

OILFIELD RESEARCH LABORATORIES

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June 20, 1980

Rantoul Energy Corporation
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Hutchinson, Kansas 67501

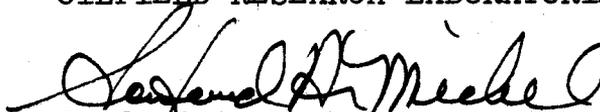
Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the Jackman Lease, Well No. 13, Franklin County, Kansas, and submitted to our laboratory on May 8, 1980.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES



Sanford A. Michel

SAM/kas
5 c to Hutchinson, Kansas

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company Rantoul Energy Corporation Lease Jackman Well No. 13

Location ---

Section 7 Twp 18S Rge 21E County Franklin State Kansas

Elevation, Feet	-	
Name of Sand		Squirrel
Top of Core		634.0
Bottom of Core		640.8
Top of Sand		634.0
Bottom of Sand	(Tested)	642.0
Total Feet of Permeable Sand	(Tested)	7.0
Total Feet of Floodable Sand	(Tested)	2.2

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 5	3.4	3.4
10 - 20	1.8	5.2
20 - 30	0.8	6.0
30 - 40	1.0	7.0

Average Permeability Millidarcys	-	12.2
Average Percent Porosity		19.4
Average Percent Oil Saturation		48.0
Average Percent Water Saturation		40.4
Average Oil Content, Bbls./A. Ft.		741.
Total Oil Content, Bbls./Acre		5,926.
Average Percent Oil Recovery by Laboratory Flooding Tests		7.7
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.		110.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre		243.
Total Calculated Oil Recovery, Bbls./Acre		See "Calculated Recovery" Section

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The core was sampled in the laboratory after being delivered by the client. Fresh water mud was used as a drilling fluid. The core was reported to be from a semi-virgin area.

FORMATION CORED

The detailed log of the formation cored is as follows:

<u>Depth Interval, Feet</u>	<u>Description</u>
634.0 - 636.2	Brown shaly sandstone.
636.2 - 639.1	Brown sandstone.
639.1 - 639.8	Black carbonaceous sandstone.
639.8 - 642.8	Black carbonaceous shaly sandstone.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 243 barrels of oil per acre was obtained from 2.2 feet of sand. The weighted average percent oil saturation was reduced from 44.6 to 36.9, or represents an average recovery of 7.7 percent. The weighted average effective permeability of the samples is 0.73 millidarcys, while the average initial fluid production pressure is 35 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 8 samples tested, 2 produced water and oil,

and 1 sample produced water only. This indicates that approximately 25 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 560 barrels of oil per acre. This is an average recovery of 253 barrels per acre foot from 2.2 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	19.5
Oil saturation after flooding, percent	36.9
Performance factor, percent, estimated	55.0
Net floodable sand, feet	2.2

RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Rantoul Energy Corporation Lease Jackman Well No. 13

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	634.4	15.3	28	69	97	332	2.2	1.0	1.0	332	2.20
2	635.5	22.0	36	43	79	614	1.5	1.2	2.2	737	1.80
3	636.4	14.8	32	66	98	367	25.	0.8	3.0	294	20.00
4	637.5	16.0	56	39	95	695	33.	1.0	4.0	695	33.00
5	638.5	24.1	60	19	79	1122	13.	1.1	5.1	1234	14.30
6	639.3	16.5	55	41	96	704	14.	0.7	5.8	493	9.80
7	640.5	20.2	54	31	85	846	3.8	1.2	7.0	1015	4.56
8	641.4	23.4	62	24	86	1126	Imp.	1.0	8.0	1126	0.00

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company	Lease	Well No.	
Rantoul Energy Corporation	Jackman	13	
Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
634.0 - 642.0	7.0	12.2	85.66
Depth Interval, Feet	Average Percent Porosity	Average Percent Water Saturation	Average Oil Content Bbl./A. Ft.
634.0 - 642.0	19.4	48.0	74.1
			Total Oil Content Bbls./Acre
			5,926

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Well No. 13

Lease Jackman

Company Rantoul Energy Corporation

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.
			%	Bbbls./A. Ft.	%	Bbbls./A. Ft.	% Oil	% Water			
1	634.4	15.7	27	329	0	0	27	70	329	Imp.	-
2	635.5	21.9	36	612	5	85	31	67	527	0.90	30
3	636.4	15.0	32	372	0	0	32	63	372	Imp.	-
4	637.5	16.5	55	704	11	141	44	54	563	0.52	40
5	638.5	24.0	61	1136	0	0	61	20	1136	Imp.	-
6	639.3	16.9	54	708	0	0	54	42	708	0.15	50
7	640.5	20.0	54	838	0	0	54	33	838	Imp.	-
8	641.4	23.0	63	1124	0	0	63	26	1124	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

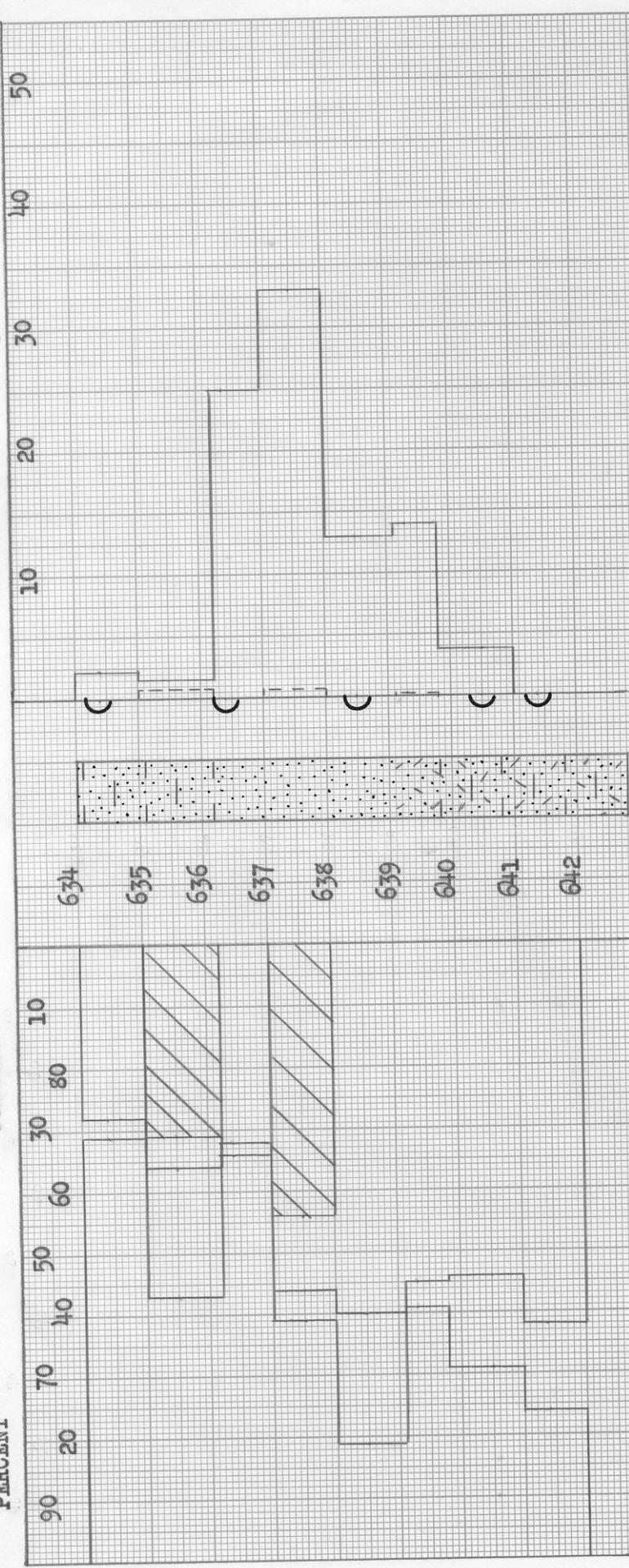
TABLE V

Company	Rantoul Energy Corporation	Lease	Jackman	Well No.	13
Depth Interval, Feet	634.0 - 642.0				
Feet of Core Analyzed	2.2				
Average Percent Porosity	19.5				
Average Percent Original Oil Saturation	44.6				
Average Percent Oil Recovery	7.7				
Average Percent Residual Oil Saturation	36.9				
Average Percent Residual Water Saturation	61.1				
Average Percent Total Residual Fluid Saturation	98.0				
Average Original Oil Content, Bbls./A. Ft.	653.				
Average Oil Recovery, Bbls./A. Ft.	110.				
Average Residual O. Content, Bbls./A. Ft.	543.				
Total Original Oil Content, Bbls./Acre	1,438.				
Total Oil Recovery, Bbls./Acre	243.				
Total Residual Oil Content, Bbls./Acre	1,195.				
Average Effective Permeability, Millidarcys	0.73				
Average Initial Fluid Production Pressure, p.s.i.	35.0				

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

PERMEABILITY, IN MILLIDARCS
EFFECTIVE PERMEABILITY TO WATER, IN MILLIDARCS

WATER SAT., PERCENT
OIL SAT., PERCENT



KEY:

-  SHALY SANDSTONE
-  SANDSTONE
-  CARBONACEOUS SANDSTONE
-  CARBONACEOUS SHALY SANDSTONE
-  FLOODPOT RESIDUAL OIL SATURATION
-  CARBONACEOUS SHALY SANDSTONE CONTAINING A VERTICAL FRACTURE
-  IMPERMEABLE TO WATER

RANTOUL ENERGY CORP.

JACKMAN LEASE

WELL NO. 13

FRANKLIN COUNTY, KANSAS

DEPTH INTERVAL, FEET	FEET OF CORE ANALYZED	AVERAGE PERCENT POROSITY	AVG. OIL SATURATION PERCENT	AVG. WATER SATURATION PERCENT	AVERAGE PERMEABILITY MILLIDARCS	CALCULATED OIL RECOVERY BBLs./ACRE
634.0 - 642.0	8.0	19.4	48.0	40.4	12.2	560 (PRIMARY & WATERFLOODING)

OILFIELD RESEARCH LABORATORIES
CHANUTE, KANSAS
JUNE, 1980
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