

U-631 .3

BA90-2182-1

13 DES. 1990



REGISTRERT
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KJELLER		HALDEN	AVAILABILITY
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REPORT TYPE	REPORT NO.		DATE
	IFE/KR/F-90/119		1990-10-05
	REPORT TITLE		DATE OF LAST REV.
	REPORT ON STABLE ISOTOPES ($\delta^{13}\text{C}$, δD , $\delta^{18}\text{O}$) ON NATURAL GAS SAMPLES FROM WELL 6507/8-4.		REV. NO.
CLIENT	STATOIL		NUMBER OF PAGES
			8
CLIENT REF.	T 6269 no.148		NUMBER OF ISSUES
			15
SUMMARY			DISTRIBUTION
<p>The gas components C_1-C_3 have been separated from three gas samples from well 6507/8-4; DST 2, 2200 - 2202/2204 - 2208.5/2212 - 2221 mRKB; DST 3, 2150 - 2161.5/2163.5 - 2168 mRKB and DST 4, 2126 - 2135 mRKB, and the $\delta^{13}\text{C}$ values of methane, ethane, propane, the butanes and CO_2 have been measured when possible. The hydrogen isotopic composition of methane has also been determined.</p>			<p>Statoil (10) Andresen, B. Råheim, A. Thronsen, T. File (2)</p>
KEYWORDS			
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1 INTRODUCTION

Three gas samples from well 6507/8-4; DST 2, 2200 - 2202/2204 - 2208.5/2212 - 2221 mRKB; DST 3, 2150 - 2161.5/2163.5 - 2168 mRKB and DST 4, 2126 - 2135 mRKB were received and analysed during September 1990.

On the samples C₁ - C₃ and CO₂ are quantified. The $\delta^{13}\text{C}$ value is measured on methane, ethane, propane, the butanes and CO₂. In addition the δD value is measured on methane from all samples.

Due to a strange isotopic composition of the first received DST 2 sample an additional DST 2 sample was received and analysed late September/early October 1990.

2 ANALYTICAL PROCEDURE

The natural gas samples have been quantified and separated into the different gas components by a Carlo Erba 4200 instrument.

The hydrocarbon gas components were oxidized in separate CuO-ovens in order to prevent cross contamination. The combustion products CO₂ and H₂O were frozen into collection vessels and separated.

The combustion 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 Finnigan Delta mass spectrometer. IFE's value on NBS 22 is $-29.77 \pm .06$ ‰ PDB.

3 RESULTS

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

The uncertainty on the $\delta^{13}\text{C}$ value is estimated to be ± 0.3 ‰ PDB and includes all the different analytical steps.

The uncertainty on the δD value is likewise estimated to be ± 5 ‰.

Table 1 Volume composition of gas samples from well 6507/8-4.

SAMPLE	IFE no.	C ₁ %	C ₂ %	C ₃ %	iC ₄ %	nC ₄ %	iC ₅ %	nC ₅ %	CO ₂ %	Σ C ₁ - C ₅	WET- NESS	iC ₄ / nC ₄
DST 2	8996	89.0	4.9	3.2	0.49	0.61	0.16	0.13	1.49	98.5	0.10	0.79
DST 2	9029	86.8	7.4	2.4	0.41	0.67	0.19	0.16	1.92	98.1	0.11	0.62
DST 3	8997	89.6	6.6	1.6	0.23	0.28	0.06	0.04	1.60	98.4	0.09	0.82
DST 4	8998	89.8	6.3	1.7	0.26	0.47	0.13	0.13	1.14	98.9	0.09	0.57

DST 2, 2200 - 2202/2204 - 2208.5/2212 - 2221 mRKB;

DST 3, 2150 - 2161.5/2163.5 - 2168 mRKB

DST 4, 2126 - 2135 mRKB

Table 2 Isotopic composition of gas samples from well 6507/8-4.

SAMPLE	IFE no.	C ₁ δ ¹³ C PDB	C ₁ δ D SMOW	C ₂ δ ¹³ C PDB	C ₃ δ ¹³ C PDB	iC ₄ δ ¹³ C PDB	nC ₄ δ ¹³ C PDB	CO ₂ δ ¹³ C PDB	CO ₂ δ ¹⁸ O PDB
DST 2, (analysed 140990)	8996	-11.1	-154	-20.8	-23.6	-13.8	-24.4	-10.4	9.9
DST2, (analysed 170990)		-5.2		-19.4	-22.2	-16.2	-22.4	-11.8	10.2
DST 2	9029	-45.4	-191	-30.4	-27.3	-22.1	-25.8	-11.1	-12.1
DST 3	8997	-45.6	-187	-30.6	-27.4	-15.0	-25.7	-8.2	-3.2
DST 4	8998	-45.0	-198	-30.3	-27.9	-22.1	-26.5	-7.8	-9.7

DST 2, 2200 - 2202/2204 - 2208.5/2212 - 2221 mRKB;

DST 3, 2150 - 2161.5/2163.5 - 2168 mRKB

DST 4, 2126 - 2135 mRKB