



Australia Division  
BHP Petroleum

MINERVA-2/2A, VIC/P31  
WELL COMPLETION REPORT  
BASIC



**BHP PETROLEUM PTY. LTD.**  
A.C.N. 006 918 832

**MINERVA-2/2A, VIC/P31**

**BASIC WELL COMPLETION REPORT**

**VOL. 1**

**PREPARED BY: E. Smith**  
**Operations T.A.**

**70353\_1.WCR**

**DATE: June 1994**



# Table of Contents

Page

## FIGURES

### Minerva-2/2A Location Map

1	WELL SUMMARY SHEET . . . . .	1
2	FINAL DRILLING REPORT . . . . .	4
3	SAMPLES, SIDEWALL CORES, CONVENTIONAL CORES . . . . .	5
3.1	Cuttings . . . . .	5
3.2	Sidewall Cores . . . . .	5
3.3	Conventional Cores . . . . .	5
3.4	Palynology . . . . .	5
3.5	Micropalaeontology . . . . .	5
3.6	Geochem . . . . .	6
4	LOGGING AND SURVEYS . . . . .	7
4.1	Mudlogging . . . . .	7
4.2	Measurement While Drilling . . . . .	7
4.3	Wireline Logs . . . . .	7
4.4	Processed Logs . . . . .	7
4.5	Velocity Surveys . . . . .	7
4.6	Rig Location Survey . . . . .	7
5	FORMATION TESTING . . . . .	8
5.1	RFT . . . . .	8
5.2	DST . . . . .	8
5.3	Production Tests . . . . .	8
6	APPENDICES	
6.1	APPENDIX 1 Cuttings lithological descriptions	
6.2	APPENDIX 2 CST descriptions	
6.3	APPENDIX 3 Conventional core description	
6.4	APPENDIX 4 Core Analysis Report	
6.5	APPENDIX 5 Palynology Charts	
6.6	APPENDIX 6 Geochem Basic Data	
6.7	APPENDIX 7 Mudloggers End of Well Report	
6.8	APPENDIX 8 MWD End of Well Report	
6.9	APPENDIX 9 Rig Positioning Report	
7	ENCLOSURES	
7.1	ENCLOSURE 1 Conventional Core Photos	





**ROUTINE CORE ANALYSIS  
STUDY FOR  
MINERVA 2A**



26 November 1993

---

BHP Petroleum Pty Ltd  
120 Collins Street  
MELBOURNE VIC 3000

Attention: Jim Phipps

**REPORT: 005/207**

**CLIENT REFERENCE:** -

**MATERIAL:** Core

**LOCALITY:** Minerva 2A

**WORK REQUIRED:** Routine Core Analysis

Please direct technical enquiries regarding this work to the signatory below under whose supervision the work was carried out.

A handwritten signature in black ink, appearing to read 'Warren W Farley'.

**WARREN W FARLEY**  
Regional Manager  
Australia & Oceania

ACS Laboratories Pty Ltd shall not be liable or responsible for any loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from any information or interpretation given in this report. In no case shall ACS Laboratories Pty Ltd be responsible for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report.

26 November 1993

BHP Petroleum Pty Limited  
120 Collins Street  
MELBOURNE VIC 3000

Attention: Jim Phipps

## FINAL DATA REPORT - CONVENTIONAL CORE ANALYSIS

REPORT: 5 - 207 MINERVA No. 2a

### LOGISTICS

Cores No. 1 through to 5 were delivered to the Adelaide laboratory of ACS Laboratories on the 16th of October 1993.

Core intervals include:

Core No.1 : 1728.50 - 1733.60 m ( 5.10m)  
Core No.2 : 1838.80 - 1854.88 m (16.08m)  
Core No.3 : 1855.50 - 1882.50 m (27.00m)  
Core No.4 : 1915.00 - 1942.73 m (27.73m)  
Core No.5 : 1943.00 - 1969.00 m (26.00m).

A total of 101.91 meters of core was analysed, from which 341 fluid summation samples, 341 'R' plugs and 113 'A' plugs were removed for analytical testing.

### INTRODUCTION

The following report includes tabular data of permeability to air, helium injection porosity, summation of fluids porosity and density determinations. Data presented graphically includes a continuous core gamma log, a core log plot and a porosity versus permeability to air plot.



## STUDY AIMS

The analyses were performed with the following aims:

1. To provide depth correlation through provision of a continuous core gamma log over the cored interval.
2. To provide fluid saturation, ( $S_o$  &  $S_w$ ) and summation of fluids porosity data.
3. To provide 72 hour air permeability (maximum and intermediate values), helium injection porosity and density data.
4. To determine the effect of overburden stress on air permeability and helium injection porosity data.
5. To provide information on the strength of the formation through Brinell Hardness measurements.

## SAMPLING

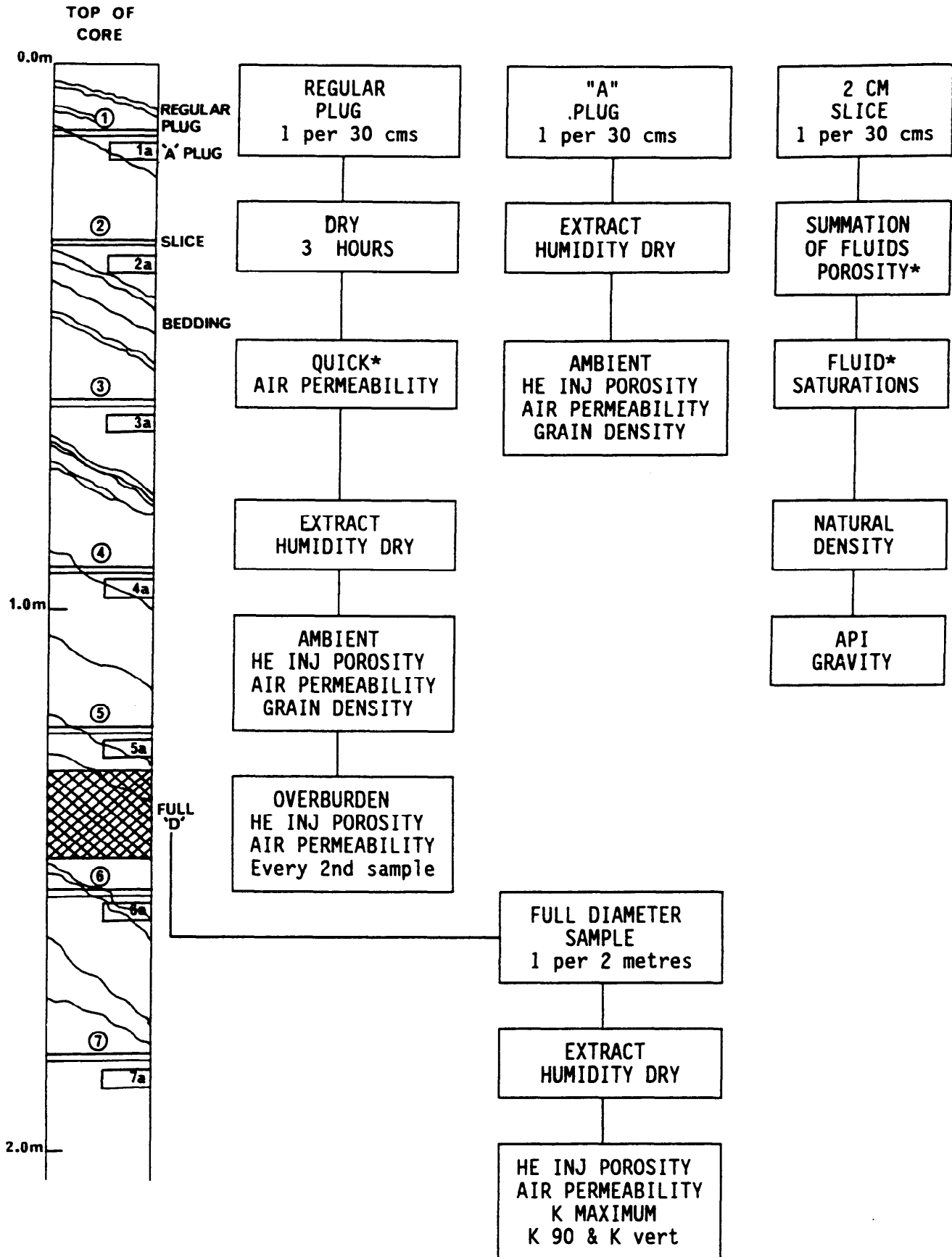
The core was sampled as follows:

- A. 2cm slices were taken across the core at 30cm intervals for fluid saturation and summation of fluids porosity measurements.
- B. 1.5" diameter core plugs were drilled from the whole core at 30cm intervals using specially made brine solution as lubricant. The core was oriented such that the plugs were drilled parallel to the bedding. These plugs are designated as the 'regular' plugs.
- C. Further 1.5" diameter plugs were taken from approximately 90cm intervals but with the core oriented such that the plugs were drilled perpendicular to the 'regular' plug and parallel to the dip. These plugs are designated as the 'A' plugs.
- D. All 'regular' and 'A' plugs were trimmed and offcuts retained. The offcuts were dispatched immediately to BHP Petroleum for viewing and possible selection of petrology/palaeontology samples.

This sampling procedure is illustrated along with an analytical flow chart on the following page for easy reference.

The core was sampled and analysed as follows:

# ANALYTICAL FLOW CHART



\* Data reported within 16 hours of receipt of core

## 1. CONTINUOUS CORE GAMMA

The core was laid out according to depth markings, and a continuous core gamma trace produced by passing the core beneath a gamma radiation detector. The detector is protected from extraneous radiation by a lead tunnel. The detector signal is amplified and digitised to produce a gamma trace for comparison with the downhole log.

## 2. FLUID SATURATIONS AND SUMMATION OF FLUIDS POROSITY

The 2cm slices taken at 30cm intervals were used for these analyses. Approximately 100 gms of material was taken from the centre of the slice, crushed and placed in a thermostatically controlled high temperature retort. The retort is programmed to heat initially to 180°C. At this temperature pore water is vaporised, condensed and recovered in receiving tubes. When water production ceases at 180°C the retort temperature is increased to 650°C. At this temperature residual hydrocarbons and remaining bound water are recovered. Using this procedure the volumes of oil and water in a known weight of core material can be determined.

To determine the gas volume, approximately 40g of fresh core is taken from the same slice, weighed and placed in a mercury displacement pump to determine bulk volume. Mercury is then injected into the sample at 750psig (5200 kpa). The amount of mercury injected corresponds to the gas volume of the sample. From these measurements the summation of fluids porosity is calculated and oil and water saturations expressed as a percentage of the porosity.

## 3. NATURAL DENSITY

The natural density of the sample is obtained by dividing the weight of the fresh sample used for the gas volume measurement by it's bulk volume.

## 4. SAMPLE EXTRACTION AND DRYING

After sampling as described in section 2B and 2C the 'regular' and 'A' set of plugs were initially dried in a humidity oven at 80°C for 3 hours. After which the plugs were placed in a soxhlet extractor to remove hydrocarbons. When the toluene in the Soxhlet was no longer discoloured the core plugs were removed and checked under ultraviolet light to ensure all hydrocarbons had been removed.

After cleaning, all plugs were dried in a controlled humidity environment at 60°C and 40% relative humidity. The plugs were stored in an airtight plastic container and allowed to cool to room temperature before analysis.

## 5. AIR PERMEABILITY

Air permeability was determined on the 'regular' and 'A' set plugs. The plugs are placed in a Hassler cell at a confining pressure of 250 psig (1720 kpa). This pressure is used to prevent bypassing of air around the sample when the measurement is made. During the measurement a known air pressure is applied to the upstream face of the sample, creating a flow of air through the sample. Permeability for each sample is then calculated using Darcy's Law through knowledge of the upstream pressure and flow rate during the test, the viscosity of air and the plug dimensions.

## 6. HELIUM INJECTION POROSITY

The helium injection porosity of the extracted and dried 'regular' and 'A' set of core plugs was determined as follows. The plugs were sealed in a matrix cup. A known volume of helium was held at 100psi reference pressure and then introduced to the cup. From the resultant pressure change the unknown grain volume was calculated using Boyles law, i.e  $P_1V_1 = P_2V_2$ .

The bulk volume of the plugs was determined by mercury immersion. The difference between the grain volume and the bulk volume is the pore volume and from this the porosity is calculated as the volume percentage of pores with respect to the bulk volume. The porosity calculated using this technique is an effective porosity.

## 7. APPARENT GRAIN DENSITY

The apparent grain density is determined by dividing the weight of the plug by the grain volume determined from the helium injection porosity measurement.

## 8. POROSITY AND PERMEABILITY AT OVERBURDEN PRESSURE

To determine the porosity and permeability of the core plugs at overburden pressure, the sample is placed in a heavy duty Hassler sleeve. The assembly is loaded into a thick walled hydrostatic cell capable of withstanding the simulated reservoir overburden stress. After loading helium injection porosity and air permeability was determined at simulated reservoir load conditions. The overburden stress values used in these analyses were supplied by BHP Petroleum. Approximately every fourth 'R' plug was used in these analyses.

## 9. BRINELL HARDNESS

Brinell hardness readings were conducted on the 'R' set of core plugs. Where possible, five readings (in a crossed pattern) are taken at each sample point. A pre-load of 10 kgs and a constant load of 20 kgs are applied at the load point using the 3.175 mm indenter; the depth of indentation is measured and this is used to obtain the Brinell Hardness. An average is given for the five points at each sample depth. Using this technique, the minimum attainable Brinell Hardness reading is 4.

## 10. ROLLING AND SPECIFIED AVERAGES

These averages of both Helium injection porosity and permeability are obtained by using a "rolling" three (3) point method. In the case of porosity a weighted arithmetic average is used:

$$\phi_{av(i+1)} = [\phi_i + 2\phi_{(i+1)} + \phi_{(i+2)}] / 4$$

In the case of permeability a weighted geometric average is used:

$$K_{av(i+1)} = 10^{[(\log_{10} K_i + 2 \log_{10} K_{(i+1)} + \log_{10} K_{(i+2)}) / 4]}$$

At any sample point, excluding the first and last, a rolling average is obtained by using the value at the specified sample point, the value before it and the value of the sample point after it. In the cases of the first and last sample points, only 2 sample points are used.

Using porosity as an example, the average of the first data point is obtained from the formula:

$$\phi_{av(i)} = [2\phi_i + \phi_{(i+1)}] / 3$$

The average at the final data point is obtained by:

$$\phi_{av(f)} = [\phi_{(f-1)} + 2\phi_{(f)}] / 3$$

The same method is used for permeability averages. At any break in the data the rolling averages are "re-started".

<u>Data Key:</u>	$\phi$	=	porosity
	K	=	permeability
	i	=	initial
	av	=	average
	f	=	final

Specified averages are normal arithmetic averages which can be taken over any specified section of the core, as well as over the whole core.

On completion of the analysis the core was slabbed into one half, and two quarter slabs using water as the lubricating medium. One quarter was packed and shipped to the BMR core storage, Canberra. The remaining quarter was packed and shipped to the Victorian Department of Industry, Technology and Resources in Melbourne, Victoria. The one half slab was photographed under both white light and ultra-violet light. This half was then packed and shipped to the BHPP core store in Melbourne.

We have enjoyed working with BHPP and look forward to working with you again in the near future.

END OF REPORT.

ACS LABORATORIES PTY. LTD.

ACN: 008 273 005

Petroleum Reservoir Engineering Data

CORE ANALYSIS FINAL REPORT

Company : BHP PETROLEUM PTY.LTD.  
 Well : MINERVA-2A  
 Field : MINERVA  
 Core Int. : CORE NO.1 1728.50-1733.60 M  
 Core Int. : CORE NO.2&3 1838.80-1882.50 M  
 Core Int. : CORE NO.4&5 1915.00-1969.00 M

Date : 04/11/93  
 File : 5-207  
 Location : OTWAY  
 ACS Lab. : ADELAIDE  
 Analyst : CG,WJD,JC

Sample Number	Depth	Porosity %		Density		Permeability (md)		Summation of Fluids			Remarks
		HeInj	Roll Ø	ND	GD	KH	Roll KH	Ø	Oil%	H2O%	
1	1728.60	10.1	10.0	2.48	2.65	0.16	0.14	9.3	0.0	87.7	C#1
2	1728.90	9.8	9.8	2.47	2.66	0.10	0.12	10.4	0.0	83.1	
3	1729.20	9.6	9.5	2.47	2.64	0.11	0.11	10.1	0.0	85.4	
4	1729.50	9.0	9.1	2.48	2.65	0.10	0.09	10.6	0.0	87.0	
5	1729.80	8.9	8.8	2.48	2.66	0.06	0.06	9.2	0.0	86.4	
6	1730.10	8.5	8.7	2.49	2.65	0.06	0.06	8.4	0.0	85.8	
7	1730.40	8.9	9.3	2.47	2.65	0.06	0.08	9.2	0.0	80.9	
8	1730.70	10.7	9.7	2.47	2.66	0.24	0.13	10.5	0.0	87.2	
9	1731.00	8.6	9.3	2.48	2.65	0.08	0.09	9.6	0.0	85.6	
10	1731.30	9.2	9.0	2.46	2.64	0.06	0.09	10.7	0.0	86.8	
11	1731.60	8.9	9.0	2.47	2.66	0.28	0.13	9.7	5.1	81.4	
12	1731.90	9.1	9.2	2.48	2.64	0.07	0.13	10.5	0.0	89.5	
13	1732.20	9.7	9.4	2.47	2.66	0.16	0.14	10.1	0.0	90.8	
14	1732.50	9.2	9.4	2.48	2.65	0.18	0.18	10.4	0.0	95.7	
15	1732.80	9.3	9.2	2.46	2.64	0.21	0.13	10.7	4.6	87.6	
16	1733.10	9.1	9.0	2.48	2.65	0.03	0.06	10.1	2.5	93.5	
17	1733.37	8.4	11.7	2.48	2.65	0.06	0.46	9.3	0.0	91.0	B#1
18	1839.00	20.9	18.2	2.19	2.64	315	65.4	21.9	0.0	50.0	C#2
19	1839.30	22.6	21.1	2.18	2.64	2890	2173	20.8	0.0	41.8	
20	1839.55	18.4	16.7	2.16	2.83	8471	594	23.1	0.0	42.1	
21	1839.90	7.2	9.9	2.47	2.59	0.60	7.1	8.7	8.5	73.9	SP VF
22	1840.20	6.8	6.9	2.55	2.68	0.84	0.37	6.9	0.0	88.9	SP VF
23	1840.50	6.9	6.9	2.48	2.65	0.05	0.21	8.3	5.9	86.3	SP
24	1840.80	7.1	6.9	2.45	2.65	1.17	0.72	8.7	5.6	78.6	SP VF
25	1841.10	6.6	9.1	2.46	2.60	4.36	21.4	9.2	8.1	75.1	VF
26	1841.40	16.2	13.9	2.34	2.65	9437	1554	13.9	0.0	48.8	
27	1841.70	16.6	16.4	2.29	2.65	15007	11898	17.5	0.0	40.6	
28	1842.00	16.2	17.2	2.15	2.65	9430	10937	23.0	0.0	35.5	
29	1842.30	19.8	19.3	2.24	2.65	10721	9705	18.9	0.2	41.4	
30	1842.60	21.3	20.9	2.15	2.65	8183	8095	23.3	0.0	40.7	
31	1842.90	21.2	18.8	2.13	2.65	5981	976	23.4	0.0	34.7	
32	1843.20	11.6	15.4	2.32	2.53	3.10	121	13.1	5.3	65.4	VF
33	1843.50	17.1	16.0	2.15	2.65	3777	868	22.4	0.0	36.5	
34	1843.80	18.3	18.6	2.21	2.65	12865	10631	16.6	1.3	37.3	
35	1844.10	20.6	20.0	2.23	2.65	20434	12143	20.2	0.0	44.2	
36	1844.40	20.3	20.3	2.23	2.65	4048	5997	18.7	0.0	48.9	
37	1844.70	19.9	20.2	2.22	2.65	3864	5385	20.1	0.0	45.4	
38	1845.00	20.5	20.6	2.19	2.65	13913	8014	20.0	0.0	40.6	
39	1845.30	21.4	18.3	2.12	2.65	5515	3542	22.7	0.0	25.2	
40	1845.60	9.9	15.0	2.39	2.65	372	761	11.8	0.0	26.2	
41	1845.90	18.8	16.2	2.18	2.65	440	518	21.6	0.0	44.4	
42	1846.20	17.3	17.7	2.21	2.65	1005	691	19.9	0.0	37.8	
43	1846.50	17.3	18.0	2.22	2.64	513	931	18.9	0.0	28.2	

BHP PETROLEUM PTY.LTD. :  
 MINERVA-2A : Analysis by  
 ACS LABORATORIES PTY. LTD.

Sample Number	Depth	Porosity %		Density		Permeability (md)		Summation of Fluids			Remarks
		HeInj	Roll Ø	ND	GD	KH	Roll KH	0	Oil%	H2O%	
44	1846.80	20.0	19.5	2.16	2.64	2840	2543	21.9	0.0	40.3	
45	1847.10	20.7	20.4	2.23	2.65	10101	5658	19.8	0.0	39.6	
46	1847.40	20.0	20.4	2.27	2.65	3536	4518	17.0	0.0	29.4	
47	1847.70	20.9	20.4	2.24	2.64	3298	5546	19.8	0.2	47.5	
48	1848.00	19.6	19.4	2.18	2.65	24603	11094	20.7	0.0	30.5	
49	1848.30	17.3	18.5	2.20	2.65	7586	11762	21.0	0.0	36.8	
50	1848.60	19.8	18.7	2.19	2.65	13515	10215	19.8	0.0	28.7	
51	1848.90	17.7	19.1	2.20	2.65	7856	10521	20.5	0.0	33.2	
52	1849.20	21.3	19.1	2.25	2.65	14688	7524	17.8	0.0	30.3	
53	1849.50	15.9	18.3	2.18	2.65	1891	3362	21.8	0.0	40.0	
54	1849.80	19.9	18.1	2.16	2.65	2431	2576	22.2	0.0	37.8	
55	1850.10	16.7	18.0	2.19	2.64	3937	2747	20.7	0.0	35.0	
56	1850.40	18.7	17.7	2.21	2.65	1511	2389	19.9	0.0	38.9	
57	1850.70	16.7	17.5	2.24	2.65	3626	2226	18.3	0.0	45.3	
58	1851.00	17.7	17.8	2.19	2.65	1237	2431	20.4	0.0	33.2	
59	1851.30	19.1	18.2	2.21	2.65	6299	2975	21.0	0.0	48.3	
60	1851.60	16.9	17.4	2.19	2.65	1596	3888	20.8	0.0	43.1	
61	1851.90	16.8	16.9	2.26	2.65	14241	7245	17.9	0.0	42.9	
62	1852.20	17.2	16.4	2.19	2.65	8513	8568	20.3	0.0	32.3	
63	1852.50	14.5	15.9	2.24	2.65	5222	6757	18.6	0.0	37.2	
64	1852.80	17.5	16.2	2.22	2.65	8978	4236	17.6	0.0	36.6	
65	1853.10	15.2	16.3	2.26	2.65	765	2283	17.8	0.0	36.7	
66	1853.40	17.2	16.9	2.23	2.65	5170	2508	17.8	0.0	32.6	
67	1853.70	18.1	17.5	2.24	2.65	1936	3078	19.8	0.0	43.0	
68	1854.00	16.4	17.0	2.24	2.65	4634	4212	18.1	0.0	33.4	
69	1854.30	17.1	17.2	2.25	2.65	7573	6398	16.7	0.0	20.3	
70	1854.60	18.2	17.4	2.21	2.66	6305	5078	19.4	0.0	28.5	SP
71	1854.90	15.9	16.5	2.23	2.65	2210	3436	19.0	0.0	30.5	B#2
72	1855.80	15.9	16.0	2.30	2.65	4530	4940	16.4	0.0	32.2	C#3
73	1856.10	16.2	16.3	2.22	2.65	13133	11318	19.5	0.0	34.1	
74	1856.40	16.7	16.8	2.21	2.65	21003	18291	20.4	0.0	36.8	
75	1856.70	17.7	17.0	2.21	2.65	19321	20518	18.8	0.0	24.6	
76	1857.00	16.0	15.9	2.20	2.65	22603	7655	21.5	0.0	44.1	
77	1857.30	13.9	15.1	2.35	2.65	348	1710	14.9	0.3	45.7	
78	1857.60	16.4	15.5	2.35	2.64	3127	797	15.1	0.0	54.6	
79	1857.90	15.1	15.7	2.30	2.65	119	571	16.8	0.5	49.4	
80	1858.20	16.1	16.8	2.20	2.65	2415	1987	21.1	0.0	38.5	
81	1858.50	19.7	18.9	2.30	2.65	22508	11584	16.9	0.0	45.1	
82	1858.80	19.9	19.3	2.27	2.65	14714	12727	18.1	0.0	42.6	
83	1859.10	17.8	18.1	2.25	2.65	5383	6698	20.5	0.0	58.3	
84	1859.40	16.7	17.4	2.25	2.65	4719	6613	19.5	0.0	50.7	
85	1859.70	18.2	16.7	2.32	2.65	15957	4884	17.0	0.0	55.9	
86	1860.00	13.5	14.1	2.31	2.65	474	68.1	16.3	0.0	48.2	
87	1860.30	11.0	11.0	2.05	2.26	<0.01	0.09	13.3	46.3	40.1	MP
88	1860.60	8.6	9.1	2.38	2.53	<0.01	<0.01	13.5	44.3	47.8	MP
89	1860.90	8.0	7.6	2.33	2.50	<0.01	<0.01	16.0	42.2	49.5	MP
90	1861.20	5.9	6.9	2.55	2.68	<0.01	<0.01	8.4	6.1	88.0	MP
91	1861.52	7.9	7.0	2.36	2.52	<0.01	<0.01	9.8	24.1	70.0	MP
92	1861.83	6.4	10.9	2.47	2.58	0.06	0.40	7.7	22.5	67.6	VF
93	1862.10	22.8	19.2	2.12	2.64	1797	159	23.3	0.0	38.1	
94	1862.40	24.7	23.9	2.19	2.65	3231	2741	21.6	1.5	46.6	
95	1862.65	23.3	23.2	2.36	2.64	3010	4197	14.7	0.0	69.0	
96	1863.00	21.6	23.0	2.15	2.65	10606	7177	22.6	0.0	41.0	



BHP PETROLEUM PTY.LTD. :  
 MINERVA-2A : Analysis by  
 ACS LABORATORIES PTY. LTD.

Sample Number	Depth	Porosity %		Density		Permeability (md)		Summation of Fluids			Remarks
		HeInj	Roll Ø	ND	GD	KH	Roll KH	0	Oil%	H2O%	
97	1863.30	25.6	24.1	2.13	2.65	7835	7949	23.9	0.0	44.5	
98	1863.55	23.7	24.8	2.08	2.65	6131	5209	24.3	3.4	36.8	
99	1863.90	26.1	25.3	2.05	2.65	2500	3080	27.0	0.0	32.6	
100	1864.20	25.1	24.7	2.05	2.65	2348	1973	26.5	0.0	37.1	
101	1864.50	22.4	22.9	2.13	2.71	1100	2258	24.0	0.0	52.6	
102	1864.80	21.8	21.9	2.18	2.65	9139	4537	22.6	0.0	55.9	
103	1865.10	21.4	21.0	2.16	2.66	4609	1872	23.3	0.0	57.5	
104	1865.40	19.5	21.3	2.13	2.65	63.3	487	23.5	0.0	41.7	
105	1865.70	24.7	18.3	2.06	2.65	3058	95.6	26.2	0.0	35.4	
106	1866.00	4.2	12.6	2.26	2.64	0.14	4.20	19.7	1.1	71.3	
107	1866.30	17.4	12.1	2.40	2.65	5.1	1.64	13.1	5.5	75.1	
108	1866.60	9.4	14.7	2.47	2.63	1.95	7.0	9.1	5.4	81.1	
109	1866.90	22.4	18.7	2.34	2.64	125	51.7	14.7	3.2	65.1	
110	1867.20	20.5	20.8	2.20	2.65	234	175	21.8	1.0	41.5	
111	1867.53	19.9	20.7	2.04	2.47	136	252	27.4	0.7	34.2	VF
112	1867.80	22.5	21.7	2.11	2.64	931	392	24.2	0.9	32.2	
113	1868.10	21.9	22.8	2.00	2.64	201	461	24.8	0.0	13.7	
114	1868.40	24.7	24.3	2.11	2.65	1198	894	24.9	0.0	37.2	
115	1868.70	25.9	26.1	2.02	2.66	2216	2089	23.1	0.0	10.5	
116	1869.00	27.8	26.8	1.94	2.65	3240	2621	29.7	0.0	26.8	
117	1869.30	25.8	26.2	1.97	2.65	2028	2237	28.4	0.0	20.8	
118	1869.60	25.4	25.7	1.99	2.65	1878	1894	26.6	0.0	18.7	
119	1869.90	26.2	26.2	2.07	2.66	1799	2091	25.2	0.4	27.9	
120	1870.20	26.9	26.5	1.99	2.65	3145	2361	27.5	0.0	26.1	
121	1870.50	26.0	26.2	2.04	2.65	1748	2295	27.6	0.7	40.6	
122	1870.80	25.8	25.7	1.99	2.67	2887	2892	27.0	0.0	17.0	
123	1871.10	25.0	24.8	2.00	2.66	4804	5258	27.0	1.5	26.7	
124	1871.40	23.4	24.1	2.19	2.65	11468	10327	21.5	0.0	41.6	
125	1871.70	24.5	23.2	2.13	2.65	18003	10638	23.7	0.4	38.5	
126	1872.00	20.5	21.0	2.15	2.65	3445	7252	21.5	0.0	36.9	
127	1872.30	18.3	18.7	2.22	2.64	12945	7948	19.6	0.0	31.7	
128	1872.63	17.8	17.7	2.15	2.65	6914	7926	21.9	0.5	35.3	
129	1872.90	16.7	17.9	2.12	2.64	6376	7445	24.3	0.0	41.9	
130	1873.20	20.2	19.8	2.22	2.66	10929	11802	21.3	0.0	54.2	
131	1873.50	22.1	21.7	2.17	2.65	25472	21436	22.6	0.0	49.0	
132	1873.80	22.5	22.1	2.17	2.65	29776	21270	23.0	0.0	44.2	
133	1874.10	21.1	21.7	2.14	2.64	9063	12573	23.4	0.0	40.2	
134	1874.40	21.9	22.5	2.10	2.65	10218	9175	25.9	0.0	43.8	
135	1874.70	25.1	23.9	2.11	2.65	7491	7159	24.9	0.0	36.4	
136	1875.00	23.3	24.3	2.10	2.65	4581	6706	26.2	0.0	43.3	
137	1875.30	25.4	25.0	2.13	2.65	12867	8419	22.7	0.0	44.1	
138	1875.60	26.0	24.9	2.04	2.64	6625	6497	25.2	0.0	25.1	
139	1875.90	22.3	24.0	2.17	2.64	3155	4223	22.1	0.0	41.2	
140	1876.20	25.2	20.2	2.05	2.65	4822	691	23.9	0.0	26.6	
141	1876.50	7.9	14.9	2.46	2.63	3.10	49.5	11.1	19.9	68.7	
142	1876.80	18.4	16.9	2.10	2.66	129	59.3	25.2	0.8	32.5	
143	1877.10	23.0	22.0	2.08	2.64	238	325	24.3	0.0	32.5	
144	1877.40	23.6	23.4	2.14	2.65	1530	921	22.5	0.0	29.5	
145	1877.70	23.2	23.1	2.06	2.65	1294	1257	24.9	0.0	28.9	
146	1878.00	22.4	22.4	2.06	2.65	974	644	24.1	0.0	23.9	
147	1878.30	21.4	22.2	2.12	2.65	140	339	25.7	0.0	42.1	
148	1878.60	23.7	21.3	2.15	2.64	694	167	21.3	0.0	33.4	
149	1878.90	16.4	17.5	2.35	2.64	11.5	29.1	14.8	0.0	66.9	

BHP PETROLEUM PTY.LTD. :  
 MINERVA-2A : Analysis by  
 ACS LABORATORIES PTY. LTD.

Sample Number	Depth	Porosity %		Density		Permeability (md)		Summation of Fluids			Remarks
		HeInj	Roll Ø	ND	GD	KH	Roll KH	0	Oil%	H2O%	
150	1879.20	13.4	16.1	2.32	2.65	7.8	34.2	15.8	0.0	60.3	
151	1879.50	21.3	19.8	2.08	2.64	1975	637	24.2	0.0	21.4	
152	1879.80	23.1	22.4	2.21	2.65	5422	4398	22.2	1.0	53.7	
153	1880.10	21.9	21.9	2.12	2.64	6441	6327	23.2	0.0	35.6	
154	1880.40	20.8	17.5	2.20	2.65	7125	500	21.1	0.0	41.7	
155	1880.70	6.4	9.8	2.57	2.67	0.19	4.28	5.4	18.9	66.0	SP VF
156	1881.00	5.5	9.6	2.56	2.63	1.29	5.5	4.5	17.0	62.3	VF
157	1881.30	21.1	17.3	2.09	2.65	2881	393	24.0	0.0	27.8	
158	1881.60	21.5	21.1	2.06	2.64	2230	1274	26.3	0.0	30.5	
159	1881.90	20.4	18.5	1.99	2.68	184	174	27.1	0.0	23.5	
160	1882.20	11.6	15.2	2.42	2.63	12.2	56.6	12.5	3.9	59.8	
161	1882.50	17.2	16.2	2.22	2.65	376	264	18.7	0.0	35.6	B#3
162	1915.10	18.7	18.6	2.32	2.65	2812	1303	16.8	2.1	44.2	C#4
163	1915.30	19.8	18.0	2.19	2.66	968	962	20.9	0.0	31.4	
164	1915.60	13.6	15.8	2.31	2.71	325	502	17.0	0.1	42.1	
165	1915.90	16.3	16.0	2.25	2.65	621	571	18.4	0.0	36.7	
166	1916.23	17.6	17.0	2.25	2.65	847	871	19.8	2.3	41.9	
167	1916.50	16.5	14.5	2.23	2.66	1292	167	19.3	0.0	33.4	
168	1916.80	7.5	13.1	2.37	2.63	0.55	19.2	14.8	0.0	43.2	
169	1917.10	20.7	17.7	2.35	2.65	353	73.6	14.8	0.0	50.8	
170	1917.40	21.8	22.3	2.21	2.65	431	450	21.3	0.0	49.0	
171	1917.70	25.0	22.8	2.06	2.65	625	334	25.6	0.0	35.4	
172	1918.00	19.4	22.3	2.26	2.64	73.9	227	17.9	0.0	46.7	
173	1918.30	25.2	23.2	2.10	2.65	784	554	25.3	0.0	29.9	
174	1918.60	22.9	23.5	2.08	2.65	2074	1956	24.8	0.0	25.1	
175	1918.90	23.1	23.6	2.09	2.65	4340	3579	25.2	0.0	29.9	
176	1919.20	25.1	24.6	2.08	2.65	4198	3374	25.3	0.0	39.3	
177	1919.50	25.2	25.1	2.04	2.65	1694	2567	26.9	0.0	31.9	
178	1919.80	24.8	24.2	2.07	2.65	3602	2366	25.0	0.0	29.9	
179	1920.10	22.1	23.2	2.15	2.65	1426	1244	22.1	0.5	31.2	
180	1920.40	23.9	19.9	2.09	2.65	326	102	25.3	0.4	41.4	
181	1920.70	9.6	16.3	2.25	2.64	0.71	12.1	19.9	3.4	53.2	
182	1921.00	22.0	19.7	2.09	2.64	128	57.0	25.2	0.0	35.7	
183	1921.30	25.1	24.3	2.03	2.65	908	556	28.0	0.0	35.4	
184	1921.60	25.1	24.7	2.02	2.65	905	1300	28.1	0.0	35.3	
185	1921.90	23.5	24.5	2.06	2.65	3845	3376	25.4	0.0	31.7	
186	1922.20	25.8	24.5	2.07	2.65	9720	7543	26.2	0.0	43.3	
187	1922.50	23.0	23.3	2.09	2.65	8910	8105	26.7	0.0	48.6	
188	1922.80	21.3	20.7	2.16	2.64	5594	1987	22.0	0.0	37.3	
189	1923.14	17.2	19.2	2.28	2.55	55.9	469	18.0	1.3	53.3	VF
190	1923.40	21.1	20.1	2.14	2.66	2776	1162	22.5	0.0	47.7	
191	1923.70	21.0	21.4	2.14	2.65	4232	4523	24.1	0.0	53.3	SP
192	1924.00	22.3	22.3	2.14	2.65	8420	6747	22.9	0.0	36.5	
193	1924.30	23.6	22.3	2.13	2.66	6908	4061	24.4	0.0	46.4	
194	1924.63	19.5	21.6	2.19	2.65	677	2311	21.3	0.0	39.0	
195	1924.90	23.6	22.4	2.08	2.65	9004	3940	24.6	0.0	27.8	
196	1925.20	22.8	23.3	2.12	2.65	4388	5950	23.6	0.0	30.6	
197	1925.50	23.9	23.7	2.15	2.65	7231	7386	23.8	1.8	44.3	
198	1925.80	24.0	23.7	2.08	2.65	12969	11758	25.4	0.0	37.7	
199	1926.10	23.0	19.0	2.13	2.67	15715	1809	24.1	0.0	44.2	
200	1926.40	6.1	10.1	2.28	2.40	3.35	16.9	13.5	25.4	54.1	VF
201	1926.70	5.1	6.8	2.50	2.60	0.47	0.48	9.5	21.1	71.3	
202	1927.00	10.9	10.5	2.45	2.65	0.07	0.15	12.1	0.4	87.3	

BHP PETROLEUM PTY.LTD. :  
 MINERVA-2A : Analysis by  
 ACS LABORATORIES PTY. LTD.

Sample Number	Depth	Porosity %		Density		Permeability (md)		Summation of Fluids			Remarks
		HeInj	Roll Ø	ND	GD	KH	Roll KH	0	Oil%	H2O%	
203	1927.30	15.1	14.3	2.39	2.66	0.21	0.19	15.0	1.6	86.3	
204	1927.60	16.2	14.8	2.38	2.67	0.43	0.26	16.1	0.7	85.9	
205	1927.90	11.5	12.4	2.43	2.66	0.12	0.21	13.4	3.6	85.0	
206	1928.20	10.3	10.6	2.48	2.65	0.34	0.21	10.1	6.1	83.5	
207	1928.50	10.3	9.5	2.49	2.64	0.13	0.19	8.8	5.7	82.2	
208	1928.80	7.1	8.4	2.49	2.66	0.21	0.23	8.3	6.0	77.8	VF
209	1929.10	9.2	8.9	2.47	2.64	0.48	0.81	10.4	4.8	78.7	
210	1929.40	10.3	9.6	2.45	2.63	9.0	1.47	10.3	4.7	82.9	VF
211	1929.70	8.5	9.4	2.50	2.68	0.12	0.36	9.3	2.7	85.5	
212	1930.00	10.1	10.8	2.39	2.66	0.12	0.22	13.7	1.7	74.9	SP
213	1930.30	14.3	12.7	2.34	2.71	1.25	0.64	15.5	1.5	69.7	
214	1930.60	12.1	14.3	2.44	2.67	0.89	1.78	11.9	0.2	80.0	
215	1930.90	18.5	16.8	2.22	2.67	10.2	6.4	21.5	1.0	55.6	
216	1931.20	18.0	18.4	2.39	2.66	18.5	34.0	14.0	3.4	73.7	
217	1931.50	19.0	19.0	2.25	2.65	383	207	18.7	1.2	45.8	
218	1931.80	19.9	18.9	2.25	2.66	674	830	20.1	0.0	54.7	SP
219	1932.10	16.9	17.5	2.32	2.65	2736	387	16.4	2.8	72.4	
220	1932.40	16.4	16.3	2.43	2.67	4.46	18.2	13.3	9.1	74.8	
221	1932.70	15.5	15.7	2.42	2.71	2.01	1.83	11.4	6.4	76.2	
222	1933.00	15.3	13.9	2.47	2.66	0.63	1.67	9.4	5.3	63.4	
223	1933.30	9.3	11.7	2.47	2.65	9.9	7.8	7.8	9.5	72.6	VF
224	1933.60	13.0	12.5	2.25	2.63	61.0	61.7	18.1	0.0	48.4	
225	1933.90	14.7	15.4	2.26	2.63	394	436	18.0	0.6	46.5	
226	1934.20	19.1	16.7	2.24	2.65	3814	1148	18.1	0.0	43.2	
227	1934.50	13.7	14.7	2.35	2.70	303	105	16.2	0.0	50.9	
228	1934.80	12.1	13.3	2.34	2.65	0.35	4.08	15.9	2.2	73.6	
229	1935.10	15.4	14.5	2.25	2.66	7.7	2.98	20.2	1.1	64.8	
230	1935.40	15.1	17.0	2.28	2.67	3.88	33.1	20.0	3.4	60.3	
231	1935.70	22.5	20.5	2.14	2.65	10379	1118	22.3	0.0	35.5	
232	1936.00	22.0	22.8	2.16	2.65	3730	7736	22.0	0.0	43.2	
233	1936.30	24.7	23.6	2.12	2.65	24794	12498	24.4	0.0	47.0	
234	1936.60	23.1	23.2	2.10	2.65	10639	10747	24.2	0.0	38.1	
235	1936.90	21.8	21.5	2.13	2.65	4754	4820	22.6	0.0	38.6	
236	1937.20	19.4	19.6	2.21	2.65	2245	3611	19.3	0.0	49.2	
237	1937.50	17.8	18.9	2.14	2.65	7097	6383	22.1	0.0	37.8	
238	1937.80	20.5	20.2	2.18	2.65	14682	11546	20.7	0.0	39.9	
239	1938.10	21.8	22.1	2.10	2.65	11615	15375	23.8	0.0	35.3	
240	1938.40	24.3	23.1	2.12	2.65	28211	19136	23.4	0.0	43.6	
241	1938.70	22.1	23.4	2.14	2.65	14508	17990	22.1	0.0	40.6	
242	1939.00	25.0	21.8	2.09	2.65	17641	10029	22.8	0.0	38.5	
243	1939.30	15.1	16.1	2.31	2.65	2241	320	15.9	0.0	59.8	
244	1939.60	9.0	11.3	2.46	2.66	0.12	1.80	9.3	5.3	84.6	
245	1939.90	12.2	11.5	2.43	2.74	0.34	0.24	10.8	4.5	83.2	
246	1940.20	12.6	13.2	2.38	2.64	0.23	0.42	14.0	3.4	78.0	
247	1940.50	15.2	16.5	2.37	2.63	1.72	2.53	14.8	3.2	77.1	
248	1940.80	22.8	20.7	2.20	2.64	59.1	27.1	23.9	0.9	66.1	
249	1941.10	22.1	21.3	2.17	2.64	90.1	92.9	23.7	0.0	57.9	
250	1941.40	18.2	19.1	2.32	2.65	155	128	17.5	4.0	62.2	
251	1941.70	17.9	15.7	2.33	2.64	123	30.4	16.5	2.8	66.3	
252	1942.00	8.6	13.0	2.41	2.63	0.36	16.5	12.2	4.0	71.4	
253	1942.30	16.9	16.0	2.23	2.65	4559	476	20.3	0.0	49.6	
254	1942.60	21.5	16.6	2.18	2.65	6808	143	21.6	1.0	41.4	B#4
255	1943.10	6.4	11.7	2.49	2.63	<0.01	2.06	8.2	7.6	75.8	C#5

BHP PETROLEUM PTY.LTD. :  
 MINERVA-2A : Analysis by  
 ACS LABORATORIES PTY. LTD.

Sample Number	Depth	Porosity %		Density		Permeability (md)		Summation of Fluids			Remarks
		HeInj	Roll Ø	ND	GD	KH	Roll KH	0	Oil%	H2O%	
256	1943.30	12.5	12.2	2.37	2.88	663	48.1	15.8	0.0	72.2	
257	1943.60	17.5	13.9	2.41	2.64	6104	202	12.9	3.7	67.0	
258	1943.90	8.2	11.4	2.43	2.63	0.07	5.7	11.4	10.7	72.6	
259	1944.20	11.6	12.9	2.15	2.50	39.4	27.7	24.6	0.0	56.9	
260	1944.50	20.0	18.7	2.22	2.64	5698	1481	20.5	0.0	51.8	
261	1944.80	23.0	21.5	2.21	2.65	3765	4449	21.1	0.0	55.5	
262	1945.10	19.9	20.5	2.20	2.64	4850	2330	23.2	1.9	66.3	
263	1945.40	19.0	20.7	2.25	2.63	333	1443	20.0	0.0	64.1	
264	1945.70	24.9	22.7	2.19	2.64	8071	2657	24.6	0.0	65.0	
265	1946.00	22.0	21.8	2.18	2.64	2301	1785	25.7	0.0	76.5	
266	1946.30	18.1	20.3	2.15	2.65	237	1029	24.2	1.8	67.7	
267	1946.60	22.8	21.3	2.21	2.65	8649	3444	23.4	0.0	75.8	
268	1946.90	21.4	22.8	2.27	2.65	7921	7964	21.2	0.0	64.4	
269	1947.20	25.7	23.6	2.20	2.65	7414	7731	24.8	0.0	78.0	
270	1947.50	21.4	22.9	2.21	2.65	8206	7935	24.2	0.0	73.0	
271	1947.80	23.0	18.3	2.19	2.65	7942	1011	25.1	0.0	75.1	
272	1948.10	5.7	11.7	2.47	2.60	2.02	15.3	10.1	9.8	78.0	VF
273	1948.40	12.4	9.4	2.44	2.61	1.70	4.61	10.4	9.4	75.0	
274	1948.70	7.0	9.1	2.48	2.61	78.1	9.4	9.1	8.2	73.7	VF
275	1949.00	10.1	8.6	2.51	2.65	0.76	5.1	9.2	8.2	79.0	
276	1949.30	7.3	10.1	2.53	2.64	15.5	29.4	7.5	6.7	84.3	VF
277	1949.60	15.7	15.1	2.47	2.65	4137	284	8.3	8.9	68.6	
278	1949.90	21.7	16.8	2.17	2.63	24.5	52.5	22.5	2.9	48.1	
279	1950.20	8.2	11.8	2.43	2.62	3.08	4.40	11.4	4.3	72.6	
280	1950.50	8.9	9.9	2.46	2.62	1.62	2.43	8.7	11.3	70.7	
281	1950.80	13.7	11.6	2.20	2.65	4.30	17.9	21.3	2.1	54.8	SP
282	1951.10	10.2	13.6	2.49	2.67	3455	471	8.8	8.5	84.6	SP VF
283	1951.40	20.3	18.1	2.21	2.65	958	991	20.6	0.0	52.4	
284	1951.70	21.6	20.9	2.25	2.65	305	552	19.8	0.0	72.7	
285	1952.00	20.0	20.4	2.15	2.65	1047	556	22.4	0.0	40.4	
286	1952.30	20.1	20.3	2.24	2.65	287	483	21.2	3.2	59.0	
287	1952.60	21.1	20.3	2.16	2.61	631	540	22.4	1.0	55.2	
288	1952.90	18.8	16.2	2.45	2.66	743	74.8	16.6	1.5	63.7	
289	1953.20	6.2	9.6	2.52	2.62	0.09	0.95	7.2	10.6	67.0	
290	1953.50	7.3	9.1	2.45	2.64	0.14	0.57	10.6	4.6	71.3	
291	1953.80	15.6	11.6	2.39	2.66	64.4	3.64	13.7	3.5	67.9	
292	1954.10	8.0	12.2	2.43	2.64	0.31	3.72	11.9	4.1	71.5	
293	1954.40	17.3	12.7	2.41	2.64	31.4	3.32	16.2	1.5	70.1	
294	1954.70	8.2	11.8	2.50	2.65	0.40	2.25	9.0	8.3	72.3	
295	1955.00	13.4	11.4	2.51	2.65	5.0	1.92	8.5	8.8	70.5	
296	1955.30	10.4	10.8	2.37	2.66	1.33	1.25	15.7	6.0	69.3	
297	1955.60	8.9	11.3	2.39	2.64	0.27	2.38	13.1	5.5	72.9	
298	1955.90	17.1	12.6	2.32	2.64	327	13.6	17.5	1.3	63.9	
299	1956.20	7.2	9.4	2.53	2.64	1.16	3.73	6.3	13.9	67.7	
300	1956.50	6.1	8.5	2.50	2.64	0.44	2.57	8.0	10.9	65.4	
301	1956.80	14.6	12.9	2.33	2.74	192	13.6	16.4	5.0	75.3	
302	1957.10	16.3	15.6	2.29	2.64	2.13	7.4	17.8	1.3	77.0	
303	1957.40	15.2	14.0	2.34	2.78	3.38	1.36	15.9	1.5	70.8	
304	1957.70	9.3	10.9	2.45	2.63	0.14	0.33	10.4	7.0	82.0	
305	1958.00	9.7	11.4	2.44	2.63	0.18	0.48	10.4	7.0	70.5	
306	1958.30	16.8	16.1	2.35	2.69	12.4	12.8	15.2	1.5	75.5	
307	1958.60	21.1	20.2	2.25	2.65	1002	273	19.8	0.0	77.3	
308	1958.90	21.6	21.5	2.20	2.65	448	682	22.0	0.0	68.1	

BHP PETROLEUM PTY.LTD. :  
 MINERVA-2A : Analysis by  
 ACS LABORATORIES PTY. LTD.

Sample Number	Depth	Porosity %		Density		Permeability (md)		Summation of Fluids			Remarks
		HeInj	Roll Ø	ND	GD	KH	Roll KH	0	Oil%	H2O%	
309	1959.20	21.6	21.9	2.18	2.65	1075	787	21.0	0.0	44.7	
310	1959.50	22.6	21.2	2.20	2.65	741	1047	21.4	0.0	60.8	
311	1959.80	18.0	19.5	2.26	2.65	2035	1569	19.7	0.6	69.9	
312	1960.10	19.4	19.1	2.21	2.67	1975	1929	21.8	1.5	66.9	
313	1960.40	19.6	19.3	2.22	2.65	1745	1168	21.2	0.0	57.7	
314	1960.70	18.4	16.8	2.35	2.66	309	92.7	15.8	1.5	75.7	
315	1961.00	10.9	12.3	2.33	2.66	0.44	3.82	16.2	0.0	71.9	
316	1961.30	8.9	12.0	2.47	2.64	3.52	7.6	9.6	2.6	79.5	
317	1961.60	19.4	16.6	2.23	2.66	612	217	21.3	0.5	62.8	
318	1961.90	18.8	19.7	2.25	2.65	1689	1185	21.5	0.0	66.9	
319	1962.20	21.6	20.3	2.24	2.65	1129	507	21.3	0.0	68.4	
320	1962.50	19.3	16.4	2.45	2.66	30.6	70.0	12.6	0.4	83.7	
321	1962.80	5.2	8.6	2.55	2.66	22.6	24.1	6.6	7.7	85.1	
322	1963.10	4.8	6.1	2.58	2.66	21.6	14.1	5.0	2.6	82.0	VF
323	1963.40	9.6	7.5	2.54	2.66	3.72	8.8	8.0	6.3	82.3	
324	1963.70	5.8	6.5	2.54	2.65	19.7	9.2	7.6	10.1	77.2	
325	1964.00	4.7	8.4	2.54	2.65	4.95	14.0	7.2	7.1	84.6	
326	1964.30	18.3	14.7	2.48	2.73	80.3	31.4	10.6	2.3	75.0	
327	1964.60	17.6	18.4	2.24	2.66	30.4	42.1	22.5	1.0	70.5	
328	1964.90	20.0	19.6	2.25	2.65	42.2	62.5	22.0	0.5	68.5	
329	1965.20	20.7	20.3	2.25	2.65	281	129	21.5	1.0	74.3	
330	1965.50	19.6	20.0	2.24	2.69	82.5	131	23.3	0.1	75.0	
331	1965.80	20.0	20.1	2.22	2.65	152	127	23.1	1.0	71.0	
332	1966.10	20.9	20.8	2.32	2.65	135	155	19.0	1.2	73.3	
333	1966.40	21.3	20.2	2.47	2.65	206	249	9.2	8.1	70.1	
334	1966.70	17.1	18.8	2.29	2.64	668	756	20.1	3.4	69.7	
335	1967.00	19.7	19.5	2.24	2.65	3553	2985	21.2	1.1	57.2	
336	1967.30	21.3	20.5	2.22	2.65	9411	5132	23.1	0.2	67.4	
337	1967.60	19.6	20.1	2.27	2.65	2205	2344	19.8	0.2	67.6	
338	1967.90	19.8	16.2	2.23	2.65	659	98.9	23.2	0.2	71.9	
339	1968.20	5.7	9.2	2.50	2.68	0.10	0.75	8.2	9.1	73.1	
340	1968.50	5.6	8.3	2.45	2.65	0.05	0.79	8.3	4.5	80.1	
341	1968.80	16.2	12.7	2.27	2.64	1773	52.9	18.6	0.9	53.6	B#5

VF = Vertical Fracture; HF = Horizontal Fracture; MP = Mounted Plug; SP= Short Plug  
 C# = Top of Core; B# = Bottom of Core; OWC = Probable Oil/Water Contact  
 Tr = Probable Transition Zone; GC = Probable Gas Cap; NS = Not suitable for SCAL

ACS LABORATORIES PTY. LTD. shall not be liable or responsible for any loss, cost, damages or expenses incurred by the client or any other person or company, resulting from any information or interpretation given in this report. In no case shall ACS LABORATORIES PTY. LTD. be responsible for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report.

# ACS LABORATORIES PTY. LTD.

ACN: 008 273 005

Petroleum Reservoir Engineering Data

## CORE ANALYSIS FINAL REPORT

Company : BHP PETROLEUM PTY.LTD.  
 Well : MINERVA-2A  
 Field : MINERVA  
 Core Int. : CORE NO.1 1728.50-1733.60 M  
 Core Int. : CORE NO.2&3 1838.80-1882.50 M  
 Core Int. : CORE NO.4&5 1915.00-1969.00 M

Date : 04/11/93  
 File : 5-207  
 Location : OTWAY  
 ACS Lab. : ADELAIDE  
 Analyst : CG,WJD,JC

Sample Number	Depth	Porosity %		Density		Permeability (md)			Summation of Fluids			Remarks
		HeInj	Roll Ø	ND	GD	KH	Roll KH	Ø	Oil%	H2O%		
1	1728.60	10.1		2.48	2.65	0.16			9.3	0.0	87.7	C#1
1A	1728.60	8.0			2.66	0.03						
2	1728.90	9.8		2.47	2.66	0.10			10.4	0.0	83.1	
3	1729.20	9.6		2.47	2.64	0.11			10.1	0.0	85.4	
4	1729.50	9.0		2.48	2.65	0.10			10.6	0.0	87.0	
4A	1728.90	8.7			2.65	0.07						
5	1729.80	8.9		2.48	2.66	0.06			9.2	0.0	86.4	
6	1730.10	8.5		2.49	2.65	0.06			8.4	0.0	85.8	
7	1730.40	8.9		2.47	2.65	0.06			9.2	0.0	80.9	
7A	1730.40	8.7			2.65	0.35						
8	1730.70	10.7		2.47	2.66	0.24			10.5	0.0	87.2	
9	1731.00	8.6		2.48	2.65	0.08			9.6	0.0	85.6	
10	1731.30	9.2		2.46	2.64	0.06			10.7	0.0	86.8	
10A	1731.30	9.3			2.64	0.03						
11	1731.60	8.9		2.47	2.66	0.28			9.7	5.1	81.4	
12	1731.90	9.1		2.48	2.64	0.07			10.5	0.0	89.5	
13	1732.20	9.7		2.47	2.66	0.16			10.1	0.0	90.8	
13A	1732.20	8.4			2.65	0.03						
14	1732.50	9.2		2.48	2.65	0.18			10.4	0.0	95.7	
15	1732.80	9.3		2.46	2.64	0.21			10.7	4.6	87.6	
16	1733.10	9.1		2.48	2.65	0.03			10.1	2.5	93.5	
16A	1733.10	8.8			2.65	1.82						
17	1733.37	8.4		2.48	2.65	0.06			9.3	0.0	91.0	B#1
18	1839.00	20.9		2.19	2.64	315			21.9	0.0	50.0	C#2
18A	1839.00	21.1			2.65	696						
19	1839.30	22.6		2.18	2.64	2890			20.8	0.0	41.8	
20	1839.55	18.4		2.16	2.83	8471			23.1	0.0	42.1	
20A	1839.55	16.5			2.67	1154						
21	1839.90	7.2		2.47	2.59	0.60			8.7	8.5	73.9	SP VF
22	1840.20	6.8		2.55	2.68	0.84			6.9	0.0	88.9	SP VF
23	1840.50	6.9		2.48	2.65	0.05			8.3	5.9	86.3	SP
24	1840.80	7.1		2.45	2.65	1.17			8.7	5.6	78.6	SP VF
24A	1840.80	6.2			2.60	0.26						
25	1841.10	6.6		2.46	2.60	4.36			9.2	8.1	75.1	VF
26	1841.40	16.2		2.34	2.65	9437			13.9	0.0	48.8	
27	1841.70	16.6		2.29	2.65	15007			17.5	0.0	40.6	
27A	1841.70	14.8			2.65	2352						
28	1842.00	16.2		2.15	2.65	9430			23.0	0.0	35.5	
29	1842.30	19.8		2.24	2.65	10721			18.9	0.2	41.4	
30	1842.60	21.3		2.15	2.65	8183			23.3	0.0	40.7	
30A	1842.60	20.3			2.65	19111						
31	1842.90	21.2		2.13	2.65	5981			23.4	0.0	34.7	
32	1843.20	11.6		2.32	2.53	3.10			13.1	5.3	65.4	VF

BHP PETROLEUM PTY.LTD. :  
 MINERVA-2A : Analysis by  
 ACS LABORATORIES PTY. LTD.

Sample Number	Depth	Porosity %		Density		Permeability (md)		Summation of Fluids			Remarks
		HeInj	Roll Ø	ND	GD	KH	Roll KH	0	Oil%	H2O%	
33	1843.50	17.1		2.15	2.65	3777		22.4	0.0	36.5	
33A	1843.50	19.0			2.65	3158					
34	1843.80	18.3		2.21	2.65	12865		16.6	1.3	37.3	
35	1844.10	20.6		2.23	2.65	20434		20.2	0.0	44.2	
36	1844.40	20.3		2.23	2.65	4048		18.7	0.0	48.9	
36A	1844.40	18.9			2.64	453					
37	1844.70	19.9		2.22	2.65	3864		20.1	0.0	45.4	
38	1845.00	20.5		2.19	2.65	13913		20.0	0.0	40.6	
39	1845.30	21.4		2.12	2.65	5515		22.7	0.0	25.2	
39A	1845.30	14.1			2.65	3605					
40	1845.60	9.9		2.39	2.65	372		11.8	0.0	26.2	
41	1845.90	18.8		2.18	2.65	440		21.6	0.0	44.4	
42	1846.20	17.3		2.21	2.65	1005		19.9	0.0	37.8	
42A	1846.20	16.6			2.65	1356					
43	1846.50	17.3		2.22	2.64	513		18.9	0.0	28.2	
44	1846.80	20.0		2.16	2.64	2840		21.9	0.0	40.3	
45	1847.10	20.7		2.23	2.65	10101		19.8	0.0	39.6	
45A	1847.10	19.0			2.64	5705					
46	1847.40	20.0		2.27	2.65	3536		17.0	0.0	29.4	
47	1847.70	20.9		2.24	2.64	3298		19.8	0.2	47.5	
48	1848.00	19.6		2.18	2.65	24603		20.7	0.0	30.5	
48A	1848.00	20.2			2.65	10907					
49	1848.30	17.3		2.20	2.65	7586		21.0	0.0	36.8	
50	1848.60	19.8		2.19	2.65	13515		19.8	0.0	28.7	
51	1848.90	17.7		2.20	2.65	7856		20.5	0.0	33.2	
51A	1848.90	19.2			2.65	9396					
52	1849.20	21.3		2.25	2.65	14688		17.8	0.0	30.3	
53	1849.50	15.9		2.18	2.65	1891		21.8	0.0	40.0	
54	1849.80	19.9		2.16	2.65	2431		22.2	0.0	37.8	
54A	1849.80	16.9			2.65	5552					
55	1850.10	16.7		2.19	2.64	3937		20.7	0.0	35.0	
56	1850.40	18.7		2.21	2.65	1511		19.9	0.0	38.9	
57	1850.70	16.7		2.24	2.65	3626		18.3	0.0	45.3	
57A	1850.70	18.0			2.64	7668					
58	1851.00	17.7		2.19	2.65	1237		20.4	0.0	33.2	
59	1851.30	19.1		2.21	2.65	6299		21.0	0.0	48.3	
60	1851.60	16.9		2.19	2.65	1596		20.8	0.0	43.1	
60A	1851.60	16.1			2.65	3957					
61	1851.90	16.8		2.26	2.65	14241		17.9	0.0	42.9	
62	1852.20	17.2		2.19	2.65	8513		20.3	0.0	32.3	
63	1852.50	14.5		2.24	2.65	5222		18.6	0.0	37.2	
63A	1852.50	13.6			2.65	5096					
64	1852.80	17.5		2.22	2.65	8978		17.6	0.0	36.6	
65	1853.10	15.2		2.26	2.65	765		17.8	0.0	36.7	
66	1853.40	17.2		2.23	2.65	5170		17.8	0.0	32.6	
66A	1853.40	17.3			2.65	671					
67	1853.70	18.1		2.24	2.65	1936		19.8	0.0	43.0	
68	1854.00	16.4		2.24	2.65	4634		18.1	0.0	33.4	
69	1854.30	17.1		2.25	2.65	7573		16.7	0.0	20.3	
69A	1854.30	17.0			2.65	3832					
70	1854.60	18.2		2.21	2.66	6305		19.4	0.0	28.5	SP
71	1854.90	15.9		2.23	2.65	2210		19.0	0.0	30.5	B#2
72	1855.80	15.9		2.30	2.65	4530		16.4	0.0	32.2	C#3
72A	1855.80	15.2			2.65	7579					

BHP PETROLEUM PTY.LTD. :  
 MINERVA-2A : Analysis by  
 ACS LABORATORIES PTY. LTD.

Sample Number	Depth	Porosity %		Density		Permeability (md)		Summation of Fluids			Remarks
		HeInj	Roll Ø	ND	GD	KH	Roll KH	0	Oil%	H2O%	
73	1856.10	16.2		2.22	2.65	13133		19.5	0.0	34.1	
74	1856.40	16.7		2.21	2.65	21003		20.4	0.0	36.8	
75	1856.70	17.7		2.21	2.65	19321		18.8	0.0	24.6	
75A	1856.70	16.8			2.65	9650					
76	1857.00	16.0		2.20	2.65	22603		21.5	0.0	44.1	
77	1857.30	13.9		2.35	2.65	348		14.9	0.3	45.7	
78	1857.60	16.4		2.35	2.64	3127		15.1	0.0	54.6	
78A	1857.60	14.7			2.65	22.0					
79	1857.90	15.1		2.30	2.65	119		16.8	0.5	49.4	
80	1858.20	16.1		2.20	2.65	2415		21.1	0.0	38.5	
81	1858.50	19.7		2.30	2.65	22508		16.9	0.0	45.1	
81A	1858.50	19.9			2.65	29035					
82	1858.80	19.9		2.27	2.65	14714		18.1	0.0	42.6	
83	1859.10	17.8		2.25	2.65	5383		20.5	0.0	58.3	
84	1859.40	16.7		2.25	2.65	4719		19.5	0.0	50.7	
84A	1859.40	14.2			2.65	5149					
85	1859.70	18.2		2.32	2.65	15957		17.0	0.0	55.9	
86	1860.00	13.5		2.31	2.65	474		16.3	0.0	48.2	
87	1860.30	11.0		2.05	2.26	<0.01		13.3	46.3	40.1	MP
88	1860.60	8.6		2.38	2.53	<0.01		13.5	44.3	47.8	MP
89	1860.90	8.0		2.33	2.50	<0.01		16.0	42.2	49.5	MP
90	1861.20	5.9		2.55	2.68	<0.01		8.4	6.1	88.0	MP
91	1861.52	7.9		2.36	2.52	<0.01		9.8	24.1	70.0	MP
92	1861.83	6.4		2.47	2.58	0.06		7.7	22.5	67.6	VF
93	1862.10	22.8		2.12	2.64	1797		23.3	0.0	38.1	
93A	1862.10	23.2			2.65	3762					
94	1862.40	24.7		2.19	2.65	3231		21.6	1.5	46.6	
95	1862.65	23.3		2.36	2.64	3010		14.7	0.0	69.0	
96	1863.00	21.6		2.15	2.65	10606		22.6	0.0	41.0	
96A	1863.00	23.1			2.65	7020					
97	1863.30	25.6		2.13	2.65	7835		23.9	0.0	44.5	
98	1863.55	23.7		2.08	2.65	6131		24.3	3.4	36.8	
99	1863.90	26.1		2.05	2.65	2500		27.0	0.0	32.6	
99A	1863.90	26.4			2.65	2569					
100	1864.20	25.1		2.05	2.65	2348		26.5	0.0	37.1	
101	1864.50	22.4		2.13	2.71	1100		24.0	0.0	52.6	
102	1864.80	21.8		2.18	2.65	9139		22.6	0.0	55.9	
102A	1864.80	23.6			2.65	7158					
103	1865.10	21.4		2.16	2.66	4609		23.3	0.0	57.5	
104	1865.40	19.5		2.13	2.65	63.3		23.5	0.0	41.7	
105	1865.70	24.7		2.06	2.65	3058		26.2	0.0	35.4	
105A	1865.70	23.4			2.65	2699					
106	1866.00	4.2		2.26	2.64	0.14		19.7	1.1	71.3	
107	1866.30	17.4		2.40	2.65	5.1		13.1	5.5	75.1	
108	1866.60	9.4		2.47	2.63	1.95		9.1	5.4	81.1	
108A	1866.60	6.8			2.68	0.31					
109	1866.90	22.4		2.34	2.64	125		14.7	3.2	65.1	
110	1867.20	20.5		2.20	2.65	234		21.8	1.0	41.5	
111	1867.53	19.9		2.04	2.47	136		27.4	0.7	34.2	VF
111A	1867.53	23.2			2.68	961					
112	1867.80	22.5		2.11	2.64	931		24.2	0.9	32.2	
113	1868.10	21.9		2.00	2.64	201		24.8	0.0	13.7	
114	1868.40	24.7		2.11	2.65	1198		24.9	0.0	37.2	
114A	1868.40	24.1			2.65	608					



BHP PETROLEUM PTY.LTD. :  
 MINERVA-2A : Analysis by  
 ACS LABORATORIES PTY. LTD.

Sample Number;	Depth ;	Porosity %		Density		Permeability (md)		Summation of Fluids			Remarks
		HeInj	Roll Ø	ND	GD	KH	Roll KH	0	Oil%	H2O%	
115	1868.70	25.9		2.02	2.66	2216		23.1	0.0	10.5	
116	1869.00	27.8		1.94	2.65	3240		29.7	0.0	26.8	
117	1869.30	25.8		1.97	2.65	2028		28.4	0.0	20.8	
117A	1869.30	26.8			2.65	2922					
118	1869.60	25.4		1.99	2.65	1878		26.6	0.0	18.7	
119	1869.90	26.2		2.07	2.66	1799		25.2	0.4	27.9	
120	1870.20	26.9		1.99	2.65	3145		27.5	0.0	26.1	
120A	1870.20	25.5			2.65	2431					
121	1870.50	26.0		2.04	2.65	1748		27.6	0.7	40.6	
122	1870.80	25.8		1.99	2.67	2887		27.0	0.0	17.0	
123	1871.10	25.0		2.00	2.66	4804		27.0	1.5	26.7	
123A	1871.10	26.1			2.65	5387					
124	1871.40	23.4		2.19	2.65	11468		21.5	0.0	41.6	
125	1871.70	24.5		2.13	2.65	18003		23.7	0.4	38.5	
126	1872.00	20.5		2.15	2.65	3445		21.5	0.0	36.9	
126A	1872.00	22.1			2.65	4672					
127	1872.30	18.3		2.22	2.64	12945		19.6	0.0	31.7	
128	1872.63	17.8		2.15	2.65	6914		21.9	0.5	35.3	
128A	1872.63	18.7			2.65	14044					
129	1872.90	16.7		2.12	2.64	6376		24.3	0.0	41.9	
130	1873.20	20.2		2.22	2.66	10929		21.3	0.0	54.2	
131	1873.50	22.1		2.17	2.65	25472		22.6	0.0	49.0	
132	1873.80	22.5		2.17	2.65	29776		23.0	0.0	44.2	
132A	1873.80	20.2			2.65	6060					
133	1874.10	21.1		2.14	2.64	9063		23.4	0.0	40.2	
134	1874.40	21.9		2.10	2.65	10218		25.9	0.0	43.8	
135	1874.70	25.1		2.11	2.65	7491		24.9	0.0	36.4	
135A	1874.70	24.9			2.65	5974					
136	1875.00	23.3		2.10	2.65	4581		26.2	0.0	43.3	
137	1875.30	25.4		2.13	2.65	12867		22.7	0.0	44.1	
138	1875.60	26.0		2.04	2.64	6625		25.2	0.0	25.1	
138A	1875.60	26.6			2.65	11690					
139	1875.90	22.3		2.17	2.64	3155		22.1	0.0	41.2	
140	1876.20	25.2		2.05	2.65	4822		23.9	0.0	26.6	
140A	1876.20	25.0			2.65	2651					
141	1876.50	7.9		2.46	2.63	3.10		11.1	19.9	68.7	
142	1876.80	18.4		2.10	2.66	129		25.2	0.8	32.5	
143	1877.10	23.0		2.08	2.64	238		24.3	0.0	32.5	
144	1877.40	23.6		2.14	2.65	1530		22.5	0.0	29.5	
144A	1877.40	22.8			2.65	822					
145	1877.70	23.2		2.06	2.65	1294		24.9	0.0	28.9	
146	1878.00	22.4		2.06	2.65	974		24.1	0.0	23.9	
147	1878.30	21.4		2.12	2.65	140		25.7	0.0	42.1	
147A	1878.30	21.9			2.65	238					
148	1878.60	23.7		2.15	2.64	694		21.3	0.0	33.4	
149	1878.90	16.4		2.35	2.64	11.5		14.8	0.0	66.9	
150	1879.20	13.4		2.32	2.65	7.8		15.8	0.0	60.3	
150A	1879.20	19.1			2.66	370					
151	1879.50	21.3		2.08	2.64	1975		24.2	0.0	21.4	
152	1879.80	23.1		2.21	2.65	5422		22.2	1.0	53.7	
153	1880.10	21.9		2.12	2.64	6441		23.2	0.0	35.6	
153A	1880.10	23.5			2.65	9365					
154	1880.40	20.8		2.20	2.65	7125		21.1	0.0	41.7	

BHP PETROLEUM PTY.LTD. :  
 MINERVA-2A : Analysis by  
 ACS LABORATORIES PTY. LTD.

Sample Number	Depth	Porosity %		Density		Permeability (md)		Summation of Fluids			Remarks
		HeInj	Roll Ø	ND	GD	KH	Roll KH	0	Oil%	H2O%	
155	1880.70	6.4		2.57	2.67	0.19		5.4	18.9	66.0	SP VF
156	1881.00	5.5		2.56	2.63	1.29		4.5	17.0	62.3	VF
157	1881.30	21.1		2.09	2.65	2881		24.0	0.0	27.8	
157A	1881.30	6.0			2.61	0.27					
158	1881.60	21.5		2.06	2.64	2230		26.3	0.0	30.5	
159	1881.90	20.4		1.99	2.68	184		27.1	0.0	23.5	
159A	1881.90	26.8			2.65	3159					
160	1882.20	11.6		2.42	2.63	12.2		12.5	3.9	59.8	
161	1882.50	17.2		2.22	2.65	376		18.7	0.0	35.6	B#3
162	1915.10	18.7		2.32	2.65	2812		16.8	2.1	44.2	C#4
162A	1915.10	17.0			2.67	1780					
163	1915.30	19.8		2.19	2.66	968		20.9	0.0	31.4	
164	1915.60	13.6		2.31	2.71	325		17.0	0.1	42.1	
165	1915.90	16.3		2.25	2.65	621		18.4	0.0	36.7	
165A	1915.90	17.9			2.66	1442					
166	1916.23	17.6		2.25	2.65	847		19.8	2.3	41.9	
167	1916.50	16.5		2.23	2.66	1292		19.3	0.0	33.4	
168	1916.80	7.5		2.37	2.63	0.55		14.8	0.0	43.2	
168A	1916.80	16.6			2.67	2029					
169	1917.10	20.7		2.35	2.65	353		14.8	0.0	50.8	
170	1917.40	21.8		2.21	2.65	431		21.3	0.0	49.0	
171	1917.70	25.0		2.06	2.65	625		25.6	0.0	35.4	
171A	1917.70	26.0			2.65	527					
172	1918.00	19.4		2.26	2.64	73.9		17.9	0.0	46.7	
173	1918.30	25.2		2.10	2.65	784		25.3	0.0	29.9	
174	1918.60	22.9		2.08	2.65	2074		24.8	0.0	25.1	
174A	1918.60	24.9			2.65	3489					
175	1918.90	23.1		2.09	2.65	4340		25.2	0.0	29.9	
176	1919.20	25.1		2.08	2.65	4198		25.3	0.0	39.3	
177	1919.50	25.2		2.04	2.65	1694		26.9	0.0	31.9	
177A	1919.50	25.0			2.65	1991					
178	1919.80	24.8		2.07	2.65	3602		25.0	0.0	29.9	
179	1920.10	22.1		2.15	2.65	1426		22.1	0.5	31.2	
180	1920.40	23.9		2.09	2.65	326		25.3	0.4	41.4	
180A	1920.40	24.8			2.65	551					
181	1920.70	9.6		2.25	2.64	0.71		19.9	3.4	53.2	
182	1921.00	22.0		2.09	2.64	128		25.2	0.0	35.7	
183	1921.30	25.1		2.03	2.65	908		28.0	0.0	35.4	
183A	1921.30	26.4			2.65	1295					
184	1921.60	25.1		2.02	2.65	905		28.1	0.0	35.3	
185	1921.90	23.5		2.06	2.65	3845		25.4	0.0	31.7	
186	1922.20	25.8		2.07	2.65	9720		26.2	0.0	43.3	
186A	1922.20	25.2			2.65	3519					
187	1922.50	23.0		2.09	2.65	8910		26.7	0.0	48.6	
188	1922.80	21.3		2.16	2.64	5594		22.0	0.0	37.3	
189	1923.14	17.2		2.28	2.55	55.9		18.0	1.3	53.3	VF
189A	1923.14	18.9			2.61	50.8					
190	1923.40	21.1		2.14	2.66	2776		22.5	0.0	47.7	
191	1923.70	21.0		2.14	2.65	4232		24.1	0.0	53.3	SP
192	1924.00	22.3		2.14	2.65	8420		22.9	0.0	36.5	
192A	1924.00	22.7			2.65	3847					
193	1924.30	23.6		2.13	2.66	6908		24.4	0.0	46.4	
194	1924.63	19.5		2.19	2.65	677		21.3	0.0	39.0	

BHP PETROLEUM PTY.LTD. :  
 MINERVA-2A : Analysis by  
 ACS LABORATORIES PTY. LTD.

Sample Number;	Depth ;	Porosity %		Density		Permeability (md)		Summation of Fluids			Remarks
		HeInj	Roll Ø	ND	GD	KH	Roll KH	0	Oil%	H2O%	
195	1924.90	23.6		2.08	2.65	9004		24.6	0.0	27.8	
195A	1924.90	23.3			2.65	5015					
196	1925.20	22.8		2.12	2.65	4388		23.6	0.0	30.6	
197	1925.50	23.9		2.15	2.65	7231		23.8	1.8	44.3	
198	1925.80	24.0		2.08	2.65	12969		25.4	0.0	37.7	
198A	1925.80	19.7			2.65	517					
199	1926.10	23.0		2.13	2.67	15715		24.1	0.0	44.2	
200	1926.40	6.1		2.28	2.40	3.35		13.5	25.4	54.1	VF
201	1926.70	5.1		2.50	2.60	0.47		9.5	21.1	71.3	
201A	1926.70	9.7			2.68	0.15					
202	1927.00	10.9		2.45	2.65	0.07		12.1	0.4	87.3	
203	1927.30	15.1		2.39	2.66	0.21		15.0	1.6	86.3	
204	1927.60	16.2		2.38	2.67	0.43		16.1	0.7	85.9	
204A	1927.60	12.3			2.65	0.20					
205	1927.90	11.5		2.43	2.66	0.12		13.4	3.6	85.0	
206	1928.20	10.3		2.48	2.65	0.34		10.1	6.1	83.5	
207	1928.50	10.3		2.49	2.64	0.13		8.8	5.7	82.2	
207A	1928.50	8.7			2.66	0.15					
208	1928.80	7.1		2.49	2.66	0.21		8.3	6.0	77.8	VF
209	1929.10	9.2		2.47	2.64	0.48		10.4	4.8	78.7	
210	1929.40	10.3		2.45	2.63	9.0		10.3	4.7	82.9	VF
210A	1929.40	9.3			2.76	0.17					
211	1929.70	8.5		2.50	2.68	0.12		9.3	2.7	85.5	
212	1930.00	10.1		2.39	2.66	0.12		13.7	1.7	74.9	SP
213	1930.30	14.3		2.34	2.71	1.25		15.5	1.5	69.7	
213A	1930.30	14.5			2.66	1.03					
214	1930.60	12.1		2.44	2.67	0.89		11.9	0.2	80.0	
215	1930.90	18.5		2.22	2.67	10.2		21.5	1.0	55.6	
216	1931.20	18.0		2.39	2.66	18.5		14.0	3.4	73.7	
216A	1931.20	16.1			2.66	9.4					
217	1931.50	19.0		2.25	2.65	383		18.7	1.2	45.8	
218	1931.80	19.9		2.25	2.66	674		20.1	0.0	54.7	SP
219	1932.10	16.9		2.32	2.65	2736		16.4	2.8	72.4	
219A	1931.50	17.8			2.64	2804					
220	1932.40	16.4		2.43	2.67	4.46		13.3	9.1	74.8	
221	1932.70	15.5		2.42	2.71	2.01		11.4	6.4	76.2	
222	1933.00	15.3		2.47	2.66	0.63		9.4	5.3	63.4	
222A	1933.00	5.5			2.62	0.50					VF
223	1933.30	9.3		2.47	2.65	9.9		7.8	9.5	72.6	VF
224	1933.60	13.0		2.25	2.63	61.0		18.1	0.0	48.4	
225	1933.90	14.7		2.26	2.63	394		18.0	0.6	46.5	
225A	1933.90	14.8			2.65	559					
226	1934.20	19.1		2.24	2.65	3814		18.1	0.0	43.2	
227	1934.50	13.7		2.35	2.70	303		16.2	0.0	50.9	
228	1934.80	12.1		2.34	2.65	0.35		15.9	2.2	73.6	
228A	1934.80	19.6			2.65	82.6					
229	1935.10	15.4		2.25	2.66	7.7		20.2	1.1	64.8	
230	1935.40	15.1		2.28	2.67	3.88		20.0	3.4	60.3	
231	1935.70	22.5		2.14	2.65	10379		22.3	0.0	35.5	
231A	1935.70	21.3			2.65	8774					
232	1936.00	22.0		2.16	2.65	3730		22.0	0.0	43.2	
233	1936.30	24.7		2.12	2.65	24794		24.4	0.0	47.0	
234	1936.60	23.1		2.10	2.65	10639		24.2	0.0	38.1	
234A	1936.60	22.4			2.65	6259					

BHP PETROLEUM PTY.LTD. :  
 MINERVA-2A : Analysis by  
 ACS LABORATORIES PTY. LTD.

Sample Number	Depth	Porosity %		Density		Permeability (md)		Summation of Fluids			Remarks
		HeInj	Roll Ø	ND	GD	KH	Roll KH	O	Oil%	H2O%	
235	1936.90	21.8		2.13	2.65	4754		22.6	0.0	38.6	
236	1937.20	19.4		2.21	2.65	2245		19.3	0.0	49.2	
237	1937.50	17.8		2.14	2.65	7097		22.1	0.0	37.8	
237A	1937.50	20.6			2.65	12954					
238	1937.80	20.5		2.18	2.65	14682		20.7	0.0	39.9	
239	1938.10	21.8		2.10	2.65	11615		23.8	0.0	35.3	
240	1938.40	24.3		2.12	2.65	28211		23.4	0.0	43.6	
240A	1938.40	21.4			2.65	10504					
241	1938.70	22.1		2.14	2.65	14508		22.1	0.0	40.6	
242	1939.00	25.0		2.09	2.65	17641		22.8	0.0	38.5	
243	1939.30	15.1		2.31	2.65	2241		15.9	0.0	59.8	
243A	1939.30	6.9			2.63	0.11					
244	1939.60	9.0		2.46	2.66	0.12		9.3	5.3	84.6	
245	1939.90	12.2		2.43	2.74	0.34		10.8	4.5	83.2	
246	1940.20	12.6		2.38	2.64	0.23		14.0	3.4	78.0	
246A	1940.20	14.9			2.66	0.59					
247	1940.50	15.2		2.37	2.63	1.72		14.8	3.2	77.1	
248	1940.80	22.8		2.20	2.64	59.1		23.9	0.9	66.1	
249	1941.10	22.1		2.17	2.64	90.1		23.7	0.0	57.9	
249A	1941.10	21.8			2.74	119					
250	1941.40	18.2		2.32	2.65	155		17.5	4.0	62.2	
251	1941.70	17.9		2.33	2.64	123		16.5	2.8	66.3	
252	1942.00	8.6		2.41	2.63	0.36		12.2	4.0	71.4	
252A	1942.00	17.4			2.64	727					
253	1942.30	16.9		2.23	2.65	4559		20.3	0.0	49.6	
254	1942.60	21.5		2.18	2.65	6808		21.6	1.0	41.4	B#4
255	1943.10	6.4		2.49	2.63	<0.01		8.2	7.6	75.8	C#5
256	1943.30	12.5		2.37	2.88	663		15.8	0.0	72.2	
256A	1943.30	13.0			2.65	180					
257	1943.60	17.5		2.41	2.64	6104		12.9	3.7	67.0	
258	1943.90	8.2		2.43	2.63	0.07		11.4	10.7	72.6	
258A	1943.90	12.2			2.62	3.88					
259	1944.20	11.6		2.15	2.50	39.4		24.6	0.0	56.9	
260	1944.50	20.0		2.22	2.64	5698		20.5	0.0	51.8	
261	1944.80	23.0		2.21	2.65	3765		21.1	0.0	55.5	
261A	1944.80	22.4			2.65	3340					
262	1945.10	19.9		2.20	2.64	4850		23.2	1.9	66.3	
263	1945.40	19.0		2.25	2.63	333		20.0	0.0	64.1	
264	1945.70	24.9		2.19	2.64	8071		24.6	0.0	65.0	
264A	1945.70	24.7			2.64	6007					
265	1946.00	22.0		2.18	2.64	2301		25.7	0.0	76.5	
266	1946.30	18.1		2.15	2.65	237		24.2	1.8	67.7	
267	1946.60	22.8		2.21	2.65	8649		23.4	0.0	75.8	
267A	1946.60	25.2			2.63	6193					
268	1946.90	21.4		2.27	2.65	7921		21.2	0.0	64.4	
269	1947.20	25.7		2.20	2.65	7414		24.8	0.0	78.0	
270	1947.50	21.4		2.21	2.65	8206		24.2	0.0	73.0	
270A	1947.50	22.7			2.65	7320					
271	1947.80	23.0		2.19	2.65	7942		25.1	0.0	75.1	
272	1948.10	5.7		2.47	2.60	2.02		10.1	9.8	78.0	VF
273	1948.40	12.4		2.44	2.61	1.70		10.4	9.4	75.0	
273A	1948.40	8.6			2.61	57.8					VF
274	1948.70	7.0		2.48	2.61	78.1		9.1	8.2	73.7	VF

BHP PETROLEUM PTY.LTD. :  
 MINERVA-2A : Analysis by  
 ACS LABORATORIES PTY. LTD.

Sample Number	Depth	Porosity %		Density		Permeability (md)			Summation of Fluids			Remarks
		HeInj	Roll Ø	ND	GD	KH	Roll KH		Oil%	H2O%		
275	1949.00	10.1		2.51	2.65	0.76			9.2	8.2	79.0	
276	1949.30	7.3		2.53	2.64	15.5			7.5	6.7	84.3	VF
277	1949.60	15.7		2.47	2.65	4137			8.3	8.9	68.6	
278	1949.90	21.7		2.17	2.63	24.5			22.5	2.9	48.1	
278A	1949.90	21.5			2.64	53.7						
279	1950.20	8.2		2.43	2.62	3.08			11.4	4.3	72.6	
280	1950.50	8.9		2.46	2.62	1.62			8.7	11.3	70.7	
281	1950.80	13.7		2.20	2.65	4.30			21.3	2.1	54.8	SP
281A	1950.80	12.8			2.65	7.3						
282	1951.10	10.2		2.49	2.67	3455			8.8	8.5	84.6	SP VF
283	1951.40	20.3		2.21	2.65	958			20.6	0.0	52.4	
283A	1951.40	19.5			2.64	1360						
284	1951.70	21.6		2.25	2.65	305			19.8	0.0	72.7	
285	1952.00	20.0		2.15	2.65	1047			22.4	0.0	40.4	
285A	1952.00	19.1			2.61	388						
286	1952.30	20.1		2.24	2.65	287			21.2	3.2	59.0	
287	1952.60	21.1		2.16	2.61	631			22.4	1.0	55.2	
288	1952.90	18.8		2.45	2.66	743			16.6	1.5	63.7	
288A	1952.90	11.3			2.71	1.52						
289	1953.20	6.2		2.52	2.62	0.09			7.2	10.6	67.0	
290	1953.50	7.3		2.45	2.64	0.14			10.6	4.6	71.3	
291	1953.80	15.6		2.39	2.66	64.4			13.7	3.5	67.9	
291A	1953.80	9.1			2.64	0.32						
292	1954.10	8.0		2.43	2.64	0.31			11.9	4.1	71.5	
293	1954.40	17.3		2.41	2.64	31.4			16.2	1.5	70.1	
294	1954.70	8.2		2.50	2.65	0.40			9.0	8.3	72.3	
294A	1954.70	15.3			2.66	17.9						
295	1955.00	13.4		2.51	2.65	5.0			8.5	8.8	70.5	
296	1955.30	10.4		2.37	2.66	1.33			15.7	6.0	69.3	
297	1955.60	8.9		2.39	2.64	0.27			13.1	5.5	72.9	
297A	1955.60	7.2			2.66	0.62						
298	1955.90	17.1		2.32	2.64	327			17.5	1.3	63.9	
299	1956.20	7.2		2.53	2.64	1.16			6.3	13.9	67.7	
300	1956.50	6.1		2.50	2.64	0.44			8.0	10.9	65.4	
300A	1956.50	7.2			2.63	0.29						
301	1956.80	14.6		2.33	2.74	192			16.4	5.0	75.3	
302	1957.10	16.3		2.29	2.64	2.13			17.8	1.3	77.0	
303	1957.40	15.2		2.34	2.78	3.38			15.9	1.5	70.8	
303A	1957.40	17.4			2.62	21.6						VF
304	1957.70	9.3		2.45	2.63	0.14			10.4	7.0	82.0	
305	1958.00	9.7		2.44	2.63	0.18			10.4	7.0	70.5	
306	1958.30	16.8		2.35	2.69	12.4			15.2	1.5	75.5	
306A	1958.30	13.7			2.73	4.37						
307	1958.60	21.1		2.25	2.65	1002			19.8	0.0	77.3	
308	1958.90	21.6		2.20	2.65	448			22.0	0.0	68.1	
309	1959.20	21.6		2.18	2.65	1075			21.0	0.0	44.7	
309A	1959.20	13.9			2.65	1530						
310	1959.50	22.6		2.20	2.65	741			21.4	0.0	60.8	
311	1959.80	18.0		2.26	2.65	2035			19.7	0.6	69.9	
312	1960.10	19.4		2.21	2.67	1975			21.8	1.5	66.9	
312A	1960.10	21.5			2.65	3196						
313	1960.40	19.6		2.22	2.65	1745			21.2	0.0	57.7	
314	1960.70	18.4		2.35	2.66	309			15.8	1.5	75.7	

BHP PETROLEUM PTY.LTD. :  
 MINERVA-2A : Analysis by  
 ACS LABORATORIES PTY. LTD.

Sample Number	Depth	Porosity %		Density		Permeability (md)			Summation of Fluids			Remarks
		HeInj	Roll Ø	ND	GD	KH	Roll KH	KH	0	Oil%	H2O%	
315	1961.00	10.9		2.33	2.66	0.44			16.2	0.0	71.9	
315A	1961.00	10.4			2.65	0.72						
316	1961.30	8.9		2.47	2.64	3.52			9.6	2.6	79.5	
317	1961.60	19.4		2.23	2.66	612			21.3	0.5	62.8	
318	1961.90	18.8		2.25	2.65	1689			21.5	0.0	66.9	
318A	1961.90	20.3			2.65	1004						
319	1962.20	21.6		2.24	2.65	1129			21.3	0.0	68.4	
320	1962.50	19.3		2.45	2.66	30.6			12.6	0.4	83.7	
321	1962.80	5.2		2.55	2.66	22.6			6.6	7.7	85.1	
321A	1962.80	9.2			2.67	8.0						
322	1963.10	4.8		2.58	2.66	21.6			5.0	2.6	82.0	VF
323	1963.40	9.6		2.54	2.66	3.72			8.0	6.3	82.3	
324	1963.70	5.8		2.54	2.65	19.7			7.6	10.1	77.2	
324A	1963.70	6.3			2.67	0.53						
325	1964.00	4.7		2.54	2.65	4.95			7.2	7.1	84.6	
326	1964.30	18.3		2.48	2.73	80.3			10.6	2.3	75.0	
327	1964.60	17.6		2.24	2.66	30.4			22.5	1.0	70.5	
327A	1964.60	20.4			2.65	120						VF
328	1964.90	20.0		2.25	2.65	42.2			22.0	0.5	68.5	
329	1965.20	20.7		2.25	2.65	281			21.5	1.0	74.3	
330	1965.50	19.6		2.24	2.69	82.5			23.3	0.1	75.0	
330A	1965.50	16.0			2.63	80.7						
331	1965.80	20.0		2.22	2.65	152			23.1	1.0	71.0	
332	1966.10	20.9		2.32	2.65	135			19.0	1.2	73.3	
333	1966.40	21.3		2.47	2.65	206			9.2	8.1	70.1	
333A	1966.40	21.1			2.65	154						
334	1966.70	17.1		2.29	2.64	668			20.1	3.4	69.7	
335	1967.00	19.7		2.24	2.65	3553			21.2	1.1	57.2	
336	1967.30	21.3		2.22	2.65	9411			23.1	0.2	67.4	
336A	1967.30	22.6			2.65	8104						
337	1967.60	19.6		2.27	2.65	2205			19.8	0.2	67.6	
338	1967.90	19.8		2.23	2.65	659			23.2	0.2	71.9	
339	1968.20	5.7		2.50	2.68	0.10			8.2	9.1	73.1	
339A	1968.20	6.2			2.66	0.03						
340	1968.50	5.6		2.45	2.65	0.05			8.3	4.5	80.1	
341	1968.80	16.2		2.27	2.64	1773			18.6	0.9	53.6	B#5
341A	1968.80	16.0			2.67	1039						SP

VF = Vertical Fracture; HF = Horizontal Fracture; MP = Mounted Plug; SP= Short Plug  
 C# = Top of Core; B# = Bottom of Core; OWC = Probable Oil/Water Contact  
 Tr = Probable Transition Zone; GC = Probable Gas Cap; NS = Not suitable for SCAL

ACS LABORATORIES PTY. LTD. shall not be liable or responsible for any loss, cost, damages or expenses incurred by the client or any other person or company, resulting from any information or interpretation given in this report. In no case shall ACS LABORATORIES PTY. LTD. be responsible for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report.

ACS LABORATORIES PTY. LTD.

ACN: 008 273 005

Petroleum Reservoir Engineering Data

CORE ANALYSIS FINAL REPORT

Company : BHP PETROLEUM PTY.LTD.  
 Well : MINERVA-2A  
 Field : MINERVA  
 Core Int. : CORE NO.1 1728.50-1733.60 M  
 Core Int. : CORE NO.2&3 1838.80-1882.50 M  
 Core Int. : CORE NO.4&5 1915.00-1969.00 M

Date : 04/11/93  
 File : 5-207  
 Location : OTWAY  
 ACS Lab. : ADELAIDE  
 Analyst : CG,WJD,JC

Sample Number	Depth	Porosity % HeInj; Roll Ø	Density ND GD	Permeability (md) KH Roll KH	Summation of Fluids Ø Oil% H2O%	Remarks
1A	1728.60	8.0	2.66	0.03		
4A	1728.90	8.7	2.65	0.07		
7A	1730.40	8.7	2.65	0.35		
10A	1731.30	9.3	2.64	0.03		
13A	1732.20	8.4	2.65	0.03		
16A	1733.10	8.8	2.65	1.82		
18A	1839.00	21.1	2.65	696		
20A	1839.55	16.5	2.67	1154		
24A	1840.80	6.2	2.60	0.26		
27A	1841.70	14.8	2.65	2352		
30A	1842.60	20.3	2.65	19111		
33A	1843.50	19.0	2.65	3158		
36A	1844.40	18.9	2.64	453		
39A	1845.30	14.1	2.65	3605		
42A	1846.20	16.6	2.65	1356		
45A	1847.10	19.0	2.64	5705		
48A	1848.00	20.2	2.65	10907		
51A	1848.90	19.2	2.65	9396		
54A	1849.80	16.9	2.65	5552		
57A	1850.70	18.0	2.64	7668		
60A	1851.60	16.1	2.65	3957		
63A	1852.50	13.6	2.65	5096		
66A	1853.40	17.3	2.65	671		
69A	1854.30	17.0	2.65	3832		
72A	1855.80	15.2	2.65	7579		
75A	1856.70	16.8	2.65	9650		
78A	1857.60	14.7	2.65	22.0		
81A	1858.50	19.9	2.65	29035		
84A	1859.40	14.2	2.65	5149		
93A	1862.10	23.2	2.65	3762		
96A	1863.00	23.1	2.65	7020		
99A	1863.90	26.4	2.65	2569		
102A	1864.80	23.6	2.65	7158		
105A	1865.70	23.4	2.65	2699		
108A	1866.60	6.8	2.68	0.31		
111A	1867.53	23.2	2.68	961		
114A	1868.40	24.1	2.65	608		
117A	1869.30	26.8	2.65	2922		
120A	1870.20	25.5	2.65	2431		
123A	1871.10	26.1	2.65	5387		
126A	1872.00	22.1	2.65	4672		
128A	1872.63	18.7	2.65	14044		

BHP PETROLEUM PTY.LTD. :  
 MINERVA-2A : Analysis by  
 ACS LABORATORIES PTY. LTD.

Sample Number	Depth	Porosity %		Density		Permeability (md)		Summation of Fluids			Remarks
		HeInj	Roll Ø	ND	GD	KH	Roll KH	0	Oil%	H2O%	
132A	1873.80	20.2			2.65	6060					
135A	1874.70	24.9			2.65	5974					
138A	1875.60	26.6			2.65	11690					
140A	1876.20	25.0			2.65	2651					
144A	1877.40	22.8			2.65	822					
147A	1878.30	21.9			2.65	238					
150A	1879.20	19.1			2.66	370					
153A	1880.10	23.5			2.65	9365					
157A	1881.30	6.0			2.61	0.27					
159A	1881.90	26.8			2.65	3159					
162A	1915.10	17.0			2.67	1780					
165A	1915.90	17.9			2.66	1442					
168A	1916.80	16.6			2.67	2029					
171A	1917.70	26.0			2.65	527					
174A	1918.60	24.9			2.65	3489					
177A	1919.50	25.0			2.65	1991					
180A	1920.40	24.8			2.65	551					
183A	1921.30	26.4			2.65	1295					
186A	1922.20	25.2			2.65	3519					
189A	1923.14	18.9			2.61	50.8					
192A	1924.00	22.7			2.65	3847					
195A	1924.90	23.3			2.65	5015					
198A	1925.80	19.7			2.65	517					
201A	1926.70	9.7			2.68	0.15					
204A	1927.60	12.3			2.65	0.20					
207A	1928.50	8.7			2.66	0.15					
210A	1929.40	9.3			2.76	0.17					
213A	1930.30	14.5			2.66	1.03					
216A	1931.20	16.1			2.66	9.4					
219A	1931.50	17.8			2.64	2804					
222A	1933.00	5.5			2.62	0.50					VF
225A	1933.90	14.8			2.65	559					
228A	1934.80	19.6			2.65	82.6					
231A	1935.70	21.3			2.65	8774					
234A	1936.60	22.4			2.65	6259					
237A	1937.50	20.6			2.65	12954					
240A	1938.40	21.4			2.65	10504					
243A	1939.30	6.9			2.63	0.11					
246A	1940.20	14.9			2.66	0.59					
249A	1941.10	21.8			2.74	119					
252A	1942.00	17.4			2.64	727					
256A	1943.30	13.0			2.65	180					
258A	1943.90	12.2			2.62	3.88					
261A	1944.80	22.4			2.65	3340					
264A	1945.70	24.7			2.64	6007					
267A	1946.60	25.2			2.63	6193					
270A	1947.50	22.7			2.65	7320					
273A	1948.40	8.6			2.61	57.8					
278A	1949.90	21.5			2.64	53.7					VF
281A	1950.80	12.8			2.65	7.3					
283A	1951.40	19.5			2.64	1360					
285A	1952.00	19.1			2.61	388					



BHP PETROLEUM PTY. LTD. :  
 MINERVA-2A : Analysis by  
 ACS LABORATORIES PTY. LTD.

Sample Number;	Depth ;	Porosity % ;		Density ;		Permeability (md);		Summation of Fluids;			Remarks
		HeInj;	Roll Ø;	ND	GD;	KH	Roll KH ;	0	Oil%	H2O%	
288A	1952.90	11.3			2.71		1.52				
291A	1953.80	9.1			2.64		0.32				
294A	1954.70	15.3			2.66		17.9				
297A	1955.60	7.2			2.66		0.62				
300A	1956.50	7.2			2.63		0.29				
303A	1957.40	17.4			2.62		21.6				VF
306A	1958.30	13.7			2.73		4.37				
309A	1959.20	13.9			2.65		1530				
312A	1960.10	21.5			2.65		3196				
315A	1961.00	10.4			2.65		0.72				
318A	1961.90	20.3			2.65		1004				
321A	1962.80	9.2			2.67		8.0				
324A	1963.70	6.3			2.67		0.53				
327A	1964.60	20.4			2.65		120				VF
330A	1965.50	16.0			2.63		80.7				
333A	1966.40	21.1			2.65		154				
336A	1967.30	22.6			2.65		8104				
339A	1968.20	6.2			2.66		0.03				
341A	1968.80	16.0			2.67		1039				SP

VF = Vertical Fracture; HF = Horizontal Fracture; MP = Mounted Plug; SP= Short Plug  
 C# = Top of Core; B# = Bottom of Core; OWC = Probable Oil/Water Contact  
 Tr = Probable Transition Zone; GC = Probable Gas Cap; NS = Not suitable for SCAL

ACS LABORATORIES PTY. LTD. shall not be liable or responsible for any loss, cost, damages or expenses incurred by the client or any other person or company, resulting from any information or interpretation given in this report. In no case shall ACS LABORATORIES PTY. LTD. be responsible for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report.

ACS LABORATORIES PTY. LTD.

ACH: 008 273 005

Petroleum Reservoir Engineering Data

OVERBURDEN ANALYSIS FINAL REPORT

Company : BHP PETROLEUM PTY.LTD.  
 Well : MINERVA-2A  
 Field : MINERVA  
 Core Int. : CORE NO.1 1728.50-1733.60 M  
 Core Int. : CORE NO.2&3 1838.80-1882.50 M  
 Core Int. : CORE NO.4&5 1915.00-1969.00 M

Date : 04/11/93  
 File : 5-207  
 Location : OTWAY  
 ACS Lab. : ADELAIDE  
 Analyst : CG,WJD,JC

SAMPLE NUMBER	DEPTH	POROSITY at OVERBURDEN Pressures				Porosity		PERMEABILITY at OVERBURDEN Pressures				PERM.	
		Ambient Porosity	psi 2100	psi 0	psi 0	psi 0	Rolling Average	Ambient Permeability	psi 2100	psi 0	psi 0	psi 0	Rolling Average
						2100							2100
1	1728.60	10.1	9.6			9.2	0.16	0.03					0.02
5	1729.80	8.9	8.5			8.8	0.06	0.01					0.01
9	1731.00	8.6	8.4			8.7	0.08	0.01					0.01
13	1732.20	9.7	9.4			11.8	0.16	0.01					0.16
18	1839.00	20.9	19.9			16.8	315	270					50.2
20	1839.55	18.4	17.9			17.7	8471	6253					3059
26	1841.40	16.2	15.2			16.8	9437	8295					7793
29	1842.30	19.8	19.0			17.6	10721	8573					8737
34	1843.80	18.3	17.2			18.1	12865	9560					7041
37	1844.70	19.9	19.1			18.4	3864	3137					2485
41	1845.90	18.8	18.3			18.9	440	406					1427
45	1847.10	20.7	19.7			19.1	10101	8037					4759
48	1848.00	19.6	18.7			18.1	24603	19566					72
53	1849.50	15.9	15.2			16.2	1891	1635					562
57	1850.70	16.7	15.7			15.7	3626	3077					3173
62	1852.20	17.2	16.1			16.1	8513	6554					4891
66	1853.40	17.2	16.6			16.2	5170	4331					3946
71	1854.90	15.9	15.3			15.8	2210	1972					4116
74	1856.40	16.7	15.9			15.4	21003	17053					2739
79	1857.90	15.1	14.3			15.9	119	98.2					1175
82	1858.80	19.9	19.0			16.2	14714	11598					1533
86	1860.00	13.5	12.6			16.6	474	418					1347
93	1862.10	22.8	22.0			19.3	1797	1622					1733
96	1863.00	21.6	20.5			21.8	10606	8206					3880
100	1864.20	25.1	24.2			21.9	2348	2075					1192
104	1865.40	19.5	18.6			20.7	63.3	57.1					159
109	1866.90	22.4	21.5			20.7	125	93.8					97.1
113	1868.10	21.9	21.1			22.7	201	177					300
116	1869.00	27.8	27.1			25.2	3240	2767					1214
119	1869.90	26.2	25.4			25.1	1799	1602					2889
124	1871.40	23.4	22.6			21.9	11468	9811					5466
128	1872.63	17.8	16.9			19.5	6914	5790					9543
132	1873.80	22.5	21.4			20.6	29776	25213					10905
136	1875.00	23.3	22.5			22.7	4581	3842					6320
140	1876.20	25.2	24.4			23.5	4822	4287					3127
144	1877.40	23.6	22.8			23.3	1530	1354					1492
148	1878.60	23.7	23.0			22.8	694	631					1283
152	1879.80	23.1	22.3			21.9	5422	5033					2491
157	1881.30	21.1	20.1			19.7	2881	2408					5
161	1882.50	17.2	16.2			17.0	376	311					598
165	1915.90	16.3	15.4			16.7	621	551					417
169	1917.10	20.7	19.9			18.5	353	319					247

BHP PETROLEUM PTY.LTD. :  
MINERVA-2A : Analysis by

ACS LABORATORIES PTY. LTD.

SAL. NO. NUMBER	DEPTH	POROSITY at OVERBURDEN Pressures				Porosity psi Rolling Average	PERMEABILITY at OVERBURDEN Pressures				PERMEAB psi Rolling Average
		Ambient Porosity	psi 2100	psi 0	psi 0		Ambient Permeability	psi 2100	psi 0	psi 0	
					2100						2100
172	1918.00	19.4	18.7		20.4	73.9	65.9				270
176	1919.20	25.1	24.3		22.6	4198	3843				735
180	1920.40	23.9	23.2		23.8	326	300				733
184	1921.60	25.1	24.4		23.1	905	834				1008
188	1922.80	21.3	20.4		21.7	5594	4943				3522
192	1924.00	22.3	21.5		21.4	8420	7546				5805
196	1925.20	22.8	22.0		21.9	4388	4034				6354
199	1926.10	23.0	22.0		20.3	15715	13270				625
204	1927.60	16.2	15.3		15.3	0.43	0.22				3.45
209	1929.10	9.2	8.4		11.4	0.48	0.23				0.27
213	1930.30	14.3	13.5		13.4	1.25	0.43				1.96
217	1931.50	19.0	18.1		16.4	383	343				106
219	1932.10	16.9	15.9		15.4	2736	2471				553
224	1933.60	13.0	11.8		14.4	61.0	44.6				356
226	1934.20	19.1	18.0		17.4	3814	3259				1438
231	1935.70	22.5	21.6		20.5	10379	9031				5745
235	1936.90	21.8	20.8		21.6	4754	4099				7887
240	1938.40	24.3	23.3		19.8	28211	25508				698
245	1939.90	12.2	11.8		17.2	0.34	0.09				9.9
248	1940.80	22.8	21.9		17.9	59.1	48.2				29.6
253	1942.30	16.9	15.9		16.4	4559	3720				794
	1943.30	12.5	11.8		14.6	663	597				1603
260	1944.50	20.0	19.0		17.0	5698	4980				1424
263	1945.40	19.0	18.0		18.9	333	278				1272
268	1946.90	21.4	20.5		17.6	7921	6808				375
273	1948.40	12.4	11.3		14.5	1.70	1.53				86.6
277	1949.60	15.7	14.7		15.4	4137	3517				140
278	1949.90	21.7	20.8		18.9	24.5	20.2				187
283	1951.40	20.3	19.4		19.7	958	848				247
286	1952.30	20.1	19.2		18.1	287	258				235
291	1953.80	15.6	14.5		15.1	64.4	53.7				38.4
295	1955.00	13.4	12.3		13.8	5.0	2.92				18.9
298	1955.90	17.1	15.9		13.2	327	276				9.2
304	1957.70	9.3	8.7		13.5	0.14	0.03				3.27
308	1958.90	21.6	20.8		16.8	448	407				55.5
311	1959.80	18.0	17.0		15.7	2035	1787				162
316	1961.30	8.9	7.9		13.4	3.52	0.53				26.6
319	1962.20	21.6	20.7		14.5	1129	1017				32.1
323	1963.40	9.6	8.8		14.0	3.72	1.96				23.0
326	1964.30	18.3	17.7		16.1	80.3	72.3				33.5
332	1966.10	20.9	20.3		19.7	135	123				310
336	1967.30	21.3	20.3		19.0	9411	8418				1894
341	1968.80	16.2	15.2		16.9	1773	1474				2635

ACS LABORATORIES PTY. LTD. shall not be liable or responsible for any loss, cost, damages or expenses incurred by the client or any other person or company, resulting from any information or interpretation given in this report. In no case shall ACS LABORATORIES PTY. LTD. be responsible for sequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report.

ACS LABORATORIES PTY. LTD.

ACN: 008 273 005

Petroleum Reservoir Engineering Data

SPECIFIED AVERAGE REPORT

Company	: BHP PETROLEUM PTY.LTD.	Date	: 04/11/93
Well	: MINERVA-2A	File	: 5-207
Field	: MINERVA	Location	: OTWAY
Core Int.	: CORE NO.1 1728.50-1733.60 M	ACS Lab.	: ADELAIDE
Core Int.	: CORE NO.2&3 1838.80-1882.50 M	Analyst	: CG,WJD,JC
Core Int.	: CORE NO.4&5 1915.00-1969.00 M		

SUMMATION POROSITY Average sample 1 to 17 Sample Type : R  
 POROSITY Average : 9.9 over 17 Samples  
 0 Samples with a ZERO Porosity Value Ignored

SUMMATION % OIL Average Sample 1 to 17 Sample Type : R  
 % OIL Average : 0.7 over 17 Samples  
 0 Samples with a ZERO % Oil Value Ignored

SUMMATION % WATER Average Sample 1 to 17 Sample Type : R  
 % WATER Average : 87.4 over 17 Samples  
 0 Samples with a ZERO % Water Value Ignored

AMBIENT He POROSITY Average Sample 1 to 17 Sample Type : R  
 POROSITY Average : 9.2 over 17 Samples  
 0 Samples with a ZERO Porosity Value Ignored

AMBIENT PERMEABILITY Average Sample 1 to 17 Sample Type : R  
 PERMEABILITY Average : 0.12 over 17 Samples  
 0 Samples with a ZERO Permeability Value Ignored

OVERBURDEN POROSITY Average Sample 1 to 13 Sample Type : R  
 POROSITY Average : 9.0 over 4 Samples  
 0 Samples with a ZERO Porosity Value Ignored

OVERBURDEN PERMEABILITY Average Sample 1 to 13 Sample Type : R  
 PERMEABILITY Average : 0.0 over 4 Samples  
 0 Samples with a ZERO Permeability Value Ignored

ACS LABORATORIES PTY. LTD. shall not be liable or responsible for any loss, cost, damages or expenses incurred by the client or any other person or company, resulting from any information or interpretation given in this report. In no case shall ACS LABORATORIES PTY. LTD. be responsible for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report.

ACS LABORATORIES PTY. LTD.

ACN: 008 273 005

Petroleum Reservoir Engineering Data

SPECIFIED AVERAGE REPORT

Company	: BHP PETROLEUM PTY.LTD.	Date	: 04/11/93
Well	: MINERVA-2A	File	: 5-207
Field	: MINERVA	Location	: OTWAY
Core Int.	: CORE NO.1 1728.50-1733.60 M	ACS Lab.	: ADELAIDE
Core Int.	: CORE NO.2&3 1838.80-1882.50 M	Analyst	: CG,WJD,JC
Core Int.	: CORE NO.4&5 1915.00-1969.00 M		

SUMMATION POROSITY Average sample 18 to 161 Sample Type : R  
 POROSITY Average : 20.0 over 144 Samples  
 0 Samples with a ZERO Porosity Value Ignored

SUMMATION % OIL Average Sample 18 to 161 Sample Type : R  
 % OIL Average : 2.1 over 144 Samples  
 0 Samples with a ZERO % Oil Value Ignored

SUMMATION % WATER Average Sample 18 to 161 Sample Type : R  
 % WATER Average : 42.4 over 144 Samples  
 0 Samples with a ZERO % Water Value Ignored

AMBIENT He POROSITY Average Sample 18 to 161 Sample Type : R  
 POROSITY Average : 18.6 over 144 Samples  
 0 Samples with a ZERO Porosity Value Ignored

AMBIENT PERMEABILITY Average Sample 18 to 161 Sample Type : R  
 PERMEABILITY Average : 5288 over 144 Samples  
 0 Samples with a ZERO Permeability Value Ignored

OVERBURDEN POROSITY Average Sample 18 to 161 Sample Type : R  
 POROSITY Average : 19.4 over 36 Samples  
 0 Samples with a ZERO Porosity Value Ignored

OVERBURDEN PERMEABILITY Average Sample 18 to 161 Sample Type : R  
 PERMEABILITY Average : 5169.7 over 36 Samples  
 0 Samples with a ZERO Permeability Value Ignored

ACS LABORATORIES PTY. LTD. shall not be liable or responsible for any loss, cost, damages or expenses incurred by the client or any other person or company, resulting from any information or interpretation given in this report. In no case shall ACS LABORATORIES PTY. LTD. be responsible for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report.

ACS LABORATORIES PTY. LTD.

ACW: 008 273 005

Petroleum Reservoir Engineering Data

SPECIFIED AVERAGE REPORT

Company	: BHP PETROLEUM PTY.LTD.	Date	: 04/11/93
Well	: MINERVA-2A	File	: 5-207
Field	: MINERVA	Location	: OTWAY
Core Int.	: CORE NO.1 1728.50-1733.60 M	ACS Lab.	: ADELAIDE
Core Int.	: CORE NO.2&3 1838.80-1882.50 M	Analyst	: CG,WJD,JC
Core Int.	: CORE NO.4&5 1915.00-1969.00 M		

SUMMATION POROSITY Average sample 162 to 341 Sample Type : R  
 POROSITY Average : 17.7 over 180 Samples  
 0 Samples with a ZERO Porosity Value Ignored

SUMMATION % OIL Average Sample 162 to 341 Sample Type : R  
 % OIL Average : 2.6 over 180 Samples  
 0 Samples with a ZERO % Oil Value Ignored

SUMMATION % WATER Average Sample 162 to 341 Sample Type : R  
 % WATER Average : 61.1 over 180 Samples  
 0 Samples with a ZERO % Water Value Ignored

AMBIENT He POROSITY Average Sample 162 to 341 Sample Type : R  
 POROSITY Average : 16.8 over 180 Samples  
 0 Samples with a ZERO Porosity Value Ignored

AMBIENT PERMEABILITY Average Sample 162 to 341 Sample Type : R  
 PERMEABILITY Average : 2326 over 180 Samples  
 0 Samples with a ZERO Permeability Value Ignored

OVERBURDEN POROSITY Average Sample 165 to 341 Sample Type : R  
 POROSITY Average : 17.4 over 45 Samples  
 0 Samples with a ZERO Porosity Value Ignored

OVERBURDEN PERMEABILITY Average Sample 165 to 341 Sample Type : R  
 PERMEABILITY Average : 2559.4 over 45 Samples  
 0 Samples with a ZERO Permeability Value Ignored

ACS LABORATORIES PTY. LTD. shall not be liable or responsible for any loss, cost, damages or expenses incurred by the client or any other person or company, resulting from any information or interpretation given in this report. In no case shall ACS LABORATORIES PTY. LTD. be responsible for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report.

## BRINELL HARDNESS DATA

Company BHP Petroleum

Report 005/207

Well Minerva 2A

---

Sample Number	Depth (m)	Brinell Hardness (kg/sq.mm)
1	1728.60	18
2	1728.90	17
3	1729.20	18
4	1729.50	17
5	1729.80	18
6	1730.10	15
7	1730.40	18
8	1730.70	17
9	1731.00	19
10	1731.30	17
11	1731.60	16
12	1731.90	19
13	1732.20	15
14	1732.50	17
15	1732.80	16
16	1733.10	18
17	1733.37	14
18	1839.00	5
19	1839.30	12
20	1839.55	18
21	1839.90	14
22	1840.20	14
23	1840.50	15
24	1840.80	17
25	1841.10	8
26	1841.40	7
27	1841.70	21
28	1842.00	27
29	1842.30	24
30	1842.60	18
31	1842.90	14
32	1843.20	14
33	1843.50	29
34	1843.80	11
35	1844.10	14
36	1844.40	22
37	1844.70	21

---

Sample Number	Depth (m)	Brinell Hardness (kg/sq.mm)
38	1845.00	19
39	1845.30	21
40	1845.60	39
41	1845.90	19
42	1846.20	22
43	1846.50	13
44	1846.80	19
45	1847.10	20
46	1847.40	19
47	1847.70	21
48	1848.00	18
49	1848.30	26
50	1848.60	13
51	1848.90	18
52	1849.20	18
53	1849.50	29
54	1849.80	19
55	1850.10	22
56	1850.40	23
57	1850.70	29
58	1851.00	19
59	1851.30	19
60	1851.60	23
61	1851.90	34
62	1852.20	26
63	1852.50	23
64	1852.80	25
65	1853.10	27
66	1853.40	23
67	1853.70	23
68	1854.00	21
69	1854.30	24
70	1854.60	22
71	1854.90	20
72	1855.80	33
73	1856.10	34
74	1856.40	16
75	1856.70	24
76	1857.00	35
77	1857.30	23
78	1857.60	17
79	1857.90	16
80	1858.20	15
81	1858.50	13
82	1858.80	12
83	1859.10	25
84	1859.40	21
85	1859.70	24
86	1860.00	26
87	1860.30	14
88	1860.60	14



Sample Number	Depth (m)	Brinell Hardness (kg/sq.mm)	
89	1860.90	17	Sample fractured during test
90	1861.20	15	" " " "
91	1861.52	15	" " " "
92	1861.83	17	" " " "
93	1862.10	12	
94	1862.40	13	
95	1862.65	16	
96	1863.00	12	
97	1863.30	10	
98	1863.55	14	
99	1863.90	12	
100	1864.20	12	
101	1864.50	14	
102	1864.80	12	
103	1865.10	15	
104	1865.40	17	
105	1865.70	15	
106	1866.00	22	
107	1866.30	12	
108	1866.60	6	
109	1866.90	4	
110	1867.20	6	
111	1867.53	5	
112	1867.80	14	
113	1868.10	13	
114	1868.40	12	
115	1868.70	12	
116	1869.00	8	
117	1869.30	11	
118	1869.60	11	
119	1869.90	10	
120	1870.20	11	
121	1870.50	11	
122	1870.80	12	
123	1871.10	13	
134	1871.40	16	
125	1871.70	10	
126	1872.00	18	
127	1872.30	17	
128	1872.63	12	
129	1872.90	17	
130	1873.20	5	
131	1873.50	5	
132	1873.80	6	
133	1874.10	19	
134	1874.40	14	
135	1874.70	5	
136	1875.00	7	
137	1875.30	5	
138	1875.60	15	
139	1875.90	8	

---

Sample Number	Depth (m)	Brinell Hardness (kg/sq.mm)
---------------	-----------	-----------------------------

---

140	1876.20	13
141	1876.50	14
142	1876.80	12
143	1877.10	13
144	1877.40	6
145	1877.70	8
146	1878.00	11
147	1878.30	8
148	1878.60	6
149	1878.90	15
150	1879.20	7
151	1879.50	5
152	1879.80	14
153	1880.10	7
154	1880.40	8
155	1880.70	14
156	1881.00	14
157	1881.30	5
158	1881.60	7
159	1881.90	9
160	1882.20	13
161	1882.50	7
162	1915.10	13
163	1915.30	15
164	1915.60	25
165	1915.90	18
166	1916.23	19
167	1916.50	10
168	1916.80	22
169	1917.10	11
170	1917.40	15
171	1917.70	14
172	1918.00	7
173	1918.30	10
174	1918.60	11
175	1918.90	11
176	1919.20	9
177	1919.50	13
178	1919.80	11
179	1920.10	17
180	1920.40	15
181	1920.70	14
182	1921.00	11
183	1921.30	13
184	1921.60	13
185	1921.90	5
186	1922.20	9
187	1922.50	11
188	1922.80	14
189	1923.14	13
190	1923.40	18

Sample Number	Depth (m)	Brinell Hardness (kg/sq.mm)
191	1923.70	5
192	1924.00	14
193	1924.30	11
194	1924.63	13
195	1924.90	13
196	1925.20	15
197	1925.50	15
198	1925.80	10
199	1926.10	12
200	1926.40	4
201	1926.70	18
202	1927.00	15
203	1927.30	11
204	1927.60	11
205	1927.90	16
206	1928.20	14
207	1928.50	15
208	1928.80	20
209	1929.10	15
210	1929.40	15
211	1929.70	14
212	1930.00	16
213	1930.30	13
214	1930.60	16
215	1930.90	14
216	1931.20	15
217	1931.50	17
218	1931.80	17
219	1932.10	21
220	1932.40	16
221	1932.70	13
222	1933.00	16
223	1933.30	9
224	1933.60	22
225	1933.90	19
226	1934.20	18
227	1934.50	5
228	1934.80	16
229	1935.10	15
230	1935.40	13
231	1935.70	11
232	1936.00	15
233	1936.30	15
234	1936.60	12
235	1936.90	11
236	1937.20	20
237	1937.50	21
238	1937.80	13
239	1938.10	18
240	1938.40	12
241	1938.70	14

Sample Number	Depth (m)	Brinell Hardness (kg/sq.mm)
242	1939.00	12
243	1939.30	27
244	1939.60	21
245	1939.90	23
246	1940.20	18
247	1940.50	13
248	1940.80	16
249	1941.10	22
250	1941.40	17
251	1941.70	13
252	1942.00	24
253	1942.30	17
254	1942.60	19
255	1943.10	21
256	1943.30	20
257	1943.60	15
258	1943.90	16
259	1944.20	17
260	1944.50	15
261	1944.80	15
262	1945.10	6
263	1945.40	14
264	1945.70	12
265	1946.00	8
266	1946.30	12
267	1946.60	15
268	1946.90	11
269	1947.20	12
270	1947.50	12
271	1947.80	12
272	1948.10	23
273	1948.40	5
274	1948.70	16
275	1949.00	13
276	1949.30	17
277	1949.60	26
278	1949.90	11
279	1950.20	16
280	1950.50	17
281	1950.80	9
282	1951.10	12
283	1951.40	17
284	1951.70	19
285	1952.00	20
286	1952.30	19
287	1952.60	16
288	1952.90	19
289	1953.20	19
290	1953.50	21
291	1953.80	15
292	1954.10	14

Sample Number	Depth (m)	Brinell Hardness (kg/sq.mm)
293	1954.40	14
294	1954.70	17
295	1955.00	18
296	1955.30	12
297	1955.60	19
298	1955.90	17
299	1956.20	22
300	1956.50	19
301	1956.80	27
302	1957.10	17
303	1957.40	25
304	1957.70	18
305	1958.00	18
306	1958.30	18
307	1958.60	15
308	1958.90	15
309	1959.20	14
310	1959.50	14
311	1959.80	12
312	1960.10	20
313	1960.40	16
314	1960.70	12
315	1961.00	17
316	1961.30	19
317	1961.60	12
318	1961.90	22
319	1962.20	19
320	1962.50	16
321	1962.80	25
322	1963.10	18
323	1963.40	26
324	1963.70	19
325	1964.00	24
326	1964.30	16
327	1964.60	16
328	1964.90	15
329	1965.20	16
330	1965.50	15
331	1965.80	14
332	1966.10	19
333	1966.40	13
334	1966.70	19
335	1967.00	13
336	1967.30	13
337	1967.60	18
338	1967.90	26
339	1968.20	20
340	1968.50	18
341	1968.80	13

CORE PLUG DESCRIPTION

Company:	BHP PETROLEUM Ltd	Report:	5-207
Well:	MINERVA #2a	Date:	11/11/93
Field:	OTWAY BASIN	Core Interval:	CH1 1728.50 - 1733.60m
			CH2 1838.80 - 1854.88m
Location:			CH3 1855.50 - 1882.50m
			CH4 1915.00 - 1942.73m
Country:	AUSTRALIA		CH5 1943.00 - 1969.00m

Sample Number	Description
1-17	Sst med gry, v.f-f gr, sbang-sbrnnd, wl srt, hd, arg-sltly, Tr calc cmt, Qtz/Tr C frag/Tr Musc & Pyr, abd bioturb and Bur, prly lam.
18-19	Sst v.lt gry, v.f-v.crs gr, sbang-sbrnnd, pr srt, mod hd, wh cl Mtrx, Qtz/Tr Musc & C frag/Tr Pyr, Bd.
20	Sst med lt gry, f-v.crs gr, pred med-crs gr, sbang-sbrnnd, pr srt, md hd, wh cl Mtrx,abd pyr cmt IP, Qtz ovgt h com, Qtz/Tr C, open framework IP
21-25	Sltst dk-med gry, Cl rich, sft, occ Strks or carb Mat, Sd, Cl, Tr amber, pr lam, tending to split along lam.
26	Sst lt gry, bd w/med crs gr wl srt lyr & f-v.crs/pbl pr srt lyr, sbang-rnnd, mod hd, Cl Mtrx, med open framework IP, Qtz & Qtz ovgt h.
27-28	Sst lt gry, f-v.crs gr-pbl, sbrnnd-rnnd, pr srt, mod hd, cl Mtrx, sml open framework IP w/occ lrg pores, Qtz/Tr Pyr, bd.
29	Sst As in 26.
30-31	Sst lt gry, pred med gr, sbrnnd-rnnd,wl srt, slty fri-mod hd, low Mtrx content, Qtz ovgt h & sil cmt cmn, Qtz/Tr C/Tr Pbl, mass.
32	Sst lt-med gry, interlam v.f-f gr Sd & carb Sltst.
33-35	Sst As in 27-28, incr in open Framework IP.
36-39	Sst As in 30-31, Tr thn irr bdg.

Sample Number	Description
40	Cql lt blsh-gry, Mtrx: med-crs, Pbl size Qtz gr, sbrn-dd-ang, pr srt, hd w cl & sil Mtrx, Qtz/Cl/Tr C frag, gd vis Por.
41	Sst lt gry, f-med gr, sbrn-dd, wl-mod srt, mod hd, arg-silty, cl Mtrx, Qtz ovghts, Qtz/Cl/C frag & thn lam, Tr bdg, occ pbl size Qtz gr, mod-gd vis Por.
42	Sst As in 41, vis Por incr, Tr x-bd.
43	Sst As in 41, abd gry arg lam, Bd, gd vis Por in v.crs Lyr, occ Pbl size Qtz gr.
44	Sst As in 43, C frag incr, grad bdg.
45-47	Sst As in 41, abd vis Por.
48-56	Sst lt gry, dom med gr w Pbl size Qtz gr, sbrn-dd-sbang, mod-pr srt, sil, mod ind w sil & cl Mtrx, Qtz ovghts, Tr c frag & Pyr, mod-gd vis Por, Tr thn irr bdg IP.
57-63	Sst lt gry, med-Pbl size Qtz gr dom v.crs gr, sbrn-dd, mod-pr srt, mod ind w Qtz ovghts sil & cl Mtrx, Qtz/Cl/Tr C frag & fPyr, crs-Pbl size Qtz Bd, open framework IP.
64-69	Sst lt gry, f-med gr, sbrn-dd, mod-wl srt, mod-wl ind w Qtz ovghts, sil & cl Mtrx, Tr calc cmt, Qtz/Cl/Tr C & Pyr frag, thn irr bdg def by crs Qtz Lyr, open framework IP.
70	Sst a.a, pyr repl of wdy Mat
71-86	Sst lt-med gry, f - pred med gr, occ crs gr, mod-wl srt, ang - sbang, mod-wl ind, non calc, sil & cl Mtrx, Tr Pyr, Qtz/Cl, occ mic, mass Tr thn bdg.
87-91	Sltst Mounted Plugs
92	Sltst drk blsh gry, arg-sil IP, fn Qtz strngers, pyr IP, arg mic samp, frac Plug.
93-95	Sst lt-med gry, f-pred med gr, occ crs gr, mod-wl srt, sbrn-dd-sbang, mod-wl ind, calc cmt IP, sil & cl Mtrx, Qtz/Cl/drk arg Mat/C frag, occ mic, Tr thn bdg.3
96	Sst a.a, incr in gr size dom med-crs gr.
97-100	Sst a.a, occ v.crs size Qtz gr.
101	Sst a.a, pyr repl of wdy Mat abd, thn bdg def by drk arg Mat & v.crs Lyr.
102-105	Sst As in 93-95, sm irr thn lam.
106	Sltst med drk gry, arg-sil IP, mic/arg, C frag & Pyr abd, irr bdg, Bur IP.
107-110	Sst lt-med gry, dom f-med gr, mod-wl srt, sbrn-dd, wl ind w arg & sil Mtrx, calc cmt IP, Qtz/Cl/C frag, occ Musc/Pyr & drk arg Mat, thn irr bdg.

Sample Number	Description
111	Sst a.a. dom f gr, carb lyr w pyr repl of wdy Mat, frac IP.
112-126	Sst lt-med gry, f-v.crs gr, pred med gr, occ Pbl Qtz Gr, mod wl srt, sbang-sbrnndd, wl indw wh Cl Mtrx & sil, Tr calc cmt, Qtz/Cl/Tr C frag & Pyr, mass IP, Tr thn irr lam.
127-135	Sst lt gry, med-Pbl size Qtz gr dom v.crs gr, rndd-sbang, mod-pr srt, mod ind w sil & cl Mtrx, Qtz/Cl/Tr C frag & f Pyr, crs-Pbl size Qtz, open framework IP, occ pyr repl of wdy Mat.
136-140	Sst lt gry, f-med gr occ crs Qtz gr, mod-wl srt, sbrnndd-sbang, mod ind w Cl & sil Mtrx, Qtz/Cl/Tr C frag & f Pyr, mic IP, occ Bdg
141	Sltst drk blsh gry, arg & sil IP w f. Qtz strngr, carb/mic samp, pyr repl of carb Mat, Bd, mnr Bur.
142-149	Sst lt gry, f-med gr occ crs Qtz gr, sbrnndd-sbang, mod srt, mod-wl ind w arg & sil Mtrx, Tr calc cmt, Qtz/Cl/Tr Pyr repl of carb Mat, Tr lam def bdg, mass IP.
150-154	Sst med gry, f-pred med gr, occ v.crs gr, mod-wl srt, sbrnndd-sbang, mod-wl ind, calc cmt IP, sil & cl Mtrx, Qtz/Cl/drk arg Mat/C frag, occ mic, Tr thn bdg.
155-156	Sltst As in 141, pyr clusters.
157-158	Sst As in 150-154
159	Sst a.a, mic arg Lyr def bdq, Pbl size Qtz gr wthn Bd.
160	Sltst/Sst As in 141 & 150-154, intrbd.
161-167	Sst med gry, med-Pbl gr dom v.crs gr, mod-pr srt, sbrnndd-sbang, mod ind w Cl & sil Mtrx, Tr calc cmt, Qtz/Cl/Pyr/C frag, open Framework IP w gd vis Por in v.crs lyr Bd.
168	Sst a.a, incr in arg lyr and pbl size Qtz gr, pyr repl of wdy Mat.
169-172	Sst med gry, f-pred med gr, occ v.crs gr, mod-wl srt, sbrnndd-sbang, mod-wl ind, calc cmt IP, sil & cl Mtrx, Qtz/Cl/drk arg Mat/C frag, occ mic, Tr thn bdq, bioturb IP, occ Bur.
173-185	Sst lt-med gry, f-pred medgr, occ crs gr, mod-wl srt, sbrnndd-sbang, mod-wl ind, calc cmt IP, sil & cl Mtrx, Qtz/Cl/Mic/Tr drk arg Mat/C frag, dom mass-samp 181 & 182 have arg lam def thn irr bdg/Bur IP.
186-188	Sst lt-med gry, med-v.crs gr, mod-pr srt, sbrnndd-sbang, mod ind w Cl & sil Mtrx, Tr calc cmt, Qtz/Cl/Pyr/C frag, open Framework IP w gd vis Por, mass.
189	Sst As in 173, carb Mat & resin abd, occ pyr repl of wdy Mat.
190-199	Sst As in 186-188, mass, C frag IP.
200	Coal Mass carb Mat, pyr repl of wdy Mat abd, conc frac.



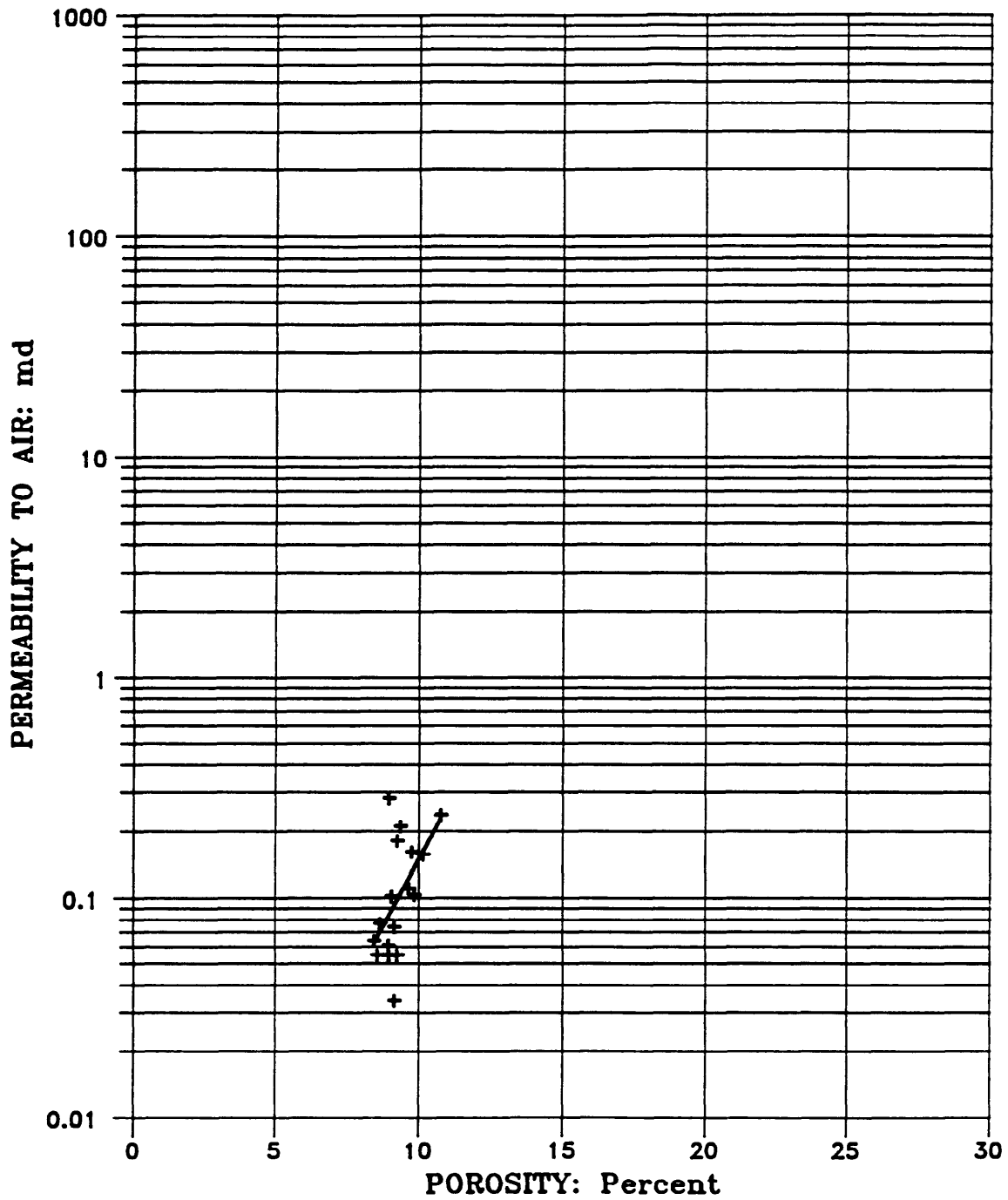
Sample Number	Description
201-216	Sst lt-med drk gry, v.f-med dom f gr, mod-wl srt, sbrnidd, mod-wl ind wCl & sil mtrx, Tr calc cmt, Qtz/Cl/Carb Mat/Mic, occ pyr & C frag, bioturb& occ Bur, thn irr bdg, mic & arg samp.
217-219	Sst lt-med gry, f-pred med gr,occ crs gr, mod-wl srt, sbrnidd-sbang, mod-wl ind, calc cmt IP, sil & cl Mtrx, Qtz/Cl/Mic/Tr drk arg Mat/C frag, dom mass.
220-221	Sst As in 201-216.
222	Sltst drk blsh gry, arg & sil IP w f.Qtz strngr, carb/mic samp, pyr repl of carb Mat, Bd. mnr Bur.
223-227	Sst lt-med gry, med-v.crs gr, mod-pr srt, sbrnidd-sbang, mod ind w Cl & sil Mtrx, Tr calc cmt, Qtz/Cl/Pyr/C frag, open Framework IP w gd vis Por, carb lyr def bdg, occ pbl sze Qtz gr, #227 pyr repl of wdy lyr.
228-230	Sst lt-med drk gry, v.f-med dom f gr, mod-wl srt, sbrnidd, mod-wlind w Cl & sil mtrx, Tr calc cmt, Qtz/Cl/Carb Mat/Mic,occ pyr & C frag, bioturb & occ Bur, thn irr bdg, mic & arg samp
231-243	Sst lt-med gry, med-v.crs gr, mod-pr srt, sbrnidd-sbang, mod ind w Cl & si Mtrx, Tr calc cmt, Qtz/Cl/Pyr/C frag, open Frameworkmass, incr in Pbl
244-252	Sst lt-med drk gry, v.f-med dom f gr, mod-wl srt, sbrnidd, mod-wlind w Cl & sil mtrx, Tr calc cmt, Qtz/Cl/Carb Mat/Mic, occ pyr & C frag,bioturb & occ Bur, thn irr bdg, mic & arg samp.
253-254	Sst lt-med gry, f-pred med gr,occ crs gr, mod-wl srt, sbrnidd-sbang mod - w ind, calc cmt IP, sil & cl Mtrx, Qtz/Cl/Mic/Tr drk arg Mat/C frag, dom mass.
255	Sst As in 201-216.
256	Sst As in 217-219, mass pyr cmt.
257	Sst lt-med gry, f-predmed gr, occ crs gr, mod-wl srt, sbrnidd-sbang, mod-wl ind, calc cmt IP, sil & cl Mtrx, Qtz/Cl/Mic/Tr drk arg Mat/C frag,dom mass.
258-259	Sst As in 201-216, #259 abd carb Mat w resin & frac.
260-271	Sst As in 173-185.
272	Sst As in 201-216, abd carb Mat w resin & frac.
273-276	Sst lt-med drk gry, v.f-med dom f gr, mod-wl srt, sbrnidd, mod-wlind w Cl & sil mtrx, Tr calc cmt, Qtz/Cl/Carb Mat/Mic, occ pyr& C frag, bioturb & occ Bur, thn irr bdg, mic & arg samp.
277	Sst lt-med gry, f-pred med gr, occ crs gr, mod-wlsrt, sbrnidd-sbang, mod-wl ind, calc cmt IP, sil & cl Mtrx, Qtz/Cl/Mic/Tr drk arg Mat/C frag, dom mass-samp 181 & 182 have arg lam def thn irr bdg/Bur IP

Sample Number	Description
278	Sst lt-med drk gry, v.f-med dom f gr, mod-wl srt, sbrnidd, mod-wl ind wCl & sil mtrx, Tr calc cmt, Qtz/Cl/Carb Mat/Mic, occ pyr & C frag,bioturb occ Bur, thn irr bdg, mic & arg samp.
279-282	Sst lt-med gry, med-v.crs gr, mod-pr srt, sbrnidd-sbang, mod ind w Cl & sil Mtrx, Tr calc cmt, Qtz/Cl/Pyr/C frag, open Framework IP w gd vis Por, carb lyr def bdg, occ pbl sze Qtz gr, pyr repl of wdy lyr.
283-286	Sst med gry, f-pred med gr, occ v.crs gr, mod-wl srt, sbrnidd-sbang, mod-wl ind, calc cmt IP, sil & clMtrx, Qtz/Cl/drk arg Mat/C frag, occ mic, Tr thn bdg.
287-288	Sst lt-med gry, f-pred med gr, occ crs gr, mod-wl srt,sbrnidd-sbang, mod-wl ind, calc cmt IP, sil & cl Mtrx, Qtz/Cl/Mic/Tr drk arg Mat/C frag, dom mass-samp, arg lam def thn irr bdg/Bur IP.
289-297	Sst med gry, med-Pbl gr dom v.crs gr, mod-pr srt, sbrnidd-sbang, mod ind w Cl & sil Mtrx, Tr calc cmt, Qtz/Cl/Pyr/C frag, open Framework IP w gd vis Por in v.crs lyr Bd.
298	Sst lt-med gry, med-v.crs gr, mod-pr srt, sbrnidd-sbang, mod ind w Cl & sil mtrx, Tr calc cmt, Q
299-301	Sst med-drk gry, med-v.crs gr,mod-pr srt, sbrnidd-sbang, mod ind w Cl & sil Mtrx, Tr calc cmt, Qtz/Cl/Pyr/C frag, open Framework IP w gd vis Por, carb lyr def bdg, occ pbl sze Qtz gr, pyr repl of wdy lyr.
302-306	Sst lt-med drk gry, v.f-med dom f gr, mod-wl srt,sbrnidd, mod-wl ind w Cl & sil mtrx, Tr calc cmt, Qtz/Cl/Carb Mat/Mic, occ pyr & C frag,bioturb & occ Bur, thn irr bdg, mic & arg samp.
307-311	Sst lt-med gry, f-pred medgr, occ crs gr, mod-wl srt, sbrnidd-sbang, mod-wl ind, calc cmt IP, sil & cl Mtrx, Qtz/Cl/Mic/Tr drk arg Mat/C frag, dom mass-samp , arg lam def thn irr bdg/Bur IP.
312	Sst as above with abd crs qtz grns, drk brn arg la
313-314	Sst lt-med gry, f-pred med gr,occ crs gr, mod-wl srt, sbrnidd-sbang, mod-wl ind, calc cmt IP, sil & cl Mtrx, Qtz/Cl/Mic/Tr drk arg Mat/C frag, dom mass-samp , arg lam def thn irr bdg/Bur IP.
315-316	Sst med-drk gry, med-v.crs gr,mod-pr srt, sbrnidd-sbang, mod ind w Cl & sil Mtrx, Tr calc cmt, Qtz/Cl/Pyr/C frag, open Framework IP w gd vis Por, carb lyr def bdg, occ pbl sze Qtz gr, pyr repl wdy lyr.
317-320	Sst lt-med gry, f-pred med gr, occ crs gr, mod-wl srt,sbrnidd-sbang, mod-wl ind, calc cmt IP, sil & cl Mtrx, Qtz/Cl/Mic/Tr drk arg Mat/C frag, dom mass-samp 317 & 320 have arg lam def thn irr bdg/Bur IP.
321-325	Sst lt-med drk gry, v.f-med dom f gr, mod-wl srt, sbrnidd, mod-wlind wCl & sil mtrx, Tr calc cmt, Qtz/Cl/Carb Mat/Mic, occ pyr & Cfrag, bioturb & occ Bur, thn irr bdg, mic & arg samp.
326	Sst as above with abd pyr.

Sample Number	Description
327-333	Sst lt-med gry, f-pred med gr, occ crs gr, mod-wl srt, sbrnndd-sbang, mod-wl ind, calc cmt IP, sil & cl Mtrx, Qtz/Cl/Mic/Tr drk arg Mat/C frag, dom mass-samp 327 & 331 have arg lam def thn irr bdg/Bur IP.
334-338	Sst lt-med gry, med-v.crs gr, mod-pr srt, sbrnndd-sbang, mod ind w Cl & sil Mtrx, Tr calc cm
339-340	Sst lt-med drk gry, v.f-med dom f gr, mod-wl srt, sbrnndd, mod-wlind wCl & sil mtrx, Tr calc cmt, Qtz/Cl/Carb Mat/Mic, occ pyr& C frag, bioturb & occ Bur, thn irr bdg, mic & arg samp.
341	Sst lt gry, med-Pbl sze Qtz gr dom v.crs gr, rndd-sbang, mod-pr srt, mod ind w sil & cl Mtrx, Qtz/Cl/Tr C frag & f Pyr, crs-Pbl sze Qtz, open framework IP, occ pyr repl of wdy Mat.

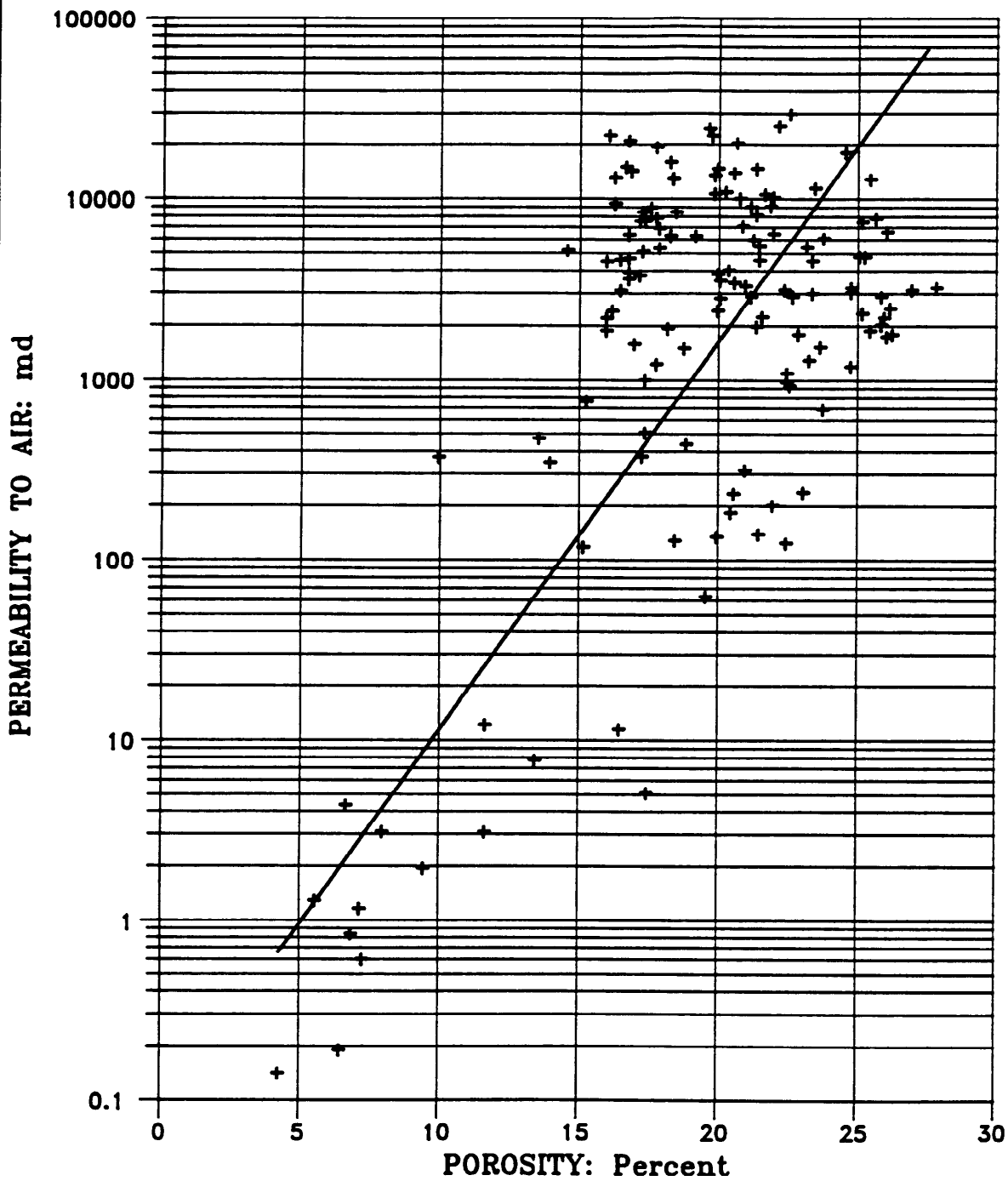
# POROSITY vs PERMEABILITY

Company: BHP PETROLEUM PTY.LTD.  
Well: MINERVA-2A  
Depth: 1728.60 - 1733.37 Metres



# POROSITY vs PERMEABILITY

Company: BHP PETROLEUM PTY.LTD.  
Well: MINERVA-2A  
Depth: 1839.00 - 1882.50 Metres



# POROSITY vs PERMEABILITY

Company: BHP PETROLEUM PTY.LTD.  
Well: MINERVA-2A  
Depth: 1915.10 - 1968.80 Metres

