

OILFIELD RESEARCH LABORATORIES

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

March 12, 1982

Korinc Company
Capitol Federal Building
Suite 306
95th & Nall
Overland Park, Kansas 66207

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the Korinc Lease, Well No. P-56, located in Miami County, Kansas and submitted to our laboratory on March 5, 1982.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/kas

4 c to Overland Park, Kansas
1 c to Mound City, Kansas

Oilfield Research Laboratories
GENERAL INFORMATION & SUMMARY

Company Korinc Company Lease Korinc Well No. P-56
 Location 2310' E & 990' N of the Southwest Corner, SW $\frac{1}{4}$
 Section 4 Twp. 19S Rge. 24E County Miami State Kansas

Elevation, Feet

Name of Sand..... Squirrel

Top of Core 432.0

Bottom of Core 438.7

Top of Sand 432.0

Bottom of Sand 438.7

Total Feet of Permeable Sand 6.3

Total Feet of Floodable Sand 4.7

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 2	0.8	0.8
20 - 37	2.5	3.3
58 - 73	3.0	6.3

Average Permeability Millidarcys 41.3

Average Percent Porosity 19.1

Average Percent Oil Saturation 51.5

Average Percent Water Saturation..... 31.8

Average Oil Content, Bbls./A. Ft. 770.

Total Oil Content, Bbls./Acre..... 4,851.

Average Percent Oil Recovery by Laboratory Flooding Tests..... 11.2

Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft. 178.

Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre 838.

Total Calculated Oil Recovery, Bbls./Acre.....

See "Calculated Recovery"
Section

The core was sampled by a representative of Oilfield Research Laboratories. Fresh water mud was used as a drilling fluid.

FORMATION CORED

The detailed log of the formation cored is as follows:

<u>Depth Interval, Feet</u>	<u>Description</u>
432.0 - 436.7	Brown sandstone with scattered gray shale partings.
436.7 - 437.1	Gray shale.
437.1 - 437.9	Brown sandstone.
437.9 - 438.7	Gray and brown laminated shale and sandstone.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 838 barrels of oil per acre was obtained from 4.7 feet of sand. The weighted average percent oil saturation was reduced from 52.3 to 41.1, or represents an average recovery of 11.2 percent. The weighted average effective permeability of the samples is 2.98 millidarcys, while the average initial fluid production pressure is 24.0 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 7 samples tested, 5 produced water and oil, and 1 sample produced water only. This indicates that approximately 71 percent of the sand represented by these samples is floodable pay sand.

CALCULATED RECOVERY

It would appear from a study of the core data, that efficient primary and waterflood operations in the vicinity of this well should recover approximately 1,300 barrels of oil per acre. This is an average recovery of 277 barrels per acre foot from 4.7 feet of floodable sand analyzed in this core.

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

Original formation volume factor, estimated	1.04
Reservoir water saturation, percent, estimated	20.0
Average porosity, percent	19.9
Oil saturation after flooding, percent	41.1
Performance factor, percent, estimated	50.0
Net floodable sand, feet	4.7

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Korinc Company Lease Korinc Well No. P-56

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	432.5	20.0	59	25	84	915	21.	1.0	1.0	915	21.00
2	433.5	21.3	54	28	82	892	58.	1.0	2.0	892	58.00
3	434.5	21.0	53	23	76	864	72.	1.0	3.0	864	72.00
4	435.4	17.3	48	38	86	644	62.	1.0	4.0	644	62.00
5	436.5	19.4	46	35	81	692	36.	0.7	4.7	484	25.20
6	437.5	20.0	52	29	81	807	26.	0.8	5.5	646	20.80
7	438.4	14.2	46	48	94	507	1.1	0.8	6.3	406	0.88

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company	Lease	Well No.	P-56			
Korinc Company	Korinc					
Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.			
432.0 - 438.7	6.3	41.3	259.88			
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
432.0 - 438.7	6.3	19.1	51.5	31.8	770	4,851

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company		Lease		Well No.		P-56					
Korinc Company		Korinc		Korinc		P-56					
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	432.5	20.2	59	925	25	392	34	43	64	1.05	25
2	433.5	21.2	54	888	19	312	35	59	342	6.37	15
3	434.5	21.0	53	863	4	65	49	91	100	1.87	30
4	435.4	17.5	48	648	2	27	46	46	176	3.15	25
5	436.5	19.3	46	689	4	60	42	50	134	2.25	25
6	437.5	19.9	52	803	0	0	52	36	8	0.15	50
7	438.4	14.5	45	506	0	0	45	50	0	Imp.	-

Notes: cc—cubic centimeter.

*—Volume of water recovered at the time of maximum oil recovery.

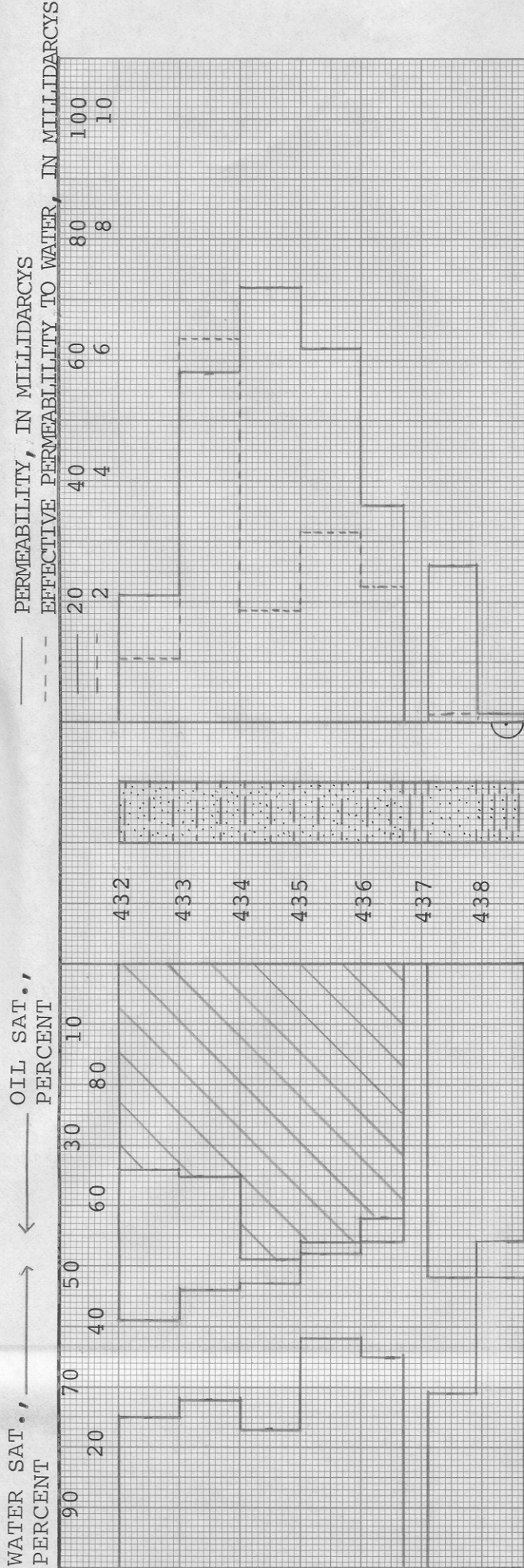
**—Determined by passing water through sample which still contains residual oil.

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SUMMARY OF LABORATORY FLOODING TESTS

TABLE V

Company	Korinc Company	Lease	Korinc	Well No.	P-56
Depth Interval, Feet	432.0 - 438.7				
Feet of Core Analyzed	4.7				
Average Percent Porosity	19.9				
Average Percent Original Oil Saturation	52.3				
Average Percent Oil Recovery	11.2				
Average Percent Residual Oil Saturation	41.1				
Average Percent Residual Water Saturation	58.3				
Average Percent Total Residual Fluid Saturation	99.4				
Average Original Oil Content, Bbbls./A. Ft.	809.				
Average Oil Recovery, Bbbls./A. Ft.	178.				
Average Residual Oil Content, Bbbls./A. Ft.	631.				
Total Original Oil Content, Bbbls./Acre	3,806.				
Total Oil Recovery, Bbbls./Acre	838.				
Total Residual Oil Content, Bbbls./Acre	2,968.				
Average Effective Permeability, Millidarcys	2.98				
Average Initial Fluid Production Pressure, p.s.i.	24.0				

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



KORINC COMPANY

KORINC LEASE
 MIAMI COUNTY, KANSAS
 WELL NO. P-56

DEPTH INTERVAL, FEET	FEET OF CORE ANALYZED	AVERAGE PERCENT POROSITY	AVG. OIL SATURATION PERCENT	AVG. WATER SATURATION PERCENT	AVERAGE PERMEABILITY, MILLIDARCYS	CALCULATED OIL RECOVERY BBLs. / ACRE
432.0 - 438.7	6.3	19.1	51.5	31.8	41.3	1300 (PRIMARY AND WATERFLOODING)

OILFIELD RESEARCH LABORATORIES
 CHANUTE, KANSAS
 MARCH, 1982