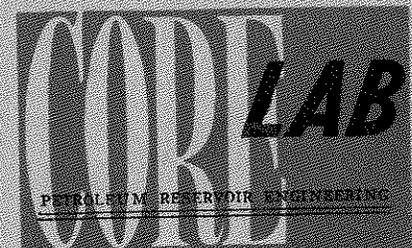CORE ANALYSIS REPORT
FOR
K-K DRILLING COMPANY

WILLIS NO. 3 WELL
CHANUTE WEST FIELD
NEOSHO COUNTY, KANSAS

CORE *LAB*

PETROLEUM RESERVOIR ENGINEERING

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

March 25, 1965

K-K Drilling Company
Box 556
Chanute, Kansas
Attn: Mr. Kenneth Keas

Subject: Core Analysis
Willis No. 3 Well
Chanute West Field
Neosho County, Kansas

Gentlemen:

Diamond cores were taken in the Bartlesville formation of the
subject well and samples were selected from the recovered sand
phase for analysis. The physical properties reported on the
accompanying coregraph were determined in the Wichita laboratory.

Shaly sand lenses encountered between 868 and 888 feet in the
upper Bartlesville interval are believed to be oil productive with
a high gas-oil ratio.

An interval of very limy sandstone between 888 and 893 feet
has low permeability and very light staining and is thought to
be of no productive significance in this well.

The interval 893 feet to 953 feet, varying from fine grained
to coarse grained sandstone, has residual fluid saturations in-
dicative of oil productivity. Sufficient permeability exists to
furnish natural flow rates of production.

Recovered sandstone analyzed below 953 feet is believed to be
water productive since no oil saturation is found in permeable
formation.

Average core analysis data and estimates of recoverable oil are
presented on the summary page of this report

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

Yours very truly,

CORE LABORATORIES, INC.

J. G. Evertson, Jr.

J. G. Evertson, Jr
District Manager

JGE:jc
6cc: ADDRESSEE

CL 319

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE SUMMARY AND CALCULATED RECOVERABLE OIL

FORMATION NAME AND DEPTH INTERVAL: BARTLESVILLE 868-888

FEET OF CORE RECOVERED FROM ABOVE INTERVAL	15.5	AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE	37.4
FEET OF CORE INCLUDED IN AVERAGES	7.5	AVERAGE CONNATE WATER SATURATION: (e) PER CENT OF PORE SPACE	30
AVERAGE PERMEABILITY: MILLIDARCYS	8.2	OIL GRAVITY: °API (e)	34
PRODUCTIVE CAPACITY: MILLIDARCY-FEET	62	ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL	
AVERAGE POROSITY: PER CENT	18.7	ORIGINAL FORMATION VOLUME FACTOR: BARRELS (e) SATURATED OIL PER BARREL STOCK-TANK OIL	1.05
AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE	18.4	CALCULATED ORIGINAL STOCK-TANK OIL IN PLACE: BARRELS PER ACRE-FOOT	968

Calculated maximum solution gas drive recovery is 152 barrels per acre-foot, assuming production could be continued until reservoir pressure declined to zero psig. Calculated maximum water drive recovery is 700 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: BARTLESVILLE 888-953

FEET OF CORE RECOVERED FROM ABOVE INTERVAL	53	AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE	36.4
FEET OF CORE INCLUDED IN AVERAGES	44	AVERAGE CONNATE WATER SATURATION: (e) PER CENT OF PORE SPACE	28
AVERAGE PERMEABILITY: MILLIDARCYS	32	OIL GRAVITY: °API (e)	34
PRODUCTIVE CAPACITY: MILLIDARCY-FEET	1410	ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL	
AVERAGE POROSITY: PER CENT	18.4	ORIGINAL FORMATION VOLUME FACTOR: BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL (e)	1.05
AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE	20.5	CALCULATED ORIGINAL STOCK-TANK OIL IN PLACE: BARRELS PER ACRE-FOOT	978

Calculated maximum solution gas drive recovery is 154 barrels per acre-foot, assuming production could be continued until reservoir pressure declined to zero psig. Calculated maximum water drive recovery is 686 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.