

CORE LABORATORIES UK LTD.
Petroleum Reservoir Engineering
ABERDEEN, SCOTLAND

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PARTIAL RESERVOIR STUDY

for

Esso/Statoil A/S

Well: 15/8-1

North Sea, UK.

LABORATORY

CORE LABORATORIES UK LTD.

Petroleum Reservoir Engineering

ABERDEEN, SCOTLAND

12th January 1983

Esso/Statoil A/S
Forus
P.O. Box 300
N-4001 Stavanger
NORWAY

Subject: Partial Reservoir Study
Well: 15/8-1
North Sea, Norway.
Our File: RFLA 820178A

Attention: Mr. Arne Martinsen.

Gentlemen,

On the 29th December 1981 samples of separator liquid and gas were collected from the subject well and forwarded to our Aberdeen laboratory. These samples were used in a reservoir fluid study, the results of which were reported to Esso/ Statoil A/S on the 25th October 1982 under our file number RFLA 820178. Presented in the following report are the results of subsequent analyses as requested by Esso/Statoil A/S.

A portion of separator liquid from cylinder number 001 AQ was subjected to a single stage flash separation test at room conditions. The factors and data derived from this test may be found on page two.

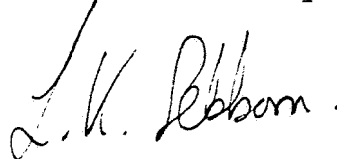
The hydrocarbon compositions to decanes plus of the resulting gas was determined by gas chromatography, and of the liquid by low temperature fractional distillation and gas-liquid chromatography. These compositions are presented on pages three and four of this report.

A copy of each of the three chromatograms produced as a result of our analyses is enclosed in a separate report folder as requested. These chromatograms are of: gas composition to heptanes plus, extended gas composition to decanes plus and extended liquid composition from heptanes through decanes plus.

It has been a pleasure to be of service to Esso/Statoil A/S. If any questions should arise concerning data presented in this report, or if we may be of assistance in any further matter, please do not hesitate to contact us.

Yours very truly

Core Laboratories UK Limited
Reservoir Fluid Analysis



LKS/TGB/stb
15cc/Addressee

Les. K. Sebborn
Manager - RFL Aberdeen

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Company Esso/Statoil A/S Date Sampled 29th December 1981
 Well 15/8-1 County North Sea
 Field _____ State Norway

FORMATION CHARACTERISTICS

Formation Name _____
 Date First Well Completed _____, 19____
 Original Reservoir Pressure _____ Bar G @ _____ M.
 Original Produced Gas-Liquid Ratio _____ SM3/M3
 Production Rate _____ SM3/Day
 Separator Pressure and Temperature _____ Bar G _____ °C.
 Liquid Gravity at 60°F. _____ °API
 Datum _____ M. Subsea

WELL CHARACTERISTICS

Elevation _____ M.
 Total Depth _____ M.
 Producing Interval 3463 to 3653 M.
 Tubing Size and Depth _____ In. to _____ M.
 Open Flow Potential _____ M3/Day
 Last Reservoir Pressure _____ Bar G @ _____ M.
 Date _____, 19____
 Reservoir Temperature 118 °C. @ 3648 M.
 Status of Well _____
 Pressure Gauge _____

SAMPLING CONDITIONS

Flowing Tubing Pressure _____ Bar G
 Flowing Bottom Hole Pressure _____ Bar G
 Primary Separator Pressure 41.4 Bar G
 Primary Separator Temperature 15.6 °C.
 Secondary Separator Pressure _____ Bar G
 Secondary Separator Temperature _____ °C.
 Field Stock Tank Liquid Gravity _____ °API @ 60°F.
 Primary Separator Gas Production Rate _____ SM3/Day
 Pressure Base 1.013 Bar A
 Temperature Base 15 °C.
 Compressibility Factor (F_{pv}) _____
 Gas Gravity (Laboratory) _____
 Gas Gravity Factor (F_g) _____
 Liquid Production Rate @ 15.6°C. _____ M3/Day
 Primary Separator Gas/ Separator Liquid Ratio 1648 SM3/M3
 or 607 M3/SM3 x 10⁶

Sampled by _____

REMARKS:

These analyses, opinions or interpretations are based on observations and material supplied by the client to whom, and for whose exclusive and confidential use, this report is made. The interpretations or opinions expressed represent the best judgement of Core Laboratories, Inc. (all errors and omissions excepted); but Core Laboratories, Inc. and its officers and employees, assume no responsibility and make no warranty or representations as to the productivity, proper operation, or profitability of any oil, gas or other mineral well or sand in connection with which such report is used or relied upon.

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Well 15/8-1

SEPARATOR TESTS OF RESERVOIR FLUID SAMPLE

Separator Pressure, Bar(G)	Separator Temperature °C.	Stock Tank Gas/Oil Ratio(1)	Stock Tank Gravity °API @ 60°F.	Shrinkage Factor, Vr/Vsat(2)	Formation Volume Factor Vsat/Vr(3)	Specific Gravity of Flashed Gas
0	15	146	43.5	0.698	1.433	1.276

Gas and liquid evolved collected and analysed for hydrocarbon composition.

- (1) Separator and Stock Tank Gas/Oil Ratio in metres cubed of gas at 1.013 Bar A and 15°C per barrel of stock tank oil at 15°C.
- (2) Shrinkage Factor: Vr/Vsat is metres cubed of stock tank oil at 15°C per barrel of saturated oil at 41.4 Bar G and 15.6°C.
- (3) Formation Volume Factor: Vsat/Vr is metres cubed of saturated oil at 41.4 Bar G and 15.6°C per metre cubed of stock tank oil at 15°C.

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Company Esso/Statoil A/S Formation _____
 Well 15/8-1 County North Sea
 Field _____ State Norway

HYDROCARBON ANALYSIS OF STOCK TANK OIL SAMPLE

COMPONENT	MOL PERCENT	WEIGHT PERCENT	DENSITY	API	MOL WEIGHT
Hydrogen Sulfide	NIL	NIL			
Carbon Dioxide	0.02	0.01			
Nitrogen	0.01	TRACE			
Methane	0.01	TRACE			
Ethane	0.16	0.03			
Propane	1.39	0.43			
iso-Butane	1.02	0.41			
n-Butane	4.02	1.63			
iso-Pentane	3.28	1.65			
n-Pentane	5.09	2.56			
Hexanes	5.44	3.26			
Heptanes	9.02	5.70			
Octanes	19.06	13.01			
Nonanes	11.84	9.16			
Decanes plus	39.64	62.15			
	<u>100.00</u>	<u>100.00</u>			
Heptanes plus	79.55	90.02	841	36.6	162

Molecular weight of stock tank oil = 143

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HYDROCARBON ANALYSES OF SEPARATOR GAS SAMPLES

Separator Conditions:

0 Bar G @ 15°C.

Weight
Percent

<u>Component</u>	<u>Mol Percent</u>	<u>L3/100M3</u>	
Hydrogen Sulfide	NIL		NIL
Carbon Dioxide	16.36		19.48
Nitrogen	0.16		0.12
Methane	28.42		12.33
Ethane	18.04		14.68
Propane	20.18	74.05	24.07
iso-Butane	3.74	16.31	5.88
n-Butane	8.06	33.87	12.67
iso-Pentane	1.81	8.84	3.53
n-Pentane	1.75	8.45	3.42
Hexanes	0.67	3.65	1.56
Heptanes	0.69))
Octanes	0.09))
Nonanes	0.02) 4.91) 2.26
Decanes plus	0.01))
	<u>100.00</u>	<u>150.08</u>	<u>100.00</u>

Calculated gas gravity(Air=1.000): 1.276

Calculated gross heating value
 (MJ per cubic metre of dry gas
 at 1.013 Bar A and 15°C.): 64.16

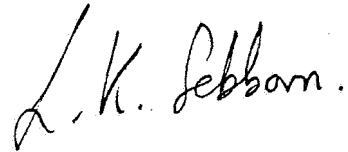
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ESSO/STATOIL A/S
Well: 15/8-1

RFLA 820178A

Core Laboratories UK Limited
Reservoir Fluid Analysis

A handwritten signature in black ink, reading "Les. K. Sebborn." with a stylized, cursive script.

Les. K. Sebborn
Manager - RFL Aberdeen