OILFIELD RESEARCH LABORATORIES

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November 20, 1980

Rantoul Energy Corp.
Box 516
Hutchinson, Kansas 67501

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary cores taken from the Dunivan Lease, Well No. 06-D, located in Franklin County, Kansas and submitted to our laboratory on August 30, 1980.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/mkf

5 c to Hutchinson, Kansas

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GENERAL INFORMATION & SUMMARY

Company Rantoul Energy Corp. Lease Dunivan Well No. 06-D

Location Block 6 SE¼

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

Elevation, Feet	-	-
Name of Sand	Squirrel	Bartlesville
Top of Core	634.0	745.0
Bottom of Core	643.0	763.0
Top of Sand	634.0	
Bottom of Sand	639.0	
Total Feet of Permeable Sand	5.0	
Total Feet of Floodable Sand	1.6	

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 4	3.4	3.4
10 - 15	0.7	4.1
115 & Above	0.9	5.0

Average Permeability Millidarcys	24.8
Average Percent Porosity	18.3
Average Percent Oil Saturation	35.5
Average Percent Water Saturation	42.3
Average Oil Content, Bbls./A. Ft.	511.
Total Oil Content, Bbls./Acre	2,556.
Average Percent Oil Recovery by Laboratory Flooding Tests	6.7
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	111.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	177.
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 entire Bartlesville portion of the core consisted of gray sandy shale, no samples were run, nor is any data given. All data is for the Squirrel portion of the core.

FORMATION CORED

The detailed log of the formation cored is as follows:

Depth Interval, Feet	Description
	SQUIRREL SAND
634.0 - 635.3	Grayish brown shaly sandstone.
635.3 - 636.2	Brown sandstone.
636.2 - 636.9	Light brown sandstone.
636.9 - 639.0	Grayish light brown shaly sandstone.
639.0 - 643.0	Gray sandy shale.
	BARTLESVILLE SAND
745.0 - 763.0	Gray sandy shale.

LABORATORY FLOODING TESTS

The Squirrel sand in this core responded to laboratory flooding tests, as a total recovery of 177 barrels of oil per acre was obtained from 1.6 feet of sand. The weighted average percent oil saturation was reduced from 39.3 to 32.6, or represents an average recovery of 6.7 percent. The weighted average effective permeability of the samples is 0.84 millidarcys, while the average initial fluid production pressure is 30.0 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the the 6 samples tested, 2 produced water and oil. This indicates that approximately 33 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 570 barrels of oil per acre. This is an average recovery of 359 barrels per acre foot from 1.6 feet of floodable sand analyzed in this core.

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

Original formation volume factor, estimated	1.04
Reservoir water saturation, percent, estimated	25.0
Average porosity, percent	21.3
Oil saturation after flooding, percent	32.6
Performance factor, percent, estimated	55.0
Net floodable sand, feet	1.6

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Rantoul Energy Corp. Lease Dunivan Well No. 06-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	634.5	15.8	29	61	90	356	2.4	1.3	1.3	463	3.12
2	635.5	21.6	38	26	64	637	118.	0.9	2.2	573	106.20
3	636.5	21.2	41	24	65	674	11.	0.7	2.9	472	7.70
4	637.5	19.2	39	39	78	581	3.1	1.1	4.0	639	3.41
5	638.5	15.5	34	49	83	409	3.6	1.0	5.0	409	3.60

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company Rantoul Energy Corp. Lease Dunivan Well No. 06-D

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
	SQUIRREL SAND		
634.0 - 639.0	5.0	24.8	124.03

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
			SQUIRREL SAND			
634.0 - 639.0	5.0	18.3	35.5	42.3	511	2,556

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Rantoul Energy Corp. Lease Dunivan Well No. 06-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	634.5	15.9	29	358	0	0	29	62	358	0	Imp.	-
2	635.5	21.4	38	631	8	133	30	66	498	83	1.20	20
3	636.5	21.2	41	674	5	82	36	60	592	16	0.37	40
4	637.5	18.7	40	580	0	0	40	40	580	0	Imp.	-
5	638.5	15.9	33	407	0	0	33	50	407	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 Dunivan Well No. 06-D

	SQUIRREL SAND
Depth Interval, Feet	634.0 - 639.0
Feet of Core Analyzed	1.6
Average Percent Porosity	21.3
Average Percent Original Oil Saturation	39.3
Average Percent Oil Recovery	6.7
Average Percent Residual Oil Saturation	32.6
Average Percent Residual Water Saturation	63.4
Average Percent Total Residual Fluid Saturation	96.0
Average Original Oil Content, Bbls./A. Ft.	650.
Average Oil Recovery, Bbls./A. Ft.	111.
Average Residual Oil Content, Bbls./A. Ft.	539.
Total Original Oil Content, Bbls./Acre	1,040.
Total Oil Recovery, Bbls./Acre	177.
Total Residual Oil Content, Bbls./Acre	863.
Average Effective Permeability, Millidarcys	0.84
Average Initial Fluid Production Pressure, p.s.i.	30.0

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