

OILFIELD RESEARCH LABORATORIES

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November 5, 1980

Rantoul Energy Corporation
Box 516
Hutchinson, Kansas 67501

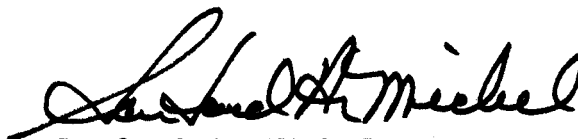
Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the Judson-Tullous Lease, Well No. 30-D, located in Franklin County, Kansas and submitted to our laboratory on August 13, 1980.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

A handwritten signature in black ink, appearing to read "Sanford A. Michel". The signature is fluid and cursive, with the first name "Sanford" and last name "Michel" clearly distinguishable.

Sanford A. Michel

SAM/mkf

5 c to Hutchinson, Kansas

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company Rantoul Energy Corp. Lease Judson-Tullous Well No. 30-D

Location -

Section 6²² Twp. 17S Rge. 21E County Franklin State Kansas

Elevation, Feet -

Name of Sand	- - - - -	Peru
Top of Core	- - - - -	345.0
Bottom of Core	- - - - -	364.7
Top of Sand	- - - - -	345.0
Bottom of Sand	- - - - - (Tested)	362.2
Total Feet of Permeable Sand	- - - - -	14.2
Total Feet of Floodable Sand	- - - - -	10.7

Distribution of Permeable Sand: Permeability Range Millidarcys

Feet

Cum. Ft.

0 - 10	1.9	1.9
10 - 30	3.9	5.8
30 - 50	4.6	10.4
50 - 80	3.8	14.2

Average Permeability Millidarcys	- - - - -	36.4
Average Percent Porosity	- - - - -	19.1
Average Percent Oil Saturation	- - - - -	31.1
Average Percent Water Saturation	- - - - -	44.6
Average Oil Content, Bbls./A. Ft.	- - - - -	458.
Total Oil Content, Bbls./Acre	- - - - -	6,502.
Average Percent Oil Recovery by Laboratory Flooding Tests	- - - - -	5.0
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	- - - - -	79.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	- - - - -	849.
Total Calculated Oil Recovery, Bbls./Acre	- - - - -	See "Calculated Recovery" Section

The core was sampled and the samples sealed in plastic bags by a representative of the client.

FORMATION CORED

The detailed log of the formation cored is as follows:

<u>Depth Interval, Feet</u>	<u>Description</u>
345.0 - 346.3	Brown slightly calcareous sandstone.
346.3 - 347.1	Grayish brown shaly sandstone.
347.1 - 348.0	Light brown slightly shaly sandstone.
348.0 - 351.2	Hard grayish brown calcareous shaly sandstone.
351.2 - 353.7	Brown slightly calcareous sandstone.
353.7 - 355.2	Grayish brown slightly calcareous shaly sandstone.
355.2 - 359.8	Brown slightly calcareous sandstone.
359.8 - 360.5	Gray sandy shale.
360.5 - 362.2	Brown slightly calcareous sandstone.
362.2 - 364.0	Light brown slightly calcareous shaly sandstone.
364.0 - 364.7	Gray calcareous fossiliferous shale.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 849 barrels of oil per acre was obtained from 10.7 feet of sand. The weighted average percent oil saturation was reduced from 31.8 to 26.8, or represents an average recovery of 5.0 percent. The weighted average effective permeability of the samples is 4.05 millidarcys, while the average initial fluid production pressure is 20.6 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 12 samples tested, 9 produced water and oil and 1 sample produced water only. This indicates that approximately 75 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 effective and waterflood operations in the vicinity of this well should recover approximately 3520 barrels of oil per acre. This is an average recovery of 329 barrels per acre foot from 10.7 feet of floodable sand analyzed in this core.

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

Original formation volume factor (estimated)	1.03
Reservoir water saturation, percent, (estimated)	30.0
Average porosity, percent	20.6
Oil saturation after flooding, percent	26.8
Performance factor, percent (estimated)	50.0
Net floodable sand, feet	10.7

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Rantoul Energy Corp. Lease Judson-Tullous Well No. 3Q-D

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	345.5	25.7	38	41	79	758	52.	1.3	1.3	985	67.60
2	347.2	20.0	27	49	76	419	9.7	0.9	2.2	377	8.73
3	348.5	21.2	33	46	79	543	15.	1.0	3.2	543	15.00
4	349.2	21.9	25	54	79	425	5.7	1.0	4.2	425	5.70
5	350.8	19.1	33	42	75	489	22.	1.2	5.4	587	26.40
6	352.5	15.8	37	38	75	454	76.	1.5	6.9	681	114.00
7	353.5	19.7	27	46	73	413	37.	1.0	7.9	413	37.00
8	356.7	11.3	37	39	76	324	42.	1.8	9.7	583	75.60
9	357.5	20.0	35	34	69	543	54.	1.0	10.7	543	54.00
10	358.5	21.7	28	35	63	471	44.	1.8	12.5	848	79.20
11	360.7	18.4	22	65	87	314	17.	0.7	13.2	220	11.90
12	361.5	18.2	21	70	91	297	21.	1.0	14.2	297	21.00

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company		Lease		Well No.	
Rantoul Energy Corp.		Judson-Tullous		30-D	
Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.		
345.0 - 362.2	14.2	36.4	516.13		
Depth Interval, Feet	Feet of Core Analyzed	Average Percent Porosity	Average Percent Oil Saturation	Average Oil Content Bbl./A. Ft.	Total Oil Content Bbls./Acre
345.0 - 362.2	14.2	19.1	31.1	44.6	6,502

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Rantoul Energy, Corp. Lease Judson-Tullous Well No. 30-D

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	345.5	25.6	38	755	8	159	30	62	107	1.65	20
2	347.2	20.0	27	419	3	47	24	67	26	0.45	35
3	348.5	21.2	33	543	8	132	25	69	225	3.60	20
4	349.2	22.1	25	429	2	34	23	68	238	4.20	20
5	350.8	19.0	33	486	5	74	28	66	313	5.10	20
6	352.5	16.1	37	462	7	87	30	68	281	4.50	20
7	353.5	19.6	27	411	2	30	25	56	305	4.50	15
8	356.7	11.2	37	321	0	0	37	45	23	0.60	45
9	357.5	19.9	35	540	6	93	29	66	321	7.50	15
10	358.5	21.7	28	471	3	51	25	67	324	4.50	20
11	360.7	17.9	23	319	0	0	23	66	0	Imp.	-
12	361.5	18.3	21	298	0	0	21	72	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

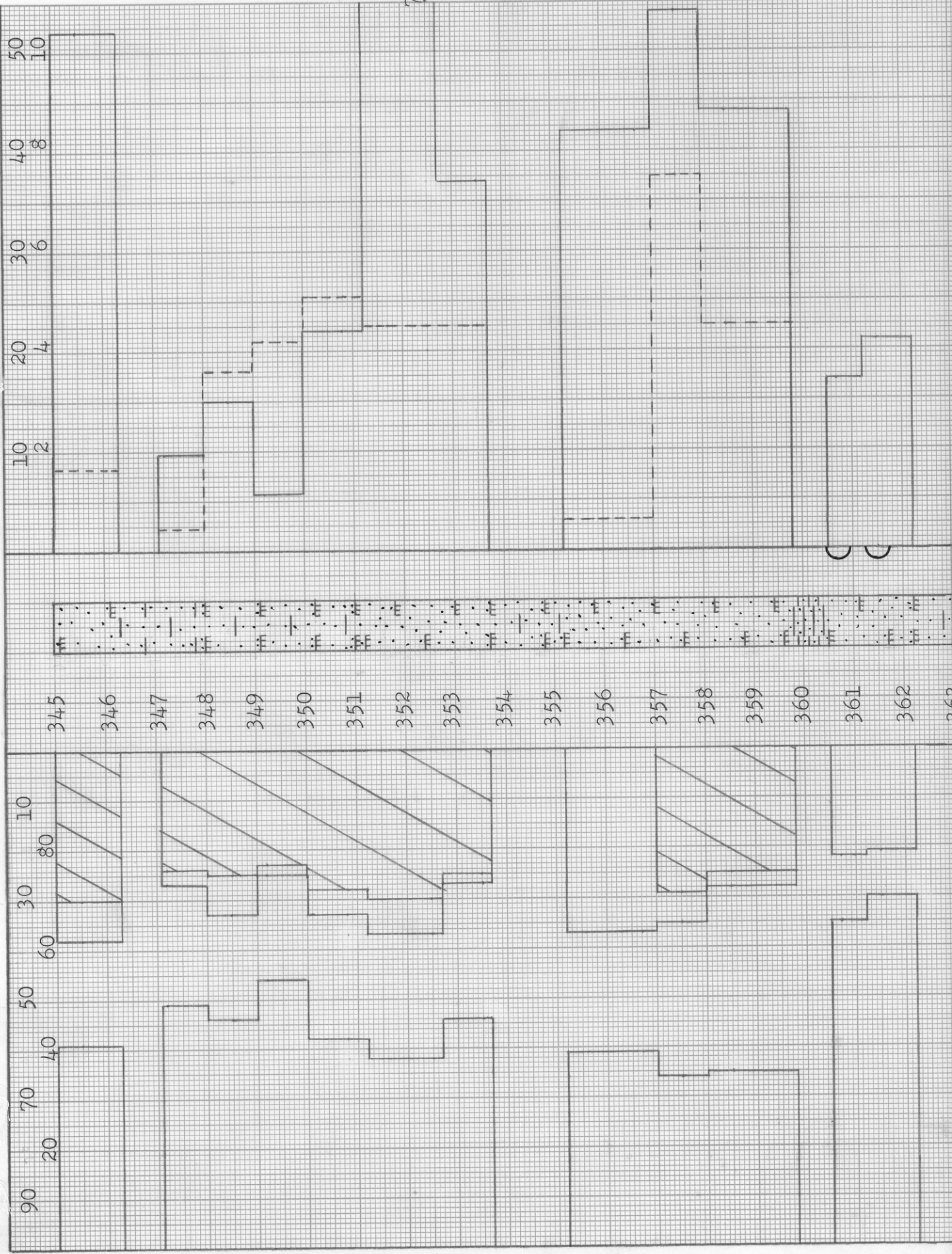
TABLE V

Company	Rantoul Energy Corp.	Lease	Judson-Tullous	Well No.	30-D
Depth Interval, Feet	345.0 - 362.2				
Feet of Core Analyzed	10.7				
Average Percent Porosity	20.6				
Average Percent Original Oil Saturation	31.8				
Average Percent Oil Recovery	5.0				
Average Percent Residual Oil Saturation	26.8				
Average Percent Residual Water Saturation	65.6				
Average Percent Total Residual Fluid Saturation	92.4				
Average Original Oil Content, Bbls./A. Ft.	505.				
Average Oil Recovery, Bbls./A. Ft.	79.				
Average Residual Oil Content, Bbls./A. Ft.	426.				
Total Original Oil Content, Bbls./Acre	5,406.				
Total Oil Recovery, Bbls./Acre	849.				
Total Residual Oil Content, Bbls./Acre	4,557.				
Average Effective Permeability, Millidarcys	4.05				
Average Initial Fluid Production Pressure, p.s.i.	20.6				

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

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

WATER SAT., PERCENT → OIL SAT., PERCENT





KEY:



CALCAREOUS SANDSTONE



SHALY SANDSTONE



CALCAREOUS SHALY SANDSTONE



SANDY SHALE



CALCAREOUS FOSSILIFEROUS
SHALE



FLOODPOT RESIDUAL OIL SATURATION



IMPERMEABLE TO WATER

RANTOUL ENERGY CORP.

JUDSON - TULLOUS LEASE

FRANKLIN COUNTY, KANSAS

WELL NO. 30-D

DEPTH INTERVAL, FEET	FEET OF CORE ANALYZED	AVERAGE POROSITY PERCENT	AVG. OIL SATURATION PERCENT	AVG. WATER SATURATION PERCENT	AVERAGE PERMEABILITY MILLIDARCYS	CALCULATED OIL RECOVERY BBLs./ACRE
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345.0 - 362.2	14.2	19.1	31.1	44.6	36.4	3,520 (PRIMARY & WATERFLOODING)
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CHANUTE, KANSAS
OCTOBER, 1980

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