

OILFIELD RESEARCH LABORATORIES

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August 12, 1980

Rantoul Energy Corporation
P. O. Box 516
Hutchinson, Kansas 67501

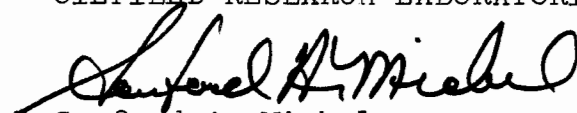
Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the Peckham Lease, Well No. 3, Franklin County, Kansas and submitted to our laboratory on June 5, 1980.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES


Sanford A. Michel

BRP/ks

5 c to Hutchinson, Kansas

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GENERAL INFORMATION & SUMMARY

Company Rantoul Energy Corporation Lease Peckham Well No. 3

Location -

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

Elevation, Feet -

Name of Sand Squirrel

Top of Core 496.0

Bottom of Core 514.7

Top of Sand (Analyzed) 497.0

Bottom of Sand 514.2

Total Feet of Permeable Sand 17.2

Total Feet of Floodable Sand 6.0

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
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0.21 - 1.0	3.2	3.2
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1 - 13	8.2	11.4
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13 - 83	5.8	17.2
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Average Permeability Millidarcys 21.6

Average Percent Porosity 18.6

Average Percent Oil Saturation 36.4

Average Percent Water Saturation 44.9

Average Oil Content, Bbls./A. Ft. 534.

Total Oil Content, Bbls./Acre 9186.

Average Percent Oil Recovery by Laboratory Flooding Tests 5.4

Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft. 87.

Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre 522.

Total Calculated Oil Recovery, Bbls./Acre See "Calculated Recovery" Section

This 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:

<u>Depth Interval, Feet</u>	<u>Description</u>
496.0 - 499.0	Grayish brown very shaly sandstone.
499.0 - 500.2	Brown sandstone.
500.2 - 500.7	Brown shaly sandstone.
500.7 - 506.9	Brown sandstone.
506.9 - 507.8	Brown slightly shaly sandstone.
507.8 - 508.6	Brown shaly sandstone.
508.6 - 509.4	Brown slightly shaly sandstone.
509.4 - 514.2	Grayish brown very shaly sandstone.
514.2 - 514.7	Gray sandy shale.

LABORATORY FLOODING TESTS

The upper portion of the sand in this core responded to laboratory flooding tests, as a total recovery of 522 barrels of oil per acre was obtained from 6.0 feet of sand. The weighted average percent oil saturation was reduced from 43.5 to 38.1, or represents an average recovery of 5.4 percent. The weighted average effective permeability of the samples is 3.48 millidarcys, while the average initial fluid production pressure is 35.0 pounds per square inch (See Table V).

CALCULATED RECOVERY

The results of the laboratory testing indicate that efficient primary and waterflooding operations in the vicinity of this well should recover approximately 1810 barrels of oil per acre. This is an average recovery of 302 barrels per acre foot from the 6.0 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	20.8
Oil saturation after flooding, percent	38.1
Performance factor, percent, estimated	55.0
Net floodable pay sand, feet	6.0

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Rantoul Energy Corporation Lease Peckham Well No. 3

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	497.3	18.2	34	59	93	480	0.21	1.0	1.0	480	0.21
2	498.8	22.5	28	29	57	489	3.2	1.0	2.0	489	3.20
3	499.5	20.1	41	33	74	639	13.	1.2	3.2	766	15.60
4	500.5	20.9	39	32	71	632	53.	0.5	3.7	316	26.50
5	501.5	21.3	44	32	76	727	83.	1.3	5.0	945	107.90
6	502.5	18.3	28	59	87	398	68.	1.0	6.0	398	68.00
7	503.5	21.3	41	31	72	678	34.	1.0	7.0	678	34.00
8	504.5	21.6	47	26	73	788	60.	1.0	8.0	788	60.00
9	505.5	20.4	47	27	74	744	23.	1.0	9.0	744	23.00
10	506.5	14.4	39	53	92	436	12.	0.9	9.9	392	10.80
11	507.5	18.8	40	46	86	583	7.1	0.9	10.8	525	6.39
12	508.3	18.1	47	34	81	660	3.9	0.8	11.6	529	3.12
13	509.2	17.5	36	50	86	489	8.2	0.8	12.4	392	6.56
14	510.5	16.6	30	59	89	386	1.7	1.6	14.0	614	2.72
15	511.5	17.8	36	45	81	497	0.47	1.0	15.0	497	0.47
16	512.9	13.2	10	85	95	102	2.2	1.0	16.0	102	2.20
17	513.5	15.4	37	51	88	442	0.99	1.2	17.2	531	1.19

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company		Lease		Well No.	
Rantoul Energy Corporation		Peckham		3	
Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.		
497.0 - 506.9	9.9	35.3	349.21		
506.9 - 514.2	7.3	3.1	22.65		
497.0 - 514.2	17.2	21.6	371.86		

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
497.0 - 506.9	9.9	20.0	39.0	38.0	605	5,996
506.9 - 514.2	7.3	16.7	33.0	54.1	437	3,190
497.0 - 514.2	17.2	18.6	36.4	44.9	534	9,186

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company			Rantoul Energy Corporation			Lease			Peckham			Well No.			3		
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									
1	497.3	18.0	33	461	0	0	33	62	461	0	Imp.	-					
2	498.8	22.0	29	495	0	0	29	32	495	0	Imp.	-					
3	499.5	20.1	41	639	2	31	39	56	608	78	1.50	50					
4	500.5	21.1	39	638	4	65	35	61	573	140	1.05	50					
5	501.5	21.0	44	717	7	114	37	57	603	324	3.75	25					
6	502.5	18.2	29	409	0	0	29	66	409	287	3.00	25					
7	503.5	21.1	41	671	4	65	37	60	606	153	1.67	30					
8	504.5	21.1	47	769	4	65	43	55	704	178	2.55	30					
9	505.5	20.4	47	744	11	174	36	60	570	214	9.40	25					
10	506.5	14.6	40	453	0	0	40	55	453	0	Imp.	-					
11	507.5	18.8	40	583	0	0	40	47	583	0	Imp.	-					
12	508.3	18.4	46	657	0	0	46	35	657	0	Imp.	-					
13	509.2	17.6	38	519	0	0	38	52	519	0	Imp.	-					
14	510.5	16.3	33	417	0	0	33	60	417	0	Imp.	-					
15	511.5	17.7	35	481	0	0	35	48	481	0	Imp.	-					
16	512.9	13.0	14	141	0	0	14	83	141	0	Imp.	-					
17	513.5	15.4	37	442	0	0	37	53	442	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	Lease	Peckham	Well No.
Rantoul Energy Corporation			3
Depth Interval, Feet	497.0 - 506.9		
Feet of Core Analyzed	6.0		
Average Percent Porosity	20.8		
Average Percent Original Oil Saturation	43.5		
Average Percent Oil Recovery	5.4		
Average Percent Residual Oil Saturation	38.1		
Average Percent Residual Water Saturation	57.9		
Average Percent Total Residual Fluid Saturation	96.0		
Average Original Oil Content, Bbls./A. Ft.	701.		
Average Oil Recovery, Bbls./A. Ft.	87.		
Average Residual Oil Content, Bbls./A. Ft.	614.		
Total Original Oil Content, Bbls./Acre	4202.		
Total Oil Recovery, Bbls./Acre	522.		
Total Residual Oil Content, Bbls./Acre	3680.		
Average Effective Permeability, Millidarcys	3.48		
Average Initial Fluid Production Pressure, p.s.i.	35.0		

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