

OILFIELD RESEARCH LABORATORIES

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January 28, 1981

Franklin County Oil, Inc.
Box 8
Ottawa, Kansas 66067

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the Brilles Lease, Well No. 1, located in Franklin County, Kansas and submitted to our laboratory on December 12, 1980.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/kas

5 c to Ottawa, Kansas

T165, R21E, Sec 30

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company Franklin County Oil, Inc. Lease Brilles Well No. 1

Location _____

Section _____ Twp _____ Rge _____ County Franklin State Kansas

Elevation, Feet - - - - -

Name of Sand	Squirrel
Top of Core	652.0
Bottom of Core	665.3
Top of Sand	652.4
Bottom of Sand	663.9
Total Feet of Permeable Sand	7.4
Total Feet of Floodable Sand	2.0

Distribution of Permeable Sand:
Permeability Range
Millidarcys

Feet

Cum. Ft.

	Feet	Cum. Ft.
0 - 50	3.0	3.0
50 - 100	2.4	5.4
100 & Above	2.0	7.4

Average Permeability Millidarcys	60.2
Average Percent Porosity	19.7
Average Percent Oil Saturation	43.6
Average Percent Water Saturation	37.4
Average Oil Content, Bbls./A. Ft.	693.
Total Oil Content, Bbls./Acre	6,238.
Average Percent Oil Recovery by Laboratory Flooding Tests	3.5
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	6.2
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	123.

Total Calculated Oil Recovery, Bbls./Acre - - - - - See "Calculated Recovery" Section

-2-

The core was sampled and sealed in plastic tubes by a representative of the client. Air and water were used as a drilling fluid. The core was reported to be from a virgin area.

FORMATION CORED

The detailed log of the formation cored is as follows:

<u>Depth Interval, Feet</u>	<u>Description</u>
652.0 - 652.4	Gray sandy shale.
652.4 - 655.4	Brown slightly calcareous sandstone.
655.4 - 656.3	Hard gray limestone.
656.3 - 657.7	Brown slightly calcareous sandstone.
657.7 - 659.3	Grayish light brown calcareous very shaly sandstone.
659.3 - 663.9	Brown and gray laminated calcareous sandstone and shale.
663.9 - 665.3	Gray sandy shale.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 123 barrels of oil per acre was obtained from 2.0 feet of sand. The weighted average percent oil saturation was reduced from 48.5 to 45.0, or represents an average recovery of 3.5 percent. The weighted average effective permeability of the samples is 4.73 millidarcys, while the average initial fluid production pressure is 27.5 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 11 samples tested, 2 produced water and oil, and 3 samples produced water only. This indicates that approximately 18 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 620 barrels of oil per acre. This is an average recovery of 309 barrels per acre foot from 2.0 feet of floodable sand analyzed in this core.

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

Original formation volume factor, estimated	1.04
Reservoir water saturation, percent, estimated	20.0
Average porosity, percent	22.7
Oil saturation after flooding, percent	45.0
Performance factor, percent, estimated	50.0
Net floodable sand, feet	2.0

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Franklin County Oil, Inc. Lease Brilles 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	652.5	23.4	50	25	75	908	123.	1.0	1.0	908	123.00
2	653.5	22.0	47	27	74	802	68.	1.0	2.0	802	68.00
3	654.5	18.6	64	32	96	924	78.	0.5	2.5	462	39.00
4	655.3	16.7	33	58	91	428	53.	0.5	3.0	214	26.50
5	656.5	23.6	55	20	75	1007	130.	1.0	4.0	1007	130.00
6	657.5	20.0	44	34	78	683	58.	0.4	4.4	273	23.20
7	659.5	18.3	46	30	76	653	29.	1.0	5.4	653	29.00
8	660.5	18.8	36	38	74	525	0.16	1.0	6.4	525	0.16
9	661.5	20.9	59	32	91	957	6.9	1.0	7.4	957	6.90
10	662.6	14.4	3	83	86	34	Imp.	1.0	8.4	34	0.00
11	663.5	17.3	50	38	88	671	Imp.	0.6	9.0	403	0.00

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company	Franklin County Oil, Inc.	Lease	Brilles	Well No.	1	
	Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.		
	652.4 - 657.7	4.4	93.1	409.70		
	659.3 - 663.9	3.0	12.0	36.06		
	652.4 - 663.9	7.4	60.2	445.76		
	Depth Interval, Feet	Feet of Core Analyzed	Average Percent Oil Saturation	Average Percent Water Saturation	Average Oil Content Bbl./A. Ft.	Total Oil Content Bbls./Acre
	652.4 - 657.7	4.4	49.6	29.7	833	3,666
	659.3 - 663.9	4.6	37.8	44.7	559	2,572
	652.4 - 663.9	9.0	43.6	37.4	693	6,238

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Franklin County Oil, Inc. Lease Brilles 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	652.5	23.3	50	904	3	54	47	48	67	1.20	30
2	653.5	22.2	47	809	4	69	43	54	294	8.25	25
3	654.5	19.1	63	934	0	0	63	33	100	2.25	30
4	655.3	16.3	34	430	0	0	34	57	0	Imp.	-
5	656.5	23.6	55	1007	0	0	55	31	70	1.20	25
6	657.5	20.1	44	686	0	0	44	45	22	0.90	50
7	659.5	18.4	46	657	0	0	46	32	0	Imp.	-
8	660.5	19.3	35	524	0	0	35	40	0	Imp.	-
9	661.5	20.5	60	954	0	0	60	31	0	Imp.	-
10	662.6	14.4	3	34	0	0	3	85	0	Imp.	-
11	663.5	17.2	50	667	0	0	50	40	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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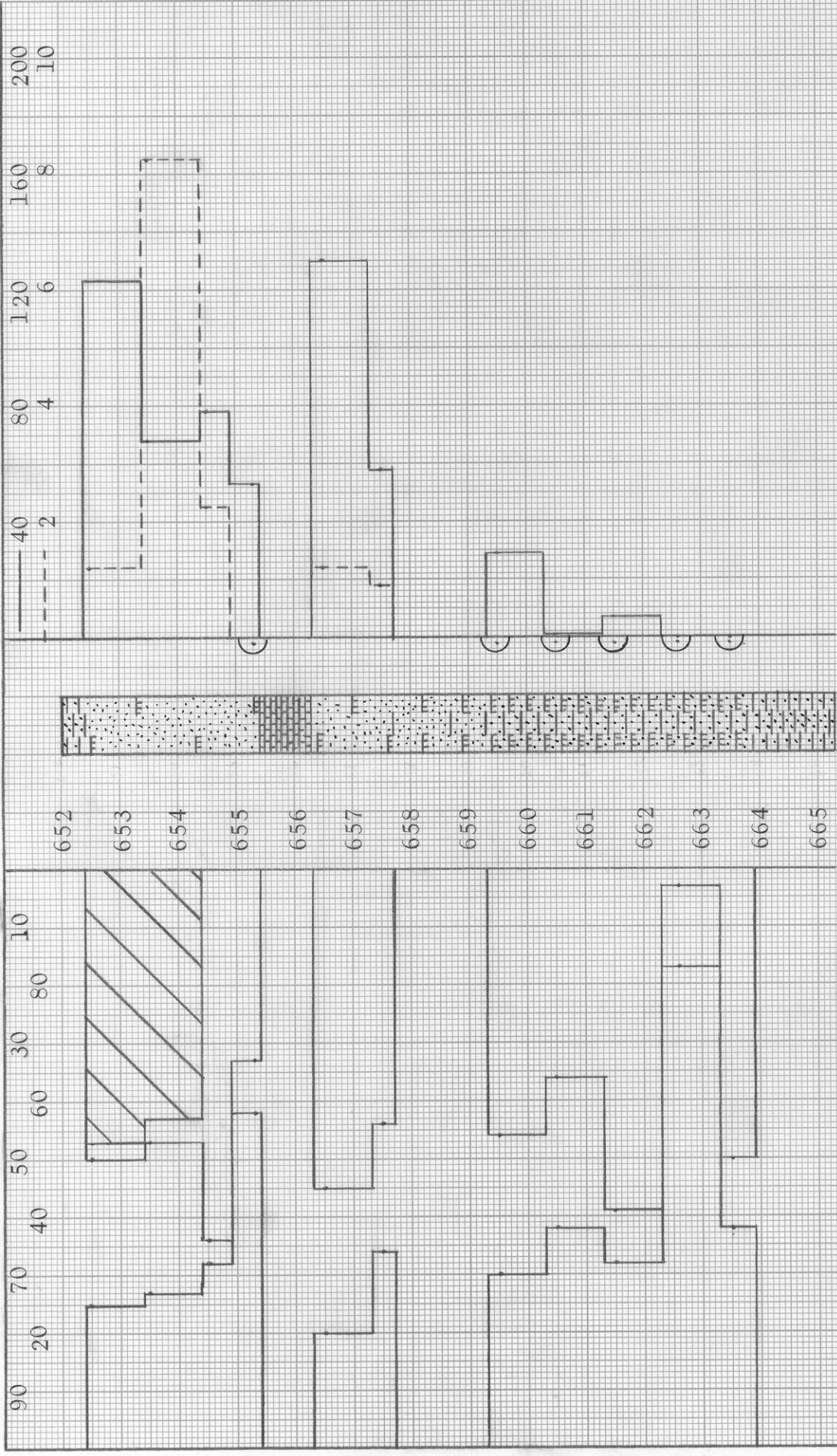
SUMMARY OF LABORATORY FLOODING TESTS

TABLE V








Company	Franklin County Oil, Inc.	Lease	Brilles	Well No.	1
Depth Interval, Feet	652.4 - 657.7				
Feet of Core Analyzed	2.0				
Average Percent Porosity	22.7				
Average Percent Original Oil Saturation	48.5				
Average Percent Oil Recovery	3.5				
Average Percent Residual Oil Saturation	45.0				
Average Percent Residual Water Saturation	51.0				
Average Percent Total Residual Fluid Saturation	96.0				
Average Original Oil Content, Bbls./A. Ft.	857.				
Average Oil Recovery, Bbls./A. Ft.	62.				
Average Residual Oil Content, Bbls./A. Ft.	795.				
Total Original Oil Content, Bbls./Acre	1,713.				
Total Oil Recovery, Bbls./Acre	123.				
Total Residual Oil Content, Bbls./Acre	1,590.				
Average Effective Permeability, Millidarcys	4.73				
Average Initial Fluid Production Pressure, p.s.i.	27.5				

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

WATER SAT., PERCENT → ← OIL SAT., PERCENT
 PERMEABILITY, IN MILLIDARCYs
 EFFECTIVE PERMEABILITY TO WATER, IN MILLIDARCYs



KEY:

-  SANDY SHALE
-  CALCAREOUS SANDSTONE
-  LIMESTONE
-  SHALY CALCAREOUS SANDSTONE
-  LAMINATED CALCAREOUS SANDSTONE AND SHALE
-  FLOODPOT RESIDUAL OIL SATURATION
-  IMPERMEABLE TO WATER

FRANKLIN COUNTY OIL, INC.

LIMESTONE

○ IMPERMEABLE TO WATER

FRANKLIN COUNTY OIL, INC.

BRILLES LEASE

WELL NO. 1

FRANKLIN COUNTY, KANSAS

DEPTH INTERVAL, FEET	FEET OF CORE ANALYZED	AVERAGE POROSITY	AVG. OIL SATURATION PERCENT	AVG. WATER SATURATION PERCENT	AVERAGE PERMEABILITY, MILLIDARCS	CALCULATED OIL RECOVERY BBLs. / ACRE
652.4 - 657.7	4.4	21.5	49.6	29.7	93.1	
659.3 - 663.9	4.6	18.0	37.8	44.7	12.0	
652.4 - 663.9	9.0	19.7	43.6	37.4	60.2	620

(PRIMARY AND WATERFLOODING)

OILFIELD RESEARCH LABORATORIES
CHANUTE, KANSAS
JANUARY, 1981

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