



OILFIELD RESEARCH LABORATORIES

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

November 14, 1979

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

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary cores taken from the Sharp Lease, Well No. 1, Wilson County, Kansas and submitted to our laboratory on November 5, 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

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This core was sampled by a representative of Oilfield Research Laboratories. The well was drilled in non-virgin territory using fresh water mud as the circulating fluid.

FORMATION CORED

The detailed log of the formation cored is as follows:

<u>Depth Interval, Feet</u>	<u>Description</u>
	<u>UPPER BARTLESVILLE</u>
980.0 - 980.7	Light brown shaly sandstone.
980.7 - 984.5	Gray sandy shale.
	<u>LOWER BARTLESVILLE</u>
1036.0 - 1040.0	Dark brown sandstone with micaceous partings.
1040.0 - 1042.7	Dark brown sandstone with carbonaceous partings.
1042.7 - 1043.0	Gray sandy shale.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 711 barrels of oil per acre was obtained from 6.7 feet of sand. The weighted average percent oil saturation was reduced from 46.4 to 39.5, or represents an average recovery of 6.9 percent. The weighted average effective permeability of the samples is 2.50 millidarcys, while the average initial fluid production pressure is 20.8 pounds per square inch (See Table V).

CALCULATED RECOVERY

The results of the laboratory testing indicate that efficient primary and waterflooding operations in the vicinity represented by this core should recover approximately 1,960 barrels per acre.

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This is an average recovery of 292 barrels per acre foot from the 6.7 feet of floodable sand represented 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	20.0
Average porosity, percent	19.9
Oil saturation after flooding, percent	39.5
Performance factor, percent, estimated	55.0
Net floodable pay sand, feet	6.7

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

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

Sample No.	Depth, Feet	Effective Porosity Percent	Percent Saturation			Oil Content Bbbs. / A Ft.	Perm., Mill.	Feet of Sand		Total Oil Content	Perm. Capacity Ft. X md.
			Oil	Water	Total			Ft.	Cum. Ft.		
1	1036.5	22.0	47	30	77	802	92.	1.0	1.0	802	92.00
2	1037.5	19.2	45	37	82	670	322.	1.0	2.0	670	322.00
3	1038.5	19.4	56	24	80	843	37.	1.0	3.0	843	37.00
4	1039.5	20.3	47	28	75	740	56.	1.0	4.0	740	56.00
5	1040.5	18.3	46	26	72	653	225.	1.0	5.0	653	225.00
6	1041.5	22.2	41	26	67	706	153.	1.0	6.0	706	153.00
7	1042.5	16.9	41	37	78	538	296.	0.7	6.7	376	207.20

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company	Jim Cheever-Four J Oil Company	Lease	Sharp	Well No.	1		
Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.	Average Percent Oil Saturation	Average Percent Water Saturation	Average Oil Content Bbl./A. Ft.	Total Oil Content Bbls./Acre
1036.0 - 1042.7	6.7	163.2	1092.20	46.4	29.4	715	4,790
1036.0 - 1042.7	6.7			19.9			

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Jim Cheever-Four J Oil Company Lease Sharp 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			
1	1036.5	21.7	47	791	5	84	42	57	94	2.25	20
2	1037.5	19.6	45	684	7	106	38	54	182	4.50	20
3	1038.5	19.9	56	865	10	154	46	52	30	0.68	25
4	1039.5	20.0	47	729	5	78	42	52	58	1.00	20
5	1040.5	18.4	46	642	8	114	38	49	164	4.12	20
6	1041.5	21.7	41	690	7	118	34	62	130	2.47	20
7	1042.5	17.3	41	550	6	81	35	60	151	2.40	20

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.

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SUMMARY OF LABORATORY FLOODING TESTS

TABLE V

Company	Lease	Sharp	Well No.
Jim Cheever-Four J Oil Company	1036.0 - 1042.7		1
Depth Interval, Feet	6.7		
Feet of Core Analyzed	19.9		
Average Percent Porosity	46.4		
Average Percent Original Oil Saturation	6.9		
Average Percent Oil Recovery	39.5		
Average Percent Residual Oil Saturation	55.0		
Average Percent Residual Water Saturation	94.5		
Average Percent Total Residual Fluid Saturation	71.4		
Average Original Oil Content, Bbls./A. Ft.	106.		
Average Oil Recovery, Bbls./A. Ft.	608.		
Average Residual Oil Content, Bbls./A. Ft.	4,786.		
Total Original Oil Content, Bbls./Acre	711.		
Total Oil Recovery, Bbls./Acre	4,075.		
Total Residual Oil Content, Bbls./Acre	2.50		
Average Effective Permeability, Millidarcys	20.8		
Average Initial Fluid Production Pressure, p.s.i.			

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