



DIREZIONE MINERARIA
SERVIZIO GEOLOGICO

CLASTIC SEDIMENTS OF WELL PHILLIPS 7/11-2, NORTH SEA (NORWAY)

Interval 9943' - 9990'; Paleocene fm.

IL RESPONSABILE DEL SERVIZIO

S. Donato Mil., January 2, 1969

Dr. V. Fois

V. Fois

Sedimentology

The cored interval, from 9943' to 9990', is the uppermost part of the sandstone section. The reservoir consists of sandstone beds, some meter thick, interbedded with clay beds thick one meter about. The lower part of the reservoir is more shaly.

Sandstone beds are mostly massive with some parallel or wavy laminations in the finer intervals. Burrowing and clay fragments are frequent. There are also some structures which can be attributed to slumping, as it was seen in the cores of the well 7/11-1 (Encl. 1 and photos).

Grain size analyses are like those of the well n. 1. Sands were transported mainly as graded suspensions with a certain amount of rolling. Percentages of lutite (fractions finer than 31 microns) are fairly high and indicate that the winnowing effect was not efficient (Encl. 2).

Petrography

Quartz sandstones, light grey, poorly sorted with clay matrix, silica and carbonate cements. Generally carbonate cement is irregularly distributed.

Major components of the detrital fraction are:

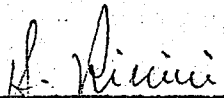
- subrounded quartz grains, sometimes cataclastic;
- scarce, weathered feldspars, mostly represented by acid plagioclase;
- mica flakes in subparallel laminations;
- very rare detrital glauconitic grains.

Grain contacts are mostly tangential, sometimes planar
(Encl. 1).

Porosity and permeability

Porosity is between 15 and 25%. In the coarser sandstones is always above 20%. These relatively high values are due to the small percentages of carbonate and silica cements and to the absence of pressure solution.

Permeability values of sandstones are nearly always under 100 mD because of the poor sorting and of the quite high content of lutite.


Dr. A. Rizzini


Dr. E. Costantini

Enclosure 1: Sediment Log
" 2: CM, FM, LM, AM diagrams
" 3: Photos
with tables of grain size analyses data.

APPENDIX 4 - (5)

FIELD NORTH SEA WELL 7/112 S. DONATO January, 1969

DEPTH	C (Onepercentile)	M (Median)	A (% Finer than 3,9 microns)	Γ (% Finer than 31 microns)	Π (% Finer than 125 microns)	> 16 mm	16 - 8 mm	8 - 4 mm	4 - 2 mm	2 - 1.41 mm	1.41 - 1 mm	1 - 0.71 mm	0.71 - 0.50 mm	0.50 - 0.35 mm	0.35 - 0.25 mm	0.25 - 0.177 mm	0.177 - 0.125 mm	0.125 - 0.088 mm	0.088 - 0.062 mm	0.062 - 0.031 mm	0.031 - 0.0156 mm	0.0156 - 0.0078 mm	0.0078 - 0.0039 mm	< 0.0039 mm	
																									%
9956	580	94	4.1	15.7	60.9							0.5	1.1	2.9	7.1	10.3	17.2	13.8	11.6	19.8	6.3	3.3	2.0	4.1	
9956	700	130	2.6	10.7	47.3			0.5	1.1	1.4	1.8	3.2	5.0	9.7	12.0	18.0	13.4	11.0	12.2	4.4	2.3	1.4	2.6		
9956	700	96	4.7	17.1	61.6					0.4	0.5	1.4	2.9	6.7	10.6	15.9	14.1	11.0	19.4	7.1	3.1	2.2	4.7		
9957	600	98	6.1	21.9	57.8						0.4	1.6	4.0	9.5	10.6	16.1	11.1	9.3	15.5	8.9	4.2	2.7	6.1		
9957	720	140	2.4	9.4	43.1					0.3	0.9	2.5	6.3	13.0	14.1	19.8	11.4	10.2	12.1	4.0	2.1	0.9	2.4		
9958	100	160	2.5	8.2	37.9				0.2	1.5	3.3	5.8	7.7	11.3	16.0	16.3	10.7	7.7	11.3	3.1	1.7	0.9	2.5		
9958	780	145	2.7	8.5	41.4					0.3	1.2	3.5	6.6	13.9	14.1	19.0	11.4	8.5	13.0	3.2	1.4	1.2	2.7		
9959	570	110	3.2	11.8	55.0						0.3	1.7	3.9	11.0	12.5	15.6	14.4	13.9	14.9	4.4	2.1	2.1	3.2		
9959	210	90	3.9	12.5	70.3									0.2	5.4	24.1	20.7	18.7	18.4	5.2	1.7	1.7	3.9		
9960	580	120	5.0	14.5	51.1						0.2	1.9	3.4	12.4	13.6	17.4	13.8	10.7	12.1	5.0	3.8	0.7	5.0		
9960	470	130	3.3	10.9	47.8						0.2	0.7	2.8	13.9	14.7	19.9	12.3	9.7	14.9	4.2	1.9	1.5	3.3		
9961	400	125	2.8	12.3	49.4							0.3	1.8	13.1	15.4	20.0	13.4	9.0	14.7	4.2	3.5	1.8	2.8		
9961	100	29	14.0	52.0	99.6										0.1	0.3	1.6	5.3	40.7	19.2	12.7	6.1	14.0		
9962	280	105	4.8	13.9	62.1									0.1	2.5	12.2	23.1	24.0	10.6	13.6	3.9	2.6	2.6	4.8	
9963	225	105	3.9	12.7	59.9										0.5	10.4	29.2	21.4	13.0	12.8	4.0	2.4	2.4	3.9	
9963	270	115	3.1	9.6	54.0									0.2	1.7	14.5	29.6	18.7	13.5	12.2	3.1	1.7	1.7	3.1	
9963	315	140	2.0	5.1	39.9									0.2	7.8	22.2	29.9	16.2	9.4	9.2	1.4	1.0	0.7	2.0	
9964	360	160	1.3	5.7	36.5								0.1	1.2	18.3	23.5	20.4	15.7	7.6	7.5	2.2	1.3	0.9	1.3	
9965	460	195	1.6	7.1	35.2									0.7	4.1	17.8	19.2	23.0	10.1	8.7	9.3	2.2	1.9	1.4	1.6

FIELD NORTH SEA

WELL ... 7/11-2

S. DONATO January, 1969

DEPTH	C (Onepercentile)	M (Median)	A (% Finer than 3,9 microns)	Γ (% Finer than 31 microns)	Π (% Finer than 125 microns)	> 16 mm	16 - 8 mm	8 - 4 mm	4 - 2 mm	2 - 1.41 mm	1.41 - 1 mm	1 - 0.71 mm	0.71 - 0.50 mm	0.50 - 0.35 mm	0.35 - 0.25 mm	0.25 - 0.177 mm	0.177 - 0.125 mm	0.125 - 0.088 mm	0.088 - 0.062 mm	0.062 - 0.031 mm	0.031 - 0.0156 mm	0.0156 - 0.0078 mm	0.0078 - 0.0039 mm	< 0.0039 mm
9966'	660	190	1.6	5.3	29.0							0.7	3.0	10.1	22.1	17.1	18.0	9.4	6.1	8.2	2.4	0.9	0.4	1.6
9967'	360	90	4.5	19.2	62.7								0.2	0.9	5.6	9.8	20.8	13.6	12.5	17.4	8.2	4.3	2.2	4.5
9968'	250	76	4.2	16.1	78.9									0.2	0.8	7.9	12.2	22.6	14.9	25.3	7.7	2.4	1.8	4.2
9968'	350	94	3.3	14.0	63.1								0.2	0.9	6.5	9.9	19.4	14.8	14.4	19.9	6.7	2.4	1.6	3.3
9968'	330	76	5.3	17.9	70.7								0.5	4.1	8.3	16.4	14.6	14.2	24.0	6.1	3.7	2.8	5.3	
9969'	720	155	2.7	8.7	37.0					0.3	0.8	3.1	6.1	16.0	16.0	20.7	10.4	8.5	9.4	2.9	1.7	1.4	2.7	
9970'	160	56	6.4	24.4	95.0										0.4	4.6	16.0	19.5	35.1	8.8	5.0	4.2	6.4	
9970'	350	140	2.4	12.7	40.9							0.2	0.8	12.4	20.2	25.5	12.9	10.9	8.8	2.2	2.0	1.7	2.4	
9971'	560	140	2.8	10.0	44.1						0.3	1.4	5.3	13.5	15.2	21.2	11.8	8.7	12.6	2.9	2.4	1.9	2.8	
9972'	640	150	2.3	8.5	39.6						0.5	2.5	5.1	15.1	16.4	20.8	11.8	9.2	10.1	2.5	2.3	1.4	2.3	
9972'	240	52	8.8	28.7	88.5								0.1	0.7	3.6	7.1	10.7	17.9	31.2	11.1	4.7	4.1	8.8	
9973'	400	74	5.7	18.0	70.7						0.1	0.3	1.6	5.0	8.9	13.4	14.8	13.1	24.8	6.1	3.2	3.0	5.7	
9974'	400	80	4.7	14.4	68.5						0.1	0.3	1.4	5.9	11.9	11.9	14.9	17.7	21.5	5.2	2.3	2.2	4.7	
9974'	700	130	2.8	9.4	47.2						1.1	1.6	2.8	11.1	17.5	18.9	14.2	12.8	10.6	3.1	1.9	1.6	2.8	
9974'	620	145	2.1	7.4	41.9						0.7	1.6	4.9	13.1	18.8	19.1	13.6	12.9	8.0	2.1	2.1	1.1	2.1	
9975'	680	170	2.2	5.7	34.5						0.7	4.0	8.3	17.5	17.7	17.3	11.2	9.9	7.7	1.1	1.3	1.1	2.2	
9976'	740	120	2.6	9.3	50.9					0.3	0.9	1.1	3.1	6.1	12.6	25.0	15.6	9.9	16.1	3.4	2.6	0.7	2.6	
9976'	140	52	6.3	22.1	97.3										0.1	2.6	9.2	22.5	43.5	9.4	3.4	3.0	6.3	
9977'	330	25	19.9	55.8	82.9								0.1	0.5	3.2	4.6	8.7	6.4	5.7	15.0	15.9	11.8	8.2	19.9

APPENDIX 4 - (7)

FIELD NORTH SEA

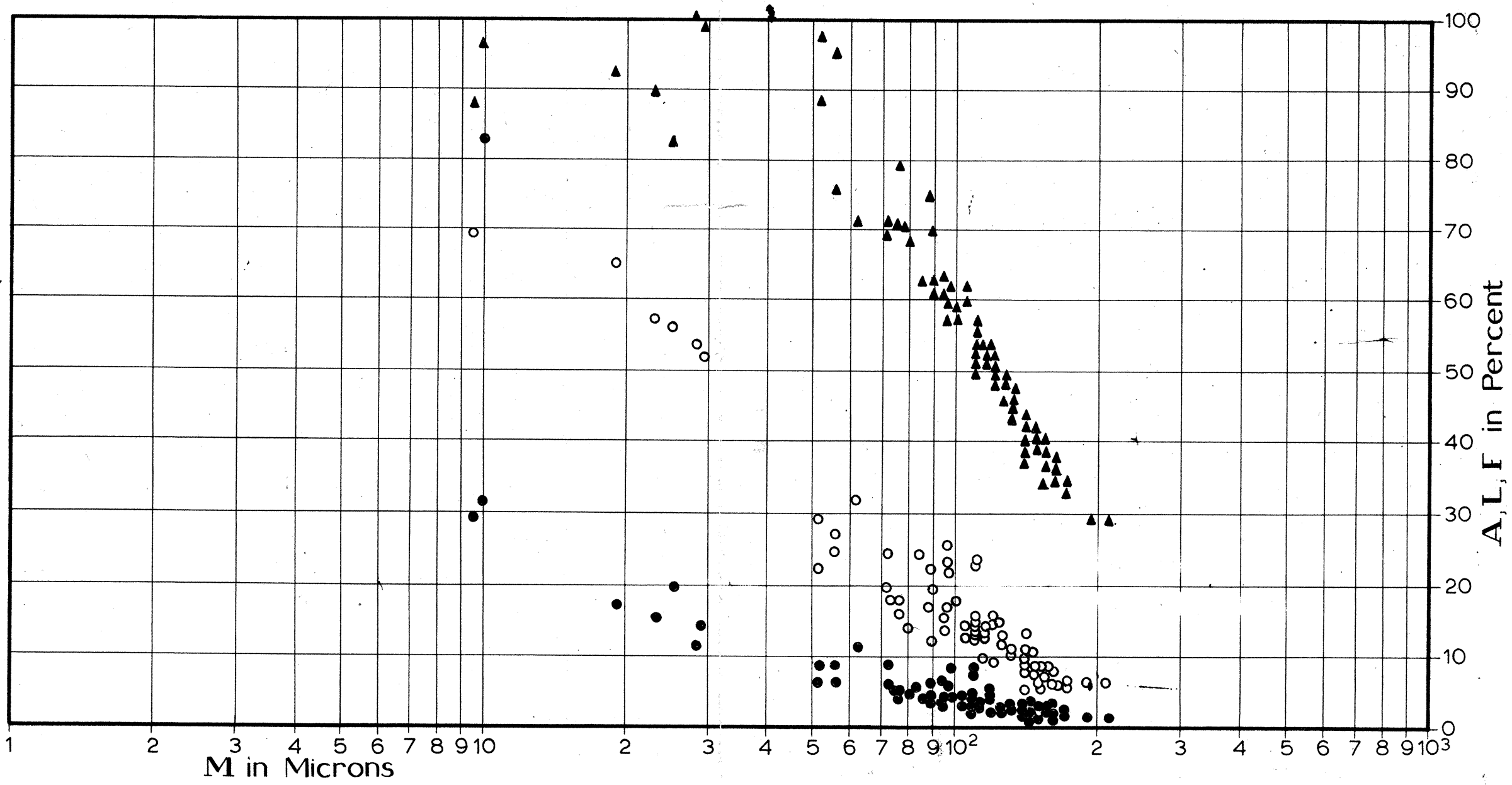
WELL 7/11-2

S. DONATO ... January, 1969

DEPTH	C (Onepercentile)	M (Median)	A (% Finer than 3,9 microns)	Γ (% Finer than 31 microns)	Π (% Finer than 125 microns)	> 16 mm	16-8 mm	8-4 mm	4-2 mm	2-1.41mm	1.41-1 mm	1-0.71mm	0.71-0.50 mm	0.50-0.35 mm	0.35-0.25 mm	0.25-0.177 mm	0.177-0.125 mm	0.125-0.088 mm	0.088-0.062 mm	0.062-0.031 mm	0.031-0.0156 mm	0.0156-0.0078 mm	0.0078-0.0039 mm	< 0.0039 mm
9977	160	10	31.5	82.7	97.0										0.6	2.4	3.0	2.8	8.5	19.3	19.3	12.6	31.5	
9978	620	120	5.5	13.9	50.3					0.1	0.6	1.2	4.6	10.6	12.5	20.1	11.5	11.0	13.9	4.4	2.1	1.9	5.5	
9979	540	115	5.0	12.6	52.3						0.3	1.2	3.7	9.3	13.6	19.6	12.7	11.2	15.8	5.3	1.6	0.7	5.0	
9980	470	110	5.2	15.8	54.7						0.2	0.5	2.9	9.5	11.9	20.3	13.5	8.6	16.8	5.5	3.3	1.8	5.2	
9980	470	110	4.7	13.6	54.2						0.2	0.5	2.8	10.4	12.5	19.4	12.7	12.0	15.9	6.3	1.4	1.2	4.7	
9981	370	90	6.5	22.0	61.0							0.2	1.3	8.0	11.1	18.4	12.1	7.3	19.6	8.0	5.4	2.1	6.5	
9982	620	115	4.4	14.1	52.9						0.7	1.2	3.2	11.4	11.6	19.0	11.8	7.9	19.1	6.9	1.9	0.9	4.4	
9982	100	160	1.4	5.8	36.3				0.3	1.4	3.1	5.3	7.7	11.8	15.9	18.2	11.8	9.3	9.4	2.4	1.1	0.9	1.4	
9983	360	140	2.5	8.2	40.8							0.1	1.0	15.6	18.4	24.1	12.7	8.1	11.8	2.9	2.1	0.7	2.5	
9983	800	160	2.3	6.0	37.4			0.3	2.6	3.1	3.7	4.2	5.9	11.5	13.9	17.4	12.9	8.9	9.6	1.9	0.9	0.9	2.3	
9984	500	150	1.8	6.4	39.5				1.2	3.2	3.5	4.2	6.1	10.2	13.5	18.6	12.6	10.3	10.2	2.1	1.6	0.9	1.8	
9985	500	96	6.1	23.2	60.1						0.2	0.8	3.6	8.1	10.5	16.7	12.1	6.9	17.9	9.7	5.2	2.2	6.1	
9985	410	84	5.6	23.9	62.7							0.2	2.5	7.7	10.6	16.3	10.9	10.4	17.5	11.1	4.7	2.5	5.6	
9986	630	145	3.9	10.3	42.8						0.5	2.2	6.3	13.2	17.3	17.7	11.5	7.1	13.9	3.3	2.2	0.9	3.9	
9986	490	120	4.5	13.9	51.5						0.2	0.7	3.3	10.1	13.6	20.6	14.3	7.9	15.4	5.5	2.2	1.7	4.5	
9987	500	110	3.8	12.3	55.6							1.0	2.7	9.2	13.7	17.8	14.5	11.6	17.2	5.3	1.7	1.5	3.8	
9987	66	28	11.1	53.7	100												0.1	1.6	44.6	25.6	10.8	6.2	11.1	
9988	430	56	8.7	26.6	75.6							0.5	1.6	3.8	6.0	12.5	10.0	10.0	29.0	11.1	4.4	2.4	8.0	
9988	630	72	8.7	19.5	70.5						0.7	1.1	2.9	5.4	8.3	11.1	13.9	11.6	25.5	3.6	3.6	3.6	8.7	
9989	400	145	2.0	12.2	42.6							0.2	2.2	14.2	20.5	20.3	14.4	9.6	6.4	7.4	1.5	1.3	2.0	

A-M(•), L-M(◦) and F-M(▲) DIAGRAM

ENCL. 2



C-M DIAGRAM

