

OILFIELD RESEARCH LABORATORIES

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June 3, 1980

Rantoul Energy Corporation
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Hutchinson, Kansas 67501

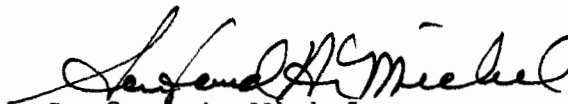
Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the Roseberry A Lease, Well No. W-6, Franklin County, Kansas, and submitted to our laboratory on April 29, 1980.

Your business is greatly appreciated.

Very truly yours,

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Sanford A. Michel

SAM/tem

5 c to Hutchinson, Kansas

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GENERAL INFORMATION & SUMMARY

Company Rantoul Energy Corporation Lease Roseberry A Well No. W-6

Location S $\frac{1}{2}$ SE $\frac{1}{4}$

Section 6 Twp. 18S Rge. 21E County Franklin State Kansas

Elevation, Feet - - - - -

Name of Sand - - - - - Squirrel

Top of Core - - - - - 657.0

Bottom of Core - - - - - 666.0

Top of Sand - - - - - 657.0

Bottom of Sand - - - - - 666.0

Total Feet of Permeable Sand - - - - - 9.0

Total Feet of Floodable Sand - - - - - 4.0

Distribution of Permeable Sand:
Permeability Range
Millidarcys

Feet

Cum. Ft.

0 - 5 2.4 2.4

5 - 10 2.7 5.1

20 - 30 1.0 6.1

30 - 40 2.9 9.0

Average Permeability Millidarcys - - - - - 17.3

Average Percent Porosity - - - - - 18.6

Average Percent Oil Saturation - - - - - 37.0

Average Percent Water Saturation - - - - - 35.5

Average Oil Content, Bbls./A. Ft. - - - - - 535.

Total Oil Content, Bbls./Acre - - - - - 4,814.

Average Percent Oil Recovery by Laboratory Flooding Tests - - - - - 3.5

Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft. - - - - - 52.

Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre - - - - - 208.

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

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-2-

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:

<u>Depth Interval, Feet</u>	<u>Description</u>
657.0 - 658.2	Black carbonaceous shaly slightly calcareous sandstone.
658.2 - 659.1	Brown slightly calcareous sandstone.
659.1 - 660.0	Brown slightly calcareous slightly shaly sandstone.
660.0 - 663.0	Brown slightly calcareous sandstone.
663.0 - 665.2	Brown shaly sandstone.
665.2 - 666.0	Brown shaly slightly calcareous sandstone.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 208 barrels of oil per acre was obtained from 4.0 feet of sand. The weighted average percent oil saturation was reduced from 31.5 to 28.0, or represents an average recovery of 3.5 percent. The weighted average effective permeability of the samples is 0.54 millidarcys, while the average initial fluid production pressure is 35.0 pounds per square inch (See Table V).

OILFIELD RESEARCH LABORATORIES

-3-

By observing the data given in Table IV, you will note that of the 9 samples tested, 4 produced water and oil, and 1 sample produced water only. This indicates that approximately 44 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 1,170 barrels of oil per acre. This is an average recovery of 292 barrels per acre foot from 4.0 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	30.0
Average porosity, percent	19.1
Oil saturation after flooding, percent	28.0
Performance factor, percent, estimated	50.0
Net floodable sand, feet	4.0

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Rantoul Energy Corporation Lease Roseberry A Well No. W-6

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	657.6	18.4	75	10	85	1071	3.2	1.2	1.2	1285	3.84
2	658.4	19.4	56	25	81	843	31.	0.9	2.1	759	27.90
3	659.6	16.8	22	50	72	287	8.2	0.9	3.0	258	7.38
4	660.5	18.8	24	44	68	350	33.	1.0	4.0	350	33.00
5	661.5	19.5	31	37	68	469	38.	1.0	5.0	469	38.00
6	662.7	18.6	38	35	73	548	28.	1.0	6.0	548	28.00
7	663.5	19.5	33	36	69	499	7.3	1.0	7.0	499	7.30
8	664.4	17.4	24	45	69	324	4.2	1.2	8.2	389	5.04
9	665.4	18.8	22	39	61	321	6.4	0.8	9.0	257	5.12

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company		Rantoul Energy Corporation		Lease	Roseberry A	Well No.	W-6
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 Bbbl./Acre	
657.0 - 660.0	3.0	18.2	53.4	27.3	767	2,302	
660.0 - 666.0	6.0	18.7	28.7	39.5	419	2,512	
657.0 - 666.0	9.0	18.6	37.0	35.5	535	4,814	

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
657.0 - 660.0	3.0	13.0	39.12
660.0 - 666.0	6.0	19.4	116.46
657.0 - 666.0	9.0	17.3	155.58

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company			Rantoul Energy Corporation			Lease			Roseberry A			Well No.		W-6	
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.			
1	657.6	18.6	75	1082	0	0	75	11	0	Imp.	-				
2	658.4	19.1	56	830	0	0	56	32	0	Imp.	-				
3	659.6	17.0	22	290	0	0	22	54	0	Imp.	-				
4	660.5	18.5	24	344	2	29	22	72	29	0.45	30				
5	661.5	19.4	31	467	4	60	27	62	36	0.60	30				
6	662.7	18.9	38	557	3	44	35	52	13	0.30	50				
7	663.5	19.4	33	497	5	75	28	64	44	0.82	30				
8	664.4	17.4	24	324	0	0	24	50	0	Imp.	-				
9	665.4	18.8	22	321	0	0	22	69	27	0.37	35				

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	Roseberry A	Well No.	W-6
Depth Interval, Feet	660.0 - 666.0				
Feet of Core Analyzed	4.0				
Average Percent Porosity	19.1				
Average Percent Original Oil Saturation	31.5				
Average Percent Oil Recovery	3.5				
Average Percent Residual Oil Saturation	28.0				
Average Percent Residual Water Saturation	62.5				
Average Percent Total Residual Fluid Saturation	90.5				
Average Original Oil Content, Bbls./A. Ft.	466.				
Average Oil Recovery, Bbls./A. Ft.	52.				
Average Residual Oil Content, Bbls./A. Ft.	414.				
Total Original Oil Content, Bbls./Acre	1,865.				
Total Oil Recovery, Bbls./Acre	208.				
Total Residual Oil Content, Bbls./Acre	1,657.				
Average Effective Permeability, Millidarcys	0.54				
Average Initial Fluid Production Pressure, p.s.i.	35.0				

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