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

September 12, 1980

Richard E. Gramly
730½ N. Penn.
Independence, Kansas 67301

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the Russell Lease, Well No. 4, Montgomery County, Kansas and submitted to our laboratory on August 1, 1980.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/ks

10 c to Independence, Kansas

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company Richard E. Gramly Lease Russell Well No. 4

Location 1980' FSL & 1070' FWL

Section 35 Twp. 34S Rge. 14E County Montgomery State Kansas

Elevation, Feet	-
Name of Sand	Bartlesville
Top of Core	1333.0
Bottom of Core	1352.2
Top of Sand	1333.0
Bottom of Sand	1349.2
Total Feet of Permeable Sand	15.2
Total Feet of Floodable Sand	0.0

Distribution of Permeable Sand:

Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 1	3.7	3.7
1 - 5	6.4	10.1
5 - 10	3.0	13.1
20 - 30	0.9	14.0
120 - 130	1.2	15.2

Average Permeability Millidarcys	14.8
Average Percent Porosity	15.4
Average Percent Oil Saturation	21.0
Average Percent Water Saturation	64.1
Average Oil Content, Bbls./A. Ft.	252.
Total Oil Content, Bbls./Acre	4078.
Average Percent Oil Recovery by Laboratory Flooding Tests	0.0
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	0.0
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	0.0
Total Calculated Oil Recovery, Bbls./Acre	0.0

The core was sampled and the samples sealed in plastic bags by a representative of the client. Fresh water mud was used as a drilling fluid.

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:

Depth Interval, Feet	Description
1333.0 - 1335.0	Grayish brown shaly sandstone.
1335.0 - 1335.8	Light brown slightly shaly sandstone.
1335.8 - 1338.2	Grayish brown very shaly sandstone.
1338.2 - 1341.7	Gray laminated sandstone and shale.
1341.7 - 1343.9	Light brown shaly sandstone.
1343.9 - 1344.8	Light brown sandstone.
1344.8 - 1346.2	Light brown slightly shaly sandstone.
1346.2 - 1348.0	Light brown shaly sandstone.
1348.0 - 1349.2	Light brown sandstone.
1349.2 - 1352.2	Gray sandy shale.

Oilfield Research Laboratories

RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Richard E. Gramly Lease Russell Well No. 4

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	1333.6	16.4	22	63	85	280	3.9	1.0	1.0	280	3.90
2	1334.7	15.4	16	67	83	191	3.3	1.0	2.0	191	3.30
3	1335.6	16.5	23	61	84	294	7.1	0.8	2.8	235	5.68
4	1336.5	14.5	31	64	95	349	2.5	1.2	4.0	419	3.00
5	1337.5	13.4	12	69	81	125	0.64	1.2	5.2	150	0.77
6	1338.5	12.8	8	43	51	79	0.44	0.8	6.0	63	0.35
7	1339.6	15.7	18	71	89	219	0.80	1.0	7.0	219	0.80
8	1340.5	15.5	8	90	98	96	Imp.	1.0	8.0	96	0.00
9	1341.5	14.9	19	76	95	220	0.23	0.7	8.7	154	0.16
10	1342.4	15.1	30	66	96	351	1.7	1.3	10.0	456	2.21
11	1343.5	15.5	17	71	88	204	4.3	0.9	10.9	184	3.87
12	1344.5	17.8	20	61	81	276	28.	0.9	11.8	248	25.20
13	1345.6	15.3	22	61	83	261	9.4	1.4	13.2	365	13.16
14	1346.6	16.9	22	56	78	288	6.4	0.8	14.0	230	5.12
15	1347.5	15.1	36	49	85	422	4.8	1.0	15.0	422	4.80
16	1348.5	15.7	25	56	81	305	127.	1.2	16.2	366	152.40

Oilfield Research Laboratories

SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company Richard E. Gramly Lease Russell Well No. 4

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
1333.0 - 1341.7	7.7	2.3	17.96
1341.7 - 1349.2	7.5	27.6	206.76
1333.0 - 1349.2	15.2	14.8	224.72

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
1333.0 - 1341.7	8.7	15.0	17.7	67.5	208	1,807
1341.7 - 1349.2	7.5	15.8	24.9	60.1	303	2,271
1333.0 - 1349.2	16.2	15.4	21.0	64.1	252	4,078

Oilfield Research Laboratories

RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Richard E. Gramly Lease Russell Well No. 4

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	1333.6	16.5	22	282	0	0	22	75	282	14	0.15	45
2	1334.7	15.6	16	194	0	0	16	70	194	59	1.27	30
3	1335.6	16.4	23	293	0	0	23	63	293	90	1.50	25
4	1336.5	14.9	30	347	0	0	30	65	347	19	0.22	45
5	1337.5	13.1	13	132	0	0	13	70	132	0	Imp.	-
6	1338.5	13.0	8	81	0	0	8	44	81	0	Imp.	-
7	1339.6	16.1	17	212	0	0	17	79	212	24	0.22	45
8	1340.5	15.5	8	96	0	0	8	90	96	0	Imp.	-
9	1341.5	15.4	18	215	0	0	18	77	215	0	Imp.	-
10	1342.4	15.5	29	349	0	0	29	68	349	0	Imp.	-
11	1343.5	15.9	16	197	0	0	16	75	197	13	0.15	50
12	1344.5	17.9	20	278	0	0	20	76	278	188	2.62	25
13	1345.6	15.2	22	259	0	0	22	73	259	123	2.10	25
14	1346.6	17.0	22	290	0	0	22	76	290	59	0.75	30
15	1347.5	14.6	37	419	0	0	37	60	419	20	0.22	40
16	1348.5	15.7	25	305	0	0	25	72	305	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.