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CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

July 5, 1972

REPLY TO
8 N. W. 48ND ST.
OKLAHOMA CITY, OKLA.
73118

Oasis Petroleum, Inc.
800 Sutton Place
Wichita, Kansas 67202

Attn: Mr. Elbie McNeil

Subject: Core Analysis Data
Bindley No. 2 Well
Wildcat Field
Hodgeman County, Kansas
CLI File No. CP-1-7613

Gentlemen:

The Mississippian formation was diamond cored from 4636 to 4689 feet in the Bindley No. 2 Well. The recovered interval was preserved at the well-site and shipped via bus to the Oklahoma City laboratory for full diameter analysis. The resulting data is presented in tabular form on page one of this report and in graphical form on the accompanying Coregraph. The Core-Gamma Surface Log was recorded to aid the correlation of core properties with downhole electrical surveys.

Finely crystalline, chalky in part, dolomite with numerous pin-point and larger solution channels was analyzed from 4636.5 to 4679.0 feet. The data indicates continuity of the oil column down to a depth of 4659 feet.

No clear cut oil-water contact is described conclusively by the data-- even though streaks with little or no oil saturation occur in decreasing permeability and porosity intervals. The lightly saturated streaks have high water values and would produce water if perforated and treated--but not in very large volumes.

Average core analysis data and projected oil recovery is presented on the Core Summary page of this report.

We appreciate this opportunity of serving you and trust these data will aid the preliminary evaluation of this well.

Very truly yours,

CORE LABORATORIES, INC.



Dale E. Boyle
Oklahoma City Laboratory Manager

DEB:es

6 cc - Addressee

CORE ANALYSIS RESULTS

Company OASIS PETROLEUM, INC. Formation MISSISSIPPIAN File CP-1-7613
Well BINDLEY NO. 2 Core Type DIAMOND Date Report 6-29-72
Field WILDCAT BINDLEY Drilling Fluid WATER BASE MUD Analysts BOYLE
County HODGEMAN State KANSAS Elev 2435' KB Location C SW NE SEC. 33-21S-24W

Lithological Abbreviations

| SAND-SO SHALE-SH LIME-LM | DOLOMITE-DOL CHERT-CH GYPSUM-GYP | ANHYDRITE-ANHY CONGLOMERATE-CONG FOSSILIFEROUS-FOSS | SANDY-SBY 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 MILLIDARCS | | POROSITY PER CENT | RESIDUAL SATURATION PER CENT PORE | | SAMPLE DESCRIPTION AND REMARKS | |
| | | PERM. MAX. | PERM. 90° | | OIL | TOTAL WATER | | |

WHOLE-CORE ANALYSIS

| SAMPLE NUMBER | DEPTH FEET | PERMEABILITY MILLIDARCS | | POROSITY PER CENT | RESIDUAL SATURATION PER CENT PORE | | SAMPLE DESCRIPTION AND REMARKS |
|---------------|-------------|-------------------------|-----------|-------------------|-----------------------------------|-------------|-------------------------------------|
| | | PERM. MAX. | PERM. 90° | | OIL | TOTAL WATER | |
| 1 | 4636.5-37.0 | 0.1 | <0.1 | 10.6 | 24.0 | 52.3 | Dol, sl/shy, pp vugs |
| 2 | 37.0-38.0 | 1.1 | 0.1 | 9.9 | 20.4 | 49.1 | Dol, pp vugs |
| 3 | 38.0-39.0 | 6.0 | 5.1 | 7.7 | 19.4 | 51.3 | Dol, sl/shy, pp vugs |
| 4 | 39.0-40.0 | 1.2 | 1.2 | 9.7 | 20.9 | 44.4 | Dol, pp vugs |
| 5 | 40.0-41.0 | 0.6 | <0.1 | 10.2 | 13.9 | 58.2 | Dol, sl/shy, pp vugs, foss |
| 6 | 41.0-42.0 | 99 | 15 | 19.1 | 18.7 | 46.6 | Dol, pp vugs |
| 7 | 42.0-43.0 | 53 | 44 | 21.9 | 19.5 | 47.1 | Dol, pp vugs |
| 8 | 43.0-44.0 | 643 | 413 | 20.7 | 17.6 | 52.7 | Dol, pp vugs, vert frac |
| 9 | 44.0-45.0 | 65 | 43 | 24.5 | 23.9 | 43.8 | Dol, pp vugs |
| 10 | 45.0-46.0 | 79 | 74 | 24.8 | 28.3 | 46.4 | Dol, pp vugs |
| 11 | 46.0-47.0 | 21 | 20 | 18.4 | 14.8 | 48.7 | Dol, pp vugs |
| 12 | 47.0-48.0 | 137 | 47 | 24.0 | 14.4 | 56.9 | Dol, pp vugs |
| 13 | 4648.0-48.5 | 117 | 1.2 | 12.5 | 15.9 | 63.0 | Dol, shy, vert frac |
| 14 | 4649.0-50.0 | 8.7 | 8.3 | 19.1 | 20.2 | 53.8 | Dol, pp vugs |
| 15 | 50.0-51.0 | 16 | 15 | 19.3 | 24.9 | 56.1 | Dol, pp vugs |
| 16 | 51.0-52.0 | 8.5 | 4.9 | 12.4 | 7.3 | 61.8 | Dol, pp vugs |
| 17 | 52.0-53.0 | 15 | 13 | 16.3 | 22.1 | 44.1 | Dol, pp vugs |
| 18 | 53.0-54.0 | 7.3 | 7.0 | 13.9 | 23.1 | 46.8 | Dol, pp vugs |
| 19 | 54.0-55.0 | 26 | 22 | 21.4 | 25.4 | 47.8 | Dol, pp vugs |
| 20 | 55.0-56.0 | 19 | 17 | 19.2 | 23.1 | 50.5 | Dol, pp vugs |
| 21 | 56.0-57.0 | 53 | 51 | 21.2 | 21.2 | 46.3 | Dol, pp vugs |
| 22 | 57.0-58.0 | 18 | 17 | 20.4 | 20.1 | 47.4 | Dol, pp vugs |
| 23 | 58.0-59.0 | 5.9 | 5.8 | 19.3 | 23.7 | 45.3 | Dol, vuggy |
| 24 | 59.0-60.0 | 0.7 | 0.5 | 13.7 | 3.4 | 75.3 | Dol, pp vugs, chalky |
| 25 | 60.0-61.0 | 0.2 | 0.1 | 18.4 | 2.8 | 68.9 | Dol, pp vugs, chalky |
| 26 | 61.0-62.0 | 4.9 | 4.3 | 20.7 | 4.6 | 76.2 | Dol, pp vugs, chalky |
| 27 | 62.0-63.0 | 1.0 | 0.8 | 13.4 | 1.3 | 76.3 | Dol, pp vugs |
| 28 | 63.0-64.0 | 21 | 18 | 22.1 | 13.4 | 59.8 | Dol, pp vugs |
| 29 | 64.0-65.0 | 0.9* | | 16.2 | 3.8 | 77.3 | Dol, few pp vugs, vert frac, chalky |
| 30 | 65.0-66.0 | 26 | 21 | 19.6 | 18.7 | 55.2 | Dol, pp vugs |
| 31 | 66.0-67.0 | 18 | 18 | 13.7 | 23.2 | 43.9 | Dol, pp vugs |
| 32 | 67.0-68.0 | 26 | 23 | 15.5 | 2.5 | 72.4 | Dol, pp vugs |
| 33 | 68.0-69.0 | 1.4 | 1.2 | 21.2 | 2.9 | 75.4 | Dol, few pp vugs, chalky |
| 34 | 69.0-70.0 | 3.5 | 2.7 | 21.1 | 0.7 | 70.3 | Dol, pp vugs, chalky |
| 35 | 70.0-71.0 | 0.3 | 0.2 | 11.0 | 1.6 | 77.8 | Dol, shy, chalky |
| 36 | 71.0-72.0 | 7.2 | 7.1 | 19.9 | 1.3 | 80.5 | Dol, pp vugs |
| 37 | 72.0-73.0 | 16 | 14 | 19.6 | 1.2 | 79.7 | Dol, pp vugs |
| 38 | 73.0-74.0 | 6.8 | 6.5 | 17.4 | 6.5 | 66.1 | Dol, pp vugs |
| 39 | 4674.0-75.0 | 13 | 11 | 19.4 | 12.0 | 59.2 | Dol, pp vugs |

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 Petroleum Reservoir Engineering
 DALLAS, TEXAS

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Well BINDLEY NO. 2

CORE ANALYSIS RESULTS

| SAMPLE NUMBER | DEPTH FEET | PERMEABILITY MILLIDARCYs MAX. | POROSITY PER CENT | RESIDUAL SATURATION PER CENT PORE | | SAMPLE DESCRIPTION AND REMARKS | |
|---------------|-------------|----------------------------------|-------------------|-----------------------------------|-------------|--------------------------------|---------------------------------|
| | | | | OIL | TOTAL WATER | | |
| 40 | 4675.0-76.0 | 0.7 | 0.7 | 16.8 | 0.9 | 74.6 | Dol, pp vugs, chalky |
| 41 | 76.0-77.0 | 0.7 | 0.7 | 16.3 | 1.4 | 72.7 | Dol, pp vugs, chalky |
| 42 | 77.0-78.0 | 0.6 | 0.5 | 18.1 | 1.2 | 73.7 | Dol, pp vugs, chalky |
| 43 | 78.0-79.0 | 5.7 | 4.5 | 12.7 | 1.0 | 71.7 | Dol, chert incl |
| | 4679.0-88.0 | | | | | | Dol, dse - not submitted |
| 44 | 4688.0-89.0 | 3.9 | 3.7 | 19.0 | 0.0 | 78.0 | Dol, pp vugs, vert frac, chalky |

* DENOTES PLUG PERMEABILITY

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Petroleum Reservoir Engineering
DALLAS, TEXAS

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 Well BINDLEY NO. 2

CORE SUMMARY AND CALCULATED RECOVERABLE OIL

FORMATION NAME AND DEPTH INTERVAL: Mississippian 4636.5 to 4659.0 feet

| | | | |
|---|-------------------|---|------|
| FEET OF CORE RECOVERED FROM ABOVE INTERVAL | 22.5 | AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE | 52.7 |
| FEET OF CORE INCLUDED IN AVERAGES | 22.5 | AVERAGE CONNATE WATER SATURATION: PER CENT OF PORE SPACE | 45 |
| AVERAGE PERMEABILITY: MILLIDARCYS | Max. 62 90° 37 | OIL GRAVITY: °API | 38° |
| PRODUCTIVE CAPACITY: MILLIDARCY-FEET | 1395 | ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL | |
| AVERAGE POROSITY: PER CENT | 17.4 | ORIGINAL FORMATION VOLUME FACTOR: BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL | 1.29 |
| AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE | 20.0 | CALCULATED ORIGINAL STOCK-TANK OIL IN PLACE: BARRELS PER ACRE-FOOT | 576 |

Calculated maximum solution gas drive recovery is 148 barrels per acre-foot, assuming production could be continued until reservoir pressure declined to zero psig. Calculated maximum water drive recovery is 306 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.



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Petroleum Reservoir Engineering

COMPANY OASIS PETROLEUM, INC. FIELD ~~WILDCAT~~ Bindley FILE CP-1-7613
 WELL BINDLEY NO. 2 COUNTY HODGEMAN DATE 7-5-72
 LOCATION C SW NE SEC. 33-21S-24W STATE KANSAS ELEV. 2435' KB

CORE-GAMMA CORRELATION

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 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.

VERTICAL SCALE: 5" = 100'

CORE-GAMMA SURFACE LOG

(PATENT APPLIED FOR)

GAMMA RAY
RADIATION INCREASE →

COREGRAPH

TOTAL WATER ———
PERCENT TOTAL WATER
80 60 40 20

PERMEABILITY ———
MILLIDARCYs
100 50 10 5 1

POROSITY ———
PERCENT
20 10

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

