September 19, 1956

REPLY TO
P. O. BOX 36
MIDLAND, TEXAS

Ralph Lowe Drilling Company
Box 832
Midland, Texas

Attention: Mr. C. L. Chase

Subject: Core Analysis
Lawton State No. 2 Well
Lowe Devonian Field
Lea County, New Mexico
Location: Sec. 32-T11S-R38E

Gentlemen:

Diamond coring equipment and water base mud were used to core the interval,
11,967 to 12,084 feet in the Lawton State No. 2. Samples were selected and
quick-frozen by an engineer of Core Laboratories, Inc. at the direction of a
representative of Ralph Lowe Drilling Company. These samples were ana-
lyzed by whole-core analysis procedures in the Lovington laboratory, and
the results of the analysis are presented in this report.

Devonian formation analyzed between 12,009 and 12,070 feet is interpreted
to be oil productive. In this interval, the 60.5 feet of permeable, produc-
tive formation analyzed has an average permeability of 76 millidarcys and
a productive capacity of 4598 millidarcy-feet. The average porosity of the
zone is 4.6 per cent.

Estimates of recoverable oil have been computed for the Devonian formation
between 12,009 and 12,070 feet using the observed core analysis data in
conjunction with estimated reservoir fluid characteristics considered appli-
cable. These recovery estimates are presented on the core summary and
calculated recoverable oil page of the report, and are subject to the condi-
tions set forth in the body of and in the footnotes to the summary page.

We sincerely appreciate this opportunity to be of service to you.

Very truly yours,

Core Laboratories, Inc.

R. S. Bynum, Jr.,
District Manager

RSB:PE:sw
7 cc - Addressee

Form F-11B

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE SUMMARY AND CALCULATED RECOVERABLE OIL

FORMATION NAME AND DEPTH INTERVAL: Devonian 12,009.0-12,070.0

FEET OF CORE RECOVERED FROM ABOVE INTERVAL	61.0	AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE		55.8
FEET OF CORE INCLUDED IN AVERAGES	60.5	AVERAGE CONNATE WATER SATURATION: PER CENT OF PORE SPACE	(c)	55.8
AVERAGE PERMEABILITY: MILLIDARCYS Max.:	76	OIL GRAVITY: °API	(e)	46
90° :	21			
PRODUCTIVE CAPACITY: MILLIDARCY-FEET Max.:	4598	ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL	(e)	300
90° :	1271			
AVERAGE POROSITY: PER CENT	4.6	ORIGINAL FORMATION VOLUME FACTOR: BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL	(e)	1.21
AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE	10.7	CALCULATED ORIGINAL STOCK-TANK OIL IN PLACE: BARRELS PER ACRE-FOOT		130

Calculated maximum solution gas drive recovery is 45 barrels per acre-foot, assuming production could be continued until reservoir pressure declined to zero psig. Calculated maximum water drive recovery is 92 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. [CORE LAB]

Petroleum Reservoir Engineering

COMPANY RALPH LOWE DRILLING COMPANY DATE ON 9-9-56 FILE NO. WP-3-591 S

WELL LAWSON STATE NO. 2 DATE OFF 9-17-56 ENGRS. BOONE

FIELD LOWE DEVONIAN FORMATION DEVONIAN ELEV. 3892' DF

COUNTY LEA STATE NEW MEXICO DRLG. FLD. WATER BASE MUD CORES CHRISTENSEN 4"

LOCATION 1980 FS & 660 FWL SEC 32-T11S-R36E REMARKS SAMPLED AS DIRECTED BY CLIENT

Special Analysis

CORE REPORT

SAND · · · LIMESTONE CONGLOMERATE CHERT

SHALE DOLOMITE

V-VUGULAR
F-FRACTURED
T-STYLOLITIC
S-SLIGHTLY

PERMEABILITY, Maximum ○ ○
MILLIDARCYS
40 30 20 10 0

TOTAL WATER ○—○
PERCENT PORE SPACE
80 60 40 20

DRILL STEM NUMBER	DEPTH FEET	PERMEABILITY MAX.	90	POROSITY	RESIDUAL SATURATION PORE SPACE OIL	TOTAL WATER	VISUAL DESCRIPTION

POROSITY x----x

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

WHOLE-CORE ANALYSIS

11967

11970

11975

11980

NO ANALYSIS BY REQUEST

ILLEGIBLE