

p.m. 7249 H.276

ELF - R.E.
D. EXPLOR.
Dt. G. C.
LABORATOIRES
-
2035 n°5/1276 R
/eg

30/10-2 WELL
AN ATTEMPT OF GEOCHEMICAL CHARACTERIZATION
OF THE OIL UNDER THE GAS ACCUMULATION

B. PHILIPPE
Boussens - Décembre 1975

REFERENCE = ORDER n°031002

You have already been sent the following documents relating to the same order :

J. DUCAZEUX - 2035 n°4/1004 R

"Well 30/10-2 (NORGE) -

Palynological study on Lower Tertiary series"

R. CUSSEY - 2035 n°5/1243 R

"30/10-2 well (NORGE)

Sedimentological study of the base of the Tertiary series"

LISTE DE DIFFUSION

DESTINATAIRES :

DIRECTION EXPLORATION

1

D.R.T.E.N.

1

S.I.D.

2

DIVISION 2 - NORVEGE

20

This well is located at the North of FRIGG on an independant structure. The aim of this geochemical study was to characterize the oil at the base of the gas accumulation in the FRIGG Formation reservoir (Lower Eocene).

The reservoir contains gas between 6550' and 6710', a transitional zone with oil between approx 6710 and 6730', and then water.

The interval studied is between 6460 and 6770'. The cutting samples show no fluorescence between 6460 and 6700', then a slight brown fluorescence between 6700 and 6770'.

Total organic carbon contents are always lower than 1 % and the values of organic matter extracted by chloroform are very low ; between 6700 and 6770' the average value of organic matter extracted is lower than 250 ppm, but it is probable that this value is not representative of the amount of oil in the reservoir interval as a great part of the oil has possibly been eliminated when the cuttings were washed (reservoir not indurated).

The two vapor analyses carried out at 6720-6730' and 6750-6760' show no light hydrocarbons.

Due to the very small quantity (< 10 mg) of the total cutting extract between 6700 and 6770', it was only possible to carry out the separation of the saturates in a minicolumn and their chromatography. The chromatogram of the saturates (see figure attached at the end) shows a population of heavy n-alkanes ; it is without doubt a migrated product which has been partially degraded : loss of the light and medium hydrocarbons (no evident biodegradation). However the extract studied is perhaps not representative of the free oil in the reservoir, but is possibly a residual oil show adsorbed in the finest porous spaces.

CONCLUSION

The extract studied (6700-6770') is a (residual ?) degraded oil show but it is probably not representative, both in quantity and quality, of the free oil in the reservoir.

Hence, if it is possible to have a sample of crude oil, it would be desirable to study it so as to make a comparison with the other oils of the FRIGG area. This would also possibly allow a better understanding of the degradation phenomena (in the widest sense) and the migrations in this area.

ANALYSE D'HUILE OU D'EXTRAIT CHLOROFORMIQUE DE ROCHE (sur 9 mg)

SONDAGE : 30/10-2

ECHANTILLON : 6700-6770'

Récupération des H.S. sur petite colonne

COT : MOE totale 230 ppm.
MOE désulfurée

Age ou Formation : Lower eocene

CONSTITUTION :

Asphaltènes	As =	Asphaltènes Insolubles CC14	C =
Résines	R =	CH Saturés	52,2% ; CH Aromatiques
Constituants huileux	CH =	S/A =	
Pertes + Résidus:	100 - (A+R+CH) =		

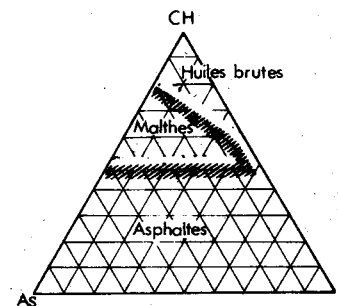
ANALYSE DES HYDROCARBURES SATURÉS PAR CPG (Poids de la prise d'essai : 3,5 mg.)

Proportion des n. alcanes = 7,9 ppm
 Proportion : du Farnésane = 0,05 du Pristane = 0,16 du Phytane = 0,15
 Rapports : Pristane/Phytane = 1,10 Pristane n.C17 = 0,94 Phytane n.C18 = 0,61

Recherche de dominance paire ou impaire par calcul du Carbon Preference Index (CPI) :
 CPI entre la n.alcane 18 et la n.alcane : C26 CPI = 0,972

Distribution relative des n. alcanes :

n.C15	n.C16	n.C17	n.C18	n.C19	n.C20	n.C21	n.C22	n.C23	n.C24	n.C25	n.C26	n.C27	n.C28	n.C29	n.C30	n.C31	n.C32	n.C33
0,42	2,17	3,04	3,67	2,74	2,67	5,99	10,26	15,47	18,85	18,63	16,09							



HISTOGRAMMES DE LA DISTRIBUTION RELATIVE DES n. ALCANES EN FONCTION DU NOMBRE N DE CARBONES

Echelle arithmétique

