DOC # 676289

ELF AQUITAINE NORGE A/S
Exploration Division
Ref. No.: 84/192-R
DS/ØE/bl

PRELIMINARY RESULTS
WELL 25/2-8

Author: Dag Stensland

Stavanger, Sept. 1984

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POSITION MAP

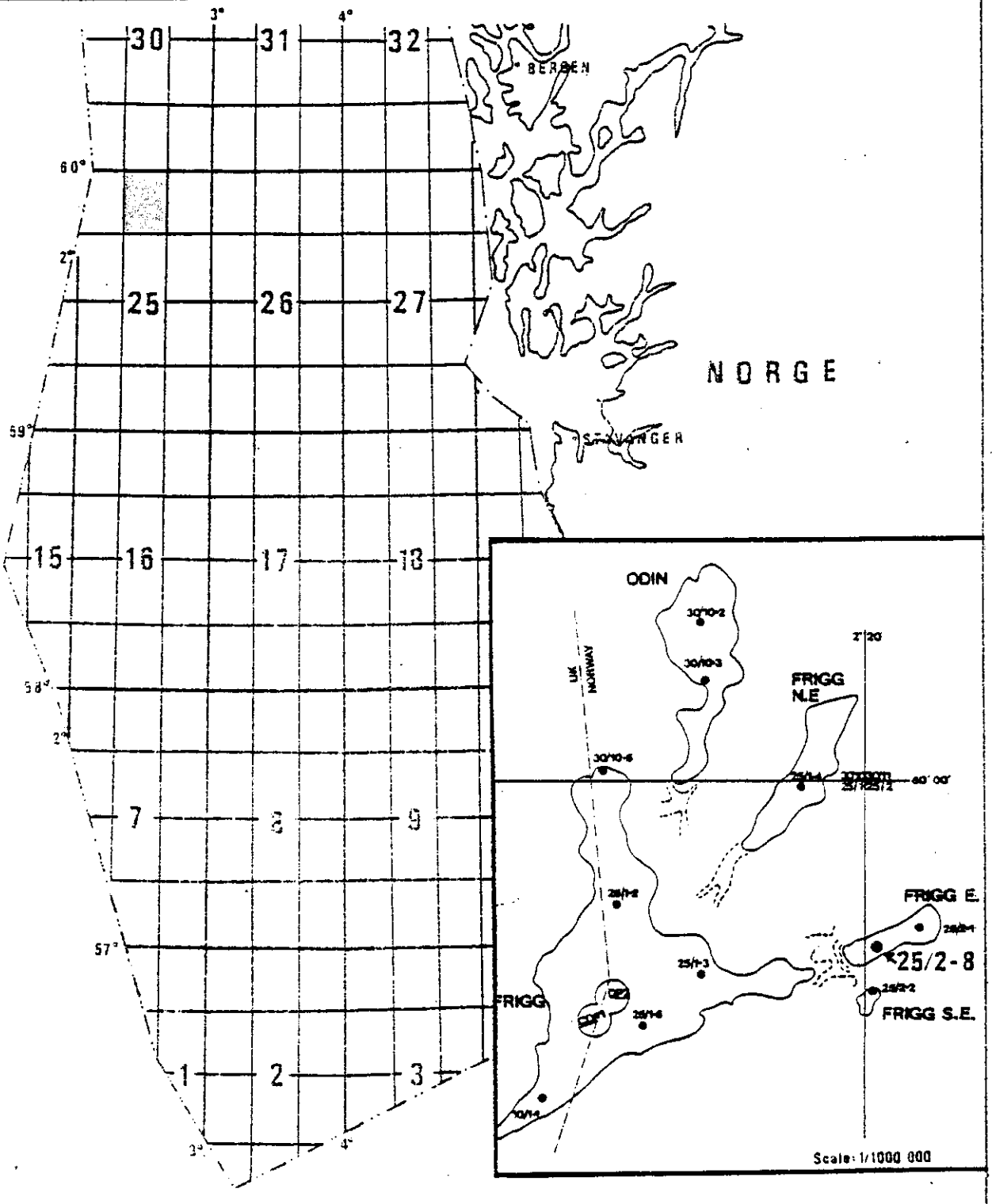
BLOCK : 25/2

WELL : 25/2-8

OWNER : PETRONORD

Scale: 1/2500 000

Date: April 1984



EXPLORATION DIVISION

Fig.1

1. GENERAL DATA

Country:	Norway	
Area:	Block 25/2 (licence 026)	
Well identification:	25/2-8	
Owner:	Petronord	
Partners:	Elf Aquitaine Norge A/S	43.6%
	Total Marine Norsk A/S	21.8%
	Norsk Hydro A/S	34.6%
Operator:	Elf Aquitaine Norge A/S	
Well classification:	Appraisal	
Geographical Coordinates:	Lat. 59°54'45.136"N	
	Long. 02°20'27.619"E	
Seismic Location:	Intersection of seismic lines	
	EL 8402-205 and EL 8402-411	
Drilling rig:	"Pelerin"	
Water Depth:	106m MSL	
RKB Sea Bottom:	118m	
T.D.:	2380m	
On location:	18.06.84	
Started drilling:	18.06.84	
At TD:	25.07.84	
Off location:	02.08.84	
Contractors:	Drilling: Helmer Stanbo & Co.	
	Electrical Logging: Schlumberger	
	Mud logging: Geoservices	

2. HOLE RECORD

Drilling 40" hole from 118m to 181m. Set 30" casing at 181m.

Drilling 17 1/2" hole from 181 to 1065m set 13 3/8" casing at 1050m.
Drilling 12 1/4" hole from 1065 to 2380m (TD).

Nine cores have been cut (Annex 1).

FRIGG AREA

LOCATION MAP

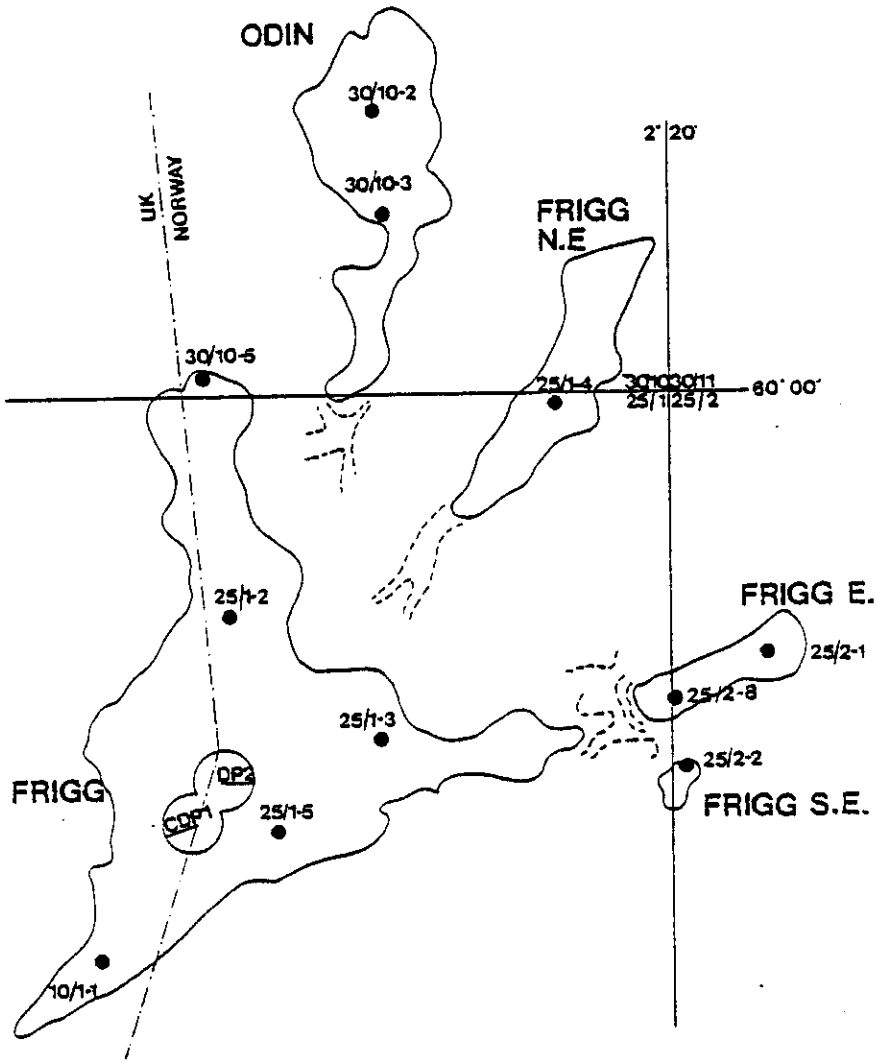


Fig. 2.

3. OBJECTIVES AND MAIN RESULTS

3.1 OBJECTIVES

25/2-8 was a appraisal well drilled on East Frigg Alpha, one of the satellites of the Frigg Field (fig. 2).

The main purpose of this well was to get a better estimation of the gas reserves on East Frigg and to obtain good pressure data in both the Frigg sand and the Paleocene sand.

To achieve better knowledge about the petrophysical characteristics of the different reservoirs, it was decided to core the Frigg sand, the shaly member, the tuff zone and the Paleocene sand.

All these results will be included in the great Frigg model.

3.2 MAIN RESULTS (depths RKB)

* The Frigg sand was reached at the prognosed depth.
  This formation is 140 m thick (1917.5 - 2057.5m) with a 48.5m hydrocarbon bearing column: gas from 1917.5m to 1957m and oil from 1957 to 1966m.
  It was found 18m of residual oil below the oil-ring.
  No DST has been performed.

* Balder formation (Paleocene) was reached at 2201m and top Paleocene sand at 2257,5m.

* RFT pressure measurements in the Frigg sand and Paleocene sand indicate that there is no direct fluid communication between the two formations (fig. 8).

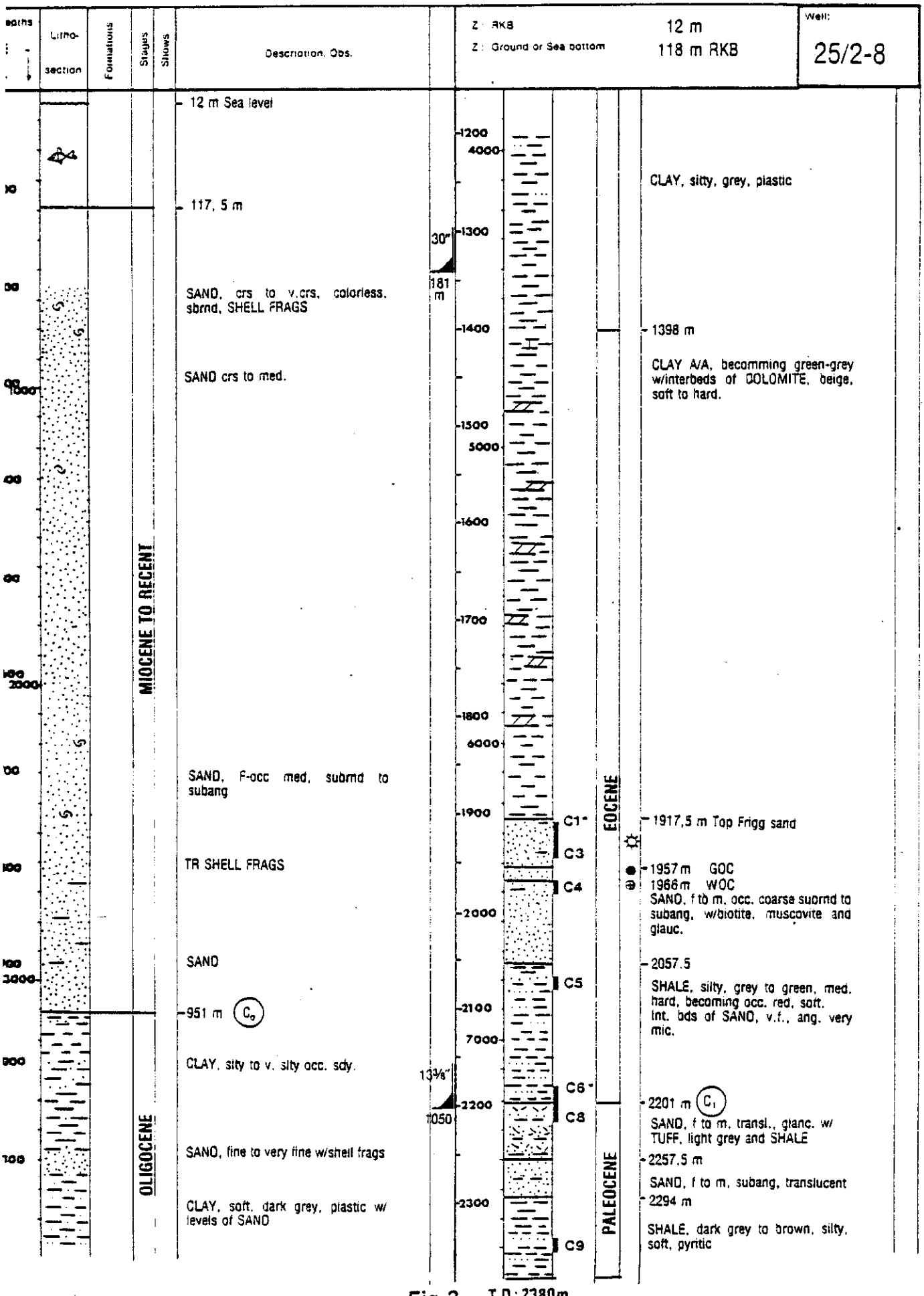

Depths
Litho-section
Formations
Stages
Shows
Description, Obs.
Z : RKB
12 m
Z : Ground or Sea bottom
118 m RKB
Well:
25/2-8
12 m Sea level
117, 5 m
SAND, crs to v.crs, colorless, sbrnd, SHELL FRAGS
SAND crs to med.
SAND, F-occ med, subrnd to subang
TR SHELL FRAGS
SAND
951 m
CLAY, silty to v. silty occ. sdy.
SAND, fine to very fine w/shell frags
CLAY, soft, dark grey, plastic w/ levels of SAND
MIOCENE TO RECENT
OLIGOCENE
30"
181 m
13⅜"
1050
CLAY, silty, grey, plastic
1398 m
CLAY A/A, becomming green-grey w/interbeds of DOLOMITE, beige, soft to hard.
1917,5 m Top Frigg sand
1957 m GOC
1966 m WOC
SAND, f to m, occ. coarse subrnd to subang, w/biotite, muscovite and glauc.
2057.5
SHALE, silty, grey to green, med. hard, becoming occ. red, soft. Int. bds of SAND, v.f., ang. very mic.
2201 m
SAND, f to m, transl., glanc. w/ TUFF, light grey and SHALE
2257,5 m
SAND, f to m, subang, translucent
2294 m
SHALE, dark grey to brown, silty, soft, pyritic
EOCENE
PALEOCENE
C1
C3
C4
C5
C6
C8
C9
T.D : 2380m

Fig.3

4. LITHOLOGY AND STRATIGRAPHY

4.1 LITHOLOGY (FIG.3)

118 - 450 m: Sand coarse to very coarse occ. medium size, colorless rounded to subrounded, translucent w/shell fragments and stringers of Limestone.

450 - 951 m: Sand fine occ. medium subrounded to subangular, colorless translucent w/layers of clay, clear, grey, silty plastic soft.

951 - 1095 m: Clay clean, grey to dark grey, silty to very silty, soft, plastic, sticky occ sandy

1095 - 1120 m: Sand fine to very fine occ medium, translucent, subrounded w/shell fragments.

1120 - 1398 m: Clay grey to dark grey, silty, soft, plastic, traces of sand decreasing downwards traces of Limestone increasing downwards, beige, soft to hard.

1398 - 1917.5 m: Clay grey to green, silty, soft Dolomite, beige, soft to hard, crystalline tr. of Pyrite.

1917,5 - 2057,5 m: Sand fine occ. medium, subangular to subrounded moderately sorted, translucent. Tr. of muscovite, biotite, glauconite and pyrite. Occ. layers of grey shale.

2057.5 - 2201 m: Shale brown, light grey to grey, greenish, indurated soft, silty interbedded with sand, fine to medium, subrounded to subangular, translucent, argillaceous.

X: 02°20'27.619" Z ground: -106

Y: 59°54'45.136" Z RKB: 12

Seismic EL 8402.205 – EL 8402.411

s datum:

PELERIN

ed in:

Spudded: 18.06.84

Started drilling: 18.06.84

At T.D: 24.07.84

Completed: 01.08.84

T.D Driller: 2380 T.D. Logger: 2380

Well 25/2-8

Country NORWAY

ERATOR E.A.N.

LICENCE 026 OWNED BY Petronord

RGETS

GAS AND PRESSURE MEASUREMENT IN THE EAST FRIGG SATELLITE

RESULTS

CASINGS

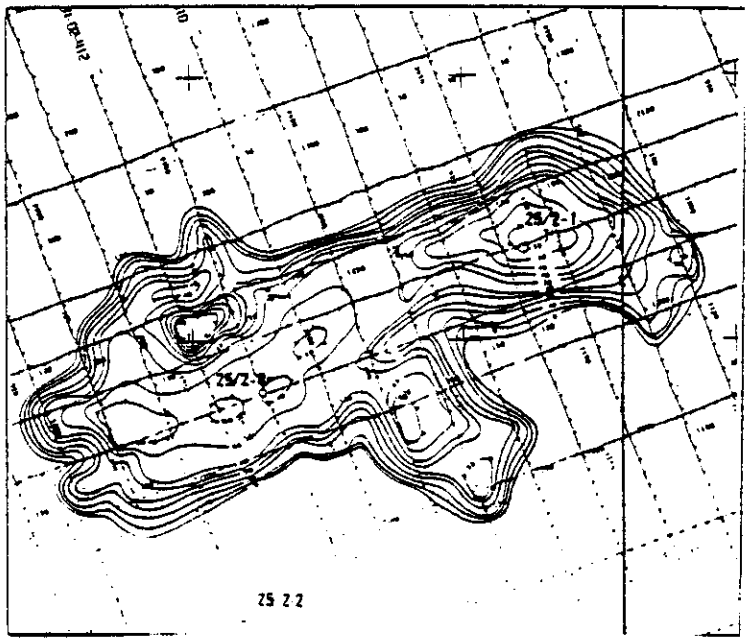
– 181 m
4" – 1050 m

CORES

1	1919–1927	94%
2	1927–1933	100%
3	1933–1942.5	100%
4	1975–1984	97%
5	2075–2084.6	100%
6	2185–2194.5	97%
7	2194.5–2201	100%
8	2201–2210.7	100%
9	2352–2359.5	88%

SHOWS

27 – 1942.5
. direct fluo.
f. sst. Gas
18%
42.5 – 2020
direct fluo.
f. sst. Gas 18-0%
20–2040
. fluo. onsports



LOGS

SS	1064–180	1			
SS-P	2040–1050	2			
LS-I	2380–1050	3			
R	1064–180	1			
NL R	2380–1050	2			
R ISFL	2379–1050	1			
	2250–1875	3			
DL	1064–180	1			
P	1050–125	1			
P	1924–2016	1			
P	1940.8–1965	2			
	1922–2290.5	3			

TESTS

RFT 1	2016–2040 7 PRESSURE TESTS		
RFT 2	2290.5–1922 24 PRESSURE TEST 2 SEGREGATED SAMPLES		
RFT 3	1940.8–1965 7 PRESSURE TEST 1 SEGREGATEDSAMPLE		
CST	ASKED 20, 15 RECOVERED		

Checked O. Stensland

Date

Fig.4

2201 - 2257.5 m: Sand fine to medium, subangular to subrounded translucent, interbedded w/shale brown light to dark grey, plastic, soft, indurated, silty, pyritic tr. of Tuff in light grey greenish shale, Calcite frags.

2257.5 - 2294 m: Sand, fine to medium, subangular, translucent.

2294 - 2380 m: Shale dark grey brown, soft, silty to very silty interbedded w/sand fine to medium, translucent, subrounded to subangular, argillaceous, tr. of glauconite.

4.2 PRELIMINARY STRATIGRAPHY (depth in RKB) (Fig. 3).

118	- 951	Recent to Miocene
951	- 1398	Oligocene
1398	- 1917,5	Eocene
1917,5	- 2057,5	Frigg sand, Eocene
2057,5	- 2201	Upper shale MB, Eocene
2201	- 2257	Balder Formation. Paleocene
2257	- 2294	Upper Paleocene sand. Paleocene
2294	- 2380	Maureen formation, Paleocene

5 STRUCTURAL DATA

The actual and prognosed depths are as follows: (fig. 5).

	Depth Prognosis	Well Depth	Discrepancy
Top Oligocene	1009	951	-58
Top Eocene	1412	1398	-14
Top Frigg Sand	1919	1917,5	-1,5
Top G.O.C.	1959	1957,2	-1,8
Top Balder (Paleocene)	2180	2201	+21
Top Upper Paleocene sand	2229	2257	+28
Top Maureen formation		2294	

All depths are in meters RKB.

The prognosis is based on calibration of well 25/2-1 and 25/2-2 with the seismic line EL 8402-205 at the intersection with EL 8402-411 (fig. 6).

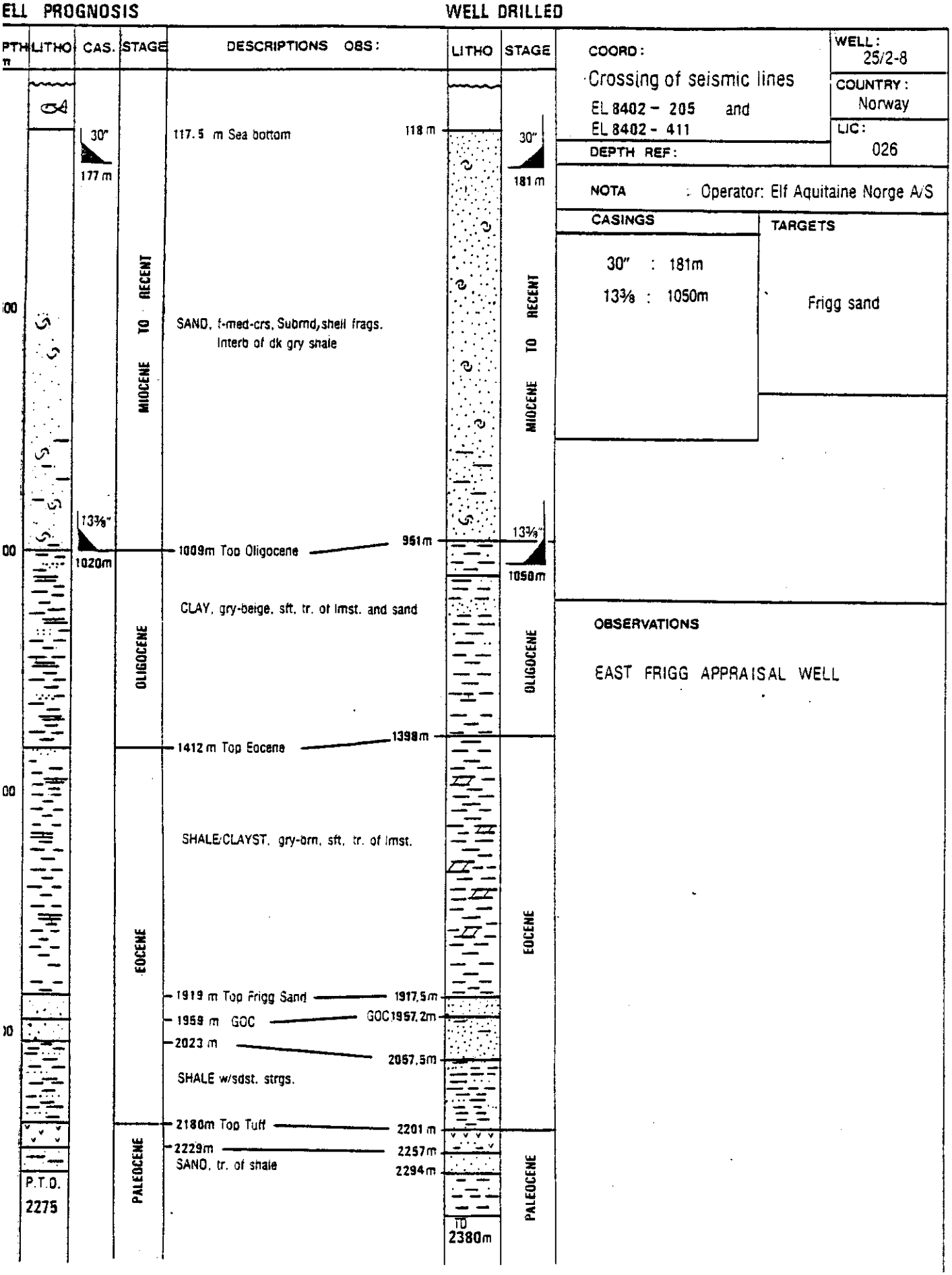

ELL PROGNOSIS
WELL DRILLED
PTH m
LITHO
CAS.
STAGE
DESCRIPTIONS OBS:
LITHO
STAGE
30"
177 m
117.5 m Sea bottom
118 m
30"
181 m
MIOCENE TO RECENT
SAND, f-med-crs, Subrnd, shell frags.
Interb of dk gry shale
MIOCENE TO RECENT
13⅜"
1020m
1009m Top Oligocene
951m
13⅜"
1050m
OLIGOCENE
CLAY, gry-beige, sft, tr. of lmst. and sand
OLIGOCENE
1412 m Top Eocene
1398m
EOCENE
SHALE/CLAYST. gry-brn, sft, tr. of lmst.
EOCENE
1919 m Top Frigg Sand
1917,5m
1959 m GOC
GOC 1957,2m
2023 m
2057,5m
SHALE w/sdst. strgs.
2180m Top Tuff
2201 m
2229m
2257m
SAND, tr. of shale
2294m
PALEOCENE
PALEOCENE
P.T.D.
2275
TD
2380m
COORD:
Crossing of seismic lines
EL 8402 - 205 and
EL 8402 - 411
WELL:
25/2-8
COUNTRY:
Norway
LIC:
026
DEPTH REF:
NOTA : Operator: Elf Aquitaine Norge A/S
CASINGS
30" : 181m
13⅜ : 1050m
TARGETS
Frigg sand
OBSERVATIONS
EAST FRIGG APPRAISAL WELL

Fig.5

6 HYDROCARBON SHOWS

6.1 CHROMATOGRAPH READINGS

181 - 1398 m Oligocene to recent:
No detectable gas was encountered in this interval.

1398 - 1917 m Eocene:
The background gas varied from traces to 0,6% C_1.

1917 - 2057,5 m Eocene, Frigg Sand:
When entering into the reservoir, the gas increased to 2,2% C_1-C_2 for the first 2 m. Except for one gas peak (18% C_1-nC_4) at 1956 m, the background gas was low in this section (0,1 - 0,8% C_1).

2057,5 - 2380 m Paleocene to Eocene: Traces of background gas were encountered in this section.

6.2 SHOWS ON CORES AND CUTTINGS

1927 - 1942,5 m.
Yellow direct fluorescence
Very light yellow fluorescence cut, colorless direct cut.

1942,5 - 2020 m
Yellow direct fluorescence
Milky yellow fluorescence cut
Brown direct cut.

2020 - 2040 m.
Yellow direcct fluorescence on spots. Bright yellow fluorescence cut.
Colorless direct cut.

EL 8402-411

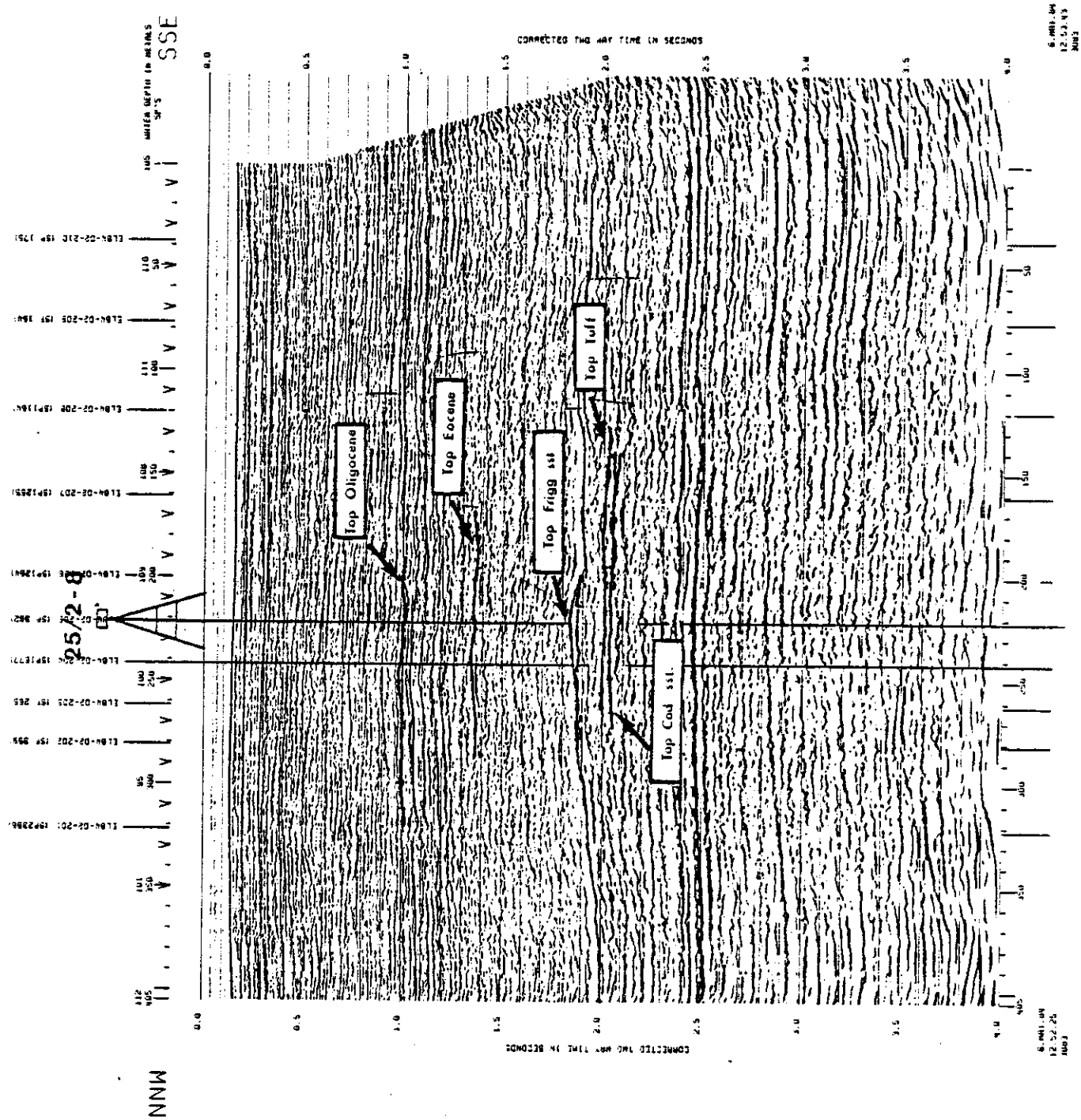


Fig. 6

7 CORING

A total of 9 cores have been cut in this well with fiberglass core-barrel. According to the program both the Figg Sand (Eocene) and the tuff (Paleocene) were cored. Core depths are listed below.

7.1

Core No.	Interval	Recovery	Formation
1	1919 - 1927	94%	Frigg S.D.
2	1927 - 1933	100%	"
3	1933 - 1942,5	100%	"
4	1975 - 1984	97%	"
5	2075 - 2084,6	100%	Upper shale Eocene
6	2185 - 2194,5	97%	"
7	2194,5 - 2201	98%	"
8	2201 - 2210,7	100%	Balder formation
9	2353 - 2359	88%	Maureen formation

7.2 Core description. Preliminary (Annexe 1).

Due to the use of fiberglas core-barrel, only one piece of the core has been described every two meter at the well site. The final core description and laboratory analyses will be dispatched as soon as they have been performed.

Core No. 1
1919 - 1927 m recovery 95%.
Sand, fine angular to subangular, micaceous with traces of Glauconite and Pyrite. No shows.

Core No. 2
1927 - 1933 m recovery 100%.
Sand, fine, angular to subangular, moderately sorted, micaceous with traces of Glauconite and Pyrite.

Yellow direct fluoresence, very light yellow fluorescence cut.

Core No. 3
1933 - 1942,5 m, Recovery 100%
Sand, fine, angular to subangular, moderately sorted, micaceous, with thin lamina of Shale very silty, grey.
Bright yellow direct fluorescence, light yellow fluo cut.

Core No. 4
1975 - 1984 m RKB. Recovery 97%.
Fine sand, brown by impregnation, with transparent subangular to subrounded grains, moderately sorted, micaceous. Very good visual porosity.
Yellow direct fluo, milky yellow fluo.cut. Brown cut.

Core No. 5
2075 - 2084,6 m RKB Recovery 100%
Alternances of shale, grey indurated, silty, micaceous and sand, very fine, argillaceous, colorless, very micaceous. Very good visual prorosity. No shows.

Core No. 6
2185 - 2194,5 m RKB. Recovery 97%.
Sand, fine to medium, translucent, interbedded with shale, grey dark, indurated, hard, micaceous. No shows.

Core No. 7
2194,5 - 2201 m RKB. Recovery 100%
Sand, medium to coarse, subrounded, argillaceous with beds of shale, dark and light grey. No shows.

Core No. 8
2201 - 2210,7 m RKB. Recovery 100%
Shale, dark grey, indurated, hard with sand, fine to medium, translucent, friable, argilleaceous.

Core No. 9
2353 - 2359 RKB. Recovery 88%
Shale, dark grey, very silty, indurated, micaceous and sand, fine, subangular, translucent, glauconitic, micaceous. No shows.

Sidewall cores (Annex 2)

1 run of CST has been performed in interval 1955 - 2268 m.

8. L O G G I N G

The following Electrical logs have been run

Resistivity and sonic logs:

1. ISF-LSS-GR-SP 180 - 1069 m
2. ISF-LSS-GR-SP 1050 - 2040 m
3. DIL-LSS-GR-SP 1050 - 2380 m
4. DLL-MSFL-GR 1875 - 2250 m

Neutron and density logs:

1. LDT-GR-CAL-GR 180 - 1064 m
2. LDT-CNL-CAL-GR 1050 - 2380 m

Dipmeter logs:

1. BGT 180 - 2064 m
2. HDT 1050 - 2379 m

Cement logs

1. CBL-VDL-CCL 125 - 1050 m

Sidewall cores

1. CST 1955 - 2268 m. Asked 20, Recovered 15.

RFT Pressure Tests-Sampling

Run 1: 2016 - 2040 m 7 Pressure tests
Run 2: 2290,5 - 1922 m 24 Pressure tests
2 Segregated samples
2259 m: 3,8 l mud filtrate, no gas
1993 m: 1,8 l mud filtrate, no gas

Run 3: 4940,8 - 1965,8m 7 Pressure tests
1 Segregated sample
1956,7 m: 0,6 l mudfiltrate and traces of oil and gas.

Seismic
VSP
300 to 2370 m shot on 76 levels.

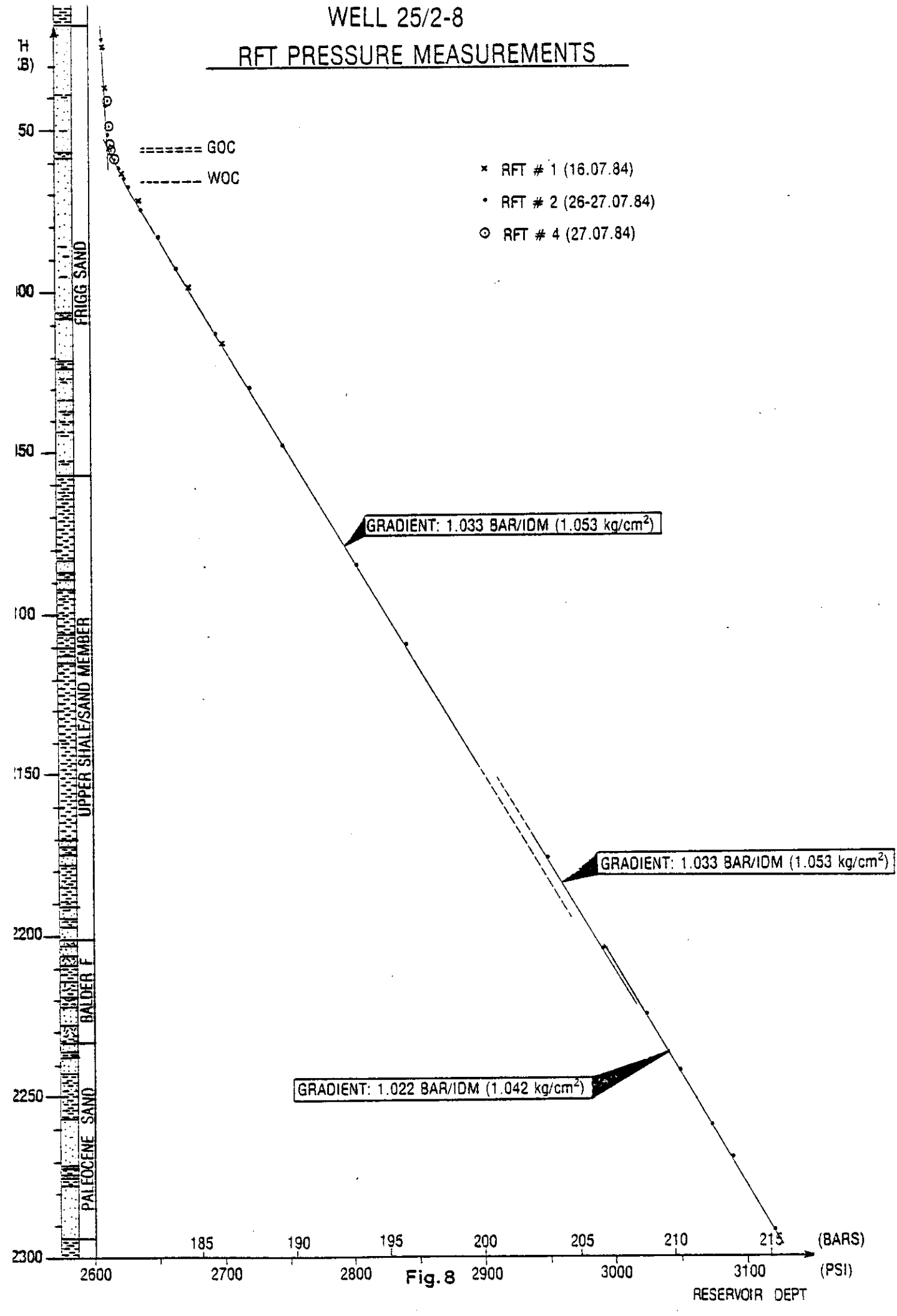

WELL 25/2-8
RFT PRESSURE MEASUREMENTS
======= GOC
------- WOC
× RFT # 1 (16.07.84)
• RFT # 2 (26-27.07.84)
⊙ RFT # 4 (27.07.84)
FRIGG SAND
UPPER SHALE/SAND MEMBER
BALDER F
PALEOCENE SAND
GRADIENT: 1.033 BAR/IDM (1.053 kg/cm²)
GRADIENT: 1.033 BAR/IDM (1.053 kg/cm²)
GRADIENT: 1.022 BAR/IDM (1.042 kg/cm²)
185
190
195
200
205
210
215
(BARS)
2600
2700
2800
2900
3000
3100
(PSI)
RESERVOIR DEPT

Fig. 8

9 RESERVOIR (PROVISIONAL RESULTS)

9.1 FRIGG SAND

The primary objective of the well was to get a better knowledge about hydrocarbon reserves on East Frigg.

The Frigg sand was encountered at 1917,5m, and extended down to 2057,5 m.

Shows, cores and logs indicated the presence of hydrocarbons between 1917,5 and 1966 m.

RFT PRESSURE TEST AND SAMPLES (fig. 7).
Pressure tests were performed through the Frigg sand, they indicate a gas-oil contact between 1955,6 m RKB and 1956,3 m RKB and a oil-water contact at 1966,3m.
WATER GRADIENT: 1,033 bar/10 m (1,053 kg/cm^2)
OIL GRADIENT: 0,826 bar/10 m (0,842 kg/cm^2)
GAS GRADIENT: 0,113 bar/10 m (0,115 kg/cm^2)

Two segregated samples were recovered. One at 1956,7 m giving 0,01l of mud filtrate with traces of oil and gas; the other at 1993 m giving 1,8l of mudfiltrate.

Logs:
Interpretation of the logs have been performed both by EAN reservoir department and at Schlumberger computer center. They indicate an Gas-Oil contact at 1957 m RKB and a Oil-water Contact at 1966 m.

Reservoirs characteristies

TOP OF SAND:	1917,5 m RKB
BOTTOM OF SAND:	2057,5 m RKB
GAS-OIL CONTACT:	1957 m RKB
OIL-WATER CONTACT:	1966 m RKB
HYDROCARBON ZONE THICKNESS:	48,5 m

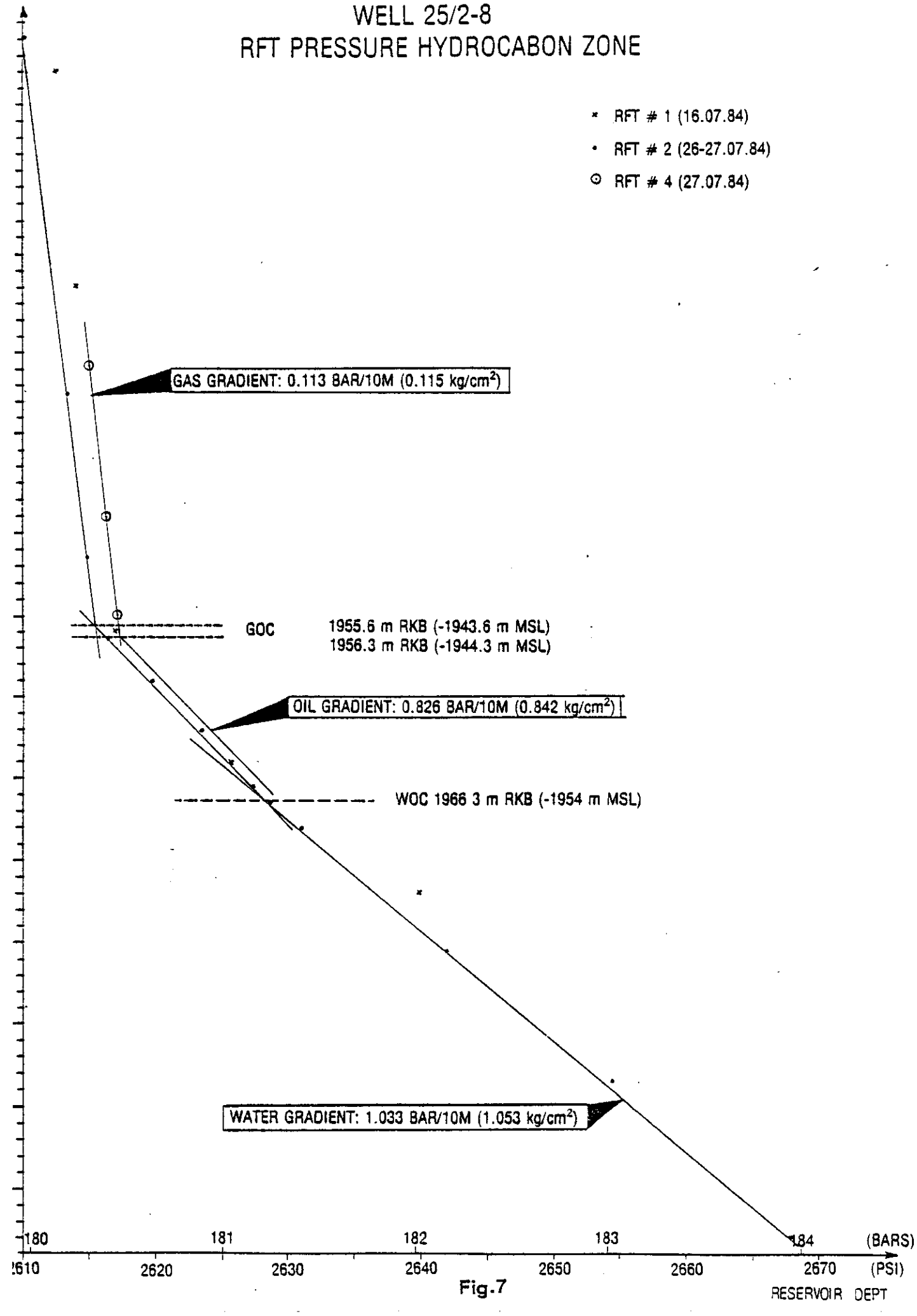

WELL 25/2-8
RFT PRESSURE HYDROCABON ZONE
* RFT # 1 (16.07.84)
• RFT # 2 (26-27.07.84)
⊙ RFT # 4 (27.07.84)
GAS GRADIENT: 0.113 BAR/10M (0.115 kg/cm²)
GOC
1955.6 m RKB (-1943.6 m MSL)
1956.3 m RKB (-1944.3 m MSL)
OIL GRADIENT: 0.826 BAR/10M (0.842 kg/cm²)
WOC 1966 3 m RKB (-1954 m MSL)
WATER GRADIENT: 1.033 BAR/10M (1.053 kg/cm²)
180
181
182
183
184
(BARS)
2610
2620
2630
2640
2650
2660
2670
(PSI)
RESERVOIR DEPT

Fig.7

GAS ZONE

GROSS PAY:	39,8 m
NET PAY:	38,3 m
Ø LOG:	29,5 %
SW LOG:	8 %
PRESSURE GRADIENT:	0,113 bar/10m

OIL ZONE

GROSS PAY:	9 m
NET PAY:	8,3 m
Ø LOG:	29,8%
SW LOG:	21,9%
PRESSURE GRADIENT:	0,826 bar/10 m.

WATER ZONE

Ø LOG:	29%
PRESSURE GRADIENT:	1,033 bar/10 m

9.2 UPPER PALEOCENE SAND

The upper Paleocene sand was encountered at 2257,5 m RKB. The sand was found to be water bearing with a pressure gradient of 1,022 bar/10 m (1,042 kg/cm^2) (Fig. 8).

10. PRELIMINARY CONCLUSION

The Frigg sand was encountered at 1917,5 m. The hydrocarbon bearing zone was 48,8 m thick, 39,8 m was gas-bearing and 9 m was oil-bearing.

RFT Pressure measurements gives no direct evidence of fluid communication between Frigg Sand and Upper Paleocene sand.

ANNEXE 1
CORE DESCRIPTION

elf aquitaine

SOCIÉTÉ / OPERATOR: EAN	CAROTTE / CORING LENGHT: 8 m en / ft in 1h20 h	SIGLE / ABB.TITLE: 25/2-8	
SONDAGE / WELL: 25/2-8	RÉCUPÉRÉ / RECOVERY LENGHT: 7.5 m soit / ft so 94 %	CAROTTE N° / CORE N°: 1	
PERMIS / AREA: FRIGG EAST	DATE EXTRACTION / OPERATION DATE: 14/07/84	TÊTE / TOP: 1919 m / ft	
	CAROTTIER (Type, Ø) / CORE BARREL:	PIED / BASE: 1927 m / ft	
	BOUE / MUD:	Feuille n° / sheet n°: 1 de / from 1919 à / to 1927 m	

Cotes échelle 1/40 / Depth scales 1/40 (m / ft) | N° | Figuré / Section | Ind. Shows | FLUO Direct 1 2 3 Cut | CO_3 CA % | PENO. DIP | RS.

DESCRIPTION LITHOLOGIQUE / LITHOLOGICAL DESCRIPTION

BOXE NO 1

Firm Shale, light grey, silty (cavings ?)

CORING WITH FIBER GLASS BARREL

BOXE NO 2

Fine sand: angular to subangular, transparent, moderately sorted, with biotite, muscovite, with traces of glauconite and pyrite.

BOXE NO 3

BOXE

FLUO:
1 : trace / trace 2 : moyen / fair 3 : forte / good

Fiche établie par / Established by: BARRAUD

elf aquitaine

SOCIÉTÉ *OPERATOR* EAN	CAROTTE : *CORING LENGHT :* 6 m en *ft in* 1h30 h		SIGLE : *ABBR.TITLE :* 25/2-8
	RÉCUPÉRÉ : *RECOVERY LENGHT :* 6 m soit *ft so* 100 %		CAROTTE N° : *CORE N°* 2
SONDAGE : *WELL :* 25/2-8	DATE EXTRACTION : *OPERATION DATE :* 14-07-84		TÊTE *TOP* 1927 m *ft*
			PIED *BASE* 1933 m *ft*
PERMIS : *AREA :* FRIGG EAST	CAROTTIER (Type, ⌀) *CORE BARREL* DB8x5 1/4	BOUE : BLF *MUD :* d:1.27	Feuille n° : *sheet n° :* de *from* 1927 à *to* 1933m

Cotes échelle 1/40 *Depth scales 1/40* m ; ft	N°	Figuré *Section*	Ind. *Shows*	FLUO Extract. 1 2 3 CHOIX	CO_3 CA %	PEND. *DIP.*	RS.	DESCRIPTION LITHOLOGIQUE *LITHOLOGICAL DESCRIPTION*
1927 m	BOX NO. 2				1			At the top: recovered 1m composed of mixed mud and shale (cavings) with bulk sand - (Box No.1) CORING WITH FIBER GLASS BARREL (observation only every 2 meterst) From 1927 to 1933 m Fine sand, angular to subangular, moderately sorted, with several dispersed grains of medium quartz, with muscovite, biotite, pyrite, and glauconite. V.G. porosity.
1928 m								
1929					1			
1930 m	BOX NO. 3							
1931 m	BOX NO. 4							
1932 m	BOX NO. 4							
1933 m								

FLUO :
1 : trace *trace* 2 : moyen *fair* 3 : forte *good*

Fiche établie par : *Established by :* BARRAUD

elf aquitaine

SOCIÉTÉ *OPERATOR* EAN	CAROTTE : 9,5m *CORING LENGHT :* m en 1 *ft in* h		SIGLE : *ABB.TITLE :* 25/2-8
	RÉCUPÉRÉ : 9,5m *RECOVERY LENGHT :* m soit 100 *ft so* %		CAROTTE N° : *CORE N°* 3
SONDAGE : *WELL :* 25/2-8	DATE EXTRACTION : 14/07/84 *OPERATION DATE :*		TÊTE *TOP* 1933 m m ft
			PIED *BASE* 1942,5 m m ft
PERMIS : *AREA :* FRIGG EAST	CAROTTIER (Type, Ø) *CORE BARREL* DB8x5 1/4	BOUE : BLF *MUD :* D:1.27	Feuille n° : *sheet n° :* 1 de *from* 1933 à *to* 1942,5

Cotes échelle 1/40 *Depth scales 1/40* m 1 ft | N° | Figuré *Section* | Ind. *Shows* | FLUO Direct 1 2 3 Différé | CO_3 CA % | PENO. *DIP.* | FIS.

DESCRIPTION LITHOLOGIQUE
LITHOLOGICAL DESCRIPTION

1933 m

1 Box

0,5

+ slightly colored
N.B.: real odour of gas
- torque is decreasing suddenly during coring from 1937,5 to 1939 (presence of shale?)

1934 m

CORING WITH FIBER GLASS BARREL

1935 m

2

0

at
1933 m 1940,5 m
1934,5 m 1942,95 m
1936,5 m 1942,5 m

1936 m

Fine sand, angular to subangular, moderately sorted, with several, locally round and medium grains of quartz, colorless, with muscovite, biotite and glauconite and pyrite very good porosity

2

▲ some yellow spots
△ very light yellow
+ color less

1937 m

3

1938 m

1938,5 m: laminations (mm) of
sand: very fine to fine, colorless, angular to subangular, micaceous (biotite), Fluorescent
and SHALE: very silty to sandy, grey, firm, and very micaceous

4

▲ bright yellow fine layers of sand
△ light yellow
+ slightly colored

1939 m

1940 m

▲ some spots yellow
△ very light yellow
+ colorless

2

1941 m

5

▲ spots yellow
△ very light yellow
+ colorless

0,5

1942 m

0,5

FLUO: 1 : trace *trace* 2 : moyen *fair* 3 : forte *good*

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SOCIÉTÉ *OPERATOR* EAN	CAROTTE : *CORING LENGHT :* 9m m en *ft in* 1h h	SIGLE : *ABB.TITLE :* 25/2-8	
	RÉCUPÉRÉ : *RECOVERY LENGHT :* 8.75 m m soit *ft so* 97 %	CAROTTE N° : *CORE N°* 4	
SONDAGE : 25/2-8 *WELL :*	DATE EXTRACTION : *OPERATION DATE :* 15-07-84	TÊTE *TOP* 1975 m m ft	
PERMIS : *AREA :* EAST FRIGG	CAROTTIER (Type, Ø) *CORE BARREL* DB8x5 1/4 — BOUE : *MUD :* BLF d:1.27	PIED *BASE* 1984 m m ft	Feuille n° : 1 *sheet n° :* de 1975 *from* à 1984m *to*

Cotes échelle 1/40 *Depth scales 1/40* m	N°	Figuré *Section*	Indices *Shows*	FLUO Direct. 1 2 3 Diffus.	CO_3 CA %	PENDAGE *DIP.*	RS.	DESCRIPTION LITHOLOGIQUE *LITHOLOGICAL DESCRIPTION*
1975 m	Box 1				0			▲ Yellow in matrix △ milky yellow + brown (5)
1976 m	2				0			▲ Yellow in matrix △ milky yellow + brown (5) CORING WITH FIBER GLASS BARREL Fine sand, brown per impregnation, with transparent, subangular to subrounded grains, moderately sorted, with muscovite and glauconite. Very good visual porosity.
1977 m					0			
1978 m	3				0			▲ Yellow matrix △ milky yellow + brown (5)
1979 m								
1980 m	4				0			▲ Yellow in matrix △ milky yellow + brown (5)
1981 m								
1982 m	5				0			▲ Yellow in matrix △ Milky yellow, bright + bright brown (3)
1983 m								
1983,30	5				0			▲ Yellow in matrix △ milky yellow + brown (5)
1983,75 m	* 5				0			
1984 m								

FLUO :
1 : trace *trace* 2 : moyen *fair* 3 : forte *good*

Fiche établie par : *Established by :* BARRAUD

elf aquitaine

SOCIÉTÉ *OPERATOR* EAN	CAROTTE : 9,60 m en 4h30 h *CORING LENGHT : ft in*		SIGLE : *ABB.TITLE :* 25/2-8
	RÉCUPÉRÉ : 9,60 m soit 100 % *RECOVERY LENGHT : ft so*		CAROTTE N° : *CORE N°* 5
SONDAGE : *WELL :* 25/2-8	DATE EXTRACTION : *OPERATION DATE :* 18/07/84		TÊTE *TOP* 2075 m ft
			PIED *BASE* 2084,60 m ft
PERMIS : *AREA :* EAST FRIGG	CAROTTIER (Type, Ø) *CORE BARREL* 8"x5 1/4	BOUE : *MUD :* d:1,28	Feuille n° : 1 *sheet n° :* de 2075 *from* à 2084,60 *to*

Cotes échelle 1/40 *Depth scales 1/40* m / ft	N°	Figuré *Section*	Shows Ind	FLUO 1 2 3	CO_3 CA %	PENDAGE *DIP.*	RS.	DESCRIPTION LITHOLOGIQUE *LITHOLOGICAL DESCRIPTION*
					0			SHALE dark brown very silty mod.indurated CORING W/FIBER GLASS BARREL
2076								SAND very fine, argilaceous, colorless, very micaceous Friable. tr glauconite. very good porosity.
2077					o			
2078								SHALE grey, indurated, silty, micaleous.
2079					o			
2080								SHALE A/A
2081					o			
2082								SHALE A/A w/sand stringers, fine to medium translucent, argilaceous micaceous, fine laminations of shale dark or organic matter ?
2083					o			SAND fine to med, translucent argilaceous micaceous glauconitic. tr organic matter ? very good porosity
2084								
2084,60					o			

FLUO : 1 : trace *trace* 2 : moyen *fair* 3 : forte *good*

▲ Yellow very pale
Δ Yellow very pale
Colorless

Fiche établie par : *Established by :* BOSC J.

elf aquitaine

SOCIÉTÉ *OPERATOR* E. A. N.	CAROTTE : *CORING LENGHT :* 9.50 m en *ft in* 5.00 h		SIGLE : *ABB.TITLE :* 25/2-8
	RÉCUPÉRÉ : *RECOVERY LENGHT :* 9.20 m soit *ft so* 97% %		CAROTTE N° : *CORE N°* 6
SONDAGE : *WELL :* 25/2-8	DATE EXTRACTION : *OPERATION DATE :* 20.07.84		TÊTE *TOP* 2185 m *ft*
			PIED *BASE* 2194.5 m *ft*
PERMIS : *AREA :* EAST FRIGG	CAROTTIER (Type, Ø) *CORE BARREL* 8"x5"1/4	BOUE : BLF *MUD :* D: 1.28	Feuille n° : 1 *sheet n° :* de 2185 *from* à 2194.5 *to*

Cotes échelle 1/40 *Depth scales 1/40* m / ft	N°	Figuré *Section*	Shows Ind	FLUO 1 2 3	CO_3 CA %	PEND. *DIP.*	FIS.	DESCRIPTION LITHOLOGIQUE *LITHOLOGICAL DESCRIPTION*
2185					0			SAND F. to very fine, translucent friable, argilaceous SHALE grey to dark indurated, hard, micaceous
2186								CORING W/FIBER GLASS BARREL
2187					0			SHALE grey dark, indurated, hard, micaceous
2188								
2189					0			SAND f. to m. translucent, soft, argilaceous
2190								
2191					0			SAND fine to very fine argilaceous, soft w/interbeds of shale grey indurated
2192								
2193					0			SAND f. to very fine, argilaceous, soft, translucent
								SAND f. to m. translucent, friable, argilaceous.
2194					0			

FLUO :
1 : trace *trace* 2 : moyen *fair* 3 : forte *good*

Fiche établie par : *Established by :* J. BOSC

elf aquitaine

SOCIÉTÉ *OPERATOR* E.A.N.	CAROTTE : *CORING LENGHT :* 6.50 m en *ft in* 3.30 h	SIGLE : *ABB. TITLE :* 25/2-8	
	RÉCUPÉRÉ : *RECOVERY LENGHT :* 6.50 m soit *ft so* 100% %	CAROTTE N° : *CORE N°* 7	
SONDAGE : *WELL :* 25/2-8	DATE EXTRACTION : *OPERATION DATE :* 20.07.84	TÊTE *TOP* 2194.50 m *ft*	
PERMIS : *AREA :* EAST FRIGG	CAROTTIER (Type, Ø) *CORE BARREL* 8"x5"1/4 / BOUE : *MUD :* BLF D: 1.28	PIED *BASE* 2201.00 m *ft*	Feuille n° : *sheet n° :* 1 de *from* 2194.5 à *to* 2201

Cotes échelle 1/40 *Depth scales 1/40* m / ft	N°	Figuré *Section*	Shows Ind.	FLUO Direct. 1 2 3	Diffus.	CO_3 CA %	PEND. *DIP.*	FIS.	DESCRIPTION LITHOLOGIQUE *LITHOLOGICAL DESCRIPTION*
2194.5						0			SHALE dark grey, very hard
2195									
2196									CORING W/FIBER GLASS BARREL
2197						0			SANDSTONE light grey, medium, argilaceous, soft to hard sub.rnd.
2198									
2199						0			SAND medium to coarse, soft, friable, translucent argilaceous.
2200									
2201						1%			SHALE dark grey, very hard w/interbeds of shale, light grey w/quartz inclusions, angular. (Tuff).

FLUO :
1 : trace *trace* 2 : moyen *fair* 3 : forte *good*

Fiche établie par : *Established by :* J. BOSC

elf aquitaine

SOCIÉTÉ *OPERATOR* E.A.N.	CAROTTE : 9.70 m en 7.00 h *CORING LENGHT : ft in*		SIGLE : 25/2-8 *ABB.TITLE :*
	RÉCUPÉRÉ : 9.70 m soit 100% % *RECOVERY LENGHT : ft so*		CAROTTE N° : 8 *CORE N°*
SONDAGE : *WELL :* 25/2-8	DATE EXTRACTION : *OPERATION DATE :* 21.07.84		TÊTE *TOP* 2201 m ft
PERMIS : *AREA :* EAST FRIGG	CAROTTIER (Type, Ø) *CORE BARREL* 8"x5"1/4	BOUE : BLF *MUD :* Ω: 1.28	PIED *BASE* 2210.7 m ft
			Feuille n° :1 *sheet n° :* de 2201 *from* à 2210.70 *to*

Cores échelle 1/40 *Depth scales 1/40* m / ft	N°	Figuré *Section*	Shows	FLUO 1 2 3	CO_3 CA %	PEND. *DIP.*	FIS.	DESCRIPTION LITHOLOGIQUE *LITHOLOGICAL DESCRIPTION*
2201					0			SHALE dark grey, indurated, micaceous, hard.
2202								
2203					0			SAND f. to m. translucent, friable, argilaceous glauconite, sub.rnd.
2204								
2205					3%			SHALE dark grey w/shale light grey w/quartz inclusions angular, (Tuff) calcite, veins.
2206								
2207					1%			SHALE A/A
2208								
2209					0			SHALE grey, indurated, hard, micromicaceous
								SHALE grey indurated, hard, micaceous, pyrite. (Tuffaceous).
2210,70								

FLUO :
1 : trace *trace* 2 : moyen *fair* 3 : forte *good*

Fiche établie par : *Established by :* J. BOSC

elf aquitaine

SOCIÉTÉ *OPERATOR* : E.A.N.	CAROTTE : *CORING LENGHT* : 6.50 m en 6.00 *ft in* h	SIGLE : *ABB.TITLE* : 25/2-8	
	RÉCUPÉRÉ : *RECOVERY LENGHT* : 5.70 m soit 88% *ft so* %	CAROTTE N° : *CORE N°* 9	
SONDAGE : *WELL* : 25/2-8	DATE EXTRACTION : *OPERATION DATE* : 24.07.84	TÊTE *TOP* 2353 m *ft*	
PERMIS : *AREA* : EAST FRIGG	CAROTTIER (Type, Ø) *CORE BARREL* 8"x5"1/4 / BOUE : *MUD* : BLF D: 1.28	PIED *BASE* 2359.5 m *ft*	Feuille n° : *sheet n°* : 1 de *from* 2353 à *to* 2359.9

Cotes échelle 1/40 *Depth scales 1/40* m ft	N°	Figuré *Section*	Shows Ind	FLUO 1 2 3	CO_3 CA %	PENO. *DIP.*	RS.	DESCRIPTION LITHOLOGIQUE *LITHOLOGICAL DESCRIPTION*
2353					0			SHALE grey, indurated, silty to very silty.
2354								CORING W/FIBER GLASS BARREL
					0			SHALE dark grey, very silty, indurated, micaceous. ▲ : nil △ : " + : whitish
2355								
2356								
					0			SHALE A/A
2357								
2358								
					0			2358.70 SAND fine, translucent, consolidated, sub.ang. glauconitic, micaceous
2359								LOSS: 0.80 m
2359.50								2359.50

FLUO : 1 : trace *trace* 2 : moyen *fair* 3 : forte *good*

Fiche établie par : *Established by* : J. BOSC

ANNEXE 2

SIDE WALL CORE DESCRIPTION

elf aquitaine

DESCRIPTION DES CLABS
DESCRIPTION OF SIDE WALL SAMPLES

SONDAGE / *WELL*	25/2-8	DESCENTE N° / *RUN N°*	1
PERMIS / *PERMIT*	EAST FRIGG	PAGE N°	1
PAYS / *COUNTRY*	NORWAY	DATE	27 - 07 - 84

Cie operatrice / *Company*	S.P.E.S
Nbr clabs demandés / *requested*	20
Nbr clabs récuperes / *recovered*	15
Nbr balles tirees / *shot*	20
Nbr balles perdues / *lost*	4
Nbr balles pleines / *full*	15
Récuperation / *Recovery*	15
Examinés par / *Examined by*	J.F. Bosc

1 : Trace / *Trace* 2 : Faible / *Fair* 3 : Fort / *Strong*

N°	PROF. *DEPTH*	REC %		DESCRIPTION	FLUORESCENCE de l'echantillon / *of sample*			CCl4		
					1	2	3	1	2	3
1	2268	OK		SAND FINE WHITE; ARGILLACEOUS, GLAUCONITIC (TO VERY FINE)						
2	2266	OK		SAND FINE WHITE; ARGILLACEOUS, GLAUCONITIC						
3	2263,9	OK		A/A W/INCLUSIONS OF QUARTZ MEDIUM GREY						
4	2262	OK		A/A A/A						
5	2260	OK		A/A A/A						
6	2228,3			EMPTY						
7	1967			LOST						
8	1964,5	OK		SAND FINE BEIGE/BROWN IMPREGNATED						
9	1964,5	OK		A/A						
10	1962,9	OK		A/A						
11	1961,5	OK		A/A						
12	1961	OK		A/A						
13	1959,9	OK		A/A						
14	1958,5	OK		A/A						
15	1958,4			LOST						
16	1957			LOST						
17	1957			LOST						
18	1956	OK		SAND, FINE, WHITE, W/INCLUSIONS OF QUARTZ, GREY, IMPREGNATED						
19	1956	OK		A/A						
20	1955	OK		A/A						

FORMATION TEMPERATURE