

CORE ANALYSIS REPORT

FOR

RINE DRILLING COMPANY

~~BARB [REDACTED] NO. [REDACTED]~~

CLARK COUNTY, KANSAS

23 - 34-21W

CORE LABORATORIES, INC.  
*Petroleum Reservoir Engineering*

OKLAHOMA CITY, OKLAHOMA  
September 15, 1982

REPLY TO  
SUITE 133  
400 SOUTH VERMONT  
OKLAHOMA CITY, OK  
73108

Rine Drilling Company  
Suite 600  
300 W. Douglas  
Wichita, Kansas 67202

Attn: Mr. Jack Rine

Subject: Core Analysis Data  
Barby-Harper No. 2-23 Well  
Clark County, Kansas  
CLI File 3402-11409

Gentlemen:

Cores taken in the subject well in the Toronto Lime formation were received at the Oklahoma City laboratory for special analytical testing described on the Procedure Page.

The accompanying Coregraph presents the Surface Core-Gamma Log and 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 pages one through three of this report.

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

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

Very truly yours,

CORE LABORATORIES, INC.



J. Michael Edwards  
District Manager

7 cc - Addressee

Rine Drilling Company  
Barby-Harper No. 2-23 Well  
CLI File 3402-11409

Procedure Page

#### Handling and Analytical Procedures

Diamond coring equipment and water base mud were used to obtain 4.0 inch diameter cores between 4,284.0 and 4,344.3 feet.

The cores were preserved at the well site in a CO<sub>2</sub> atmosphere by CLI personnel.

The cores were transported to Oklahoma City by CLI personnel.

A Core-Gamma Log was recorded for downhole electric log correlation.

Core analysis was made in the intervals requested on right cylinder full diameter samples.

Fluid removal was accomplished using vacuum retorts.

Porosity was determined by density balance method.

Air permeability in two horizontal directions was measured without Klinkenberg correction.

Temporary storage of cores in Oklahoma City laboratory for a period of thirty days without additional charge.

RINE DRILLING COMPANY  
 BARBY-HARPER NO. 2-23 WELL  
 SNAKE CREEK FIELD  
 CLARK COUNTY, KANSAS

DATE: 9/15/82  
 FORMATION: TORONTO LIME  
 DRLG. FLUID: WATER BASE MUD  
 LOCATION: SEC. 23-34S-21W

FILE NO: 3402-11409  
 ANALYST: EDWARDS  
 LABORATORY: OKLAHOMA CITY

FULL DIAMETER ANALYSIS

SMP. NO.	DEPTH FEET	PERM. TO AIR MD. MAXIMUM	PERM. TO AIR MD. 90 DEG.	POROSITY PERCENT	FLUID OIL	SATS. WATER	GRAIN DEN.	DESCRIPTION
1	4284.0-85.0	0.01	<0.01	2.4	0.0	72.4	2.75	LM, FISS, SHY
2	4285.0-86.0	5.20	0.01	2.4	0.0	80.2	2.72	LM, FOSS, PP VGS, VF
3	4286.0-87.0	5.30	1.60	3.5	0.0	87.2	2.73	LM, FOSS, PP VGS, SHY
4	4287.0-88.0	41	0.10	6.5	0.0	96.2	2.74	LM, FOSS, PP VGS, SHY
5	4288.0-89.0	0.02	0.01	2.0	0.0	71.8	2.73	LM, FOSS, VF
6	4289.0-90.0	0.11	0.03	1.8	0.0	73.9	2.73	LM, FOSS
7	4290.0-91.0	1231	447	1.6	0.0	65.9	2.73	LM, FISS, FEW VGS, VF
8	4291.0-92.0	2.50	0.89	1.8	0.0	69.9	2.73	LM, FISS, FEW VGS, VF
9	4292.0-93.0	12	3.00	5.9	5.1	57.5	2.71	LM, FISS, VGY, STY, VF
10	4293.0-94.0	*	7.20	5.2	12.2	43.3	2.72	LM, FISS, VGY, VF
11	4294.0-95.0	1.50	1.20	8.7	12.7	76.0	2.73	LM, FOSS, PP VGS
12	4295.0-96.0	6.70	2.50	9.4	12.1	70.9	2.74	LM, FOSS, PP VGS, SL/DOL, VF
13	4296.0-97.0	16	12	15.7	11.7	68.1	2.74	LM, FOSS, VGY, SL/DOL
14	4297.0-98.0	16	11	17.7	11.2	72.8	2.76	LM, FOSS, VGY, SL/DOL
15	4298.0-99.0	22	22	16.6	7.3	68.5	2.74	LM, FOSS, VGY, SL/DOL
16	4299.0-0.0	16	14	22.8	7.4	74.7	2.76	LM, FOSS, VGY, SL/DOL
17	4300.0-1.0	17	16	18.9	5.7	69.1	2.77	DOL, FOSS, VGY, LMY
18	4301.0-2.0	2.00	1.30	15.3	4.0	75.3	2.80	DOL, FOSS, PP VGS, LMY
19	4302.0-3.0	2.30	2.30	17.3	3.7	79.0	2.80	DOL, FOSS, PP VGS, LMY
20	4303.0-4.0	158	2.80	12.5	4.1	78.1	2.76	LM, FOSS, PP VGS, SL/DOL, FISS, STY
21	4304.0-5.0	3.00	1.30	5.2	3.2	70.3	2.73	LM, FOSS, PP VGS, FISS, STY
22	4305.0-6.0	1.90	1.60	6.6	2.9	72.5	2.72	LM, FOSS, PP VGS, FISS
23	4306.0-7.0	1.10	1.10	3.2	2.1	71.9	2.72	LM, FOSS, PP VGS, FISS
24	4307.0-8.0	4.10	3.50	5.7	1.3	70.6	2.72	LM, FOSS, VGY, FISS

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 profitability of any oil, gas or other mineral well or sand in connection with which such report is used or relied upon.

FILE NO: 3402-11409  
 ANALYST: EDWARDS

DATE: 9/15/82  
 FORMATION: TORONTO LIME

RINE DRILLING COMPANY  
 BARBY-HARPER NO. 2-23 WELL

FULL DIAMETER ANALYSIS

SMP. NO.	DEPTH FEET	PERM. TO AIR MD. MAXIMUM	PERM. 90 DEG.	POROSITY PERCENT	FLUID OIL	SATS. WATER	GRAIN DEN.	DESCRIPTION
25	4308.0-9.0	5.40	2.20	6.3	0.0	70.0	2.72	LM, FOSS, PP VGS, FISS, VF
26	4309.0-10.0	3.50	1.80	5.4	0.0	67.7	2.72	LM, FOSS, FEW VGS, FISS, VF
27	4310.0-11.0	233	4.00	3.8	0.0	72.4	2.72	LM, FOSS, PP VGS, FISS, STY, VF
28	4311.0-12.0	*	0.08	2.2	0.0	75.5	2.73	LM, FOSS, SHY, VF
29	4312.0-13.0	*	0.05	2.7	0.0	78.7	2.73	LM, FOSS, SHY, VF
30	4313.0-14.0							LOST CORE
30	4314.0-15.0	1.40	0.81	2.1	0.0	73.1	2.74	LM, FOSS, STY, SHY
31	4315.0-16.0	1.00	0.09	2.2	0.0	77.3	2.72	LM, FOSS, STY, SHY, VF
32	4316.0-17.0	306	9.00	2.5	0.0	79.0	2.74	LM, FOSS, STY, VF
33	4317.0-18.0	2.60	0.14	2.4	0.0	81.3	2.73	LM, FOSS, SHY, VF
34	4318.0-19.0	2.10	0.06	3.3	0.0	83.0	2.78	LM, FOSS, DOL, SHY
35	4319.0-20.0	45	0.32	2.6	0.0	88.1	2.73	LM, FOSS, SLTY, VF
36	4320.0-21.0	3.10	1.60	3.5	0.0	89.3	2.74	LM, FOSS, SHY, VF
37	4321.0-22.0	2.00	2.00	3.5	0.0	88.9	2.73	LM, FOSS, SHY, VF
38	4322.0-23.0	21	16	7.2	0.0	88.4	2.78	LM, FOSS, DOL, SHY
39	4323.0-24.0	3.30	1.60	5.7	0.0	89.3	2.76	LM, FOSS, DOL, SLTY, SHY
40	4324.0-25.0	4.00	2.00	10.0	0.0	60.8	2.70	LM, FOSS, VGY
41	4325.0-26.0	7.10	6.70	15.5	0.0	68.3	2.72	LM, FOSS, VGY
42	4326.0-27.0	0.40	0.40	6.9	0.0	73.5	2.71	LM, FOSS, VGY
43	4327.0-28.0	0.18	0.17	6.7	0.0	78.7	2.72	LM, FOSS, VGY
44	4328.0-29.0	0.82	0.38	8.8	0.0	74.6	2.72	LM, FOSS, VGY
45	4329.0-30.0	166	0.17	5.9	0.0	80.4	2.76	LM, FOSS, PP VGS, SL/DOL, VF
46	4330.0-31.0	164	0.15	4.2	0.0	76.5	2.75	LM, FOSS, PP VGS, SL/DOL, VF
47	4331.0-32.0	0.20	0.01	6.2	0.0	88.1	2.76	LM, FOSS, SL/DOL, SHY
48	4332.0-33.0	0.01	0.01	6.1	0.0	85.8	2.76	LM, FOSS, SL/DOL, SHY
49	4333.0-34.0	32	0.01	5.4	0.0	88.8	2.76	LM, FOSS, SL/DOL, SHY

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 ANALYST: EDWARDS

DATE: 9/15/82  
 FORMATION: TORONTO LIME

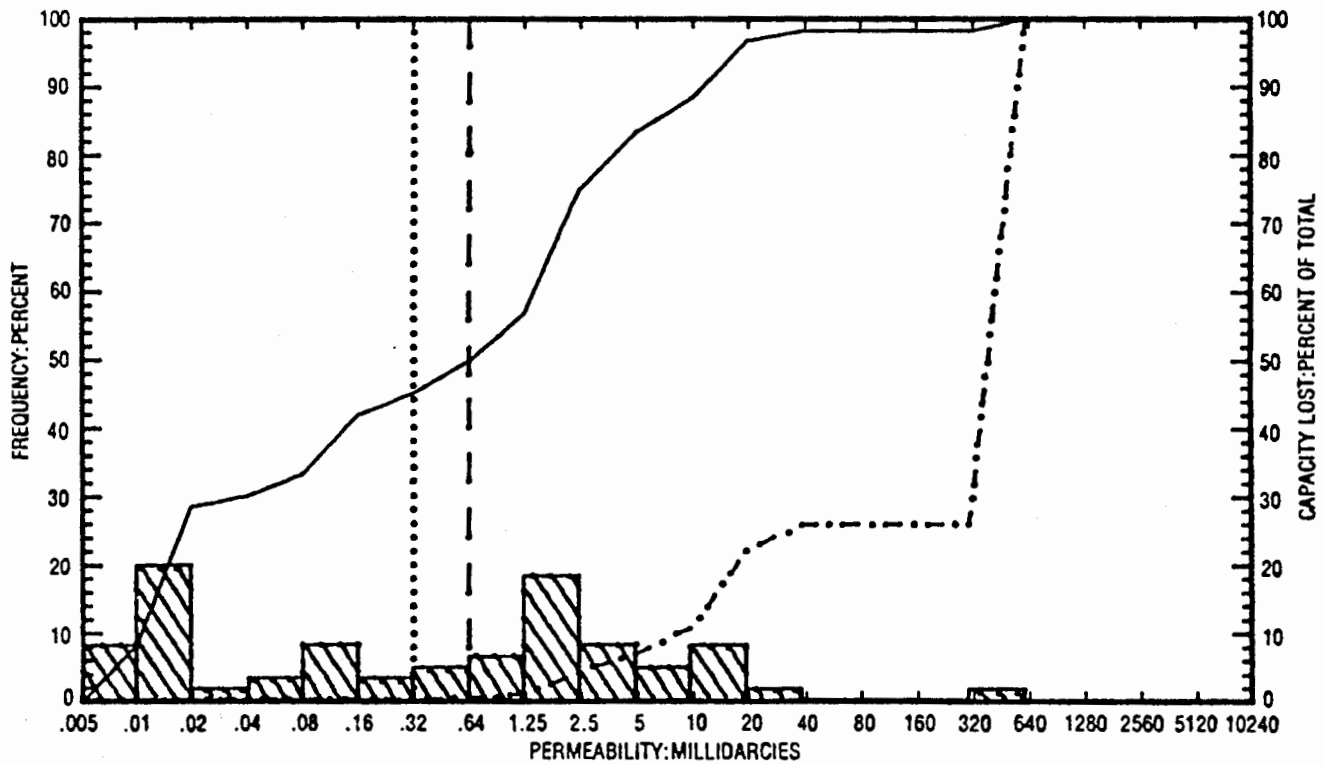
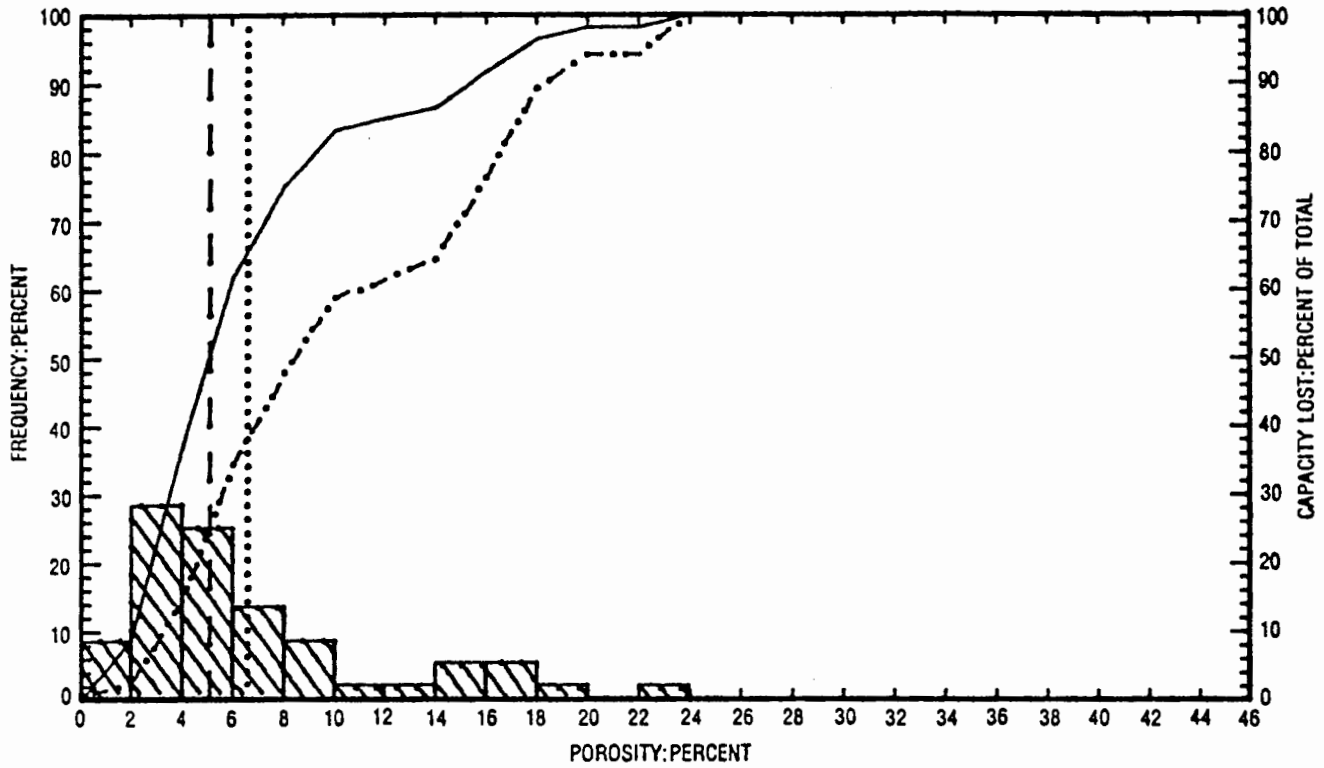
RINE DRILLING COMPANY  
 BARBY-HARPER NO. 2-23 WELL

FULL DIAMETER ANALYSIS

SMP. NO.	DEPTH FEET	PERM. TO AIR MD. MAXIMUM	PERM. 90 DEG.	POROSITY PERCENT	FLUID OIL	SATS. WATER	GRAIN DEN.	DESCRIPTION
50	4334.0-35.0	0.01	0.01	4.0	0.0	81.3	2.74	LM, FOSS, SL/DOL, SHY
51	4335.0-36.0	0.01	0.01	5.1	0.0	88.9	2.76	LM, FOSS, SL/DOL, SHY
52	4336.0-37.0	9.80	0.01	8.0	0.0	94.6	2.79	DOL, FOSS, LMY, SHY
53	4337.0-38.0	5.30	0.01	9.0	0.0	92.0	2.81	DOL, FOSS, LMY, SHY
54	4338.0-39.0	0.01	0.01	5.8	0.0	89.5	2.77	DOL, FOSS, LMY, SHY
55	4339.0-40.0	0.01	0.01	5.5	0.0	86.8	2.75	LM, FOSS, SL/DOL, SHY
56	4340.0-41.0	0.01	0.01	5.5	0.0	92.4	2.75	LM, FOSS, SL/DOL, SHY
57	4341.0-42.0	<0.01	<0.01	2.6	0.0	76.4	2.73	LM, FOSS, SHY
58	4342.0-43.0	<0.01	<0.01	4.3	0.0	83.8	2.75	LM, FOSS, SL/DOL, SHY
59	4343.0-44.0	<0.01	<0.01	1.6	0.0	80.3	2.73	LM, FOSS, SHY
60	4344.0-45.0	<0.01	<0.01	1.6	0.0	65.3	2.75	LM, FOSS, SL/DOL, SHY

\* DENOTES PLUG PERM  
 + DENOTES HORIZONTAL CRACKS

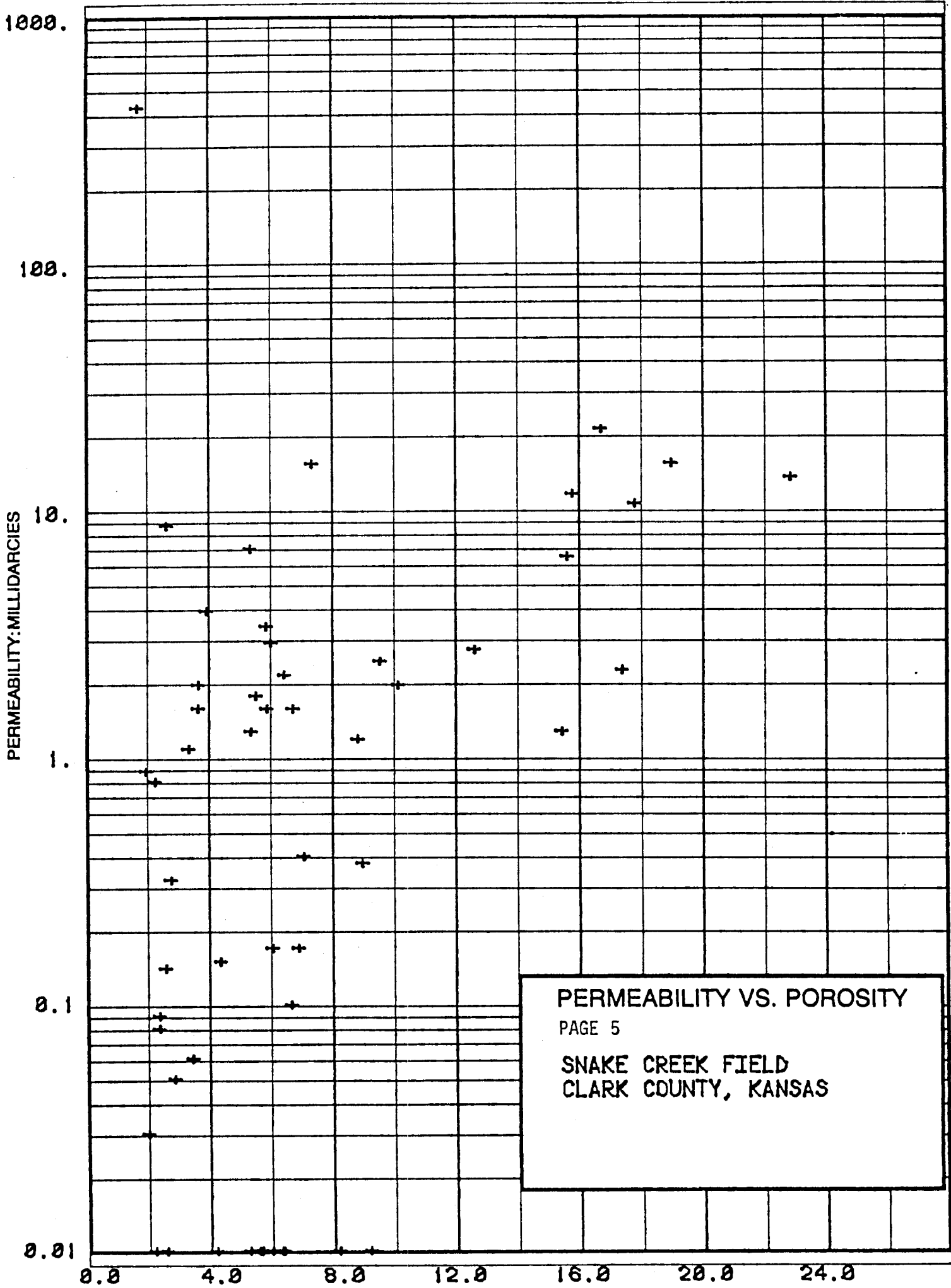
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PERMEABILITY AND POROSITY HISTOGRAMS PAGE 4

RINE DRILLING COMPANY  
 BARBY-HARPER NO. 2-23 WELL  
 SNAKE CREEK FIELD  
 CLARK COUNTY, KANSAS

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



CORE LABORATORIES, INC.  
*Petroleum Reservoir Engineering*

OKLAHOMA CITY, OKLAHOMA

September 16, 1982

REPLY TO  
SUITE 133  
400 SOUTH VERMONT  
OKLAHOMA CITY, OK  
73108

Rine Drilling Company  
Suite 600  
300 W. Douglas  
Wichita, Kansas 67202

Attn: Mr. Jack Rine

Gentlemen:

Core Laboratories, Inc., Oklahoma City, has previously provided core storage space at no charge to our clients. During the last year our need for space became acute and many clients have been forced to rent storage in "mini-storage" warehouses. However, these spaces are expensive, difficult to maintain, and have limited accessibility.

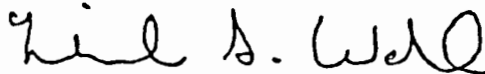
In an effort to solve these problems, we are instituting a new core storage program effective May 1, 1982. Additional space adjoining our present facility has been leased and prepared specifically for core storage. There will be a monthly charge for handling, maintenance and storage based on the amount of core involved.

Please contact us within 30 days of receiving your final report so that we may make arrangements to store your core, ship it to another location or donate it to one of the university geological surveys.

We believe this program will eliminate most of the problems associated with core storage and enable us to serve our clientele more efficiently in the future. If you have any questions regarding this program, please do not hesitate to contact us (405-946-5422).

Very truly yours,

CORE LABORATORIES, INC.



Michael S. Wahl  
Laboratory Supervisor

LAB

# CORE LABORATORIES, INC.

# Petroleum Reservoir Engineering

COMPANY RINE DRILLING COMPANY FILE NO. 3402-11409  
 WELL BARBY-HARPER NO. 2-23 WELL DATE 9/15/82  
 FIELD SNAKE CREEK FORMATION TORONTO LIME ELEV. \_\_\_\_\_  
 COUNTY CLARK STATE KANSAS DRUG. FLD. WATER BASE MUD CORES \_\_\_\_\_  
 LOCATION \_\_\_\_\_

## CORRELATION COREGRAPH

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VERTICAL SCALE: 5" = 100'

Total Water \_\_\_\_\_

PERCENT PORE SPACE  
100 80 60 40 20 0

Gamma Ray

RADIATION INCREASE →

Permeability \_\_\_\_\_

MILLIDARCIES

Porosity \_\_\_\_\_

PERCENT

Oil Saturation \_\_\_\_\_

PERCENT PORE SPACE

1000

100

10

Depth  
Feet

30

20

10

0

0

20

40

60

80

100

