

OILFIELD RESEARCH LABORATORIES

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

September 14, 1967

32-26-20E

Dow Chemical Company
3636 Richmond Avenue
Houston, Texas 77027

Attn: Mr. M. A. Jones

Nelson

Gentlemen:

Enclosed herewith are the results of tests run on the Rotary core taken from the Savonburg Field, Core Test Well No. 1, Allen County, Kansas, and submitted to our laboratory on September 10, 1967.

The core was submitted by a representative of the client and sampled after being received in the laboratory.

Your business is greatly appreciated.

Very truly yours,

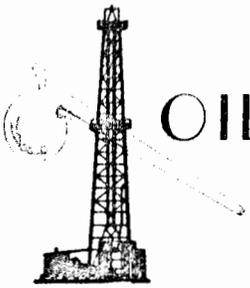
OILFIELD RESEARCH LABORATORIES

Carl L. Pate

CLP:rf

10 c. - Houston, Texas

NELSON "A" (core test 1)



OILFIELD RESEARCH LABORATORIES

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

September 23, 1967

The Dow Chemical Company
3636 Richmond Avenue
Houston, Texas 77027

Attn: Mr. M.A. Jones

Gentlemen:

Attached hereto is a Table giving the results of the vertical permeability tests run on the core taken from your Savonburg Core Test Well No. 1, Allen County, Kansas.

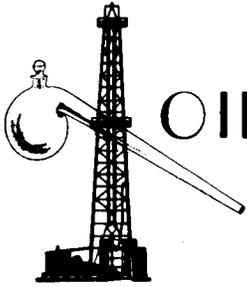
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536 NORTH HIGHLAND - CHANUTE, KANSAS - PHONE HE1-2650

September 23, 1967

The Dow Chemical Company
3636 Richmond Avenue
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Attn: Mr. M.A. Jones

Gentlemen:

Attached hereto is a Table giving the results of the vertical permeability tests run on the core taken from your Savonburg Core Test Well No. 1, Allen County, Kansas.

Very truly yours,

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Carl L. Pate

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10 c.

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Nelson A

Core Test

Company Dow Chemical Company Lease Savonburg Well No. 1

Location 245' WEL & 1011' SNL, NE¹/₄

Section 32 Twp. 26S Rge. 20E County Allen State Kansas

Name of Sand - - - - - Bartlesville

Top of Core - - - - - 821.0

(Received)

Bottom of Core - - - - - 882.5

(Analyzed)

Top of Sand - - - - - 821.0

(Analyzed)

Bottom of Sand - - - - - 882.3

Total Feet of Permeable ^{Oil} Sand (Analyzed) - - - - - 46.3

Total Feet of Floodable Sand - - - - - -

Distribution of Permeable Sand:
Permeability Range
Millidarcys

Feet

Cum. Ft.

Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 50	16.8	16.8
50 - 100	13.8	30.6
100 - 150	8.4	39.0
150 - 200	2.0	41.0
200 & above	5.3	46.3

Average Permeability Millidarcys - - - - - 125.3

Average Percent Porosity - - - - - 19.4

Average Percent Oil Saturation - - - - - 44.6

Average Percent Water Saturation - - - - - 40.2

Average Oil Content, Bbls./A. Ft. - - - - - 681.

Total Oil Content, Bbls./Acre - - - - - 31,568.

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 - - - - -

Packer Setting, Feet - - - - -

Viscosity, Centipoises @ - - - - -

A. P. I. Gravity, degrees @ 60 °F - - - - - 22.4

Elevation, Feet - - - - - (K.B.) 1020.0
(G.L.) 1015.5

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-LOG-

Company Dow Chemical Company Savonburg Core Test Well No. 1

<u>Depth Interval,</u> <u>Feet</u>	<u>Description</u>
---------------------------------------	--------------------

821.0 - 822.0	- Gray, laminated, shaly sandstone.
822.0 - 823.0	- Gray, fine grained sandstone.
823.0 - 826.0	- Gray, sandy agglomerate.
826.0 - 827.0	- Gray shaly sandstone.
827.0 - 828.0	- Gray, laminated, carbonaceous sandstone.
828.0 - 834.0	- Gray, fine grained sandstone.
834.0 - 835.0	- Light brown, fine grained sandstone.
835.0 - 836.0	- Loss.
836.0 - 838.3	- Dark, slightly carbonaceous sandstone.
838.3 - 838.5	- Gray sandy shale.
838.5 - 839.0	- Sandy conglomerate.
839.0 - 851.0	- Brown, fine grained sandstone.
851.0 - 853.0	- Dark, fine grained sandstone.
853.0 - 857.0	- Brown, fine grained sandstone.
857.0 - 863.0	- Dark sandstone.
863.0 - 872.0	- Dark gray sandstone.
872.0 - 873.0	- Dark sandstone.
873.0 - 876.0	- Dark gray sandstone.
876.0 - 878.0	- Dark sandstone.
878.0 - 880.0	- Dark gray sandstone.
880.0 - 882.5	- Gray sandstone.

Oilfield Research Laboratories

RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Dow Chemical Company Lease Savonburg Well No. 1 Core Test

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	821.5	17.7	17	67	84	233	32.	1.0	1.0	233	32.00
2	822.5	23.5	5	79	84	91	541.	1.0	2.0	91	541.00
3	823.5	14.2	13	68	81	143	1.2	1.0	3.0	143	1.20
4	824.5	12.3	14	73	87	134	0.31	1.0	4.0	134	0.31
5	825.5	14.5	9	64	73	101	2.3	1.0	5.0	101	2.30
6	826.6	17.7	3	78	81	41	45.	1.0	6.0	41	45.00
7	827.6	18.4	16	52	68	228	72.	1.0	7.0	228	72.00
8	828.6	21.9	5	73	78	85	211.	1.0	8.0	85	211.00
9	829.5	23.1	3	88	91	54	94.	1.0	9.0	54	94.00
10	830.5	21.5	1	89	90	17	618.	1.0	10.0	17	618.00
11	831.6	22.3	4	70	74	69	546.	1.0	11.0	69	546.00
12	832.3	22.3	4	81	85	69	1092.	1.0	12.0	69	1092.00
13	833.5	20.1	2	74	76	31	509.	1.0	13.0	31	509.00
14	834.5	18.3	17	68	85	241	382.	1.0	14.0	241	382.00
15	836.7	17.8	50	43	93	691	1112.	1.0	15.0	691	1112.00
16	837.6	18.2	50	44	94	706	754.	1.3	16.3	928	980.00
17	838.6	13.0	45	49	94	454	27.	0.5	16.8	227	13.50
18	839.6	22.4	49	46	95	852	37.	1.1	17.9	938	40.70
19	840.7	21.1	42	38	80	687	62.	0.9	18.8	618	55.80
20	841.5	20.1	40	39	79	624	84.	1.0	19.8	624	84.00
21	842.5	20.4	35	44	79	554	78.	1.0	20.8	554	78.00
22	843.4	19.8	41	40	81	630	79.	1.0	21.8	630	79.00
23	844.5	20.1	42	37	79	655	81.	1.0	22.8	655	81.00
24	845.5	20.2	51	37	88	799	153.	1.0	23.8	799	153.00

Oilfield Research Laboratories

RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Dow Chemical Company Lease Savonburg Well No. Core Test 1

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.		
25	846.5	21.9	41	29	696	181.	1.0	24.8	696	181.00
26	847.5	19.9	54	33	834	147.	1.0	25.8	834	147.00
27	848.4	20.5	48	38	764	203.	1.0	26.8	764	203.00
28	849.6	21.4	58	29	963	111.	1.0	27.8	963	111.00
29	850.6	19.0	47	36	693	23.	1.0	28.8	693	23.00
30	851.5	20.1	47	41	733	292.	1.0	29.8	733	292.00
31	852.6	20.7	49	46	787	112.	1.0	30.8	787	112.00
32	853.6	21.6	36	46	603	19.	1.0	31.8	603	19.00
33	854.6	18.0	40	41	558	34.	1.0	32.8	558	34.00
34	855.5	18.3	38	51	539	41.	1.0	33.8	539	41.00
35	856.5	17.3	52	39	696	25.	1.0	34.8	696	25.00
36	857.5	19.9	46	39	710	124.	1.0	35.8	710	124.00
37	858.5	21.9	40	42	679	127.	1.0	36.8	679	127.00
38	859.5	20.4	46	42	726	118.	1.0	37.8	726	118.00
39	860.4	20.7	36	51	577	298.	1.0	38.8	577	298.00
40	861.4	18.6	44	47	634	39.	0.8	39.6	507	31.20
41	862.2	21.6	38	39	636	124.	1.2	40.8	763	148.80
42	863.6	19.7	45	38	687	32.	1.1	41.9	756	35.20
43	864.7	18.5	35	42	501	44.	1.0	42.9	501	44.00
44	865.6	18.8	42	44	612	61.	0.9	43.8	551	54.90
45	866.3	18.4	44	44	626	50.	0.8	44.6	501	40.00
46	867.3	18.5	34	46	488	44.	1.1	45.7	537	48.40
47	868.4	19.4	39	46	586	82.	1.1	46.8	644	90.20
48	869.6	19.4	44	37	661	107.	1.0	47.8	661	107.00

Oilfield Research Laboratories

RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Dow Chemical Company Lease Savonburg Well No. Core Test 1

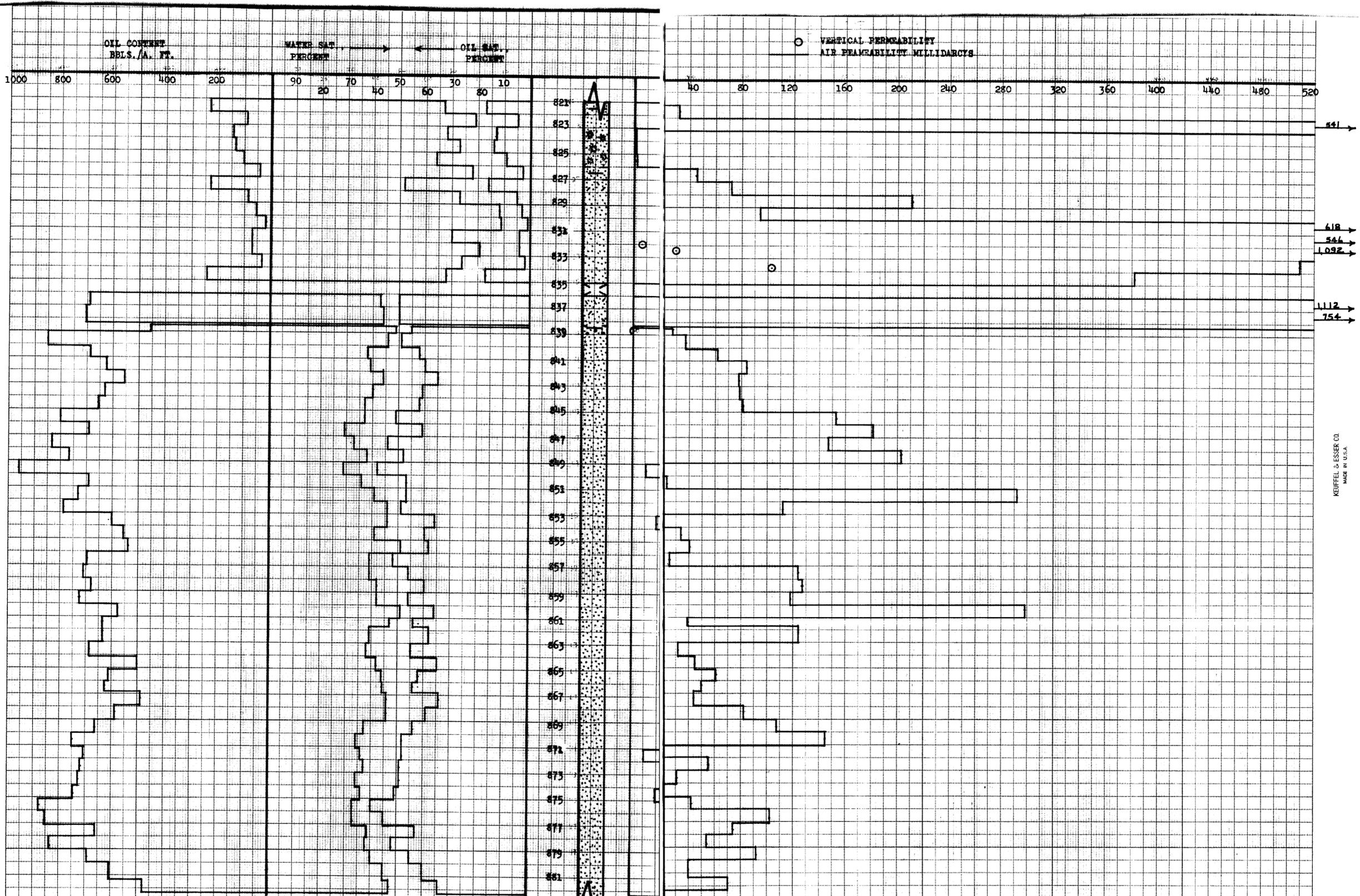
Sample No.	Depth, Feet	Effective Porosity Percent	Percent Saturation			Oil Content Bbls. / A Ft.	Perm., Mill.	Feet of Sand		Total Oil Content	Perm. Capacity Ft. X md.
			Oil	Water	Total			Ft.	Cum. Ft.		
49	870.5	20.1	48	34	82	748	145.	1.1	48.9	822	159.50
50	871.7	19.0	48	36	84	706	10.	0.9	49.8	636	9.00
51	872.6	18.9	49	37	86	718	55.	1.0	50.8	718	55.00
52	873.6	19.1	49	34	83	725	31.	1.1	51.9	797	34.10
53	874.7	18.8	51	36	87	744	19.	1.0	52.9	744	19.00
54	875.6	18.8	60	33	93	874	42.	0.9	53.8	786	37.80
55	876.7	20.0	55	33	88	853	102.	1.1	54.9	938	112.20
56	877.6	19.9	43	39	82	662	74.	0.9	55.8	596	66.60
57	878.7	20.7	52	38	90	834	54.	1.0	56.8	834	54.00
58	879.6	19.8	45	40	85	690	92.	1.0	57.8	690	92.00
59	880.7	19.6	40	45	85	608	40.	1.3	59.1	790	52.00
60	881.8	18.2	34	47	81	479	70.	1.2	60.3	574	84.00
Total										33,105	

Oilfield Research Laboratories

SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company	Dow Chemical Company	Lease	Savonburg	Well No.	Core Test 1	
	Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.		
	821.0 - 835.0	14.0	296.0	4,145.81		
	836.0 - 863.0	26.8	172.1	4,612.00		
	863.0 - 882.5	19.5	61.3	1,194.90		
	836.0 - 882.5	46.3	125.3	5,806.90		
	Depth Interval, Feet	Feet of Core Analyzed	Average Percent Oil Saturation	Average Percent Water Saturation	Average Oil Content Bbl./A. Ft.	Total Oil Content Bbls./Acre
	821.0 - 835.0	14.0	8.1	73.2	110	1,537
	836.0 - 863.0	26.8	44.7	40.8	688	18,492
	863.0 - 882.5	19.5	44.5	39.0	670	13,076
	836.0 - 882.5	46.3	44.6	40.2	681	31,568



KEY:
 SANDSTONE
 SANDY CONGLOMERATIC

SANDY AGGLOMERATIC
 SANDY SHALE

CARBONACEOUS SANDSTONE
 SANDY SHALE

LOSS
 IMPERMEABLE TO VERTICAL AIR

DOW CHEMICAL COMPANY

SAVANNAHBURG FIELD
 WELLS NO. 1

DEPTH INTERVAL, FEET	NUMBER OF SAMPLES ANALYZED	AVERAGE PERCENT POROSITY	AVERAGE PERCENT SATURATION
821.0 - 835.0	14.0	19.1	6.1
835.0 - 853.0	26.8	19.9	44.7
853.0 - 882.5	19.5	19.0	44.5
835.0 - 882.5	46.3	19.4	44.6

AVERAGE WATER SATURATION PERCENT	AVERAGE OIL CONTENT BBL./A. FT.	TOTAL OIL CONTENT BBL./ACRE	AVERAGE AIR PERMEABILITY MILLIDARCS
73.2	110	1,537	296.0
40.8	688	18,492	172.1
39.0	670	13,076	6333
40.2	681	31,568	125.3

OILFIELD RESEARCH LABORATORIES
 CHANDLER, KANSAS
 SEPTEMBER, 1967

KEUFFEL & ESSER CO.
 MADE IN U.S.A.

STANDARD CROSS SECTION
 MILLIMETER
 1/8 IN.

KEUFFEL & ESSER CO.
 U.S.A.