OILFIELD RESEARCH LABORATORIES

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

June 30, 1981

Rantoul Energy Corporation
1505 SW 42nd Street
Topeka, Kansas 66609

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary cores taken from the Dunnivan Lease, Well No. B5-D, located in Franklin County, Kansas and submitted to our laboratory on June 22, 1981.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/kas

5 c to Topeka, Kansas

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company Rantoul Energy Corporation Lease Dunnivan Well No. B5-D

Location 2425' NSL & 1985' WEL

Section 32 Twp. 17S Rge. 21E County Franklin State Kansas

	Squirrel	Cattleman
Elevation, Feet		
Name of Sand		
Top of Core	624.0	739.0
Bottom of Core	635.5	741.5
Top of Sand	624.0	
Bottom of Sand	635.5	
Total Feet of Permeable Sand	5.9	0
Total Feet of Floodable Sand	2.8	0

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
	SQUIRREL SAND	
0 - 5	3.7	3.7
10 - 20	1.2	4.9
45 - 50	1.0	5.9

Average Permeability Millidarcys	11.8
Average Percent Porosity	15.2
Average Percent Oil Saturation	26.7
Average Percent Water Saturation	58.9
Average Oil Content, Bbls./A. Ft.	375.
Total Oil Content, Bbls./Acre	4,311.
Average Percent Oil Recovery by Laboratory Flooding Tests	6.1
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	71.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	198.
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.

Since the Cattleman sand consisted of gray shale, only the Squirrel sand was tested. The Calculated Recovery applies to the Squirrel sand only.

FORMATION CORED

The detailed log of the formation cored is as follows:

Depth Interval, Feet	Description
	SQUIRREL SAND
624.0 - 625.6	Light brown slightly calcareous sandstone.
625.6 - 629.2	Gray and light brown laminated slightly calcareous sandstone and shale.
629.2 - 629.8	Brown slightly calcareous sandstone.
629.8 - 635.5	Grayish light brown shaly sandstone.
	CATTLEMAN SAND
739.0 - 741.5	Gray shale.

LABORATORY FLOODING TESTS

SQUIRREL SAND

The Squirrel sand in this core responded to laboratory flooding tests, as a total recovery of 198 barrels of oil per acre was obtained from 2.8 feet of sand. The weighted average percent oil saturation was reduced from 45.7 to 39.6, or represents an average recovery of 6.1 percent. The weighted average effective permeability of the samples is 3.47 millidarcys, while the average initial fluid production pressure is 21.7 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 12 samples tested, 3 produced water and oil, and 1 produced water only. This indicates that approximately 25 percent of the sand represented by these samples is floodable pay sand.

CALCULATED RECOVERY

SQUIRREL SAND

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 420 barrels of oil per acre. This is an average recovery of 149 barrels per acre foot from 2.8 feet of floodable sand anzlyzed 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	35.0
Average porosity, percent	18.6
Oil saturation after flooding, percent	39.6
Performance factor, percent, estimated	45.0
Net floodable sand, feet	2.8

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Rantoul Energy Corporation **Lease** Dunnivan **Well No.** B5-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.		
						SQUIRREL	SAND				
1	624.5	21.2	30	56	86	493	46.	1.0	1.0	493	46.00
2	625.5	22.2	13	63	76	224	19.	0.6	1.6	134	11.40
3	626.3	10.6	44	50	94	362	Imp.	1.6	3.2	579	0.00
4	627.4	13.0	36	60	96	363	Imp.	1.0	4.2	363	0.00
5	628.4	18.9	51	43	94	748	4.1	1.0	5.2	748	4.10
6	629.5	19.6	30	40	70	456	11.	0.6	5.8	274	6.60
7	630.5	14.6	56	40	96	634	0.66	0.8	6.6	507	0.53
8	632.5	15.1	38	50	88	445	0.66	1.0	7.6	445	0.66
9	632.5	13.4	17	78	95	177	Imp.	1.0	8.6	177	0.00
10	633.4	14.4	25	69	94	279	0.26	0.9	9.5	251	0.23
11	634.4	11.6	22	73	95	198	Imp.	1.0	10.5	198	0.00
12	635.3	15.2	12	81	93	142	Imp.	1.0	11.5	142	0.00

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company Rantoul Energy Corporation Lease Dunnivan Well No. B5-D

SQUIRREL SAND

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
624.0 - 635.5	5.9	11.8	69.52

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
624.0 - 635.5	11.5	15.2	26.7	58.9	3745	4,311

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Rantoul Energy Corporation Lease Dunnivan Well No. B5-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	Bbls./A. Ft.			
					SQUIRREL SAND							
1	624.5	21.3	30	496	2	33	28	68	463	332	9.45	10
2	625.5	22.3	13	225	0	0	13	79	225	314	9.16	10
3	626.3	10.7	44	365	0	0	44	51	365	0	Imp.	-
4	627.4	13.4	35	364	0	0	35	62	364	0	Imp.	-
5	628.4	19.0	51	752	5	74	46	49	678	29	0.15	15
6	629.5	19.7	30	458	0	0	30	41	458	0	Imp.	-
7	630.5	14.7	56	639	10	114	46	50	525	10	0.15	40
8	631.5	15.5	37	422	0	0	37	52	422	0	Imp.	-
9	632.5	13.5	17	178	0	0	17	79	178	0	Imp.	-
10	633.4	14.3	25	277	0	0	25	70	277	0	Imp.	-
11	634.4	11.7	22	200	0	0	22	74	200	0	Imp.	-
12	635.3	15.3	12	142	0	0	12	82	142	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 Dunnivan Well No. B5-D

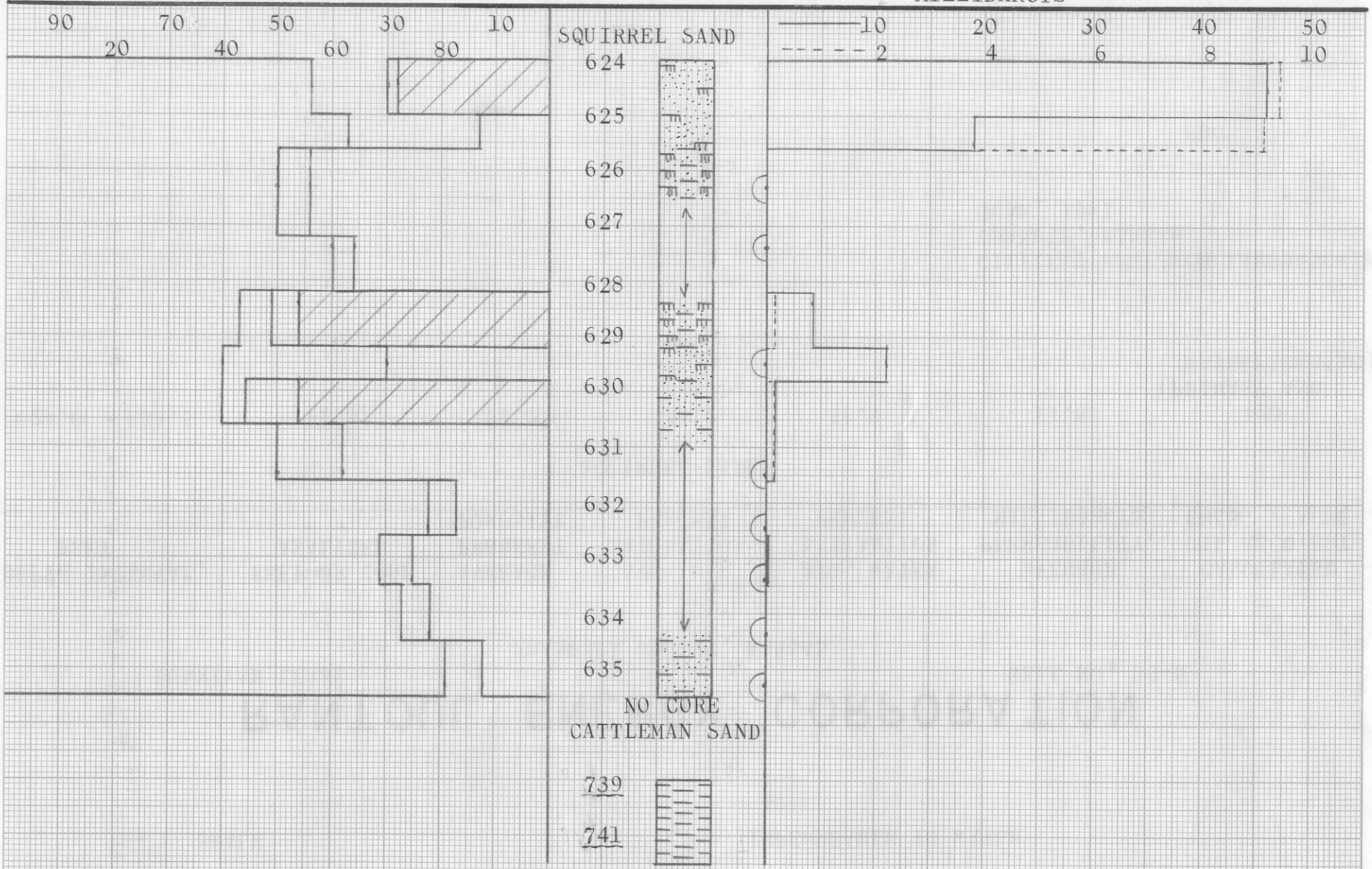
	SQUIRREL SAND
Depth Interval, Feet	624.0 - 635.5
Feet of Core Analyzed	11.5
Average Percent Porosity	18.6
Average Percent Original Oil Saturation	45.7
Average Percent Oil Recovery	6.1
Average Percent Residual Oil Saturation	39.6
Average Percent Residual Water Saturation	56.1
Average Percent Total Residual Fluid Saturation	95.7
Average Original Oil Content, Bbls./A. Ft.	629.
Average Oil Recovery, Bbls./A. Ft.	71.
Average Residual Oil Content, Bbls./A. Ft.	558.
Total Original Oil Content, Bbls./Acre	1,759.
Total Oil Recovery, Bbls./Acre	198.
Total Residual Oil Content, Bbls./Acre	1,561.
Average Effective Permeability, Millidarcys	3.47
Average Initial Fluid Production Pressure, p.s.i.	21.7

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


SHALY SANDSTONE


FLOODPOT RESIDUAL OIL SATURATION


SHALE


IMPERMEABLE TO WATER

RANTOUL ENERGY CORPORATION

DUNNIVAN LEASE WELL NO. B5-D

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
			SQUIRREL SAND			
624.0 - 635.5	11.5	15.2	26.7	58.9	11.8	420 (PRIMARY AND WATERFLOODING)

OILFIELD RESEARCH LABORATORIES
CHANUTE, KANSAS
JUNE, 1981

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