

OILFIELD RESEARCH LABORATORIES

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

March 19, 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 Minckley B, Section 3 Lease, Well No. W-13, located in Anderson County, Kansas and submitted to our laboratory on February 13, 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 Minckley B, Sec. 3 Well No. W-13
 Location 1760' SNL & 50' EWL SE $\frac{1}{4}$
 Section 3 Twp. 23S Rge. 19E County Anderson State Kansas

Elevation, Feet Datum: Mean Sea Level (Ground Level) 1066.4
 Name of Sand Squirrel
 Top of Core 703.0
 Bottom of Core 722.4
 Top of Sand 703.0
 Bottom of Sand 711.6
 Total Feet of Permeable Sand 6.9
 Total Feet of Floodable Sand 0.

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 4	3.2	3.2
4 - 6	2.0	5.2
6 & Above	1.7	6.9

Average Permeability Millidarcys 4.3
 Average Percent Porosity 14.7
 Average Percent Oil Saturation 43.5
 Average Percent Water Saturation 44.1
 Average Oil Content, Bbls./A. Ft. 498.
 Total Oil Content, Bbls./Acre 4,281.
 Average Percent Oil Recovery by Laboratory Flooding Tests 0.
 Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft. 0.
 Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre 0.
 Total Calculated Oil Recovery, Bbls./Acre 0.

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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.

Since the core did not respond to flooding susceptibility tests, no calculated recovery is given.

FORMATION CORED

The detailed log of the formation cored is as follows:

<u>Depth Interval, Feet</u>	<u>Description</u>
703.0 - 706.2	Sandstone, brown, shaly.
706.2 - 707.9	Sandstone, brown, slightly calcareous, shaly.
707.9 - 711.6	Sandstone and shale, brown and gray laminated.
711.6 - 722.4	Shale, gray, sandy.

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company James E. Russell Petroleum, Inc. Lease Minckley B, Sec. 3 Well No. W-13

Sample No.	Depth, Feet	Effective Porosity Percent	Percent Saturation			Oil Content Bbbs. / A Ft.	Perm., Mill.	Feet of Sand		Total Oil Content	Perm. Capacity Ft. X md.
			Oil	Water	Total			Ft.	Cum. Ft.		
1	703.5	14.7	37	55	92	422	1.8	1.0	1.0	422	1.80
2	704.5	11.3	27	60	87	237	Imp.	1.0	2.0	237	0.00
3	705.5	16.3	45	39	84	569	1.0	1.2	3.2	683	1.20
4	706.5	15.9	44	36	80	543	7.1	1.0	4.2	543	7.10
5	707.6	14.4	44	43	87	492	6.9	0.7	4.9	344	4.83
6	708.5	18.0	43	35	78	601	5.6	1.0	5.9	601	5.60
7	709.5	14.5	59	39	98	664	3.9	1.0	6.9	664	3.90
8	710.3	12.5	58	36	94	562	5.2	1.0	7.9	562	5.20
9	711.5	13.4	31	59	90	322	Imp.	0.7	8.6	225	0.00

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company		James E. Russell Petroleum, Inc.	Lease Minckley B, Sec. 3	Well No.	W-13
Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.		
703.0 - 711.6	6.9	4.3	29.63		
Depth Interval, Feet	Feet of Core Analyzed	Average Percent Oil Saturation	Average Percent Water Saturation	Average Oil Content Bbl./A. Ft.	Total Oil Content Bbls./Acre
703.0 - 711.6	8.6	14.7	43.5	44.1	4,281

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company James E. Russell Petroleum, Inc. Lease Minckley B, Sec. 3 Well No. W-13

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	703.5	15.1	36	422	0	0	36	57	422	0	Imp.	-
2	704.5	11.3	27	237	0	0	27	62	237	0	Imp.	-
3	705.5	15.9	46	567	0	0	46	38	567	0	Imp.	-
4	706.5	16.0	44	546	0	0	44	48	546	10	0.60	50
5	707.6	14.9	43	497	0	0	43	44	497	0	Imp.	-
6	708.5	18.1	43	604	0	0	43	37	604	0	Imp.	-
7	709.5	14.4	59	659	0	0	59	39	659	0	Imp.	-
8	710.3	12.8	57	566	0	0	57	37	566	0	Imp.	-
9	711.5	13.3	31	320	0	0	31	61	320	0	Imp.	-

Notes: cc—cubic centimeter.

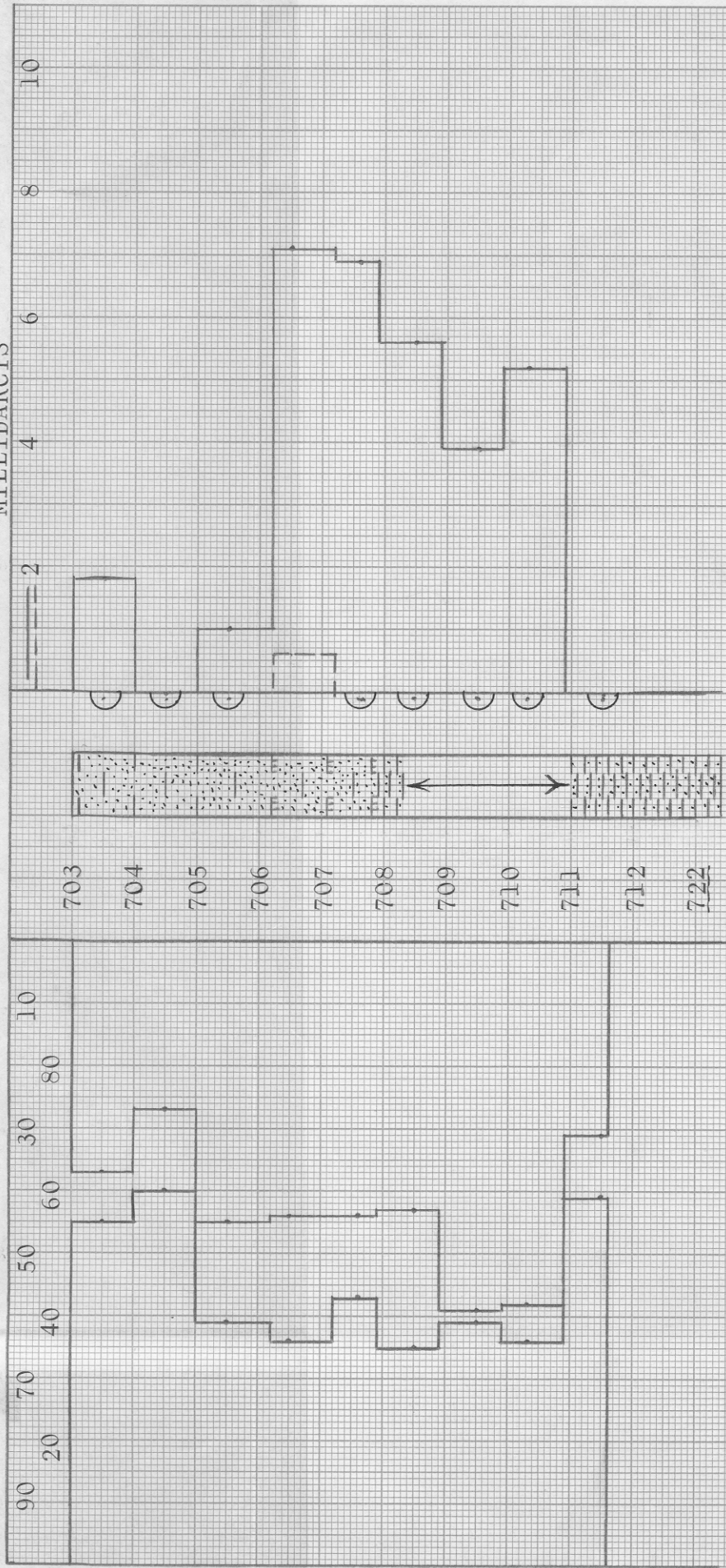
*—Volume of water recovered at the time of maximum oil recovery.

**—Determined by passing water through sample which still contains residual oil.

PERCENT

PERCENT

--- EFFECTIVE PERMEABILITY TO WATER, IN MILLIDARCYS



KEY:

SHALY SANDSTONE

CALCAREOUS SHALY SANDSTONE

SANDY SHALE

LAMINATED SANDSTONE AND SHALE

IMPERMEABLE TO WATER

JAMES E. RUSSELL PETROLEUM, INC.

MINCKLEY "B" SEC. 3 LEASE

WELL NO. W - 13

ANDERSON COUNTY, KANSAS

DEPTH INTERVAL, FEET	FEET OF CORE ANALYZED	AVERAGE PERCENT	AVG. OIL SATURATION	AVG. WATER SATURATION	AVERAGE PERMEABILITY	CALCULATED OIL RECOVERY
703	50	50	50	50	50	50
704	55	55	55	55	55	55
705	60	60	60	60	60	60
706	65	65	65	65	65	65
707	70	70	70	70	70	70
708	75	75	75	75	75	75
709	80	80	80	80	80	80
710	85	85	85	85	85	85
711	90	90	90	90	90	90
712	95	95	95	95	95	95
722	100	100	100	100	100	100

JAMES E. RUSSELL PETROLEUM, INC.

MINCKLEY "B" SEC. 3 LEASE

WELL NO. W - 13

ANDERSON 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

703.0 - 711.6	8.6	14.7	43.5	44.1	4.3	-----
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NOTE: ELEVATION, FEET - DATUM: MEAN SEA LEVEL (GROUND LEVEL) 1066.4

OILFIELD RESEARCH LABORATORIES
CHANUTE, KANSAS
MARCH, 1981

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