

CORE ANALYSIS REPORT

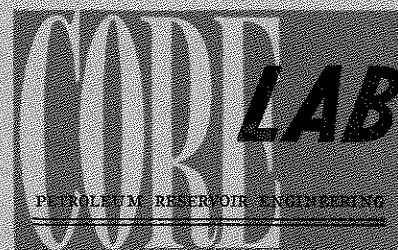
FOR

BIRD, SHEEDY & KEAS

SHAW NO. 1 WELL

CRITZER FIELD

LINN COUNTY, KANSAS



CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

May 7, 1965

REPLY TO
1810 N. W 4TH ST.
P. O. BOX 7128
OKLAHOMA CITY, OKLA.

Bird, Sheedy & Keas
4975 East 26th Street
Tulsa, Oklahoma
Att: Mr. T. E. Bird

Subject: Core Analysis
Shaw No. 1 Well
Critzler Field
Linn County, Kansas
CLI File No. CP-10-1326

Gentlemen:

Diamond cores taken in the subject well were sampled in the recovered sand phase for analysis. The measured physical properties are presented on the accompanying coregraph.

Bartlesville formation analyzed between 659 and 665 feet is thought to be a portion of the original gas cap since the residual oil saturation is only 5.5 percent of the pore space. The measured 67.4 percent total water saturation suggests water invasion into the zone or extreme flushing during coring.

Normal residual fluid saturations for oil productive Bartlesville formation are encountered in the interval 774 to 781 feet.

Average core analysis data and estimates of recoverable oil are presented on the summary page of this report.

We appreciate this opportunity of serving you and trust these data will aid the preliminary evaluation of this well.

Yours very truly,

CORE LABORATORIES, INC.



J. G. Evertson, Jr.
District Manager

JGE:jc

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

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Well Shaw No. 1

CORE SUMMARY AND CALCULATED RECOVERABLE OIL

FORMATION NAME AND DEPTH INTERVAL: BARTLESVILLE 659-65

FEET OF CORE RECOVERED FROM ABOVE INTERVAL	6	AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE	67.4
FEET OF CORE INCLUDED IN AVERAGES	6	AVERAGE CONNATE WATER SATURATION: PER CENT OF PORE SPACE	
AVERAGE PERMEABILITY: MILLIDARCY	31	OIL GRAVITY: °API	
PRODUCTIVE CAPACITY: MILLIDARCY-Feet	186	ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL	
AVERAGE POROSITY: PER CENT	20.0	ORIGINAL FORMATION VOLUME FACTOR: BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL	
AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE	5.5	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.)

FORMATION NAME AND DEPTH INTERVAL:

BARTLESVILLE 674-81

FEET OF CORE RECOVERED FROM ABOVE INTERVAL	7	AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE	35.9
FEET OF CORE INCLUDED IN AVERAGES	7	AVERAGE CONNATE WATER SATURATION: (e) PER CENT OF PORE SPACE	28
AVERAGE PERMEABILITY: MILLIDARCY	37	OIL GRAVITY: °API (e)	29
PRODUCTIVE CAPACITY: MILLIDARCY-Feet	259	ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL	
AVERAGE POROSITY: PER CENT	20.2	ORIGINAL FORMATION VOLUME FACTOR: BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL (e)	1.05
AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE	33.3	CALCULATED ORIGINAL STOCK-TANK OIL IN PLACE: BARRELS PER ACRE-FOOT	1074

Calculated maximum solution gas drive recovery is 130 barrels per acre-foot, assuming production could be continued until reservoir pressure declined to zero psig. Calculated maximum water drive recovery is 552 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.