

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

January 23, 1964

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
McKinnis No. 2 Well
Lyons West Field
Rice County, Kansas
CLI File No. CP-1-5106
CP-10-1116

Gentlemen:

Kinderhook sand analyzed from 3318.8 thru 3349.0 feet exhibits fluid saturation data indicative of oil production. Excellent productive capacity indicates satisfactory withdrawal rates should be expected without the benefit of treatment. Slightly higher total water saturations coupled with lower residual oil saturations in the lower part of the analyzed interval could indicate a possible approach to water. However, higher shale contents in this portion would cause these conditions.

Weighted average core analysis values are presented on page one of this report. Recovery estimates will be presented at a later date.

Thank you for this opportunity of serving you.

Yours very truly,



J. G. Evertson, Jr.
District Manager

JGE:db

7 cc: Addressee

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

Page 1 of 1 File CP-1-5106, CP-10-1116
Well McKinnis No. 2

CORE SUMMARY AND CALCULATED RECOVERABLE OIL

FORMATION NAME AND DEPTH INTERVAL: Kinderhook 3318.8 - 3349.0 feet			
FEET OF CORE RECOVERED FROM ABOVE INTERVAL	30.2	AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE	39.6
FEET OF CORE INCLUDED IN AVERAGES	30.2	AVERAGE CONNATE WATER SATURATION: PER CENT OF PORE SPACE	
AVERAGE PERMEABILITY: MILLIDARCYS	Max. 112 90° 104	OIL GRAVITY: °API	
PRODUCTIVE CAPACITY: MILLIDARCY-FEET	Max. 3373 90° 3151	ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL	
AVERAGE POROSITY: PER CENT	14.5	ORIGINAL FORMATION VOLUME FACTOR: BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL	
AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE	12.1	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:

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	

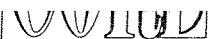
Calculated maximum solution gas drive recovery is barrels per acre-foot, assuming production could be continued until reservoir pressure declined to zero psig. Calculated maximum water drive recovery is barrels per acre-foot, assuming full maintenance of original reservoir pressure, 100% areal and vertical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

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

COMPANY

O. A. SUTTON

FILE NO.

CP-1-5106
CP-10-1116

WELL

McKINNIS NO. 2

DATE

1-21-64

ENGRS.

WELBORNE

FIELD

LYONS WEST

FORMATION

KINDERHOOK

ELEV.

1723' KB

COUNTY

RICE

STATE

KANSAS

DRLG. FLD.

WATER BASE MUD

CORES

DIAMOND

LOCATION

C SE NW SEC. 21-19S-8W

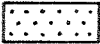
REMARKS

SAMPLED BY CLI ENGINEER AS DIRECTED BY THE CLIENT.

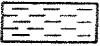
COMPLETION COREGRAPH

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SAND



SHALE



LIMESTONE



DOLOMITE



CONGLOMERATE



OOLITES



CHERT



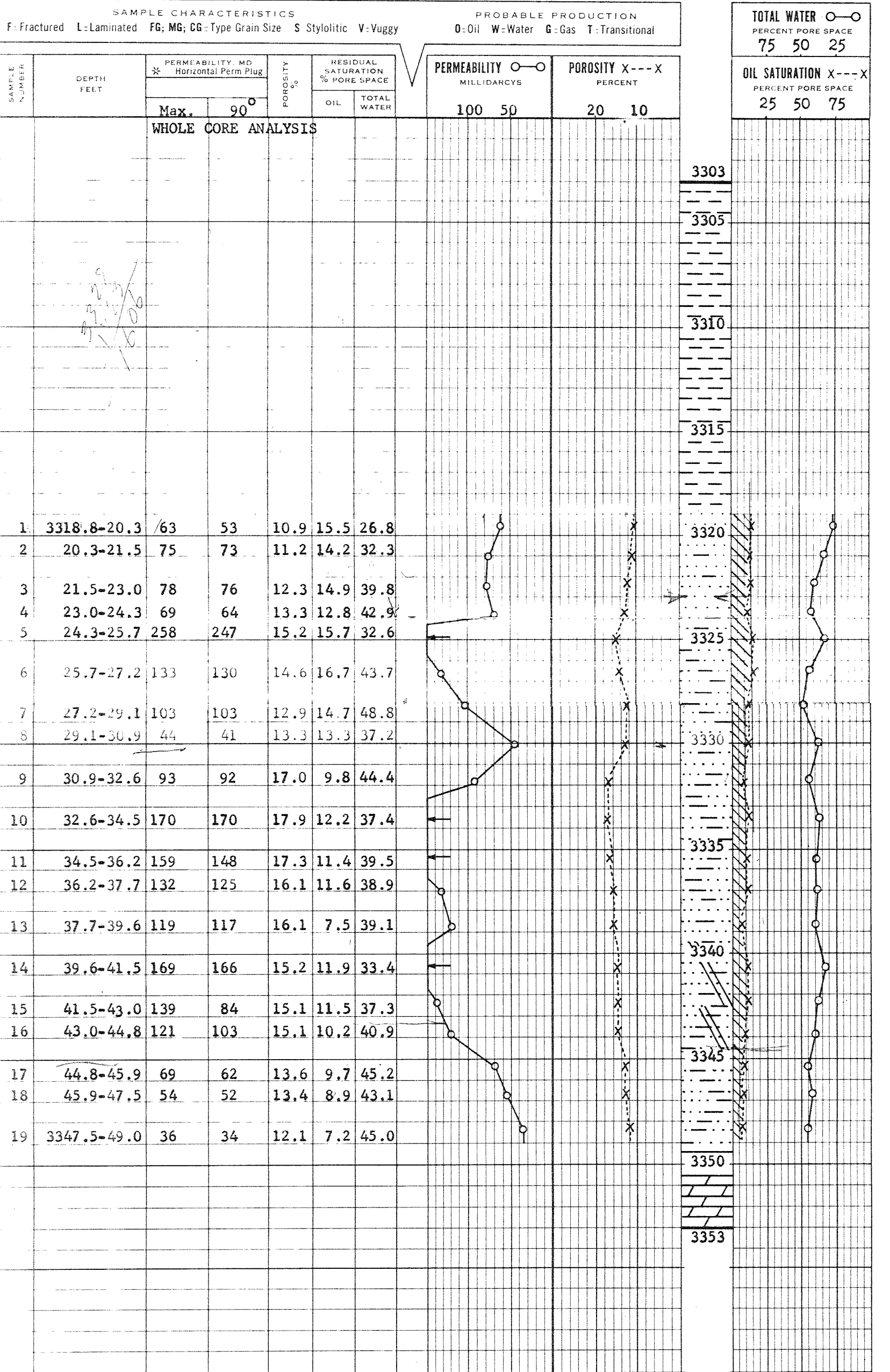
VERTICAL FRACTURE



ANHYDRITE







Gulf Oil Exploration and Production Company

N. E. Turnbo
PRODUCTION MANAGER,
OKLAHOMA CITY AREA

July 10, 1984

P. O. Box 12116
Oklahoma City, OK 73157

Mr. W. Lynn Watney, Chief
Geologic Investigations
Kansas Geological Survey
1930 Constant Avenue, Campus West
Lawrence, KS 66044-3896

Dear Mr. Watney:

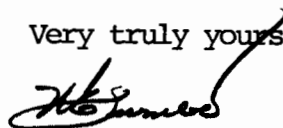
Thank you for your letter of June 11, 1984, acknowledging receipt of the West Lyons cores. It is gratifying to know these cores will be useful in your Salina Basin study.

In response to your request for specific information on these cores, we have enclosed core analysis reports, spot locations, and unit tract numbers for each well, with the exception of Koons No. 1. No analysis was available for this well.

Please note that the Sutton-Frances No. 2 is apparently mislabeled, with a box of 4" core included among the 2-7/8" cores. Since Gulf acquired this property after the wells were cored, we are unable to verify the accuracy of the labels.

If we can be of further assistance in this matter, please feel free to contact us.

Very truly yours,



N. E. Turnbo

MEC:vlh

Attachments



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