CORE ANALYSIS REPORT

FOR

K-K DRILLING COMPANY
AUTHER NO. 1 WELL
CHANUTE FIELD
NEOSHO COUNTY, KANSAS

ARTHUR

CORE LAB
PETROLEUM RESERVOIR ENGINEERING

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

April 1, 1965

REPLY TO
1810 N. W 4TH ST.
P. O. BOX 7128
OKLAHOMA CITY, OKLA.

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

Subject: Core Analysis
(Arthur) Auther No. 1 Well
Chanute Field
Neosho County, Kansas
CLI File No. CP-10-1309

Gentlemen:

Bartlesville formation was cored in the subject well and samples were selected from the recovered sand phase for analysis. The measured physical properties are presented on the accompanying coregraph.

Sandstone analyzed from 802 to 810 feet is believed to be from the original gas cap of this field.

Samples analyzed from 864 to 871 feet and from 920 to 925 feet are very shaly - thought to be of little productive significance in this well.

Oil productive sandstone between 927 and 959 feet has low and erratic permeability distribution with high permeability at the base of the interval.

Erratic residual oil saturations in very permeable sandstone from 959 to 968 feet indicate an oil-water transition zone with the apparent water level at or near 968 feet.

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

We are pleased to have been of service to you.

Yours very truly,

CORE LABORATORIES, INC.

J. G. Evertson, Jr.

J. G. Evertson, Jr.
District Manager

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

Well Auther No. 1
(Arthur)

CORE SUMMARY AND CALCULATED RECOVERABLE OIL

FORMATION NAME AND DEPTH INTERVAL: BARTLESVILLE 802-809

FEET OF CORE RECOVERED FROM ABOVE INTERVAL	7	AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE	38.5
FEET OF CORE INCLUDED IN AVERAGES	7	AVERAGE CONNATE WATER SATURATION: PER CENT OF PORE SPACE	
AVERAGE PERMEABILITY: MILLIDARCYS	24	OIL GRAVITY: °API	
PRODUCTIVE CAPACITY: MILLIDARCY-FEET	168	ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL	
AVERAGE POROSITY: PER CENT	17.9	ORIGINAL FORMATION VOLUME FACTOR: BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL	
AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE	11.9	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: BARTLESVILLE 927-959

FEET OF CORE RECOVERED FROM ABOVE INTERVAL	32	AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE	44.3
FEET OF CORE INCLUDED IN AVERAGES	25	AVERAGE CONNATE WATER SATURATION: (e) PER CENT OF PORE SPACE	28
AVERAGE PERMEABILITY: MILLIDARCYS	29	OIL GRAVITY: °API (e)	34
PRODUCTIVE CAPACITY: MILLIDARCY-FEET	731	ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL	
AVERAGE POROSITY: PER CENT	17.6	ORIGINAL FORMATION VOLUME FACTOR: BARRELS (e) SATURATED OIL PER BARREL STOCK-TANK OIL	1.05
AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE	22.3	CALCULATED ORIGINAL STOCK-TANK OIL IN PLACE: BARRELS PER ACRE-FOOT	939

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 634 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.