

CORE ANALYSIS REPORT

FOR

KANSAS LAND INVESTMENT, INC.
JOHNSON NO. 1 WELL
DOUGLAS COUNTY, KANSAS

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
TULSA, OKLAHOMA

September 24, 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
Johnson No. 1 Well
Douglas County, Kansas
CLI File 3408-850209

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.

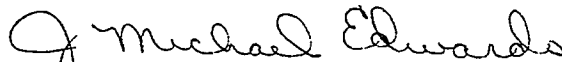
Empirical estimates of stock tank oil in place may be found on page two.


Histograms of porosity and permeability in addition to a graph of permeability versus porosity may be found on pages three and four.

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

Very truly yours,

CORE LABORATORIES, INC.



J. Michael Edwards 
District Manager

JME:jk

5 cc - Addressee

Kansas Land Investment, Inc.
Johnson No. 1 Well
CLI File 3408-850209

Procedure Page

Handling and Analytical Procedures

Diamond coring equipment and air were used to obtain 2-1/8 inch diameter cores between 723.0 and 733.8 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.

KANSAS LAND INVESTMENT, INC.
 JOHNSON NO. 1 WELL
 DOUGLAS COUNTY, KANSAS

DATE : 9-24-85
 FORMATION : SQUIRREL SAND
 DRLG. FLUID: AIR
 LOCATION :

FILE NO. : 3408-850209
 API NO. :
 LABORATORY: TULSA, OKLAHOMA

CONVENTIONAL PLUG ANALYSIS

SAMPLE NUMBER	DEPTH FEET	PERM PLUG	FLD POR	OIL% POR	WTR% POR	DESCRIPTION
1	723.0-24.0	2.4	19.3	28.7	43.0	SD FN GRN SLTY MICA
2	724.0-25.0	12.10	19.4	31.0	42.9	SD FN GRN SL/SHY MICA
	725.0-25.4					SH
3	725.4-26.0	14	20.6	31.2	42.4	SD FN GRN SL/SHY MICA
4	726.0-27.0	11	20.9	32.7	36.0	SD FN GRN SL/SHY MICA
5	727.0-28.0	24.66	22.8	40.1	32.3	SD FN GRN SL/SHY MICA
6	728.0-29.0	17	21.1	36.7	36.7	SD FN GRN SL/SHY MICA
7	729.0-30.0	19	21.5	37.9	33.7	SD FN GRN SL/SHY MICA
8	730.0-31.0	28	20.8	33.5	37.9	SD FN GRN SL/SHY MICA
9	731.0-32.0	12	21.6	32.2	40.5	SD FN GRN SL/SHY MICA
	732.0-33.0					SH SDY
10	733.0-33.8	40.8.4	23.1	35.0	33.1	SD FN GRN MICA

h - 8.4
 ϕ 21.3
 S_o 34.6
 S_w 37.1 (33.5)
 $\bar{V} = .467$

35
 280

These analyses, opinions or interpretations are based on observations and materials 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 and 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 operations, or profitableness of any oil, gas or other mineral well or sand in connection with which such report is used or relied upon.

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
 DALLAS, TEXAS

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KANSAS LAND INVESTMENT, INC.
 JOHNSON NO. 1 WELL

DATE : 9-24-85
 FORMATION : SQUIRREL SAND

FILE NO. : 3408-850209
 ANALYSTS : HUDSON

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

DEPTH INTERVAL: 725.0 TO 733.0

FEET OF CORE ANALYZED : 6.6 FEET OF CORE INCLUDED IN AVERAGES: 6.6

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

PERMEABILITY HORIZONTAL RANGE (MD.) : 10. TO 50. (UNCORRECTED FOR SLIPPAGE)
 FLUID POROSITY RANGE (%) : 10.0 TO 100.0
 OIL SATURATION RANGE (%) : 10.0 TO 50.0
 WATER SATURATION RANGE (%) : 10.0 TO 50.0
 SHALE SAMPLES EXCLUDED FROM AVERAGES.

AVERAGE PERMEABILITY (MILLIDARCIES)	
ARITHMETIC PERMEABILITY : 18.	AVERAGE TOTAL WATER SATURATION : 36.7 (PERCENT OF PORE SPACE)
GEOMETRIC PERMEABILITY : 17.	
HARMONIC PERMEABILITY : 16.	AVERAGE CONNATE WATER SATURATION : (C) 33.0 (PERCENT OF PORE SPACE)
PRODUCTIVE CAPACITY (MILLIDARCY-FEET)	
ARITHMETIC CAPACITY : 119.	OIL GRAVITY (API) : (E) 30.0
GEOMETRIC CAPACITY : 113.	
HARMONIC CAPACITY : 107.	ORIGINAL SOLUTION GAS-OIL RATIO : (E) 1. (CUBIC FEET PER BARREL)
AVERAGE POROSITY (PERCENT) : 21.4	
AVERAGE RESIDUAL OIL SATURATION : 35.2 (PERCENT OF PORE SPACE)	ORIGINAL FORMATION VOLUME FACTOR : (C) 1.05 (BBLs SATURATED OIL/STOCK-TANK BBL)
	ORIGINAL STOCK-TANK OIL IN PLACE : (C) 1058. (BARRELS PER ACRE-FOOT)

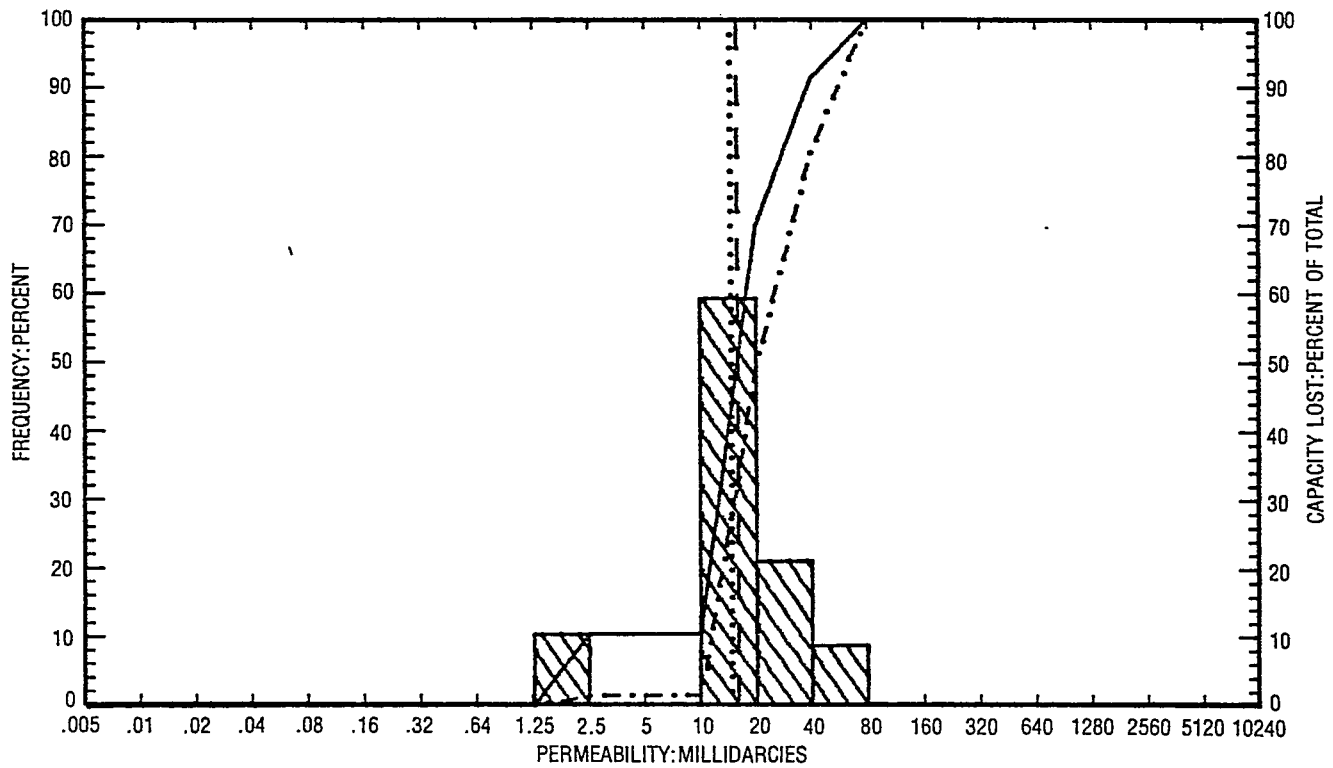
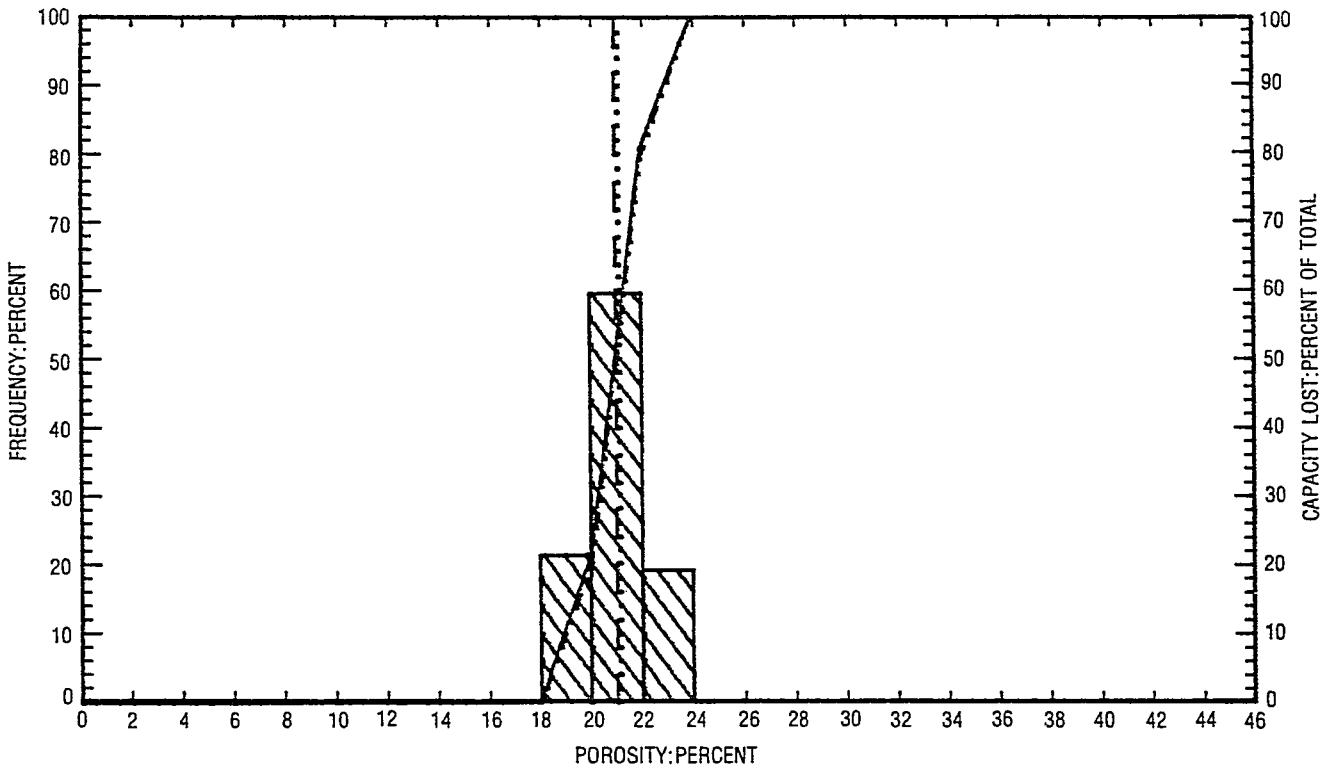
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CALCULATED MAXIMUM SOLUTION GAS DRIVE RECOVERY IS BARRELS PER ACRE-FOOT, ASSUMING PRODUCTION
 COULD BE CONTINUED UNTIL RESERVOIR PRESSURE DECLINED TO ZERO PSIG. CALCULATED MAXIMUM WATER DRIVE
 RECOVERY IS BARRELS PER ACRE-FOOT, ASSUMING FULL MAINTENANCE 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.

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PERMEABILITY AND POROSITY HISTOGRAMS

KANSAS LAND INVESTMENT, INC.
 JOHNSON NO. 1 WELL

 DOUGLAS COUNTY, KANSAS

LEGEND	
ARITHMETIC MEAN POROSITY
GEOMETRIC MEAN PERMEABILITY
MEDIAN VALUE	-----
CUMULATIVE FREQUENCY	—————
CUMULATIVE CAPACITY LOST-.....

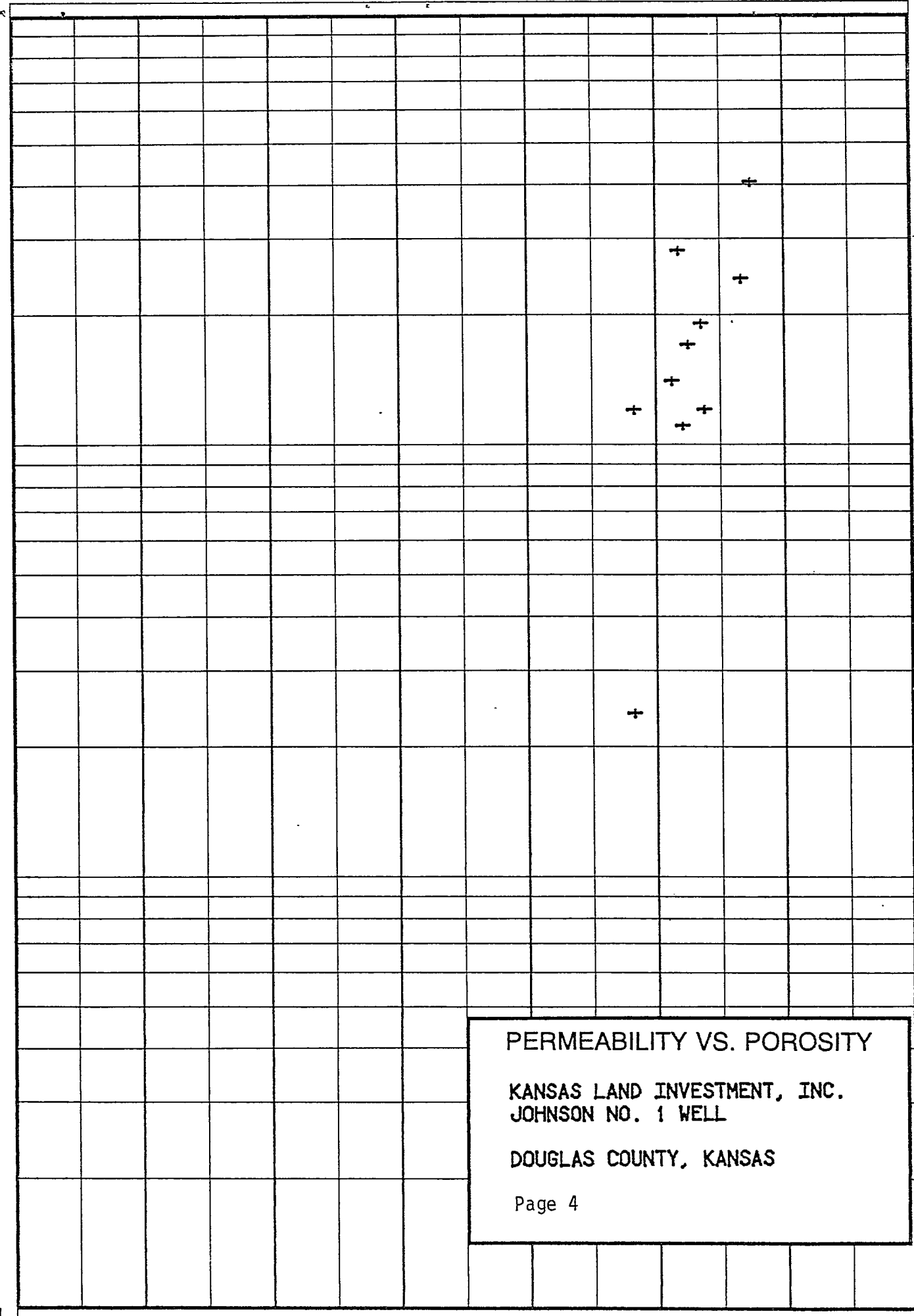
100.

PERMEABILITY: MILLIDARCIES

10.

1.

0.1



0.0 4.0 8.0 12.0 16.0 20.0 24.0

POROSITY: PERCENT

PERMEABILITY VS. POROSITY
KANSAS LAND INVESTMENT, INC.
JOHNSON NO. 1 WELL
DOUGLAS COUNTY, KANSAS
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CORE LABORATORIES, INC.



Petroleum Reservoir Engineering

COMPANY KANSAS LAND INVESTMENT, INC. FILE NO. 3408-850209
 WELL JOHNSON NO. 1 WELL DATE 9-24-85
 FIELD _____ FORMATION SQUIRREL SAND ELEV. _____
 COUNTY DOUGLAS COUNTY STATE KANSAS DRLG. FLD. AIR CORES _____
 LOCATION _____

CORRELATION COREGRAPH

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VERTICAL SCALE: 5" = 100'

Gamma Ray
RADIATION INCREASE →

Permeability _____
MILLIDARCIES

Porosity _____
PERCENT

Total Water _____
PERCENT PORE SPACE

Oil Saturation _____
PERCENT PORE SPACE

