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CORE LABORATORIES, INC.

Reply To:
10703 E. BETHANY DRIVE
AURORA, COLORADO 80014

October 23, 1984

Woods Petroleum Corporation
3817 Northwest Expressway, Suite 700
Oklahoma City, Oklahoma 73112

Attention: Mr. Jeff Callard

Subject:

Preliminary Phase Determination
USA-Federal 22-1 Well
Wildcat
Converse County, Wyoming
File Number: ARFL-840138

Gentlemen:

On October 11, 1984 duplicate subsurface samples were collected from the subject well by a representative of Cable, Inc. The samples were forwarded to our Aurora laboratory for phase determination. The results of these determinations are presented in this preliminary report.

A portion of each bottom-hole sample was charged to a high pressure, windowed cell at room temperature and a visual bubble point was then measured. This data is shown on page two. The samples were then expanded to the reported reservoir temperature of 253°F. During constant composition expansions at this temperature both samples were observed to have bubble points. The pressure-volume relations and liquid volume data is presented on pages three and four.

If you should have any questions pertaining to these test results or if we can be of further assistance, please do not hesitate to contact us at (303)751-9334.

Very truly yours,

CORE LABORATORIES, Inc.

Craig L. Bromley

Craig L. Bromley
Reservoir Fluid Supervisor

CLB/sss
4 cc addressee

File ARFL-840138

Company Woods Petroleum Corporation
Date Sampled October 11, 1984
Well USA-Federal 22-1
County Converse
Field Wildcat
State Wyoming

FORMATION CHARACTERISTICS

Formation Name	
Date First Well Completed	
Original Reservoir Pressure	PSIG @ Ft.
Original Produced Gas/Oil Ratio	SCF/Bbl
Production Rate	Bbl/Day
Separator Pressure and Temperature	PSIG °F.
Oil Gravity at 60°F.	°API
Datum	Ft. Subsea
Original Gas Cap	

WELL CHARACTERISTICS

Elevation	Ft.
Total Depth	Ft.
Producing Interval	Ft.
Tubing Size and Depth	In. to Ft.
Productivity Index	Bbl/D/PSI @ Bbl/Day
Last Reservoir Pressure	5112 PSIG @ Ft.
Date	
Reservoir Temperature	253 °F. @ Ft.
Status of Well	
Pressure Gauge	
Normal Production Rate	Bbl/Day
Gas/Oil Ratio	SCF/Bbl
Separator Pressure and Temperature	PSIG, °F.
Base Pressure	PSIA
Well Making Water	% Cut

SAMPLING CONDITIONS

Sampled at	Ft.
Status of Well	
Gas/Oil Ratio	SCF/Bbl
Separator Pressure and Temperature	PSIG, °F.
Tubing Pressure	PSIG
Casing Pressure	PSIG
Sampled by	Cable, Inc.
Type Sampler	Wofford

REMARKS:

SUMMARY OF SAMPLES RECEIVED IN LABORATORY

Subsurface Fluid Samples

Cylinder Number	Laboratory Bubble Point Pressure* Pressure, PSIG	Temperature, °F.
259691	4258	72
259756	4246	72

*Visual Bubble Point in Windowed Cell

VOLUMETRIC DATA OF RESERVOIR FLUID SAMPLE*

Saturation pressure (bubble point pressure) = 4879 PSIG @ 253°F.

Specific volume at saturation pressure = 0.03496 ft^3/lb @ 253°F.

Thermal expansion @ 6000 PSIG = 1.20750 V @ 253°F./V @ 76°F.

Compressibility @ 253°F.:

From 8000 PSIG to 6000 PSIG = 29.41×10^{-6} V/V/PSI

From 6000 PSIG to 5111 PSIG = 40.65×10^{-6} V/V/PSI

From 5111 PSIG to 4879 PSIG = 52.16×10^{-6} V/V/PSI

*Cylinder Number 259691

File ARFL-840138

Well USA-Federal 22-1

PRESSURE-VOLUME RELATIONS OF RESERVOIR FLUID AT 253°F.*

Pressure, PSIG	Relative Volume(1)	Liquid Volume Volume(1)	Liquid Volume Volume(2)
8000	0.8962		
7500	0.9096		
7000	0.9230		
6500	0.9367		
6000	0.9522		
5500	0.9709		
5200	0.9838		
5111(3)	0.9879		
5000	0.9939		
4879(4)	1.0000	100.0	100.0
4843	1.0028	85.1	85.3
4812	1.0053	65.9	66.2
4788	1.0072	62.5	63.0
4768	1.0089	61.0	61.5
4742	1.0110	59.7	60.4
4657	1.0184	56.1	57.1
4465	1.0366	51.5	53.4
4133	1.0742	47.0	50.5
3739	1.1307	44.1	49.9
3360	1.2070	40.9	49.4
2935	1.3229	36.3	48.1
2302	1.5955	28.7	45.8
1931	1.8698	23.9	44.7
1668	2.1447	20.2	43.3
1489	2.4005	17.8	42.6
1161	3.0927		
854	4.2568		
607	6.0955		

*Cylinder Number 259691

(1) Liquid volume is liquid phase volume expressed as a percent of the total volume of gas and liquid at the indicated pressure.

(2) Liquid volume is liquid phase volume expressed as a percent of volume at saturation pressure.

(3) Reservoir Pressure

(4) Bubble Point Pressure

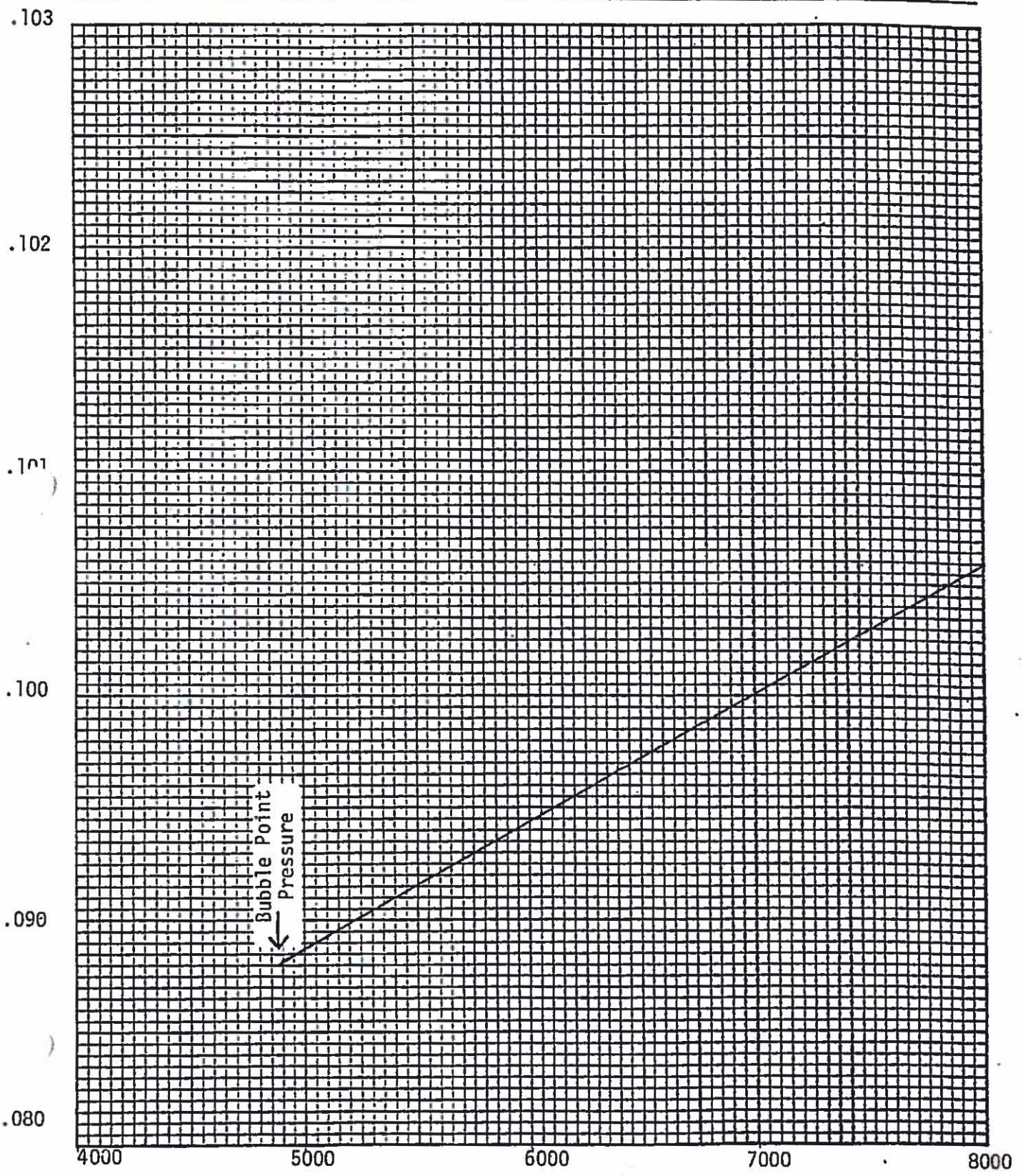
VISCOSITY DATA AT 253°F.*

Pressure, PSIG	Oil Viscosity Centipoise
8000	0.106
7500	0.103
7000	0.100
6500	0.097
6000	0.094
5500	0.092
5200	0.090
5111	0.089
4879	0.088
0	1.048

*Cylinder Number 259691

PARTIAL VISCOSITY OF RESERVOIR FLUID @ 253°F.

Company Woods Petroleum Corporation — Formation
Well USA-Federal 22-1 — County Converse
Field Wildcat — State Wyoming



PRESSURE PSIG

VOLUMETRIC DATA OF RESERVOIR FLUID SAMPLE*

Saturation pressure (bubble point pressure) = 4862 PSIG @ 253°F.

Specific volume at saturation pressure = 0.03504 ft^3/lb @ 253°F.

Thermal expansion @ 6000 PSIG = 1.20764 V @ 253°F./V @ 76°F.

Compressibility @ 253°F.:

From 8000 PSIG to 6000 PSIG = 28.87×10^{-6} V/V/PSI

From 6000 PSIG to 5111 PSIG = 39.72×10^{-6} V/V/PSI

From 5111 PSIG to 4862 PSIG = 57.83×10^{-6} V/V/PSI

*Cylinder Number 259756

PRESSURE-VOLUME RELATIONS OF RESERVOIR FLUID AT 253°F.*

Pressure, PSIG	Relative Volume(1)	Liquid Volume Volume(1)	Liquid Volume Volume(2)
8000	0.8959		
7500	0.9091		
7000	0.9212		
6500	0.9350		
6000	0.9508		
5500	0.9689		
5200	0.9818		
5111(3)	0.9856		
5000	0.9918		
4900	0.9989		
4862(4)	1.0000	100.0	100.0
4838	1.0019	82.8	83.0
4818	1.0035	70.6	70.9
4795	1.0054	64.1	64.4
4773	1.0072	62.2	62.7
4752	1.0090	60.6	61.2
4750	1.0253	54.7	56.1
4229	1.0625	49.2	52.3
3812	1.1189	45.6	51.0
3407	1.1949	41.7	49.8
2968	1.3096	36.8	48.2
2562	1.4642	32.0	46.9
2211	1.6583	27.4	45.4
1912	1.8922	23.5	44.5
1629	2.2024	19.7	43.5
1343	2.6736		
1091	3.3052		
820	4.4621		
593	6.2790		

*Cylinder Number 259756

(1) Liquid volume is liquid phase volume expressed as a percent of the total volume of gas and liquid at the indicated pressure.

(2) Liquid volume is liquid phase volume expressed as a percent of volume at saturation pressure.

(3) Reservoir Pressure

(4) Bubble Point Pressure