

Yolla #1 DST Reservoir Fluid Study.

Amoco Australia Petroleum Co.

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AMOCO AUSTRALIA PETROLEUM CO.

YOLLA #1, DST #1

RESERVOIR FLUID STUDY

12/86



310003

4 Marlow Road, Keswick, South Australia 5035. Tel: 2970777. Telex: AA87011

CORE LABORATORIES

Petroleum Reservoir Engineering



21st February, 1986

AMOCO AUSTRALIA PETROLEUM CO.,
10 Lampton Avenue,
DERWENT PARK, TAS. 7000

Attention : Mr. W.C. Cowan

Subject : Reservoir Fluid Study
Well : Yolla #1, DST #1
File : AFL 85056A

Samples of primary separator gas and liquid were collected from the subject well and submitted to our Adelaide Laboratory for use in a reservoir fluid study. Presented in the following report are the results of this study as requested by Amoco Australia Petroleum Company.

As a quality check, the room temperature saturation pressure of the separator liquid sample and the opening pressure of the separator gas samples were determined. At 64°F cylinder A11039 and A12530 had bubble point pressures of 629 psig and 606 psig respectively.

The opening pressures of cylinders 5490, A11019 and A11021 were 868 psig at 100°F, 857 psig at 110°F and 866 psig at 104°F. These results are reported on page two. The separator liquid in cylinder A11039 and the separator gas in cylinder A5490 were chosen for analysis and recombination.

The hydrocarbon composition of the separator gas was measured by routine gas chromatography. Helium analysis was also carried out but no detectable amounts were found. The compositional analysis of the separator liquid was conducted through heptanes and then extended to undecanes plus by means of a high temperature distillation. These results can be found on pages three, five and six. We were also requested to confirm the high CO₂ content in the separator gas by analysing cylinder A11021. This analysis can be found on page four.

The separator products were recombined to the reported gas oil ratio. This recombined reservoir fluid was then charged to a high pressure visual cell in which a constant composition expansion at the reservoir temperature of 292°F revealed a dew point of 3683 psig. The calculated hydrocarbon composition of the producing well stream material and results of the pressure volume measurements relating to this recombination is reported on pages seven and eight.

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The recombined reservoir fluid was then subjected to constant volume depletion at the reservoir temperature. After determining the saturated sample volume, a series of expansions and constant pressure displacements were made, with each displacement terminating at the original saturated volume. The quantity of retrograde liquid condensed during this depletion was measured and is presented on page twelve of this report.

A larger volume of recombined reservoir fluid was charged to another high pressure cell and subjected to an identical depletion process. This time each displaced gas phase underwent compositional analysis, deviation factor measurement and determination of the produced volume. At the conclusion of the constant volume depletion at the reservoir temperature, the hydrocarbon composition of the 500 psig equilibrium liquid phase was also determined. A summary of the constant volume depletion test data may be found on page nine, including calculated gas viscosities.

The abovementioned compositional and volumetric data were used along with published equilibrium gas/liquid ratio values to calculate the surface recoveries that can be expected as the reservoir pressure declines. These calculations were performed on the basis of one MMSCF of original reservoir fluid in place at the retrograde dew point pressure. A plant efficiency of 100 percent was assumed in these calculations. The results of this can be found on pages ten and eleven.

It has been a pleasure to perform this reservoir fluid study for Amoco Australia Petroleum Company. Should you have any questions, or if we may be of any further assistance, please do not hesitate to call on us.

Your faithfully,



J. Jan Bon,
Manager.

JB/kd/dc

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Company : Amoco Australia Petroleum Co. Date Sampled :
Well : Yolla #1 State : Tasmania
Field : Wildcat Country : Australia

FORMATION CHARACTERISTICS

Formation Name : Eastern View Coal Measure
Date First Well Completed :
Original Reservoir Pressure : 4162 psig @ 9226.6 RKB Ft
Original Produced Gas-Oil Ratio :
 Production Ratio :
 Separator Pressure and Temperature :
 Liquid Gravity @ 60°F :
Datum :

WELL CHARACTERISTICS

Elevation : 35.75 KB
Total Depth :
Producing Interval : 9213.5 - 9264.4 RKB Ft
Tubing Size and Depth : 4½" drillpipe
Open Flow Potential :
Last Reservoir Pressure : 4162 psig @ 9226.6 RKB Ft
 Date :
 Reservoir Temperature : 292°F @ 9226.6 RKB Ft
 Status of Well :
 Pressure Gauge :

SAMPLING CONDITIONS

Flowing Tubing Pressure : 2315 psig @ 170°F
Flowing Bottom Hole Pressure :
Primary Separator Pressure : 740 psig
Primary Separator Temperature : 105°F
Secondary Separator Pressure :
Secondary Separator Temperature :
Field Stock Tank Liquid Gravity : 51.2
Primary Separator Gas Production Rate : 15.086 MMSCF/Day
 Pressure Base : 14.696
 Temperature Base : 60°F
 Compressibility Factor (Fpv) : 1.0712
 Gas Gravity (Laboratory) : 0.858
 Gas Gravity Factor (Fg) : 1.0796
Stock Tank Liquid Production Rate @ 60°F : 570 STB/Day
Primary Separator Gas/Stock Tank Liquid Ratio :
 or :

Sampled by :
REMARKS :

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Well : Yolla #1, DST #1

QUALITY CHECK OF SAMPLES RECEIVED IN THE LABORATORY

SEPARATOR GAS

Cylinder #: A11019 5490 A11021
Opening Pressure: 857 psig @ 110°F 868 psig @ 100°F 866 psig @ 104°F

SEPARATOR LIQUID

Cylinder #: A11039 A12530
Opening Pressure: 585 psig @ 64°F 540 psig @ 65°F

Sample #: 1 2

<u>cm³ Mercury Injected</u>	<u>Pressure, psig</u>	<u>cm³ Mercury Injected</u>	<u>Pressure, psig</u>
0	620	0	585
1	622	1	587
2	624	2	590
3	625	3	595
4	626	4	598
5	627	5	602
6	654	6	605
6.5	780	7	800
7	895	7.5	940
7.5	1015	8	1075
8	1135	8.5	1215
		9	1350

Psat = 629 psig @ 64°F

Psat = 606 psig @ 64°F

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HYDROCARBON ANALYSIS OF SEPARATOR GAS SAMPLE TO UNDECANES PLUS

Cylinder #:

<u>Component</u>	<u>Mol Percent</u>	<u>GPM</u>
Helium	0.00	
Hydrogen Sulphide	0.00	
Carbon Dioxide	19.48	
Nitrogen	0.21	
Methane	66.72	
Ethane	7.71	2.057
Propane	3.53	0.969
iso-Butane	0.54	0.176
n-Butane	0.81	0.255
iso-Pentane	0.23	0.084
n-Pentane	0.22	0.080
Hexanes	0.17	0.069
Heptanes	0.17	0.172 (C7+)
Octanes	0.15	
Nonanes	0.05	
Decanes	0.01	
Undecanes plus	trace	
	<u>100.00</u>	<u>3.862</u>

Gas gravity (Air = 1.000):

0.858

Gross heating value (BTU
per cubic foot of dry gas
@ 14.696 psia and 60°F):

991

HYDROCARBON ANALYSIS OF SEPARATOR GAS SAMPLE

Cylinder #:

<u>Component</u>	<u>Mol Percent</u>	<u>GPM</u>
Hydrogen Sulphide	0.00	
Carbon Dioxide	19.38	
Nitrogen	0.20	
Methane	67.58	
Ethane	7.66	2.043
Propane	3.38	0.928
iso-Butane	0.51	0.167
n-Butane	0.75	0.236
iso-Pentane	0.19	0.069
n-Pentane	0.16	0.058
Hexanes	0.03	0.012
Heptanes plus	0.16	0.073
	<u>100.00</u>	<u>3.586</u>

Gas gravity (Air = 1.000): 0.842

Gross heating value (BTU
 per cubic foot of dry gas
 @ 14.696 psia and 60°F): 969

HYDROCARBON ANALYSIS OF SAMPLE TO UNDECANES PLUS

<u>Cylinder #:</u>	A11039	
<u>Component</u>	<u>Mol Percent</u>	<u>Weight Percent</u>
Hydrogen Sulphide	0.00	0.00
Carbon Dioxide	7.85	3.98
Nitrogen	0.03	0.01
Methane	13.96	2.58
Ethane	6.43	2.22
Propane	7.69	3.90
iso-Butane	2.52	1.69
n-Butane	5.09	3.40
iso-Pentane	2.96	2.46
n-Pentane	3.42	2.84
Hexanes	6.93	6.70
Heptanes	10.81	11.69
Octanes	7.82	9.45
Nonanes	5.50	7.28
Decanes	3.67	5.49
Undecanes plus	15.32	36.31
	<u>100.00</u>	<u>100.00</u>

Properties of Undecanes plus

API gravity @ 60°F	38.9
Density, gm/cc @ 60°F	0.8295
Molecular weight	208

HIGH TEMPERATURE DISTILLATION OF HEXANES PLUS
 FRACTION OF RESERVOIR FLUID SAMPLE TO UNDECANES PLUS

<u>Component</u>	<u>Cut Temp °C</u>	<u>Mol Percent</u>	<u>Weight Percent</u>	<u>Volume Percent</u>	<u>Density, gm/cc @ 60°F</u>	<u>°API @ 60°F</u>	<u>Mol Weight</u>
	IBP 49						
Hexanes	84	13.84	8.70	9.95	0.6903	73.3	84
Heptanes	112	21.61	15.21	16.00	0.7497	57.1	94
Octanes	138	15.62	12.28	12.56	0.7714	51.8	105
Nonanes	162	10.99	9.46	9.42	0.7930	46.8	115
Decanes	185	7.33	7.13	7.09	0.7936	46.6	130
Undecanes plus	FBP 185	30.61	47.22	44.98	0.8278	39.3	206
		<u>100.00</u>	<u>100.00</u>	<u>100.00</u>			

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HYDROCARBON ANALYSES OF SEPARATOR PRODUCTS
AND CALCULATED WELL STREAM TO UNDECANES PLUS

<u>Cylinder #:</u>	A11039	A5490	
<u>Component</u>	<u>Separator Liquid Mol Percent</u>	<u>Separator Gas Mol Percent</u>	<u>Well Stream Mol Percent</u>
Hydrogen Sulphide	0.00	0.00	0.00
Carbon Dioxide	7.85	19.48	18.86
Nitrogen	0.03	0.21	0.20
Methane	13.96	66.70	63.87
Ethane	6.43	7.71	7.64
Propane	7.69	3.53	3.75
iso-Butane	2.52	0.54	0.65
n-Butane	5.09	0.81	1.04
iso-Pentane	2.96	0.23	0.38
n-Pentane	3.42	0.22	0.39
Hexanes	6.93	0.18	0.54
Heptanes	10.81	0.17	0.74
Octanes	7.82	0.14	0.55
Nonanes	5.50	0.05	0.34
Decanes	3.67	0.01	0.21
Undecanes plus	15.32	0.02	0.84
	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>

Properties of Heptanes plus

API gravity @ 60°F	45.6		
Density, gm/cc @ 60°F	0.7984		0.793
Molecular weight	142	103 (assumed)	137

Calculated separator gas gravity (air = 1.000) = 0.858
Calculated gross heating value for separator gas
per cubic foot of dry gas @ 14.696 psia and 60°F = 991 BTU

Primary separator gas collected @ 740 psig and 105°F
Primary separator liquid collected @ 740 psig and 105°F

Primary separator gas/separator liquid ratio : 19233 SCF/Bbl @ 105°F
Primary separator liquid/stock tank liquid ratio : 1.331 Bbls @ 105°F/Bbl
Primary separator gas/well stream ratio : 946.58 MSCF/MMSCF
Stock tank liquid/well stream ratio : 37.0 Bbls/MMSCF

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PRESSURE - VOLUME RELATIONS @ 292°F

<u>Pressure,</u> <u>psig</u>	<u>Relative</u> <u>Volume (1)</u>	<u>Deviation</u> <u>Factor, Z</u>
6000	0.7109	1.049
5500	0.7492	1.013
5000	0.7949	0.978
4500	0.8551	0.947
4200	0.9000	0.931
4100	0.9167	0.925
4000	0.9343	0.920
3900	0.9540	0.916
3800	0.9743	0.912
3700	0.9959	0.908
<u>3683</u> *	1.0000	0.907
3662	1.0046	
3650	1.0083	
3634	1.0119	
3612	1.0179	
3563	1.0300	
3470	1.0543	
3301	1.1028	
3013	1.2000	
2681	1.3463	
2343	1.5419	
2038	1.7866	
1620	2.2776	
1245	3.0143	
900	4.2371	

* Saturation Pressure

(1) Relative Volume: V/V_{sat} is barrels @ indicated pressure per barrel @ saturation pressure.

DEPLETION STUDY @ 292°F

Hydrocarbon Analyses of Produced Well Stream - Mol Percent

Component	Reservoir Pressure - psig							
	³ 2683	3200	2700	2100	1500	1000	500	500*
Hydrogen Sulphide	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Carbon Dioxide	18.86	18.89	18.91	18.91	18.93	18.97	19.00	3.38
Nitrogen	0.20	0.21	0.22	0.22	0.21	0.21	0.20	0.21
Methane	63.87	64.18	64.40	64.57	64.56	64.33	63.42	7.72
Ethane	7.64	7.63	7.63	7.64	7.66	7.68	7.74	2.01
Propane	3.75	3.73	3.72	3.73	3.75	3.78	3.84	2.08
iso-Butane	0.65	0.61	0.59	0.59	0.61	0.67	0.76	0.62
n-Butane	1.04	1.00	0.99	0.99	0.99	1.04	1.12	1.21
iso-Pentane	0.38	0.36	0.35	0.34	0.36	0.39	0.44	0.70
n-Pentane	0.39	0.37	0.36	0.36	0.38	0.41	0.46	0.85
Hexanes	0.54	0.53	0.51	0.50	0.51	0.52	0.60	1.88
Heptanes	0.74	0.72	0.71	0.71	0.70	0.71	0.75	3.94
Octanes	0.55	0.53	0.51	0.49	0.49	0.49	0.63	5.31
Nonanes	0.34	0.32	0.30	0.29	0.28	0.28	0.36	4.74
Decanes	0.21	0.19	0.18	0.16	0.15	0.15	0.25	4.35
Undecanes plus	0.84	0.73	0.62	0.50	0.42	0.37	0.43	61.00
	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>
Molecular weight of heptanes plus	137	133	129	124	121	120	123	199
Density of heptanes plus	0.793	0.788	0.784	0.779	0.777	0.776	0.778	0.840
<u>Deviation Factor-Z</u>								
Equilibrium gas	0.907	0.898	0.896	0.906	0.923	0.945	0.972	
Two-phase	0.907	0.891	0.886	0.889	0.904	0.921	0.947	
Gas viscosity	0.0269	0.0240	0.0214	0.0188	0.0167	0.0153	0.0142	
<u>Well Stream produced -</u>								
Cumulative percent of initial	0	11.522	24.781	41.636	58.871	72.953	86.653	

* Composition of equilibrium liquid phase

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CALCULATED CUMULATIVE RECOVERY DURING DEPLETION

Cumulative Recovery per MMSCF of Original Fluid	Initial in Place	Reservoir Pressure - psig						
		3683	3200	2700	2100	1500	1000	500
<u>Well Stream - MSCF</u>	1000	0	115.22	247.81	416.36	588.71	729.53	866.53
<u>Normal Temperature Separation *</u>								
Stock Tank Liquid - Barrels	41.43	0	4.33	8.86	14.05	19.05	23.09	27.93
Primary Separator Gas - MSCF	941.65	0	109.02	235.00	395.73	560.05	694.85	824.14
Second Stage Gas - MSCF	19.11	0	2.02	4.18	6.74	9.28	11.39	13.97
Stock Tank Gas - MSCF	3.68	0	0.39	0.80	1.29	1.79	2.22	2.75
<u>Total "Plant Products" in Primary Separator Gas - Gallons</u>								
Ethane	1939	0	224	483	813	1152	1430	1699
Propane	905	0	105	226	382	542	674	801
Butanes (total)	399	0	42	97	163	233	294	356
Pentanes plus	274	0	32	69	116	167	212	254
<u>Total "Plant Products" in Second Stage Gas - Gallons</u>								
Ethane	78	0	8	17	28	38	47	57
Propane	66	0	7	14	23	32	40	49
Butanes (total)	37	0	4	8	13	18	22	27
Pentanes plus	24	0	3	5	8	12	15	19
<u>Total "Plant Products" in Well Stream - Gallons</u>								
Ethane	2038	0	234	504	848	1200	1488	1771
Propane	1029	0	118	253	426	603	749	894
Butanes (total)	539	0	59	126	211	299	376	458
Pentanes plus	1963	0	208	430	690	945	1153	1397

* Primary separator @ 740 psig and 105°F, second stage @ 50 psig and 90°F, stock tank @ 90°F.

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CALCULATED INSTANTANEOUS RECOVERY DURING DEPLETION

	Reservoir Pressure - psig						
	3683	3200	2700	2100	1500	1000	500
<u>Normal Temperature Separation *</u>							
Stock Tank Liquid Gravity, °API @ 60°F	54.7	55.9	56.8	58.2	59.0	59.7	59.6
Separator Gas/Well Stream Ratio, MSCF/MMSCF							
Primary Separator Gas Only	941.65	946.21	950.10	953.64	955.26	954.93	943.76
Primary and Second Stage Separator Gases	960.76	963.78	966.39	968.82	969.98	969.89	962.60
Separator gas/Stock Tank Liquid Ratio, SCF/STB							
Primary Separator Gas Only	22730	25173	27808	30961	32950	33290	26690
Primary and Second Stage Separator Gases	23191	25640	28285	31454	33458	33812	27223
<u>GPM from Smooth Well Stream Compositions</u>							
Ethane plus	5.569	5.381	5.222	5.105	5.063	5.111	5.499
Propane plus	3.531	3.346	3.197	3.067	3.020	3.063	3.434
Butanes plus	2.502	2.322	2.176	2.043	1.991	2.025	2.380
Pentanes plus	1.963	1.809	1.672	1.539	1.480	1.480	1.780

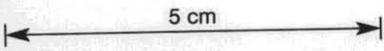
* Primary separator @ psig and °F, second stage @ psig and °F, stock tank @ °F.

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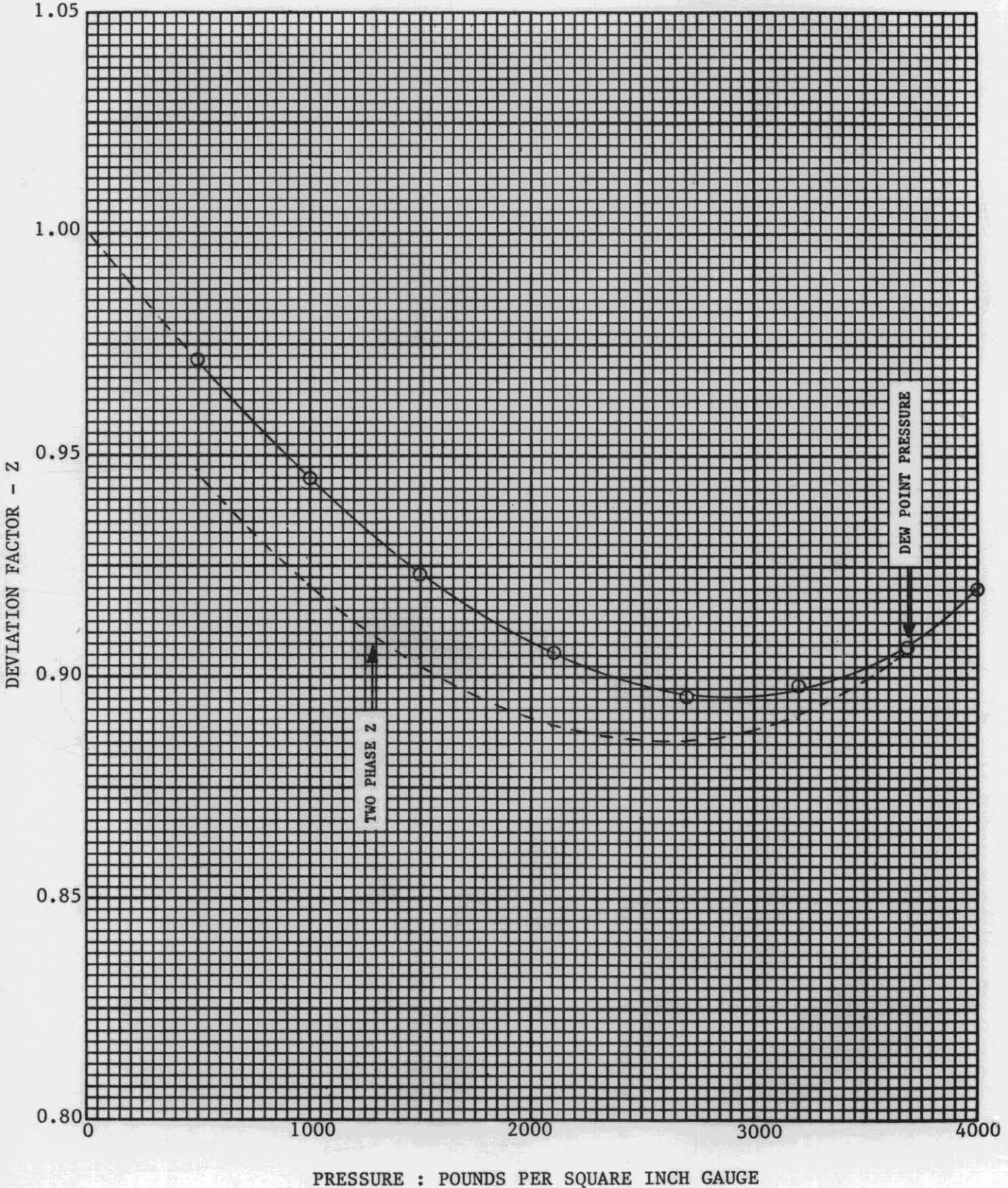
RETROGRADE CONDENSATION DURING GAS DEPLETION @ 292°F

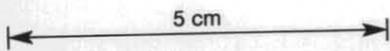
<u>Pressure,</u> <u>psig</u>	<u>Retrograde Liquid</u> <u>Volume Percent</u> <u>of Hydrocarbon</u> <u>Pore Space</u>
<u>3683</u> Dew point pressure	0.00
3200	0.36
2700	0.66
2100	0.87
1500	0.97
1000	0.97
500	0.88



DEVIATION FACTOR Z OF GAS PHASE DURING DEPLETION @ 292°F

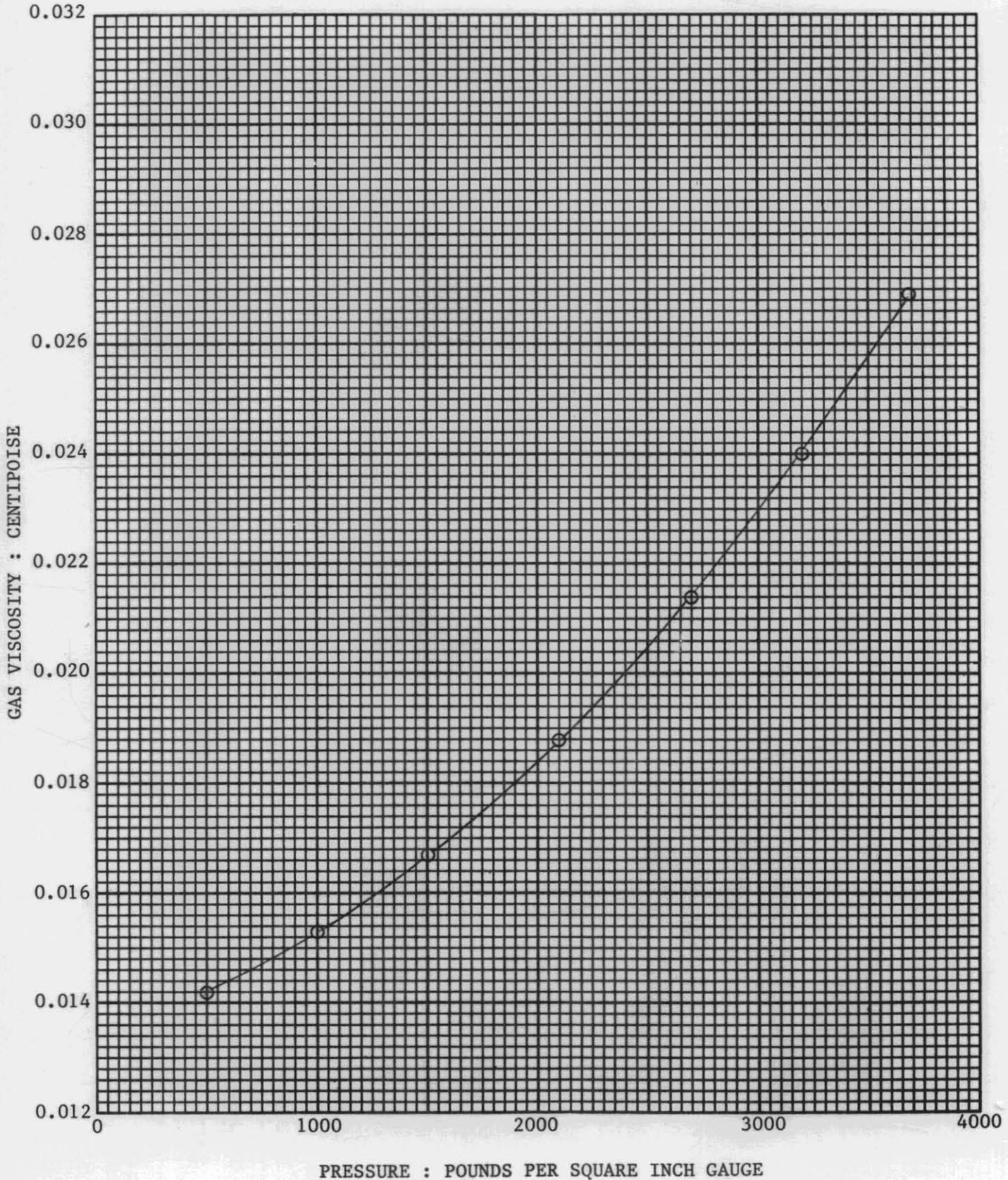
Company Amoco Australia Petroleum Co. Formation _____
Well Yolla #1, DST. #1 State Tasmania
Field Wildcat Country Australia

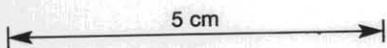




GAS VISCOSITY DURING DEPLETION @ 292°F

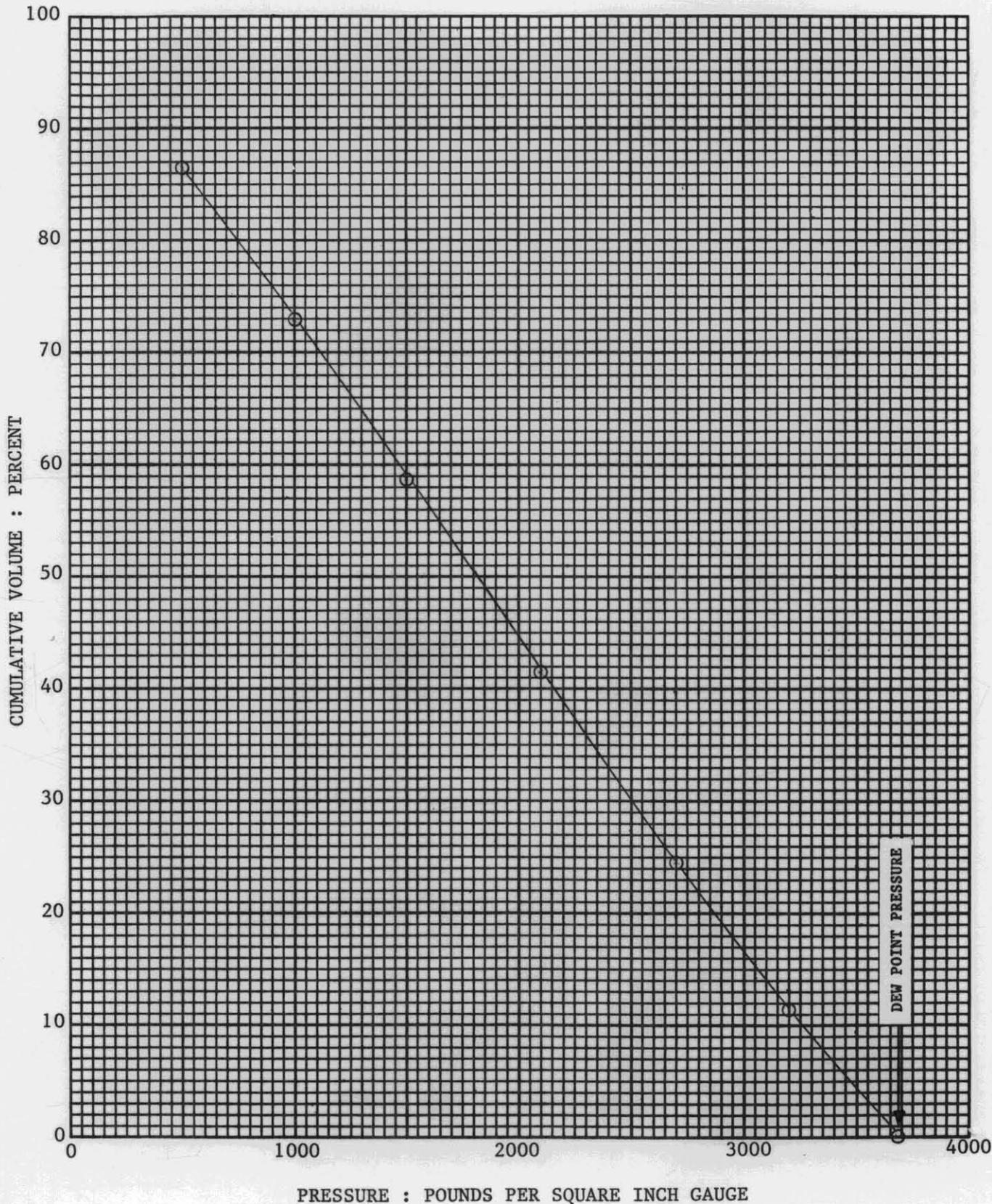
Company Amoco Australia Petroleum Co. Formation _____
Well Yolla #1, DST #1 State Tasmania
Field Wildcat Country Australia

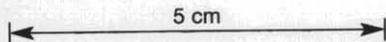




VOLUME OF GAS PHASE PRODUCED DURING DEPLETION @ 292°F

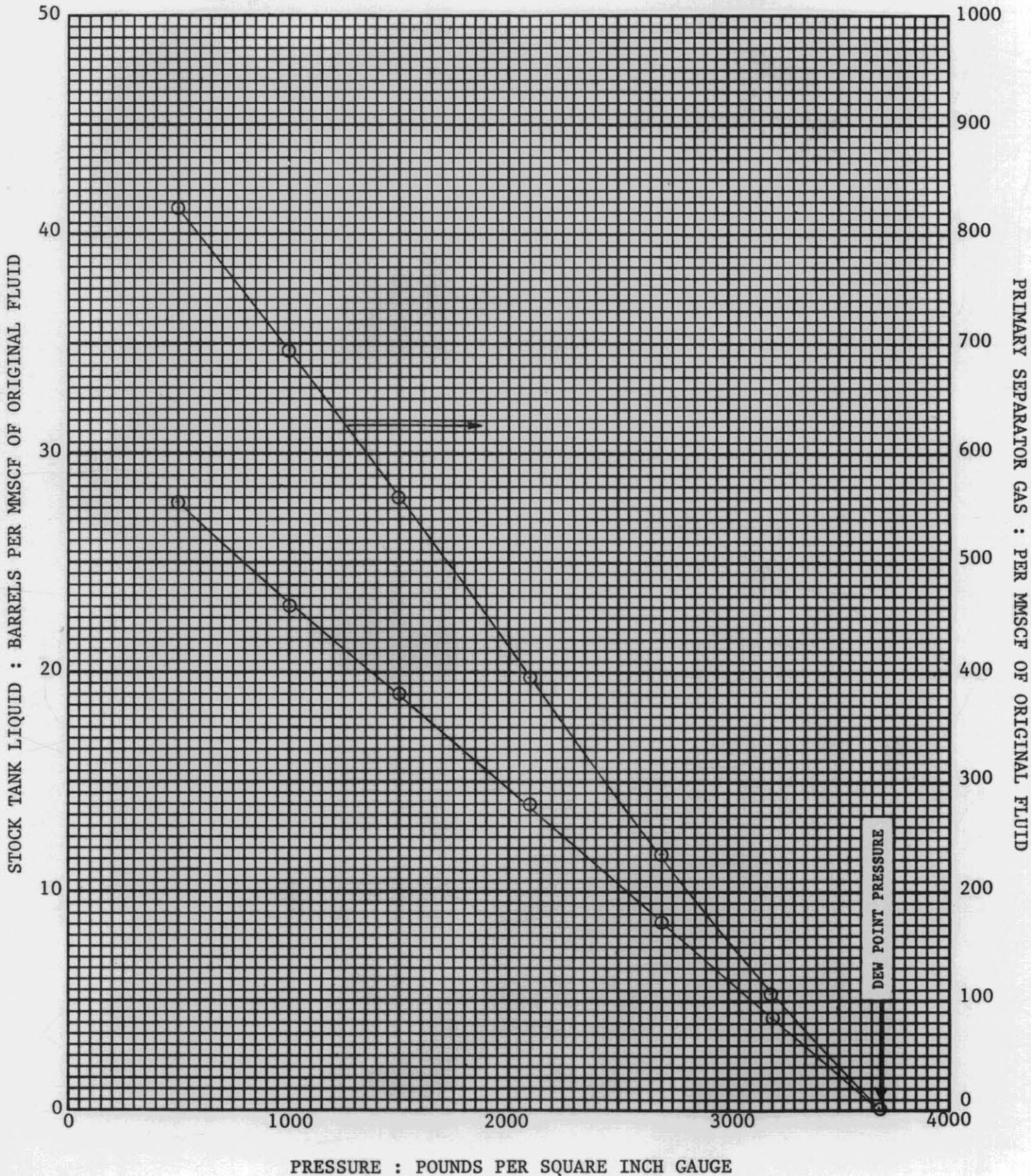
Company Amoco Australia Petroleum Co. Formation _____
Well Yolla #1, DST #1 State Tasmania
Field Wilcat Country Australia

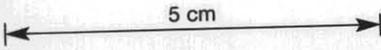




CUMULATIVE RECOVERY DURING DEPLETION @ 292°F

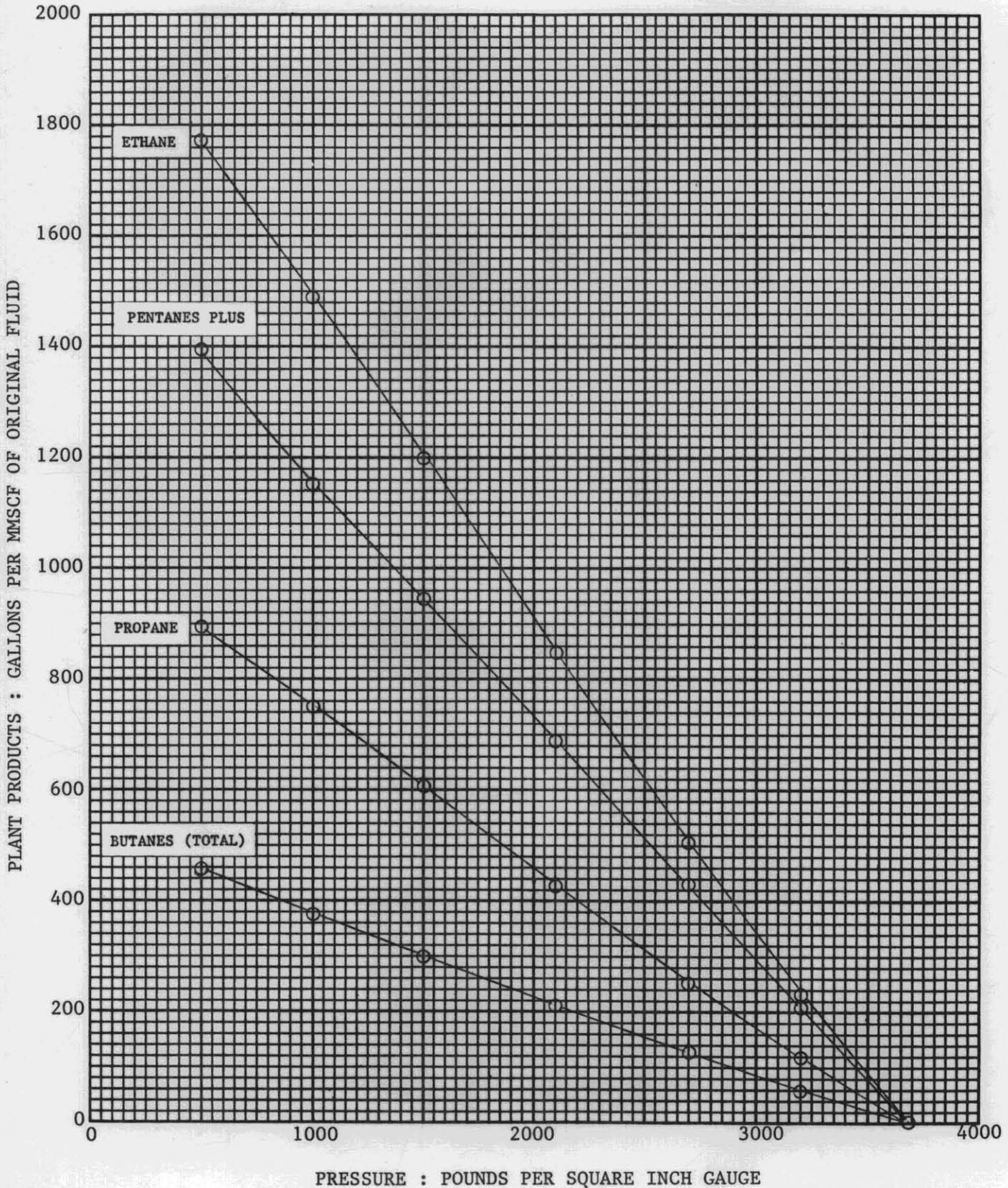
Company Amoco Australia Petroleum Co. Formation _____
 Well Yolla #1, DST #1 State Tasmania
 Field Wildcat Country Australia

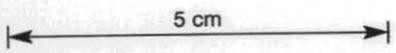




CUMULATIVE RECOVERY PLANT PRODUCTS IN WELL STREAM @ 292°F

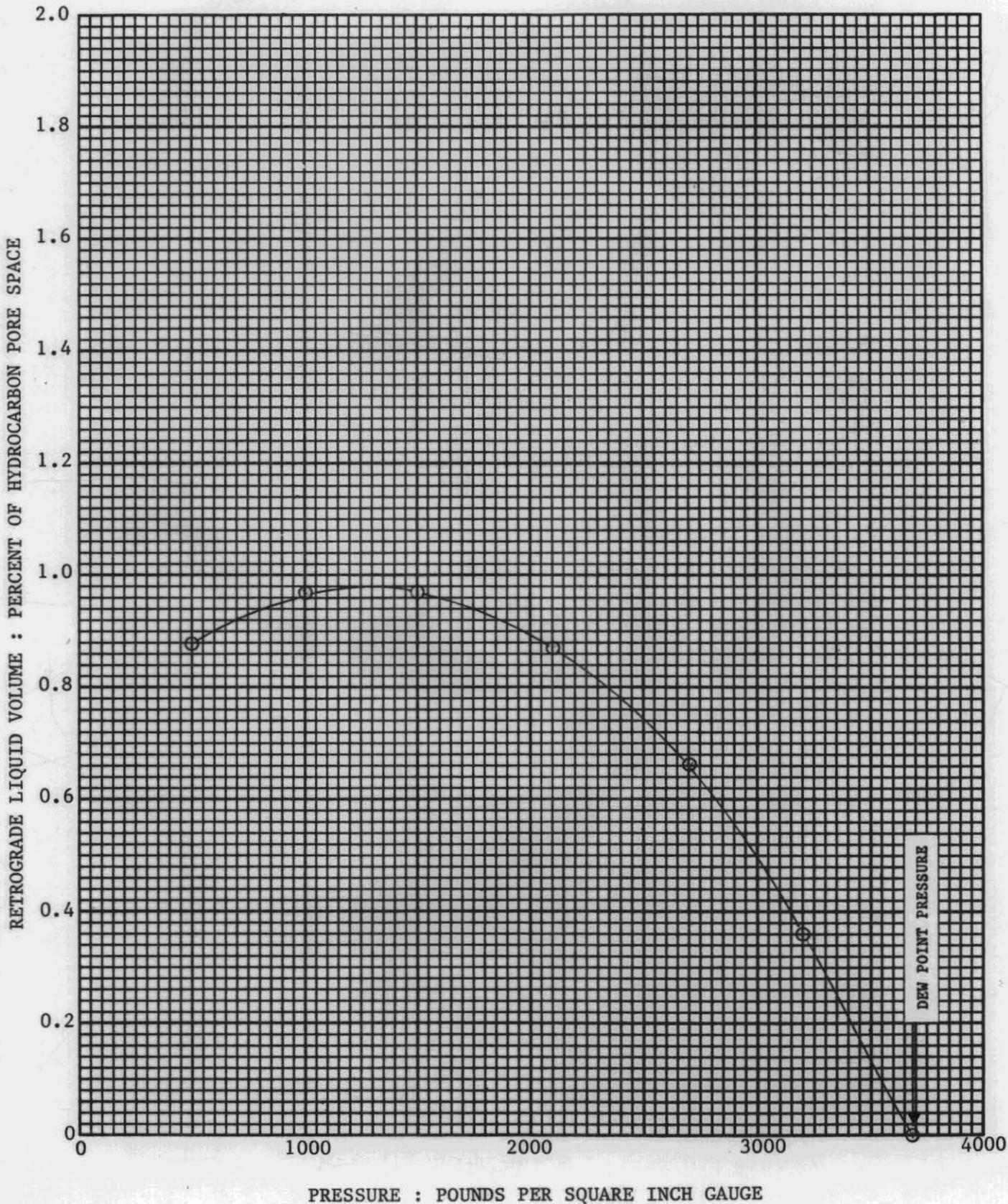
Company Amoco Australia Petroleum Co. Formation _____
Well Yolla #1, DST #1 State Tasmania
Field Wildcat Country Australia





RETROGRADE CONDENSATE DURING DEPLETION @ 292°F

Company Amoco Australia Petroleum Co. Formation _____
 Well Yolla #1, DST #1 State Tasmania
 Field Wildcat Country Australia



310023

AMOCO AUSTRALIA PETROLEUM CO.

YOLLA #1, DST #2

RESERVOIR FLUID STUDY

R14/86

310024

CORE LABORATORIES

Petroleum Reservoir Engineering



11th February, 1986

AMOCO AUSTRALIA PETROLEUM CO.,
Level 12,
15 Blue Street,
NORTH SYDNEY, N.S.W. 2060

Attention : C.W. Waring

Subject : Reservoir Fluid Study
Well : Yolla #1, DST #2
File : AFL 85056B

Dear Sir,

Samples of separator gas and stock tank liquid were submitted to our Adelaide laboratory for use in a reservoir fluid study. The results of this study, as requested by Amoco, are presented in the following report.

The hydrocarbon composition of the separator gas in cylinders A11585 and A12527 was measured by routine gas chromatography, with helium analysis conducted using hydrogen as a carrier. This composition was then extended until no component was measurable by extended gas chromatography.

These results are reported along with the opening pressure of the cylinders on pages two and three. The composition of both the 5.30 and 10.00 stock tank liquid samples was measured through eicosanes plus by high temperature distillation and these results are reported on pages four and five.

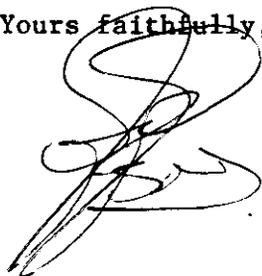
A portion of each stock tank oil sample was injected into a temperature programmed chromatograph and run on capillary column, using flame ionization as means of detection. This "Fingerprinting Analysis" is a quantitative determination of the normal paraffins, isoprenoids (farnesane, pristane and phytane) and the key aromatic hydrocarbon contents. A ratio of each component's concentration to that of normal tridecane is presented to exclude the possibility of differences due to weathering. This data is tabulated on page seven and depicted graphically on page eight.

Basic crude tests were performed on the stock tank oil as requested by Amoco and this data is reported on page six.

Page 11

We thank Amoco Australia Petroleum Co. for the opportunity to be of service. Please do not hesitate in contacting us should you require any further information.

Yours faithfully,

A handwritten signature in black ink, appearing to be 'Jan Bon', written over the closing 'Yours faithfully,'.

Jan Bon,
Manager.

JB/gm/dc

CORE LABORATORIES
Petroleum Reservoir Engineering

Page : 1 of 8
File : AFL 85056B

Company : Amoco Australia Petroleum Co. Date Sampled : 22nd September, 1985
Well : Yolla #1, DST #2 State : Tasmania
Field : Wildcat Country : Australia

FORMATION CHARACTERISTICS

Formation Name :
* Original Reservoir Pressure : 2695 psig @ 6012 ft
Original Produced Gas-Oil Ratio :
Production Ratio :
Separator Pressure and Temperature :
Liquid Gravity @ 60°F :
Datum :

WELL CHARACTERISTICS

Elevation : 35.75 ft RKB
Total Depth :
Producing Interval : 6002.5 - 6019 ft RKB
Tubing Size : 4½ inch drill pipe
Open Flow Potential :
Last Reservoir Pressure : Original Test
Date :
** Reservoir Temperature : 209°F @ 6012 ft RKB
Status of Well :
Pressure Gauge :

SAMPLING CONDITIONS

Flowing Tubing Pressure : 1200 psig @ 154°F
Flowing Bottom Hole Pressure :
Primary Separator Pressure : 130 psig
Primary Separator Temperature : 128°F
Secondary Separator Pressure :
Secondary Separator Temperature :
Field Stock Tank Liquid Gravity :
Primary Separator Gas Production Rate : 2200 MSCF/Day
Pressure Base : 14.73 psia
Temperature Base : 60°F
Compressibility Factor (Fpv) : 1.0135
Gas Gravity (Field) : 0.811
Gas Gravity Factor (Fg) : 1.11042
Stock Tank Liquid Production Rate @ 60°F : 1600 Bbls/Day
Primary Separator Gas/Stock Tank Liquid Ratio : 1375 SCF/Bbl
or : 727.27 Bbl/MMSCF
Sampled by : Otis Engineering
REMARKS :

- * Original reservoir pressure based on RFT point @ 6012 ft.
** Corrected from RPG gauge @ 5807 ft to 6012 ft using 2.5°/100 ft.

HYDROCARBON ANALYSIS OF SEPARATOR GAS SAMPLE TO TRIDECANES PLUSCylinder #:

A11585

Opening Pressure:

145 psig @ 128°F

<u>Component</u>	<u>Mol Percent</u>	<u>GPM</u>
Helium	trace	
Hydrogen Sulphide	0.00	
Carbon Dioxide	7.91	
Nitrogen	0.72	
Methane	71.72	
Ethane	9.41	2.510
Propane	5.59	1.534
iso-Butane	1.09	0.356
n-Butane	1.50	0.472
iso-Pentane	0.52	0.190
n-Pentane	0.47	0.170
Hexanes	0.40	0.163
Heptanes	0.34	0.303 (C7+)
Octanes	0.21	
Nonanes	0.06	
Decanes	0.03	
Undecanes	0.02	
Dodecanes	0.01	
Tridecanes plus	trace	
	<u>100.00</u>	<u>5.698</u>

Gas gravity (Air = 1.000):

0.819

Gross heating value (BTU
per cubic foot of dry gas
@ 14.696 psia and 60°F):

1212

HYDROCARBON ANALYSIS OF SEPARATOR GAS SAMPLE TO TRIDECANES PLUS

Cylinder #:

A12527

Opening Pressure:

257 psig @ 130°F

<u>Component</u>	<u>Mol Percent</u>	<u>GPM</u>
Helium	0.00	
Hydrogen Sulphide	0.00	
Carbon Dioxide	7.43	
Nitrogen	0.40	
Methane	73.83	
Ethane	8.99	2.398
Propane	5.38	1.477
iso-Butane	1.00	0.326
n-Butane	1.32	0.415
iso-Pentane	0.43	0.157
n-Pentane	0.38	0.137
Hexanes	0.31	0.126
Heptanes	0.26	0.240 (C7+)
Octanes	0.16	
Nonanes	0.06	
Decanes	0.02	
Undecanes	0.02	
Dodecanes	0.01	
Tridecanes plus	trace	
	<u>100.00</u>	<u>5.276</u>

Gas gravity (Air = 1.000):

0.796

Gross heating value (BTU
per cubic foot of dry gas
@ 14.696 psia and 60°F):

1193

HIGH TEMPERATURE DISTILLATION OF
RESERVOIR FLUID SAMPLE TO EICOSANES PLUS

Identification:

5.30 Sample

<u>Component</u>	<u>Cut Temp °C</u>	<u>Mol Percent</u>	<u>Weight Percent</u>	<u>Volume Percent</u>	<u>Density, gm/cc @ 60°F</u>	<u>°API @ 60°F</u>	<u>Mol Weight</u>
Pentanes minus	IBP 49	1.99	0.91	1.15	0.6300	92.9	74
Hexanes	84	7.18	3.88	4.42	0.6960	71.6	87
Heptanes	112	15.23	8.98	9.58	0.7442	58.5	95
Octanes	138	13.99	9.12	9.49	0.7631	53.8	105
Nonanes	162	10.11	7.34	7.51	0.7764	50.6	117
Decanes	185	7.56	6.05	6.13	0.7845	48.7	129
Undecanes	206	5.42	4.84	4.88	0.7875	48.0	144
Dodecanes	227	5.90	5.94	5.90	0.7995	45.3	162
Tridecanes	247	4.47	4.94	4.88	0.8040	44.3	178
Tetradecanes	266	3.56	4.26	4.19	0.8070	43.7	193
Pentadecanes	285	3.62	4.60	4.51	0.8100	43.0	205
Hexadecanes	304	2.75	3.86	3.78	0.8121	42.6	226
Heptadecanes	322	3.16	4.72	4.61	0.8141	42.1	241
Octadecanes	338	0.97	1.52	1.47	0.8175	41.4	252
Nonadecanes	353	1.11	1.81	1.75	0.8189	41.1	261
Eicosanes plus	FBP 353	12.98	27.23	25.75	0.8396	36.9	338
		<u>100.00</u>	<u>100.00</u>	<u>100.00</u>			

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310029

HIGH TEMPERATURE DISTILLATION OF
RESERVOIR FLUID SAMPLE TO EICOSANES PLUS

Identification:

10.00 Sample

<u>Component</u>	<u>Cut Temp °C</u>	<u>Mol Percent</u>	<u>Weight Percent</u>	<u>Volume Percent</u>	<u>Density, gm/cc @ 60°F</u>	<u>°API @ 60°F</u>	<u>Mol Weight</u>
Pentanes minus	IBP 49	2.05	0.87	1.12	0.6300	92.9	75
Hexanes	84	3.90	1.90	2.25	0.6859	74.6	86
Heptanes	112	11.26	6.25	6.82	0.7431	58.7	98
Octanes	138	9.58	5.75	6.10	0.7650	53.3	106
Nonanes	162	7.63	5.06	5.22	0.7864	48.3	117
Decanes	185	6.16	4.64	4.78	0.7888	47.7	133
Undecanes	206	4.47	3.73	3.77	0.8014	44.9	147
Dodecanes	227	5.85	5.37	5.42	0.8037	44.4	162
Tridecanes	247	6.74	6.65	6.58	0.8197	41.0	174
Tetradecanes	266	5.79	6.27	6.18	0.8230	40.3	191
Pentadecanes	285	7.10	8.28	8.11	0.8290	39.0	206
Hexadecanes	304	5.73	7.18	6.99	0.8340	38.0	221
Heptadecanes	322	6.17	8.21	7.95	0.8386	37.1	235
Octadecanes	338	5.13	7.35	7.11	0.8392	37.0	253
Nonadecanes	353	4.65	7.06	6.78	0.8452	35.8	268
Eicosanes plus	FBP 353	7.79	15.43	14.82	0.8470	35.4	350
		<u>100.00</u>	<u>100.00</u>	<u>100.00</u>			

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310030

BASIC CRUDE TESTS ON STOCK TANK OIL

Sample:	5.30	10.00
Pour Point:	64°F	59°F
Wax Content:	1.099%	1.549%
Kinematic Viscosity: (centistokes)	No movement @ 60°F	4.477 @ 60°F
	2.389 @ 80°F	3.736 @ 80°F
	1.993 @ 100°F	2.772 @ 100°F
	1.287 @ 150°F	1.152 @ 150°F
	0.934 @ 212°F	0.934 @ 212°F
Water and Sediment (BS&W):	1.125%	1.325%
Specific Gravity 60/60°F:	0.7947	0.8139

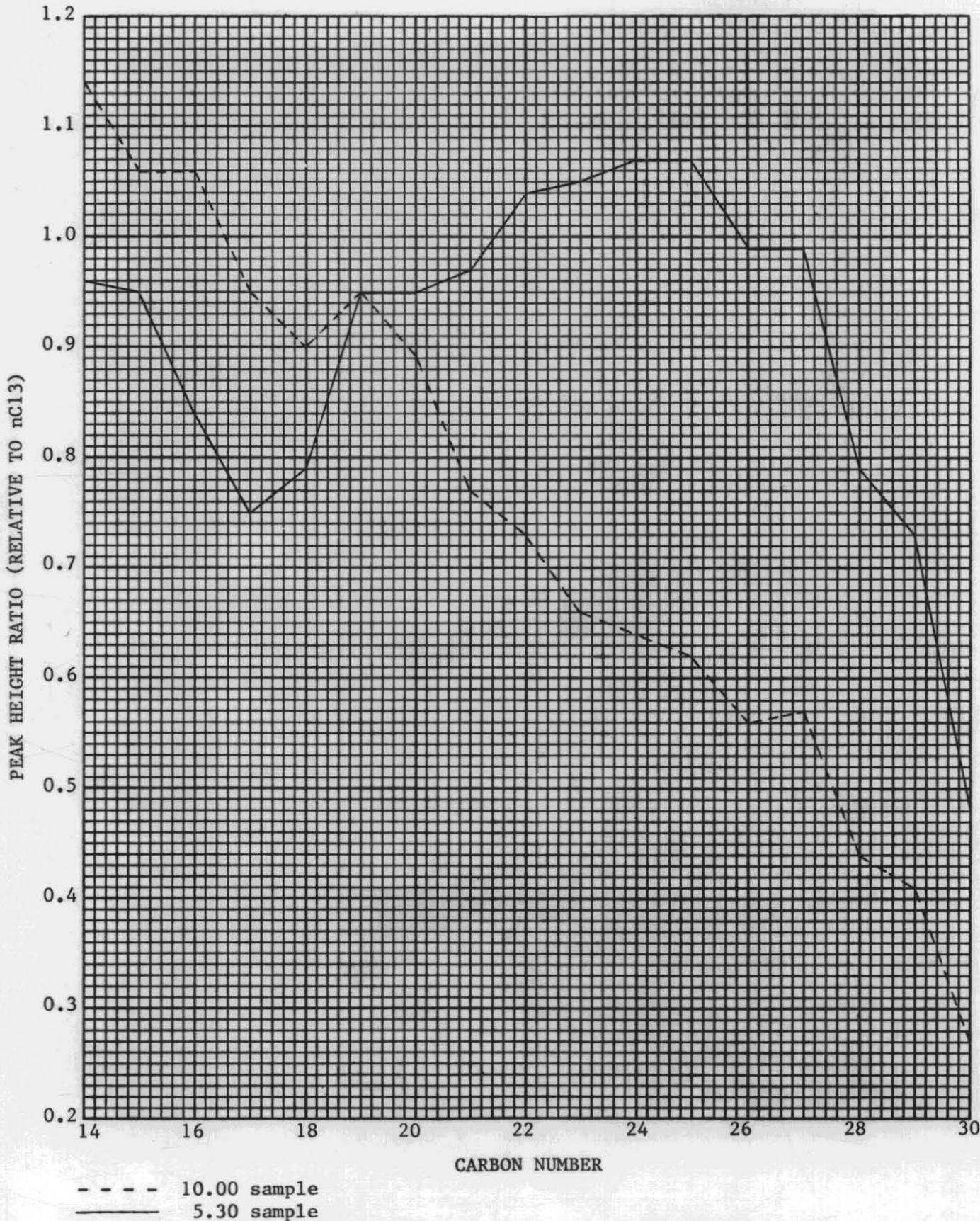
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FINGERPRINT ANALYSIS - RELATIVE RATIO DATA

	<u>5.30 Sample</u>	<u>10.00 Sample</u>
nC6/nC13	1.09	0.68
MCP/nC7	0.77	0.79
CH/nC7	0.74	0.74
nC7/nC13	0.76	0.48
MCH/nC8	1.36	1.42
Tol/nC8	0.89	1.08
nC8/nC13	1.15	0.70
Ethyl BZ/nC9	0.13	0.12
P&M Xyl/nC9	1.11	1.14
O-Xyl/nC9	0.48	0.45
nC9/nC13	1.17	0.81
i-Propyl BZ/nC10	0.21	0.19
n-Propyl BZ/nC10	0.10	0.10
1,2,4 Trim BZ/nC10	0.57	0.60
nC10/nC13	1.18	0.79
IM3 Propyl BZ/nC11	0.11	0.13
Butyl BZ/nC11	0.11	0.11
1,3 Dim 4ET BZ/nC11	0.15	0.16
nC11/nC13	1.11	0.79
nC12/nC13	1.04	0.87
<u>Farnesane/nC14</u>	0.47	0.51
nC14/nC13	0.96	1.14
nC15/nC13	0.95	1.06
nC16/nC13	0.84	1.06
nC17/nC13	0.75	0.95
<u>Pristane/nC17</u>	1.21	0.97
nC18/nC13	0.79	0.90
<u>Phytane/nC18</u>	0.23	0.28
nC19/nC13	0.95	0.95
nC20/nC13	0.95	0.89
nC21/nC13	0.97	0.77
nC22/nC13	1.04	0.73
nC23/nC13	1.05	0.66
nC24/nC13	1.07	0.64
nC25/nC13	1.07	0.62
nC26/nC13	0.99	0.56
nC27/nC13	0.99	0.57
nC28/nC13	0.79	0.44
nC29/nC13	0.73	0.41
nC30/nC13	0.48	0.27

5 cm

Company Amoco Australia Petroleum Co. Formation _____
Well Yolla #1, DST #2 State Tasmania
Field Wildcat Country Australia



310034

AMOCO AUSTRALIA PETROLEUM CO.

YOLLA #1, DST 2A

RESERVOIR FLUID STUDY

R55/86

CORE LABORATORIES

Petroleum Reservoir Engineering



4th March, 1986

AMOCO AUSTRALIA PETROLEUM CO.,
10 Lampton Avenue,
DERWENT PARK, TAS. 7000

Attention : Mr. W.C. Cowan

Subject : Reservoir Fluid Study
Well : Yolla #1, DST 2A
File : AFL 85061

Dear Sir,

Samples of separator gas and separator liquid were submitted to our Adelaide laboratory for use in a reservoir fluid study. The results of this study as requested by Amoco Australia are presented in the following report.

As a quality check, the room temperature saturation pressure of each separator liquid sample was initially determined. At 64°F, the samples in cylinders OT152T and OT066T were found to have bubble point pressures of 80 psig and 50 psig respectively. Cylinder of OT152T was selected for use in reservoir fluid study. The results are reported and depicted graphically on pages two and three along with the opening pressures of all sample cylinders. The hydrocarbon composition of the separator gas was measured through undecanes plus by routine gas chromatography. The hydrocarbon composition of the separator liquid was measured through heptanes plus and extended through undecanes plus by means of a high temperature distillation.

After correcting the reported field separator gas production rate the separator gas and liquid samples were physically recombined to their producing gas/liquid ratio of 3368 standard cubic feet of primary separator gas per barrel of primary separator liquid at 90 psig and 102°F. This gas/liquid ratio was also used in conjunction with measured hydrocarbon compositions of the separator products to calculate the hydrocarbon composition of the producing well stream material. The compositional data is presented on pages four through seven.

The recombined fluid was then charged to a high pressure visual cell, held at the reservoir temperature of 209°F. At this temperature the fluid was

Page ii

subjected to a constant composition expansion and found to have a saturation pressure of 4954 psig. The pressure volume data can be found on page eight.

This information was communicated to Amoco and a decision was made to equilibrate the fluid to reservoir conditions of 2695 psig and 209°F. The resulting gas and liquid were isolated and used in individual reservoir fluid studies. The hydrocarbon composition of the separated gas sample was measured through undecanes plus by routine gas chromatography and is reported on page nine. This reservoir fluid was then charged to a high pressure visual cell and subjected to constant composition expansion of 209°F during which a retrograde dew point pressure of 2695 psig was observed. Presented on page 9 are the results of the pressure-volume measurements, along with the gas deviation factor at the dew point pressure and above.

The reservoir fluid was then subjected to constant volume depletion at a temperature of 209°F. After determining the saturated sample volume, a series of expansions and constant pressure displacements were made, with each displacement terminating at the original saturated volume. The quantity of retrograde liquid condensed during this depletion was measured and is presented on page fourteen of this report.

A larger volume of recombined reservoir fluid was charged to another high pressure cell and subjected to an identical depletion process. This time each displaced gas phase underwent compositional analysis, deviation factor measurement and determination of the produced volume. A summary of the constant volume depletion test data may be found on page eleven, including calculated gas viscosities. The abovementioned compositional and volumetric data were used along with published equilibrium gas/liquid ratio values to calculate the surface recoveries that can be expected as the reservoir pressure declines. These calculations were performed on the basis of one MMSCF of original reservoir fluid in place at the retrograde dew point pressure. A plant efficiency of 100 percent was assumed in these calculations the results of which can be found on pages twelve and thirteen.

The hydrocarbon composition through undecanes plus of the separated liquid sample is reported on page twenty-one. This reservoir fluid sample was also charged to a high pressure visual cell at the reservoir temperature of 209°F.

This sample was then subjected to a constant composition expansion during which a bubble point pressure of 2710 psig was observed. The volumetric and pressure volume data is reported on page twenty-two and twenty-three respectively and depicted graphically on page thirty-one.

This fluid was then subjected to differential pressure depletion. During this test, the fluid was found to contain 998 cubic feet of gas per barrel of residual oil for a relative oil volume of 1.601 barrels of saturated oil per barrel of residual oil. The results of the differential vaporisation

Page iii

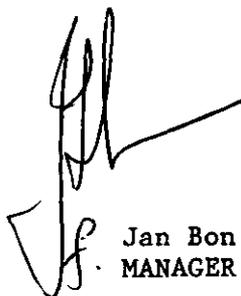
together with the properties of the evolved gases are presented on page twenty-four and depicted graphically on pages thirty-two through thirty-five.

The hydrocarbon compositions of the gases evolved during this differential vaporization were measured through undecanes plus and are reported on pages twenty-five through twenty-nine.

A single-stage separator test were performed to determine the effects of separator pressure upon gas-oil ratio, stock tank oil gravity and formation volume factor. This data is reported on page thirty.

It has been a pleasure to perform this reservoir fluid study for Amoco Australia Petroleum Co. Should you have any questions, or if we may be of further assistance, please do not hesitate to call on us.

Yours sincerely,



Jan Bon
MANAGER

CORE LABORATORIES
Petroleum Reservoir Engineering

Page : 1 of 35
File : AFL 85061

Company : Amoco Australia Petroleum Co. Date Sampled : 4th October, 1985
Well : Yolla #1, DST #2A State : Tasmania
Field : Wildcat Country : Australia

FORMATION CHARACTERISTICS

Formation Name :
* Original Reservoir Pressure : 2695 psig @ 6012 ft
Original Produced Gas-Oil Ratio :
 Production Ratio :
 Separator Pressure and Temperature :
 Liquid Gravity @ 60°F :
Datum :

WELL CHARACTERISTICS

Elevation : 35.75 ft RKB
Total Depth :
Producing Interval : 6013 - 6015 ft RKB
Tubing Size : 4½ inch drill pipe
Open Flow Potential :
Last Reservoir Pressure : Original Test
 Date :
** Reservoir Temperature : 209°F @ 6012 ft RKB
 Status of Well :
 Pressure Gauge :

SAMPLING CONDITIONS

Flowing Tubing Pressure : 1210 psig @ 86°F
Flowing Bottom Hole Pressure :
Primary Separator Pressure : 90 psig
Primary Separator Temperature : 102°F
Secondary Separator Pressure :
Secondary Separator Temperature :
Field Stock Tank Liquid Gravity : 45.5°API @ 60°F
Primary Separator Gas Production Rate : 1020 MSCF/Day
 Pressure Base : 14.73 psia
 Temperature Base : 60°F
 Compressibility Factor (Fpv) : 1.0129
 Gas Gravity (Field) : 0.870
 Gas Gravity Factor (Fg) : 1.07832
Stock Tank Liquid Production Rate @ 102°F : 302 Bbls/Day
Primary Separator Gas/Separator Liquid Ratio : 3377 SCF/Bbl
 or : 296.08 Bbl/MMSCF

Sampled by : Otis Engineering
REMARKS :

* Original reservoir pressure based on RFT point @ 6012 ft.
** Corrected from RPG gauge @ 5807 ft to 6012 ft using 2.5°/100 ft.

CORE LABORATORIES
Petroleum Reservoir Engineering

Page : 2 of 35
File : AFL 85061
Well : Yolla #1, DST 2A

QUALITY CHECK OF SAMPLES RECEIVED IN THE LABORATORY

SEPARTOR LIQUID SAMPLES:

<u>Cylinder #:</u>	OT152T	OT066T
<u>Opening Pressure:</u>	40 psig @ 64°F	35 psig @ 68°F
<u>Sample #:</u>	1	2

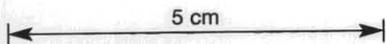
<u>cm³ Mercury Injected</u>	<u>Pressure, psig</u>	<u>cm³ Mercury Injected</u>	<u>Pressure, psig</u>
0	80	0	50
1	80	1	50
2	80	2	50
3	80	3	50
4	80	4	50
5	205	5	50
5.5	395	6	270
6	595	6.5	460
6.5	795	7	645
7	970	7.5	835
7.5	1160	8	1015

Psat = 80 psig @ 64°F

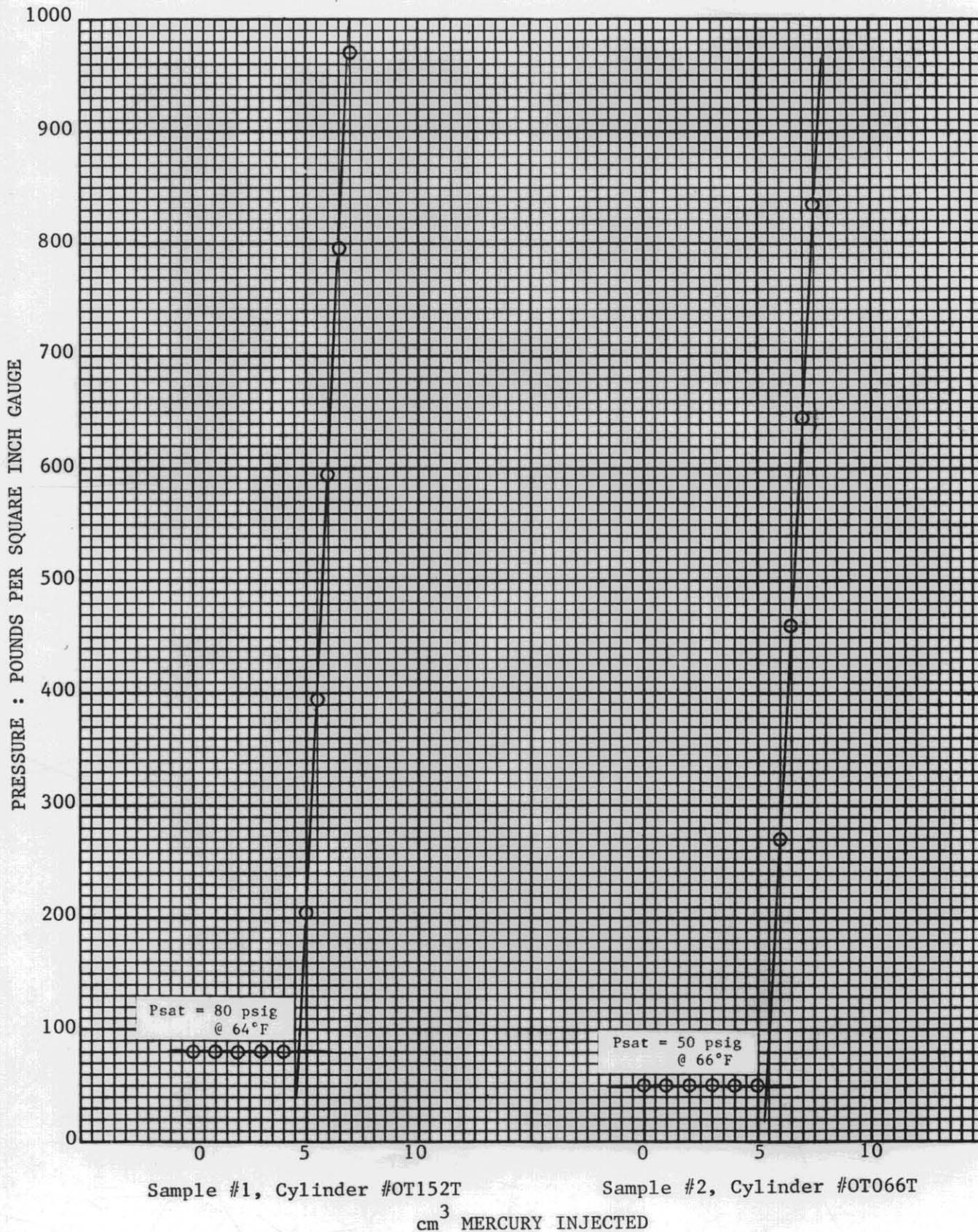
Psat = 50 psig @ 66°F

SEPARATOR GAS SAMPLES:

<u>Cylinder #:</u>	A12459	A11587	A8659
<u>Opening Pressure:</u>	102 psig @ 103°F	102 psig @ 102°F	101 psig @ 100°F



Company Amoco Australia Petroleum Co. Formation _____
 Well Yolla #1, DST 2A State Tasmania
 Field Yolla Country Australia



HYDROCARBON ANALYSIS OF SEPARATOR GAS SAMPLE

<u>Cylinder #:</u>		A8659	
<u>Component</u>	<u>Mol Percent</u>		<u>GPM</u>
Hydrogen Sulphide	0.00		
Carbon Dioxide	7.61		
Nitrogen	0.58		
Methane	66.89		
Ethane	11.03		2.942
Propane	7.80		2.141
iso-Butane	1.59		0.519
n-Butane	2.20		0.692
iso-Pentane	0.66		0.241
n-Pentane	0.55		0.199
Hexanes	0.40		0.163
Heptanes plus	0.69		0.313
	<u>100.00</u>		<u>7.210</u>
Gas gravity (Air = 1.000):		0.867	
Gross heating value (BTU per cubic foot of dry gas @ 14.696 psia and 60°F):		1297	

HYDROCARBON ANALYSIS OF SEPARATOR LIQUID SAMPLE

<u>Cylinder #:</u>		OT152T
<u>Component</u>	<u>Mol Percent</u>	<u>Weight Percent</u>
Hydrogen Sulphide	0.00	0.00
Carbon Dioxide	0.57	0.16
Nitrogen	0.01	trace
Methane	2.37	0.25
Ethane	1.87	0.37
Propane	3.86	1.12
iso-Butane	1.93	0.74
n-Butane	3.70	1.41
iso-Pentane	2.77	1.31
n-Pentane	3.08	1.46
Hexanes	7.48	4.22
Heptanes plus	72.36	88.96
	<u>100.00</u>	<u>100.00</u>

Properties of Heptanes plus

API gravity @ 60°F	44.2
Density, gm/cc @ 60°F	0.8048
Molecular weight	187

HIGH TEMPERATURE DISTILLATION OF HEXANES PLUS
 FRACTION OF SEPARATOR LIQUID SAMPLE TO UNDECANES PLUS

<u>Component</u>	<u>Cut Temp °C</u>	<u>Mol Percent</u>	<u>Weight Percent</u>	<u>Volume Percent</u>	<u>Density, gm/cc @ 60°F</u>	<u>°API @ 60°F</u>	<u>Mol Weight</u>
	IBP 49						
Hexanes	84	9.37	4.53	5.13	0.7062	68.7	86
Heptanes	112	11.31	6.04	6.55	0.7375	60.2	95
Octanes	138	11.55	7.01	7.33	0.7647	53.4	108
Nonanes	162	8.09	5.41	5.55	0.7799	49.8	119
Decanes	185	8.07	5.94	6.05	0.7845	48.7	131
Undecanes plus	FBP 185	51.61	71.07	69.39	0.8191	41.1	245
		<u>100.00</u>	<u>100.00</u>	<u>100.00</u>			

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HYDROCARBON ANALYSES OF SEPARATOR PRODUCTS
AND CALCULATED WELL STREAM TO UNDECANES PLUS

<u>Cylinder #:</u>	OT152T	A8659	
<u>Component</u>	<u>Separator Liquid Mol Percent</u>	<u>Separator Gas Mol Percent</u>	<u>Well Stream Mol Percent</u>
Hydrogen Sulphide	0.00	0.00	0.00
Carbon Dioxide	0.57	7.61	6.43
Nitrogen	0.01	0.58	0.48
Methane	2.37	66.89	56.12
Ethane	1.87	11.03	9.50
Propane	3.86	7.80	7.14
iso-Butane	1.93	1.59	1.65
n-Butane	3.70	2.20	2.45
iso-Pentane	2.77	0.66	1.01
n-Pentane	3.08	0.55	0.97
Hexanes	7.48	0.40	1.58
Heptanes	9.03	0.32	1.78
Octanes	9.22	0.20	1.71
Nonanes	6.46	0.08	1.15
Decanes	6.44	0.03	1.10
Undecanes plus	41.21	0.06	6.93
	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>

Properties of Heptanes plus

API gravity @ 60°F	44.1	
Density, gm/cc @ 60°F	0.8048	0.801
Molecular weight	187	183

Calculated separator gas gravity (air = 1.000) = 0.867
 Calculated gross heating value for separator gas
 per cubic foot of dry gas @ 14.696 psia and 60°F = 1297 BTU

Primary separator gas collected @ 90 psig and 102°F
 Primary separator liquid collected @ 90 psig and 102°F

Primary separator gas/separator liquid ratio : 3368 SCF/Bbl @ 102°F
 Primary separator liquid/stock tank liquid ratio : 1.025 Bbls @ 102°F/Bbl
 Primary separator gas/well stream ratio : 832.95 MSCF/MMSCF
 Stock tank liquid/well stream ratio : 241.2 Bbls/MMSCF

PRESSURE - VOLUME RELATIONS @ 209°F

<u>Pressure,</u> <u>psig</u>	<u>Relative</u> <u>Volume (1)</u>	<u>Compressibility</u> <u>x 10⁻⁶ (2)</u>	<u>Y</u> <u>Function (3)</u>
6000	0.9490	40.83	
5500	0.9700	46.70	
5400	0.9746	49.28	
5300	0.9796	52.40	
5200	0.9849	56.07	
5100	0.9907	60.48	
5000	0.9969	65.83	
<u>4954</u> *	1.0000	67.20	
4930	1.0025		
4911	1.0043		
4893	1.0062		2.010
4860	1.0097		1.998
4778	1.0184		1.995
4614	1.0371		1.983
4333	1.0731		1.953
3872	1.1476		1.886
3238	1.2994		1.762
2695	1.5111		1.631
2224	1.8087		1.508

* Saturation Pressure

(1) Relative volume: V/V_{sat} is barrels @ indicated pressure per barrel @ saturation pressure.

(2) Instantaneous Compressibility = $-\frac{dV}{VdP}$

(3) Y Function = $\frac{(P_{sat} - P)}{(P_{abs}) (V/V_{sat} - 1)}$

HYDROCARBON ANALYSIS OF RESERVOIR FLUID SAMPLE TO UNDECANES PLUS

<u>Component</u>	<u>Mol Percent</u>	<u>GPM</u>
Hydrogen Sulphide	0.00	
Carbon Dioxide	7.44	
Nitrogen	0.65	
Methane	68.52	
Ethane	10.27	2.739
Propane	6.70	1.839
iso-Butane	1.37	0.447
n-Butane	1.91	0.601
iso-Pentane	0.65	0.237
n-Pentane	0.56	0.203
Hexanes	0.64	0.260
Heptanes	0.48	0.584 (C7+)
Octanes	0.30	
Nonanes	0.15	
Decanes	0.08	
Undecanes plus	0.28	
	<u>100.00</u>	<u>6.910</u>
Gas gravity (Air = 1.000):		0.868
Gross heating value (BTU per cubic foot of dry gas @ 14.696 psia and 60°F):		1301

PRESSURE - VOLUME RELATIONS @ 209°F

<u>Pressure,</u> <u>psig</u>	<u>Relative</u> <u>Volume (1)</u>	<u>Deviation</u> <u>Factor, Z</u>
5000	0.6316	0.993
4500	0.6717	0.951
4000	0.7254	0.914
3500	0.7998	0.882
3200	0.8588	0.866
3000	0.9078	0.858
2900	0.9354	0.855
2800	0.9656	0.853
<u>2695</u> *	1.0000	0.850
2650	1.0157	
2600	1.0339	
2500	1.0750	
2350	1.1445	
2150	1.2889	
1950	1.4019	
1680	1.6534	
1450	1.9499	
1250	2.3011	
980	3.0056	
715	4.2190	

* Saturation Pressure

(1) Relative Volume: V/V_{sat} is barrels @ indicated pressure per barrel @ saturation pressure.

DEPLETION STUDY @ 209°F

Hydrocarbon Analyses of Produced Well Stream - Mol Percent

Component	Reservoir Pressure - psig						
	2695	2300	1900	1400	900	500	500 *
Hydrogen Sulphide	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Carbon Dioxide	7.44	7.43	7.43	7.45	7.47	7.49	1.85
Nitrogen	0.65	0.66	0.67	0.67	0.66	0.63	0.05
Methane	68.52	68.73	68.87	68.86	68.79	68.61	10.34
Ethane	10.27	10.21	10.21	10.25	10.31	10.39	4.24
Propane	6.70	6.68	6.66	6.68	6.72	6.76	5.05
iso-Butane	1.37	1.36	1.35	1.36	1.38	1.39	1.75
n-Butane	1.91	1.89	1.89	1.90	1.90	1.92	3.00
iso-Pentane	0.65	0.65	0.64	0.64	0.65	0.66	1.80
n-Pentane	0.56	0.55	0.54	0.54	0.55	0.57	1.94
Hexanes	0.64	0.64	0.63	0.63	0.63	0.64	3.68
Heptanes	0.48	0.47	0.46	0.45	0.45	0.46	5.24
Octanes	0.30	0.28	0.27	0.26	0.25	0.26	5.55
Nonanes	0.15	0.14	0.14	0.13	0.13	0.13	4.43
Decanes	0.08	0.08	0.07	0.07	0.06	0.06	4.36
Undecanes plus	0.28	0.23	0.17	0.11	0.05	0.03	46.72
	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>
Molecular weight of heptanes plus	118	116	113	110	108	107	148
Density of heptanes plus	0.758	0.755	0.752	0.749	0.747	0.746	0.786
<u>Deviation Factor-Z</u>							
Equilibrium gas	0.850	0.847	0.859	0.886	0.922	0.955	
Two-phase	0.850	0.848	0.857	0.881	0.913	0.946	
Gas viscosity	0.217	0.0196	0.0176	0.0156	0.0141	0.0132	
Well Stream produced -							
Cumulative percent of initial	0.000	14.396	29.897	49.638	68.567	82.930	

* Composition of equilibrium liquid phase

CALCULATED CUMULATIVE RECOVERY DURING DEPLETION

<u>Cumulative Recovery per MMSCF of Original Fluid</u>	<u>Initial in Place</u>	<u>Reservoir Pressure - psig</u>					
		<u>2695</u>	<u>2300</u>	<u>1900</u>	<u>1400</u>	<u>900</u>	<u>500</u>
<u>Well Stream - MSCF</u>	1000.00	0.00	143.96	298.97	496.38	685.67	829.30
<u>Normal Temperature Separation *</u>							
Stock Tank Liquid - Barrels	10.38	0.00	1.28	2.40	3.52	4.35	4.98
Primary Separator Gas - MSCF	989.82	0.00	142.69	296.57	492.83	681.25	824.22
Second Stage Gas - MSCF	0.13	0.00	0.02	0.03	0.05	0.06	0.07
Stock Tank Gas - MSCF	0.49	0.00	0.06	0.12	0.17	0.21	0.24
<u>Total "Plant Products" in Primary Separator Gas - Gallons</u>							
Ethane	2735	0	391	813	1352	1872	2270
Propane	1828	0	262	544	905	1253	1519
Butanes (total)	1072	0	148	306	510	707	857
Pentanes plus	902	0	131	272	456	635	773
<u>Total "Plant Products" in Well Stream - Gallons</u>							
Ethane	2739	0	392	814	1354	1874	2273
Propane	1839	0	264	547	909	1258	1525
Butanes (total)	1047	0	149	310	515	714	865
Pentanes plus	1335	0	184	372	601	813	976

* Primary separator @ 90 psig and 102°F, second stage @ 50 psig and 75°F, stock tank @ 70°F.

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CALCULATED INSTANTANEOUS RECOVERY DURING DEPLETION

	Reservoir Pressure - psig					
	<u>2695</u>	<u>2300</u>	<u>1900</u>	<u>1400</u>	<u>900</u>	<u>500</u>
<u>Normal Temperature Separation *</u>						
Stock Tank Liquid Gravity, °API @ 60°F	61.3	62.0	62.7	63.6	64.2	64.5
Separator Gas/Well Stream Ratio, MSCF/MMSCF						
Primary Separator Gas Only	989.82	991.21	992.71	994.17	995.39	995.41
Primary and Second Stage Separator Gases	989.96	991.33	992.80	994.25	995.45	995.47
Separator Gas/Stock Tank Liquid Ratio, SCF/STB						
Primary Separator Gas Only	95339	111754	137292	175400	225119	227563
Primary and Second Stage Separator Gases	95352	111767	137306	175414	225133	227577
<u>GPM from Smooth Well Stream Compositions</u>						
Ethane plus	6.960	6.874	6.798	6.767	6.764	6.817
Propane plus	4.221	4.150	4.075	4.033	4.014	4.046
Butanes plus	2.382	2.317	2.247	2.200	2.169	2.190
Pentanes plus	1.335	1.279	1.212	1.159	1.122	1.133

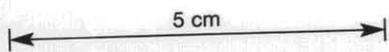
* Primary separator @ 90 psig and 102°F, second stage @ 50 psig and 75°F, stock tank @ 70°F.

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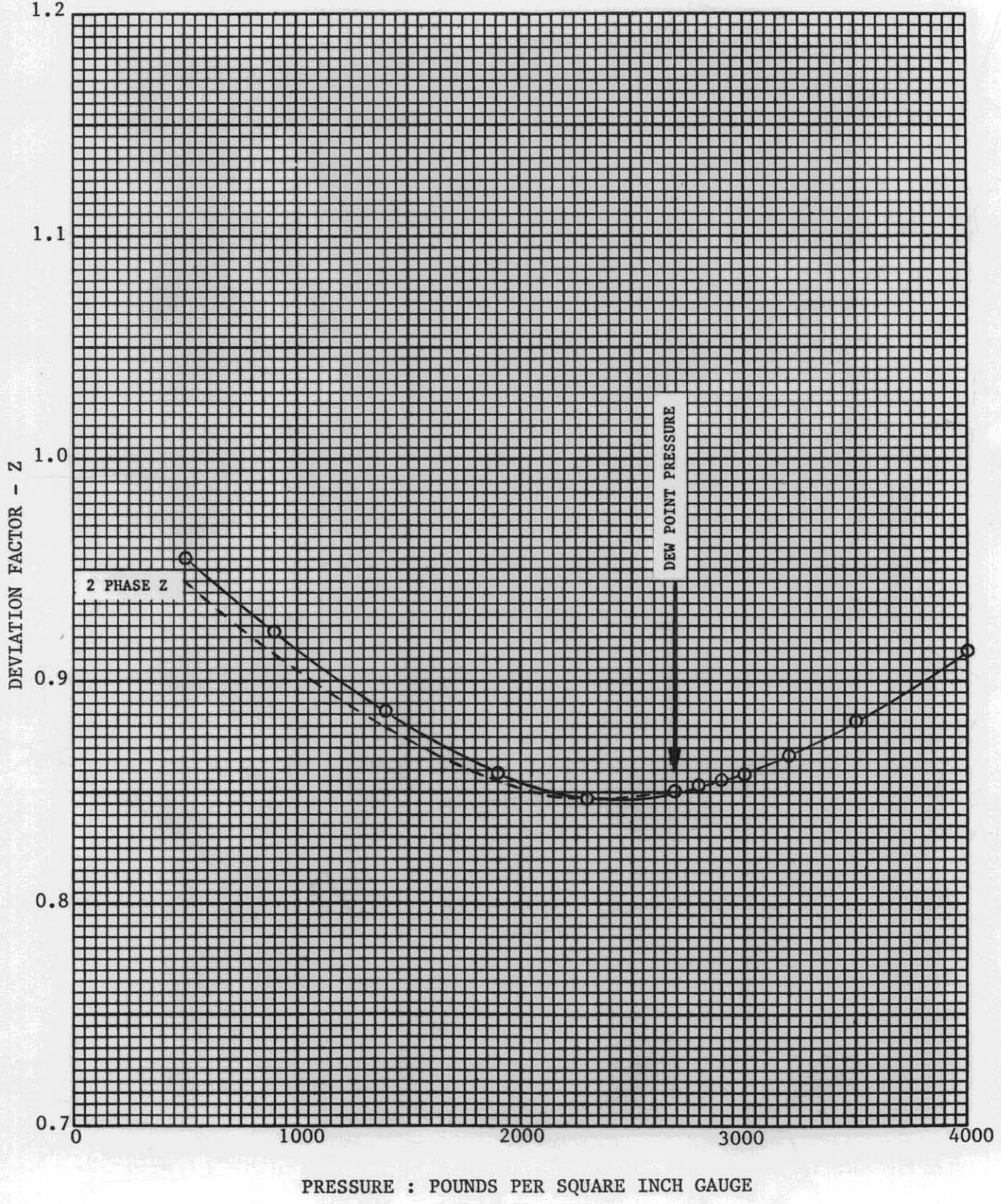
RETROGRADE CONDENSATION DURING GAS DEPLETION @ 209°F

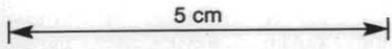
<u>Pressure,</u> <u>psig</u>	<u>Retrograde Liquid</u> <u>Volume Percent</u> <u>of Hydrocarbon</u> <u>Pore Space</u>
<u>2696</u> Dew point pressure	0.00
2300	0.10
1900	0.26
1400	0.43
900	0.47
500	0.40



DEVIATION FACTOR Z OF GAS PHASE DURING DEPLETION AT 209°F

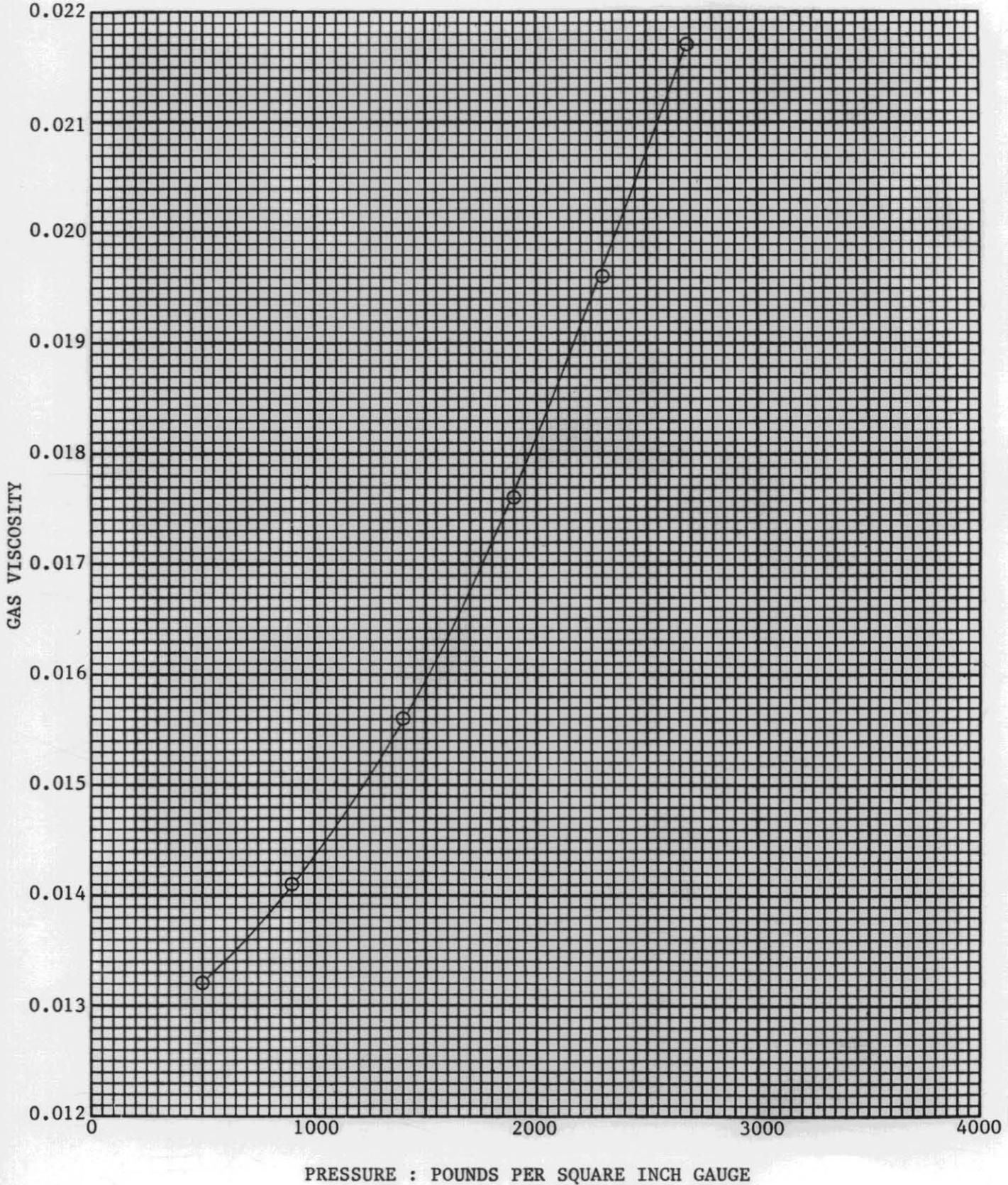
Company Amoco Australia Petroleum Co. Formation _____
 Well Yolla #1, DST 2A State Tasmania
 Field Yolla Country Australia

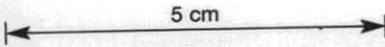




GAS VISCOSITY DURING DEPLETION AT 209°F

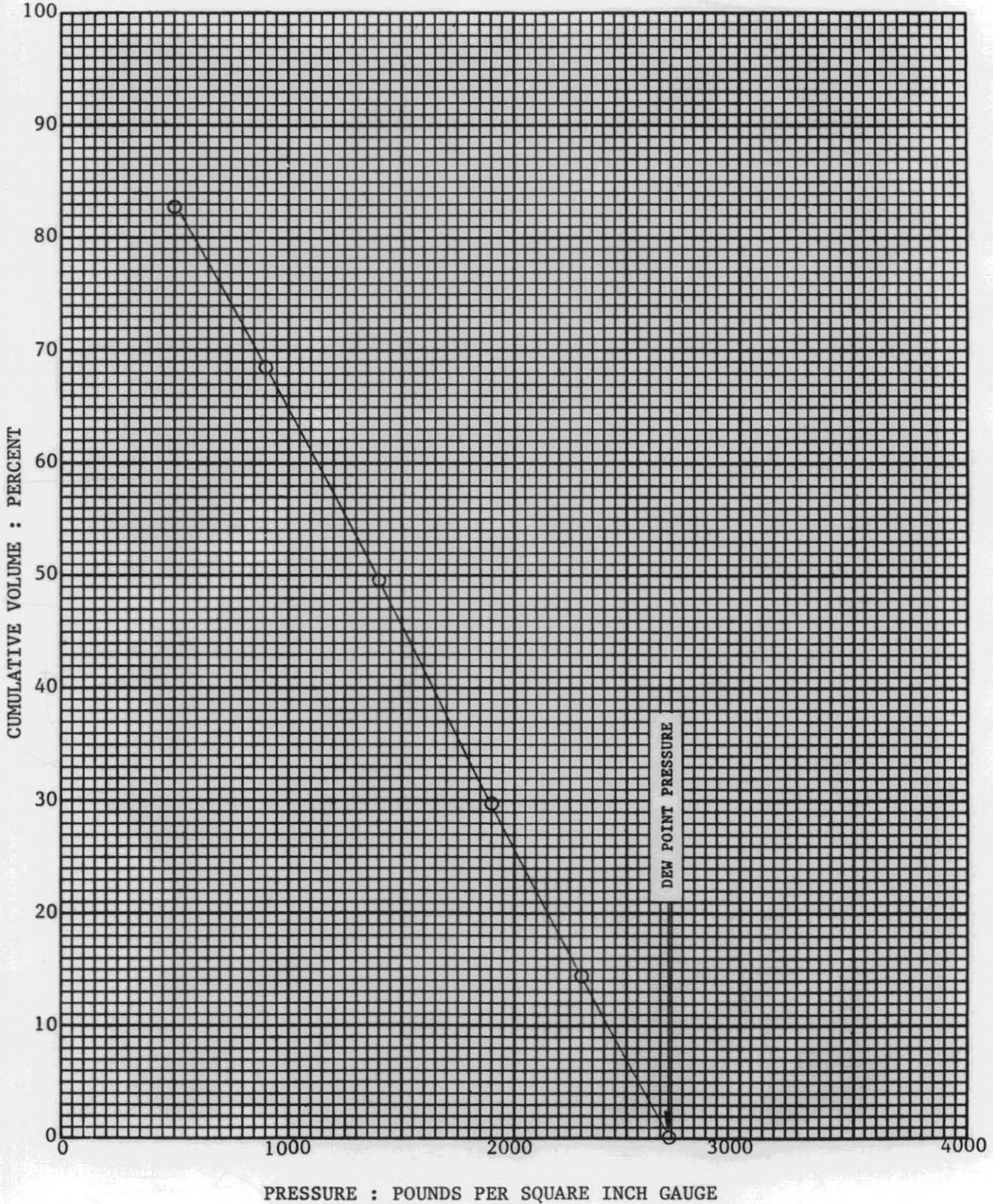
Company Amoco Australia Petroleum Co. Formation _____
Well Yolla #1, DST 2A State Tasmania
Field Yolla Country Australia

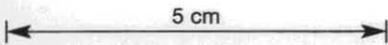




VOLUME OF GAS PRODUCED DURING DEPLETION AT 209°F

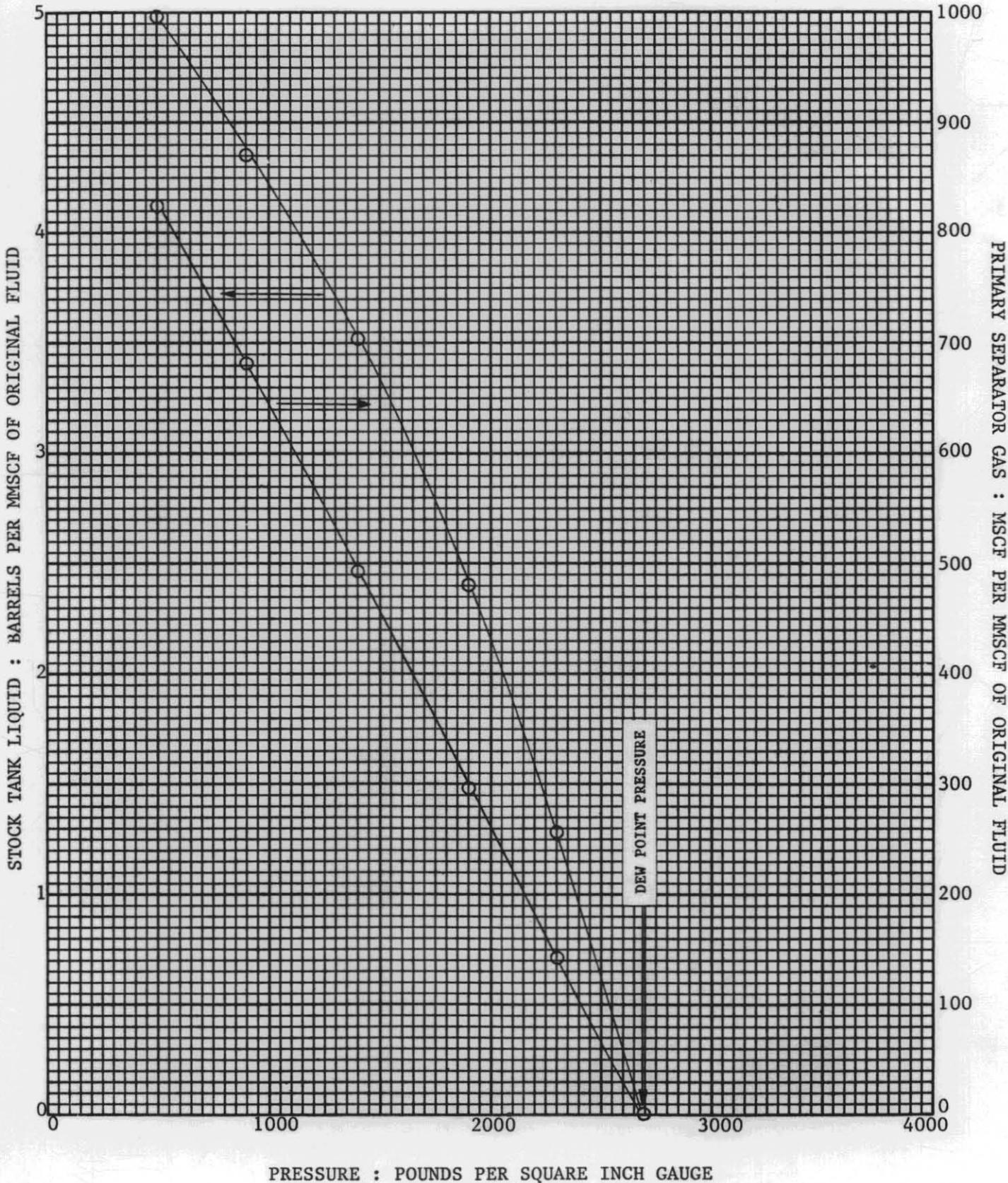
Company Amoco Australia Petroleum Co. Formation _____
Well Yolla #1, DST 2A State Tasmania
Field Yolla Country Australia

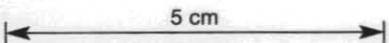




CUMMULATIVE RECOVERY DURING DEPLETION OF 209°F

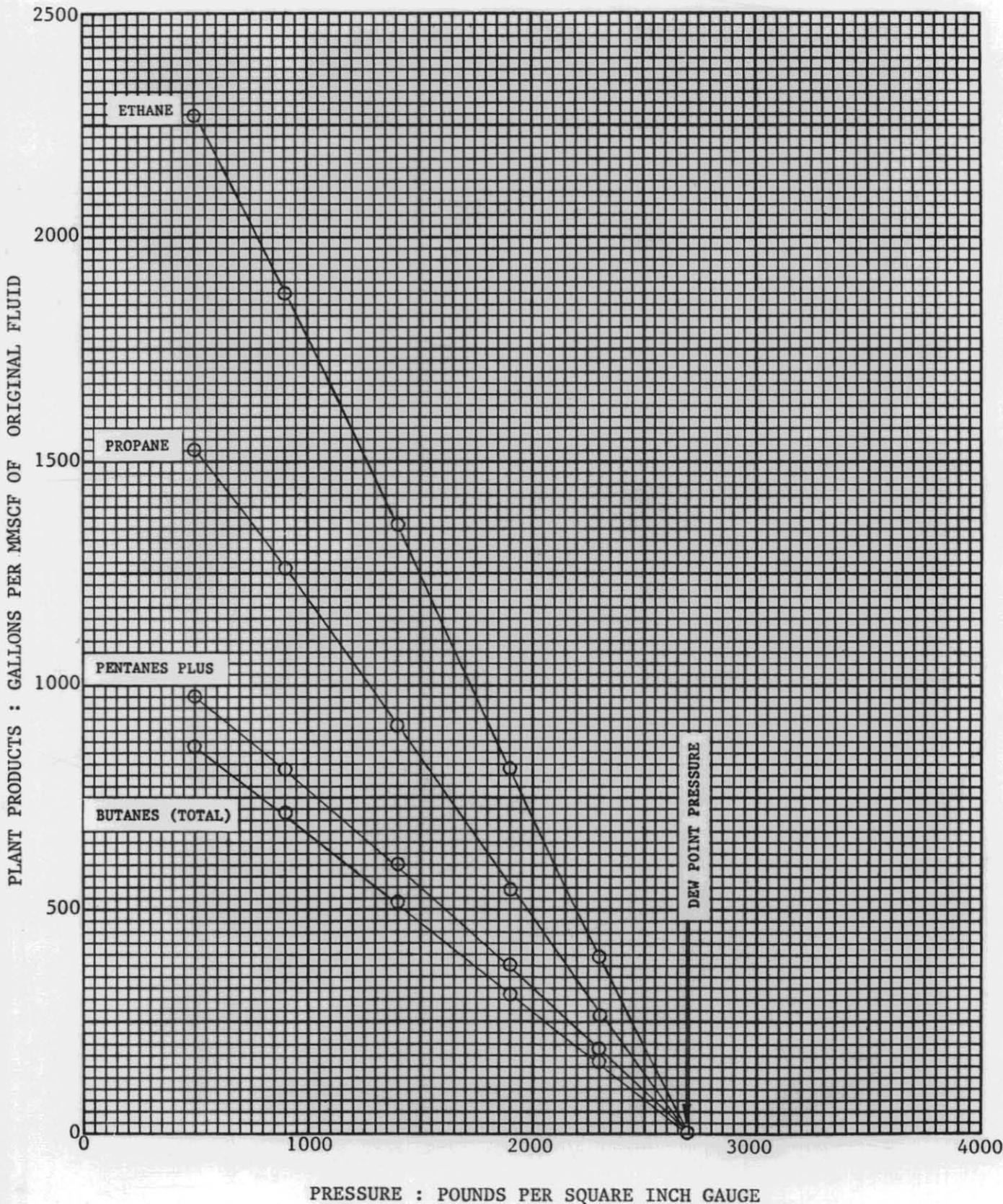
Company Amoco Australia Petroleum Co. Formation _____
Well Yolla #1, DST 2A State Tasmania
Field Yolla Country Australia

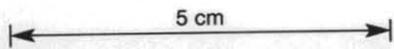




CUMMULATIVE RECOVERY PLANT PRODUCTS IN WELL STREAM AT 209°F

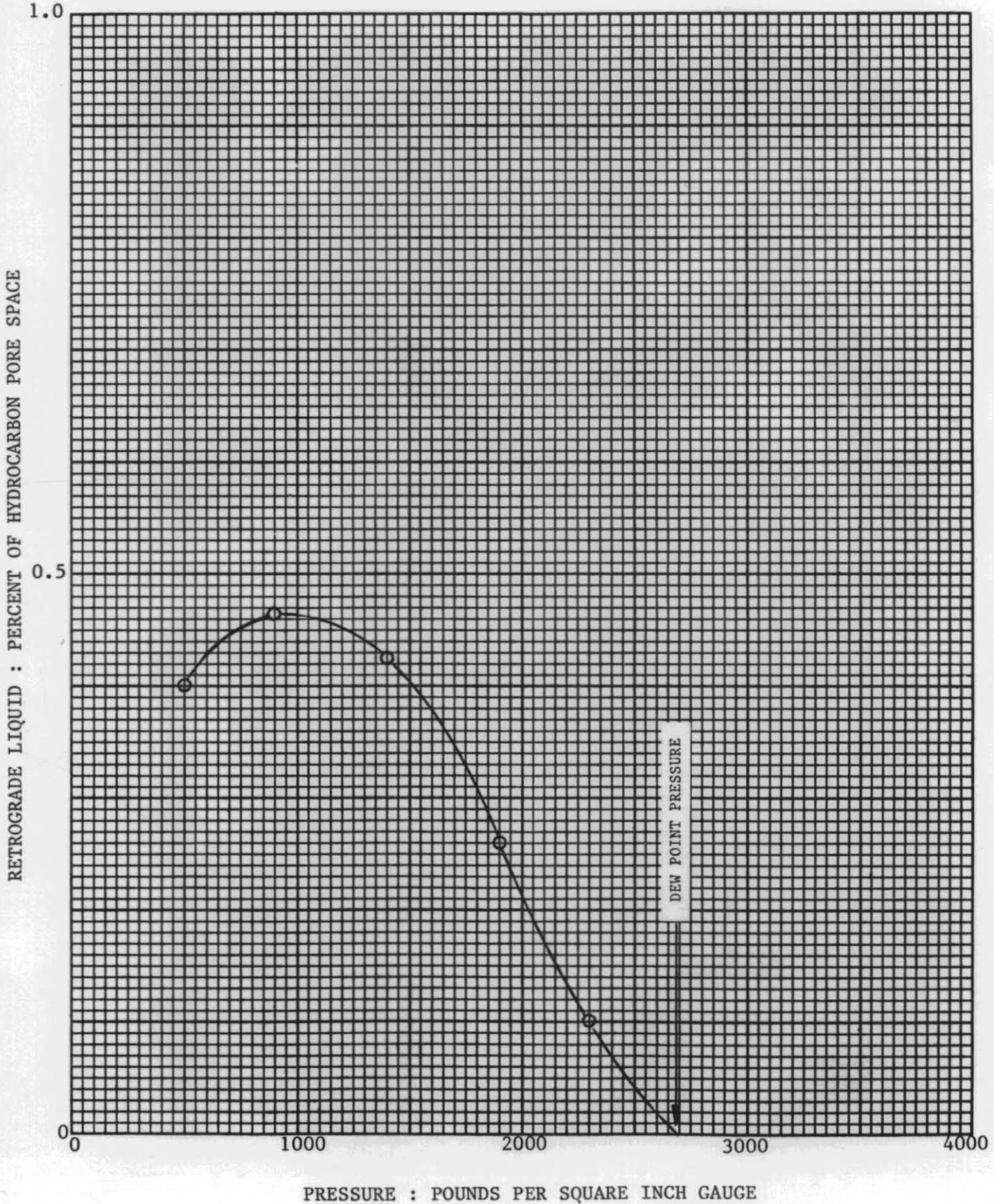
Company Amoco Australia Petroleum Co. Formation _____
Well Yolla #1, DST 2A State Tasmania
Field Yolla Country Australia





RETROGRADE CONDENSATE DURING DEPLETION AT 209°F

Company Amoco Australia Petroleum Co. Formation _____
Well Yolla #1, DST 2A State Tasmania
Field Yolla Country Australia



HYDROCARBON COMPOSITION OF RESERVOIR FLUID SAMPLE TO UNDECANES PLUS

<u>Component</u>	<u>Mol Percent</u>	<u>Weight Percent</u>
Hydrogen Sulphide	0.00	0.00
Carbon Dioxide	5.01	2.91
Nitrogen	0.24	0.09
Methane	38.77	8.21
Ethane	8.42	3.34
Propane	7.75	4.51
iso-Butane	2.04	1.56
n-Butane	3.21	2.46
iso-Pentane	1.52	1.45
n-Pentane	1.54	1.47
Hexanes	2.90	3.29
Heptanes	3.60	4.52
Octanes	3.68	5.25
Nonanes	2.55	4.01
Decanes	2.53	4.38
Undecanes plus	16.24	52.55
	<u>100.00</u>	<u>100.00</u>

Properties of Hexanes plus

API gravity @ 60°F	44.3
Density, gm/cc @ 60°F	0.8039
Molecular weight	187

VOLUMETRIC DATA OF RESERVOIR FLUID SAMPLE

Saturation pressure (bubble point pressure): 2710 psig @ 209°F

Specific volume @ saturation pressure, $\frac{\text{ft}^3}{\text{lb}}$: 0.02576 @ 209°F

Thermal expansion of saturated oil @ 5000 psig @ $\frac{209^\circ\text{F}}{65^\circ\text{F}} = 1.09750$

Compressibility of saturated oil @ reservoir temperature: Vol/Vol/Psi:

From 5000 psig to 4500 psig = 14.92×10^{-6}

From 4500 psig to 4000 psig = 15.84×10^{-6}

From 4000 psig to 3500 psig = 17.34×10^{-6}

From 3500 psig to 3000 psig = 18.80×10^{-6}

From 3000 psig to 2710 psig = 20.41×10^{-6}

PRESSURE - VOLUME RELATIONS OF RESERVOIR FLUID @ 209°F

<u>Pressure,</u> <u>psig</u>	<u>Relative</u> <u>Volume (1)</u>	<u>Compressibility</u> <u>x 10⁻⁶ (2)</u>	<u>Y</u> <u>Function (3)</u>
5000	0.9614	14.30	
4500	0.9686	15.34	
4000	0.9763	16.56	
3500	0.9848	17.92	
3100	0.9921	19.26	
3000	0.9941	19.68	
2900	0.9961	20.16	
2800	0.9981	20.73	
<u>2710</u> *	1.0000	21.46	
2692	1.0028		2.373
2677	1.0052		2.367
2652	1.0087		2.358
2601	1.0178		2.339
2539	1.0289		2.318
2425	1.0513		2.277
2280	1.0845		2.218
2121	1.1280		2.154
1928	1.1940		2.075
1730	1.2816		1.994
1518	1.4086		1.903
1290	1.6030		1.804
1098	1.8401		1.714
862	2.3015		1.619
672	2.9350		1.533
490	4.0276		1.452

* Saturation Pressure

(1) Relative volume: V/V_{sat} is barrels @ indicated pressure per barrel @ saturation pressure.

(2) Instantaneous Compressibility = $-\frac{dV}{VdP}$

(3) Y Function = $\frac{(P_{sat} - P)}{(P_{abs})(V/V_{sat}-1)}$

DIFFERENTIAL VAPORIZATION @ 209°F

<u>Pressure, psig</u>	<u>Solution Gas/Oil Ratio (1)</u>	<u>Relative Oil Volume (2)</u>	<u>Relative Total Volume (3)</u>	<u>Oil Density, gm/cc</u>	<u>Deviation Factor, Z</u>	<u>Gas Formation Volume Factor (4)</u>	<u>Incremental Gas Gravity</u>
2710 *	998	1.601	1.601	0.6218			
2400	872	1.530	1.678	0.6362	0.845	0.00662	0.837
2100	747	1.468	1.808	0.6478	0.851	0.00761	0.833
1800	634	1.415	1.999	0.6582	0.864	0.00900	0.834
1500	528	1.366	2.286	0.6685	0.881	0.01099	0.840
1200	437	1.322	2.720	0.6780	0.899	0.01399	0.856
900	344	1.279	3.493	0.6878	0.920	0.01901	0.885
600	253	1.234	5.085	0.6980	0.944	0.02902	0.942
300	154	1.181	9.942	0.7102	0.971	0.05828	1.080
0	0	1.084		0.7317			1.369

@ 60°F = 1.000

Gravity of Residual Oil = 46.7°API @ 60°F.

Density of Residual Oil = 0.7933 gm/cc @ 60°F

Gas Pressure Base = 14.696 psia @ 60°F

* Saturation Pressure

- (1) Cubic feet of gas @ 14.696 psia and 60°F per barrel of residual oil @ 60°F.
- (2) Barrels of oil @ indicated pressure and temperature per barrel of residual oil @ 60°F.
- (3) Barrels of oil plus liberated gas @ indicated pressure and temperature per barrel of residual oil @ 60°F.
- (4) Cubic feet of gas @ indicated pressure and temperature per cubic foot @ 14.696 psia and 60°F.

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HYDROCARBON ANALYSIS OF DIFFERENTIALLY LIBERATED GASES

<u>Component</u>	2400#		2100#	
	<u>Mol Percent</u>	<u>GPM</u>	<u>Mol Percent</u>	<u>GPM</u>
Hydrogen Sulphide	0.00		0.00	
Carbon Dioxide	7.16		7.34	
Nitrogen	0.73		0.68	
Methane	71.69		71.45	
Ethane	9.24	2.465	9.47	2.526
Propane	5.39	1.479	5.55	1.523
iso-Butane	1.18	0.385	1.18	0.385
n-Butane	1.65	0.519	1.65	0.519
iso-Pentane	0.57	0.208	0.55	0.201
n-Pentane	0.50	0.181	0.49	0.177
Hexanes	0.83	0.338	0.77	0.313
Heptanes	0.61	0.480 (C7+)	0.53	0.394 (C7+)
Octanes	0.33		0.28	
Nonanes	0.11		0.06	
Decanes	0.01		trace	
Undecanes plus	trace		trace	
	<u>100.00</u>	<u>6.055</u>	<u>100.00</u>	<u>6.038</u>
Gas gravity (Air = 1.000):		0.837		0.833
Gross heating value (BTU per cubic foot of dry gas @ 14.696 psia and 60°F):		1257		1248

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HYDROCARBON ANALYSIS OF DIFFERENTIALLY LIBERATED GASES

<u>Component</u>	1800#		1500#	
	<u>Mol Percent</u>	<u>GPM</u>	<u>Mol Percent</u>	<u>GPM</u>
Hydrogen Sulphide	0.00		0.00	
Carbon Dioxide	7.56		7.78	
Nitrogen	0.60		0.48	
Methane	70.97		69.87	
Ethane	9.74	2.598	10.33	2.755
Propane	5.76	1.581	6.17	1.694
iso-Butane	1.20	0.392	1.25	0.408
n-Butane	1.67	0.525	1.72	0.541
iso-Pentane	0.55	0.201	0.56	0.205
n-Pentane	0.48	0.174	0.49	0.177
Hexanes	0.73	0.297	0.72	0.293
Heptanes	0.46	0.335 (C7+)	0.42	0.285 (C7+)
Octanes	0.24		0.19	
Nonanes	0.04		0.02	
Decanes	trace		trace	
Undecanes plus	trace		trace	
	<u>100.00</u>	<u>6.103</u>	<u>100.00</u>	<u>6.358</u>
Gas gravity (Air = 1.000):	0.834		0.840	
Gross heating value (BTU per cubic foot of dry gas @ 14.696 psia and 60°F):	1245		1252	

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HYDROCARBON ANALYSIS OF DIFFERENTIALLY LIBERATED GASES

<u>Component</u>	1200#		900#	
	<u>Mol Percent</u>	<u>GPM</u>	<u>Mol Percent</u>	<u>GPM</u>
Hydrogen Sulphide	0.00		0.00	
Carbon Dioxide	8.06		8.53	
Nitrogen	0.36		0.22	
Methane	68.05		64.97	
Ethane	11.09	2.958	12.27	3.272
Propane	6.84	1.877	7.88	2.163
iso-Butane	1.34	0.437	1.51	0.493
n-Butane	1.83	0.575	2.01	0.632
iso-Pentane	0.59	0.216	0.64	0.234
n-Pentane	0.51	0.184	0.57	0.206
Hexanes	0.73	0.297	0.77	0.313
Heptanes	0.41	0.272 (C7+)	0.43	0.285 (C7+)
Octanes	0.18		0.19	
Nonanes	0.01		0.01	
Decanes	trace		trace	
Undecanes plus	trace		trace	
	<u>100.00</u>	<u>6.816</u>	<u>100.00</u>	<u>7.599</u>
Gas gravity (Air = 1.000):		0.856		0.885
Gross heating value (BTU per cubic foot of dry gas @ 14.696 psia and 60°F):		1271		1307

CORE LABORATORIES
Petroleum Reservoir Engineering

Page : 28 of 35
File : AFL 85061
Well : Yolla #1, DST 2A

HYDROCARBON ANALYSIS OF DIFFERENTIALLY LIBERATED GASES

<u>Component</u>	600#		300#	
	<u>Mol Percent</u>	<u>GPM</u>	<u>Mol Percent</u>	<u>GPM</u>
Hydrogen Sulphide	0.00		0.00	
Carbon Dioxide	9.02		9.68	
Nitrogen	0.07		0.02	
Methane	59.44		46.05	
Ethane	14.14	3.772	18.68	4.983
Propane	9.86	2.706	14.35	3.939
iso-Butane	1.85	0.604	2.88	0.940
n-Butane	2.43	0.764	3.74	1.176
iso-Pentane	0.77	0.281	1.20	0.438
n-Pentane	0.72	0.260	1.08	0.390
Hexanes	0.92	0.374	1.20	0.488
Heptanes	0.52	0.353 (C7+)	0.72	0.507 (C7+)
Octanes	0.23		0.33	
Nonanes	0.03		0.07	
Decanes	trace		trace	
Undecanes plus	trace		trace	
	<u>100.00</u>	<u>9.114</u>	<u>100.00</u>	<u>12.861</u>
Gas gravity (Air = 1.000):		0.942		1.080
Gross heating value (BTU per cubic foot of dry gas @ 14.696 psia and 60°F):		1385		1584

HYDROCARBON ANALYSIS OF DIFFERENTIALLY LIBERATED GASES

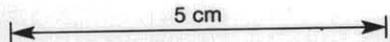
<u>Component</u>	<u>Mol Percent</u>	<u>GPM</u>
Hydrogen Sulphide	0.00	
Carbon Dioxide	5.46	
Nitrogen	0.03	
Methane	23.32	
Ethane	19.91	5.311
Propane	28.22	7.745
iso-Butane	6.41	2.092
n-Butane	9.21	2.896
iso-Pentane	2.43	0.887
n-Pentane	2.11	0.763
Hexanes	1.54	0.627
Heptanes	0.75	0.616 (C7+)
Octanes	0.56	
Nonanes	0.05	
Decanes	trace	
Undecanes plus	trace	
	<u>100.00</u>	<u>20.937</u>
Gas gravity (Air = 1.000):		1.369
Gross heating value (BTU per cubic foot of dry gas @ 14.696 psia and 60°F):		2138

SEPARATOR TESTS OF RESERVOIR FLUID SAMPLE

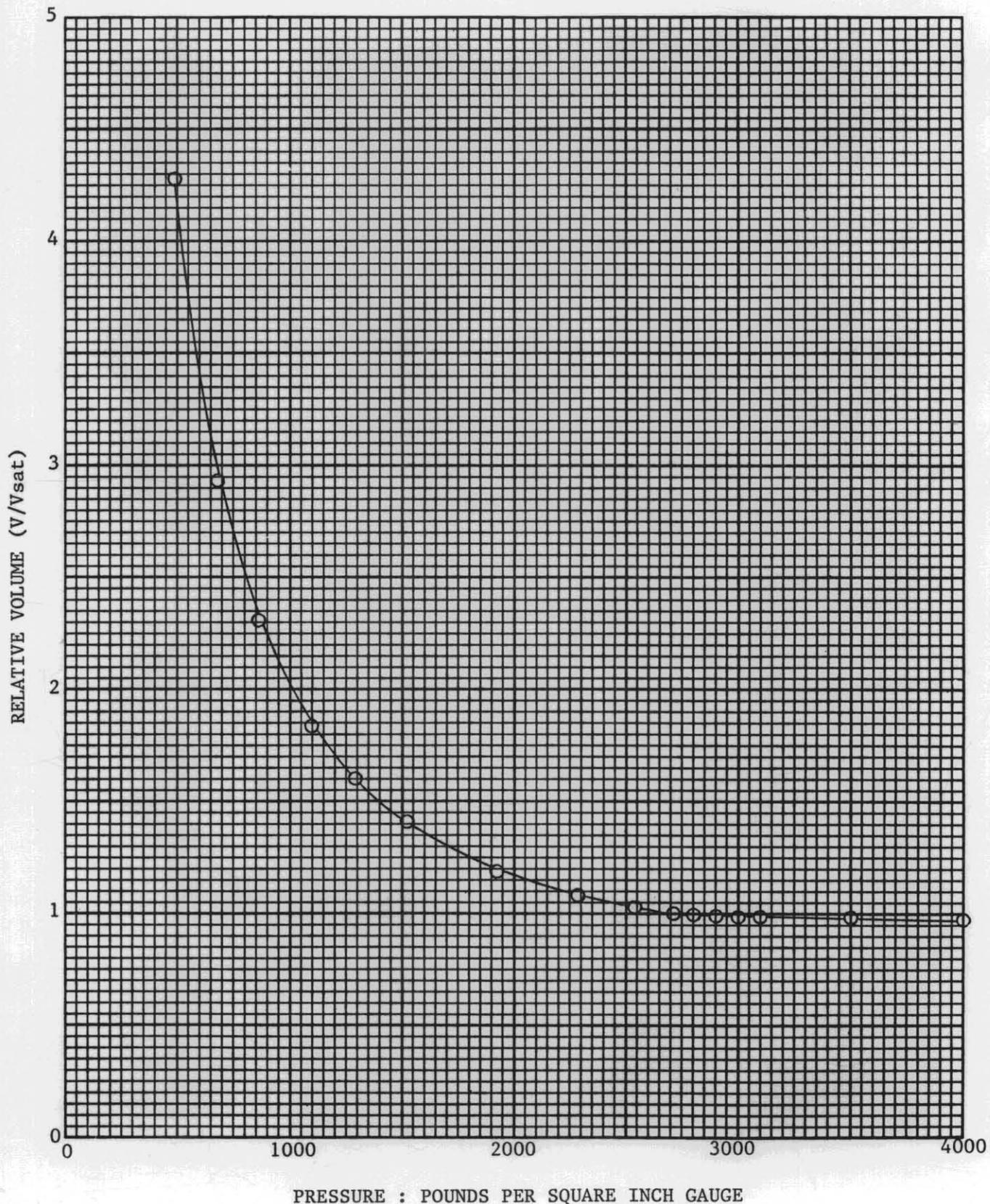
<u>Separator Pressure, psig</u>	<u>Temp. °F</u>	<u>Gas/Oil Ratio (1)</u>	<u>Gas/Oil Ratio (2)</u>	<u>Tank Oil Gravity, °API @ 60°F</u>	<u>Formation Volume Factor (3)</u>	<u>Separator Volume Factor (4)</u>	<u>Gas Gravity</u>
90	102	862	940			1.091	0.870 *
to							
0	102	88	90	45.8	1.617	1.022	1.537 *

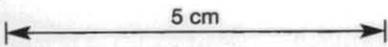
* This gas was collected and analysed by gas chromatography.

- (1) Gas/Oil Ratio in cubic feet of gas @ 14.696 psia and 60°F per barrel of oil @ indicated pressure and temperature.
- (2) Gas/Oil Ratio in cubic feet of gas @ 14.696 psia and 60°F per barrel of stock tank oil @ 60°F.
- (3) Formation Volume Factor is barrels of saturated oil @ 270 psig and 209°F per barrel of stock tank oil @ 60°F.
- (4) Separator Volume Factor is barrels of oil @ indicated pressure and temperature per barrel of stock tank oil @ 60°F.

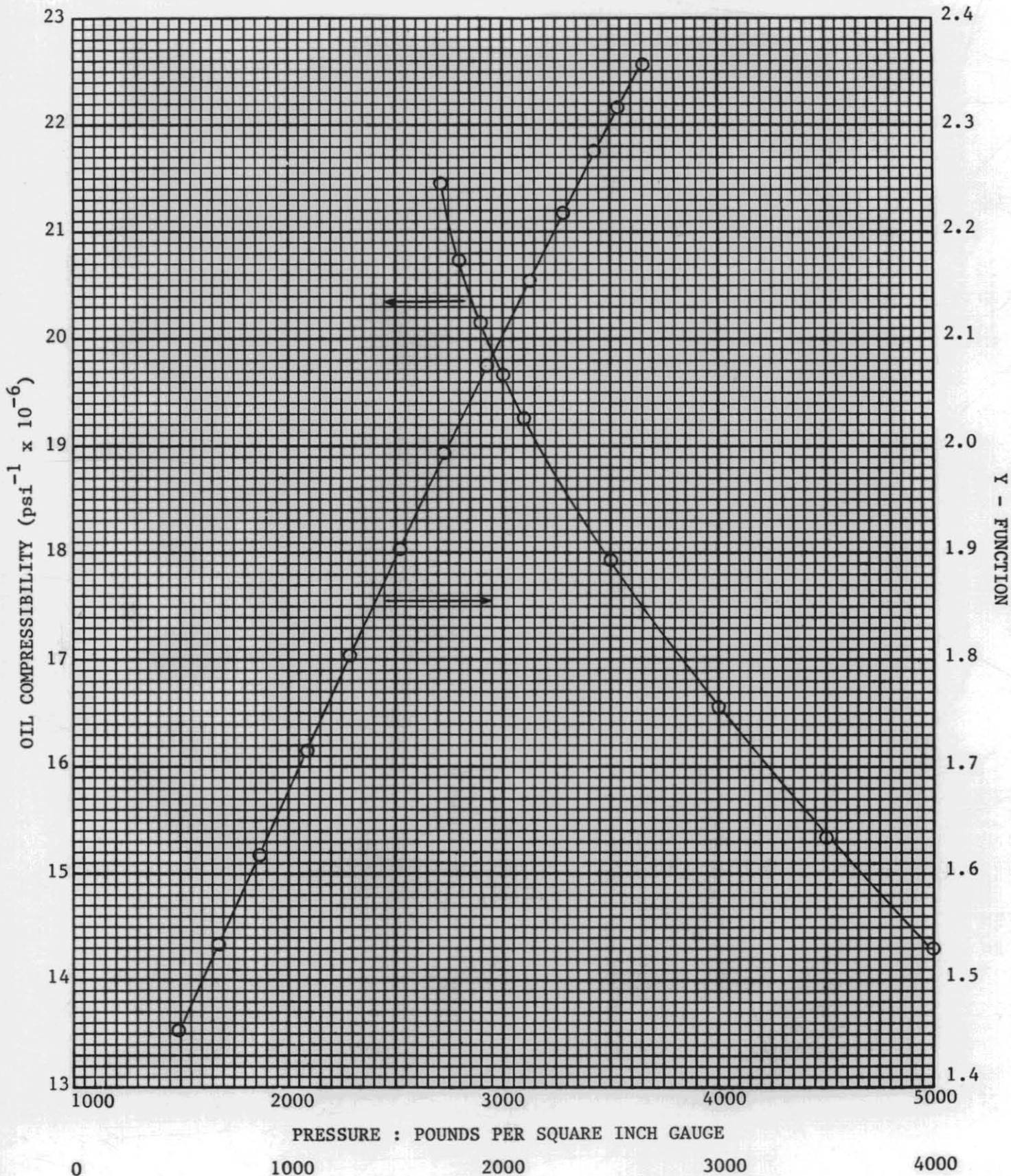


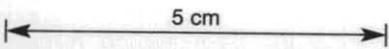
Company Amoco Australia Petroleum Co. Formation _____
Well Yolla #1, DST 2A State Tasmania
Field Yolla Country Australia



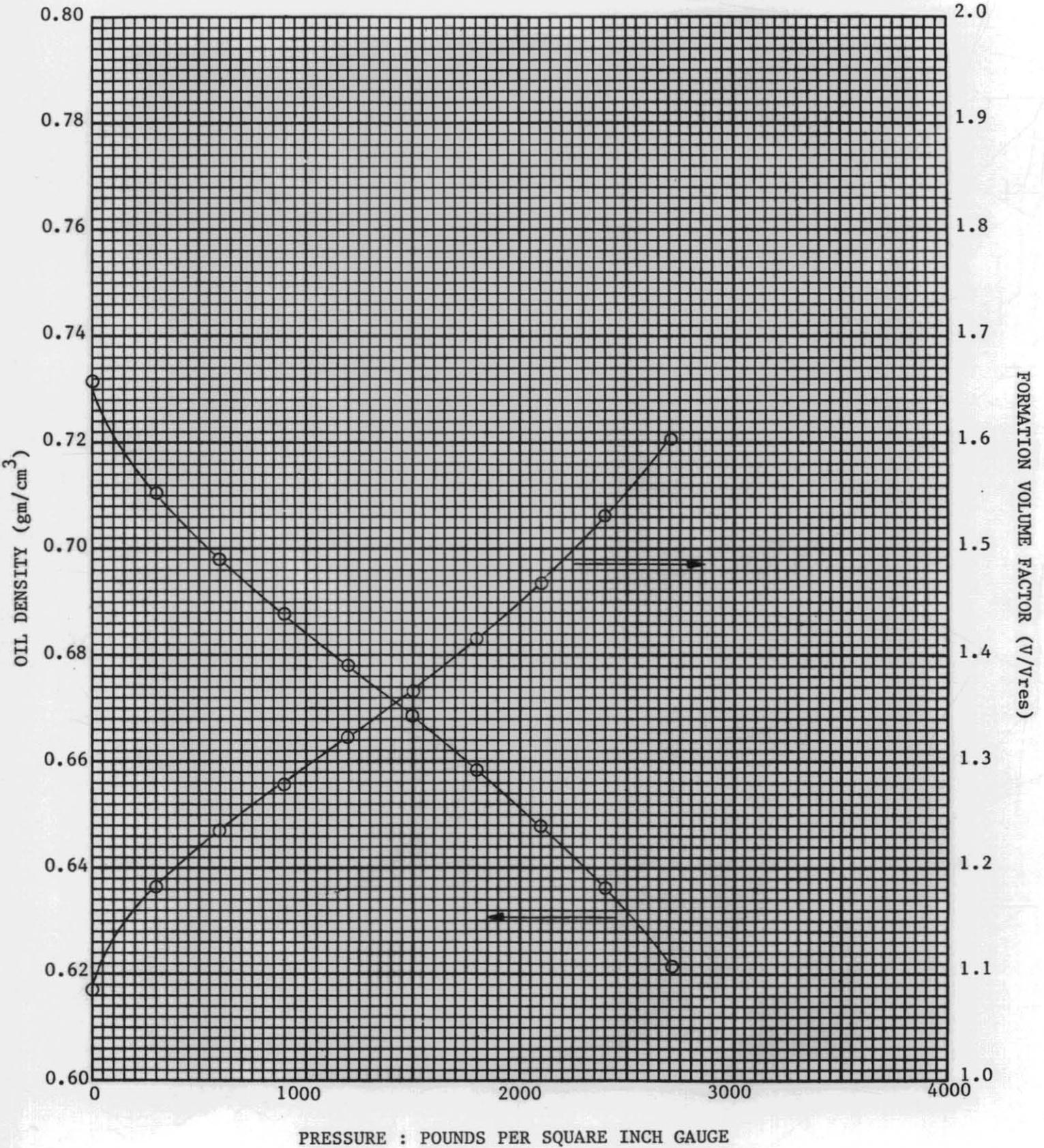


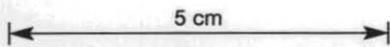
Company Amoco Australia Petroleum Co. Formation _____
Well Yolla #1, DST 2A State Tasmania
Field Yolla Country Australia



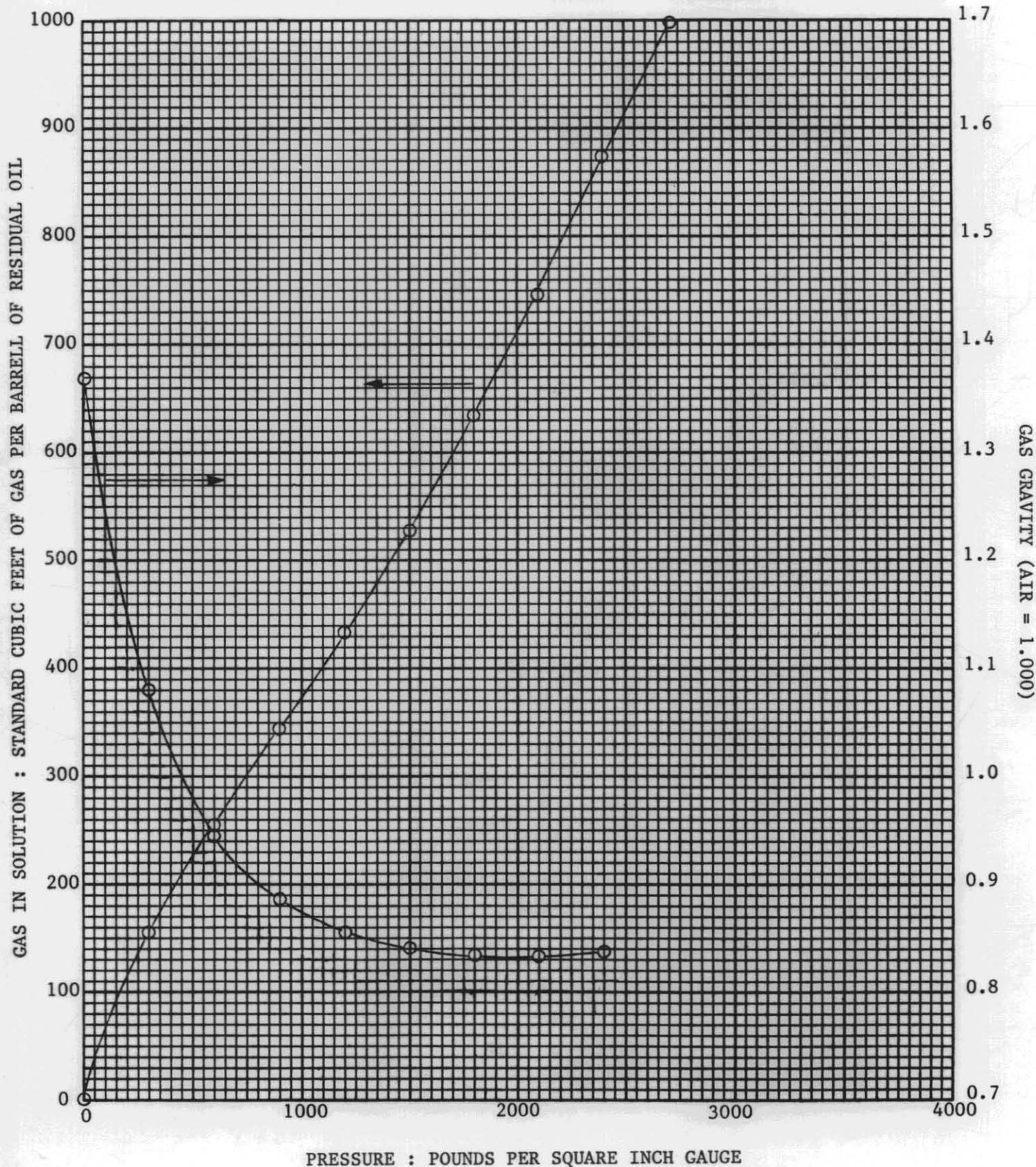


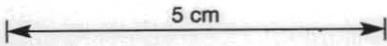
Company Amoco Australia Petroleum Co. Formation _____
Well Yolla #1, DST 2A State Tasmania
Field Yolla Country Australia



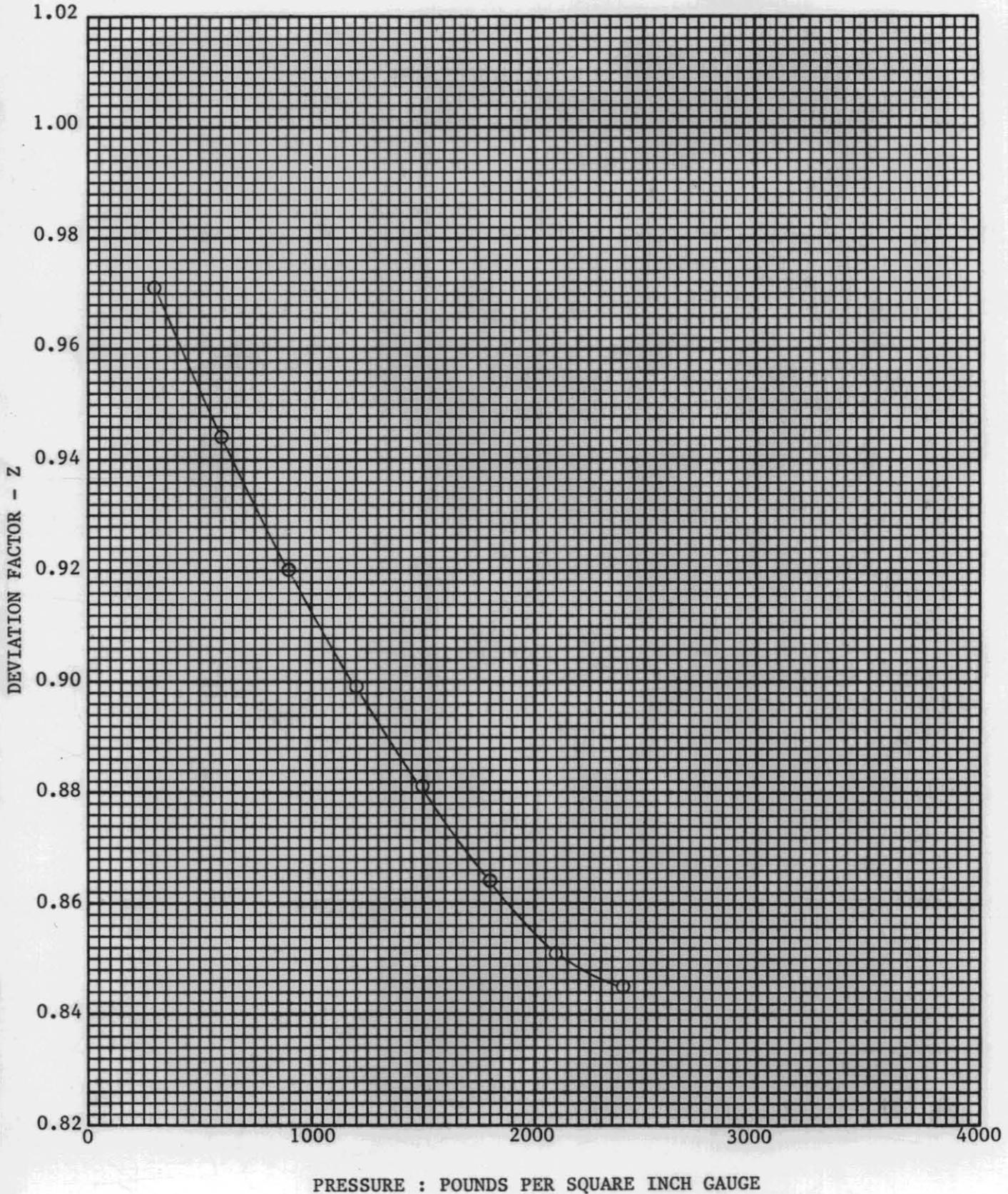


Company Amoco Australia Petroleum Co. Formation _____
Well Yolla #1, DST 2A State Tasmania
Field Yolla Country Australia





Company Amoco Australia Petroleum Co. Formation _____
Well Yolla #1, DST 2A State Tasmania
Field Yolla Country Australia



AMOCO AUSTRALIA PETROLEUM CO.

YOLLA #1, DST #3

RESERVOIR FLUID STUDY

R13/86

CORE LABORATORIES
Petroleum Reservoir Engineering



11th February, 1986

AMOCO AUSTRALIA PETROLEUM CO.,
10 Lampton Avenue,
DERWENT PARK, TAS. 7000

Attention : W.C. Cowan

Subject : Reservoir Fluid Study
Well : Yolla #1, DST #3
File : AFL 85062

Dear Sir,

Samples of separator gas and separator liquid were submitted to our Adelaide laboratory for use in a reservoir fluid study. The results of this study, as requested by Amoco, are presented in the following report.

As a quality check, the room temperature saturation pressure of each separator liquid sample was determined. These results are reported on page two along with the opening pressures of all separator gas and liquid cylinders relating to DST #3. Cylinders A8626 and OT069T were selected for analysis.

The hydrocarbon composition of the separator gas in cylinder A8626 was measured by routine gas chromatography, with helium analysis conducted using hydrogen as a carrier. This composition was then extended until no component was measurable by extended gas chromatography. These results are reported on pages four and five.

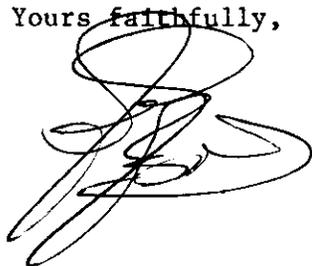
A portion of the separator oil sample was injected into a temperature programmed chromatograph and run on capillary column, using flame ionization as means of detection. This "Fingerprinting Analysis" is a quantitative determination of the normal paraffins, isoprenoids (farnesane, pristane and phytane) and the key aromatic hydrocarbon contents. A ratio of each component's concentration to that of normal tridecane is presented to exclude the possibility of differences due to weathering. This data is tabulated on page seven and depicted graphically on page eight.

Basic crude tests were performed on the stock tank oil as requested by Amoco and this data is reported on page six.

Page ii

We thank Amoco Australia Petroleum Co. for the opportunity to be of service. Please do not hesitate in contacting us should you require any further information.

Yours faithfully,

A handwritten signature in black ink, appearing to be 'Jan Bon', written in a cursive style with several loops and flourishes.

Jan Bon,
Manager.

JB/gm/dc

Company : Amoco Australia Petroleum Co. Date Sampled : 4th October, 1985
Well : Yolla #1, DST #3 State : Tasmania
Field : Wildcat Country : Australia

FORMATION CHARACTERISTICS

Formation Name :
* Original Reservoir Pressure : 2695 psig @ 6012 ft
Original Produced Gas-Oil Ratio :
Production Ratio :
Separator Pressure and Temperature :
Liquid Gravity @ 60°F :
Datum :

WELL CHARACTERISTICS

Elevation : 35.75 ft RKB
Total Depth :
Producing Interval : 5947 - 6015 ft RKB
Tubing Size : 4½ inch drill pipe
Open Flow Potential :
Last Reservoir Pressure : Original Test
Date :
** Reservoir Temperature : 209°F @ 6012 ft RKB
Status of Well :
Pressure Gauge :

SAMPLING CONDITIONS

Flowing Tubing Pressure : 950 psig
Flowing Bottom Hole Pressure :
Primary Separator Pressure : 625 psig
Primary Separator Temperature : 112°F
Secondary Separator Pressure :
Secondary Separator Temperature :
Field Stock Tank Liquid Gravity : 50.6°API @ 60°F
Primary Separator Gas Production Rate : 11800 MSCF/Day
Pressure Base : 14.73 psia
Temperature Base : 60°F
Compressibility Factor (Fpv) : 1.0670
Gas Gravity (Field) : 0.790
Gas Gravity Factor (Fg) : 1.12509
Separator Liquid Production Rate @ 112°F : 897 Bbls/Day
Primary Separator Gas/Separator Liquid Ratio : 13229 SCF/Bbl @ 625 psig & 112°F
or : 75.59 Bbl/MMSCF

Sampled by : Otis Engineering
REMARKS :

* Original reservoir pressure based on RFT point @ 6012 ft.
** Corrected from RPG gauge @ 5807 ft to 6012 ft using 2.5°/100 ft.

QUALITY CHECK OF SAMPLES RECEIVED IN THE LABORATORY

SEPARATOR GAS

Cylinder #: A8626
Opening Pressure: 734 psig @ 114°F

A11627
706 psig @ 113°F

A11032
679 psig @ 113°F

SEPARATOR LIQUID

Cylinder #: OT228T
Opening Pressure: 400 psig @ 63°F

OT035T
375 psig @ 67°F

OT069T
440 psig @ 64°F

Sample #:

1		2		3	
<u>cm³ Mercury Injected</u>	<u>Pressure, psig</u>	<u>cm³ Mercury Injected</u>	<u>Pressure, psig</u>	<u>cm³ Mercury Injected</u>	<u>Pressure, psig</u>
0	370	0	450	0	540
1	370	1	455	1	545
2	374	2	460	2	550
3	375	3	465	3	555
4	376	4	470	4	560
5	378	5	512	5	566
6	380	6	693	5.5	655
7	380	6.5	783	6	790
8	460	7	874	6.5	932
8.5	575	7.5	960	7	1072
9	690	8	1050	7.5	1210
9.5	810				
10	925				

Psat = 383 psig @ 67°F

Psat = 476 psig @ 64°F

Psat = 567 psig @ 64°F

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310077

HYDROCARBON ANALYSIS OF SEPARATOR GAS SAMPLE TO TRIDECANES PLUSCylinder #:

A8626

<u>Component</u>	<u>Mol Percent</u>	<u>GPM</u>
Helium	0.00	
Hydrogen Sulphide	0.00	
Carbon Dioxide	7.49	
Nitrogen	0.49	
Methane	74.66	
Ethane	8.98	2.395
Propane	5.11	1.402
iso-Butane	0.89	0.290
n-Butane	1.16	0.365
iso-Pentane	0.34	0.124
n-Pentane	0.28	0.101
Hexanes	0.21	0.081
Heptanes	0.19	0.177 (C7+)
Octanes	0.11	
Nonanes	0.05	
Decanes	0.02	
Undecanes	0.01	
Dodecanes	0.01	
Tridecanes plus	trace	
	<u>100.00</u>	<u>4.935</u>

Gas gravity (Air = 1.000):

0.780

Gross heating value (BTU
per cubic foot of dry gas
@ 14.696 psia and 60°F):

1165

HYDROCARBON ANALYSIS OF SEPARATOR LIQUID SAMPLE TO EICOSANES PLUS

Cylinder #:

OT069T

<u>Component</u>	<u>Mol Percent</u>	<u>Weight Percent</u>
Hydrogen Sulphide	0.00	0.00
Carbon Dioxide	2.59	1.13
Nitrogen	0.26	0.07
Methane	13.32	2.11
Ethane	6.56	1.95
Propane	9.10	3.96
iso-Butane	3.32	1.91
n-Butane	5.84	3.35
iso-Pentane	3.35	2.39
n-Pentane	3.48	2.48
Hexanes	5.75	4.94
Heptanes	10.86	10.30
Octanes	7.09	7.42
Nonanes	4.87	5.63
Decanes	3.77	4.92
Undecanes	2.21	3.25
Dodecanes	2.22	3.55
Tridecanes	1.97	3.46
Tetradecanes	1.58	3.03
Pentadecanes	1.43	2.91
Hexadecanes	1.52	3.33
Heptadecanes	1.48	3.49
Octadecanes	1.10	2.76
Nonadecanes	0.95	2.52
Eicosanes plus	5.38	19.14
	<u>100.00</u>	<u>100.00</u>

HIGH TEMPERATURE DISTILLATION OF HEXANES PLUS
 FRACTION OF RESERVOIR FLUID SAMPLE TO EICOSANES PLUS

<u>Component</u>	<u>Cut Temp °C</u>	<u>Mol Percent</u>	<u>Weight Percent</u>	<u>Volume Percent</u>	<u>Density, gm/cc @ 60°F</u>	<u>°API @ 60°F</u>	<u>Mol Weight</u>
	IBP 49						
Hexanes	84	11.02	6.13	6.59	0.6824	75.7	87
Heptanes	112	20.80	12.76	13.40	0.7406	59.4	96
Octanes	138	13.59	9.20	9.59	0.7609	54.3	106
Nonanes	162	9.33	6.98	7.19	0.7737	51.2	117
Decanes	185	7.23	6.10	6.21	0.7843	48.7	132
Undecanes	206	4.24	4.03	4.08	0.7892	47.6	149
Dodecanes	227	4.25	4.40	4.41	0.7966	46.0	162
Tridecanes	247	3.77	4.29	4.25	0.8061	43.9	178
Tetradecanes	266	3.03	3.76	3.70	0.8111	42.8	194
Pentadecanes	285	2.74	3.61	3.54	0.8151	41.9	206
Hexadecanes	304	2.91	4.12	4.03	0.8174	41.4	222
Heptadecanes	322	2.84	4.35	4.25	0.8174	41.4	239
Octadecanes	338	2.11	3.42	3.32	0.8224	40.4	254
Nonadecanes	353	1.83	3.14	3.05	0.8231	40.2	268
Eicosanes plus	FBP 353	10.31	23.71	22.39	0.8470	35.4	360
		<u>100.00</u>	<u>100.00</u>	<u>100.00</u>			

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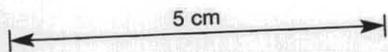
310080

BASIC CRUDE TESTS ON STOCK TANK OIL

Sample:	OT069T
Pour Point:	59°F
Wax Content:	7.721%
Kinematic Viscosity: (centistokes)	No movement @ 60°F 2.091 @ 80°F 1.690 @ 100°F 1.245 @ 150°F 0.830 @ 212°F
Water and Sediment (BS&W):	0.975%

FINGERPRINT ANALYSIS - RELATIVE RATIO DATA

<u>Cylinder #:</u>	<u>OT069T</u>
nC6/nC13	1.79
MCP/nC7	1.22
CH/nC7	0.95
nC7/nC13	0.84
MCH/nC8	1.50
To1/nC8	1.00
nC8/nC13	1.26
Ethyl BZ/nC9	0.16
P&M Xyl/nC9	1.16
O-Xyl/nC9	0.53
nC9/nC13	1.23
i-Propyl BZ/nC10	0.26
n-Propyl BZ/nC10	0.11
1,2,4 Trim BZ/nC10	0.60
nC10/nC13	1.16
IM3 Propyl BZ/nC11	0.11
Butyl BZ/nC11	0.12
1,3 Dim 4ET BZ/nC11	0.16
nC11/nC13	1.15
nC12/nC13	0.98
<u>Farnesane/nC14</u>	0.46
<u>nC14/nC13</u>	0.99
nC15/nC13	0.90
nC16/nC13	0.80
nC17/nC13	0.71
<u>Pristane/nC17</u>	1.30
<u>nC18/nC13</u>	0.83
<u>Phytane/nC18</u>	0.23
<u>nC19/nC13</u>	0.84
nC20/nC13	0.88
nC21/nC13	0.98
nC22/nC13	0.98
nC23/nC13	1.09
nC24/nC13	1.00
nC25/nC13	1.08
nC26/nC13	0.92
nC27/nC13	0.94
nC28/nC13	0.75
nC29/nC13	0.70
nC30/nC13	0.41



Company Amoco Australia Petroleum Co. Formation _____
Well Yolla #1, DST #3 State Tasmania
Field Wildcat Country Australia

