

OILFIELD RESEARCH LABORATORIES

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

September 24, 1981

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

Gentlemen:

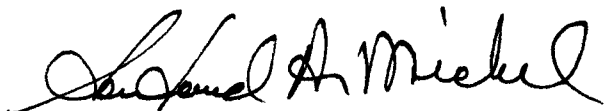
Enclosed herewith is the report of the analysis of the rotary core taken from the Burke Lease, Well No. 0-8, located in Anderson County, Kansas and submitted to our laboratory on September 12, 1981.

The core was dropped out of the core barrel and reassembled. Therefore, the depths shown for the individual samples may be in question.

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 Burke Well No. 0-8
 Location 910' EWL & 660' SNL NW $\frac{1}{4}$
 Section 26 Twp. 22S Rge. 19E County Anderson State Kansas

Elevation, Feet Datum: Mean Sea Level (Ground Level) 1100.7

Name of Sand.....	Squirrel
Top of Core	792.0
Bottom of Core	805.0
Top of Sand	792.0
Bottom of Sand	(Tested) 798.9
Total Feet of Permeable Sand	6.5
Total Feet of Floodable Sand	1.0

Distribution of Permeable Sand:
Permeability Range
Millidarcys

Feet

Cum. Ft.

0 - 4	4.5	4.5
18 - 20	2.0	6.5

Average Permeability Millidarcys	6.7
Average Percent Porosity	17.1
Average Percent Oil Saturation	39.8
Average Percent Water Saturation.....	39.2
Average Oil Content, Bbls./A. Ft.	528.
Total Oil Content, Bbls./Acre.....	3,430.
Average Percent Oil Recovery by Laboratory Flooding Tests.....	9.0
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	132.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	132.
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 reported to be from a non-virgin area.

FORMATION CORED

The detailed log of the formation cored is as follows:

<u>Depth Interval, Feet</u>	<u>Description</u>
792.0 - 793.0	Sandstone, brown.
793.0 - 794.5	Sandstone, shaly grayish light brown.
794.5 - 794.9	Shale, gray.
794.9 - 796.9	Sandstone and shale, alternate layers.
796.9 - 800.0	Sandstone, shaly, light brown grayish.
800.0 - 800.8	Sandstone, shaly, grayish light brown.
800.8 - 801.8	Shale, gray.
801.8 - 802.1	Sandstone, shaly, grayish light brown.
802.1 - 804.0	Shale, gray.

The core was dropped out of the core barrel and reassembled. Therefore, the depths shown for the individual samples may be in question.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 132 barrels of oil per acre was obtained from 1.0 foot of sand. The weighted average percent oil saturation was reduced from 40.0 to 31.0, or represents an average recovery of 9.0 percent. The weighted average effective permeability of the samples is 0.50 millidarcys, while the average initial fluid production pressure is 30.0 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 6 samples tested, 1 produced water and oil. This indicates that approximately 17 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 330 barrels of oil per acre. This is an average recovery of 330 barrels per acre foot from 1.0 foot 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	18.9
Oil saturation after flooding, percent	31.0
Performance factor, percent, estimated	55.0
Net floodable sand, feet	1.0

RESULTS OF SATURATION & PERMEABILITY TESTS

James E. Russell Petroleum, Inc. Burke Well No. 0 - 8

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	792.5	18.8	40	23	63	583	18.	1.0	1.0	583	18.00
2	793.5	15.9	42	39	81	518	0.26	1.5	2.5	777	0.39
3	795.5	21.3	37	44	81	611	19.	1.0	3.5	611	19.00
4	796.6	16.4	44	46	90	560	1.5	1.0	4.5	560	1.50
5	797.5	15.2	45	38	83	531	0.96	1.0	5.5	531	0.96
6	798.5	15.8	30	45	75	368	3.5	1.0	6.5	368	3.50
The core was dropped out of the core barrel and reassembled. Therefore, the depths shown for the individual samples may be in question.											

SUMMARY OF PERMEABILITY & SATURATION TESTS

Well No. 0 - 8

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Oilfield Research Laboratories

RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company James E. Russell Petroleum, Inc. Lease Burke Well No. 0 - 8												
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.	%	Bbls./A. Ft.	% Oil			
1	792.5	18.9	40	587	9	132	31	37	455	16	0.50	30
2	793.5	16.0	42	521	0	0	42	40	521	0	Imp.	-
3	795.5	21.2	37	609	0	0	37	45	609	0	Imp.	-
4	796.6	16.3	44	556	0	0	44	47	556	0	Imp.	-
5	797.5	15.3	45	534	0	0	45	39	534	0	Imp.	-
6	798.5	15.4	31	370	0	0	31	45	370	0	Imp.	-
The core was dropped out of the core barrel and reassembled. Therefore, the depths shown for the individual samples may be in question.												

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

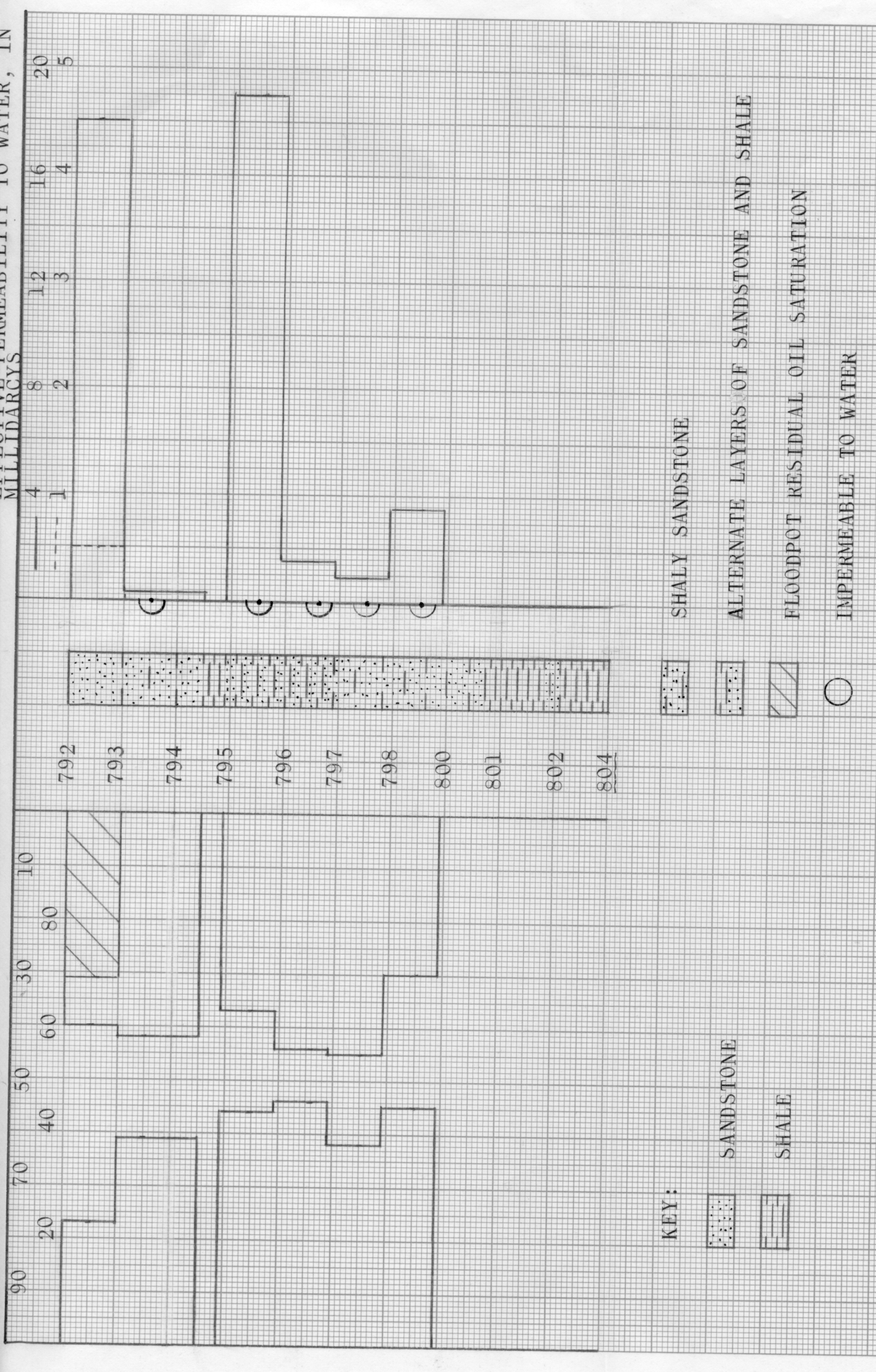
TABLE V

Company	James E. Russell Petroleum, Inc.	Lease	Burke	Well No.	0 - 8
Depth Interval, Feet	792.0 - 796.9				
Feet of Core Analyzed	1.0				
Average Percent Porosity	18.9				
Average Percent Original Oil Saturation	40.0				
Average Percent Oil Recovery	9.0				
Average Percent Residual Oil Saturation	31.0				
Average Percent Residual Water Saturation	37.0				
Average Percent Total Residual Fluid Saturation	68.0				
Average Original Oil Content, Bbls./A. Ft.	587.				
Average Oil Recovery, Bbls./A. Ft.	132.				
Average Residual Oil Content, Bbls./A. Ft.	455.				
Total Original Oil Content, Bbls./Acre	587.				
Total Oil Recovery, Bbls./Acre	132.				
Total Residual Oil Content, Bbls./Acre	455.				
Average Effective Permeability, Millidarcys	0.50				
Average Initial Fluid Production Pressure, p.s.i.	30.0				

The core was dropped out of the core barrel and reassembled. Therefore, the depths shown for the individual samples may be in question.

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

PERMEABILITY TO WATER, IN
MILLIDARCY



JAMES E. RUSSELL PETROLEUM, INC.

BURKE LEASE

WELL NO. 0-8

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
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792.0 - 796.9	6.5	17.1	39.8	39.2	6.7	330 (PRIMARY AND WATERFLOODING)
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ELEVATION, FEET - DATUM: MEAN SEA LEVEL (GROUND LEVEL) 1100.7

"THE CORE WAS DROPPED OUT OF THE CORE BARREL AND REASSEMBLED. THEREFORE, THE DEPTHS SHOWN FOR THE INDIVIDUAL SAMPLES MAY BE IN QUESTION."

OILFIELD RESEARCH LABORATORIES
CHANUTE, KANSAS
SEPTEMBER, 1981

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