CORE ANALYSIS REPORT

FOR

A. D. ALLISON & COMPANY

TURNER NO. 5 WELL

EL DORADO FIELD

BUTLER COUNTY, KANSAS

CORE LAB

PETROLEUM RESERVOIR ENGINEERING

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

December 5, 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. 5 Well
El Dorado Field
Butler County, Kansas

Gentlemen:

Simpson formation analyzed from 2406 to 2425 feet is interpreted to be oil productive on the basis of the favorable measured residual fluid saturations. This 19-foot interval has an average permeability of 56 millidarcys and a total observed natural productive capacity of 1064 millidarcy-feet, considered ample to support satisfactory rates of flow without the necessity for major treatment. The average porosity is 13.5 per cent and the average connate water saturation, as estimated from capillary pressure data available for this field, is 28 per cent of pore space.

Recoverable oil estimates have been calculated for the Simpson formation interval, 2406 to 2425 feet, using observed and estimated core analysis data for the 19 productive feet in conjunction with estimated reservoir fluid characteristics considered applicable. These estimates are presented on page two of this report and are subject, in all respects, to the conditions set forth in the body of and in the footnotes to the summary page.

Formation was recovered from the Turner No. 5 well using diamond coring equipment and water base mud. Samples were selected for analysis as directed by a representative of A. D. Allison & Company,

were quick-frozen to preserve fluid content and were analyzed at the Wichita laboratory.

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
1 cc. - Mr. Robert Gill
Wichita, Kansas

CA-20

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS RESULTS

Company A. D. Allison & Company | Formation Simpson | File CP-10-207 FC
Well Turner No. 5 | Core Type Diamond | Date Report 12-5-58
Field El Dorado | Drilling Fluid Water Base Mud | Analysts Easterwood
County Butler | State Kansas | Elev. 1323'RB | Location NE SE NW Sec. 15-26S-4E

Lithological Abbreviations

SAND-SD, SHALE-SH, LIME-LM, 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 OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
	2402-05					Sh, blk
	05-06					Sd, v/slty, gy
1	06-07	0.1	10.9	38.5	45.9	Sd, fn grn, tn
2	07-08	2.9	11.7	32.5	40.2	Sd, fn grn, tn
3	08-09	1.6	14.5	26.2	52.4	Sd, fn grn, tn, shy, w/bands of no show
4	09-10	1.3	11.4	37.7	36.0	Sd, fn grn, tn
5	10-11	7.1	11.5	31.3	40.0	Sd, fn grn, tn
6	11-12	14	15.9	26.4	49.6	Sd, fn grn, tn
7	12-13	28	16.7	38.9	33.5	Sd, fn grn, tn
8	13-14	7.1	15.2	28.9	43.7	Sd, fn grn, tn
9	14-15	9.3	10.2	18.7	56.9	Sd, fn grn, tn
10	15-16	13	13.5	18.5	59.2	Sd, fn grn, tn
11	16-17	41	11.1	17.1	58.5	Sd, fn grn, tn
12	17-18	369	14.3	23.1	53.7	Sd, fn grn, tn
13	18-19	12	11.6	25.0	42.2	Sd, fn grn, tn
14	19-20	17	13.5	19.3	46.6	Sd, fn grn, tn
15	20-21	189	14.8	24.3	46.5	Sd, fn grn, tn
16	21-22	156	12.4	29.0	54.0	Sd, fn grn, tn, vert frac
17	22-23	173	12.4	26.6	51.6	Sd, fn grn, tn
18	23-24	1.3	16.3	31.2	31.9	Sd, fn grn, tn, v/slty
19	24-25	30	18.6	26.4	45.2	Sd, fn grn, w/green sh interbedded
	25-27					Sd, fn grn, w/green sh interbedded
	2427-35					Sh, sl/sdy, gy-green

Form F-11B

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

Well Turner No. 5

CORE SUMMARY AND CALCULATED RECOVERABLE OIL

FORMATION NAME AND DEPTH INTERVAL: Simpson 2406.0 - 2425.0

FEET OF CORE RECOVERED FROM ABOVE INTERVAL	19.0	AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE		46.7
FEET OF CORE INCLUDED IN AVERAGES	19.0	AVERAGE CONNATE WATER SATURATION: PER CENT OF PORE SPACE	(e)	28
AVERAGE PERMEABILITY: MILLIDARCYS	56	OIL GRAVITY: °API	(e)	39
PRODUCTIVE CAPACITY: MILLIDARCY-FEET	1064	ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL	(e)	160
AVERAGE POROSITY: PER CENT	13.5	ORIGINAL FORMATION VOLUME FACTOR: BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL	(e)	1.14
AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE	27.3	CALCULATED ORIGINAL STOCK-TANK OIL IN PLACE: BARRELS PER ACRE-FOOT		661

Calculated maximum solution gas drive recovery is 162 barrels per acre-foot, assuming production could be continued until reservoir pressure declined to zero psig. Calculated maximum water drive recovery is 376 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: MILLIDARCYS		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.

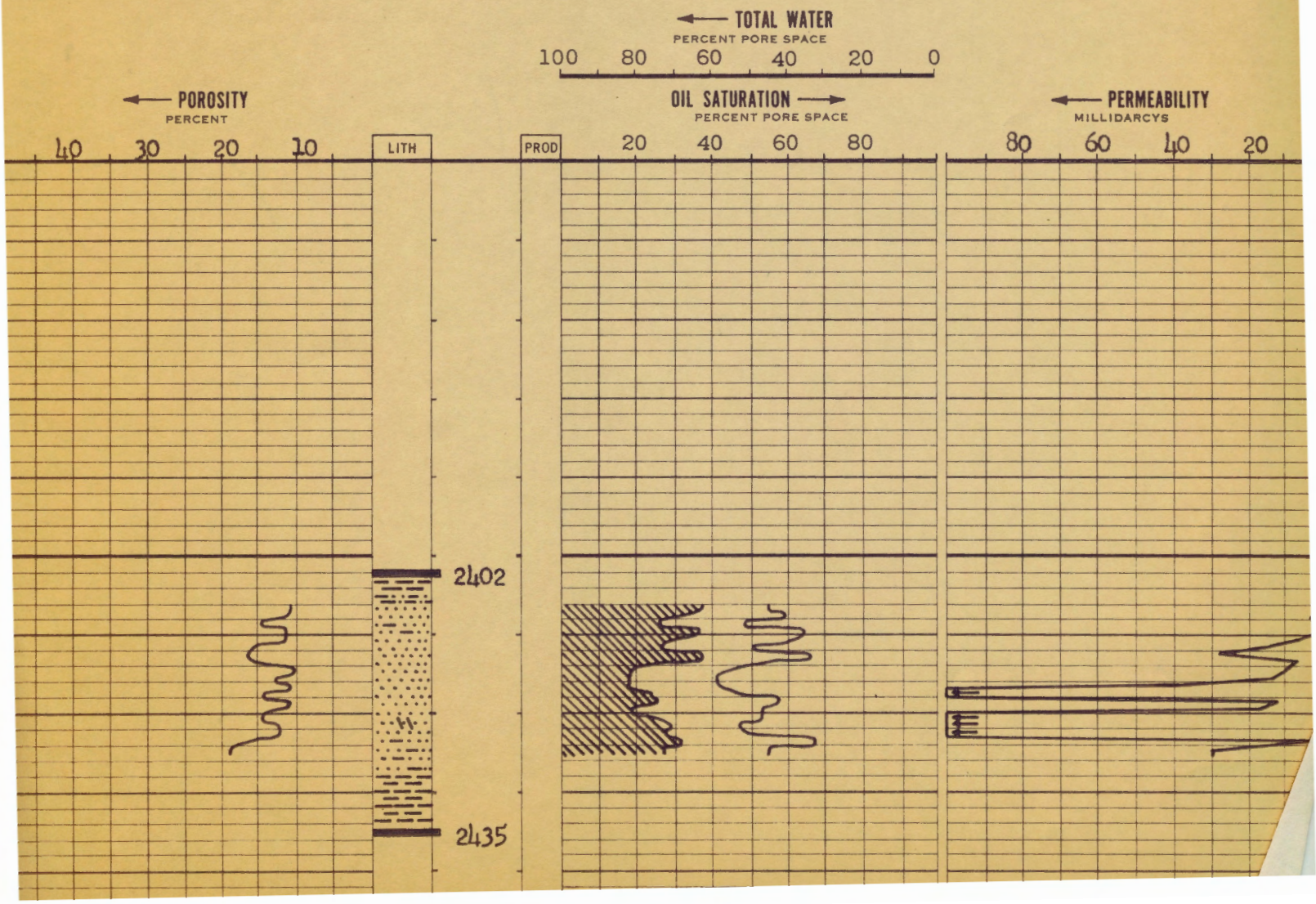
CORE LABORATORIES, INC. *Petroleum Reservoir Engineering*

COMPANY	A. D. ALLISON & COMPANY	DATE ON	11-29-58	FILE NO.	CP-10-207 FC
WELL	TURNER NO. 5	DATE OFF	11-29-58	ENGRS.	EASTERWOOD
FIELD	EL DORADO	FORMATION	SIMPSON	ELEV.	1323' RB
COUNTY	BUTLER STATE KANSAS	DRLG. FLD.	WATER BASE MUD	CORES	DIAMOND
LOCATION	NE SE NW SEC 15-26S-4E	REMARKS	SAMPLED BY CLI AS DIRECTED		

COMPLETION COREGRAPH

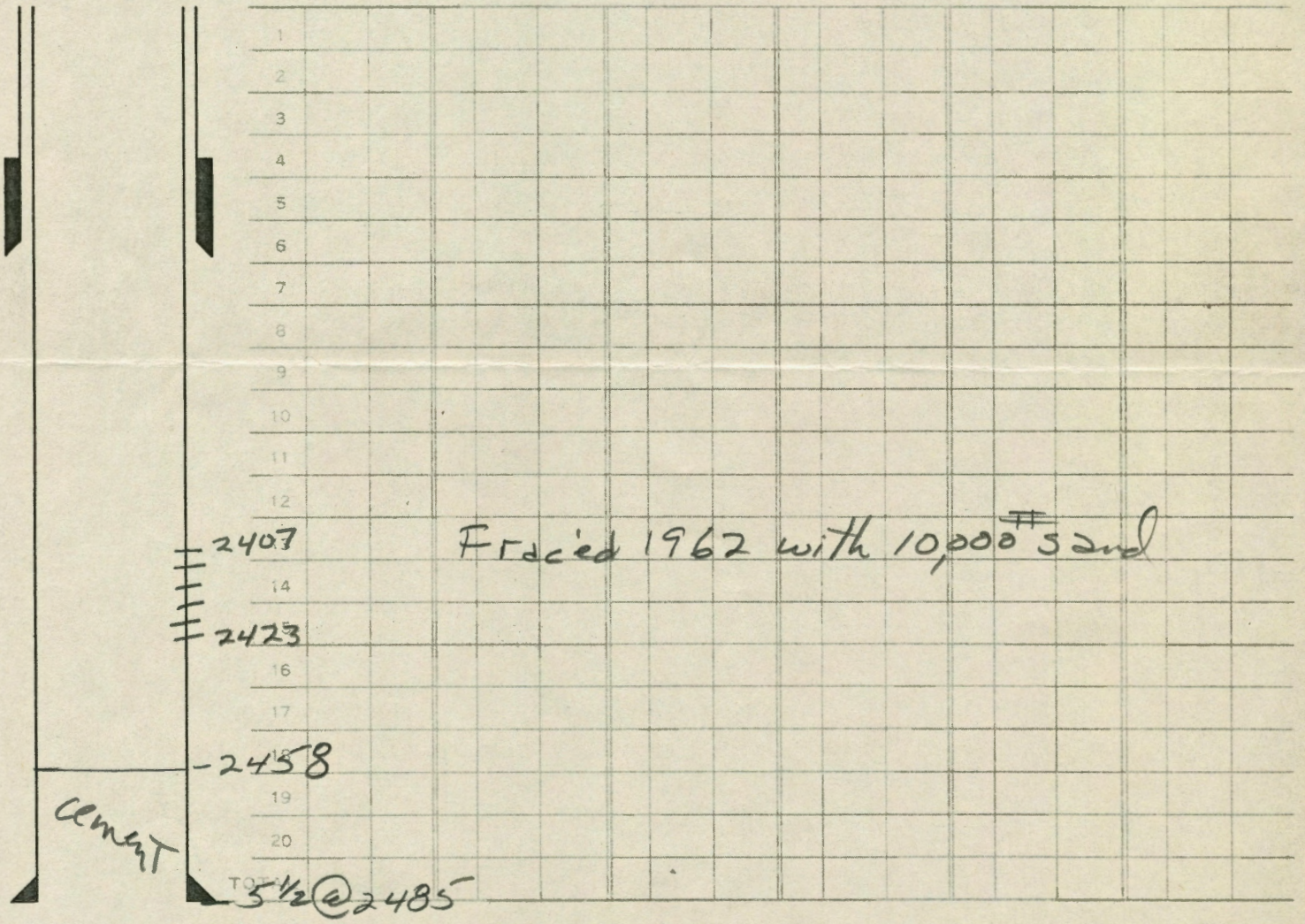
SAND | SHALE | LIMESTONE | DOLOMITE | CONGLOMERATE | VERTICAL FRACTURES | CHERT

VERTICAL SCALE: 5" = 100'



THINK IT OUT! WRITE IT OUT!

DATE _____ WELL NO. 5 LEASE TURNER FIELD Berndsen



Frac'ed 1962 with 10,000# Sand

TUBING SIZE AND CAPACITY

SIZE	WEIGHT (LB/FT)	ID	BBL/FT
1 1/2	2.90	1.610	0.0025
21/16	3.40	1.751	0.0030
2 3/8	4.70	1.995	0.0039
2 1/2	6.40	2.441	0.0058
2 1/2	8.60	2.259	0.0050
3	7.70	2.943	0.0091
3	9.30	2.867	0.0087
3	10.20	2.797	0.0083
3	12.95	2.625	0.0074
3 1/2	9.50	3.548	0.0122
3 1/2	11.00	3.476	0.0117
4	12.60	3.958	0.0152

CASING SIZE AND CAPACITY

OD	WEIGHT (LB/FT)	ID	BBL/FT
4 1/2	9.50	4.090	0.0163
4 1/2	10.50	4.052	0.0159
4 1/2	11.60	4.000	0.0155
4 1/2	12.75	3.953	0.0152
4 1/2	13.50	3.920	0.0149
4 1/2	15.10	3.826	0.0142
4 3/4	16.00	4.082	0.0163
5	13.00	4.494	0.0196
5	15.00	4.408	0.0189
5	18.00	4.276	0.0178
5	21.00	4.154	0.0168
5 1/2	14.00	5.012	0.0244
5 1/2	15.00	4.974	0.0240
5 1/2	15.50	4.950	0.0238

OD	WEIGHT (LB/FT)	ID	BBL/FT
5 1/2	17.00	4.892	0.0232
5 1/2	20.00	4.778	0.0222
5 1/2	23.00	4.670	0.0212
7	17.00	6.538	0.0415
7	20.00	6.456	0.0405
7	23.00	6.366	0.0394
7	24.00	6.336	0.0390
7	26.00	6.276	0.0383
7	29.00	6.184	0.0371
7	30.00	6.154	0.0368
7	32.00	6.094	0.0361
7	35.00	6.004	0.0350
7	38.00	5.920	0.0340

BAKER SERVICE TOOLS

FORMCO #WS-20-27 (REV 3/77)

L. O. Williams