OILFIELD RESEARCH LABORATORIES
536 NORTH HIGHLAND - CHANUTE, KANSAS 66720 - PHONE (316) 431-2650

November 15, 1979

Jim Cheever-Four J Oil Company
Rural Route 1
Severy, Kansas 67137

Gentlemen:

Enclosed herewith is the report of the anlaysis of the rotary core taken from the Scott Lease, Well No. 1, Wilson County, Kansas, and submitted to our laboratory on October 27, 1979.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Benjamin R. Pearman

Benjamin R. Pearman

BRP/tem
5 c to Severy, Kansas

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company Jim Cheever-Four J Oil Co. Lease Scott Well No. 1

Location 1750' FNL & 150' FWL SW

Section 3 Twp. 28S Rge. 15E County Wilson State Kansas

Name of Sand	Bartlesville
Top of Core	1025.0
Bottom of Core	1043.0
Top of Sand	1026.2
Bottom of Sand	1043.0
Total Feet of Permeable Sand	10.5
Total Feet of Floodable Sand	4.0

Distribution of Permeable Sand:

Permeability Range Millidarcys	Feet	Cum. Ft.
3 - 50	2.5	2.5
50 - 100	2.0	4.5
100 & Above	6.0	10.5

Average Permeability Millidarcys	99.4
Average Percent Porosity	19.2
Average Percent Oil Saturation	32.2
Average Percent Water Saturation	43.4
Average Oil Content, Bbls./A. Ft.	489.
Total Oil Content, Bbls./Acre	5,668.
Average Percent Oil Recovery by Laboratory Flooding Tests	6.3
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	97.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	388.
Total Calculated Oil Recovery, Bbls./Acre	See "Calculated Recovery" Section.
Packer Setting, Feet	
Viscosity, Centipoises @	
A. P. I. Gravity, degrees @ 60 °F	
Elevation, Feet	

Fresh water mud was used as the circulating fluid while taking this core. The core was sampled by a representative of Oilfield Research Laboratories. The well was drilled in non-virgin territory.

FORMATION CORED

The detailed log of the formation cored is as follows:

Depth Interval, Feet	Description
1025.0 - 1026.2	Gray sandy shale.
1026.2 - 1026.6	Light brown shaly sandstone.
1026.6 - 1027.3	Gray sandy shale.
1027.3 - 1027.7	Light brown very shaly sandstone.
1027.7 - 1028.2	Gray sandy shale.
1028.2 - 1028.7	Light brown shaly sandstone.
1028.7 - 1030.6	Gray sandy shale.
1030.6 - 1031.0	Light brown very shaly sandstone.
1031.0 - 1031.4	Gray sandy shale.
1031.4 - 1032.4	Light brown very shaly sandstone.
1032.4 - 1040.6	Brown sandstone.
1040.6 - 1041.6	Gray sandy shale.
1041.6 - 1043.0	Light brown sandstone.

LABORATORY FLOODING TESTS

The middle portion of the sand in this core responded to laboratory flooding tests, as a total recovery of 388 barrels of oil per acre was obtained from 4.0 feet of sand. The weighted average percent oil saturation was reduced from 44.8 to 38.5, or represents an average recovery of 6.3 percent. The weighted average effective permeability of the samples is 6.87

millidarcys, while the average initial fluid production pressure is 23.8 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that all the sand below 1032.4 feet took water on laboratory flooding tests; while only the upper portion of this zone recovered oil. It is recommended that care be taken during the completion of this well, especially if it is to be used as a water injection well, to stay out of the apparent water zone below approximately 1037.0 feet.

CALCULATED RECOVERY

Based on the results of the laboratory testing, it appears that efficient primary and water flooding operations in the vicinity of this well should recover approximately 1,280 barrels of oil per acre. This is an average recovery of 321 barrels per acre foot from the 4.0 feet of floodable sand analyzed in this core.

These recovery values were calculated using the following data and assumptions:

Original formation volume factor, estimated	1.08
Reservoir water saturation, percent	15.0
Average porosity, percent	20.6
Oil saturation after flooding, percent	38.5
Performance factor, percent, estimated	50.0
Net floodable pay sand, feet	4.0

Oilfield Research Laboratories

RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Jim Cheever-Four J Oil Company Lease Scott Well No. 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.		
1	1026.3	14.1	23	57	80	252	3.1	0.4	0.4	101	1.24
2	1027.5	13.2	20	65	85	205	Imp.	0.4	0.8	82	0.00
3	1028.5	13.6	22	62	84	232	9.4	0.5	1.3	116	4.70
4	1030.7	13.6	18	63	81	190	Imp.	0.4	1.7	76	0.00
5	1031.5	10.9	22	73	95	186	Imp.	0.3	2.0	56	0.00
6	1032.6	18.5	33	32	65	474	24.	0.6	2.6	284	14.40
7	1033.5	18.9	54	13	67	792	158.	1.0	3.6	792	158.00
8	1034.6	21.1	45	26	71	737	47.	1.0	4.6	737	47.00
9	1035.6	19.9	39	32	71	601	84.	1.0	5.6	601	84.00
10	1036.5	22.1	41	31	72	703	158.	1.0	6.6	703	158.00
11	1037.5	20.5	36	41	77	573	52.	1.0	7.6	573	52.00
12	1038.7	19.9	29	44	73	448	127.	1.0	8.6	448	127.00
13	1039.5	20.2	24	57	81	376	130.	1.0	9.6	376	130.00
14	1040.5	22.0	24	47	71	410	145.	0.6	10.2	246	87.00
15	1041.7	22.4	22	57	79	382	133.	0.4	10.6	153	53.20
16	1042.6	20.9	20	62	82	324	127.	1.0	11.6	324	127.00

Oilfield Research Laboratories

SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company Jim Cheever-Four J Oil Company Lease Scott Well No. 1

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
1026.2 - 1031.7	0.9	6.6	5.94
1032.4 - 1037.0	4.6	100.4	461.40
1037.0 - 1043.0	5.0	115.2	576.20
1026.2 - 1043.0	10.5	99.4	1,043.54

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
1026.2 - 1031.7	2.0	13.0	21.0	63.5	216	431
1032.4 - 1037.0	4.6	20.2	43.2	26.4	677	3,117
1037.0 - 1043.0	5.0	20.7	26.4	51.0	424	2,120
1026.2 - 1043.0	11.6	19.2	32.2	43.4	489	5,668

Oilfield Research Laboratories

RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Jim Cheever-Four J Oil Company Lease Scott Well No. 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.
			%	Bbls./A. Ft.	%	Bbls./A. Ft.	% Oil	% Water	Bbls./A. Ft.			
1	1026.3	14.3	22	244	0	0	22	60	244	0	Imp.	-
2	1027.5	13.2	20	205	0	0	20	68	205	0	Imp.	-
3	1028.5	13.5	22	230	0	0	22	63	230	0	Imp.	-
4	1030.7	13.7	20	213	0	0	20	65	213	0	Imp.	-
5	1031.5	10.4	24	194	0	0	24	75	194	0	Imp.	-
6	1032.6	18.8	33	481	0	0	33	61	481	31	0.82	35
7	1033.5	19.3	54	809	14	210	40	57	599	232	7.12	30
8	1034.6	20.8	45	726	6	97	39	61	629	137	3.22	25
9	1035.6	20.2	39	611	3	47	36	55	564	84	2.17	25
10	1036.5	22.1	41	703	2	34	39	60	669	223	14.99	15
11	1037.5	20.1	36	561	0	0	36	59	561	10	0.22	45
12	1038.7	20.1	30	468	0	0	30	67	468	208	4.65	25
13	1039.5	20.6	23	368	0	0	23	77	368	347	6.37	15
14	1040.5	21.7	25	421	0	0	25	73	421	90	2.10	25
15	1041.7	22.5	22	384	0	0	22	74	384	160	2.83	15
16	1042.6	20.5	19	302	0	0	19	78	302	150	2.77	15

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.

Oilfield Research Laboratories

SUMMARY OF LABORATORY FLOODING TESTS

TABLE V

Company Jim Cheever-Four J Oil Company Lease Scott Well No. 1

Depth Interval, Feet	1032.4 - 1037.0
Feet of Core Analyzed	4.0
Average Percent Porosity	20.6
Average Percent Original Oil Saturation	44.8
Average Percent Oil Recovery	6.3
Average Percent Residual Oil Saturation	38.5
Average Percent Residual Water Saturation	58.3
Average Percent Total Residual Fluid Saturation	96.8
Average Original Oil Content, Bbls./A. Ft.	712.
Average Oil Recovery, Bbls./A. Ft.	97.
Average Residual Oil Content, Bbls./A. Ft.	615.
Total Original Oil Content, Bbls./Acre	2,849.
Total Oil Recovery, Bbls./Acre	388.
Total Residual Oil Content, Bbls./Acre	2,461.
Average Effective Permeability, Millidarcys	6.87
Average Initial Fluid Production Pressure, p.s.i.	23.8

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