



OILFIELD RESEARCH LABORATORIES

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November 8, 1979

G.A. Smith
1203 West Fourth
Coffeyville, Kansas 67337

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the George Lorenz Lease, Well No. 3, Chautauqua County, Kansas and submitted to our laboratory on October 14, 1979.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Benjamin R. Pearman
Benjamin R. Pearman

BRP/tem
5 c to Coffeyville, Kansas

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company G.A. Smith Lease George Lorenz Well No. 3

Location N/2 SE SE

Section 28 Twp. 34S Rge. 11E County Chautauqua State Kansas

Name of Sand	Peru
Top of Core	1248.0
Bottom of Core	1288.0
Top of Sand	1248.0
Bottom of Sand	1288.0
Total Feet of Permeable Sand	40.0
Total Feet of Floodable Sand	(Analyzed) 0.0

Distribution of Permeable Sand:
Permeability Range
Millidarcys

	Feet	Cum. Ft.
0.32 - 1.0	5.0	5.0
1 - 5	13.0	18.0
5 - 10	4.0	22.0
10 & Above	18.0	40.0

Average Permeability Millidarcys	10.1
Average Percent Porosity	16.2
Average Percent Oil Saturation	16.7
Average Percent Water Saturation	61.6
Average Oil Content, Bbls./A. Ft.	213.
Total Oil Content, Bbls./Acre	8,509.
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 See Discussion

Packer Setting, Feet

Viscosity, Centipoises @

A. P. I. Gravity, degrees @ 60 °F

Elevation, Feet

The core was sampled and the samples sealed in plastic bags by a representative of the client. The well was drilled in non-virgin territory using fresh water mud as the circulating fluid.

FORMATION CORED

The detailed log of the formation cored is as follows:

<u>Depth Interval, Feet</u>	<u>Description</u>
1248.0 - 1255.0	Light brown sandstone.
1255.0 - 1256.0	Light brown slightly shaly sandstone.
1256.0 - 1261.0	Light brown sandstone.
1261.0 - 1262.0	Light brown shaly sandstone.
1262.0 - 1263.0	Light brown sandstone.
1263.0 - 1264.0	Light brown shaly sandstone.
1264.0 - 1267.0	Light brown sandstone.
1267.0 - 1268.0	Light brown shaly sandstone.
1268.0 - 1269.0	Light brown sandstone.
1269.0 - 1277.0	Gray shaly sandstone.
1277.0 - 1288.0	Gray slightly shaly sandstone.

LABORATORY FLOODING TESTS

The sand in this core did not respond to laboratory flooding tests. Even though 34 samples did exhibit effective permeability to water, no oil was recovered during flooding tests (See Table IV).

Based on the results of the laboratory testing, it does not appear that waterflooding operations in the vicinity of this well would be a commercial success.

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company G. A. Smith Lease George Lorenz Well No. 3

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			Ft.	Cum. Ft.		
1	1248.5	19.1	20	39	296	21.	1.0	1.0	296	21.00
2	1249.5	16.8	21	48	274	13.	1.0	2.0	274	13.00
3	1250.5	16.7	32	32	415	47.	1.0	3.0	415	47.00
4	1251.5	17.6	22	31	300	24.	1.0	4.0	300	24.00
5	1252.5	15.8	21	41	257	19.	1.0	5.0	257	19.00
6	1253.5	14.9	22	54	254	13.	1.0	6.0	254	13.00
7	1254.5	13.9	25	50	270	13.	1.0	7.0	270	13.00
8	1255.5	14.7	25	49	285	9.4	1.0	8.0	285	9.40
9	1256.5	16.0	19	57	236	12.	1.0	9.0	236	12.00
10	1257.5	16.2	21	54	264	11.	1.0	10.0	264	11.00
11	1258.5	16.6	22	54	283	13.	1.0	11.0	283	13.00
12	1259.5	15.6	18	49	218	18.	1.0	12.0	218	18.00
13	1260.5	16.7	19	53	246	30.	1.0	13.0	246	30.00
14	1261.5	17.6	19	56	259	2.4	1.0	14.0	259	2.40
15	1262.5	17.8	21	52	290	14.	1.0	15.0	290	14.00
16	1263.5	18.4	20	51	286	1.5	1.0	16.0	286	1.50
17	1264.5	17.3	20	53	268	15.	1.0	17.0	268	15.00
18	1265.5	17.2	21	55	280	15.	1.0	18.0	280	15.00
19	1266.5	16.5	17	59	218	18.	1.0	19.0	218	18.00
20	1267.5	14.8	19	61	218	4.2	1.0	20.0	218	4.20
21	1268.5	16.6	30	44	386	13.	1.0	21.0	386	13.00
22	1269.5	13.6	9	63	95	5.0	1.0	22.0	95	5.00
23	1270.5	10.1	13	72	102	2.8	1.0	23.0	102	2.80
24	1271.5	14.5	15	54	169	1.4	1.0	24.0	169	1.40
25	1272.5	16.9	11	66	144	3.1	1.0	25.0	144	3.10
26	1273.5	15.3	1	93	12	0.32	1.0	26.0	12	0.32
27	1274.5	15.8	7	89	86	1.0	1.0	27.0	86	1.00
28	1275.5	15.5	8	88	96	0.97	1.0	28.0	96	0.97
29	1276.5	16.9	11	75	144	1.0	1.0	29.0	144	1.00
30	1277.5	16.2	17	67	214	12.0	1.0	30.0	214	12.00

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company G.A. Smith Lease George Lorenz Well No. 3

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.		
31	1278.5	15.4	5	89	94	60	6.8	1.0	31.0	60	6.80
32	1279.5	18.5	27	54	81	388	7.5	1.0	32.0	388	7.50
33	1280.5	17.6	18	62	80	246	5.0	1.0	33.0	246	5.00
34	1281.5	17.8	14	65	79	193	4.9	1.0	34.0	193	4.90
35	1282.5	16.2	11	82	93	138	3.6	1.0	35.0	138	3.60
36	1283.5	15.7	7	86	93	85	1.0	1.0	36.0	85	1.00
37	1284.5	17.4	12	71	83	162	4.7	1.0	37.0	162	4.70
38	1285.5	16.3	2	88	90	25	3.6	1.0	38.0	25	3.60
39	1286.5	15.9	4	90	94	49	1.4	1.0	39.0	49	1.40
40	1287.5	16.7	23	65	88	298	8.7	1.0	40.0	298	8.70

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company <u>G.A. Smith</u>		Lease <u>George Lorenz</u>		Well No. <u>3</u>	
Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.		
1248.0 - 1269.0	21.0	15.6	326.50		
1269.0 - 1288.0	19.0	3.9	74.79		
1248.0 - 1288.0	40.0	10.1	401.29		

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 Bbbl./Acre
1248.0 - 1269.0	21.0	16.5	21.6	49.6	276	5,803
1269.0 - 1288.0	19.0	15.9	11.3	74.6	143	2,706
1248.0 - 1288.0	40.0	16.2	16.7	61.6	213	8,509

Oilfield Research Laboratories
RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company		G.A. Smith		Lease		George Lorenz		Well No.		3	
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			
1	1248.5	18.8	20	292	0	0	20	62	62	0.93	20
2	1249.5	17.2	22	294	0	0	22	77	40	0.63	20
3	1250.5	16.3	32	405	0	0	32	70	36	0.60	20
4	1251.5	17.7	24	330	0	0	24	73	52	0.72	20
5	1252.5	16.0	21	261	0	0	21	75	50	0.72	20
6	1253.5	15.0	22	256	0	0	22	72	25	0.41	25
7	1254.5	14.2	26	286	0	0	26	72	38	0.65	25
8	1255.5	14.9	25	289	0	0	25	70	18	0.36	30
9	1256.5	15.7	20	244	0	0	20	76	19	0.32	25
10	1257.5	15.8	23	282	0	0	23	76	36	0.56	25
11	1258.5	16.7	22	285	0	0	22	73	21	0.38	25
12	1259.5	15.7	18	219	0	0	18	81	34	0.57	25
13	1260.5	16.4	20	254	0	0	20	73	20	0.31	25
14	1261.5	17.4	21	283	0	0	21	72	26	0.39	25
15	1262.5	17.5	23	312	0	0	23	69	17	0.25	25
16	1263.5	18.0	21	293	0	0	21	55	0	Imp.	25
17	1264.5	16.9	22	288	0	0	22	77	13	0.20	25
18	1265.5	16.7	19	246	0	0	19	78	14	0.20	25
19	1266.5	16.9	18	236	0	0	18	70	26	0.42	30
20	1267.5	15.1	20	234	0	0	20	63	0	Imp.	35
21	1268.5	16.6	30	386	0	0	30	69	16	0.21	35
22	1269.5	13.4	12	125	0	0	12	65	0	Imp.	50
23	1270.5	10.3	12	96	0	0	12	75	0	Imp.	50
24	1271.5	14.3	17	189	0	0	17	76	6	0.15	50
25	1272.5	16.4	10	127	0	0	10	80	14	0.31	50
26	1273.5	15.0	3	35	0	0	3	94	0	Imp.	50
27	1274.5	15.8	6	74	0	0	6	90	5	0.27	50
28	1275.5	15.8	11	135	0	0	11	87	10	0.12	40
29	1276.5	16.5	12	154	0	0	12	86	7	0.10	35

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.

Company G.A. Smith

Lease George Lorenz

Well No. 3

Oilfield Research Laboratories

RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company G.A. Smith Lease George Lorenz Well No. 3

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.			
30	1277.5	16.0	18	223	0	0	18	81	223	11	0.21	35
31	1278.5	15.8	8	98	0	0	8	90	98	19	0.29	35
32	1279.5	18.1	27	379	0	0	27	72	379	14	0.27	35
33	1280.5	17.5	18	244	0	0	18	80	244	10	0.21	35
34	1281.5	17.5	15	204	0	0	15	82	204	20	0.27	30
35	1282.5	15.7	13	158	0	0	13	85	158	5	0.06	40
36	1283.5	16.0	6	74	0	0	6	92	74	11	0.20	40
37	1284.5	16.9	14	184	0	0	14	86	184	10	0.14	40
38	1285.5	16.8	3	39	0	0	3	90	39	5	0.07	50
39	1286.5	15.7	3	37	0	0	3	93	37	0	Imp.	-
40	1287.5	16.2	22	276	0	0	22	73	276	5	0.10	50

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.