

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

July 31, 1956

REPLY TO
710 NORTH BROADWAY
OKLAHOMA CITY, OKLAHOMA

Stelbar Oil Corporation
310 Petroleum Building
Wichita, Kansas

Subject: Core Analysis
Couch Unit W No. 3 Well
Atlanta Field
Cowley County, Kansas

Gentlemen:

Diamond coring equipment and water base mud were used to core the interval from 2829 to 2860 feet in the Couch Unit W No. 3. Engineers of Core Laboratories, Inc. selected and quick-froze samples of recovered formation, and transported these samples to the Arkansas City laboratory for analysis. The results are presented in this report.

Bartlesville sand from 2831 to 2835 feet has low permeability, and is considered to be virtually nonproductive. However, the residual liquid saturations observed in this low-permeability zone indicate that any production obtained therefrom would be gas.

From 2835.5 to 2857.0 feet, the Bartlesville sand is characterized by favorable residual oil and total water saturations, and is interpreted to be predominantly oil productive from all permeable points in this interval. The relatively high total water saturations at a few points in this zone indicate the possibility of very small initial water cuts. However, it is entirely possible that water-free oil production will be obtained from the zone. The permeability of the 19.5 feet of permeable formation in this over-all interval ranges from 2.4 to 78 millidarcys, and the arithmetic average permeability is 22 millidarcys. The oil column has a natural productive capacity of 429 millidarcy-feet, probably inadequate to support satisfactory rates of fluid production over extended periods of time. It is suggested that a formation fracturing treatment be applied to the interval in order to increase the effective productive capacity and make possible higher initial oil production rates at lower pressure drawdowns. The

Stelbar Oil Corporation
Couch Unit W No. 3 Well

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porosity of Bartlesville sand between 2835.5 and 2857.0 feet ranges from 11.2 to 19.1 per cent and averages 16.8 per cent. The calculated connate water saturation is 43 per cent of pore space.

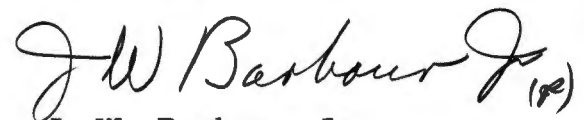
Estimates of recoverable oil have been calculated for the Bartlesville sand between 2835.5 and 2857.0 feet, using the observed core analysis data in conjunction with estimated reservoir fluid characteristics considered applicable. These recoverable oil estimates are presented on page one of the report, and are subject to the conditions set forth in the body of and in the footnotes to the summary page.

Bartlesville sand from 2857 to 2860 feet has somewhat higher total water saturations than the main portion of the oil column previously discussed, and while this three-foot interval may be capable of oil production, it is probable that rather substantial initial water cuts would be obtained from the zone. It is suggested that the completion attempt exclude formation below 2857 feet in order to increase the probability of obtaining water-free oil production from the well.

We sincerely appreciate this opportunity to be of service to you, and trust that this report will prove useful in making a preliminary evaluation of the Bartlesville sand analyzed from this well.

Very truly yours,

Core Laboratories, Inc.


J. W. Barbour, Jr.,
District Manager

JWB:TLK:bm
10 cc. - Addressee

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Page 1 of 1 File CP-3-617 FC
Well Couch Unit W No. 3**CORE SUMMARY AND CALCULATED RECOVERABLE OIL****FORMATION NAME AND DEPTH INTERVAL:** Bartlesville 2835.5 - 2857.0

FEET OF CORE RECOVERED FROM ABOVE INTERVAL	21.5	AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE	45.3
FEET OF CORE INCLUDED IN AVERAGES	19.5	AVERAGE CONNATE WATER SATURATION: PER CENT OF PORE SPACE (c)	43
AVERAGE PERMEABILITY: MILLIDARCY	22	OIL GRAVITY: °API (e)	41
PRODUCTIVE CAPACITY: MILLIDARCY-Feet	429	ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL (e)	200
AVERAGE POROSITY: PER CENT	16.8	ORIGINAL FORMATION VOLUME FACTOR: BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL (e)	1.16
AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE	13.9	CALCULATED ORIGINAL STOCK-TANK OIL IN PLACE: BARRELS PER ACRE-FOOT	641

Calculated maximum solution gas drive recovery is 172 barrels per acre-foot, assuming production could be continued until reservoir pressure declined to zero psig. Calculated maximum water drive recovery is 460 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	

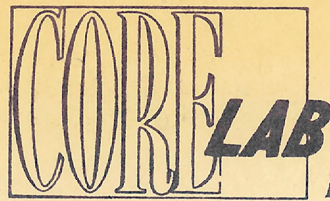
Calculated maximum solution gas drive recovery is barrels per acre-foot, assuming production could be continued until reservoir pressure declined to zero psig. Calculated maximum water drive recovery is barrels per acre-foot, assuming full maintenance of original reservoir pressure, 100% areal and vertical 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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Petroleum Reservoir Engineering

COMPANY STELBAR OIL CORPORATION DATE ON 7/27/56 FILE NO. CP-3-617 FC
WELL COUCH UNIT W NO. 3 DATE OFF 7/27/56 ENGRS. RUSSELL
FIELD ATLANTA FORMATION BARTLESVILLE ELEV. 1360' KB (EST)
COUNTY COWLEY STATE KANSAS DRLG. FLD. WATER BASE MUD CORES DIAMOND
LOCATION SEC 12-30S-5E REMARKS SAMPLED BY CLI ENGINEER



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TABULAR DATA and INTERPRETATION

SAMPLE NUMBER	DEPTH FEET	PERM. MD.	POROSITY %	RESIDUAL SATURATION % PORE SPACE		PROD.
				OIL	TOTAL WATER	
1	2831.5	0.4	15.7	0.0	67.0	
2	32.5	5.8	18.2	0.0	65.6	
3	33.5	5.5	18.0	0.0	64.4	
4	34.5	4.7	17.3	0.0	65.9	
5	35.5	4.5	19.0	10.0	57.4	
6	36.5	13	18.2	15.4	45.6	
7	37.5	74	17.8	18.5	47.8	
8	38.5	78	13.2	18.2	36.1	
9	39.5	58	17.3	14.5	38.1	
10	40.5	37	15.5	18.7	43.8	
11	41.5	10	16.7	13.8	48.5	
12	2842.5	5.9	18.8	12.8	50.0	
13	2844.5	5.5	17.8	12.4	51.7	
14	45.5	11	17.3	9.8	47.9	
15	46.5	17	18.6	12.9	45.2	
16	47.5	17	19.1	12.6	42.4	
17	48.5	21	18.6	12.9	44.1	
18	49.5	28	16.6	13.3	42.2	
19	50.5	26	18.5	16.8	43.3	
20	51.5	26	15.7	15.9	50.4	
21	52.5	8.0	11.2	14.3	34.8	
22	53.5	10	18.2	13.2	46.7	
23	54.5	4.7	16.5	8.5	47.2	
24	55.5	2.4	15.8	13.9	47.4	
25	56.5	3.8	13.0	13.1	41.5	
26	57.5	0.4	10.2	8.8	55.9	
27	58.5	2.8	13.0	13.1	56.9	
28	2859.5	6.8	14.9	12.7	52.3	

COMPLETION COREGRAPH

