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

June 18, 1981

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 Unit 2 - H. V. Scully Lease, Well No. R-28, located in Anderson County, Kansas and submitted to our laboratory on June 10, 1981.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/kas

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

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company James E. Russell Petroleum, Inc. Lease Unit 2 H. V. Scully Well No. R-28

Location 1620' SNL & 2290' EWL SE¼

Section 29 Twp. 22S Rge. 19E County Anderson State Kansas

Elevation, Feet	Datum: Mean Sea Level (Ground Level)	1085.1
Name of Sand		Squirrel
Top of Core		800.0
Bottom of Core		817.7
Top of Sand	(Tested)	802.1
Bottom of Sand	(Tested)	808.7
Total Feet of Permeable Sand		5.6
Total Feet of Floodable Sand		1.6

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
1 - 5	2.6	2.6
6 - 10	3.0	5.6

Average Permeability Millidarcys	5.2
Average Percent Porosity	15.7
Average Percent Oil Saturation	42.6
Average Percent Water Saturation	36.9
Average Oil Content, Bbls./A. Ft.	522.
Total Oil Content, Bbls./Acre	3,442.
Average Percent Oil Recovery by Laboratory Flooding Tests	5.0
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	64.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	102.
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
800.0 - 800.3	Sandstone, hard brown, calcareous.
800.3 - 801.2	Limestone, hard gray.
801.2 - 802.1	Sandstone, hard brown, calcareous.
802.1 - 802.9	Sandstone, brown, shaly.
802.9 - 805.1	Sandstone, brown, slightly shaly.
805.1 - 805.8	Sandstone, brown, shaly.
805.8 - 806.6	Sandstone, brown, slightly shaly.
806.6 - 809.9	Sandstone and shale, brown and gray laminated.
809.9 - 817.7	Shale, gray, sandy.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 102 barrels of oil per acre was obtained from 1.6 feet of sand. The weighted average percent oil saturation was reduced from 37.0 to 32.0, or represents an average recovery of 5.0 percent. The weighted average effective permeability of the samples is 0.68 millidarcys, while the average initial fluid production pressure is 40 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 7 samples tested, 2 produced water and oil. This indicates that approximately 29.0 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 310 barrels of oil per acre. This is an average recovery of 194 barrels per acre foot from 1.6 feet of floodable sand analyzed in this core.

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

Original formation volume factor, estimated	1.07
Reservoir water saturation, percent, estimated	30.0
Average porosity, percent	16.6
Oil saturation after flooding, percent	32.0
Performance factor, percent, estimated	45.0
Net floodable sand, feet	1.6

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company James E. Russell Petroleum, Inc. Lease Unit 2 - H. V. Scully Well No. R-28

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	802.3	15.7	35	41	76	426	4.8	0.8	0.8	341	3.84
2	803.6	19.4	48	29	77	722	6.1	1.1	1.9	794	6.71
3	804.5	17.4	36	31	67	486	7.1	1.1	3.0	535	7.81
4	805.5	16.5	60	36	96	768	2.2	0.7	3.7	538	1.54
5	806.5	17.4	39	31	70	527	8.0	0.8	4.5	422	6.40
6	807.6	14.2	44	45	89	485	2.4	1.1	5.6	534	2.64
7	808.4	9.2	39	45	84	278	Imp.	1.0	6.6	278	0.00

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company James E. Russell Petroleum, Inc. Lease Unit 2 - H. V. Scully Well No. R-28

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
802.1 - 808.7	5.6	5.2	28.94

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
802.1 - 808.7	6.6	15.7	42.6	36.9	522	3,442

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company James E. Russell Petroleum, Inc. Lease Unit 2 - H. V. Scully Well No. R-28

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	802.3	15.8	35	429	7	86	28	53	343	64	1.35	30
2	803.6	19.5	48	726	0	0	48	30	726	0	Imp.	-
3	804.5	17.5	36	489	0	0	36	32	489	0	Imp.	-
4	805.5	16.6	60	773	0	0	60	36	773	0	Imp.	-
5	806.5	17.5	39	529	3	41	36	58	488	4	0.01	50
6	807.6	14.5	43	484	0	0	43	47	484	0	Imp.	-
7	808.4	9.3	39	281	0	0	39	46	281	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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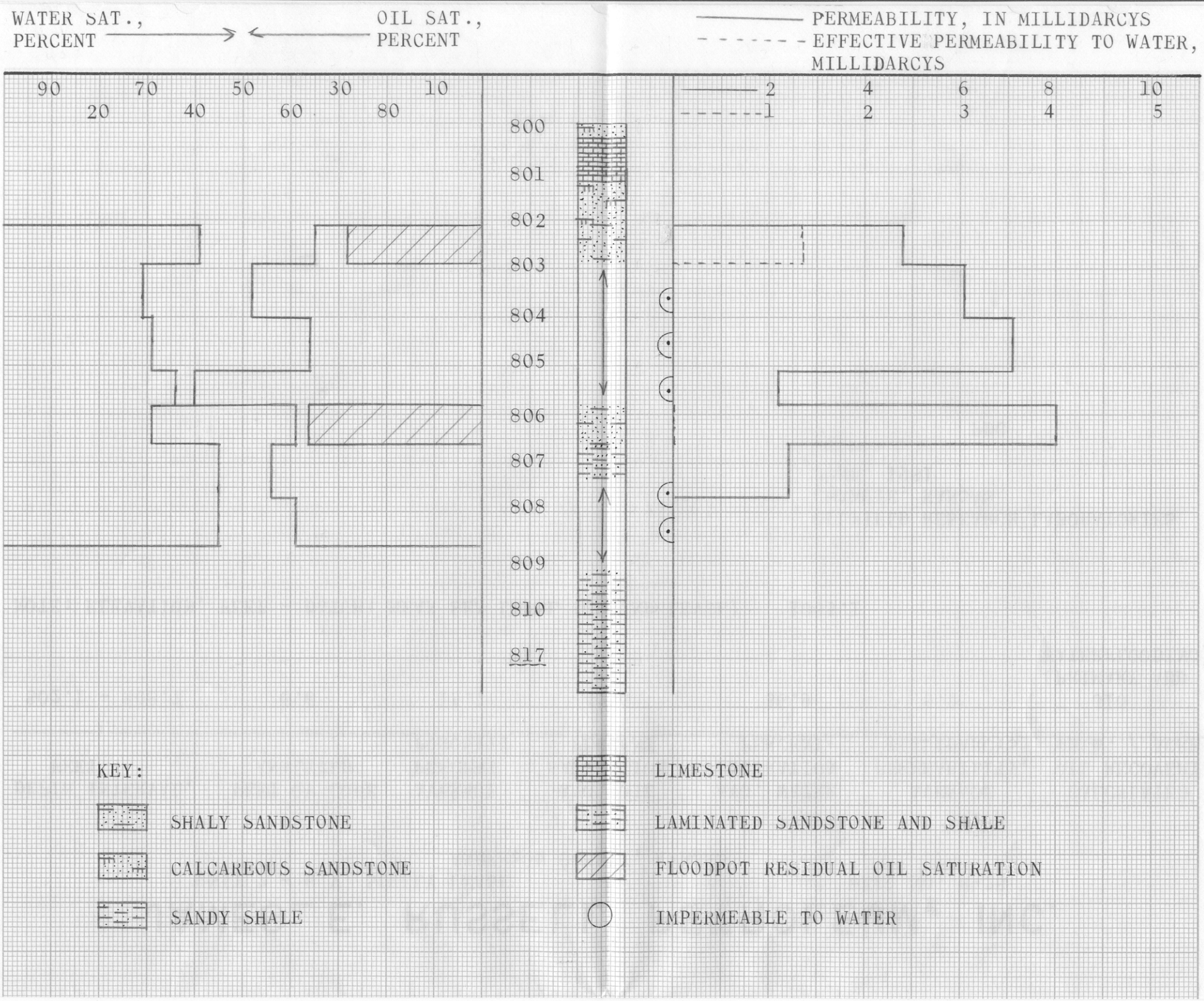
SUMMARY OF LABORATORY FLOODING TESTS

TABLE V

Company James E. Russell Petroleum, Inc. Lease Unit 2 - H. V. Scully Well No. R-28

Depth Interval, Feet	802.1 - 808.7
Feet of Core Analyzed	1.6
Average Percent Porosity	16.6
Average Percent Original Oil Saturation	37.0
Average Percent Oil Recovery	5.0
Average Percent Residual Oil Saturation	32.0
Average Percent Residual Water Saturation	55.5
Average Percent Total Residual Fluid Saturation	87.5
Average Original Oil Content, Bbls./A. Ft.	479.
Average Oil Recovery, Bbls./A. Ft.	64.
Average Residual Oil Content, Bbls./A. Ft.	415.
Total Original Oil Content, Bbls./Acre	766.
Total Oil Recovery, Bbls./Acre	102.
Total Residual Oil Content, Bbls./Acre	664.
Average Effective Permeability, Millidarcys	0.68
Average Initial Fluid Production Pressure, p.s.i.	40.0

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


WATER SAT., PERCENT
OIL SAT., PERCENT
90 70 50 30 10
20 40 60 80
PERMEABILITY, IN MILLIDARCYS
EFFECTIVE PERMEABILITY TO WATER, IN MILLIDARCYS
2 4 6 8 10
1 2 3 4 5
800
801
802
803
804
805
806
807
808
809
810
817
KEY:
SHALY SANDSTONE
CALCAREOUS SANDSTONE
SANDY SHALE
LIMESTONE
LAMINATED SANDSTONE AND SHALE
FLOODPOT RESIDUAL OIL SATURATION
IMPERMEABLE TO WATER

JAMES E. RUSSELL PETROLEUM, INC.

UNIT 2 - H.V. SCULLY LEASE WELL NO. R-28

ANDERSON COUNTY, KANSAS

DEPTH INTERVAL, FEET	FEET OF CORE ANALYZED	AVERAGE PERCENT POROSITY	AVG. OIL SATURATION PERCENT	AVG. WATER SATURATION PERCENT	AVERAGE PERMEABILITY, MILLIDARCYS	CALCULATED OIL RECOVERY BBLS. / ACRE
802.1 - 808.7	6.6	15.7	42.6	36.9	5.2	310 (PRIMARY AND WATERFLOODING)

NOTE: ELEVATION, FEET - DATUM: MEAN SEA LEVEL (GROUND LEVEL) 1085.1

OILFIELD RESEARCH LABORATORIES
CHANUTE, KANSAS
JUNE, 1981

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