November 8, 1952

Black Supply Company
Union National Bank Bldg.
Wichita, Kansas

Gentlemen:

Enclosed herewith is the report of the analysis of the Cable Tool core taken from the Floyd Lease, Well No. 3, Chautauqua County, Kansas, and submitted to our laboratory on October 26, 1952.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Carl L. Pate

CLP:cr

c.c.

BLACK SUPPLY COMPANY

CORE ANALYSIS REPORT

FLOYD LEASE WELL NO. 3

CHAUTAUQUA COUNTY, KANSAS

OILFIELD RESEARCH LABORATORIES

CHANUTE, KANSAS

NOVEMBER 7, 1952

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company Black Supply Company Lease Floyd Well No. 3

Location SE, NE¼

Section 27 Twp. 33S Rge. 11E County Chautauqua State Kansas

Name of Sand	Peru
Top of Core	1232.00
Bottom of Core	1282.40
Top of Pay Sand	1238.10
Bottom of Sand	1281.35
Total Feet of Permeable Sand	45.55
Total Feet of Floodable Sand	36.20

Distribution of Permeable Sand:

Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 4	3.60	3.60
4 - 12	5.05	8.65
12 - 24	7.90	16.55
24 - 48	15.00	31.55
48 - 72	7.00	38.55
72 - 96	4.95	43.50
96 & above	2.05	45.55

Average Permeability Millidarcys	41.93
Average Percent Porosity	16.47
Average Percent Oil Saturation	28.44
Average Percent Water Saturation	55.77
Average Oil Content, Bbls./A. Ft.	366.
Total Oil Content, Bbls./Acre	18,210.
Average Percent Oil Recovery by Laboratory Flooding Tests	5.85
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	79.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	2,929.
Total Calculated Oil Recovery, Bbls./Acre	6,000.
Packer Setting, Feet	-
Viscosity, Centipoises @ 93° F	9.5
A. P. I. Gravity, degrees @ 60 °F	33.4
Elevation, Feet	

Fresh water was used as a circulating fluid in the coring of the sand in this well.

FORMATION CORED

The detailed log of the formation cored is as follows:

Depth Interval, Feet	Description
1232.00 - 1238.10	Light brown fine grained micaceous calcareous shaley sandstone.
1238.10 - 1243.50	Light brown fine grained slightly calcareous micaceous sandstone.
1243.50 - 1244.00	Grayish light brown fine grained micaceous calcareous shaley sandstone containing a shale break.
1244.00 - 1246.00	Light brown fine grained slightly calcareous micaceous sandstone.
1246.00 - 1247.00	Brown fine grained micaceous sandstone containing a shale break.
1247.00 - 1251.25	Light brown fine grained micaceous sandstone.
1251.25 - 1252.40	Brown fine grained micaceous sandstone.
1252.40 - 1258.70	Light brown fine grained micaceous sandstone.
1258.70 - 1262.95	Brown fine grained micaceous slightly calcareous sandstone.
1262.95 - 1264.90	Light brown fine grained micaceous slightly shaley sandstone.
1264.90 - 1276.50	Brown fine grained micaceous slightly calcareous sandstone.
1276.50 - 1278.90	Brown fine grained micaceous calcareous sandstone.
1278.90 - 1282.05	Dark fine grained micaceous sandstone.
1282.05 - 1282.40	Gray shale.

Coring was started at a depth of 1232.00 feet in fine grained micaceous calcareous sandstone and completed at 1282.00 feet in gray shale. This core shows a total of 49.70 feet of sandstone. For the most part,

the pay is made up of fine grained micaceous to calcareous 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 45.01, 38.67 and 43.48 respectively; the overall average being 41.93 (See Table II). By observing the data given on the coregraph, it is noticeable that the sand has a very irregular permeability profile and that the top of the sand section is very tight. The permeability of the sand varies from 1.9 to a maximum of 295 millidarcys.

PERCENT SATURATION & OIL CONTENT

The sand in this core shows a fair weighted average percent oil saturation, namely, 28.44. The weighted average percent oil saturation of the upper, middle and lower sections is 27.10, 27.75 and 31.01 respectively. The weighted average percent water saturation of the upper, middle and lower sections is 58.09, 54.03 and 55.29 respectively; the overall average being 55.77 (See Table IV). This gives an overall weighted average total fluid saturation of 84.21 percent.

In an effort to determine whether or not any flushing of the sand occurred during coring, all of the saturation samples were analyzed for chloride content. The results of these tests are given in Tables VII and VIII. By observing the data given in these tables and on the coregraph, it is evident that considerable flushing of the sand did occur during coring as, for the most part, the zones of higher permeability have the lower chloride content.

The weighted average oil content of the upper, middle and lower sections is 342, 364 and 400 barrels per acre foot respectively; the

overall average being 366. The total oil content, as shown by this core, is 18,210 barrels per acre (See Table IV).

VISCOSITY

The viscosity of a sample of crude oil taken from a well on this lease is 9.5 centipoises at 93° F. The A.P.I. gravity of the oil is 33.4° at 60° F. With other factors being favorable, a sand containing an oil of this viscosity should respond very satisfactorily to water repressuring.

LABORATORY FLOODING TESTS

When taking into consideration the fact that the sand has a fairly low percent oil saturation, the sand responded very well to laboratory flooding tests as a total recovery of 2,929 barrels of oil per acre was obtained from 37.20 feet of sand. The weighted average percent oil saturation was reduced from 29.50 to 23.65 or represents an average recovery of 5.85 percent. The weighted average effective permeability of the samples is 2.32 millidarcys, while the average initial fluid production pressure is 19.7 pounds per square inch (See Table VI).

By observing the data given in Table V, you will note that of the 48 samples tested, 40 produced water and 36 oil. This indicates that approximately 83 percent of the sand represented by these samples is floodable pay sand. The tests also show that the sand has a fairly wide variation in effective permeability.

CONCLUSION

On the basis of the above data, it is evident that an efficient water flood within the vicinity of this well will recover approximately

6,000 barrels of oil per acre or an average of 166 barrels per acre foot from the 36.20 feet of floodable pay sand analyzed. In calculating this recovery, an allowance was made for oil lost during coring, and it is assumed that the primary production and the true water saturation of the sand are 10 and 40 percent respectively.

This core shows a good floodable sand section and the sand should respond very satisfactorily to water repressuring. The principle drawback of the sand in this core is the fact that it has a fairly wide variation in permeability.

Oilfield Research Laboratories

RESULTS OF PERMEABILITY TESTS

TABLE I

Company Black Supply Company Lease Floyd Well No. 3

Sample No.	Depth, Feet	Permeability Millidarcys	Feet of Core		Permeability Capacity Ft. x Md.
			Ft.	Cum. Ft.	
1	1232.10	Imp.	0.35	0.35	0.00
2	1232.60	Imp.	0.45	0.80	0.00
3	1233.05	1.5	0.50	1.30	0.75
4	1233.50	Imp.	0.45	1.75	0.00
5	1234.00	Imp.	0.50	2.25	0.00
6	1234.52	1.1	0.50	2.75	0.55
7	1235.05	Imp.	0.55	3.30	0.00
8	1235.55	Imp.	0.50	3.80	0.00
9	1236.05	Imp.	0.55	4.35	0.00
10	1236.60	0.86	0.50	4.85	0.43
11	1237.10	Imp.	0.50	5.35	0.00
12	1237.60	2.4	0.50	5.85	1.20
13	1238.05	2.2	0.25	6.10	0.55
14	1238.50	2.4	0.65	6.75	1.56
15	1239.05	20.	0.55	7.30	11.00
16	1239.50	31.	0.45	7.75	13.95
17	1240.05	12.	0.55	8.30	6.60
18	1240.50	15.	0.45	8.75	6.75
19	1241.05	11.	0.55	9.30	6.05
20	1241.55	24.	0.45	9.75	10.80
21	1241.95	39.	0.50	10.25	19.50
22	1242.50	14.	0.50	10.75	7.00
23	1243.05	13.	0.50	11.25	6.50
24	1243.40	5.5	0.25	11.50	1.38
25	1244.10	1.9	0.50	11.80	0.57
26	1244.50	32.	0.45	12.25	14.40
27	1245.05	284.	0.50	12.75	142.00
28	1245.45	6.1	0.75	13.50	4.58
29	1246.20	21.	0.25	13.75	5.25
30	1246.68	27.	0.60	14.35	16.20
31	1247.05	23.	0.30	14.65	6.90
32	1247.50	4.9	0.45	15.10	2.21
33	1248.05	189.	0.55	15.65	103.95
34	1248.50	295.	0.45	16.10	132.75
35	1249.05	96.	0.55	16.65	52.80
36	1249.50	20.	0.45	17.10	9.00
37	1250.05	27.	0.60	17.70	16.20
38	1250.60	38.	0.45	18.15	17.10
39	1251.05	13.	0.45	18.60	5.85
40	1251.55	56.	0.55	19.15	30.80

Oilfield Research Laboratories

RESULTS OF PERMEABILITY TESTS

TABLE I

Company Black Supply Company Lease Floyd Well No. 3

Sample No.	Depth, Feet	Permeability Millidarcys	Feet of Core		Permeability Capacity Ft. x Md.
			Ft.	Cum. Ft.	
41	1252.05	41.	0.60	19.75	24.60
42	1252.50	35.	0.35	20.10	12.25
43	1253.05	23.	0.55	20.65	12.65
44	1253.55	18.	0.50	21.15	9.00
45	1254.05	24.	0.50	21.65	12.00
46	1254.55	58.	0.50	22.15	29.00
47	1255.10	62.	0.55	22.70	34.10
48	1255.60	53.	0.50	23.20	26.50
49	1256.15	21.	0.60	23.80	12.60
50	1256.70	33.	0.50	24.30	16.50
51	1257.25	29.	0.50	24.80	14.50
52	1257.65	47.	0.55	25.35	25.85
53	1258.30	32.	0.45	25.80	14.40
54	1258.65	31.	0.25	26.05	7.75
55	1259.05	62.	0.65	26.70	40.30
56	1259.60	52.	0.50	27.20	26.00
57	1260.10	55.	0.50	27.70	27.50
58	1260.60	66.	0.55	28.25	36.30
59	1261.20	39.	0.50	28.75	19.50
60	1261.65	42.	0.45	29.20	18.90
61	1262.05	58.	0.45	29.65	26.10
62	1262.55	73.	0.65	30.30	47.45
63	1263.05	11.	0.35	30.65	3.85
64	1263.50	19.	0.45	31.10	8.55
65	1264.00	76.	0.50	31.60	38.00
66	1264.45	11.	0.65	32.25	7.15
67	1264.95	28.	0.25	32.50	7.00
68	1265.30	30.	0.40	32.90	12.00
69	1265.85	30.	0.65	33.55	19.50
70	1266.40	34.	0.45	34.00	15.30
71	1266.95	31.	0.55	34.55	17.05
72	1267.40	21.	0.40	34.95	8.40
73	1267.85	35	0.50	35.45	17.50
74	1268.35	49.	0.50	35.95	24.50
75	1268.85	31.	0.50	36.45	15.50
76	1269.30	82.	0.45	36.90	36.90
77	1269.85	76.	0.50	37.40	38.00
78	1270.20	89.	0.30	37.70	26.70
79	1270.50	38.	0.40	38.10	15.20
80	1271.00	78.	0.45	38.55	35.10

Oilfield Research Laboratories

RESULTS OF PERMEABILITY TESTS

TABLE I

Company Black Supply Company Lease Floyd Well No. 3

Sample No.	Depth, Feet	Permeability Millidarcys	Feet of Core		Permeability Capacity Ft. x Md.
			Ft.	Cum. Ft.	
81	1271.40	93.	0.40	38.95	37.20
82	1271.85	63.	0.50	39.45	31.50
83	1272.35	41.	0.50	39.95	20.50
84	1272.85	86.	0.60	40.55	51.60
85	1273.50	94.	0.60	41.15	56.40
86	1274.15	32.	0.55	41.70	17.60
87	1274.50	2.7	0.40	42.10	1.08
88	1275.05	50.	0.60	42.70	30.00
89	1275.60	85.	0.50	43.20	42.50
90	1276.15	49.	0.65	43.85	31.85
91	1276.70	6.8	0.35	44.20	2.38
92	1277.05	15.	0.40	44.60	6.00
93	1277.45	14.	0.50	45.10	7.00
94	1278.05	28.	0.55	45.65	15.40
95	1278.55	29.	0.60	46.25	17.40
96	1279.00	7.1	0.40	46.65	2.84
97	1279.60	13.	0.50	47.15	6.50
98	1280.05	11.	0.50	47.65	5.50
99	1280.55	32.	0.50	48.15	16.00
100	1281.00	24.	0.45	48.60	10.80
101	1281.50	5.7	0.80	49.40	4.56

Oil Field Research Laboratories

SUMMARY OF PERMEABILITY TESTS

TABLE II

Company Black Supply Company Lease Floyd Well No. 3

Depth Interval Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity, Ft. x Md.
1232.00 - 1249.30	12.80	45.01	576.18
1249.30 - 1268.15	18.80	38.67	727.00
1268.15 - 1282.05	13.95	43.48	606.51
1232.00 - 1282.05	45.55	41.93	1,909,69

Oil Field Research Laboratories

RESULTS OF SATURATION TESTS

TABLE III

Company Black Supply Company Lease Floyd Well No. 3

Sat. No.	Depth, Feet	Effective Porosity Percent	Percent Saturation			Oil Content Bbls./A. Ft.	Feet of Core		Total Oil Content Bbls./Acre
			Oil	Water	Total		Ft.	Cum. Ft.	
1	1232.92	14.9	26.8	42.8	69.6	310	1.30	1.30	403
2	1233.83	15.1	28.0	66.6	94.6	328	1.00	2.30	328
3	1234.94	13.8	18.6	64.3	82.9	199	1.00	3.30	199
4	1235.93	15.2	22.6	70.8	93.4	267	1.05	4.35	280
5	1236.95	11.7	21.8	65.9	87.7	198	1.00	5.35	198
6	1237.92	12.3	22.9	58.9	81.8	218	0.75	6.10	164
7	1238.92	15.2	27.4	53.9	81.3	324	1.20	7.30	388
8	1239.85	17.0	26.3	50.8	77.1	348	1.00	8.30	348
9	1240.92	17.5	33.0	55.4	88.4	449	1.00	9.30	449
10	1241.82	16.1	32.8	62.1	94.9	410	0.95	10.25	390
11	1242.83	15.4	23.3	60.0	83.3	278	1.25	11.50	348
12	1243.94	17.8	24.9	58.5	83.4	344	0.30	11.80	103
13	1244.93	19.7	36.7	51.4	88.1	562	1.40	13.20	786
14	1245.92	18.8	30.5	53.9	84.4	446	0.60	13.80	268
15	1246.92	16.0	28.3	65.6	94.9	352	0.85	14.65	299
16	1247.92	18.0	30.0	55.8	85.8	420	1.35	16.00	566
17	1248.92	16.8	22.0	58.4	80.4	287	0.95	16.95	272

Oil Field Research Laboratories

RESULTS OF SATURATION TESTS

TABLE III

Company Black Supply Company Lease Floyd Well No. 3

Sat. No.	Depth, Feet	Effective Porosity Percent	Percent Saturation			Oil Content Bbls./A. Ft.	Feet of Core		Total Oil Content Bbls./Acre
			Oil	Water	Total		Ft.	Cum. Ft.	
18	1249.92	16.7	26.3	54.6	80.9	342	1.00	17.95	342
19	1250.94	16.6	28.0	56.6	84.6	362	0.95	18.90	344
20	1251.95	18.1	31.7	43.0	74.7	446	1.15	20.05	514
21	1252.95	17.0	27.5	53.7	81.2	364	1.00	21.05	364
22	1253.92	16.0	29.4	57.8	87.2	366	1.00	22.05	366
23	1254.92	18.2	27.4	48.6	76.0	388	1.05	23.10	407
24	1256.04	17.5	26.8	51.5	78.3	364	1.05	24.15	382
25	1257.03	14.8	23.9	63.9	87.8	275	0.80	24.95	220
26	1257.92	17.7	27.4	55.2	82.6	378	1.40	26.35	530
27	1258.92	16.5	25.8	55.0	80.8	332	0.60	26.95	199
28	1259.92	15.4	29.6	46.1	75.7	354	1.05	28.00	372
29	1260.95	14.3	32.8	45.6	78.4	364	1.05	29.05	382
30	1261.94	15.7	32.2	53.5	85.7	394	0.90	29.95	354
31	1262.84	18.7	24.4	50.8	74.4	354	0.65	30.60	230
32	1263.82	16.8	22.9	66.3	89.2	300	1.30	31.90	390
33	1264.85	17.4	19.6	58.5	78.1	265	0.65	32.55	172
34	1265.72	18.5	32.2	56.2	88.4	464	1.30	33.85	604

Oil Field Research Laboratories

RESULTS OF SATURATION TESTS

TABLE III

Company Black Supply Company Lease Floyd Well No. 3

Sat. No.	Depth, Feet	Effective Porosity Percent	Percent Saturation			Oil Content Bbls./A. Ft.	Feet of Core		Total Oil Content Bbls./Acre
			Oil	Water	Total		Ft.	Cum. Ft.	
35	1266.82	17.3	29.3	51.7	81.0	394	0.95	34.80	374
36	1267.72	16.6	24.3	59.0	83.3	314	1.00	35.80	314
37	1268.72	17.1	33.6	53.6	87.2	446	1.05	36.85	469
38	1269.74	18.1	27.3	56.8	84.1	384	1.05	37.90	404
39	1270.82	18.2	34.4	56.0	90.4	487	1.00	38.90	487
40	1271.72	18.4	25.3	51.6	76.9	362	0.85	39.75	308
41	1272.72	18.1	25.8	50.8	76.6	363	1.20	40.95	436
42	1273.92	17.5	27.4	61.8	89.2	373	0.95	41.90	354
43	1274.92	19.3	28.4	53.4	81.8	426	1.10	43.00	469
44	1275.92	11.8	28.8	62.8	91.6	264	1.15	44.15	304
45	1276.91	18.7	32.2	51.6	83.8	468	0.75	44.90	352
46	1277.71	14.5	33.0	59.2	92.2	372	0.95	45.85	354
47	1278.82	15.4	26.7	57.8	84.5	320	0.70	46.55	224
48	1279.92	16.3	36.9	53.2	90.1	468	1.40	47.95	655
49	1280.84	17.3	42.0	50.0	92.0	565	1.05	49.00	594
50	1281.92	9.7	28.7	56.7	85.4	216	0.70	49.70	151
						Total	- - - -	- - - -	- - 18,210

Oil Field Research Laboratories

SUMMARY OF SATURATION TESTS

TABLE IV

Company Black Supply Company Lease Floyd Well No. 3

Depth Interval, Feet	Feet of Core Analyzed	Average Percent Porosity	Average Percent Oil Saturation	Average Percent Water Saturation	Average Oil Content Bbls./A. Ft.	Total Oil Content Bbls./Acre
1232.00-1249.30	16.95	15.96	27.10	58.09	342	5,789
1249.30-1268.15	18.85	16.86	27.75	54.03	364	6,860
1268.15-1282.05	13.90	16.58	31.01	55.29	400	5,561
1232.00-1282.05	49.70	16.47	28.44	55.77	366	18,210

Oilfield Research Laboratories

RESULTS OF LABORATORY FLOODING TESTS

TABLE V

Company Black Supply Company Lease Floyd Well No. 3

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.
			Percent	Bbls./A. Ft.	Percent	Bbls./A. Ft.	% Oil	% Water	Bbls./A. Ft.			
1	1232.70	14.9	25.8	293	0.0	0	25.5	57.0	293	0	Imp.	50#
2	1233.60	14.8	26.7	304	0.0	0	26.7	69.2	304	0	Imp.	50#
3	1234.80	13.3	20.9	248	0.0	0	20.9	73.3	248	0	Imp.	50#
4	1236.80	12.5	20.4	195	0.0	0	20.4	70.1	195	0	Imp.	50#
5	1237.80	12.2	21.7	207	0.0	0	21.7	62.5	207	0	Imp.	50#
6	1238.60	15.7	27.4	354	5.8	46	23.6	74.3	288	13	0.525	30
7	1239.70	17.8	36.3	351	5.9	52	33.4	69.6	299	41	1.33	20
8	1240.60	17.6	35.0	451	10.4	142	32.6	66.8	309	43	1.33	25
9	1241.70	16.1	32.8	410	9.6	130	25.2	70.4	280	33	0.768	25
10	1242.60	15.6	25.5	287	1.5	18	21.6	69.4	267	11	0.358	25
11	1243.80	17.8	25.7	328	0.0	0	25.7	68.5	320	0	Imp.	50#
12	1244.80	19.3	36.7	467	11.4	176	25.3	68.4	291	166	0.68	15
13	1245.80	18.6	30.5	441	3.4	49	27.1	67.6	392	7	0.246	30
14	1246.80	17.7	28.6	348	0.0	0	28.6	66.5	348	0	Imp.	50#
15	1247.80	16.2	30.0	425	4.7	66	25.3	64.6	357	31	0.665	20
16	1248.70	16.4	20.5	261	0.0	0	20.5	65.8	261	9	0.261	30
17	1249.70	16.9	26.3	347	2.7	35	23.6	71.6	310	27	0.810	20
18	1250.70	17.0	28.0	389	5.4	71	22.6	66.6	298	187	3.76	10
19	1251.70	16.0	31.7	443	9.5	125	22.2	72.1	310	69	7.30	15
20	1252.80	16.8	27.5	378	3.4	44	24.1	70.2	314	25	0.665	20
21	1253.70	16.5	29.4	378	4.2	54	25.2	69.5	324	27	0.648	25
22	1254.80	17.9	27.4	362	7.4	103	20.0	70.0	279	171	3.92	15
23	1255.90	17.4	28.8	383	5.8	83	23.6	68.1	330	46	1.76	20
24	1256.90	14.6	22.0	280	0.0	0	22.0	67.8	270	9	0.434	30
25	1257.80	17.5	27.4	372	6.3	86	21.0	71.3	286	30	0.821	30
26	1258.60	16.8	25.8	337	3.8	48	22.6	75.3	295	153	4.43	15
27	1259.70	15.4	29.8	354	6.7	78	23.1	75.3	276	124	4.09	15
28	1260.78	14.6	32.8	373	9.8	111	23.0	70.2	268	194	3.78	15
29	1261.70	15.5	32.2	387	3.8	43	28.6	67.7	344	28	0.787	15
30												

Oilfield Research Laboratories

RESULTS OF LABORATORY FLOODING TESTS

TABLE V

Company Black Supply Company Lease Floyd Well No. 5

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.
			Percent	Bbls./A. Ft.	Percent	Bbls./A. Ft.	% Oil	% Water	Bbls./A. Ft.			
31	1262.70	18.4	24.4	360	4.2	60	20.2	77.1	300	168	3.35	10
32	1263.60	16.8	22.9	239	2.1	27	20.8	67.4	272	30	0.675	25
33	1264.80	17.0	20.7	274	0.0	0	20.7	68.3	274	69	1.60	20
34	1265.70	18.7	32.2	468	10.7	151	21.7	72.7	312	66	1.33	30
35	1266.70	17.7	29.3	399	4.8	65	24.5	70.2	334	35	0.775	20
36	1267.70	16.9	24.3	319	2.7	33	21.8	69.3	286	187	3.78	10
37	1268.80	17.1	33.6	447	14.8	197	18.8	70.6	270	100	4.25	15
38	1269.60	18.0	27.3	383	4.9	69	22.4	68.1	314	37	1.07	15
40	1271.60	18.2	25.3	358	4.8	68	20.5	72.5	290	40	1.22	20
41	1272.70	18.3	25.8	368	4.9	70	20.9	70.0	298	185	4.75	10
42	1273.80	17.2	27.4	387	4.9	66	22.5	68.1	301	244	8.58	10
43	1274.85	19.0	28.4	420	5.0	74	23.4	69.6	346	66	2.70	20
44	1275.70	11.5	26.7	257	0.0	0	26.7	63.0	257	5	0.218	40
45	1276.70	19.0	32.2	476	7.9	117	24.3	67.4	359	106	8.40	10
46	1277.60	14.5	33.0	372	5.0	68	27.0	64.4	304	20	0.843	25
47	1278.70	15.2	26.7	316	1.7	20	25.0	60.0	296	4	0.226	35
48	1279.80	15.6	36.9	473	7.5	98	29.4	60.0	361	7	0.296	35
49	1280.70	17.6	43.0	576	4.8	58	37.8	58.7	518	23	0.797	25
50	1281.80	9.5	28.8	215	0.0	0	28.8	65.5	215	0	Imp.	50+

Notes: cc = cubic centimeter
* = Volume of water recovered at time of maximum oil recovery.
** = Determined by passing water through sample which still contains residual oil.

Oilfield Research Laboratories

SUMMARY OF LABORATORY FLOODING TESTS

TABLE VI

Company Black Supply Company Lease Floyd Well No. 3

Depth Interval, Feet	1238.10-1248.35	1249.30-1268.15	1268.15-1281.35	1238.10-1281.35
Feet of Core Analyzed	8.75	17.40	11.05	37.20
Average Percent Porosity	17.41	16.98	17.38	17.20
Average Percent Original Oil Saturation	30.02	28.22	31.11	29.50
Average Percent Oil Recovery	6.21	5.44	6.21	5.85
Average Percent Residual Oil Saturation	23.81	22.78	24.90	23.65
Average Percent Residual Water Saturation	68.87	70.58	66.23	68.89
Average Percent Total Residual Fluid Saturation	92.68	93.36	91.13	92.54
Average Original Oil Content, Bbls./A. Ft.	409.	372.	417.	394.
Average Oil Recovery, Bbls./A. Ft.	86.	72.	84.	79.
Average Residual Oil Content, Bbls./A. Ft.	323.	300.	333.	315.
Total Original Oil Content, Bbls./Acre	3,578.	6,477.	4,602.	14,657.
Total Oil Recovery, Bbls./Acre	750.	1,255.	924.	2,929.
Total Residual Oil Content, Bbls./Acre	2,828.	5,222.	3,678.	11,728.
Average Effective Permeability, Millidarcys	1.73	2.39	2.68	2.32
Average Initial Fluid Production Pressure, p.s.i.	23.8	17.6	20.0	19.7

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

Oilfield Research Laboratories

RESULTS OF WATER DIFFERENTIATION TESTS

TABLE VII

Company Black Supply Company Lease Floyd Well No. 3

Sample No.	Depth, Feet	Chloride Content of Brine in Sand ppm	Percent Water Saturation		
			Connate	Drilling & Foreign	Total
1	1232.92	71,000			
2	1233.83	69,800			
3	1234.94	62,600			
4	1235.93	54,700			
5	1236.95	52,700			
6	1237.92	41,900			
7	1238.92	37,400			
8	1239.85	38,800			
9	1240.92	22,400			
10	1241.82	18,400			
11	1242.83	17,400			
12	1243.94	24,000			
13	1244.93	19,700			
14	1245.92	22,800			
15	1246.92	21,300			
16	1247.92	17,200			
17	1248.92	26,400			
18	1249.92	16,700			
19	1250.94	21,900			
20	1251.95	16,100			
21	1252.95	31,200			
22	1253.92	19,000			
23	1254.92	15,000			
24	1256.04	21,700			
25	1257.03	31,000			
26	1257.92	23,900			
27	1258.92	15,700			
28	1259.92	32,900			
29	1260.95	33,700			
30	1261.94	34,000			
31	1262.84	21,400			
32	1263.82	38,300			
33	1264.85	29,200			
34	1265.72	35,000			
35	1266.82	24,100			
36	1267.72	22,800			
37	1268.72	35,400			
38	1269.74	47,000			
39	1270.82	32,800			
40	1271.72	34,800			

Oilfield Research Laboratories

RESULTS OF WATER DIFFERENTIATION TESTS

TABLE VII

Company Blank Supply Company Lease Floyd Well No. 3

Sample No.	Depth, Feet	Chloride Content of Brine in Sand ppm	Percent Water Saturation		
			Connate	Drilling & Foreign	Total
41	1272.72	52,200			
42	1273.92	21,000			
43	1274.92	20,800			
44	1275.92	41,500			
45	1276.91	24,100			
46	1277.71	25,700			
47	1278.82	31,400			
48	1279.92	23,100			
49	1280.84	29,900			
50	1281.92	47,500			

Note: ppm - parts per million.

Oil Field Research Laboratories

SUMMARY OF WATER DIFFERENTIATION TESTS

TABLE VIII

Company Black Supply Company Lease Floyd Well No. 3

Depth Interval, Feet	Chloride Content of Brine in Sand, ppm	Average Percent Connate Water	Average Percent Drilling & Foreign Water
1232.00 - 1249.30	36,968		
1249.30 - 1268.15	25,781		
1268.15 - 1282.05	33,363		
1232.00 - 1282.05	31,717		

Note: ppm - parts per million.