



CORE LAB NORSK

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BERGEN NORWAY
Postboks 63—CCB

Statoil
Damgårdsgt. 131
P O Box 1212
N-5001 Bergen

Our Ref: NOR 830009

20 June 1983

Attention: Vidar Bergo Larsen

Gentlemen

Re: Conventional Core Analysis
Well: 30/3-3

During the latter half of May 1983, Core Laboratories Norsk performed conventional core analysis on core from Statoil Well 30/3-3. The results of these measurements are presented herein and serve to confirm previous preliminary data:

Firstly, a surface core Gamma log was run and then a set of summation of fluid porosity results were obtained, one per meter. Core plugs of one inch diameter were drilled parallel to the bedding, three per meter, then cleaned in hot refluxing solvents before being dried thoroughly. Horizontal and vertical permeabilities were measured (and corrected for Klinkenberg effect) as well as Helium injection porosities and grain densities.

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

Yours faithfully

Stephen Erskine
Laboratory Supervisor

CORE ANALYSIS REPORT

FOR

STATOIL

30/3-3

STATOIL
30/3-3

DATE : JUNE 1983
FORMATION :
DRLG. FLUID:
LOCATION :

FILE NO : NOR 830009
ANALYSTS : SE/TE/AF/TL
ELEVATION:

VERTICAL PERMEABILITY

| SAMPLE NUMBER | DEPTH | PERMEABILITY | | POROSITY | | FLUID SATS. | | GRAIN DEN | DESCRIPTION |
|---------------|---------|--------------|------|----------|------|-------------|------|-----------|-----------------------------------|
| | | KA | KL | GEX | FLD | OIL | WTR | | |
| CORE 1 | | | | | | | | | |
| 1 | 2979.08 | 0.08 | 0.05 | 12.8 | 13.8 | 0.0 | 65.2 | 2.68 | SS LT GY MOD IND CLY F GR W SRTD |
| 2 | 2979.35 | 0.08 | 0.05 | 14.1 | | | | 2.69 | AA |
| 3 | 2979.66 | 0.09 | 0.05 | 13.7 | | | | 2.69 | AA |
| 4 | 2980.00 | 0.15 | 0.09 | 14.8 | 11.5 | 0.0 | 71.3 | 2.68 | AA (EXCL LAM) |
| 5 | 2980.33 | | | | | | | | PRESERVED SAMPLE |
| 6 | 2980.60 | 0.06 | 0.03 | 10.7 | | | | 2.70 | SLST GY W IND CALC F GR W SRTD MI |
| 7 | 2981.02 | 0.03 | 0.02 | 7.8 | 11.4 | 0.0 | 71.1 | 2.70 | SLST DK GY W IND F GR W SRTD DNS |
| 8 | 2981.30 | 0.01 | 0.01 | 9.8 | | | | 2.69 | SLT-SH DK-GY W IND SIL F GR W SRT |
| 9 | 2981.65 | 0.16 | 0.10 | 13.8 | | | | 2.67 | SLST GY W IND SIL F GR W SRTD CAL |
| 10 | 2982.02 | 0.05 | 0.03 | 10.5 | 12.9 | 0.0 | 63.6 | 2.69 | SS GY W IND SIL F GR W SRTD MICA |
| 11 | 2982.36 | 0.03 | 0.02 | 7.3 | | | | 2.72 | SLST GY W IND CLY F GR W SRTD |
| 12 | 2982.66 | 0.08 | 0.05 | 13.8 | | | | 2.68 | SS GY W IND SIL F GR W SRTD DNS(L |
| 13 | 2983.00 | 0.19 | 0.12 | 13.1 | 17.1 | 0.0 | 66.7 | 2.67 | SS LT-GY MOD IND SIL F GR W SRTD |
| 14 | 2983.37 | 0.56 | 0.37 | 13.0 | | | | 2.57 | SS LT-GY MOD IND SIL F GR W SRTD(|
| 15 | 2983.66 | 0.83 | 0.56 | 18.5 | | | | 2.66 | SS LT-GY MOD IND SIL F GR W SRTD(|
| 16 | 2984.02 | 0.66 | 0.44 | 15.7 | 16.8 | 0.0 | 61.3 | 2.65 | AA |
| 17 | 2984.33 | | | | | | | | PRESERVED SAMPLE |
| 18 | 2984.64 | 0.27 | 0.17 | 16.8 | | | | 2.66 | AA |
| 19 | 2985.05 | 0.13 | 0.08 | 14.4 | 12.2 | 0.0 | 55.7 | 2.66 | AA (WITH SOM MICA LAM) |
| 20 | 2985.41 | 0.08 | 0.05 | 13.5 | | | | 2.67 | SS LT-GY MOD IND SIL+CLY F GR W S |
| 21 | 2985.63 | 1.23 | 0.85 | 14.6 | | | | 2.70 | AA+PY |
| 22 | 2986.00 | | | | 6.4 | 0.0 | 56.3 | | SILTSTONE |
| 23 | 2986.33 | | | | | | | | AA |
| 24 | 2986.66 | | | | | | | | AA |
| 25 | 2987.00 | | | | | | | | COAL |

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Petroleum Reservoir Engineering
LC ON BE EN

STATOIL
30/3-3

DATE : JUNE 1983
FORMATION :

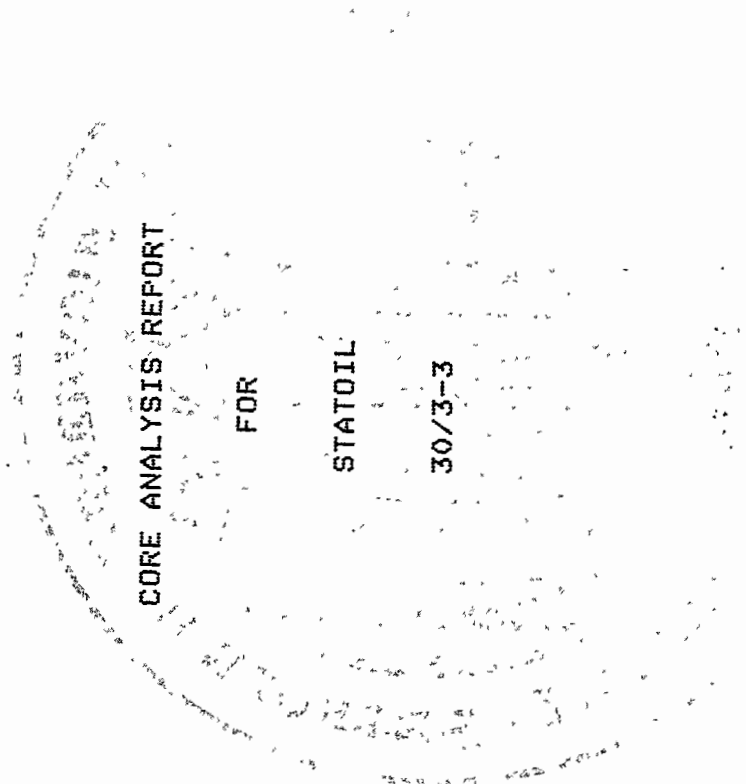
FILE NO : NDR 830009
ANALYSTS : SE/TE/AF/TL

VERTICAL PERMEABILITY

| SAMPLE NUMBER | DEPTH | PERMEABILITY KA | PERMEABILITY KL | FOROSITY GEX | FLD FLD | FLUID OIL | SATS. WTR | GRAIN DEN | DESCRIPTION |
|---------------|---------|-----------------|-----------------|--------------|---------|-----------|-----------|-----------|-----------------------------------|
| 26 | 2987.33 | | | | | | | | SILTSTONE |
| 27 | 2987.64 | 35. | 29. | 25.4 | | | | 2.67 | Q-SS WH MOD IND SIL M GR W SRTD F |
| 28 | 2988.00 | 44. | 38. | 20.7 | 23.8 | 0.0 | 86.1 | 2.66 | AA (NOT FY) |
| 29 | 2988.36 | 31. | 26. | 19.6 | | | | 2.66 | AA |
| 30 | 2988.59 | 1.01 | 0.69 | 14.1 | | | | 2.68 | AA +FY |
| 31 | 2989.00 | | | | | | | | SILTSTONE |
| 32 | 2989.36 | 0.08 | 0.05 | 6.6 | | | | 2.75 | SS GY W IND SIL+CLY F GR W SRTD F |
| 33 | 2989.64 | 0.08 | 0.05 | 6.0 | | | | 2.86 | SS GY W IND SIL+CLY F GR W SRTD M |
| 34 | 2990.00 | | | | | | | | SILTSTONE |
| 35 | 2990.33 | | | | | | | | AA |
| 36 | 2990.66 | | | | | | | | COAL |
| 37 | 2991.00 | | | | | | | | NO RECOVERY |
| 38 | 2991.33 | | | | | | | | NO RECOVERY |
| 39 | 2991.66 | | | | | | | | SILTSTONE |
| 40 | 2992.00 | | | | | | | | AA |
| 41 | 2992.33 | 0.14 | 0.08 | 4.8 | 7.5 | 0.0 | 76.0 | 2.73 | SLST GY W IND SIL+CLY F GR W SRTD |

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LONDON · ABERDEEN



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STATOIL
30/3-3

DATE : JUNE 1983
FORMATION :
DRLG. FLUID:
LOCATION :

FILE NO : NDR 830009
ANALYSTS : SE/TE/AF/TL
ELEVATION:

HORIZONTAL PERMEABILITY

| SAMPLE NUMBER | DEPTH | PERMEABILITY | | POROSITY | | FLUID SATS. | | GRAIN DEN | DESCRIPTION |
|---------------|---------|--------------|------|----------|------|-------------|------|-----------|-----------------------------------|
| | | KA | KL | GEX | FLD | OIL | WTR | | |
| CORE 1 | | | | | | | | | |
| 1 | 2979.08 | 0.30 | 0.19 | 12.8 | 13.8 | 0.0 | 65.2 | 2.68 | SS LT GY MOD IND CLY F GR W SRTD |
| 2 | 2979.35 | 0.33 | 0.21 | 14.1 | | | | 2.69 | AA |
| 3 | 2979.66 | 0.27 | 0.17 | 13.7 | | | | 2.69 | AA |
| 4 | 2980.00 | 0.38 | 0.24 | 14.8 | 11.5 | 0.0 | 71.3 | 2.68 | AA (EXCL LAM) |
| 5 | 2980.33 | | | | | | | | PRESERVED SAMPLE |
| 6 | 2980.60 | 0.08 | 0.05 | 10.7 | | | | 2.70 | SLST GY W IND CALC F GR W SRTD MI |
| 7 | 2981.02 | 0.25 | 0.16 | 7.8 | 11.4 | 0.0 | 71.1 | 2.70 | SLST DK GY W IND F GR W SRTD DNS |
| 8 | 2981.30 | 0.12 | 0.07 | 9.8 | | | | 2.69 | SLT-SH DK-GY W IND SIL F GR W SRT |
| 9 | 2981.65 | 0.37 | 0.24 | 13.8 | | | | 2.67 | SLST GY W IND SIL F GR W SRTD CAL |
| 10 | 2982.02 | 0.84 | 0.57 | 10.5 | 12.9 | 0.0 | 63.6 | 2.69 | SS GY W IND SIL F GR W SRTD MICA |
| 11 | 2982.36 | 0.02 | 0.01 | 7.3 | | | | 2.72 | SLST GY W IND CLY F GR W SRTD |
| 12 | 2982.66 | 0.44 | 0.28 | 13.8 | | | | 2.68 | SS GY W IND SIL F GR W SRTD DNS(L |
| 13 | 2983.00 | 0.51 | 0.33 | 13.1 | 17.1 | 0.0 | 66.7 | 2.67 | SS LT-GY MOD IND SIL F GR W SRTD |
| 14 | 2983.37 | 2.50 | 1.80 | 13.0 | | | | 2.57 | SS LT-GY MOD IND SIL F GR W SRTD< |
| 15 | 2983.66 | 1.40 | 0.97 | 18.5 | | | | 2.66 | SS LT-GY MOD IND SIL F GR W SRTD< |
| 16 | 2984.02 | 1.10 | 0.75 | 15.7 | 16.8 | 0.0 | 61.3 | 2.65 | AA |
| 17 | 2984.33 | | | | | | | | PRESERVED SAMPLE |
| 18 | 2984.64 | 0.89 | 0.60 | 16.8 | | | | 2.66 | AA |
| 19 | 2985.05 | 0.66 | 0.44 | 14.4 | 12.2 | 0.0 | 55.7 | 2.66 | AA (WITH SOM MICA LAM) |
| 20 | 2985.41 | 0.19 | 0.12 | 13.5 | | | | 2.67 | SS LT-GY MOD IND SIL+CLY F GR W S |
| 21 | 2985.63 | 0.25 | 0.16 | 14.6 | | | | 2.70 | AA+PY |
| 22 | 2986.00 | | | | 6.4 | 0.0 | 56.3 | | SILTSTONE |
| 23 | 2986.33 | | | | | | | | AA |
| 24 | 2986.66 | | | | | | | | AA |
| 25 | 2987.00 | | | | | | | | COAL |

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STATOIL
30/3-3

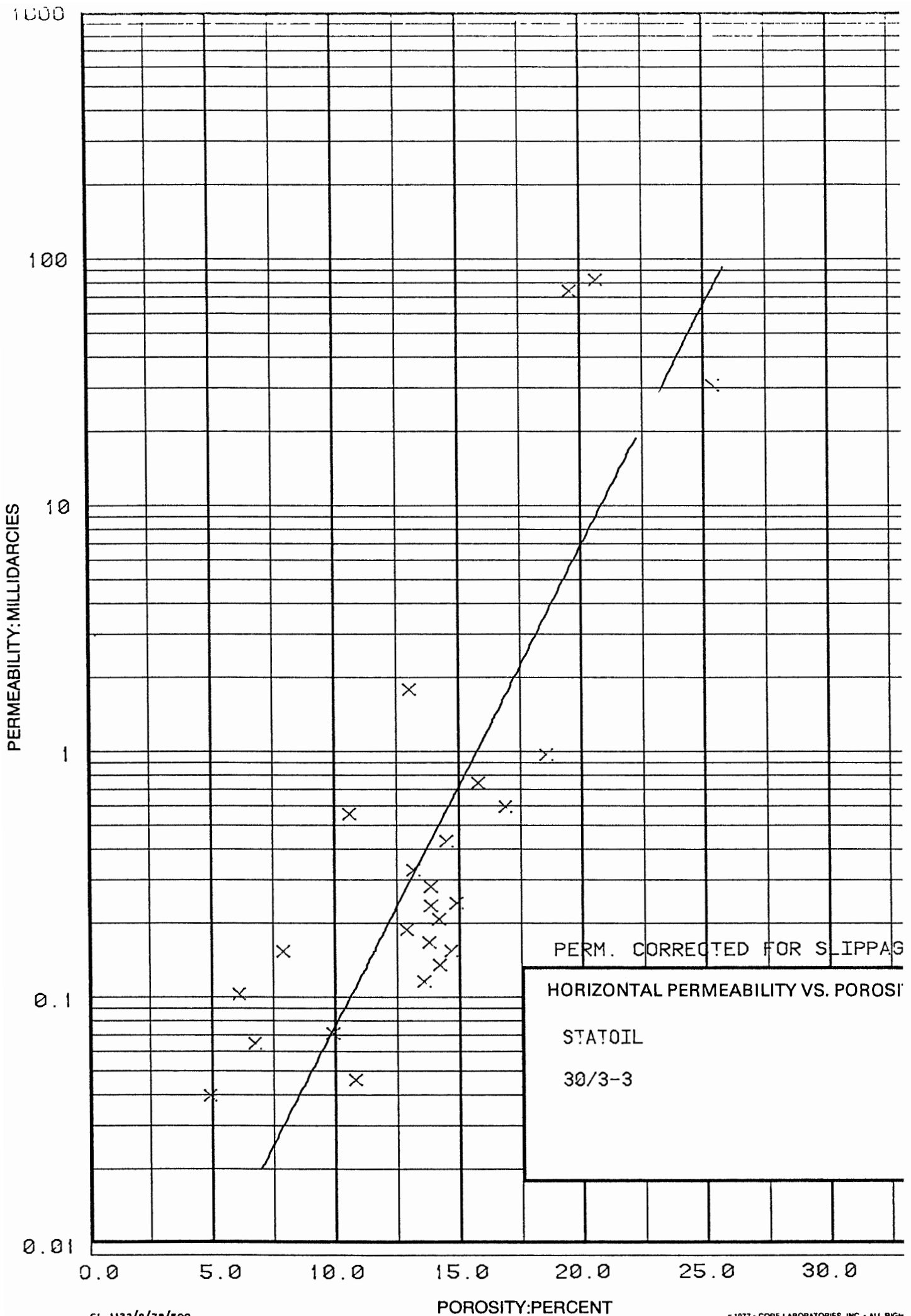
DATE : JUNE 1983
FORMATION :

FILE NO : NDR 830009
ANALYSTS : SE/TE/AF/TL

HORIZONTAL PERMEABILITY

| SAMPLE NUMBER | DEPTH | PERMEABILITY | | POROSITY | | FLUID SATS. | | GRAIN DEN | | DESCRIPTION |
|---------------|---------|--------------|------|----------|------|-------------|------|-----------|-----|-----------------------------------|
| | | KA | KL | GEX | FLD | OIL | WTR | | DEN | |
| 26 | 2987.33 | | | | | | | | | SILTSTONE |
| 27 | 2987.64 | 36. | 30. | 25.4 | | | | 2.67 | | Q-SS WH MOD IND SIL M GR W SRTD P |
| 28 | 2988.00 | 92. | 82. | 20.7 | 23.8 | 0.0 | 86.1 | 2.66 | | AA (NOT FY) |
| 29 | 2988.36 | 83. | 74. | 19.6 | | | | 2.66 | | AA |
| 30 | 2988.59 | 0.22 | 0.14 | 14.1 | | | | 2.68 | | AA +PY |
| 31 | 2989.00 | | | | | | | | | SILTSTONE |
| 32 | 2989.36 | 0.11 | 0.07 | 6.6 | | | | 2.75 | | SS GY W IND SIL+CLY F GR W SRTD P |
| 33 | 2989.64 | 0.17 | 0.10 | 6.0 | | | | 2.86 | | SS GY W IND SIL+CLY F GR W SRTD M |
| 34 | 2990.00 | | | | | | | | | SILTSTONE |
| 35 | 2990.33 | | | | | | | | | AA |
| 36 | 2990.66 | | | | | | | | | COAL |
| 37 | 2991.00 | | | | | | | | | NO RECOVERY |
| 38 | 2991.33 | | | | | | | | | NO RECOVERY |
| 39 | 2991.66 | | | | | | | | | SILTSTONE |
| 40 | 2992.00 | | | | | 7.5 | 0.0 | 76.0 | | AA |
| 41 | 2992.33 | 0.07 | 0.04 | 4.8 | | | | 2.73 | | SLST GY W IND SIL+CLY F GR W SRTD |

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PERMEABILITY VS POROSITY

COMPANY: STATOIL
 FIELD :

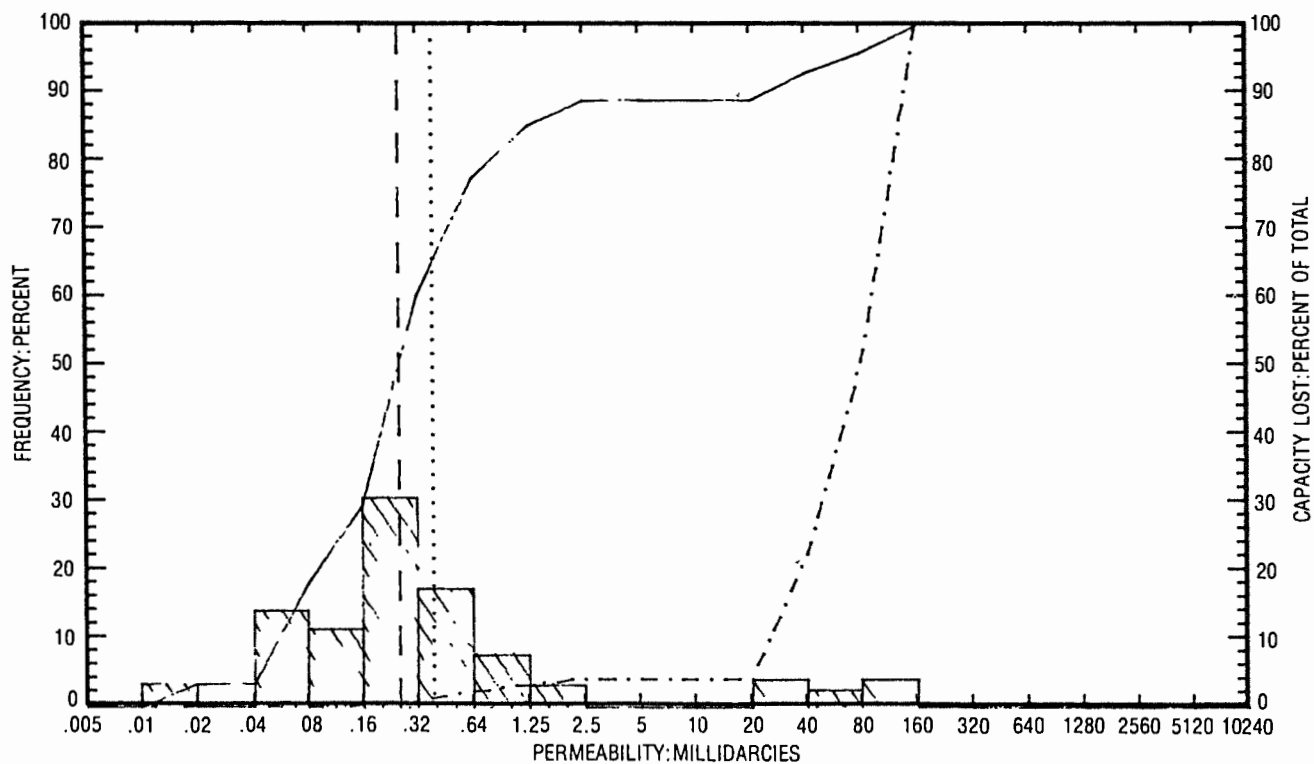
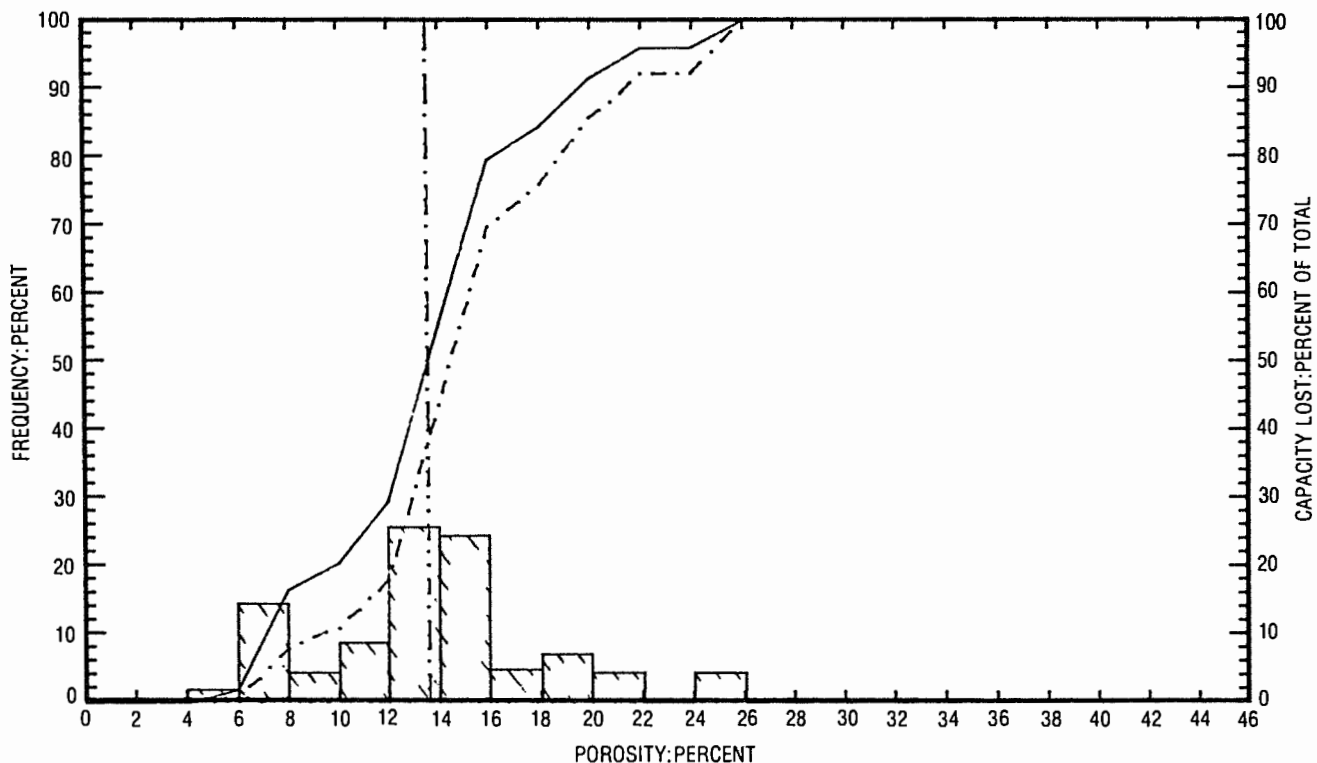
WELL : 30/3-3
 COUNTY, STATE:

AIR PERMEABILITY : MD - HORIZONTAL (CORRECTED FOR SLIPPAGE)
 POROSITY : PERCENT (HELIUM)

| DEPTH INTERVAL | RANGE & SYMBOL | PERMEABILITY MINIMUM MAXIMUM | POROSITY MIN. MAX. | POROSITY AVERAGE | PERMEABILITY AVERAGES ARITHMETIC HARMONIC GEOMETRIC |
|-------------------|-------------------|---------------------------------|-----------------------|---------------------|--|
| 2979.0 - 2992.5 | 1 (X) | 0.020 92.0 | 4.8 25.4 | 13.8 | 7.4 0.17 0.43 |

EQUATION OF REDUCED LINE RELATING PERMEABILITY(K) TO POROSITY :
 $\text{LOG}(K) = (\text{SLOPE})(\text{POROSITY}) + \text{LOG OF INTERCEPT}$
 $K = \text{ANTILOG}((\text{SLOPE})(\text{POROSITY}) + \text{LOG OF INTERCEPT})$

RANGE EQUATION OF THE LINE
 1 PERM = ANTILOG((0.19226)(POROSITY) + -3.0186)



HORIZONTAL PERMEABILITY AND POROSITY HISTOGRAMS

STATOIL
30/3-3

LEGEND

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

STATISTICAL DATA FOR POROSITY AND PERMEABILITY HISTOGRAM

COMPANY: STATOIL
 FIELD :

WELL : 30/3-3
 COUNTY, STATE:

AIR PERMEABILITY : MD. (HORIZONTAL) RANGE USED 0.005 TO 10240.
 POROSITY : PERCENT (HELIUM) RANGE USED 0.0 TO 46.0

(PERMEABILITY CORRECTED FOR SLIPPAGE)

DEPTH LIMITS : 2979.0 - 2992.5 INTERVAL LENGTH : 13.5
 MTRS ANALYZED IN ZONE : 13.4 LITHOLOGY EXCLUDED : NONE

DATA SUMMARY

| | |
|----------|-------------------------------|
| POROSITY | PERMEABILITY AVERAGES |
| AVERAGE | ARITHMETIC HARMONIC GEOMETRIC |
| ----- | ----- |
| 13.6 | 7.1 0.11 0.38 |

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STATISTICAL DATA FOR POROSITY AND PERMEABILITY HISTOGRAM

COMPANY: STATOIL
FIELD :

WELL : 30/3-3
COUNTY, STATE:

GROUPING BY POROSITY RANGES

| FOROSITY RANGE | MTRS IN RANGE | AVERAGE POROSITY | AVERAGE PERM. (GEOM.) | AVERAGE PERM. (ARITH) | FREQUENCY (PERCENT) | CUMULATIVE FREQUENCY (%) |
|----------------|---------------|------------------|-----------------------|-----------------------|---------------------|--------------------------|
| 4.0 - 6.0 | 0.2 | 4.8 | 0.041 | 0.041 | 2.0 | 2.0 |
| 6.0 - 8.0 | 1.2 | 6.9 | 0.060 | 0.086 | 14.3 | 16.3 |
| 8.0 - 10.0 | 0.4 | 9.8 | 0.073 | 0.073 | 4.1 | 20.4 |
| 10.0 - 12.0 | 0.8 | 10.6 | 0.145 | 0.283 | 8.9 | 29.4 |
| 12.0 - 14.0 | 2.2 | 13.4 | 0.295 | 0.444 | 25.8 | 55.2 |
| 14.0 - 16.0 | 2.1 | 14.6 | 0.261 | 0.316 | 24.6 | 79.8 |
| 16.0 - 18.0 | 0.4 | 16.8 | 0.610 | 0.610 | 4.8 | 84.6 |
| 18.0 - 20.0 | 0.6 | 18.9 | 5.3 | 30. | 6.9 | 91.5 |
| 20.0 - 22.0 | 0.4 | 20.7 | 83. | 83. | 4.2 | 95.8 |
| 24.0 - 26.0 | 0.4 | 25.4 | 31. | 31. | 4.2 | 100.0 |

TOTAL NUMBER OF MTRS = 8.5

STATISTICAL DATA FOR POROSITY AND PERMEABILITY HISTOGRAM

COMPANY: STATOIL
FIELD :

WELL : 30/3-3
COUNTY, STATE:

GROUPING BY PERMEABILITY RANGES

| PERMEABILITY RANGE | MTRS IN RANGE | AVERAGE PERM. (GEOM.) | AVERAGE PERM. (ARITH) | AVERAGE POROSITY | FREQUENCY (PERCENT) | CUMULATIVE FREQUENCY (%) |
|--------------------|---------------|-----------------------|-----------------------|------------------|---------------------|--------------------------|
| 0.010 - 0.020 | 0.3 | 0.011 | 0.011 | 7.3 | 3.5 | 3.5 |
| 0.039 - 0.078 | 1.2 | 0.057 | 0.058 | 8.7 | 14.3 | 17.9 |
| 0.078 - 0.156 | 1.0 | 0.121 | 0.122 | 11.0 | 11.6 | 29.5 |
| 0.156 - 0.312 | 2.6 | 0.206 | 0.210 | 13.3 | 30.7 | 60.2 |
| 0.312 - 0.625 | 1.5 | 0.480 | 0.493 | 13.8 | 17.4 | 77.6 |
| 0.625 - 1.250 | 0.7 | 0.876 | 0.883 | 17.2 | 7.9 | 85.4 |
| 1.250 - 2.500 | 0.3 | 1.8 | 1.8 | 13.0 | 3.4 | 88.8 |
| 20.- 40. | 0.4 | 31. | 31. | 25.4 | 4.2 | 93.1 |
| 40.- 80. | 0.2 | 74. | 74. | 19.6 | 2.7 | 95.8 |
| 80.- 160. | 0.4 | 83. | 83. | 20.7 | 4.2 | 100.0 |

TOTAL NUMBER OF MTRS = 8.5

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STATISTICAL DATA FOR POROSITY AND PERMEABILITY HISTOGRAM

COMPANY: STATOIL
 FIELD :

WELL : 30/3-3
 COUNTY, STATE:

POROSITY. MTRS OF STORAGE CAPACITY LOST FOR SELECTED POROSITY CUT OFF

| POROSITY CUT OFF | MTRS LOST | CAPACITY LOST (%) | MTRS REMAINING | CAPACITY REMAINING (%) | ARITH MEAN | MEDIAN |
|------------------|-----------|-------------------|----------------|------------------------|------------|--------|
| 0.0 | 0.0 | 0.0 | 8.5 | 100.0 | 13.6 | 13.6 |
| 2.0 | 0.0 | 0.0 | 8.5 | 100.0 | 13.6 | 13.6 |
| 4.0 | 0.0 | 0.0 | 8.5 | 100.0 | 13.6 | 13.6 |
| 6.0 | 0.2 | 0.7 | 8.3 | 99.3 | 13.7 | 13.7 |
| 8.0 | 1.4 | 8.0 | 7.1 | 92.0 | 14.9 | 14.2 |
| 10.0 | 1.7 | 10.9 | 6.8 | 89.1 | 15.2 | 14.4 |
| 12.0 | 2.5 | 17.9 | 6.0 | 82.1 | 15.7 | 14.8 |
| 14.0 | 4.7 | 43.5 | 3.8 | 56.5 | 17.1 | |
| 16.0 | 6.8 | 70.0 | 1.7 | 30.0 | 20.1 | 19.5 |
| 18.0 | 7.2 | 75.9 | 1.3 | 24.1 | 21.2 | 20.4 |
| 20.0 | 7.8 | 85.6 | 0.7 | 14.4 | 23.0 | 22.0 |
| 22.0 | 8.2 | 92.1 | 0.4 | 7.9 | 25.4 | |
| 24.0 | 8.2 | 92.1 | 0.4 | 7.9 | 25.4 | |
| 26.0 | 8.5 | 100.0 | 0.0 | 0.0 | | |

TOTAL STORAGE CAPACITY IN POROSITY-MTRS = 115.4

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STATISTICAL DATA FOR POROSITY AND PERMEABILITY HISTOGRAM

COMPANY: STATOIL
 FIELD :

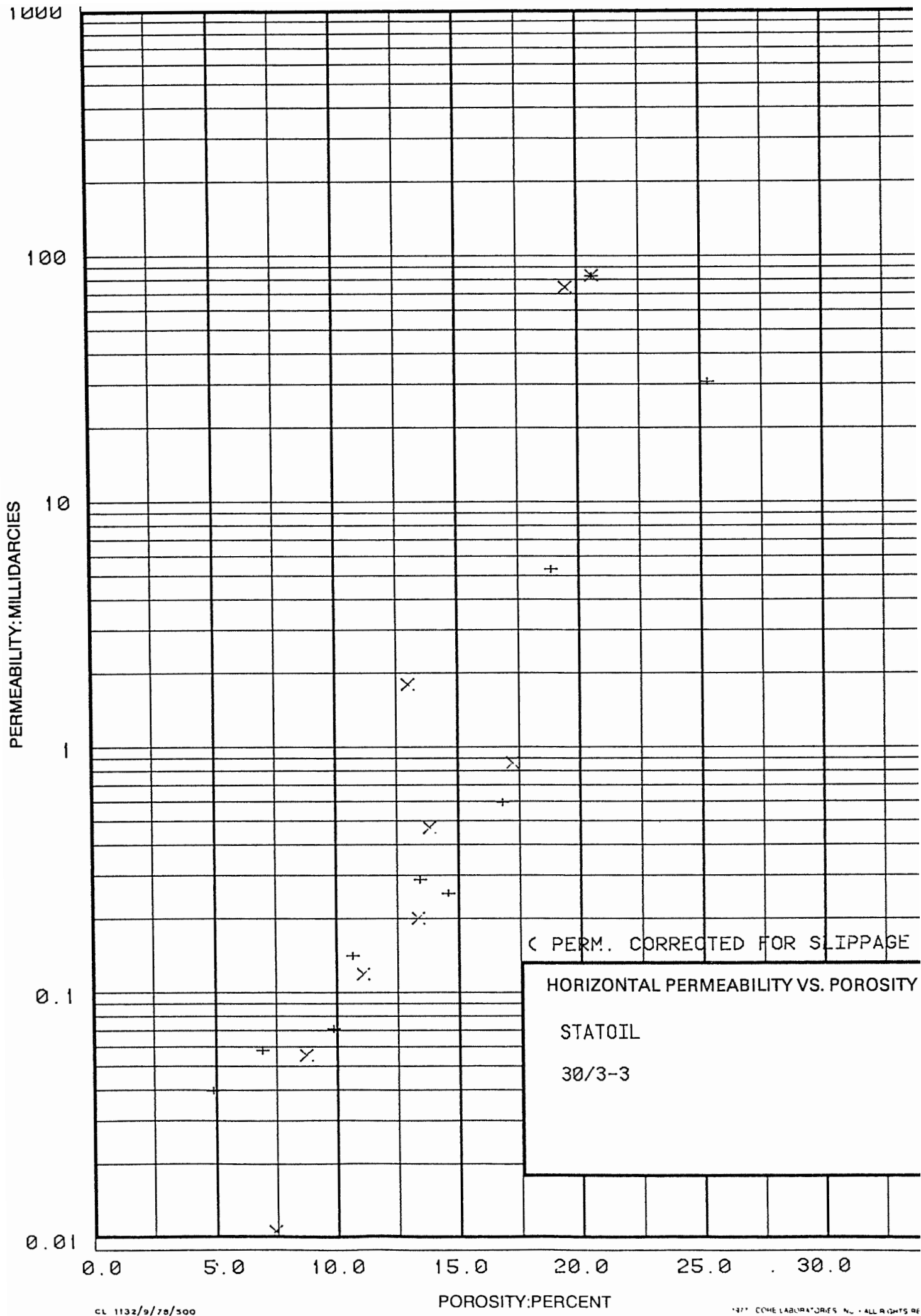
WELL : 30/3-3
 COUNTY, STATE:

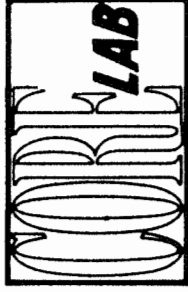
MILLIDARCY-MTRS OF FLOW CAPACITY LOST FOR SELECTED PERMEABILITY CUT OFF

| PERMEABILITY CUT OFF | MTRS LOST | CAPACITY LOST (%) | MTRS REMAINING | CAPACITY REMAINING (%) | GEOM MEAN | MEDIAN |
|-------------------------|--------------|----------------------|-------------------|---------------------------|--------------|--------|
| 0.005 | 0.0 | 0.0 | 8.5 | 100.0 | 0.38 | 0.25 |
| 0.010 | 0.0 | 0.0 | 8.5 | 100.0 | 0.38 | 0.25 |
| 0.020 | 0.3 | 0.0 | 8.2 | 100.0 | 0.43 | 0.26 |
| 0.039 | 0.3 | 0.0 | 8.2 | 100.0 | 0.43 | 0.26 |
| 0.078 | 1.5 | 0.1 | 7.0 | 99.9 | 0.61 | 0.30 |
| 0.156 | 2.5 | 0.3 | 6.0 | 99.7 | 0.80 | 0.38 |
| 0.312 | 5.1 | 1.2 | 3.4 | 98.8 | 2.29 | 0.78 |
| 0.625 | 6.6 | 2.4 | 1.9 | 97.6 | 7.70 | 2.47 |
| 1.250 | 7.3 | 3.4 | 1.2 | 96.6 | 24.93 | 37.76 |
| 2.500 | 7.6 | 4.3 | 1.0 | 95.7 | 55.40 | 56.57 |
| 5. | 7.6 | 4.3 | 1.0 | 95.7 | 55.40 | 56.57 |
| 10. | 7.6 | 4.3 | 1.0 | 95.7 | 55.40 | 56.57 |
| 20. | 7.6 | 4.3 | 1.0 | 95.7 | 55.40 | 56.57 |
| 40. | 7.9 | 22.5 | 0.6 | 77.5 | 79.44 | 56.57 |
| 80. | 8.2 | 50.8 | 0.4 | 49.2 | 82.89 | 90.65 |
| 160. | 8.5 | 100.0 | 0.0 | 0.0 | | |

TOTAL FLOW CAPACITY IN MILLIDARCY MTRS (ARITHMETIC) = 60.61

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 U K Ltd. (all errors and omissions excepted); but Core Laboratories U K Ltd. 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.





CORE LABORATORIES UK LTD.

Petroleum Reservoir Engineering

COMPANY STATOIL FIELD FILE NOR 830009
WELL 30/3 - 3 COUNTY DATE JUNE 1983
LOCATION STATE ELEV.

CORE GRAPH

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VERTICAL SCALE: 1 : 200

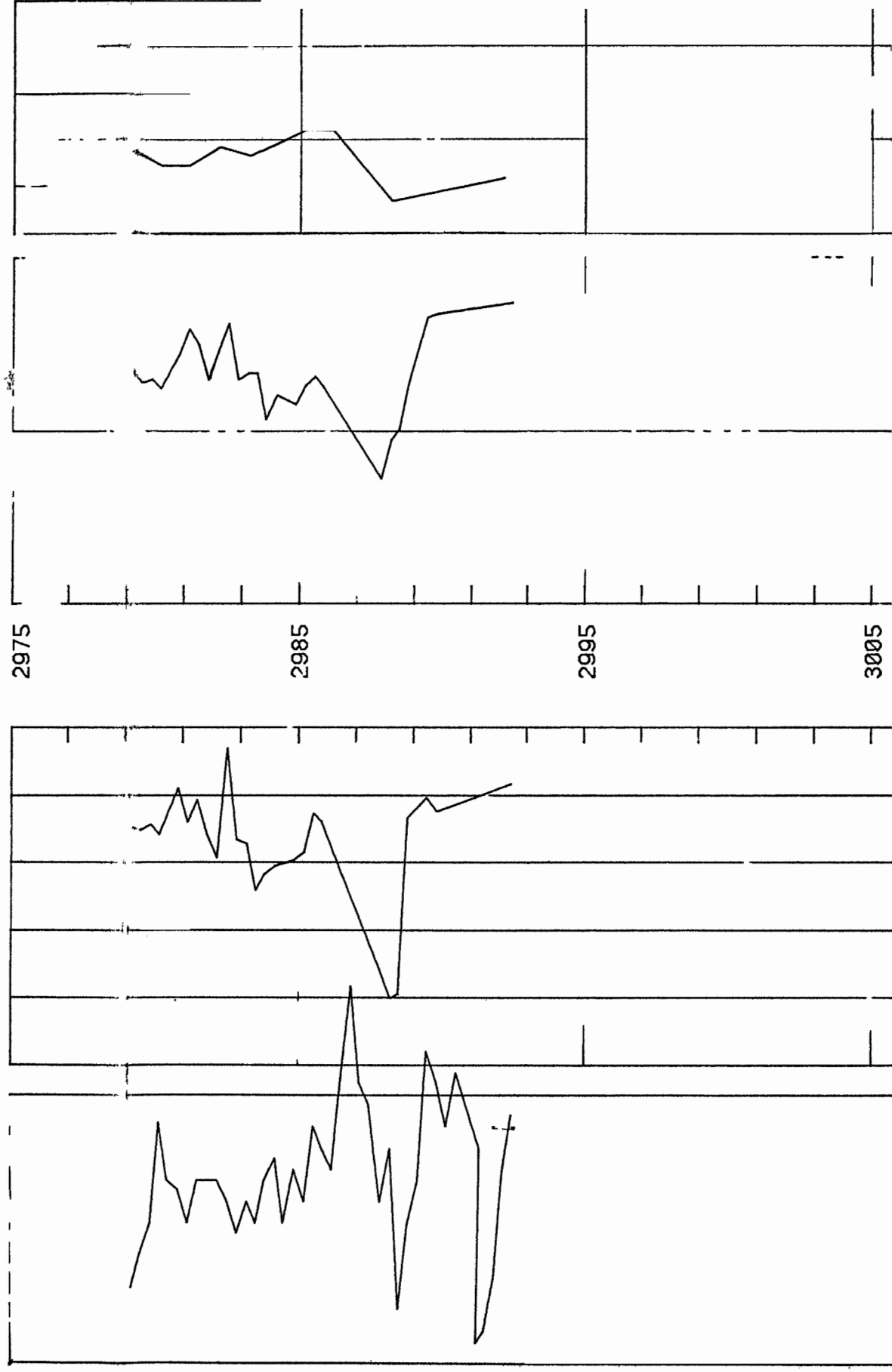
GAMMA RAY RADIATION INCREASE →

PERMEABILITY MILLIDARCYS

POROSITY PERCENT

TOTAL WATER 0000 PERCENT PORE SPACE

OIL SATURATION XXXX PERCENT PORE SPACE



PLOTS AND STATISTICS

(a) Core Graph

Gamma radiation, permeability (horizontal, vertical or both), helium or fluid summation porosity, oil saturation and water saturation are plotted versus depth on a 1:200 scale and other scales if required.

(b) Permeability Versus Porosity Plot

One statistical page accompanies this plot. Averages are for all data points within the depth interval shown, even if some data points are shown off the top or bottom of the graph grid. Both permeability and porosity scales can be optionally chosen. As standard, the permeability versus porosity plot will include all poro-perm pairs of data measured from the core submitted. Optionally, plots for specific depth intervals or for specific permeability ranges may be requested. A best fit line is included in this plot.

(c) Histograms

Accompanying the histogram page are five pages of statistical data and a permeability versus porosity range plot. Helium porosity is used as standard.

Note that in the permeability histogram, 10240 millidarcies is the upper limit, and the subsequent permeability averages (page 1) will reflect this (however, there is no upper permeability limit when permeability averages are calculated from the permeability versus porosity plot, q.v.)

"Feet (or metres) analyzed in zone" (page 1) is the total length of the cores.

"Total number of feet (or metres) (page 2) is the total of the sample intervals for which a permeability/porosity pair of data was measured. Each sample interval to be from the whole foot mark (25 cm. mark for metric clients) to the next, irrespective of the exact point where the plug was drilled within that foot (25 cm.) interval.

The permeability versus porosity range plot is the one without the best-fit line.

Symbol "+" plots the arithmetic averages of the porosities in each porosity group (top histogram) versus the geometric average of the corresponding permeabilities of each sample in the porosity group. Symbol "x" plots the geometric average of the permeabilities in each permeability group (bottom histogram) versus the arithmetic average of the corresponding porosities of each sample in the permeability group. Again, permeability and porosity scales are optional.

Finally, multiple wells may be processed together in the above manner, using any depth intervals required from each well.