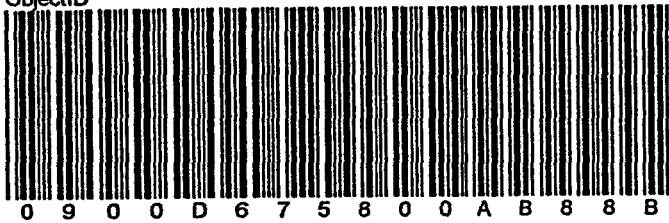


Cover Sheet

Petoro Scan On Demand
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CORE LABORATORIES UK LTD.
Petroleum Reservoir Engineering
ABERDEEN, SCOTLAND

Reservoir Fluid Study
For
Norske Shell Exploration & Production
Well: 31/2-2
North Sea, Norway

CORE LABORATORIES UK LTD.

Petroleum Reservoir Engineering

ABERDEEN, SCOTLAND

Norske Shell Exploration & Production

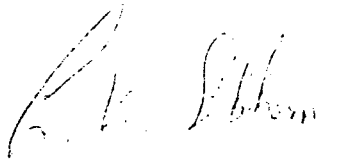
Continued/...

Page Two

In view of these results, the reservoir fluid would usually be considered a dry gas system. Consequently, we would normally not perform a "step-wise" equilibrium (constant volume) depletion to simulate wellstream production below the dew point. We will retain the samples in our laboratory pending further instructions from Norske Shell Exploration & Production.

It has been a pleasure to be of service to Norske Shell Exploration & Production. Should any questions arise concerning the data presented in this report, please do not hesitate to contact us.

Very truly yours,
Core Laboratories U.K. Ltd.,



LKS/HG
15 cc addressee

L. K. Sebborn,
Laboratory Manager - RFL

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Petroleum Reservoir Engineering
ABERDEEN, SCOTLAND

Page 1 of 8

File RFLA 80078

Company Norske Shell Expl. & Prod. Date Sampled 12th April, 1980
 Well 31/2-2 RFT 4.3 County North Sea
 Field State Norway

FORMATION CHARACTERISTICS

Formation Name
 Date First Well Completed 19.....
 Original Reservoir PressurePSIG @Ft.
 Original Produced Gas-Liquid Ratio SCF/Bbl
 Production Rate Bbl/Day
 Separator Pressure and Temperature PSIG..... ° F.
 Oil Gravity at 60°F. ° API
 Datum Ft. Subsea
 Original Gas Cap

WELL CHARACTERISTICS

Elevation Ft.
 Total Depth Ft.
 Producing Interval Ft.
 Tubing Size and DepthIn. to..... Ft.
 Productivity IndexBbl/D/PSI @Bbl/Day
 Last Reservoir Pressure 2258PSIG @ 1515 m ..
 Date 19.....
 Reservoir Temperature 122 ° F. @ Ft. *
 Status of Well
 Pressure Gauge
 Normal Production Rate Bbl/Day
 Gas-Oil Ratio SCF/Bbl
 Separator Pressure and Temperature PSIG..... ° F.
 Base Pressure PSIA
 Well Making Water % Cut

SAMPLING CONDITIONS

Sampled at 1515 m
 Status of Well
 Gas-Oil RatioSCF/Bbl
 Separator Pressure and Temperature PSIG..... ° F.
 Tubing Pressure PSIG
 Casing Pressure PSIG
 Sampled by Schlumberger
 Type Sampler RFT

REMARKS : * Requested analysis temperature

Cylinder Number: SS 838

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Page 2 of 8

File RFLA 80078

Company Norske Shell Expl. & Prod. Date Sampled 12th April, 1980
 Well 31/2-2 County North Sea
 Field State Norway

HYDROCARBON ANALYSIS OF Reservoir Fluid SAMPLE

Component	Mol Percent	Weight Percent
Hydrogen Sulfide	NIL	NIL
Carbon Dioxide	0.33	0.85
Nitrogen	1.59	2.56
Methane	93.37	85.11
Ethane	3.64	6.20
Propane	0.36	1.02
iso-Butane	0.26	0.74
n-Butane	0.06	0.17
iso-Pentane	0.04	0.23
n-Pentane	0.02	0.11
Hexanes	0.06	0.34
Methylcyclopentane	0.01	0.06
Benzene	NIL	NIL
Cyclohexane	0.01	0.06
Heptanes	0.03	0.23
Methyl Cyclohexane	0.04	0.30
Toluene	TRACE	0.01
Octanes	0.02	0.17
Ethylbenzene	TRACE	0.01
Meta and Para Xylene	0.01	0.08
Orthoxylene	TRACE	0.01
Nonanes	0.02	0.19
1, 2, 4 Trimethylbenzene	0.01	0.09
Decanes	0.04	0.43
Undecanes	0.03	0.33
Dodecanes	0.01	0.18
Tridecanes	0.01	0.17
Tetradecanes	0.01	0.14
Pentadecanes	0.01	0.11
Hexadecanes	0.01	0.08
Heptadecanes	TRACE	0.01
Octadecanes	TRACE	0.01
Nonadecanes	TRACE	TRACE
Eicosanes plus	TRACE	TRACE
	<u>100.00</u>	<u>100.00</u>

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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Page3..... of8.....

File RFLA 80078

Well 31/2-2

Pressure-Volume Relations at122..... °F.

<u>Pressure PSIG</u>	<u>Relative Volume (1)</u>	<u>Compressibility Factor Z</u>
2500	0.6865	0.846
2286	0.7494	0.845
2200	0.7798	0.846
2100	0.8184	0.848
2000	0.8612	0.850
1900	0.9089	0.853
1800	0.9626	0.856
1738	Dew Point 1.0000	0.859
1700	Pressure 1.0235	
1600	1.0930	
1500	1.1719	
1400	1.2634	
1200	1.4935	
1000	1.8180	
800	2.2636	
600	3.1163	

(1) Relative Volume : V/V_{sat} is barrels at indicated pressure per barrel at saturation pressure.

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ABERDEEN, SCOTLAND

Page4..... of8.....

FileRFLA 80078.....

Well31/2-2.....

CALCULATED RECOVERY PER MMSCF OF ORIGINAL FLUID

<u>Wellstream MSCF</u>	1000
 <u>Normal Temperature Separation*</u>	
Stock Tank Liquid - Barrels	3.97
Primary Separator Gas - MSCF	995.29
Second Stage Gas - MSCF	1.40
Stock Tank Gas - MSCF	0.88
 <u>Total Plant Products in</u>	
<u>Primary Separator Gas - Gallons**</u>	
Propane	98
Butanes (Total)	100
Pentanes Plus	66
 <u>Total Plant Products in</u>	
<u>Second Stage Gas - Gallons**</u>	
Propane	0.18
Butanes (Total)	0.16
Pentanes Plus	0.08
 <u>Total Plant Products in</u>	
<u>Wellstream - Gallons**</u>	
Propane	99
Butanes (Total)	104
Pentanes Plus	242

* Recovery Bases: Primary separation at 1250 psig and 40^oF
 Second Stage at 500 psig and 40^oF
 Stock Tank at 0 psig and 27^oF

** Recovery assumes 100% plant efficiency

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Petroleum Reservoir Engineering

ABERDEEN, SCOTLAND

Page 5 of 8

File RFLA 80078

Company Norske Shell Expl. & Prod. Date Sampled 13th April, 1980
Well 31/2-2 RFT 6.8 County North Sea
Field State Norway

FORMATION CHARACTERISTICS

Formation Name
Date First Well Completed 19
Original Reservoir Pressure PSIG @ Ft.
Original Produced Gas-Liquid Ratio SCF/Bbl
Production Rate Bbl/Day
Separator Pressure and Temperature PSIG ° F.
Oil Gravity at 60°F. ° API
Datum Ft. Subsea
Original Gas Cap

WELL CHARACTERISTICS

Elevation Ft.
Total Depth Ft.
Producing Interval Ft.
Tubing Size and Depth In. to Ft.
Productivity Index Bbl/D/PSI @ Bbl/Day
Last Reservoir Pressure 2275 PSIG @ 1538.5m
Date 19
Reservoir Temperature 122 ° F. @ Ft.
Status of Well
Pressure Gauge
Normal Production Rate Bbl/Day
Gas-Oil Ratio SCF/Bbl
Separator Pressure and Temperature PSIG ° F.
Base Pressure PSIA
Well Making Water % Cut

SAMPLING CONDITIONS

Sampled at 1538.5 m
Status of Well
Gas-Oil Ratio SCF/Bbl
Separator Pressure and Temperature PSIG ° F.
Tubing Pressure PSIG
Casing Pressure PSIG
Sampled by Schlumberger
Type Sampler RFT

REMARKS: * Requested analysis temperature
Cylinder Number: SS 884

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Petroleum Reservoir Engineering
ABERDEEN, SCOTLAND

Page6..... of8.....

FileRFLA 80078.....

CompanyNorske Shell Expl. & Prod..... Date Sampled13th April, 1980.....
 Well31/2-2..... CountyNorth Sea.....
 Field StateNorway.....

HYDROCARBON ANALYSIS OF Reservoir Fluid SAMPLE

Component	Mol Percent	Weight Percent
Hydrogen Sulfide	NIL	NIL
Carbon Dioxide	0.38	0.97
Nitrogen	1.67	2.68
Methane	93.38	85.43
Ethane	3.50	5.99
Propane	0.38	0.91
iso-Butane	0.27	0.86
n-Butane	0.07	0.23
iso-Pentane	0.04	0.17
n-Pentane	0.02	0.08
Hexanes	0.04	0.17
Methyl Cyclopentane	0.01	0.06
Benzene	NIL	NIL
Cyclohexane	0.01	0.06
Heptanes	0.03	0.23
Methyl Cyclohexane	0.04	0.30
Toluene	TRACE	0.01
Octanes	0.02	0.17
Ethylbenzene	TRACE	0.01
Meta and Para Xylene	0.01	0.08
Orthoxylene	TRACE	0.01
Nonanes	0.02	0.19
1, 2, 4 Trimethylbenzene	0.01	0.09
Decanes	0.03	0.35
Undecanes	0.03	0.31
Dodecanes	0.01	0.20
Tridecanes	0.01	0.17
Tetradecanes	0.01	0.15
Pentadecanes	0.01	0.09
Hexadecanes	TRACE	0.02
Heptadecanes	TRACE	0.01
Octadecanes	TRACE	TRACE
Nonadecanes	TRACE	TRACE
Eicosanes plus	TRACE	TRACE
	<u>100.00</u>	<u>100.00</u>

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ABERDEEN, SCOTLAND

Page ...7... of ...8...

File ...RFLA 80078...

Well ...31/2-2...

Pressure-Volume Relations at ...122... °F.

<u>Pressure PSIG</u>	<u>Relative Volume (1)</u>	<u>Compressibility Factor Z</u>
2500	0.6981	0.846
2286	0.7622	0.845
2200	0.7923	0.846
2100	0.8318	0.848
2000	0.8750	0.850
1900	0.9241	0.853
1800	0.9787	0.856
1765	1.0000	0.858
1700	1.0393	
1600	1.1109	
1500	1.1911	
1400	1.2840	
1300	1.3915	
1200	1.5177	
1000	1.8480	
800	2.3416	
600	3.1368	

(1) Relative Volume : V/V_{sat} is barrels at indicated pressure per barrel at saturation pressure.

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ABERDEEN, SCOTLAND

Page 8 of 8

File RFLA 80078

Well 31/2-2

CALCULATED RECOVERY PER MMSCF OF ORIGINAL FLUID

Wellstream MSCF 1000

Normal Temperature Separation*

Stock Tank Liquid - Barrels 3.52
Primary Separator Gas - MSCF 995.85
Second Stage Gas - MSCF 1.23
Stock Tank Gas - MSCF 0.72

Total Plant Products in
Primary Separator Gas - Gallons**

Propane 103
Butanes (Total) 107
Pentanes Plus 61

Total Plant Products in
Second Stage Gas - Gallons**

Propane 0.17
Butanes (Total) 0.15
Pentanes Plus 0.07

Total Plant Products in
Wellstream - Gallons**

Propane 105
Butanes (Total) 110
Pentanes Plus 220

* Recovery Bases: Primary separation at 1250 psig and 40^oF
Second Stage at 500 psig and 40^oF
Stock Tank at 0 psig and 27^oF

** Recovery assumes 100% plant efficiency

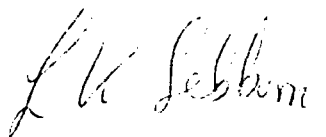
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Petroleum Reservoir Engineering
ABERDEEN, SCOTLAND

Norske Shell Exploration & Production

RFLA 80078

Core Laboratories U.K. Ltd.,
Reservoir Fluid Analysis,

A handwritten signature in cursive script, appearing to read "L. K. Sebborn".

L. K. Sebborn,
Laboratory Manager - RFL