COMPOSITIONAL ANALYSIS

For

STATOIL

Well: 34/10-21

North Sea, Norway

CORE LAB

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CORE LABORATORIES
Petroleum Reservoir Engineering
CCB, ÅGOTNES

4th October 1984

Statoil
Damsgaardsgate 131
P.O. Box 1212
N-5001 Bergen

Attention: Mr. Jon Hanstveit

Subject: Compositional Analyses
RFT Chamber Samples
Well: 34/10-21
North Sea, Norway
Our File No: RFLN 840042

Gentlemen,

Three Schlumberger one gallon RFT chambers, containing subsurface sample collected from the subject well, were received in our Aagotnes laboratory between the 10th and 24th of September 1984. Presented in the following report are the results of compositional analyses performed on pressurised gas samples transferred from each chamber, as requested by a representative of Statoil.

In each case the ambient temperature opening pressure of the chambers were determined. Thereafter each chamber was heated to a temperature in excess of the reported reservoir temperature and the resultant pressure noted. During this heating period, of approximately twenty-four hours, and after pressurising to a pressure in excess of the reported reservoir pressure each chamber was inverted frequently. Whilst maintaining these pressure and temperature conditions samples of pressurised gas were transferred, through heated and evacuated lines, to high pressure stainless steel cylinders. After cooling the chambers to ambient temperature the volumes of the residual contents were measured whilst draining the chambers.

The hydrocarbon gas composition of selected samples were determined, through heptanes plus, by low temperature fractional distillation. The properties of the heptanes plus fractions being determined by means of gas liquid chromatography.

In the following report the data obtained from the sample collected at 3325 metres (original run) is presented on pages one and two, whilst the date obtained from the sample collected at 3298.5 metres is presented on pages three and four, and that obtained from the sample collected at 3325 metres (second run) may be found on pages five and six.

It has been a pleasure to be of service to Statoil. Should you have any questions concerning this data or if we can be of further sevice in any way, please feel free to call upon us.

Very Truly Yours
Core Laboratories Norsk

Duncan Thow
Operatins Supervisor
Reservoir Fluid Analysis

DMT/ah
10 cc Adressee

CORE LABORATORIES
Petroleum Reservoir Engineering
CCB, ÅGOTNES

File RFLN 840042

Well 34/10-21

SUMMATION OF DATA FROM RFT CHAMBER RFS-AB-1197

Sampling Depth	3325 metres
Reservoir Pressure	450.8 bar
Reservoir Temperature	117 ° C

Opening Pressure at 15.5°C	151.3 bara
Pressure after stabilization at 119°C	425.1 bara
Volume of sample transferred at 428.5 bara 60°F and 119°C.	Approximately 300 ccs

RECOVERY FROM BLEED DOWN

Mud	Approximately 3.3 l

HYDROCARBON ANALYSIS OF SUBSURFACE GAS SAMPLE

COMPONENT	MOL PERCENT	WEIGHT PERCENT	$m^3/m^3 \times 10^6$	DENSITY Kg/m^3	MOL WEIGHT
Carbon Dioxide	0.48	1.06			
Nitrogen	0.64	0.90			
Methane	88.28	70.95			
Ethane	5.91	8.89	209.5		
Propane	1.76	3.89	64.5		
iso-Butane	0.32	0.92	13.9		
n-Butane	0.48	1.39	20.1		
iso-Pentane	0.22	0.75	10.7		
n-Pentane	0.18	0.58	8.7		
Hexanes	0.23	0.64	12.6		
Heptanes Plus	1.50	10.13	104.5	781.5	129
	100.00	100.00	444.7		

Gas gravity (Air = 1.000) = 0.690

Cylinder Number: J-210882-4

SUMMATION OF DATA FROM RFT CHAMBER RFS-AB-1234

Sampling Depth	3298.5 metres
Reservoir Pressure	450.8 bara
Reservoir Temperature	117 °C
Opening Pressure at 16°C	209.3 bara
Pressure After Stabilization at 121°C	447.1 bara
Volume of Sample Transferred at 497.5 bara and 121°C	Approximately 1.2 l

RECOVERY FROM BLEED DOWN

Volumes Recovered at 1 bara and 15°C	
Gas	461.9 l
Condensate	63 cc
Water/Mud Filtrate	0.91 l

Cylinder Numbers of Transferred Samples

Sample Number	Cylinder Number
1	J-210882-6
2	811106

HYDROCARBON ANALYSIS OF SUBSURFACE GAS SAMPLE

COMPONENT	MOL PERCENT	WEIGHT PERCENT	$m^3/m^3 \times 10^6$	DENSITY	MOL WEIGHT
Carbon Dioxide	2.26	4.75			
Nitrogen	0.35	0.47			
Methane	87.26	66.94			
Ethane	5.57	8.01	197.5		
Propane	1.57	3.31	57.6		
iso-Butane	0.27	0.74	11.8		
n-Butane	0.41	1.16	17.2		
iso-Pentane	0.14	0.49	6.8		
n-Pentane	0.19	0.67	9.2		
Hexanes	0.29	1.22	15.9		
Heptanes Plus	1.69	12.24	134.0	0.8091	152
	100.00	100.00	450.0		

Calculated Gas Gravity (Air=1.000) = 0.722

Cylinder Number: 811106

SUMMATION OF DATA FROM RFT CHAMBER RFS-AB-1212

Sampling Depth	3325 metres
Reservoir Pressure	450.8 bar
Reservoir Temperature	117 °C
Opening Pressure at 15°C	98 bara
Pressure after stabilization at 119°C	435 bara
Volume of sample transferred at 497 barg and 119°C	Approximately 0.98 l

RECOVERY FROM BLEED DOWN

Volumes Recovered at 1 bara and 15°F

Gas	24 l
Water/Mud Filtrate	2.7 l

Cylinder Numbers of Transferred Samples

Sample Number	Cylinder Number
1	J-210882-19
2	811121

HYDROCARBON ANALYSIS OF SUBSURFACE GAS SAMPLE

COMPONENT	MOL PERCENT	WEIGHT PERCENT	$m^3/m^3 \times 10^6$	DENSITY	MOL WEIGHT
Carbon Dioxide	1.25	2.63			
Nitrogen	0.51	0.68			
Methane	87.36	66.82			
Ethane	5.84	8.38	207.1		
Propane	1.80	3.79	66.0		
iso-Butane	0.34	0.94	14.8		
n-Butane	0.52	1.43	21.8		
iso-Pentane	0.17	0.57	8.3		
n-Pentane	0.17	0.58	8.2		
Hexanes	0.24	1.02	13.2		
Heptanes Plus	1.80	13.16	146.2	0.7952	153
	100.00	100.00	485.6		

Calculated Gas Gravity (Air=1.000) = 0.724

Cylinder Number:- J-210882-19

Statoil
Well: 34/10-21

RFLN 840042

Core Laboratories Norsk
Reservoir Fluid Laboratory

Duncan Thow

Duncan Thow
Operations Supervisor