



OILFIELD RESEARCH LABORATORIES

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February 17, 1981

Rantoul Energy Corporation
Box 516
Hutchinson, Kansas 67501

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the Caylor "B" Lease, Well No. 30-A, located in Franklin County, Kansas and submitted to our laboratory on December 15, 1980.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/kas

5 c to Hutchinson, Kansas

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The 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>
465.0 - 465.1	Light brown slightly calcareous sandstone.
465.1 - 473.5	Light brown and gray laminated sandstone and shale.
479.0 - 479.9	Hard gray limestone.
479.9 - 482.2	Light brown sandstone.
482.2 - 484.2	Light brown slightly shaly sandstone.
484.2 - 485.9	Light brown sandstone.
485.9 - 491.8	Brown and gray laminated sandstone and shale.
491.8 - 497.2	Grayish brown shaly sandstone.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 173 barrels of oil per acre was obtained from 3.7 feet of sand. The weighted average percent oil saturation was reduced from 33.5 to 30.7, or represents an average recovery of 2.8 percent. The weighted average effective permeability of the samples is 7.35 millidarcys, while the average initial fluid production pressure is 27.5 pounds per square inch (See Table V).

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By observing the data given in Table IV, you will note that of the 25 samples tested, 4 produced water and oil, and 5 samples produced water only. This indicates that approximately 16 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 1,120 barrels of oil per acre. This is an average recovery of 302 barrels per acre foot from 3.7 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	30.0
Average porosity, percent	21.3
Oil saturation after flooding, percent	30.7
Performance factor, percent, estimated	50.0
Net floodable sand, feet	3.7

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

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	465.6	18.5	29	47	76	416	30.	1.1	1.1	458	33.00
2	466.5	14.6	30	65	95	340	2.6	1.0	2.1	340	2.60
3	467.7	12.4	30	67	97	289	Imp.	1.4	3.5	405	0.00
4	469.5	9.0	15	80	95	105	Imp.	1.6	5.1	168	0.00
5	470.5	11.9	26	70	96	240	Imp.	1.0	6.1	240	0.00
6	471.5	6.4	12	81	93	60	Imp.	1.0	7.1	60	0.00
7	472.7	14.8	13	80	93	149	Imp.	1.0	8.1	149	0.00
8	473.4	17.7	21	61	82	288	Imp.	1.0	9.1	288	0.00
9	480.5	21.1	29	49	78	475	26.	0.4	9.5	190	10.40
10	481.5	19.0	29	48	77	428	14.	1.0	10.5	428	14.00
11	482.5	20.0	23	19	42	357	9.4	1.3	11.8	464	12.22
12	483.5	21.2	33	38	71	543	6.8	1.0	12.8	543	6.80
13	484.4	21.3	43	32	75	711	15.	1.0	13.8	711	15.00
14	485.5	18.7	29	48	77	421	42.	1.0	14.8	421	42.00
15	486.5	21.7	33	30	63	556	38.	0.7	15.5	389	26.60
16	487.5	12.0	22	72	95	205	47.	1.0	16.5	205	47.00
17	488.5	23.8	29	29	58	536	2.0	1.0	17.5	536	2.00
18	489.6	14.5	29	58	87	326	4.7	1.0	18.5	326	4.70
19	490.5	13.7	30	64	94	319	2.0	1.0	19.5	319	2.00
20	491.5	13.3	25	67	92	258	5.8	1.0	20.5	258	5.80
21	492.5	15.8	33	50	83	405	Imp.	0.9	21.4	365	0.00
22	493.3	14.0	28	67	95	304	1.6	1.0	22.4	304	1.60
23	494.5	15.0	29	60	89	338	Imp.	1.0	23.4	338	0.00
24	495.5	13.9	34	63	97	367	Imp.	1.0	24.4	367	0.00
25	496.5	14.1	18	80	98	197	Imp.	1.0	25.4	197	0.00

Company Rantoul Energy Corporation

Lease

Caylor "B"

Well No.

30-A

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company <u>Rantoul Energy Corporation</u>		Lease <u>Caylor "B"</u>		Well No. <u>30-A</u>	
Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.		
465.0 - 483.2	5.8	13.6	79.02		
483.2 - 497.2	8.7	16.4	146.70		
465.0 - 497.2	14.5	15.6	225.72		

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
465.0 - 483.2	12.8	15.0	23.7	75.1	292	3,733
483.2 - 497.2	12.6	16.2	29.3	56.0	376	4,736
465.0 - 497.2	25.4	15.6	26.5	65.6	333	8,469

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Well No. 30-A

Lease Caylor "B"

Rantoul Energy Corporation

Company

Sample No.	Depth, Feet	Effective Porosity Percent		Original Oil Saturation		Oil Recovery		Residual Saturation		Volume of Water Recovered cc ^a	Effective Permeability Millidarcys**	Initial Fluid Production Pressure Lbs./Sq./In.
		%	Bbls./A. Ft.	%	Bbls./A. Ft.	%	Bbls./A. Ft.	% Oil	% Water			
1	465.6	18.9	411	28	0	0	0	28	49	0	Imp.	-
2	466.5	14.7	342	30	0	0	0	30	66	18	0.54	40
3	467.7	12.0	289	31	0	0	0	31	66	0	Imp.	-
4	469.5	9.2	100	14	0	0	0	14	81	0	Imp.	-
5	470.5	11.9	240	26	0	0	0	26	70	0	Imp.	-
6	471.5	6.9	59	11	0	0	0	11	82	0	Imp.	-
7	472.7	14.7	148	13	0	0	0	13	81	0	Imp.	-
8	473.4	17.3	295	22	0	0	0	22	63	0	Imp.	-
9	480.5	21.2	477	29	0	0	0	29	60	96	1.29	20
10	481.5	19.0	427	29	0	0	0	29	50	80	1.43	25
11	482.5	19.7	352	23	0	0	0	23	59	146	2.72	20
12	483.5	20.8	549	34	0	0	0	34	40	0	Imp.	-
13	484.4	21.4	714	43	5	83	83	38	43	38	0.72	30
14	485.5	18.6	418	29	2	29	29	27	60	264	18.38	15
15	486.5	21.7	556	33	2	34	34	31	64	16	0.48	45
16	487.5	12.1	207	22	0	0	0	22	72	314	9.55	15
17	488.5	23.7	533	29	2	37	37	27	50	376	7.74	20
18	489.6	14.4	324	29	0	0	0	29	60	0	Imp.	-
19	490.5	14.1	317	29	0	0	0	29	65	0	Imp.	-
20	491.5	13.3	258	25	0	0	0	25	67	0	Imp.	-
21	492.5	15.4	406	34	0	0	0	34	52	0	Imp.	-
22	493.3	14.1	306	28	0	0	0	28	67	0	Imp.	-
23	494.5	14.8	333	29	0	0	0	29	61	0	Imp.	-
24	495.5	14.4	369	33	0	0	0	33	64	0	Imp.	-
25	496.5	14.0	196	18	0	0	0	18	80	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	Caylor "B"	Well No.	30-A
Depth Interval, Feet	483.2 - 497.2				
Feet of Core Analyzed	3.7				
Average Percent Porosity	21.3				
Average Percent Original Oil Saturation	33.5				
Average Percent Oil Recovery	2.8				
Average Percent Residual Oil Saturation	30.7				
Average Percent Residual Water Saturation	53.0				
Average Percent Total Residual Fluid Saturation	83.7				
Average Original Oil Content, Bbls./A. Ft.	855.				
Average Oil Recovery, Bbls./A. Ft.	47.				
Average Residual Oil Content, Bbls./A. Ft.	508.				
Total Original Oil Content, Bbls./Acre	2,054.				
Total Oil Recovery, Bbls./Acre	173.				
Total Residual Oil Content, Bbls./Acre	1,881.				
Average Effective Permeability, Millidarcys	7.35				
Average Initial Fluid Production Pressure, p.s.i.	27.5				

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