

OILFIELD RESEARCH LABORATORIES

536 NORTH HIGHLAND - CHANUTE, KANSAS 66720 - PHONE (316) 431-2650

December 30, 1980

Oaks Petroleum, Inc.
c/o Calvin T. Oaks, Jr.
R R # 2
Stoystown, PA 15563

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the F. Roseberry Lease, Well No. FR-5, located in Franklin County, Kansas and submitted to our laboratory on October 22, 1980.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/kas

2 c to Stoystown, PA
3 c to Paola, KS

- REGISTERED ENGINEERS -

CORE ANALYSIS - WATER ANALYSIS - REPRESSURING ENGINEERING - SURVEYING & MAPPING - PROPERTY EVALUATION & OPERATION

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GENERAL INFORMATION & SUMMARY

Company Oaks Petroleum, Inc. Lease F. Roseberry Well No. FR-5

Location _____

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

Elevation, Feet - - - - -

Name of Sand - - - - - Squirrel

Top of Core - - - - - 670.0

Bottom of Core - - - - - 678.8

Top of Sand - - - - - 670.8

Bottom of Sand - - - - - 676.2

Total Feet of Permeable Sand - - - - - 5.4

Total Feet of Floodable Sand - - - - - 2.2

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 5	2.3	2.3
5 - 10	2.0	4.3
50 - 60	1.1	5.4

Average Permeability Millidarcys - - - - - 13.7

Average Percent Porosity - - - - - 15.7

Average Percent Oil Saturation - - - - - 41.1

Average Percent Water Saturation - - - - - 36.8

Average Oil Content, Bbls./A. Ft. - - - - - 466.

Total Oil Content, Bbls./Acre - - - - - 2519.

Average Percent Oil Recovery by Laboratory Flooding Tests - - - - - 9.5

Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft. - - - - - 133.

Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre - - - - - 292.

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

The core was sampled and the samples sealed in plastic bags by a representative of the client. Fresh water mud was used as a drilling fluid.

FORMATION CORED

The detailed log of the formation cored is as follows:

<u>Depth Interval, Feet</u>	<u>Description</u>
670.0 - 670.8	Hard gray calcareous fossiliferous sandy shale.
670.8 - 671.7	Brown slightly calcareous slightly shaly sandstone.
671.7 - 673.2	Grayish light brown slightly calcareous shaly sandstone.
673.2 - 674.0	Brown slightly calcareous shaly sandstone.
674.0 - 675.1	Brown slightly calcareous sandstone.
675.1 - 676.2	Brown slightly calcareous shaly sandstone.
676.2 - 678.8	Gray sandy shale.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 292 barrels of oil per acre was obtained from 2.2 feet of sand. The weighted average percent oil saturation was reduced from 44.0 to 34.5, or represents an average recovery of 9.5 percent. The weighted average effective permeability of the samples is 1.95 millidarcys, while the average initial fluid production pressure is 37.5 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 5 samples tested, 2 produced water and oil. This indicates that approximately 40 percent of the sand represented by these samples is floodable pay sand.

CALCULATED RECOVERY

It would appear from a study of the core data, that efficient primary and waterflood operations in the vicinity of this well should recover approximately 630 barrels of oil per acre. This is an average recovery of 287 barrels per acre foot from 2.2 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	25.0
Average porosity, percent	18.2
Oil saturation after flooding, percent	34.5
Performance factor, percent, estimated	55.0
Net floodable sand, feet	2.2

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Oaks Petroleum, Inc. Lease F. Roseberry Well No. FR-5

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	671.5	15.3	34	47	81	404	8.2	0.9	0.9	364	7.38
2	672.5	13.1	29	33	62	295	0.17	1.5	2.4	443	0.26
3	673.6	13.8	43	36	79	460	1.3	0.8	3.2	368	1.04
4	674.5	13.0	47	45	92	474	52.	1.1	4.3	521	57.20
5	675.5	23.5	41	26	67	748	7.4	1.1	5.4	823	8.14

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company		Lease		F. Roseberry		Well No.	
Oaks Petroleum, Inc.						FR-5	
Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys		Permeability Capacity Ft. x Md.			
670.8 - 676.2	5.4	13.7		74.02			

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
670.8 - 676.2	5.4	15.7	41.1	36.8	466	2,519

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Oaks Petroleum, Inc. Lease F. Roseberry Well No. FR-5

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	671.5	14.8	35	402	0	0	35	48	402	0	Imp.	-
2	672.5	13.0	29	292	0	0	29	36	292	0	Imp.	-
3	673.6	14.2	42	463	0	0	42	37	463	0	Imp.	-
4	674.5	13.1	47	478	10	102	37	58	376	46	3.59	35
5	675.5	23.3	41	741	9	163	32	62	578	15	0.30	40

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-5
Depth Interval, Feet	670.8 - 676.2				
Feet of Core Analyzed	2.2				
Average Percent Porosity	18.2				
Average Percent Original Oil Saturation	44.0				
Average Percent Oil Recovery	9.5				
Average Percent Residual Oil Saturation	34.5				
Average Percent Residual Water Saturation	60.0				
Average Percent Total Residual Fluid Saturation	94.5				
Average Original Oil Content, Bbls./A. Ft.	610.				
Average Oil Recovery, Bbls./A. Ft.	133.				
Average Residual Oil Content, Bbls./A. Ft.	477.				
Total Original Oil Content, Bbls./Acre	1341.				
Total Oil Recovery, Bbls./Acre	292.				
Total Residual Oil Content, Bbls./Acre	1049.				
Average Effective Permeability, Millidarcys	1.95				
Average Initial Fluid Production Pressure, p.s.i.	37.5				

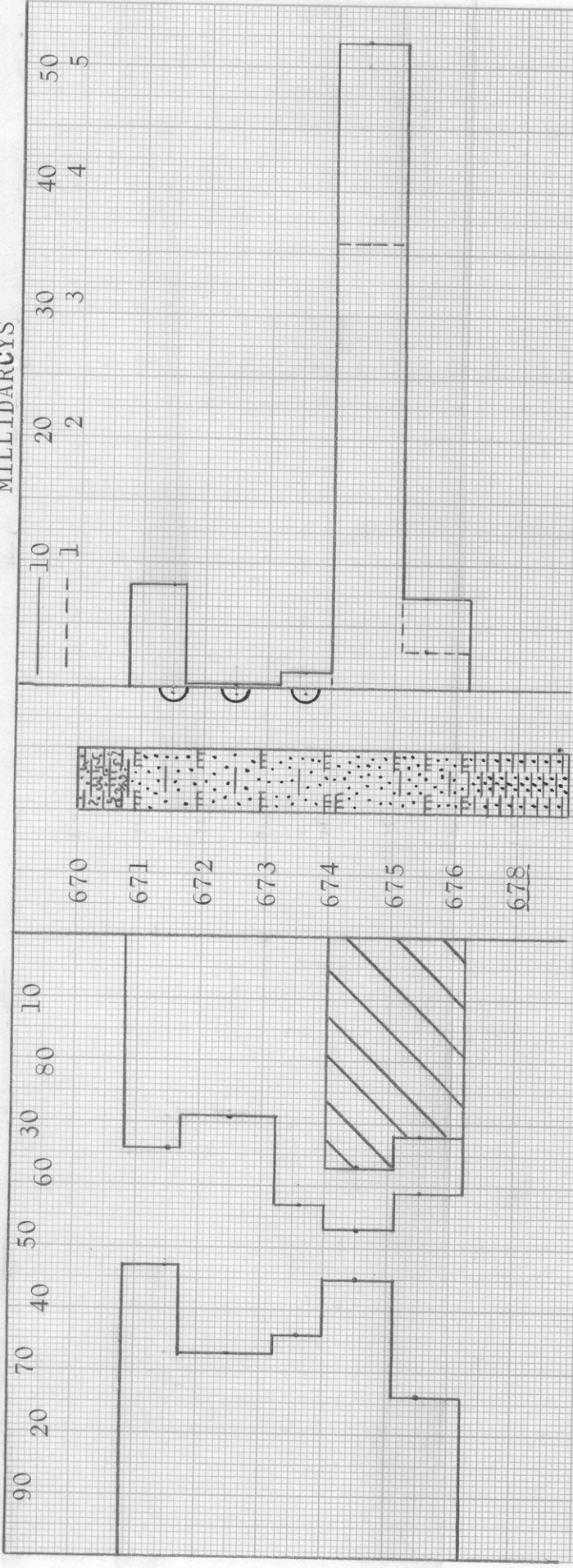
NOTE: Only those samples which recovered oil were used in calculating the above averages.

K&E 10 X 10 TO THE CENTIMETER 25 X 38 CM.
KEUFFEL & ESSER CO. MADE IN U.S.A.

WATER SAT., PERCENT → OIL SAT., PERCENT ←

47 1512

PERMEABILITY, IN MILLIDARCS
EFFECTIVE PERMEABILITY TO WATER, IN MILLIDARCS



KEY:

- CALCAREOUS SANDSTONE
- SHALY CALCAREOUS SANDSTONE
- SANDY SHALE
- FOSSILIFEROUS SANDY CALCAREOUS SHALE
- FLOODPOT RESIDUAL OIL SATURATION
- IMPERMEABLE TO WATER

OAKS PETROLEUM, INC.

F. ROSEBERRY LEASE

WELL NO. FR - 5

FRANKLIN COUNTY, KANSAS

DEPTH INTERVAL, FEET	FEET OF CORE ANALYZED	AVERAGE PERCENT	AVG. OIL SATURATION	AVG. WATER SATURATION	AVERAGE PERMEABILITY	CALCULATED OIL RECOVERY
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POROSITY	PERCENT	PERCENT	MILLIDARCYS	BBLs. / ACRE
670.8 - 676.2	5.4	15.7	41.1	36.8
				13.7
				630
(PRIMARY AND WATERFLOODING)				
OILFIELD RESEARCH LABORATORIES CHANUTE, KANSAS DECEMBER, 1980				
KK				