CORE ANALYSIS REPORT

FOR

KANSAS LAND INVESTMENT, INC.
WOODHEAD NO. 10 WELL
DOUGLAS COUNTY, KANSAS

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering

TULSA, OKLAHOMA

ay 16, 1984

REPLY TO
7304 EAST 38TH STREET
TULSA OKLAHOMA
74145

Kansas Land Investment, Inc.
222 E. 4th.
Ottawa, Kansas 66067

Attn: Mr. Jim Meitchum

<div align="right">

Subject: Core Analysis Data
Woodhead No. 10 Well
Douglas County, Kansas
CLI File 3408-840090

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Gentlemen:

Cores taken in the subject well in the Squirrel Sand formation were received in the Tulsa laboratory for special analytical testing described on the Procedure Page.

The accompanying Coregraph presents the binomially averaged core analysis data in graphical form to aid correlation with downhole electical surveys.

Tabular presentation of the measured physical properties may be found on page one.

Empirical estimates of stock tank oil in place may be found on page two of this report.

Core analysis data from the cored interval between 671.0 and 680.7 feet exhibits good porosity and matrix permeability development. This Squirrel zone should be oil productive after formation treatment.

It is a pleasure to have this opportunity of serving you.

<div align="center">

Very truly yours,

CORE LABORATORIES, INC.

J. Michael Edwards

J. Michael Edwards   (geh)
District Manager

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JME:MCH:jeh
5 cc - Addressee

Kansas Land Investment, Inc.
Woodhead No. 10 Well
CLI File 3408-840090

Procedure Page

Handling and Analytical Procedures

Diamond coring equipment and air were used to obtain 2 1/8-inch diameter
cores between 671.0 and 680.7 feet.

The cores were preserved at the well site in plastic bags by client
representative.

The cores were transported to Tulsa by motor freight.

Plug analysis was made in intervals requested.

Fluid removal was accomplished using high temperature retorts.

Porosity was determined by summation of fluids technique.

Horizontal air permeability on plugs measured without Klinkenberg
correction.

Temporary storage of cores in Tulsa laboratory awaiting additional
instructions.

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

KANSAS LAND INVESTMENT, INC.
WOODHEAD NO. 10 WELL

DOUGLAS COUNTY, KANSAS

DATE: 5-14-84
FORMATION: SQUIRREL SAND
DRLG. FLUID:
LOCATION:

FILE NO: 3408-840090
ENGINEER: HUDSON
ELEVATION:

SMP. NO.	DEPTH	PERM. TO AIR MD. PLUG	POROSITY PERCENT	FLUID SATS. OIL	FLUID SATS. WTR.	STB/ AF	DESCRIPTION
		ROUTINE PLUG SUMMATION OF FLUIDS					
1	671.0-72.0	6.2	17.9	32.5	41.5	775	SD,SLTY,CALC,MICA
2	672.0-73.0	41.0	20.3	36.3	37.4	939	SD,SL/CALC,MICA
3	673.0-74.0	64.0	22.1	37.3	31.3	1122	SD,SL/CALC,MICA
4	674.0-75.0	29.0	22.8	37.3	33.4	1125	SD,SL/CALC,MICA
5	675.0-76.0	30.0	21.2	33.6	32.5	1056	SD,SL/CALC,MICA
6	676.0-77.0	32.0	18.7	37.2	24.0	1049	SD,SL/CALC,MICA
7	677.0-78.0	33.0	20.7	38.5	33.0	1025	SD,SL/CALC,MICA
8	678.0-79.0	36.0	21.5	37.9	31.6	1086	SD,SL/CALC,MICA
9	679.0-80.0	69.0	18.7	31.8	44.6	766	SD,CALC,SHY,MICA
10	680.0-80.7	16.0	17.8	23.9	47.9	684	SD,SL/CALC,MICA

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE SUMMARY AND CALCULATED RECOVERABLE OIL

FORMATION NAME AND DEPTH INTERVAL: SQUIRREL SAND 671.0-680.7

FEET OF CORE RECOVERED FROM ABOVE INTERVAL	9.7	AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE	35.7
FEET OF CORE INCLUDED IN AVERAGES	10	AVERAGE CONNATE WATER SATURATION: PER CENT OF PORE SPACE	31.0 (e)
AVERAGE PERMEABILITY: MILLIDARCYS	35.6	OIL GRAVITY: °API	
PRODUCTIVE CAPACITY: MILLIDARCY-FEET	356	ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL	
AVERAGE POROSITY: PER CENT	20.2	ORIGINAL FORMATION VOLUME FACTOR: BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL	1.05 (c)
AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE	34.6	CALCULATED ORIGINAL STOCK-TANK OIL IN PLACE: BARRELS PER ACRE-FOOT	963

Calculated maximum solution gas drive recovery is 135 (e) 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.

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

CORE **LAB**

COMPANY _KANSAS LAND INVESTMENT, INC._ FILE NO. _3408-840090_

WELL _WOODHEAD NO. 10_ DATE _5-14-84_

FIELD _____ FORMATION _SQUIRREL SAND_ ELEV. _____

COUNTY _DOUGLAS_ STATE _KANSAS_ DRLG. FLD. _____ CORES _____

LOCATION _____

CORRELATION COREGRAPH

VERTICAL SCALE: 5" = 100'

Total Water _____

PERCENT PORE SPACE

100 80 60 40 20 0

Gamma Ray	**Permeability** _____	Depth Feet	**Porosity** _____	**Oil Saturation**
RADIATION INCREASE →	MILLIDARCIES		PERCENT	PERCENT PORE SPACE
	1000 100 10 1		30 20 10 0	0 20 40 60 80 10

Depth markings: 700, 750