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SOCIÉTÉ ELF POUR LA RECHERCHE ET L'EXPLOITATION DES HYDROCARBURES

CENTRE DE RECHERCHES DE BOUSSENS
Dt. G.C. - Laboratoires
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BOUSSENS, le 4 Août 1975
TÉL. 101 CAZÈRES-SUR-GARONNE
ADRESSE TÉLÉGRAPHIQUE : ELFERAP BOUSSENS
TÉLEX : ELFERAP 51064 BOUSSENS

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20 AUG 1975
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GEOCHEMICAL STUDY OF THE OIL SHOWS
(CORE 1 TO 3)

DIFFUSION	
Original	Mission ELF NORGE
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This work was carried out according to the request by Production Elf Norge (telex n° 1-4188 of may 29, 1975) to study the nature of "residual hydrocarbons" from cores.

DIFFUSION RAPIDE DE RESULTATS D'ETUDE OU D'INFORMATIONS

1 - The results of the organic inventory are :

	Depth	Succinct Litho.	IOC*	EOM*	BR*
core 1	3948,70m	Shale	9.	12,800	14
	3949,20m	Sandstone	0.3	9,000	
core 2	4084,30m	Sandstone	0.2	5,400	9
	4098,70m	Shale	2.5	2,300	
core 3	4141,50m	Sandstone	0.4	8,300	5 10
	4143,50m	Sandstone	0.2	6,250	
	4149,40m	Shale	9.5	5,000	
	4149,70m	Sandstone+Shale	2.5	2,600	

These results show that :

- The oil yield of the shales is good to average.
- The oil impregnation of the sandstones is low.

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* IOC = Insoluble Organic Carbon (%)

EOM = Organic Matter Extracted by chloroform (ppm)

BR = (EOM/IOC) x 100 . Approximate value for the shales.

Les résultats d'étude présentés ci-dessus correspondent à une demande d'intervention en urgence, sont provisoires et sont communiqués à titre d'information préliminaire; ils seront revus et complétés pour être intégrés dans un rapport de synthèse. Le compte rendu ci-dessus est communiqué à titre d'information.

2 - The extract composition from the sandstone at 4141,50 m is :

Asphaltenes	3.5%	$\left\{ \begin{array}{l} \text{Saturates (S)} \quad 58.7\% \\ \text{Aromatics (A)} \quad 23.2\% \end{array} \right.$
Resins	11.9%	
Hydrocarbons	82. %	

S/A ratio = 2.5

These results point out that the extract composition of this oil is the one of a non-degraded oil.

3 - Chromatographical analyses

3.1 - Shaly samples

The vapors analyses and the minianalyses*carried out on 3948.70, 4089.70, 4149.7 samples point out that the quality of the organic matter is very good and that there is an appreciable increasing of the diagenesis between the 3948,70 and the 4089,70 samples.

3.2 - Impregnated sandstone samples (see the attached chromatogram)

The chromatograms of the saturated HC fractions (samples : 3949.20m,4084.50 4143,50) and of the vapor analysis (4141.50 sample) point out that the distribution spectra of the n-alkanes are the ones of a highly paraffinic non-degraded oil and that there is a partial loss of the alkanes about lighter than C17 (losses after sampling, always observed on impregnated samples). Furthermore, the chromatograms of the saturates show that the oil from 3949.20 is less evolved than the one of 4084.30; we have already observed a different state of the organic diagenesis between the core 1 and the core 2 (cf. 3.1).

4 - Conclusions

- There is no communication between the sandstone levels of the core 1 and the core 2; the source-rocks of the oils are the nearest shaly beds.
- The oil impregnations are low, but these oils are not degraded.

B. PHILIPPE

* Analyses of the saturated HC fraction of the extract by Hexane on a few grams of rock.

