

**CORE LABORATORIES, INC.**

*Petroleum Reservoir Engineering*

DALLAS, TEXAS

August 23, 1963

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

O. A. Sutton  
407 Insurance Building  
Wichita, Kansas

Subject: Core Analysis  
Robert No. 2 Well  
Lyons West Field  
Rice County, Kansas  
CLI File No. CP-1-4857  
CP-10-1002

Gentlemen:

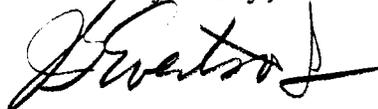
Conglomerate sand analyzed from 3289.0 to 3294.0 is interpreted to be oil productive.

Conglomerate sand analyzed from 3294.0 to 3304.1 feet is interpreted to be oil productive with a possible initial water cut.

Weighted average core analysis values have been prepared for both zones and may be found on page one of this report. Samples five and six have been omitted due to high shale content. Estimates of recoverable oil are being withheld at this time pending completion of further special tests.

Thank you for this opportunity of serving you.

Yours very truly,



J. G. Evertson, Jr.  
District Manager

JGE:db

7 cc: Addressee

29-19-8w

## CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

Page 1 of 1 File CP-1-4857, CP-10-1002  
Well Robert No. 2

## CORE SUMMARY AND CALCULATED RECOVERABLE OIL

FORMATION NAME AND DEPTH INTERVAL: Conglomerate Sand 3289.0 - 3294.0 feet

FEET OF CORE RECOVERED FROM ABOVE INTERVAL	5.0	AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE	40.9
FEET OF CORE INCLUDED IN AVERAGES	5.0	AVERAGE CONNATE WATER SATURATION: PER CENT OF PORE SPACE	
AVERAGE PERMEABILITY: MILLIDARCY	Max. 166 90 <sup>o</sup> 72	OIL GRAVITY: °API	
PRODUCTIVE CAPACITY: MILLIDARCY-FEET	Max. 828 90 <sup>o</sup> 359	ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL	
AVERAGE POROSITY: PER CENT	10.5	ORIGINAL FORMATION VOLUME FACTOR: BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL	
AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE	15.2	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: Conglomerate Sand 3294.0 - 3304.1 feet

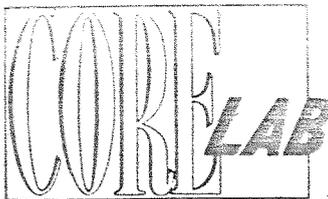
FEET OF CORE RECOVERED FROM ABOVE INTERVAL	10.1	AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE	50.6
FEET OF CORE INCLUDED IN AVERAGES	7.3	AVERAGE CONNATE WATER SATURATION: PER CENT OF PORE SPACE	
AVERAGE PERMEABILITY: MILLIDARCY	Max. 42 90 <sup>o</sup> 41	OIL GRAVITY: °API	
PRODUCTIVE CAPACITY: MILLIDARCY-FEET	Max. 309 90 <sup>o</sup> 296	ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL	
AVERAGE POROSITY: PER CENT	11.2	ORIGINAL FORMATION VOLUME FACTOR: BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL	
AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE	9.8	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

CP-1-4857

COMPANY O. A. SUTTON DATE ON 8-20-63 FILE NO. CP-10-1002  
 WELL ROBERT NO. 2 DATE OFF 8-22-63 ENGRS. WELBORNE  
 FIELD LYONS WEST FORMATION CONGLOMERATE ELEV. 1703' KB  
 COUNTY RICE STATE KANSAS DRLG. FLD. WATER BASE CORES DIAMOND  
 LOCATION C NW SE SEC. 32-19S-8W REMARKS SAMPLED BY CLI ENGINEER AS DIRECTED BY THE CLIENT.

36-2

Special Analysis  
**CORE REPORT**

SAND [stippled] LIMESTONE [horizontal lines] CONGLOMERATE [circles] CHERT [wavy lines]  
 SHALE [horizontal lines] DOLOMITE [diagonal lines] VERTICAL FRACTURE [vertical lines]

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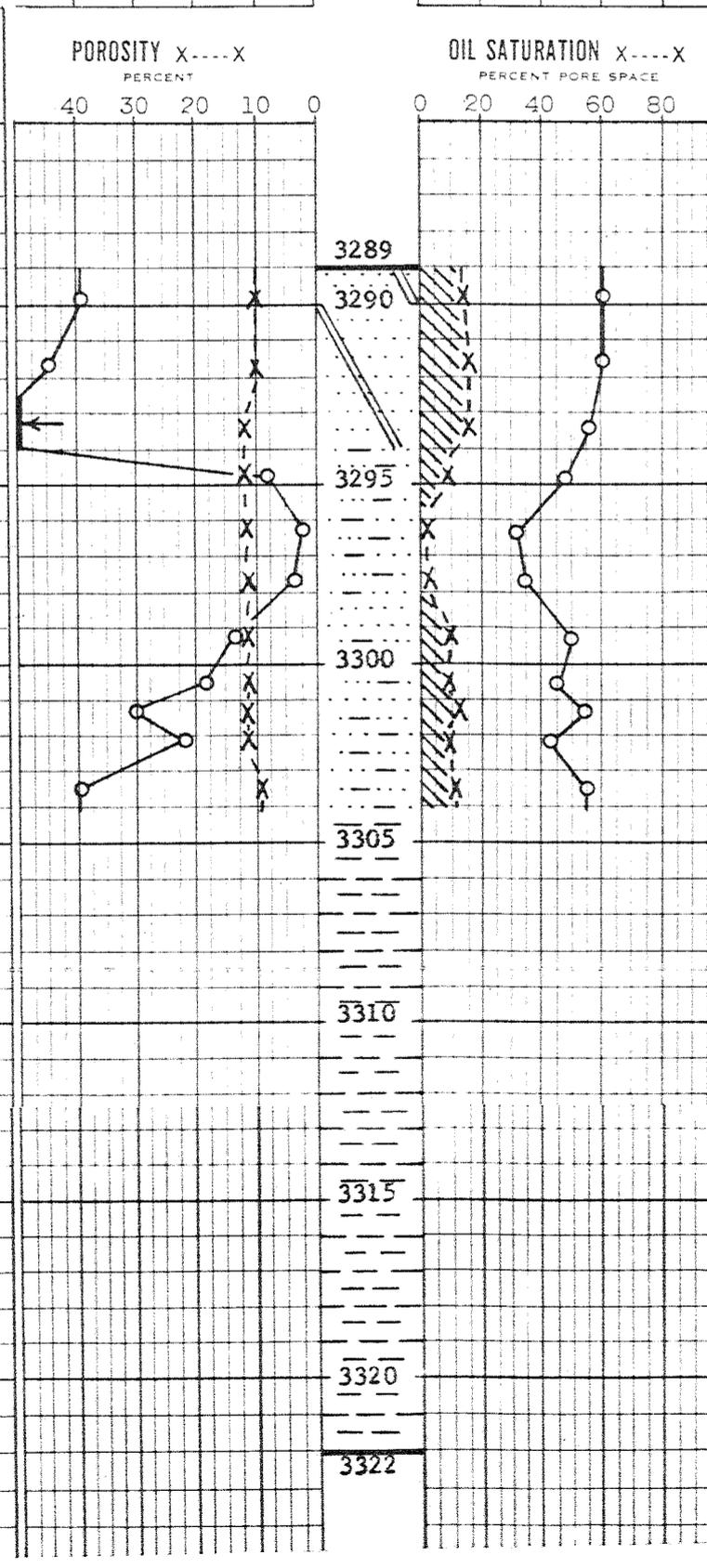
PERMEABILITY, Maximum  $\circ-\circ$   
 MILLIDARCYS  
 80 60 40 20 0

TOTAL WATER  $\circ-\circ$   
 PERCENT PORE SPACE  
 80 60 40 20

POROSITY X----X  
 PERCENT  
 40 30 20 10 0

OIL SATURATION X----X  
 PERCENT PORE SPACE  
 0 20 40 60 80

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS		POROSITY	RESIDUAL SATURATION % PORE SPACE	
		MAX	90°		OIL	TOTAL WATER
1	3289.0-90.7	78*		10.0	13.8	39.6
2	90.7-92.5	89	41	10.0	15.5	39.8
3	92.5-94.0	357	102	11.8	16.4	44.1
4	94.0-95.5	16	14	11.8	9.1	51.9
5	95.5-97.0	4.5	3.9	11.3	3.5	68.0
6	97.0-98.3	6.9	5.7	11.4	3.2	65.2
7	98.3-00.0	27	26	11.8	9.7	50.3
8	3300.0-01.0	36	32	11.7	8.5	55.4
9	01.0-01.7	60	58	11.7	12.6	46.2
10	01.7-02.5	43	40	11.1	8.9	57.1
11	3302.5-04.1	79	79	9.6	10.7	45.3



\* DENOTES MATRIX PERMEABILITY.

June 11, 1984

Mr. Council Holman  
Gulf Oil Exploration  
and Production  
Box 12116  
3625 NW 56th  
Oklahoma City, OK 73157

Dear Mr. Holman:

The Kansas Geological Survey received 11 cores from Gulf from the Lyons West Field in Rice County, Kansas. The attached list includes the names, number of boxes, and footage. We are finally attempting to gather all the information that is available for these cores. As I previously mentioned, these will be very useful for the geological-geochemical study that is now in progress in the Salina basin.

What we need most of all is the spot-section-township-range locations for all these cores. Secondly, if core analyses are available, this additional information would be most useful for the files that we are preparing on each of the cores.

We appreciate your decision to donate the cores to the Survey. If they are needed for any additional examination in the future, please do not hesitate to contact me.

Sincerely,

W. Lynn Watney, Chief  
Geologic Investigations

Cores received from Gulf from West Lyons Field, Rice County,  
 Kansas (Original operator: all O.A. Sutton)

<u>Well Name</u>	<u># Boxes Received</u>	<u>Footage of Core</u>
✓ McKinnis #2 (Tr.11-2) C SE NW 21-19S-8W	11 boxes	3318-3349.3
✓ Bell #3 (Tr.33-3) C NE NW 33-19S-8W	8 boxes	3341-43.7 3343.7-46.4 3346.4-49.4 3349.4-52.1 3352.2-55.2 3355.2-52.8 3352.8-60.4 3360.4-3363.2
✓ Frances #2 (Tr.20-2) C SW NE 29-19S-8W	9 boxes	3280-3311
(Sheppard) ✓ Shepard #1 (Tr.26-1) C SE SW 28-19S-8W	4 boxes	3319-3321.6 3324-3327 3327-3332 3333-3335.8
✓ Vera #2 (Tr. 32-3) C SE NE 32-19S-8W	7 boxes	3317-3337.5
✓ Good #1 (Tr. 22-1) C SE SW 29-19S-8W	5 boxes	3252-3263.6
✓ Kleile #1 (Tr. 14-1) C SW SW 21-19S-8W	5 boxes	3317-3333
✓ Robert #2 (Tr. 36-2) C NW SE 31-19S-8W	3 boxes	3295-3297.2 3303-3304 3314-3317
★ Koons #1 (Tr. 41-1) C NE SW 5-20S-8W	3 boxes	3281-3288.3 (No Core Analysis available)
✓ Reiss #1 (Tr. 17-1) NE NE NE 29-19S-8W	8 boxes	3271-3295
✓ Hill #1 (Tr. 25-1) C SW SW 28-19S-8W	7 boxes	3295-3318