OILFIELD RESEARCH LABORATORIES
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February 28, 1980

Dorwin Jackson
Box 116
Rural Route 1
Bronson, Kansas 66716

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the Steve Herynk Lease, Well No. 2H, Allen County, Kansas, and submitted to our laboratory on February 11, 1980.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/tem

5 c to Bronson, Kansas

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GENERAL INFORMATION & SUMMARY

Company Dorwin Jackson Lease Steve Herynk Well No. 2H

Location 390' SNL & 630' WEL SE SE NE¼

Section 16 Twp. 20S Rge. 21E County Allen State Kansas

Elevation, Feet	
Name of Sand	Bartlesville
Top of Core	646.0
Bottom of Core	658.0
Top of Sand	646.0
Bottom of Sand (Tested)	657.0
Total Feet of Permeable Sand	7.7
Total Feet of Floodable Sand	1.7

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 5	5.0	5.0
50 - 100	2.0	7.0
100 - 150	0.7	7.7

Average Permeability Millidarcys	33.4
Average Percent Porosity	19.7
Average Percent Oil Saturation	49.3
Average Percent Water Saturation	34.9
Average Oil Content, Bbls./A. Ft.	768.
Total Oil Content, Bbls./Acre	5,916.
Average Percent Oil Recovery by Laboratory Flooding Tests	1.7
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	34.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	58.
Total Calculated Oil Recovery, Bbls./Acre	See "Calculated Recovery" Section.

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.

FORMATION CORED

The detailed log of the formation cored is as follows:

Depth Interval, Feet	Description
646.0 - 648.0	Brown sandstone.
648.0 - 648.7	Brown and gray laminated sandstone and shale.
648.7 - 649.4	Brown sandstone.
649.4 - 658.0	Dark brown carbonaceous shaly sandstone.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 58 barrels of oil per acre was obtained from 1.7 feet of sand. The weighted average percent oil saturation was reduced from 30.5 to 28.8, or represents an average recovery of 1.7 percent. The weighted average effective permeability of the samples is 5.59 millidarcys, while the average initial fluid production pressure is 22.5 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 8 samples tested, 2 produced water and oil. This indicates that approximately 25 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 340 barrels of oil per acre. This is an average recovery of 198 barrels per acre foot from 1.7 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	45.0
Average porosity, percent	22.1
Oil saturation after flooding, percent	28.8
Performance factor, percent, estimated	50.0
Net floodable sand, feet	1.7

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Dorwin Jackson Lease Steve Herynk Well No. 2H

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	646.2	21.5	30	61	91	500	77.	1.0	1.0	500	77.00
2	647.9	13.2	19	57	76	195	73.	1.0	2.0	195	73.00
3	649.2	23.4	32	47	79	581	133.	0.7	2.7	407	93.10
4	650.8	20.3	70	21	91	1102	2.6	1.0	3.7	1102	2.60
5	652.2	22.1	65	18	83	1114	2.5	1.0	4.7	1114	2.50
6	653.5	18.6	59	28	87	851	4.2	1.0	5.7	851	4.20
7	655.2	19.4	64	20	84	963	1.6	1.0	6.7	963	1.60
8	656.8	20.2	50	31	81	784	2.8	1.0	7.7	784	2.80

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company Dorwin Jackson Lease Steve Herynk Well No. 2H

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
646.0 - 657.0	7.7	33.4	256.80

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
646.0 - 657.0	7.7	19.7	49.3	34.9	768	5,916

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Dorwin Jackson Lease Steve Herynk Well No. 2H

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	646.2	21.4	30	498	2	33	28	67	465	453	5.47	20
2	647.9	13.6	18	190	0	0	18	72	190	0	Imp.	-
3	649.2	23.2	32	576	2	36	30	68	540	192	5.77	25
4	650.8	20.8	68	1097	0	0	68	27	1097	0	Imp.	-
5	652.2	22.0	65	1109	0	0	65	31	1109	0	Imp.	-
6	653.5	18.9	58	850	0	0	58	32	850	0	Imp.	-
7	655.2	19.0	65	958	0	0	65	21	958	0	Imp.	-
8	656.8	20.0	51	791	0	0	51	37	791	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 Dorwin Jackson Lease Steve Herynk Well No. 2H

Depth Interval, Feet	646.0 - 657.0
Feet of Core Analyzed	1.7
Average Percent Porosity	22.1
Average Percent Original Oil Saturation	30.5
Average Percent Oil Recovery	1.7
Average Percent Residual Oil Saturation	28.8
Average Percent Residual Water Saturation	67.4
Average Percent Total Residual Fluid Saturation	96.2
Average Original Oil Content, Bbls./A. Ft.	530.
Average Oil Recovery, Bbls./A. Ft.	34.
Average Residual Oil Content, Bbls./A. Ft.	496.
Total Original Oil Content, Bbls./Acre	901.
Total Oil Recovery, Bbls./Acre	58.
Total Residual Oil Content, Bbls./Acre	843.
Average Effective Permeability, Millidarcys	5.59
Average Initial Fluid Production Pressure, p.s.i.	22.5

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