



OILFIELD RESEARCH LABORATORIES

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

March 28, 1979

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 C. McGhee Lease, Well No. 22, Anderson County, Kansas, and submitted to our laboratory on March 23, 1979.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES


Benjamin R. Pearman

SAM:km

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

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company James E. Russell Petroleum, Inc. Lease C. McGhee Well No. 22

Location 220' EWL & 220' SNL W $\frac{1}{2}$ SE $\frac{1}{4}$

Section 10 Twp. 23S Rge. 19E County Anderson State Kansas

Name of Sand	Squirrel
Top of Core	738.0
Bottom of Core	778.0
Top of Sand	738.0
Bottom of Sand	768.0
Total Feet of Permeable Sand	18.9
Total Feet of Floodable Sand	-0-

Distribution of Permeable Sand:
Permeability Range
Millidarcys

	Feet	Cum. Ft.
0 - 1	11.5	11.5
1 - 2	4.4	15.9
2 - 3	3.0	18.9

Average Permeability Millidarcys	1.0
Average Percent Porosity	12.8
Average Percent Oil Saturation	21.6
Average Percent Water Saturation	66.6
Average Oil Content, Bbls./A. Ft.	215.
Total Oil Content, Bbls./Acre	6,377.
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-
Packer Setting, Feet	
Viscosity, Centipoises @	
A. P. I. Gravity, degrees @ 60 °F	
Elevation, Feet	

The core was sampled by a representative of Oilfield Research Laboratories. The drilling fluid consisted of fresh water mud. The core was reported to be from virgin territory.

Since the core did not respond to floodpot testing, 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>
738.0 - 738.7	Light brown and gray laminated shaly sandstone; 90% sandstone.
738.7 - 745.3	Gray and light brown finely laminated very shaly sandstone; 10% - 20% sandstone.
745.3 - 753.0	Light brown and gray laminated sandstone and shale; 60% sandstone.
753.0 - 755.7	Gray finely laminated very shaly sandstone; 5% sandstone.
755.7 - 759.3	Light brown and gray laminated shaly sandstone; 30% sandstone.
759.3 - 763.3	Gray and brown laminated sandstone and shale; 50% sandstone.
763.3 - 763.8	Gray very shaly sandstone.
763.8 - 765.7	Light brown shaly sandstone; 90% sandstone.
765.7 - 766.0	Gray slightly sandy shale.
766.0 - 768.0	Light brown shaly sandstone; 90% sandstone.
768.0 - 778.0	Black shale.

RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company James E. Russell Petroleum, Inc. Lease C. McGhee Well No. 22

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	738.5	13.8	18	63	81	193	2.0	0.7	0.7	135	1.40
2	739.5	12.1	7	87	94	66	Imp.	1.3	2.0	86	0.00
3	740.5	12.6	12	80	92	117	0.68	1.0	3.0	117	0.68
4	741.5	13.9	12	71	83	129	1.7	1.0	4.0	129	1.70
5	742.5	14.4	13	63	76	145	0.26	1.0	5.0	145	0.26
6	743.5	10.9	3	90	93	25	Imp.	1.0	6.0	25	0.00
7	744.5	11.3	13	81	94	114	Imp.	1.3	7.3	148	0.00
8	745.5	11.9	29	68	97	268	0.75	0.7	8.0	188	0.53
9	746.5	13.9	23	60	83	248	2.3	1.0	9.0	248	2.30
10	747.5	15.2	28	44	72	330	0.71	1.0	10.0	330	0.71
11	748.5	14.5	26	54	80	293	2.2	1.0	11.0	293	2.20
12	749.5	13.8	22	65	87	236	1.2	1.0	12.0	236	1.20
13	750.5	13.0	18	72	90	182	0.36	1.0	13.0	182	0.36
14	751.5	12.0	18	77	95	168	Imp.	1.0	14.0	168	0.00
15	752.5	13.5	26	59	85	272	1.8	1.0	15.0	272	1.80
16	753.5	10.4	7	84	91	57	Imp.	1.0	16.0	57	0.00
17	754.5	11.2	11	81	92	96	0.42	1.0	17.0	96	0.42
18	755.5	13.5	19	73	92	199	1.2	0.7	17.7	139	0.84
19	756.5	11.6	33	59	92	297	Imp.	1.3	19.0	386	0.00
20	757.5	14.2	30	62	92	331	Imp.	1.0	20.0	331	0.00
21	758.5	13.8	20	67	87	214	0.23	1.3	21.3	278	0.30
22	759.5	10.3	31	65	96	248	Imp.	0.7	22.0	174	0.00
23	760.5	13.9	24	59	83	259	2.5	1.0	23.0	259	2.50
24	761.5	12.0	18	76	94	168	Imp.	1.0	24.0	168	0.00
25	762.5	12.9	22	72	94	220	0.61	1.3	25.3	286	0.79
26	763.5	15.1	16	58	74	187	Imp.	0.5	25.8	94	0.00
27	764.5	14.5	27	58	85	304	0.60	1.2	27.0	365	0.72
28	765.5	12.9	50	45	95	500	Imp.	0.7	27.7	350	0.00
29	766.5	11.1	43	39	82	370	0.21	1.0	28.7	370	0.21
30	767.5	12.0	40	47	87	372	0.28	1.0	29.7	372	0.28

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company		James E. Russell Petroleum, Inc.	Lease	C. McGhee	Well No.	22
Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.			
738.0 - 755.7	12.1	1.2	14.40			
755.7 - 768.0	6.8	0.71	4.80			
738.0 - 768.0	18.9	1.0	19.20			

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 Bbbs./Acre
738.0 - 755.7	17.7	12.8	16.5	71.3	169	2,944
755.7 - 768.0	12.0	12.9	29.1	59.7	286	3,433
738.0 - 768.0	29.7	12.8	21.6	66.6	215	6,377

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company James E. Russell Petroleum, Inc. Lease C. McGhee Well No. 22

Sample No.	Depth, Feet	Effective Porosity Percent	Original Oil Saturation		Oil Recovery		Residual Saturation		Volume of Water Recovered cc ^a	Effective Permeability Millidarcys ^a	Initial Fluid Production Pressure Lbs./Sq./In.
			%	Bbls./A. Ft.	%	Bbls./A. Ft.	% Oil	% Water			
1	738.5	13.8	18	192	0	0	18	70	0	Imp.	-
2	739.5	12.3	9	86	0	0	9	85	0	Imp.	-
3	740.5	12.5	10	97	0	0	10	82	0	Imp.	-
4	741.5	13.9	13	140	0	0	13	70	0	Imp.	-
5	742.5	14.2	12	132	0	0	12	70	0	Imp.	-
6	743.5	11.0	4	34	0	0	4	89	0	Imp.	-
7	744.5	11.3	14	123	0	0	14	80	0	Imp.	-
8	745.5	12.0	27	251	0	0	27	68	0	Imp.	-
9	746.5	14.0	24	261	0	0	24	60	0	Imp.	-
10	747.5	15.4	29	347	0	0	29	53	0	Imp.	-
11	748.5	14.5	27	304	0	0	27	53	0	Imp.	-
12	749.5	14.0	20	217	0	0	20	68	0	Imp.	-
13	750.5	13.1	20	203	0	0	20	70	0	Imp.	-
14	751.5	12.2	18	171	0	0	18	77	0	Imp.	-
15	752.5	13.4	25	260	0	0	25	64	0	Imp.	-
16	753.5	10.6	8	66	0	0	8	83	0	Imp.	-
17	754.5	11.3	10	88	0	0	10	83	0	Imp.	-
18	755.5	13.3	17	175	0	0	17	76	0	Imp.	-
19	756.5	11.5	34	303	0	0	34	60	0	Imp.	-
20	757.5	14.1	31	339	0	0	31	63	0	Imp.	-
21	758.5	14.0	20	217	0	0	20	71	0	Imp.	-
22	759.5	10.3	30	240	0	0	30	65	0	Imp.	-
23	760.5	14.0	25	272	0	0	25	66	0	Imp.	-
24	761.5	12.2	19	180	0	0	19	75	0	Imp.	-
25	762.5	12.8	20	199	0	0	20	75	0	Imp.	-
26	763.5	15.3	18	213	0	0	18	73	0	Imp.	-
27	764.5	14.7	25	285	0	0	25	67	0	Imp.	-
28	765.5	13.0	50	504	0	0	50	44	0	Imp.	-

Notes: cc—cubic centimeter.

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

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

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

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Sample No.	Depth, Feet	Effective Porosity Percent	Original Oil Saturation		Oil Recovery		Residual Saturation		Volume of Water Recovered cc ^a	Effective Permeability Millidarcys ^b	Initial Fluid Production Pressure Lbs./Sq./In.
			%	Bbls./A. Ft.	%	Bbls./A. Ft.	% Oil	% Water			
29	766.5	11.0	41	350	0	0	41	50	0	Imp.	-
30	767.5	12.0	40	372	0	0	40	52	0	Imp.	-

Notes: cc—cubic centimeter.

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

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