OILFIELD RESEARCH LABORATORIES
536 NORTH HIGHLAND - CHANUTE, KANSAS - PHONE HE1-2650

February 7, 1968

Mr. Pat Michaelis
19½ South Jefferson
Iola, Kansas 66749

Gentlemen:

Enclosed herewith are the results of tests run on the Rotary core taken from the Isch Lease, Well No. 2, Greenwood County, Kansas, and submitted to our laboratory on February 2, 1968.

This core is from a virgin territory and was sampled after being submitted to our laboratory.

On the basis of the enclosed data we estimate that approximately 878 barrels of oil per acre can be recovered from the area, represented by this core, by efficient primary production methods. An additional recovery of 492 barrels of oil per acre can be expected by efficient waterflood operations.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Carl L. Pate

CLP:bjo

6 c. - Iola, Kansas

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GENERAL INFORMATION & SUMMARY

Company Pat Michaelis Lease Isch Well No. 2

Location 330' EWL and 50' NSL, SW/4

Section 10 Twp. 22S Rge. 13E County Greenwood State Kansas

Name of Sand	Peru
Top of Core	1527.0
Bottom of Core	1541.6
Top of Oil Sand	1533.4
Bottom of Oil Sand	1540.0
Total Feet of Permeable Sand	6.6
Total Feet of Floodable Sand	4.0

Distribution of Permeable Sand:

Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 20	4.6	4.6
20 & above	2.0	6.6

Average Permeability Millidarcys	19.1
Average Percent Porosity	18.5
Average Percent Oil Saturation	47.8
Average Percent Water Saturation	40.9
Average Oil Content, Bbls./A. Ft.	697.
Total Oil Content, Bbls./Acre	5,089.
Average Percent Oil Recovery by Laboratory Flooding Tests	6.8
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	110.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	442.
Total Calculated Oil Recovery, Bbls./Acre (Primary & Secondary)	1,370.
Packer Setting, Feet	
Viscosity, Centipoises @	
A. P. I. Gravity, degrees @ 60 °F	
Elevation, Feet	

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- LOG -

Company Pat Michaelis Lease Isch Well No. 2

Depth Interval, Feet	Description
1527.0 - 1531.4	Gray laminated shaly sandstone.
1531.4 - 1532.7	Gray sandy shale.
1532.7 - 1533.4	Gray shaly sandstone.
1533.4 - 1540.0	Dark fine grained sandstone.
1540.0 - 1540.3	Gray shaly sandstone.
1540.3 - 1541.6	Gray sandy shale.

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Pat Michaelis Lease Isch Well No. 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	1533.1	13.3	26	70	96	268	Imp.	0.7	0.7	188	0.00
2	1534.1	19.7	49	38	87	749	3.8	1.2	1.9	898	4.56
3	1535.1	18.5	41	51	92	588	18.	1.0	2.9	588	18.00
4	1536.1	17.0	57	39	96	752	18.	1.0	3.9	752	18.00
5	1537.1	20.4	54	33	87	855	26.	1.0	4.9	855	26.00
6	1538.1	17.9	50	36	86	694	33.	1.0	5.9	694	33.00
7	1539.1	20.5	50	32	82	796	19.	1.4	7.3	1114	26.60

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Pat Michaelis Lease Isch Well No. 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.
			%	Bbls./A. Ft.	%	Bbls./A. Ft.	% Oil	% Water	Bbls./A. Ft.			
1	1533.1	13.0	24	242	0	0	24	74	242	0	Imp.	-
2	1534.1	19.3	46	689	0	0	46	44	689	0	Imp.	-
3	1535.1	18.9	41	602	3	44	38	56	558	9	0.30	40
4	1536.1	16.7	57	739	12	156	45	52	583	3	0.20	50
5	1537.1	20.0	54	839	11	171	43	47	668	6	0.10	40
6	1538.1	18.3	50	710	5	71	45	45	639	2	0.10	50
7	1539.1	20.1	47	733	0	0	47	40	733	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 Pat Michaelis Lease Isch Well No. 2

Depth Interval, Feet	1534.6 - 1538.6
Feet of Core Analyzed	4.0
Average Percent Porosity	18.5
Average Percent Original Oil Saturation	49.6
Average Percent Oil Recovery	6.8
Average Percent Residual Oil Saturation	42.8
Average Percent Residual Water Saturation	50.0
Average Percent Total Residual Fluid Saturation	92.8
Average Original Oil Content, Bbls./A. Ft.	722.
Average Oil Recovery, Bbls./A. Ft.	110.
Average Residual Oil Content, Bbls./A. Ft.	612.
Total Original Oil Content, Bbls./Acre	2,890.
Total Oil Recovery, Bbls./Acre	442.
Total Residual Oil Content, Bbls./Acre	2,448.
Average Effective Permeability, Millidarcys	0.17
Average Initial Fluid Production Pressure, p.s.i.	45.0

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