

**CORE ANALYSIS  
REPORT  
SUNBIRD-1**

Prepared for:

Teikoku Oil (Bonaparte Gulf) Co., Ltd.

November 1994

DEPT OF MINES & ENERGY

DO NOT REMOVE



P00720

**GEOTECH** GEOTECHNICAL  
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28 November, 1994

Mr. Y. Watanabe  
Teikoku Oil (Bonaparte Gulf) Company Ltd  
6th Floor Takara Building  
34-14 Hatagaya 1-Chome  
Shibuya-ku  
Tokyo 151 Japan

Dear Yoshi,

Re: Core Analysis - Sunbird-1

Thirty five MSCT cores were selected for poroperm measurements at ambient and at overburden pressures.

After trimming the end faces, the extracted and unextracted samples were cleaned with toluene and methanol to remove residual hydrocarbons and salts.

The samples were dried overnight at 80°C before poroperm measurements.

As discussed, ½ psi/ft was used to calculate the net overburden pressures required.

Poroperm and grain density data tabulated in Table 1 in this report were faxed to the Teikoku Oil office in Darwin on the 19th, 21st and 27th October 1994.

The air permeabilities (Ka) range from a minimum of <0.01 md to a maximum of 621 md at 2128.5m, averaging 25.1 md. Samples at and below 2183.0m are very tight, with Ka values of less than 0.01 md.

The helium porosities range from a minimum of 0.5% at 2586.0m to a maximum of 26.3% at 2128.5m, averaging 7.3%.

The grain densities are consistent with the lithology. They range from 2.64 gm/cc for clean sandstones to above 2.67 gm/cc for samples containing pyrite. The maximum grain density is 2.91 gm/cc at 2786.0m.

This report consists of tabular data, poroperm cross plot, a vertical scale core log and histograms for helium porosity, air permeability and grain density.

It has been a pleasure working for Teikoku Oil. If you have any questions regarding this report or any of our services please do not hesitate to contact us.

Yours sincerely,


  
Khiam Ooi  
Supervisor - Core Analysis

TABLE: 1

## CORE ANALYSIS

TEIKOKU OIL  
SUNBIRD 1  
MSCT30-Nov-94  
FILE NO:CAP-9412

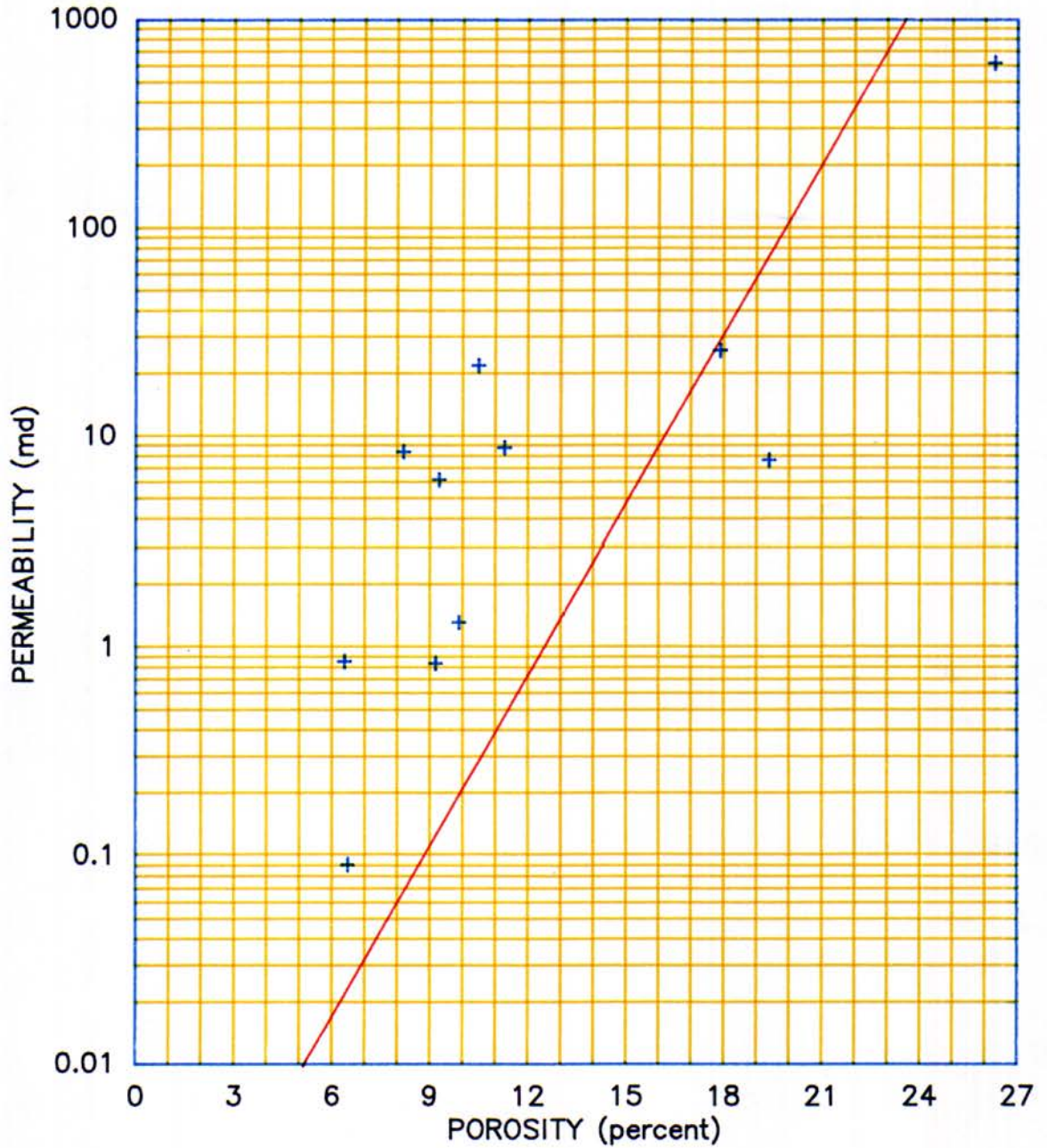
Sample	Depth metres	Helium Porosity (%)		Air Permeability K <sub>H</sub> (md)		Grain Density gm/cc	Remarks
		Ambient	Overburden	Ambient	Overburden		
	1830.0	9.3	8.8	6.2	4.9	2.65	
	1884.0	19.4	18.3	7.7	5.7	2.66	
	1960.0	6.4	6.0	0.85	0.53	2.66	
	1964.0	10.5	9.7	22	17.8	2.65	
	1967.5	8.2	7.7	8.4	6.9	2.68	
	1972.5	9.2	8.3	0.83	0.68	2.66	
	2033.0	6.5		0.09		2.66	
	2053.5	14.8		nd		2.67	irregular
	2064.0	17.9		26		2.65	
	2067.5	17.0		nd		2.64	irregular
	2082.0	9.9		1.3		2.65	
	2085.0	11.3	10.5	8.8	7.4	2.64	
	2093.5	13.8		nd		2.64	irregular
	2116.0	14.9		nd		2.65	irregular
	2128.5	26.3		621		2.66	
	2183.0	7.2		<0.01		2.67	
	2203.3	6.6		<0.01		2.66	
	2208.2	7.7		nd		2.68	irregular
	2213.0	5.3		nd		2.72	irregular
	2225.7	2.6		<0.01		2.68	
	2265.0	1.9		<0.01		2.71	
	2273.0	2.1		<0.01		2.71	
	2552.0	1.8		<0.01		2.69	
	2586.0	0.5		<0.01		2.68	
	2622.0	1.8		<0.01		2.75	
	2623.5	5.6		nd		2.79	irregular
	2626.0	2.3		<0.01		2.77	
	2722.5	0.6		<0.01		2.68	
	2786.0	2.7		<0.01		2.91	pyrite nodules
	2817.0	1.6		<0.01		2.78	
	2839.0	1.7		<0.01		2.80	
	2926.5	1.5		<0.01		2.73	
	2938.0	3.2		<0.01		2.73	
	2944.5	2.3		<0.01		2.75	
	2992.5	1.8		<0.01		2.72	

nd = no data

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# POROSITY vs PERMEABILITY

CLIENT      TEIKOKU OIL  
WELL        SUNBIRD-1  
CORE No    MSCT  
DATE        NOV 1994  
FILE No     CAP-9412

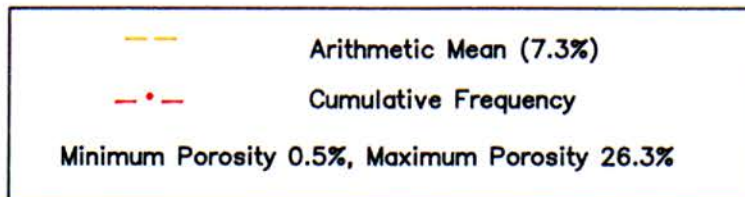
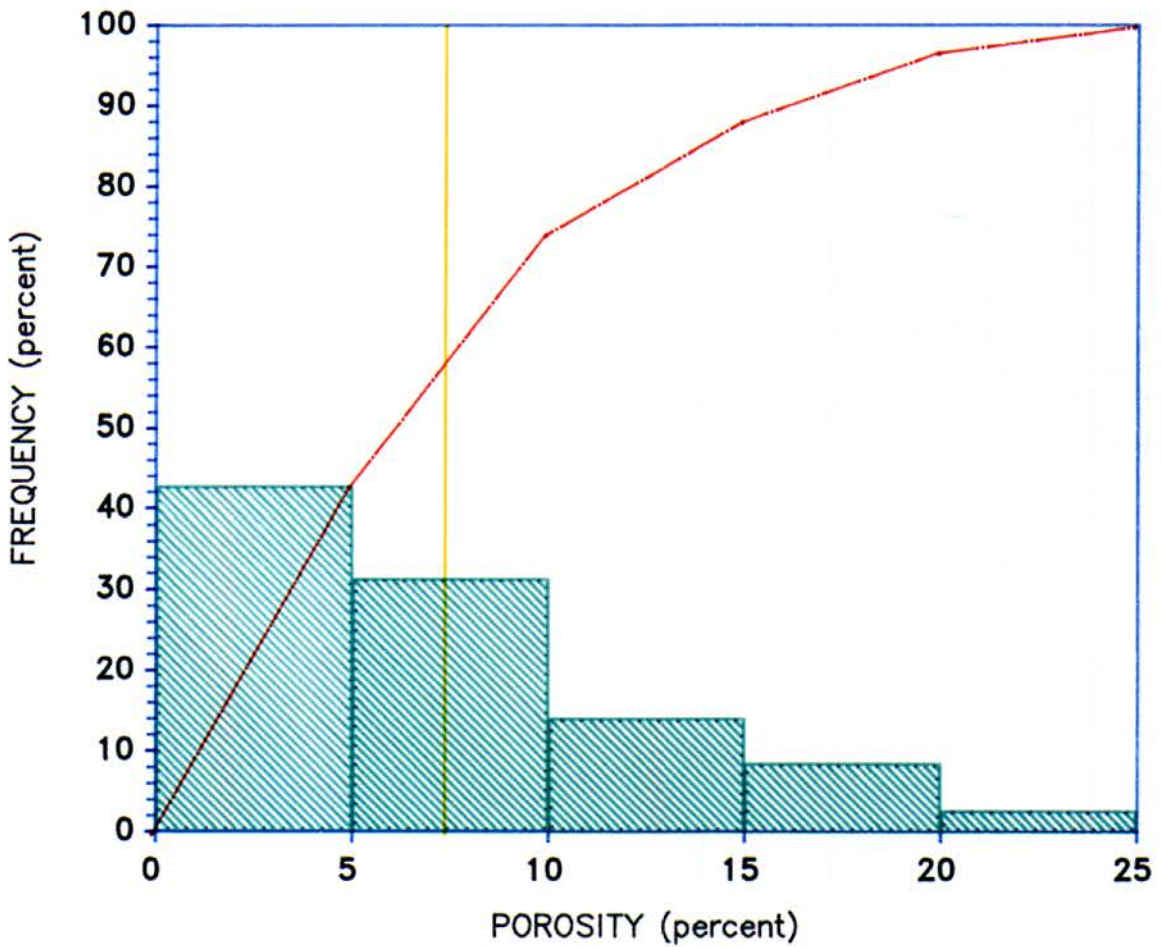


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# HELIUM INJECTION POROSITY HISTOGRAM

CLIENT      TEIKOKU OIL  
WELL        SUNBIRD-1  
CORE No    MSCT  
DATE        NOV 1994  
FILE No     CAP-9412

(AMBIENT)

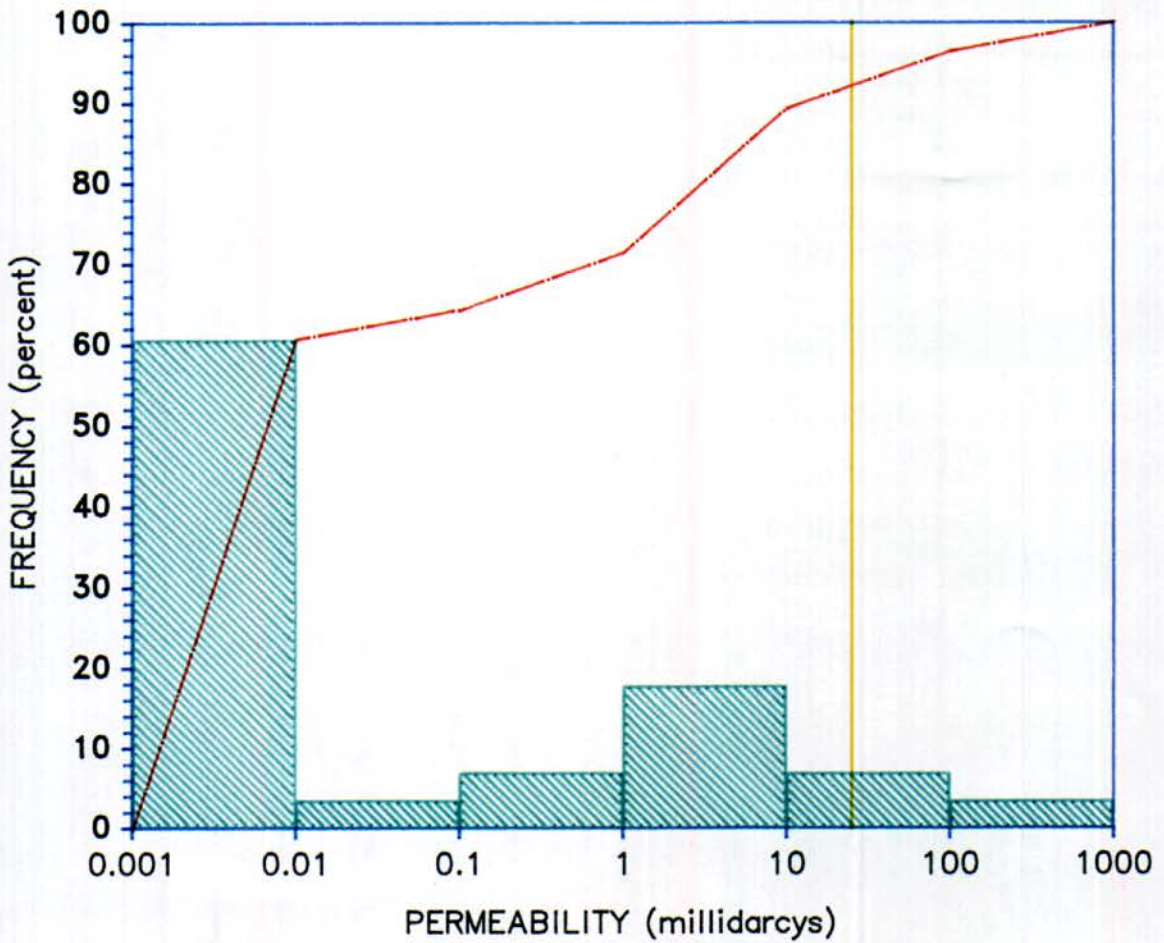


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# HORIZONTAL AIR PERMEABILITY HISTOGRAM

CLIENT      TEIKOKU OIL  
WELL        SUNBIRD-1  
CORE No    MSCT  
DATE        NOV 1994  
FILE No     CAP-9412

(AMBIENT)

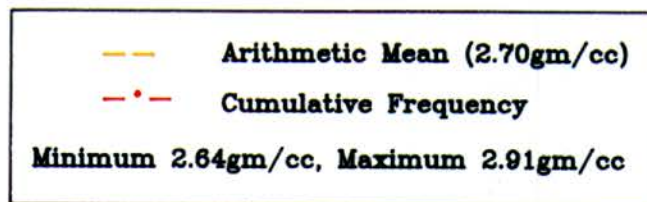
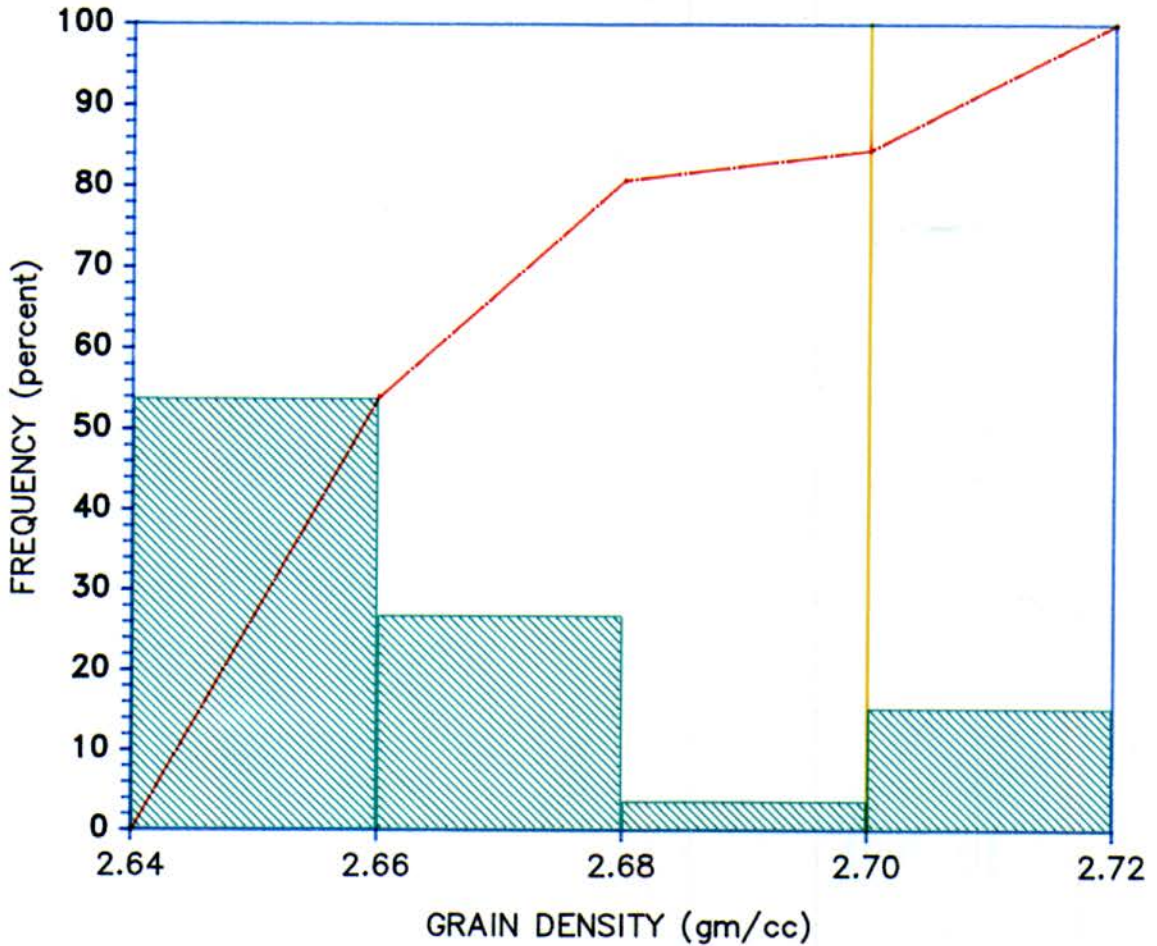


— Arithmetic Mean (25.1md)  
-•- Cumulative Frequency  
Minimum Ka <0.01md, Maximum Ka 621md

# GRAIN DENSITY HISTOGRAM

CLIENT      TEIKOKU OIL  
WELL        SUNBIRD-1  
CORE No    MSCT  
DATE        NOV 1994  
FILE No     CAP-9412

(AMBIENT)



Grain densities above 2.72 not shown on histogram

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# CORE LOG

COMPANY TEIKOKU OIL  
WELL SUNBIRD-1  
CORE MSCT

DATE NOV 1994  
FILE No CAP-9412

Depth  
(metres)

Helium Porosity  
(percent)

Permeability  
(millidarcys)

Grain Density  
(gm/cc)

