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

March 2, 1981

Jennings Drilling
646 Louisiana
Lawrence, Kansas 66044

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the Hemphill Lease, Well No. 1, located in Leavenworth County, Kansas and submitted to our laboratory on December 8, 1980.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/kas

5 c to Lawrence, Kansas

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GENERAL INFORMATION & SUMMARY

Company Jennings Drilling Lease Hemphill Well No. 1

Location NW NE NW

Section 23 Twp. 12S Rge. 20E County Leavenworth State Kansas

Elevation, Feet	-
Name of Sand	?
Top of Core	744.0
Bottom of Core	782.0
Top of Sand	744.0
Bottom of Sand	782.0
Total Feet of Permeable Sand	12.0
Total Feet of Floodable Sand	0.0

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 25	2.0	2.0
40 - 90	5.0	7.0
105 - 150	4.0	11.0
395 & Above	1.0	12.0

Average Permeability Millidarcys	105.4
Average Percent Porosity	22.7
Average Percent Oil Saturation	19.9
Average Percent Water Saturation	65.7
Average Oil Content, Bbls./A. Ft.	356.
Total Oil Content, Bbls./Acre	4,268.
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.

The core was sampled and the samples sealed in plastic bags by a representative of the client. As samples only were delivered to the laboratory, it is assumed that each sample represents one foot.

In as much as 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
744.0 - 745.0	Grayish light brown slightly calcareous sandstone.
747.0 - 748.0	Grayish light brown slightly calcareous sandstone.
749.0 - 750.0	Gray slightly calcareous sandstone.
751.0 - 753.0	Brown slightly calcareous sandstone.
757.0 - 759.0	Brown slightly calcareous sandstone.
761.0 - 762.0	Brown slightly calcareous sandstone.
767.0 - 768.0	Grayish light brown sandstone.
774.0 - 776.0	Grayish light brown sandstone.
781.0 - 782.0	Gray sandstone.

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Jennings Drilling Lease Hemphill Well No. 1

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	744.5	23.9	12	77	89	223	89.	1.0	1.0	223	89.00
2	747.5	23.7	12	84	96	221	149.	1.0	2.0	221	149.00
3	749.5	22.6	5	71	76	88	44.	1.0	3.0	88	44.00
4	751.5	23.6	12	83	95	220	105.	1.0	4.0	220	105.00
5	752.5	23.0	35	43	78	625	145.	1.0	5.0	625	145.00
6	757.5	23.3	56	40	96	1012	399.	1.0	6.0	1012	399.00
7	758.5	23.3	30	48	78	542	77.	1.0	7.0	542	77.00
8	761.5	25.1	29	52	81	565	133.	1.0	8.0	565	133.00
9	767.5	19.9	17	69	86	263	19.	1.0	9.0	263	19.00
10	774.5	21.0	8	80	88	130	42.	1.0	10.0	130	42.00
11	775.5	21.1	11	70	81	180	43.	1.0	11.0	180	43.00
12	781.5	21.4	12	71	83	199	20.	1.0	12.0	199	20.00

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company Jennings Drilling Lease Hemphill Well No. 1

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
744.0 - 782.0	12.0	105.4	1,265.00

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
744.0 - 782.0	12.0	22.7	19.9	65.7	356	4,268

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Jennings Drilling Lease Hemphill Well No. 1

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	744.5	23.4	13	236	0	0	13	82	236	290	13.24	10
2	747.5	23.8	12	222	0	0	12	84	222	292	21.19	10
3	749.5	22.6	5	88	0	0	5	93	88	458	17.60	10
4	751.5	23.5	12	219	0	0	12	84	219	386	21.71	15
5	752.5	23.4	34	617	0	0	34	63	617	82	1.60	20
6	757.5	23.7	55	1011	0	0	55	41	1011	390	14.59	15
7	758.5	23.2	30	540	0	0	30	64	540	210	5.20	20
8	761.5	25.0	29	562	0	0	29	68	562	148	3.20	20
9	767.5	20.1	17	265	0	0	17	74	265	56	1.11	25
10	774.5	21.0	8	130	0	0	8	82	130	122	2.80	20
11	775.5	21.3	11	182	0	0	11	85	182	254	5.40	15
12	781.5	21.5	12	200	0	0	12	75	200	176	4.20	20

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.