

OILFIELD RESEARCH LABORATORIES

536 NORTH HIGHLAND - CHANUTE, KANSAS - PHONE HE1-2650

December 14, 1967

Russell Operating Company
614 Adolphus Tower
Dallas, Texas 75202

Gentlemen:

Enclosed herewith are the results of Permeability and Porosity tests run on the Rotary core taken from the McGhee-Wolf Line Lease, Well No. W-151, Anderson County, Kansas, and submitted to our laboratory on December 9, 1967.

This core was submitted by a representative of the client.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Carl L. Pate

CLP:bjo

2 c. - Dallas, Texas
2 c. - Houston, Texas
1 c. - Chanute, Kansas
1 c. - Iola, Kansas

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company Russell Operating Company Lease McGhee-Wolf Line Well No. W-151

Location On center Section Line, 2,250' NSL, S/2

Section 31 Twp. 22S Rge. 18E County Anderson State Kansas

Name of Sand - - - - - Squirrel

Top of Core - - - - - 864.0

Bottom of Core - - - - - 898.0

Better
Top of Sand - - - - - 881.9

Permeable
Bottom of Sand - - - - - 894.4

Total Feet of Permeable Sand - - - - - 13.6

Total Feet of Floodable Sand - - - - -

Distribution of Permeable Sand:

Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 1	1.9	1.9
1 - 3	3.3	5.2
3 - 5	1.9	7.1
5 - 7	2.9	10.0
7 & above	3.6	13.6

Average Permeability Millidarcys - - - - - 4.6

Average Percent Porosity - - - - - 16.1

Average Percent Oil Saturation - - - - -

Average Percent Water Saturation - - - - -

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

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

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

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

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

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

Casing Point,
Packer Setting, Feet - - - - - 881.0

Viscosity, Centipoises @ - - - - -

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

Elevation, Feet - - (Ground & estimated) - - - - - 1,040.0

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- LOG -

Company Russell Operating Company Lease McGhee-Wolf Line Well No. W-151

Depth Interval, Feet	Description
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864.0 - 868.0	- Gray laminated sandy shale.
868.0 - 870.2	- Gray laminated sandstone and shale.
870.2 - 872.4	- Gray sandy shale.
872.4 - 874.5	- Light brown shaly sandstone.
874.5 - 875.5	- Grayish brown finely laminated shaly sandstone.
875.5 - 877.0	- Gray sandy shale.
877.0 - 879.7	- Gray sandy shale.
879.7 - 880.6	- Brown shaly sandstone.
880.6 - 881.2	- Hard gray calcareous sandstone.
881.2 - 881.9	- Gray finely laminated sandstone and shale.
881.9 - 888.6	- Brown micaceous shaly sandstone.
888.6 - 890.1	- Gray finely laminated sandy shale.
890.1 - 891.6	- Gray and brown laminated shaly sandstone.
891.6 - 894.4	- Light brown shaly sandstone.
894.4 - 895.4	- Gray calcareous shaly sandstone.
895.4 - 897.0	- Dark shale.
897.0 - 898.0	- Loss.

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RESULTS OF PERMEABILITY AND POROSITY TESTS
TABLE I A

Company Russell Operating Company Lease McGhee-Wolf Line Well No. W-151

Sample No.	Depth Feet	Permeability Millidarcys	Feet of Core		Permeability Capacity Ft. x Md.	Percent Porosity
			Ft.	Cum. Ft.		
1	872.9	6.1	0.9	0.9	5.49	20.4
2	873.7	0.21	0.7	1.6	0.15	14.4
3	875.3	Imp.	0.5	2.1	0.00	13.7
4	879.8	11.	0.4	2.5	4.40	19.1
5	880.4	0.25	0.5	3.0	0.12	12.3
6	881.7	0.33	0.7	3.7	0.23	13.3
7	882.1	5.2	0.4	4.1	1.64	19.7
8	882.6	Imp.	0.5	4.6	0.00	11.1
9	883.1	2.6	0.5	5.1	1.30	16.7
10	883.6	1.5	0.5	5.6	0.75	15.1
11	884.1	4.7	0.5	6.1	2.35	19.4
12	884.6	8.0	0.5	6.6	4.00	20.5
13	885.1	7.5	0.5	7.1	3.55	19.6
14	885.5	4.5	0.5	7.6	2.25	17.2
15	886.0	5.9	0.5	8.1	2.45	18.8
16	886.5	7.1	0.5	8.6	3.55	19.1
17	887.0	3.0	0.5	9.1	1.50	14.6
18	887.5	13.	0.5	9.6	6.50	20.8
19	888.1	7.6	0.5	10.1	3.80	20.3
20	888.5	7.5	0.3	10.4	3.75	19.9
21	888.9	1.3	0.4	10.8	0.52	13.6
22	890.2	8.2	0.4	11.2	3.28	20.9
23	891.3	5.1	0.6	11.8	3.06	13.2
24	892.2	3.5	0.9	12.7	3.15	17.7
25	892.8	2.6	0.6	13.3	1.56	14.5
26	893.4	2.6	0.5	13.8	1.30	15.2
27	893.9	2.0	0.5	14.3	1.00	16.6
28	894.3	1.6	0.3	14.6	0.90	14.6
29	895.0	Imp.	1.0	15.6	0.00	5.3

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SUMMARY OF PERMEABILITY & POROSITY TESTS

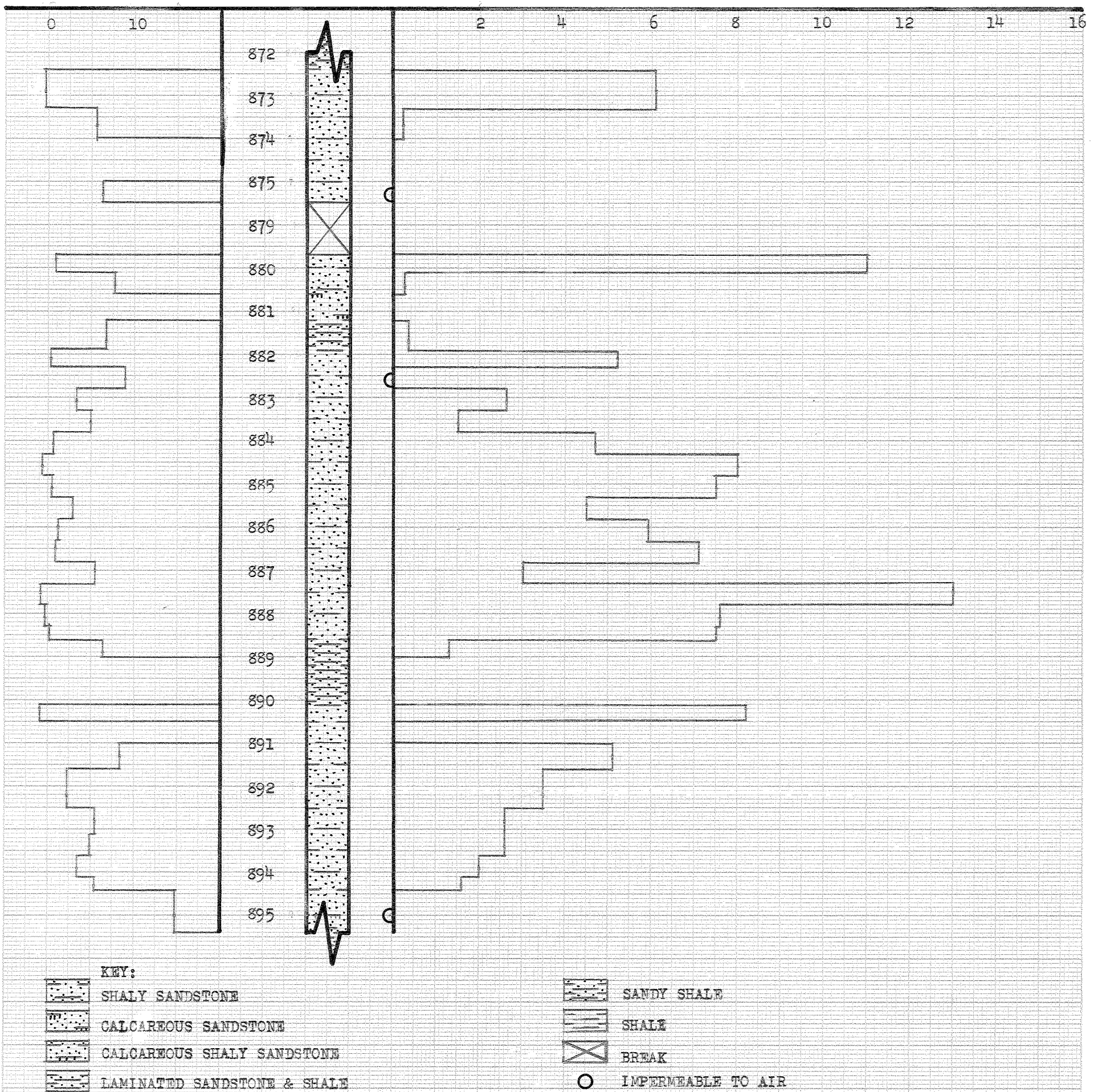
TABLE II A

Company Russell Operating Company Lease McGhee-Wolf Line Well No. W-151

Depth Interval, Feet	Feet of Core Analyzed	Average Air Permeability, Millidarcys	Average Effective Permeability, Millidarcys	Permeability Capacity Ft. x Md.	Average Percent Porosity
872.4 - 881.9	3.2	3.2		10.39	15.8
881.9 - 888.6	6.2	6.0		37.39	18.1
888.6 - 895.4	4.2	3.5		14.77	13.8
872.4 - 895.4	13.6	4.6		62.55	16.1

PERCENT
POROSITY

AIR PERMEABILITY,
MILLIDARCYS



RUSSELL OPERATING COMPANY

MCGHEE-WOLF LINE LEASE WELL NO. W-151
ANDERSON COUNTY, KANSAS

DEPTH INTERVAL FEET	FEET OF CORE ANALYZED	AVERAGE AIR PERMEABILITY MILLIDARCYS	AVERAGE PERCENT POROSITY
872.4 - 881.9	3.2	3.2	15.8
881.9 - 888.6	6.2	6.0	18.1
888.6 - 895.4	4.2	3.5	13.8
872.4 - 895.4	13.6	4.6	16.1

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CHANUTE, KANSAS
DECEMBER, 1967