

OILFIELD RESEARCH LABORATORIES

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December 2, 1980

Oaks Petroleum, Inc.
% Calvin T. Oaks, Jr.
R. R. 2
Stoystown, Pennsylvania 15563

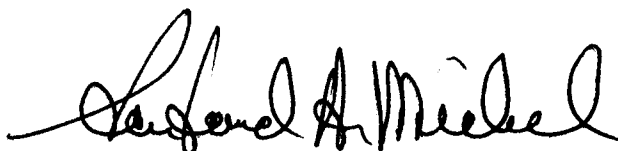
Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the F. Roseberry Lease, Well No. FR-2, located in Franklin County, Kansas and submitted to our laboratory on September 18, 1980.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES


Sanford A. Michel

SAM/mkf

2 c to Stoystown, Pennsylvania
3 c to Paola, Kansas

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GENERAL INFORMATION & SUMMARY

Company Oaks Petroleum, Inc. Lease F. Roseberry Well No. FR-2

Location 750' WEL & 165' NSL, E₁-SE₁

Section 12 Twp. 18S Rge. 20E County Franklin State Kansas

Elevation, Feet - - - - -

Name of Sand - - - - - Squirrel

Top of Core - - - - - 672.0

Bottom of Core - - - - - 677.0

Top of Sand - - - - - 678.0

Bottom of Sand - - - - - (Tested) 675.8

Total Feet of Permeable Sand - - - - - 3.3

Total Feet of Floodable Sand - - - - - 3.0

Distribution of Permeable Sand:
Permeability Range
Millidarcys

Feet

Cum. Ft.

1.4 - 20
38 - 90

1.3
2.0

1.3
3.3

Average Permeability Millidarcys - - - - - 44.1

Average Percent Porosity - - - - - 21.9

Average Percent Oil Saturation - - - - - 36.8

Average Percent Water Saturation - - - - - 35.8

Average Oil Content, Bbls./A. Ft. - - - - - 628.

Total Oil Content, Bbls./Acre - - - - - 2,071.

Average Percent Oil Recovery by Laboratory Flooding Tests - - - - - 9.3

Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft. - - - - - 161.

Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre - - - - - 482.

Total Calculated Oil Recovery, Bbls./Acre - - - - - See "Calculated Recovery" Section

This core was sampled and the samples sealed in plastic bags by a representative of the client. Fresh water mud was the circulating fluid while taking this core.

FORMATION CORED

The detailed log of the formation cored is as follows:

<u>Depth Interval, Feet</u>	<u>Description</u>
672.0 - 672.3	Brown calcareous sandstone.
672.3 - 672.8	Hard brown and gray very calcareous sandstone and limestone.
672.8 - 675.8	Brown sandstone.
675.8 - 676.2	Brown very shaly sandstone.
676.2 - 677.0	Gray sandy shale.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 482 barrels of oil per acre was obtained from 3.0 feet of sand. The weighted average percent oil saturation was reduced from 37.6 to 28.3, or represents an average recovery of 9.3 percent. The weighted average effective permeability of the samples is 2.59 millidarcys, while the average initial fluid production pressure is 25.0 pounds per square inch (See Table V).

CALCULATED RECOVERY

Based on the results of the laboratory testing, it appears that efficient primary and waterflooding operations in the vicinity of this well should recover approximately 1180 barrels of oil per acre. This is an average recovery of 394 barrels per acre foot from the 3.0 feet of floodable sand analyzed in this core

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

Original formation volume factor, estimated	1.05
Reservoir water saturation, percent, estimated	30.0
Average porosity, percent	22.0
Oil saturation after flooding, percent	28.3
Performance factor, percent, estimated	60.0
Net floodable pay sand, feet	3.0

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Oaks Petroleum, Inc. Lease F. Roseberry Well No. FR-2

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.		
1	672.2	23.3	29	44	73	524	1.4	0.3	0.3	157	0.42
2	673.5	20.8	33	36	69	533	18.	1.0	1.3	533	18.00
3	674.5	21.8	40	34	74	677	38.	1.0	2.3	677	38.00
4	675.5	22.7	40	35	75	704	89.	1.0	3.3	704	89.00

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company <u>Oaks Petroleum, Inc.</u>		Lease <u>F. Roseberry</u>		Well No. <u>FR-2</u>	
Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.		
672.0 - 675.8	3.3	44.1	145.42		
Depth Interval, Feet	Feet of Core Analyzed	Average Percent Porosity	Average Percent Oil Saturation	Average Percent Water Saturation	Total Oil Content Bbls./Acre
672.0 - 675.8	3.3	21.9	36.8	35.8	2,071

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company			Oaks Petroleum, Inc.			Lease			F. Roseberry			Well No. FR-2		
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.		
			%	Bbbls./A. Ft.	%	Bbbls./A. Ft.	% Oil	% Water	Bbbls./A. Ft.					
1	672.2	23.0	30	535	0	0	30	47	535	0	Imp.	-		
2	673.5	21.3	33	545	5	83	28	64	462	180	1.56	25		
3	674.5	21.5	40	667	10	167	30	59	500	133	3.40	25		
4	675.5	23.0	40	714	13	232	27	65	482	101	2.80	25		

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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SUMMARY OF LABORATORY FLOODING TESTS

TABLE V

Company	Oaks Petroleum, Inc.	Lease	F. Roseberry	Well No.	FR-2
Depth Interval, Feet	672.0 - 675.8				
Feet of Core Analyzed	3.0				
Average Percent Porosity	22.0				
Average Percent Original Oil Saturation	37.6				
Average Percent Oil Recovery	9.3				
Average Percent Residual Oil Saturation	28.3				
Average Percent Residual Water Saturation	62.6				
Average Percent Total Residual Fluid Saturation	90.9				
Average Original Oil Content, Bbls./A. Ft.	642.				
Average Oil Recovery, Bbls./A. Ft.	161.				
Average Residual Oil Content, Bbls./A. Ft.	481.				
Total Original Oil Content, Bbls./Acre	1,926.				
Total Oil Recovery, Bbls./Acre	482.				
Total Residual Oil Content, Bbls./Acre	1,444.				
Average Effective Permeability, Millidarcys	2.59				
Average Initial Fluid Production Pressure, p.s.i.	25.0				

NOTE: Only those samples which recovered oil were used in calculating the above averages.