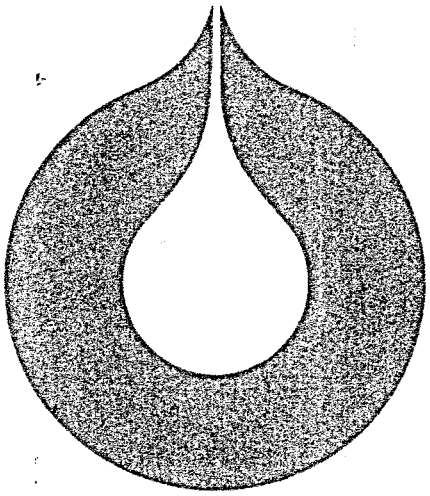

statoil

# PETROPHYSICAL EVALUATION

## WELL 30/2-1

## PL 051

ENGINEER: B. HULTBERG, LET-BERGEN

APRIL 1983

# PETROPHYSICAL EVALUATION

WELL 30/2-1

PL 051

ENGINEER: B. HULTBERG, LET-BERGEN

APRIL 1983

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CONTENTS

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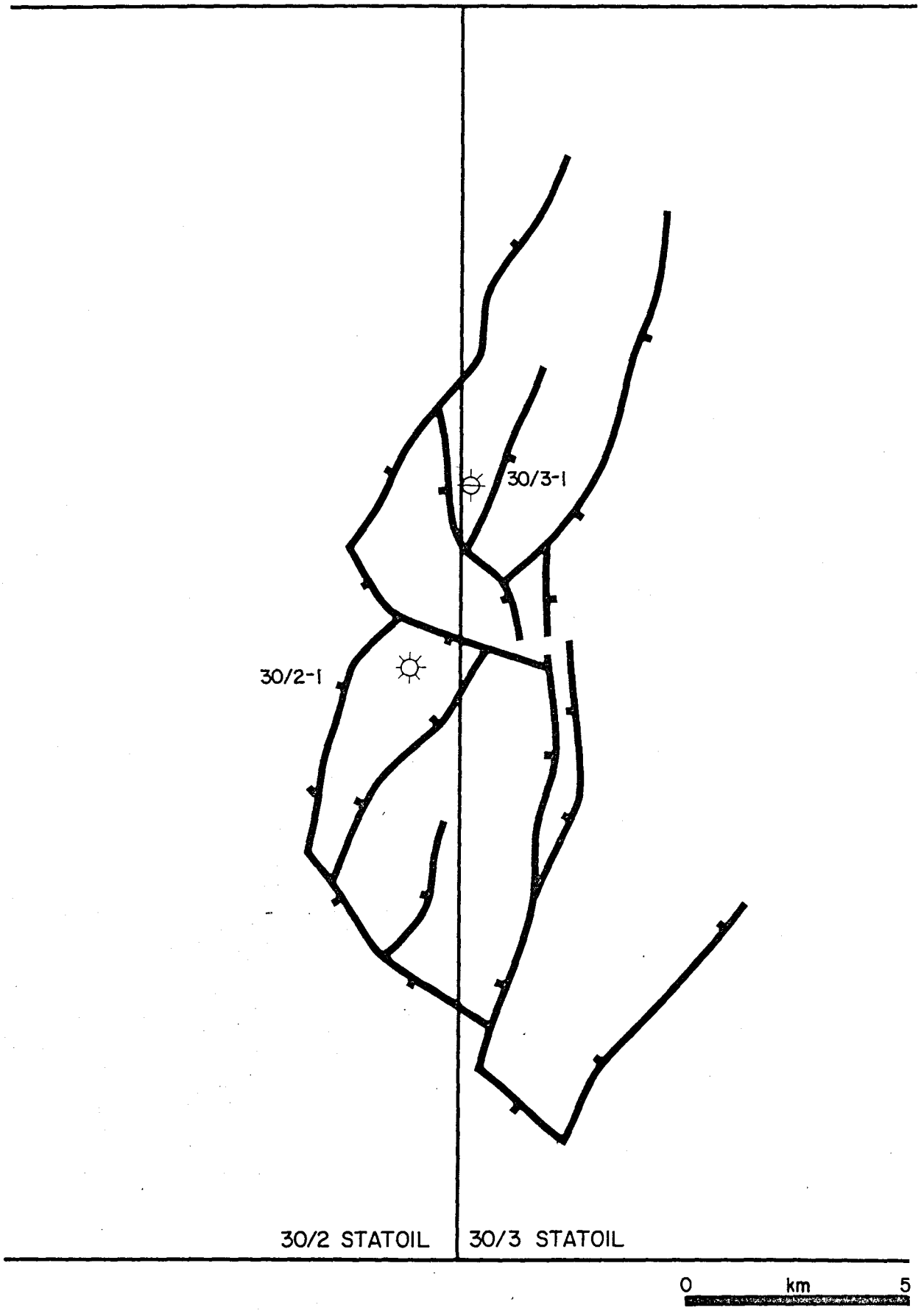
GENERAL WELL DATA

| | |
|---|---|
| Licence | : PL 051 |
| Well | : 30/2-1 |
| Location | : 60° 52' 05.42" N |
| | 02° 38' 49.16" E |
| Rig | : Dyvi Delta |
| Spudded | : 17.05.82 |
| Rig released | : 14.10.82 |
| RKB elevation | : 30 m |
| Water depth | : 125 m |
| Total depth | : 4243 driller |
| | 4245 logger |
| Objectives | : Middle and lower Jurassic sandstones |
| Status | : Temporarily plugged and abandoned |


30/3-1
30/2-1
30/2 STATOIL
30/3 STATOIL
0
km
5

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## INTRODUCTION

This is the first well drilled in block 30/2. The objective was to test the middle and lower Jurassic sand for hydrocarbon accumulations.

The purpose of this report is to evaluate the petrophysical properties of these formations using electrical logs and core data.

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SUMMARY

Hydrocarbons were encountered in the Brent sands (3675 - 3793m). The logs indicate a gas bearing sand with a net pay of 46.3 meters.

The average log porosity is 20.4 % and the average water saturation from the logs is 26.1 %. The average core porosity is 19.0 % (3700 m - 3793 m).

No hydrocarbons/water contact could be seen from the RFT measurements in the Brent formation.

The drillstem tests performed in the Brent formation showed that the Etive and Ness members contain gas/condensate under high pressure.

Net Pay Statistics

| Formation | Avg.Porosity% | Avg.Sw% | Avg.Vsh% | Thickness m |
|---|---|---|---|---|
| Ness | 20.9 | 27.5 | 19.7 | 11.75 |
| Etive | 20.7 | 24.8 | 16.9 | 33.50 |
| Rannoch | 15.1 | 40.6 | 36.4 | 1.25 |

Cutoff values used (net pay):

Porosity < 10 %
Water Saturation > 60 %
Shale Volume > 40 %

LITHOLOGY

Upper Jurassic

The Heather Formation: 3657 - 3675 m

Claystone: light to medium grey, soft to firm, amorphous to blocky, silt with abundant pyrite.

Depositional environment: offshore marine shale.

Middle Jurassic

The Ness Formation: 3675 - 3720 m

This formation consists of sandstones interbedded with claystones, siltstones and coals. The sandstone is the predominant lithology which occurs in beds varying in thickness (1 - 7 m). It is fine to coarse with poor to moderately good visible porosity and often grading to siltstone. The siltstones generally occur as less than 1 m thick stringers interbedded within the claystone sequence. They are partly grading to very fine sandstone and are occasionally pyritic.

The claystones are micromicaceous, micropyritic, occasionally grading to silty claystone and occur in beds 2 - 3 m in thickness. The coal generally occurs as thin laminae in the clay and sandstones.

Depositional environment: Delta plain.

The Etive Formation 3720 - 3777 m

The Etive is composed of two main sandbodies separated by one sequence of silt and coalbeds. The sandstones are fine to medium, partly well sorted, becoming moderately sorted towards the base of each individual sandbody and have a fair visible porosity. The coal/silt sequence is given the same description as the Ness formation.

Depostional environment:
Basal sand: Shoreface to coastal bar cut by tidal channels.
Intermediate coal/silt: Bay fill, crevasses and levees.
Upper sand: Minor mouth bars, partly crevasses.

The Rannoch Formation 3777 - 3793 m

The Rannoch is composed of a massive sandstone unit with a basal layer of silty claystone. The sandstone is very fine to fine, occasionally silty and micaceous and probably some other heavy mineral. Towards the base it is carbonaceous where wood fragments and plant remains are found. The silty claystone is micaceous and micropyritic with carbonaceous fragments.

Depositional environment: Horizontal laminated shore face.

Lower Jurassic

The Drake Formation 3793 - 3962 m

The upper part of this section is composed of interbedded silt- and claystones, with occasional sandstone stringers.

Depositional environment: Inner shelf.

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LOG QUALITY

The logs are generally of good quality.

Due to a sticky hole the logs are less accurate at a few shorter intervals. These effects have only minor impact on the final results.

The NGS log will be evaluated separately in a project initiated by the petrophysical department in Statoil.

INPUT PARAMETERS

Formation Temperature

A constant temperature of 128°C was used in the calculations. This temperature was obtained from the logs.

Formation Water Resistivity ($R_w$)

A value of 0.045 ohmm (at 128°C) was chosen after a comparison with 30/3-1. This is equivalent to a salinity of approximately 42000 ppm NaCl.

Mud Properties

The following values are reported by Schlumberger (FDC/CNL, run no.6, 02.08.82):

| | | | | |
|---|---|---|---|---|
| $R_m$ | 0.462 | ohmm | at | 16.6°C |
| $R_{mf}$ | 0.234 | ohmm | at | 13.8°C |
| $R_{mc}$ | 0.865 | ohmm | at | 15.5°C |
| | | | | |
| $R_m$ | 0.117 | ohmm | at | 128°C |
| $R_{mf}$ | 0.055 | ohmm | at | 128°C |
| $R_{mc}$ | 0.213 | ohmm | at | 128°C |

Hydrocarbon Density

The RFT plot gives a value of 0.355 g/cc, which is used in the calculations.

True Resistivit ($R_t$)

The dual laterolog, corrected for invasion effects, is used for the $R_t$ determinations.

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Shale Parameters

The shale parameters were picked from cross plots, histograms and visual inspection of the logs.

Shale density: 2.50 g/cc

Shale resistivity: 2.4 ohmm

$\emptyset_{neutron}$ shale: 0.39

COMPUTATIONS

## Shale Volume

Of the standard shale indicators the GR, FDC/CNL-crossplot and $R_t$ are considered applicable. The final shale volume used for further computations is picked as the minimum.

## Pososity

The porosity is calculated with a complex lithology model using density and neutron logs with the following matrix parameters.

| | FDC | CNL |
|---|---|---|
| QUARTZ | 2.65 | -0.035 |
| HEAVY MINERAL | 2.9 | 0.19 |
| FLUID | 1.03 | 1.0 |

The CNL response for heavy minerals used here is lower than what is normally used. This value was chosen after having studied the NGS log and tables over the CNL responses.

## Water Saturation

The modified Nigeria equation is used for $S_w$ calculations:

$$\frac{1}{\sqrt{R_t}} = \left[ \frac{V_{sh}^{\,c}}{\sqrt{R_{sh}}} + \frac{\phi^{m/2}}{\sqrt{aR_w}} \right] S_w^{\,n/2}$$ where

$R_t$ = True Resistivity
$R_w$ = Formation Water Resistivity
$S_w$ = Water Saturation
$R_{sh}$ = Shale Resistivity
$V_{sh}$ = Shale Volume
$\phi$ = Porosity
C = Shale Exponent (1.6)
m = Cementation Exponent (2.15
n = Saturation Exponent (2.0)
a = Lithology Factor (1.0)

CORING SUMMARY

A total of 9 cores were cut in the Brent formation. (The depth is driller's depth RKB. In order to compare with the logging depth 4 m is added at the top and approximately 3 m at the bottom of the interval.)

The Brent Formation

| | |
|---|---|
| Core No. 1. | 3696 - 3701 m<br>recovered 4.8 m (96%) |
| Core No. 2. | 3701 - 3712 m<br>recovered 7.3 m (66%) |
| Core No. 3. | 3712 - 3717 m<br>recovered 4.4m (88%) |
| Core No. 4. | 3717 - 3733.6 m<br>recovered 16.6 m (100%) |
| Core No. 5. | 3733.6 - 3735.8 m<br>recovered 1.05 m (48%) |
| Core No. 6. | 3735.8 - 3751.5 m<br>recovered 16.1 m (100%) |
| Core No. 7. | 3751.5 - 3758 m<br>recovered 6.5 m (100%) |
| Core No. 8. | 3758 - 3776 m<br>recovered 17.95 m (100%) |
| Core No. 9. | 3776 - 3794 m<br>recovered 18 m (100%) |

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CORE AND LOG DATA COMPARISONS

One set of crossplots was made in order to evaluate the relations between the log and core parameters. The calculations are based on the least square method. The following relationships result:
(based on the whole cored interval 3700 - 3797 m when not otherwise indicated)

PORHE = 0.027 log KLH + 0.168

PORHE = 0.021 log KLV + 0.187

PORHE = 0.516 log PHIF + 0.113

PHIF = 0.029 log KLV + 0.129

PHIF = 0.034 log KLH + 0.112

PHIF = 0.030 log KLH + 0.127 (Etive)

PHIF = 0.024 log KLH + 0.108 (Rannoch)

The equation for the Ness formation is not given as Ness was not fully cored and because the data available are quite scattered. (see Appendix)

PHIF = final porosity (log)
PORHE = helium porosity (core)
KLH = horizontal permeability (core)
KLV = vertical permeability (core)

Comment

The core porosity/permeability data are not corrected for the overburden effect.

RESULTS

The petrophysical parameters are as follows:

| Formation Interval (m RKB) | Sand (m) | Avg.poros. (%) | Avg.$S_w$ (%) | Avg.$V_{sh}$ (%) | Net/Gross (%) |
|---|---|---|---|---|---|
| NESS (3675-3720) | 11.75 / 13.75 | 20.9 / 19.6 | 27.5 / 35.3 | 19.7 / 20.9 | 26.1 / 30.6 |
| ETIVE (3720-3778) | 33.5 / 33.8 | 20.7 / 20.6 | 24.8 / 25.1 | 16.9 / 17.1 | 57.8 / 58.2 |
| RANNOCH (3778-3793) | 1.3 / 1.3 | 15.1 / 15.1 | 40.6 / 40.6 | 36.4 / 36.4 | 8.3 / 8.3 |
| TOTAL BRENT (3675-3793) | 46.3 / 48.5 | 20.4 / 20.0 | 26.1 / 28.5 | 18.1 / 18.6 | 39.2 / 41.1 |

Net Pay / Net Sand

The following cutoff criteria are used:

Net Sand: $V_{shale} > 0.40$

$\emptyset < 0.10$

Net Pay: $V_{shale} > 0.40$

$\emptyset < 0.10$

$S_w > 0.60$

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APPENDIX

Histogram

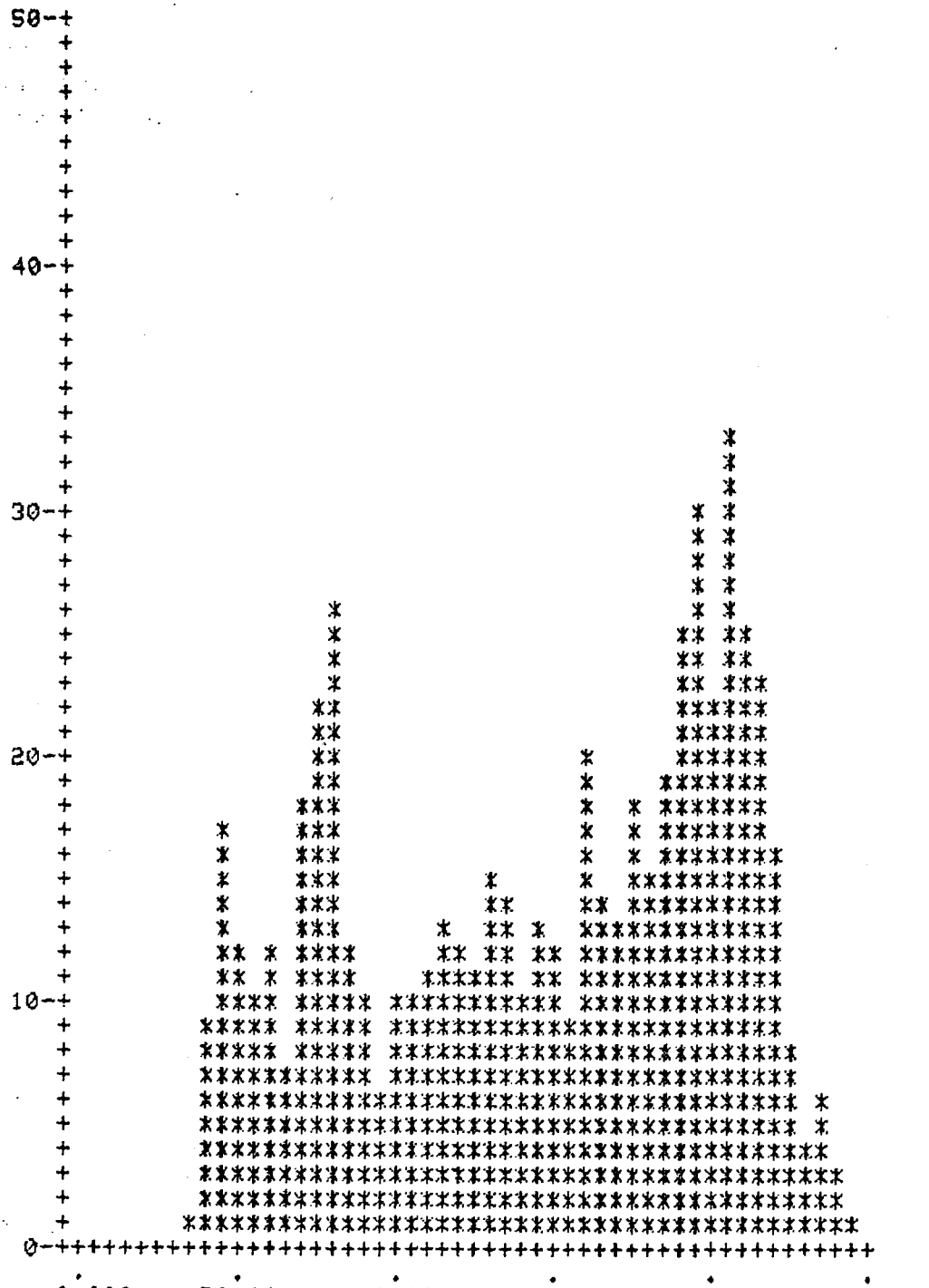
Crossplots

Statistics

Listing

CPI

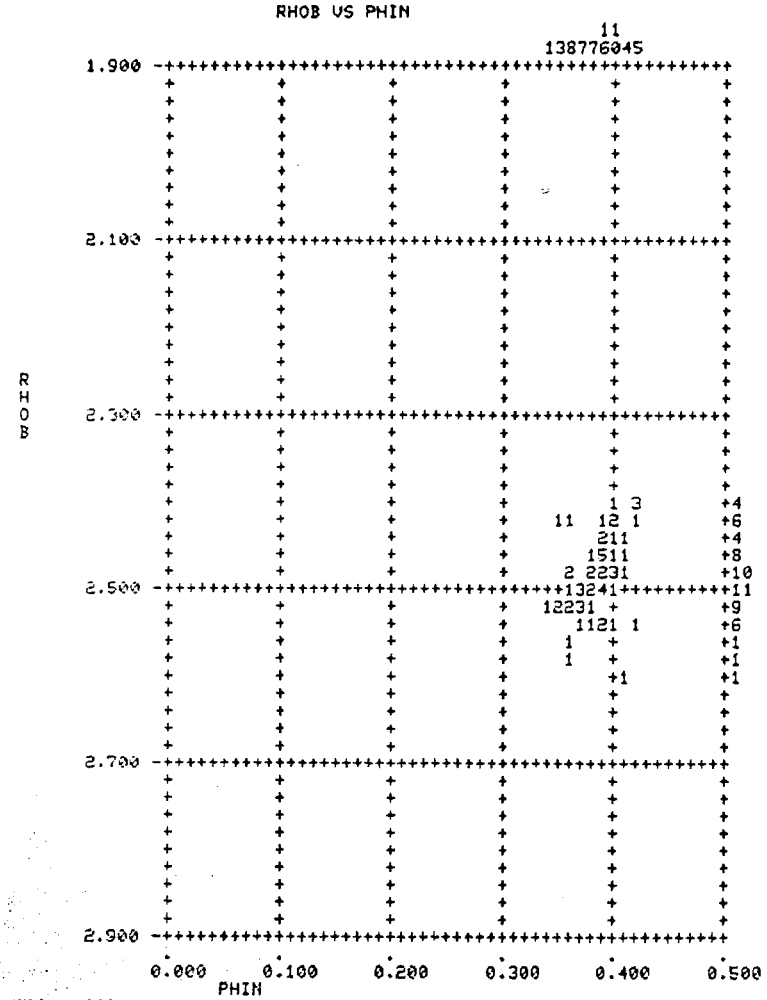
GR-HISTOGRAM




WELL S30-2-1 DEPTH: 3660.00 3810.00 TOTAL: 597
X.AV: 58.9613

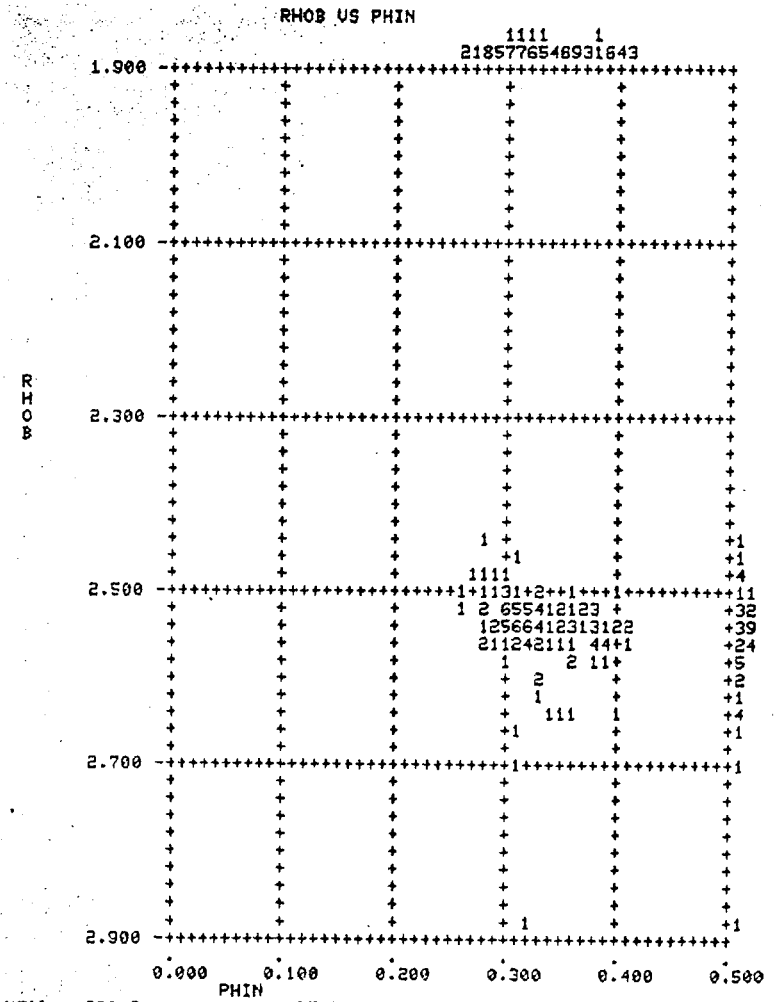
P L O T T E D B Y : BH

RHOB VS PHIN



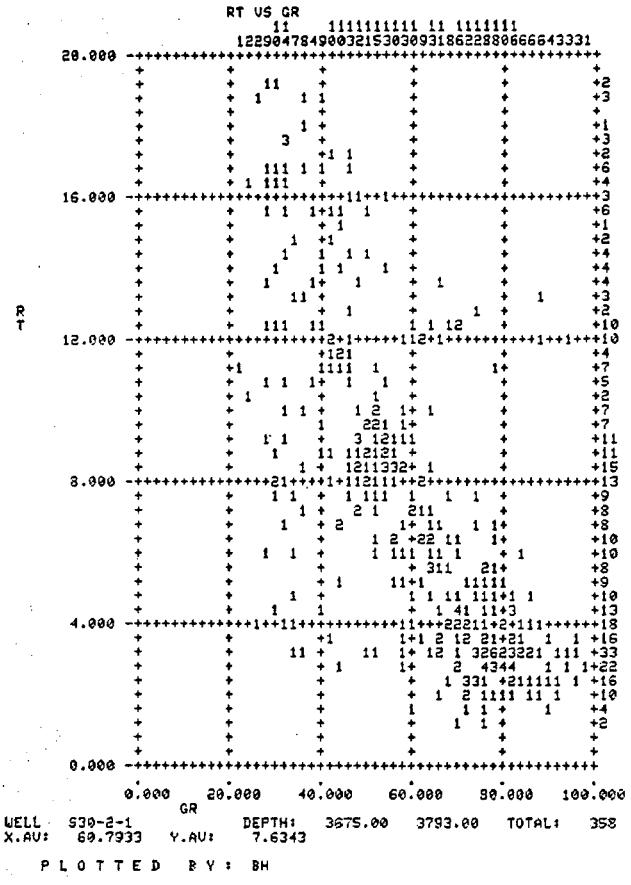

WELL S30-2-1 DEPTH: 3660.00 3675.00 TOTAL: 61
X.AV: 0.3896 Y.AV: 2.4946

RHOB VS PHIN



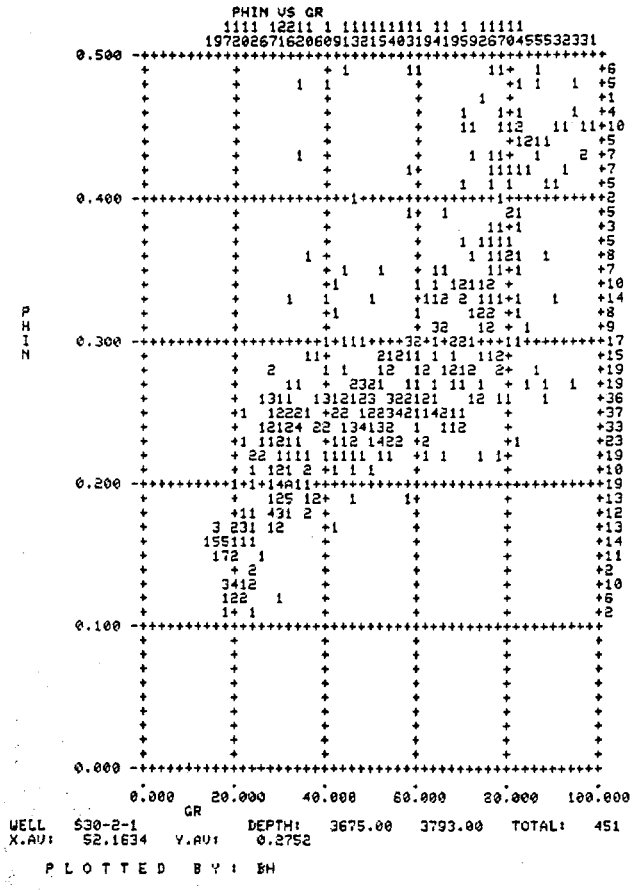

WELL S30-2-1 DEPTH: 3793.00 3825.00 TOTAL: 127
X.AV: 0.3364 Y.AV: 2.5533

PLOTTED BY: BH




WELL S30-2-1 DEPTH: 3675.00 3793.00 TOTAL: 358
X.AV: 69.7933 Y.AV: 7.6343

PLOTTED BY: BH

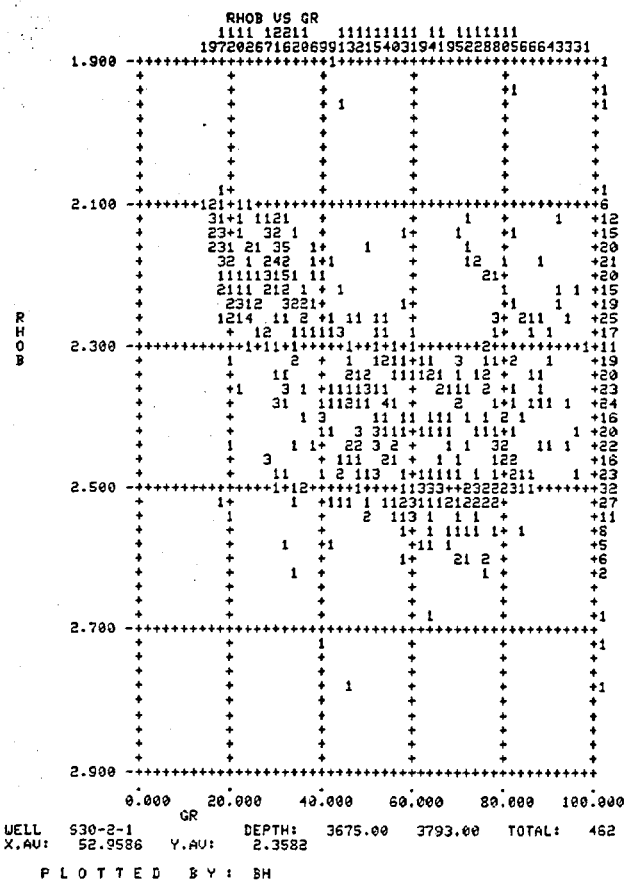



WELL S30-2-1 DEPTH: 3675.00 3793.00 TOTAL: 451
X.AV: 52.1634 Y.AV: 0.2752

PLOTTED BY: BH

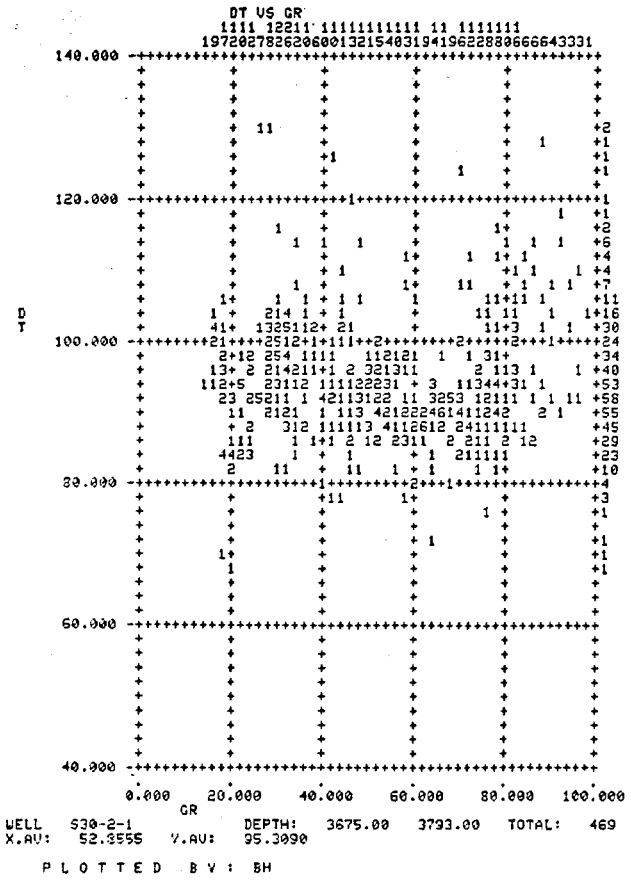
## BRENT (3675 - 3793 m)

## Crossplots: RT/GR, PHIN/GR, RHOB/GR, DT/GP



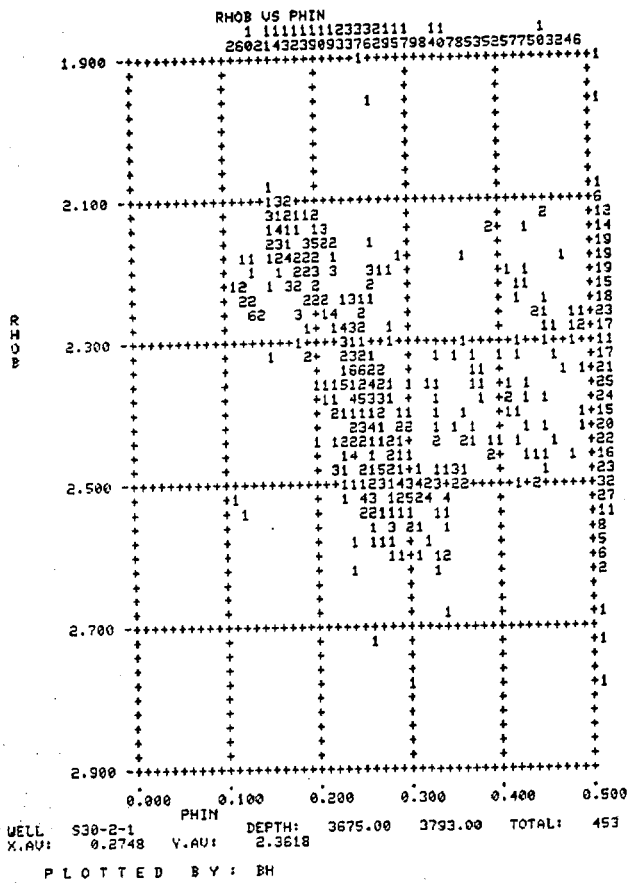

WELL S30-2-1 DEPTH: 3675.00 3793.00 TOTAL: 462
X.AV: 52.9586 Y.AV: 2.3582

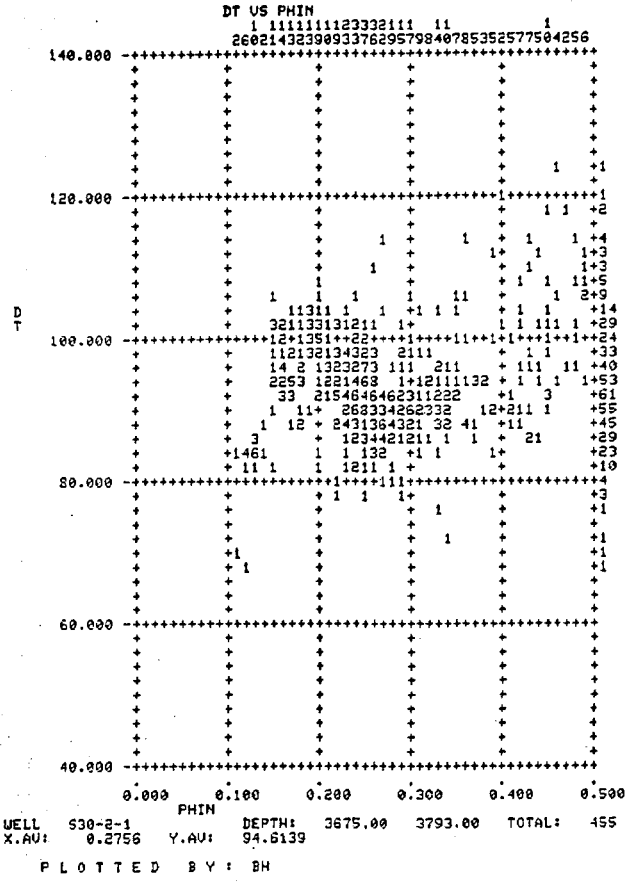
PLOTTED BY: BH




WELL S30-2-1 DEPTH: 3675.00 3793.00 TOTAL: 469
X.AV: 52.3555 Y.AV: 95.3090

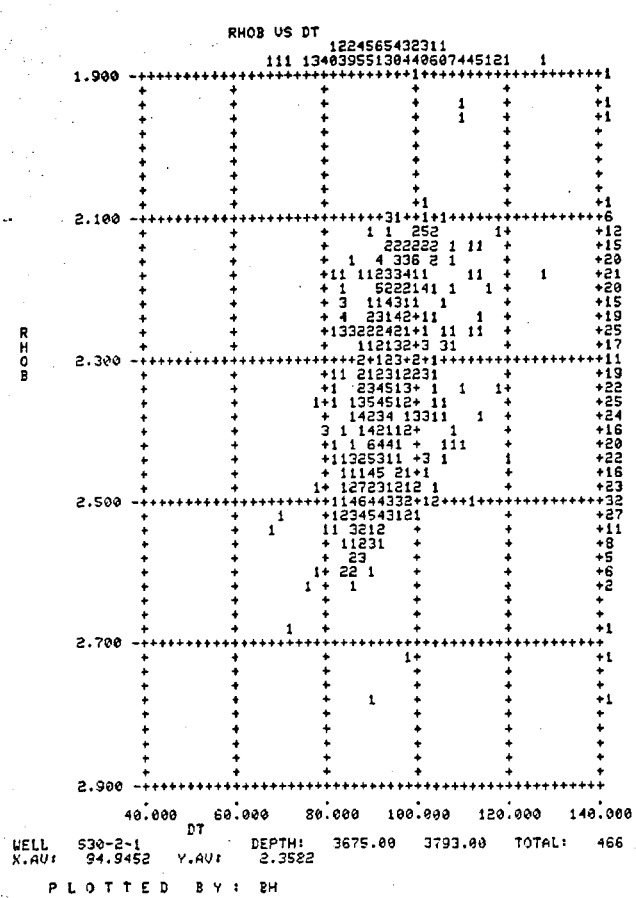
PLOTTED BY: BH

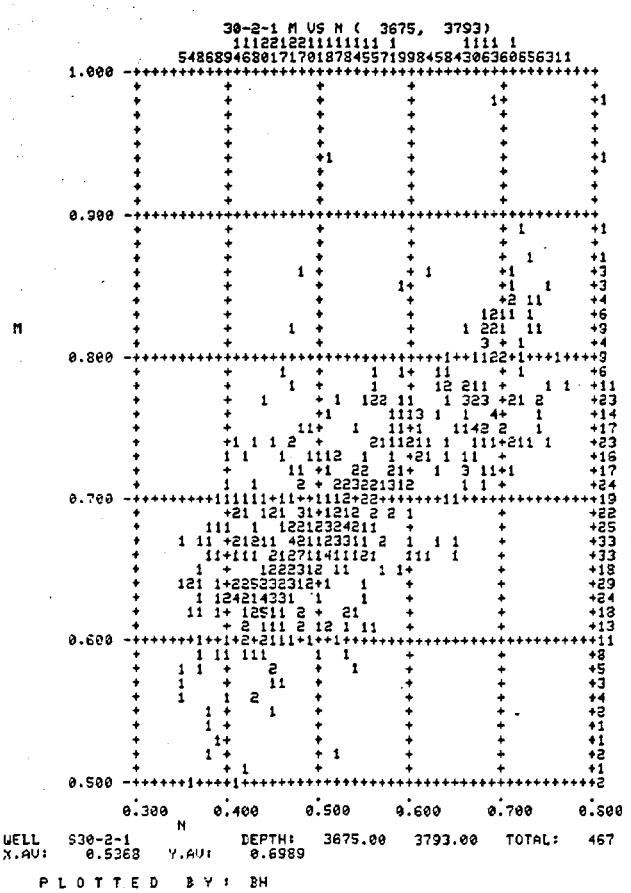


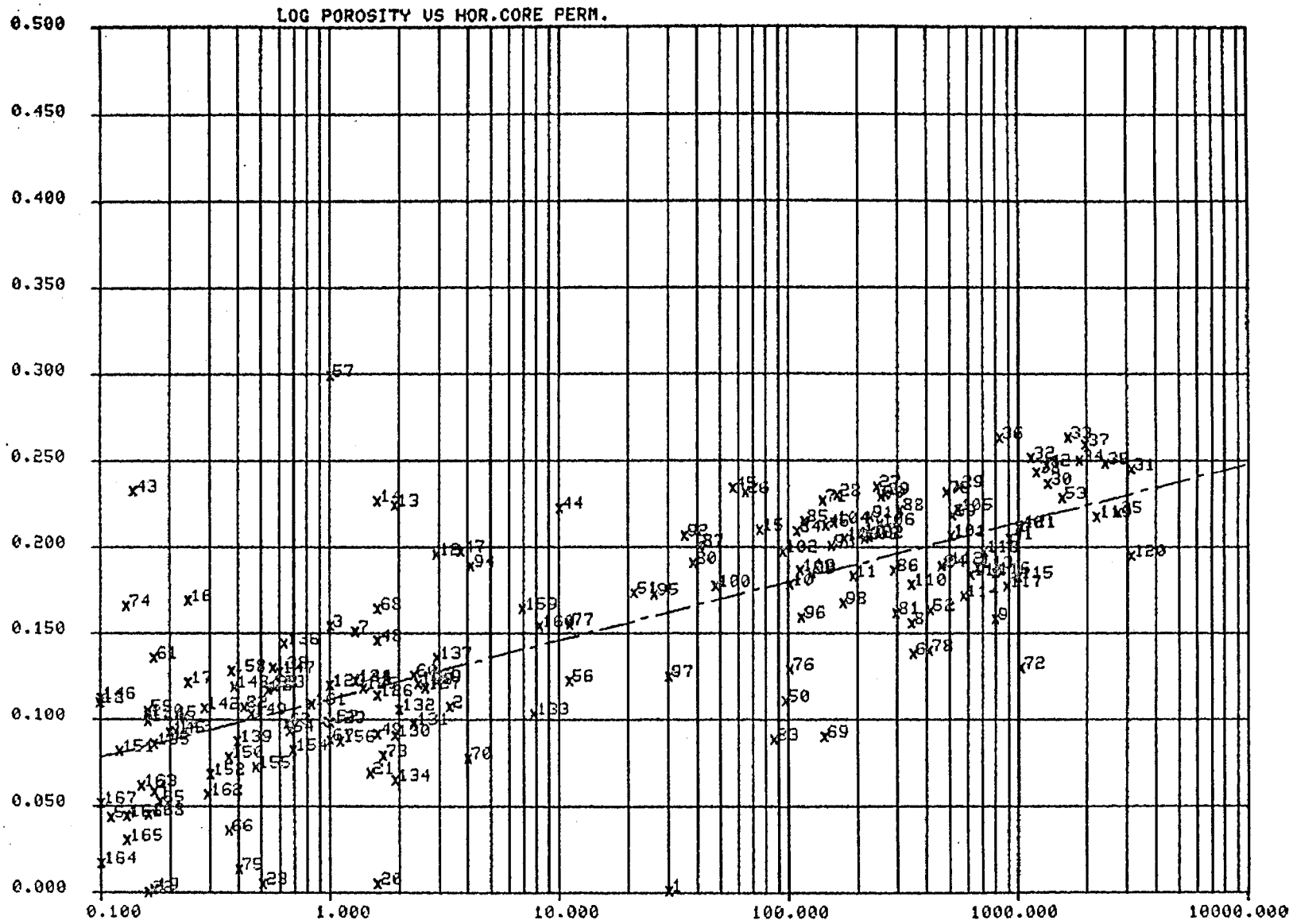




## BRENT (3675 - 3793 m)

## Crossplots: RHOB/PHIN, DT/PHIN, RHOB/DT, M/N






Y=A*Log(X)+B

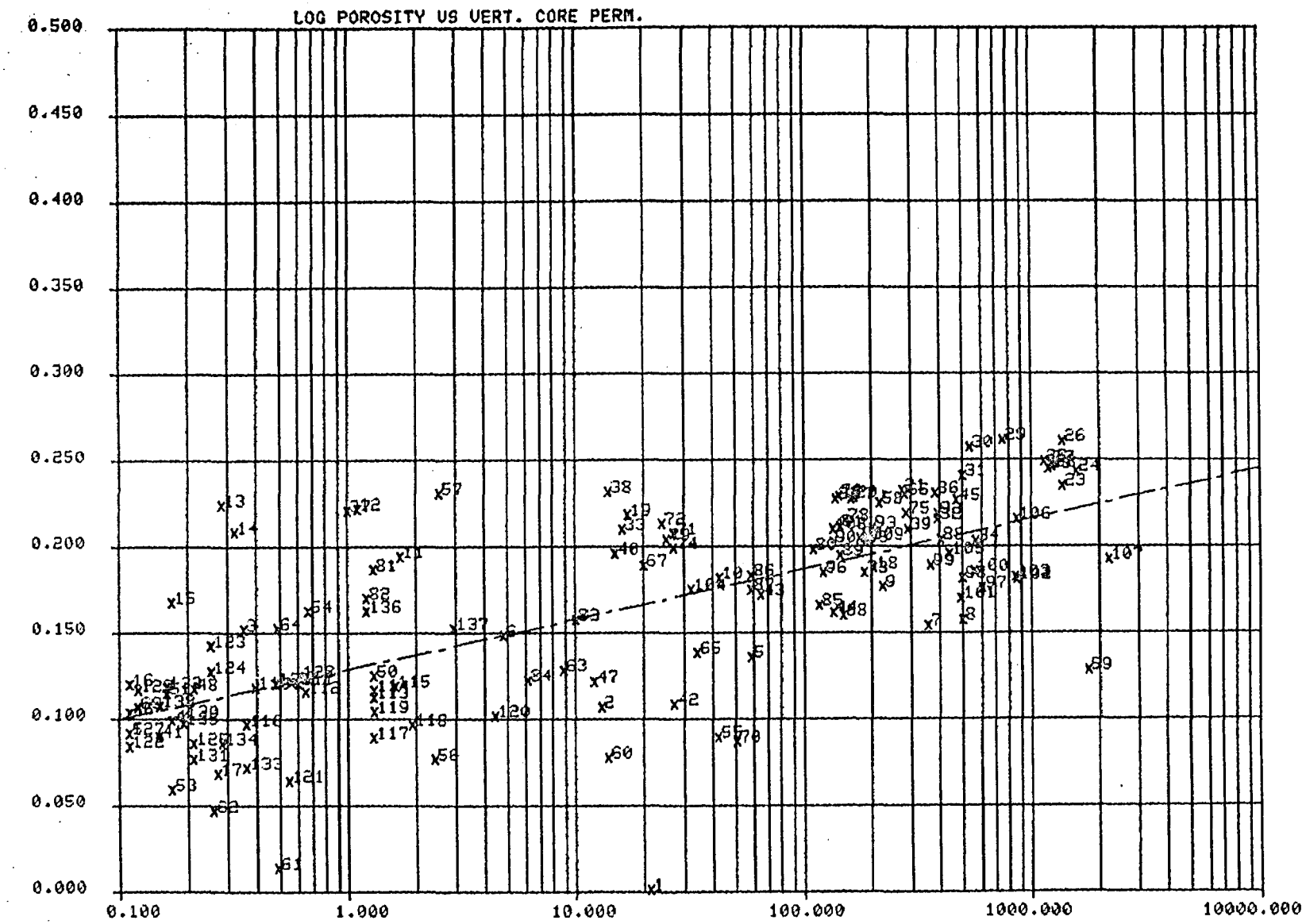
A= 0.03402707 B= 0.11234770 C2= 0.54426929

DO YOU WANT TO DELETE ANY POINTS?

NO

WELL S30-2-1 DEPTH: 3700.00 3797.00 TOTAL: 168 X.AV: 284.8833 Y.AV: 0.1491

P L O T T E D B Y : BH




Y=A*Log(X)+B

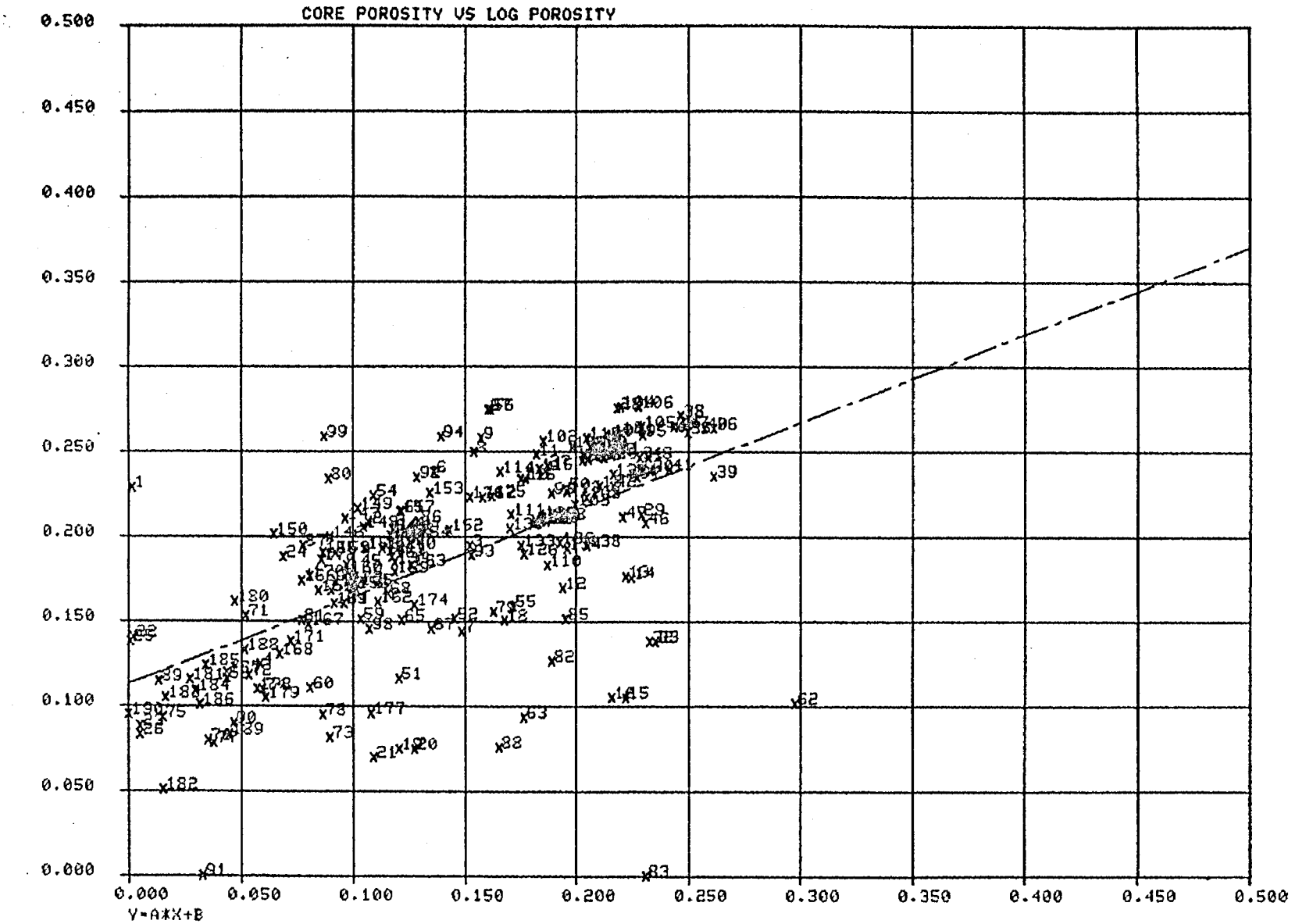
A= 0.02890302 B= 0.12904777 C2= 0.48054124

DO YOU WANT TO DELETE ANY POINTS?

NO

WELL S30-2-1 DEPTH: 3700.00 3797.00 TOTAL: 138 X.AV: 213.1290 Y.AV: 0.1620

P L O T T E D B Y : BH



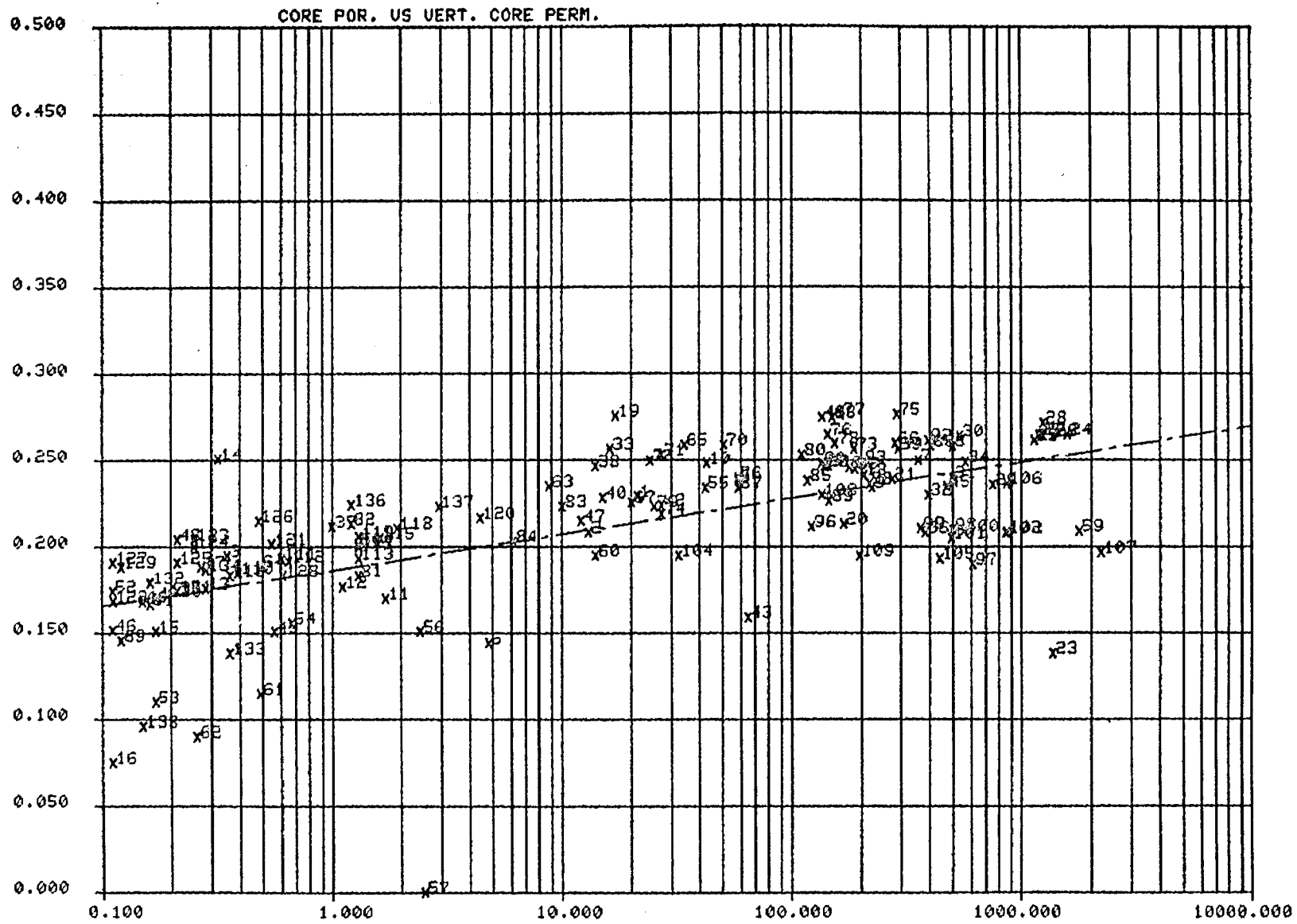

Y=A*X+B

A= 0.51569586 B= 0.11298042 C2= 0.36097193

DO YOU WANT TO DELETE ANY POINTS?
NO

WELL S30-2-1 DEPTH: 3700.00 3797.00 TOTAL: 190 X.AV: 0.1411 Y.AV: 0.1858

P L O T T E D B Y : BH




Y=A*Log(X)+B

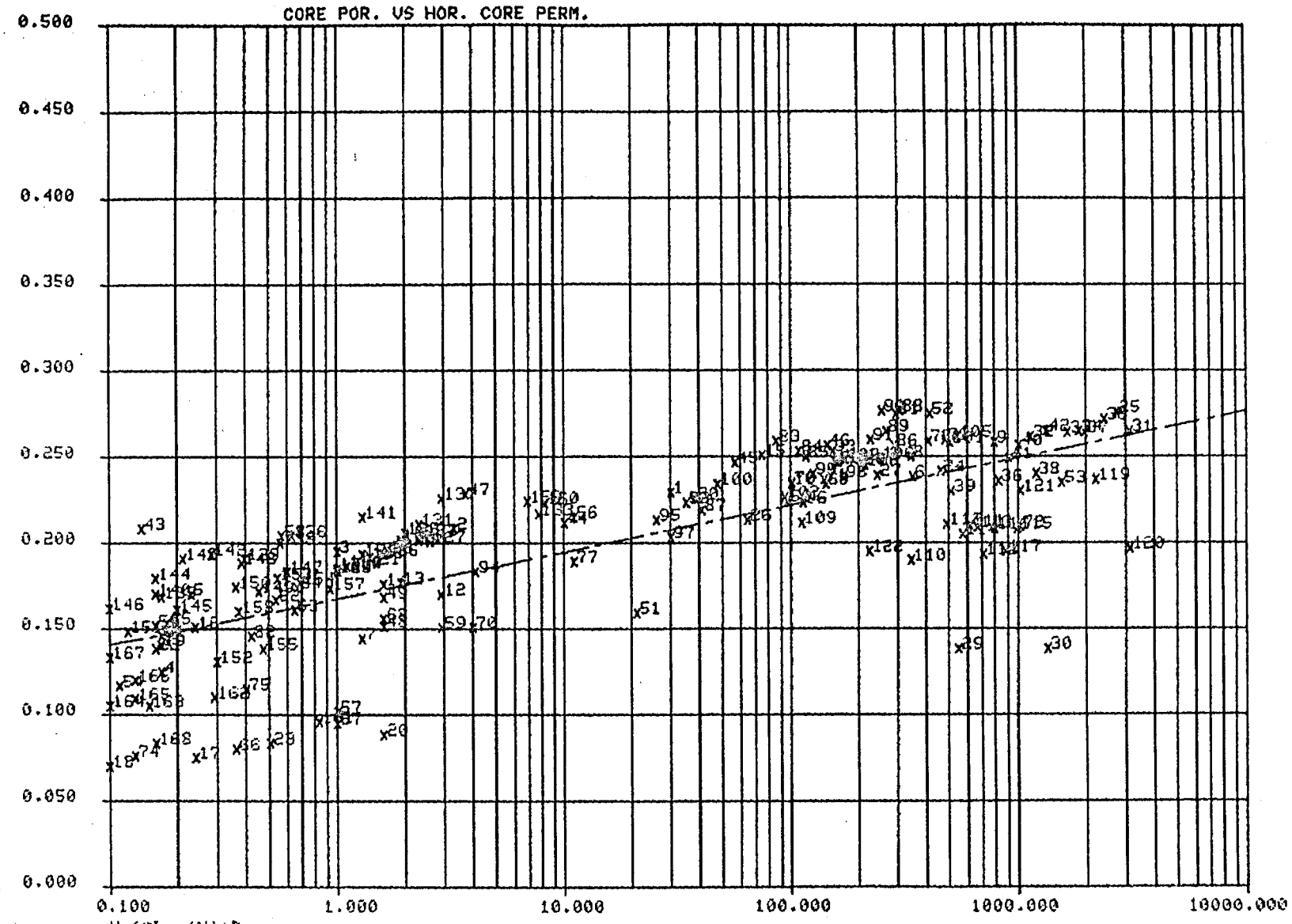
A= 0.02075356 B= 0.18690827 C2= 0.40133439

DO YOU WANT TO DELETE ANY POINTS?

NO

WELL S30-2-1 DEPTH: 3700.00 3797.00 TOTAL: 138 X.AV: 213.1290 Y.AV: 0.2105

P L O T T E D B Y : BH




Y=A*Log(X)+B

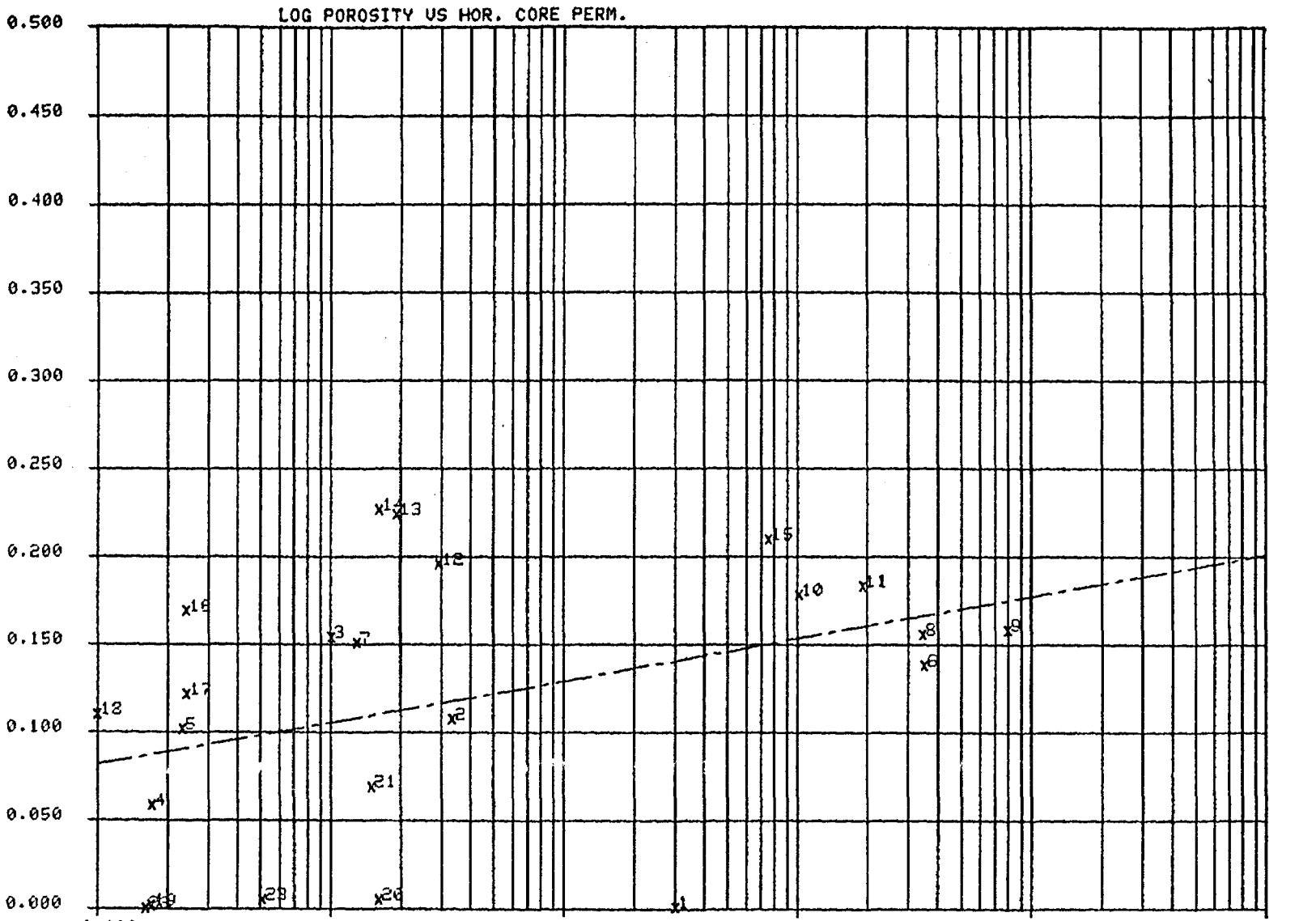
A= 0.02711965 B= 0.16324767 C2= 0.58602825

DO YOU WANT TO DELETE ANY POINTS?

NO

WELL S30-2-1 DEPTH: 3700.00 3797.00 TOTAL: 168 X.AV: 284.8833 Y.AV: 0.1976

P L O T T E D B Y : BH



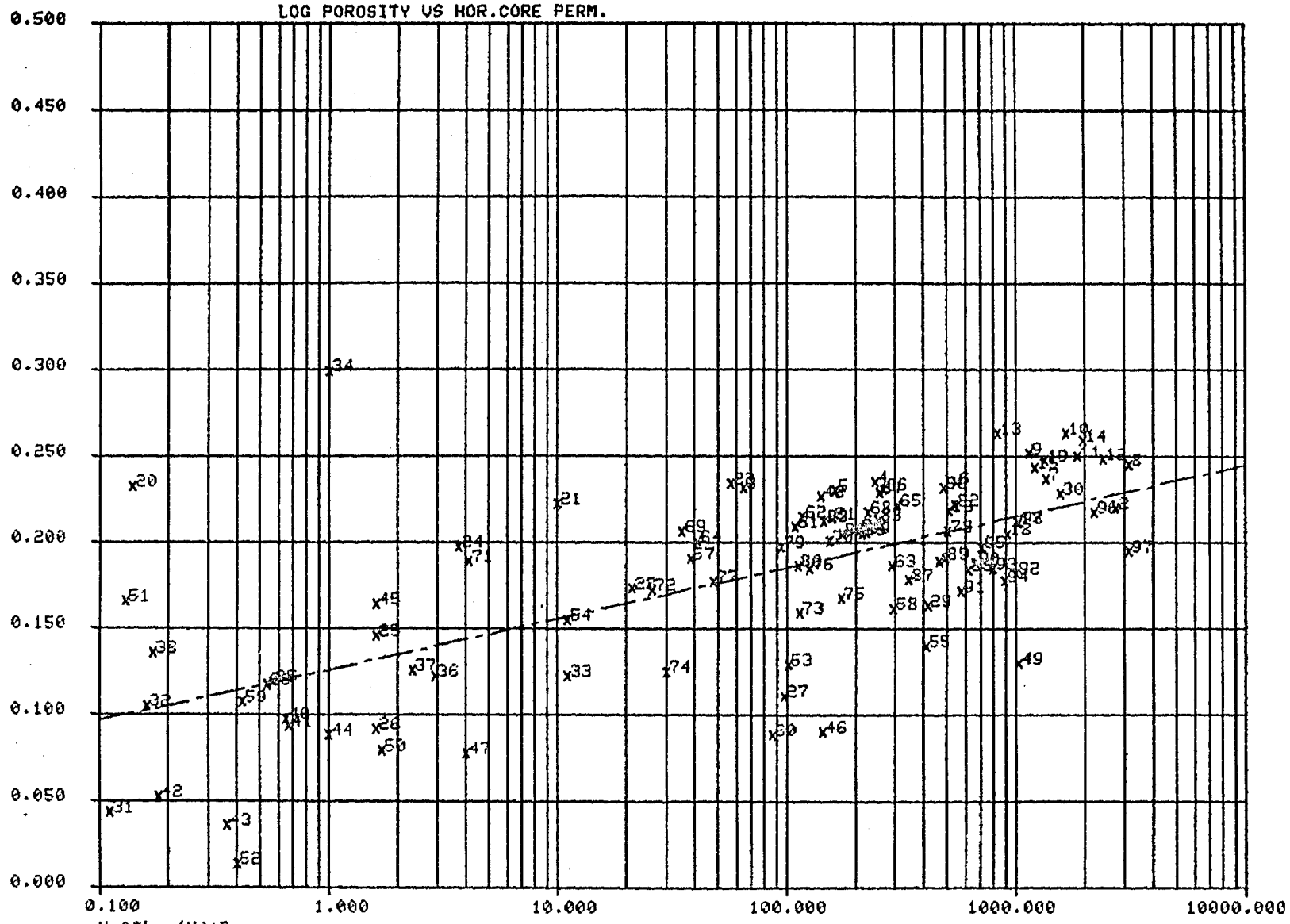

Y=A*Log(X)+B

A= 0.02395660 B= 0.10596355 C2= 0.15681721

DO YOU WANT TO DELETE ANY POINTS?
NO

WELL S30-2-1 DEPTH: 3700.00 3720.00 TOTAL: 23 X.AV: 82.7791 Y.AV: 0.1185

P L O T T E D B Y : BH



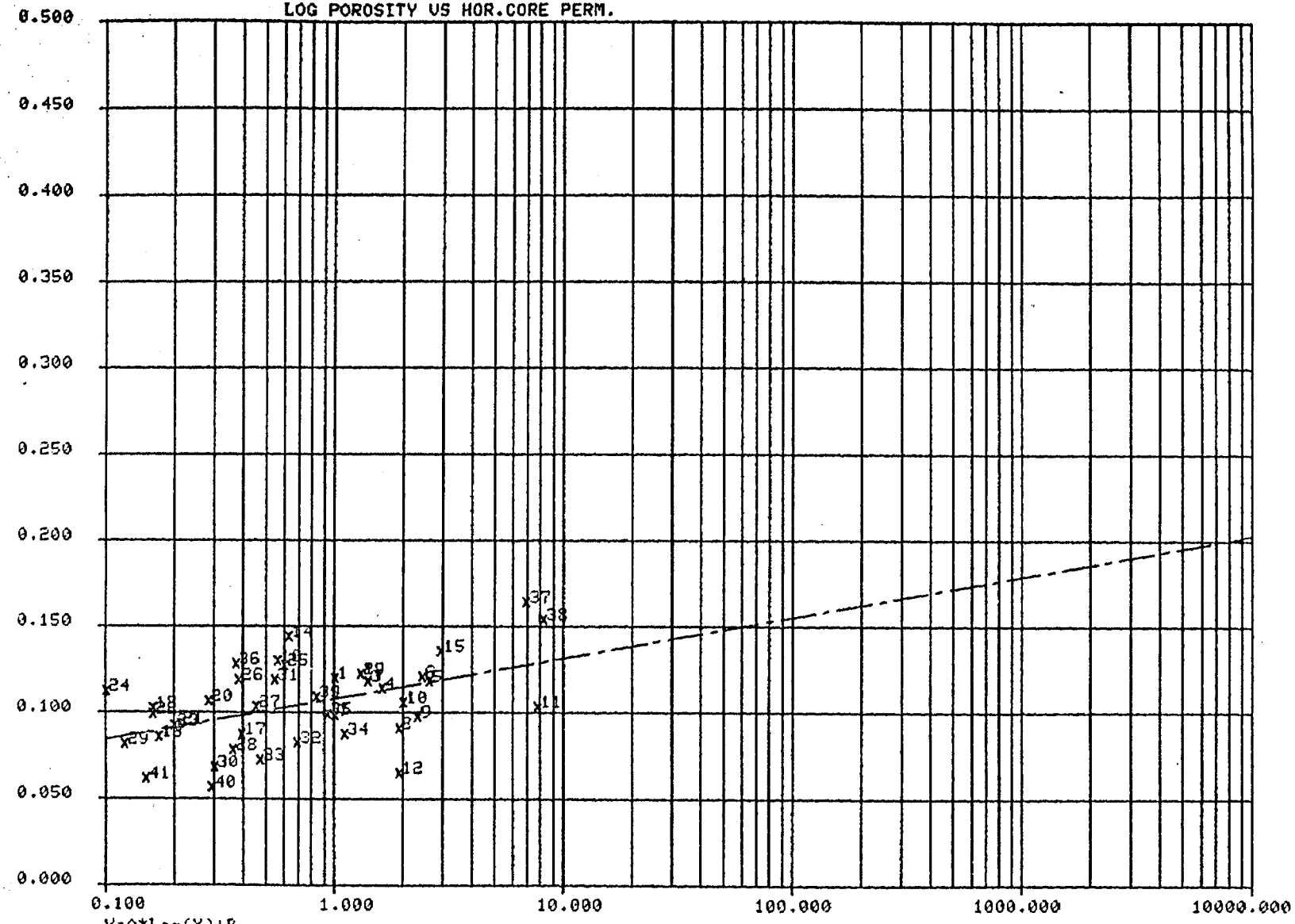

Y=A*Log(X)+B

A= 0.02953108 B= 0.12652148 C2= 0.42725931

DO YOU WANT TO DELETE ANY POINTS?
NO

WELL 530-2-1 DEPTH: 3720.00 3778.00 TOTAL: 99 X.AV: 463.6263 Y.AV: 0.1802

P L O T T E D B Y : BH




Y=A*Log(X)+B

A= 0.02377490 B= 0.10826437 C2= 0.23554622

DO YOU WANT TO DELETE ANY POINTS?
NO

WELL S30-2-1 DEPTH: 3778.00 3793.00 TOTAL: 41 X.AV: 1.3866 Y.AV: 0.1048

P L O T T E D B Y : BH

## S T A T I S T I C S

FIELD: . . . . . BRENT
WELL: . . . . . 14.37.42. 7 APRIL 30-APR-1983
ENGINEER: . . . . . BH

DEPTH INTERVAL: . . . 3675.00 TO 3793.00
APPLIED CUTOFFS:
. VSH: GREATER THAN 0.40
. PHIF: LESS THAN 0.10
. SW: GREATER THAN 0.60

### T O T A L D E P T H

| | |
|---|---|
| THICKNESS: . . . . . | 118.000 |
| AVERAGE . . . 'PHIF' . . . | 0.126 |
| AVERAGE . . . 'VSHALE' . . | 0.460 |
| AVERAGE . . . 'SW' . . . . | 0.561 |
| W.AVERAGE . . 'SW' * 'PHIF' | 0.382 |
| AVERAGE . . . 'SH' . . . . | 0.410 |
| VOID VOLUME: . . . ('PHIF'). | 14.912 |
| HC VOID VOLUME . . ('SH'*) . | 7.914 |
| RES HC VOID VOLUME ('SHR'*). | 5.595 |
| MOV HC VOID VOLUME . . . . . | 2.319 |

### N E T P A Y

| | |
|---|---|
| THICKNESS: . . . . . | 46.250 |
| AVERAGE . . . 'PHIF' . . . | 0.204 |
| AVERAGE . . . 'VSHALE' . . | 0.181 |
| AVERAGE . . . 'SW' . . . . | 0.261 |
| W.AVERAGE . . 'SW' * 'PHIF' | 0.235 |
| AVERAGE . . . 'SH' . . . . | 0.687 |
| VOID VOLUME: . . . ('PHIF'). | 9.441 |
| HC VOID VOLUME . . ('SH'*) . | 6.278 |
| RES HC VOID VOLUME ('SHR'*). | 4.688 |
| MOV HC VOID VOLUME . . . . . | 1.590 |

### N E T S A N D

| | |
|---|---|
| THICKNESS: . . . . . | 48.500 |
| AVERAGE . . . 'PHIF' . . . | 0.200 |
| AVERAGE . . . 'VSHALE' . . | 0.186 |
| AVERAGE . . . 'SW' . . . . | 0.285 |
| W.AVERAGE . . 'SW' * 'PHIF' | 0.250 |
| AVERAGE . . . 'SH' . . . . | 0.665 |
| VOID VOLUME: . . . ('PHIF'). | 9.702 |
| HC VOID VOLUME . . ('SH'*) . | 6.332 |
| RES HC VOID VOLUME ('SHR'*). | 4.710 |
| MOV HC VOID VOLUME . . . . . | 1.623 |

### N E T / G R O S S R A T I O S

HNETPAY /HGROSS SAND = 0.39195
HNETSAND/HGROSS SAND = 0.41102
HNETPAY /HNETSAND = 0.95361

## S T A T I S T I C S

FIELD: . . . . . NESS
WELL: . . . . . 14.39.50. 7 APRIL 80-2 1983
ENGINEER: . . . . . BH

DEPTH INTERVAL: . . . 3675.00 TO 3720.00
APPLIED CUTOFFS:
. VSH: GREATER THAN 0.40
. PHIF: LESS THAN 0.10
. SW: GREATER THAN 0.60

### T O T A L D E P T H

| | |
|---|---|
| THICKNESS: . . . . . | 45.000 |
| AVERAGE . . . 'PHIF' . . . | 0.113 |
| AVERAGE . . . 'VSHALE' . . | 0.573 |
| AVERAGE . . . 'SW' . . . . | 0.673 |
| W.AVERAGE . . 'SW' * 'PHIF' | 0.466 |
| AVERAGE . . . 'SH' . . . . | 0.291 |
| VOID VOLUME: . . . ('PHIF'). | 5.067 |
| HC VOID VOLUME . . ('SH'*) . | 2.049 |
| RES HC VOID VOLUME ('SHR'*). | 1.681 |
| MOV HC VOID VOLUME . . . . . | 0.368 |

### N E T P A Y

| | |
|---|---|
| THICKNESS: . . . . . | 11.750 |
| AVERAGE . . . 'PHIF' . . . | 0.209 |
| AVERAGE . . . 'VSHALE' . . | 0.197 |
| AVERAGE . . . 'SW' . . . . | 0.275 |
| W.AVERAGE . . 'SW' * 'PHIF' | 0.240 |
| AVERAGE . . . 'SH' . . . . | 0.623 |
| VOID VOLUME: . . . ('PHIF'). | 2.457 |
| HC VOID VOLUME . . ('SH'*) . | 1.429 |
| RES HC VOID VOLUME ('SHR'*). | 1.314 |
| MOV HC VOID VOLUME . . . . . | 0.115 |

### N E T S A N D

| | |
|---|---|
| THICKNESS: . . . . . | 13.750 |
| AVERAGE . . . 'PHIF' . . . | 0.196 |
| AVERAGE . . . 'VSHALE' . . | 0.209 |
| AVERAGE . . . 'SW' . . . . | 0.353 |
| W.AVERAGE . . 'SW' * 'PHIF' | 0.290 |
| AVERAGE . . . 'SH' . . . . | 0.560 |
| VOID VOLUME: . . . ('PHIF'). | 2.694 |
| HC VOID VOLUME . . ('SH'*) . | 1.474 |
| RES HC VOID VOLUME ('SHR'*). | 1.332 |
| MOV HC VOID VOLUME . . . . . | 0.142 |

### N E T / G R O S S R A T I O S

HNETPAY /HGROSS SAND = 0.26111
HNETSAND/HGROSS SAND = 0.30556
HNETPAY /HNETSAND = 0.85455

S T A T I S T I C S
**********

FIELD: . . . . . ETIVE
WELL: . . . . . 11.37.16. 18 MARC80-21983
ENGINEER:. . . . . BH

DEPTH INTERVAL: . . . 3720.00 TO 3778.00
APPLIED CUTOFFS:
. VSH: GREATER THAN 0.40
. PHIF: LESS THAN 0.10
. SW: GREATER THAN 0.60

T O T A L D E P T H
**********
THICKNESS: . . . . . 58.000
AVERAGE . . . 'PHIF' . . . 0.146
AVERAGE . . . 'VSHALE' . . 0.367
AVERAGE . . . 'SW' . . . . 0.474
W.AVERAGE . . 'SW' * 'PHIF' 0.301
AVERAGE . . . 'SH' . . . . 0.493
VOID VOLUME: . . . ('PHIF'). 8.441
HC VOID VOLUME . . ('SH'*) . 5.240
RES HC VOID VOLUME ('SHR'*). 3.805
MOV HC VOID VOLUME . . . . . 1.435
**********

N E T P A Y
**********
THICKNESS: . . . . . 33.500
AVERAGE . . . 'PHIF' . . . 0.207
AVERAGE . . . 'VSHALE' . . 0.169
AVERAGE . . . 'SW' . . . . 0.248
W.AVERAGE . . 'SW' * 'PHIF' 0.227
AVERAGE . . . 'SH' . . . . 0.715
VOID VOLUME: . . . ('PHIF'). 6.940
HC VOID VOLUME . . ('SH'*) . 4.844
RES HC VOID VOLUME ('SHR'*). 3.434
MOV HC VOID VOLUME . . . . . 1.410
**********

N E T S A N D
**********
THICKNESS: . . . . . 33.750
AVERAGE . . . 'PHIF' . . . 0.206
AVERAGE . . . 'VSHALE' . . 0.171
AVERAGE . . . 'SW' . . . . 0.251
W.AVERAGE . . 'SW' * 'PHIF' 0.228
AVERAGE . . . 'SH' . . . . 0.713
VOID VOLUME: . . . ('PHIF'). 6.967
HC VOID VOLUME . . ('SH'*) . 4.854
RES HC VOID VOLUME ('SHR'*). 3.439
MOV HC VOID VOLUME . . . . . 1.415
**********

N E T / G R O S S R A T I O S
**********

HNETPAY /HGROSS SAND = 0.57759
HNETSAND/HGROSS SAND = 0.58190
HNETPAY /HNETSAND = 0.99259
**********

## S T A T I S T I C S

**********

FIELD: . . . . . RANNOCH
WELL: . . . . . 11.39.04. 18 MARCH80-21983
ENGINEER:. . . . . BH

DEPTH INTERVAL: . . . 3778.00 TO 3793.00
APPLIED CUTOFFS:
. VSH: GREATER THAN 0.40
. PHIF: LESS THAN 0.10
. SW: GREATER THAN 0.60

## T O T A L D E P T H

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| | |
|---|---|
| THICKNESS: . . . . . | 15.000 |
| AVERAGE . . . 'PHIF' . . . | 0.103 |
| AVERAGE . . . 'VSHALE' . . | 0.478 |
| AVERAGE . . . 'SW' . . . . | 0.534 |
| W.AVERAGE . . 'SW' * 'PHIF' | 0.509 |
| AVERAGE . . . 'SH' . . . . | 0.466 |
| VOID VOLUME: . . . ('PHIF'). | 1.544 |
| HC VOID VOLUME . . ('SH'*) . | 0.758 |
| RES HC VOID VOLUME ('SHR'*). | 0.253 |
| MOV HC VOID VOLUME . . . . . | 0.506 |

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## N E T P A Y

**********

| | |
|---|---|
| THICKNESS: . . . . . | 1.250 |
| AVERAGE . . . 'PHIF' . . . | 0.151 |
| AVERAGE . . . 'VSHALE' . . | 0.364 |
| AVERAGE . . . 'SW' . . . . | 0.406 |
| W.AVERAGE . . 'SW' * 'PHIF' | 0.405 |
| AVERAGE . . . 'SH' . . . . | 0.594 |
| VOID VOLUME: . . . ('PHIF'). | 0.188 |
| HC VOID VOLUME . . ('SH'*) . | 0.112 |
| RES HC VOID VOLUME ('SHR'*). | 0.061 |
| MOV HC VOID VOLUME . . . . . | 0.051 |

**********

## N E T S A N D

**********

| | |
|---|---|
| THICKNESS: . . . . . | 1.250 |
| AVERAGE . . . 'PHIF' . . . | 0.151 |
| AVERAGE . . . 'VSHALE' . . | 0.364 |
| AVERAGE . . . 'SW' . . . . | 0.406 |
| W.AVERAGE . . 'SW' * 'PHIF' | 0.405 |
| AVERAGE . . . 'SH' . . . . | 0.594 |
| VOID VOLUME: . . . ('PHIF'). | 0.188 |
| HC VOID VOLUME . . ('SH'*) . | 0.112 |
| RES HC VOID VOLUME ('SHR'*). | 0.061 |
| MOV HC VOID VOLUME . . . . . | 0.051 |

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## N E T / G R O S S R A T I O S

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HNETPAY /HGROSS SAND = 0.08333
HNETSAND/HGROSS SAND = 0.08333
HNETPAY /HNETSAND = 1.00000

**********

| DEPTH | VSH | PHIF | SW |
|---|---|---|---|
| 3675.00 | 0.703 | 0.034 | 0.837 |
| 3675.25 | 0.498 | 0.095 | 0.667 |
| 3675.50 | 0.394 | 0.120 | 0.603 |
| 3675.75 | 0.366 | 0.110 | 0.613 |
| 3676.00 | 0.283 | 0.142 | 0.473 |
| 3676.25 | 0.318 | 0.126 | 0.462 |
| 3676.50 | 0.325 | 0.132 | 0.378 |
| 3676.75 | 0.249 | 0.288 | 0.132 |
| 3677.00 | 0.159 | 0.555 | 0.037 |
| 3677.25 | 0.152 | 0.595 | 0.081 |
| 3677.50 | 0.317 | 0.383 | 0.256 |
| 3677.75 | 0.565 | 0.183 | 0.521 |
| 3678.00 | 0.723 | 0.115 | 0.675 |
| 3678.25 | 0.800 | 0.122 | 0.692 |
| 3678.50 | 0.792 | 0.148 | 0.757 |
| 3678.75 | 0.723 | 0.125 | 0.905 |
| 3679.00 | 0.678 | 0.085 | 1.014 |
| 3679.25 | 0.449 | 0.083 | 1.050 |
| 3679.50 | 0.253 | 0.118 | 0.749 |
| 3679.75 | 0.195 | 0.113 | 0.706 |
| 3680.00 | 0.178 | 0.136 | 0.546 |
| 3680.25 | 0.091 | 0.174 | 0.402 |
| 3680.50 | 0.060 | 0.147 | 0.326 |
| 3680.75 | 0.056 | 0.090 | 0.377 |
| 3681.00 | 0.043 | 0.089 | 0.384 |
| 3681.25 | 0.055 | 0.158 | 0.229 |
| 3681.50 | 0.043 | 0.203 | 0.180 |
| 3681.75 | 0.029 | 0.219 | 0.160 |
| 3682.00 | 0.028 | 0.226 | 0.141 |
| 3682.25 | 0.037 | 0.227 | 0.125 |
| 3682.50 | 0.006 | 0.231 | 0.116 |
| 3682.75 | 0.008 | 0.235 | 0.113 |
| 3683.00 | 0.023 | 0.247 | 0.106 |
| 3683.25 | 0.011 | 0.252 | 0.141 |
| 3683.50 | 0.027 | 0.235 | 0.498 |
| 3683.75 | 0.319 | 0.131 | 0.930 |
| 3684.00 | 0.688 | 0.027 | 1.371 |
| 3684.25 | 0.755 | 0.011 | 1.382 |

| DEPTH | VSH | PHIF | SW |
|---|---|---|---|
| 3684.50 | 0.727 | 0.011 | 1.234 |
| 3684.75 | 0.576 | 0.036 | 1.014 |
| 3685.00 | 0.361 | 0.080 | 1.193 |
| 3685.25 | 0.276 | 0.122 | 0.925 |
| 3685.50 | 0.262 | 0.114 | 1.004 |
| 3685.75 | 0.478 | 0.052 | 1.361 |
| 3686.00 | 0.634 | 0.028 | 1.301 |
| 3686.25 | 0.769 | 0.018 | 1.101 |
| 3686.50 | 0.798 | 0.030 | 0.965 |
| 3686.75 | 0.719 | 0.043 | 1.307 |
| 3687.00 | 0.744 | 0.033 | 1.100 |
| 3687.25 | 0.751 | 0.041 | 1.135 |
| 3687.50 | 0.867 | 0.063 | 0.887 |
| 3687.75 | 0.874 | 0.070 | 0.838 |
| 3688.00 | 0.894 | 0.056 | 0.940 |
| 3688.25 | 0.824 | 0.045 | 0.862 |
| 3688.50 | 0.657 | 0.055 | 0.875 |
| 3688.75 | 0.691 | 0.043 | 0.820 |
| 3689.00 | 0.717 | 0.024 | 0.908 |
| 3689.25 | 0.711 | 0.032 | 0.738 |
| 3689.50 | 0.676 | 0.013 | 0.927 |
| 3689.75 | 0.690 | 0.030 | 0.879 |
| 3690.00 | 0.541 | 0.074 | 0.805 |
| 3690.25 | 0.695 | 0.064 | 0.817 |
| 3690.50 | 0.696 | 0.104 | 0.688 |
| 3690.75 | 0.660 | 0.087 | 0.761 |
| 3691.00 | 0.594 | 0.050 | 1.016 |
| 3691.25 | 0.664 | 0.060 | 0.923 |
| 3691.50 | 0.719 | 0.084 | 0.813 |
| 3691.75 | 0.605 | 0.094 | 0.803 |
| 3692.00 | 0.589 | 0.028 | 1.158 |
| 3692.25 | 0.578 | 0.015 | 1.373 |
| 3692.50 | 0.714 | 0.000 | 1.291 |
| 3692.75 | 0.800 | 0.000 | 1.174 |
| 3693.00 | 0.766 | 0.037 | 0.996 |
| 3693.25 | 0.753 | 0.111 | 0.627 |
| 3693.50 | 0.799 | 0.160 | 0.469 |
| 3693.75 | 0.790 | 0.173 | 0.483 |

| DEPTH | VSH | PHIF | SW |
|---|---|---|---|
| 3694.00 | 0.774 | 0.190 | 0.492 |
| 3694.25 | 0.763 | 0.222 | 0.466 |
| 3694.50 | 0.744 | 0.211 | 0.541 |
| 3694.75 | 0.756 | 0.130 | 0.782 |
| 3695.00 | 0.803 | 0.114 | 0.643 |
| 3695.25 | 0.893 | 0.112 | 0.601 |
| 3695.50 | 0.937 | 0.053 | 0.896 |
| 3695.75 | 0.978 | 0.047 | 0.930 |
| 3696.00 | 0.808 | 0.147 | 0.713 |
| 3696.25 | 0.585 | 0.203 | 0.669 |
| 3696.50 | 0.903 | 0.122 | 0.616 |
| 3696.75 | 0.843 | 0.150 | 0.553 |
| 3697.00 | 0.844 | 0.077 | 0.750 |
| 3697.25 | 0.772 | 0.097 | 0.742 |
| 3697.50 | 0.813 | 0.085 | 0.785 |
| 3697.75 | 0.739 | 0.117 | 0.702 |
| 3698.00 | 0.833 | 0.076 | 0.720 |
| 3698.25 | 0.855 | 0.055 | 0.833 |
| 3698.50 | 0.949 | 0.060 | 0.778 |
| 3698.75 | 0.839 | 0.138 | 0.571 |
| 3699.00 | 0.330 | 0.206 | 0.486 |
| 3699.25 | 0.970 | 0.058 | 0.815 |
| 3699.50 | 0.840 | 0.216 | 0.498 |
| 3699.75 | 0.923 | 0.081 | 0.695 |
| 3700.00 | 0.895 | 0.172 | 0.446 |
| 3700.25 | 1.000 | 0.001 | 1.000 |
| 3700.50 | 0.990 | 0.026 | 0.786 |
| 3700.75 | 1.000 | 0.001 | 1.000 |
| 3701.00 | 1.000 | 0.001 | 1.000 |
| 3701.25 | 0.888 | 0.107 | 0.481 |
| 3701.50 | 0.864 | 0.127 | 0.452 |
| 3701.75 | 0.721 | 0.243 | 0.402 |
| 3702.00 | 0.389 | 0.249 | 0.486 |
| 3702.25 | 0.248 | 0.260 | 0.417 |
| 3702.50 | 0.230 | 0.195 | 0.431 |
| 3702.75 | 0.226 | 0.154 | 0.456 |
| 3703.00 | 0.229 | 0.083 | 0.849 |
| 3703.25 | 0.250 | 0.058 | 1.236 |

| DEPTH | VSH | PHIF | SW |
|---|---|---|---|
| 3703.50 | 0.249 | 0.102 | 0.941 |
| 3703.75 | 0.228 | 0.120 | 0.917 |
| 3704.00 | 0.187 | 0.133 | 0.791 |
| 3704.25 | 0.174 | 0.139 | 0.661 |
| 3704.50 | 0.210 | 0.151 | 0.531 |
| 3704.75 | 0.214 | 0.156 | 0.501 |
| 3705.00 | 0.204 | 0.156 | 0.511 |
| 3705.25 | 0.205 | 0.159 | 0.475 |
| 3705.50 | 0.197 | 0.170 | 0.327 |
| 3705.75 | 0.241 | 0.179 | 0.194 |
| 3706.00 | 0.261 | 0.183 | 0.161 |
| 3706.25 | 0.227 | 0.192 | 0.132 |
| 3706.50 | 0.197 | 0.179 | 0.135 |
| 3706.75 | 0.156 | 0.196 | 0.137 |
| 3707.00 | 0.152 | 0.218 | 0.115 |
| 3707.25 | 0.180 | 0.224 | 0.106 |
| 3707.50 | 0.178 | 0.229 | 0.107 |
| 3707.75 | 0.168 | 0.227 | 0.130 |
| 3708.00 | 0.221 | 0.224 | 0.141 |
| 3708.25 | 0.302 | 0.218 | 0.143 |
| 3708.50 | 0.316 | 0.207 | 0.160 |
| 3708.75 | 0.306 | 0.210 | 0.182 |
| 3709.00 | 0.369 | 0.169 | 0.239 |
| 3709.25 | 0.513 | 0.104 | 0.336 |
| 3709.50 | 0.604 | 0.073 | 0.376 |
| 3709.75 | 0.682 | 0.062 | 0.369 |
| 3710.00 | 0.586 | 0.075 | 0.390 |
| 3710.25 | 0.537 | 0.122 | 0.331 |
| 3710.50 | 0.291 | 0.129 | 0.401 |
| 3710.75 | 0.417 | 0.098 | 0.454 |
| 3711.00 | 0.437 | 0.110 | 0.407 |
| 3711.25 | 0.396 | 0.143 | 0.330 |
| 3711.50 | 0.575 | 0.142 | 0.625 |
| 3711.75 | 0.872 | 0.080 | 0.719 |
| 3712.00 | 0.838 | 0.063 | 0.777 |
| 3712.25 | 0.847 | 0.053 | 0.809 |
| 3712.50 | 0.865 | 0.037 | 0.862 |
| 3712.75 | 0.844 | 0.049 | 0.824 |

| DEPTH | VSH | PHIF | SW |
|---|---|---|---|
| 3713.00 | 0.936 | 0.027 | 0.807 |
| 3713.25 | 1.000 | 0.001 | 1.000 |
| 3713.50 | 1.000 | 0.001 | 1.000 |
| 3713.75 | 0.933 | 0.108 | 0.535 |
| 3714.00 | 0.818 | 0.161 | 0.482 |
| 3714.25 | 0.834 | 0.148 | 0.489 |
| 3714.50 | 0.874 | 0.102 | 0.633 |
| 3714.75 | 0.838 | 0.100 | 0.665 |
| 3715.00 | 0.914 | 0.070 | 0.672 |
| 3715.25 | 0.873 | 0.149 | 0.475 |
| 3715.50 | 0.745 | 0.217 | 0.391 |
| 3715.75 | 0.732 | 0.118 | 0.539 |
| 3716.00 | 0.720 | 0.002 | 1.194 |
| 3716.25 | 0.687 | 0.005 | 1.323 |
| 3716.50 | 0.798 | 0.043 | 0.821 |
| 3716.75 | 0.753 | 0.078 | 0.743 |
| 3717.00 | 0.808 | 0.094 | 0.685 |
| 3717.25 | 0.937 | 0.072 | 0.571 |
| 3717.50 | 0.833 | 0.069 | 0.559 |
| 3717.75 | 0.611 | 0.058 | 0.342 |
| 3718.00 | 0.655 | 0.000 | 1.360 |
| 3718.25 | 0.688 | 0.000 | 1.270 |
| 3718.50 | 0.744 | 0.005 | 1.194 |
| 3718.75 | 0.812 | 0.000 | 1.107 |
| 3719.00 | 0.794 | 0.000 | 0.978 |
| 3719.25 | 0.642 | 0.000 | 1.079 |
| 3719.50 | 0.416 | 0.001 | 1.816 |
| 3719.75 | 0.318 | 0.020 | 1.724 |
| 3720.00 | 0.292 | 0.119 | 0.536 |
| 3720.25 | 0.176 | 0.189 | 0.305 |
| 3720.50 | 0.129 | 0.206 | 0.229 |
| 3720.75 | 0.197 | 0.220 | 0.192 |
| 3721.00 | 0.056 | 0.231 | 0.160 |
| 3721.25 | 0.029 | 0.235 | 0.127 |
| 3721.50 | 0.038 | 0.236 | 0.118 |
| 3721.75 | 0.075 | 0.230 | 0.126 |
| 3722.00 | 0.052 | 0.235 | 0.121 |
| 3722.25 | 0.052 | 0.237 | 0.107 |

| DEPTH | VSH | PHIF | SW |
|---|---|---|---|
| 3722.50 | 0.037 | 0.244 | 0.092 |
| 3722.75 | 0.021 | 0.245 | 0.085 |
| 3723.00 | 0.022 | 0.252 | 0.087 |
| 3723.25 | 0.000 | 0.263 | 0.097 |
| 3723.50 | 0.026 | 0.252 | 0.111 |
| 3723.75 | 0.012 | 0.250 | 0.115 |
| 3724.00 | 0.021 | 0.248 | 0.115 |
| 3724.25 | 0.000 | 0.263 | 0.108 |
| 3724.50 | 0.021 | 0.259 | 0.100 |
| 3724.75 | 0.070 | 0.246 | 0.106 |
| 3725.00 | 0.074 | 0.243 | 0.132 |
| 3725.25 | 0.071 | 0.230 | 0.144 |
| 3725.50 | 0.045 | 0.224 | 0.151 |
| 3725.75 | 0.054 | 0.218 | 0.156 |
| 3726.00 | 0.075 | 0.212 | 0.161 |
| 3726.25 | 0.083 | 0.205 | 0.166 |
| 3726.50 | 0.111 | 0.213 | 0.158 |
| 3726.75 | 0.055 | 0.247 | 0.139 |
| 3727.00 | 0.118 | 0.233 | 0.153 |
| 3727.25 | 0.155 | 0.223 | 0.170 |
| 3727.50 | 0.151 | 0.234 | 0.176 |
| 3727.75 | 0.124 | 0.223 | 0.206 |
| 3728.00 | 0.137 | 0.212 | 0.250 |
| 3728.25 | 0.170 | 0.198 | 0.310 |
| 3728.50 | 0.242 | 0.168 | 0.357 |
| 3728.75 | 0.349 | 0.121 | 0.472 |
| 3729.00 | 0.656 | 0.049 | 0.724 |
| 3729.25 | 0.826 | 0.054 | 0.646 |
| 3729.50 | 0.822 | 0.146 | 0.423 |
| 3729.75 | 0.656 | 0.126 | 0.493 |
| 3730.00 | 0.436 | 0.091 | 0.697 |
| 3730.25 | 0.335 | 0.111 | 0.578 |
| 3730.50 | 0.226 | 0.142 | 0.469 |
| 3730.75 | 0.124 | 0.173 | 0.412 |
| 3731.00 | 0.139 | 0.176 | 0.364 |
| 3731.25 | 0.251 | 0.163 | 0.251 |
| 3731.50 | 0.207 | 0.190 | 0.189 |
| 3731.75 | 0.130 | 0.229 | 0.230 |

| DEPTH | VSH | PHIF | SW |
|---|---|---|---|
| 3732.00 | 0.128 | 0.220 | 0.319 |
| 3732.25 | 0.241 | 0.168 | 0.482 |
| 3732.50 | 0.527 | 0.065 | 0.844 |
| 3732.75 | 0.591 | 0.024 | 1.112 |
| 3733.00 | 0.537 | 0.032 | 1.109 |
| 3733.25 | 0.553 | 0.043 | 0.938 |
| 3733.50 | 0.494 | 0.077 | 0.711 |
| 3733.75 | 0.398 | 0.105 | 0.619 |
| 3734.00 | 0.420 | 0.082 | 0.737 |
| 3734.25 | 0.473 | 0.054 | 0.899 |
| 3734.50 | 0.556 | 0.041 | 0.925 |
| 3734.75 | 0.609 | 0.039 | 0.797 |
| 3735.00 | 0.555 | 0.059 | 0.658 |
| 3735.25 | 0.390 | 0.123 | 0.464 |
| 3735.50 | 0.179 | 0.211 | 0.264 |
| 3735.75 | 0.097 | 0.225 | 0.230 |
| 3736.00 | 0.131 | 0.232 | 0.245 |
| 3736.25 | 0.235 | 0.214 | 0.273 |
| 3736.50 | 0.276 | 0.201 | 0.301 |
| 3736.75 | 0.341 | 0.163 | 0.374 |
| 3737.00 | 0.435 | 0.164 | 0.506 |
| 3737.25 | 0.689 | 0.188 | 0.445 |
| 3737.50 | 0.868 | 0.078 | 0.664 |
| 3737.75 | 0.855 | 0.002 | 0.987 |
| 3738.00 | 0.747 | 0.008 | 1.155 |
| 3738.25 | 0.664 | 0.038 | 1.162 |
| 3738.50 | 0.596 | 0.053 | 0.581 |
| 3738.75 | 0.444 | 0.128 | 0.388 |
| 3739.00 | 0.162 | 0.299 | 0.193 |
| 3739.25 | 0.090 | 0.326 | 0.177 |
| 3739.50 | 0.382 | 0.178 | 0.289 |
| 3739.75 | 0.452 | 0.119 | 0.381 |
| 3740.00 | 0.420 | 0.123 | 0.397 |
| 3740.25 | 0.340 | 0.126 | 0.417 |
| 3740.50 | 0.353 | 0.127 | 0.405 |
| 3740.75 | 0.332 | 0.136 | 0.398 |
| 3741.00 | 0.355 | 0.117 | 0.434 |
| 3741.25 | 0.422 | 0.097 | 0.569 |

| DEPTH | VSH | PHIF | SW |
|---|---|---|---|
| 3741.50 | 0.477 | 0.093 | 0.559 |
| 3741.75 | 0.496 | 0.083 | 0.595 |
| 3742.00 | 0.569 | 0.053 | 0.694 |
| 3742.25 | 0.634 | 0.054 | 0.608 |
| 3742.50 | 0.571 | 0.090 | 0.522 |
| 3742.75 | 0.588 | 0.067 | 0.952 |
| 3743.00 | 0.671 | 0.060 | 1.090 |
| 3743.25 | 0.954 | 0.064 | 0.721 |
| 3743.50 | 1.000 | 0.001 | 1.000 |
| 3743.75 | 0.913 | 0.035 | 0.719 |
| 3744.00 | 0.847 | 0.044 | 0.757 |
| 3744.25 | 0.765 | 0.030 | 0.939 |
| 3744.50 | 0.743 | 0.015 | 1.183 |
| 3744.75 | 0.814 | 0.036 | 0.978 |
| 3745.00 | 0.937 | 0.041 | 0.751 |
| 3745.25 | 0.984 | 0.034 | 0.674 |
| 3745.50 | 0.885 | 0.037 | 0.726 |
| 3745.75 | 0.768 | 0.023 | 0.861 |
| 3746.00 | 0.677 | 0.038 | 0.845 |
| 3746.25 | 0.657 | 0.046 | 0.771 |
| 3746.50 | 0.589 | 0.047 | 0.780 |
| 3746.75 | 0.374 | 0.083 | 0.603 |
| 3747.00 | 0.180 | 0.145 | 0.384 |
| 3747.25 | 0.222 | 0.165 | 0.381 |
| 3747.50 | 0.360 | 0.150 | 0.505 |
| 3747.75 | 0.523 | 0.090 | 0.797 |
| 3748.00 | 0.783 | 0.012 | 0.979 |
| 3748.25 | 0.809 | 0.012 | 0.883 |
| 3748.50 | 0.734 | 0.029 | 0.977 |
| 3748.75 | 0.749 | 0.027 | 1.041 |
| 3749.00 | 0.800 | 0.009 | 1.023 |
| 3749.25 | 0.656 | 0.033 | 0.885 |
| 3749.50 | 0.486 | 0.094 | 0.701 |
| 3749.75 | 0.563 | 0.077 | 0.723 |
| 3750.00 | 0.824 | 0.026 | 0.922 |
| 3750.25 | 0.641 | 0.051 | 0.829 |
| 3750.50 | 0.650 | 0.021 | 1.026 |
| 3750.75 | 0.596 | 0.044 | 0.813 |

| DEPTH | VSH | PHIF | SW |
|---|---|---|---|
| 3751.00 | 0.402 | 0.119 | 0.442 |
| 3751.25 | 0.258 | 0.191 | 0.254 |
| 3751.50 | 0.170 | 0.232 | 0.186 |
| 3751.75 | 0.170 | 0.227 | 0.181 |
| 3752.00 | 0.218 | 0.200 | 0.188 |
| 3752.25 | 0.213 | 0.197 | 0.249 |
| 3752.50 | 0.177 | 0.186 | 0.347 |
| 3752.75 | 0.284 | 0.130 | 0.561 |
| 3753.00 | 0.394 | 0.079 | 0.948 |
| 3753.25 | 0.575 | 0.034 | 1.230 |
| 3753.50 | 0.806 | 0.007 | 0.991 |
| 3753.75 | 0.789 | 0.012 | 0.925 |
| 3754.00 | 0.733 | 0.024 | 0.926 |
| 3754.25 | 0.766 | 0.019 | 1.085 |
| 3754.50 | 0.848 | 0.024 | 1.016 |
| 3754.75 | 0.891 | 0.011 | 0.995 |
| 3755.00 | 0.878 | 0.025 | 0.831 |
| 3755.25 | 0.807 | 0.055 | 0.631 |
| 3755.50 | 0.553 | 0.222 | 0.241 |
| 3755.75 | 0.187 | 0.572 | 0.059 |
| 3756.00 | 0.351 | 0.605 | 0.101 |
| 3756.25 | 0.375 | 0.468 | 0.207 |
| 3756.50 | 0.649 | 0.166 | 0.483 |
| 3756.75 | 0.752 | 0.013 | 0.913 |
| 3757.00 | 0.623 | 0.027 | 0.957 |
| 3757.25 | 0.527 | 0.046 | 0.986 |
| 3757.50 | 0.594 | 0.033 | 1.108 |
| 3757.75 | 0.715 | 0.028 | 0.932 |
| 3758.00 | 0.727 | 0.038 | 0.743 |
| 3758.25 | 0.574 | 0.064 | 0.744 |
| 3758.50 | 0.576 | 0.060 | 0.788 |
| 3758.75 | 0.687 | 0.032 | 0.772 |
| 3759.00 | 0.625 | 0.034 | 0.859 |
| 3759.25 | 0.543 | 0.037 | 1.009 |
| 3759.50 | 0.612 | 0.018 | 1.073 |
| 3759.75 | 0.606 | 0.011 | 1.076 |
| 3760.00 | 0.568 | 0.021 | 1.025 |
| 3760.25 | 0.486 | 0.070 | 0.713 |

| DEPTH | VSH | PHIF | SW |
|---|---|---|---|
| 3760.50 | 0.459 | 0.103 | 0.564 |
| 3760.75 | 0.459 | 0.125 | 0.477 |
| 3761.00 | 0.402 | 0.141 | 0.450 |
| 3761.25 | 0.477 | 0.130 | 0.450 |
| 3761.50 | 0.436 | 0.149 | 0.419 |
| 3761.75 | 0.354 | 0.155 | 0.439 |
| 3762.00 | 0.407 | 0.140 | 0.413 |
| 3762.25 | 0.291 | 0.182 | 0.297 |
| 3762.50 | 0.195 | 0.224 | 0.244 |
| 3762.75 | 0.138 | 0.232 | 0.265 |
| 3763.00 | 0.211 | 0.191 | 0.332 |
| 3763.25 | 0.312 | 0.162 | 0.386 |
| 3763.50 | 0.344 | 0.157 | 0.477 |
| 3763.75 | 0.513 | 0.108 | 0.594 |
| 3764.00 | 0.552 | 0.088 | 0.578 |
| 3764.25 | 0.265 | 0.180 | 0.332 |
| 3764.50 | 0.230 | 0.209 | 0.280 |
| 3764.75 | 0.206 | 0.215 | 0.263 |
| 3765.00 | 0.231 | 0.187 | 0.284 |
| 3765.25 | 0.267 | 0.178 | 0.281 |
| 3765.50 | 0.222 | 0.201 | 0.225 |
| 3765.75 | 0.169 | 0.221 | 0.168 |
| 3766.00 | 0.165 | 0.231 | 0.170 |
| 3766.25 | 0.179 | 0.229 | 0.189 |
| 3766.50 | 0.186 | 0.220 | 0.213 |
| 3766.75 | 0.205 | 0.217 | 0.221 |
| 3767.00 | 0.222 | 0.206 | 0.234 |
| 3767.25 | 0.223 | 0.200 | 0.246 |
| 3767.50 | 0.234 | 0.196 | 0.252 |
| 3767.75 | 0.238 | 0.189 | 0.261 |
| 3768.00 | 0.261 | 0.172 | 0.297 |
| 3768.25 | 0.269 | 0.159 | 0.365 |
| 3768.50 | 0.301 | 0.139 | 0.454 |
| 3768.75 | 0.369 | 0.125 | 0.457 |
| 3769.00 | 0.238 | 0.168 | 0.340 |
| 3769.25 | 0.219 | 0.185 | 0.295 |
| 3769.50 | 0.229 | 0.180 | 0.299 |
| 3769.75 | 0.227 | 0.177 | 0.300 |

| DEPTH | VSH | PHIF | SW |
|---|---|---|---|
| 3770.00 | 0.202 | 0.187 | 0.285 |
| 3770.25 | 0.153 | 0.207 | 0.252 |
| 3770.50 | 0.169 | 0.201 | 0.233 |
| 3770.75 | 0.175 | 0.198 | 0.216 |
| 3771.00 | 0.192 | 0.205 | 0.203 |
| 3771.25 | 0.179 | 0.214 | 0.198 |
| 3771.50 | 0.169 | 0.221 | 0.184 |
| 3771.75 | 0.203 | 0.220 | 0.176 |
| 3772.00 | 0.204 | 0.213 | 0.184 |
| 3772.25 | 0.179 | 0.207 | 0.199 |
| 3772.50 | 0.165 | 0.207 | 0.209 |
| 3772.75 | 0.167 | 0.205 | 0.205 |
| 3773.00 | 0.176 | 0.187 | 0.201 |
| 3773.25 | 0.122 | 0.178 | 0.195 |
| 3773.50 | 0.076 | 0.184 | 0.194 |
| 3773.75 | 0.058 | 0.186 | 0.194 |
| 3774.00 | 0.034 | 0.191 | 0.185 |
| 3774.25 | 0.058 | 0.188 | 0.183 |
| 3774.50 | 0.100 | 0.173 | 0.195 |
| 3774.75 | 0.107 | 0.172 | 0.196 |
| 3775.00 | 0.074 | 0.183 | 0.195 |
| 3775.25 | 0.076 | 0.185 | 0.209 |
| 3775.50 | 0.113 | 0.179 | 0.213 |
| 3775.75 | 0.098 | 0.177 | 0.197 |
| 3776.00 | 0.047 | 0.189 | 0.181 |
| 3776.25 | 0.028 | 0.197 | 0.189 |
| 3776.50 | 0.034 | 0.205 | 0.191 |
| 3776.75 | 0.026 | 0.218 | 0.182 |
| 3777.00 | 0.029 | 0.195 | 0.208 |
| 3777.25 | 0.016 | 0.195 | 0.225 |
| 3777.50 | 0.013 | 0.212 | 0.235 |
| 3777.75 | 0.132 | 0.206 | 0.271 |
| 3778.00 | 0.334 | 0.161 | 0.342 |
| 3778.25 | 0.439 | 0.120 | 0.434 |
| 3778.50 | 0.432 | 0.123 | 0.434 |
| 3778.75 | 0.469 | 0.118 | 0.431 |
| 3779.00 | 0.501 | 0.114 | 0.427 |
| 3779.25 | 0.485 | 0.114 | 0.429 |

| DEPTH | VSH | PHIF | SW |
|---|---|---|---|
| 3779.50 | 0.491 | 0.107 | 0.445 |
| 3779.75 | 0.480 | 0.113 | 0.421 |
| 3780.00 | 0.471 | 0.121 | 0.417 |
| 3780.25 | 0.547 | 0.098 | 0.448 |
| 3780.50 | 0.590 | 0.091 | 0.453 |
| 3780.75 | 0.574 | 0.097 | 0.445 |
| 3781.00 | 0.565 | 0.098 | 0.445 |
| 3781.25 | 0.555 | 0.106 | 0.417 |
| 3781.50 | 0.551 | 0.103 | 0.414 |
| 3781.75 | 0.515 | 0.106 | 0.418 |
| 3782.00 | 0.515 | 0.088 | 0.439 |
| 3782.25 | 0.403 | 0.065 | 0.607 |
| 3782.50 | 0.381 | 0.086 | 0.560 |
| 3782.75 | 0.399 | 0.127 | 0.430 |
| 3783.00 | 0.387 | 0.147 | 0.397 |
| 3783.25 | 0.424 | 0.144 | 0.401 |
| 3783.50 | 0.430 | 0.136 | 0.431 |
| 3783.75 | 0.415 | 0.130 | 0.463 |
| 3784.00 | 0.467 | 0.103 | 0.507 |
| 3784.25 | 0.491 | 0.088 | 0.575 |
| 3784.50 | 0.468 | 0.102 | 0.537 |
| 3784.75 | 0.431 | 0.122 | 0.498 |
| 3785.00 | 0.479 | 0.117 | 0.507 |
| 3785.25 | 0.522 | 0.106 | 0.526 |
| 3785.50 | 0.515 | 0.093 | 0.581 |
| 3785.75 | 0.532 | 0.094 | 0.557 |
| 3786.00 | 0.516 | 0.099 | 0.536 |
| 3786.25 | 0.504 | 0.093 | 0.555 |
| 3786.50 | 0.473 | 0.112 | 0.493 |
| 3786.75 | 0.498 | 0.124 | 0.455 |
| 3787.00 | 0.468 | 0.127 | 0.477 |
| 3787.25 | 0.453 | 0.119 | 0.508 |
| 3787.50 | 0.446 | 0.103 | 0.550 |
| 3787.75 | 0.444 | 0.080 | 0.669 |
| 3788.00 | 0.456 | 0.078 | 0.687 |
| 3788.25 | 0.519 | 0.081 | 0.625 |
| 3788.50 | 0.548 | 0.068 | 0.681 |
| 3788.75 | 0.485 | 0.092 | 0.638 |

| DEPTH | VSH | PHIE | SW |
|---|---|---|---|
| 3789.00 | 0.468 | 0.119 | 0.522 |
| 3789.25 | 0.504 | 0.082 | 0.633 |
| 3789.50 | 0.517 | 0.073 | 0.690 |
| 3789.75 | 0.499 | 0.082 | 0.649 |
| 3790.00 | 0.443 | 0.087 | 0.652 |
| 3790.25 | 0.439 | 0.078 | 0.707 |
| 3790.50 | 0.422 | 0.099 | 0.612 |
| 3790.75 | 0.413 | 0.129 | 0.500 |
| 3791.00 | 0.333 | 0.164 | 0.426 |
| 3791.25 | 0.368 | 0.154 | 0.436 |
| 3791.50 | 0.453 | 0.109 | 0.549 |
| 3791.75 | 0.427 | 0.081 | 0.724 |
| 3792.00 | 0.460 | 0.057 | 0.875 |
| 3792.25 | 0.514 | 0.062 | 0.785 |
| 3792.50 | 0.588 | 0.043 | 0.806 |
| 3792.75 | 0.780 | 0.027 | 0.740 |
| 3793.00 | 0.696 | 0.027 | 0.881 |