

New Mexico Bureau of Mines and Mineral Resources
Open File Report No. 250

HYDROCARBON SOURCE-ROCK EVALUATION STUDY,
ARCO EXPLORATION CO. NO. 1 FITZPATRICK WELL
HIDALGO COUNTY, NEW MEXICO

by Randy Perlis and Ann B. Reaugh
GeoChem Laboratories, Inc.
Denver, Colorado and Houston, Texas
1985

RESULTS OF TOTAL ORGANIC CARBON ANALYSIS

| GEOCHEM SAMPLE NUMBER | CLIENT IDENTIFICATION NUMBER | Depth | TOTAL ORGANIC CARBON (% of rock) |
|-----------------------------|------------------------------------|----------------|--|
| D1272-001 | -1 | -5800 - 5860' | 0.20 |
| -002 | -2 | -5920' - 5980' | 0.31 |
| -003 | -3 | -6040' - 6100' | 0.26 |
| -004 | -4 | -6160' - 6220' | 0.25 |
| -005 | -5 | -6280' - 6340' | 0.31/0.29 |

Prepared by Geochem Labs, Denver

Samples from ARCO Fitzpatrick #1
Sec. 10 -335- R20W
Hidalgo City, N.M.

| GeoChem Sample No. | Client I.D. No. | TMAX (C) | S1 (mg/g) | S2 (mg/g) | S3 (mg/g) | PI | S2/S3 | T.O.C. (wt.%) | Hydrogen Index | Oxygen Index |
|-----------------------|--------------------|-------------|--------------|--------------|--------------|------|--------|------------------|-------------------|-----------------|
| | <i>Depth</i> | | | | | | | | | |
| 01272-001 | -1 5800 - 5860' | --- | 0.12 | 0.26 | 0.24 | 0.33 | 1.06 | 0.20 | 129.2 | 121.9 |
| -002 | -2 5920 - 5980 | --- | 0.13 | 0.0001 | 0.34 | .999 | 0.0004 | 0.31 | .0.04 | 109.0 |
| -003 | -3 6040' - 6100' | --- | 0.13 | 0.26 | 0.28 | 0.34 | 0.92 | 0.26 | 98.6 | 107.4 |
| -004 | -4 6160' - 6220' | --- | 0.15 | 0.27 | 0.27 | 0.35 | 1.00 | 0.25 | 107.9 | 107.9 |
| -005 | -5 6280 - 6340 | --- | 0.15 | 0.26 | 0.25 | 0.37 | 1.04 | 0.30 | 6.9 | 83.9 |

GEOSUM ROCK LEVEL 11

D1272-001

4, 1985

E= 1226

= 72881

> ATTENUATION= 4

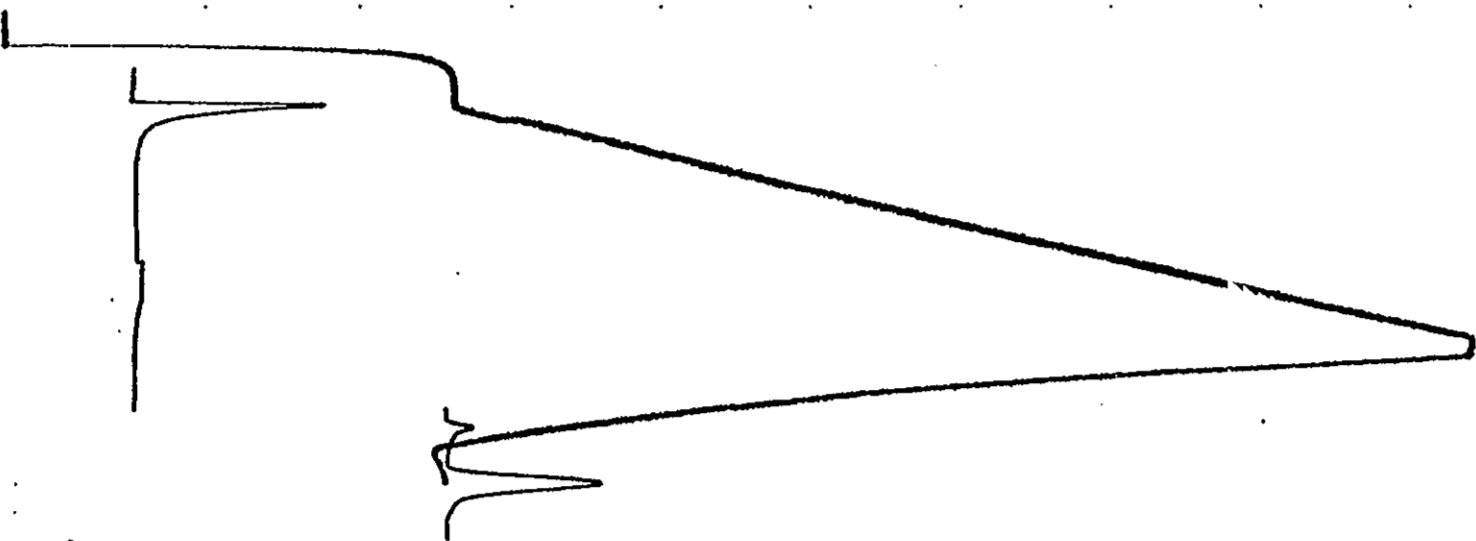
ATTENUATION= 32

50%

350

90%

550



= 8.20

: 29.1

11.244E 01 SUM= 10.508E102

2.503E 01 SUM= 11.358E103

2.430E 01 SUM= 13.779E103

MM

GEOLUM ROCK LVHL 11

D1272-002

4, 1965

ME= 1250

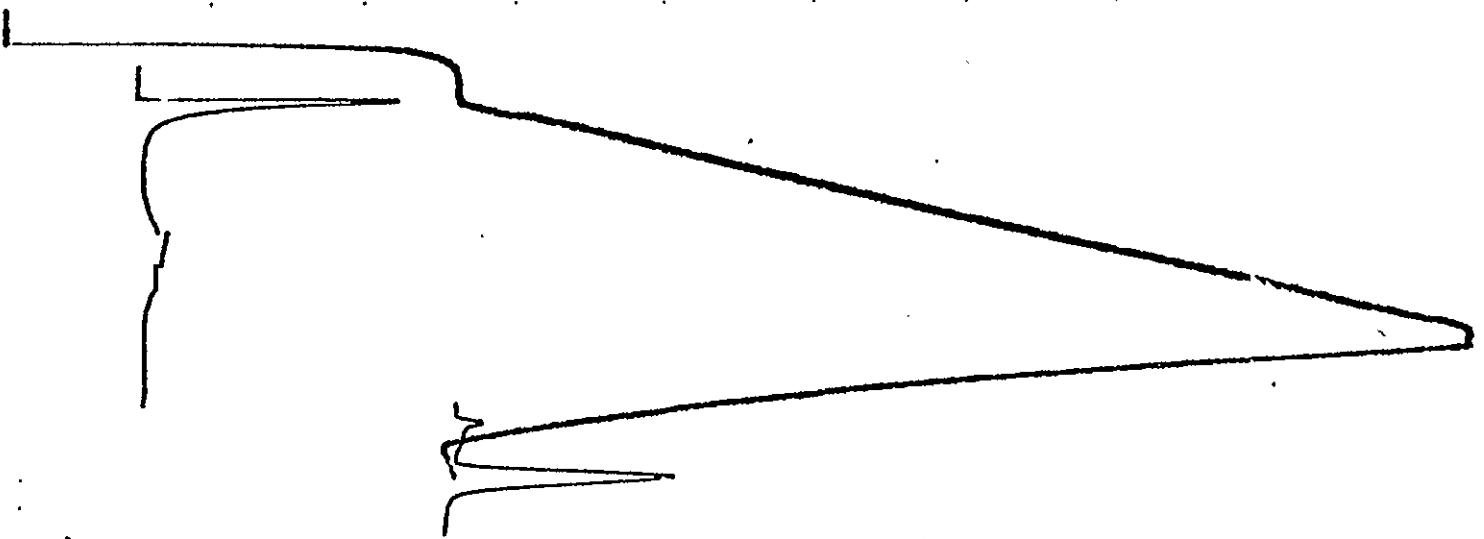
= 72002

D ATTENUATION= 4

ATTENUATION= 32

50%
350

98%
550



= 8.31

= 20.4

17.021E 02 SUM= 13.000L102

00000E:00 SUM= 00000L:00

3.370E 01 SUM= 15.004L:03

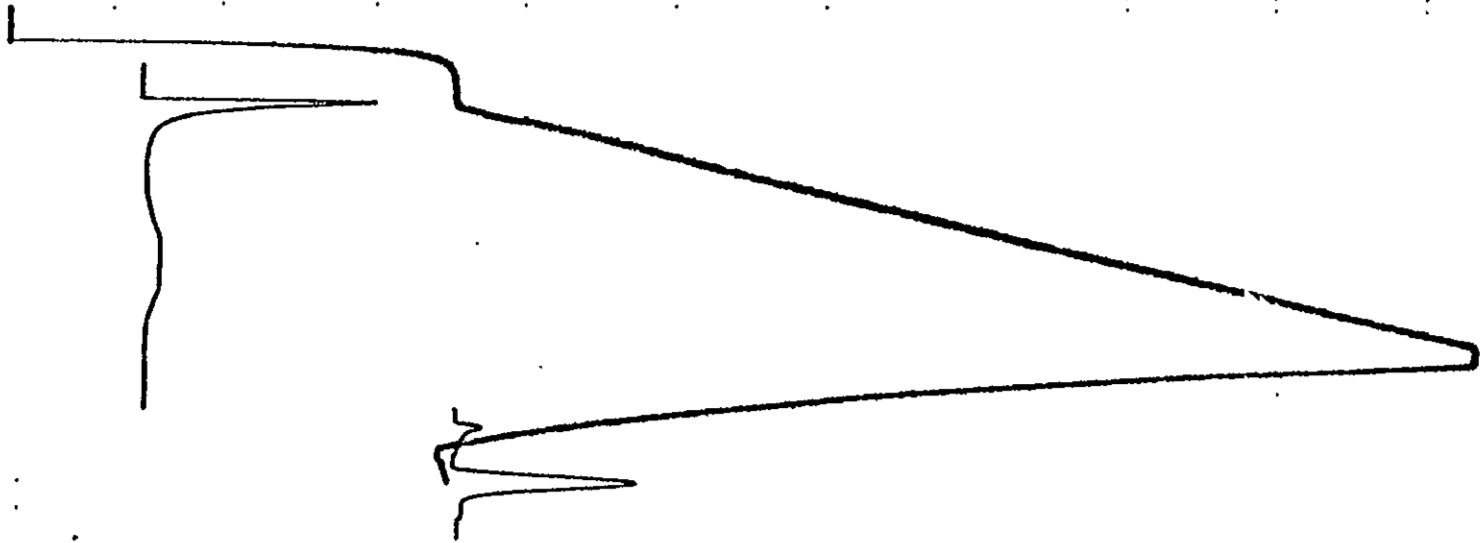
NN

SLUGGUM ROCK LEVEL II
D1272-003

4, 1905
E= 1325
72003
> ATTENUATION= 4
ATTENUATION= 32

50%
350

20%
550



= 0.20
= 99.7
11.297E 01 SUM= 10.020E102
12.504E 01 SUM= 11.340E103
2.793E 01 SUM= 14.250E103
NN

GLUCON ROCK EVAL II

D1272-004

4, 1985

E= 1354

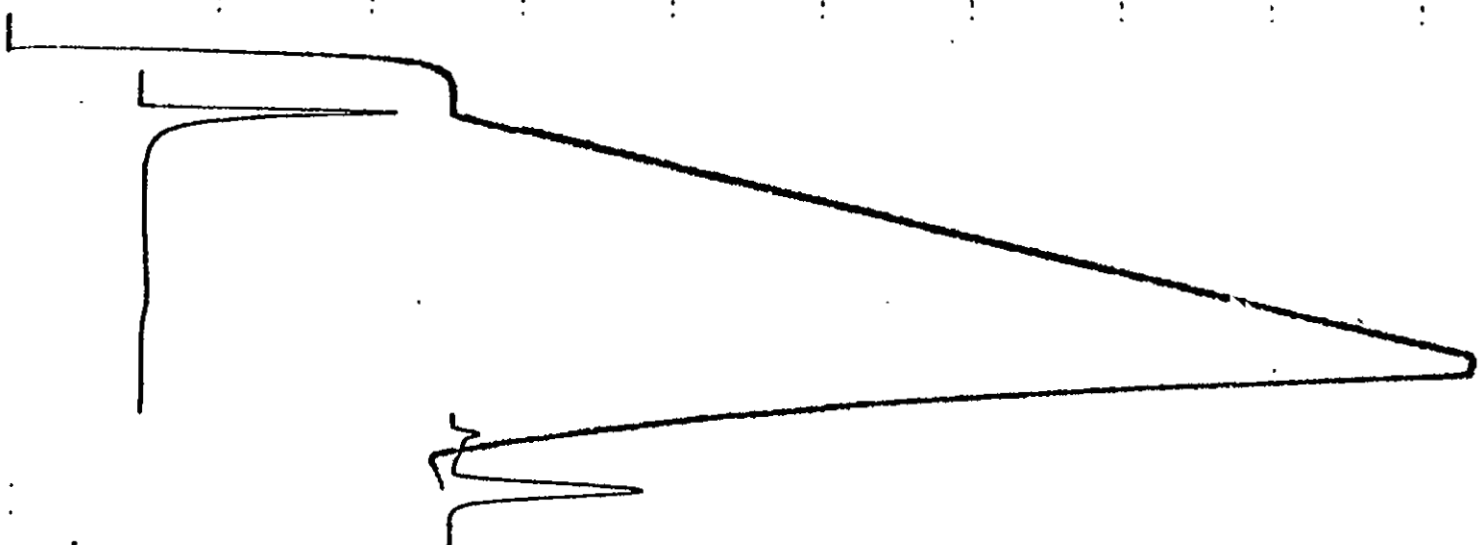
72884

> ATTENUATION= 4
ATTENUATION= 32

%

50%
358

98%
558



= 8.25

= 99.1

= 11.475E 81 SUM= 17.718E182

12.696E 81 SUM= 11.482E183

12.696E 81 SUM= 14.111E183

OWN

GLACIUM ROCK LYNE II
D1272-005

4, 1905

E= 1424

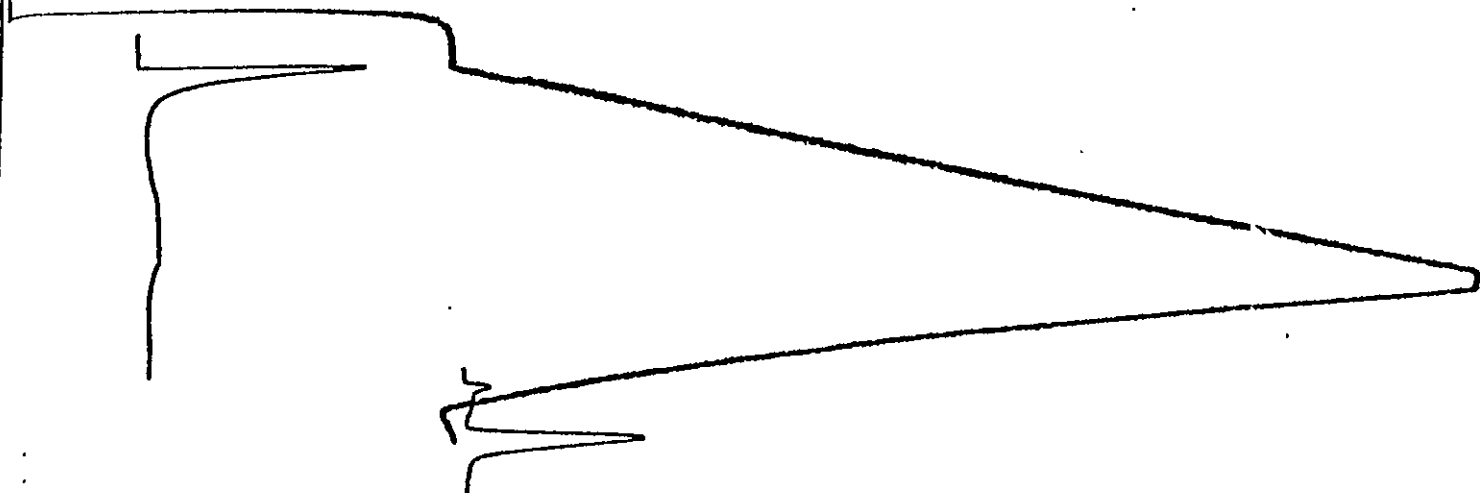
= 72885

> ATTENUATION= 4

ATTENUATION= 32

58%
358

98%
558



= 0.38

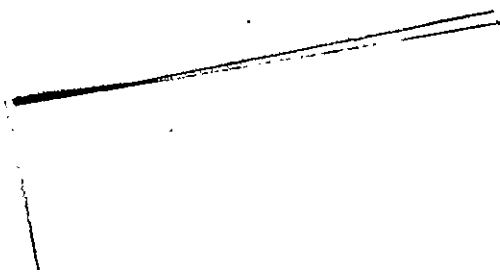
= 99.4

: 11.528E 01 SUM= 17.076E182

: 12.000E 01 SUM= 11.367E183

: 2.517E 01 SUM= 13.098E183

WH



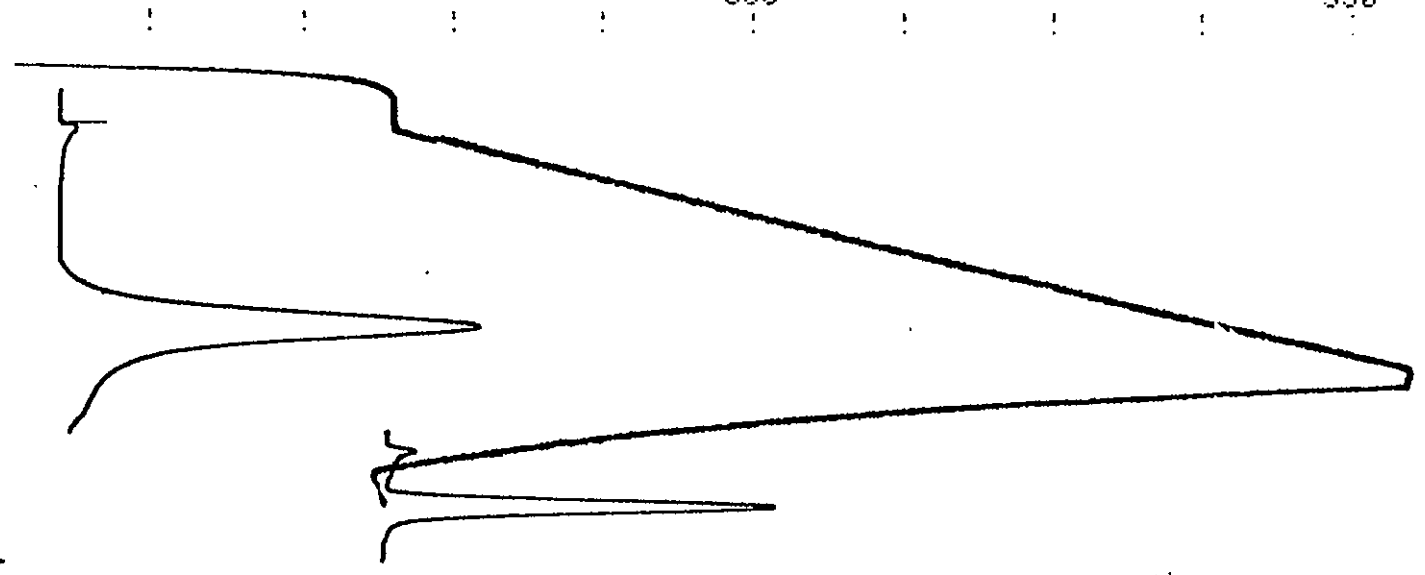
GLUCUM ROCK LYAL 11

STANDARD

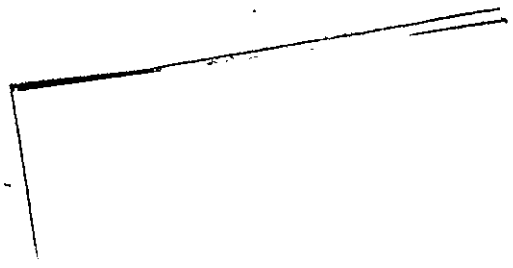
4, 1905
E= 1052
11111
ATTENUATION= 32
ATTENUATION= 32

50%
350

20%
550



= 2.0
100.0
< = 437 DECIBEL 0
00000E100 SUM= 10.628E102
5.100E100 SUM= 12.600E104
0.800E 01 SUM= 10.443E103
ARD



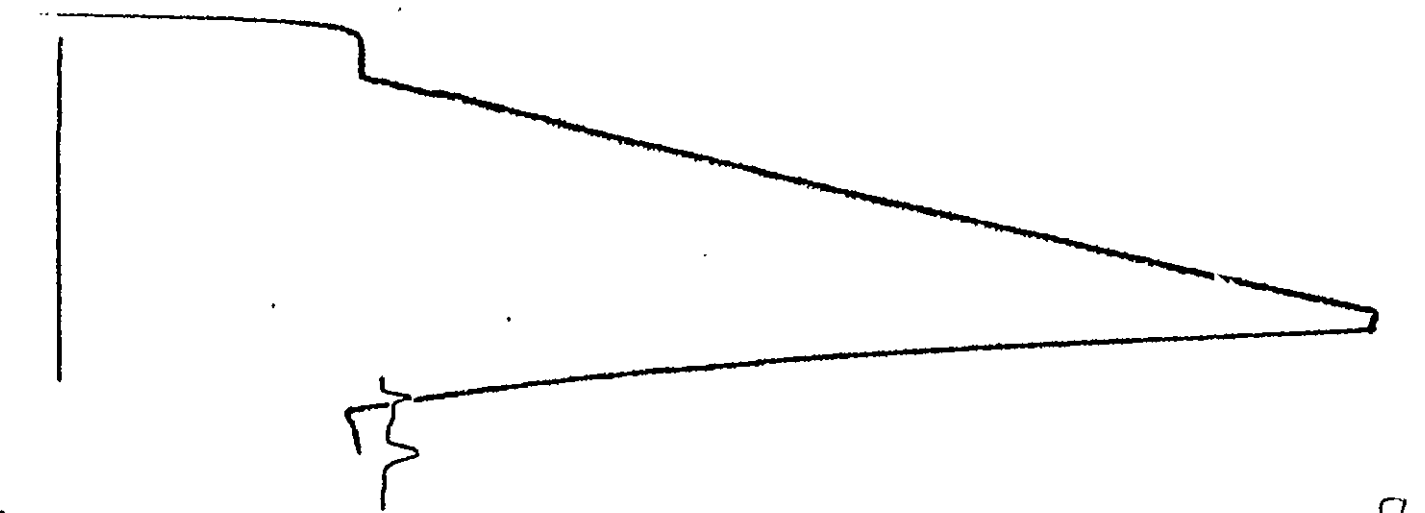
GLUCUM ROCK LYAL 11

Blank

4, 1905
E= 1121
00000
ATTENUATION= 32
ATTENUATION= 32

50%
350

20%
550



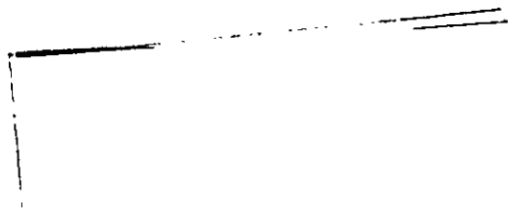
14.803E 02 SUM= 10.338E102

ARCO Exploration Co.

Fitzpatrick #1 sec 10-335-20W, Hidalgo Cty, N.M.

Vitrinite Reflectance

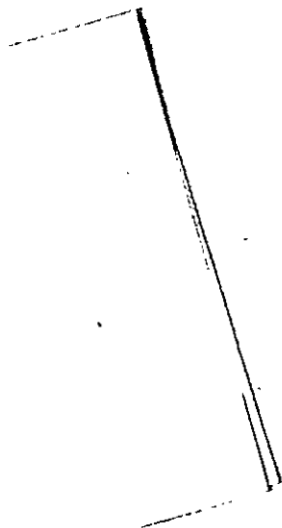
D1272



Prepared by GeoChem Labs, Houston

VITRINITE REFLECTANCE SUMMARY

| GEOCHEM SAMPLE NUMBER | DEPTH (feet) | TYPE OF SAMPLE | POPULATION | NUMBER OF READINGS | MINIMUM REFLECTANCE (% Ro) | MAXIMUM REFLECTANCE (% Ro) | MEAN REFLECTANCE (% Ro) | STD. DEV. (% Ro) | REMARKS |
|-----------------------------|-----------------|----------------------|------------|--------------------------|----------------------------------|----------------------------------|-------------------------------|---------------------|---------|
| D1272-005 | 6280-6340 | | (1) | 2 | 1.92 | 1.93 | 1.93 | - | |
| | Limestone | | (2) | 11 | 2.30 | 2.79 | 2.57 | 0.157 | |
| | | | (3) | 23 | 2.81 | 3.28 | 3.03 | 0.122 | |
| | | | (4) | 4 | 3.35 | 3.52 | 3.42 | 0.074 | |

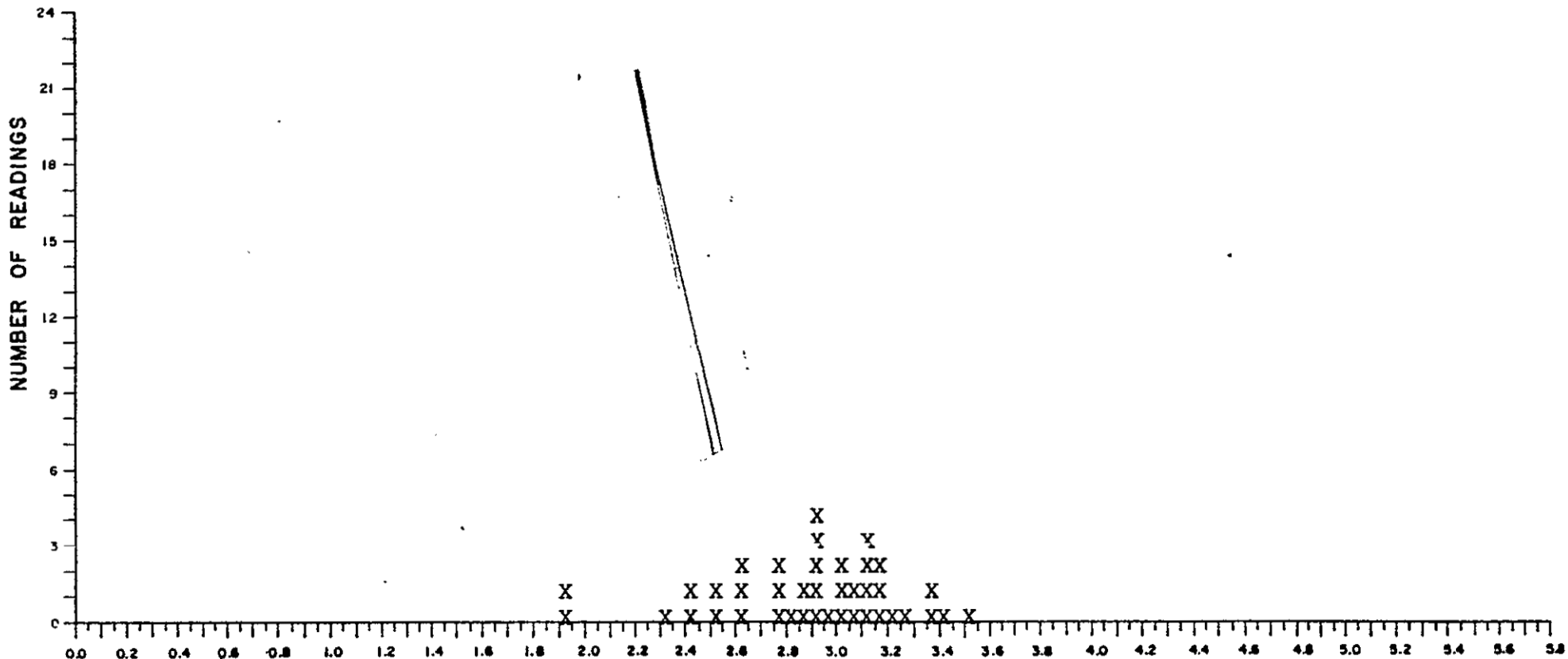


GEOCHEM NO. DL272-005 TYPE OF SAMPLE: _____ DEPTH/SAMPLE NO. _____

CLIENT'S NAME _____ WELL NAME _____

(NO. OF READINGS = 40) 1.92 1.93 2.30 2.40 2.43 2.52 2.53 2.60 2.60 2.61 2.75 2.76 2.79 2.81
 2.89 2.89 2.90 2.92 2.93 2.94 2.94 2.96 3.00 3.01 3.03 3.05 3.06 3.10 3.10 3.11 3.11 3.16
 3.17 3.17 3.22 3.28 3.35 3.38 3.41 3.52

| POPULATION | NO. OF READINGS | MIN. Ro (%) | MAX. Ro (%) | MEAN Ro (%) | STD. DEV. (%) | REMARKS |
|------------|-----------------|-------------|-------------|-------------|---------------|---------|
| (1) | 2 | 1.92 | 1.93 | 1.93 | - | |
| (2) | 11 | 2.30 | 2.79 | 2.57 | 0.157 | |
| (3) | 23 | 2.81 | 3.28 | 3.03 | 0.122 | |
| (4) | 4 | 3.35 | 3.52 | 3.42 | 0.074 | |



VITRINITE REFLECTANCE HISTOGRAM