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June 27, 1959

Schermerhorn Oil Corporation
P. O. Box 287
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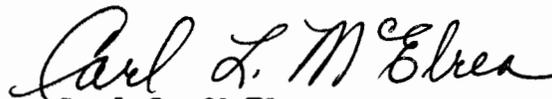
Gentlemen:

Enclosed herewith is the report of the analysis of the 3" Rotary core taken from the Wiggans "B" Lease, Well No. M-19, Wilson County, Kansas, and submitted to our laboratory on June 23, 1959.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES


Carl L. McElrea

CLM:cs

1 c. to Schermerhorn Oil Corporation
Route 1
Earlton, Kansas

This well was drilled in virgin territory. A fresh water mud was used as the circulating fluid during the coring of the sand.

This core was sampled and the samples were sealed in cans by a representative of Oilfield Research Laboratories.

FORMATION CORED

The detailed log of the formation cored is as follows:

<u>Depth Interval, Feet</u>	<u>Description</u>
931.0 - 940.8	Laminated sandstone and shale.
940.8 - 942.2	Brown shaley sandstone.
942.2 - 942.5	Laminated sandstone and shale.
942.5 - 945.8	Laminated sandy shale.
945.8 - 946.3	Laminated sandstone and shale.
946.3 - 948.5	Brown slightly shaley sandstone.
948.5 - 949.3	Sandy shale.
949.3 - 956.5	Brown slightly shaley sandstone.
956.5 - 958.0	Dark carbonaceous shaley sandstone.
958.0 - 964.0	Shale (Discarded at well).

Coring was started at a depth of 931.0 feet in laminated sandstone and shale and completed at 964.0 feet in shale. This core shows a total of 12.3 feet of sandstone. For the most part, the pay is made up of brown slightly shaley sandstone.

PERMEABILITY

For the sake of distribution, the core was divided into three sections. The weighted average permeability of the upper, middle and lower sections is 2.1, 11.8 and 4.9 millidarcys respectively; the overall average being 8.5 (See Table III). By observing the data given on the core-graph, it is noticeable that the sand is tight. The permeability of the

sand varies from 0.35 to a maximum of 24 millidarcys.

PERCENT SATURATION & OIL CONTENT

The sand in this core shows a fairly good weighted average percent oil saturation, namely, 32.1. The weighted average percent oil saturation of the upper, middle and lower sections is 21.3, 31.6 and 39.5 respectively. The weighted average percent water saturation of the upper, middle and lower sections is 59.0, 40.4 and 39.7 respectively; the overall average being 42.9 (See Table III). This gives an overall weighted average total fluid saturation of 75.0 percent. This low total fluid saturation indicates considerable fluid was lost during coring, part of which probably was oil.

The weighted average oil content of the upper, middle and lower sections is 228, 476 and 565 barrels per acre foot respectively; the overall average being 462. The total oil content, as shown by this core, is 5,921 barrels per acre (See Table III).

LABORATORY FLOODING TESTS

Part of the sand in this core responded fairly well to laboratory flooding tests, as a total recovery of 628 barrels of oil per acre was obtained from 6.2 feet of sand. The weighted average percent oil saturation was reduced from 33.2 to 26.5, or represents an average recovery of 6.7 percent. The weighted average effective permeability of the samples is 0.087 millidarcys, while the average initial fluid production pressure is 39.2 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 13 samples tested, 2 produced water and 6 oil. This indicates that approximately 15 percent of the sand represented by these samples is floodable pay sand. The tests also show that the sand is very tight.

CONCLUSION

From a study of the enclosed data, we believe that efficient primary production methods will recover approximately 825 barrels of oil per acre from the area represented by this core. An additional 275 barrels of oil per acre may be recovered by an efficient water-flood within the vicinity of this well, provided the sand will take the required volume of water satisfactorily. The following factors and assumptions were used in calculating these recoveries:

Original formation volume factor	1.07
Present formation volume factor	1.03
True water saturation, percent	39.0
Primary oil recovery	None
Calculated present oil saturation, percent	58.7
Porosity, percent	19.0
Oil saturation at abandonment, percent	30.0
Performance factor	0.50

This core shows a shaley and tight sand section having fairly good oil and normal water saturations.

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RESULTS OF PERMEABILITY TESTS
TABLE I

Company Schermerhorn Oil Corporation Lease Wiggans "B" Well No. M-19

Sample No.	Depth Feet	Permeability Millidarcys	Feet of Core		Permeability Capacity Ft. x Md.
			Ft.	Cum. Ft.	
1	940.9	0.74	0.4	0.4	0.30
2	941.4	2.8	0.4	0.8	1.12
3	941.9	4.0	0.6	1.4	2.40
4	942.4	Imp.	0.3	1.7	0.00
5	945.9	0.43	0.5	2.2	0.22
6	946.4	3.8	0.4	2.6	1.52
7	946.9	5.6	0.5	3.1	2.80
8	947.4	7.2	0.5	3.6	3.60
9	947.9	11.	0.5	4.1	5.50
10	948.4	18.	0.3	4.4	5.40
11	949.9	24.	0.9	5.3	21.60
12	950.4	0.59	0.5	5.8	0.29
13	950.9	16.	0.5	6.3	8.00
14	951.4	11.	0.5	6.8	5.50
15	951.9	13.	0.5	7.3	6.50
16	952.4	11.	0.5	7.8	5.50
17	952.9	17.	0.5	8.3	8.50
18	953.4	1.9	0.5	8.8	0.95
19	953.9	14.	0.5	9.3	7.00
20	954.4	15.	0.5	9.8	7.50
21	954.9	3.0	0.5	10.3	1.50
22	955.4	12.	0.5	10.8	6.00
23	955.9	6.9	0.5	11.3	3.45
24	956.4	12.	0.3	11.6	3.60
25	956.9	0.35	0.7	12.3	0.24
26	957.4	0.38	0.8	13.1	0.30

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RESULTS OF SATURATION TESTS

TABLE II

Company Schermerhorn Oil Corporation Lease Wiggins "B" Well No. M-19

Sat. No.	Depth, Feet	Effective Porosity Percent	Percent Saturation		Oil Content Bbls./A. Ft.	Feet of Core		Total Oil Content Bbls./Acre	
			Oil	Water		Ft.	Core. Ft.		
1	941.1	14.5	28	49	315	0.8	0.8	252	
2	942.1	11.5	15	74	134	0.6	1.4	80	
3	946.1	14.5	18	57	203	0.5	1.9	102	
4	947.1	19.9	38	37	587	1.3	3.2	755	
5	948.1	20.1	27	42	420	0.9	4.1	378	
6	950.1	18.1	24	47	337	1.3	5.4	438	
7	951.1	20.1	35	38	546	1.0	6.4	546	
8	952.1	18.8	32	38	466	1.0	7.4	466	
9	953.1	19.9	32	39	494	1.0	8.4	494	
10	954.1	19.2	33	41	492	1.0	9.4	492	
11	955.1	18.6	35	46	505	1.0	10.4	505	
12	956.1	19.6	32	42	487	0.9	11.3	438	
13	957.1	17.8	47	34	650	1.5	12.8	975	
Total						-	-	-	-5,921

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company	Schermerhorn Oil Corporation	Lease	Wiggins "B"	Well No.	M-19	
	Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.		
	940.8 - 946.3	1.9	2.1	4.04		
	946.3 - 954.6	7.5	11.8	88.66		
	954.6 - 958.0	3.4	4.9	16.59		
	940.8 - 958.0	12.8	8.5	109.29		
	Depth Interval, Feet	Feet of Core Analyzed	Average Percent Oil Saturation	Average Percent Water Saturation	Average Oil Content Bbl./A. Ft.	Total Oil Content Bbl./Acre
	940.8 - 946.3	1.9	13.6	59.0	228	434
	946.3 - 954.6	7.5	19.4	40.4	476	3,569
	954.6 - 958.0	3.4	18.5	39.7	565	1,918
	940.8 - 958.0	12.8	18.3	42.9	462	5,921

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

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	941.1	14.9	26	300	0	0	26	62	300	0	Imp.	50+
2	942.1	11.8	18	165	0	0	18	72	165	0	Imp.	50+
3	946.1	14.1	17	186	0	0	17	79	186	0	Imp.	50+
4	947.1	19.3	38	569	7	105	31	60	464	0	0.020	50
5	948.1	20.3	27	425	7	110	20	73	315	5	0.307	35
6	950.1	18.2	22	311	0	0	22	65	311	0	Imp.	50+
7	951.1	19.6	35	532	7	106	28	64	426	0	0.015	40
8	952.1	18.8	32	466	5	73	27	68	393	0	0.010	40
9	953.1	19.3	32	479	4	60	28	60	419	0	0.010	35
10	954.1	19.8	33	507	10	153	23	68	354	4	0.205	35
11	955.1	18.3	32	454	0	0	32	54	454	0	Imp.	50+
12	956.1	19.7	30	458	0	0	30	59	458	0	Imp.	50+
13	957.1	17.5	44	597	0	0	44	36	597	0	Imp.	50+

Company Schermerhorn Oil Corporation Lease Wiggans "B" Well No. M-19

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	Schermmerhorn Oil Corporation	Lease	Wiggans "B"	Well No.	M-19
Depth Interval, Feet	946.3 - 954.6				
Feet of Core Analyzed	6.2				
Average Percent Porosity	19.5				
Average Percent Original Oil Saturation	33.2				
Average Percent Oil Recovery	6.7				
Average Percent Residual Oil Saturation	26.5				
Average Percent Residual Water Saturation	65.0				
Average Percent Total Residual Fluid Saturation	91.5				
Average Original Oil Content, Bbls./A. Ft.	501.				
Average Oil Recovery, Bbls./A. Ft.	101.				
Average Residual Oil Content, Bbls./A. Ft.	400.				
Total Original Oil Content, Bbls./Acre	3,108.				
Total Oil Recovery, Bbls./Acre	628.				
Total Residual Oil Content, Bbls./Acre	2,480.				
Average Effective Permeability, Millidarcys	0.087				
Average Initial Fluid Production Pressure, p.s.i.	39.2				

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