CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

Special Core Analysis Study

for

ENERGY RESEARCH
AND DEVELOPMENT ADMINISTRATION

Gerry Well No. 20274

Clay County, West Virginia

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

January 2, 1976

Energy Research and Development Administration
Morgantown Energy Research Center
P. O. Box 880
Collins Ferry Road
Morgantown, West Virginia 26505

Attention: Mr. Royal J. Watts

Subject: Special Core Analysis Study
Columbia Gas Transmission Corporation
Gerry Well No. 20274
Pocono Big Injun Formation
Clay County, West Virginia
Your Purchase Order Number: MR76-PO422
Our File Number: SCAL-75301

Gentlemen:

In a letter dated August 22, 1975, from Mr. Royal J. Watts, a representative of ERDA, Core Laboratories, Inc., was requested to determine Formation Resistivity Factors and Formation Resistivity Indicies on sandstone cores from the subject well. The results of these tests are reported herein. The full-diameter well cores used in this study are identified as to sample number, well and depth interval on page one. A brief lithological description is given for each sample on page two.

Three full-diameter well cores were submitted for use in this study. The core samples were dried, then Boyle's Law porosities were determined. Each core sample was evacuated and saturated with a brine containing 150,000 ppm sodium chloride.

The electrical resistivities of both the brine and the brine-saturated samples were measured. These measurements were repeated over a period of several days until the electrical resistivities stabilized, indicating ionic

equilibrium within the well cores had been attained. The formation resistivity factors were calculated and the formation resistivity factor-porosity relationships are presented in tabular form on page 3 and in graphical form on page 4. Using Archie's generalized equation, a cementation exponent "m" of 2.06 is calculated.

The brine present in each core sample was dynamically displaced by gas and the electrical resistivities were measured. The results of the formation resistivity index determinations are presented in tabular form on page three and in graphical form on pages five through eight. The formation resistivity index-saturation relationships yield saturation exponents "n" which range from 1.56 to 1.76. For convenience, a composite plot of the resistivity index-saturation relationship is presented on page eight and yields a calculated saturation exponent "n" of 1.69.

Should you have any questions pertaining to these results or if we can be of further assistance, please do not hesitate to contact us.

Very truly yours,

Core Laboratories, Inc.

Duane L. Archer (1981)

Duane L. Archer, Manager
Special Core Analysis

DLA:JWW:tl
10 cc. - Addressee

File SCAL-75301

Company Energy Research and Development Administration

Formation Pocono Big Injun

Number of Wells One

County Clay

Field

State West Virginia

Identification of Samples

Sample Number	Company	Well	Depth, Feet
1	Columbia Gas Transmission Corporation	Gerry No. 20274	1982-83
2			2008-09
3			2017-18

Lithological Description

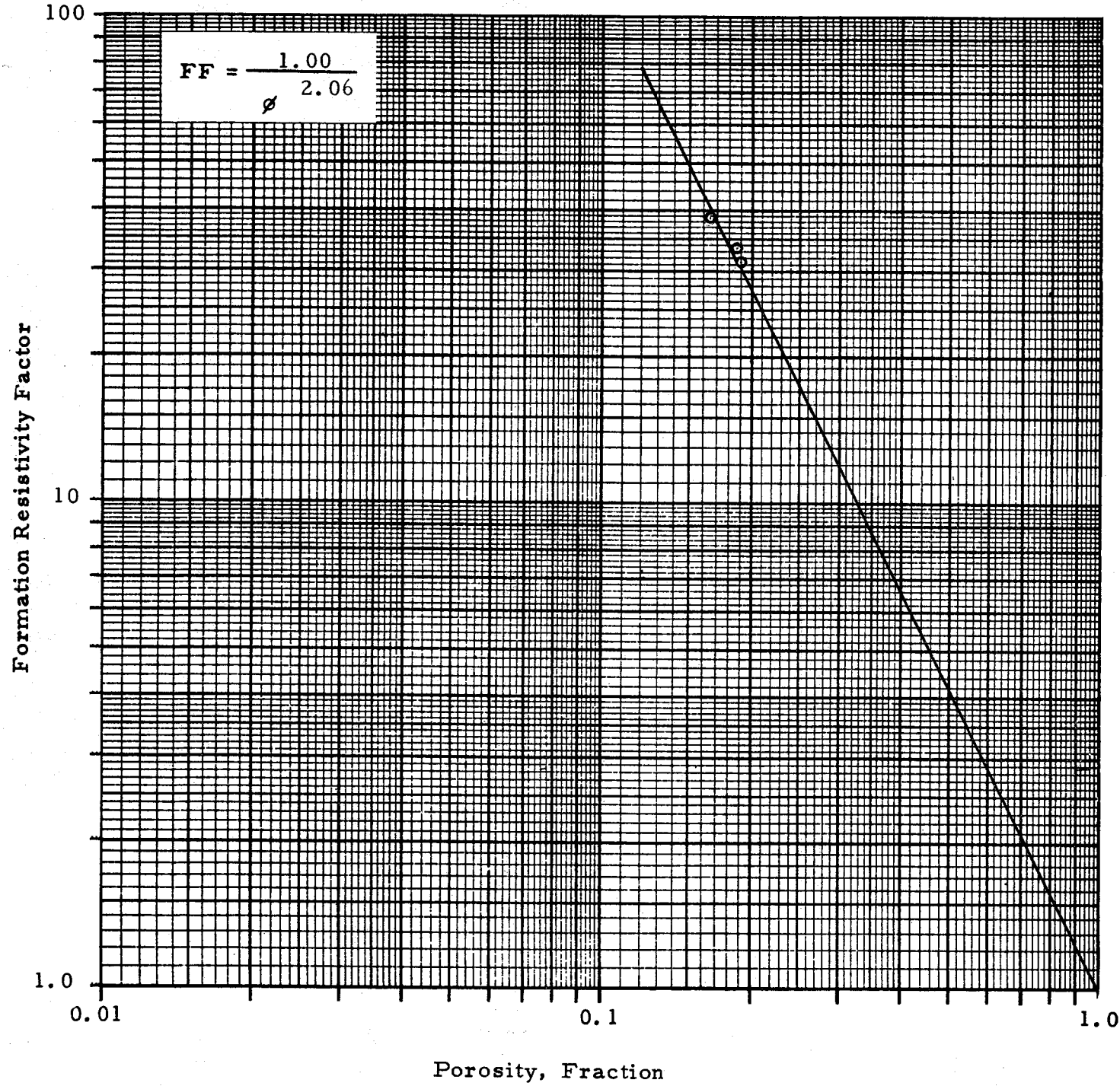
Sample Number	Description
1	Sd, tan, fn-v/cse grn, well indurated
2	Sd, tan, fn grn, well indurated
3	Sd, tan, fn grn, well indurated

Formation Factor and Resistivity Index Data

Resistivity of Saturating Brine, Ohm-Meters: 0.054 @ 73°F.

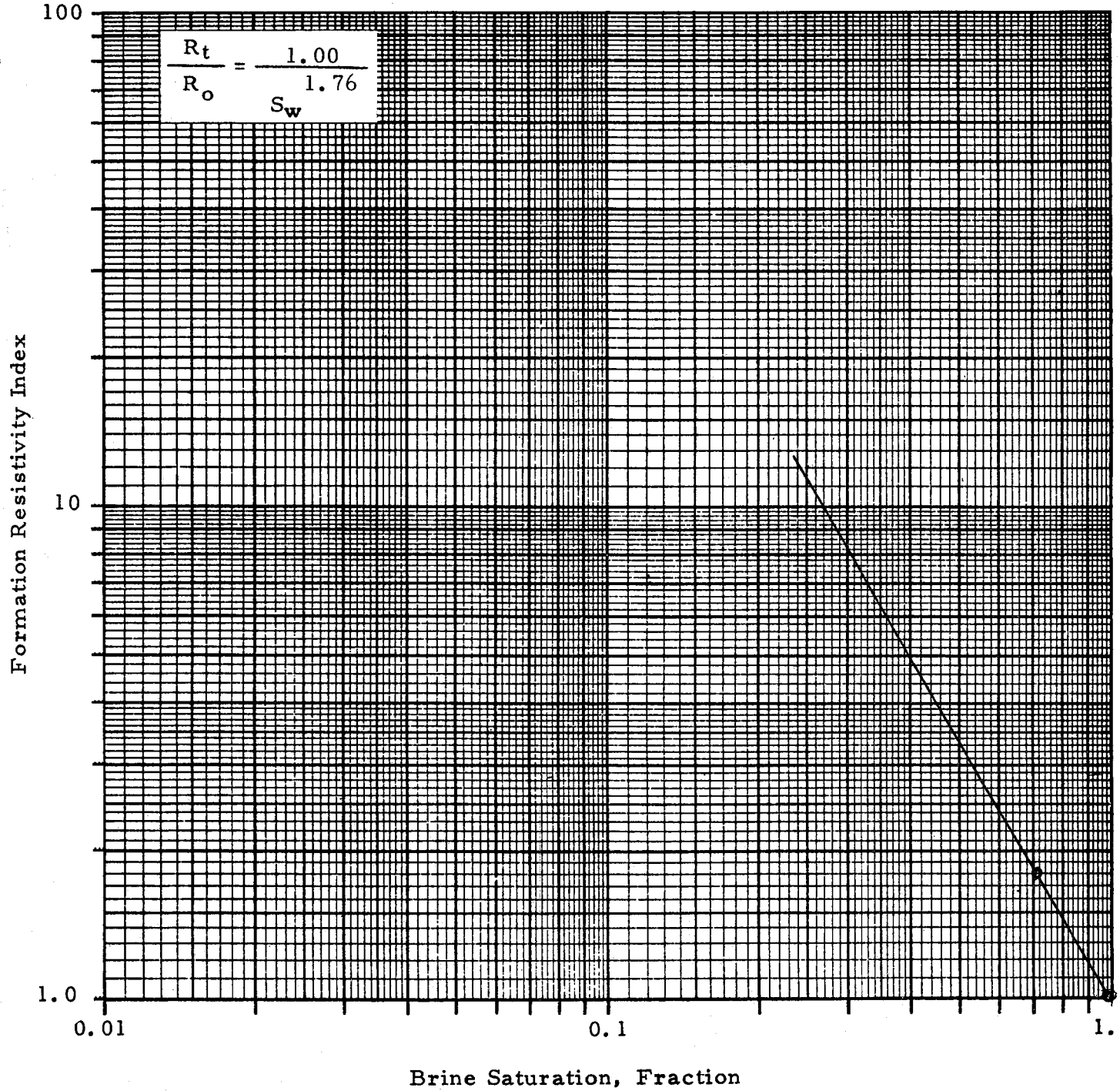
Sample Number	Porosity, Per Cent	Formation Factor	Brine Saturation, Per Cent Pore Space	Resistivity Index
1	16.5	38.8	100.0	1.00
			71.6	1.81
2	19.0	31.3	100.0	1.00
			76.5	1.56
3	18.8	33.4	100.0	1.00
			68.8	1.80

Company Energy Research and Development Administration Formation Pocono Big Injun
Well Gerry No. 20274 County Clay
Field _____ State West Virginia



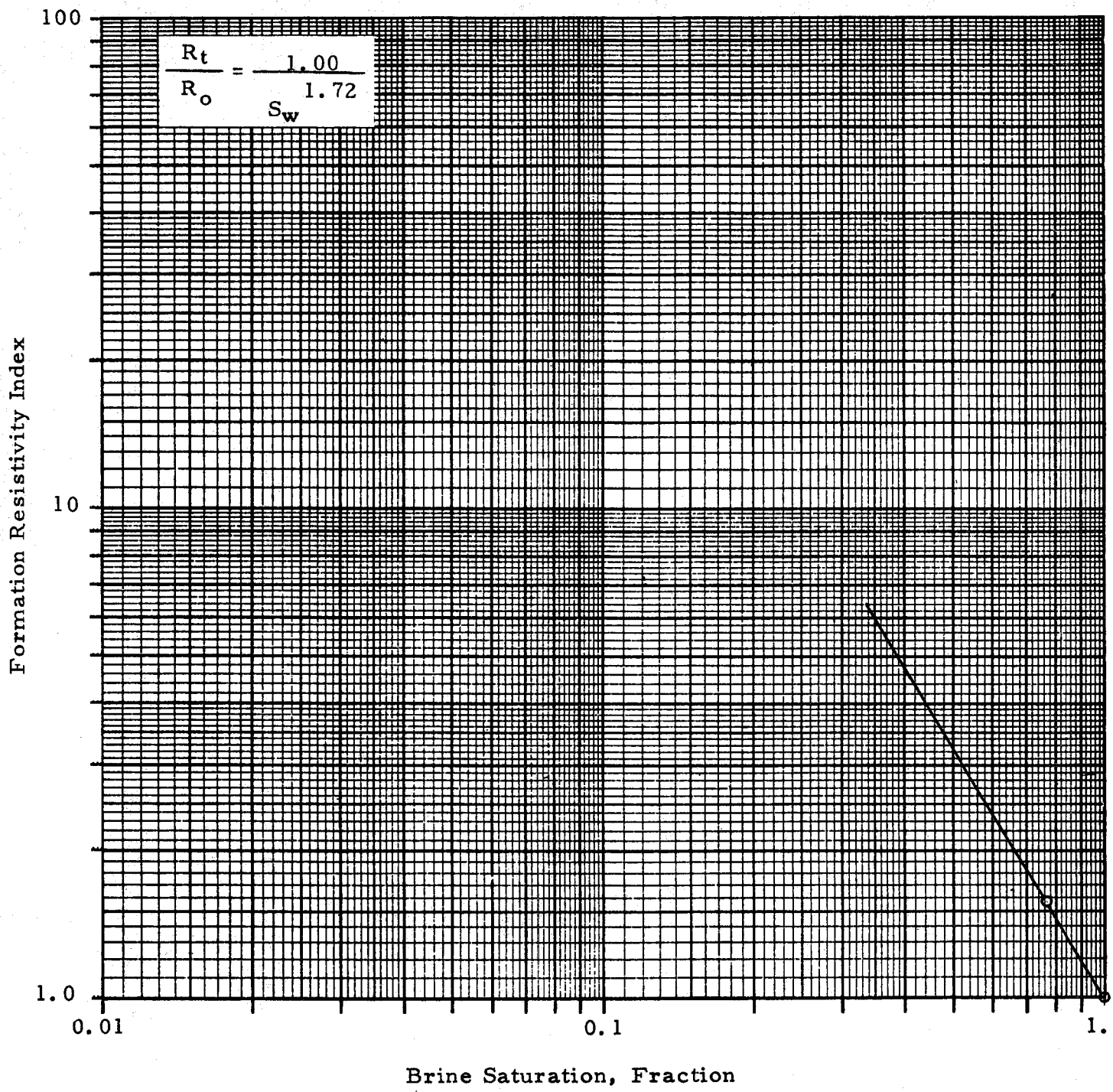
Company Energy Research and Development Administration
Formation Pocono Big Injun
Well Gerry No. 20274
County Clay
Field
State West Virginia

Sample Number: 1



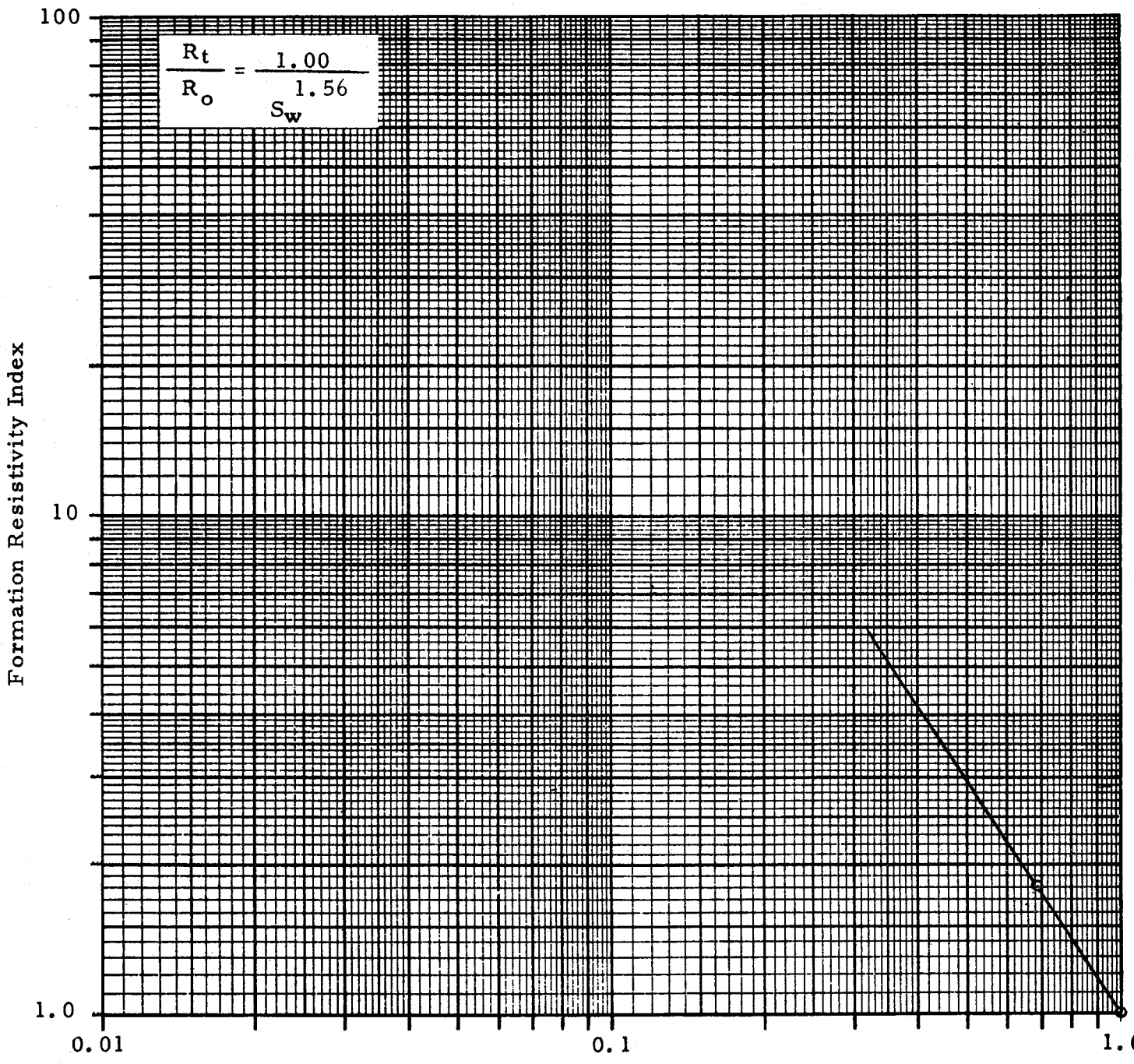
Company Energy Research and Development Administration Formation Pocono Big Injun
Well Gerry No. 20274 County Clay
Field State West Virginia

Sample Number: 2



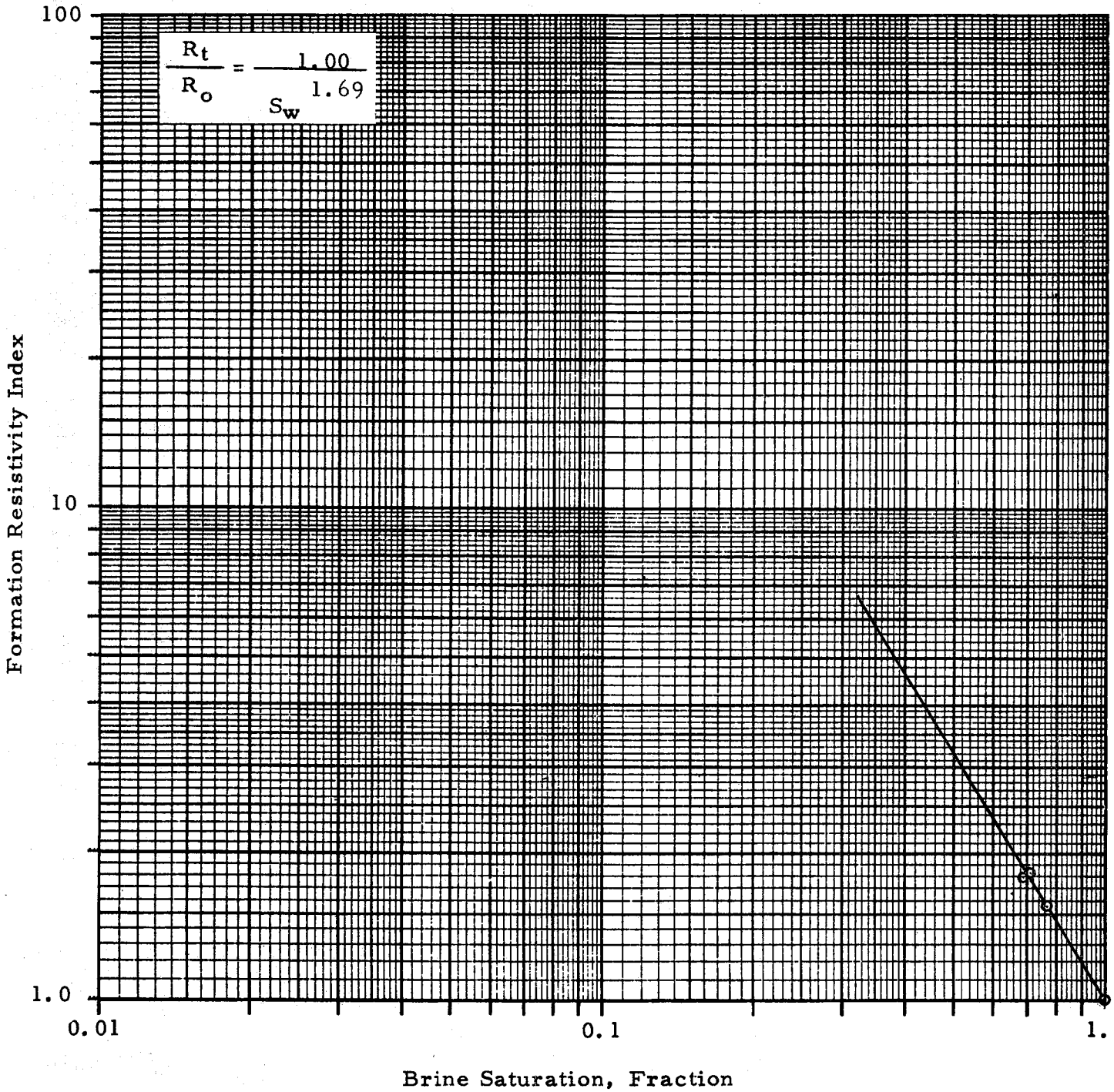
Company Energy Research and Development Administration Formation Pocono Big Injun
Well Gerry No. 20274 County Clay
Field _____ State West Virginia

Sample Number: 3



Company Energy Research and Development Administration Formation Pocono Big Injun
Well Gerry No. 20274 County Clay
Field _____ State West Virginia

Composite



PENNZOIL COMPANY

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Mailing Address: P.O. Drawer 1588, Parkersburg, West Virginia 26101

September 30, 1976

Mr. Royal J. Watts
Morgantown Energy Research Center
P. O. Box 880
Morgantown, West Virginia 26505

Re: "m & n" values
Granny's Creek Field

Dear Royal:

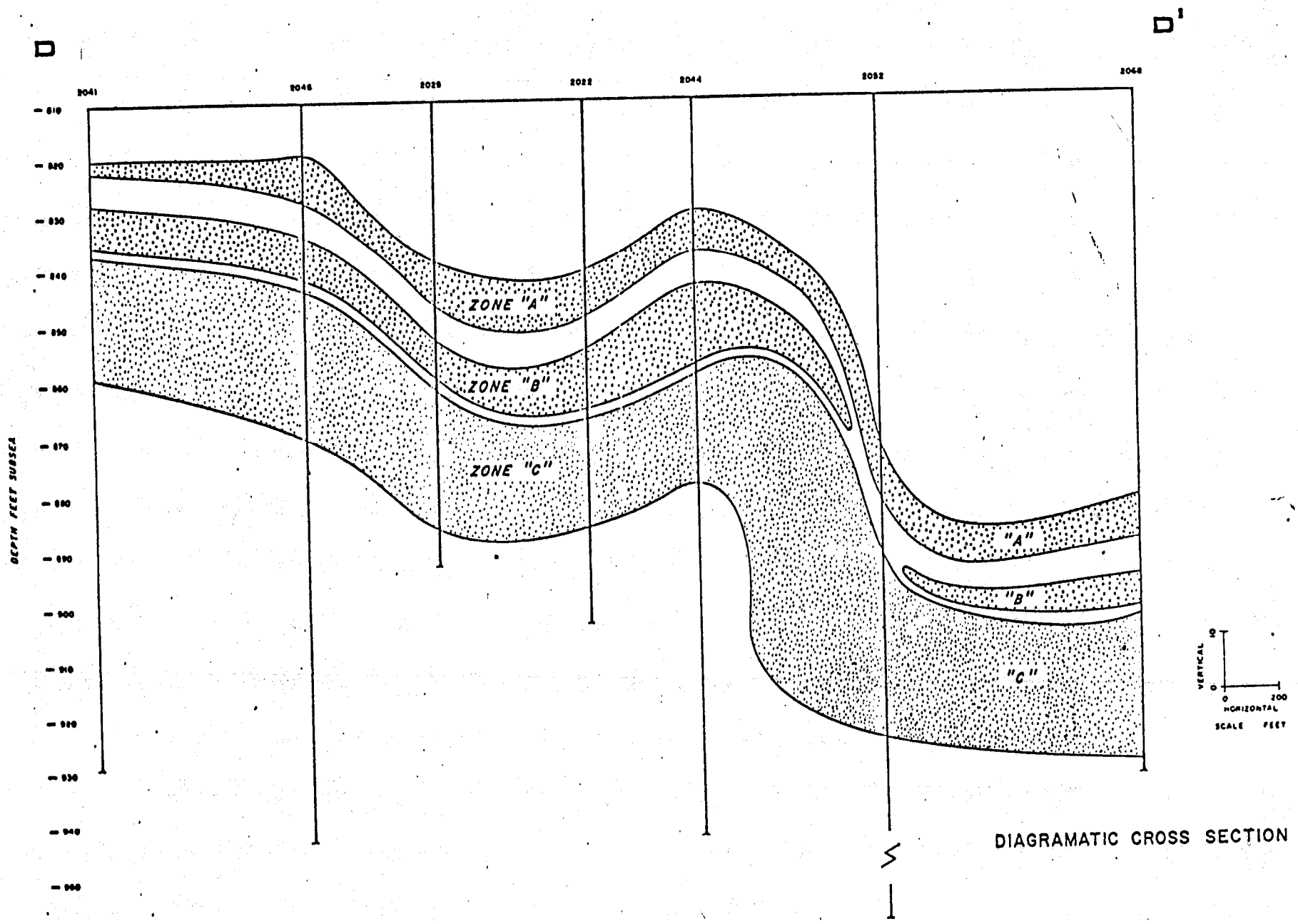
In my conversation with you yesterday regarding the subject values I was mistaken in saying that the data was from the Rock Creek Big Injun Field. The data is from a core of our pilot producing well, O. D. Stockley No. 135, and is as follows: "n" 1.73
"m" 2.01

Very truly yours,

PENNZOIL COMPANY

John R. Blomberg
District Petroleum Engineer

JRB:sjh



DIAGRAMATIC CROSS SECTION D