OILFIELD RESEARCH LABORATORIES

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

January 5, 1981

Inexco Oil Company
R R # 2, Box 3
Moran, Kansas 66755

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the Booth Lease, Well No. 20, located in Allen County, Kansas and submitted to our laboratory on November 3, 1980.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/kas

3 c to Moran, Kansas
2 c to Oklahoma City, Oklahoma

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company Inexco Oil Company Lease Booth Well No. 20

Location -

Section 18 Twp. 21S Rge. 25E County Allen State Kansas

Elevation, Feet	-
Name of Sand	Bartlesville
Top of Core	772.0
Bottom of Core	789.0
Top of Sand	772.0
Bottom of Sand (Tested)	788.3
Total Feet of Permeable Sand	16.3
Total Feet of Floodable Sand	7.0

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 25	3.3	3.3
45 - 100	4.0	7.3
105 - 190	3.0	10.3
200 - 270	3.0	13.3
380 & Above	3.0	16.3

Average Permeability Millidarcys	166.5
Average Percent Porosity	18.1
Average Percent Oil Saturation	36.1
Average Percent Water Saturation	45.7
Average Oil Content, Bbls./A. Ft.	513.
Total Oil Content, Bbls./Acre	8,364.
Average Percent Oil Recovery by Laboratory Flooding Tests	8.4
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	131.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	915.
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
772.0 - 774.0	Grayish light brown sandstone.
774.0 - 786.3	Brown sandstone containing a vertical fracture.
786.3 - 789.0	Light brown and gray laminated sandstone and shale containing a vertical fracture.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 915 barrels of oil per acre was obtained from 7.0 feet of sand. The weighted average percent oil saturation was reduced from 41.1 to 32.7, or represents an average recovery of 8.4 percent. The weighted average effective permeability of the samples is 12,80 millidarcys, while the average initial fluid production pressure is 14.3 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 16 samples tested, 7 produced water and oil, and 9 samples produced water only. This indicates that approximately 44 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 2540 barrels of oil per acre. This is an average recovery of 363 barrels per acre foot from 7.0 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	15.0
Average porosity, percent	19.7
Oil saturation after flooding, percent	32.7
Performance factor, percent, estimated	50.0
Net floodable sand, feet	7.0

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Inexco Oil Company Lease Booth Well No. 20

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	772.5	16.2	23	72	95	289	92.	1.0	1.0	289	92.00
2	773.5	18.5	16	71	87	230	47.	1.0	2.0	230	47.00
3	774.5	20.7	36	38	74	578	384.	1.0	3.0	578	384.00
4	775.5	20.6	33	48	81	527	109.	1.0	4.0	527	109.00
5	776.5	19.9	38	42	80	587	200.	1.0	5.0	587	200.00
6	777.5	15.6	33	62	95	399	415.	1.0	6.0	399	415.00
7	778.5	12.4	21	73	94	202	96.	1.0	7.0	202	96.00
8	779.5	17.3	33	51	84	443	153.	1.0	8.0	443	153.00
9	780.5	20.0	24	55	79	372	72.	1.0	9.0	372	72.00
10	781.5	19.8	26	38	64	399	188.	1.0	10.0	399	188.00
11	782.5	20.5	39	36	75	620	241.	1.0	11.0	620	241.00
12	783.5	20.0	43	38	81	667	266.	1.0	12.0	667	266.00
13	784.5	19.7	66	15	81	1009	399.	1.0	13.0	1009	399.00
14	785.5	18.7	63	11	74	914	20.	1.3	14.3	1188	26.00
15	786.5	14.4	53	25	78	592	17.	1.0	15.3	592	17.00
16	787.5	14.7	23	66	89	262	9.4	1.0	16.3	262	9.40

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company Inexco Oil Company Lease Booth Well No. 20

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
772.0 - 779.0	7.0	191.9	1343.00
779.0 - 788.3	9.3	147.5	1371.40
772.0 - 788.3	16.3	166.5	2741.40

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
772.0 - 779.0	7.0	17.7	28.6	58.0	402	2,812
779.0 - 788.3	9.3	18.4	41.8	36.4	597	5,552
772.0 - 788.3	16.3	18.1	36.1	45.7	513	8,364

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Inexco Oil Company Lease Booth Well No. 20

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	772.5	16.3	23	291	0	0	23	72	291	368	12.49	15
2	773.5	18.3	16	227	0	0	16	80	227	222	4.05	15
3	774.5	20.8	36	581	4	65	32	60	516	246	13.28	15
4	775.5	20.6	33	527	2	32	31	65	495	337	4.35	15
5	776.5	20.0	38	590	3	47	35	59	543	370	10.83	15
6	777.5	15.8	33	405	2	25	31	64	390	246	14.14	15
7	778.5	12.7	20	197	0	0	20	75	197	268	10.00	20
8	779.5	17.5	33	446	2	27	31	63	421	369	8.25	15
9	780.5	20.0	24	372	0	0	24	67	372	455	6.90	20
10	781.5	19.9	26	401	0	0	26	66	626	346	11.66	20
11	782.5	20.7	39	626	5	80	34	50	546	277	3.75	15
12	783.5	20.1	43	671	12	187	31	62	484	468	22.11	15
13	784.5	19.9	66	1019	31	479	35	49	540	430	21.42	10
14	785.5	18.6	63	909	0	0	63	35	909	188	2.55	25
15	786.5	14.3	53	588	0	0	53	33	588	58	1.35	30
16	787.5	15.0	22	256	0	0	22	70	256	11	0.83	45

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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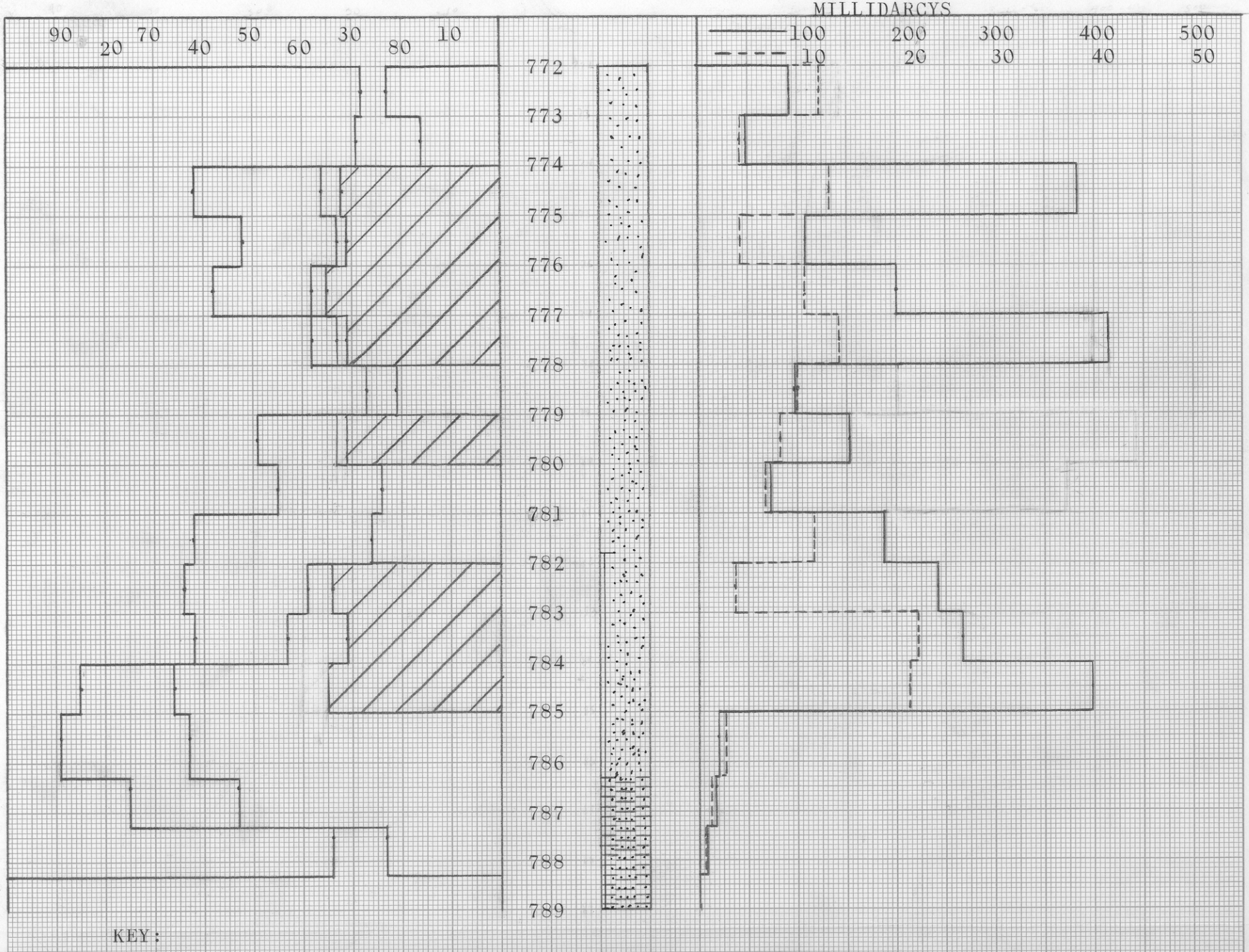
SUMMARY OF LABORATORY FLOODING TESTS

TABLE V

Company Inexco Oil Company Lease Booth Well No. 20

Depth Interval, Feet	772.0 - 779.0	779.0 - 788.3	772.0 - 788.3
Feet of Core Analyzed	4.0	3.0	7.0
Average Percent Porosity	19.3	20.2	19.7
Average Percent Original Oil Saturation	35.1	49.3	41.1
Average Percent Oil Recovery	2.8	16.0	8.4
Average Percent Residual Oil Saturation	32.3	33.3	32.7
Average Percent Residual Water Saturation	62.0	53.7	58.4
Average Percent Total Residual Fluid Saturation	94.3	87.0	91.1
Average Original Oil Content, Bbls./A. Ft.	528.	772.	633.
Average Oil Recovery, Bbls./A. Ft.	42.	249.	131.
Average Residual Oil Content, Bbls./A. Ft.	486.	523.	502.
Total Original Oil Content, Bbls./Acre	2,113.	2,316.	4,429.
Total Oil Recovery, Bbls./Acre	169.	746.	915.
Total Residual Oil Content, Bbls./Acre	1,944.	1,570.	3,514.
Average Effective Permeability, Millidarcys	10.7	15.8	12.8
Average Initial Fluid Production Pressure, p.s.i.	15.0	13.3	14.3

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



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KEY:

SANDSTONE

LAMINATED SANDSTONE AND SHALE

FORMATIONS CONTAINING A VERTICAL FRACTURE

FLOODPOT RESIDUAL OIL SATURATION

INEXCO OIL COMPANY

BOOTH LEASE

WELL NO. 20

ALLEN 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
772.0 - 779.0	7.0	17.7	28.6	58.0	191.9	
779.0 - 788.3	9.3	18.4	41.8	36.4	147.5	
772.0 - 788.3	16.3	18.1	36.1	45.7	166.5	2540

(PRIMARY AND WATERFLOODING)

OILFIELD RESEARCH LABORATORIES
CHANUTE, KANSAS
JANUARY, 1981

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