

OILFIELD RESEARCH LABORATORIES

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

February 24, 1981

Ajax Drilling Company
166 Harbor Drive # 2
Key Biscayne, Florida 33149

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the Kirchhofer Lease, Well No. 7, located in Franklin County, Kansas and submitted to our laboratory on January 5, 1981.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/kas

4 c to Key Biscayne, Florida
1 c to Rantoul, Kansas

- REGISTERED ENGINEERS -

CORE ANALYSIS - WATER ANALYSIS - REPRESSURING ENGINEERING - SURVEYING & MAPPING - PROPERTY EVALUATION & OPERATION

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company Ajax Drilling Company Lease Kirchhofer Well No. 7

Location _____

Section 29 Twp. 15S Rge. 22E County Franklin State Kansas

Elevation, Feet - - - - -

Name of Sand - - - - - Squirrel

Top of Core - - - - - 763.0

Bottom of Core - - - - - 778.0

Top of Sand - - - - - 763.0

Bottom of Sand - - - - - 772.9

Total Feet of Permeable Sand - - - - - 4.8

Total Feet of Floodable Sand - - - - - 0.0

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 2	2.0	2.0
8 & Above	2.8	4.8

Average Permeability Millidarcys - - - - - 7.7

Average Percent Porosity - - - - - 17.2

Average Percent Oil Saturation - - - - - 37.2

Average Percent Water Saturation - - - - - 54.5

Average Oil Content, Bbls./A. Ft. - - - - - 507.

Total Oil Content, Bbls./Acre - - - - - 4,154.

Average Percent Oil Recovery by Laboratory Flooding Tests - - - - - 0.

Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft. - - - - - 0.

Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre - - - - - 0.

Total Calculated Oil Recovery, Bbls./Acre - - - - - 0.

OILFIELD RESEARCH LABORATORIES

-2-

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

Since the core did not respond to flooding susceptibility tests, no
✓
calculated recovery is given.

FORMATION CORED

The detailed log of the formation cored is as follows:

<u>Depth Interval, Feet</u>	<u>Description</u>
763.0 - 764.7	Brown shaly sandstone.
764.7 - 766.8	Brown sandstone.
766.8 - 768.6	Grayish brown shaly sandstone.
768.6 - 770.3	Gray sandy shale.
770.3 - 772.9	Gray shaly sandstone.
772.9 - 778.0	Gray sandy shale.

Oilfield Research Laboratories

RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Ajax Drilling Company Lease Kirchhofer Well No. 7

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	763.7	17.9	42	54	96	583	1.4	1.0	1.0	583	1.40
2	764.5	20.0	43	54	97	667	8.5	0.7	1.7	467	5.95
3	765.3	21.5	37	36	73	617	15.	1.0	2.7	617	15.00
4	766.4	20.2	51	38	89	799	12.	1.1	3.8	879	13.20
5	767.5	14.6	41	52	93	464	1.6	1.0	4.8	464	1.60
6	768.5	16.0	23	74	97	286	Imp.	0.8	5.6	229	0.00
7	770.6	13.4	32	60	92	333	Imp.	0.6	6.2	200	0.00
8	771.4	15.8	31	63	94	380	Imp.	1.0	7.2	380	0.00
9	772.6	14.4	30	67	97	335	Imp.	1.0	8.2	335	0.00

Oilfield Research Laboratories

SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company		Lease		Well No.	
Ajax Drilling Company		Kirchhofer		7	
Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.		
763.0 - 766.8	3.8	9.4	35.55		
766.8 - 772.9	1.0	1.6	1.60		
763.0 - 772.9	4.8	7.7	37.15		

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
763.0 - 766.8	3.8	19.9	43.5	44.6	670	2,546
766.8 - 772.9	4.4	14.9	31.7	63.0	365	1,608
763.0 - 772.9	8.2	17.2	37.2	54.5	507	4,154

Oilfield Research Laboratories

RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company			Ajax Drilling Company			Lease		Kirchhofer		Well No.		7
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.	
			%	Bbbs./A. Ft.	%	Bbbs./A. Ft.	% Oil	% Water				Bbbs./A. Ft.
1	763.7	18.4	41	585	0	0	41	55	0	Imp.	-	
2	764.5	19.9	43	664	0	0	43	54	0	Imp.	-	
3	765.3	21.4	37	614	0	0	37	60	8	0.29	50	
4	766.4	20.0	51	791	0	0	51	43	6	0.29	50	
5	767.5	14.8	41	471	0	0	41	53	0	Imp.	-	
6	768.5	16.5	22	282	0	0	22	75	0	Imp.	-	
7	770.6	13.0	33	333	0	0	33	59	0	Imp.	-	
8	771.4	15.9	31	382	0	0	31	64	0	Imp.	-	
9	772.6	14.8	29	333	0	0	29	68	0	Imp.	-	

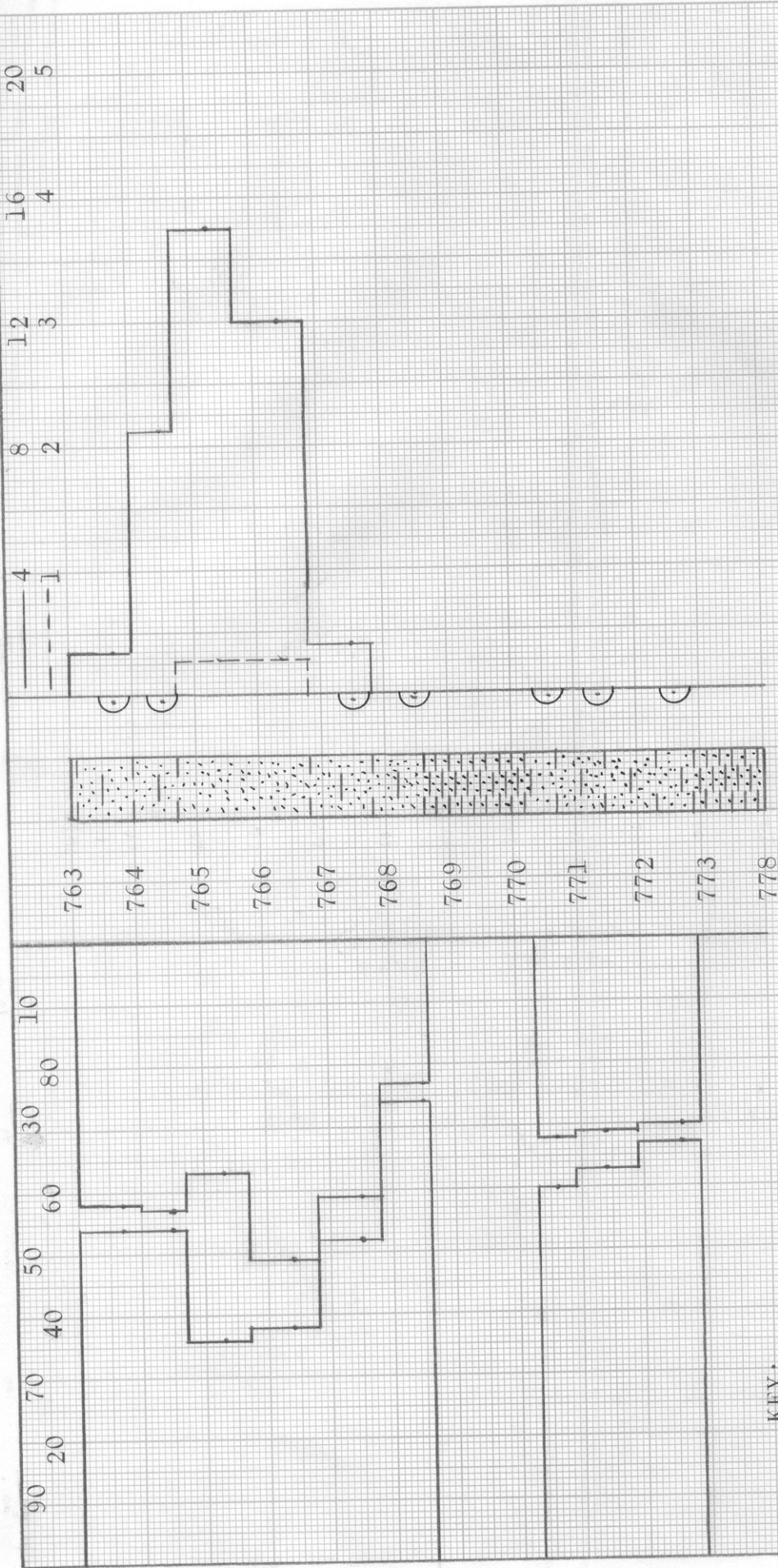
Notes: cc—cubic centimeter.

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

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

WATER SAT., PERCENT → ← OIL SAT., PERCENT

— PERMEABILITY, IN MILLIDARCYS
 --- EFFECTIVE PERMEABILITY TO WATER, IN MILLIDARCYS



KEY:

SANDSTONE

SHALY SANDSTONE

SANDY SHALE

IMPERMEABLE TO WATER

AJAX DRILLING COMPANY

KIRCHHOFFER LEASE

WELL NO. 7

FRANKLIN COUNTY, KANSAS

DEPTH	FEET OF CORE	AVERAGE	AVG. OIL	AVG. WATER	AVERAGE	CALCULATED
763						
764						
765						
766						
767						
768						
769						
770						
771						
772						
773						
778						

SANDSTONE

4-2-4

SANDY SHALE

4-2-4

SHALY SANDSTONE

○

IMPERMEABLE TO WATER

AJAX DRILLING COMPANY

KIRCHHOFFER LEASE

WELL NO. 7

FRANKLIN COUNTY, KANSAS

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
763.0 - 766.8	3.8	19.9	43.5	44.6	9.4	
766.8 - 772.9	4.4	14.9	31.7	63.0	1.6	
763.0 - 772.9	8.2	17.2	37.2	54.5	7.7	-----

GILFIELD RESEARCH LABORATORIES
CHANUTE, KANSAS
FEBRUARY, 1981

KK