

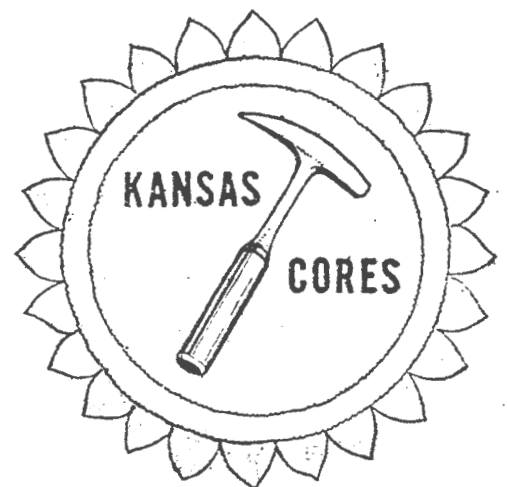
COMPANY BEARD, ENGLISH & MARTIN

WELL HOFFMAN #1

LOCATION ST 10N ST 30-25-9E

COUNTY FREEMONT

STATE KANSAS



PETROLEUM RESERVOIR ENGINEERING  
CORE ANALYSIS

# Kansas Cores

PETROLEUM RESERVOIR ENGINEERING  
WICHITA, KANSAS

COMPANY Beard, English & Martin DATE 6-1-67  
 WELL Hoffman #11 ANALYST IS  
 FIELD \_\_\_\_\_  
 COUNTY Greenwood STATE Kansas

The analyses and interpretations are based on material brought to Kansas Cores by the client, and such data and interpretations are accessible only to that company which the client represents. Kansas Cores makes no warranty and makes no guarantee for the interpretations and opinions of the data. Our opinions of an analysis are placed at the discretion of the operator.

PERMEABILITY MILLIDARCY'S  $\circ$ — $\circ$

200 150 100 50 0

POROSITY—% X—X

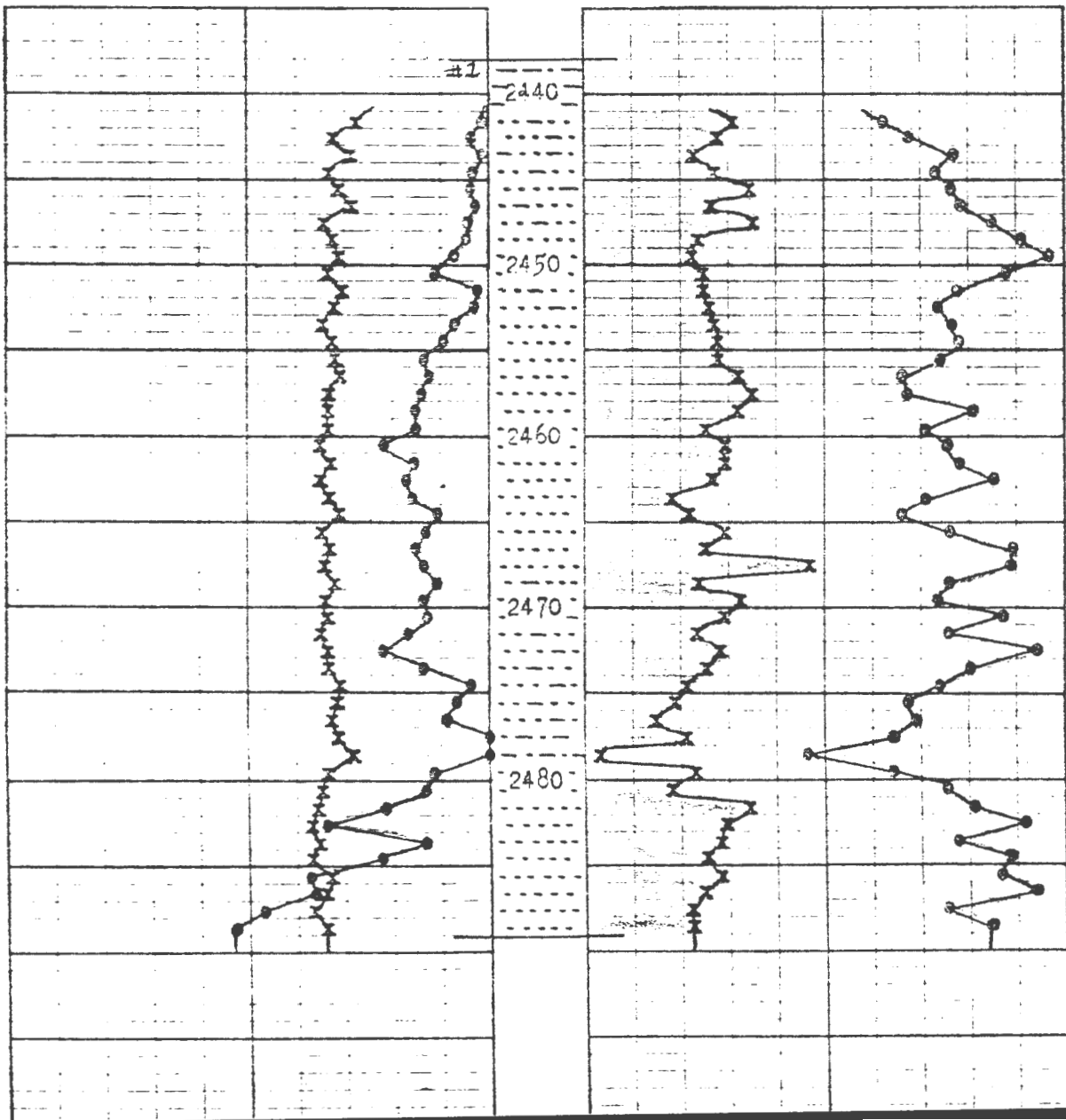
20 10 0

CONNATE WATER % SATURATION

0 70 60 50 40  $\circ$ — $\circ$

OIL % PORE SATURATION X—X

10 20



# Kansas Cores

PETROLEUM RESERVOIR ENGINEERING

CORE ANALYSIS

1026 NORTH LIGHTNER  
WICHITA, KANSAS 67208

June 1, 1967

Re: CORE ANALYSIS REPORT  
Beard, English & Martin  
Heffman #11  
Greenwood County, Kansas

Beard, English & Martin  
P.O. Box 151  
Bartlesville, Oklahoma

Gentlemen:

The cores from your well, Heffman #11, Greenwood County, Kansas have been analysed for permeability, porosity, and residual saturation of oil and water. The data will be found tabulated on the following pages and indicated on the coregraph. The data averages and recovery figures will be found at the end of this report.

The following is a short discussion of the section cored and analysed.

## 2441' to 2453' - Oil Productive

This section of the Bartlesville was composed of a fine grained fairly tight sand with some black shale laminations. Low permeabilities were measured, along with fair porosities. The oil and water percentages are in line for oil production, but limited by the low permeabilities.

## 2453' to 2477' - Oil Productive

A good, clean sand was found in the top 10' of this section, with good oil saturation and low waters. Good permeabilities and porosities were measured. The waters are in line for oil production, however the oil percentages became somewhat erratic in the bottom 14', indicating some water will be produced with the oil from this zone.

## 2479' to 2489' - Oil Productive

A very soft medium grained dark brown friable sand was found here, with very good permeabilities and porosities. The oil percentages are good, becoming gradually lower downward, showing the probability of a large amount of water coming from the base and below this zone, but a good amount of oil will be produced from the top.

Yours very truly,

KANSAS CORES

*Ivan L. Stuber*  
Ivan L. Stuber

Attachments

cc: 6 copies to Beard, English & Martin, Bart., Okla.

Re: CORE DESCRIPTION  
Beard, English & Martin  
Heffman #11  
Greenwood County, Kansas

<u>CORE #1</u>	<u>2438' to 2489'</u>	<u>Cut 51'</u>	<u>Rec. 51'</u>
2438--41	Hard bright green very shaley and silty sand with green shale: Trace scattered staining		
2441--44	Soft very fine grained light grey slightly friable sand with some thin black shale laminations and inclusions: Good stain and odor		
2444--48	Fine grained slightly friable grey sand with few black shale streaks: Good stain and odor		
2448--50	Soft fine grained friable grey sand: Good stain and odor		
2450--53	Same sand with some black micaceous shale and trace green shale partings and streaks: Good stain and odor		
2453--56	Soft clean fine to medium grained light grey-brown friable sand, trace thin black shale laminations bottom: Good stain and odor		
2456--66	Soft friable clean light brown fine to medium grained sand: Good stain and odor		
2466--68	Fairly sharp slightly quartzitic fine to medium grained medium to dark grey-black sand: Good stain and odor		
2468--74	Soft brown fine grained friable sand with some lignite and black micaceous shale, few laminations blue-grey silty sand: Good stain & odor		
2474--77	Dirty grey-brown fine grained sand with numerous streaks and laminations of green shale and micaceous black shale: Fair streaked stain		
2477--79	Black shale and silty grey sand streaks: Poor very streaked stain in part		
2479--82	Fine to medium grained grey-brown friable sand with some blue-grey streaks of silty sand, trace micaceous black shale: Good stain & odor		
2482--89	Very soft and friable medium grained to larger grained toward bottom sand, slightly quartzitic bottom: Good stain and odor		

# Kansas Cores

PETROLEUM RESERVOIR ENGINEERING  
WICHITA, KANSAS 67208

LL Hoffman #11 COUNTY Greenwood STATE Kansas  
 COMPANY Beard, English & Martin DATE 6-1-67 FILE No. S-742  
 FIELD \_\_\_\_\_ TYPE CORES Diamond ANALYST IS

## ANALYSIS DATA AND INTERPRETATIONS

SAMPLE No.	DEPTH	PERMEABILITY MILLIDARCYS		POROSITY %	SATURATION WATER % PORE SPACE	SATURATION OIL % PORE SPACE	PROBABLE PRODUCTION	REMARKS
		HORIZONTAL	VERTICAL					
1	2441	2.4	0.8	14.3	49.1	15.4	Oil	
	42							
2	2442	9.8	4.4	16.1	46.8	14.0	Oil	
	43							
3	2443	1.8	0.0	14.5	41.5	11.1	Oil	
	44							
4	2444	10.9	7.5	16.5	43.8	13.2	Oil	
	45							
5	2445	11.8	4.7	15.8	42.3	16.9	Oil	
	46							
6	2446	5.2	0.0	14.3	41.0	13.1	Oil	
	47							
-	2447	12.1	4.8	17.2	38.2	16.8	Oil	
	48							
	2448	13.0	4.5	16.5	34.9	11.6	Oil	
	49							
9	2449	20.0	7.3	15.9	31.4	10.9	Oil	
	50							
10	2450	28.1	8.9	16.9	36.7	12.2	Oil	
	51							
11	2451	4.4	2.2	15.3	41.3	11.7	Oil	
	52							
12	2452	5.7	4.3	16.2	43.0	12.1	Oil	
	53							
13	2453	18.6	5.0	17.2	42.3	13.4	Oil	
	54							
14	2454	24.9	14.1	16.1	41.7	13.7	Oil	
	55							
15	2455	32.2	5.2	15.9	43.2	14.3	Oil	
	56							
16	2456	30.4	26.7	15.4	46.9	16.0	Oil	
	57							
17	2457	37.9	28.2	16.3	46.1	17.3	Oil	
	58							
18	2458	39.6	28.0	16.7	39.5	15.8	Oil	
	59							
19	2459	40.2	29.1	16.7	44.9	12.4	Oil	
	60							
20	2460	53.8	40.7	17.6	42.3	14.8	Oil	
	61							
21	2461	39.6	30.6	16.3	40.7	14.6	Oil	
	62							
22	2462	45.7	38.5	17.0	37.5	13.3	Oil	
	63							
23	2463	38.7	29.3	16.5	44.8	9.1	Oil	
	64							
24	2464	26.5	21.6	15.6	47.2	10.9	Oil	
	65							

*One sequence?*

# Kansas Cores

PETROLEUM RESERVOIR ENGINEERING  
WICHITA, KANSAS 67208

WELL \_\_\_\_\_ COUNTY \_\_\_\_\_ STATE \_\_\_\_\_

COMPANY \_\_\_\_\_ DATE \_\_\_\_\_ FILE NO. \_\_\_\_\_

FIELD \_\_\_\_\_ TYPE CORES \_\_\_\_\_ ANALYST \_\_\_\_\_

## ANALYSIS DATA AND INTERPRETATIONS

SAMPLE No.	DEPTH	PERMEABILITY MILLIDARCYS		POROSITY %	SATURATION WATER % PORE SPACE	SATURATION OIL % PORE SPACE	PROBABLE PRODUCTION	REMARKS
		HORIZONTAL	VERTICAL					
25	2465 66	30.6	28.5	17.4	42.3	14.5	Oil	
26	2466 67	39.7	32.3	16.5	35.1	12.9	Oil	
27	2467 68	32.2	18.5	16.9	35.8	23.0	Oil	
28	2468 69	25.8	4.6	15.9	42.3	11.2	Oil	
29	2469 70	33.1	8.9	16.9	43.6	16.0	Oil	
30	2470 71	34.3	0.0	16.1	36.1	14.5	Oil	
31	2471 72	45.7	24.7	17.8	42.2	11.6	Oil	
	2472 73	56.2	39.1	17.0	33.1	14.3	Oil	
33	2473 74	33.6	24.9	16.5	39.9	12.5	Oil	
34	2474 75	8.6	1.9	15.2	43.2	10.4	Oil	
35	2475 76	21.7	4.5	15.9	46.1	9.7	Oil	
36	2476 77	23.6	5.1	16.0	45.2	7.3	Oil	
37	2477 78	0.0	0.0	15.5	47.8	10.6	No Perm	
38	2478 79	0.0	0.0	14.4	57.3	1.4	No Perm	
39	2479 80	25.8	0.0	16.3	48.1	11.2	Oil	
40	2480 81	31.9	5.2	17.6	42.5	9.0	Oil	
41	2481 82	52.8	31.7	17.8	39.9	16.5	Oil	
42	2482 83	91.6	61.3	18.1	34.4	14.9	Oil	
43	2483 84	31.9	32.0	17.6	41.7	14.3	Oil	
44	2484 85	55.2	34.5	18.8	35.7	12.6	Oil	
45	2485 86	93.7	91.6	16.8	36.3	14.6	Oil	
	2486 87	84.6	54.8	18.2	33.2	12.1	Oil	
47	2487 88	120	91.0	18.8	42.2	11.7	Oil	
48	2488 89	130	120	16.9	37.7	11.0	Oil	

KANSAS CORES  
 PETROLEUM RESERVOIR ENGINEERING  
 WICHITA, KANSAS

DATA AVERAGES AND OIL RECOVERY FIGURES

DEPTH	2441'-2453'	2453'-2477'	2479'-2489'
FEET OF PRODUCTION FORMATION OF SECTION ANALYZED	12	24	10
AVERAGE PERMEABILITY IN MILLIDARCYS	10.4	33.9	71.8
AVERAGE POROSITY, PER CENT	15.9	16.4	17.7
AVERAGE TOTAL WATER % OF PORE SPACE	40.8	41.3	39.2
AVERAGE RESIDUAL OIL % OF PORE SPACE	13.3	13.5	12.8
AVERAGE CONNATE WATER CALCULATED % OF PORE SPACE	32.6	33.0	31.3
ESTIMATED FORMATION VOLUME FACTOR - USED IN CALCULATING RECOVERABLE OIL	1.16	1.16	1.16
PRODUCTIVE CAPACITY - PRODUCTIVE FEET X AVERAGE PERMEABILITY IN MILLIDARCYS	125	813	718
RECOVERABLE OIL BY WATER DRIVE - BBLs. PER ACRE FOOT	323 *	330 *	366 *
RECOVERABLE OIL BY GAS EXPANSION - BBLs. PER ACRE FOOT	179 **	184 **	203 **

10.4  
13.0

33.9  
24

71.8  
11

135.2  
813.6  
789.8

\* 45% of the oil in place  
 \*\* 25% of the oil in place

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