

OILFIELD RESEARCH LABORATORIES

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October 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. 0-53, Franklin County, Kansas and submitted to our laboratory on October 3, 1979.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES


Benjamin R. Pearman

SAM /tem
3 c to Stoystown, Pennsylvania
1 c to Ottawa, Kansas

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 follows:

<u>Depth Interval, Feet</u>	<u>Description</u>
652.0 - 652.2	Gray sandy shale.
652.2 - 652.8	Brown slightly shaly sandstone.
652.8 - 653.8	Brown sandstone.
653.8 - 655.0	Gray sandy shale.
655.0 - 655.6	Brown shaly sandstone.
655.6 - 655.9	Gray sandy shale.
655.9 - 656.9	Brown sandstone
656.9 - 657.2	Gray sandy shale.
657.2 - 657.4	Brown sandstone.
657.4 - 659.3	Gray sandy shale.
659.3 - 659.9	Brown and gray laminted sandstone and shale.
659.9 - 662.0	Gray sandy shale.
662.0 - 662.4	Brown shaly sandstone.
662.4 - 663.5	Gray sandy shale.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 300 barrels of oil per acre was obtained from 2.2 feet of sand. The weighted average percent oil saturation was reduced from 42.4 to 33.6 or represents an average recovery of 8.8 percent. The weighted average effective permeability of the samples is 1.22 millidarcys, while the average initial fluid production pressure is 20.0 pounds per square inch. (See Table V).

By observing the data given in Table IV, you will note that of the 6 samples tested, 3 produced water and oil. This indicates that approximately 50 percent of the sand represented by these samples is floodable pay sand.

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 580 barrels of oil per acre. This is an average recovery of 262 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	1.04
Reservoir water saturation, percent	30.0
Average porosity, percent	20.0
Oil saturation after flooding, percent	33.6
Performance factor, percent	50.0
Net floodable pay sand, feet	2.2

RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Oaks Petroleum, Inc.Lease East MillerWell No. 0-53

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	652.6	18.0	45	45	90	628	9.4	0.6	0.6	377	5.64
2	653.5	19.3	34	47	81	509	15.0	1.0	1.6	509	15.00
3	655.4	20.0	42	36	78	652	0.78	0.6	2.2	391	0.47
4	656.4	21.4	41	37	78	681	26.0	1.0	3.2	681	26.00
5	659.5	15.1	45	50	95	527	5.0	0.6	3.8	316	3.00
6	662.2	15.4	33	53	86	394	0.55	0.4	4.2	158	0.22

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company Oaks Petroleum, Inc. Lease East Miller Well No. 0-53

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.	Average Percent Porosity	Average Percent Oil Saturation	Average Percent Water Saturation	Average Oil Content Bbl./A. Ft.	Total Oil Content Bbls./Acre
652.2 - 662.4	4.2	12.0	50.33	18.7	39.9	43.8	579	2,432

RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Oaks Petroleum, Inc. Lease East Miller Well No. 0-53

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	652.6	18.0	4.5	628	9	126	36	62	502	18	0.60	20
2	653.5	19.1	3.5	519	0	0	3.5	60	519	0	Imp.	0
3	655.4	20.4	4.2	665	10	158	32	62	507	25	0.70	15
4	656.4	21.0	4.1	668	8	130	33	65	538	56	1.90	25
5	659.5	15.2	4.4	519	0	0	4.2	53	519	0	Imp.	0
6	662.2	15.7	3.3	402	0	0	3.3	62	402	0	Imp.	0

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. 0-53

Depth Interval, Feet	652.2 - 662.4
Feet of Core Analyzed	2.2
Average Percent Porosity	20.0
Average Percent Original Oil Saturation	42.4
Average Percent Oil Recovery	8.8
Average Percent Residual Oil Saturation	33.6
Average Percent Residual Water Saturation	63.4
Average Percent Total Residual Fluid Saturation	97.
Average Original Oil Content, Bbls./A. Ft.	657.
Average Oil Recovery, Bbls./A. Ft.	137.
Average Residual Oil Content, Bbls./A. Ft.	520.
Total Original Oil Content, Bbls./Acre	1,143.
Total Oil Recovery, Bbls./Acre	300.
Total Residual Oil Content, Bbls./Acre	1,143.
Average Effective Permeability, Millidarcys	1.22
Average Initial Fluid Production Pressure, p.s.i.	20.0

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