PARTIAL RESERVOIR FLUID STUDY

for

A/S Norske Shell

Well: 31/2-5

North Sea, Norway

IKKE Vannanalyse

CORE LABORATORIES UK LTD.
Petroleum Reservoir Engineering
ABERDEEN, SCOTLAND

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ABERDEEN, SCOTLAND

File RFLA 81045

Company A/S Norske Shell | Date Sampled February 1981

Well 31/2-5 | State North Sea

Field | Country Norway

FORMATION CHARACTERISTICS

Formation Name	
Date First Well Completed	, 19
Original Reservoir Pressure	PSIG @ Ft.
Original Produced Gas-Oil Ratio	SCF/Bbl
Production Ratio	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	2286 PSIG @ Ft.
Date	, 19
Reservoir Temperature	154 °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	1576 MBDF
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:

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Company A/S Norske Shell Formation February 1981

Sample 31/2-5 County North Sea

Field State Norway

HYDROCARBON ANALYSIS OF RESERVOIR SAMPLE

COMPONENT	MOL PERCENT	WEIGHT PERCENT
Hydrogen Sulfide	NIL	NIL
Carbon Dioxide	1.28	3.15
Nitrogen	1.59	2.49
Methane	92.14	82.46
Ethane	3.49	5.86
Propane	0.50	1.23
iso-Butane	0.22	0.71
n-Butane	0.11	0.36
iso-Pentane	0.14	0.58
n-Pentane	0.03	0.13
Hexanes	0.15	0.73
Methyl cyclopentane	0.03	0.14
Benzene	NIL	NIL
Cyclohexane	0.04	0.18
Heptanes	0.05	0.27
Methyl cyclohexane	0.04	0.21
Toluene	Trace	Trace
Octanes	0.03	0.19
Ethylbenzene	Trace	0.02
Meta + Para Xylene	0.02	0.11
Orthoxylene	Trace	0.02
Nonanes	0.03	0.21
1,2,4, Trimethyl benzene	0.01	0.06
Decanes	0.03	0.23
Undecanes	0.02	0.16
Dodecanes	0.01	0.09
Tridecanes	0.01	0.09
Tetradecanes	0.01	0.10
Pentadecanes	0.01	0.11
Hexadecanes	0.01	0.08
Heptadecanes	Trace	0.02
Octadecanes	Trace	0.01
Nonadecanes	Trace	Trace
Eicosanes plus	Trace	Trace
	100.00	100.00

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PRESSURE-VOLUME RELATIONS OF RESERVOIR FLUID AT 154°F.

Pressure PSIG		Relative Volume (1)	Deviation Factor Z
2500		0.9173	0.868
2400		0.9542	0.867
2286	Saturation Pressure	1.0000	0.866
2200		1.0402	
2100		1.0904	
2000		1.1476	
1800		1.2824	
1600		1.4553	
1400		1.6793	
1200		1.9797	
1000		2.4045	
800		3.0394	
600		4.0970	

Relative Volume:V/Vsat is barrels at indicated pressure per barrel at saturation pressure.

CALCULATED RECOVERY PER MMSCF OF ORIGINAL FLUID

Wellstream MSCF	1000
Normal Temperature Separation*	
Stock Tank liquid - barrels	4.20
Primary Separator Gas - MSCF	992.36
Second Stage Gas - MSCF	2.28
Stock Tank Gas - MSCF	1.44
Total Plant Products in Primary Separator Gas - Gallons**	
Propane	133
Butanes (total)	99
Pentanes Plus	120
Total Plant Products in Second Stage Gas - Gallons**	
Propane	0.40
Butanes (total)	0.26
Pentanes Plus	0.25
Total Plant Products in Wellstream - Gallons**	
Propane	138
Butanes (total)	107
Pentanes Plus	293

* Recovery Bases: Primary separation at 1250 psig and 40°F.
Second Stage at 500 psig and 40°F
Stock Tank at 0 psig and 27°F.

** Recovery assumes 100% plant efficiency.

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RFT RECOVERY DATA

Opening pressure of chamber 16-RFS-AD = 1500 psig at 68°F.

Sample chamber heated to 154°F and transferred in single phase at 5000 psig to Core Laboratories sample cylinders numbers 80499 and 80502. (600cc to each cylinder).

Remaining Recovery: 110.7 litres of gas (Gas Gravity 0.618).

140 ccs of water.

20 ccs of 30°API Oil.

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Core Laboratories UK Limited
Reservoir Fluid Analysis

L K Sebborn

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