15-001-26278

JAMES E. RUSSELL PETROLEUM, INC.

CORE ANALYSIS REPORT

NELSON LEASE WELL NO. RW-2

ALLEN COUNTY, KANSAS

21-26-21E Core Available

OILFIELD RESEARCH LABORATORIES

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

January 31, 1983

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 Nelson Lease, Well No. RW-2, located in Allen County, Kansas and submitted to our laboratory on January 22, 1983.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/rmc

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

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company James E. Russell Petroleum, Inc. Lease Nelson Well No. RW-2

Location 1500' EWL & 800' SNL, SW¼

Section 21 Twp. 26S Rge. 21E County Allen State Kansas

Elevation, Feet ..... Datum: Mean Sea Level (Ground Level)	1053.3
Name of Sand	Bartlesville
Top of Core	608.0
Bottom of Core	704.2
Top of Sand	646.2
Bottom of Sand (Tested)	657.0
Total Feet of Permeable Sand	5.2
Total Feet of Floodable Sand	3.8

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 4	1.4	1.4
20 - 51	3.1	4.5
75 - 77	0.7	5.2

Average Permeability Millidarcys	32.6
Average Percent Porosity	18.7
Average Percent Oil Saturation	54.1
Average Percent Water Saturation	41.8
Average Oil Content, Bbls./A. Ft.	802.
Total Oil Content, Bbls./Acre	4,171.
Average Percent Oil Recovery by Laboratory Flooding Tests	22.2
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	349.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	1,326.

The core was sampled by a representative of Oilfield Research Laboratories. Fresh water was used as a coring 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
608.0 - 608.2	Shale, gray.
608.2 - 609.1	Coal.
609.1 - 618.3	Shale, gray.
618.3 - 618.6	Coal.
618.6 - 634.0	Shale, gray.
634.0 - 636.3	Shale, fossiliferous, calcareous, gray.
636.3 - 637.6	Coal.
637.6 - 639.8	Shale, gray.
639.8 - 640.8	Coal.
640.8 - 646.2	Shale, gray.
646.2 - 647.3	Sandstone, very shaly, grayish brown with scattered coal partings.
647.3 - 651.0	Shale, gray.
651.0 - 651.2	Sandstone, shaly, brown.
651.2 - 651.5	Shale, gray.
651.5 - 651.7	Sandstone, shaly, gray.
651.7 - 652.3	Shale, gray.
652.3 - 652.9	Sandstone, dark brown.
652.9 - 653.5	Shale, gray.
653.5 - 656.0	Sandstone, brown.
656.0 - 656.3	Shale, gray.

Depth Interval, Feet	Description
656.3 - 657.0	Sandstone, brown.
657.0 - 659.0	Sandstone, brown, ground up.
659.0 - 667.0	Loss, no core received.
667.0 - 682.7	Shale, gray, ground up.
682.7 - 703.7	Shale, gray.
703.7 - 704.2	Coal.

PRIMARY RECOVERY

A detailed analysis of the core data would indicate that the pay sand section is from interval 652.3 feet to 657.0 feet. Assuming a seven percent (7%) primary recovery, a well in this area should produce approximately 80 barrels of oil per acre foot, or 300 barrels per acre from 3.8 feet of pay sand by primary methods. These recovery estimates assume a pressured, virgin reservoir.

Any oil previously produced from the area represented by this core must be deducted from the above estimates.

WATERFLOOD RECOVERY

The estimated additional oil recovery from a well in this vicinity by waterflood is approximately 245 barrels per acre foot or 930 barrels per acre. These recovery values are based on seven percent (7%) primary recovery, 3.8 feet of floodable sand within the pay section (interval 652.3 feet to 657.0 feet), and normal dispersed sweep efficiency of 60 percent.

Oil Recovery Barrels Stock Tank	PRIMARY AND SECONDARY		
	Solution Gas Energy	Increase By Waterflood	Total
Barrels per Acre Foot	80	245	325
Barrels per Acre	300	930	1230

The primary and waterflood recovery values were calculated using the following data and assumptions:

	Original	At Waterflood Conditions
Formation volume factor, estimated	1.05	1.02
Reservoir water saturation, percent, estimated	25.0	25.0
Average porosity, percent	20.6	20.6
Oil saturation after flooding, percent	-	37.6
Performance factor, percent, estimated	-	60.0
Net pay, feet	3.8	3.8

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 1,326 barrels of oil per acre was obtained from 3.8 feet of sand. The weighted average percent oil saturation was reduced from 59.8 to 37.6, or represents an average recovery of 22.2 percent. The weighted average effective permeability of the samples is 6.42 millidarcys, while the average initial fluid production pressure is 21.0 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 7 samples tested, 5 produced water and oil. This indicates that approximately 71 percent of the sand represented by these samples is floodable pay sand.

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company James E. Russell Petroleum, Inc. Lease Nelson Well No. RW-2

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	646.5	13.3	40	58	98	413	0.20	1.2	1.2	496	0.24
2	651.6	15.2	31	54	85	366	3.5	0.2	1.4	73	0.70
3	652.5	19.0	66	30	96	973	36.	0.6	2.0	584	21.60
4	653.7	19.4	67	28	95	1008	50.	0.5	2.5	504	25.00
5	654.5	21.0	59	37	96	961	47.	1.0	3.5	961	47.00
6	655.4	20.5	65	31	96	1034	22.	1.0	4.5	1034	22.00
7	656.6	22.2	43	53	96	741	76.	0.7	5.2	519	53.20

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company James E. Russell Petroleum, Inc. Lease Nelson Well No. RW-2

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
646.2 - 651.7	1.4	0.67	0.94
652.3 - 657.0	3.8	44.4	168.80
646.2 - 657.0	5.2	32.6	169.74

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
646.2 - 651.7	1.4	13.6	38.7	57.4	406	569
652.3 - 657.0	3.8	20.6	59.8	36.1	948	3,602
646.2 - 657.0	5.2	18.7	54.1	41.8	802	4,171

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company James E. Russell Petroleum, Inc. Lease Nelson Well No. RW-2

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	646.5	13.6	39	411	0	0	39	59	411	0	Imp.	-
2	651.6	14.7	32	365	0	0	32	55	365	0	Imp.	-
3	652.5	19.1	66	978	24	356	42	55	622	148	2.33	25
4	653.7	19.5	67	1014	29	439	38	60	575	414	7.80	20
5	654.5	20.8	59	952	23	371	36	61	581	530	9.45	20
6	655.4	20.5	65	1034	29	461	36	62	573	312	7.50	20
7	656.6	22.1	43	737	5	86	38	59	651	178	3.07	20

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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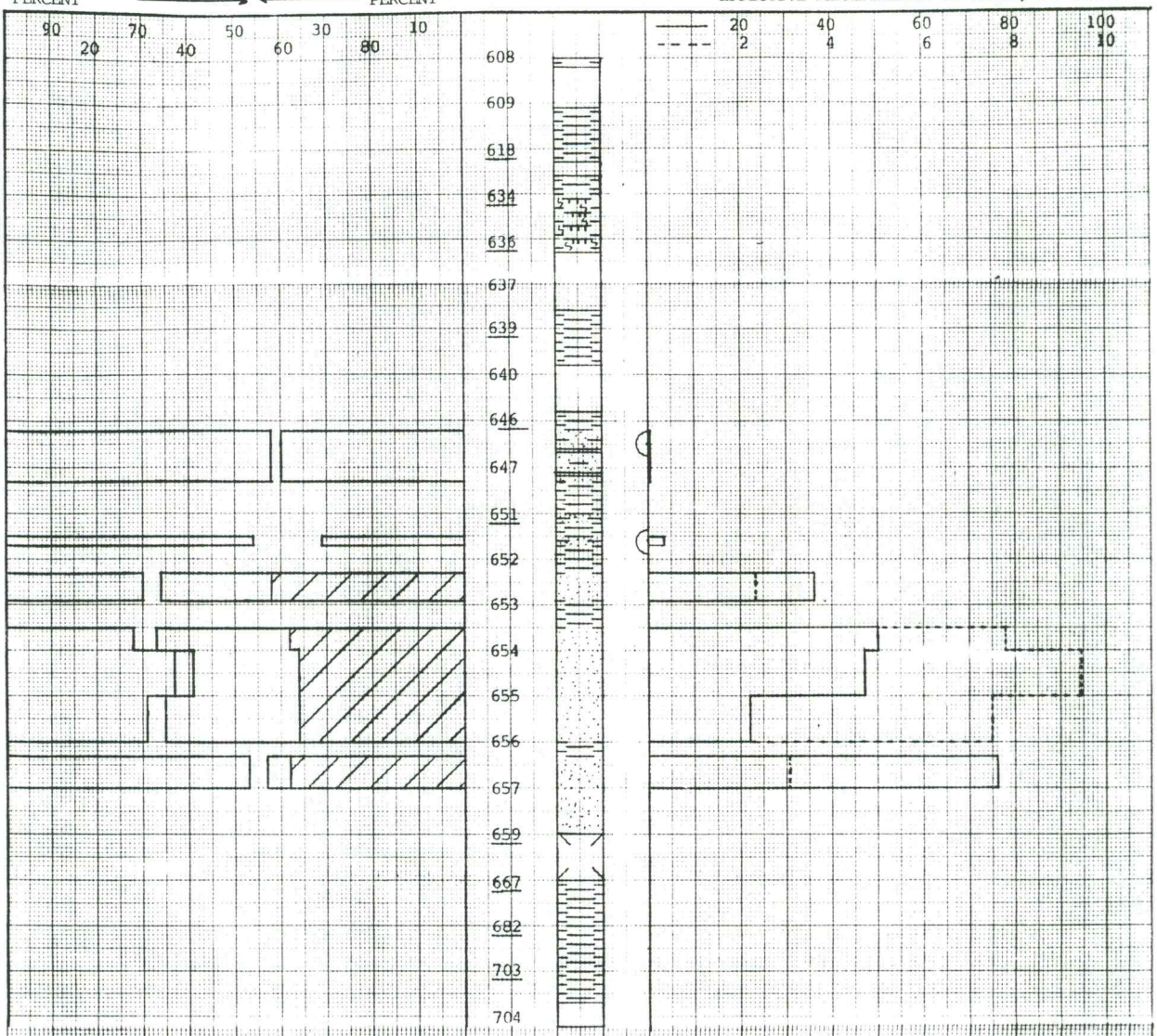
SUMMARY OF LABORATORY FLOODING TESTS

TABLE V

Company James E. Russell Petroleum, Inc. Lease Nelson Well No. RW-2

Depth Interval, Feet	652.3 - 657.0
Feet of Core Analyzed	3.8
Average Percent Porosity	20.6
Average Percent Original Oil Saturation	59.8
Average Percent Oil Recovery	22.2
Average Percent Residual Oil Saturation	37.6
Average Percent Residual Water Saturation	59.8
Average Percent Total Residual Fluid Saturation	97.4
Average Original Oil Content, Bbls./A. Ft.	947.
Average Oil Recovery, Bbls./A. Ft.	349.
Average Residual Oil Content, Bbls./A. Ft.	598.
Total Original Oil Content, Bbls./Acre	3,597.
Total Oil Recovery, Bbls./Acre	1,326.
Total Residual Oil Content, Bbls./Acre	2,271.
Average Effective Permeability, Millidarcys	6.42
Average Initial Fluid Production Pressure, p.s.i.	21.0

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



JAMES E. RUSSELL PETROLEUM, INC.

NELSON LEASE WELL NO. RW-2

ALLEN 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
646.2 - 651.7	1.4	13.6	38.7	57.4	0.67	
652.3 - 657.0	3.8	20.6	59.8	36.1	44.4	
646.2 - 657.0	5.2	18.7	54.1	41.8	32.6	PRIMARY 300 WATERFLOODING 930

NOTE: ELEVATION, FEET - DATUM: MEAN SEA LEVEL (GROUND LEVEL) 1053.3

OILFIELD RESEARCH LABORATORIES
CHANUTE, KANSAS
JANUARY, 1983 PDC