

OILFIELD RESEARCH LABORATORIES

813 EAST SIXTH
OKMULGEE, OKLAHOMA
PHONE: 1486

- REGISTERED ENGINEERS -

Chanute, Kansas

536 N. HIGHLAND
CHANUTE, KANSAS
PHONE: 728

January 19, 1959

Home-Stake Production Company
Philtower Building
Tulsa 3, Oklahoma

Attn: Mr. Dave Davies

Gentlemen:

Enclosed herewith are the results of tests run on the 2 11/16" Rotary core taken from your Fooshee Lease, Garnett Extension, Well No. Q-2, Anderson County, Kansas, and submitted to our laboratory on January 15, 1959.

On the basis of the enclosed data, it is evident that an efficient water-flood within the vicinity of this well will recover approximately 1,480 barrels of oil per acre from the 6.7 feet of floodable pay sand analyzed. In calculating this recovery, the following factors and assumptions were used:

Original formation volume factor	1.06
Present formation volume factor	1.02
True water saturation, percent	35.0
Primary oil recovery, percent	5.0
Calculated present oil saturation, percent	57.5
Porosity, percent	21.1
Oil saturation at abandonment, percent	30.0
Performance factor	0.50

It is recommended that the pipe be perforated from a depth of 729.0 to 730.0 and from 736.0 to 739.0 feet.

This core was sampled and the samples were sealed in cans by a representative of our laboratory.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Carl L. McElrea
Carl L. McElrea

CLM:cs

1 c. to Mr. C. W. Stumhoffer

Fooshee Q-2 4-21-19E

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GENERAL INFORMATION & SUMMARY

Company Home-Stake Production Co. Lease Fooshee Well No. Q-2

Location 1485' South of North Line, 360' West of East Line, NE 1/4

Section 4 Twp. 21S Rge. 19E County Anderson State Kansas

Name of Sand - - - - - Squirrel

Top of Core - - - - - 700.0

Bottom of Core - - - - - 754.0

Pay
Top of Sand - - - - - 730.0

Pay
Bottom of Sand - - - - - 740.6

Total Feet of Permeable Sand - - - - - 25.4

Total Feet of Floodable Sand - - - - - 6.7

Distribution of Permeable Sand:
Permeability Range
Millidarcys

Feet

Cum. Ft.

Effective
Average/Permeability Millidarcys - - - - - 2.33

Average Percent Porosity - - - - - 19.4

Average Percent Oil Saturation - - - - - 30.6

Average Percent Water Saturation - - - - - 45.0

Average Oil Content, Bbls./A. Ft. - - - - - 460.

Total Oil Content, Bbls./Acre - - - - - 15,669.

Average Percent Oil Recovery by Laboratory Flooding Tests - - - - -

Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft. - - - - -

Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre - - - - -

Total Calculated Oil Recovery, Bbls./Acre - - - - - 1,480.

Packer Setting, Feet - - - - -

Viscosity, Centipoises @ - - - - -

A. P. I. Gravity, degrees @ 60 °F - - - - -

Elevation, Feet - - - - - 990.

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LOG

Company Home-Stake Production Co. Lease Fooshee Well No. Q-2

Depth Interval, Description
Feet

700.0 - 714.0 - Gray sandy shale.

714.0 - 715.5 - Laminated sandstone and shale.

715.5 - 728.0 - Grayish light brown shaley sandstone.

728.0 - 730.0 - Brown laminated shaley sandstone.

730.0 - 730.5 - Brown to dark laminated shaley sandstone.

730.5 - 731.4 - Grayish brown laminated shaley sandstone.

731.4 - 734.3 - Brown and gray laminated shaley sandstone.

734.3 - 741.3 - Brown slightly shaley sandstone.

741.3 - 751.0 - Grayish brown shaley sandstone.

751.0 - 754.0 - Dark shale.

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RESULTS OF PERMEABILITY AND POROSITY TESTS
TABLE I A

Company Home-Stake Production Co. Lease Fooshee Well No. Q-2

Vertical
Effective

Sample No.	Depth, Feet	Permeability Millidarcys	Feet of Core		Permeability Capacity Ft. x Md.	Percent Porosity
			Ft.	Cum. Ft.		
1	736.4	0.387				
2	737.4	4.72				
3	738.4	Imp.				
4	739.4	Imp.				
5	740.4	0.300				
6	741.4	0.067				
7	742.4	0.307				
8	743.4	0.908				
9	744.4	Imp.				

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Home-Stake Production Co. Lease Fooshee Well No. Q-2

Effective

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			Ft.	Cum. Ft.		
1	716.1	21.8	16	42	271	14.23	1.1	1.1	298	
2	717.1	18.3	27	47	384	1.66	1.0	2.1	384	
3	718.1	17.9	22	51	306	0.458	1.0	3.1	306	
4	719.1	17.8	20	55	276	2.05	1.0	4.1	276	
5	720.1	17.9	33	51	458	0.300	1.0	5.1	458	
6	721.1	20.6	21	45	336	8.97	1.0	6.1	336	
7	722.1	22.2	22	43	379	0.600	1.0	7.1	379	
8	723.1	20.6	23	45	368	0.750	1.0	8.1	368	
9	724.1	17.1	23	52	305	Imp.	1.0	9.1	305	
10	725.1	21.0	28	44	456	0.694	1.0	10.1	456	
11	726.1	21.2	21	50	346	1.90	1.0	11.1	346	
12	727.1	17.1	30	49	398	Imp.	1.4	12.5	557	
13	728.1	19.5	30	40	454	0.500	0.6	13.1	272	
14	729.1	21.2	31	38	510	Imp.	1.4	14.5	714	
15	730.1	18.3	37	36	525	0.396	0.5	15.0	262	
16	731.1	18.8	25	45	365	Imp.	0.9	15.9	328	
17	732.1	21.9	33	36	561	0.700	1.2	17.1	674	
18	733.1	16.1	25	56	312	Imp.	1.0	18.1	312	
19	734.1	19.9	41	38	634	Imp.	0.7	18.8	444	
20	735.1	16.4	45	52	572	Imp.	1.3	20.1	745	
21	736.1	21.4	31	34	515	1.60	1.0	21.1	515	
22	737.1	23.2	41	34	738	2.70	1.0	22.1	738	
23	738.1	20.4	36	36	570	Imp.	1.0	23.1	570	
24	739.1	21.2	42	34	691	0.500	1.0	24.1	691	
25	740.1	21.6	44	35	737	0.916	1.0	25.1	737	

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Home-Stake Production Co.

Lease

Fooshee

Well No.

Q-2

Effective

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			Ft.	Cum. Ft.		
26	741.1	20.3	31	41	489	0.767	0.7	25.8	342	
27	742.1	20.4	37	49	585	1.10	1.3	27.1	761	
28	743.1	14.1	33	43	361	0.590	1.0	28.1	361	
29	744.1	20.9	35	43	568	0.590	1.0	29.1	568	
30	745.1	18.0	30	54	419	6.31	1.0	30.1	419	
31	746.1	19.9	29	53	447	7.81	1.0	31.1	447	
32	747.1	18.9	27	57	396	1.21	1.0	32.1	396	
33	748.1	16.7	33	47	427	0.400	1.0	33.1	427	
34	749.1	17.1	36	42	477	0.101	1.0	34.1	477	
Total							15,669			

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SUMMARY OF PERMEABILITY & SATURATION TESTS

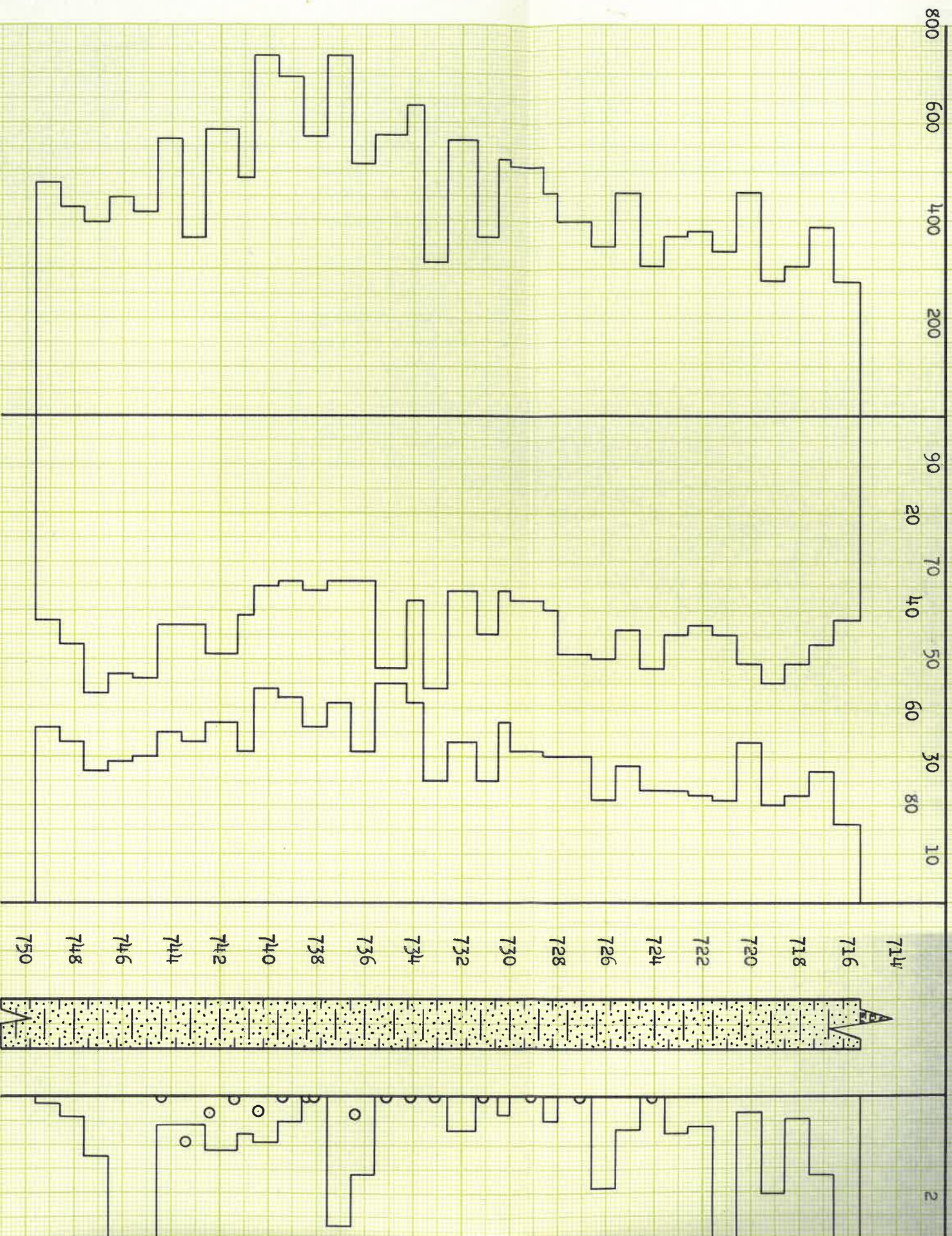
TABLE III

Company	Home-Stake Production Co.	Lease	Fooshee	Well No.	Q-2
Depth Interval, Feet	Feet of Core Analyzed	Effective Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.		
715.5 - 726.6	10.1	3.27			
728.0 - 740.6	6.3	1.12			
740.6 - 749.6	9.0	2.11			
715.5 - 749.6	25.4	2.33			
Depth Interval, Feet	Feet of Core Analyzed	Average Percent Porosity	Average Percent Oil Saturation	Average Percent Water Saturation	Total Oil Content Bbls./Acre
715.5 - 728.0	12.5	19.4	24.0	47.7	4,469
728.0 - 740.6	12.6	20.1	35.6	39.8	7,002
740.6 - 749.6	9.0	18.5	32.6	48.0	4,198
715.5 - 749.6	34.1	19.4	30.6	45.0	15,669

OIL CONTENT,
BBL/S./A. FT.

WATER SAT., ———→
PERCENT

→ OIL SAT.,
PERCENT



KEY:



SHALEY SANDSTONE



LAMINATED SANDSTONE AND SHALE



SHALE (DISCARDED)



IMPERMEABLE TO WATER

HOME-STAKE PROI

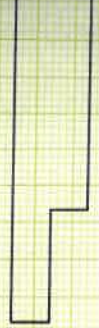
FOOSHEE LEASE

ANDERSON COU

DEPTH INTERVAL, FEET	FEET OF CORE ANALYZED	AVERAGE POROSITY, PERCENT	AVG. OIL SATURATION PERCENT	AVG. SATU PER
715.5 - 728.0	12.5	19.4	24.0	4
728.0 - 740.6	12.6	20.1	35.6	3
740.6 - 749.6	9.0	18.5	32.6	4
715.5 - 749.6	34.1	19.4	30.6	4

— EFFECTIVE PERMEABILITY, IN MILLIDARCS
O, VERTICAL EFFECTIVE PERMEABILITY, IN MILLIDARCS

4 6 8 10 12 14 16 18 20 22 24 26 28



o

WELL) IMPERMEABLE TO VERTICAL WATER

UCTION COMPANY

TY, KANSAS WELL NO. 9-2

WATER ATION ENT	AVG. OIL CONTENT BBLs./A. FT.	TOTAL OIL CONTENT BBLs./ACRE	AVG. EFFECTIVE PERMEABILITY, MILLIDARCS	CALCULATED OIL RECOVERY, BBLs./ACRE
.7	358	4,469	3.27	
.8	556	7,002	1.12	
.0	466	4,198	2.11	
.0	460	15,669	2.33	1,480

OILFIELD RESEARCH LABORATORIES
CHANUTE, KANSAS
JANUARY, 1959