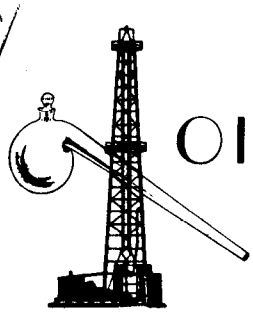

OILFIELD RESEARCH LABORATORIES

536 NORTH HIGHLAND - CHANUTE, KANSAS 66720 - PHONE (316) 431-2650

September 29, 1980

James E. Russell Petroleum, Inc.
P. O. Box 2618
Abilene, Texas 79604

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the North Hyde Lease, Well No. O-1, Anderson County, Kansas and submitted to our laboratory on June 23, 1980.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/ks

3 c to Abilene, Texas
2 c to Chanute, Kansas

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company James E. Russell Petroleum, Inc. Lease North Hyde Well No. O-1

Location 1540' SNL & 2420' EWL - SW¼

Section 22 Twp. 22S Rge. 19E County Anderson State Kansas

Elevation, Feet - Datum: Mean Sea Level (G.L.)	1105.7
Name of Sand	Squirrel
Top of Core	804.0
Bottom of Core	813.0
Top of Sand	804.0
Bottom of Sand	813.0
Total Feet of Permeable Sand	8.0
Total Feet of Floodable Sand	5.3

Distribution of Permeable Sand:

Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 1	2.7	2.7
40 - 80	2.2	4.9
80 - 90	0.8	5.7
110 - 130	2.3	8.0

Average Permeability Millidarcys	58.9
Average Percent Porosity	18.8
Average Percent Oil Saturation	41.1
Average Percent Water Saturation	37.4
Average Oil Content, Bbls./A. Ft.	609.
Total Oil Content, Bbls./Acre	5484.
Average Percent Oil Recovery by Laboratory Flooding Tests	8.4
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	134.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	708.
Total Calculated Oil Recovery, Bbls./Acre	See "Calculated Recovery" Section

The core was sampled by a representative of Oilfield Research Laboratories. Fresh water mud was used as a drilling fluid. The core was from a non-virgin area.

FORMATION CORED

The detailed log of the formation cored is as follows:

Depth Interval, Feet	Description
804.0 - 804.7	Sandstone, brown shaly. First oil show.
804.7 - 807.8	Sandstone, dark brown.
807.8 - 810.0	Sandstone, brown.
810.0 - 813.0	Sandstone, grayish brown, very shaly.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 708 barrels of oil per acre was obtained from 5.3 feet of sand. The weighted average percent oil saturation was reduced from 40.9 to 32.5, or represents an average recovery of 8.4 percent. The weighted average effective permeability of the samples is 12.88 millidarcys, while the average initial fluid production pressure is 13.0 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 9 samples tested, 5 produced water and oil, and 1 sample produced water only. This indicates that approximately 56 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 1790 barrels of oil per acre. This is an average recovery of 337 barrels per acre foot from 5.3 feet of floodable sand analyzed in this core.

These recovery values were calculated using the following data and assumptions:

Original formation volume factor, estimated	1.05
Reservoir water saturation, percent, estimated	25.0
Average porosity, percent	20.3
Oil saturation after flooding, percent	32.5
Performance factor, percent, estimated	55.0
Net floodable sand, feet	5.3

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company James E. Russell Petroleum, Inc. Lease North Hyde Well No. O-1

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	804.5	19.0	48	26	74	708	0.29	0.7	0.7	496	0.20
2	805.5	21.1	48	30	78	786	123.	1.3	2.0	1022	159.90
3	806.5	20.1	41	39	80	639	118.	1.0	3.0	639	118.00
4	807.5	19.2	39	39	78	581	82.	0.8	3.8	465	65.60
5	808.5	19.8	35	46	81	538	43.	1.2	5.0	592	47.30
6	809.5	21.5	40	32	72	667	79.	1.0	6.0	667	79.00
7	810.5	15.7	35	50	85	426	0.88	1.0	7.0	426	0.88
8	811.6	15.5	40	47	87	481	0.50	1.0	8.0	481	0.50
9	812.5	18.7	48	30	78	696	Imp.	1.0	9.0	696	0.00

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company James E. Russell Petroleum, Inc. Lease North Hyde Well No. O-1

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
804.0 - 810.0	6.0	78.3	470.0
810.0 - 813.0	2.0	0.69	1.38
804.0 - 813.0	8.0	58.9	471.38

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
804.0 - 810.0	6.0	19.9	41.1	35.0	647	3,881
810.0 - 813.0	3.0	16.6	41.0	42.3	534	1,603
804.0 - 813.0	9.0	18.8	41.1	37.4	609	5,484

Oilfield Research Laboratories

RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company James E. Russell Petroleum, Inc. Lease North Hyde Well No. O-1

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	804.5	19.1	48	711	0	0	48	46	711	9	0.15	30
2	805.5	20.8	48	775	16	258	32	62	517	363	24.98	10
3	806.5	20.3	41	646	10	157	31	66	489	195	16.49	10
4	807.5	19.5	39	590	8	121	31	67	469	298	13.92	10
5	808.5	19.6	35	532	2	30	33	65	502	139	1.80	20
6	809.5	21.4	40	664	5	83	35	59	581	432	6.00	15
7	810.5	15.6	35	424	0	0	35	52	424	0	Imp.	-
8	811.6	15.5	40	481	0	0	40	47	481	0	Imp.	-
9	812.5	18.4	49	699	0	0	49	33	699	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.

Oilfield Research Laboratories

SUMMARY OF LABORATORY FLOODING TESTS

TABLE V

Company James E. Russell Petroleum, Inc. Lease North Hyde Well No. O-1

Depth Interval, Feet	804.0 - 810.0
Feet of Core Analyzed	5.3
Average Percent Porosity	20.3
Average Percent Original Oil Saturation	40.9
Average Percent Oil Recovery	8.4
Average Percent Residual Oil Saturation	32.5
Average Percent Residual Water Saturation	63.6
Average Percent Total Residual Fluid Saturation	96.1
Average Original Oil Content, Bbls./A. Ft.	647.
Average Oil Recovery, Bbls./A. Ft.	134.
Average Residual Oil Content, Bbls./A. Ft.	513.
Total Original Oil Content, Bbls./Acre	3428.
Total Oil Recovery, Bbls./Acre	708.
Total Residual Oil Content, Bbls./Acre	2720.
Average Effective Permeability, Millidarcys	12.88
Average Initial Fluid Production Pressure, p.s.i.	13.0

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