

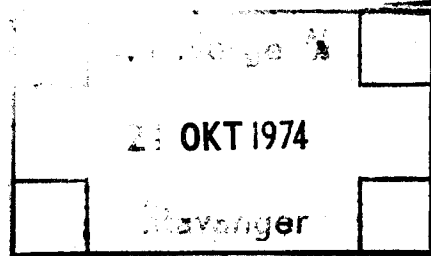
NOTE du Dpt RECHERCHE TECHNIQUE & ETUI

à SERVICES GISEMENTS ELF NORGE - 311.A

N° : 4/5-163 - JP/GO

FOR THE ATTENTION OF M. CARRE

- COPIES : GROUPE PROJET FRIGG- 1061
- DEPARTEMENT GISEMENTS - 1056
attention M. L. GAY
- DEPARTEMENT CONTROLE DES OPERATIONS - 1055
- DELEGATION GEOGRAPHIQUE EUROPE NORD - 1070
- SERVICES EXPLOITATION ELF NORGE - 311.E
attention M. PALMADE



RE : STUDY OF CLAY SENSITIVITY ON 25/2-2 -

SEE: TELEX BOUSSENS ST. N° 34
ST-BOUSSENS 1-1915

PRODUCTION DEPARTMENT

Received 21/10-74

	Info	Action	File	Visa
A				
CARRE			Y	✓
Drilling				
Production				
Sea Construction				
Secretary				

With reference to the above telex messages, please find enclosed the results concerning the analyses of clay sensitivity to brines undertaken on the sands of 25/2-2.

In contrast to the samples of 25/1-4, our observations show only a very slight direct or induced sensitivity at 25/2-2 ; this result is logical given the low amount of clay (and unidentified constituents) in the reservoir.

ELF AQUITAINE NORGE A/S
RESERVOIR DEPARTMENT

DATE RECEIVED: 15/12-74

REG NO: 16/12 REG CODE: IN

FIELD/ WELL: 25/2-02

FILING CODE: FRES9

LISTINGS:

AUTHORITIES	PARTNERS
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J. PLIQUE

1° - CHOICE OF SAMPLES

Since the available core samples were obtained from the zone in close proximity to the water level (around 2007 m), the only samples retained were those from between 1991 m and 2007 m, i.e. from a zone with a high oil impregnation, which in tests mad only yielded water.

2° - ANALYSIS OF MAJOR MINERALS AND CLAYS

See results attached.

Clayey minerals could not be analysed, due to the very small amonts of clays present.

Of interest, the following was noted :

- A very high quartz content
- A not insignificant quantity of feldspar
- The generally small proportion of clays, which makes their analysis impossible
- Periodic detection of baryte.

3° - SENSITIVITY TO BRINES

See results attached.

In contrast to 25/1-4, sensitivity is much reduced. Same samples exhibit a slight sensitivi to sodium, but this is uncorrelated with the presence of baryta ; conclusions cannot therefore be drawn as to whether pollution by mud. Has occurred. Finally, very high permeabilities were observed, which may suggest that the granulometry of the sand is high.

The portion of the reservoir under study may therefore be considered to have a low or nil sensitivity to brines and to water ; this is a logical consequence of the very low content of clays and unidentified constituents which is characteristic of these cores.

SENSIBILITES SUR POUDRES

Paite: 25/2.2 (Norvège)

SENSIBILITY ON POWDERS

Well:

Cellule (Cell) 1.5 cm $S = 0.7854 \text{ cm}^2$

2002.00m

2003.75m

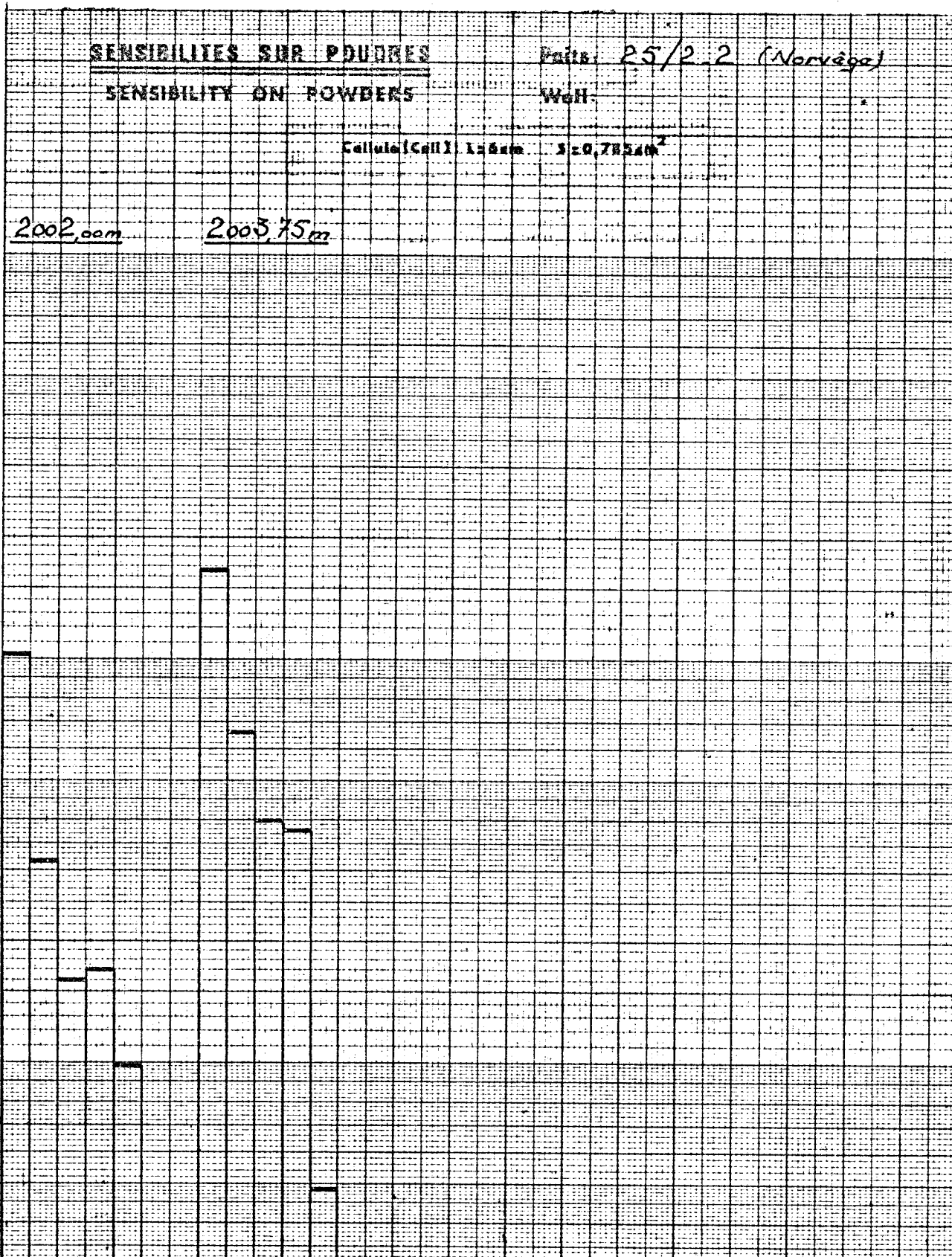
Perméabilité (md)

10,000

1,000

200

Isopropanol	Isopropanol	Isopropanol	Isopropanol
Solution CaCl ₂ 3%	Solution CaCl ₂ 3%	Solution CaCl ₂ 5%	Solution CaCl ₂ 5%
H ₂ O	H ₂ O	H ₂ O	H ₂ O
Solution NaCl 3%	Solution NaCl 3%	Solution NaCl 5%	Solution NaCl 5%
H ₂ O	H ₂ O	H ₂ O	H ₂ O



SENSIBILITES SUR POUZZES

Pr. No. 25/2.2 (Norgege)

SENSIBILITY ON POWDERS

Well:

Calculated Cell: 1.56 cm $S = 0,785 \text{ cm}^2$

1997,00 m

1998,00 m

1999 m

2000,00 m

2001,00 m

Permeabilité (md)

10000

1000

100

Isopropanol	Isopropanol	Isopropanol	Isopropanol	Isopropanol
Solution CaCl ₂ 3%	Solution CaCl ₂ 3%	Solution CaCl ₂ 3%	Solution CaCl ₂ 3%	Solution CaCl ₂ 3%
H ₂ O	H ₂ O	H ₂ O	H ₂ O	H ₂ O
Solution NaCl 3%	Solution NaCl 3%	Solution NaCl 3%	Solution NaCl 3%	Solution NaCl 3%
H ₂ O	H ₂ O	H ₂ O	H ₂ O	H ₂ O

SENSIBILITES SUR POUDRES

Date: 25/2 2 (Norvège)

SENSIBILITY ON POWDERS

W.H.

Cellulose CaCl₂ L&Bm 320,785cm²

1991,50m

1992,50m

1993,00m

1994,50m

1996,00m

Perméabilité (md)

10x1000

1000

100

Isopropanol	Isopropanol	Isopropanol	Isopropanol	Isopropanol
Solution CaCl ₂ 3%	Solution CaCl ₂ 3%	Solution CaCl ₂ 3%	Solution CaCl ₂ 3%	Solution CaCl ₂ 3%
H ₂ O	H ₂ O	H ₂ O	H ₂ O	H ₂ O
Solution NaCl 3%	Solution NaCl 3%	Solution NaCl 3%	Solution NaCl 3%	Solution NaCl 3%
H ₂ O	H ₂ O	H ₂ O	H ₂ O	H ₂ O