



CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

COMPANY A. D. ALLISON DATE ON 6-18-58 FILE NO. CP10-88 FC
WELL TURNER NO. 1 DATE OFF 6-18-58 ENGRS. THC
FIELD SEMI-WILDCAT FORMATION SIMPSON ELEV. 1308' RB (EST)
COUNTY BUTLER STATE KANSAS DRLG. FLD. WEM CORES DIAMOND
LOCATION SW-SE-NW SEC 15-26S-4E REMARKS SERVICE NO. 4

SAND LIMESTONE CONGLOMERATE CHERT
SHALE DOLOMITE

These analyses, opinions or interpretations are based on observations and material 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 representations 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.

COMPLETION COREGRAPH

SCALE: 1 INCH=20 FEET

PERMEABILITY ——— °
MILLIDARCYS

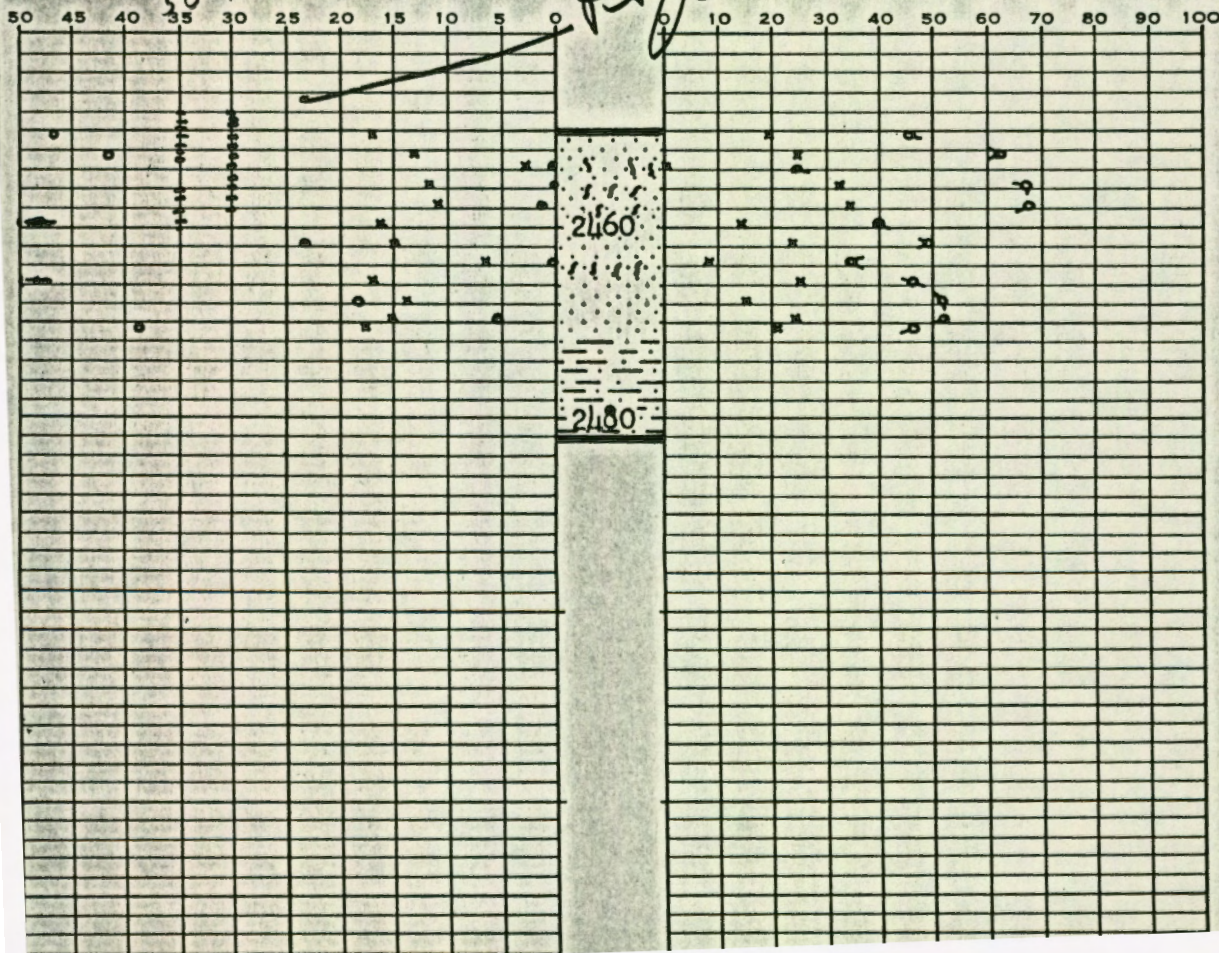
TOTAL WATER SATURATION ——— °
PERCENT PORE SPACE

180 160 140 120 100 80 60 40 20 0

100 90 80 70 60 50 40 30 20 10 0

POROSITY ——— %
PERCENT

RESIDUAL OIL SATURATION ——— %
PERCENT PORE SPACE



CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS
August 19, 1958

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

Mr. A. D. Allison
3212 East Kellogg
Wichita, Kansas

Subject: Estimates of Recoverable Oil
Turner No. 1 Well
Semi-Wildcat
Butler County, Kansas

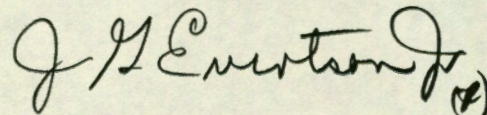
Dear Sir:

Using the capillary pressure data which are now available for the subject well and the Berndson No. 1 well, estimates of recoverable oil have been prepared and will supplement the report dated, June 27, 1958. From the single point capillary pressure determinations, the connate water saturation for the interval, 2450 to 2460 feet, is estimated to be 20 per cent of pore space and for the interval, 2465.0 to 2471.5 feet, 19 per cent of pore space. Please insert these supplementary data into the report which you previously received.

We sincerely appreciate this additional opportunity to be of service.

Very truly yours,

Core Laboratories, Inc.



J. G. Evertson, Jr.,
District Manager

JGE:JDJ:lm
7 cc. - Addressee

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

Page 2 of 2 File CP-10-88 FC
Well Turner No. 1

CORE SUMMARY AND CALCULATED RECOVERABLE OIL

FORMATION NAME AND DEPTH INTERVAL: Simpson 2450.0-2464.0

FEET OF CORE RECOVERED FROM ABOVE INTERVAL	14.0	AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE	47.0
FEET OF CORE INCLUDED IN AVERAGES	5.0	AVERAGE CONNATE WATER SATURATION: PER CENT OF PORE SPACE (e)	20
AVERAGE PERMEABILITY: MILLIDARCY	150	OIL GRAVITY: °API (e)	47
PRODUCTIVE CAPACITY: MILLIDARCY-Feet	750	ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL (e)	160
AVERAGE POROSITY: PER CENT	14.4	ORIGINAL FORMATION VOLUME FACTOR: BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL (e)	1.14
AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE	23.3	CALCULATED ORIGINAL STOCK-TANK OIL IN PLACE: BARRELS PER ACRE-FOOT	784

Calculated maximum solution gas drive recovery is 226 barrels per acre-foot, assuming production could be continued until reservoir pressure declined to zero psig. Calculated maximum water drive recovery is 523 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: Simpson 2465.0-2471.5

FEET OF CORE RECOVERED FROM ABOVE INTERVAL	6.5	AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE	50.9
FEET OF CORE INCLUDED IN AVERAGES	3.5	AVERAGE CONNATE WATER SATURATION: PER CENT OF PORE SPACE (e)	19
AVERAGE PERMEABILITY: MILLIDARCY	117	OIL GRAVITY: °API (e)	47
PRODUCTIVE CAPACITY: MILLIDARCY-Feet	410	ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL (e)	160
AVERAGE POROSITY: PER CENT	15.8	ORIGINAL FORMATION VOLUME FACTOR: BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL (e)	1.14
AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE	21.6	CALCULATED ORIGINAL STOCK-TANK OIL IN PLACE: BARRELS PER ACRE-FOOT	871

Calculated maximum solution gas drive recovery is 253 barrels per acre-foot, assuming production could be continued until reservoir pressure declined to zero psig. Calculated maximum water drive recovery is 607 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.

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

June 27, 1958

REPLY TO
P. O. BOX 4337
MIDLAND, TEXAS

Mr. A. D. Allison
3212 East Kellogg
Wichita, Kansas

Subject: Core Analysis
Turner No. 1 Well
Semi-Wildcat
Butler County, Kansas

Dear Sir:

Diamond coring equipment and water base mud were used to core the interval, 2450 to 2482 feet, in the Turner No. 1 well. Samples of the recovered formation on which analysis was desired were selected by an engineer of Core Laboratories, Inc. as directed by a representative of A. D. Allison. These samples were quick-frozen to preserve fluid content and transported to the Wichita laboratory for analysis. Complete analysis results are shown in graphical form on the accompanying Completion Coregraph and in tabular form on page one.

Samples of Simpson sand analyzed between 2450 and 2464 feet are interpreted to be oil productive where permeable. The average permeability of the five permeable feet analyzed is 150 millidarcys and the total observed productive capacity is 750 millidarcy-feet. The average measured porosity is 14.4 per cent.

Samples of Simpson sand analyzed between 2464.0 and 2471.5 feet also exhibits residual fluid saturations favorable to oil production. The average permeability of the four samples analyzed in this interval is 117 millidarcys and the total observed natural productive capacity is 410 millidarcy-feet. The average measured porosity is 15.8 per cent.

A summary of average core analysis data for each of the above zones is presented on page two of this report. Recoverable oil estimates,

CORE ANALYSIS RESULTS

Company A. D. Allison Formation Simpson File CP-10-88 FC
 Well Turner No. 1 Core Type Diamond Date Report 6-27-58
 Field Semi-Wildcat Drilling Fluid Water Base Mud Analysts Cunningham
 County Butler State Kansas Elev. 1308' R.B. Location SW SE NW Sec. 15-26S-4E
 (Est.)

Lithological Abbreviations

SAND-SD SHALE-SH LIME-LN DOLOMITE-DOL CHERT-CH GYPSUM-GYP ANHYDRITE-ANHY CONGLOMERATE-CONG FOSSILIFEROUS-FOSS SANDY-SDY SHALY-SHY LIMY-LMY FINE-FN MEDIUM-MED COARSE-CSE CRYSTALLINE-XLN GRAIN-GRN GRANULAR-GRNL BROWN-BRN GRAY-GY VUGGY-VGY FRACTURED-FRAC LAMINATION-LAM STYLOLITIC-STY SLIGHTLY-SL/ VERY-V/ WITH-W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYs	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE		SAMPLE DESCRIPTION AND REMARKS
				OIL	TOTAL WATER	
1	2450-51	186	16.6	19.9	53.6	Sd, w/rd qtz incl
	51-52					Sd, w/rd qtz incl
2	52-53	167	13.4	24.6	38.8	Sd, w/rd qtz incl
3	53-54	<0.1	3.4	0.0	76.7	Sd, fn, white, pyr, hd
	54-55					Sd, fn, white, pyr, vert frac
4	55-56	<0.1	12.3	31.6	31.7	Sd, fn grn
	56-57					Sd, fn grn
5	57-58	5.7	10.9	33.9	31.2	Sd, fn grn, hd
	58-59					Sd, fn grn, hd
6	59-60	301	16.2	14.8	60.5	Sd, fri, vert frac
	60-61					Sd, fri, vert frac
7	61-62	93	15.0	23.4	50.7	Sd, fri, vert frac
	62-63					Sd, fri, vert frac, lower 6" sd
8	63-64	<0.1	6.8	8.8	66.2	Sd, white, hd
	64-65					Sd
9	65-66	235	16.9	25.4	53.3	Sd, fn, fri
	66-67					Sd, fn, fri, vert frac
10	67-68	74	14.1	16.3	49.0	Sd, fn, fri, vert frac
	68-69					Sd, fn, fri, vert frac
11	69-70	21	15.4	23.4	49.4	Sd, fn, fri, vert frac
	70-71					Sd, fn, fri, vert frac
12	71-71.5	155	17.6	21.0	52.8	Sd, fn, fri, vert frac
	71.5-73					Sd, green
	2473-82					Sh, sdy

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Petroleum Reservoir Engineering

DALLAS, TEXAS

Page 2 of 2 File CP-10-88 FC
Well Turner No. 1

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AVERAGE PERMEABILITY: MILLIDARCYs	150	OIL GRAVITY: °API	
PRODUCTIVE CAPACITY: MILLIDARCY-Feet	750	ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL	
AVERAGE POROSITY: PER CENT	14.4	ORIGINAL FORMATION VOLUME FACTOR: BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL	
AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE	23.3	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: Simpson 2465.0-2471.5

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FEET OF CORE INCLUDED IN AVERAGES	3.5	AVERAGE CONNATE WATER SATURATION: PER CENT OF PORE SPACE	
AVERAGE PERMEABILITY: MILLIDARCYs	117	OIL GRAVITY: °API	
PRODUCTIVE CAPACITY: MILLIDARCY-Feet	410	ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL	
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