T. 27 N. 20W Sec. 28

Kansas Cores

PETROLEUM RESERVOIR ENGINEERING

WICHITA, KANSAS

COMPANY Mull Drlg. & Walters Drlg. DATE 3-26-65

WELL Ziegler #A-2 ANALYST IS

FIELD

COUNTY Kiowa STATE Kansas

PERMEABILITY MILLIDARCYS O—O

80 60 40 20 0

POROSITY—% X—X

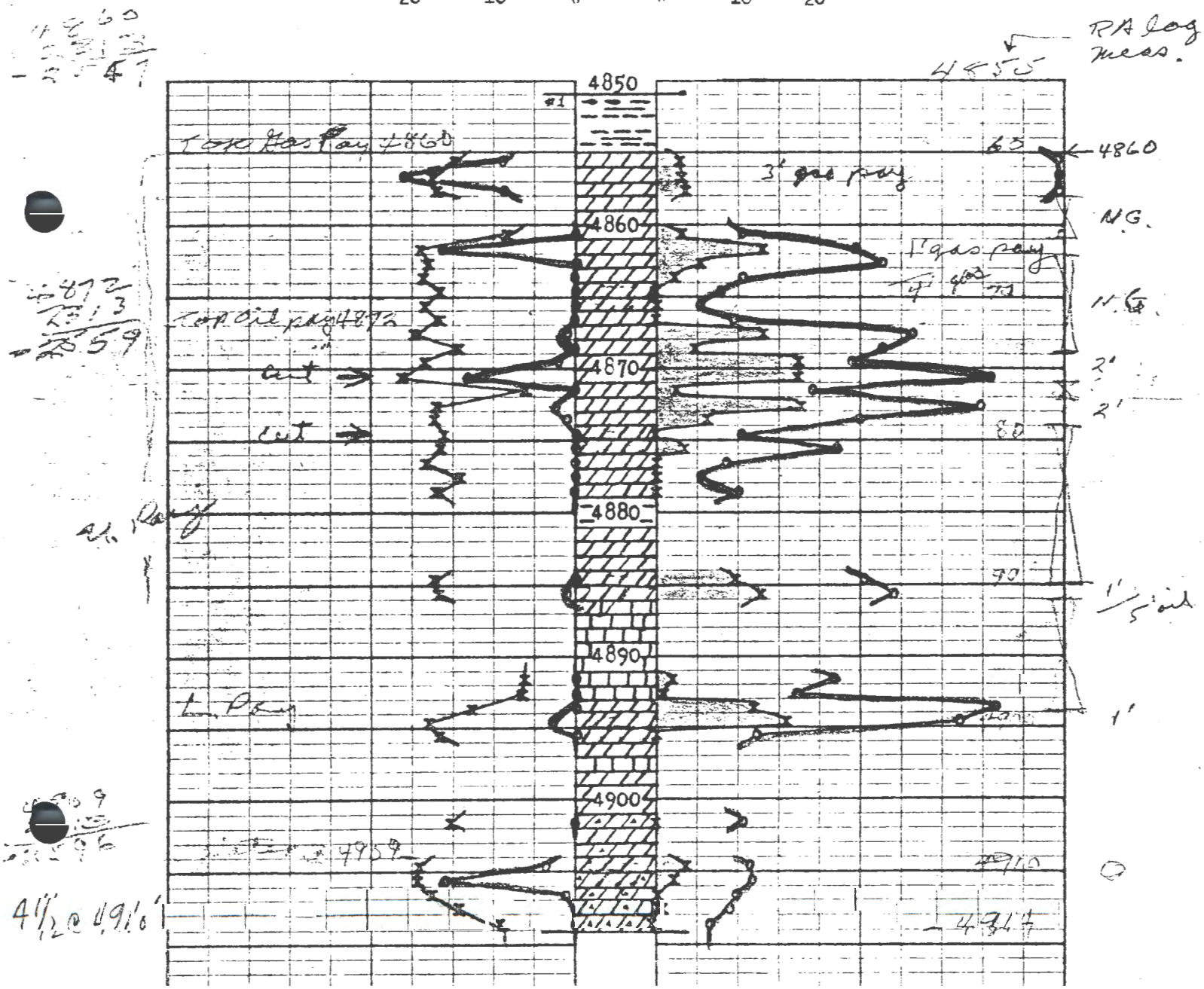
20 10 0

CONNATE WATER % SATURATION

0 70 60 50 40

OIL % PORE SATURATION X—X

0 10 20



Kansas Cores

PETROLEUM RESERVOIR ENGINEERING

CORE ANALYSIS

1026 NORTH LIGHTNER
WICHITA, KANSAS 67208

Mar. 26, 1965

Re: CORE ANALYSIS REPORT
Mull Drlg. & Walters Drlg.
Ziegler #A-2
Kiowa County
Kansas

Mull Drilling Co.
Wichita Plaza Bldg.
Wichita, Kansas

Gentlemen:

The cores from your well, Ziegler #A-2, Kiowa 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.

4855' to 4858' - Gas Productive

A fairly hard brown crystalline dolomite was found at this depth with fair permeabilities and porosities. The water and oil percentages are both very low, and indicate this zone to be only gas productive.

GOC @
4868-4870
2307 2307
2561 2563

4867' to 4874' - Oil Productive

This section was composed of a soft dense to finely crystalline dolomite with good porosities but very low and erratic permeabilities. The water and oil percentages are well in line for water free production; however, production will be limited because of the low permeabilities and thinness of the section.

4904' to 4907' - Water Productive

Low oil and high water percentages were measured in this permeable and porous cherty dolomite. Only water would be produced from this zone.

Yours very truly,

KANSAS CORES

Ivan L. Stuber

Attachments
cc: 8 copies to Mull Drilling Co., Wichita, Kansas

RE: CORE DESCRIPTION
Mull Drlg. & Walters Drlg.
Ziegler #A-2
Kiowa County, Kansas

Log Depths

CORE #1

4851' to 4909' Cut 58' Rec. 58'

	4'	Black shale, 2" crystalline limestone top, dense limestone bottom 6": No show
Top Miss 4860' 4860-63	3'	Dark brown finely crystalline to slightly vugular dolomite: Good stain and odor
4863-65	2'	Hard grey dense dolomite: No show
4865-66	1'	Same as above with few vugs & geods quartz filled; Oil in vugs, rest no show
4866-68	2'	Dense grey dolomite, some brown slightly crystalline: Good stain and odor
4868-72	4'	Dense grey-green dolomite: No show
4872-73	1'	Soft dark brown slightly vugular dolomite with few hard green dense dolomite streaks: Good slightly streaked stain
4873-74	1'	Hard dense green dolomite with few streaks brown: Very streaked
4874-76	2'	Soft brown finely crystalline dolomite with few streaks of dense green dolomite: Good stain and odor
4876-77	1'	Dense dolomite filled with geods of long vertical quartz crystals: Bleeding oil from geods
4877-79	2'	Hard finely crystalline glauconitic dolomite with some streaks of dense green dolomite: Good streaked stain
4879-84	5'	Hard dense green-grey dolomite, glauconitic in part: No show
	2'	Hard green shale
	3'	Dense green shaley dolomite: No show
	2'	Dense green with some hard brown dolomite, some glauconite and some pyrite: Fair stain
	7'	Grey crystalline limestone, vertical fractures with oil bottom 2'
	2'	Hard crystalline dolomite, some quartz, some green dolomite: Good stain and odor, vertical fractures
	2'	Green dolomite, dense, trace green shale bottom: No show
	1'	Coarsely crystalline limestone with some black chert: No show
	3'	Dense dolomite with some quartz: No show
	8'	Soft grey-brown finely crystalline dolomite with grey to black chert, becoming more cherty toward bottom: Slight staining top 4', rest no show

Kansas Cores

PETROLEUM RESERVOIR ENGINEERING
WICHITA, KANSAS 67208

WELL Ziegler #A-2 COUNTY Kiowa STATE Kansas

COMPANY Mull Drlg. & Walters Drlg. DATE 3-26-65 FILE NO. S-595

FIELD TYPE CORES Diamond ANALYST IS

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 (Core depths should be lowered 5' to agree with G-N Log)
1	4855 56	18.6	12.5	14.8	24.1	2.4	Gas	
2	4856 57	41.7	28.7	17.6	22.8	2.6	Gas	
3	4857 58	18.0	8.8	17.4	25.0	3.9	Gas	
4	4860 61	0.0	0.0	8.3	69.5	2.8	No Perm	
5	4861 62	32.9	12.1	18.7	56.0	13.3	Oil	Gas
6	4862 63	0.0	0.0	18.0	52.6	5.1	No Perm	
7	4863 64	0.0	0.0	18.5	69.8	1.9	No Perm	
8	4864 65	0.0	0.0	17.3	72.0	0.0	No Perm	
9	4865 66	0.0	0.0	18.9	74.5	0.0	No Perm	
10	4866 67	0.0	0.0	16.9	70.7	0.0	No Perm	
11	4867 68	0.8	0.0	19.7	48.9	12.9	Oil	Lt perm
12	4868 69	0.0	0.0	14.0	52.8	4.8	No Perm	
13	4869 70	4.7	1.2	18.2	56.4	16.8	Oil	4874'
14	4870 71	Abr. Jet 27.8	5.3	21.2	39.3	16.8	Oil	
15	4871 72	0.0	0.0	6.1	61.8	2.1	No Perm	
16	4872 73	5.1	3.5	17.4	40.3	17.5	Oil	
17	4873 74	1.2	0.0	17.5	55.7	6.1	Oil	4879'
18	4874 75	Abr. Jet 0.0	0.0	15.9	69.8	0.0	No Perm	
19	4875 76	0.0	0.0	16.5	57.7	2.9	No Perm	
20	4876 77	0.0	0.0	18.3	71.6	0.0	No Perm	
21	4877 78	0.0	0.0	14.0	74.6	0.0	No Perm	
22	4878 79	0.0	0.0	17.5	69.8	0.0	No Perm	

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
23	4884 85	0.0	0.0	17.5	54.5	9.3	No Perm	
24	4885 86	1.8 (1.5)	0.0	17.0 (17.8)	51.5 (37.1)	12.6 (49.0)	Oil X	9' O.+G. pay
	Avg	16.9		17.76	41.2	10.2		
25	4891 92	0.0	0.0	6.4	58.7	1.6	No Perm	Vertically fractured
26	4892 93	0.0	0.0	6.5	63.5	0.5	No Perm	Vertically fractured
27	4893 94	0.0	0.0	13.0	38.7	11.6	No Perm	Vertically fractured
28	4894 95	6.8 (1.8)	4.6	18.2 (19.4)	43.3	15.8	Oil ✓	Vertically fractured
	4895 96	0.0	0.0	16.5	68.2	0.0	No Perm	4895 +5 4900
30	4901 02	0.0	0.0	15.1	69.2	0.0	No Perm	
31	4904 (09) 05	8.0	6.5	19.3	68.3	3.5	Water	4905 4909 2313 -2596 L. Ray
32	4905 06	31.6	21.7	19.4	68.2	2.3	Water	
33	4906 07	1.8	0.0	17.3	70.5	0.2	Water	
34	4907 08	0.0	0.0	14.2	71.0	0.6	No Perm	
35	4908 09	0.0	0.0	8.9	73.9	0.0	No Perm	4907 4912 2313 2599 4/28 3

Kansas Cores

PETROLEUM RESERVOIR ENGINEERING
WICHITA, KANSAS

DATA AVERAGES AND OIL RECOVERY FIGURES

DEPTH	4861'-4895'			
FEET OF PRODUCTION FORMATION OF SECTION ANALYZED	8			
AVERAGE PERMEABILITY IN MILLIDARCYS	10.1			
AVERAGE POROSITY, PER CENT	18.5			
AVERAGE TOTAL WATER % OF PORE SPACE	48.6			
AVERAGE RESIDUAL OIL % OF PORE SPACE	13.6			
AVERAGE CONNATE WATER CALCULATED % OF PORE SPACE	38.9			
ESTIMATED FORMATION VOLUME FACTOR — USED IN CALCULATING RECOVERABLE OIL	1.30			
PRODUCTIVE CAPACITY — PRODUCTIVE FEET X AVERAGE PERMEABILITY IN MILLIDARCYS	81.1			
RECOVERABLE OIL BY WATER DRIVE — BBLS. PER ACRE FOOT	479			
RECOVERABLE OIL BY GAS EXPANSION — BBLS. PER ACRE FOOT	287*			

*From original bottom hole pressure to zero

STATE

COMPANY WALTER & MULL

COUNTY

FARM #2 ZEIGLER WELL NO.

BLOCK SURVEY

SEC.

T. R. TOTAL DEPTH

CONTRACTOR

COMMENCED

COMPLETED

ALTITUDE REMARKS

PRODUCTION

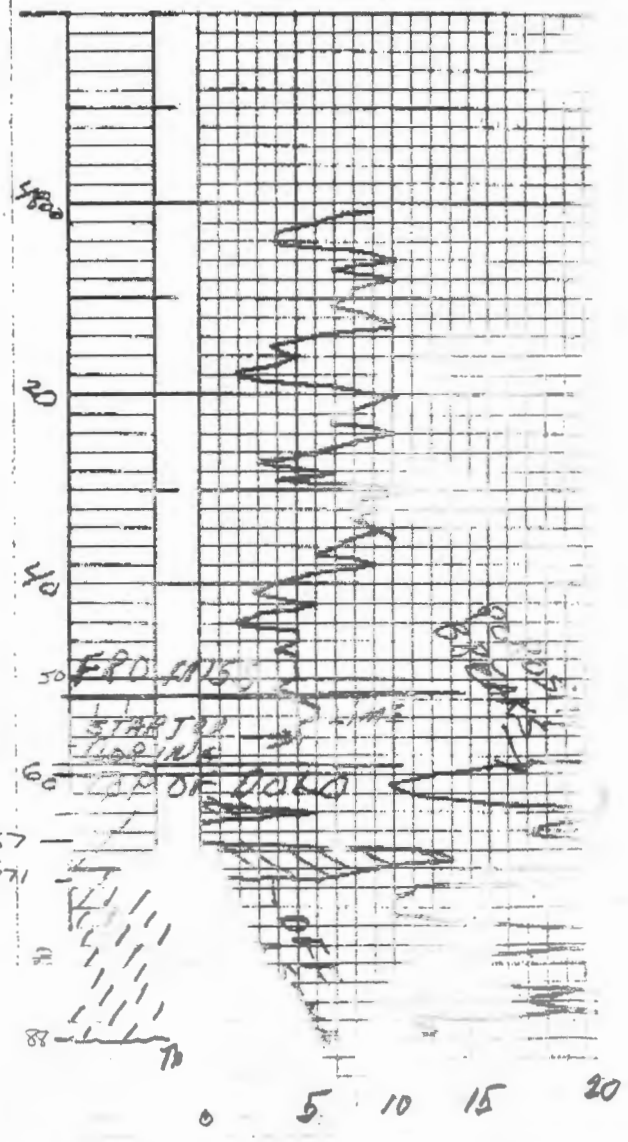
CASING RECORD

SHOT QUARTS BETWEEN

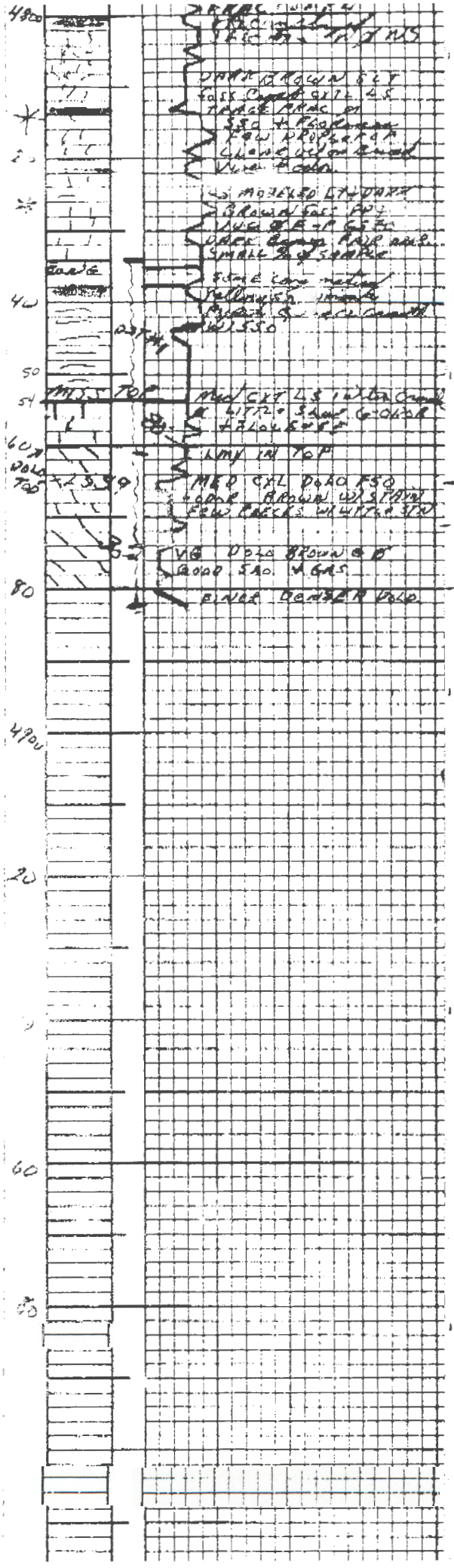
TIME RATE SCALE: 1/10" = MINUTES

Hewitt 450 TULSA, OKLAHOMA 74101 PRINTED IN U.S.A.

TIME RATE: 1/10" SQUARES



Top Perf. 4859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