CORE ANALYSIS REPORT

FOR

KANSAS LAND INVESTMENT, INC.
WOODHEAD NO. 52 WELL
DOUGLAS COUNTY, KANSAS

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
TULSA, OKLAHOMA

September 5, 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. 52 Well
Douglas County, Kansas
CLI File 3408-850191

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

J. Michael Edwards
District Manager

JME:ja

5 cc - Addressee

Kansas Land Investment, Inc.
Woodhead No. 52 Well
CLI File 3408-850191

Procedure Page

Handling and Analytical Procedures

Diamond coring equipment and air were used to obtain 2-1/8 inch diameter cores between 677.0 and 687.0 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

KANSAS LAND INVESTMENT, INC.
WOODHEAD NO. 52 WELL

DOUGLAS COUNTY, KANSAS

DATE : 8-19-85
FORMATION : SQUIRREL SAND
DRLG. FLUID: AIR
LOCATION :

FILE NO. : 3408-850191
API NO. :
LABORATORY: TULSA, OKLAHOMA

CONVENTIONAL PLUG ANALYSIS

SAMPLE NUMBER	DEPTH FEET	PERM MAXIMUM	FLD POR	OIL% POR	WTR% POR	DESCRIPTION
1	677.0-78.0	3.7	18.1	29.1	36.7	SD FN GRN SLTY MICA
2	678.0-79.0	1.1	21.7	27.8	28.9	SD FN GRN LMY MICA
3	679.0-80.0	13.	10.0	31.9	40.8	SD FN GRN SL/CALC MICA
4	680.0-81.0	98.	19.8	37.5	28.4	SD FN GRN SL/CALC MICA
5	681.0-82.0	169.	22.9	41.8	19.0	SD FN GRN SL/CALC MICA
6	682.0-83.0	53.	18.3	38.5	24.9	SD FN GRN SL/CALC MICA
7	683.0-84.0	13.	21.8	34.4	26.3	SD FN GRN SL/CALC MICA
8	684.0-85.0	29.	21.1	35.7	24.1	SD FN GRN SL/CALC MICA
9	685.0-86.0	13.	18.8	29.0	35.0	SD FN GRN SL/CALC MICA
10	686.0-87.0	0.73	16.4	28.6	40.0	SD FN GRN SH LAM MICA
		7.0	19.0	35.5	28.4	
					26.0	

$\bar{V} = .82$

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

KANSAS LAND INVESTMENT, INC. — DATE : 8-19-85 — FILE NO. : 3408-850191
WOODHEAD NO. 52 WELL — FORMATION : SQUIRREL SAND — ANALYSTS : HUDSON

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

DEPTH INTERVAL: 679.0 TO 686.0

FEET OF CORE ANALYZED : 7.0 FEET OF CORE INCLUDED IN AVERAGES: 7.0

-- SAMPLES FALLING WITHIN THE FOLLOWING RANGES WERE AVERAGED --

PERMEABILITY HORIZONTAL RANGE (MD.)	: 10. TO 200.	(UNCORRECTED FOR SLIPPAGE)
FLUID POROSITY RANGE (%)	: 10.0 TO 100.0	
OIL SATURATION RANGE (%)	: 20.0 TO 50.0	
WATER SATURATION RANGE (%)	: 10.0 TO 50.0	

SHALE SAMPLES EXCLUDED FROM AVERAGES.

AVERAGE PERMEABILITY (MILLIDARCIES)		AVERAGE TOTAL WATER SATURATION (PERCENT OF PORE SPACE)	: 27.1
ARITHMETIC PERMEABILITY	: 55.		
GEOMETRIC PERMEABILITY	: 34.		
HARMONIC PERMEABILITY	: 23.	AVERAGE CONNATE WATER SATURATION (PERCENT OF PORE SPACE)	: (C) 24.5
PRODUCTIVE CAPACITY (MILLIDARCY-FEET)			
ARITHMETIC CAPACITY	: 388.	OIL GRAVITY (API)	: (E) 30.0
GEOMETRIC CAPACITY	: 240.		
HARMONIC CAPACITY	: 163.	ORIGINAL SOLUTION GAS-OIL RATIO (CUBIC FEET PER BARREL)	: (E) 1.
AVERAGE POROSITY (PERCENT)	: 19.0		
		ORIGINAL FORMATION VOLUME FACTOR (BBLS SATURATED OIL/STOCK-TANK BBL)	: (C) 1.05
AVERAGE RESIDUAL OIL SATURATION (PERCENT OF PORE SPACE)	: 36.0		
		ORIGINAL STOCK-TANK OIL IN PLACE (BARRELS PER ACRE-FOOT)	: (C) 1057.

CALCULATED MAXIMUM SOLUTION GAS DRIVE RECOVERY IS 104 BARRELS PER ACRE-FOOT, ASSUMING PRODUCTION COULD BE CONTINUED UNTIL RESERVOIR PRESSURE DECLINED TO ZERO PSIG. CALCULATED MAXIMUM WATER DRIVE RECOVERY IS 528 BARRELS PER ACRE-FOOT, ASSUMING FULL MAINTENANCE OF ORIGINAL RESERVOIR PRESSURE 100% AREAL AND VERTICAL COVERAGE, AND CONTINUATION OF PRODUCTION TO 100% WATER CUT.

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

CORE LABORATORIES, INC. *Petroleum Reservoir Engineering*

COMPANY KANSAS LAND INVESTMENT, INC. FILE NO. 3488-858191

WELL WOODHEAD NO. 52 WELL DATE 8-19-85

FIELD _____ FORMATION SQUIRREL SAND ELEV. _____

COUNTY DOUGLAS COUNTY STATE KANSAS DRLG. FLD. AIR CORES _____

LOCATION _____

CORRELATION COREGRAPH

VERTICAL SCALE: 5" = 100'