

OILFIELD RESEARCH LABORATORIES

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September 17, 1979

Oaks Petroleum, Inc.
R.R. #2
Stoystown, Pennsylvania 15563

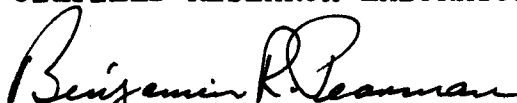
Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the East Miller Lease, Well No. O-46, Franklin County, Kansas, and submitted to our laboratory on September 10, 1979.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES


Benjamin R. Pearman

SAM:cgb

3 c to Stoystown, Pennsylvania
1 c to Ottawa, Kansas

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GENERAL INFORMATION & SUMMARY

Company Oaks Petroleum, Inc. Lease East Miller Well No. 0-46

Location 200' FEL & 165' FSL SE SW

Section 10 Twp. 17S Rge. 21E County Franklin State Kansas

Name of Sand	Squirrel
Top of Core	620.0
Bottom of Core	635.0
Top of Sand	620.0
Bottom of Sand	625.8
Total Feet of Permeable Sand	4.6
Total Feet of Floodable Sand	1.6

Distribution of Permeable Sand:
Permeability Range
Millidarcys

	Feet	Cum. Ft.
0 - 2	1.9	1.9
10 - 15	2.7	4.6

Average Permeability Millidarcys	7.8
Average Percent Porosity	17.2
Average Percent Oil Saturation	33.9
Average Percent Water Saturation	54.9
Average Oil Content, Bbls./A. Ft.	461.
Total Oil Content, Bbls./Acre	2,122.
Average Percent Oil Recovery by Laboratory Flooding Tests	13.3
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	199.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	318.
Total Calculated Oil Recovery, Bbls./Acre	See "Calculated Recovery" Section
Packer Setting, Feet	
Viscosity, Centipoises @	
A. P. I. Gravity, degrees @ 60 °F	
Elevation, Feet	

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The core was sampled by a representative of Oilfield Research Laboratories. Fresh water mud was used as a drilling fluid. The core was reported to be from a virgin area.

FORMATION CORED

The detailed log of the formation cored is as follow:

<u>Depth Interval, Feet</u>	<u>Description</u>
620.0 - 620.6	Brown and gray laminated sandstone and shale.
620.6 - 621.5	Gray sandy shale.
621.5 - 622.3	Brown shaly sandstone.
622.3 - 622.6	Gray sandy shale.
622.6 - 623.2	Brown sandstone.
623.2 - 624.3	Brown and gray laminated sandstone and shale.
624.3 - 625.3	Brown sandstone.
625.3 - 625.8	Light brown very shaly sandstone.
625.8 - 633.0	Gray sandy shale.
633.0 - 635.0	Loss.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 318 barrels of oil per acre was obtained from 1.6 feet of sand. The weighted average percent oil saturation was reduced from 44.4 to 31.1, or represents an average recovery of 13.3 percent. The weighted average effective permeability of the samples is 1.39 millidarcys, while the average initial fluid production pressure is 25.0 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 6 samples tested, 2 produced oil and water and

1 sample produced water only.

CALCULATED RECOVERY

It would appear from a study of the data, that efficient primary and waterflood operations in the vicinity of this well should recover approximately 460 barrels of oil per acre. This is an average recovery of 285 barrels per acre foot from 1.6 feet of floodable sand analyzed in this core.

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

Original formation volume factor	1.04
Reservoir water saturation, percent	25.0
Average porosity, percent	17.9
Oil saturation after flooding, percent	31.1
Performance factor, percent	50.0
Net floodable pay sand, feet	1.6

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Oaks Petroleum, Inc. Lease East Miller Well No. 0-46

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	620.4	20.8	36	39	75	581	0.69	0.6	0.6	349	0.41
2	621.7	16.0	38	56	94	472	1.5	0.8	1.4	378	1.20
3	622.7	21.1	50	29	79	819	15.	0.6	2.0	491	9.00
4	623.4	17.2	24	66	90	320	11.	1.1	3.1	352	12.10
5	624.5	15.1	41	54	95	480	13.	1.0	4.1	480	13.00
6	625.7	14.3	13	81	94	144	0.63	0.5	4.6	72	0.32

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company	Oaks Petroleum, Inc.	Lease	East Miller	Well No.	0-46
Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.		
620.0 - 625.8	4.6	7.8	36.03		
Depth Interval, Feet	Feet of Core Analyzed	Average Percent Porosity	Average Percent Water Saturation	Average Oil Content Bbl./A. Ft.	Total Oil Content Bbls./Acre
620.0 - 625.8	4.6	17.2	33.9	54.9	461
					2,122

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company			Lease			East Miller			Well No.			O-46		
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	620.4	20.6	37	591	0	0	37	50	591	0	Imp.	-		
2	621.7	16.4	39	496	0	0	39	56	496	5	0.10	20		
3	622.7	21.6	50	838	22	369	28	66	469	94	3.20	20		
4	623.4	17.2	25	334	0	0	25	65	334	0	Imp.	-		
5	624.5	15.6	41	496	8	97	33	53	399	5	0.30	30		
6	625.7	14.4	13	145	0	0	13	81	145	0	Imp.	-		

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	East Miller	Well No.	0-46
Depth Interval, Feet	620.0 - 625.8				
Feet of Core Analyzed	1.6				
Average Percent Porosity	17.9				
Average Percent Original Oil Saturation	44.4				
Average Percent Oil Recovery	13.3				
Average Percent Residual Oil Saturation	31.1				
Average Percent Residual Water Saturation	57.9				
Average Percent Total Residual Fluid Saturation	89.0				
Average Original Oil Content, Bbls./A. Ft.	624.				
Average Oil Recovery, Bbls./A. Ft.	199.				
Average Residual Oil Content, Bbls./A. Ft.	425.				
Total Original Oil Content, Bbls./Acre	998.				
Total Oil Recovery, Bbls./Acre	318.				
Total Residual Oil Content, Bbls./Acre	680.				
Average Effective Permeability, Millidarcys	1.39				
Average Initial Fluid Production Pressure, p.s.i.	25.0				

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