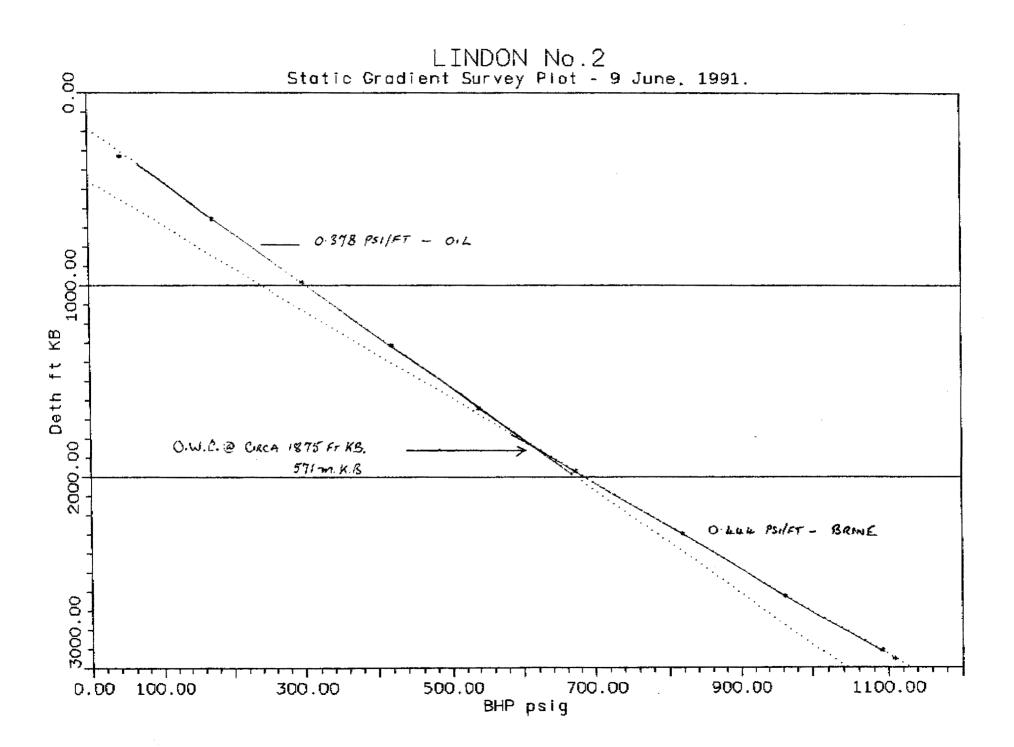
07.45 hrs. Spot equipment and commence rigging up.

09.45 Shut in tubing head pressure (SITHP); 634.34 kPa. (92 psig). Shut in annulus pressure (CIAP); 0.

- 10.30 RIH with 2.2 inch blind box and tagged fluid at 62 m. (203 ft.) K.B. Attempted to work through waxy oil.
- 11.15 POH and changed blind box for 1.9 inch guage cutter.
- 11.45 Tagged fluid level at same depth and attempted to work through fluid, POH.
- 12.30 RIH with 1.9 inch guage cutter and additional sinker bars. Tagged fluid at 58 m. (190 ft.) K.B. and worked through heavy crude until the tool string ran free at 122 m. (400 ft.) K.B. Tagged TCP gun firing bar at 900.6 m. (2955 ft.) K.B. POH.
- 15.00 Ran Static Gradient survey without difficulty. Plotted results indicate on oil column of gradient 0.378 psi/ft to circa 571 m. (1875 ft.) K.B., below which is completion brine of gradient 0.444 psi/ft.

17.30 Secure well and shut down for the night.

APPR TOP OIL COLUMN 190 FT KB. APPR VOL OIL COLUMNS 9.76 BELS. VOL BRINE 11) TORING. 5.25 Ebls.



OPERATIONS REPORT: 3 Covering Daily Operations on: Monday 10 June, 1991.

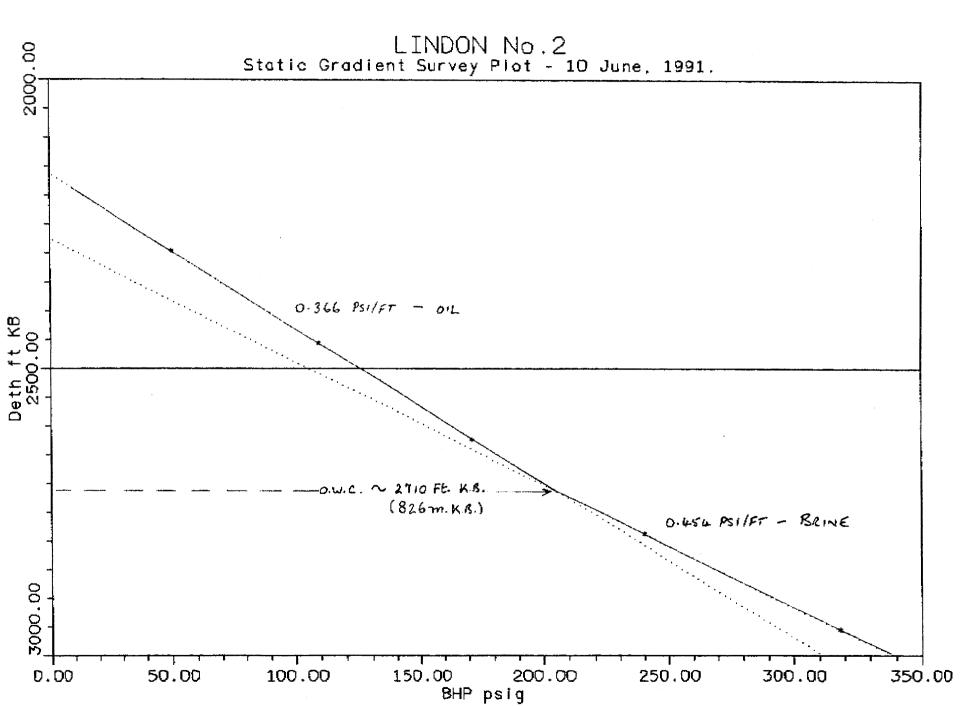
- 07.45 Hrs Rig up Braided line equipment for swabbing.
- 10.00 Make 1.9 inch guage ring run to 152 m. (500 ft.) K.B. and tagged fluid top at 55 m. (180 ft.) K.D.
- 10.45 Rigged up flowlines from wellhead to tank and pit.
- 12.00 RIH with swab mandrel and 2.5 inch swab cups, worked through fluid top at 55 m. K.B.
- 12.30 Made 13 swab runs, from 142 m. (465 ft.) to 858 m. (2815 ft.), recovering an estimated 10.7 Bbls of oil and 7.9 Bbls of completion brine.
  - <u>Note 1.</u> Calculated tubing volumes from static gradient survey were 9.76 Bbls oil and 6.25 Bbls brine.
  - <u>Note 2.</u> That swabbed fluid was directed to the pit as the thickness of the nil made it impossible to carry out guage dipping in the tank.

Refer to attached swab report for details.

The last swab before nightfall pulled approximately 0.4 Bbls of newly influxed oil in addition to brine.

17.00

Secured well and shut down for the night.



OPERATIONS REPORT: 4 Covering Daily Operations on: Tuesday 11 June, 1991.

- 07.45 hrs Ran Static Gradient survey #2; top of fluid column at 661 m. (2170 ft.) K.B. OWC at approx. 826 m. (2710 ft.) K.B. BHP 318.6 psig at 901 m. (2955 ft.) K.B.
- 12.30 Made 5 swab runs from 721 m. (2365 ft.) to 858 m. (2815 ft.) K.B., recovering an estimated 3.3 Bbls of oil and 0.7 Bbls of completion brine, with apparent minimal influx.

Note Swabbed fluid volumes measured in a small calibrated dip tank.

- 15.30 RIH with 2.5 inch 'B' shifting tool, shifted release sub at 894 m. (2934 ft.) K.B. and dropped TCP guns. Ran tools down to 926 m. (3038 ft.) K.B. to check wellbore clear to 15 m. below perforations.
- 16.30 Made 2 further swab runs from 858 m. (2815 ft.) K.B., recovering a further 0.25 Bbls each of oil and brine.
- 17.15 Ran in with swab mandrel and tagged top of fluid at 852 m. (2795 ft.) K.B. POH.
- 17.30 Secured well and shut down for the night.

OPERATIONS REPORT: 5 Covering Daily Operations on: Wednesday 12 June, 1991.

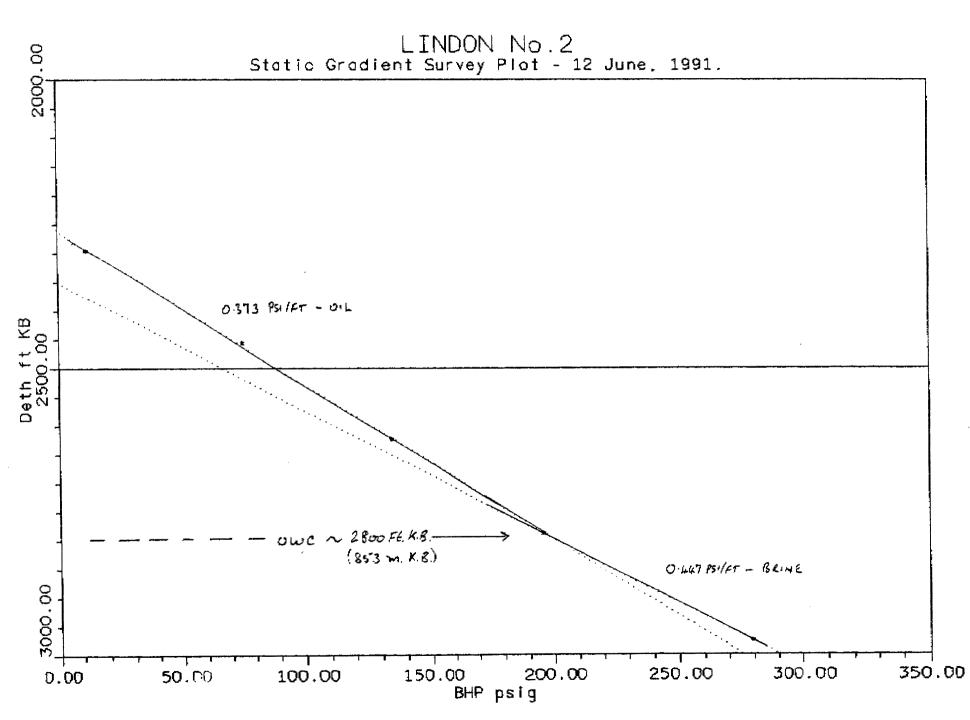
08.00 hrs Ran Static Gradient survey #3; top of fluid column at 692 m. (2269 ft.) K.B. DWC at approx. 853 m. (2800 ft.) K.B. BHP 279 psig at 907 m. (2975 ft.) K.B.

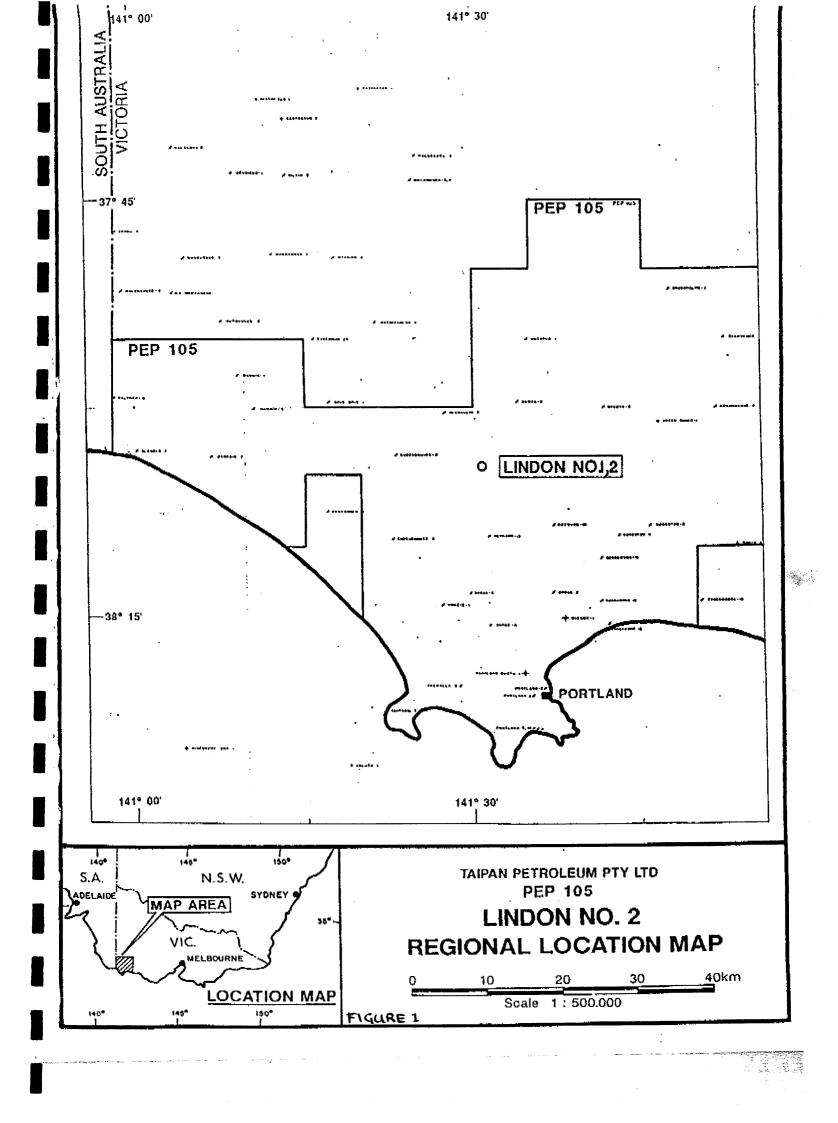
Influx in  $15^{*}/_{a}$  hrs overnight was 526 ft of  $2^{7}/_{\oplus}$  inch 6.5# tubing, approximately 3.05 Bbls, of oil.

12.00 Suspend well test operations. Rig down all equipment ready for transport.

18.00 Secure well.

7





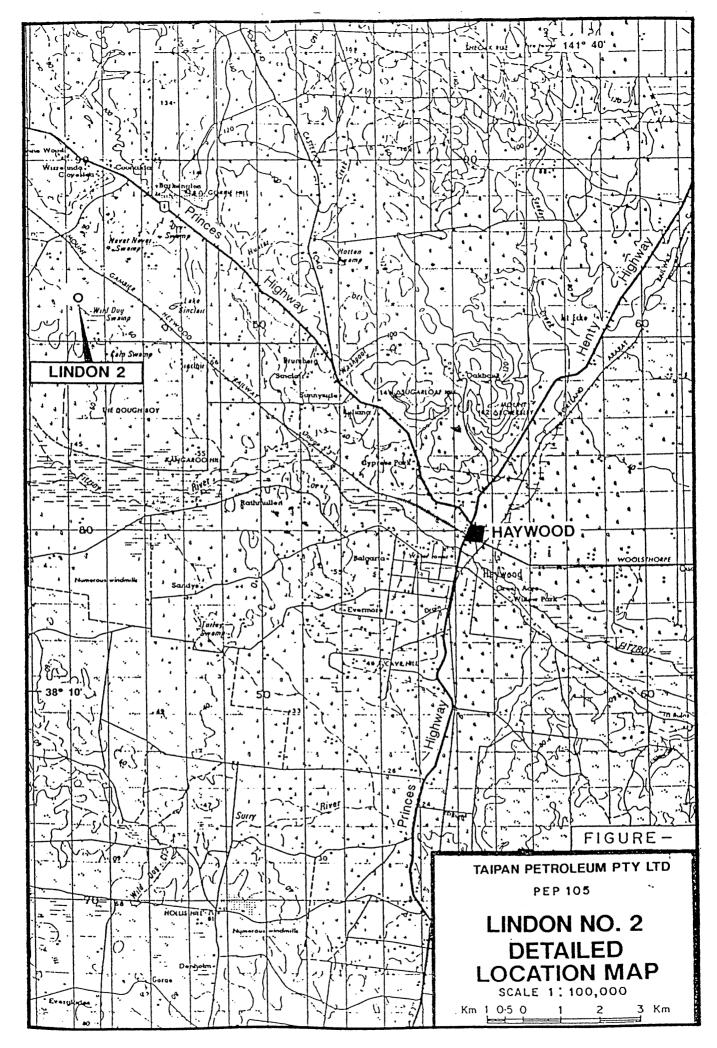


Figure 2

This is an enclosure indicator page. The enclosure PE600852 is enclosed within the container PE902056 at this location in this document.

The enclosure PE600852 has the following characteristics: ITEM\_BARCODE = PE600852 CONTAINER\_BARCODE = PE902056 NAME = Composite well log BASIN = OTWAY PERMIT = TYPE = WELL SUBTYPE = COMPOSITE\_LOG DESCRIPTION = Composite well log for Lindon-2 REMARKS =  $DATE_CREATED = 25/05/1991$  $DATE\_RECEIVED = 13/05/1992$  $W_{NO} = W1045$ WELL\_NAME = Lindon-2 CONTRACTOR = H Geodata CLIENT\_OP\_CO = Taipan Petroleum (Inserted by DNRE - Vic Govt Mines Dept)

12814

This is an enclosure indicator page. The enclosure PE600849 is enclosed within the container PE902056 at this location in this document.

The enclosure PE60	0849 has the following characteristics:
ITEM_BARCODE =	PE600849
CONTAINER_BARCODE =	PE902056
NAME =	Photodensity neutron caliper & gamma
	ray log
BASIN =	OTWAY
PERMIT =	
TYPE =	WELL
SUBTYPE =	WELL_LOG
DESCRIPTION =	Photodensity neutron caliper & gamma
	ray log (1:200) for Lindon-2
REMARKS =	
DATE CREATED =	21/05/1991
DATE_RECEIVED =	13/05/1992
W_NO =	W1045
WELL_NAME =	Lindon-2
CONTRACTOR =	BPB
CLIENT_OP_CO =	Taipan Petroleum
(Inserted by DNRE -	Vic Govt Mines Dept)

This is an enclosure indicator page. The enclosure PE600851 is enclosed within the container PE902056 at this location in this document.

The enclosure PE600851 has the following characteristics: ITEM\_BARCODE = PE600851 CONTAINER\_BARCODE = PE902056 NAME = Photodensity neutron caliper & gamma ray log BASIN = OTWAY PERMIT = TYPE = WELL SUBTYPE = WELL\_LOG DESCRIPTION = Photodensity neutron caliper & gamma ray log (1:500) for Lindon-2 REMARKS = DATE\_CREATED = 21/05/1991  $DATE\_RECEIVED = 13/05/1992$  $W_{NO} = W1045$ WELL\_NAME = Lindon-2 CONTRACTOR = BPB CLIENT\_OP\_CO = Taipan Petroleum

(Inserted by DNRE - Vic Govt Mines Dept)

đ

This is an enclosure indicator page. The enclosure PE600853 is enclosed within the container PE902056 at this location in this document.

The enclosure PE600853 has the following characteristics: ITEM\_BARCODE = PE600853 CONTAINER\_BARCODE = PE902056 NAME = Dual Laterolog, MRS, SP, Sonic Caliper & Gamma ray BASIN = OTWAY PERMIT = TYPE = WELL SUBTYPE = WELL\_LOG DESCRIPTION = Dual Laterolog, MRS, SP, Sonic Caliper & Gamma ray for (1:500) Lindon-2 REMARKS =  $DATE_CREATED = 21/05/1991$  $DATE\_RECEIVED = 13/05/1992$  $W_NO = W1045$ WELL\_NAME = Lindon-2 CONTRACTOR = BPB CLIENT\_OP\_CO = Taipan Petroleum

(Inserted by DNRE - Vic Govt Mines Dept)

,

This is an enclosure indicator page. The enclosure PE600850 is enclosed within the container PE902056 at this location in this document.

The enclosure PE600850 has the following characteristics: ITEM\_BARCODE = PE600850 CONTAINER\_BARCODE = PE902056 NAME = Computer Generated Log BASIN = OTWAY PERMIT = TYPE = WELLSUBTYPE = WELL\_LOG DESCRIPTION = Computer Generated Log (enclosure from WCR) for Lindon-2 REMARKS = DATE\_CREATED = 21/05/1991  $DATE_RECEIVED = 13/05/1992$ W\_NO = W1045 WELL\_NAME = Lindon-2 CONTRACTOR = Crocker Data processing CLIENT\_OP\_CO = Taipan Petroleum

(Inserted by DNRE - Vic Govt Mines Dept)