OILFIELD RESEARCH LABORATORIES

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October 19, 1981

Pathfinder Petroleum Corporation
10603 North Penn
Suite 300
Oklahoma City, Oklahoma 73120

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the Smith Lease, Well No. L-6, located in Neosho County, Kansas and submitted to our laboratory on September 29, 1981.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/mkf

5 c to Oklahoma City, Ok.

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GENERAL INFORMATION & SUMMARY

Company Pathfinder Petroleum Corp. Lease Smith Well No. L-6

Location 4180' FSL & 2860' FEL

Section 34 Twp. 28S Rge. 19E County Neosho State Kansas

Elevation, Feet	
Name of Sand	BARTLESVILLE
Top of Core	652.0
Bottom of Core	664.0
Top of Sand	652.0
Bottom of Sand	662.5
Total Feet of Permeable Sand	9.1
Total Feet of Floodable Sand	2.6

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 1	2.5	2.5
1 - 3	2.0	4.5
10 - 20	2.0	6.5
20 - 30	2.0	8.5
30 - 35	0.6	9.1

Average Permeability Millidarcys	11.5
Average Percent Porosity	16.6
Average Percent Oil Saturation	37.5
Average Percent Water Saturation	39.1
Average Oil Content, Bbls./A. Ft.	482.
Total Oil Content, Bbls./Acre	4,869.
Average Percent Oil Recovery by Laboratory Flooding Tests	3.8
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	55.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	144.
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. The core was reported to be from a virgin area.

FORMATION CORED

The detailed log of the formation cored is as follows:

Depth Interval, Feet	Description
652.0 - 653.6	Brown sandstone.
653.6 - 657.0	Brown sandstone with some micaceous partings.
657.0 - 662.5	Grayish light brown shaly sandstone with fine shale partings.
662.5 - 664.0	Gray shale.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 144 barrels of oil per acre was obtained from 2.6 feet of sand. The weighted average percent oil saturation was reduced from 42.1 to 38.3, or represents an average recovery of 3.8 percent. The weighted average effective permeability of the samples is 5.04 millidarcys, while the average initial fluid production pressure is 31.7 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 11 samples tested, 3 produced water and oil, and 3 samples produced water only. This indicates that approximately 27 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 610 barrels of oil per acre. This is an average recovery of 233 barrels per acre foot from 2.6 feet of floodable sand analyzed in this core.

These recovery values were calculated using the following data and assumptions:

Original formation volume factor, estimated	1.04
Reservoir water saturation, percent, estimated	30.0
Average porosity, percent	18.8
Oil saturation after flooding, percent	38.3
Performance factor, percent, estimated	55.0
Net floodable sand, feet	2.6

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Pathfinder Petroleum Corporation Lease Smith Well No. L-6

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	652.5	18.6	49	17	66	707	24.	1.0	1.0	707	24.00
2	653.4	19.6	39	30	69	593	34.	0.6	1.6	356	20.40
3	654.6	18.3	23	44	67	327	19.	1.0	2.6	327	19.00
4	655.4	18.2	37	36	73	522	11.	1.0	3.6	522	11.00
5	656.5	17.5	30	35	65	407	25.	1.0	4.6	407	25.00
6	657.5	15.1	31	50	81	363	2.1	1.0	5.6	363	2.10
7	658.5	12.2	43	50	93	407	Imp.	1.0	6.6	407	0.00
8	659.5	16.0	49	43	92	608	1.6	1.0	7.6	608	1.60
9	660.4	17.3	44	37	81	591	0.76	1.0	8.6	591	0.76
10	661.4	15.5	36	41	77	433	0.51	1.0	9.6	433	0.51
11	662.4	14.6	26	47	73	295	0.23	0.5	10.1	148	0.12

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company Pathfinder Petroleum Corp. Lease Smith Well No. L-6

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
652.0 - 657.0	4.6	21.6	99.40
657.0 - 662.5	4.5	1.1	5.09
652.0 - 662.5	9.1	11.5	104.49

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
652.0 - 657.0	4.6	18.4	35.3	32.6	504	2,319
657.0 - 662.5	5.5	15.2	39.3	44.5	464	2,550
652.0 - 662.5	10.1	16.6	37.5	39.1	482	4,869

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Pathfinder Petroleum Corp. Lease Smith Well No. L-6

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	652.5	18.8	49	715	5	73	44	38	642	240	8.40	25
2	653.4	19.7	39	596	3	46	36	46	550	234	7.33	30
3	654.6	18.1	23	323	0	0	23	54	323	188	10.83	30
4	655.4	18.3	37	525	3	43	34	44	482	19	0.30	45
5	656.5	17.6	30	410	0	0	30	51	410	190	3.07	30
6	657.5	15.1	31	363	0	0	31	54	363	103	1.20	20
7	658.5	12.0	44	410	0	0	44	49	410	0	Imp.	-
8	659.5	16.5	48	614	0	0	48	45	614	0	Imp.	-
9	660.4	17.2	44	587	0	0	44	38	587	0	Imp	-
10	661.4	15.9	35	432	0	0	35	43	432	0	Imp.	-
11	662.4	14.1	27	295	0	0	27	47	295	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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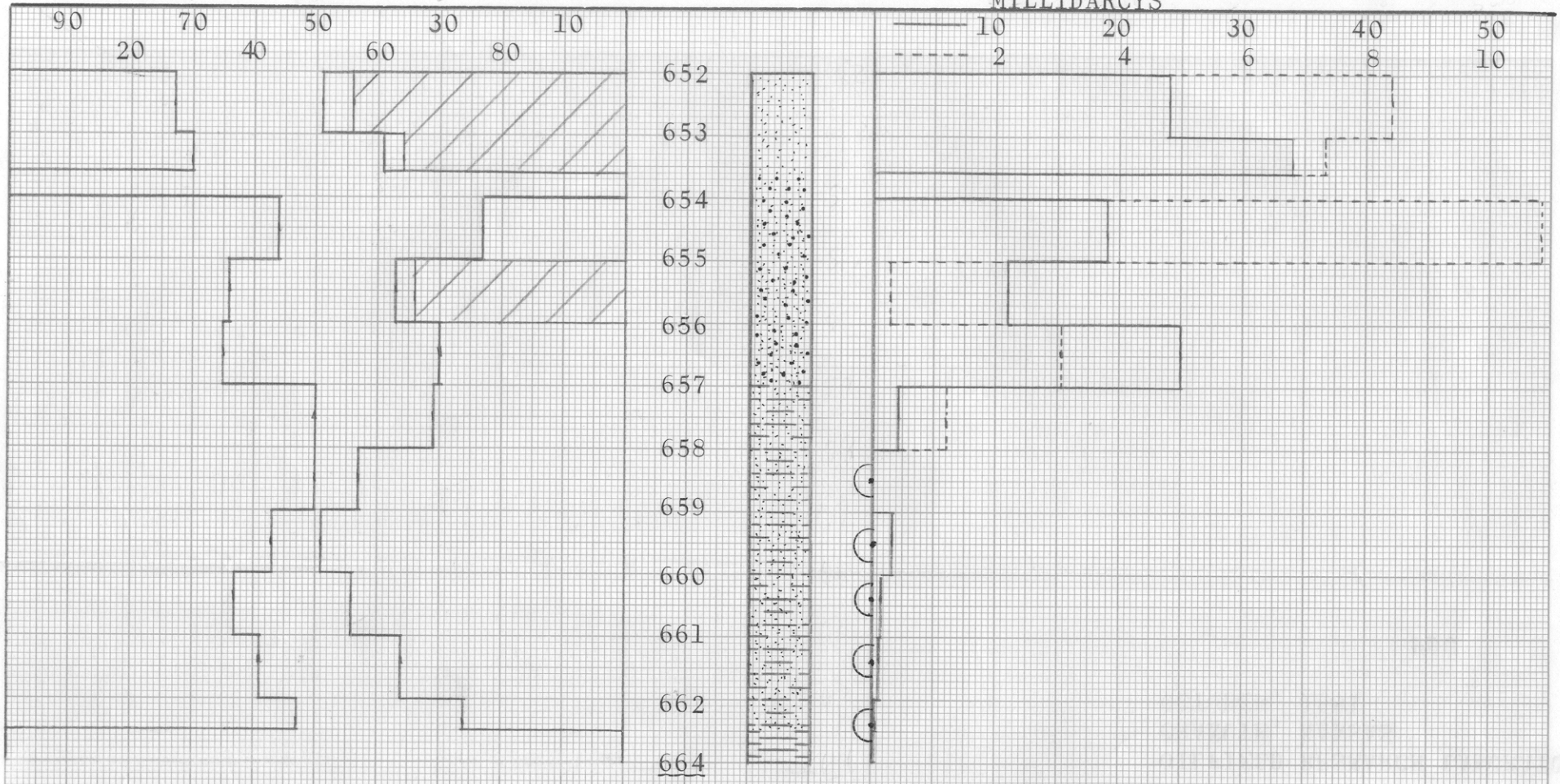
SUMMARY OF LABORATORY FLOODING TESTS

TABLE V

Company Pathfinder Petroleum Corp. Lease Smith Well No. L-6

Depth Interval, Feet	652.0 - 657.0
Feet of Core Analyzed	2.6
Average Percent Porosity	18.8
Average Percent Original Oil Saturation	42.1
Average Percent Oil Recovery	3.8
Average Percent Residual Oil Saturation	38.3
Average Percent Residual Water Saturation	42.2
Average Percent Total Residual Fluid Saturation	80.5
Average Original Oil Content, Bbls./A. Ft.	614.
Average Oil Recovery, Bbls./A. Ft.	55.
Average Residual Oil Content, Bbls./A. Ft.	559.
Total Original Oil Content, Bbls./Acre	1,598.
Total Oil Recovery, Bbls./Acre	144.
Total Residual Oil Content, Bbls./Acre	1,454.
Average Effective Permeability, Millidarcys	5.04
Average Initial Fluid Production Pressure, p.s.i.	31.7

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



PATHFINDER PETROLEUM CORPORATION

SMITH LEASE WELL NO. I-6

NEOSHO COUNTY, KANSAS

DEPTH INTERVAL, FEET	FEET OF CORE ANALYZED	AVERAGE PERCENT POROSITY	AVG. OIL SATURATION PERCENT	AVG. WATER SATURATION PERCENT	AVERAGE PERMEABILITY, MILLIDARCYS	CALCULATED OIL RECOVERY BBLS. / ACRE
652.0 - 657.0	4.6	18.4	35.3	32.6	21.6	
657.0 - 662.5	5.5	15.2	39.3	44.5	1.1	
652.0 - 662.5	10.1	16.6	37.5	39.1	11.5	610 (PRIMARY AND WATERFLOODING)

OILFIELD RESEARCH LABORATORIES
CHANUTE, KANSAS
OCTOBER, 1981

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