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

November 21, 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. 14-C, Franklin County, Kansas, and submitted to our laboratory on September 5, 1980.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/km

5 c to Hutchinson, Kansas

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company Rantoul Energy Corporation Lease Judson-Tullous Well No. 14-C

Location

Section 22 Twp. 17S Rge. 21E County Franklin State Kansas

Elevation, Feet

Name of Sand	Peru
Top of Core	352.0
Bottom of Core	366.8
Top of Sand	352.0
Bottom of Sand (Tested)	366.1
Total Feet of Permeable Sand	12.9
Total Feet of Floodable Sand	9.6

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 15	3.1	3.1
65 - 75	2.1	5.2
115 - 200	3.0	8.2
200 & Above	4.7	12.9

Average Permeability Millidarcys	137.4
Average Percent Porosity	17.6
Average Percent Oil Saturation	33.6
Average Percent Water Saturation	27.0
Average Oil Content, Bbls./A. Ft.	427.
Total Oil Content, Bbls./Acre	5,510.
Average Percent Oil Recovery by Laboratory Flooding Tests	7.1
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	97.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	935.
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:

Depth Interval, Feet	Description
352.0 - 354.1	Brown slightly calcareous sandstone.
354.1 - 355.1	Hard light brown calcareous sandstone.
355.1 - 363.8	Brown slightly calcareous sandstone.
363.8 - 364.9	Grayish brown shaly slightly calcareous sandstone.
364.9 - 366.1	Brown slightly calcareous sandstone.
366.1 - 366.8	Brown and gray laminated slightly calcareous sandstone and shale.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 935 barrels of oil per acre was obtained from 9.6 feet of sand. The weighted average percent oil saturation was reduced from 32.8 to 25.7, or represents an average recovery of 7.1 percent. The weighted average effective permeability of the samples is 8.91 millidarcys, while the average initial fluid production pressure is 17.2 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 3 samples 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 efficient primary and waterflood operations in the vicinity of this well should

recover approximately 3,120 barrels of oil per acre. This is an average recovery of 325 barrels per acre foot from 9.6 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)	25.0
Average porosity, percent	17.8
Oil saturation after flooding, percent	25.7
Performance factor, percent (estimated)	50.0
Net floodable sand, feet	9.6

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Rantoul Energy Corporation Lease Judson-Tullous Well No. 14-C

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	352.5	18.2	33	49	82	466	115.	1.0	1.0	466	115.00
2	353.5	14.4	41	39	80	458	73.	1.1	2.1	504	80.30
3	354.5	20.0	27	20	47	419	2.2	1.0	3.1	419	2.20
4	355.5	20.5	33	26	59	525	69.	1.0	4.1	525	69.00
5	356.5	17.8	33	45	78	456	137.	1.0	5.1	456	137.00
6	357.5	15.9	22	27	49	271	14.	1.0	6.1	271	14.00
7	358.5	18.4	34	43	77	485	253.	1.0	7.1	485	253.00
8	359.5	21.5	32	46	78	534	266.	1.0	8.1	534	266.00
9	360.5	22.0	30	35	65	512	196.	1.0	9.1	512	196.00
10	362.5	13.3	35	6	41	361	208.	1.5	10.6	542	312.00
11	364.5	7.6	42	3	45	248	8.3	1.1	11.7	273	9.13
12	365.5	14.8	38	2	40	436	266.	1.2	12.9	523	319.20

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company Rantoul Energy Corporation Lease Judson-Tullous Well No. 14-C

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
352.0 - 366.1	12.9	137.4	1772.83

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
352.0 - 366.1	12.9	17.6	33.6	27.0	427	5,510

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Rantoul Energy Corporation Lease Judson-Tullous Well No. 14-C

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	352.5	18.2	33	466	11	155	22	70	311	326	10.00	15
2	353.5	14.5	41	461	11	124	30	66	337	363	8.91	15
3	354.5	19.7	27	413	0	0	27	64	413	51	1.06	15
4	355.5	20.7	33	530	10	161	23	64	369	588	7.20	15
5	356.5	17.7	33	453	8	110	25	63	343	276	11.80	15
6	357.5	15.9	22	271	2	25	20	78	246	62	1.20	30
7	358.5	18.3	34	483	10	132	24	68	341	54	0.90	35
8	359.5	21.6	32	536	4	67	28	69	469	320	13.12	10
9	360.5	22.2	30	517	5	86	25	68	431	290	10.12	10
10	362.5	13.4	35	364	4	42	31	66	322	232	14.24	10.
11	364.5	7.8	41	248	0	0	41	38	248	28	1.12	40
12	365.5	15.0	38	442	0	0	38	50	442	192	21.37	10

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 Judson-Tullous Well No. 14-C

Depth Interval, Feet	352.0 - 366.1
Feet of Core Analyzed	9.6
Average Percent Porosity	17.8
Average Percent Original Oil Saturation	32.8
Average Percent Oil Recovery	7.1
Average Percent Residual Oil Saturation	25.7
Average Percent Residual Water Saturation	67.9
Average Percent Total Residual Fluid Saturation	93.6
Average Original Oil Content, Bbls./A. Ft.	447.
Average Oil Recovery, Bbls./A. Ft.	97.
Average Residual Oil Content, Bbls./A. Ft.	350.
Total Original Oil Content, Bbls./Acre	4,299.
Total Oil Recovery, Bbls./Acre	935.
Total Residual Oil Content, Bbls./Acre	3,364.
Average Effective Permeability, Millidarcys	8.9
Average Initial Fluid Production Pressure, p.s.i.	17.2

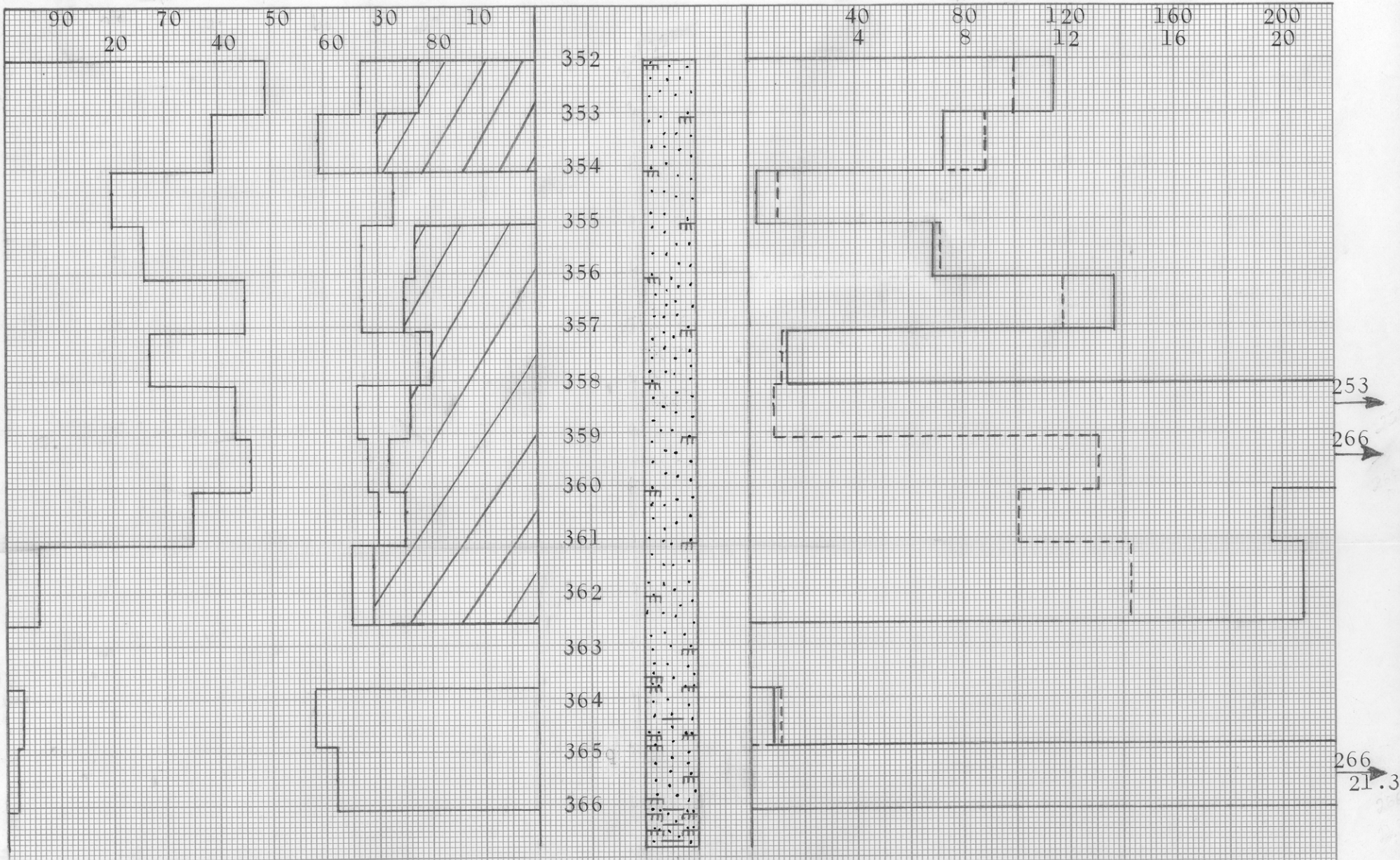
NOTE: Only those samples which recovered oil were used in calculating the above averages.

WATER SAT., PERCENT →

← OIL SAT., PERCENT

---- EFFECTIVE PERMEABILITY TO WATER, IN MILLI.

—— PERMEABILITY, IN MILLIDARCYS



KEY:

CALCAREOUS SANDSTONE

SHALY CALCAREOUS SANDSTONE

LAMINATED CALCAREOUS SANDSTONE & SHALE

FLOODPOT RESIDUAL OIL SATURATION

RANTOUL ENERGY CORP.

JUDSON - TULLOUS LEASE WELL NO. 14-C

FRANKLIN COUNTY, KANSAS

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
352.0 - 366.1	12.9	17.6	33.6	27.0	137.4	3,120 (PRIMARY & WATERFLOODING)

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CHANUTE, KANSAS
NOVEMBER, 1980 SO