Fresh water mud was used as the circulating fluid while taking this core. The core was sampled and the samples sealed in cans by a representative of Oilfield Research Laboratories. The Upper Bartlesville core was out over night before being sampled. Only the Lower sand will be discussed below.

FORMATION CORED

The detailed log of the formation cored is as follows:

Depth Interval, Feet	Description
	Upper Bartlesville
2444.0 - 2446.0	Brown, slightly shaly sandstone.
2446.0 - 2456.0	Shale.
2456.0 - 2482.0	Drilled.
	Lower Bartlesville
2482.0 - 2493.0	Brown, slightly laminated, slightly shaly sandstone.
2493.0 - 2499.0	Shale.

Coring was started at a depth of 2482.0 feet in sandstone and completed at 2499.0 feet in shale. This core shows a total of 11.0 feet of sandstone. For the most part, the pay is made up of brown, slightly laminated, slightly shaly sandstone.

PERMEABILITY

The weighted average permeability of the section is 22.6 millidarcys (See Table III). By observing the data given on the coregraph, it is noticeable that the sand has a fairly irregular permeability profile. The permeability of the sand varies from 5.5 to a maximum of 54. millidarcys.

PERCENT SATURATION & OIL CONTENT

The sand in this core shows a good weighted average percent oil saturation, namely, 28.9. The weighted average percent water saturation is 49.9 (See Table III). This gives an overall weighted average total fluid saturation of 78.8 percent. This fairly low total fluid saturation

indicates considerable fluid was lost during coring most of which was probably oil.

In an effort to determine whether or not any flusing 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. From the data given in these tables and on the coregraph, it is evident that the zones of higher permeability were flushed to a greater extent than the tighter zone.

The weighted average oil content is 398 barrels per acre foot. The total oil content, as shown by this core, is 4,383 barrels per acre (See Table III).

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 1,666 barrels of oil per acre was obtained from 11.0 feet of sand. The weighted average percent oil saturation was reduced from 28.9 to 18.0, or represents an average recovery of 10.9 percent. The weighted average effective permeability of the samples is 1.07 millidarcys, while the average initial fluid production pressure is 31.8 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 11 samples tested, all produced water and oil. This indicates that approximately 100 percent of the sand represented by these samples is floodable pay sand. The tests also show that the sand has a wide variation in effective permeability to water.

CONCLUSION

The results of the laboratory tests indicate that efficient primary and secondary operations in the vicinity of this well should recover approximately 1,850 and 1,460 barrels of oil per acre respectively. These are average recoveries of 168 and 133 barrels per acre foot.

These recovery values were calculated using the following data and assumptions:

Original formation volume factor	1.23
Reservoir water saturation, percent	40.0
Expected primary recovery, estimated, percent	15.0
Average porosity, percent	17.8
Oil saturation after flooding, percent	18.0
Performance factor, percent	50.0
Net floodable pay sand, feet	11.0

This core shows a pay sand section having a good oil saturation, a moderate water saturation and a wide variation in effective permeability to water.

Oilfield Research Laboratories

RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Jackson Bros. Lease Barrier Well No. 29

Sample No.	Depth, Feet	Effective Porosity Percent	Percent Saturation			Oil Content Bbls. / A Ft.	Perm., Mill.	Feet of Sand		Total Oil Content	Perm. Capacity Ft. X md.
			Oil	Water	Total			Ft.	Cum. Ft.		
						-UPPER BARTLESVILLE-					
1	2444.1	15.8	2	44	46	25	11.	0.6	0.6	15	6.60
2	2445.1	16.7	14	37	51	181	51.	1.0	1.6	181	51.00
						-LOWER BARTLESVILLE-					
1	2482.1	17.9	30	54	84	417	5.5	0.6	0.6	250	3.30
2	2483.1	19.7	30	43	73	458	43.	1.0	1.6	458	43.00
3	2484.1	16.7	30	49	79	389	19.	1.0	2.6	389	19.00
4	2485.1	17.9	29	49	78	404	26.	1.0	3.6	404	26.00
5	2486.1	19.6	24	49	73	365	47.	1.0	4.6	365	47.00
6	2487.1	16.5	31	48	79	398	15.	1.0	5.6	398	15.00
7	2488.1	15.6	38	51	89	460	10.	1.0	6.6	460	10.00
8	2489.1	17.3	24	48	72	322	8.0	1.0	7.6	322	8.00
9	2490.1	21.3	28	42	70	464	54.	1.0	8.6	464	54.00
10	2491.1	18.4	31	46	77	443	6.4	1.0	9.6	443	6.40
11	2492.1	15.8	25	65	90	307	12.	1.4	11.0	430	16.80

Oilfield Research Laboratories

SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company Jackson Bros. Lease Barrier Well No. 29

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
		UPPER BARTLESVILLE	
2444.0 - 2445.6	1.6	36.0	57.60
		LOWER BARTLESVILLE	
2482.0 - 2493.0	11.0	22.6	248.50

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
			UPPER BARTLESVILLE			
2444.0 - 2445.6	1.6	16.4	9.5	39.6	128	196
			LOWER BARTLESVILLE			
2482.0 - 2493.0	11.0	17.8	28.9	49.9	398	4,383

Oilfield Research Laboratories

RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Jackson Bros. Lease Barrier Well No. 29

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.			
					-LOWER BARTLESVILLE-							
1	2482.1	17.6	30	408	15	204	15	79	204	20	0.500	30
2	2483.1	19.3	30	449	13	195	17	69	254	72	1.60	20
3	2484.1	17.0	30	396	15	198	15	78	198	39	0.700	30
4	2485.1	18.4	29	414	10	143	19	72	271	33	0.700	30
5	2486.1	19.4	24	361	10	150	14	78	211	157	4.10	20
6	2487.1	16.8	31	403	6	78	25	57	325	6	0.200	50
7	2488.1	16.0	38	471	13	161	25	69	310	41	0.900	30
8	2489.1	17.1	24	318	9	119	15	69	199	17	0.500	40
9	2490.1	21.0	28	456	13	211	15	69	245	77	1.60	20
10	2491.1	18.4	31	442	12	171	19	71	271	37	0.700	30
11	2492.1	15.5	25	300	7	84	18	73	216	8	0.300	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.

Oilfield Research Laboratories

RESULTS OF WATER DIFFERENTIATION TESTS

TABLE VI

Company Jackson Bros. Lease Barrier Well No. 29

Sample No.	Depth, Feet	Chloride Content of Brine in Sand ppm	Percent Water Saturation		
			Connate	Drilling & Foreign	Total
1	2482.1	17,870			
2	2483.1	26,830			
3	2484.1	89,500			
4	2485.1	90,400			
5	2486.1	71,300			
6	2487.1	92,200			
7	2488.1	95,000			
8	2489.1	99,750			
9	2490.1	55,425			
10	2491.1	95,800			
11	2492.1	95,100			

Note: ppm — parts per million