

CORE LABORATORIES. INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

December 30, 1958

**REPLY TO
707 MID-CONTINENT BLDG.
TULSA, OKLAHOMA**

**A. D. Allison & Company
3212 East Kellogg
Wichita, Kansas**

Attention: Mr. Jim Allison

**Subject: Core Analysis
Turner No. 6 Well
El Dorado Field
Butler County, Kansas**

Gentlemen:

Diamond coring equipment and water base mud were used to core the interval, 2456 to 2487 feet, in the Turner No. 6. Samples of recovered formation were selected for analysis as directed by a representative of A. D. Allison & Company, were quick-frozen to preserve fluid content and were transported to the Wichita laboratory. Complete analysis results are presented in this report.

Simpson formation analyzed from 2456 to 2467 feet is interpreted to be oil productive. The ten feet in this zone which have permeability exceeding 0.1 millidarcy have an average permeability of 73 millidarcys and a total observed natural productive capacity of 730 millidarcy-feet, which may be adequate to support satisfactory rates of flow without the necessity for major treatment. The average porosity is 13.7 per cent and the average connate water saturation, as estimated from capillary pressure data available for this field, is 32 per cent of pore space. This zone is underlain by and in permeable contact with formation which is believed to be transitional from oil to water productive. Therefore, it is respectfully suggested that the perforations be confined to formation above 2467 feet.

Since coring was begun in productive formation at 2456 feet, the economic value of this zone will be greater in the presence of additional

A. D. Allison & Company
Turner No. 6 Well

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productive capacity above that point.

Estimates of recoverable oil have been calculated for the Simpson formation interval, 2456 to 2467 feet, using observed and estimated core analysis data for the ten permeable feet in conjunction with estimated reservoir fluid characteristics considered applicable. These estimates are presented on page one of this report and are subject, in all respects, to the conditions outlined in the body of and in the footnotes to the summary page.

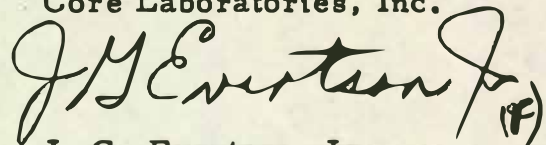
From 2467 to 2472 feet, Simpson formation exhibits lower residual oil saturations and moderately higher total water saturations than those of the overlying zone. Therefore, this section is believed to be in the transitional stage and oil produced would be accompanied by high water cuts.

Low residual oil saturations and high total water saturations indicate the Simpson formation interval, 2472 to 2479 feet, to be water productive.

Thank you for the opportunity to be of service.

Very truly yours,

Core Laboratories, Inc.



J. G. Evertson, Jr.,
District Manager

JGE:JDJ:rl

7 cc. - Addressee

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Well Turner No. 6

CORE SUMMARY AND CALCULATED RECOVERABLE OIL

FORMATION NAME AND DEPTH INTERVAL: Simpson 2456.0-2467.0

FEET OF CORE RECOVERED FROM ABOVE INTERVAL	11.0	AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE	46.3
FEET OF CORE INCLUDED IN AVERAGES	10.0	AVERAGE CONNATE WATER SATURATION: PER CENT OF PORE SPACE (e)	32
AVERAGE PERMEABILITY: MILLIDARCY	73	OIL GRAVITY: °API (e)	39
PRODUCTIVE CAPACITY: MILLIDARCY-Feet	730	ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL (e)	160
AVERAGE POROSITY: PER CENT	13.7	ORIGINAL FORMATION VOLUME FACTOR: BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL (e)	1.14
AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE	27.4	CALCULATED ORIGINAL STOCK-TANK OIL IN PLACE: BARRELS PER ACRE-FOOT	634

Calculated maximum solution gas drive recovery is 157 barrels per acre-foot, assuming production could be continued until reservoir pressure declined to zero psig. Calculated maximum water drive recovery is 343 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:

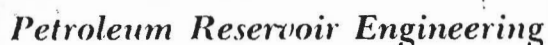
FEET OF CORE RECOVERED FROM ABOVE INTERVAL		AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE	
FEET OF CORE INCLUDED IN AVERAGES		AVERAGE CONNATE WATER SATURATION: PER CENT OF PORE SPACE	
AVERAGE PERMEABILITY: MILLIDARCY		OIL GRAVITY: °API	
PRODUCTIVE CAPACITY: MILLIDARCY-Feet		ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL	
AVERAGE POROSITY: PER CENT		ORIGINAL FORMATION VOLUME FACTOR: BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL	
AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE		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.

These analyses, opinions or interpretations are based on observations and materials supplied by the client to whom, and for whose exclusive and confidential use, this report is made. The interpretations or opinions expressed represent the best judgment of Core Laboratories, Inc. (all errors and omissions excepted); but Core Laboratories, Inc., and its officers and employees assume no responsibility and make no warranty or representation as to the productivity, proper operation, or profitability of any oil, gas or other mineral well or sand in connection with which such report is used or relied upon.



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SAMPLE NUMBER	DEPTH FEET	PERM. MD.	POROSITY %	RESIDUAL SATURATION % PORE SPACE		PROD	POROSITY X---X	OIL SATURATION X---X
				OIL	TOTAL		PERCENT	PERCENT PORE SPACE
							40 30 20 10 0	0 20 40 60 80
1	2456-57	18	13.7	24.1	50.4			
2	57-58	7.1	11.6	37.0	36.3			
3	58-59	13.0	11.1	30.6	44.2			
4	59-60	0.1	4.1	0.0	80.6			
5	60-61	100	17.0	23.6	50.0			
6	61-62	4.7	10.7	30.9	35.5			
7	62-63	54	13.8	31.1	39.1			
8	63-64	199	15.0	25.3	61.3			
9	64-65	155	15.3	24.2	54.2			
10	65-66	161	13.5	25.2	44.5			
11	66-67	127	15.2	21.7	47.4			
12	67-68	84	12.5	15.2	55.2			
13	68-69	67	15.7	13.4	52.8			
14	69-70	0.1	4.9	0.0	67.4			
15	70-71	22	12.8	13.3	50.7			
16	71-72	32	12.6	11.1	49.9			
17	72-73	17	11.3	9.7	64.4			
18	73-74	108	14.8	9.5	60.8			
19	74-75	292	16.7	4.8	79.2			
20	75-76	34	11.8	6.8	64.5			
21	76-77	403	14.7	7.5	81.6			
22	77-78	108	10.6	14.2	72.6			
23	2478-79	122	12.6	6.4	73.0			
(1)	10 728.5	10 136.9	10 273.7	10 442.9				
	72.9	13.7	27.4	44.3				
(2)	11 128.9	11 146.1	11 111.9	11 704.7				
	117.2	13.3	10.2	704.7				