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CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

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CP-1-4361
CP-10-787

4408-29
4444-56

CORE ANALYSIS RESULTS

Company CONTINENTAL OIL COMPANY Formation SIMPSON File CP-10-787
Well J. BREHM NO. 5 Core Type DIAMOND Date Report 2-12-62
Field BREHM Drilling Fluid WATER BASE MUD Analysts WELBORNE
County PRATT State KANSAS Elev. 1941' RB Location NE SW SEC. 23-28S-13W

Lithological Abbreviations

SAND-SD SHALE-SH LIME-LM DOLOMITE-DOL CHERT-CH GYPSUM-GYP ANHYDRITE-ANHY CONGLOMERATE-CONG FOSSILIFEROUS-FOSS SANDY-SOY SHALY-SHY LIMY-LMY FINE-FN MEDIUM-MED COARSE-CSE CRYSTALLINE-XLN GRAIN-GRN GRANULAR-GRNL BROWN-BRN GRAY-GY VUGGY-VGY FRACTURED-FRAC LAMINATION-LAM STYLOLITIC-STY SLIGHTLY-SL/ VERY-V/ WITH-W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS O Max.	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE		SAMPLE DESCRIPTION AND REMARKS	
				OIL	TOTAL WATER		
14-17	18-23	28-33	34-39	24-26	40-41	42-44	
1	4295.0-96.4	278*	15.2	1.6	50.6	Sd, shy	
2	4296.4-97.1	6.4*	14.4	1.8	66.6	Sd, v/shy	
3	4297.1-98.6	82	17	14.8	2.3	49.3	Sd, shy
4	4298.6-00.0	78	50	18.7	1.8	51.3	Sd, sl/shy
5	4300.0-01.2	106	99	12.9	2.0	25.5	Sd, sl/shy
6	4301.2-03.0	186	162	12.9	2.7	31.0	Sd, sl/shy
7	4303.0-04.4	168	155	12.1	1.2	26.4	Sd, sl/shy
8	4304.4-06.1	27	27	9.3	2.1	23.6	Sd, shy
9	06.1-07.7	15	10	8.3	1.9	20.4	Sd, shy
10	07.7-09.4	7.0	5.6	8.1	1.1	22.2	Sd, shy
11	09.4-11.2	7.0	4.8	8.2	1.3	21.9	Sd, shy
12	11.2-12.7	16	9.1	8.6	1.2	23.2	Sd, shy
13	12.7-14.1	5.0	4.6	7.5	2.1	28.0	Sd, shy
14	14.1-15.5	14	6.2	8.2	2.0	26.8	Sd, shy
15	15.5-17.1	9.1	6.8	7.7	1.8	24.6	Sd, shy
16	17.1-18.7	3.1	2.5	8.1	3.0	35.8	Sd, sl/shy
17	18.7-19.7	1.5	0.2	10.3	2.4	40.7	Sd, shy
18	19.7-21.0	0.7	0.4	10.9	3.2	33.0	Sd, sl/shy
19	21.0-22.7	4.2	2.9	10.0	2.1	37.0	Sd, shy
20	22.7-24.1	5.2	4.4	12.5	1.6	44.0	Sd, v/shy
21	24.1-25.7	5.1	2.6	12.0	2.0	45.8	Sd, v/shy
22	25.7-27.3	2.2	2.0	12.3	1.4	47.9	Sd, v/shy
23	4327.3-29.0	4.5	4.0	9.5	1.8	53.6	Sd, v/shy
	4329.0-29.5						Lost Core
	4329.5-75.0						Drilled
	4375.0-96.0						Sh
24	4396.0-97.5	26	14	16.0	2.0	70.0	Sd, v/shy
25	4397.5-99.0	10	6.5	14.7	2.2	72.1	Sd, v/shy
26	4399.0-00.6	35*		14.1	2.4	67.3	Sd, v/shy
27	4400.6-02.0	29*		16.3	2.5	73.0	Sd, v/shy
28	4402.0-03.9	127*		17.5	3.6	62.2	Sd, shy, <u>vert frac</u>
29	4403.9-05.7	58	38	16.2	3.7	63.5	Sd, shy, <u>vert frac</u>
30	4405.7-07.4	19	18	11.8	5.5	49.1	Sd, sl/shy
31	4407.4-08.7	61	41	16.8	3.5	58.9	Sd, sl/shy
32	4408.7-10.0	149	96	16.9	4.7	59.7	Sd, sl/shy

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CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

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Well J. Brehm No. 5

CORE ANALYSIS RESULTS

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYs		POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE		SAMPLE DESCRIPTION AND REMARKS
		Max.	90°		OIL	TOTAL WATER	
33	4410.0-11.7	189*		13.7	3.6	51.0	Sd, shy
34	4411.7-13.7	9.5	1.3	12.8	3.9	47.6	Sd, sl/shy
35	4413.7-15.5	528*		19.8	3.5	56.0	Sd ✓
36	4415.5-17.0	30	13	14.1	3.5	65.2	Sd
37	4417.0-19.0	39*		13.6	16.1	42.6	Sd, vert frac
PF	4419.0-21.0						Lost Core
38	4421.0-23.0	1.0	0.5	11.1	4.5	61.2	Sd, shy
39	4423.0-24.7	7.8	1.6	10.3	5.8	59.2	Sd, dol, v/shy
40	4424.7-26.0	2.0	1.8	9.5	5.2	62.1	Dol, sdy, sl/shy
41	26.0-27.8	0.6	0.4	7.7	5.1	64.9	Dol, sdy, sl/shy, sl/vgy
42	27.8-29.4	<0.1	<0.1	10.5	1.9	75.2	Dol, v/shy, sl/vgy, vert frac
43	29.4-30.4	1.3*		9.0	2.2	67.7	Dol, v/shy, chert
44	30.4-32.1	9.6	4.1	8.6	5.8	55.8	Dol, sdy, vgy, chert, vert frac
45	32.1-33.8	0.6	0.1	7.1	7.0	54.9	Dol, sdy, shy, vgy, chert
46	4433.8-35.0	1.9	1.0	6.1	4.9	62.2	Dol, sdy, sl/shy, vgy, chert
	4435.0-36.0						Too broken for analysis
47	4436.0-37.0	16	3.9	6.9	7.2	26.0	Sd, dol, vert frac
48	4437.0-37.8	1.3*		8.6	4.6	61.6	Dol, sdy, v/shy
49	4437.8-39.5	31	7.9	8.5	11.7	32.9	Dol, sdy, sl/shy, vgy
50	39.5-41.0	11	7.1	7.4	12.1	36.4	Dol, sdy, vgy ✓
51	41.0-42.5	8.4	3.9	8.1	13.5	41.9	Dol, sdy, vgy
52	42.5-44.0	9.1	7.9	8.3	14.4	38.5	Dol, sdy, vgy
53	44.0-45.6	10	0.1	6.6	16.6	30.3	Dol, sdy, vgy ✓
54	45.6-47.0	5.2	0.4	6.3	12.7	31.7	Dol, shy, vgy, chert
55	47.0-48.5	0.1*		8.9	14.6	39.3	Dol, vgy, chert ✓
56	48.5-50.0	0.3*		12.2	17.2	31.1	Dol, vgy, chert ✓
57	50.0-51.2	0.2	0.1	6.0	3.3	81.6	Dol, sl/shy, vgy
58	51.2-52.9	<0.1	<0.1	8.5	11.7	44.7	Dol, sl/shy, vgy
59	52.9-54.9	2.6	0.5	6.6	9.0	54.5	Dol, sl/shy, sl/vgy, vert frac
60	4454.9-56.9	1.7	0.2	6.2	9.6	51.6	Dol, sl/vgy, vert frac
	4456.9-58.0						Sh
61	4458.0-60.0	1.0	0.3	10.6	5.6	74.5	Dol, shy, sl/vgy
62	4460.0-61.4	0.4	0.1	11.8	6.7	68.6	Dol, shy, sl/vgy
63	4461.4-62.4	1.3	1.0	10.6	8.4	57.5	Dol, shy, sl/vgy
64	62.4-64.0	<0.1	<0.1	12.1	0.8	86.7	Dol, v/shy
65	64.0-65.0	<0.1*		13.4	0.7	80.5	Dol, v/shy
66	65.0-67.0	65	3.1	11.6	1.7	82.7	Dol, shy, sucrosic
67	67.0-69.0	<0.1	<0.1	9.3	1.0	68.8	Dol, v/shy
68	4469.0-70.0	<0.1	<0.1	4.7	21.2	44.6	Dol, sl/shy, chert
	4470.0-71.0						Too broken for analysis

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Petroleum Reservoir Engineering
DALLAS, TEXAS

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Well J. Brehm No. 5⁷⁸⁷

CORE ANALYSIS RESULTS

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYs		POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE		SAMPLE DESCRIPTION AND REMARKS
		Max.	90		OIL	TOTAL WATER	
69	4471.0-72.2	0.6	<0.1	8.8	10.2	56.8	Dol, shy, chert
70	4472.2-74.0	0.2	0.1	4.9	10.2	55.1	Dol, sl/shy, chert ✓
71	4474.0-75.3	0.4	<0.1	3.4	5.8	64.7	Dol, vert frac
72	75.3-76.4	0.7	<0.1	4.4	4.5	68.1	Dol, vert frac
73	76.4-78.0	1.0	0.6	7.4	16.2	48.6	Dol, sl/chert, <u>vert frac</u>
74	78.0-79.2	1.8	0.4	6.3	11.1	50.7	Dol, chert, <u>vert frac</u>
75	79.2-80.0	0.1	<0.1	8.3	8.4	44.5	Dol, chert, <u>vert frac</u>
76	80.0-81.9	0.9	0.8	8.3	4.8	49.3	Dol, sl/shy, <u>sl/chert</u> , <u>vert frac</u>
77	81.9-83.3	0.1	<0.1	9.0	8.8	50.0	Dol, sl/shy, <u>vert frac</u>
78	83.3-85.0	0.2	<0.1	12.2	9.0	57.3	Dol, sl/shy, <u>vert frac</u>
79	4485.0-87.0	<0.1	<0.1	12.1	9.0	53.7	Dol, sl/shy, <u>vert frac</u>

* DENOTES MATRIX PERMEABILITY.

THIS IS THE FINAL REPORT.

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ATT: MR. O. C. KERR
BOX 30
LYONS, KANSAS

CORE LABORATORIES, INC.



Petroleum Reservoir Engineering

COMPANY CONTINENTAL OIL COMPANY FIELD BREHM FILE CP-1-4361
 WELL J. BREHM NO. 5 COUNTY PRATT DATE 3-12-62
 LOCATION NE SE SW SEC. 23-28S-13W STATE KANSAS ELEV. 1941' KB

CORE-GAMMA CORRELATION

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VERTICAL SCALE: 5" = 100'

CORE-GAMMA SURFACE LOG

(PATENT APPLIED FOR)

GAMMA RAY

RADIATION INCREASE →

COREGRAPH

TOTAL WATER

PERCENT TOTAL WATER

80 60 40 20

PERMEABILITY

MILLIDARCYS

POROSITY

PERCENT

OIL SATURATION

PERCENT PORE SPACE

0 20 40 60 80

4295

4300

4329

DRILLED

4396

4400

30

4450

4450

4329

DRILLED

4396

4400

5 10 5 0

30

4450

4450

4487