L-222 725.1

statoil

29 FEB. 1980
REGISTRERT
OLJEDIREKTORATET

PETROPHYSICAL EVALUATION
WELL 34/10-4

BY: PETROLEUM ENGINEERING
PETROPHYSICAL GROUP

JANUARY 1980

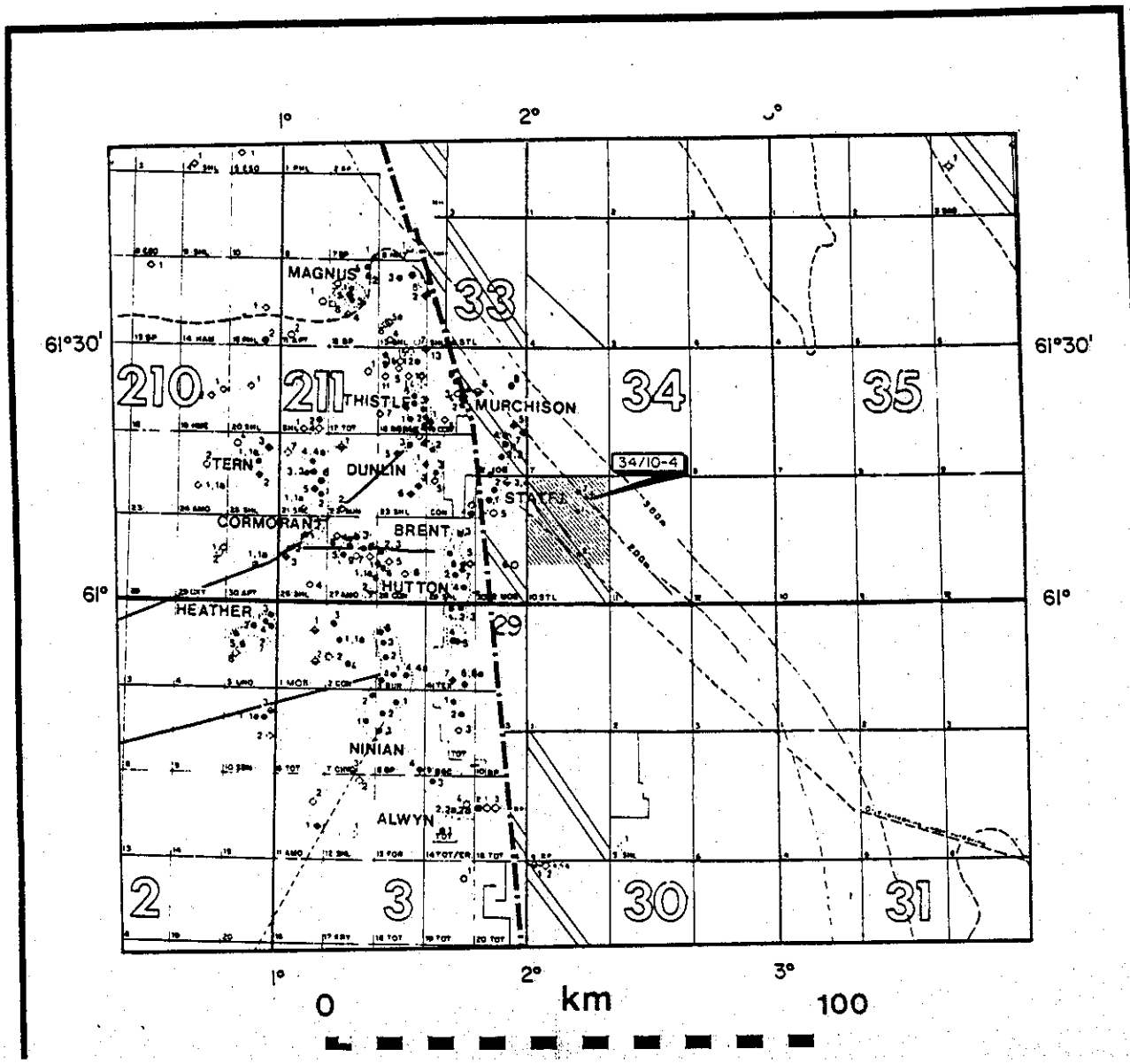
ENG: J. RAFDAL

CONTENTS

GENERAL WELL DATA

NORWAY OFFSHORE

Licence	:	050
Wildcat well	:	34/10-4
Location	:	61°12'15.12"N
		02°13'55.73"E
Spudded	:	12 aug. 1979
Rig released	:	17 oct. 1979
KB-elevation	:	25 m
Water depth	:	197 m
Total depth	:	2600 m
Objective	:	Jurassic sandstone
Operator	:	Statoil
Partners	:	Norsk Hydro, Saga Petroleum
Status	:	Plugged and abandonned



INTRODUCTION

This is the third well drilled on the 34/10 delta structure. The primary objective was to test the Jurassic formations for hydrocarbon accumulations. This report will evaluate the petrophysical parameters of the reservoir sections encountered, using electrical logs, core data and formation tests.

SUMMARY

Two hydrocarbonbearing zones were penetrated in this well, Eocene (1292 - 1307 m) and Brent (1816 - 1916 m)
Statfjord formation (2350 - 2481 m) is waterbearing.

"Eocene pay" contain 8.25 m of pay with average porosity of 34.4% and average watersaturation of 38.5 %.The type of fluid can not be determined.

Brent formation contain 81 m of pay with an average porisity of 32.4% and average watersaturation of 12.7 %. Statfjord formations contains 63 m net sand with an average porosity of 23.3 %

LITHOLOGY

Eocene formation (1290 - 1300 m) consist of interbedded shale/sand. The logs are from a 17 ½" hole and only ISF/SONIC and FDC/GR is availabel. This makes it difficult to exactly define the lithology and fluids present.

Brent (1816 - 1916) is devided into three zones.
Tarbert (1816 - 1821), Rannoch (1821 - 1905), and Broom (1905 - 1916).
Tarbert consists of a shaly sand in between two siderite zones. Rannoch consists of fairly clean sandstone in a fining downwards sequence. Rannoch have excellent reservoir properties. Some calcareous cemented streaks are present. Broom consists of interbedded sand/shale with some caclareous cemented streaks.

Statfjord formation (2340 - 2481 m) consists of interbedded sand and shale.

Log quality

The logs are of general good quality. FDC/CNL has been shifted relatively to ISF/SONIC in the interval 2395 to 2485 m to depth match the two logs.

INPUT PARAMETERS

The input parameters have been picked from crossplots, measured data and empirical relations.

SHALE PARAMETERS

	ρ_{bsh}	ϕ_{NSH}	Δt SH	GR min	GR max	RSH	R_{TLIM}
Eocene	2.03		130	32	70	0.9	
Brent	2.35	.45	120	39	85	1.5	200
Statfjord	2.42	.45	100	30	95	2.0	

TEMPERATURE

The following temperatures have been used in the evaluation and have been assumed constant within the zone used:

Eocene : 130°F
Brent : 160°F
Statfjord : 180°F

MUD PROPERTIES

Eocene	Rmf = 0.264 Ωm@	62°F	0.13 Ωm@	130°F
Brent	Rmf = 0.22 Ωm@	60°F	0.097 Ωm@	160°F
Statfjord	Rmf = 0.25 Ωm@	63°F	0.09 Ωm@	180°F

FORMATION WATER RESISTIVITY

Two DST's have produced water in this block:

WELL	STRUCTURE	FORMATION	WATER SALINITY
34/10-3	Delta	Brent	43200 ppm NaCl
34/10-2	Alpha	Statfjord	45400 ppm NaCl

The SP-log indicates the salinity in 34/10-3/Statfjord fm. to be in the order of 45000 ppm NaCl. 45000 NaCl has been used in this report for both Statfjord and Brent formation.

Eocene formation : From SP : +30000 ppm NaCl. This gives the following resistivities at reservoir cond.

Eocene : 0.119 Ω m
Brent : 0.075 Ω m
Statfjord : 0.063 Ω m

RESISTIVITY

Eocene : ILd has been used uncorrected for R_T

Brent : DLL is used. RMSFL (RXO) was corrected in the following way according to chart RXO-2 (schl.chart book)=

Interval	RXO = C * RMSFL
1820 - 1829	0.9* RMSFL
1829 - 1843	0.85*RMSFL
1843 - 1858	0.90*RMSFL
1858 - 1920	0.83*RMSFL

Rmc = 0.5 Ωm
@ res.cond

RLLD has been corrected according to chart Rint-9, and used as R_T.

Statfjord : ILd was used uncorrected as R_T.

HYDROCARBON DENSITY

The hydrocarbon density has been picked from RFT-pressure plot which gives a value of = 0.785 gm/cc.

COMPUTATIONS

Shale volume

Gamma-Ray, FDC/CNL and Resistivity (R_T) have been used in the following zones:

Formation	Indicators
Eocene	GR
Brent	GR, FDC/CNL, R_T
Statfjord	GR, FDC/CNL

Where several indicators have been used, the minimum values has been used for VSH.

POROSITY

In Eocene, the FDC (denisty) has been used to compute porosity. Matrix density = 2.65 and fluid density = 1.0 was used.

In Brent and Statfjord formations a complex lithology method using density and neutron logs was used with the following matrix parameters :

		FDC	CNL
Quartz	:	2.65	, -0.035
Heavy mineral	:	2.9	, .25
Fluid	:	1.0	, 1.0

FORMATION FACTOR

Humbles relation was used in Eocene and Statfjord formations. In Brent formation the following relationship has been used:

$$F = \phi^{-2} \qquad \text{(from core measurements)}$$

SATURATION EXPONENT

In Brent formation core measurements indicates the value of n to be in the order of 1.95 (average). In Eocene and Statfjord n = 2.0 was used.

CORING SUMMARY

Five cores were cut in the Brent section. Correlation between logs and coredata give this depth raltionship:

depth log = Depth core - $\sim$ 4.5 m

WATERSAURATION

The Nigeria-equation (Schlumberger) has been used for calculations of the water saturation.

Nigeria Equation:

$$\frac{1}{R_T} = \frac{(Vclay)^C \, Sw}{Rclay} + \frac{\phi^m \, Sw^n}{aRw}$$

where:

R_T	=	Resistivity of virgin zone
Sw	=	Watersaturation
Rclay	=	Resistivity of clay (Rsh)
C	=	Vclay-exponent (1.6 used)
Ø	=	Porosity
a	=	Lithology factor
Rw	=	Formation water resistivity
m	=	Cementation exponent
n	=	Saturation exponent

COPMARISON BETWEEN LOG & CORE POROSITIES

Comparison between log and core porositis have been performed in the interval 1822 - 1887 after shifting the core data to the CPI:

Average porosity from cores	: 35.9 %
" " " logs	: 33.9 %
Ratio log/core	: 0.946 %

This ratio is in the same order of amgnitude as maeasurments performed on cores under overburden conditions (0.95 - 0.98)

TESTING SUMMARY

Two zones were tested in this well: The table below lists a brief summary of the tests:

	DST 1A	DST 2
Interval	1880 - 1885	1884 - 1826
Choke size	20/64"	20 + 32/64"
Production	1800 STBO/D	5100 STBO/D
Remarks	No sand	No sand

34/10-4 RESULTS TABLE PETROPHYSICAL PARAMETERS

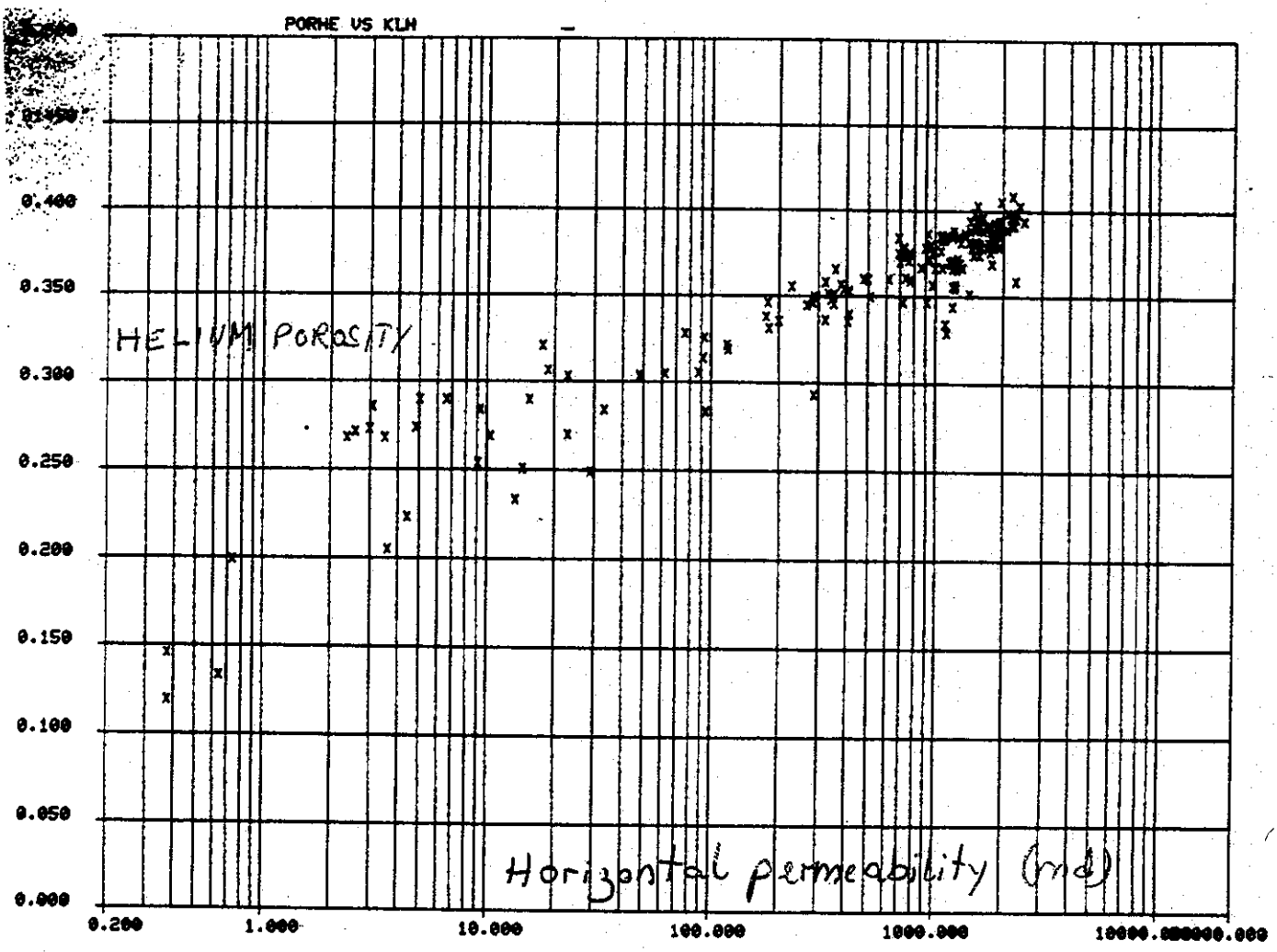
FORMATION	INTERVAL	THICKNESS NET SAND / NET PAY	AVERAGE POROSITY NET SAND / NET PAY	AVERAGE WATER-SATURATION NET SAND / NET PAY	NET/GROSS RATIO NET SAND / GROSS SAND
"Eocene Pay"	1290 - 1310	14.25 / 8.25	34.1 / 34.4	61.5 / 38.5	.75 / .41
Tarbert	1816 - 1821	2.25 / 1.75	20.8 / 20.5	45.1 / 37.8	.45 / .35
Rannoch	1821 - 1905	79.0	32.7	12.3	.94
Broom	1905 - 1916	2.5 / 0.25	19.1 / 16.9	74.9 / 63.3	.23 / .02
Total Brent	1816 - 1916	81	32.4	12.7	.81
Statfjord	2340 - 2481	63	23.3	1.0	.45

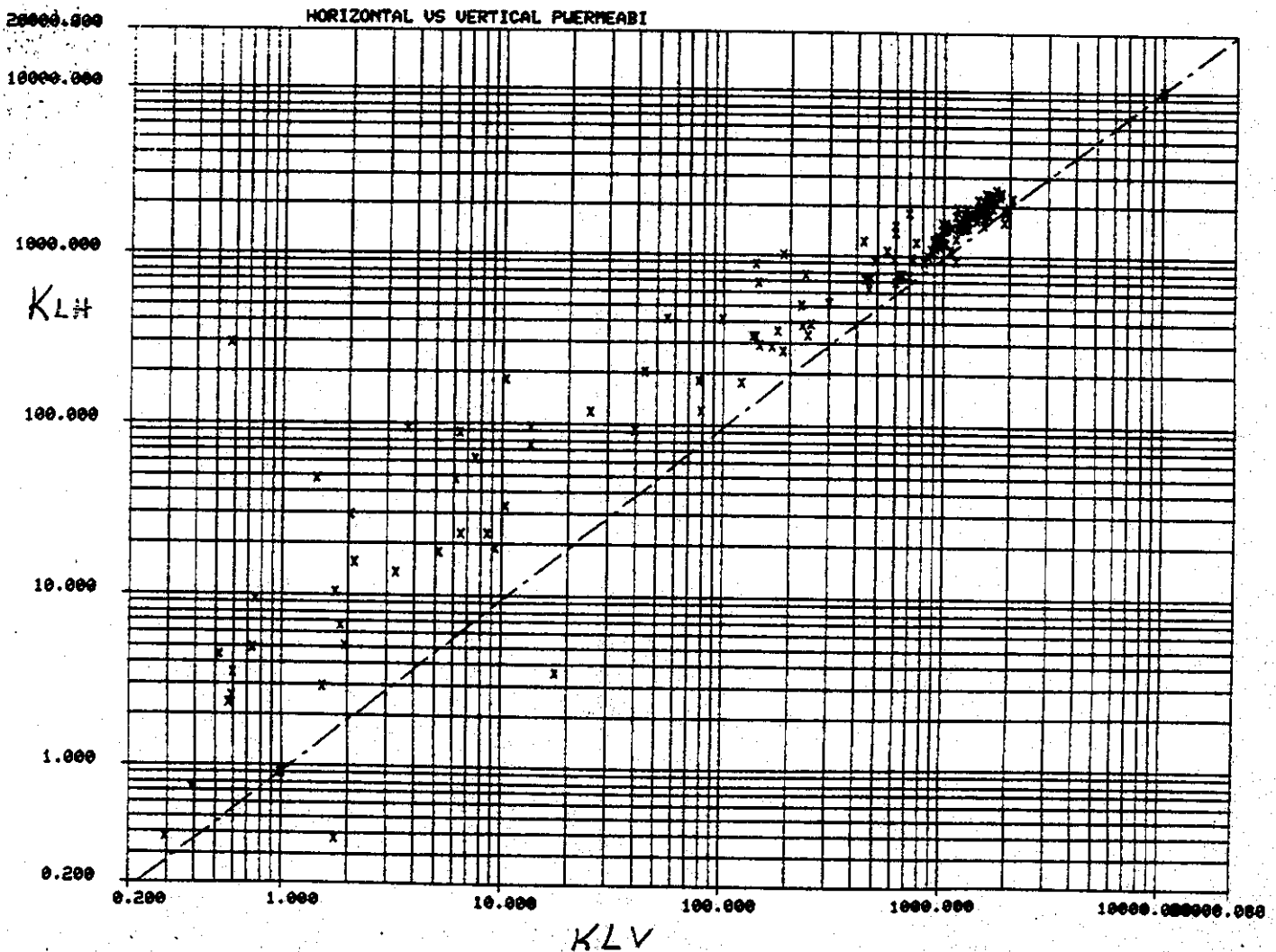
CUT-OFF CRITERION

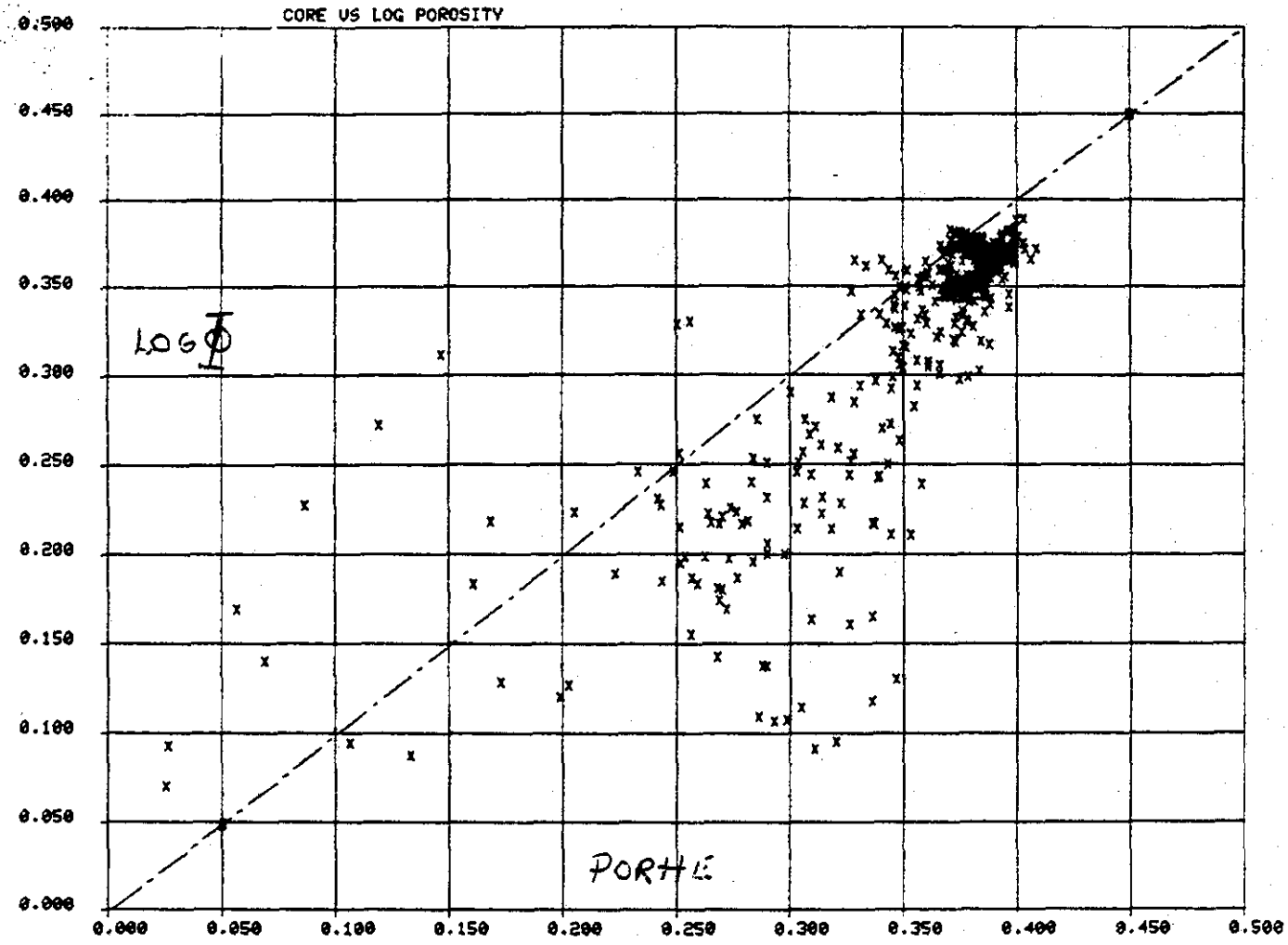
VSH > 40 %
SW > 65 %
Ø < 12 %
Thickness < 1 m

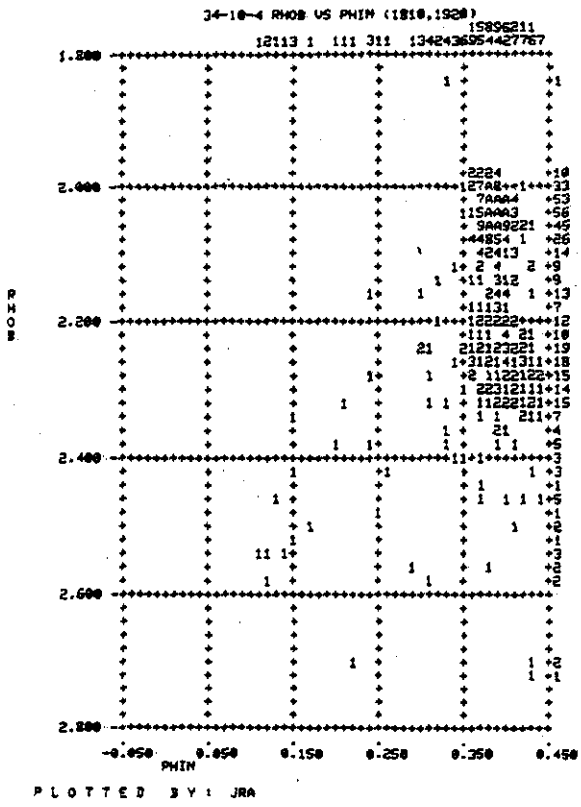
APPENDIX

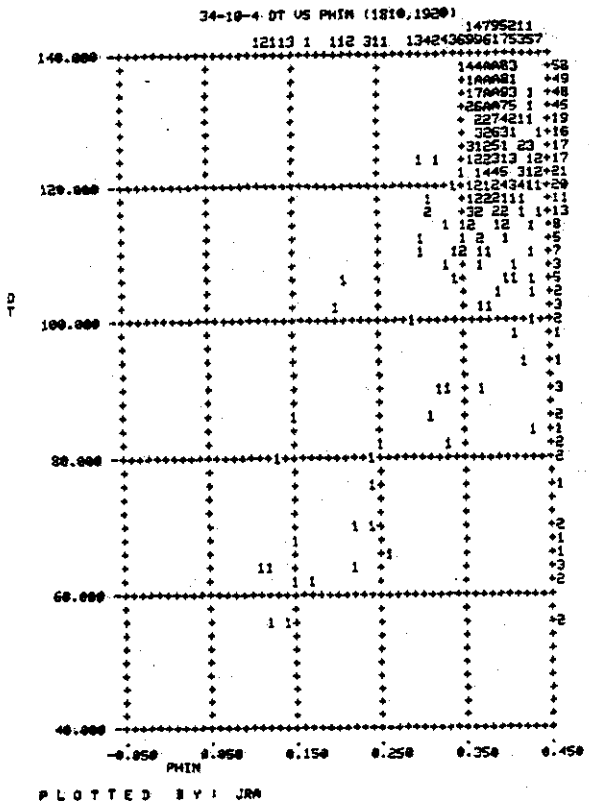
- Crossplots log vs log
- Crossplot log ϕ vs core
- Crossplot core k vs core ϕ
- Analog CPI's
- Summary log Brent formation
- Listing Brent formation


PORHE VS KLH
0.400
0.350
HELIUM POROSITY
0.300
0.250
0.200
0.150
0.100
0.050
0.000
0.200
1.000
10.000
100.000
1000.000
Horizontal permeability (md)

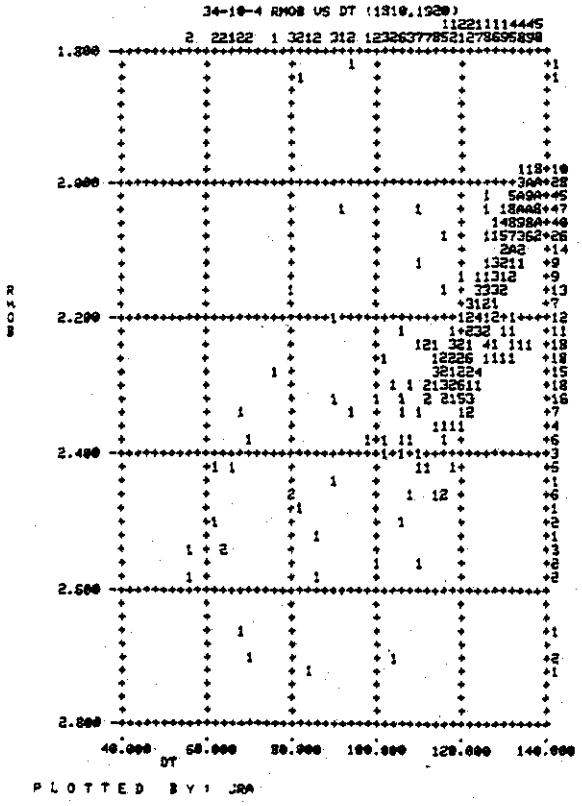

HORIZONTAL VS VERTICAL PUERMEABI
10000.000
1000.000
KLH
100.000
10.000
1.000
0.200
0.200
1.000
10.000
100.000
1000.000
KLV

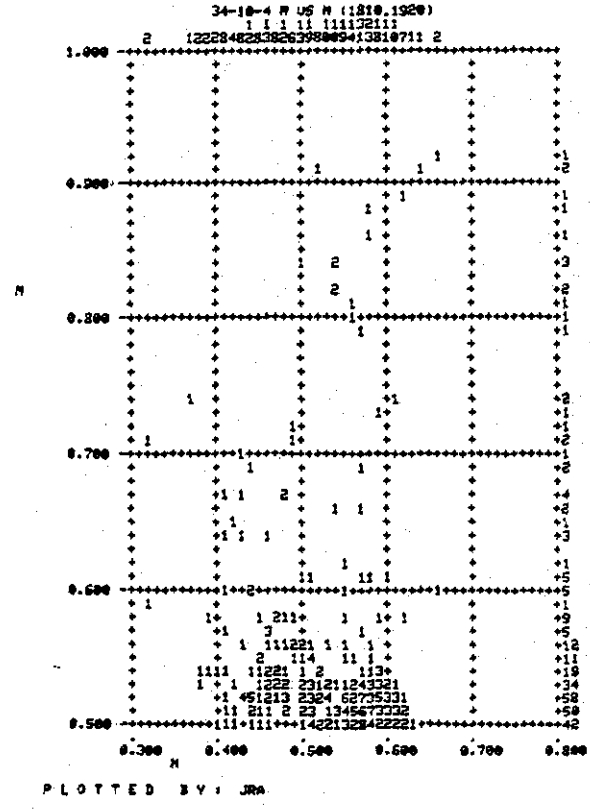

CORE VS LOG POROSITY
0.500
0.450
0.400
0.350
0.300
0.250
0.200
0.150
0.100
0.050
0.000
LOG Φ
PORH E
0.000
0.050
0.100
0.150
0.200
0.250
0.300
0.350
0.400
0.450
0.500

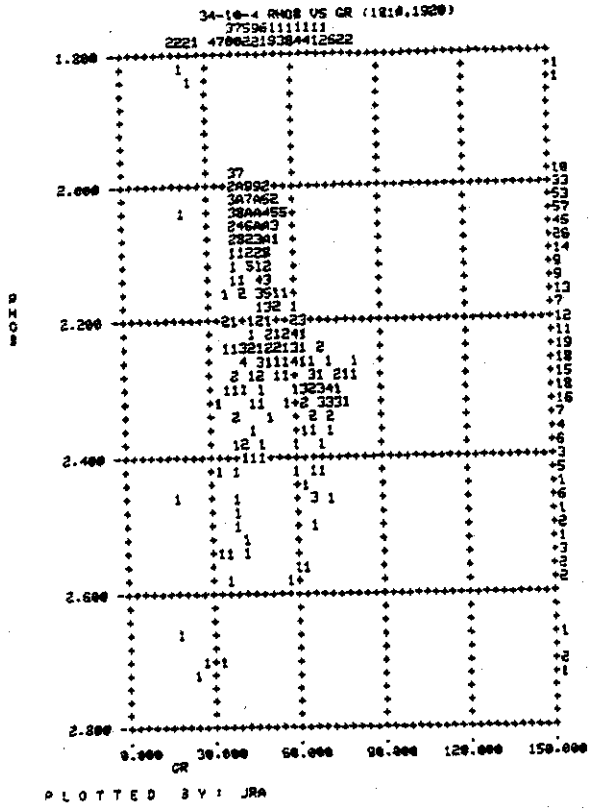


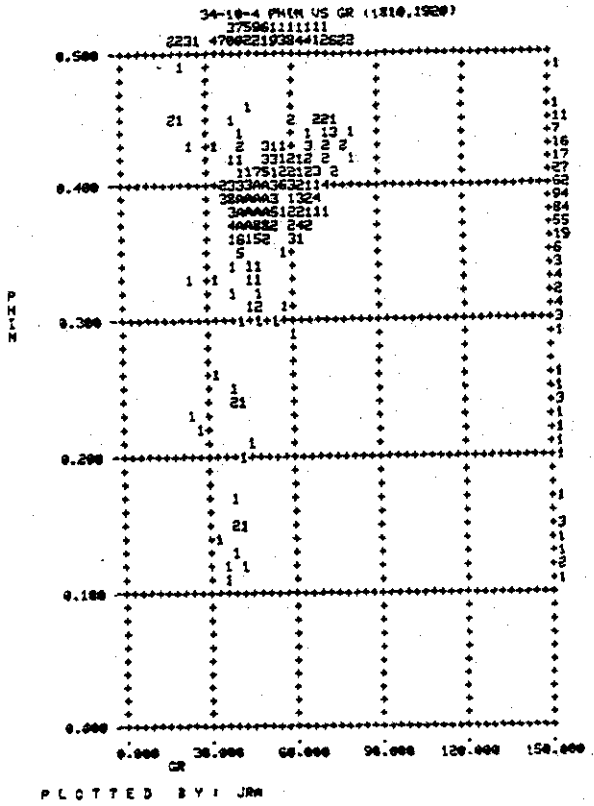


BRENT FORMATION

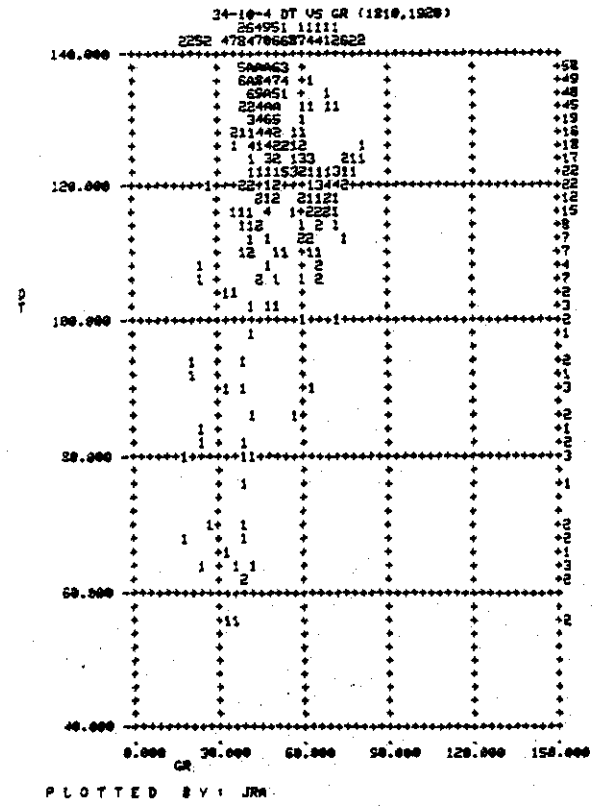


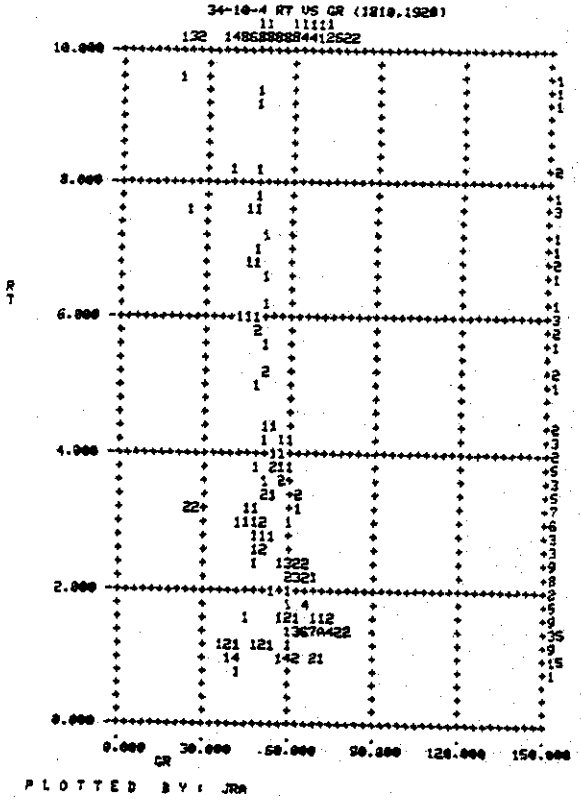


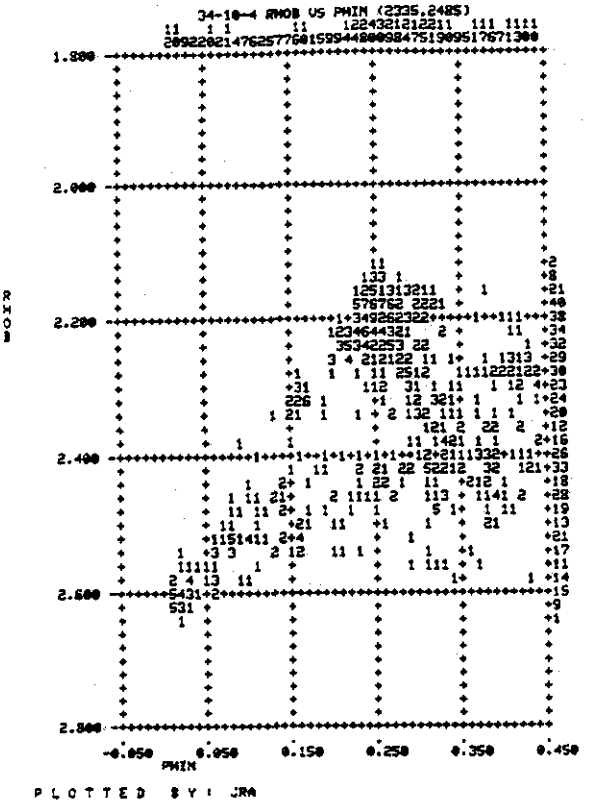


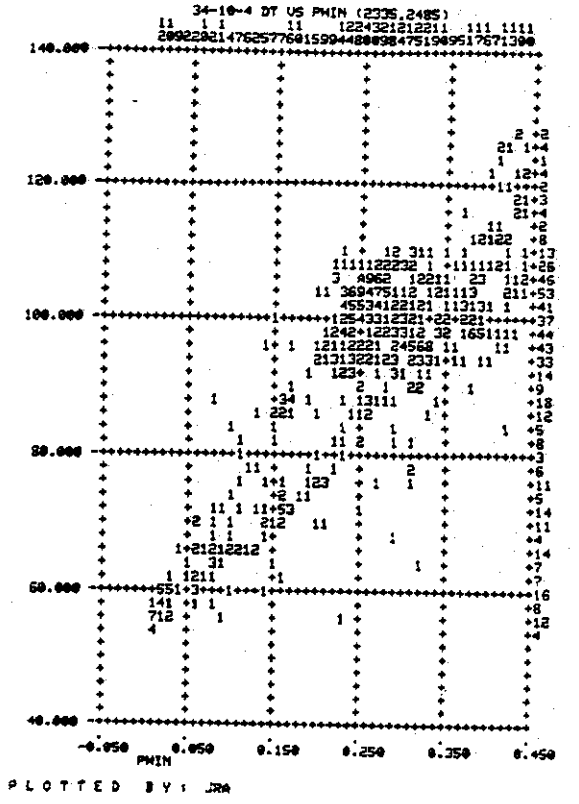


BRENT FORMATION

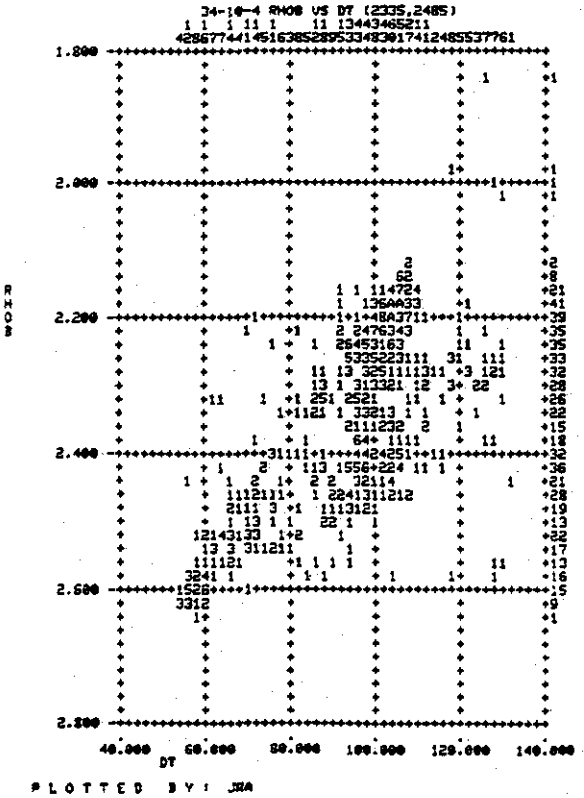


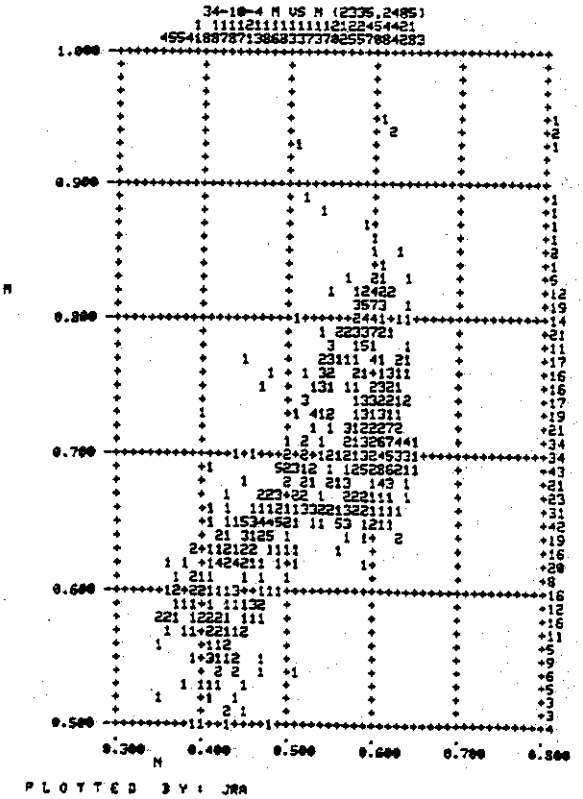


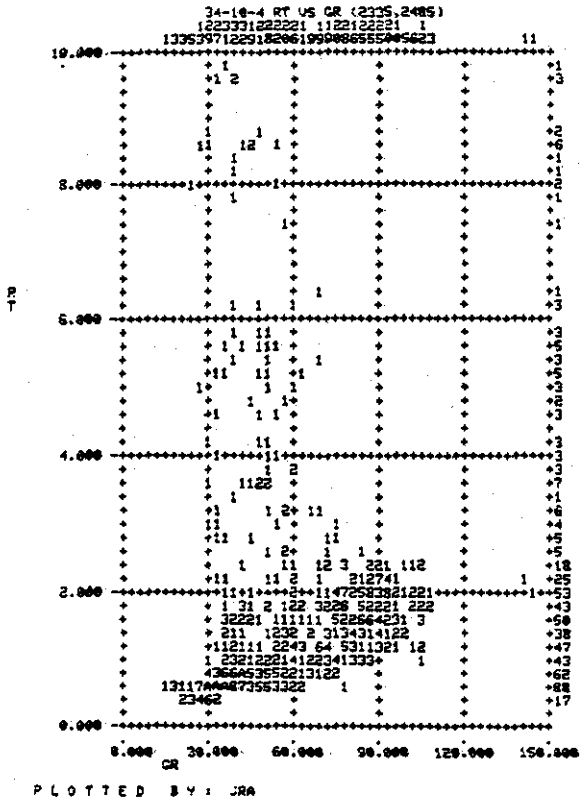


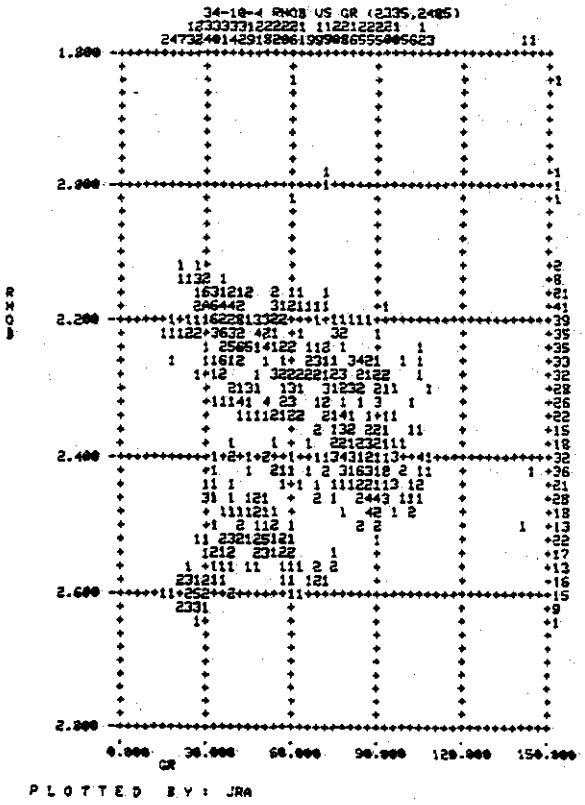


STATFJORD FORMATION

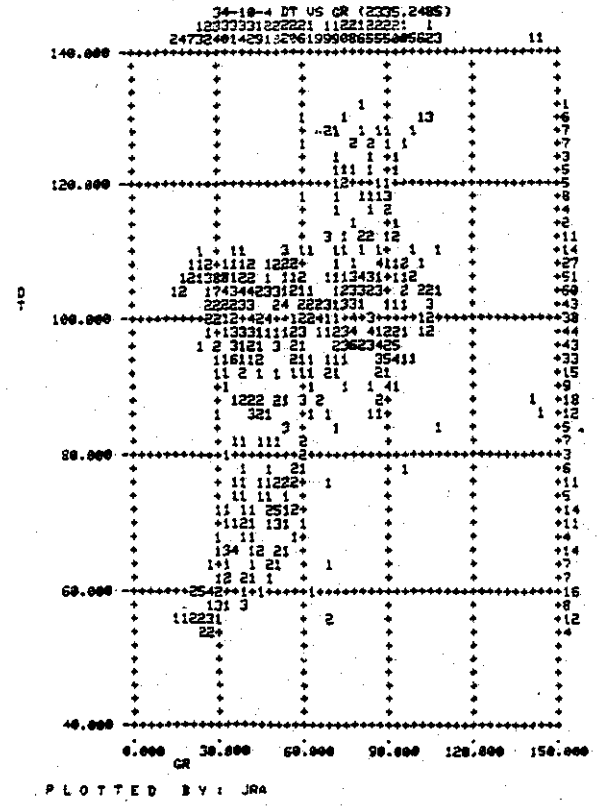


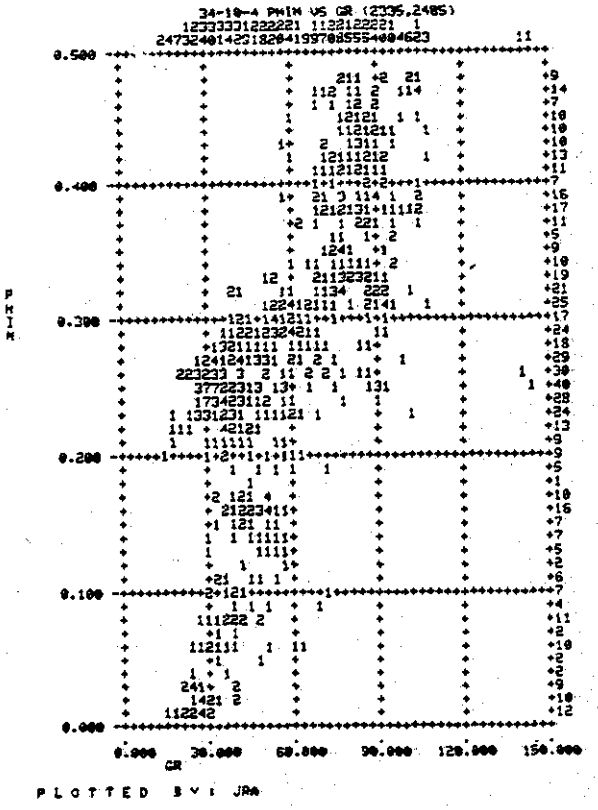






STATFJORD FORMATION





WELL: 34-10-4 (1816 -- 1910) DATE: 16JAN80/JRA

DEPTH	VSH	PHIF	SW
1816.00	0.771	0.097	1.105
1816.25	0.754	0.114	0.811
1816.50	0.937	0.031	0.398
1816.75	1.000	0.001	1.000
1817.00	00000.000	0.045	0.742
1817.25	00000.000	0.001	41.053
1817.50	00000.000	0.001	51.235
1817.75	00000.000	0.035	1.666
1818.00	00000.000	0.136	0.642
1818.25	00000.000	0.240	0.610
1818.50	00000.000	0.207	0.730
1818.75	00000.000	0.231	0.653
1819.00	00000.000	0.244	0.609
1819.25	00000.000	0.231	0.419
1819.50	00000.000	0.167	0.187
1819.75	00000.000	0.001	25.137
1820.00	00000.000	0.001	19.027
1820.25	00000.000	0.001	18.375
1820.50	00000.000	0.157	0.103
1820.75	00000.000	0.261	0.062
1821.00	00000.000	0.332	0.049
1821.25	00000.000	0.352	0.046
1821.50	00000.000	0.356	0.045
1821.75	00000.000	0.359	0.045
1822.00	00000.000	0.361	0.045
1822.25	00000.000	0.365	0.045
1822.50	00000.000	0.365	0.045
1822.75	00000.000	0.359	0.045
1823.00	00000.000	0.350	0.045
1823.25	00000.000	0.341	0.044
1823.50	00000.000	0.329	0.044
1823.75	00000.000	0.294	0.049
1824.00	00000.000	0.283	0.052
1824.25	00000.000	0.299	0.051
1824.50	00000.000	0.318	0.049
1824.75	00000.000	0.324	0.049
1825.00	00000.000	0.330	0.049
1825.25	00000.000	0.336	0.048
1825.50	00000.000	0.342	0.048
1825.75	00000.000	0.345	0.047
1826.00	00000.000	0.345	0.047
1826.25	00000.000	0.349	0.047
1826.50	00000.000	0.353	0.047
1826.75	00000.000	0.353	0.048
1827.00	00000.000	0.352	0.049
1827.25	00000.000	0.351	0.050
1827.50	0.009	0.343	0.053
1827.75	0.008	0.338	0.054
1828.00	00000.000	0.331	0.054
1828.25	00000.000	0.337	0.051

WELL: 34-10-4 (1816 - 1910) DATE: 16JAN80/JF

DEPTH	VSH	PHIF	SW
1828.50	00000.000	0.352	0.047
1828.75	00000.000	0.360	0.044
1829.00	00000.000	0.365	0.042
1829.25	00000.000	0.365	0.041
1829.50	00000.000	0.365	0.040
1829.75	00000.000	0.365	0.040
1830.00	00000.000	0.361	0.041
1830.25	00000.000	0.354	0.044
1830.50	00000.000	0.352	0.048
1830.75	00000.000	0.350	0.050
1831.00	00000.000	0.348	0.051
1831.25	00000.000	0.349	0.050
1831.50	00000.000	0.354	0.048
1831.75	00000.000	0.365	0.044
1832.00	00000.000	0.371	0.040
1832.25	00000.000	0.372	0.039
1832.50	00000.000	0.372	0.040
1832.75	00000.000	0.375	0.043
1833.00	00000.000	0.378	0.045
1833.25	00000.000	0.377	0.047
1833.50	00000.000	0.373	0.049
1833.75	00000.000	0.368	0.050
1834.00	00000.000	0.370	0.051
1834.25	0.025	0.366	0.053
1834.50	0.014	0.365	0.057
1834.75	00000.000	0.365	0.056
1835.00	00000.000	0.362	0.045
1835.25	00000.000	0.363	0.042
1835.50	00000.000	0.370	0.039
1835.75	00000.000	0.370	0.037
1836.00	00000.000	0.365	0.042
1836.25	00000.000	0.367	0.045
1836.50	00000.000	0.371	0.046
1836.75	00000.000	0.373	0.049
1837.00	00000.000	0.372	0.054
1837.25	0.004	0.359	0.064
1837.50	0.054	0.330	0.079
1837.75	00000.000	0.311	0.064
1838.00	00000.000	0.228	0.061
1838.25	00000.000	0.169	0.072
1838.50	00000.000	0.092	0.115
1838.75	00000.000	0.070	0.170
1839.00	00000.000	0.088	0.161
1839.25	00000.000	0.128	0.127
1839.50	0.021	0.195	0.099
1839.75	0.016	0.294	0.070
1840.00	00000.000	0.339	0.060
1840.25	00000.000	0.347	0.060
1840.50	00000.000	0.351	0.062
1840.75	00000.000	0.355	0.063

WELL: 34-10-4 (1816 - 1910) DATE: 16JAN80/J

DEPTH	VSH	PHIF	SW
1841.00	00000.000	0.356	0.063
1841.25	0.004	0.354	0.063
1841.50	0.040	0.344	0.064
1841.75	0.039	0.343	0.063
1842.00	0.039	0.336	0.065
1842.25	0.039	0.344	0.063
1842.50	0.004	0.358	0.062
1842.75	0.036	0.354	0.064
1843.00	0.046	0.355	0.065
1843.25	0.047	0.354	0.066
1843.50	0.024	0.356	0.064
1843.75	0.028	0.353	0.061
1844.00	0.029	0.354	0.057
1844.25	0.024	0.356	0.055
1844.50	0.022	0.355	0.054
1844.75	0.020	0.350	0.054
1845.00	0.021	0.360	0.053
1845.25	0.018	0.371	0.054
1845.50	0.003	0.371	0.058
1845.75	00000.000	0.365	0.062
1846.00	0.023	0.357	0.065
1846.25	0.039	0.344	0.064
1846.50	00000.000	0.306	0.054
1846.75	00000.000	0.219	0.070
1847.00	00000.000	0.140	0.103
1847.25	00000.000	0.094	0.182
1847.50	0.015	0.108	0.177
1847.75	0.034	0.172	0.123
1848.00	00000.000	0.290	0.077
1848.25	0.023	0.336	0.067
1848.50	0.021	0.344	0.065
1848.75	0.040	0.341	0.064
1849.00	0.038	0.342	0.063
1849.25	0.036	0.344	0.062
1849.50	0.034	0.350	0.060
1849.75	00000.000	0.367	0.058
1850.00	00000.000	0.363	0.059
1850.25	0.039	0.348	0.062
1850.50	0.040	0.346	0.063
1850.75	0.039	0.344	0.063
1851.00	0.017	0.348	0.062
1851.25	0.005	0.354	0.060
1851.50	00000.000	0.363	0.057
1851.75	00000.000	0.367	0.056
1852.00	00000.000	0.365	0.056
1852.25	00000.000	0.363	0.055
1852.50	00000.000	0.368	0.054
1852.75	00000.000	0.372	0.054
1853.00	00000.000	0.375	0.055
1853.25	00000.000	0.377	0.060

WELL: 34-10-4 (1816 - 1910) DATE: 16JAN80/J

DEPTH	VSH	PHIF	SW
1853.50	00000.000	0.372	0.064
1853.75	00000.000	0.369	0.066
1854.00	00000.000	0.364	0.064
1854.25	0.022	0.346	0.064
1854.50	00000.000	0.356	0.057
1854.75	00000.000	0.361	0.054
1855.00	00000.000	0.362	0.051
1855.25	00000.000	0.366	0.050
1855.50	00000.000	0.371	0.049
1855.75	00000.000	0.372	0.049
1856.00	00000.000	0.374	0.049
1856.25	00000.000	0.375	0.050
1856.50	00000.000	0.371	0.050
1856.75	00000.000	0.369	0.050
1857.00	00000.000	0.373	0.049
1857.25	00000.000	0.372	0.050
1857.50	00000.000	0.367	0.051
1857.75	00000.000	0.366	0.057
1858.00	00000.000	0.365	0.062
1858.25	00000.000	0.355	0.072
1858.50	0.042	0.328	0.087
1858.75	0.030	0.273	0.095
1859.00	0.025	0.183	0.110
1859.25	00000.000	0.127	0.118
1859.50	00000.000	0.185	0.079
1859.75	00000.000	0.275	0.059
1860.00	00000.000	0.347	0.058
1860.25	00000.000	0.370	0.060
1860.50	00000.000	0.373	0.062
1860.75	00000.000	0.369	0.068
1861.00	00000.000	0.368	0.070
1861.25	00000.000	0.366	0.070
1861.50	00000.000	0.363	0.067
1861.75	00000.000	0.360	0.059
1862.00	00000.000	0.364	0.053
1862.25	00000.000	0.367	0.050
1862.50	00000.000	0.372	0.046
1862.75	00000.000	0.381	0.043
1863.00	00000.000	0.383	0.043
1863.25	00000.000	0.389	0.048
1863.50	00000.000	0.388	0.052
1863.75	00000.000	0.382	0.060
1864.00	00000.000	0.383	0.062
1864.25	00000.000	0.378	0.063
1864.50	00000.000	0.367	0.066
1864.75	00000.000	0.368	0.070
1865.00	00000.000	0.372	0.071
1865.25	0.007	0.371	0.073
1865.50	0.003	0.373	0.075
1865.75	00000.000	0.377	0.077

WELL: 34-10-4 (1816 - 1910) DATE: 16JAN80

DEPTH	VSH	PHIF	SW
1866.00	0.009	0.373	0.082
1866.25	0.039	0.356	0.089
1866.50	00000.000	0.367	0.090
1866.75	00000.000	0.372	0.099
1867.00	0.057	0.357	0.111
1867.25	0.093	0.345	0.124
1867.50	0.119	0.334	0.134
1867.75	0.067	0.342	0.124
1868.00	0.047	0.342	0.115
1868.25	0.050	0.334	0.112
1868.50	00000.000	0.349	0.106
1868.75	00000.000	0.351	0.111
1869.00	00000.000	0.355	0.118
1869.25	0.038	0.347	0.127
1869.50	0.089	0.331	0.133
1869.75	0.120	0.320	0.135
1870.00	0.115	0.318	0.132
1870.25	0.107	0.319	0.124
1870.50	0.104	0.327	0.118
1870.75	00000.000	0.357	0.109
1871.00	0.004	0.358	0.104
1871.25	0.031	0.349	0.102
1871.50	0.046	0.340	0.096
1871.75	0.011	0.361	0.086
1872.00	00000.000	0.378	0.078
1872.25	00000.000	0.380	0.075
1872.50	00000.000	0.380	0.072
1872.75	00000.000	0.378	0.073
1873.00	00000.000	0.380	0.079
1873.25	00000.000	0.380	0.083
1873.50	00000.000	0.381	0.084
1873.75	00000.000	0.381	0.088
1874.00	00000.000	0.377	0.088
1874.25	0.001	0.371	0.087
1874.50	00000.000	0.367	0.085
1874.75	00000.000	0.370	0.083
1875.00	00000.000	0.374	0.080
1875.25	00000.000	0.377	0.079
1875.50	00000.000	0.375	0.078
1875.75	00000.000	0.375	0.077
1876.00	00000.000	0.375	0.077
1876.25	00000.000	0.373	0.084
1876.50	00000.000	0.368	0.095
1876.75	0.017	0.356	0.105
1877.00	00000.000	0.358	0.105
1877.25	0.008	0.357	0.102
1877.50	0.050	0.345	0.100
1877.75	0.073	0.332	0.101
1878.00	0.092	0.329	0.106
1878.25	0.064	0.349	0.106

WELL: 34-10-4 (1816 - 1910) DATE: 16JAN8(

DEPTH	VSH	PHIF	SW
1878.50	0.018	0.367	0.104
1878.75	00000.000	0.372	0.100
1879.00	00000.000	0.368	0.103
1879.25	00000.000	0.365	0.121
1879.50	0.057	0.350	0.129
1879.75	0.099	0.334	0.142
1880.00	0.119	0.329	0.150
1880.25	0.145	0.323	0.158
1880.50	0.148	0.322	0.161
1880.75	0.122	0.324	0.160
1881.00	0.039	0.343	0.151
1881.25	00000.000	0.349	0.145
1881.50	00000.000	0.345	0.157
1881.75	0.041	0.334	0.166
1882.00	0.114	0.316	0.180
1882.25	0.160	0.304	0.183
1882.50	0.159	0.306	0.181
1882.75	0.157	0.310	0.177
1883.00	0.087	0.326	0.175
1883.25	0.008	0.345	0.169
1883.50	0.047	0.338	0.176
1883.75	0.090	0.326	0.182
1884.00	0.109	0.316	0.188
1884.25	0.117	0.309	0.194
1884.50	0.117	0.305	0.200
1884.75	0.138	0.301	0.204
1885.00	0.164	0.298	0.210
1885.25	0.160	0.303	0.207
1885.50	0.142	0.307	0.203
1885.75	0.141	0.297	0.208
1886.00	0.163	0.285	0.209
1886.25	0.169	0.288	0.203
1886.50	0.165	0.292	0.195
1886.75	0.151	0.299	0.188
1887.00	0.126	0.313	0.176
1887.25	0.033	0.339	0.164
1887.50	00000.000	0.350	0.163
1887.75	00000.000	0.348	0.171
1888.00	0.040	0.327	0.204
1888.25	0.089	0.290	0.244
1888.50	0.093	0.256	0.303
1888.75	0.128	0.223	0.354
1889.00	0.208	0.217	0.349
1889.25	0.227	0.243	0.311
1889.50	0.227	0.270	0.297
1889.75	0.226	0.272	0.316
1890.00	0.221	0.263	0.355
1890.25	0.233	0.261	0.386
1890.50	0.203	0.271	0.383
1890.75	0.208	0.267	0.362

WELL: 34-10-4 (1816 - 1910) DATE: 16JAN80/JF

DEPTH	VSH	PHIF	SW
1891.00	0.264	0.251	0.379
1891.25	0.267	0.257	0.413
1891.50	0.230	0.275	0.398
1891.75	0.266	0.259	0.404
1892.00	0.276	0.244	0.368
1892.25	0.292	0.239	0.394
1892.50	0.243	0.250	0.326
1892.75	0.189	0.255	0.357
1893.00	0.146	0.252	0.391
1893.25	0.127	0.244	0.433
1893.50	0.142	0.232	0.452
1893.75	0.204	0.214	0.424
1894.00	0.247	0.223	0.394
1894.25	0.255	0.246	0.400
1894.50	0.284	0.246	0.408
1894.75	0.302	0.231	0.484
1895.00	0.293	0.215	0.556
1895.25	0.238	0.216	0.579
1895.50	0.249	0.211	0.572
1895.75	0.292	0.211	0.482
1896.00	0.310	0.217	0.450
1896.25	0.306	0.229	0.431
1896.50	0.288	0.244	0.523
1896.75	0.306	0.240	0.544
1897.00	0.366	0.221	0.588
1897.25	0.476	0.187	0.604
1897.50	0.429	0.196	0.592
1897.75	0.336	0.218	0.478
1898.00	0.311	0.217	0.452
1898.25	0.298	0.226	0.421
1898.50	0.305	0.228	0.425
1898.75	0.326	0.223	0.459
1899.00	0.318	0.214	0.546
1899.25	0.378	0.190	0.585
1899.50	0.333	0.200	0.513
1899.75	0.321	0.197	0.503
1900.00	0.318	0.200	0.495
1900.25	0.393	0.206	0.542
1900.50	0.375	0.232	0.486
1900.75	0.314	0.251	0.542
1901.00	0.288	0.253	0.589
1901.25	0.281	0.246	0.617
1901.50	0.266	0.239	0.647
1901.75	0.295	0.227	0.665
1902.00	0.420	0.190	0.703
1902.25	0.505	0.155	0.751
1902.50	0.557	0.137	0.769
1902.75	0.536	0.138	0.794
1903.00	0.578	0.109	0.876
1903.25	0.524	0.107	0.957

WELL: 34-10-4 (1816 - 1910) DATE: 16JAN80/.

DEPTH	VSH	PHIF	SW
1903.50	0.595	0.091	0.955
1903.75	0.599	0.117	0.832
1904.00	0.631	0.095	0.892
1904.25	0.579	0.114	0.870
1904.50	0.499	0.161	0.764
1904.75	0.510	0.165	0.743
1905.00	0.588	0.130	0.760
1905.25	0.427	0.163	0.659
1905.50	0.381	0.169	0.633
1905.75	0.282	0.180	0.687
1906.00	0.201	0.174	0.774
1906.25	0.141	0.181	0.798
1906.50	0.114	0.198	0.753
1906.75	0.169	0.187	0.782
1907.00	0.226	0.183	0.780
1907.25	0.229	0.198	0.759
1907.50	0.186	0.222	0.730
1907.75	0.199	0.217	0.784
1908.00	0.507	0.143	0.867
1908.25	0.605	0.120	0.897
1908.50	0.640	0.106	0.982
1908.75	0.613	0.106	0.975
1909.00	0.522	0.120	1.035
1909.25	0.519	0.106	1.099
1909.50	0.634	0.052	1.273
1909.75	0.714	0.050	1.162
1910.00	0.722	0.093	0.961