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GENERAL INFORMATION & SUMMARY

Company Jackson Brothers Lease Barrier Well No. 24

Location NW¼

Section 3 Twp. 26S Rge. 8E County Greenwood State Kansas

Name of Sand	Bartlesville
Top of Core	2494.0
Bottom of Core	2521.5
Top of Sand Permeable	2517.7
Bottom of Sand Permeable	2521.0
Total Feet of Permeable Sand	3.3
Total Feet of Floodable Sand	-

Distribution of Permeable Sand:

Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 1	1.5	1.5
1 & above	1.8	3.3

Average Permeability Millidarcys	0.88
Average Percent Porosity	13.3
Average Percent Oil Saturation	19.2
Average Percent Water Saturation	69.3
Average Oil Content, Bbls./A. Ft.	200.
Total Oil Content, Bbls./Acre	2,917.
Average Percent Oil Recovery by Laboratory Flooding Tests	
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	
Total Calculated Oil Recovery, Bbls./Acre	
Packer Setting, Feet	
Viscosity, Centipoises @	
A. P. I. Gravity, degrees @ 60 °F	
Elevation, Feet	

Fresh water mud was used as the circulating fluid during the coring of the sand.

This core was sampled and the samples were sealed in plastic bags by a representative of Oilfield Research Laboratories.

FORMATION CORED

The detailed log of the formation cored is as follows:

Depth Interval, Feet	Description
2494.0 - 2496.3	Gray shaley sandstone.
2496.3 - 2499.0	Shale.
2499.0 - 2502.0	Loss.
2502.0 - 2508.7	Sandy shale.
2508.7 - 2514.9	Gray shaley sandstone.
2514.9 - 2516.2	Brownish gray shaley sandstone.
2516.2 - 2521.0	Grayish light brown shaley sandstone.
2521.0 - 2521.5	Shale.

Coring was started at a depth of 2494.0 feet in gray shaley sandstone and completed at 2521.5 feet in shale. This core shows a total of 14.6 feet of sandstone. For the most part, the pay is made up of shaley sandstone.

PERMEABILITY

For the sake of distribution, the core was divided into two sections. The weighted average permeability of the upper and lower sections is 0.62 and 0.92 millidarcys respectively; the overall average being 0.88 (See Table III). By observing the data given on the core-graph, it is noticeable that the sand is very tight. The permeability of the sand varies from 0.32 to a maximum of 1.5 millidarcys.

PERCENT SATURATION & OIL CONTENT

The sand in this core shows a low weighted average percent oil saturation, namely, 19.2. The weighted average percent oil saturation of the upper and lower sections is 18.4 and 20.7 respectively. The weighted average percent water saturation of the upper and lower sections is 73.2 and 61.4 respectively; the overall average being 69.3 (See Table III). This gives an overall weighted average total fluid saturation of 88.5 percent.

In an effort to determine whether or not any flushing of the sand occurred during coring, all of the saturation samples were analyzed for chloride content. The results of these tests are given in Tables VI and VII.

The weighted average oil content of the upper and lower sections is 155 and 291 barrels per acre foot respectively; the overall average being 200. The total oil content, as shown by this core, is 2,917 barrels per acre (See Table III).

LABORATORY FLOODING TESTS

The sand in this core did not respond satisfactorily to laboratory flooding tests, as all samples were found to be impermeable.

CONCLUSION

This core shows a thin shaley sand section that has a low oil saturation and is very tight. It is evident that this well was probably drilled near the edge of the trend.

The sand in the core has low permeability and did not respond satisfactorily to laboratory flooding tests. This well probably would not make a commercial producer unless it can be factured into the better sand sections found in nearby wells.

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RESULTS OF PERMEABILITY TESTS

TABLE I

Company Jackson Brothers Lease Barrier Well No. 24

Sample No.	Depth Feet	Permeability Millidarcys	Feet of Core		Permeability Capacity Ft. x Md.
			Ft.	Cum. Ft.	
1	2494.6	Imp.	0.8	0.8	0.00
2	2495.1	Imp.	0.5	1.3	0.00
3	2495.6	Imp.	0.5	1.8	0.00
4	2496.1	Imp.	0.5	2.3	0.00
5	2509.0	Imp.	0.7	3.0	0.00
6	2510.0	Imp.	0.8	3.8	0.00
7	2510.5	Imp.	0.5	4.3	0.00
8	2511.0	Imp.	0.5	4.8	0.00
9	2511.5	Imp.	0.5	5.3	0.00
10	2512.0	Imp.	0.5	5.8	0.00
11	2512.5	Imp.	0.5	6.3	0.00
12	2513.0	Imp.	0.5	6.8	0.00
13	2513.5	Imp.	0.5	7.3	0.00
14	2514.0	Imp.	0.5	7.8	0.00
15	2514.5	Imp.	0.7	8.5	0.00
16	2515.0	Imp.	0.3	8.8	0.00
17	2515.5	Imp.	0.5	9.3	0.00
18	2516.0	0.62	0.5	9.8	0.31
19	2516.5	0.32	0.5	10.3	0.16
20	2517.0	Imp.	0.5	10.8	0.00
21	2517.5	Imp.	0.5	11.3	0.00
22	2518.0	1.2	0.5	11.8	0.60
23	2518.5	Imp.	0.5	12.3	0.00
24	2519.0	0.38	0.5	12.8	0.19
25	2519.5	Imp.	0.5	13.3	0.00
26	2520.0	1.5	0.5	13.8	0.75
27	2520.5	1.1	0.8	14.6	0.88

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RESULTS OF SATURATION TESTS

TABLE II

Company Jackson Brothers Lease Barrier Well No. 24

Sat. No.	Depth, Feet	Effective Porosity Percent	Percent Saturation			Oil Content Bbls./A. Ft.	Feet of Core		Total Oil Content Bbls./Acre
			Oil	Water	Total		Ft.	Cum. Ft.	
1	2494.9	8.9	19	74	93	131	1.4	1.4	183
2	2495.9	10.5	15	73	88	122	0.9	2.3	110
3	2508.8	8.2	34	59	93	216	0.6	2.9	130
4	2509.7	8.6	9	82	91	60	0.5	3.4	30
F-4	2509.9	11.4	30	-	-	265	0.5	3.9	132
5	2510.8	11.6	30	61	91	270	1.0	4.9	270
6	2511.8	12.7	20	74	94	197	1.0	5.9	197
7	2512.8	10.7	26	64	90	216	1.0	6.9	216
8	2513.8	13.2	3	84	87	31	1.0	7.9	31
9	2514.8	10.4	8	86	94	65	0.6	8.5	39
10	2515.8	14.1	13	78	91	142	1.3	9.8	185
11	2516.8	13.9	14	67	81	151	1.1	10.9	166
12	2517.8	18.1	18	60	78	253	1.0	11.9	253
13	2518.8	19.9	35	58	93	541	1.0	12.9	541
14	2519.8	18.3	15	59	74	213	1.0	13.9	213
15	2520.8	17.7	23	62	85	316	0.7	14.6	221
							Total- - - - - -		2,917

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company Jackson Brothers Lease Barrier Well No. 24

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
2515.7 - 2516.2	0.5	0.62	0.31
2516.2 - 2521.0	2.8	0.92	2.58
2515.7 - 2521.0	3.3	0.88	2.89

Depth Interval, Feet	Feet of Core Analyzed	Average Percent Porosity	Average Percent Oil Saturation	Average Percent Water Saturation	Average Oil Content Bbl./A. Ft.	Total Oil Content Bbls./Acre
2494.0 - 2516.2	9.8	11.2	18.4	73.2	155	1,523
2516.2 - 2521.0	4.8	17.5	20.7	61.4	291	1,394
2494.0 - 2521.0	14.6	13.3	19.2	69.3	200	2,917

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Jackson Brothers Lease Barrier Well No. 24

Sample No.	Depth, Feet	Effective Porosity Percent	Original Oil Saturation		Oil Recovery		Residual Saturation			Volume of Water Recovered cc*	Effective Permeability Millidarcys**	Initial Fluid Production Pressure Lbs./Sq./In.
			%	Bbls./A. Ft.	%	Bbls./A. Ft.	% Oil	% Water	Bbls./A. Ft.			
1	2494.9	9.4	19	139	0	0	19	75	139	0	Imp.	50+
2	2495.9	10.8	12	100	0	0	12	82	100	0	Imp.	50+
3	2508.8	8.6	31	207	0	0	31	65	207	0	Imp.	50+
4	2509.9	11.4	30	265	0	0	30	59	265	0	Imp.	50+
5	2510.8	11.2	28	243	0	0	28	69	243	0	Imp.	50+
6	2511.8	12.5	21	204	0	0	21	73	204	0	Imp.	50+
7	2512.8	10.9	24	203	0	0	24	65	203	0	Imp.	50+
8	2513.8	13.5	7	73	0	0	7	86	73	0	Imp.	50+
9	2514.8	10.7	9	75	0	0	9	84	75	0	Imp.	50+
10	2515.8	13.9	17	183	0	0	17	79	183	0	Imp.	50+
11	2516.8	13.9	12	129	0	0	12	81	129	0	Imp.	50+
12	2517.8	18.2	15	212	0	0	15	75	212	0	Imp.	50+
13	2518.8	19.4	33	496	0	0	33	61	496	0	Imp.	50+
14	2519.8	18.0	14	196	0	0	14	70	196	0	Imp.	50+
15	2520.8	17.5	22	299	0	0	22	70	299	0	Imp.	50+

Notes: cc—cubic centimeter.

*—Volume of water recovered at the time of maximum oil recovery.

**—Determined by passing water through sample which still contains residual oil.

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RESULTS OF WATER DIFFERENTIATION TESTS

TABLE VI

Company Jackson Brothers Lease Barrier Well No. 24

Sample No.	Depth, Feet	Chloride Content of Brine in Sand ppm	Percent Water Saturation		
			Connate	Drilling & Foreign	Total
1	2494.9	99,500			
2	2495.9	102,000			
3	2508.8	76,500			
4	2509.7	61,400			
5	2510.8	70,900			
6	2511.8	69,600			
7	2512.8	77,400			
8	2513.8	85,600			
9	2514.8	75,400			
10	2515.8	86,700			
11	2516.8	79,000			
12	2517.8	76,700			
13	2518.8	85,000			
14	2519.8	77,500			
15	2520.8	77,500			

Note: ppm — parts per million

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SUMMARY OF WATER DIFFERENTIATION TESTS

TABLE VII

Company Jackson Brothers Lease Barrier Well No. 24

Depth Interval, Feet	Chloride Content of Brine in Sand, ppm	Average Percent Connate Water	Average Percent Drilling & Foreign Water
2494.0 - 2516.2	82,700		
2516.2 - 2521.0	79,350		
2494.0 - 2521.0	81,500		

Note: ppm — parts per million.