COMPANY EUREKA DRILLING

WELL BATES #1

LOCATION 998' S of N Line & 555' E of W Line NW/4 30-25-9E

COUNTY GREENWOOD

STATE KANSAS

3-Bates

KANSAS CORES

PETROLEUM RESERVOIR ENGINEERING

CORE ANALYSIS

Kansas Cores

PETROLEUM RESERVOIR ENGINEERING

WICHITA, KANSAS

COMPANY Eureka Drilling DATE 11-20-65

WELL Bates #1 ANALYST IS

FIELD

COUNTY Greenwood STATE Kansas

The analyses and interpretations are based on materials 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 MILLIDARCYS O—O

200 150 100 50 0

POROSITY—% X—X

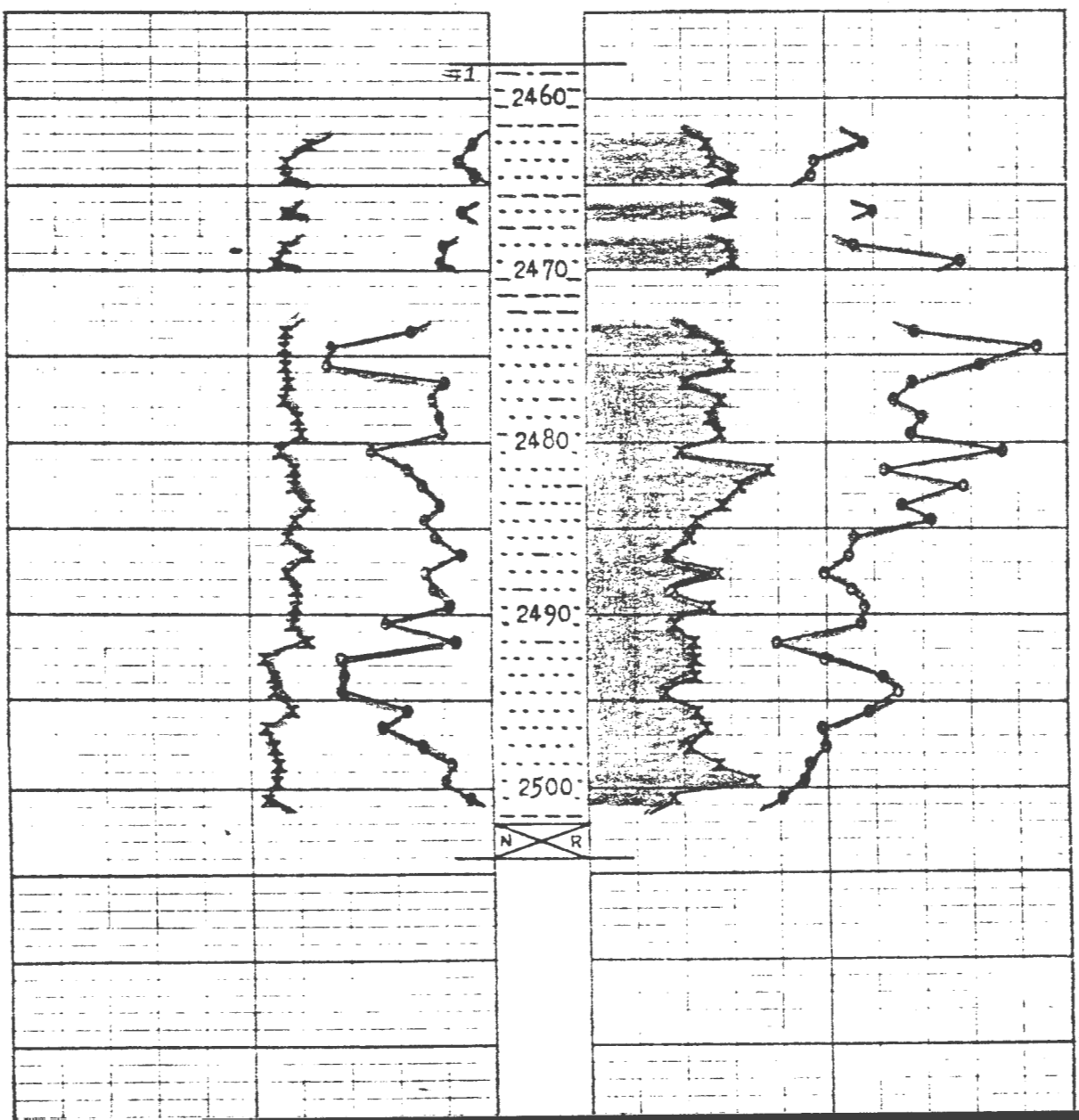
20 10 0

CONNATE WATER % SATURATION

0 60 50 40 O—O 30

OIL % PORE SATURATION X—X

0 10 20



Kansas Cores

PETROLEUM RESERVOIR ENGINEERING

CORE ANALYSIS

1026 NORTH LIGHTNER
WICHITA, KANSAS 67208

Nov. 20, 1965

Re: CORE ANALYSIS REPORT
Eureka Drilling Company
Bates #1
Greenwood County, Kansas

Eureka Drilling Co.
Hamilton, Kansas

Gentlemen:

The cores from your well, Bates #1, 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.

2462' to 2470' - Oil Productive

This section of the Bartlesville was composed of a fairly tight fine grained sand with good oil saturation. Good porosities were measured and the sand had fair permeabilities. The water percentages are in line for oil production. Considerable shale was noted throughout the zone, but the oil produced will be an important supplement to that produced from below.

2473' to 2484' - Oil Productive

A good, clean sand was found here, with good permeabilities and porosities. The water and oil percentages are well in line for oil production. The water was found at 2484', where the oil percentages dropped by 20% and became erratic, and the waters increased. Some water will be produced with the oil, but a commercial well can be expected.

Yours very truly,

KANSAS CORES

Ivan L. Stuber

Ivan L. Stuber

Attachments
cc: 15 copies to Eureka Drlg. Co., Hamilton, Kansas

Re: CORE DESCRIPTION
Eureka Drilling Co.
Bates #1
Greenwood County, Ks.

CORE #1 2458' to 2504' Cut 46' Rec. 44'

2458--62	Hard grey shale with some grey silty shale: No show
2462--65	Fairly hard tight fine grained slightly friable brown sand with few thin grey silty shale barren streaks: Good stain and odor, bleeding oil
2465--66	Hard grey shale
2466--67	Soft friable brown fine grained sand, trace shale: Good stain and odor
2467--68	Hard grey shale with few thin streaks bleeding sand
2468--70	Soft friable fine to medium grained brown sand, trace green shale inclusions top: Good stain and odor
2470--73	Hard grey-black shale with trace silty sand: Poor stain in silty sand
2473--76	Soft friable fine to medium grained brown sand: Good stain
2476--80	Soft slightly sharp medium grained sand with few thin laminations of grey barren silty sand, some micaceous and carbonaceous shale toward bottom: Good stain and odor
2480--84	Soft medium grained brown friable slightly quartzitic sand, trace lignitic and carbonaceous bottom: Good stain and odor
2484--86	Fine to medium grained friable slightly quartzitic sand: Good stain and odor
2486--92	Soft friable fine grained brown sand with few thin grey silty sand streaks, some carbonaceous and micaceous black shale: Good stain and odor
2492--97	Soft brown friable fine to medium grained sand: Good stain and odor
2497--98	Grey-brown fine grained friable sand: Good stain and odor
2498--2500	Soft friable fine grained dark grey-black sand: Good stain and odor
2500--01	Hard slightly shaley grey-brown sand, some grey-black shale laminations: Good stain and odor
2501--02	Hard silty grey-shale with some black shale
2502--04	No recovery

Kansas Cores

PETROLEUM RESERVOIR ENGINEERING
WICHITA, KANSAS 67208

WELL Bates #1 COUNTY Greenwood STATE Kansas

COMPANY Eureka Drilling DATE 11-20-65 FILE No. S-631

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	2462 63	9.8	8.9	19.4	41.1	12.1	Oil	
2	2463 64	18.3	5.2	21.4	46.2	13.0	Oil	
3	2464 65	10.7	4.1	21.4	46.5	15.2	Oil	
		shale						
4	2466 67	17.9	13.7	21.3	40.1	15.0	Oil	
		shale						
5	2468 69	24.3	12.6	21.7	42.6	14.9	Oil	
6	2469 70	26.1	21.8	22.6	31.8	15.3	Oil	
		shale						
7	2473 74	42.7	38.3	21.8	36.8	10.6	Oil	
8	2474 75	84.6	81.9	21.7	23.4	13.8	Oil	
9	2475 76	87.3	63.4	21.7	29.2	14.8	Oil	
10	2476 77	25.4	4.7	21.0	36.8	10.2	Oil	
11	2477 78	31.7	6.1	22.0	38.3	13.9	Oil	
12	2478 79	27.5	8.9	20.2	35.2	12.9	Oil	
13	2479 80	25.1	14.8	19.7	36.7	13.4	Oil	
14	2480 81	66.3	56.7	22.2	26.8	9.7	Oil	
15	2481 82	44.5	31.9	20.6	39.0	19.2	Oil	
16	2482 83	38.7	28.7	20.6	30.6	15.9	Oil	
17	2483 84	27.8	14.8	19.2	37.5	13.7	Oil	

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 HORIZONTAL	PERMEABILITY MILLIDARCYS VERTICAL	POROSITY %	SATURATION WATER % PORE SPACE	SATURATION OIL % PORE SPACE	PROBABLE PRODUCTION	REMARKS
18	2484 85	36.9	27.4	20.4	34.2	11.9	Water	
19	2485 86	29.6	24.8	21.2	42.6	10.8	Water	
20	2486 87	18.1	8.7	19.3	43.2	8.9	Water	
21	2487 88	35.0	16.9	21.2	45.1	14.2	Water	
22	2488 89	32.2	16.1	20.3	42.9	9.4	Water	
23	2489 90	23.4	16.8	20.2	41.5	12.6	Water	
	2490 91	55.2	49.7	20.8	41.7	9.0	Water	
25	2491 92	21.6	10.0	19.2	50.9	11.5	Water	
26	2492 93	77.8	48.7	23.8	45.6	11.8	Water	
27	2493 94	76.2	68.9	23.0	39.1	11.9	Water	
28	2494 95	78.5	69.7	22.7	37.6	8.2	Water	
29	2495 96	45.6	16.8	20.8	40.4	11.6	Water	
30	2496 97	57.3	53.7	23.8	45.7	12.5	Water	
31	2497 98	38.6	38.1	22.8	45.2	11.0	Water	
32	2498 99	22.1	21.6	22.1	46.9	14.3	Water	
33	2499 2500	24.8	20.9	22.7	47.6	17.6	Water	
34	2500 01	12.0	2.6	23.1	49.6	9.1	Water	
		684.9		367.4	738.9	196.3		
		107.4		127.8	248.4	148.5		
		501.6		231	370.7	85.8		

Eureka
Bottol
30-25S-9E

PETROLEUM RESERVOIR ENGINEERING
WICHITA, KANSAS

DATA AVERAGES AND OIL RECOVERY FIGURES

DEPTH	2462'-2470'	2473'-2484'
FEET OF PRODUCTION FORMATION OF SECTION ANALYZED	6	11
AVERAGE PERMEABILITY IN MILLIDARCYS	17.9	45.6
AVERAGE POROSITY, PER CENT	21.3	21.0
AVERAGE TOTAL WATER % OF PORE SPACE	41.4	33.7
AVERAGE RESIDUAL OIL % OF PORE SPACE	14.3	13.5
AVERAGE CONNATE WATER CALCULATED % OF PORE SPACE	33.1	27.0
ESTIMATED FORMATION VOLUME FACTOR — USED IN CALCULATING RECOVERABLE OIL	1.20	1.20
PRODUCTIVE CAPACITY — PRODUCTIVE FEET X AVERAGE PERMEABILITY IN MILLIDARCYS	107	502
RECOVERABLE OIL BY WATER DRIVE — BBLS. PER ACRE FOOT	684	771
RECOVERABLE OIL BY GAS EXPANSION — BBLS. PER ACRE FOOT	410*	463*

107.4
501.6
609.0

370.7
248.4
619.1

297
198
495

4104
8481
12585

2460
5093
7553

17.9
6

45.6
11

*From original bottom hole pressure to zero

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