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REPORT TYPE	REPORT NO. IFE/KR/F-88/108		DATE 1988-09-20
	REPORT TITLE REPORT ON STABLE ISOTOPES ($\delta^{13}\text{C}$, δD , $\delta^{18}\text{O}$) ON NATURAL GASES FROM WELL 6506/12-8 DST 1 4205-4221, 4237-4277 m RKB; DST 2 3915-3923, 3934-3955 m RKB		DATE OF LAST REV.
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SUMMARY			DISTRIBUTION
<p>The gas components C_1-C_4 and CO_2 have been separated from natural gas samples from well 6506/12-8 DST 1 4205-4221, 4237-4277 m RKB; DST 2 3915-3923, 3934-3955 m RKB, and the $\delta^{13}\text{C}$ values of these components have been measured. The isotopic composition of hydrogen from CH_4 has also been measured.</p>			<p>Statoil (10) Andresen, B. Rolfsen, S. Råheim, A. Thronsen, T.</p>
<div style="border: 2px solid black; padding: 10px; width: fit-content; margin: 20px auto;"> <p>BA-88-1421-1</p> <p>10 OKT. 1988</p> <p>REGISTRERT</p> <p>OLJEDIREKTORATET</p> </div>			
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1. INTRODUCTION

Two gas samples from well 6506/12-8, DST 1; 4205-4221, 4237-4277 m RKB and DST 2; 3915-3923, 3934-3955 m RKB were received and analysed September 1988.

On the samples C_1-C_4 and CO_2 are quantified, and the $\delta^{13}C$ value is measured on methane, ethane, propane, the butanes and CO_2 . The δD value is also measured on methane.

2. ANALYTICAL PROCEDURE

The natural gas samples have been quantified and separated into the different gas components by a Carlo-Erba 4200 instrument. This gas chromatograph is equipped with a special injection loop in order to concentrate the samples, in the case of low concentration of the gas components. The hydrocarbon gas components were oxidized in separate CuO -ovens in order to prevent cross contamination. The combustion products CO_2 and H_2O were frozen into collection vessels and separated.

The water was reduced with zinc metal in a sealed tube to prepare hydrogen for isotopic analysis. The isotopic measurements were performed on a Finnigan Mat 251 and a Finnigan Mat delta mass spectrometer. Our $\delta^{13}C$ value on NBS 22 is $-29.77 \pm .06$ o/oo PDB.

3. RESULTS

The volume composition of the samples is given in Table 1. The results have been normalized to 100%. The stable isotope results are given in Table 2.

Our uncertainty on the $\delta^{13}C$ value is estimated to be ± 0.3 o/oo and includes all the different analysis step. The uncertainty on the δD value is likewise estimated to be ± 5 o/oo.

Table 1 Volume composition of gas samples from well 6506/12-8

Sample	IFE no.	C ₁ %	C ₂ %	C ₃ %	i-C ₄ %	n-C ₄ %	CO ₂ %	ΣC ₁ -C ₄	wet-ness	$\frac{i-C_4}{n-C_4}$
A	7658	75.0	11.3	6.0	0.65	1.30	5.7	94.3	0.204	0.50
B	7659	76.3	10.9	6.3	0.90	1.67	3.9	96.1	0.206	0.54

Table 2 Isotopic composition of gas samples from well 6506/12-8

Sample	IFE no.	C ₁	C ₁	C ₂	C ₃	i-C ₄	n-C ₄	CO ₂	
		$\delta^{13}C_{PDB}$	δD_{SMOW}	$\delta^{13}C_{PDB}$	$\delta^{13}C_{PDB}$	$\delta^{13}C_{PDB}$	$\delta^{13}C_{PDB}$	$\delta^{13}C_{PDB}$	$\delta^{18}O_{PDB}$
A	7658	-44.7	-229	-34.4	-30.9	-29.1	-30.0	- 9.9	- 7.3
B	7659	-48.8	-216	-34.7	-30.3	-28.0	-29.9	-12.2	-14.6

A: DST 1 4205-4221, 4237-4277 m RKB

B: DST 2 3915-3923, 3934-3955 m RKB