

January 14, 1952

Okon Oil & Gas Company
Atlas Life Building
Tulsa, Oklahoma

Gentlemen:

Enclosed herewith is the report of the analysis of the 2 $\frac{1}{2}$ " Rotary core taken from the S. P. Johnson Lease, Well No. G-17, Anderson County, Kansas, and submitted to our laboratory on December 31, 1951.

Very truly yours,

OIL FIELD RESEARCH LABORATORIES

Carl L. Pate

CLP:mm
c.c.

OKO OIL & GAS COMPANY

CORE ANALYSIS REPORT

S.P. JOHNSON LEASE

WELL NO. G-17

ANDERSON COUNTY, KANSAS

OIL FIELD RESEARCH LABORATORIES

CHANUTE, KANSAS

JANUARY 14, 1952

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company Oko Oil & Gas Company Lease S. P. Johnson Well No. G-17

Location W $\frac{1}{2}$, SE $\frac{1}{4}$ and E $\frac{1}{2}$, SW $\frac{1}{4}$

Section 7 Twp. 21S Rge. 20E County Anderson State Kansas

Name of Sand	Squirrel
Top of Core	783.70
Bottom of Core	830.70
Pay Top of Sand	791.75
Bottom of Sand	825.00
Total Feet of Permeable Sand (Analyzed)	25.41
Total Feet of Floodable Sand (Analyzed)	20.31

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 5	10.64	10.68
5 - 10	3.29	13.97
10 - 20	10.51	24.48
20 & above	0.93	25.41

Average Permeability Millidarcys	8.39
Average Percent Porosity	16.85
Average Percent Oil Saturation	48.07
Average Percent Water Saturation	42.89
Average Oil Content, Bbls./A. Ft.	641.
Total Oil Content, Bbls./Acre	18,192.
Average Percent Oil Recovery by Laboratory Flooding Tests	16.73
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	234.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	4,977.
Total Calculated Oil Recovery, Bbls./Acre	3,100.
Packer Setting, Feet	
Viscosity, Centipoises @	
A. P. I. Gravity, degrees @ 60 °F	
Elevation, Feet	1097.00

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:

<u>Depth Interval, Feet</u>	<u>Description</u>
783.70 - 785.55	- Gray shale.
785.55 - 786.50	- Laminated shaley sandstone.
786.50 - 789.05	- Gray shale.
789.05 - 790.05	- Laminated sandy shale.
790.05 - 790.50	- Light brown fine grained finely laminated micaceous shaley sandstone.
790.50 - 790.60	- Laminated sandy shale.
790.60 - 791.05	- Laminated shaley sandstone.
791.05 - 791.25	- Brown fine grained micaceous sandstone.
791.25 - 791.35	- Laminated shaley sandstone.
791.35 - 791.45	- Brown fine grained micaceous sandstone.
791.45 - 791.75	- Finely laminated shaley sandstone.
791.75 - 792.63	- Brown fine grained micaceous slightly shaley sandstone.
792.63 - 793.20	- Laminated sandstone and shale.
793.20 - 793.90	- Brown fine grained laminated micaceous shaley sandstone.
793.90 - 794.30	- Laminated sandy shale.
794.30 - 794.60	- Brown fine grained micaceous sandstone.
794.60 - 794.70	- Finely laminated sandstone and shale.
794.70 - 794.85	- Brown fine grained micaceous sandstone.
794.85 - 795.20	- Finely laminated shaley sandstone.
795.20 - 795.90	- Brown fine grained micaceous sandstone.

- 795.90 - 796.00 - Gray sandy shale.
- 796.00 - 796.15 - Finely laminated shaley sandstone.
- 796.15 - 796.40 - Brown fine grained micaceous sandstone.
- 796.40 - 796.70 - Finely laminated sandstone and shale.
- 796.70 - 797.00 - Brown fine grained laminated micaceous shaley sandstone.
- 797.00 - 797.60 - Finely laminated sandstone and shale.
- 797.60 - 798.20 - Brown fine grained laminated micaceous shaley sandstone.
- 798.20 - 798.75 - Finely laminated shaley sandstone.
- 798.75 - 799.00 - Brown fine grained slightly laminated micaceous shaley sandstone.
- 799.00 - 799.30 - Brown fine grained laminated micaceous shaley sandstone.
- 799.30 - 800.00 - Finely laminated sandstone and shale.
- 800.00 - 800.20 - Brown fine grained laminated micaceous shaley sandstone.
- 800.20 - 800.85 - Brown fine grained finely laminated micaceous shaley sandstone.
- 800.85 - 801.30 - Finely laminated sandstone and shale.
- 801.30 - 801.50 - Brown fine grained laminated micaceous shaley sandstone.
- 801.50 - 802.00 - Finely laminated shaley sandstone.
- 802.00 - 803.29 - Brown fine grained slightly laminated micaceous shaley sandstone.
- 803.29 - 803.40 - Laminated sandy shale.
- 803.40 - 803.90 - Brown fine grained micaceous slightly shaley sandstone.
- 803.90 - 804.00 - Gray shale.
- 804.00 - 804.35 - Brown fine grained micaceous sandstone.
- 804.35 - 804.45 - Gray shale.
- 804.45 - 805.08 - Brown fine grained micaceous sandstone.
- 805.08 - 805.25 - Gray shale.
- 805.25 - 805.55 - Laminated shaley sandstone.

- 805.55 - 805.70 - Brown fine grained micaceous sandstone.
805.70 - 806.03 - Gray sandy shale.
806.03 - 806.15 - Brown fine grained micaceous shaley sandstone.
806.15 - 806.25 - Laminated sandstone and shale.
806.25 - 806.88 - Brown fine grained micaceous sandstone.
806.88 - 807.10 - Gray shale.
807.10 - 808.17 - Finely laminated sandstone and shale.
808.17 - 808.30 - Brown fine grained laminated micaceous shaley sandstone.
808.30 - 809.40 - Brown fine grained micaceous sandstone.
809.40 - 810.00 - Gray shale.
810.00 - 811.20 - Finely laminated sandstone and shale.
811.20 - 811.82 - Brown fine grained slightly laminated micaceous shaley sandstone.
811.82 - 819.00 - Brown fine grained micaceous sandstone.
819.00 - 819.55 - Laminated sandy shale.
819.55 - 819.85 - Gray shale.
819.85 - 824.58 - Brown fine grained micaceous sandstone.
824.58 - 825.00 - Finely laminated shale and sandstone.
825.00 - 825.30 - Laminated sandstone and shale.
825.30 - 826.10 - Laminated shale and sandstone.
826.10 - 826.70 - Finely laminated sandstone and shale.
826.70 - 829.00 - Laminated sandy shale.
829.00 - 830.20 - Gray shale.
830.20 - 830.70 - According to log, sand (Discarded at well).

Coring was started at a depth of 783.70 feet in gray shale and completed at 830.70 feet probably in shale. That part of the cored section extending from 830.20 feet to the bottom of the hole was discarded at

well. This core shows a total of 30.10 feet of formation containing oil. For the most part, the pay section is made up of fine grained micaceous to shaley sandstone. The upper part of the cored section is badly broken by layers of shale.

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 2.87, 10.22 and 10.19 millidarcys respectively; the overall average being 8.39 (See Table II). By observing the data given on the coregraph, it is noticeable that the sand has a fairly irregular permeability profile.

PERCENT SATURATION & OIL CONTENT

The sand in this core shows a good weighted average percent oil saturation, namely, 48.07. The weighted average percent oil saturation of the upper, middle and lower sections is 42.67, 43.22 and 53.38 respectively. The weighted average percent water saturation of the upper, middle and lower sections is 48.66, 43.42 and 38.94 respectively; the overall average being 42.89 (See Table IV). This gives an overall weighted average total fluid saturation of 90.96 percent.

In an effort to determine the degree of flushing of the sand during coring, all of the saturation samples were analyzed for chloride content. The results of these tests are given in Tables VII and VIII. From the data given in these tables and on the coregraph, it is evident that the water used during the coring operation must have been salty as the zones of higher permeability do not have the lower chloride content. In fact, the sand section has a fairly uniform chloride content.

The weighted average oil content of the upper, middle and lower sections is 511, 609 and 735 barrels per acre foot respectively; the overall average being 641. The total oil content, as shown by this core, is 18,192 barrels per acre (See Table IV).

LABORATORY FLOODING TESTS

The sand in this core responded very well to laboratory flooding tests, as a total recovery of 4,977 barrels of oil per acre was obtained from 21.28 feet of sand. The weighted average percent oil saturation was reduced from 50.61 to 33.88, or represents an average recovery of 16.73 percent. The weighted average effective permeability of the samples is 0.435 millidarcys, while the average initial fluid production pressure is 25.7 pounds per square inch (See Table VI). From the above data, it is noticeable that the sand after flooding had a fairly high percent residual oil saturation.

By observing the data given in Table V, you will note that of the 42 samples tested, 26 produced water and 31 oil. This indicates that only part of the sand represented by these samples is floodable. The tests also show that the sand has a low effective permeability and that a number of the samples were impermeable to water.

CONCLUSION

From a study of the above data, we believe that an efficient water flood within the vicinity of this well will recover approximately 3,100 barrels of oil per acre, or an average of 153 barrels per acre foot from the 20.31 feet of floodable sand analyzed. In calculating this recovery, no allowance was made for oil lost during coring.

The principle drawback of this core is the fact that the sand section is badly broken and part of same is very tight. The wide variation in effective permeability accounts for the fact that the calculated recovery is much lower than the flood pot recovery.

Oil Field Research Laboratories

SHOT RECOMMENDATION

Company Okro Oil & Gas Company Lease S. P. Johnson Well No. G-17

Depth Interval, Feet	Feet of Sand	Size of Shell Inches	Qts./Ft.	Total Quarts
799.0 - 823.5	24.5	4.0	2.5	61.25

Recommended Packer Setting (Bottom of cement) - 794.0 feet.
Note: Plug hole back to - 825.0 feet.

Oil Field Research Laboratories
RESULTS OF PERMEABILITY TESTS
TABLE I

Company Okro Oil & Gas Company Lease S. P. Johnson Well No. G-17

Sample No.	Depth, Feet	Permeability Millidarcys	Feet of Core		Permeability Capacity Ft. x Md.
			Ft.	Cum. Ft.	
1	790.14	0.75	0.45	0.45	0.34
2	790.66	Imp.	0.45	0.90	0.00
3	791.40	3.3	0.10	1.00	0.33
4	791.85	1.3	0.25	1.25	0.33
5	792.15	3.0	0.35	1.60	1.05
6	792.58	0.75	0.28	1.88	0.21
7	793.23	1.1	0.30	2.18	0.33
8	793.76	2.9	0.40	2.58	1.16
9	794.65	Imp.	0.10	2.68	0.00
10	794.88	0.50	0.35	3.03	0.18
11	795.35	2.5	0.40	3.43	1.00
12	795.85	23.	0.30	3.73	6.90
13	796.07	0.39	0.15	3.88	0.06
14	796.62	Imp.	0.30	4.18	0.00
15	797.05	0.94	0.60	4.78	0.56
16	797.85	3.4	0.60	5.38	2.04
17	798.26	Imp.	0.30	5.68	0.00
18	798.70	3.7	0.25	5.93	0.93
19	799.13	0.51	0.30	6.23	0.15
20	799.45	Imp.	0.35	6.58	0.00
21	799.87	1.7	0.35	6.93	0.60
22	800.25	0.52	0.30	7.23	0.16
23	800.70	0.39	0.35	7.58	0.14
24	801.43	7.9	0.20	7.78	1.58
25	801.82	Imp.	0.50	8.28	0.00
26	802.18	16.	0.35	8.63	5.60
27	802.58	11.	0.35	8.98	3.85
28	802.84	6.3	0.30	9.28	1.89
29	803.18	8.7	0.29	9.57	2.52
30	803.54	0.77	0.50	10.07	0.39
31	804.30	17.	0.35	10.42	5.95
32	804.90	12.	0.63	11.05	7.56
33	805.64	5.6	0.15	11.20	0.84
34	806.06	7.3	0.12	11.32	0.88
35	806.65	16.	0.63	11.95	10.08
36	807.45	Imp.	0.55	12.50	0.00
37	807.83	Imp.	0.52	13.02	0.00
38	808.25	2.7	0.13	13.15	0.35
39	808.65	15.	0.55	13.70	8.25
40	809.05	3.5	0.55	14.25	1.93

Oil Field Research Laboratories
RESULTS OF PERMEABILITY TESTS
TABLE I

Company Okro Oil & Gas Company Lease S. P. Johnson Well No. G-17

Sample No.	Depth, Feet	Permeability Millidarcys	Feet of Core		Permeability Capacity Ft. x Md.
			Ft.	Cum. Ft.	
41	810.53	Imp.	1.00	15.25	0.00
42	811.27	35.	0.35	15.60	12.25
43	811.80	1.6	0.27	15.87	0.43
44	812.03	8.5	0.43	16.30	3.66
45	812.44	11.	0.25	16.55	2.75
46	812.67	15.	0.35	16.90	5.25
47	813.10	13.	0.40	17.30	5.20
48	813.45	6.5	0.45	17.75	2.93
49	813.90	8.7	0.30	18.05	2.61
50	814.20	13.	0.40	18.45	5.20
51	814.63	12.	0.40	18.85	4.80
52	814.93	13.	0.40	19.25	5.20
53	815.47	14.	0.55	19.80	7.70
54	816.05	5.2	0.60	20.40	3.12
55	816.66	12.	0.50	20.90	6.00
56	817.10	13.	0.50	21.40	6.50
57	817.56	7.5	0.45	21.85	3.38
58	818.05	4.3	0.40	22.25	1.72
59	818.25	4.9	0.40	22.65	1.96
60	818.83	3.8	0.40	23.05	1.52
61	820.13	4.9	0.55	23.60	2.70
62	820.62	13.	0.40	24.00	5.20
63	821.03	11.	0.40	24.40	4.40
64	821.38	11.	0.35	24.75	3.85
65	821.71	14.	0.35	25.10	4.90
66	822.12	17.	0.50	25.60	8.50
67	822.64	14.	0.45	26.05	6.30
68	823.10	13.	0.45	26.50	5.85
69	823.51	12.	0.50	27.00	6.00
70	824.10	16.	0.50	27.50	8.00
71	824.53	20.	0.28	27.78	5.60
72	825.05	0.71	0.30	28.08	0.21
73	825.65	1.4	0.80	28.88	1.12
74	826.60	0.40	0.60	29.48	0.24

Oil Field Research Laboratories

SUMMARY OF PERMEABILITY TESTS

TABLE II

Company Oko Oil & Gas Company Lease S. P. Johnson Well No. G-17

Depth Interval Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity, Ft. x Md.
790.05 - 802.00	6.28	2.87	18.05
802.00 - 811.00	4.90	10.22	50.09
811.20 - 826.70	14.23	10.19	145.05
790.05 - 826.70	25.41	8.39	213.19

Oil Field Research Laboratories

RESULTS OF SATURATION TESTS

TABLE III

Company Okro Oil & Gas Company Lease S. P. Johnson Well No. G-17

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.	
2	789.70	12.6	28.4	66.0	94.4	278	1.00	1.00	278
3	790.35	13.5	34.8	60.5	95.3	364	0.45	1.45	164
4	790.90	14.4	36.8	56.0	92.8	412	0.45	1.90	185
6	792.35	15.5	48.9	41.1	90.0	589	0.88	2.78	518
8	793.55	14.5	47.8	36.0	83.8	538	0.70	3.48	377
9	794.45	19.0	45.9	34.2	80.1	677	0.30	3.78	203
11	795.65	17.0	53.8	40.1	94.1	710	0.70	4.48	497
13	796.85	18.7	53.4	42.2	95.6	776	0.30	4.78	233
14	797.25	14.9	48.4	46.4	94.8	560	0.60	5.38	336
15	798.05	17.0	39.7	49.2	88.9	524	0.60	5.98	314
16	798.85	17.8	58.7	29.6	88.3	811	0.25	6.23	203
17	799.66	13.7	37.6	56.0	93.6	400	0.70	6.93	280
18	800.45	16.2	47.8	42.3	90.1	602	0.85	7.78	512
19	800.97	13.0	31.2	68.5	99.7	315	0.45	8.23	142
20	801.63	14.3	39.0	46.1	85.1	433	0.50	8.73	217
21	802.36	19.6	49.8	34.4	84.2	758	0.70	9.43	531
22	803.00	18.3	45.6	42.0	87.6	647	0.59	10.02	382

Oil Field Research Laboratories

RESULTS OF SATURATION TESTS

TABLE III

Company Oko Oil & Gas Company Lease S. P. Johnson Well No. G-17

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.	
23	803.74	16.9	53.3	36.6	89.9	700	0.50	10.52	350
24	804.65	18.8	47.3	34.6	81.9	689	0.63	11.15	434
25	805.40	15.4	38.0	36.4	74.4	454	0.30	11.45	136
26	806.40	17.4	45.5	46.8	92.3	614	0.63	12.08	387
27	807.61	14.0	41.5	57.4	98.9	451	1.07	13.15	483
28	808.44	20.6	38.9	38.3	77.2	622	0.55	13.70	342
29	809.25	16.9	44.2	50.7	94.9	580	0.55	14.25	319
32	811.57	17.5	53.4	37.7	91.1	726	0.62	14.87	450
33	812.23	17.8	44.8	44.2	89.0	619	0.68	15.55	421
34	812.87	19.3	47.0	37.1	84.1	704	0.75	16.30	528
35	813.66	18.3	58.2	33.4	91.6	826	0.75	17.05	620
36	814.43	17.5	61.8	31.5	93.3	840	0.80	17.85	672
37	815.13	18.6	49.7	40.6	90.3	718	0.70	18.55	503
38	815.84	18.3	54.4	44.1	98.5	777	0.85	19.40	660
39	816.87	18.0	59.6	39.6	99.2	833	1.00	20.40	833
40	817.85	17.6	57.0	37.8	94.8	778	0.85	21.25	661

Oil Field Research Laboratories
RESULTS OF SATURATION TESTS

TABLE III

Company Okro Oil & Gas Company Lease S. P. Johnson Well No. G-17

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.	
41	818.50	16.2	60.2	39.5	99.7	757	0.80	22.05	606
42	819.13	13.7	48.7	45.4	94.1	518	0.55	22.60	285
43	819.96	19.6	50.2	42.4	92.6	763	0.55	23.15	420
44	820.87	18.7	53.0	35.8	88.8	770	1.00	24.15	770
45	821.93	18.8	55.6	36.2	91.8	812	1.00	25.15	812
46	822.88	18.5	53.0	32.3	85.3	752	1.18	26.15	752
47	823.85	18.0	54.5	42.2	96.7	762	0.42	27.33	899
48	824.80	14.2	43.5	54.0	97.5	480	0.60	27.75	202
F-48A	826.45	14.2	41.6	-	-	458		28.35	<u>275</u>
							Total	- - - -	18,192

Note: "A" samples were taken from the core after it was received in the laboratory.

Oil Field Research Laboratories

SUMMARY OF SATURATION TESTS

TABLE IV

Company	Oko Oil & Gas Company	Lease	S. P. Johnson	Well No.	G-17	
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
789.05 - 802.00	8.73	15.15	42.67	48.66	511	4,459
802.00 - 809.40	5.52	17.39	43.22	43.42	609	3,364
811.20 - 826.70	14.10	17.71	53.38	38.94	735	10,369
789.05 - 826.70	28.35	16.85	48.07	42.89	641	18,192

Oil Field Research Laboratories

RESULTS OF LABORATORY FLOODING TESTS

TABLE V

Company Okro Oil & Gas Company Lease S. P. Johnson Well No. G-17

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.			
39	816.87	18.0	60.8	849	27.5	394	55.3	64.0	455	16	0.387	15
40	817.85	17.3	55.6	733	23.4	301	52.2	63.5	432	10	0.252	15
41	818.50	16.1	59.2	739	24.1	301	55.1	61.7	438	4	0.188	20
42	819.13	13.5	47.3	496	0.0	0	47.3	50.3	496	0	Imp.	50 ^f
43	819.96	19.9	48.9	756	17.2	266	31.7	63.1	490	65	1.60	20
44	820.67	18.6	51.6	745	18.7	270	32.9	57.7	475	21	0.540	20
45	821.95	18.6	54.0	779	19.0	274	35.0	55.3	505	22	0.560	20
46	822.88	18.6	51.6	744	21.2	306	30.4	64.7	438	29	0.714	15
47	823.25	18.1	53.5	752	21.7	305	31.8	62.2	447	7	0.200	20
48	824.80	14.3	43.9	487	2.9	32	41.0	55.8	455	0	0.009	50
48A	826.45	14.2	41.6	458	0.0	0	41.6	51.1	458	0	Imp.	50 ^f

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 saturation.
 "A" - Sample was taken from the core after it was received in the laboratory.

Oil Field Research Laboratories

RESULTS OF LABORATORY FLOODING TESTS

TABLE V

Company Okco Oil & Gas Company

Lease S. P. Johnson

Well No. G-17

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.			
2	789.70	12.7	25.4	250	0.0	0	25.4	64.9	250	0	Imp.	50 f
3	790.55	13.3	32.9	340	0.0	0	32.9	60.5	340	0	Imp.	50 f
4	790.90	14.6	34.5	391	0.0	0	34.5	60.0	391	0	Imp.	50 f
6	792.35	15.1	50.6	593	3.8	42	47.0	50.7	551	0	0.009	50
8	793.55	14.5	45.8	516	0.0	0	45.8	47.4	516	0	Imp.	50 f
9	794.45	19.3	43.1	653	15.3	232	27.8	67.2	421	48	1.31	20
11	795.65	17.3	52.4	702	9.7	130	42.7	51.5	572	0	0.021	40
13	796.85	18.5	51.5	739	18.0	258	35.5	65.0	481	5	0.197	25
14	797.25	14.5	46.0	518	0.0	0	46.0	56.0	518	0	Imp.	50 f
15	798.05	17.4	39.5	534	11.0	149	28.5	68.0	385	21	0.408	20
16	798.85	17.6	58.4	797	8.2	85	52.2	44.1	712	0	0.010	50
17	799.66	14.2	35.0	386	0.0	0	35.0	60.1	386	0	Imp.	50 f
18	800.45	16.3	46.0	607	12.2	154	35.8	56.0	456	2	0.177	35
19	800.97	13.2	32.4	332	0.0	0	32.4	67.4	332	0	Imp.	50 f
20	801.65	14.1	36.8	403	0.0	0	36.8	59.2	403	0	Imp.	50 f
21	802.36	19.4	48.1	724	16.6	250	31.5	64.3	474	83	2.10	20
22	803.00	18.6	43.9	633	13.4	193	30.5	64.6	440	22	0.590	30
23	803.74	17.3	52.1	700	28.9	388	23.2	70.4	312	6	0.197	15
24	804.05	19.1	45.6	676	20.2	500	25.4	72.5	376	30	0.746	15
25	805.40	15.3	36.9	438	2.7	32	34.2	51.9	406	0	0.011	50
26	806.40	17.7	46.4	637	16.6	228	29.8	61.8	409	15	0.390	25
27	807.61	13.7	41.8	445	0.0	0	41.8	56.5	445	0	Imp.	50 f
28	808.44	20.5	40.0	637	14.4	229	25.6	63.1	408	40	1.07	20
29	809.25	16.9	42.3	558	5.8	76	36.7	56.7	482	2	0.096	35
32	811.57	17.5	52.2	709	17.2	234	35.0	60.4	475	10	0.153	15
33	812.23	17.9	44.1	604	6.5	78	37.8	57.4	526	12	0.336	25
34	812.87	19.3	45.6	682	15.0	224	30.6	65.6	458	31	0.705	25
35	813.65	18.4	55.8	797	13.3	190	42.5	51.1	607	13	0.380	30
36	814.43	18.0	60.1	839	22.9	320	37.2	62.3	519	12	0.305	20
37	815.13	18.7	48.3	701	11.3	164	37.0	54.7	537	24	0.540	25
38	815.84	18.1	54.8	770	28.2	396	28.6	63.6	374	19	0.555	10

Oil Field Research Laboratories

SUMMARY OF LABORATORY FLOODING TESTS

TABLE VI

Company	Lease	S. P. Johnson	Well No.
	791.75 - 800.85	802.00 - 809.40	811.20-825.00
	3.88	4.45	12.95
Depth Interval, Feet			791.75-825.00
Feet of Core Analyzed	16.93	18.36	21.28
Average Percent Porosity	48.66	44.97	17.93
Average Percent Original Oil Saturation	9.95	15.53	50.61
Average Percent Oil Recovery	38.71	29.44	16.73
Average Percent Residual Oil Saturation	56.47	63.93	33.88
Average Percent Residual Water Saturation	95.18	93.37	60.46
Average Percent Total Residual Fluid Saturation	635.	640.	94.34
Average Original Oil Content, Bbls./A. Ft.	133.	223.	702.
Average Oil Recovery, Bbls./A. Ft.	502.	417.	234.
Average Residual Oil Content, Bbls./A. Ft.	2,466.	2,848.	468.
Total Original Oil Content, Bbls./Acre	517.	994.	14,928.
Total Oil Recovery, Bbls./Acre	1,949.	1,854.	4,977.
Total Residual Oil Content, Bbls./Acre	0.225	0.736	9,951.
Average Effective Permeability, Millidarcys	34.3	26.3	0.435
Average Initial Fluid Production Pressure, p.s.i.			25.7

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

Oil Field Research Laboratories
RESULTS OF WATER DIFFERENTIATION TESTS
TABLE VII

Company Oke Oil & Gas Company Lease S. P. Johnson Well No. G-17

Sample No.	Depth, Feet	Chloride Content of Brine in Sand ppm	Percent Water Saturation	
			Connate	Drilling & Foreign
			Total	
2	789.70	26,600		
3	790.35	23,600		
4	790.90	23,500		
6	792.35	23,000		
8	793.55	21,800		
9	794.45	22,300		
11	795.65	24,100		
13	796.85	18,400		
14	797.25	27,300		
15	798.05	26,100		
16	798.85	28,100		
17	799.66	25,000		
18	800.45	31,800		
19	800.97	25,200		
20	801.63	24,200		
21	802.36	27,600		
22	803.00	24,000		
23	803.74	29,000		
24	804.65	39,100		
25	805.40	30,500		
26	806.40	37,800		
27	807.61	29,700		
28	808.44	18,000		
29	809.25	15,800		
32	811.57	29,300		
33	812.23	20,600		
34	812.87	20,300		
35	813.66	22,600		
36	814.43	25,800		
37	815.13	17,800		
38	815.84	16,800		
39	816.87	16,400		
40	817.85	20,900		
41	818.50	22,400		
42	819.13	26,700		
43	819.96	15,800		
44	820.87	19,100		
45	821.93	20,400		
46	822.88	21,500		
47	823.85	18,500		
48	824.80	24,800		

Note: ppm - parts per million.

Oil Field Research Laboratories

SUMMARY OF WATER DIFFERENTIATION TESTS

TABLE VIII

Company Oko Oil & Gas Company Lease S. P. Johnson Well No. G-17

Depth Interval, Feet	Chloride Content of Brine in Sand, ppm	Average Percent Connate Water	Average Percent Drilling & Foreign Water
789.05 - 802.00	23,990		
802.00 - 809.40	28,300		
811.20 - 825.00	20,800		
789.05 - 825.00	23,600		

Note: ppm - parts per million.