

CORE ANALYSIS REPORT

FOR

KANSAS LAND INVESTMENT, INC.
WOODHEAD NO. 54 WELL
DOUGLAS COUNTY, KANSAS

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
TULSA, OKLAHOMA

July 30, 1985

REPLY TO
7304 EAST 38TH STREET
TULSA, OKLAHOMA
74145

Kansas Land Investment, Inc.
222 East Third
Ottawa, Kansas 66067

Attn: Mr. Jim Mietchen

Subject: Core Analysis Data
Woodhead No. 54 Well
Douglas County, Kansas
CLI File 3408-850154

Gentlemen:

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

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

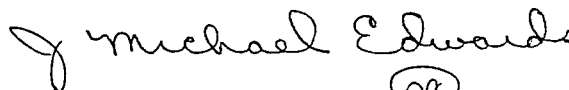
Tabular presentation of the measured physical properties may be found on page one of this report.

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

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

Very truly yours,

CORE LABORATORIES, INC.



J. Michael Edwards
District Manager

JME:ja

5 cc - Addressee

Kansas Land Investment, Inc.
Woodhead No. 54 Well
CLI File 3408-850154

Procedure Page

Handling and Analytical Procedures

Diamond coring equipment and air were used to obtain 2-1/8 inch diameter cores between 719.0 and 728.3 feet.

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

The cores were transported to Tulsa by bus.

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 for a period of thirty days without additional charge.

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

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KANSAS LAND INVESTMENT, INC.
WOODHEAD NO. 54 WELL
DOUGLAS COUNTY, KANSAS

DATE : 7-30-85
FORMATION : SQUIRREL SAND
DRLG. FLUID: AIR
LOCATION :

FILE NO. : 3408-850154
API NO. :
LABORATORY: TULSA, OKLAHOMA

CONVENTIONAL PLUG ANALYSIS

SAMPLE NUMBER	DEPTH FEET	PERM PLUG	FLD POR	OIL% POR	WTR% POR	DESCRIPTION
1	719.0-20.0	6.1	19.8	25.4	43.8	SD FN GRN SL/CALC SHY MICA
2	720.0-20.5	7.6	11.9	31.3	41.8	SD FN GRN CALC MICA
	720.5-22.0					LM
3	722.0-23.0	32.1	20.7	33.7	32.6	SD FN GRN SL/CALC MICA
4	723.0-24.0	18.1	21.7	33.2	32.1	SD FN GRN SL/CALC SL/SHY MICA
5	724.0-25.0	21.1	21.0	35.8	33.6	SD FN GRN SL/CALC MICA
6	725.0-26.0	50.1	22.7	36.1	29.2	SD FN GRN SL/CALC MICA
7	726.0-27.0	12.1	20.2	21.8	47.0	SD FN GRN SL/CALC MICA
8	727.0-28.0	2.2	13.2	6.6	79.0	SD FN GRN V/SHY SH LAMS MICA
	728.0-28.3					SH
		5.0	21.3	32.1	34.9	
					32.0	

$$\bar{V} = .63$$

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

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KANSAS LAND INVESTMENT, INC.
WOODHEAD NO. 54 WELL

DATE : 7-30-85
FORMATION : SQUIRREL SAND

FILE NO. : 3408-850154
ANALYSTS : HUDSON

*** CORE SUMMARY AND CALCULATED RECOVERABLE OIL ***

DEPTH INTERVAL: 722.0 TO 727.0

FEET OF CORE ANALYZED : 5.0 FEET OF CORE INCLUDED IN AVERAGES: 5.0

-- SAMPLES FALLING WITHIN THE FOLLOWING RANGES WERE AVERAGED --
PERMEABILITY HORIZONTAL RANGE (MD.) : 10. TO 60. (UNCORRECTED FOR SLIPPAGE)
FLUID POROSITY RANGE (%) : 15.0 TO 100.0
OIL SATURATION RANGE (%) : 20.0 TO 40.0
WATER SATURATION RANGE (%) : 20.0 TO 50.0
SHALE SAMPLES EXCLUDED FROM AVERAGES.

AVERAGE PERMEABILITY (MILLIDARCIES)		AVERAGE TOTAL WATER SATURATION	: 34.7
ARITHMETIC PERMEABILITY	: 27.	(PERCENT OF PORE SPACE)	
GEOMETRIC PERMEABILITY	: 24.		
HARMONIC PERMEABILITY	: 21.	AVERAGE CONNATE WATER SATURATION	: (C) 30.6
		(PERCENT OF PORE SPACE)	
PRODUCTIVE CAPACITY (MILLIDARCY-FEET)		OIL GRAVITY (API)	: (E) 30.0
ARITHMETIC CAPACITY	: 133.		
GEOMETRIC CAPACITY	: 118.	ORIGINAL SOLUTION GAS-OIL RATIO	: (E) 1.
HARMONIC CAPACITY	: 105.	(CUBIC FEET PER BARREL)	
AVERAGE POROSITY (PERCENT)	: 21.3	ORIGINAL FORMATION VOLUME FACTOR	: (C) 1.05
		(BBLS SATURATED OIL/STOCK-TANK BBL)	
AVERAGE RESIDUAL OIL SATURATION	: 32.3	ORIGINAL STOCK-TANK OIL IN PLACE	: (C) 1090.
(PERCENT OF PORE SPACE)		(BARRELS PER ACRE-FOOT)	

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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.

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(C) CALCULATED (E) ESTIMATED (M) MEASURED (*) REFER TO ATTACHED LETTER.

CORE LABORATORIES, INC.**Petroleum Reservoir Engineering**COMPANY KANSAS LAND INVESTMENT, INC.FILE NO. 3408-850154WELL WOODHEAD NO. 54 WELLDATE 7-30-85FIELD _____ FORMATION SQUIRREL SAND

ELEV. _____

COUNTY DOUGLAS COUNTY STATE KANSAS DRLG. FLD. AIR

CORES _____

LOCATION _____

CORRELATION COREGRAPH

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 or omissions excepted); but Core Laboratories, Inc., and its officers and employees, assume no responsibility and make no warranty or representations 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'

Gamma Ray

RADIATION INCREASE →

Permeability _____

MILLIDARCIES

Porosity _____

PERCENT

Total Water _____

PERCENT PORE SPACE

100 80 60 40 20 0

Oil Saturation _____

PERCENT PORE SPACE

0 20 40 60 80 100

Depth
Feet

650

700

750

1000 100 10 1

30 20 10 0

0 20 40 60 80 100

