

OILFIELD RESEARCH LABORATORIES

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Rantoul Energy Corporation
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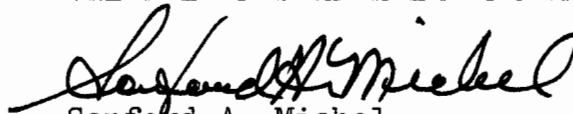
Gentlemen:

Enclosed herewith is the report of the analysis of the rotary cores taken from the Stanbro Lease, Well No. RET-2, Franklin County, Kansas and submitted to our laboratory on May 28, 1980.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES


Sanford A. Michel

SAM/ks

5 c to Hutchinson

GENERAL INFORMATION & SUMMARY

0 - 5	6.8	6.8	
5 - 10	2.2	9.0	
Average Permeability Millidarcys	- - - - -	72.9	3.8
Average Percent Porosity	- - - - -	17.1	15.9
Average Percent Oil Saturation	- - - - -	27.2	27.5
Average Percent Water Saturation	- - - - -	51.3	49.1
Average Oil Content, Bbls./A. Ft.	- - - - -	353.	350.
Total Oil Content, Bbls./Acre	- - - - -	4830.	3710.
Average Percent Oil Recovery by Laboratory Flooding Tests	- - - - -	4.4	0.0
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	- - - - -	58.	0.0
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	- - - - -	507.	0.0
Total Calculated Oil Recovery, Bbls./Acre	- - - - -	See "Calculated Recovery" Section	0.0

The cores were 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>
	<u>PERU SAND</u>
337.0 - 338.2	Light brown calcareous sandstone.
338.2 - 339.2	Hard grayish brown very calcareous sandstone.
339.2 - 342.5	Brown calcareous sandstone.
342.5 - 342.8	Hard gray limestone.
342.8 - 345.7	Brown calcareous sandstone.
345.7 - 346.7	Brown shaly calcareous sandstone.
346.7 - 347.8	Brown calcareous sandstone.
347.8 - 348.2	Gray limestone.
348.2 - 351.4	Brown calcareous sandstone.
	<u>SQUIRREL SAND</u>
491.0 - 492.9	Brown shaly sandstone.
492.9 - 494.0	Gray sandy shale.
494.0 - 494.7	Brown very shaly sandstone.
494.7 - 495.9	Brown slightly shaly sandstone.
495.9 - 500.8	Brown shaly sandstone.
500.8 - 502.7	Grayish brown very shaly sandstone.

LABORATORY FLOODING TESTS

PERU SAND

The sand in this core responded to laboratory flooding tests, as a total recovery of 507 barrels of oil per acre was obtained from 8.7 feet of sand. The weighted average percent oil saturation was reduced

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from 29.5 to 25.1, or represents an average recovery of 4.4 percent. The weighted average effective permeability of the samples is 2.96 millidarcys, while the average initial fluid production pressure is 29.4 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 14 samples tested, 9 produced water and oil, and 3 samples produced water only. This indicates that approximately 64 percent of the sand represented by these samples is floodable pay sand.

CALCULATED RECOVERY

PERU 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 2300 barrels of oil per acre. This is an average recovery of 264 barrels per acre foot from 8.7 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	35.0
Average porosity, percent	18.2
Oil Saturation after flooding, percent	25.1
Performance factor, percent, estimated	50.0
Net floodable sand, feet	8.7

Since only the Peru Sand responded to flooding susceptibility tests, a calculated recovery is given for the Peru Sand only.

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company	Rantoul Energy Corporation	Lease	Stanbro	Well No.	RET-2
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Sample No.	Depth, Feet	Effective Porosity Percent	Percent Saturation		Oil Content Bbls. / A Ft. PERU SAND	Perm., Mill PERU SAND	Feet of Sand		Total Oil Content	Perm. Capacity Ft. X md.
			Oil	Water			Ft.	Cum. Ft.		
1	337.5	20.5	17	68	270	11.	1.2	1.2	324	13.20
2	338.5	7.6	31	65	183	Imp.	1.0	2.2	183	0.00
3	339.5	13.6	28	55	295	13.	0.8	3.0	236	10.40
4	340.5	15.8	28	57	343	14.	1.0	4.0	343	14.00
5	341.3	21.0	40	36	652	11.	1.0	5.0	652	11.00
6	342.3	13.2	31	35	318	32.	0.5	5.5	159	16.00
7	343.5	20.7	29	46	466	137.	1.2	6.7	559	164.40
8	344.3	18.8	22	51	321	266.	1.0	7.7	321	266.00
9	345.3	15.3	29	41	344	90.	0.7	8.4	241	63.00
10	346.5	9.3	34	52	245	5.8	1.0	9.4	245	5.80
11	347.3	12.7	20	53	197	41.	1.1	10.5	217	45.10
12	348.5	14.4	30	42	335	87.	0.8	11.3	268	69.60
13	349.5	24.8	24	51	462	247.	1.0	12.3	462	247.00
14	350.5	23.8	24	51	443	231.	1.4	13.7	620	323.40
SQUIRREL SAND										
15	491.5	18.4	34	39	485	2.9	1.0	1.0	485	2.90
16	492.5	15.5	25	58	301	1.1	0.9	1.9	271	0.99
17	494.5	14.6	11	74	125	Imp.	0.7	2.6	86	0.00
18	495.5	18.3	34	37	483	9.5	1.2	3.8	580	11.40
19	496.5	16.9	24	47	315	3.9	1.1	4.9	347	4.29
20	497.5	20.1	40	29	624	6.9	1.0	5.9	624	6.90
21	498.5	15.5	29	51	349	3.1	1.5	7.4	524	4.65
22	500.5	11.6	19	47	171	2.0	1.3	8.7	222	2.60
23	501.5	11.7	24	72	218	0.17	1.0	9.7	218	0.17
24	502.5	16.3	31	47	392	Imp.	0.9	10.6	353	0.00

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company		Lease		Well No. RET-2	
Rantoul Energy Corporation		Stanbro			
Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.		
<u>PERU SAND</u>					
337.0 - 351.4	12.7	72.9	925.50		
<u>SQUIRREL SAND</u>					
491.0 - 502.7	9.0	3.8	33.90		
Depth Interval, Feet	Feet of Core Analyzed	Average Percent Porosity	Average Percent Oil Saturation	Average Percent Water Saturation	Total Oil Content Bbls./Acre
<u>PERU SAND</u>					
337.0 - 351.4	13.7	17.1	27.2	51.3	4,830
<u>SQUIRREL SAND</u>					
491.0 - 502.7	15.9	15.9	27.5	49.1	3,710

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Rantoul Energy Corporation			Lease		Stanbro		Well No.		RET-2		
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	337.5	20.4	17	269	PERU SAND	0	17	68	11	0.15	45
2	338.5	8.0	31	192	0	0	31	65	0	Imp.	-
3	339.5	13.8	28	300	32	3	25	64	9	0.15	45
4	340.5	16.1	28	350	25	2	26	68	19	0.30	40
5	341.3	20.8	40	645	178	11	29	62	56	0.67	25
6	342.3	13.3	31	320	52	5	26	64	29	0.45	40
7	343.5	20.4	29	459	63	4	25	73	208	3.07	25
8	344.3	18.9	22	323	0	0	22	74	0	Imp.	-
9	345.3	15.4	29	346	0	0	29	66	329	3.97	25
10	346.5	9.6	34	253	60	8	26	70	18	0.15	40
11	347.3	13.0	20	202	0	0	20	73	59	0.82	30
12	348.5	14.5	30	337	34	3	27	70	267	7.75	10
13	349.5	24.5	24	456	38	2	22	69	476	12.49	10
14	350.5	23.7	24	441	37	2	22	73	78	1.35	30
15	491.5	18.0	35	489	SQUIRREL SAND	0	35	40	0	Imp.	-
16	492.5	15.9	24	296	0	0	24	60	0	Imp.	-
17	494.5	14.7	11	125	0	0	11	74	0	Imp.	-
18	495.5	18.1	34	477	0	0	34	42	0	Imp.	-
19	496.5	17.0	24	317	0	0	24	49	0	Imp.	-
20	497.5	20.1	40	624	0	0	40	29	0	Imp.	-
21	498.5	15.6	29	351	0	0	29	59	47	0.75	35
22	500.5	12.1	18	169	0	0	18	67	14	0.22	50
23	501.5	11.9	24	222	0	0	24	72	0	Imp.	-
24	502.5	16.0	32	397	0	0	32	49	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	Stanbro	Well No.
Rantoul Energy Corporation	PERU SAND		RET-2
Depth Interval, Feet	337.0 - 351.4		
Feet of Core Analyzed	8.7		
Average Percent Porosity	18.2		
Average Percent Original Oil Saturation	29.5		
Average Percent Oil Recovery	4.4		
Average Percent Residual Oil Saturation	25.1		
Average Percent Residual Water Saturation	68.7		
Average Percent Total Residual Fluid Saturation	93.8		
Average Original Oil Content, Bbls./A. Ft.	407.		
Average Oil Recovery, Bbls./A. Ft.	58.		
Average Residual Oil Content, Bbls./A. Ft.	349.		
Total Original Oil Content, Bbls./Acre	3542.		
Total Oil Recovery, Bbls./Acre	507.		
Total Residual Oil Content, Bbls./Acre	3035.		
Average Effective Permeability, Millidarcys	2.96		
Average Initial Fluid Production Pressure, p.s.i.	29.4		

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