

OILFIELD RESEARCH LABORATORIES

- REGISTERED ENGINEERS -

813 EAST SIXTH
OKMULGEE, OKLAHOMA
PHONE: 4444

Chanute, Kansas

536 N. HIGHLAND
CHANUTE, KANSAS
PHONE: HE 1-2650

September 28, 1961

Schermerhorn Oil Corporation
P.O. Box 287
Tulsa, Oklahoma

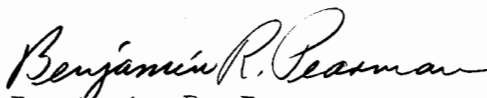
Gentlemen:

Enclosed herewith is the report of the analysis of the Rotary core taken from the Wiggans Lease, Well No. H-18, Wilson County, Kansas, and submitted to our laboratory on September 26, 1961.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES


Benjamin R. Pearman

BRP:rf

1 c. - Earlton, Kansas

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company Schermerhorn Oil Corp. Lease Wiggans ^{"D"} Well No. H-18

Location 160' West of East line & 330' North of South line SW

Section 17 Twp. 28S Rge. 17E County Wilson State Kansas

Name of Sand - - - - - Bartlesville

Top of Core - - - - - 941.0

Bottom of Core - - - - - 960.0

Top of Sand - - - - - (Analyzed) - - - - - 941.0

Bottom of Sand - - - - - (Analyzed) - - - - - 955.6

Total Feet of Permeable Sand - - - - - 9.9

Total Feet of Floodable Sand - - - - - 4.0

Distribution of Permeable Sand:
Permeability Range
Millidarcys

Feet

Cum. Ft.

0 - 5	5.8	5.8
25 - 50	2.8	8.6
50 - 85	1.3	9.9

Average Permeability Millidarcys - - - - - 21.2

Average Percent Porosity - - - - - 16.1

Average Percent Oil Saturation - - - - - 31.8

Average Percent Water Saturation - - - - - 51.1

Average Oil Content, Bbls./A. Ft. - - - - - 402.

Total Oil Content, Bbls./Acre - - - - - 5,870.

Average Percent Oil Recovery by Laboratory Flooding Tests - - - - - 6.5

Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft. - - - - - 99.

Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre - - - - - 394.

Total Calculated Oil Recovery, Bbls./Acre - - - - - 960.

Packer Setting, Feet - - - - -

Viscosity, Centipoises @ - - - - -

A. P. I. Gravity, degrees @ 60 °F - - - - -

Elevation, Feet - - - - -

Fresh water mud was used as the circulating fluid in coring this well. The core was sampled and the samples sealed in tin cans by Oilfield Research Laboratories personnel. The well was drilled in non-virgin territory.

FORMATION CORED

The detailed log of the formation cored is as follows:

Depth Interval, Feet	Description
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941.0 - 942.5	- Brown slightly shaley sandstone.
942.5 - 948.4	- Brown laminated shaley sandstone.
948.4 - 950.3	- Brown slightly shaley sandstone.
950.3 - 953.8	- Laminated sandstone and shale.
953.8 - 954.5	- Brown to dark laminated shaley sandstone.
954.5 - 955.6	- Brown to dark, slightly shaley sandstone.
955.6 - 956.0	- Laminated sandstone and shale.
956.0 - 960.0	- Shale.

Coring was started at a depth of 941.0 feet in slightly shaley sandstone and completed at 960.0 feet in shale. This core shows a total of 14.6 feet of sandstone. For the most part, the core is made up of brown, more or less shaley sandstone.

PERMEABILITY

For the sake of distribution, the core was divided into two sections. The weighted average permeability of the upper and lower sections is 13.1 and 29.1 millidarcys respectively; the overall average being 21.2 (See Table III). By observing the data given on the coregraph, it is noticeable that the sand has a rather irregular permeability profile. The permeability of the sand varies from impermeable to a maximum of 85. millidarcys.

PERCENT SATURATION & OIL CONTENT

The sand in this core shows a fairly good weighted average percent oil saturation, namely, 31.8. The weighted average percent oil saturation of the upper and lower sections is 28.5 and 35.2 respectively. The weighted average percent water saturation of the upper and lower sections is 57.9 and 44.6 respectively; the overall average being 51.1 (See Table III). This gives an overall weighted average total fluid saturation of 82.9 percent.

The weighted average oil content of the upper and lower sections is 336 and 470 barrels per acre foot respectively; the overall average being 402. The total oil content, as shown by this core, is 5870 barrels per acre (See Table III).

The sand in this core responded rather poorly to laboratory flooding tests, as a total recovery of 394 barrels of oil per acre was obtained from 4.0 feet of sand. The weighted average percent oil saturation was reduced from 39.5 to 33.0, or represents an average recovery of 6.5 percent. The weighted average effective permeability of the samples is 1.05 millidarcys, while the average initial fluid production pressure is 36.0 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 15 samples tested, 5 produced water and oil. This indicates that approximately 33 percent of the sand represented by these samples is floodable pay sand. The tests also show that the sand has a somewhat low effective permeability to water.

CONCLUSION

Based on the results of the laboratory tests, it appears that an efficient water flood in the vicinity of this well should recover approximately 960 barrels of oil per acre. This represents an average recovery of 241 barrels per acre foot from the 4.0 feet of floodable

pay sand analyzed in this core.

The following data and assumptions were used in calculating the above recovery values:

Original formation volume factor	1.07
Present formation volume factor	1.03
Reservoir water saturation percent	30.0
Primary recovery-estimated-percent	5.0
Average porosity-percent	19.7
Abandonment oil saturation-percent	33.0
Performance factor-percent	55.0
Net floodable pay sand-feet	4.0

This core indicates a more or less shaley reservoir having a fairly good oil saturation, a moderate water saturation and a somewhat low effective permeability to water.

RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

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			Ft.	Cum. Ft.		
1	941.1	23.1	31	38	555	77	0.6	0.6	333	46.20
F-2	941.9	21.2	33	-	543	-	0.4	1.0	217	-
2	942.1	14.4	39	47	436	33	0.5	1.5	218	16.50
3	943.1	11.8	34	57	311	Imp.	1.1	2.6	342	0.00
4	944.1	13.6	24	68	254	Imp.	1.0	3.6	254	0.00
5	945.1	14.0	28	65	304	0.58	1.0	4.6	304	0.58
6	946.1	15.4	29	52	347	0.30	1.0	5.6	347	0.30
7	947.1	15.1	28	50	328	0.42	1.0	6.6	328	0.42
8	948.1	14.7	16	69	182	0.44	0.8	7.4	146	0.35
9	949.1	19.7	48	28	734	26	1.2	8.6	880	31.20
10	950.1	18.7	40	30	580	85	0.7	9.3	406	59.50
11	951.1	16.2	31	55	390	0.45	1.3	10.6	507	0.59
12	952.1	13.3	33	56	341	Imp.	1.0	11.6	341	0.00
13	953.1	14.1	33	54	361	Imp.	1.2	12.8	433	0.00
14	954.1	20.9	21	49	341	3.2	0.7	13.5	239	2.24
15	955.1	18.2	37	36	523	47	1.1	14.6	575	51.70
							Total		5,870	

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company	Schermerhorn Oil Corp.	Lease	Wiggins	Well No.	H-18
Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.		
941.0 - 948.4	4.9	13.1	64.35		
948.4 - 955.6	5.0	29.1	145.23		
941.0 - 955.6	9.9	21.2	209.58		

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
941.0 - 948.4	7.4	15.2	28.5	57.9	336	2,489
948.4 - 955.6	7.2	17.0	35.2	44.6	470	3,381
941.0 - 955.6	14.6	16.1	31.8	51.1	402	5,870

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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 ^a	Effective Permeability Millidarcys ^b	Initial Field Production Pressure Lbs./Sq./In.
			%	Bbls./A. Ft.	%	Bbls./A. Ft.	% Oil	% Water	Bbls./A. Ft.			
1	941.1	22.9	31	551	2	36	29	62	515	21	0.441	40
2	941.9	21.2	33	542	6	99	27	66	443	17	0.356	40
3	943.1	12.0	33	308	0	0	33	58	308	0	Imp.	-
4	944.1	13.3	26	268	0	0	26	70	268	0	Imp.	-
5	945.1	14.2	28	308	0	0	28	64	308	0	Imp.	-
6	946.1	15.7	27	329	0	0	27	58	329	0	Imp.	-
7	947.1	15.0	29	337	0	0	29	50	337	0	Imp.	-
8	948.1	14.8	18	207	0	0	18	70	207	0	Imp.	-
9	949.1	19.6	48	730	10	152	38	60	578	7	0.272	40
10	950.1	18.4	40	571	4	57	36	63	514	60	1.19	30
11	951.1	16.4	30	382	0	0	30	55	382	0	Imp.	-
12	952.1	13.4	31	322	0	0	31	58	322	0	Imp.	-
13	953.1	14.0	31	337	0	0	31	56	337	0	Imp.	-
14	954.1	21.1	20	328	0	0	20	50	328	0	Imp.	-
15	955.1	18.4	37	529	7	100	30	64	429	98	2.38	30

Schermehorn Oil Corp.

Lease

Wiggins

Well No.

H-18

Notes: cc—cubic centimeter.

^a—Volume of water recovered at the time of maximum oil recovery.

^b—Determined by passing water through sample which still contains residual oil.

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SUMMARY OF LABORATORY FLOODING TESTS

TABLE V

Company	Schermerhorn Oil Corp.	Lease	Wiggans	Well No.	H-18
Depth Interval, Feet	941.0 - 955.6				
Feet of Core Analyzed	4.0				
Average Percent Porosity	19.7				
Average Percent Original Oil Saturation	39.5				
Average Percent Oil Recovery	6.5				
Average Percent Residual Oil Saturation	33.0				
Average Percent Residual Water Saturation	62.5				
Average Percent Total Residual Fluid Saturation	95.5				
Average Original Oil Content, Bbls./A. Ft.	602.				
Average Oil Recovery, Bbls./A. Ft.	99.				
Average Residual Oil Content, Bbls./A. Ft.	503.				
Total Original Oil Content, Bbls./Acre	2,405.				
Total Oil Recovery, Bbls./Acre	394.				
Total Residual Oil Content, Bbls./Acre	2,011.				
Average Effective Permeability, Millidarcys	1.05				
Average Initial Fluid Production Pressure, p.s.i.	36.0				

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