OILFIELD RESEARCH LABORATORIES

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June 23, 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. 8-W, Franklin County, Kansas, and submitted to our laboratory on May 8, 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. 8-W

Location –

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

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

	Peru	Squirrel
Name of Sand		
Top of Core	332.0	489.0
Bottom of Core	348.5	497.8
Top of Sand	342.0	489.0
Bottom of Sand	348.5	497.0
Total Feet of Permeable Sand	15.5	3.3
Total Feet of Floodable Sand	12.3	1.0

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
	PERU SAND	
0 - 50	5.2	5.2
50 - 100	2.9	8.1
100 - 150	4.7	12.8
150 - 200	2.7	15.5
	SQUIRREL SAND	
0 - 5	2.0	2.0
5 - 10	0.5	2.5
80 - 90	0.8	3.3

Average Permeability Millidarcys	88.4	23.4
Average Percent Porosity	19.8	18.1
Average Percent Oil Saturation	29.9	27.8
Average Percent Water Saturation	52.4	46.8
Average Oil Content, Bbls./A. Ft.	477.	404.
Total Oil Content, Bbls./Acre	7,400.	1,536.
Average Percent Oil Recovery by Laboratory Flooding Tests	12.2	4.0
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	202.	63.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	2,479.	63.
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
332.0 - 335.8	Brown slightly calcareous sandstone.
335.8 - 338.3	Brown and gray laminated calcareous sandstone and shale.
338.3 - 345.1	Brown slightly calcareous sandstone.
345.1 - 345.8	Brown and gray laminated calcareous sandstone and shale.
345.8 - 346.8	Gray limestone.
346.8 - 348.5	Brown slightly calcareous sandstone.
	SQUIRREL SAND
489.0 - 490.5	Grayish brown shaly sandstone.
490.5 - 491.2	Gray sandy shale.
491.2 - 491.7	Grayish brown shaly sandstone.
491.7 - 495.2	Gray sandy shale.
495.2 - 496.0	Brown slightly calcareous sandstone.
496.0 - 497.0	Grayish brown shaly sandstone.
497.0 - 497.8	Gray sandy shale.

LABORATORY FLOODING TESTS

PERU SAND

The sand in this core responded to laboratory flooding tests, as a total recovery of 2,479 barrels of oil per acre was obtained from 12.3 feet of sand. The weighted average percent oil saturation was reduced from 34.8 to 22.6, or represents an average recovery of 12.2 percent. The weighted average effective permeability of the samples is 5.89 millidarcys, while the average initial fluid production pressure is 16.5 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 16 samples tested, 13 produced water and oil. This indicates that approximately 81 percent of the sand represented by these samples is floodable pay sand.

SQUIRREL SAND

The sand in this core responded to laboratory flooding tests, as a total recovery of 63 barrels of oil per acre was obtained from 1.0 foot of sand. The weighted average percent oil saturation was reduced from 34.0 to 30.0, or represents an average recovery of 4.0 percent. The weighted average effective permeability of the samples is 0.15 millidarcys, while the average initial fluid production pressure is 45.0 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 5 samples tested, 1 produced water and oil, and 2 samples produced water only. This indicates that approximatley 20 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 4,460 barrels of oil per acre from the Peru Sand, and approximately 282 barrels of oil per acre from the Squirrel Sand. This is an average recovery of 362 barrels per acre foot from 12.3 feet of floodable sand from the Peru Sand, and an average recovery of 282 barrels per acre foot from 1.0 foot 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	30.0	35.0
Average porosity, percent	20.9	20.3
Oil saturation after flooding, percent	22.6	30.0
Performance factor, percent, estimated	50.0	55.0
Net floodable sand, feet	12.3	1.0

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Rantoul Energy Corporation Lease Judson B Well No. 8-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	332.4	12.2	23	50	73	218	37.	1.0	1.0	218	37.00
2	333.8	24.0	26	45	71	484	137.	1.0	2.0	484	137.00
3	334.4	22.5	32	42	74	559	128.	1.0	3.0	559	128.00
4	335.6	17.6	27	68	95	369	73.	0.8	3.8	295	58.40
5	336.5	17.2	20	76	96	267	12.	1.2	5.0	320	14.40
6	337.5	16.4	10	83	93	127	4.8	1.3	6.3	165	6.24
7	338.5	14.2	4	94	98	44	135.	0.7	7.0	31	94.50
8	339.3	22.7	37	57	94	652	111.	1.0	8.0	652	111.00
9	340.2	20.6	55	41	96	879	166.	1.0	9.0	879	166.00
10	341.3	22.5	37	44	81	646	51.	1.0	10.0	646	51.00
11	342.5	19.7	35	34	69	535	25.	1.0	11.0	535	25.00
12	343.5	23.8	36	11	47	665	195.	1.0	12.0	665	195.00
13	344.5	20.9	35	36	71	568	82.	1.1	13.1	625	90.20
14	345.3	19.0	32	60	92	472	2.1	0.7	13.8	330	1.47
15	347.3	21.6	39	49	88	654	145.	1.0	14.8	654	145.00
16	348.4	21.7	29	55	84	488	156.	0.7	15.5	342	109.20
						SQUIRREL SAND					
1	489.7	20.3	34	36	70	536	3.5	1.0	1.0	536	3.50
2	490.3	17.1	19	42	61	252	5.7	0.5	1.5	126	2.85
3	491.4	13.6	19	75	94	201	Imp.	0.5	2.0	101	0.00
4	495.4	15.7	22	63	85	268	86.	0.8	2.8	214	68.80
5	496.6	20.6	35	33	68	559	2.2	1.0	3.8	559	2.20

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company Rantoul Energy Corporation Lease Judson B Well No. 8-W

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
		PERU SAND	
332.0 - 338.3	7.0	67.9	475.54
338.3 - 348.5	8.5	105.2	893.87
332.0 - 348.5	15.5	88.4	1,369.41
		SQUIRREL SAND	
489.0 - 497.0	3.3	23.4	77.35

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			
332.0 - 338.3	7.0	17.8	20.3	65.2	296	2,072
338.3 - 348.5	8.5	21.5	37.7	41.9	627	5,328
332.0 - 348.5	15.5	19.8	29.9	52.4	477	7,400
			SQUIRREL SAND			
489.0 - 497.0	3.8	18.1	27.8	46.8	404	1,536

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Rantoul Energy Corporation Lease Judson B Well No. 8-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	332.4	12.4	23	221	5	48	17	75	173	80	1.35	20
2	333.8	24.4	26	492	7	133	19	69	359	77	1.20	20
3	334.4	22.3	32	554	11	190	21	69	364	270	8.25	15
4	335.6	18.0	27	377	10	140	17	74	237	341	10.00	10
5	336.5	17.0	20	264	0	0	20	76	264	0	Imp.	-
6	337.5	16.7	10	130	0	0	10	84	130	0	Imp.	-
7	338.5	14.7	3	34	0	0	3	92	34	0	Imp.	-
8	339.3	23.0	37	660	17	303	20	73	357	360	10.87	10
9	340.2	20.6	55	879	24	384	31	75	495	445	15.55	10
10	341.3	22.5	37	646	16	279	21	70	367	140	2.10	15
11	342.5	20.0	34	528	10	155	24	74	373	228	3.75	25
12	343.5	23.7	36	662	9	165	25	69	497	303	10.58	20
13	344.5	21.0	35	570	15	244	20	76	326	364	5.25	10
14	345.3	19.2	32	477	10	149	22	74	328	25	0.30	25
15	347.3	21.6	39	654	13	218	26	69	436	96	1.50	20
16	348.4	22.1	28	480	10	171	18	77	309	307	4.65	15
						SQUIRREL SAND						
1	489.7	20.3	34	535	4	63	30	61	472	14	0.15	45
2	490.3	17.3	19	255	0	0	19	77	255	17	0.22	45
3	491.4	14.0	18	196	0	0	18	77	196	0	Imp.	-
4	495.4	16.0	21	261	0	0	21	69	261	267	7.65	15
5	496.6	20.2	36	564	0	0	36	40	564	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. 8-W

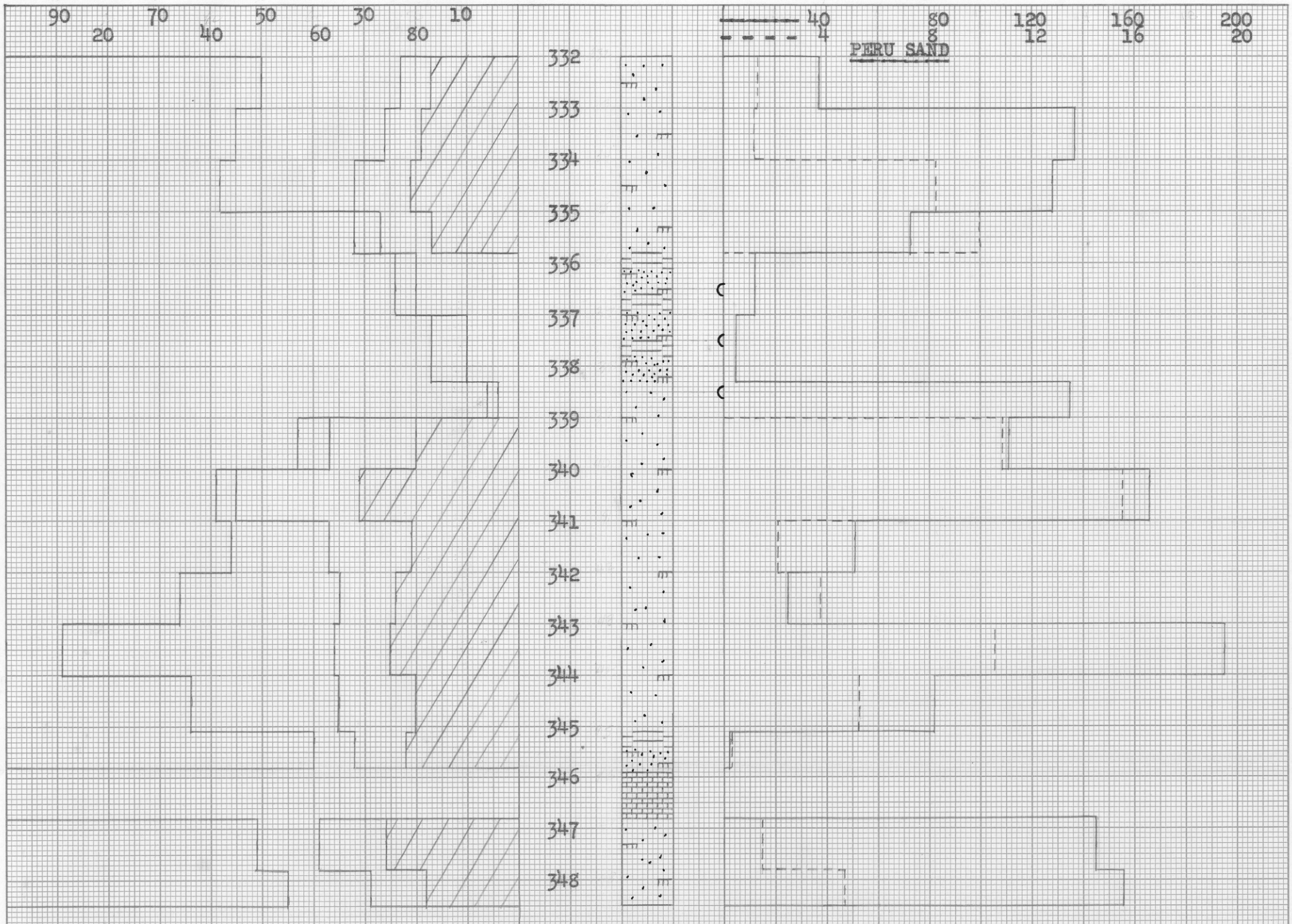
	PERU SAND			SQUIRREL SAND
Depth Interval, Feet	332.0 - 338.3	338.3 - 348.5	332.0 - 348.5	489.0 - 497.0
Feet of Core Analyzed	3.8	8.5	12.3	1.0
Average Percent Porosity	19.3	21.6	20.9	20.3
Average Percent Original Oil Saturation	26.8	38.5	34.8	34.0
Average Percent Oil Recovery	8.2	14.1	12.2	4.0
Average Percent Residual Oil Saturation	18.6	24.4	22.6	30.0
Average Percent Residual Water Saturation	71.6	72.9	72.5	61.0
Average Percent Total Residual Fluid Saturation	90.2	97.3	95.1	91.0
Average Original Oil Content, Bbls./A. Ft.	413.	627.	561.	535.
Average Oil Recovery, Bbls./A. Ft.	127.	235.	202.	63.
Average Residual Oil Content, Bbls./A. Ft.	286.	392.	359.	472.
Total Original Oil Content, Bbls./Acre	1,569.	5,325.	6,894.	535.
Total Oil Recovery, Bbls./Acre	483.	1,996.	2,479.	63.
Total Residual Oil Content, Bbls./Acre	1,086.	3,329.	4,415.	472.
Average Effective Permeability, Millidarcys	4.95	6.31	5.89	0.15
Average Initial Fluid Production Pressure, p.s.i.	16.3	16.7	16.5	45.0

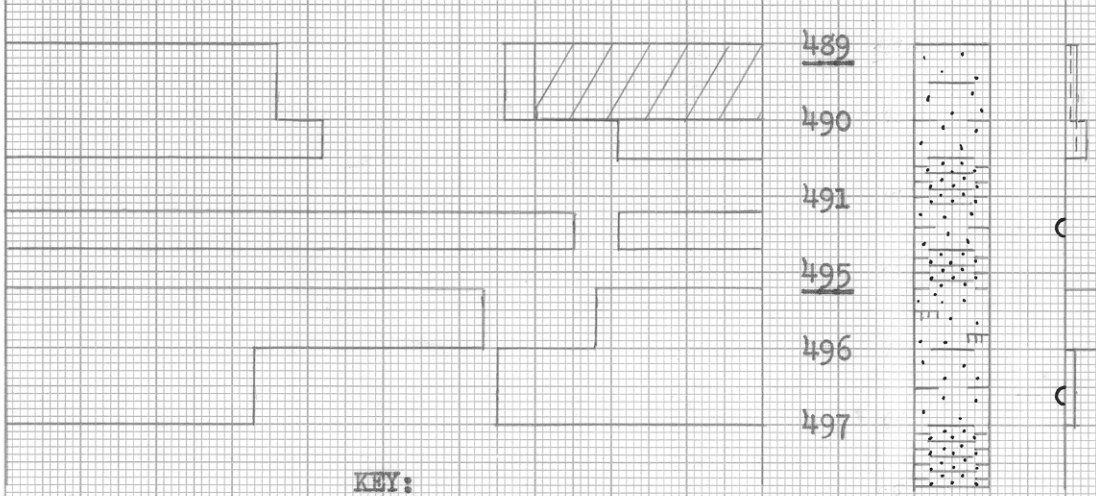
NOTE: Only those samples which recovered oil were used in calculating the above averages.

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

——— PERMEABILITY, IN MILLIDARCYS

– – – EFFECTIVE PERMEABILITY TO WATER, IN MILLIDARCYS





KEY:

CALCAREOUS SANDSTONE

LAMINATED CALCAREOUS SANDSTONE AND SHALE

LIMESTONE

IMPERMEABLE TO WATER

SHALY SANDSTONE

SANDY SHALE

FLOODPOT RESIDUAL OIL SATURATION

RANTOUL ENERGY CORP.

JUDSON B LEASE WELL NO. 8 - 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			
332.0 - 338.3	7.0	17.8	20.3	65.2	67.9	
338.3 - 348.5	8.5	21.5	37.7	41.9	105.2	
332.0 - 348.5	15.5	19.8	29.9	52.4	88.4	4,460 (PRIMARY & WATERFLOODING)
			SQUIRREL SAND			
489.0 - 497.0	3.8	18.1	27.8	46.8	23.4	282 (PRIMARY & WATERFLOODING)

OILFIELD RESEARCH LABORATORIES
CHANUTE, KANSAS
JUNE, 1980.

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