

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS 1, TEXAS
April 29, 1963

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

O. A. Sutton
407 Insurance Building
Wichita, Kansas

Subject: Core Analysis
Hill No. 1 Well
Lyons Field
Rice County, Kansas
CLI File No. CP-1-4714

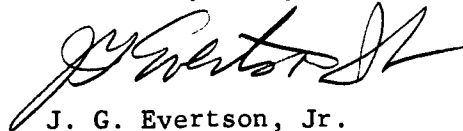
Gentlemen:

Conglomerate sand analyzed from 3295 to 3318 feet exhibits fluid saturations indicative of oil production for this type of reservoir. Somewhat higher total water saturations in the lower portion of the interval apparently stem from the lithologic change in the section.

Average core analysis values have been prepared and are presented on page one of this report. Estimates of recoverable oil are being withheld at this time pending further tests to be conducted at our Dallas, Texas, laboratory.

Thank you for this opportunity of serving you.

Yours very truly,



J. G. Evertson, Jr.
District Manager

JGE:db
8 cc: Addressee

CORE LABORATORIES, INC.

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DALLAS, TEXAS

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Well Hill No. 1

CORE SUMMARY AND CALCULATED RECOVERABLE OIL

FORMATION NAME AND DEPTH INTERVAL:		Cong. Sand 3295 - 3318 feet	
FEET OF CORE RECOVERED FROM ABOVE INTERVAL	23	AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE	49.5
FEET OF CORE INCLUDED IN AVERAGES	23	AVERAGE CONNATE WATER SATURATION: PER CENT OF PORE SPACE	
AVERAGE PERMEABILITY: MILLIDARCYS	Max. 41 90° 36	OIL GRAVITY: °API	
PRODUCTIVE CAPACITY: MILLIDARCY-Feet	Max. 942 90° 820	ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL	
AVERAGE POROSITY: PER CENT	10.6	ORIGINAL FORMATION VOLUME FACTOR: BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL	
AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE	9.5	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:			
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.

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