OILFIELD RESEARCH LABORATORIES

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

May 17, 1979

Oaks Petroleum, Inc.
R.R. #2
Stoystown, Pennsylvania 15563

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the Springer Lease, Well No. L-15, Franklin County, Kansas, and submitted to our laboratory on May 8, 1979.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Benjamin R. Pearman

Benjamin R. Pearman

SAM:cgb

3 c Stoystown, Pennsylvania
1 c Ottawa, Kansas

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company Oaks Petroleum, Inc. Lease Springer Well No. L-15

Location 990' FWL & 495' FNL NW

Section 15 Twp. 17S Rge. 21E County Franklin State Kansas

Name of Sand	Squirrel
Top of Core	572.0
Bottom of Core	584.7
Top of Sand	572.0
Bottom of Sand	584.7
Total Feet of Permeable Sand	12.7
Total Feet of Floodable Sand	9.3

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 10	2.4	2.4
10 - 50	6.3	8.7
50 - 100	2.3	11.0
100 - 200	1.0	12.0
200 & Above	0.7	12.7

Average Permeability Millidarcys	57.4
Average Percent Porosity	21.7
Average Percent Oil Saturation	37.2
Average Percent Water Saturation	46.7
Average Oil Content, Bbls./A. Ft.	623.
Total Oil Content, Bbls./Acre	7,914.
Average Percent Oil Recovery by Laboratory Flooding Tests	8.8
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	155.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	1,439.
Total Calculated Oil Recovery, Bbls./Acre (Primary & Waterflooding)	3,260.
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 drilling fluid consisted of fresh water mud. The core was reported to be from a non-virgin area.

FORMATION CORED

The detailed log of the formation cored is as follows:

Depth Interval, Feet	Description
572.0 - 576.3	Brown slightly shaly sandstone.
576.3 - 577.7	Brown and gray laminated sandstone and shale.
577.7 - 581.0	Brown slightly shaly sandstone.
581.0 - 584.1	Brown sandstone laminated with thin widely scattered shale partings.
584.1 - 584.7	Gray and light brown laminated sandstone and shale.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 1,439 barrels of oil per acre was obtained from 9.3 feet of sand. The weighted average percent oil saturation was reduced from 36.2 to 27.4, or represents an average recovery of 8.8 percent. The weighted average effective permeability of the samples is 2.38 millidarcys, while the average initial fluid production pressure is 17.2 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 13 samples tested, 9 produced water and 8 oil. This indicates that approximately 62 percent of the sand represented by these samples is floodable pay sand.

CALCULATED RECOVERY

It would appear from a study of the data, that efficient primary and waterflood operations in the vicinity of this well should recover approximately 3,260 barrels of oil per acre. This is an average recovery of 351 barrels per acre foot from 9.3 feet of floodable sand analyzed in this core.

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

Original formation volume factor	1.04
Reservoir water saturation, percent	30.0
Average porosity, percent	22.7
Oil saturation after flooding, percent	27.4
Performance factor, percent	50.0
Net floodable pay sand, feet	9.3

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Oaks Petroleum, Inc. Lease Springer Well No. L-15

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	572.5	25.0	33	44	77	640	45.	1.0	1.0	640	45.00
2	573.5	22.5	32	50	82	559	43.	1.0	2.0	559	43.00
3	574.5	22.9	31	52	83	551	72.	1.0	3.0	551	72.00
4	575.5	24.9	33	44	77	638	68.	1.3	4.3	829	88.40
5	576.5	20.6	32	57	89	511	346.	0.7	5.0	358	242.20
6	577.5	18.7	28	57	85	406	4.8	0.7	5.7	284	3.36
7	578.5	23.2	41	34	75	738	23.	1.3	7.0	959	29.90
8	579.5	22.8	36	49	85	637	122.	1.0	8.0	637	122.00
9	580.5	22.0	41	43	84	700	31.	1.0	9.0	700	31.00
10	581.5	20.6	45	40	85	719	36.	1.0	10.0	719	36.00
11	582.5	21.4	51	41	92	847	13.	1.0	11.0	847	13.00
12	583.5	16.9	38	54	92	498	2.4	1.1	12.1	548	2.64
13	584.5	15.2	40	53	93	472	0.42	0.6	12.7	283	0.25

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company Oaks Petroleum, Inc. Lease Springer Well No. L-15

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
572.0 - 582.0	10.0	71.3	712.86
582.0 - 584.7	2.7	5.9	15.89
572.0 - 584.7	12.7	57.4	728.75

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
572.0 - 582.0	10.0	22.6	35.6	45.9	624	6,236
582.0 - 584.7	2.7	18.2	43.3	49.0	621	1,678
572.0 - 584.7	12.7	21.7	37.2	46.7	623	7,914

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Oaks Petroleum, Inc. Lease Springer Well No. I-15

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	572.5	24.9	33	638	9	174	24	74	464	263	4.87	10
2	573.5	23.0	32	571	11	196	21	77	375	177	3.97	10
3	574.5	22.4	31	538	8	139	23	73	399	47	1.70	20
4	575.5	24.5	33	627	7	133	26	72	494	61	2.30	20
5	576.5	20.1	32	499	6	94	26	73	405	15	0.50	30
6	577.5	18.7	30	435	0	0	30	60	435	0	Imp.	-
7	578.5	23.2	41	738	14	252	27	70	486	51	1.70	15
8	579.5	22.8	36	637	5	88	31	67	549	131	3.00	10
9	580.5	21.5	41	684	8	133	33	65	551	70	2.10	15
10	581.5	20.4	45	712	9	143	36	63	569	19	0.90	25
11	582.5	21.2	50	822	0	0	50	42	822	0	Imp.	-
12	583.5	17.2	40	534	0	0	40	52	534	0	Imp.	-
13	584.5	15.2	41	483	0	0	41	52	483	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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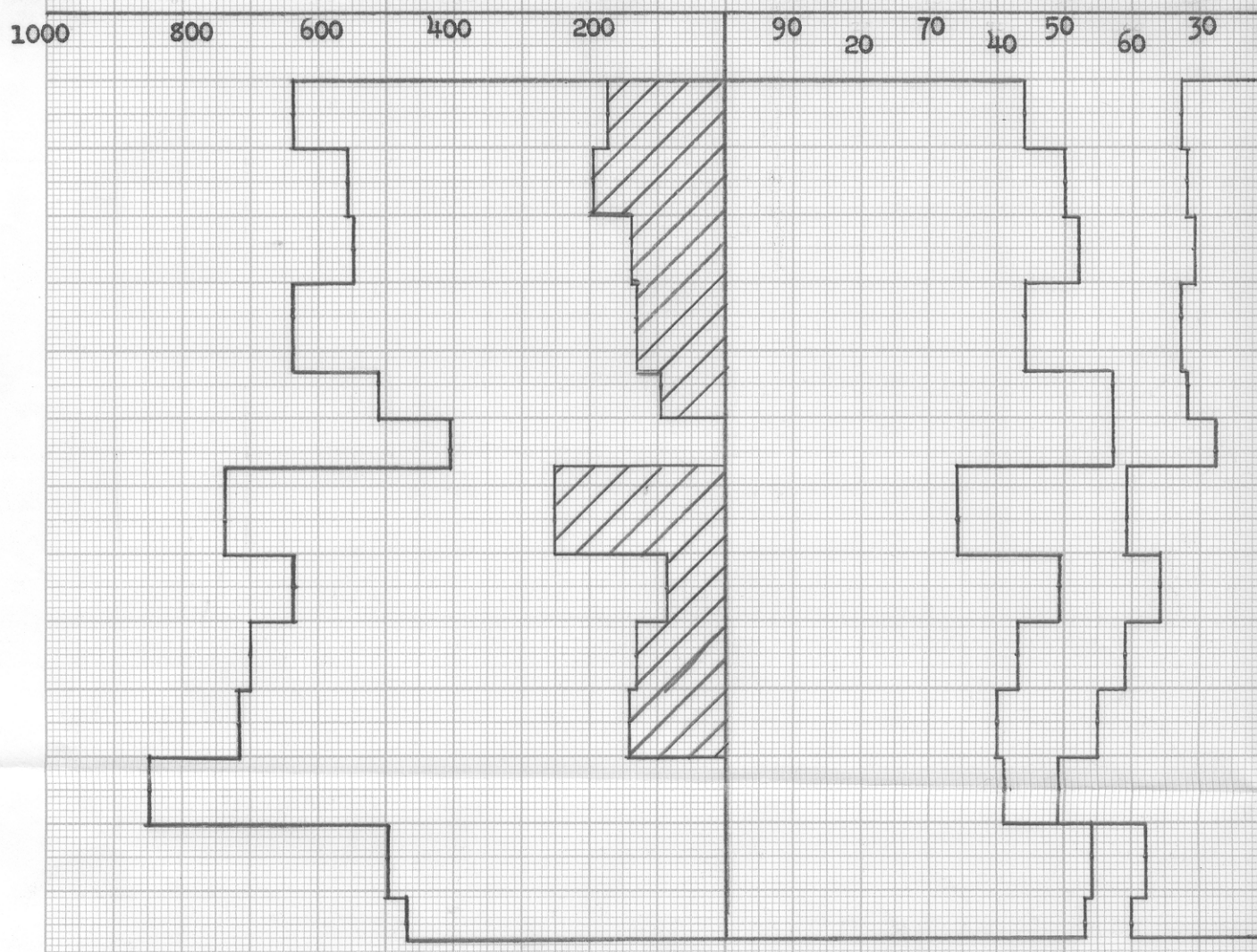
SUMMARY OF LABORATORY FLOODING TESTS

TABLE V

Company Oaks Petroleum, Inc. Lease Springer Well No. L-15

Depth Interval, Feet	572.0 - 582.0
Feet of Core Analyzed	9.3
Average Percent Porosity	22.7
Average Percent Original Oil Saturation	36.2
Average Percent Oil Recovery	8.8
Average Percent Residual Oil Saturation	27.4
Average Percent Residual Water Saturation	70.4
Average Percent Total Residual Fluid Saturation	97.8
Average Original Oil Content, Bbls./A. Ft.	635.
Average Oil Recovery, Bbls./A. Ft.	155.
Average Residual Oil Content, Bbls./A. Ft.	480.
Total Original Oil Content, Bbls./Acre	5,904.
Total Oil Recovery, Bbls./Acre	1,439.
Total Residual Oil Content, Bbls./Acre	4,465.
Average Effective Permeability, Millidarcys	2.38
Average Initial Fluid Production Pressure, p.s.i.	17.2

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

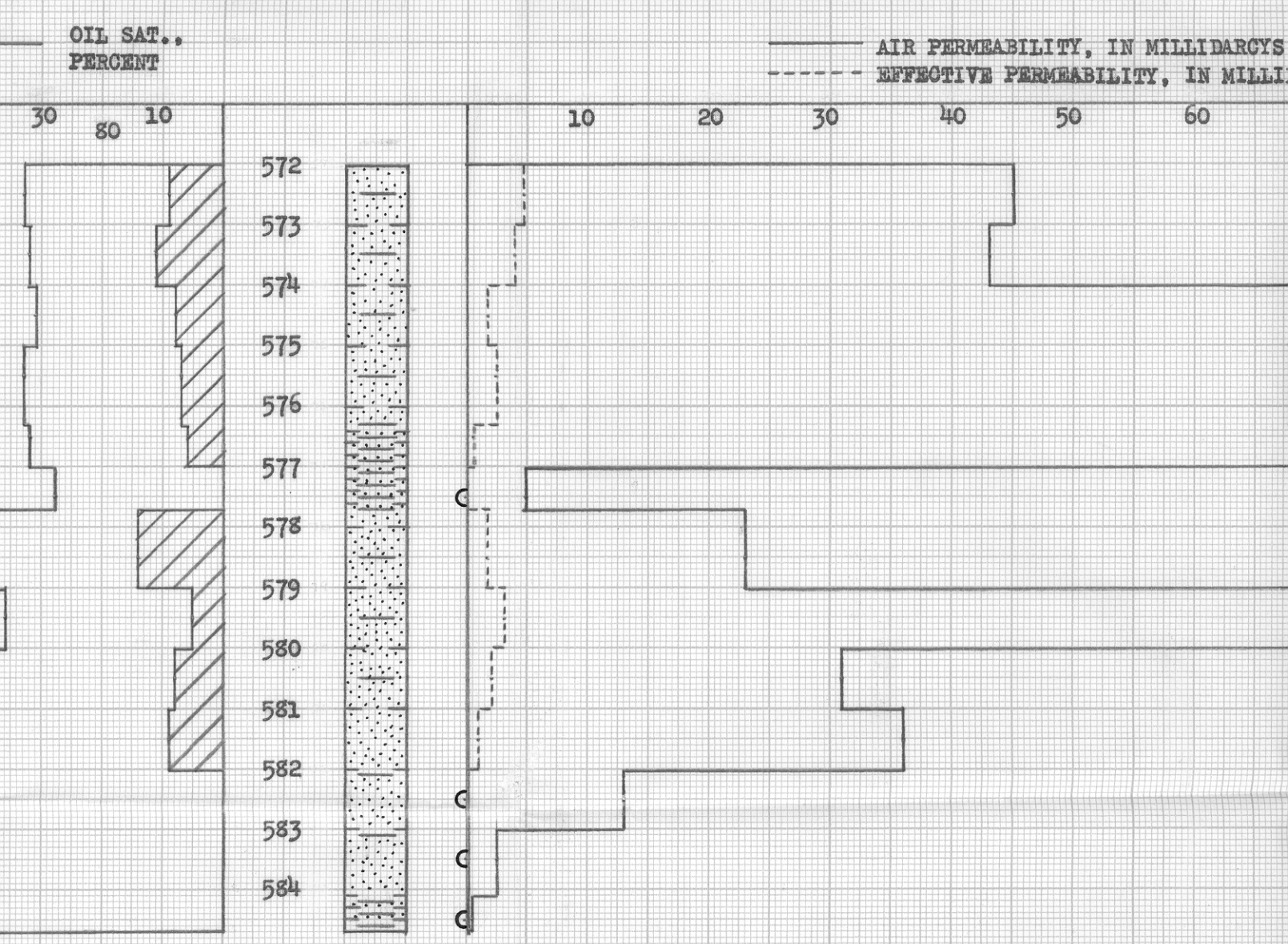


KEY:

FLOOD POT RECOVERY

SANDSTONE CONTAINING SHALE PARTINGS

DEPTH INTERVAL, FEET	FEET OF CO ANALYZED
572.0 - 582.0	10.0
582.0 - 584.7	2.7
572.0 - 584.7	12.7



OAKS PETROLEUM, INC.

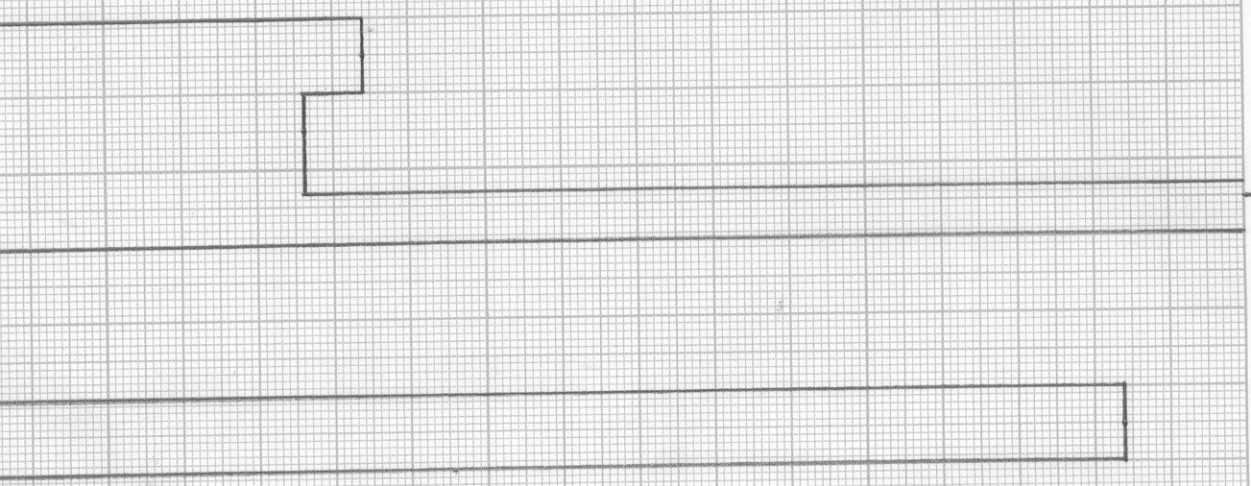
SPRINGER LEASE WELL NO. L-15

FRANKLIN COUNTY, KANSAS

T OF CORE NALYZED	AVERAGE PERCENT POROSITY	AVG. OIL SATURATION PERCENT	AVG. WATER SATURATION PERCENT	AVG. OIL CONTENT BBLS./A. FT.	TOTAL OIL CONTENT BBLS./ACRE	AVG. AIR PERMEABILITY, MILLIDARCYS	CALCU OIL RE BBLS.
10.0	22.6	35.6	45.9	624	6,236	71.3	
2.7	18.2	43.3	49.0	621	1,678	5.9	
12.7	21.7	37.2	46.7	623	7,914	57.4	3,26

TY, IN MILLIDARCYS
EABILITY, IN MILLIDARCYS

50 60 70 80 90 100 110 120 130



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D IMPERMEABLE TO WATER

AVG. AIR ERMEABILITY, MILLIDARCYS	CALCULATED OIL RECOVERY, BBLS./ACRE
71.3	
5.9	
57.4	3,260 (PRIMARY & WATERFLOODING)

OILFIELD RESEARCH LABORATORIES
CHANUTE, KANSAS
MAY, 1979.