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

July 14, 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 # 1, Vietje 1 (Luedke) Lease, Well No. 0-12, located in Anderson County, Kansas and submitted to our laboratory on July 7, 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 # 1, Vietje 1 (Luedke) Well No. 0-12

Location 165' EWL & 165' SNL, NE¼

Section 28 Twp. 23S Rge. 19E County Anderson State Kansas

Elevation, Feet Datum: Mean Sea Level (Ground Level)	1105.2
Name of Sand	Squirrel
Top of Core	874.0
Bottom of Core	894.0
Top of Sand	874.0
Bottom of Sand	888.5
Total Feet of Permeable Sand	3.0
Total Feet of Floodable Sand	1.8

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 1	2.6	2.6
16 - 18	0.4	3.0

Average Permeability Millidarcys	2.7
Average Percent Porosity	12.7
Average Percent Oil Saturation	27.8
Average Percent Water Saturation	65.0
Average Oil Content, Bbls./A. Ft.	281.
Total Oil Content, Bbls./Acre	3,377.
Average Percent Oil Recovery by Laboratory Flooding Tests	12.8
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	143.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	258.
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
874.0 - 878.3	Sandstone, very shaly, grayish light brown.
878.3 - 881.8	Shale and sandstone, laminated gray and light brown.
881.8 - 884.8	Sandstone, very shaly, grayish light brown.
884.8 - 887.3	Shale, gray.
887.3 - 888.1	Sandstone, shaly, grayish light brown.
888.1 - 888.5	Sandstone, light brown.
888.5 - 894.0	Shale, gray.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 258 barrels of oil per acre was obtained from 1.8 feet of sand. The weighted average percent oil saturation was reduced from 44.2 to 31.4, or represents an average recovery of 12.8 percent. The weighted average effective permeability of the samples is 0.48 millidarcys, while the average initial fluid production pressure is 42.5 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 13 samples tested, 2 produced water and oil. This indicates that approximately 15 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 320 barrels of oil per acre. This is an average recovery of 178 barrels per acre foot from 1.8 feet of floodable sand analyzed in this core.

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

Original formation volume factor, estimated	1.06
Reservoir water saturation, percent, estimated	30.0
Average porosity, percent	14.7
Oil saturation after flooding, percent	31.4
Performance factor, percent, estimated	45.0
Net floodable sand, feet	1.8

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company James E. Russell Petroleum, Inc. Lease Unit # 1, Vietje 1 (Luedke) Well No. 0-12

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	874.6	12.0	16	80	96	149	Imp.	1.0	1.0	149	0.00
2	875.5	11.7	12	86	98	109	Imp.	1.0	2.0	109	0.00
3	876.4	10.8	4	92	96	34	Imp.	1.0	3.0	34	0.00
4	877.4	11.3	10	88	98	88	Imp.	1.3	4.3	114	0.00
5	878.6	12.2	37	61	98	350	Imp.	0.7	5.0	245	0.00
6	879.6	16.1	42	34	76	525	0.89	0.8	5.8	420	0.71
7	880.4	14.0	17	72	89	185	Imp.	1.0	6.8	185	0.00
8	881.4	13.2	46	50	96	471	Imp.	1.0	7.8	471	0.00
9	882.4	12.4	35	63	98	337	Imp.	1.0	8.8	337	0.00
10	883.4	12.0	48	46	94	447	Imp.	1.0	9.8	447	0.00
11	884.4	13.4	46	39	85	478	0.47	1.0	10.8	478	0.47
12	887.5	14.1	31	59	90	339	0.22	0.8	11.6	271	0.18
13	888.4	12.6	30	52	82	293	17.	0.4	12.0	117	6.80

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company James E. Russell Petroleum, Inc. Lease Unit # 1, Vietje 1 (Luedke) Well No. 0-12

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
874.0 - 879.0	5.0	0.0	0.00
879.0 - 888.5	3.0	2.7	8.16
874.0 - 888.5	3.0	2.7	8.16

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
874.0 - 879.0	5.0	11.5	14.2	83.0	130	651
879.0 - 888.5	7.0	13.5	37.5	52.2	389	2,726
874.0 - 888.5	12.0	12.7	27.8	65.0	281	3,377

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company James E. Russell Petroleum, Inc. Lease Unit # 1, Vietje 1 (Luedke) Well No. 0-12

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	874.6	12.1	16	150	0	0	16	81	150	0	Imp.	-
2	875.5	11.7	12	109	0	0	12	86	109	0	Imp.	-
3	876.4	10.9	4	34	0	0	4	92	34	0	Imp.	-
4	877.4	11.4	10	88	0	0	10	88	88	0	Imp.	-
5	878.6	12.6	36	352	0	0	36	62	352	0	Imp.	-
6	879.6	16.2	42	528	10	126	32	46	402	10	0.65	35
7	880.4	13.9	17	183	0	0	17	74	183	0	Imp.	-
8	881.4	13.3	46	475	0	0	46	50	475	0	Imp.	-
9	882.4	12.5	35	339	0	0	35	63	339	0	Imp.	-
10	883.4	12.4	47	452	0	0	47	48	452	0	Imp.	-
11	884.4	13.5	46	482	15	157	31	56	325	8	0.35	50
12	887.5	13.7	32	340	0	0	32	60	340	0	Imp.	-
13	888.4	12.7	30	296	0	0	30	54	296	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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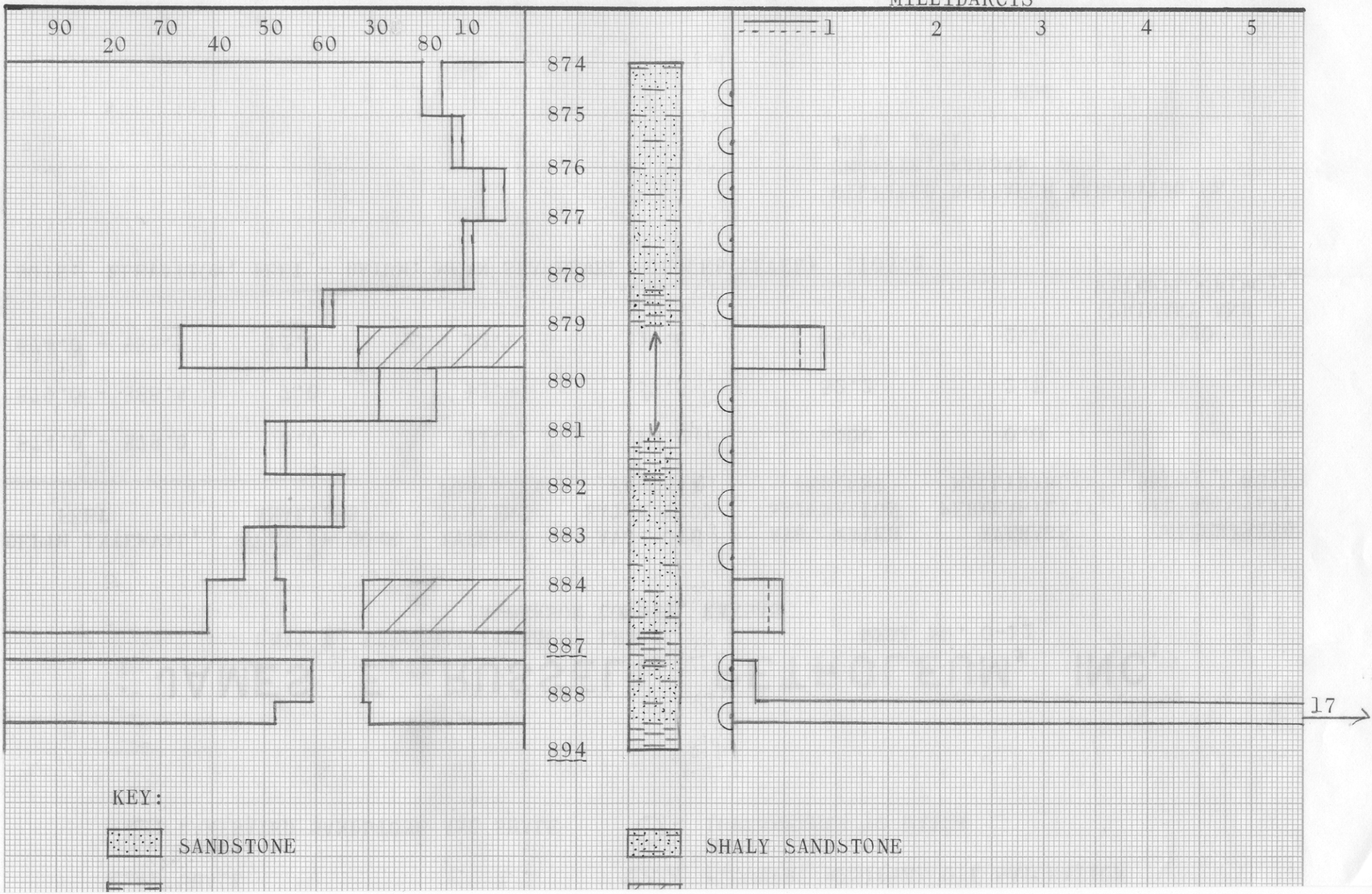
SUMMARY OF LABORATORY FLOODING TESTS

TABLE V

Company James E. Russell Petroleum, Inc. Lease Unit # 1, Vietje 1 (Luedke) Well No. 0-12

Depth Interval, Feet	879.0 - 888.5
Feet of Core Analyzed	1.8
Average Percent Porosity	14.7
Average Percent Original Oil Saturation	44.2
Average Percent Oil Recovery	12.8
Average Percent Residual Oil Saturation	31.4
Average Percent Residual Water Saturation	51.6
Average Percent Total Residual Fluid Saturation	83.0
Average Original Oil Content, Bbls./A. Ft.	502.
Average Oil Recovery, Bbls./A. Ft.	143.
Average Residual Oil Content, Bbls./A. Ft.	359.
Total Original Oil Content, Bbls./Acre	905.
Total Oil Recovery, Bbls./Acre	258.
Total Residual Oil Content, Bbls./Acre	647.
Average Effective Permeability, Millidarcys	0.48
Average Initial Fluid Production Pressure, p.s.i.	42.5

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


WATER SAT., PERCENT
OIL SAT., PERCENT
PERMEABILITY, IN MILLIDARCYS
EFFECTIVE PERMEABILITY TO WATER, IN MILLIDARCYS
90 20 70 40 50 60 30 80 10
1 2 3 4 5
874
875
876
877
878
879
880
881
882
883
884
887
888
894
17
KEY:
SANDSTONE
SHALY SANDSTONE

 SHALE

 LAMINATED SANDSTONE AND SHALE

 FLOODPOT RESIDUAL OIL SATURATION

 IMPERMEABLE TO WATER

JAMES E. RUSSELL PETROLEUM, INC.

UNIT 1, VIETJE 1 (LUEDKE) LEASE WELL NO. O-12
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
874.0 - 879.0	5.0	11.5	14.2	83.0	0.0	
879.0 - 888.5	7.0	13.5	37.5	52.2	2.7	
874.0 - 888.5	12.0	12.7	27.8	65.0	2.7	320 (PRIMARY AND WATERFLOODING)

NOTE: ELEVATION, FEET - DATUM: MEAN SEA LEVEL (GROUND LEVEL) 1105.2

OILFIELD RESEARCH LABORATORIES
CHANUTE, KANSAS
JULY, 1981

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