

Denne rapport
tilhører



L&UDOK.SENTER

L.NR. 12484 050050

KODE well 31/3-1 nr 31

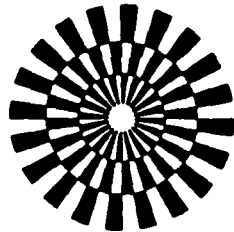
Returneres etter bruk

STATOIL

FORMATION RESISTIVITY FACTOR
ANALYSIS

WELL: 31/3-1

DATE: JANUARY 1984



GECO
GEOPHYSICAL COMPANY
OF NORWAY A/S



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FORMATION RESISTIVITY FACTOR

The one inch samples were saturated as near as possible to 100% with the requested simulated formation water using the KSEPL type holders set at 50 bar confining pressure. Formation resistivity factor was then measured using a frequency of 1 kHz. The parameters "a" and "m" in Archies formula were calculated both by least squares method forced through (FF=1.0, $\phi=1.0$) and least squares method with free fit.

Archies formula
$$FF = \frac{r_o}{r_w} = a \cdot \phi^{-m}$$

- r_o = resistivity of sample (100% saturated)
- r_w = resistivity of saturating formation water
- a = FF-value at fractional porosity of 1.0
- ϕ = fractional porosity
- m = cementation factor

The data sets and the calculated values are presented in tabular and graphical form.



GECO

OK FORMATION RESISTIVITY FACTOR

$\frac{\%}{\circ}$ Brine Resistivity : 0.152 ohm-meters/20 gr. C.

*Denne er målt
i en annen temp.
enn RO og FF.*

<i>OK</i> . Plug no.	Depth (m)	$\frac{\%}{\circ}$ Sample resistivity ohm-meters	$\frac{FF}{\%}$ Formation Factor	$\frac{v}{\%}$ PDR Porosity (%)
			<i>S: RW</i>	<i>S: T</i>
10	1353.75	1.45	10.1	0.144 30.0 22.3
20	1356.75	1.34	9.32	0.144 22.3 22.3
33	1366.50	0.865	6.00	0.144 38.3 22.3
41	1368.50	1.30	9.03	0.144 30.0 22.3
50	1374.50	0.963	6.69	0.144 35.9 22.3
60	1377.50	1.01	7.07	0.143 34.7 22.6
67	1379.50	1.04	7.33	0.142 33.8 22.9
80	1383.80	0.865	6.05	0.143 34.3 22.6
91	1387.00	0.865	6.18	0.140 36.3 23.6
100	1389.50	0.787	5.50	0.143 37.2 22.6
112	1393.75	0.865	6.05	0.143 35.5 22.6
120	1396.50	0.728	5.09	0.143 35.8 22.6
131	1401.00	0.863	6.16	0.140 36.2 23.6
140	1404.25	1.11	7.67	0.145 35.7 22.0
150	1407.50	1.74	12.1	0.144 28.0 22.3
160	1411.75	0.763	5.30	0.144 38.5 22.3
171	1415.50	1.02	6.85	0.149 34.7 20.8
180	1418.50	1.39	9.66	0.144 31.3 22.3
193	1422.25	1.91	13.3	0.144 26.9 22.3
200	1425.00	1.61	11.2	0.144 29.8 22.3



OK,

FORMATION RESISTIVITY FACTOR

$\frac{\rho}{\rho_0}$ Brine Resistivity : 0.152 ohm-meters/20 gr. C.

Plug no.	Depth (m)	Sample resistivity $\frac{\rho}{\rho_0}$ ohm-meters	Formation Factor FF	Porosity (%)		
				S: <u>R.W.</u>		S: <u>T</u>
210	1428.50	1.83	12.7	0.144	28.9	22.3
222	1432.00	0.762	5.29	0.144	38.7	22.3
230	1434.75	1.50	10.4	0.144	30.6	22.3
241	1438.00	0.901	6.09	0.148	36.8	21.1
249	1440.50	1.07	7.40	0.145	29.1	22.0
260	1444.00	0.767	5.33	0.144	35.4	22.3
270	1447.00	0.745	5.07	0.147	39.0	21.4
278	1449.30	1.07	7.37	0.145	34.9	22.0
290	1453.00	1.45	9.87	0.147	31.4	21.4
300	1456.00	1.83	12.4	0.148	27.5	21.1
310	1459.00	1.81	12.3	0.147	29.2	21.4
345	1468.75	2.16	14.7	0.147	27.4	21.4
354	1471.00	0.768	5.29	0.145	35.3	22.0
365	1474.75	0.878	6.06	0.145	30.1	22.0
392	1483.25	0.731	5.04	0.145	36.4	22.0
401	1486.00	0.786	5.42	0.145	35.3	22.0
410	1489.50	0.760	5.24	0.145	35.1	22.0

Forced fit: $FF = \rho^{-1.81}$
 Free fit : $FF = 0.71 \cdot \rho^{-2.12}$

FORMATION RESISTIVITY FACTOR VERSUS POROSITY

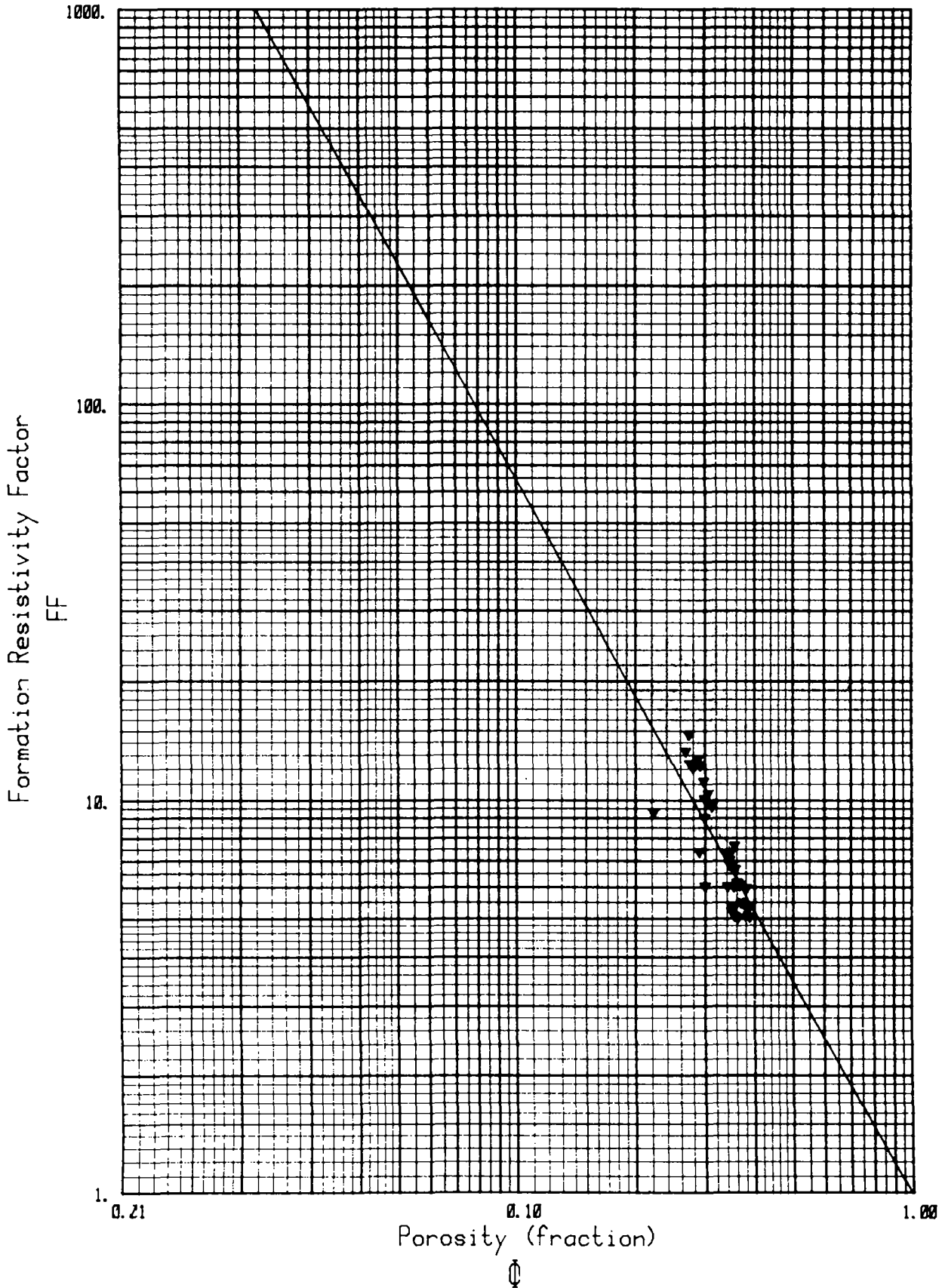


Company : STATOIL A/S

Well : 31/3-1

Forced fit. (50 bar)

$$FF = 1.00 * \phi^{-1.81}$$



FORMATION RESISTIVITY FACTOR VERSUS POROSITY



Company : STATOIL A/S

Well : 31/3-1

Free fit. (50 bar)

$$FF = 0.71 * \phi^{-2.12}$$

