Case 537

CORE ANALYSIS REPORT

For

Lowry et al Operating Account

Federal 4-13-132 Well

Wildcat

Rio Arriba County, New Mexico

Core Laboratories, Inc.
Dallas, Texas

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS
November 21, 1951

Lowry, et al.
Box 967
Farmington, New Mexico

Attention: Mr. Frank O. Grey

Subject: Core Analysis
Federal 4-13-132 Well
Wildcat
Rio Arriba County, New Mexico

Gentlemen:

Diamond conventional cores from the subject well in the Tocito formation have been sampled and quick-frozen by a representative of Lowry, et al. and analyzed in our Farmington, New Mexico laboratory. Results of analysis are presented in tabular and graphical form on the attached Coregraph. Water base mud was used as the drilling fluid.

Shale and sandy shale analyzed from 6649 to 6675 feet are interpreted to be nonproductive due to low permeability.

Sand analyzed from 6675 to 6692 feet is interpreted to be essentially oil productive. The productive capacity, average permeability times thickness, is 2346 millidarcy-feet and the average permeability is 138 millidarcys, sufficient for a satisfactory oil rate upon completion. The average residual oil saturation and calculated connate water saturation are 15.1 and 25 per cent of pore space, respectively, within the range of water-free, oil productive sands.

Sandy shale analyzed from 6692 to 6695 feet is interpreted to be essentially nonproductive due to low permeability; however, these three feet show an increase in per cent water saturation and when a pressure differential is applied across the formation they might possibly show

some water-cut. It is recommended that completion be limited to the sand from 6675 to 6692 feet.

The points indicated by an asterisk between the depths of 6699 and 6705 feet are interpreted to be essentially nonproductive due to low permeability.

Sand analyzed from 6706 to 6716 feet is interpreted to be very low capacity, oil productive; however, due to the low capacity, it is doubtful if any appreciable volumes of oil will be produced from this zone.

Recovery figures for the zone, 6675 to 6692 feet, are given on page one.

We hope these data prove beneficial in the evaluation of this well.

Very truly yours,

CORE LABORATORIES, INC.

J D Harris (PB)

J. D. Harris,
District Engineer

JDH:jr

RM P-...A

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS

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CORE SUMMARY AND CALCULATED RECOVERABLE OIL

CORE SUMMARY

FORMATION NAME	TOCITO			
DEPTH, FEET	6675.0-6692.0			
% CORE RECOVERY	100			
FEET OF PERMEABLE, PRODUCTIVE FORMATION RECOVERED	17.0			
AVERAGE PERMEABILITY MILLIDARCYS	138			
CAPACITY — AVERAGE PERMEABILITY × FEET PRODUCTIVE FORMATION	2346			
AVERAGE POROSITY, PERCENT	15.1			
AVERAGE RESIDUAL OIL SATURATION, % PORE SPACE	15.1			
GRAVITY OF OIL, °A.P.I.	OVER 42			
AVERAGE TOTAL WATER SATURATION, % PORE SPACE	27.3			
AVERAGE CALCULATED CONNATE WATER SATURATION, % PORE SPACE	25			
SOLUTION GAS-OIL RATIO, CUBIC FEET PER BARREL (1)	800			
FORMATION VOLUME FACTOR—VOLUME THAT ONE BARREL OF STOCK TANK OIL OCCUPIES IN RESERVOIR (1)	1.46			

CALCULATED RECOVERABLE OIL

Prediction dependent upon complete isolation of each division. Structural position of well, total permeable thickness of oil zone and drainage area of well should be considered.

BY NATURAL OR GAS EXPANSION, BBLS. PER ACRE FOOT (2)	148			
INCREASE DUE TO WATER DRIVE, BBLS. PER ACRE FOOT	277			
TOTAL AFTER COMPLETE WATER DRIVE, BBLS. PER ACRE FOOT (3)	425			

CORE LABORATORIES, INC.

J D Harris (PB)

J. D. Harris

NOTE:

(*) REFER TO ATTACHED LETTER.

(1) REDUCTION IN PRESSURE FROM estimated SATURATION PRESSURE TO ATMOSPHERIC PRESSURE.

(2) AFTER REDUCTION FROM ORIGINAL RESERVOIR PRESSURE TO ZERO POUNDS PER SQUARE INCH.

(3) RESERVOIR PRESSURE MAINTAINED BY WATER DRIVE AT OR ABOVE estimated ORIGINAL SATURATION PRESSURE.

(4) NO ESTIMATE FOR GAS PHASE RESERVOIRS.

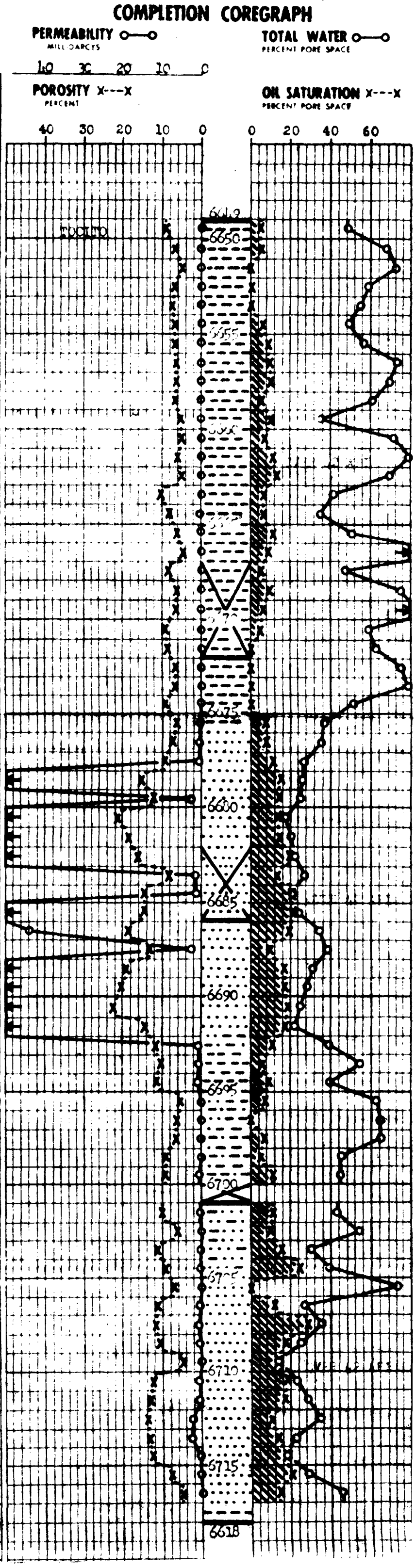
CORE LABORATORIES, INC. *Petroleum Reservoir Engineering*

COMPANY	LOMBY, ET AL.	**DATE**	11/6 - 11/15/51	**FILE**	[illegible] - 36 RC
WELL	FEDERAL 1-13-132	**CORES**	DIAMOND	**ANALYSTS**	LMV
FIELD	WILDCAT	**FORMATION**	OCOTO	**ELEVATION**	6515' KB
COUNTY	RIO ARRIBA	**DRLG. FLUID**	WATER BASED MUD	**LOCATION**	SEC. 9-22N-5W
STATE	NEW MEXICO	**REMARKS**	SERVICE # 5		

CORE ANALYSIS AND INTERPRETATION

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY	RESIDUAL LIQUID SATURATION % PORE SPACE		PROBABLE PROD
				OIL	TOTAL WATER	
1	6619.5	0.0	2.1	4.4	18.3	
2	20.5	0.0	6.8	5.9	67.7	
3	21.5	0.0	5.0	0.0	72.0	
4	22.5	0.0	6.7	0.0	59.8	
5	23.5	0.0	7.4	0.0	55.4	
6	24.5	0.0	6.7	6.0	19.3	
7	25.5	0.0	6.9	8.7	56.6	
8	26.5	0.0	6.7	9.5	73.0	
9	27.5	0.0	6.1	0.0	68.8	
10	28.5	0.0	6.0	5.9	80.3	
11	29.5	0.0	5.4	11.7	35.7	
12	30.5	0.0	5.3	7.5	71.7	
13	31.5	0.0	6.2	11.3	78.0	
14	32.5	0.0	5.4	13.0	60.5	
15	33.5	0.0	10.5	6.7	41.8	
16	34.5	0.0	0.3	7.2	3.2	
17	35.5	0.0	6.1	11.5	50.8	
18	36.5	0.0	4.5	8.9	82.2	
19	37.5	0.0	4.6	4.6	47.7	
20	38.5	0.0	6.1	3.8	74.4	
21	39.5	0.0	6.3	6.3	81.3	
22	40.5	0.0	2.3	4.3	59.1	
23	41.5	0.0	4.7	0.0	63.2	
24	42.5	0.0	6.9	0.0	75.4	
25	43.5	0.0	7.0	0.0	78.6	
26	44.5	0.0	9.3	0.0	51.6	
27	45.5	0.1	6.3	7.9	36.5	OIL
28	46.5	0.4	7.6	7.9	35.5	OIL
29	47.5	0.6	9.9	11.1	27.3	OIL
30	48.5	132	15.7	15.9	26.1	OIL
31	49.5	2.8	12.9	11.0	25.6	OIL
32	50.5	80	21.5	13.5	17.2	OIL
33	51.5	345	18.9	14.3	20.1	OIL
34	52.5	133	16.2	19.7	22.8	OIL
35	53.5	1.6	8.4	13.1	27.4	OIL
36	54.5	1.3	14.8	20.9	20.9	OIL
37	55.5	101	14.9	22.1	24.1	OIL
38	56.5	44	18.3	19.7	34.4	OIL
39	57.5	2.2	13.7	8.8	38.7	OIL
40	58.5	219	19.3	16.1	31.6	OIL
41	59.5	622	20.3	16.2	28.5	OIL
42	60.5	561	22.5	18.7	25.3	OIL
43	61.5	97	14.8	16.9	22.3	OIL
44	62.5	0.7	11.9	10.1	39.5	*
45	63.5	0.1	10.3	5.8	51.3	*
46	64.5	0.6	11.6	9.5	39.7	*
47	65.5	0.0	5.3	7.5	62.3	
48	66.5	0.0	6.1	0.0	64.0	
49	67.5	0.0	6.2	6.5	64.6	
50	68.5	0.0	9.3	4.3	45.2	
51	69.5	0.3	2.4	11.7	44.7	*
52	6701.5	0.1	10.0	11.0	43.0	*
53	02.5	0.0	6.1	9.8	51.1	
54	03.5	0.1	11.3	15.9	30.1	*
55	04.5	0.1	9.3	21.7	22.8	*
56	05.5	0.0	7.0	0.0	72.8	
57	06.5	0.2	11.7	12.0	27.4	OIL
58	07.5	0.5	11.9	28.6	35.3	OIL
59	08.5	0.3	10.8	17.6	25.0	OIL
60	09.5	0.0	5.1	13.7	13.7	
61	10.5	0.7	12.2	18.0	23.0	OIL
62	11.5	0.7	13.3	16.5	28.6	OIL
63	12.5	2.1	13.8	10.1	34.8	OIL
64	13.5	2.5	13.1	13.7	22.9	OIL
65	14.5	0.2	12.1	17.4	17.4	OIL
66	15.5	0.1	7.9	20.2	22.1	OIL
67	6716.5	0.0	1.8	11.6	45.8	

COMPLETION COREGRAPH



Lowry et al Operating Account

Core Analysis Report

Federal Lease

Well Number 4-13-132

Rio Arriba County, New Mexico