

OILFIELD RESEARCH LABORATORIES

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June 16, 1980

Rantoul Energy Corporation
Box 516
Hutchinson, Kansas 67501

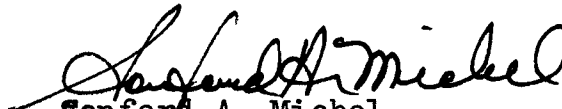
Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the Jackman Lease, Well No. 11, Franklin County, Kansas, and submitted to our laboratory on May 5, 1980.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES



Sanford A. Michel

SAM/tem

5 c to Hutchinson, Kansas

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company Rantoul Energy Corporation Lease Jackman Well No. 11

Location -

Section 7 Twp. 18S Rge. 21E County Franklin State Kansas

Elevation, Feet - - - - -

Name of Sand - - - - - Squirrel

Top of Core - - - - - 632.0

Bottom of Core - - - - - 642.6

Top of Sand - - - - - 632.0

Bottom of Sand - - - - - 641.7

Total Feet of Permeable Sand - - - - - 9.7

Total Feet of Floodable Sand - - - - - 1.0

Distribution of Permeable Sand:
Permeability Range
Millidarcys

Feet

Cum. Ft.

0 - 10

4.1

4.1

10 - 20

0.9

5.0

30 - 50

2.0

7.0

70 - 80

2.7

9.7

Average Permeability Millidarcys - - - - - 34.2

Average Percent Porosity - - - - - 17.9

Average Percent Oil Saturation - - - - - 19.5

Average Percent Water Saturation - - - - - 51.6

Average Oil Content, Bbls./A. Ft. - - - - - 273.

Total Oil Content, Bbls./Acre - - - - - 2,646.

Average Percent Oil Recovery by Laboratory Flooding Tests - - - - - 3.0

Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft. - - - - - 41.

Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre - - - - - 41.

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

-2-

The core was sampled and the samples sealed in plastic bags by a representative of the client. 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>
632.0 - 633.0	Grayish brown shaly sandstone.
633.0 - 636.1	Light brown shaly sandstone.
636.1 - 641.7	Brown sandstone.
641.7 - 642.6	Gray sandy shale.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 41 barrels of oil per acre was obtained from 1.0 feet of sand. The weighted average percent oil saturation was reduced from 33.0 to 30.0, or represents an average recovery of 3.0 percent. The weighted average effective permeability of the samples is 10.83 millidarcys, while the average initial fluid production pressure is 20.0 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 10 samples tested, 1 produced water and oil, and 8 samples produced water only. This indicates that approximately 10 percent of the sand represented by these samples is floodable pay sand.

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-3-

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 188 barrels of oil per acre. This is an average recovery of 188 barrels per acre foot from 1.0 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	40.0
Average porosity, percent	17.5
Oil saturation after flooding, percent	30.0
Performance factor, percent, estimated	50.0
Net floodable sand, feet	1.0

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE I-B

Company Rantoul Energy Corporation Lease Jackman Well No. 11

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	632.5	14.9	13	42	55	150	1.3	1.0	1.0	150	1.30
2	633.5	18.5	17	52	69	244	10.	1.0	2.0	244	10.00
3	634.6	14.6	13	74	87	147	10.	1.0	3.0	147	10.00
4	635.5	18.1	14	54	68	197	5.0	1.1	4.1	217	5.50
5	636.5	20.3	25	41	66	394	18.	0.9	5.0	355	16.20
6	637.5	16.1	23	65	88	287	45.	1.0	6.0	287	45.00
7	638.5	19.6	17	50	67	259	72.	1.0	7.0	259	72.00
8	639.5	20.5	19	44	63	302	37.	1.0	8.0	302	37.00
9	640.3	18.6	23	49	72	332	80.	0.7	8.7	232	56.00
10	641.5	17.7	33	43	76	453	79.	1.0	9.7	453	79.00

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company		Rantoul Energy Corporation		Lease	Jackman	Well No. 11	
Depth Interval, Feet	Feet of Core Analyzed	Average Percent Porosity	Average Percent Oil Saturation	Average Percent Water Saturation	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.	Total Oil Content Bbls./Acre
632.0 - 636.1	4.1	16.6	14.2	55.5	6.5	26.80	758
636.1 - 641.7	5.6	18.8	23.3	48.8	54.5	305.20	1,888
632.0 - 641.7	9.7	17.9	19.5	51.6	34.2	332.00	2,646

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Rantoul Energy Corporation Lease Jackman Well No. 11

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	632.5	15.0	13	151	0	0	13	60	151	0	Imp.	-
2	633.5	18.7	17	247	0	0	17	65	247	11	0.15	45
3	634.6	15.1	12	141	0	0	12	77	141	25	0.30	45
4	635.5	18.2	14	198	0	0	14	73	198	7	0.15	50
5	636.5	20.5	25	398	0	0	25	69	398	87	1.95	30
6	637.5	16.5	22	282	0	0	22	75	282	210	8.16	20
7	638.5	19.4	17	256	0	0	17	73	256	18	0.22	45
8	639.5	20.2	20	313	0	0	20	76	313	117	0.45	30
9	640.3	18.1	24	337	0	0	24	73	337	322	10.33	20
10	641.5	17.5	33	448	3	41	30	66	407	331	10.83	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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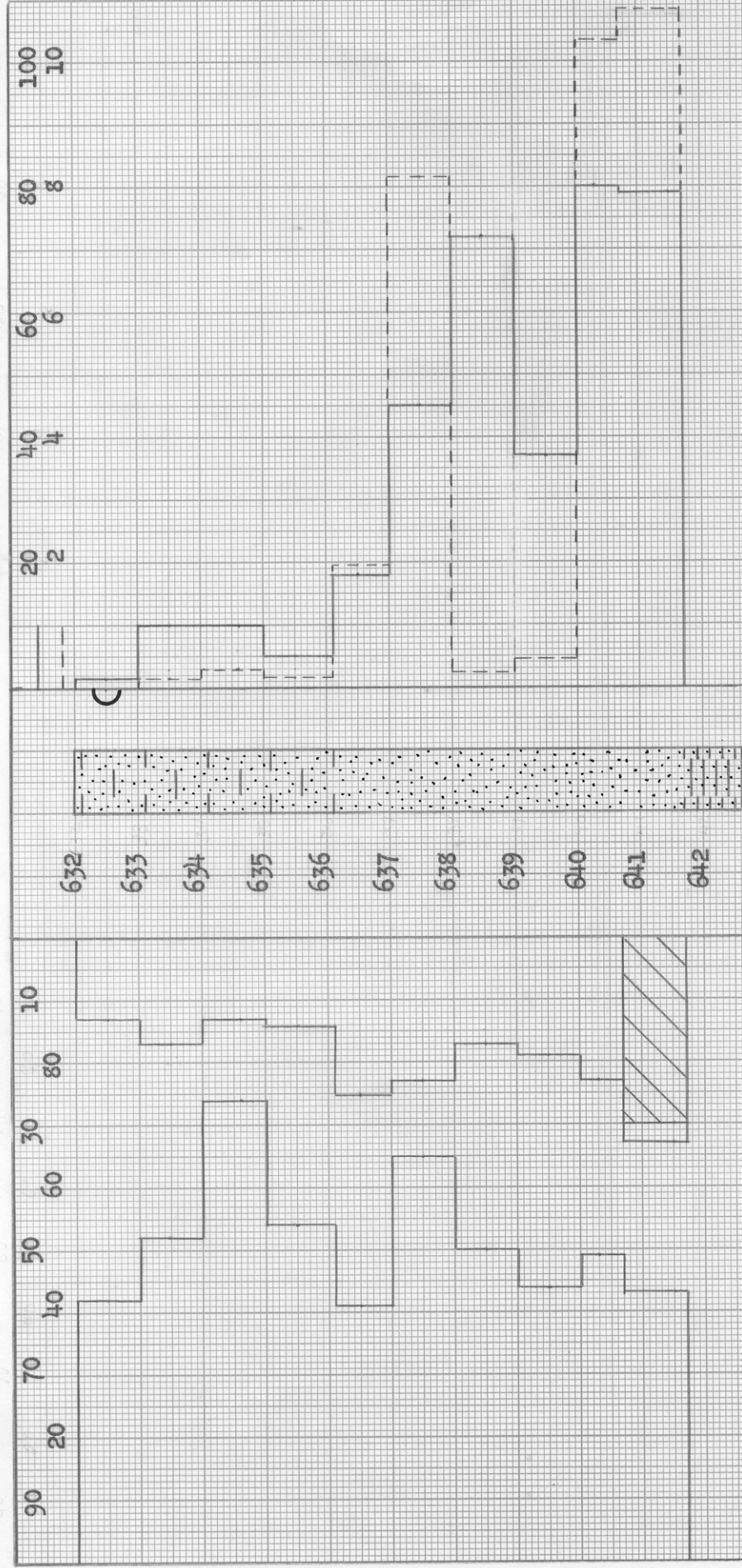
SUMMARY OF LABORATORY FLOODING TESTS

TABLE V

Company	Rantoul Energy Corporation	Lease	Jackman	Well No.	11
Depth Interval, Feet	636.1 - 642.6				
Feet of Core Analyzed	1.0				
Average Percent Porosity	17.5				
Average Percent Original Oil Saturation	33.0				
Average Percent Oil Recovery	3.0				
Average Percent Residual Oil Saturation	30.0				
Average Percent Residual Water Saturation	66.0				
Average Percent Total Residual Fluid Saturation	96.0				
Average Original Oil Content, Bbls./A. Ft.	448.				
Average Oil Recovery, Bbls./A. Ft.	41.				
Average Residual Oil Content, Bbls./A. Ft.	407.				
Total Original Oil Content, Bbls./Acre	448.				
Total Oil Recovery, Bbls./Acre	41.				
Total Residual Oil Content, Bbls./Acre	407.				
Average Effective Permeability, Millidarcys	10.83				
Average Initial Fluid Production Pressure, p.s.i.	20.0				

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

WATER SAT., PERCENT → OIL SAT., PERCENT ←
 — PERMEABILITY, IN MILLIDARCS
 - - - EFFECTIVE PERMEABILITY TO WATER, IN MILLIDARCS



KEY:

SHALY SANDSTONE

SANDY SHALE

○ IMPERMEABLE TO WATER

SANDSTONE

/// FLOODPOT RESIDUAL OIL SATURATION

RANTOUL ENERGY CORP.

JACKMAN LEASE

FRANKLIN COUNTY, KANSAS

WELL NO. 11

RANTOUL ENERGY CORP.

JACKMAN LEASE

WELL NO. 11

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 BELS./ACRE
632.0 - 636.1	4.1	16.6	14.2	55.5	6.5	
636.1 - 641.7	5.6	18.8	23.3	48.8	54.5	
632.0 - 641.7	9.7	17.9	19.5	51.6	34.2	188 (PRIMARY & WATERFLOODING)

OILFIELD RESEARCH LABORATORIES
CHANUTE, KANSAS
JUNE, 1980

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