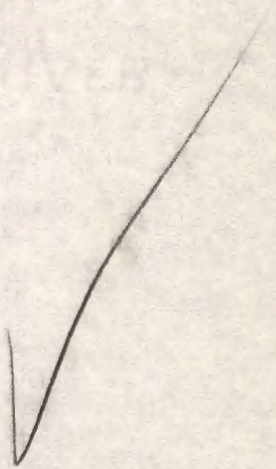


29-27-19c

July 1, 1950



M. G. Jensen Drilling Company
Chanute, Kansas

Gentlemen:

Enclosed herewith is the report of the analysis
made on the Keystone barrel core taken from the Akers
Lease, Well No. CW-1, Neosho County, Kansas, and sub-
mitted to our laboratory on June 23, 1950.

Very truly yours,

OIL FIELD RESEARCH LABORATORIES

Carl L. Pate

CLP:bb
C.C.

CW-1

Akers

M. O. JENSEN DRILLING COMPANY

CORE ANALYSIS REPORT

AKERS LEASE

WELL NO. CH-1

NEOSHO COUNTY, KANSAS

OIL FIELD RESEARCH LABORATORIES

CHANUTE, KANSAS

JUNE 30, 1960

Oil Field Research Laboratories

GENERAL INFORMATION & SUMMARY

Company H. G. Jensen Drilling Company Lease Akers Well No. OW-1
 Location 300' from South Line and 320' from East Line,
 Section 29 Twp. 27 S Rge. 19 E County Neosho State Kansas

FIRST SAND

Name of Sand Bartlesville
 Top of Core 729.25
 Bottom of Core 761.80
 Top of ^{Pay}Sand 735.00
 Bottom of ^{Pay}Sand 754.95
 Total Feet of Permeable Sand 17.01

Distribution of Permeable Sand:

Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 10	3.58	3.58
10 - 20	2.86	6.44
20 - 30	3.41	9.85
30 - 50	4.86	14.71
50 - 70	1.60	16.31
70 & above	0.70	17.01

Average Permeability, Millidarcys 29.11
 Average Percent Porosity 17.45
 Average Percent Oil Saturation 36.32
 Average Percent Water Saturation 50.70
 Average Oil Content, Bbls./A. Ft. 490.
 Total Oil Content, Bbls./Acre 8,328.
 Average Percent Oil Recovery by Laboratory Flooding Tests 7.65
 Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft. 101.
 Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre 1,153.
 Total Calculated Oil Recovery, Bbls./Acre 2,300.
 Packer Setting, Feet -
 Viscosity, Centipoises @ 78°F. 12.3
 A. P. I. Gravity, degrees @ 60 °F 31.7

Oil Field Research Laboratories

GENERAL INFORMATION & SUMMARY

Company K. G. Jensen Drilling Company Lease Akers Well No. CW-1

Location 300' from South Line and 320' from East Line,

Section 29 Twp. 27 Rge. 19 County Neosho State Kansas

SECOND SAND

Name of Sand	Bartlesville
Top of Core	795.50
Bottom of Core	808.40
Top of Sand	799.00
Bottom of Sand	803.60
Total Feet of Permeable Sand	5.03

Distribution of Permeable Sand:

Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 150	1.13	1.13
150 - 200	1.05	2.18
200 - 250	0.65	2.83
250 - 300	1.10	3.93
300 & above	1.10	5.03

Average Permeability, Millidarcys	242.75
Average Percent Porosity	19.77
Average Percent Oil Saturation	35.26
Average Percent Water Saturation	48.30
Average Oil Content, Bbls./A. Ft.	540.
Total Oil Content, Bbls./Acre	2,565.
Average Percent Oil Recovery by Laboratory Flooding Tests	8.50
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	122.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	561.
Total Calculated Oil Recovery, Bbls./Acre	1,000.
Packer Setting, Feet	-
Viscosity, Centipoises @	
A. P. I. Gravity, degrees @ 60 °F	

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:

<u>Depth Interval,</u> <u>Feet</u>	<u>Description</u>
729.25 - 732.55	- Shale, (discarded at well).
732.55 - 733.63	- Gray shale.
733.63 - 734.38	- Light brown fine grained micaceous shaley sandstone.
734.38 - 734.68	- Gray sandy shale.
734.68 - 734.88	- Brown fine grained micaceous sandstone.
734.88 - 735.00	- Gray sandy shale.
735.00 - 735.42	- Brown fine grained micaceous sandstone.
735.42 - 736.20	- Gray sandy shale.
736.20 - 736.45	- Brown fine grained micaceous shaley sandstone.
736.45 - 736.68	- Gray sandy shale.
736.68 - 737.25	- Brown fine grained micaceous shaley sandstone.
737.25 - 737.40	- Laminated sandstone and shale.
737.40 - 738.30	- Brown fine grained micaceous sandstone.
738.30 - 738.50	- Gray sandy shale.
738.50 - 739.48	- Brown fine grained micaceous sandstone.
739.48 - 739.90	- Gray sandy shale.
739.90 - 741.20	- Brown fine grained micaceous sandstone.
741.20 - 741.85	- Laminated sandstone and shale.
741.85 - 742.03	- Brown fine grained micaceous sandstone.
742.03 - 742.80	- Gray shale.
742.80 - 743.00	- Laminated shaley sandstone.
743.00 - 743.15	- Brown fine grained micaceous shaley sandstone.

743.15 - 746.30 - Brown fine grained micaceous sandstone.
746.30 - 747.00 - Loss.
747.00 - 748.78 - Brown fine grained micaceous sandstone.
748.78 - 748.95 - Brown fine grained micaceous shaley sandstone.
748.95 - 750.50 - Brown fine grained micaceous sandstone.
750.50 - 751.80 - Loss.
751.80 - 753.15 - Brown fine grained micaceous slightly shaley sandstone.
753.15 - 753.77 - Brown fine grained micaceous shaley sandstone.
753.77 - 754.00 - Gray sandy shale.
754.00 - 754.95 - Brown fine grained micaceous sandstone.
754.95 - 757.13 - Dark fine grained micaceous carbonaceous sandstone.
757.13 - 758.10 - Gray shale.
758.10 - 758.35 - Gray sandy shale.
758.35 - 759.00 - Hard brown fine grained micaceous sandstone.
759.00 - 761.80 - Gray shale.
761.80 - 795.50 - Drilled with cable tools.

Second Sand

795.50 - 799.00 - Gray shale (discarded at well).
799.00 - 803.60 - Dark brown fine grained micaceous sandstone.
803.60 - 804.03 - Dark fine grained micaceous carbonaceous sandstone.
804.03 - 804.40 - Gray shale.
804.40 - 804.55 - Brown fine grained micaceous sandstone.
804.55 - 805.10 - Shale.
805.10 - 808.40 - Gray shale (discarded at well).

The coring of the first sand was started at a depth of 729.25 feet in gray shale and completed at 761.80 feet in gray shale. The break extending from 761.80 to 795.50 feet was drilled with cable tools. The coring of the second sand was started at 795.50 feet in gray shale and

completed at 808.40 in gray shale. The first or top sand shows a total of 17.43 feet while the second or lower sand contains 5.18 feet. For the most part, both sands are made up of fine grained micaceous sandstone. The upper sand is broken by a number of thin shale layers.

PERMEABILITY

For the sake of distribution, the first sand was divided into two sections. The weighted average permeability of the upper and lower sections are 18.89 and 33.75 millidarcys respectively; while the overall average of the first sand is 29.11. The overall weighted average permeability of the second sand is 242.75 millidarcys (See Table II). From the data given above and on the coregraph, it is noticeable that the first sand has a fairly irregular permeability profile and that the second sand has a much higher average permeability than the first sand.

PERCENT SATURATION & OIL CONTENT

The weighted average percent oil saturation of the upper and lower section of the first sand is 35.70 and 36.56 respectively; the overall average for the first sand being 36.32, while the overall average of the second sand is 35.26. The weighted average percent water saturation of the upper and lower sections of the first sand is 45.39 and 52.44 respectively; the overall average being 50.70. The overall weighted average percent water saturation of second sand is 48.30 (See Table IV). The overall weighted average total fluid saturation for the first and second sands is 87.02 and 83.56 respectively.

In order to get some idea of the degree of flushing of the sand during boring, 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 considerable flushing of the sand did occur during coring as, for the most part, the zones of higher permeability have the lower chloride content. By comparing the percent water saturation of this core with that taken from the Briley Well No. 3, you will note that it is considerable higher and that the chloride content is considerable lower thereby indicating that much more flushing of the sand occurred in this core than that taken from the Briley Well No. 3.

The overall weighted average oil content of the first and second sands is 490 and 540 barrels per acre foot respectively. The total oil content of the first and second sands, as shown by this core, is 8,388 and 8,565 barrels per acre respectively (See Table IV).

VISCOSITY

The viscosity of a sample of crude oil bailed from the core hole (first sand) is 12.3 centipoises at 78° F. The A.P.I. gravity of the oil is 31.7° 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

For the most part, both sands responded fairly well to laboratory flooding tests as a total recovery of 1,153 and 561 barrels per acre was obtained from the first and second sands respectively. For the first sand, the weighted average percent oil saturation was reduced from 34.62 to 26.97, or represents an average recovery of 7.65 percent. The weighted average effective permeability of the first sand is 4.74 millidarcys while the average initial fluid production pressure is 23.3 pounds per square inch. The tests on the second sand show that the weighted

average percent oil saturation was reduced from 34.89 to 26.39, or represents an average recovery of 8.50 percent. The weighted average effective permeability of the second sand is 24.42 millidarcys while the average initial fluid production pressure is 7 pounds per square inch (See Table VI). The above tests show that the second sand has a much higher effective permeability and lower initial fluid production pressure.

By observing the data given in Table V, you will note that of the 24 samples tested, 18 took water and produced oil. This would indicate that most of the sand represented by these samples is floodable.

CONCLUSION

From a study of the above data, we believe that an efficient water flood within the vicinity of this well will recovery approximately 2,300 barrels of oil per acre from the first and 1,000 barrels per acre from the second sand. In calculating this recovery, an allowance was made for oil lost during coring, and it was assumed that the true water saturation of the sand is 40 percent. Furthermore, in order to get this recovery, it will probably be necessary to run two injection strings of pipe; one for the first sand and one for the second sand, otherwise, the second sand would have a tendency to take most of the water. It may be that by shooting the first sand fairly heavy and not shooting the second sand, the intake rate of the two sands would be such that it would not be necessary to use two injection strings. Of course, this, more or less would have to be determined by actual field tests.

The core taken from this well varies considerably from that taken from the Briley Well No. 3 in that the first sand contains by far more pay sand than the second sand which is the reverse in the Briley well.

If this condition exists over the entire acreage, then it would be advisable to utilize both sands even though the thickness of one of the sands may be rather thin. Chances are the oil and water saturation in this core is affected somewhat by the water that was injected into some nearby injection wells sometime ago.

Oil Field Research Laboratories

RESULTS OF PERMEABILITY TESTS

TABLE I

Company M.G. Jensen Drilling Co. Lease Akers Well No. CW-1

Sample No.	Depth, Feet	Permeability Millidarcys	Feet of Core		Permeability Capacity Ft. x Md.
			Ft.	Cum. Ft.	
		<u>First Sand</u>			
1	733.72	Imp.	0.37	0.37	0.00
2	734.15	1.6	0.38	0.75	0.61
3	734.76	29.	0.23	0.98	6.67
4	735.40	12.	0.42	1.40	5.04
5	736.25	11.	0.25	1.65	2.75
6	736.95	11.	0.37	2.02	4.07
7	737.58	36.	0.40	2.42	14.40
8	738.08	39.	0.40	2.82	15.60
9	738.25	22.	0.10	2.92	2.20
10	738.85	26.	0.50	3.42	13.00
11	739.10	43.	0.30	3.72	12.90
12	739.43	31.	0.18	3.90	5.58
13	739.85	10.	0.42	4.32	4.20
14	740.33	8.0	0.60	4.92	4.80
15	740.67	7.0	0.35	5.27	2.45
16	741.00	14.	0.35	5.62	4.90
17	741.90	29.	0.18	5.80	5.22
18	742.88	Imp.	0.20	6.00	0.00
19	743.35	34.	0.45	6.45	15.30
20	743.80	23.	0.30	6.75	6.90
21	744.05	52.	0.35	7.10	18.20
22	744.45	22.	0.35	7.45	7.70
23	744.72	11.	0.30	7.75	3.30
24	745.05	27.	0.35	8.10	9.45
25	745.44	97.	0.40	8.50	38.80
26	745.83	39.	0.35	8.85	13.65
27	746.25	27.	0.30	9.15	8.10
28	747.40	36.	9.60	9.75	21.60
29	747.76	36.	0.30	10.05	10.80
30	748.05	42.	0.40	10.45	16.80
31	748.50	39.	0.48	10.93	18.72
32	749.15	63.	0.75	11.68	47.25
33	750.00	53.	0.50	12.18	26.50
34	750.35	127.	0.30	12.48	38.10
35	751.90	30.	0.30	12.78	9.00
36	752.32	26.	0.40	13.18	10.40
37	752.74	27.	0.40	13.58	10.80
38	753.10	12.	0.25	13.83	3.00
39	753.50	8.0	0.62	14.45	4.96
40	754.22	16.	0.50	14.95	8.00

Oil Field Research Laboratories
RESULTS OF PERMEABILITY TESTS
TABLE I

Company M.G. Jensen Drilling Co. Lease Akers Well No. CW-1

Sample No.	Depth, Feet	Permeability Millidarcys	Feet of Core		Permeability Capacity Ft. x Md.
			Ft.	Cum. Ft.	
41	754.70	41.	0.43	15.40	18.45
42	755.00	39.	0.25	15.65	9.75
43	755.35	21.	0.30	15.95	6.30
44	755.72	5.7	0.50	16.45	2.55
45	756.20	6.2	0.40	16.85	2.48
46	756.60	5.2	0.40	17.25	2.08
47	757.05	4.7	0.33	17.58	1.55
<u>Second Sand</u>					
48	799.35	298.	0.50	18.08	149.00
49	799.72	533.	0.40	18.48	213.20
50	800.04	350.	0.35	18.83	133.00
51	800.40	356.	0.35	19.18	124.60
52	800.72	288.	0.30	19.48	86.40
53	801.05	98.	0.40	19.88	39.20
54	801.47	197.	0.40	20.28	78.80
55	801.82	232.	0.25	20.53	58.00
56	802.05	189.	0.35	20.88	66.15
57	802.45	191.	0.30	21.18	57.30
58	802.75	242.	0.40	21.58	96.80
59	803.15	282.	0.30	21.88	84.60
60	803.55	43.	0.30	22.18	12.90
61	803.85	49.	0.43	22.61	21.07

Oil Field Research Laboratories
SUMMARY OF PERMEABILITY TESTS

TABLE II

Company	M.G. Jensen Drilling Co.	Lease	Akers	Well No.	CH-1
Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity, Ft. x Md.		
<u>First Sand</u>					
733.63 - 741.30	5.25	18.69	99.17		
743.00 - 759.00	11.58	33.75	390.79		
733.63 - 759.00	16.83	29.11	469.96		
<u>Second Sand</u>					
799.00 - 804.35	5.03	242.73	1,221.02		

Oil Field Research Laboratories

RESULTS OF SATURATION TESTS

TABLE III

Company M. O. Jensen Drilling Company Lease Akers Well No. CE-1

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	733.97	17.9	41.5	42.5	84.0	576	0.75	0.75	432
2	735.27	14.2	43.8	44.4	88.2	482	0.42	1.17	202
F-3	737.15	13.2	35.8	-	-	367	0.37	1.54	136
3	737.45	19.5	30.3	46.8	77.1	458	0.90	2.44	413
4	738.56	15.5	38.2	42.2	80.4	460	0.98	3.42	451
5	739.97	15.8	32.8	51.7	84.5	402	0.70	4.12	282
F-6	741.12	17.0	30.1	-	-	397	0.60	4.72	238
F-7	743.07	13.6	34.7	-	-	365	0.15	4.87	55
7	743.23	15.6	42.3	48.4	90.7	519	0.65	5.52	338
8	744.33	15.5	40.0	57.7	97.7	481	1.00	6.52	481
9	745.33	18.8	32.0	58.0	90.0	467	1.50	8.02	700
10	747.23	16.6	33.6	59.8	93.4	433	0.80	8.82	346
11	748.37	17.8	34.3	53.3	87.6	474	0.98	9.80	465
12	749.86	20.2	34.9	47.9	82.8	547	1.55	11.35	849
13	752.03	19.2	33.8	57.8	91.6	503	1.35	12.70	679
14	753.22	13.9	33.9	64.5	98.4	366	0.62	13.32	227
15	754.37	20.2	36.1	50.2	86.3	572	0.95	14.27	544
16	755.46	17.7	42.4	41.4	83.8	582	1.05	15.32	611

Oil Field Research Laboratories

RESULTS OF SATURATION TESTS

TABLE III

Company M. O. Jensen Drilling Company Lease Akers Well No. GT-1

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.	
17	756.77	19.2	40.8	41.1	81.9	607	1.03	16.35	625
F18	758.43	12.4	40.5	-	-	390	0.65	17.00	254
<u>Second Sand</u>									
1	799.23	19.0	36.8	41.7	78.5	543	0.70	17.70	380
2	800.25	20.0	34.6	39.0	73.6	536	1.10	18.80	590
3	801.33	18.9	37.0	47.6	84.6	542	1.00	19.80	542
4	802.33	19.8	35.8	55.0	90.8	549	1.00	20.80	549
5	803.27	22.3	33.1	59.4	92.5	572	0.80	21.60	457
F-6	804.46	13.8	29.3	-	-	314	0.15	21.75	<u>47</u>
							Total	- - - -	10,893

Oil Field Research Laboratories

SUMMARY OF SATURATION TESTS

TABLE IV

Company M. O. Jensen Drilling Company Lease Akers Well No. CG-1

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
<u>First Sand</u>						
733.63-741.20	4.72	16.61	35.70	45.39	456	2,154
743.00-759.00	12.28	17.78	36.56	52.44	503	6,174
733.63-759.00	17.00	17.45	36.32	50.70	490	8,328
<u>Second Sand</u>						
799.00-804.55	4.75	19.77	35.26	48.30	540	2,565

Oil Field Research Laboratories

RESULTS OF LABORATORY FLOODING TESTS

TABLE V

Company M. G. Jensen Drilling CompanyLease AkersWell No. OW-1

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.			
First Sand												
1	733.83	18.7	39.3	570	0.0	0	39.3	49.0	570	0	Imp.	50
2	735.13	16.0	43.3	538	14.4	179	28.9	68.9	359	14.5	0.475	25
3	737.15	13.2	35.8	367	9.1	93	26.8	71.9	274	7	0.332	35
4	738.73	16.7	42.7	553	23.0	298	19.7	74.0	255	63.5	1.63	20
5	740.13	16.3	29.7	376	4.5	57	25.2	70.5	319	10.	0.448	35
6	741.12	17.0	30.1	397	0.0	0	30.1	66.4	397	0	Imp.	50
7	743.07	13.6	34.7	365	4.4	45	30.3	61.6	320	3	0.149	40
8	744.15	13.8	40.2	430	11.7	125	28.5	65.9	305	47.5	1.37	25
9	745.15	16.1	29.3	367	3.5	44	25.8	70.1	323	216.5	5.22	15
10	747.07	17.8	33.1	457	4.2	58	28.9	65.6	399	164	4.67	15
11	748.23	18.9	37.0	543	8.5	125	28.5	69.1	418	123.5	6.05	20
12	749.62	20.6	33.7	539	6.8	109	26.9	65.7	430	140	15.1	15
13	752.16	20.6	32.5	519	5.0	80	27.5	70.6	439	194	5.02	15
14	753.37	15.2	30.9	365	2.4	28	28.5	68.0	337	14	00.761	25
15	754.54	18.8	33.5	489	3.7	54	29.8	67.0	435	67	2.21	20
16	755.62	16.6	40.0	515	0.0	0	40.0	45.2	515	0	Imp.	50
17	756.92	16.7	38.6	500	0.0	0	38.6	49.1	500	0	Imp.	50
18	758.43	12.4	40.5	390	0.0	0	40.5	35.8	390	0	Imp.	50
Second Sand												
1	799.05	17.1	35.8	475	7.2	95	28.6	56.7	380	65	10.4	10
2	800.13	19.1	37.2	552	12.0	178	25.2	65.4	374	199	13.5	5
3	801.15	17.2	38.1	509	13.0	174	25.1	71.1	335	479.5	20.5	10
4	802.15	20.1	32.2	502	7.3	114	24.9	64.9	388	80	17.5	5
5	803.43	22.2	30.2	520	0.7	12	29.5	63.3	508	286	65.2	5
6	804.46	13.8	29.3	314	0.0	0	29.3	49.3	314	0	Imp.	50

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.

Oil Field Research Laboratories
SUMMARY OF LABORATORY FLOODING TESTS

TABLE VI

Company	<u>M. G. Jensen Drilling Company</u>		Lease	<u>Akers</u>	Well No.	<u>CH-1</u>
			<u>First Sand</u>			
Depth Interval, Feet	735.00 - 740.60	743.00 - 754.95	735.00 - 754.95			
Feet of Core Analyzed	2.47	8.90	11.37			
Average Percent Porosity	15.95	17.96	17.52			
Average Percent Original Oil Saturation	38.14	33.65	34.62			
Average Percent Oil Recovery	14.29	5.81	7.65			
Average Percent Residual Oil Saturation	23.85	27.84	26.97			
Average Percent Residual Water Saturation	71.86	67.85	68.72			
Average Percent Total Residual Fluid Saturation	95.71	95.69	95.69			
Average Original Oil Content, Bbls./A. Ft.	473.	467.	468.			
Average Oil Recovery, Bbls./A. Ft.	179.	80.	101.			
Average Residual Oil Content, Bbls./A. Ft.	294.	387.	367.			
Total Original Oil Content, Bbls./Acre	1,167.	4,160.	5,327.			
Total Oil Recovery, Bbls./Acre	441.	712.	1,153.			
Total Residual Oil Content, Bbls./Acre	726.	3,448.	4,174.			
Average Effective Permeability, Millidarcys	0.906	5.80	4.74			
Average Initial Fluid Production Pressure, p.s.i.	28.8	21.1	23.5			

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

Oil Field Research Laboratories

SUMMARY OF LABORATORY FLOODING TESTS

TABLE VI

Company	<u>M. G. Jensen Drilling Company</u>	Lease	<u>Akers</u>	Well No.	<u>CN-1</u>
			<u>Second Sand</u>		
Depth Interval, Feet			<u>799.00 - 803.60</u>		
Feet of Core Analyzed			<u>4.60</u>		
Average Percent Porosity			<u>19.15</u>		
Average Percent Original Oil Saturation			<u>34.89</u>		
Average Percent Oil Recovery			<u>8.50</u>		
Average Percent Residual Oil Saturation			<u>26.39</u>		
Average Percent Residual Water Saturation			<u>64.85</u>		
Average Percent Total Residual Fluid Saturation			<u>91.24</u>		
Average Original Oil Content, Bbls./A. Ft.			<u>515.</u>		
Average Oil Recovery, Bbls./A. Ft.			<u>122.</u>		
Average Residual Oil Content, Bbls./A. Ft.			<u>393.</u>		
Total Original Oil Content, Bbls./Acre			<u>2,367.</u>		
Total Oil Recovery, Bbls./Acre			<u>561.</u>		
Total Residual Oil Content, Bbls./Acre			<u>1,806.</u>		
Average Effective Permeability, Millidarcys			<u>24.42</u>		
Average Initial Fluid Production Pressure, p.s.i.			<u>7.0</u>		

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 M.F. Jensen Drilling Co. Lease Akers Well No. OW-1

Sample No.	Depth, Feet	Chloride Content of Brine in Sand ppm	Connate	Percent Water Saturation Drilling & Foreign	Total
<u>First Sand</u>					
1	733.97	17,400			
2	735.27	17,100			
3	737.45	10,400			
4	738.56	18,100			
5	739.97	16,200			
7	743.23	24,300			
8	744.33	14,400			
9	745.33	10,100			
10	747.23	12,000			
11	748.37	9,770			
12	749.86	9,200			
13	752.03	8,840			
14	753.22	11,200			
15	754.37	12,400			
16	755.46	20,400			
17	756.77	15,500			
<u>Second Sand</u>					
10	799.23	10,200			
2	800.25	8,460			
3	801.33	10,900			
4	802.33	9,970			
5	803.27	6,620			
Note: ppm - parts per million					

Oil Field Research Laboratories

SUMMARY OF WATER DIFFERENTIATION TESTS

TABLE VIII

Company M.G. Jansen Drilling Co. Lease Akers Well No. CH-1

Depth Interval, Feet	Chloride Content of Brine in Sand, ppm	Average Percent Connate Water	Average Percent Drilling & Foreign Water
733.63 - 740.60	15,624		
742.80 - 757.13	12,720		
733.63 - 757.13	13,435		
799.00 - 803.60	9,267		

Note: ppm - parts per million