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

June 20, 1980

Rantoul Energy Corporation
Box 516
Hutchinson, Kansas 67501

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary cores taken from the Judson B Lease, Well No. 2-W, Franklin County, Kansas, and submitted to our laboratory on May 6, 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 Judson B Well No. 2-W

Location -

Section 23 Twp. 17S Rge. 21E County Franklin State Kansas

Elevation, Feet - - - - - - - - - - - - - - - -

	Peru	Squirrel
Name of Sand		
Top of Core	340.0	490.0
Bottom of Core	353.0	504.0
Top of Sand	340.0	490.7
Bottom of Sand	352.3	500.0
Total Feet of Permeable Sand	9.2	6.7
Total Feet of Floodable Sand	8.4	2.7

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
	PERU SAND	
0 - 50	4.0	4.0
50 - 100	1.2	5.2
100 - 150	1.0	6.2
150 - 200	3.0	9.2
	SQUIRREL SAND	
0 - 1	2.2	2.2
1 - 10	1.8	4.0
20 - 30	1.4	5.4
30 & Above	1.3	6.7

Average Permeability Millidarcys	98.2	32.3
Average Percent Porosity	19.4	18.0
Average Percent Oil Saturation	22.1	29.4
Average Percent Water Saturation	56.1	53.7
Average Oil Content, Bbls./A. Ft.	331.	423.
Total Oil Content, Bbls./Acre	3045.	3553.
Average Percent Oil Recovery by Laboratory Flooding Tests	4.8	4.9
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	72.	77.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	608.	209.
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. Fresh water mud was used as a drilling fluid.

FORMATION CORED

The detailed log of the formation cored is as follows:

Depth Interval, Feet	Description
	PERU SAND
340.0 - 341.2	Brown calcareous sandstone.
341.2 - 344.3	Gray limestone.
344.3 - 350.2	Brown calcareous sandstone.
350.2 - 352.3	Grayish brown shaly calcareous sandstone.
352.3 - 353.0	Grayish brown sandy shale.
	SQUIRREL SAND
490.0 - 490.7	Gray sandy shale.
490.7 - 493.4	Brown sandstone.
493.4 - 495.2	Brown shaly sandstone.
495.2 - 497.9	Brown and gray laminated sandstone and shale.
497.9 - 498.8	Gray sandy shale.
498.8 - 500.0	Brown shaly sandstone.
500.0 - 504.0	Grayish light brown sandy shale.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 608 barrels of oil per acre was obtained from 8.4 feet of sand. The weighted average percent oil saturation was reduced from 23.0 to 18.2, or represents

an average recovery of 4.8 percent. The weighted average effective permeability of the samples is 5.75 millidarcys, while the average initial fluid production pressure is 19.4 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 9 samples tested, 8 produced water and oil, and 1 sample produced water only. This indicates that approximately 89 percent of the sand represented by these samples is floodable pay sand.

LABORATORY FLOODING TESTS

SQUIRREL SAND

The sand in this core responded to laboratory flooding tests, as a total recovery of 209 barrels of oil per acre was obtained from 2.7 feet of sand. The weighted average percent oil saturation was reduced from 35.9 to 31.0, or represents an average recovery of 4.9 percent. The weighted average effective permeability of the samples is 1.20 millidarcys, while the average initial fluid production pressure is 32.5 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 8 samples tested, 2 produced water and oil. This indicates that approximately 25 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 2,520 barrels of oil per acre from the Peru Sand, and approximately 890 barrels of oil per acre from the Squirrel sand. This is an average recovery of 300 barrels per acre foot from 8.4 feet of floodable sand from the Peru Sand, and an average recovery of 328 barrels per acre foot from 2.7 feet of floodable sand from the Squirrel Sand.

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

	Peru Sand	Squirrel Sand
Original formation volume factor, estimated	1.04	1.04
Reservoir water saturation, percent, estimated	40.0	30.0
Average porosity, percent	19.6	21.2
Oil saturation after flooding, percent	18.2	31.0
Performance factor, percent, estimated	50.0	55.0
Net floodable sand, feet	8.4	2.7

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Rantoul Energy Corporation Lease Judson B Well No. 2-W

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.		
						PERU SAND					
1	340.7	21.4	26	50	76	432	94.	1.2	1.2	518	112.80
2	344.4	18.8	20	55	75	292	23.	0.7	1.9	204	16.10
3	345.5	21.7	23	46	69	387	199.	1.0	2.9	387	199.00
4	346.5	15.7	33	51	84	402	110.	1.0	3.9	402	110.00
5	347.5	22.2	20	60	80	345	195.	1.0	4.9	345	195.00
6	348.5	15.7	19	41	60	231	191.	1.0	5.9	231	191.00
7	349.5	23.7	20	59	79	368	49.	1.2	7.1	442	58.80
8	350.5	18.5	12	79	91	172	13.	0.8	7.9	138	10.40
9	351.5	16.3	23	66	89	291	7.7	1.3	9.2	378	10.01
						SQUIRREL SAND					
1	491.5	19.4	39	40	79	587	135.	1.3	1.3	763	175.50
2	492.3	22.5	34	32	66	594	22.	1.4	2.7	832	30.80
3	493.6	18.3	35	47	82	497	1.6	0.6	3.3	298	0.96
4	494.7	16.5	36	54	90	461	0.89	1.2	4.5	553	1.07
5	495.3	13.1	10	86	96	102	Imp.	0.9	5.3	82	0.00
6	496.5	15.6	21	68	89	254	0.57	1.0	6.3	254	0.57
7	497.7	21.1	27	45	72	442	Imp.	0.9	7.2	398	0.00
8	499.3	15.4	26	70	96	311	6.3	1.2	8.4	373	7.56

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company Rantoul Energy Corporation Lease Judson B Well No. 2-W

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
		PERU SAND	
340.0 - 352.3	9.2	98.2	903.11
		SQUIRREL SAND	
490.7 - 495.2	4.5	46.3	208.33
495.2 - 500.0	2.2	3.7	8.13
490.7 - 500.0	6.7	32.3	216.46

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
			PERU SAND			
340.0 - 352.3	9.2	19.4	22.1	56.1	331	3,045
			SQUIRREL SAND			
490.7 - 495.2	4.5	19.4	36.1	42.2	544	2,446
495.2 - 500.0	3.9	16.3	21.7	67.0	284	1,107
490.7 - 500.0	8.4	18.0	29.4	53.7	423	3,553

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Rantoul Energy Corporation Lease Judson B Well No. 2-W

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.			
						PERU SAND						
1	340.7	21.8	26	440	8	135	18	69	305	262	3.30	20
2	344.4	18.7	20	290	3	44	17	80	246	269	3.75	20
3	345.5	22.0	23	393	5	85	18	78	308	372	4.72	20
4	346.5	16.1	32	400	10	125	22	73	275	303	4.12	15
5	347.5	22.3	20	346	4	69	16	79	277	310	11.06	15
6	348.5	15.5	19	228	3	36	16	80	192	469	5.47	15
7	349.5	23.6	20	366	3	55	17	81	311	224	13.24	15
8	350.5	18.5	12	172	0	0	12	83	172	11	0.12	35
9	351.5	16.5	23	294	2	26	21	76	268	26	0.37	35
						SQUIRREL SAND						
1	491.5	19.8	38	584	8	123	30	67	461	130	2.10	30
2	492.3	22.5	34	593	2	35	32	53	558	27	0.37	35
3	493.6	18.0	36	503	0	0	36	49	503	0	Imp.	-
4	494.7	16.7	36	466	0	0	36	55	466	0	Imp.	-
5	495.3	13.5	9	94	0	0	9	88	94	0	Imp.	-
6	496.5	16.0	20	248	0	0	20	70	248	0	Imp.	-
7	497.7	21.1	27	442	0	0	27	45	442	0	Imp.	-
8	499.3	15.9	25	308	0	0	25	71	308	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 Corporation Lease Judson B Well No. 2-W

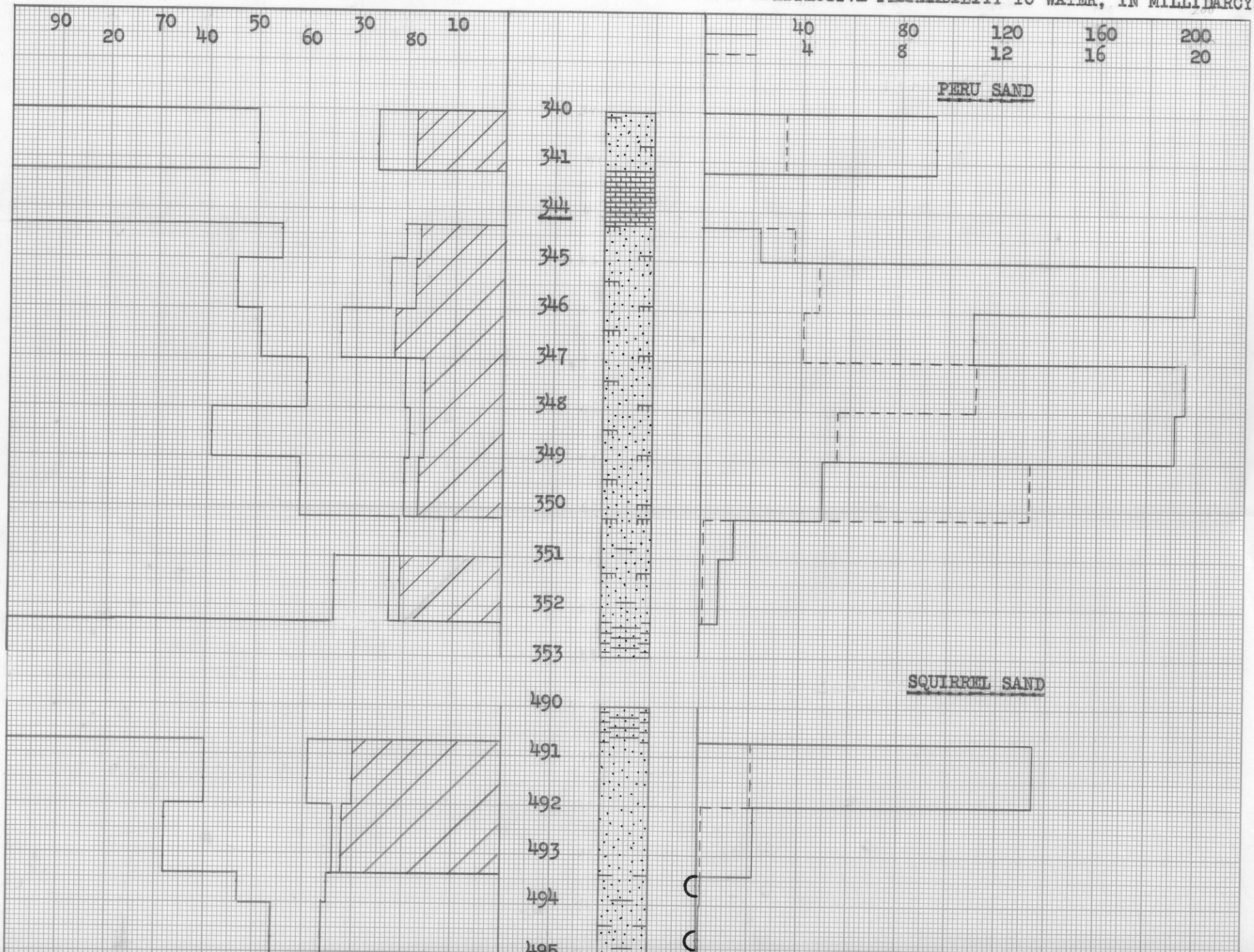
	PERU SAND	SQUIRREL SAND
Depth Interval, Feet	340.0 - 352.3	490.7 - 495.2
Feet of Core Analyzed	8.4	2.7
Average Percent Porosity	19.6	21.2
Average Percent Original Oil Saturation	23.0	35.9
Average Percent Oil Recovery	4.8	4.9
Average Percent Residual Oil Saturation	18.2	31.0
Average Percent Residual Water Saturation	76.8	59.7
Average Percent Total Residual Fluid Saturation	95.0	90.7
Average Original Oil Content, Bbls./A. Ft.	347.	588.
Average Oil Recovery, Bbls./A. Ft.	72.	77.
Average Residual Oil Content, Bbls./A. Ft.	275.	511.
Total Original Oil Content, Bbls./Acre	2,920.	1,590.
Total Oil Recovery, Bbls./Acre	608.	209.
Total Residual Oil Content, Bbls./Acre	2,312.	1,381.
Average Effective Permeability, Millidarcys	5.75	1.20
Average Initial Fluid Production Pressure, p.s.i.	19.4	32.5

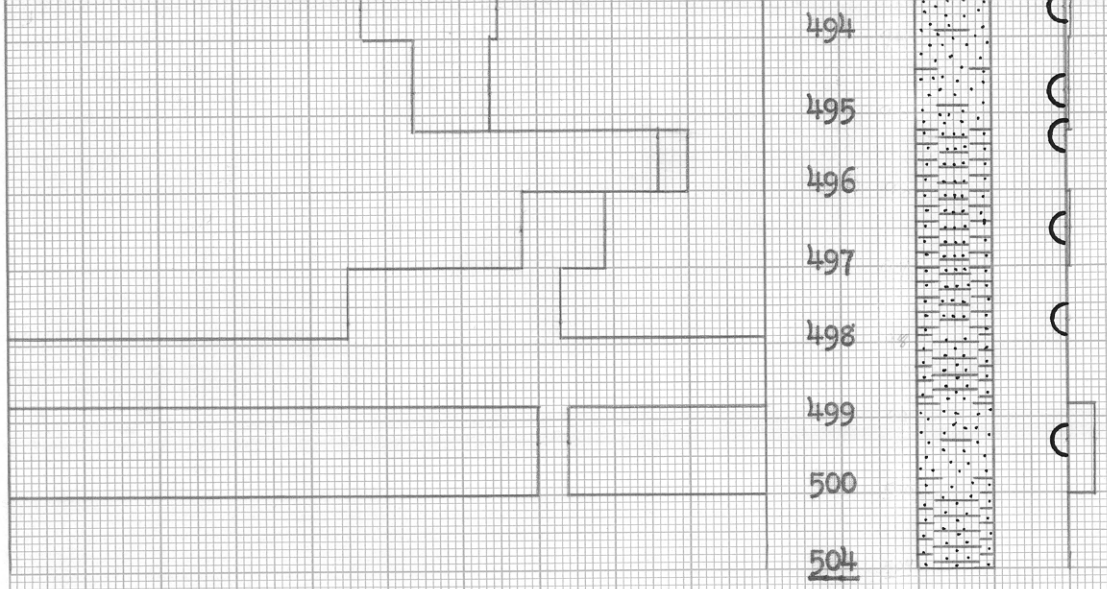
NOTE: Only those samples which recovered oil were used in calculating the above averages.

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

——— PERMEABILITY, IN MILLIDARCYS

– – – EFFECTIVE PERMEABILITY TO WATER, IN MILLIDARCYS





KEY:

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

RANTOUL ENERGY CORP.

JUDSON B LEASE — WELL NO. 2-W

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
PERU SAND						
340.0 - 352.3	9.2	19.4	22.1	56.1	98.2	2,520 (PRIMARY & WATERFLOODING)

SQUIRREL SAND

490.7 - 495.2	4.5	19.4	36.1	42.2	46.3
495.2 - 500.0	3.9	16.3	21.7	67.0	3.7
490.7 - 500.0	8.4	18.0	29.4	53.7	32.3

890 (PRIMARY & WATERFLOODING)

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CHANUTE, KANSAS
JUNE, 1980 VM