CORE ANALYSIS REPORT

FOR

KEWANEE OIL COMPANY AND ZOLLER

STRICKLAND NO. 3 WELL

NORTH WICHITA FIELD

SEDGWICK COUNTY, KANSAS

CORE LAB

PETROLEUM RESERVOIR ENGINEERING

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS 1, TEXAS

July 19, 1957

REPLY TO
4010 NORTH YOUNGS BOULEVARD
P. O. BOX 7128
OKLAHOMA CITY, OKLAHOMA

Kewanee Oil Company
Box 589
El Dorado, Kansas

Attention: Mr. E. J. Veazey

Subject: Core Analysis
Kewanee Oil Company and Zoller
Strickland No. 3 Well
North Wichita Field
Sedgwick County, Kansas

Gentlemen:

Diamond coring equipment and water base mud were used to core portions of the formation penetrated by the subject well between 3320 and 3458 feet. Representatives of Kewanee Oil Company and Zoller and of Core Laboratories, Inc. selected and quick-froze samples of recovered formation, and these samples were analyzed in the Oklahoma City laboratory. The analysis was made by whole-core procedures using long segments of full-diameter core, where possible, and the results are presented in this report.

Viola formation from 3325.5 to 3341.7 feet is characterized throughout by residual oil and total water saturations very favorable to oil production, and the zone is interpreted to be oil productive on a virtually water-free basis. The interval exhibits erratic permeability distribution, the observed values ranging from 1.1 to 360 millidarcys and averaging 84 millidarcys. The total observed productive capacity of the section is 1319 millidarcy-feet, adequate to support satisfactory rates of oil production without treatment. The porosity ranges from 5.2 to 17.5 per cent and averages 11.6 per cent. The empirically calculated connate water saturation is 53.6 per cent of pore space.

Estimates of recoverable oil have been calculated for the Viola formation between 3325.5 and 3341.7 feet using the observed core analysis data in conjunction with estimated reservoir fluid characteristics considered applicable. These estimates are presented on page one of the report and are subject to the conditions set forth in the body of and in the footnotes to the summary page.

Viola formation from 3341.7 to 3351.0 feet may produce some oil, but an initial water cut is anticipated. Data from this zone are summarized on page one of the report, but recovery estimates are withheld due to the expected substantial initial water cuts.

Formation from 3445.0 to 3453.3 feet is interpreted to be water productive, where permeable.

Thank you for the opportunity to be of service to you.

Very truly yours,

Core Laboratories, Inc.

J. W. Barbour, Jr.

J. W. Barbour, Jr.,
District Manager

JWB:TLK:ds
10 cc. - Addressee

Form F-11B

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

CP-3-835 TMI

Page 1 of 1 File CP-1-2942 WC

Well Strickland No. 3

CORE SUMMARY AND CALCULATED RECOVERABLE OIL

FORMATION NAME AND DEPTH INTERVAL: Viola 3325.5-3341.7

FEET OF CORE RECOVERED FROM ABOVE INTERVAL		15.7	AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE		53.6
FEET OF CORE INCLUDED IN AVERAGES		15.7	AVERAGE CONNATE WATER SATURATION: PER CENT OF PORE SPACE	(c)	53.6
AVERAGE PERMEABILITY: MILLIDARCYS	Max.:	84	OIL GRAVITY: °API	(e)	38
	90° .:	40			
PRODUCTIVE CAPACITY: MILLIDARCY-FEET	Max.:	1319	ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL	(e)	260
	90° .:	628			
AVERAGE POROSITY: PER CENT		11.6	ORIGINAL FORMATION VOLUME FACTOR: BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL	(e)	1.19
AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE		13.7	CALCULATED ORIGINAL STOCK-TANK OIL IN PLACE: BARRELS PER ACRE-FOOT		351

Calculated maximum solution gas drive recovery is 89 barrels per acre-foot, assuming production could be continued until reservoir pressure declined to zero psig. Calculated maximum water drive recovery is 228 barrels per acre-foot, assuming full maintenance of original reservoir pressure, 100% areal and vertical coverage, and continuation of production to 100% water cut. (*Please refer to footnotes for further discussion of recovery estimates.*)

FORMATION NAME AND DEPTH INTERVAL: Viola 3341.7-3351.0

FEET OF CORE RECOVERED FROM ABOVE INTERVAL		9.3	AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE		69.0
FEET OF CORE INCLUDED IN AVERAGES		9.3	AVERAGE CONNATE WATER SATURATION: PER CENT OF PORE SPACE	(c)	69.0
AVERAGE PERMEABILITY: MILLIDARCYS	Max.:	186	OIL GRAVITY: °API		
	90° .:	59			
PRODUCTIVE CAPACITY: MILLIDARCY-FEET	Max.:	1730	ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL		
	90° .:	549			
AVERAGE POROSITY: PER CENT		9.3	ORIGINAL FORMATION VOLUME FACTOR: BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL		
AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE		7.6	CALCULATED ORIGINAL STOCK-TANK OIL IN PLACE: BARRELS PER ACRE-FOOT		

Calculated maximum solution gas drive recovery is barrels per acre-foot, assuming production could be continued until reservoir pressure declined to zero psig. Calculated maximum water drive recovery is barrels per acre-foot, assuming full maintenance of original reservoir pressure, 100% areal and vertical coverage, and continuation of production to 100% water cut. (*Please refer to footnotes for further discussion of recovery estimates.*)

(c) Calculated (e) Estimated (m) Measured (*) Refer to attached letter.

These recovery estimates represent theoretical maximum values for solution gas and water drive. They assume that production is started at original reservoir pressure; i.e., no account is taken of production to date or of prior drainage to other areas. The effects of factors tending to reduce actual ultimate recovery, such as economic limits on oil production rates, gas-oil ratios, or water-oil ratios, have not been taken into account. Neither have factors been considered which may result in actual recovery intermediate between solution gas and complete water drive recoveries, such as gas cap expansion, gravity drainage, or partial water drive. Detailed predictions of ultimate oil recovery to specific abandonment conditions may be made in an engineering study in which consideration is given to overall reservoir characteristics and economic factors.

CORE LABORATORIES, INC. *Petroleum Reservoir Engineering*

CP-3-835 TMI

COMPANY	KEWANEE OIL COMPANY AND ZOLLER	DATE ON	7/12/57	FILE NO.	CP-1-2942 WC
WELL	STRICKLAND NO. 3	DATE OFF	7/14/57	ENGRS.	DONOHOE
FIELD	NORTH WICHITA	FORMATION	AS NOTED	ELEV.	1321' CM
COUNTY	SEDGWICK STATE KANSAS	DRLG. FLD.	WATER BASE MUD	CORES	DIAMOND
LOCATION	330' FSL, 1015' FWL, SW/4 SEC 34-26S-1E	REMARKS	SAMPLED AS NOTED		

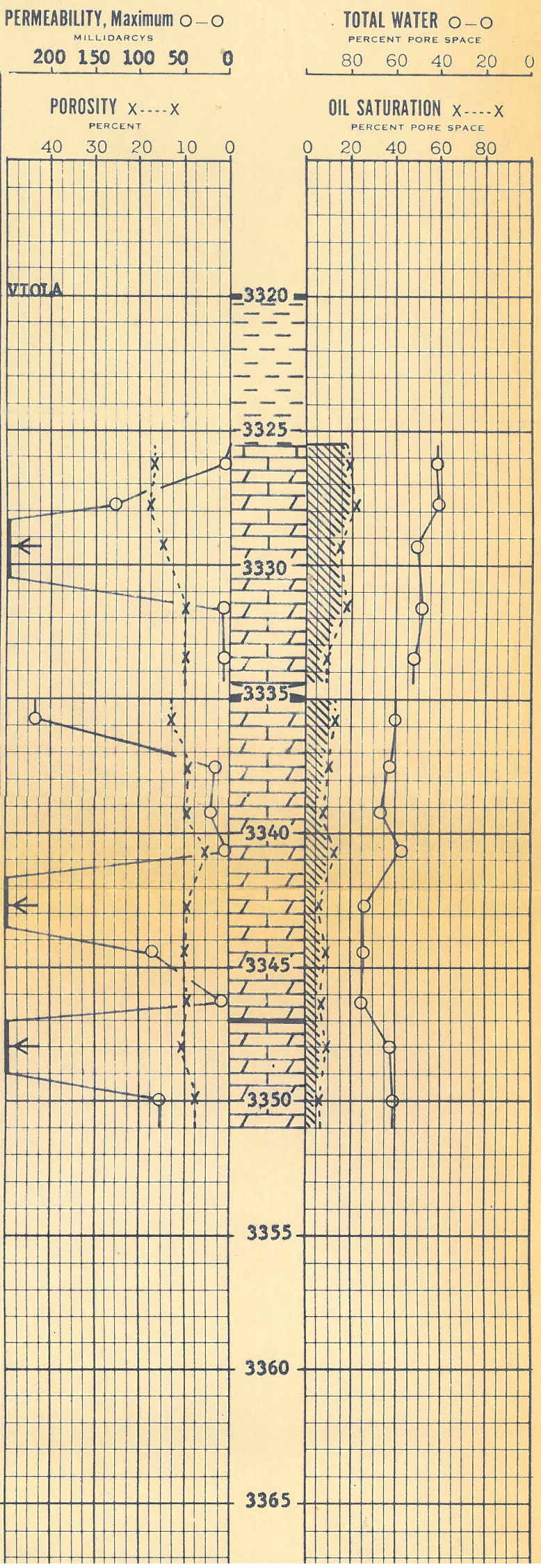
Special Analysis

CORE REPORT

SAND LIMESTONE CONGLOMERATE CHERT

SHALE DOLOMITE

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILIDARCYS MAX.	PERMEABILITY MILIDARCYS 90°	POROSITY %	RESIDUAL SATURATION % PORE SPACE OIL	RESIDUAL SATURATION % PORE SPACE TOTAL WATER	
	(*)-DENOTES PLUG PERMEABILITY						
	SAMPLED BY CLI ENGINEER						
1	3325.5-27.0	1.1	0.7	16.8	18.9	43.5	
2	3327.0-28.4	125	59	17.5	20.9	41.7	
3	3328.4-30.4	360*		15.4	14.3	50.9	
4	3330.4-32.5	8.3	5.4	10.5	17.0	47.7	
5	3332.5-34.5	8.4*		9.9	9.1	52.2	
6	3335.0-36.5	216	216	12.6	12.5	59.7	
7	3336.5-38.5	13	6.2	9.3	10.3	62.8	
8	3338.5-40.0	21	20	8.9	8.2	66.2	
9	3340.0-41.7	5.0	1.8	5.2	13.3	56.9	
10	3341.7-43.6	387*		8.9	6.3	74.0	
11	3343.6-45.5	80*		10.5	9.0	74.3	
	SAMPLED BY REPRESENTATIVE OF CLIENT						
12	3345.5-47.0	11*		8.6	7.4	75.0	
13	3347.0-49.0	335	108	11.3	8.9	62.3	
14	3349.0-51.0	76	9.1	7.2	6.3	61.3	



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	INTERVAL 3380 TO 3440 CORED, BUT NOT ANALYZED BY CORE LAB.						
	SAMPLED BY CLI ENGINEER						
15	3445.0-47.0	3.4	<0.1	5.0	7.1	89.8	
16	3447.0-48.6	427	0.2	5.8	2.7	73.5	
17	3448.6-50.2	<0.1	<0.1	7.2	2.2	71.4	
18	3450.2-51.5	0.8	0.5	10.8	TR	71.3	
19	3451.5-53.3	<0.1	<0.1	6.3	TR	80.7	
20	3453.3-54.0	0.15*					
21	3454.0-55.0	0.18*