ELF NORGE A/S

L-89

725.21

.3

3/7 - 1

SIV 1

GEOLOGICAL REPORT

BA 73-2-1

CB/JRC/rb

September 1973

1. PERTINENT DATA

11 General data

Licence	:	023
Association	:	AMOCO = 25 %
		PETRONORD (1st. attribution) = 15 %
		PETRONORD (2nd. attribution) = 60 %
Operator	:	ELF NORGE A/S
Rig	:	OCEAN TIDE
Contractors	:	Rig: CANAM
		Mud Logging = CORELAB

Location

Seismic	:	Line 66.47, SP 6664
Geographic	:	x = 04° 00' 07,8" E
		y = 56° 27' 43,5" N

Water depth : 62,5 m

Air Gap : 31 m

12 Drilling and operations time table

1.08.73 = Spudded
2.08.73 = Start drilling
3.08.73 = 30" casing set at 127 m
6.08.73 = 20" casing set at 454 m
16.08.73 = SPE Run 1 = GR.BHC - IES
17.08.73 = 13 3/8" casing set at 1458,7 m
1.09.73 = SPE Run 2 = IES - GR.BHC - CBL - SWC1 - SWC2
2.09.73 = 9 5/8" casing set at 3138 m
6.09.73 = Core No. 1 3223 - 3229 m
T.D. = 3229 m
Logging SPE - Run No. 3 IES - GR-SL.BHC
13.09.73 = Completed
Rig back to PETROLAND

1.3 Status

Plugged and abandoned as a dry hole.

GEOLOGICAL DATA AND RESULTS

1. OBJECTIVES

The 3/7-1 well is located near the top of a large anticline which axis trends northwesterly with a 200 km^2 closure at the prezechstein horizon. This structure is to be considered as a north-western extension of the Fynn Falster high.

The expected reservoirs were as follows:

a. Danian and Maestrichtian chalky limestone. Partly interesting as a reservoir in the surrounding wells.

b. Jurassic sandstone.

c. Rotliegend sandstone.

d. Carboniferous or Devonian sandstone.

It was supposed that all or none of these reservoirs could be encountered, as well as the basement could be found at different depths, owing to the difficulties in identifying main seismic horizons below the top of the chalky limestone.

2. STRATIGRAPHICAL AND STRUCTURAL RESULTS

2-1- Stratigraphy

The correlation tabulation presented below has been infered from the 2/6-1 and 2/9-1 wells results, but without any laboratory data about 3/7-1 well.

STRATIGRAPHICAL UNITS	TOP (below RkB) meter	TOP (below m.s.l.) meter	THICKNESS meter
PLEISTOCENE	93,5	-62,5	530,5
PLIOCENE TO UPPER MIOCENE	624	-593	163
MIDDLE MIOCENE	787	-756	648
LOWER MIOCENE	1435	-1404	285
OLIGOCENE	1720	-1689	685
EOCENE	2405	-2374	271
PALEOCENE	2676	-2645	85
DANIAN	2761	-2730	91
MAESTRICHTIAN	2852	-2821	132,5
CAMPANIAN TO TURONIAN	2984,5	-2953,5	233,5
BASEMENT	3218	-3187	>11
TOTAL DEPTH	3229	-3198	

2-2 Structural results

The Paleocene and Maestrichtian horizons were encountered respectively at 2676 m and 2852 m, which is 27 m and 28 m low to the geologic prognosis estimated depths.

The basement (chloritic gneiss) has been found directly underlying the Turonian limestone, ascertaining unfortunately the less favourable hypothesis.

2-3 Reservoirs

Only the middle part of the chalky Maestrichtian section shows some reservoirs characteristics.

Inferred porosity from the BHC log is about 12% from 2852 m to 2951 m and about 18% from 2951 to 2984,5 m.

The underlying Turonian - Campanian limestone is very tight.

2-4 Shows and fluids

No shows were recorded, but small traces of C_1 gas (1%) have been detected by chromatograph (see 1/5000 data sheet enclosed).

The Maestrichtian reservoir is reputed saturated water wet from the IES log.

Annexes

1. Position map 1/250000
2. Synthetic log 1/5000
3. Composite log 1/500
4. Side Wall Cores Descriptions
5. Core Descriptions

Cut 6 m
Recovered 6 m 100%
Loss:

Company ELF NORGE
Well no 3/7-1 (SIV 1)
Core no 1.

Date 6.9.73.
Depths 3221 à 3227 m
Scale: 1/40

Depths	% Co Ca	PERM	POROS	SHOWS	DIPS	Log	DESCRIPTION

3222
3223
3224
3225
3226
3227

Gneiss : Banded - 45°, Chloritic and pink feldspar segregations. Below 3222 m, numerous vertical fractures with a chloritic infill.

crushed zone while extracting the core.

Field microscopic diagnosis :

Feldspar plagioclase slightly kaolinizided, small angular quartz elements in "rolling" polarization patches. Abundant chlorite - rare olivine(?) crystals.

SIDE WALL CORES DESCRIPTION

WELL : 3/7-1 SIV 1	RUN N° 1
LICENCE : 023	PAGE N° 1
Norway - offshore	DATE : 01.09.1973.

SERVICE COMPANY : SPES
ASKED : 30
RECOVERED : 11
SHOT : 13
LOST : 2
FULL BULLET :

ELF NORGE A/S

tr : trace - M : medium - G : good

N°	DEPTHS	REC	LITHOLOGY	Fluorescence	CUT
1	2898	1/4	limestone, chalky, white, microxln	Miner.	
2	2888	0	lost		
3	2878	0	lost		
4	2868	3/4	limestone, chalky, white, microxln	Miner.	
5	2855	1	limestone, chalky, white, very compact, microxln	none	
6	2845	1/4	limestone, chalky, light grey, shaly, compact	none	
7	2830	1/4	limestone, chalky, shaly	none	
8	2815	1/4	limestone, chalky, shaly	none	
9	2800	1/2	chalk, white, very fine	Miner.	
10	2785	1	limestone, chalky, shaly, grey to greenish	none	
11	2775	1/4	limestone, chalky, shaly, grey	none	
12	2768,5	0	Misfire		
13	2762	3/4	chalk, white, microgranular - abundant pyrite	Miner.	
14	2750		Misfire		
15	2740		shale, soft, dark grey	none	
16	2730		Misfire		
17	2720		"		
18	2708		"		
19	2705		"		

SIDE WALL CORES DESCRIPTION

WELL : 3/7-1 SIV 1	RUN N° 1
LICENCE : 023	PAGE N° 2
Norway - offshore	DATE : 01.09.1973.

SERVICE COMPANY	SPES
ASKED :	30
RECOVERED :	11
SHOT :	13
LOST :	2
FULL BULLET :	

ELF NORGE A/S

tr : trace - M : medium - G : good

N°	DEPTHS	REC	LITHOLOGY	Fluorescence
20	2703		Misfire	
21	2690		"	
22	2680		"	
23	2670		"	
24	2660		"	
25	2650		"	
26	2640		"	
27	2630		"	
28	2620		"	
29	2610		"	
30	2600		"	

SIDE WALL CORES DESCRIPTION

WELL	3/7-1 SIV 1.
LICENCE	023
	Norway - offshore
RUN N°	2
PAGE N°	1
DATE	01.09.1973.

SERVICE COMPANY	SPES
ASKED	30
RECOVERED	28
SHOT	29
LOST	1
FULL BULLET	

ELF NORGE A/S

tr trace - M medium - G good

N°	DEPTHS	REC	LITHOLOGY	Fluorescence
1	2395	1	shale, soft, dark grey to greenish	none
2	2385	1	" " , greenish, limy nodules	"
3	2375	1	" " , greenish grey	"
4	2365	1	shale, soft, greenish grey, sliken side	"
5	2355		lost	
6	2353	1	shale, soft, dark grey	"
7	2346	1	shale, soft, dark greenish	"
8	2342	1	" " "	"
9	2335	1	" " "	"
10	2324	1	shale, soft, greenish.	"
11	2317	1/2	" " "	"
12	2310	1	" " "	"
13	2300	1	" " , dark grey, sliken side	"
14	2290	1	" " , dark greenish	"
15	2280	1	" " , greenish grey	"
16	2270	1	" " , brownish grey	"
17	2260		Misfire	
18	2250	1	shale, soft, brownish grey	"
19	2240	1	" " , dark grey	

SIDE WALL CORES DESCRIPTION

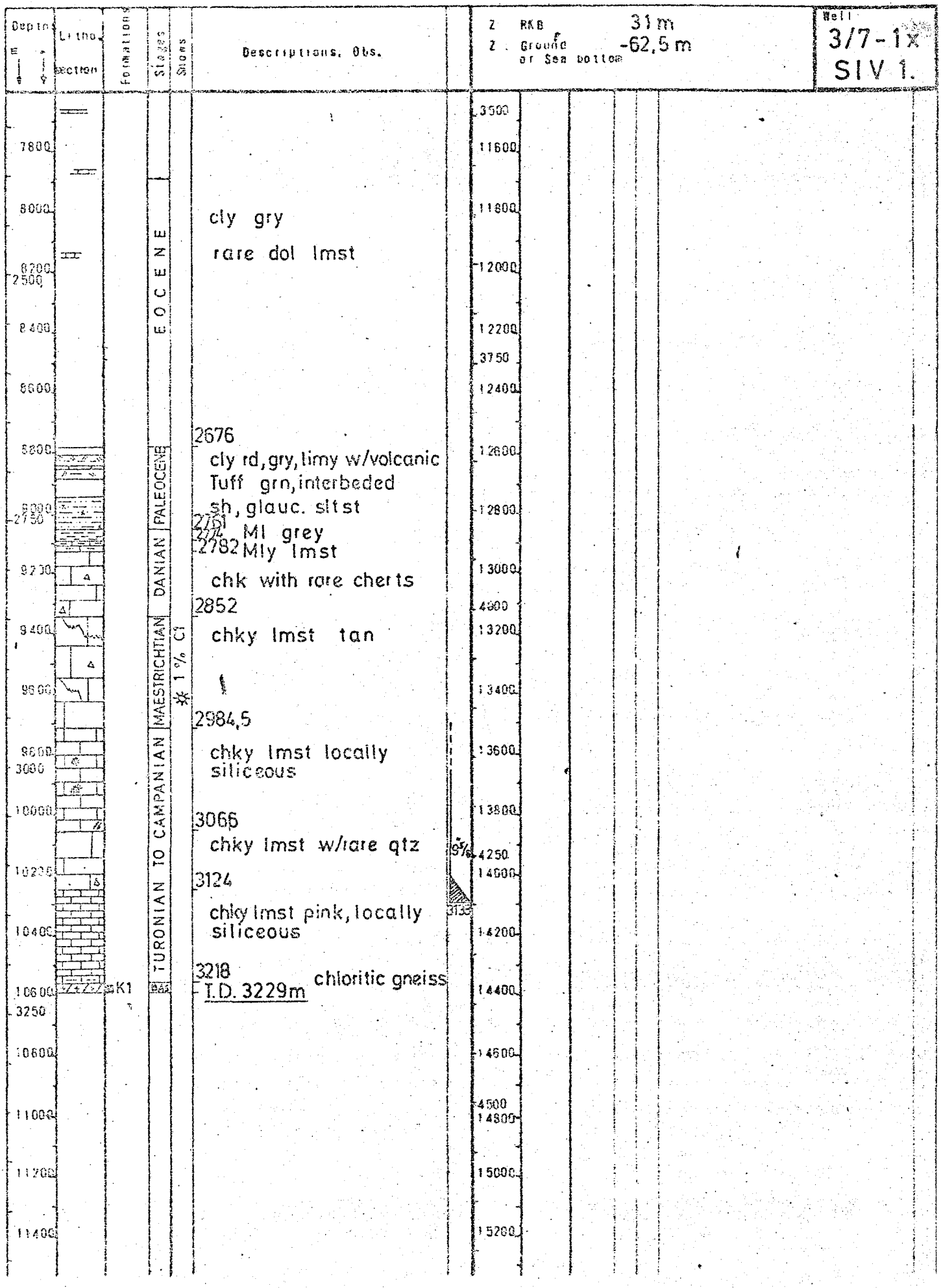
WELL	3/7-1 SIV 1.
LICENCE	023
	Norway - offshore
RUN N°	2
PAGE N°	2
DATE	01.09.1973.

SERVICE COMPANY	SPES
ASKED	30
RECOVERED	28
SHOT	29
LOST	1
FULL BULLET	

ELF NORGE A/S

tr trace - M medium - G good

N°	DEPTHS	REC	LITHOLOGY	Fluorescence	CUT
20	2230	1	shale , soft , dark grey	None	
21	2220	1	" " "	"	
22	2210	1	" " "	"	
23	2200	1	" " "	"	
24	2190	1	" " "	"	
25	2175		shale, soft , dark brown, pyrite	"	
26	2160		shale , soft , dark brown	"	
27	2145		" " "	"	
28	2130		" " "	"	
29	2115	0			
30	2100		sh, soft, drk brn, with fine incl. of tan limestone	"	


Depth m
Litho section
Formation
Stages
Shows
Descriptions, Obs.
Z RKB 31 m
Z Ground or Sea bottom -62,5 m
Well 3/7-1X SIV 1.
EOCENE
PALEOCENE
DANIAN
MAESTRICHTIAN
TURONIAN TO CAMPANIAN
cly gry
rare dol lmst
2676
cly rd,gry,limy w/volcanic Tuff grn,interbeded sh, glauc. sltst
2751
2782 Ml grey Mly lmst
chk with rare cherts
2852
chky lmst tan
* 1% C1
2984,5
chky lmst locally siliceous
3066
chky lmst w/rare qtz
3124
chky lmst pink, locally siliceous
3218
chloritic gneiss
T.D. 3229m
K1
7800
8000
8200
8400
8600
8800
9000
9200
9400
9600
9800
10000
10200
10400
10600
11000
11200
11400
2500
2750
3000
3250
11600
11800
12000
12200
3750
12400
12600
12800
13000
4000
13200
13400
13600
13800
4250
14000
14200
14400
14600
4500
14800
15000
15200

Coord. x 06°00'07,8"E z ground -62,5m
y 56°27'43,5"N z RKB. 31m

Depths datum RKB
Rig Ocean Tide (CANAM)
Stopped in Basement

Spudded 1.08.73
Started drilling 2.08.73
At TD 6.09.73
Completed 13.09.73
TD Driller 3227m TD Logger 3229m

Well 3/7-1x SIV 1.
Country Norway OFFSHORE

OPERATOR ELF NORGE A/S
LICENCE 023 OWNED BY PETRONORD

TARGETS

Jurassic and Zechstein sandstones.

RESULTS

Jurassic and Zechstein section missing. Basement underlying upper cretaceous chalk.

CASINGS

30" 127m
20" 454m
13 3/8" 1458,7m
9 5/8" 3138 m

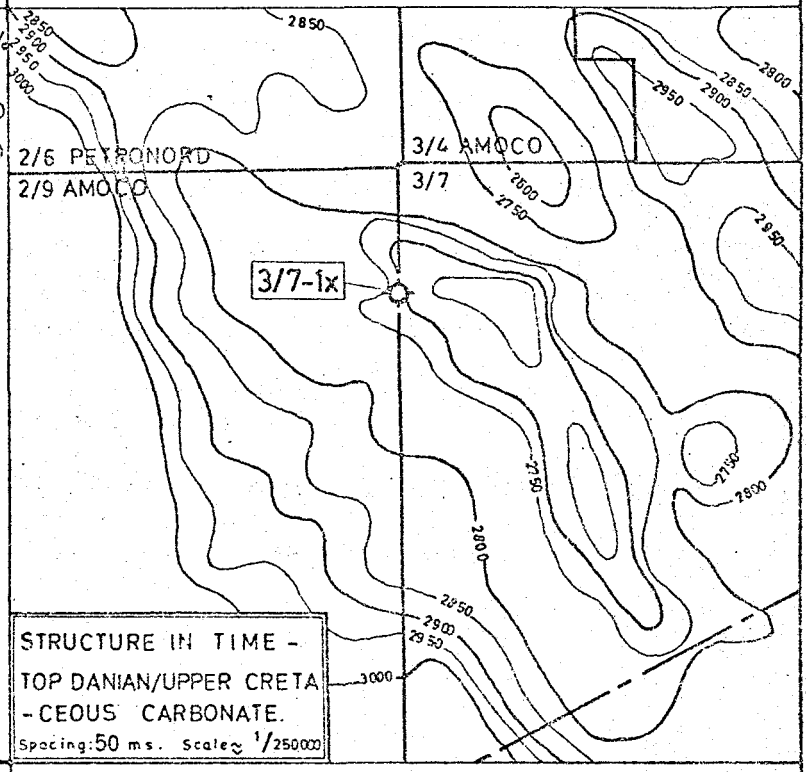
CORES

1	3221 - 3227	100%
SWC1	2600 - 2898	11/30
SWC2	2100 - 2395	28/30

SHOWS

C1 =

610 - 760 = 1 to 2%
950 - 1100 = 1%
1100 - 1300 = 1 to 2%
1300 - 1450 = 1%
1780 - 1820 = 1%
2900 = 1%



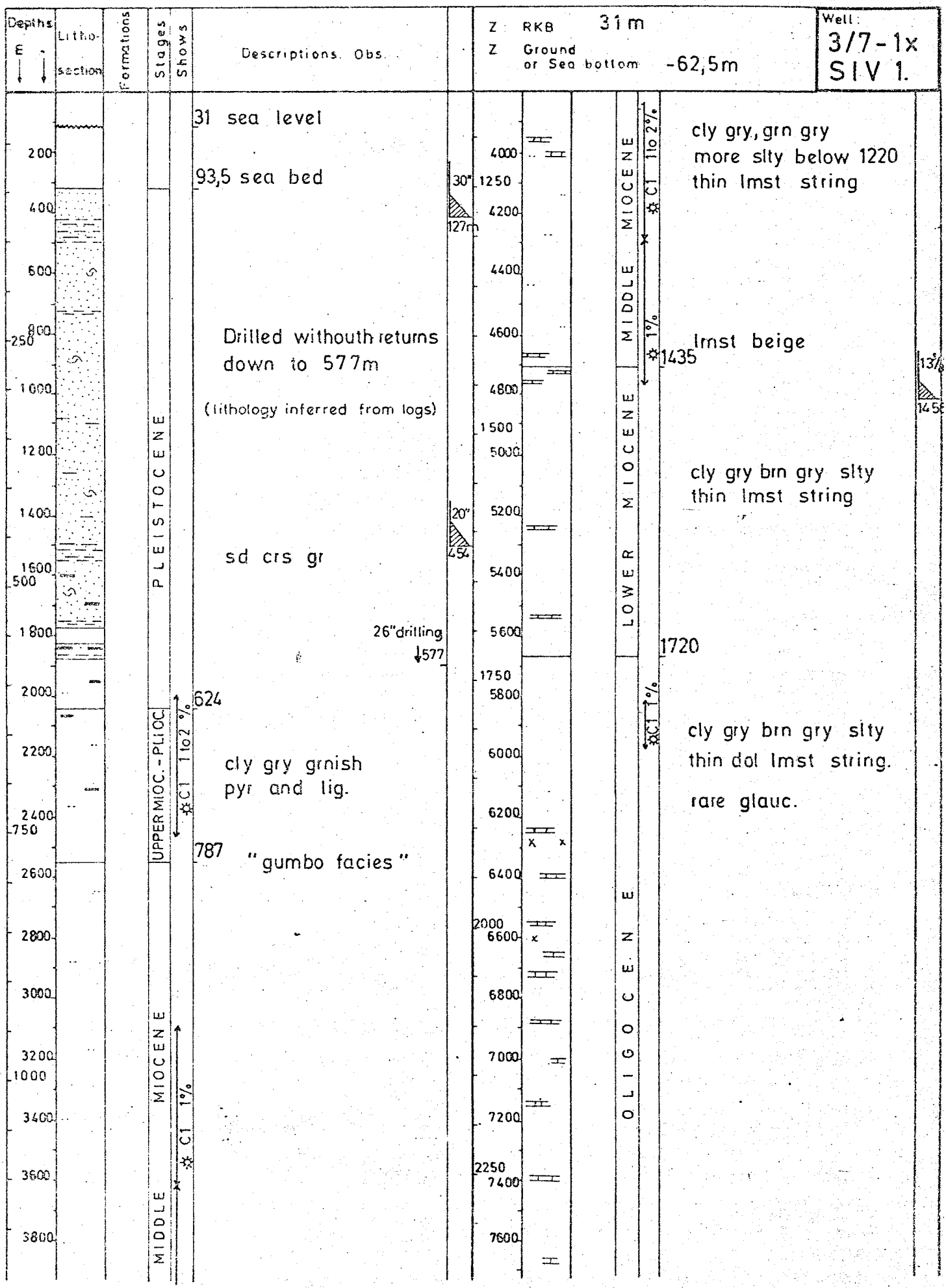
TESTS

NONE

LOGS

		Date
IES	455,5 - 1466	15
GR.	93,3 - 1462,5	à
BHC	455,5 - 1462,5	16.08
IES	1460,5 - 3138,5	
BHC	1460,5 - 3134,5	31
G.R.		à
CBL	93 - 1457	1.09
HRT	93 - 3113	3.09
IES	3138,2 - 3230	
GR.	3090 - 3229,2	6.09
BHC	3138,2 - 3229,1	

INTERPRETATION


Depths E -
Litho-section
Formations
Stages
Shows
Descriptions. Obs.
Z RKB 31 m
Z Ground or Sea bottom -62,5m
Well: 3/7-1x SIV 1.
31 sea level
93,5 sea bed
Drilled withouth returns down to 577m
(lithology inferred from logs)
sd crs gr
26"drilling
577
624
cly gry grnish pyr and lig.
787 "gumbo facies"
PLEISTOCENE
UPPER MIOC.-PLIOC.
MIDDLE MIOCENE
C1 1 to 2 %
C1 1%
30"
127m
20"
454
cly gry, grn gry
more slty below 1220
thin lmst string
lmst beige
1435
cly gry brn gry slty
thin lmst string
1720
cly gry brn gry slty
thin dol lmst string.
rare glauc.
LOWER MIOCENE
OLIGOCENE
13 3/8
145

POSITION MAP

elf

elf NORGE A/S

Echelle : 1/2500.0000

Date	15.10.73
Auteur	
N°classt	

3/7-1x - SIV 1

elf NORGE