ELF NORGE A/S

GEOLOGICAL REPORT

25/1-4

(FRIGG - NE)

WELL FILE

1. PERTINENT DATA

1.1 General Data

Licence	- 024		
Association	- Norsk Hydro	34,60	PETRONORD GROUP
	Elf Norge	29,07%	
	Aquitaine Norge	14,53%	
	Total Marine Norsk	21,80%	

Drilled as a joint well PETRONORD 50% - ESSO NORWAY 50%

Operator	- ELF NORGE A/S
Rig	- "Deep Sea Driller" (H_3 semi)
Contractor	- Deep Sea Drilling Co.
Location	- Seismic Line 59-59-50 SP 70
	Geographic X = 02° 15' 54,8 E
	Y = 59° 59' 52,5 N
Water depth	- 107 m
Air Gap	- 25,5 m RKB

1.2 Drilling and Operations time table

1.04.74	spudded
4.04.74	started drilling - 30" casing set at 142 m
7.04.74	13 3/8 casing set at 424,5 m
16-19.04.74	SPE run 1 at 1920 m IES - BHCSLGR
20.04.74	9 5/8 casing set at 1907 m
22-29.04.74	cut cores - 1 to 8
1.05.74	SPE run 2 at 2078 m IES - CNTFDC - BHCGR
10.05.74	SPE run 3 at 2771 m IES - CNTFDC - MLMLL and Seismic Survey
11.05.74	TD 2795 m

12-13.05.74	SPE run 3bis DLL HDT BHCGR
	FIT 1 SWC_1 SWC_2
15.05.74	7" liner set at 2065 m (top hanger 1795 m)
17.05.74	SPE run 4 GR CCL CBL
	Perforations 1991,20 - 1995,80 m
	1983,20 - 1987,20 m
	1969,70 - 1974,30 m
18-23.05.74	DST 1
24.05.74	FIT 2.3
30.05.74	completed

1.3 Status

Gas discovery

Plugged and abandoned

2. GEOLOGICAL DATA AND RESULTS

2.1 Objectives

In order to explore for additional gas reserves in the Frigg area, the 25/1-4 well was located on a lower Eocene structure straddling the 25/1 and 30/10 blocks limit, northeastward the main Frigg field.

A "Bright spot" phenomenon interpreted as a gas/oil or water table indication is clearly visible on all the seismic sections crossing the structure.

The Paleocene, Danian and Maestrichtian reservoir were considered as interesting secundary objectives.

2.2 Stratigraphical and Structural Results

2.2.1 Stratigraphy

See following table and composite log

Stratigraphical unit (from logs correlations)	Top (m) RKB	Top (m) MSL	Thickness in meters
	132,5	- 107	
Pleistocene to Miocene			819,5
	952	- 926,5	
Oligocene			550
	1402	-1376,5	
Upper Middle Eocene			565
	1967	-1941,5	
Lower Eocene			91
	2058	-2032,5	
Paleocene			467
	2525	-2499,5	
Paleocene to Danian			118
	2643	-2617,5	
Maestrichtian			152
	2795 (TD)	-2769,5	

2.2.2 Structural Results

The top of the Eocene sands were encoutered at 1967 m i.e. 22 m lower than expected.

The top of the chalk which was anticipated at 2680,5 m (-2655) was encountered at 2687 m, the upper part of the Maestrichtian being sandy and reached at 2643 m.

2.3 Reservoirs

2.3.1 Lower Eocene sands = 1967,8 - 2058 m (90,2 m)

a) Gas Reservoir

gas - oil contact	- 2005,6 m (-1980,1 m)
gross pay	- 37,8 m
net pay	- 27,5 m
Ø	- 30 to 33%
Sw	- 10%

b) Oil Reservoir

oil - water contact	- 2009 m (-1983,5 m)
gross pay	- 3,4 m
net pay	- 3,4 m
Ø	- 32,5%
Sw	- 50%, salinity: 70 g/l

2.3.2 Paleocene - Danian sands = 2058 - 2503 m (445 m)

In this section net sands are 190 m thick of which 25 m consist of calcareous sandstone and 90 m of shaly sands.

Ø	- 21 to 32%
Sw	- 200%, salinity: 70 g/l

2.3.3 Maestrichtian

a) Sandy Reservoir - 2643 - 2687 m (44 m)

net sands	- 25 m of heterometric sands and 15 m of calcareous sandstone to sandy limestone
Ø max	- 22%
Sw	- 100%, salinity: 50 g/l

b) Chalky Reservoir - 2757,5 - 2762 m (4,5 m)

net pay	- 4,5 m
Ø max	- 17%
Sw	- 50% (?), salinity: 50 g/l(?

2.4 Shows and Fluids

2.4.1 Eocene Sands

In order to define the stratigraphy at the top of the Eocene sands, coring started at 1923 m.

The top of the reservoir at 1967,8 was detected by C_1 traces (maximum 3%). Gas/oil and oil/water interfaces respectively at 2005,6 m and 2009 m well marked on cores by direct fluorescences and cuts were confirmed by electrical logs.

Two wire line tests were located on the oil bearing zone at 2006,5 m and 2007,5 m the second one being transferred under DVT conditions recorded 5,15 l of oil and 4,75 l of mud filtrate.

One Drillstem test behind 7" liner was carried out through perforations: 1991,20-1995,80, 1983,20-1987,20, 1969,7-1974,30.

Gas flow was stabilized around:
610 000 m^3/j on 3/4" choke (with 210 l/h gasoline)
831 400 m^3/j on 1" choke (with 210 l/h gasoline)

2.4.2 Paleocene to Maestrichtian Sands

Gas ground was weak to nil below 2010 and cuttings or sidewall cores showed no direct fluorescence and cuts.

The whole sands are waterwet.

2.4.3 Maestrichtian Chalk

During drilling some gas shows were recorded on the section 2757 - 2763 m with maxima of:

C_1 = 4.5% C_2 =.32 C_3 =.18

Although some hydrocarbon saturation was inferred by logs, FIT 1 at 2760 m recovered only 2,750 l of mud with oil traces after a 25' flow period.

CONCLUSIONS

Well 25/1-4 is a new gas discovery on the blocks 25/1, 30/10 in the Lower Eocene Sands.

The reservoir was found at 1967,8 m (-1942,3). The gas/oil interface has to be set at 2005,6 m (-1980,1), oil/water interface being at 2009 m (-1983,5).

This confirms that the structure is totally unconnected with the main Frigg field.

Down to the Maestrichtian sand bodies are well developped as usual in that area. All are waterbearing.

After the potential of the gas reservoir has been tested, the well was plugged and abandoned.

SERVICE COMPANY	SPT
ASKED	30
RECOVERED	28
SHOT	30
LOST	2
FULL BULLET	25

SIDE WALL CORES DESCRIPTION

WELL : 25/1-4
LICENCE : 024

RUN N° 1
PAGE N° 1
DATE 13/5-74

tr trace - M medium - G good

N°	DEPTHS	REC	LITHOLOGY	Fluorescence			CUT
1	2763	15	chlky lmst:beige gry,compact,calcite recrist. slight hydroc. smell.				
2	2759,5	25	a.a				
3	2793	/	lost				
4	2791	25	mrl/calc sh:sft,fissile,slghty detr.,gryish grn .				
5	2789	50	sh:calc,fissile,gry,large musc. common .				
6	2745	50	sh:fissile,drk gry,v.calc.,slgty sdy,mic.				
7	2716	25	a.a rare qtz gr.				
8	2673,5	/	lost				
9	2662	25	sd:clean,f.v.crs,v.bad sort,subang.gr. musc.,tr.pyr.	/			
10	2653,5	0	empty bullet only & sh:indur gry probably caving				
11	2646	0					
12	2640	70	sh:fissile,sft,grnish-gry,slgty calc.				
13	2630	50	a.a				
14	2603	70	sh:fissile,gry,v.slgty calc.,friction plans				
15	2575	0	empty bullet only & sh:grnish gry				
16	2557	90	sh:indur,drk gry,calc.,f.musc.				
17	2532	80	sh:sft,fissile,gry,friction plans				
18	2512	80	sh:sft,fissile,grnish-gry,f.musc.				

SERVICE COMPANY :	SPE
ASKED :	30
RECOVERED :	28
SHOT :	30
LOST :	2
FULL BULLET :	25

SIDE WALL CORES DESCRIPTION

WELL :	25/1-4	RUN N°	1
LICENCE :	024	PAGE N°	2
		DATE	13/5/74

tr : trace - M : medium - G : good

N°	DEPTHS	REC	LITHOLOGY	Fluorescence		CUT
19	2482	40	sd:vf. f.well sort.subang.qtz	/		
20	2441	70	sd:gryish,mainly f.with crs qtz,argill.cmt,and sh : sft,fissile,grnish.	/		
21	2400	90	sh:sft,fissile,sdy with crs round.qtz,gry grnish-gry,musc.			
22	2371	90	sh:indur, gry,musc.			
23	2322	40	sh:indur,gry,friction plans.			
24	2274	90	sh:fissile,gry,laminae sdst:vf.,no calc.			
25	2247	50	sh:sft,fissile,gry,no calc.			
26	2218	100	sh:grnish,v.mic. and sdy.			
27	2176	100	sd:f. md,fair sort.,subang gr.,laminae sh:gry,lght blue and sh:drk gry,no calc.	/		
28	2153	70	sdst:gry,v.argill.,f. gr.,fair sort.,crs subround.qtz, nodule sh:drk-gry	/		
29	2119	100	sh:sft,grn,slty beds,no calc.			
30	2067	100	sd:clean,whtish and sd:gryish,very argill.,f.well sort.,subang,musc.	/		

SERVICE COMPANY	SPE
ASKED	30
RECOVERED	23
SHOT	29
LOST	7
FULL BULLET	21

SIDE WALL CORES DESCRIPTION

WELL	25/1-4	RUN N°	2
LICENCE	024	PAGE N°	1
		DATE	13/5/74

tr trace · M medium · G good

N°	DEPTHS	REC	LITHOLOGY	Fluorescence			CUT
1	2763	20	chlky lmst:beige gry,compact,calc.recrist,stylo.joints, slight hydroc smell				
2	2759,5	15	a.a				
3	2793	50	mrl/cal sh:sft,fissile,grnish gry,f.mic,subvertical friction plans				
4	2791	30	sh:v.calc.,fissile,gry,musc.				
5	2789	70	sh:v.calc.,fissile,drk gry,musc.				
6	2745	30	sh:v.calc.,drk gry,slgty sdy,mic.				
7	2716	25	a.a rare qtz gr.				
8	2673,5	90	sd:clean,f.to v.crs,bad sort.,subang.gr.,rare musc. and sh:sft,fissile,grnish,slgty calc.;sd/sh contact = 45°				
9	2662	25	sd a.a				
10	2653,5		lost				
11	2646		lost				
12	2640		lost				
13	2630	40	sh:sft,fissile,grnish-gry,slgty calc.				
14	2603	40	sh:fissile,gry,slgty calc.,friction plans				
15	2575		lost				
16	2557	70	sh:sft,fissile,gry,slgty calc.,f.musc.				
17	2532	90	sh:sft,fissile,gry, tr sh:brnish				
18	2512	100	sh:sft,fissile,grnish-gry,f.musc.				

SERVICE COMPANY :	SPE
ASKED :	30
RECOVERED :	23
SHOT :	29
LOST :	7
FULL BULLET :	21

SIDE WALL CORES DESCRIPTION

WELL : 25/1-4	RUN N° 2
LICENCE :	PAGE N° 2
	DATE : 13/5/74

tr : trace - M : medium - G : good

N°	DEPTHS	REC	LITHOLOGY	Fluorescence				CUT
19	2482	70	sd:gryish,vf.f.,fair sort.,subang.qtz,shaly laminae	/				
20	2441	0	empty bullet					
21	2400	90	sh:sft,fissile,sdy,gry to grnish-gry					
22	2371	30	sh:indur.,gry,sdst laminae:slgty calc.,pyr.					
23	2322	/	lost					
24	2274		misfire					
25	2247	40	sh:sft,fissile,gry,sdy,no calc.					
26	2218	/	lost					
27	2176	100	sd:f.md,fair sort.,subang.gr.,slgty argill.,mic. interbed sh:drk gry	/				
28	2153	/	lost					
29	2119	90	sh:sft,grn,no calc.					
30	2067	100	sd:gryish,argill.,f.,well sort.,subang.,musc.	/				

elf

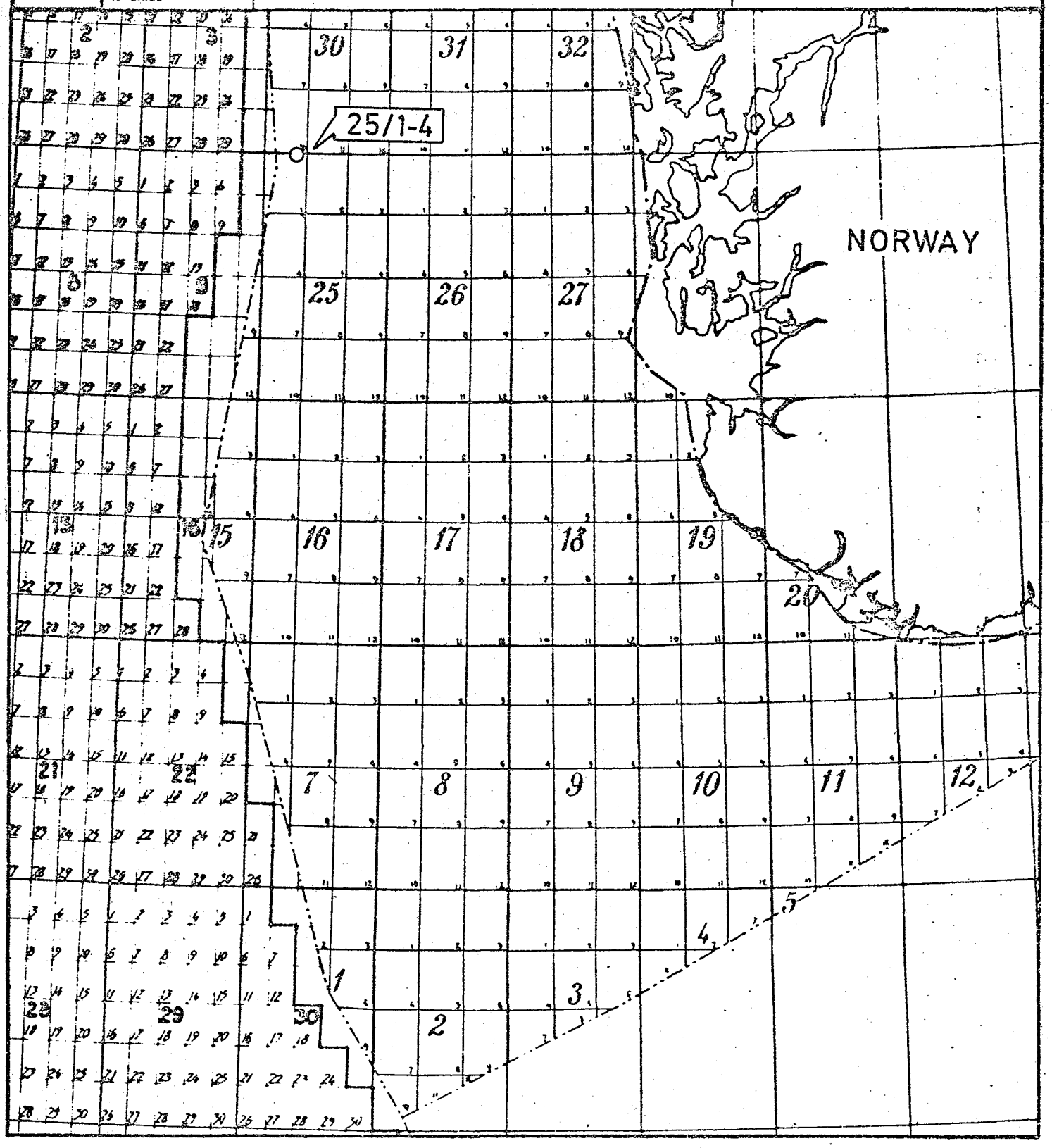
POSITION MAP

elf NORGE A/S

Echelle : 1/25000000

Date	
Auteur	25/1-4 - FRIGG N.E.
N°class^t	

elf NORGE



Coord. X: 02° 15'54,8" Z ground . - 107 Y: 59° 59'52,5" Z RKB. + 25,5 Depths datum: RKB Rig: DEEP SEA DRILLER Stopped in: UPPER CRETACEOUS	Spudded: 01.04.74 Started drilling: 04.04.74 At TD: 11.05.74 Completed: 30.05.74 TD Driller: 2795m TD Logger: 2793m	Well: FRIGG N.E. 25/1-4 Country: Norway off shore
OPERATOR: Elf Norge A/S	LICENCE: 024	OWNED BY: Petronord.

TARGETS:

1.) Frigg sands (Lower Eocene)

2.) Paleocene Danian Maestrichtian sand reservoirs.

RESULTS:

- Gas discovery in Frigg sands – pay zone 37,80m from 1967,80m to 2005,60m oil annulus of 3,4m
- P& A. Water table 2009.

CASINGS

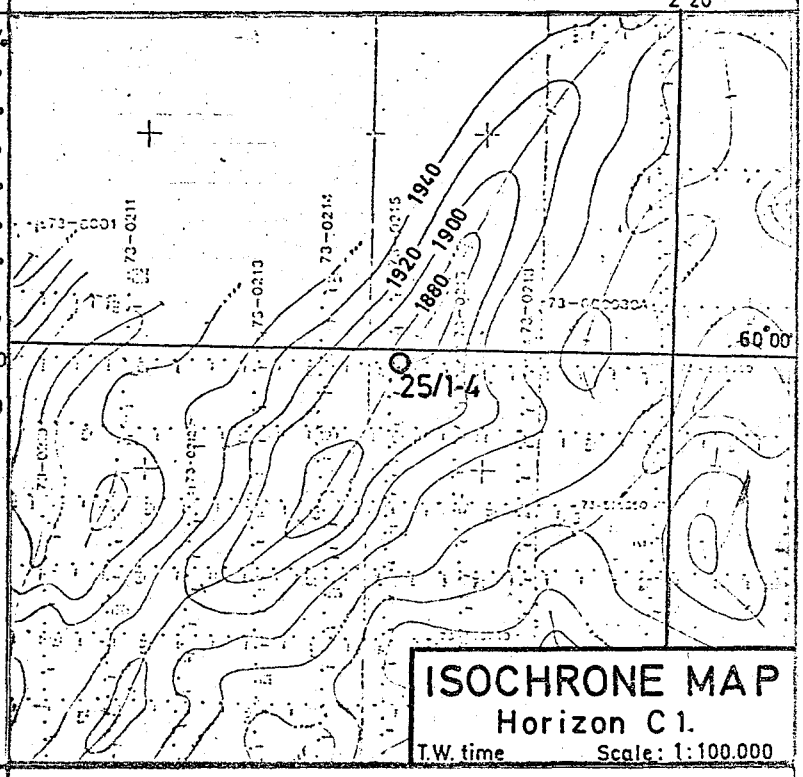
30"	164,5 m
13 3/8"	424,5 m
9 5/8"	1907 m
7"	2065 m (1760m)

SHOWS

☼	1967,80 - 2005,60
●	2005,60 - 2009
C_{1-3}	2757 - 2763

CORES

1.	1922 - 1935,5	81,5%
2.	1935,5 - 1953,5	78%
3.	1953,5 - 1970,5	100%
4.	1970,5 - 1984	44%
5.	1984 - 1993	67%
6.	1993 - 2001	75%
7.	2001 - 2010	100%
8.	2010 - 2028	75%
SWC	2067 - 2793	25/30
SWC	2067 - 2793	21/30



TESTS

FIT 1.	2760	2,7	⊕ 35
		tr.	● ☼
FIT 2.	2006,5	2,5	●
FIT 3.	2007,5	5,15	●
		4,75	⊕ 34
DST 1.	1969,70	610000 m³/j	☼
	1995,80	5,04 m³/j	☼
	on 3/4"		
	reserv. press. 2289 psi = 160 kg/cm²		

LOGS

IES	1920	425	1.
GRSL	1919	420	1.
GR.	420	132	1.
IES	2078	1907	2.
FDCCN	2078	1907	1.
GRSL	2077	1907	2.
IES	2770	1907	3.
FDCCNT	2770	1907	2.
MLMLL	2770	1907	1.
DLL	2786	1907	1.
GRSL	2792	1907	3.
HDT	2791	1907	1.
CBL	1907	1250	1.
CBL	2051	1758	2.
CCL perfo	1991,20 1983,20 1969,70	1995,80 1987,80 1974,30	1.

INTERPRETATION

Checked: MAY 74.

By:

Z: RKB +25,5
Z: Ground or Sea bottom -107
132,5m

Well: 25/1-4

Depths m	Litho-section	Formations	Stages	Shows	Descriptions. Obs.
					25,5 Sea level.
200					132,5 Sea bed.
					30"
400					164,5
600					Drilling without returns.
800 / 250					
1000		SERIES	Pleistocene		
1200					
					13 3/8"
1400					424,5
1600 / 500					Sd: f, md, subrounded gr numerous shell frags, musc.
1800		LIGNITIC			lumachellic and lignitic levels.
2000					
2200					
2400 / 750					
2600					
2800					
3000			Miocene to		Sd: a.a. argillaceous
					952
3200 / 1000		BROWN CLAY GROUP			Cly: brn gry, brn, sticky, v. slty/sdy local. calc.
3400			Oligocene		
3600					interc/Sd f. md calc. cmt. in parts
3800					
4000 / 1250		BROWN CLAY GROUP	Oligocene		Lmst whte microx. sdy
4200					
4400					
4600					1402
4800 / 1500			Eocene	only C1. max. 1.2	Sh a.a. less slty
5000					Lmst ± Dol. stringers/nod.
5200					
5400					
5600 / 1750			Middle - Upper		
5800					
6000		GREEN SHALE MEMBER		C_1 ~:25 to 4.3 C_2~0,09	Sh a.a. with sh grnish gry
6200					below 1850 tr. Sh apple grn
					9 5/8"
					1907 at 1910 Sh: rd brn in traces
6400					K1.
					1967,8
2000 / 6600		FRIGG FORM.	Low. Eocene		DST 1. FIT 23 K8 Sd: f-md, fair mod. sort. subang. gr. scatter. crs qtz musc. Down to 2007 joints/laminae Sh: grnish gry Bit. and lignite debris
6800		UPPER SAND-SHALE MEMBER	Paleocene		2058 7" 2065 Alternates: Sd a.a. Sh drk gry brnish gry sdy in parts, calc Sdst Below 2085 interbeds Sh: indur. rd brn
7000					
7200					Sh: becom. mainly drk gry - gry Sd: f. md. v. shaly, string. calc Sdst
					2219
2250 / 7400		Tuff zone			Alternates = Tuff levels, silic. drk gry Sh, silic - calc. Sdst
					2253
					Sd: f. crs, fair sort. and Sh: drk gry, tr. Sh rd brn grnish gry
7600					2316
					Sh a.a.

Depths E ↓ - ↓	Litho-section	Formations	Stages	Shows	Descriptions. Obs.		Z: RKB +25,5! Z: Ground or Sea bottom -107 132,5m	Well: 25/1-4
		COD FORM.	Paleocene		Sd: f.md, loc. calc. cmt. and Sh: gry ± slty mic.			
7800						2394	3500 / 11600	
8000		LOWER SHALE · MEMBER			alternates Sh: gry grnish-gry and Sd/Sdst		11800	
8200 / 2500							12000	
8400			Dan. - Paleoc.		Lmst: mudst, lght gry, brn, slgty argill.	2561	12200 / 3750	
8600					Sh: drk to lght gry, ± slty, ± calc Sdst - Lmst stringers	2643	12400	
8800		UPP. CRETACEOUS	Maestrichtian		Sd/calc Sdst f.crs, v.bad sort., rare musc. pyr. glauc. string: chky Lmst, Mrl (2650)	2687	12600	
9000 / 2750		FIT1.		G-3	Chky Lmst: lght beige cream rare cherts Sh: drk gry blk, micromic., ± calc Mrl: sft, lght gry, loc. rd brn		12800	
9200	T.D. 2795m					2795	13000 / 4000	
9400					(NB Stratigraphic breaks inferred from correlations. before lab's results.)		13200	
9600							13400	
9800 / 3000							13600	
10000							13800 / 4250	
10200							14000	
10400							14200	
10600 / 3250							14400	
10800							14600 / 4500	
11000							14800	
11200							15000	
11400							15200	

Cut 13,5 m
Recovered 11 m 81,5 %
Loss 2,5 m

Company elf-norge
Well no 25/1-4
Core no one

Date: 23/4-74
Depths 1922 - 1935,5

Depths	Core	FEAM	POROS	SHOWS	DIPS	Log	DESCRIPTION
1922							
1924							
1926							The core is composed of grey-green, dark grey, loc. brown shale, homogeneous, rarely slightly silty, medi um hard, fissile and friable in bedding planes, uncalcareous. In top of the core some inclusions (2-4 cm.) of hard and dense light grey siltstone with calcareous - argillaceous oolitic matrix occurs.
1928				TRACES	ABOUT 10°?		
1931							

Cut 13 5 m
Recovered 11 m 21,5%
Loss: 25

Company elf-norge
Well no 25/1-4
Core no one

Date 23/4-74
Depths 1935,5

Depths	Log	DESCRIPTION
1932		A/A
1934		
1935,5		

Cut 12 m
Recovered 14 m 78%
Loss 4 m

Company elf-norge
Well no 25 1 4
Core no 2

Date 24/4-74
Depths 1935,5-1953,5

Depths	Log	DESCRIPTION
1935,5		
1937,5		
1939,5		1. Shale grey-green, drk gry, .loc. brwn-rdish homogenous occ. silty med. hard, fissile and friable, non calcareous.
1941,5		
1943,5		2. Levels (5-15 cm.) of hrd and dense rock composed of sh and sltst with calcareous and argillaceous matrix. Some joints and fissures are filled with calcite and pyrite.

TRACES

DIFFICULT TO DETERMINE

Cut 18 m
Recovered 14 m
Loss 4 m

78%

Company elf-norge
Well no 25/1-4
Core no 2

Date 24/4-74
Depths 1953,50

Depths	Log	DESCRIPTION
1945,5		
1947,5		Shale A.A.
1949,5		2-A.A.
1951,5		
1953,5		

TRACES

Cut 17 m
Recovered 17 m 100%
Loss

Company elf-norge
Well no 25/1-4
Core no 3

Date 25/4-74
Depths 1953,5-1970,5

Depths	Log	DESCRIPTION
1953,5		Thin level of pyrite
1955,5		
1957,5		1. Shale green, grey-green and locally brown, med. hard, friable, subfissile, uncalcareous; some dissiminated grains of pyrite.
1959,5		2. Shale becoming more friable and softer more dissiminated pyrite grains cover smooth bedding surfaces.
1961,5		

TRACES C1 — DETERM TO DIFFICULT

TRACES 01% C1

Cut 17 m
Recovered 17 m 100%
Loss

Company elf-norge
Well no 25/1-4
Core no 3

Date 25/4-74
Depths 1953,5 1970,5

Depths	Log	DESCRIPTION
1963,5		
1965,5		2. Shale A.A.
1967,5		
1969,5		
1970,5		Siltstone grey to light grey, dense and well indurated, locally friable, some mica (muscovite), well cemented (calcareous), occ. bitumen; hydrocarbons odor.

TRACES

0.2% C_1

DIFFICULT TO DETERM

Cut : 13,5 m
Recovered : 6
Loss : 7,5 m
44 %

Company : elf norge
Well no : 25/1-4
Core no : 4

Date : 26/4-74
Depths : 1970,5 - 1984

Depths	Core	Log	DESCRIPTION
1970,50			
1971	BOX 1		Sand: poor consolidated, greyish, fine to medium, subangular grains, fair to moderate sorting, scattered coarse quartz some green translucient minerals abundant muscovite rare argillaceous joints locally indurated, very slightly calcareous; at 1976,50. Shale joints with rubefied marks - slumping figures.
1972	BOX 2		
(SDST)			
1973	BOX 3		1974,60 - 1975,40 Shale: indurated, fissile, greenish grey, detritic. below 1974,90, sand/sandstone: argillaceous
1974	BOX 4		
(SDST)			
1975	BOX 5		NB: core extraction under water pressure sand not contaminated appears not waterwet In coring gaz ground $C_{1\ max}$ = 0,20%
1976	BOX 6		
1976,50			
1977			
1978			
1979			

Core: VERY GOOD; VERY GOOD TO FAIR

Odour: NO CUT; NO FLUD; SMELL; STRONG HYDROCARBON

Dips: SUB HORIZONTAL

Cut : 13,5 m
Recovered: 6 m
Loss: 7,5 m

44%

Company elf-norge
Well no 25/1-4
Core no 4

Date 26/4-74
Depths: 1970,5 - 1984.

Depths	Core	Perm	Porosity	Saturation	Dips	Log	DESCRIPTION
1979							
1980							
1981							NOT RECOVERED.
1982							
1983							
1984							

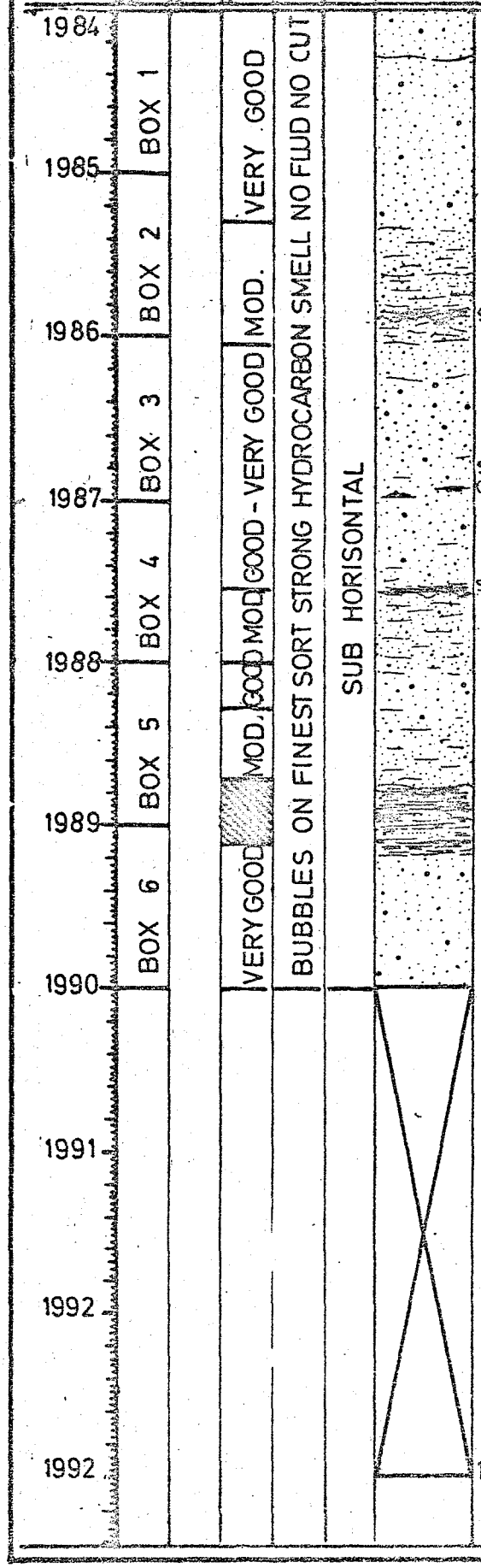
Cut: 9 m
Recovered: 6 m
Loss: 3 m

67%

Company: elf-norge
Well no: 25/1-4
Core no: 5

Date: 27/4-74
Depths: 1984-1993 m

Depths	Log	DESCRIPTION
1984		
1985		
1986		
1987		
1988		
1989		
1990		
1991		
1992		
1992		



Sand: greyish, more or less consolidated, very fine to medium, moderate sorted.
Scattered coarse subrounded quartz; muscovite; green grains.
Some soft bituminous inclusions and lignitic parts.

Shale laminae: dark grey, bluish grey, mainly between 85,60 - 86, 87,55 - 88 and 88,25 - 88,70 (parallel stratification) with thin plants remains - locally carbonaceous (thin coal levels: dark brown, conchoidal, bright fractures)

Soft fissile shale: dark grey, locally finely sandy (reworking figures) from 88,70 to 89,15

NB: in coring gaz ground C_1 max = 22
sand looks not waterbearing

Cut 8 m
Recovered 6 m 75%
Loss 2 m

Company elf-norge
Well no 25/1-4
Core no 6

Date 28/4-74
Depths 1993 - 2001 m

Depths	Core	Cut	Recovered	Loss	Log	DESCRIPTION
1993	BOX 1		VERY GOOD	SLIGHT HYDROCARBON SMELL NO FLUD NO CUT	SUB HORIZONTAL	Sand very fine to medium, moderately sorted, subangular grains. scattered coarse subrounded quartz + muscovite rare bitumen and lignitic debris. rare laminae/joints of shale: dark grey
1994	BOX 2					
1995	BOX 3					NB: extracted core under water pressure, contamination by water and mud from 1993 to 1997 m. sand seems to be not water-bearing in coring rare traces C_2
1996	BOX 4					
1997	BOX 5					
1998	BOX 6					LIGNITIC SH
1999						1999
2000						
2001						2001

Cut 18 m
Recovered 13,5 m 75 %
Loss 4,5 m

Company elf norge
Well no 25/1-4
Core no 8

Date 29/4-74
Depths 2010 - 2028 m

Depths	Boxes	Recovery	Cut	Colour	Log	DESCRIPTION
2010	BOX 1	VERY GOOD	SALTY TASTE	SUB HORIZONTAL		O/W
2011	BOX 2					Sand: greyish, fine to coarse, subangular grains, moderate sorting, rare muscovite, some bitumen. inclusions of shale: green to grey, around 2015,40, and shale laminae: dark grey, lignitic. (above 2010,08 m sand slightly brownish with fair direct fluo and cut)
	BOX 3					
2012	BOX 4					
2013	BOX 5					
2014	BOX 6		NO CUT			
2015	BOX 7					
2016	BOX 8		NO FLUD			
2017	BOX 9					
2018	BOX 10					
2019						

Cut 18 m
Recovered 13,5 m 75%
Loss 4,5 m

Company elf-norge
Well no 25/1-4
Core no 8

Date 29/4-74
Depths 2010-2028 m

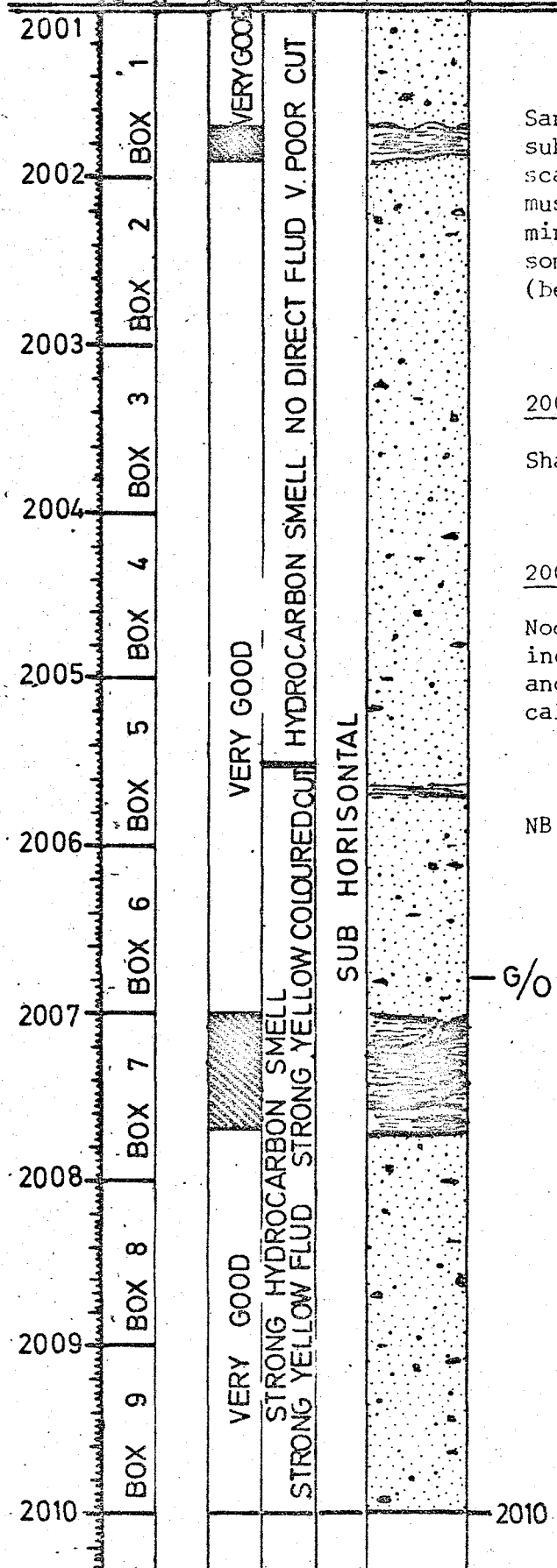
Depths	Boxes	Recov.	Porosity	Smell	Colour	Log	DESCRIPTION
2019	BOX 10		VERY GOOD	SALTY TASTE			
2020	BOX 11						From 2020,50 to 2021,30
2021	BOX 12		POOR			SDST. SH.	Sandstone: very hard, fine to coarse, calcareous cement - pseudo stylolitic joint at 21,30 thin clay level : dark grey, calcareous, sandy .
2022	BOX 13		VERY GOOD	NO CUT			
2023	BOX 14		NO FLUD			2023,50	NB: no gaz ground in coring core extracted under water pressure sand looks water-wet except on the 08 cm on the top.
2024							
2025							
2026							
2027							
2028						2027	

Cut 9 m
Recovered 9 m
Loss 0 m

Company elf-norge
Well no 25/1-4
Core no 7

Date 28/4-74
Depths 2001 - 2010 m

Depths	Log	DESCRIPTION



Sand greyish fine to medium, moderately sorted, subangular grains.
scattered coarse subrounded grains.
muscovite ; red and green coloured heavy minerals.
some bituminous and lignitic inclusions.
(below 2005,5 m sand becomes brownish)

2001,70 - 2001,90 and 2005,65 - 2005,72

Shale: dark grey, sandy, with lignitic debris

2007 - 2007,70

Nodular clay, red brown, calcareous, with inclusions of shale: dark grey, greenish grey, and shale: yellowish, hard, siliceous and calcareous.

NB: core extracted under water pressure.
sand not contaminated looks.
not water-bearing down to 2005,50 m.
no gaz show during coring.

PRODUCTION
OIL · GAS · CONDENSATE · WATER · INJECTION WELLS

WELL NO. 25/1-4	FIELD FRIGG	

Norway offshore
COMPOSITE - LOG

LAT. 58° 44' 19.0" N	DATUM: K.B.
LONG. 02° 17' 30.0" E	ELEVATION: K.B. 31.0 m
	DATUM: M.S.L.
	ELEVATION: M.S.L. 0.0 m
TOTAL DEPTH DRILLER: 2.500 m	DATE: 27 MAY 1974
TOTAL DEPTH LOGGER: 2.500 m	
BOTTOM LOGGED INTERVAL: 2.500 m	
TYPE OF FLUID IN HOLE: SALT WATER	
MAX. RECORDED TEMP.: 2.500 m: 90 DEGREES	
ESTIMATED BOTTOM HOLE TEMP.: 2.500 m: 90 DEGREES	
FIRST CASING STRING: 20" @ 1.000 m	
SECOND CASING STRING: 9 5/8" @ 2.500 m	

ELEVATIONS

TOP OF KELLY BUSHING	31.0 m
TOP OF ROTARY TABLE	29.0 m
TOP OF CASING FLANGE	2.0 m
TOP OF CONDUCTOR	0.0 m
TOP OF CONDUCTOR	0.0 m
TOP OF CONDUCTOR	0.0 m

DATUMS

- TOP OF CASING FLANGE
- TOP OF CONDUCTOR
- TOP OF CONDUCTOR
- TOP OF CONDUCTOR