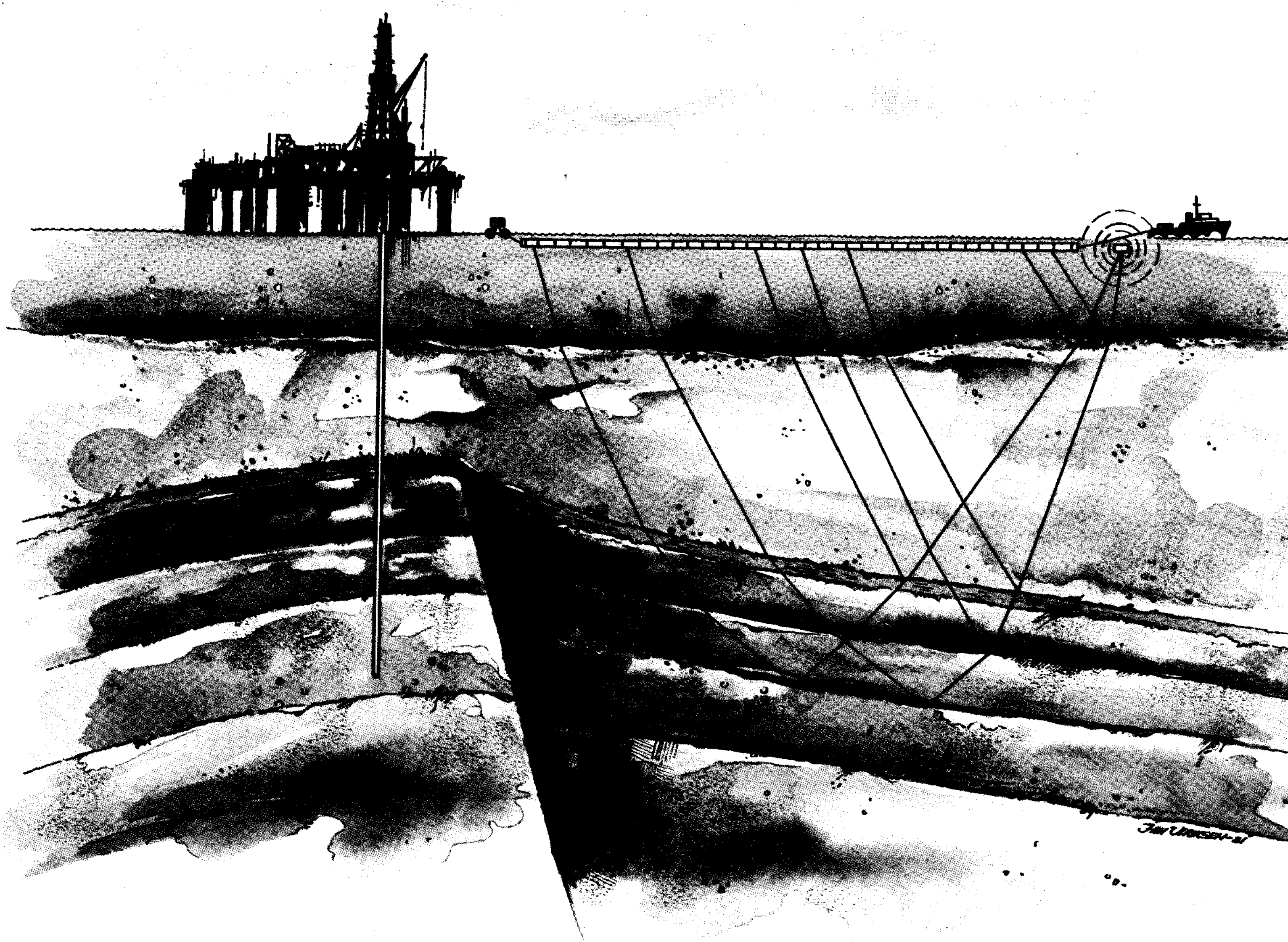
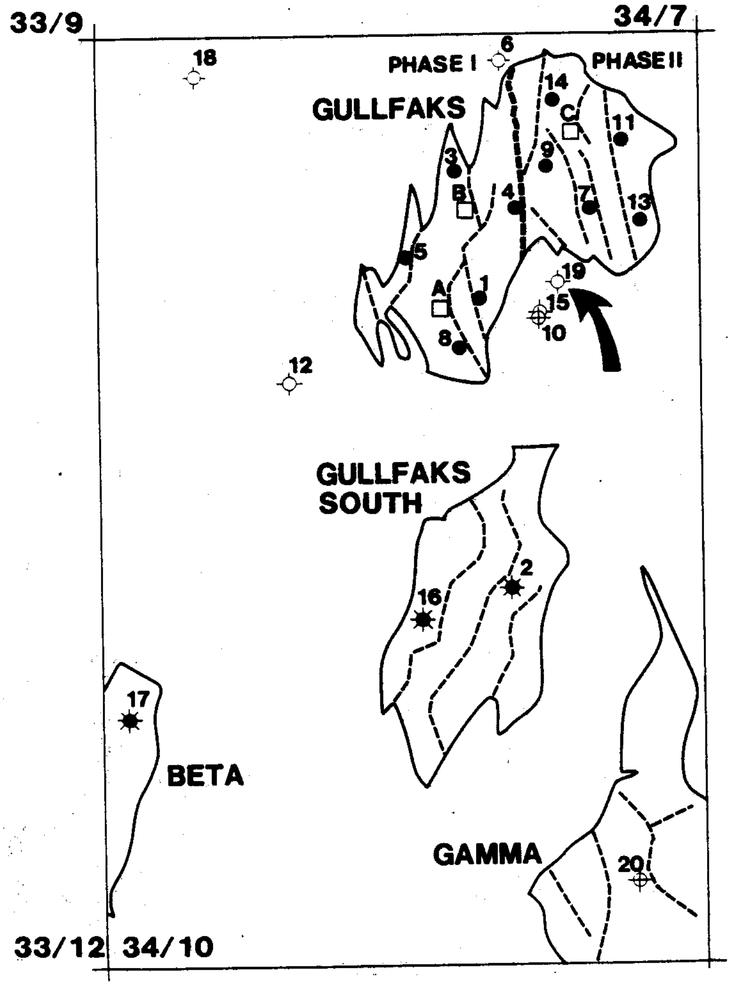
statoil



UNDERSØKELSES-
&
PRODUKSJONSDIVISJONEN

COMPLETION REPORT

WELL 34/10-19 PL 050



COMPLETION REPORT

34/10-19

GULLFAKS PRODUCTION & BOR/BER

FEB.84

PL 050

STATOIL - NORSK HYDRO - SAGA PETROLEUM

COMPLETION REPORT

WELL 34/10-19

OTHER REPORTS

34/10-19

- Geological Prognosis, Pressure Prognosis & Drilling Program	Statoil	9/83
- Shot-Listing Run 1	Schlumberger	11/83
- Core Albums	Core Lab	1/84
- Final Well Report	Exlog	1/84
- Final Well Report Listnig	Exlog	1/84
- Borehole Geophysical Analysis	SSL	2/84
- Core Analysis Report	Core Lab	3/84
- Petrophysical Evaluation	Statoil	12/84
- Stratigraphical/Paleontological	Paleoservices	3/84
- Calibrated SONIC-LOG + MSL (Syntetic Seismogr)	Seismograph Service	11/84
- Survey Report for Statoil A/S Navigation and Positioning of Ross Isle	Racal Survey Norge	10/84

TABLE OF CONTENTS

I GENERAL INFORMATION

1. Well data record
   a) Well designation
   b) Well classification
   c) Well location
   d) Rig data

2. Purpose of the well

3. Results of the well

4. Well history
   a) General
   b) Contractors
   c) Casing
   d) Coring
   e) Logging
   f) Velocity survey

II GEOLOGICAL REPORT

1. Stratigraphy
   a) Table of chronostratigraphy
   b) Table of lithostratigraphy

2. Lithological description
   a) Summary
   b) Wellsite sample description
   c) Conventional core description

I GENERAL INFORMATION

PRT/GULLFAKS
Ole/ASt

I GENERAL INFORMATION

1. Well Data Record

a) Well Designation: 34/10-19

b) Well Classification: Appraisal

c) Well location:
- i) Country: Norway
- ii) Licence: PL 050
- iii) Latitude: 61^{o} 11' 10.86" N
  Longitude: 02^{o} 15' 30.55" E
- iv) Location on seismic line: Line no. S3D-206, sp. no. 293
- v) Water depth: 192.5 m

d) Rig data:
- i) Rig name: "Ross Isle"
- ii) Type: Bingo 3000 Semi-Submersible
- iii) Drilling draft: 21.0 m
- iv) RKB-MSL: 22.0 m

2. Purpose of the well

34/10-19 was designed to appraise the southern section of the Gullfaks Phase II area. The well was located in fault block 2C where the primary objective was the Cook sandstone. The well was assumed to penetrate the Cook sandstone above the oil-water contact, and improve the understanding of the reserve distribution in this part of the Gullfaks field.

Secondary objective was the Statfjord sandstone.

3. Results of the well

Well 34/10-19 found the upper part of the Cook formation (unit C3 and C2) to be missing due to faulting and erosion. The Cook formation was penetrated in the C1 unit.

The lower Jurassic sandstones of the Statfjord formation were water saturated.

Total depth was 2218 m KB which is 30 m into the Triassic section.

A total of 3 cores were recovered, 1 in the interval from 1763-1781.3 m KB, and 2 cores from 1847-1874.8 m KB.

4. Well History

a) General:

i)	Spud date:	05 October 1983
ii)	Rig released/date:	12 December 1983
iii)	Final status:	Plugged & abandoned, dry well

b) Contractors:

i)	Drilling platform	"Ross Isle"
ii)	Drilling contractor:	Ross Drilling Co. A/S
iii)	Cementing:	Halliburton
iv)	Casing:	Stavanger Casing Crew
v)	Rig positioning:	Decca/Geoteam
vi)	Electric logging:	Schlumberger
vii)	Mud logging	Exploration Logging (Services) Ltd.
viii)	Mud contractor:	Anchor Drilling
ix)	Supply boats:	Supply boat pool
x)	Stand by boat:	Geo Boy

xi) Conventional coring: ACC - Diamond Boart
xii) Diving: Sub Sea Dolphin
xiii) Helicopters: Helikopter Service A/S
xv) Core analysis: Core Lab Norsk A/S
xvi) Paleo analysis: Paleoservices A/S

c) Casing:

i) 30" at 288 m KB
ii) 20" at 969 m KB
iii) 16" liner at 1073 m KB
iv) 13 3/8" at 1483 m KB
v) 9 5/8" at 1689 m KB

d) Coring:

Conventional Coring (description attached)

Core No.	Interval (m KB)	Total (m)	Recovered (m)	Recovered (%)
1	1763.0 - 1781.3	18.3	17.5	96
2	1847.0 - 1856.0	9.00	8.7	97
3	1856.5 - 1874.8	18.3	17.9	98

e) Logging

1. Mudlogging

A Gemdas logging unit from Exploration Logging conducted the mudlogging with continuous monitoring of the following parameters from 289 m - T.D.

Drilling rate
Force on bit
Dxc exponent
Cutting gas
H_2S-gas
Chromatographic gas analysis

Shale density
Shale factor
Calcimetry
Mud-temperature in and out pump pressure
Mud-resistivity in and out
Mud-density in and out
Lithology

2. Schlumberger was employed for conventional wire-line logging service

Type of log	Run no.	Interval
ISF/LSS-MSFL-GR	1	214.5 - 977.5
	2	968 - 1070
	3	1073 - 1473
	6	1688 - 2216
ISF-BHC-MSFL-GR	4	1481 - 1700
ISF-BHC-GR	5	1688 - 1846
LDL-CNL-GR	1	288.5 - 977.5
	2	1073 - 1473
	3	1480 - 1700
	4	1688 - 2217
MSFL-CNL-GR	6	1687 - 1874
CBL-VDL-GR-CCL	1	215 - 950
	2	260 - 1075
	3	1050 - 1480
	4	1430 - 1690
HDT	1	1481 - 1700
SHDT	1	1680 - 2216
RFT	2	1846.4 - 1863.2
	3	1777.5 - 2185
TEMPERATURE	1	225 - 953
CALIPER	1	1073 - 1493

f) The velocity survey was conducted by SSL. 30 checkshots with levels from 905 - 2214 m KB.

II GEOLOGICAL REPORT

PRT/GULLFAKS
Ole/ASt

1. Stratigraphy

a) Table of Chronostratigraphy (all depths in meters)

Chronostratigraphic tops	Depth (KB)	Depth (MSL)
QUATERNARY		
Pleistocene	214,5	-192,5
TERTIARY		
Pliocene	299	-277
Miocene	444	-422
Oligocene	905	-883
Early Eocene	1290	-1268
Late Paleocene	1470	-1448
------------ UNCONFORMITY ? ------------		
CRETACEOUS		
Late Maastrichtian - Late Campanian	1660	-1638
------------ FAULT ? ------------		
Middle/Early Barremian/ Hauterivian	1776	-1754
------------ UNCONFORMITY ? ------------		
JURASSIC		
Late Pliensbachian	1779	-1757
Early Pliensbachian	1947,5	-1925,5
Early Jurassic - Late Triassic	2005	-1983

b) Table of Lithostratigraphy (all depths in meters)

Lithostratigraphic Tops	Depth (KB)	Depth (MSL)	Thickness
Nordland Group	214,5	-192,5	637,5
Utsira Formation	852	-830	53
Hordaland Group	905	-883	565
Rogaland Group	1470	-1448	190
Balder Formation	1470	-1448	62
Lista Formation	1532	-1510	128
Shetland Group	1660	-1638	116
Cromer Knoll Group	1776	-1754	3
Dunlin Group			
Cook Formation	1779	-1757	51
- Unit 1	1779	-1757	51
Burton Formation	1830	-1808	9
Amundsen Formation	1839	-1817	166
Statfjord Formation	2005	-1983	183
- Unit 3	2005	-1983	41
- Unit 2	2046	-2024	84
- Unit 1	2130	-2108	58
Hegre Group	2188	-2167	30+
TD	2218	-2197	

2. Lithological Description

a) Summary

The chronostratigraphic tops are based on the paleontological reports from Paleoservices Ltd. and on log correlation with other wells in block 34/10.

Nordland Group (214.5 - 905 m KB)

The Nordland Group consists mostly of clay with minor amounts of sand. A 53 m thick sandsequence, the Utsira Fm, is found in the bottom part of the Nordland Group. The clay is light to medium grey, soft and sticky, slightly calcareous to calcareous and silty in parts. The sand is very fine to coarse, occasionally granules. Traces of shell fragments, glauconite and pyrite are recorded throughout the sequence.

Hordaland Group (905 - 1470 m KB)

This group consists of an upper brownish grey claystone interbedded with sandstones and siltstones, and a lower greenish grey to light brownish grey claystone interbedded with sandstones, limestone and dolomite stringers. The brownish grey claystones are soft, silty to very silty, micaceous and non calcareous to slightly calcareous. The greenish grey claystones occur below 1290 m KB. They are soft to firm, silty, and non to slightly calcareous. The sandstones consist of clear to milky quartz, fine to medium, occasionally coarse, subangular to subrounded and loose. The siltstones are brownish grey to medium grey, soft to friable and non calcareous. The limestones are white to light grey, firm to moderately hard and argillaceous. Traces of glauconite, mica, pyrite and fossil fragments have been recorded.

Rogaland Group (1470 - 1660 m KB)

Balder Formation (1470 - 1532 m KB)

The formation is composed of claystones with stringers of tuff, limestone, sandstone and siltstones. The claystones are light to medium grey, occasionally greenish grey, soft to firm, non to slightly calcareous and silty. The tuffs are light grey and black spotted. The limestones are white to buff, firm to hard and slightly argillaceous. The sandstones are clear quartz, fine to coarse, subangular and loose. The siltstones are light grey to brownish grey, friable and occasionally calcareous cemented. Traces of pyrite and glauconite have been recorded.

Lista Formation (1532 - 1660 m KB)

The formation consists predominantly of claystones and limestones with stringers of siltstones. The claystones are light grey to greenish grey, light bluish grey to medium grey occasionally brownish grey, soft to firm, non to slightly calcareous and silty in parts. The limestones are white to buff, firm to moderately hard and slightly argillaceous. The siltstones stringers are light grey to brownish grey, firm and non to slightly calcareous. There are traces of pyrite and glauconite.

Shetland Group (1660 - 1776 m KB)

The Shetland Group is mostly claystones and marls with thin beds of limestones and stringers of sandstones. The claystones are light to medium grey occasionally dark grey, soft to firm, non to slightly calcareous and occasionally slightly silty and pyritic. The marls are greyish white, soft and occasionally silty.

Cromer Knoll Group (1776 - 1779 m KB)

This group consist mainly of white to light grey and occasionally buff to light brown argillaceous limestone.

Cook Formation (1779 - 1830 m KB)

Due to erosion the upper part of the Cook formation, which usually consists of very fine to medium grained sandstones, is missing in this well. In lower parts claystones dominate. The claystones are calcareous, slightly micromicaceous and silty in parts.
Traces of very fine to fine sandstones occure.
Traces of pyrite and mica are common.

Burton Formation (1830 - 1839 m KB)

The Burton formation consists of fairly uniform dark grey claystone. The claystone is firm and non calcareous to slightly calcareous. Traces of pyrite are common.

Amundsen Formation (1839 - 2005 m KB)

The lithology consists of claystones with stringers of limestone and sandstone. The claystones are medium to dark grey, firm to soft, blocky to subfissile, micromicaceous, silty and non to slightly calcarous. The sandstones consists of very fine to fine grained clear and white quartz, subangular to subrounded and slightly calcareous. The limestones are buff to tan, occasionally white, firm to moderately hard, crystalline in parts, occasionally argillaceous and occasionally dolomitic. There are also traces of glauconite, pyrite and mica.

Statfjord Formation (2005 - 2118 m KB)

Unit 3 (2005 - 2046 m KB)

Unit 3 consist mainly of fine to coarse, occasionally very coarse sandstones and granules, interbedded with some shale layers and stringers of calcite cemented sandstones. The sandstones consists of clear to milky white quartz, subangular to subrounded. The medium grey to dark grey shales are moderately hard, micromicaceous, non calcareous and silty in parts. The calcite cemented sandstone stringers are white to buff, occasionally tan, moderately hard and slightly argillaceous. Traces of pyrite and mica have been recorded.

Unit 2 (2046 - 2130 m KB)

This interval is interbedded sandstones and shale. The sandstones consists of clear quartz, fine to very coarse, occasionally granules, angular to subangular, slightly micaceous, partly calcareous-, partly kaolinit cemented. The shale is medium to brownish grey, firm to moderately hard, micromicaceous, slightly carbonaceous, non to slightly calcareous and silty. There are also stringers of calcite cemented sandstones and traces of pyrite.

Unit 1 (2130 - 2188 m KB)

Unit 1 consist of mostly shale in upper parts and sandstones in lower parts of the section. The shales are mostly medium grey, but turn occasionally into red brown and greenish grey, occasionally brick red. The shales are silty, micromicaceous, firm and non calcareous. The sandstones are made up of clear to milky white quartz, occasionally pink in colour and fine to very coarse in grain size, occasionally kaolinitic matrix, poor to moderately sorted.

Hegre Group (2188 -2218 m KB TD)

The Triassic sediments are interbedded sandstones, siltstones, calcite cemented stringers of sandstone and shales. The shales are multicoloured, red brown, brick red, greenish grey to yellow-green and medium grey to dark grey, firm to moderately hard, silty, non to slightly calcareous and micromicaceous.

The sandstones are clear to white, pink, yellow and smoky quartz, fine to medium, occasionally coarse to very coarse, subangular to subrounded, poorly to moderately well sorted and occasionally calcareous cemented.

The siltstones are light grey and light brown coloured, firm to hard and slightly calcareous.

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country:	NORWAY	Area:	NORTH SEA	Field:	GULLFAKS
Well no.:	34/10-19				
K. B. E.	22 meters	Company:	STATOIL/NORSK HYDRO/SAGA		
Hole size:	12 1/4" PILOT	Geologist:	S. SVINDDAL	Date:	6.10.83

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
300	90	CLY: LT GRY-MED GRY, V SFT, V STKY, SL SLTY, CALC	
	10	SD: TRNSL-CLR QTZ, F-CRS, RND-SUBRND POOR SRTD, LSE	
	TR	MICRO FOSSILS, FORAMS	
	TR	LST: WH, MICROXLN, SUC, SFT-FRM	
310	80	CLY: V CALC, ELSE A/A	
	20	SD: RND-SUBANG, ELSE A/A	
	TR	LST: OCC LT BRN, ELSE A/A	
	TR	SHELL FRAG, MICRO FOSSILS	
320	70	CLY: A/A	
	30	SD: A/A	
	TR	LST: A/A	
	TR	SHELL FRAG, MICRO FOSSILS	
330	60	SD: A/A	
	40	CLY: A/A	
	TR	LST: A/A	
	TR	MICRO FOSSILS	MAX 1.79% at 333 m
340	90	CLY: A/A	
	10	SD:	
	TR	LST: OCC ARG, ELSE A/A	
	TR	SHELL FRAG, FORAMS	
	TR	GLAUC	
	TR	ROCK FRAG	
350	100	CLY: A/A	
	TR	SD: A/A	
	TR	LST: A/A	
	TR	FORAM	
360	100	CLY: A/A	
	TR	SD: F-MED, ELSE A/A	
	TR	GLAUC	
	TR	LST: A/A	
370	100	CLY: A/A	
	TR	SD: A/A	
	TR	LST: A/A	
	TR	GLAUC	
380	100	CLY: A/A	
	TR	SD: A/A	
	TR	LST: A/A	

WELLSITE SAMPLE DESCRIPTION

Country: NORWAY | Area: NORTH SEA | Field: GULLFAKS
Well no.: 34/10-19
K. B. E. 22 meters | Company: STATOIL/NORSK HYDRO/SAGA
Hole size: 12 1/4" PILOT | Geologist: S. SVINDDAL | Date: 7.10.83

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
390	50	SD: TRNSL-CLR QTZ, F-MED, MOD SRTD, SUBRND-SUBANG, LSE	
	50	CLY: LT GRY-MED GRY, V SFT, V STKY, SL SLTY, NON-SL CALC	
	TR	LST: WH, MICROXLN, BLKY, FRM	
	TR	GLAUC	
	TR	FORAM	
400	90	CLY: A/A	
	10	SD: A/A	
	TR	LST: OCC LT BRN, ELSE A/A	
410	80	CLY: A/A	1.0%
	10	SD: A/A	
	10	SHELL FRAG, FORAM	
	TR	GLAUC	
420	90	CLY: A/A	
	10	SD: A/A	
	TR	SHELL FRAG	
	TR	MICA	
430	90	CLY: A/A	
	10	SD: A/A	
	TR	SHELL FRAG	
	TR	GLAUC, MICA	
440	100	CLY: A/A	
	TR	SD: A/A	
	TR	LST: A/A	
	TR	GLAUC, SHELL FRAM	
450	100	CLY: A/A	
	TR	SD: A/A	
	TR	LST: A/A	
	TR	GLAUC, MICA	
	TR	SHELL FRAG	
460	100	CLY: A/A	
	TR	SD: A/A	
	TR	LST: A/A	
	TR	GLAUC	
470	100	CLY: A/A	
	TR	SD: A/A	
	TR	LST: A/A	
	TR	GLAUC	

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country:	NORWAY	Area:	NORTH SEA	Field:	GULLFAKS
Well no.:	34/10-19				
K. B. E.	22 meters	Company:	STATOIL/NORSK HYDRO/SAGA		
Hole size:	12 1/4" PILOT	Geologist:	S. SVINDDAL	Date:	7.10.83

Depth (m/KBE)	Lith. (%)	Lithologic description: Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
480	100	CLY: LT GRY-MED GRY, V SFT, V STKY, SL SLTY, SL CALC	
	TR	SD: TRNSL-CLR QTZ, F-MED, MOD SRTD, SUBRND-SUBANG, OCC ANG, LSE	
	TR	LST: WH-MLKY, MICROXLN, BLKY, FRM	
	TR	GLAUC	
	TR	SHELL FRAG	
490	80	CLY: A/A	
	20	SD: A/A	
	TR	LST: A/A	
	TR	GLAUC, MICA	
500	90	CLY: SLTY, ELSE A/A	
	10	SD: A/A	
	TR	LST: A/A	
	TR	MICA	
510	100	CLY: A/A	
	TR	SD: A/A	
	TR	LST: OCC LT BRN, ELSE A/A	
	TR	MICA	
520	100	CLY: A/A	
	TR	SD: A/A	
	TR	LST: A/A	
	TR	MICA	
530	100	CLY: A/A	
	TR	SD: A/A	
	TR	MICA	
540	100	CLY: A/A	
	TR	SD: A/A	
	TR	FORAM	
550	100	CLY: A/A	
	TR	SD: A/A	
	TR	LST: A/A	
	TR	GLAUC, SHELL FRAG, FORAM	
560	100	CLY: A/A	
	TR	SD: A/A	
	TR	LST: A/A	
	TR	GLAUC, FORAM	
570	100	CLY: A/A	
	TR	SD: A/A	
	TR	LST: A/A	
	TR	MICA	

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country: NORWAY | Area: NORTH SEA | Field: GULLFAKS
Well no.: 34/10-19
K. B. E. 22 meters | Company: STATOIL/NORSK HYDRO/SAGA
Hole size: 12 1/4" PILOT | Geologist: S. SVINDDAL | Date: 7.10.83

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
580	100	CLY: LT GRY-MED GRY, V SFT, V STKY, SL SLTY, SL CALC	
	TR	SD: TRNSL-CLR QTZ, F-MED, MOD SRTD, SUBRND-SUBANG, LSE	
	TR	LST: WH-LT BRN, MICROXLN, BLKY, FRM	
	TR	MICA	
590	100	CLY: A/A	
	TR	SD: A/A	
	TR	LST: A/A	
	TR	MICA	
600	100	CLY: A/A	
	TR	SD: A/A	
	TR	LST: A/A	
	TR	MICA	
610	90	CLY: A/A	
	10	SD: A/A	
	TR	LST: A/A	
	TR	GLAUC, MICA	
620	100	CLY: A/A	
	TR	SD/SST: A/A	
	TR	GLAUC, FORAM	
	TR	LST: A/A	
630	100	CLY: A/A	
	TR	SD/SST: GLAUC IN PARTS, ELSE A/A	
	TR	LST: A/A	
	TR	GLAUC	
640	100	CLY: A/A	
	TR	SD: A/A	
	TR	LST: A/A	
650	100	CLY: A/A	
	TR	SD: A/A	
	TR	LST: A/A	
660	100	CLY: A/A	
	TR	SD: A/A	
	TR	LST:A/A	
670	90	CLY: A/A	
	10	SD: A/A	
	TR	LST: A/A	
	TR	GLAUC, MICA	
680	100	CLY: A/A	
	TR	SD: A/A	
	TR	LST: A/A, MICA	

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-19		
K. B. E. 22 meters	Company: STATOIL/NORSK HYDRO/SAGA	
Hole size: 12 1/4" PILOT	Geologist: S. SVINDDAL	Date: 7.10.83

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
690	90	CLY: LT GRY-GRY, V SFT, STKY, SL SLTY, SL CALC	
	10	SD: TRNSL-CLR GTZ, F-MED, MOD SRTD, SUBRND-SUBANG, LSE	
	TR	LST: WH-LT BRN, MICROXLN, FRM	
	TR	GLAUC, MICA	
700	100	CLY: A/A	
	TR	SD: A/A	
	TR	GLAUC, ROCK FRAG WHICH IS OCC CALC CMTD	
710	100	CLY: A/A	
	TR	SD: A/A	
	TR	LST: A/A	
720	100	CLY: A/A	
	TR	SD: A/A	
	TR	FORAM	
730	100	CLY: A/A	
	TR	SD: A/A	
	TR	MICA	
740	90	CLY: A/A	
	10	SD: A/A	
	TR	LST: A/A	
	TR	GLAUC	
750	90	CLY: A/A	
	10	SD: A/A	
	TR	LST	
760	90	CLY: A/A	
	10	SD: A/A	
	TR	LST: A/A	
	TR	PYR, FORAM	
770	100	CLY: A/A	
	TR	SD: A/A	
	TR	LST: A/A	
	TR	GLAUC, FORAM, MICA	
780	100	CLY: A/A	
	TR	SD: A/A	
	TR	LST: A/A	
	TR	FORAM	

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country:	NORWAY	Area:	NORTH SEA	Field:	GULLFAKS
Well no.:	34/10-19				
K. B. E.	22 meters	Company:	STATOIL/NORSK HYDRO/SAGA		
Hole size:	12 1/4" PILOT	Geologist:	S. SVINDDAL	Date:	8.10.83

Depth (m/KBE)	Lith. (%)	Lithologic description — Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
790	100	CLY: LT GRY-GRY, V SFT, V STKY, NON-SL CALC	
	TR	SD: CLR QTZ, F-MED, MOD SRTD, SUBRND-SUBANG, LSE	
	TR	LST: WH-LT BRN (PK), MICROXLN, BLKY, FRM	
	TR	FORAM	
800	100	CLY: A/A	
	TR	SD: A/A	
	TR	LST: A/A	
	TR	FORAM, GLAUC	
810	80	CLY: OCC, DK GRY, SFT, ELSE A/A	
	TR	SD: A/A	
	TR	LST: A/A	
	TR	FORAM (ABUN)	
	TR	SHELL FRAG, PYR	
820	100	CLY/CLYST: A/A	
	TR	SD: A/A	
	TR	LST: A/A	
	TR	FORAM	
830	100	CLY/CLYST: A/A	
	TR	SD: A/A	
	TR	FORAM	
840	100	CLY/CLYST: SLTY, ELSE A/A	
	TR	SD: A/A	
	TR	FORAM, SHELL FRAG	
	TR	PYR, GLAUC, LIGNITE	
850	100	CLYST: A/A	
	TR	SD: A/A	
	TR	LST: A/A	
	TR	SHELL FRAG, FORAM	
	TR	GLAUC, LIGN	
860	80	SD: TRNSL-CLR QTZ, F-MED, WELL SRTD, SUBRND	
	20	CLY/CLYST: OCC LT GRN GRY, ELSE A/A	
	TR	LST: A/A	
	TR	SHELL FRAG, FORAM	
	TR	LIGN, GLAUC	
870	100	SD: A/A	
	TR	CLY/CLYST: A/A	
	TR	LST: A/A	
	TR	GLAUC, FORAM	

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-19		
K. B. E. 22 meters	Company: STATOIL/NORSK HYDRO/SAGA	
Hole size: 12 1/4" PILOT	Geologist: S. SVINDDAL	Date: 8.10.83

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
880	100	SD: TRNSL-CLR QTZ, F-MED, MOD SRTD-WELL SRTD SUBRND-RND	
	TR	CLY/CLYST: GRY-DK GRY, OCC LT GRN GRY, V SFT-SFT, STKY, NON-SL CALC	
	TR	LST: WH-LT BRN (PK), MICROXLN, BLKY, FRM	
890	100	SD: OCC CAL CMTD ELSE A/A	
	TR	LST: A/A	
	TR	GLAUC, PYR	
900	100	SD: A/A	
	TR	CLY/CLYST: A/A	
	TR	LST: A/A	
	TR	FORAM	
910	80	SD: OCC CAL CMTD, ELSE A/A	
	10	CLYST: GRY-DK GRY, GRY BRN, LT GRN GRY, SL SLTY, SFT, NON-SL CALC	
	10	SLST: GRY BRN, FRM, NON CALC	
	TR	GLAUC, PYR; FORAM	
920	70	CLYST: GRY-GRYBRN, SFT, STKY, SLTY, NON-SL CALC	
	20	SD: MLKY-CLR QTZ, F-MED, OCC CRS, MOD SRTD, SUBRND, OCC CAL CMTD	
	10	LST: WH-LT BRN (PK), MICROXLN, SUCR, BLKY, FRM	
	TR	FORAM, SHELL FRAG, LIGN	
930	40	LST: A/A	
	40	SD/SST: MLKY-CLR QTZ, F-MED, OCC V F, MOD SRTD, SUBRND, OCC V CALC CMTD SLTY, GLAUC	
	20	CLYST: GRY-DK GRY, SLTY, SFT, NON-SL CALC	
	TR	FORAM, SHELL FRAG, PYR, GLAUC, LIGN	
940	60	SD/SST: A/A	
	20	CLYST: A/A	
	20	LST: A/A	
	TR	GLAUC, (ABUND IN SST)	
950	80	SD/SST: A/A	
	10	CLYST: A/A	
	10	LST: A/A	
	TR	GLAUC, PYR, SHELL FRAG, LIGN	
954	60	CLYST: GRY-DK GRY, LT BRN-BRN, SLTY, SFT, NON-SL CALC	SPOT SAMPLE
	40	SD/SST: A/A	
	TR	LST: A/A	
	TR	GLAUC, PYR, LIGN	

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country:	NORWAY	Area:	NORTH SEA	Field:	GULLFAKS
Well no.:	34/10-19				
K. B. E.	22 meters	Company:	STATOIL/NORSK HYDRO/SAGA		
Hole size:	12 1/4" PILOT	Geologist:	S. SVINDDAL/K. RUUD	Date:	8.10.83/18.10.83

Depth (m/KBE)	Lith. (%)	Lithologic description: Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
960	90	CLYST: LT BRN-BRN, OCC, LT GRY, SL SLTY, SFT NON-SL CALC	
	10	SD/SST: MLKY-CLR QTZ, F-MED, OCC V F, MOD SRTD, SUBRND, CALC CMTD, SLTY, GLAUC	SPORADIC SHOWS FROM 860 M
	TR	GLAUC, PYR, LIGN, SHELL FRAG	
970	100	CLYST: A/A	
	TR	SD/SST: A/A	
	TR	GLAUC, MICROFOSSIL	
978	100	CLYST: A/A	BOTTOM UP!
	TR	SD/SST: A/A	
	TR	SHELL FRAG	
980		ONLY CMT IN RETURN, 17 1/2" BIT	SAMPLES CONTAMINATED WITH CEMENT
990	60	CLYST: MED GRY, SFT, STKY	
	40	SD: QTZ, CLR, VF-CRS, SUBANG	
1000	90	CLYST: A/A	
	10	SD: A/A	
1010	100	CLYST: MED GRY, OCC LT BRN, SLTY I/P, SFT-FIRM, NON-SL CALC, STKY I/P	
	TR	SD: A/A	
	TR	GLAU	
1020	100	CLYST: A/A	
	TR	SD: A/A	
	TR	GLAUC: A/A	
	TR	MIC, LT	
1030	97	CLYST: A/A	COMMON ORNG BRN STAINING
	3	SD: QTZ, CLR, VF-CRS, SUBANG-SUBRND	ORNG-PA YEL FLUOR
	TR	GLAUC: A/A	SLOW-MOD BLOOMING, YEL WH-DULL YEL WH
	TR	MIC A/A	CUT FLUOR
1040	90	CLYST: A/A	
	10	SD: A/A	
	TR	GLAUC: A/A	
	TR	MICA: A/A	
	TR	PYR: MICROXLN	
1050	95	CLYST: A/A	
	4	SD: QTZ, CLR, OCC WH, F-MED, SUBANG-SUBRND	
	TR	GLAUC	
	TR	PYR	
	TR	MICA	

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA		Field: GULLFAKS
Well no.: 34/10-19			
K. B. E. 22 meters	Company: STATOIL/HYDRO/SAGA		
Hole size: 17 1/2"	Geologist: K. RUUD		Date: 18.10.83

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1060	95	CLYST: GRY-LT BRN, SLTY, SOFT-FIRM, NON CALC	
	5	SD: QTZ, CLR, OCC WH, F-MOD, SUBANG-SUBRND	
	TR	GLAUC, PYR, MICA	
1070	95	CLYST: A/A	
	5	SD: A/A	
	TR	GLAUC, PYR, MICA	

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-19		
K. B. E. 22 meters	Company: STATOIL/NORSK HYDRO/SAGA PETROLEUM	
Hole size: 17 1/2"	Geologist: M. PRUDDEN	Date: 25.10.83

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1080	100	CLYST: SLTY, LT GRY BRN, FRM, SL SWELLING, CALC, MICROMIC, OCC SL MICROPYR	ORNG BRN STAINING IN CLYST & SD ORNG-PA YEL FLUOR SLOW BLOOMING, DULL YEL WH CUT FLUOR
	TR	LST, DOL, MICA	
1088	40	CLYST: A/A, SWELLING	SPOT SAMPLE
	60	SD: CLR-TRNSL QTZ; VF-F, SUBANG-SUBRND, MOD WELL SRTD, LSE	
	TR	A/A, GLAU	
1090	100	CLYST: A/A	SHOWS A/A
	TR	SD: A/A	
	TR	LST, DOL, MICA, GLAU, OCC SMALL PYR NODS	
1100		A/A	SPORADIC SHOWS A/A
1110		A/A	
1120	70	CLYST: A/A, PYRITIC, NON-SL CALC	
	30	SD: A/A	
	TR	LST, MICA, GLAU, PYR NODS	
1130	90	SD: CLR-TRNSL QTZ, VF-F, OCC MED, GEN SUBRND MOD, WELL SRTD, LSE	COMMON SHOWS A/A
	10	CLYST: A/A	
	TR	A/A, ABUN GLAU	
1140	90	SD: A/A, VF-CRS, PRLY SRTD	
	10	CLYST: A/A	
	TR	A/A	
1150	70	SD: A/A	
	30	CLYST: A/A	
	TR	A/A	
1160	95	SD: A/A	
	5	CLYST: A/A	
	TR	A/A	
1170		A/A	

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-19		
K. B. E. 22 meters	Company: STATOIL/NORSK HYDRO/SAGA PETROLEUM	
Hole size: 17 1/2"	Geologist: M. PRUDDEN	Date: 26.10.83

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1180	95	SD: CLR-TRANSL QTZ, MED, OCC F, OCC CRS, RND-SUBANG, WELL SRTD, LSE	
	5	CLYST: SLTY, LT BRN GRY, FRM, SL SWELLING, CALC, MICROMIC, OCC PYRITIC	SPORADIC SHOWS BRI ORNG-PA YEL FLUOR, SLOW BLOOMING, DULL YEL WH CUT FLUOR
	TR	ABUN GLAU, PYR NODS, MICA	
1190		A/A	
1200		A/A	
1210		A/A	
1220		A/A	SHOW A/A PIPE DOPE IN SAMPLES
1230	100	SD: A/A	
	TR	CLYST: A/A	
	TR	A/A	
1240		A/A	
1250	90	SD: A/A	
	10	CLYST: A/A, SFT-FRM, STKY-CMBLY BRK	
	TR	A/A	
1260	80	CLYST: A/A	COMMON SHOWS A/A
	20	SD: A/A	
	TR	A/A	
1280	70	CLYST: SLTY, LT GRY-LT BRN GRY, SFT-FRM, STKY, SWELLING, NON-SL CALC, MICROMIC, OIL PYRITIC	
	30	SD: A/A	
	TR	DOL: LT GRY-GRY, V HD, MICROXLN	
	TR	A/A	
1290	70	CLYST: A/A, BEC LT GRN GRY, V SFT-SFT, STKY, SWELLING, NON CALC	
	30	SD: A/A	
	TR	DOL: A/A	
	TR	A/A, LST	

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS	
Well no.: 34/10-19			
K. B. E. 22 meters	Company: STATOIL/NORSK HYDRO/SAGA PETROLEUM		
Hole size: 17 1/2"	Geologist: M. PRUDDEN/S. ALPASLAN	Date: 29.10.83	

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1300	100	CLYST: SL SLTY, LT GRN GRY, V SFT-FRM, STKY, SWELLING, CALC, MICROMIC, MICROPYR	POOR SHOWS
	TR	DOL, LST, SD A/A, PYR NODS, MICA	
1310		A/A	ORNG-YEL FLUOR, MLKY WH, BLOOMING CUT FLUOR
1320	100	CLYST: GRY-GRN GRY, A/A	
	TR	LST, SD, GLAU, OCC PYR	
1330	85	CLYST: LT GRN GRY-GRY, SLTY, V SFT-FRM, STKY, CALC, MICROMIC, MICROPYR	"
	15	LST: LT GRY WH-ORNG, FRM-MED HD, MICROXLN	"
	TR	PYR NODS, DOL, MICA	
1340		A/A	DRILLING 12 1/4" PILOT HOT DK BRN STAIN
1350	90	CLYST: A/A	YEL-ORNG FLUOR, BRIGHT WH-MLKY WH, SLOW CUT FLUOR
	10	LST: A/A	
	TR	OCC PYR	
1360	90	CLYST: A/A	"
	10	LST: A/A	
1370	85	CLYST: A/A, V SWELLING	"
	10	DOL: ORNG, MICROXLN, HD	
	5	LST: A/A	
1380	70	CLYST: A/A	YEL-BR ORNG FLUOR ELSE A/A
	25	LST: A/A	
	5	DOL: A/A	
	TR	OCC PYR NODS	
1390	80	CLYST: A/A	"
	15	LST: A/A	
	5	DOL: A/A	
	TR	PYR NODS, OCC GLAU GRNS	
1400	85	CLYST: A/A, SL CALC	"
	10	LST: A/A	
	5	DOL: A/A	
	TR	A/A	
1410	90	CLYST: A/A, NON-SL CALC	"
	10	LST: A/A	
	TR	DOL, PYR NODS, MICA	
1420	95	CLYST: A/A	"
	5	LST: A/A	
	TR	A/A	

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-19		
K. B. E. 22 meters	Company: STATOIL/NORSK HYDRO/SAGA PETROLEUM	
Hole size: 12 1/4"	Geologist: M. PRUDDEN	Date: 30.10.83

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1430	95	CLYST: SL SLTY, GRN GRY-GRY, OCC SL MOD-DK BRN GRY, SFT-FRM, SWELLING, NON-SL CALC, MICROMIC, MICROPYR	
	5	LST: WH-LT GRY-BUFF, FRM-MOD HD, MICROXLN	
	TR	DOL, PYR NODS	
1440		A/A	
1450	100	CLYST: A/A, LT GRN GRY-GRY, OCC MOD-OK BRN GRY	
	TR	LST: A/A	
	TR	DOL, PYR NODS	
1460	90	CLYST: A/A	
	10	LST: A/A	
	TR	A/A, GLAU	
1470	75	CLYST: A/A	
	25	LST: LT GRY-WH, FRM-HD, MICROXLN	
	TR	A/A	

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-19		
K. B. E. 22 meters	Company: STATOIL/NORSK HYDRO/SAGA	
Hole size: 17 1/2"	Geologist: L. ANDERSSON	Date: 7.11.83

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1475	85	CLYST: GRN-GRY, MOD-DK GRY-BRN, SFT-FIRM, STKY, SL-NON CALC, MICRO MICA, MICROPYR	BRI ORNG-YEL FLUOR WH STREAMING, CUT
	15	LST/DOL: WH-GY, BUFF, FIRM-HD, OCC MICROXLN	
	TR	PYR, GLAUC	
1480	85	CLYST: A/A	SHOWS: A/A SAMPLE V GROUND UP
	15	LST/DOL: A/A	
	TR	A/A	
1482,5	85	CLYST: A/A	"
	15	LST/DOL: A/A	
	TR	A/A	
1485	85	CLYST: A/A	"
	15	LST/DOL: A/A	
	TR	A/A	
1487,5	85	CLYST: A/A	"
	15	LST/DOL: A/A	NOTE: WHOLE SAMPLE HAS A DULL YEL FLUOR PROB: FROM GROUND-UP LST
	TR	A/A	
1490	85	CLYST: A/A	"
	15	LST/DOL: A/A	
	TR	PYR, GLAUC, CLR QTZ FN GRAINED	
1494 Csg. setting depth	85	CLYST: A/A	"
	15	LST/DOL: A/A	
	TR	PYR, GLAUC	

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA		Field: GULLFAKS
Well no.: 34/10-19			
K. B. E. 22 meters	Company: STATOIL/NORSK HYDRO/SAGA		
Hole size: 12 1/4"	Geologist: M. HELLE		Date: 10.11.83

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1497.5	70	CLYST: GRNISH GRY, LT-MED GRY, OCC BRN GRY, SFT-FRM, OCC MOD HD, NON-SL CALC, MICROMIC, SL PYRITIC, PARTLY MOTTLED W/ DK SPECKS	70% OF SAMPLE IS CEMENT YEL BRIGHT FLUORS AND STRONG MILKY WH CUT OIL IN MUD
	15	LST/DOL: WH-GRY, BUFF-LT BRN, FRM-HD, OCC XLN OCC SLTY AND SNDY	
	15	SLTST: LT-MED GRY, FRI-MOD HD, PARTLY CALC CMT, SL PYRITIC, MIC, OCC GRD TO V F SST	
	TR	PYR AND GLAUC	
1500	50	CLYST: A/A	SHOWS A/A
	25	SLTST: A/A	
	20	SST: WH-LT GRY, LT BRN, FRI-MOD HD, V F-F, SUBANG-SUBRND, PARTLY CALC CMT, DK SPECKS IN PARTS, POOR-NON VIS POR	
	5	DOL/LST: A/A	
	TR	PYR, GLAUC	
1502,5		A/A	"
1505	40	SLTST: A/A	"
	30	SST: A/A	
	15	DOL/LST: A/A	
	15	CLYST: MOSTLY LT-MED GRY, ELSE A/A	
	TR	PYR AND GLAUC	
1507,5		A/A	"
	60	SLTST: A/A	
	20	SST: A/A	
	10	CLYST: A/A	
	10	LST/DOL: A/A	
	TR	PYR, GLAUC	
1510		A/A	
1515	60	CLYST/SH: MOSTLY LT GRY-MED GRY, SFT-FRM, OCC MOTTLED W/ DK SPECKS, NON-SL CALC, PARTLY GRD TO SH, DK BRN GRY, FRM-MOD HD, NON CALC, SL MICROMIC, OCC STKY	SHOW A/A FROM 1515M-5M INTERVAL
	25	SLTST: A/A	
	10	LST/DOL: A/A	
	5	SST: A/A	
1520		A/A	"

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country: NORWAY | Area: NORTH SEA | Field: GULLFAKS
Well no.: 34/10-19
K. B. E. 22 meters | Company: STATOIL/NORSK HYDRO/SAGA
Hole size: 12 1/4" | Geologist: M. HELLE | Date: 10.11.83

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1525	50	CLYST: LT GRY, SFT, OCC BLKY, NON-SL CALC, OCC SLTY	PALE YEL FLUORS, W/MLKY WH SLOW STRM CUT 10-20% OF SAMPLE
	40	SLTST: LT-MED GRY, SFT-FRM, SL CALC, MIRROMIC ARG IN PARTS, OCC MOTTLED W/DK SPECKS	
	5	SH: MED-DK BRNISH GRY, FRM-MOD HD, FISS-SUBFISS, NON CALC	
	5	LST/DOL: WH-LT GRY, BUFF-LT BRM, SFT-HD, OCC XLN, ARG	
	TR	PYR	
1530		A/A	"
1535		A/A	"
1540	60	SLTST: LT-MED GRY, BRN GRY, FRM, BLKY ARG, SL MICROMIC, NON-SL CALC	"
	35	CLYST: A/A	
	5	LST/DOL: A/A	
	TR	SH: A/A	
	TR	PYR AND GLAUC	
1545	75	CLYST: MED-DK GRY, DK BRNISH GRY, FRM, BLKY, V SLTY, GRD TO SLTST, SL MIC, NON CALC	"
	25	SLTST: A/A	
	TR	SH: A/A	
	TR	LST/DOL: A/A	
	TR	PYR AND GLAUC	
1550		A/A	"
1555	60	CLYST: LT-MED GRY, OCC DK GRY-GRNISH GRY, SFT-FRM, OCC STKY, NON CALC, SLTY	"
	40	SLTST: A/A	
	TR	LST/DOL: A/A	
	TR	PYR AND GLAUC	
1560	60	CLYST: A/A	"
	30	SLTST: A/A	
	10	LST: A/A	
	TR	SST: CLR QTZ, TRNSP, VF-F, ANG-SUBRND, LSE, MOD SRTD	
	TR	PYR, GLAUC	
1565	75	CLYST: A/A	
	20	SLTST: A/A	
	5	LST: A/A	
	TR	SST: A/A	
	TR	PYR, GLAUC	

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country:	NORWAY	Area:	NORTH SEA	Field:	GULLFAKS
Well no.:	34/10-19				
K. B. E.	22 meters	Company:	STATOIL/NORSK HYDRO/SAGA		
Hole size:	12 1/4"	Geologist:	M. HELLE	Date:	11.11.83

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1570	85	CLYST: MOSTLY LT GRY, PARTLY MED GRY-BRN GRY, SFT-FRM, OCC STKY, AMOR OCC MMIC, NON CALC, SLTY IN PARTS	DULL-BRIGHT YEL FLUOR, MOD-SLOW STRM WH MLKY CUT FROM 10-15% OF SAMPLE
	15	SLTST: LT GRY-BRN GRY, FRM, BLKY, ARG, SL MICROMIC, NON-SL CALC	
	TR	LST: LT GRY, OCC WH AND BUFF, SFT-MOD HD, OCC XLN, ARG	
	TR	PYR AND GLAUC	
1575		A/A	"
1580	90	CLYST: NON-SL CALC, V SFT, ELSE A/A	"
	5	SLTST: A/A	
	5	LST: A/A	
	TR	PYR AND GLAUC	
1585		A/A	"
1590		A/A	"
1595		A/A	"
1600	80	CLYST: A/A	"
	20	LST/DOL: WH-LT GRY, BUFF-LT BRN, SFT-HD, PARTLY XLN, ARG IN PARTS	
	TR	SLTST: A/A	
1605	75	CLYST: MOSTLY LT GRY, OCC DK GRY-DK BRN GRY, THEN HD, ELSE SFT-FRM, SL-V CALC, SL MIC, V SLTY IN PARTS, GRD TO SLTST	"
	25	LST/DOL: A/A	
	TR	SLTST: A/A	
	TR	PYR	
1610		A/A	"
1615	70	LST: LT GRY, OCC WH AND LT BRN, MOD HD-HD, XLN, MICRITIC, OCC W/CALCITE CRYST, OCC DOLOMITIC ARG	"
	30	CLYST: A/A	
	TR	SLTST: A/A	
	TR	PYR	
1620	60	LST: GRD TO MARK, ELSE A/A	"
	40	CLYST: SLTY AND SNDY IN PARTS, ELSE A/A	
	TR	SLTST: A/A	
	TR	PYR	

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country:	NORWAY	Area:	NORTH SEA	Field:	GULLFAKS
Well no.:	34/10-19				
K. B. E.	22 meters	Company:	STATOIL/NORSK HYDRO/SAGA		
Hole size:	12 1/4"	Geologist:	M. HELLE	Date:	12.11.83

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1622,5	60	LST: LT GRY, PARTLY WH AND CLR, MOD HD-HD, XLN, MICRITIC IN PARTS, PARTLY CALCITIC, OCC DOLOMITIC ARG, OCC GRD TO MARL	DULL-BRIGHT YEL FLUOR MLKY WH SLOW STRM
	40	CLYST: LT GRY, OCC MED-DK GRY AND DK BRN GRY, SFT-FRM, SLTY IN PARTS, NON-SL CALC	
	TR	PYR	
1625		A/A	"
1627,5	75	LST: A/A	"
	25	CLYST: MOSTLY LT GRY, V SFT, OCC STCKY, NON CALC	"
	TR	PYR	
1630	80	LST: WH-CRM, OCC LT-MED GRY, SFT-HD, XLN-MICROXLN BLKY, NON-SL ARG, MICROSIC, OCC GRD TO MARL	"
	20	CLYST: MOSTLY MED GRY, ELSE A/A	
	TR	PYR	
1635		A/A	"
1637,5	75	LST: MOSTLY LT-MED GRY, GRD TO MARL, ELSE A/A	"
	25	CLYST: A/A	
1640		A/A	
1642,5	85	LST: CLR-WH, PARTLY LT-MED GRY, FRM-HD, XLN-MICROXLN, BLKY, PARTLY V ARG, MICROSIC, CALCITIC, PARTLY GRD TO MARL	"
	15	CLYST: A/A	
1645	60	CLYST: LT-MED GRY, SFT-FRM, OCC STCKY, NON CALC-CALC, SLTY IN PARTS, SL MIC	"
	40	LST: MOSTLY LT-MED GRY, FRM-HD, OCC XLN, OCC CALCITIC, BLKY, PARTLY V ARG, SLTY AND OCC SNDY, GRD TO MARL, OCC CLR AND WH	
1647,5	75	CLYST: A/A	
	25	LST: A/A	
	TR		
1650	70	LST: WH-CLR, LT-MED GRY, ELSE A/A	
	30	CLYST: A/A	

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS	
Well no.: 34/10-19			
K. B. E. 22 meters	Company: STATOIL/NORSK HYDRO/SAGA		
Hole size: 12 1/4"	Geologist: M. HELLE	Date: 12.11.83	

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1652,5	50	LST: WH-CLR, LT-MED GRY, SFT-HD, OCC XLN, OCC CALCITIC, BLKY, ARG IN PARTS, OCC SLTY AND SNDY, OCC GRD TO MARL	DULL YEL FLUOR, SOME MLKY WH SLOW STREM CUT AND CRUSH CUT FROM 10-20% OF SAMPLE
	50	CLYST: LT-MED GRY, OCC DK GRY, BRN GRY, SFT-FRM, OCC STCKY, NON-SL CALC, SLTY	
1655	60	LST: A/A	"
	40	CLYST: A/A	
1657,5	75	CLYST: A/A	
	25	LST: A/A	
1660		A/A	"
1662,5	65	LST: A/A	
	35	CLYST: A/A	
1665	80	LST: MOSTLY LT GRY, OCC MED GRY, WH AND CLR, SFT-FRM, OCC MOD HD-HD, OCC XLN, OCC MICRITIC, OCC MICROXLN, ARG, PARTLY GRD TO MARL	"
	20	CLYST: A/A	
1667,5	70	CLYST: A/A	DULL YEL FLUOR, MLKY WH CRUSH CUT, OCC SLOW STRM CUT
	30	LST: A/A	
1670		A/A	
1672,5	80	CLYST: A/A	"
	20	LST: A/A	
1675	60	CLYST: A/A	"
	40	LST: A/A	
1677,5	90	CLYST: A/A	
	10	LST: A/A	
1680	80	CLYST: A/A	DULL YEL-ORNG FLUOR AND CRUSH CUT FROM SOME LST PARTICLES
	20	LST: A/A	
1682,5		A/A	"
1685	90	CLYST: A/A	"
	10	LST: A/A	
1687,5	90	CLYST: A/A	"
	10	LST: A/A	

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country:	NORWAY	Area:	NORTH SEA	Field:	GULLFAKS
Well no.:	34/10-19				
K. B. E.	22 meters	Company:	STATOIL/NORSK HYDRO/SAGA		
Hole size:	12 1/4"-8 1/2"	Geologist:	M. HELLE	Date:	13.11.83

Depth (m/KBE)	Lith. (%)	Lithologic description — Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1690	95	CLYST: LT-MED GRY, OCC DK GRY, SFT-FRM, OCC STCKY, NON-SL CALC, SLTY IN PARTS	DULL YEL-ORNG FLUOR CRUSH CUT FROM SOME LST PARTICLES
	5	LST: LT GRY, OCC MED GRY, OCC WH-CLR, SFT-HD, OCC XLN-MICROXLN, ARG, SLTY IN PARTS, OCC GRD TO MARL	
1692,5		A/A	"
1695		A/A	"
1697,5		A/A	"
1700	60	CLYST: A/A	"
	40	LST: MOSTLY WH, PARTLY LT GRY, CLR	BOTTOMS UP
1702,5	90	CLYST: A/A	
	10	LST: A/A	
1705	100	CLYST: A/A	
	TR	LST: A/A	
1707,5	90	CLYST: LT-MED GRY, OCC PALE GRY, SFT, AMORPH, OCC STCKY, SLTY IN PARTS, SL CALC-CALC	
	10	SLTST: LT GRY, PALE GRY, OCC MED-DK GRY, SFT-FRI, NON-SL CALC	
	TR	LST: A/A	
1710		A/A	
1712,5		A/A	
1715	85	CLYST: A/A	
	10	SLTST: OCC GRD TO V F SST, ELSE A/A	
	5	LST: A/A	
	TR	PYR	
1717,5	80	CLYST: A/A	
	15	SLTST: A/A	
	5	LST: A/A	
	TR	SST: CLR QTZ, V F-F, SUBRND-SUBANG, LSE	
	TR	PYR	
1720		A/A	
1722,5		A/A	

WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA		Field: GULLFAKS
Well no.: 34/10-19			
K. B. E. 22 meters	Company: STATOIL/NORSK HYDRO/SAGA		
Hole size: 8 1/2"	Geologist: M. HELLE		Date: 15.11.83

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1725	80	CLYST: LT-MED GRY, SFT-FRM, OCC STCKY, OCC PALE GRY, AMORPH, SL CALC, SLTY	TR SHOWS ASSOC. WITH SILTS + SD, MOD BRN SILVER WH, SLOW MLKY WH CUT
	20	SLTST, LT GRY, PALE GRY, OCC DK GRY-MED GRY, LSE, NON-SL CALC	
	TR	LST: LT GRY, OCC WH-CH, SFT-HD, OCC CLN, ARG, GRD MARL	
	TR	SST: CLR GTZ, V F-MED, LSE, SUBANG, OCC BRN STAIN	
	TR	PYR AND GL	
1727,5		A/A	"
1730	75	CLYST: A/A	"
	15	SLTST: A/A	
	10	SST: A/A	
	TR	LST: A/A	
	TR	PYR, GLAUC	
1732,5		A/A	"
1735	90	CLYST: A/A	"
	10	SLTST: A/A	
	TR	SST: A/A	
	TR	LST: A/A	
	TR	PYR AND GLAUC	
1737,5	70	CLYST: A/A	"
	15	SLTST: A/A	
	15	SST: A/A	
	TR	LST: A/A	
	TR	PYR AND GLAUC	
1740	60	CLYST: A/A	"
	35	SST: CLR QTZ, PARTLY GRY, ROCK FRAGS, V F-MED, OCC V F, LSE-FRI	
	5	SLTST: A/A	
1742,5	60	CLYST: A/A	"
	40	SST: A/A	
	TR	SLTST: A/A	
	TR	LST: A/A	
1745	50	CLYST: A/A	"
	50	SST: A/A	
	TR	SLTST: A/A	
	TR	LST: A/A, PYR	
1747,5		A/A	"

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS	
Well no.: 34/10-19			
K. B. E. 22 meters	Company: STATOIL/NORSK HYDRO/SAGA		
Hole size: 8 1/2"	Geologist: M. HELLE/O. PETTERSON	Date: 15.11.83	

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1750	80	CLYST: LT-MED GRY, SFT-FIRM, OCC STCKY, SL-MOD CALC	YEL-GOLDEN WH FLUOR, MOD-FAST STRM MLKY WH CUT FROM SD AND SILTST PARTICLES
	20	SST: CLR QTZ, PARTLY GRY, BRN STAIN, OCC W BLACK SPKS, F-MED, OCC V F, ANG-SUBRND	
	TR	LST: LT GRY, OCC WH-CLR, MOD HD	
	TR	PYR	
1752,5	85	CLYST: A/A	"
	15	SST: A/A	
	TR	LST: A/A	
	TR	PYR	
1755		A/A	"
1757,5		A/A	"
1760	75	CLYST: A/A	"
	25	SST: CLR GTZ, PARTLY GRY, OCC BRN RED, OCC W BLACK SPCKS, F-MED, OCC VF, MOD SRTD, LSE-FRI	
	TR	LST: A/A	
	TR	PYR	
1762,5	95	CLYST: LT-MED GRY, SOFT, OCC FIRM, OCC STCKY, NON-SL CALC	"
	5	SST: CLR GTZ, PARTLY GRY, OCC BRN RED, VF-F, OCC MED, LSE-FRI	
	TR	LST: LT GRY-MED GRY, MOD HARD	
	TR	PYR	
1765	75	CLYST: A/A	"
	15	SST: A/A	
	10	LST: LT GRY-MED GRY, MOD HD, OCC MICROXLN	
	TR	PYR	
1767,5	80	CLYST: A/A	"
	15	SST: A/A	
	5	LST: A/A	
	TR	PYR	
1770	75	CLYST: A/A	"
	20	SST: A/A	
	5	LST: A/A	
	TR	PYR, FORAMS	

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country:	NORWAY	Area:	NORTH SEA	Field:	GULLFAKS
Well no.:	34/10-19				
K. B. E.	22 meters	Company:	STATOIL/NORSK HYDRO/SAGA		
Hole size:	8 1/2"	Geologist:	M. HELLE/O. PETTERSON	Date:	19.11.83

Depth (m/KBE)	Lith. (%)	Lithologic description — Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1772,5	85	CLYST: LT-MED GRY, SFT, OCC FIRM, OCC STCKY, NON-SL CALC	YEL-GOLDEN WH FLUOR, MOD-FAST STRM, MLKY WH CUT FROM SD AND LST
	10	SST: CLR QTZ, PARTLY GRY, ALSO BRN RED, DOM VF-F, OCC MED-CRS, ANG-SUBRND, OCC W/BLACK SPECKS	
	5	LST: LT GRY-MED GRY, MOD HD, OCC MICROXLN	
	TR	PYR	
1775	95	CLYST: LT-MED GRY, OCC BRICK RED, ELSE A/A	"
	5	SST: A/A	
	TR	LST: A/A	
	TR	PYR	
1777,5	50	CLYST: A/A	
	45	LST: PALE WH-LT BRN-BRN RED, MOD HD, OCC XLN, OCC LT GRY-MED GRY	YEL-GOLDEN WH FLUOR, MOD-FAST STR MLKY WH CUT FROM LST
	5	SST: A/A	
	TR	PYR	
1780	35	CLYST: A/A	
	35	LST: A/A	
	30	SST: A/A	"
	TR	PYR	
1781,3	60	CLYST: A/A	
	25	LST: A/A	BOTTOMS UP
	15	SST: A/A	
	TR	PYR	
1782,5	80	CLYST: A/A	
	20	LST: A/A	
	TR	SST: A/A	
	TR	PYR	
1785	95	CLYST: A/A	
	5	LST: A/A	
	TR	SST: A/A	
	TR	PYR	
1787,5	95	CLYST: A/A	
	5	LST: A/A	
	TR	SST: A/A	
	TR	PYR AND GLAUC	
1790		A/A	

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country:	NORWAY	Area:	NORTH SEA	Field:	GULLFAKS
Well no.:	34/10-19				
K. B. E.	22 meters	Company:	STATOIL/NORSK HYDRO/SAGA		
Hole size:	8 1/2"	Geologist:	M. HELLE/O. PETTERSON	Date:	19.11.83

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1792,5	50	CLYST: LT-MED GRY, SFT-FRM, OCC STCKY, NON-SL CALC, SL MIC, AMORPH	YEL WH-GOLDEN FLUOR, MOD-FAST STRM MLKY WH CUT
	35	LST: WH-LT GRY, OCC CLR, OCC BRN RED, MOD HD, SNDY AND SLTY, ARG	
	10	SST: CLR QTZ, VF-MED, ANG-SUBRND, LSE-FRI	FAIR-GOOD SHOWS
	5	PYR	
	TR	GLAUC	
1795	65	CLYST: A/A	"
	25	LST: A/A	
	5	SST	
	5	PYR	
1797,5	75	CLYST: A/A	"
	20	LST: A/A	
	5	PYR	
	TR	SST	
1800		A/A	
1802,5	80	CLYST: A/A	SHOWS A/A FROM A FEW PARTICLES
	20	LST: A/A	
	TR	PYR	
	TR	SST: A/A	
1805	90	CLYST: A/A	"
	10	LST: A/A	
	TR	PYR	
	TR	SST: A/A	
1807,5		A/A	"
1810	100	CLYST: A/A	
	TR	LST: A/A	
	TR	PYR	
1812,5		A/A	"
1815		A/A	"
1817,5		A/A	"
1820		A/A	"

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country:	NORWAY	Area:	NORTH SEA	Field:	GULLFAKS
Well no.:	34/10-19				
K. B. E.	22 meters	Company:	STATOIL/NORSK HYDRO/SAGA		
Hole size:	8 1/2"	Geologist:	M. HELLE/O. PETTERSON	Date:	19.11.83

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1822,5	100	CLYST: LT-MED GRY, SL BRN GRY, SFT, STCKY, NON-SL CALC, SL MIC, AMORPH	NO SHOWS
	TR	LST: WH-LT GRY, OCC CLR, MOD HD, SNDY AND SLTY OCC ARG	
	TR	PYR	
1825		A/A	"
1827,5		A/A	"
1830	100	CLYST: SLTY, ELSE A/A	"
	TR	LST: A/A	
	TR	PYR	
1832,5		A/A	"
1835		A/A	"
1837,5	100	CLYST: A/A	YEL WH FLUOR, MLKY WH FAST-SLOW STRM CUT FROM AGGREG OF SST
	TR	SST: CLR QTZ, LT GRY, VF-F, OCC MED, ANG-SUBRND FAIR SRTD, LSE-FRM, SL CARB	
	TR	LST: A/A	
	TR	PYR	
1840	100	CLYST: A/A	"
	TR	SST: A/A	
	TR	LST: A/A	
	TR	PYR	
1842,5	80	CLYST: A/A	"
	20	SST: F, OCC VF-MED, LSE A/A	
	TR	LST: A/A	
	TR	PYR	
1845	50	CLYST: A/A	"
	50	SST: A/A	
	TR	LST: A/A	
	TR	PYR	

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA		Field: GULLFAKS
Well no.: 34/10-19			
K. B. E. 22 meters	Company: STATOIL/NORSK HYDRO/SAGA		
Hole size:	Geologist: M. HELLE/O. PETTERSON		Date: 19.11.83

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1850	90	SST: QTZ, CLR, MED-F OCC LT GRY, LSE-FRI, ANG-SUBRND, PARTLY CALC CMT	YEL WH-GOLDEN FLUORS MLKY-WH FAST STRM CUT GOOD SHOWS
	10	CLYST: LT GRY-MED GRY, FRM, SUBFISS, SLTY, GRD TO SH	
1852,5	95	SST	
	5	SH	

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country:	NORWAY	Area:	NORTH SEA	Field:	GULLFAKS
Well no.:	34/10-19				
K. B. E.	22 meters	Company:	STATOIL/NORSK HYDRO/SAGA		
Hole size:	8 1/2"	Geologist:	GRACE/RANAWEERA	Date:	25.11.83

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1875	100	LOST CIRCULATION MATERIAL (LCM) AND LIGNITE	HEAVY CONTAM
1877,5	100	CLYST: MED GRY BRN, FRM-HD, SLTY, MICROMIC, V CALC CMTD	A/A
1880	100	A/A	A/A ESP LIGNITE
	TR	V F SD	
1882,5	100	CLYST: A/A BEC INC SFT + STCKY	
	TR	SD: A/A	
1885		A/A SLI MARLY I/P	
1887,5		A/A	
1890		A/A	
	TR	LST: WH, SFT, ARGILL, CRYPTOXLN	
1892,5		A/A	
1895		A/A	
1897,5		A/A	
1900		A/A	
1902,5		A/A	
1905		A/A	
1907,5		A/A	
1910		A/A	
	TR	NOD PYR	
1912,5	100	CLYST: INC BRN COLOURATION, ELSE A/A	
1915		A/A	
1917,5		A/A	
1920		A/A	
1922,5		A/A	
1925		A/A	
1927,5		A/A	

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS	
Well no.: 34/10-9			
K. B. E. 22 meters	Company: STATOIL/NORSK HYDRO/SAGA		
Hole size: 8 1/2"	Geologist: GRACE/RANAWEERA	Date: 25.11.83	

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1930	100	CLYST: MED GRY BRN, FRM-HD, SLTY, MIC MIC, V CAL CMTD	LIGNITE CONTAM
1932,5		A/A	+ LCM
1935		A/A	CONTAM CONTINUING
1937,5		A/A	
1940		A/A	
1942,5		A/A	INC DRLG RATE -
1945		A/A	OVER TO 5M SAMPLES
1950		A/A	
1955	95 5	CLYST: A/A, INC SLTY SD: F-VF, CLR, SUBRND-RND, GOOD SRTD, LSE, QTZ	
1960	90 10	CLYST: A/A SD: A/A	
1965	80 20	CLYST: A/A BUT INC SLTY W/ V F SD, A/A SD: F-VF, LSE, QTZ A/A	
1970	50 50 TR	CLYST: A/A SD: F A/A, W/RARE V CRS-GRANULES, SUBRND-RND, CLR-TRANSL, QTZ LST: WH, SFT, ARGIUL	NO SHOWS
1975	40 60 TR	CLYST: A/A SD: A/A LST: HD, BUFF, SL DOLOMITIC, YEL/GRN MIN FLUOR	
1980	60 40 TR	SD: A/A, SOME CALC CMTD + SILICA CMTD SST CLYST: A/A LST: A/A	
1982,5	60 40 TR	SD: A/A, RARELY CRSER THAN MED CLYST: A/A PYR NODS, LST, MICROFOSSILS	CIRC BTMS UP

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country:	NORWAY	Area:	NORTH SEA	Field:	GULLFAKS
Well no.:	34/10-19				
K. B. E.	22 meters	Company:	STATOIL/NORSK HYDRO/SAGA		
Hole size:	8 1/2"	Geologist:	GRACE/RANAWEERA	Date:	25.11.83

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1985	60	SD: QTZ, CLR, VF-F, OCC M + CRS, FAIR SRTD, SUBANG-RND	
	40	CLYST: GRY BRN, SFT, STCKY, V CALC, SLTY, SDY	
	TR	SLTST: VF SD-SLT, QTZ, CLR-LT BRN/GRY, CALC CMTED	STATFJORD SAND
	TR	PYR NODS	
	TR	LST: BUFF-WH, SFT, ARGILL, CRYPTCXLN, SLI YEL/GRN	CONTINUING HEAVY LCM + LIGNITE MUD ADDITIVE CONTAM UNABLE TO IDENTIFY ANY STATFJ. COALS IF PRESENT
1990	100	SD: PREDOM F-MED, FAIR-GOOD SRTD, ELSE A/A	
	TR	CLYST, PYR, LST, MICROFOSSILS	
1995	100	SD: NOW VF-V CRS W/GRANULES, QTZ, POOR SRTD, CLR-FROSTED, SILICA CMTED I/P, CALC CMT ALSO, ANG-SUBRND, COMPOSITE GRNS	
	TR	PYR NODS, LST, CLYST, MICROFOSSILS	
2000	100	SD: PREDOM F SD, MOD SRTD, ELSE A/A	
	TR	A/A	
2002,5	60	SD: A/A	
	40	CLYST: A/A	
	TR	A/A	
2005	100	SD: F-MED, FAIR-GOOD SRTD, W/CLR QTR GRANULES	
	TR	NOD PYR, LST	
2010	100	SD: A/A, INCREASE IN QTZ GRANULES	
	TR	A/A	
2015	100	SD: PRED F-CRS, BIMODAL, ANG-SUBANG, QTZ	
	TR	PYR, LST, MICA	
2020	100	SD: A/A	
	TR	A/A WITH KAOLIN	
2025	100	SD: PREDOM MED-CRS QTZ W/FELDSPAR	
	TR	NOD PYR, LST	
2030	100	SD: A/A W/CLR-TRANSL QTZ	
	TR	A/A	
2035	100	SD: PRED MED CLR QTZ, W/ANG-SUBRND GRANULES	
	TR	NOD PYR, LST	

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country:	NORWAY	Area:	NORTH SEA	Field:	GULLFAKS
Well no.:	34/10-19				
K. B. E.	22 meters	Company:	STATOIL/NORSK HYDRO/SAGA		
Hole size:	8 1/2"	Geologist:	GRACE/RANAWEERA	Date:	25.11.83

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
2040	100	SD: V F-MED, OCC GRANULES, SUBANG-RND, KAOLIN/FELDS (DEGRADED)	
	TR	NOD PYR	
2045	100	SD: CRS-GRAN CLR, SUBANG-RND, QTZ	
	TR	NOD PYR	
2050	100	SD: A/A	INCR. LIGNITE CONTAM.
	TR	A/A	
2055		A/A	
2057,5	100	SD: A/A	SOME LARGER PIECES (STATFJ COAL?)
	TR	A/A INC KAOLINITE, WH, AMORPH, NON CALC	
2060	100	SD: A/A INC COMPOSITE GRNS	
	TR	PYR NODS, KAOLIN	
2062,5	100	SD: A/A W/ABUNDANT KAOLIN/FELDS	
	TR	A/A	
2065		A/A	
2067,5		A/A	
2070		A/A	
2072,5		A/A	
2075		A/A	
2077,5	100	SD: A/A	
	TR	SLTST/SST: VF, LT GRY BRN, CALC SLI SIL CMTD, FRI, CLY	
2080		A/A	
2082,5		A/A	
2085		A/A	
2087,5	95	SD: A/A BIMODAL F + CRS, RARELY MED	
	5	SLTST/CLYST: A/A	
2090	95	SD: NOW INC TO 50% QTZ, YEL, PREDOM MED, F-CRS SUBRND-RND, WELL SRTD	TWO SAND TYPES OF DIFFERENT TEXTURES
	5	SH: PURPLY BRN, SLTY, CARB SPCKS, MOD CALC	
	TR	KAOLIN, PYR NODS,	
2092,5	95	SD: A/A	
	5	SH/CLYST: A/A	

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country:	NORWAY	Area:	NORTH SEA	Field:	GULLFAKS
Well no.:	34/10-19				
K. B. E.	22 meters	Company:	STATOIL/NORSK HYDRO/SAGA		
Hole size:	8 1/2"	Geologist:	GRACE/RANAWEERA	Date:	26.11.83

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
2095	50	SD 1: VF-V CRS W/GRANULES, QTZ, CLR-WH, OCC PNK, FROSTED, COMPOSITE GRNS, ANG-SUBANG, POOR SRTD, LSE, CALC	
	40	SD 2: F-MED, QTZ, LT BRN-YEL, GOOD SRTD, RND-W RND, OCC SUBRND	
	10	SLTST/CLYST: MED GRY BRN, CALC CMTD	
	TR	PYR NODS, KAOLINITE, LST	
2097,5	90	SD 1: A/A	
	10	SD 2: A/A, ALSO SUBANG	
	TR	SLTST: A/A	
	TR	A/A	
2100		A/A W/	
	TR	SH: PNK BRN, SLTY, CARB SPCKS	
2102,5		A/A	
2105		A/A	CONT LCM +
	TR	LST: PNK, CRYPTOXLN, BRITTLE	LIGNITE CONTAM
2107,5		A/A	
2110		A/A	
2112,5		A/A	
2115		A/A	
2117,5	75	SD: A/A	
	25	CLY: PNKY BRN-BRCK-RD/BRN, SLTY, SFT, STCKY, MOD CALC	
	TR	A/A	
2120	20	SD 2: A/A	
	40	SD 1: INC LT BRN COLOURATION, ELSE A/A	
	40	CLY: A/A	
	TR	A/A	
2122,5	90	SD: A/A	
	10	CLY: A/A	
	TR	A/A	
2125		A/A INC	
	TR	DK GN/GY CLYST, SFT	
2127,5		A/A	

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA		Field: GULLFAKS
Well no.: 34/10-19			
K. B. E. 22 meters	Company: STATOIL/NORSK HYDRO/SAGA		
Hole size: 8 1/2"	Geologist: GRACE/RANAWEERA		Date: 26.11.83

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
2130	90	SD: F MED, ANG SUBANG, QTZ, CLR-FROSTED	
	10	SLTST/CLYST: MED GRY BRN CALC CMTED	
	TR	PYR NODS, KAOLINITE, LST	
2132,5		A/A	
2135	90	A/A WELL SRTD	
	10	CLYST: A/A	
	TR	A/A	
2137,5	80	SD: MED-CRS, POOR SRTD, ANG-SUBRND, CLR-FROSTED QTZ	INC LIGNITE
	20	CLYST: MED GRY-BRN,CALC CMTD	
	TR	PYR, KAOLINITE, LST	
2140	80	SD: F-MED, OCC CRS QTZ	
	20	CLY: BRN-GRY, CALC CMTD	
	TR	KAOLINITE, PYR, LST	
2142,5		A/A	
2145	90	SD: MED-CRS, CLR-YEL QTZ	
	10	CLYST: GRY GRN-LT BRN	
	TR	PYR, KAOLINITE, LST	
2147,5	90	SD: F-MED ,POOR SRTD, CLR-FROSTED, OCC PINK QTZ	
	10	CLYST/SILTST: GRY-BRN	
	TR	PYR, KAOLINITE, LST	
2150		A/A	
2152,5	60	SD 1: V F-V CRS, W/GRANULES, QTZ, CLR-WH OCC PINK, FROSTED, COMPOSITE GRNS, ANG-SUBANG P SRTD	
	40	SD 2: F-MED QTZ, LGRN-YEL, GOOD SRTD, RND-W RND	
	TR	PYRITE, KAOLINITE, LST	
2155		A/A	
2157,5	100	SD: MED-CRS, W RND-RND, CLR OCC YEL QTZ	
	TR	CLYST, PYR, KAOLINITE, LST	
2160		A/A	INC LIGNITE

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS	
Well no.: 34/10-19			
K. B. E. 22 meters	Company: STATOIL/NORSK HYDRO/SAGA		
Hole size: 8 1/2"	Geologist: GRACE/RANAWEERA	Date: 27.11.83	

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
2162,5	100	SD: F-V CRS, OCC GRANULE/COMPOSITE GRN, QTZ, CLR-WH/FROSTED, OCC LT BRN-YEL (F MED), POOR-MOD SRTD, ANG-SUBRND, LT BRN-YEL SUBANG-RND OCC W RND, LSE, OCC SILICA/CALC CMTD	HEAVY LIGNITE CONTAM. STILL MAKING ANY COAL IDENTIFICATION DIFFICULT
	TR	LST, SLTST, PYR NODS, FSPR, KAOLIN	
2165		A/A W/	
	TR	SH: LT GRY/GN, GRY/BRN, SUB FISS, MICROMIC, FRM, SOME BLK CARB SPCKS, NON-SL CALC	
2167,5	100	SD: A/A W/LOCAL NUMEROUS PNK GRNS	
2170		A/A	
2172,5	90	SD: A/A	
	10	SH: A/A	
2175		A/A W/SH BEC HDER, MOD CALC	
2177,5		A/A W/INC GRN/GRY COLOUR	
2180	100	SD: A/A GRANULES BEC LESS FREQ	
	TR	SH: A/A	
2182,5	90	SD: A/A	
	10	SH: A/A	
2185	95	SD: A/A	
	5	SH: A/A	
2187,5	100	SD: A/A V CRS BEC LESS FREQ	
	TR	SH: A/A	
2190	85	SD: A/A SRTG IMPROVED TO MOD, F-CRS	
	15	SH: A/A	
2192,5	95	SD: A/A	
	5	SH: A/A	
	TR	A/A	
2195	100	SD: A/A	
	TR	SH: A/A LST, KAOLIN, PYR NODS	
2197,5	70	SD: A/A	
	TR	SH: A/A	
	30	CLYST/CLY: MED RD BRN, SFT, STCKY, SLTY, NON CALC	

statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-19		
K. B. E. 22 meters	Company: STATOIL/NORSK HYDRO/SAGA	
Hole size: 8 1/2"	Geologist: GRACE/RANAWEERA	Date: 27.11.83

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
2200	85	SD: CLR-OCC FROSTED/WH, PNK, YEL, F-OCC V CRS, ANG-SUBRND, MOD-POOR SRTG, LSE, QTZ	LCM + LIGNITE CONTAM
	15	CLYST/SH: PURP/BRN, GRY/GN, FRM-HD, FISS-SUBFISS, MICROMIC MOD CALC, SLTY	
	TR	CAOLIN, PYR NODS, WH-PNK LST	
2202,5	60	SH: VAR MED GRY/GRY-GN, RD BRN/PURPLE-GRY, SLTY, MICROMIC, FISS, FRM-HD, SLI-MOD CALC	
	40	SD: A/A	
	TR	A/A	
2205	30	SD: A/A	
	30	SH: A/A	
	40	LST: PNK-WH, SUCROSIC-MICROXLN, HD, BRITTLE, NON DOLOM, CLEAN	
2207,5	40	SD: A/A BUT W/RED BRN STAIN	
	20	LST: A/A	
	40	MED-DK RED/PURP BRN SH A/A	
	TR	GRY/GN SH, PYR NODS, KAOLIN	
2210	100	SD: A/A	
	TR	LST, SH A/A	
2212,5	50	SD: A/A	
	10	LST: A/A	
	40	VAR SH: GRY/GN-RED BRN A/A	
2215	90	SD: A/A	
	10	SH: A/A	
	TR	LST	
2218	5	SD: A/A	
	15	SH: GRY/GN A/A MOD CALC	TD SAMPLE
	80	SH: RED BRN-PURPLE BRN A/A NON CALC	
	TR	LST: A/A	

statoil
Den norske stats oljeselskap a.s

CONVENTIONAL CORE DESCRIPTION

FIELD GULLFAKS | WELL NO. 34/10-19 | AREA NORTH SEA

CORE NO. 1 | INTERVAL from 1763.0 to 1781.3 m | CORED 18.3 | REC 17.5 | 96 %

FORM. SHETLAND | GEOLOGIST A. STORLI/O. PETTERSON/M. HELLE | DATE 19.11.83

DEPTH	CORING RATE 1 2 3 4 5 6 7	LITHOLOGY/ GRAIN SIZE mu si vf f m c vc	DIP (apparent)	SHOWS Stain	SHOWS Fluor	SHOWS Cut	POROS Poor	POROS Fair	POROS Good	LITHOLOGIC DESCRIPTION	MISC.
1763										Clyst, med gry, occ dk gry, frm, subfiss, occ sl slty, sl calc-calc sl micromic, bioturb	
64										calc cemented	
65											
66											
67										Clyst, med-lt gry, frm non calc, sl micromic, occ sl slty, w/lam, bioturb	
68											

mu si vf f m c vc

statoil
Den norske stats oljeselskap a.s

CONVENTIONAL CORE DESCRIPTION

FIELD GULLFAKS | WELL NO. 34/10-19 | AREA NORTH SEA
CORE NO. 1 | INTERVAL from 1763 to 1780.5 | CORED 18.3 m | REC 17.5 m | 96 %
FORM. SHETLAND | GEOLOGIST A.STORLI/O. PETTERSON/M. HELLE | DATE 19.11.83

DEPTH	CORING RATE 1 2 3 4 5 6 7	LITHOLOGY/ GRAIN SIZE mu si vf f m c vc	DIP (apparent)	SHOWS Stain	Fluor	Cut	POROS Poor	Fair	Good	LITHOLOGIC DESCRIPTION	MISC.
										Clyst, med gry, sft-frm, amorph, non calc sl micromic, occ sl slty, bioturb	
1769											
1770											
1771											
1772										Clyst, greenish gry, occ med gry, else A/A	
1773										Clyst, A/A w/lam of clyst, gry red, frm, occ sft, non calc, amorph, sl slty, bioturb	
1774											

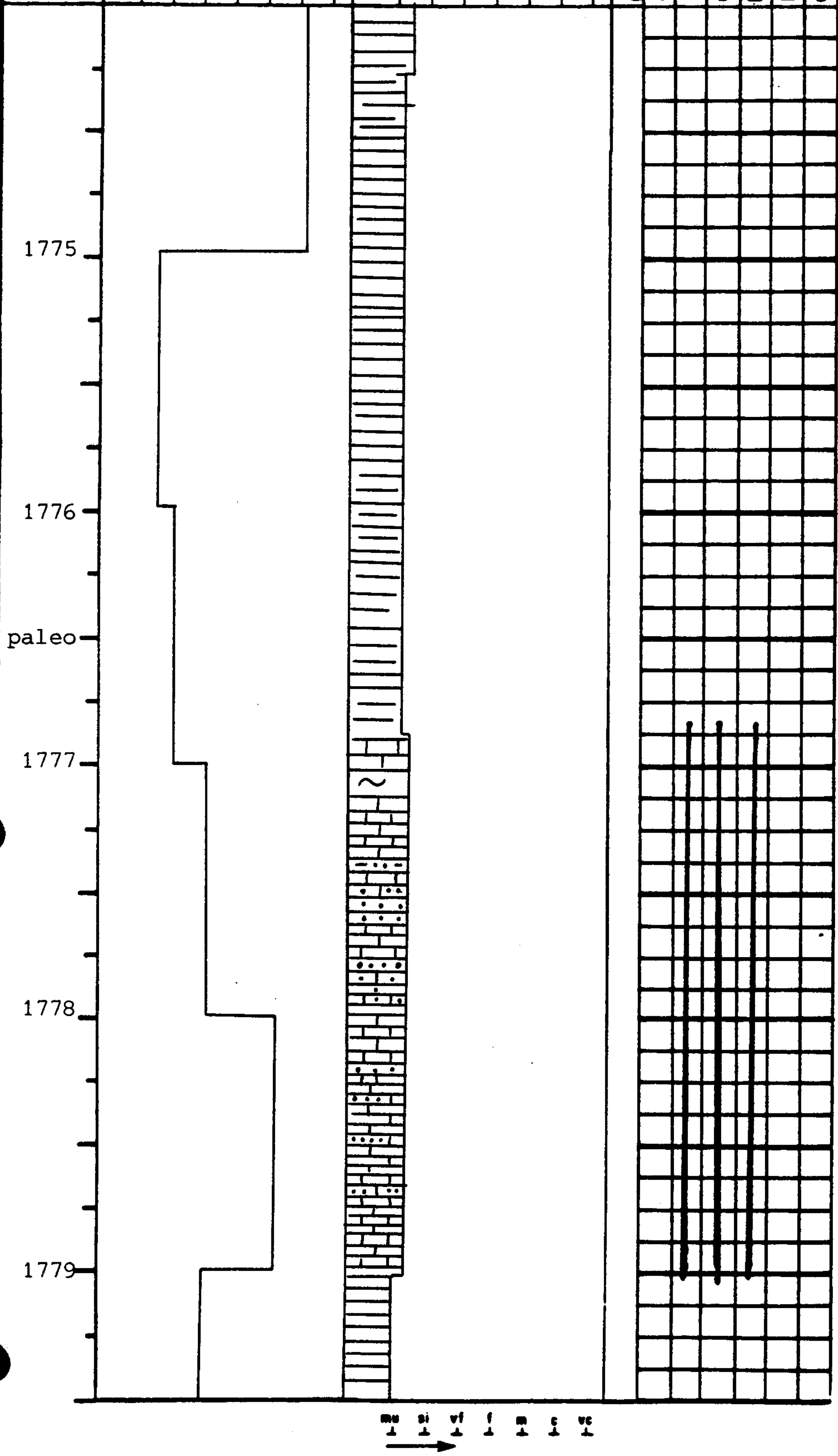
mu si vf f m c vc

statoil
Den norske stats oljeselskap a.s

CONVENTIONAL CORE DESCRIPTION

FIELD GULLFAKS | WELL NO. 34/10-19 | AREA NORTH SEA
CORE NO. 1 | INTERVAL from 1763.0 to 1781.3 | CORED 18.3 m | REC 17.5 m | 96 %
FORM. SHETLAND/CROMER KNOLL/COOK | GEOLOGIST A.STORLI/O. PETTERSON/M. HELLE | DATE 19.11.83

DEPTH | CORING RATE 1 2 3 4 5 6 7 | LITHOLOGY/ GRAIN SIZE mu si vf f m c vc | DIP (apparent) | SHOWS Stain Fluor Cut | POROS Poor Fair Good | LITHOLOGIC DESCRIPTION | MISC.



LITHOLOGIC DESCRIPTION

Clyst, A/A w/lam of gry red clyst, A/A

Clyst, med-green gry sft-frm, amorph, non calc, sl micromic, sl slty, bioturb

Clyst, lt-med gry, else A/A

ind. of slickenside

Lst, buff-lt brn, occ red brn, mod hd-hd, arg, partly slty and sndy

Lst (from 1777,7 - 1778,2 m) red brn, soft-fri, slty and sndy, arg, grd to marl

Lst, wh-lt gry, hd-v hd, arg, slty, arg, fossil fragm, partly xln

Clyst, lt gry, occ med gry, non calc, firm, slty, occ v/thin laminae of vf sst, bioturb

MISC.

Core bleeding oil & gas from sndy lst. Yel wh-golden fluor, wh mlky mod fast strm cut.

statoil
Den norske stats oljeselskap a.s

CONVENTIONAL CORE DESCRIPTION

FIELD GULLFAKS	WELL NO. 34/10-9	AREA NORTH SEA	
CORE NO. 1	INTERVAL from 1763.0 to 1781.3 m	CORED 18.3 m	REC 17.5 m 96 %
FORM. COOK	GEOLOGIST A. STORLI/O. PETTERSON/M. HELLE	DATE 19.11.83	

DEPTH	CORING RATE 1 2 3 4 5 6 7	LITHOLOGY/ GRAIN SIZE (mu si vf f m c vc)	DIP (apparent)	SHOWS Stain	Fluor	Cut	POROS Poor	Fair	Good	LITHOLOGIC DESCRIPTION	MISC.
										Clyst, A/A	
1780											
1780.5										Sltst, med gry, soft, loose, arg, mic, sl carb	
1781											

mu si vf f m c vc

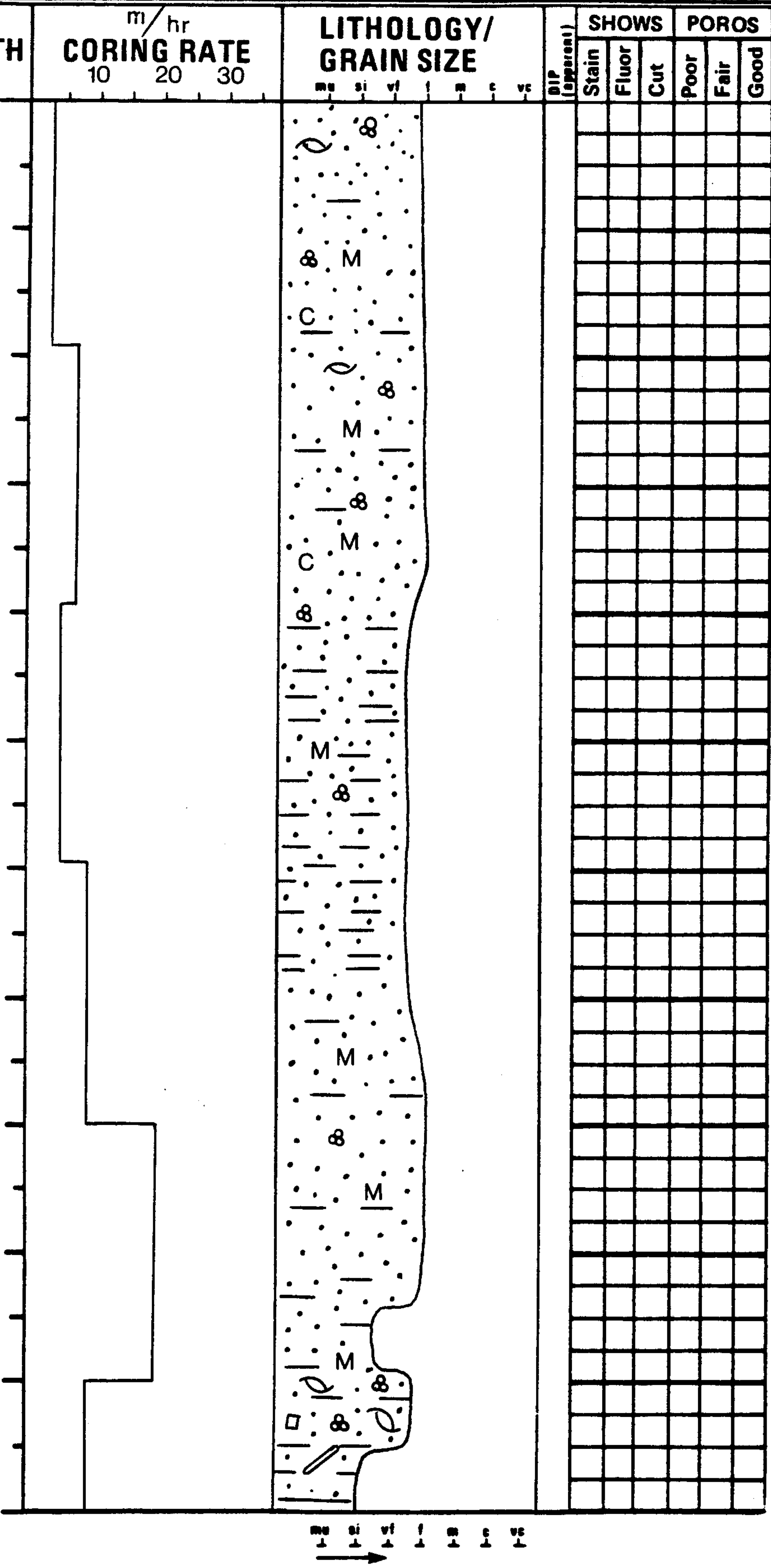
statoil
Den norske stats oljeselskap a.s

CONVENTIONAL CORE DESCRIPTION

FIELD GULLFAKS **WELL NO.** 34/10-19 **AREA** NORTH SEA

CORE NO. 2 **INTERVAL from** 1847.0 **to** 1856.0 m **CORED** 9.0 m **REC** 8.7 m 97 %

FORM. AMUNDSEN **GEOLOGIST** A. STORLI/O. PETTERSON/M. HELLE **DATE** 23.11.83

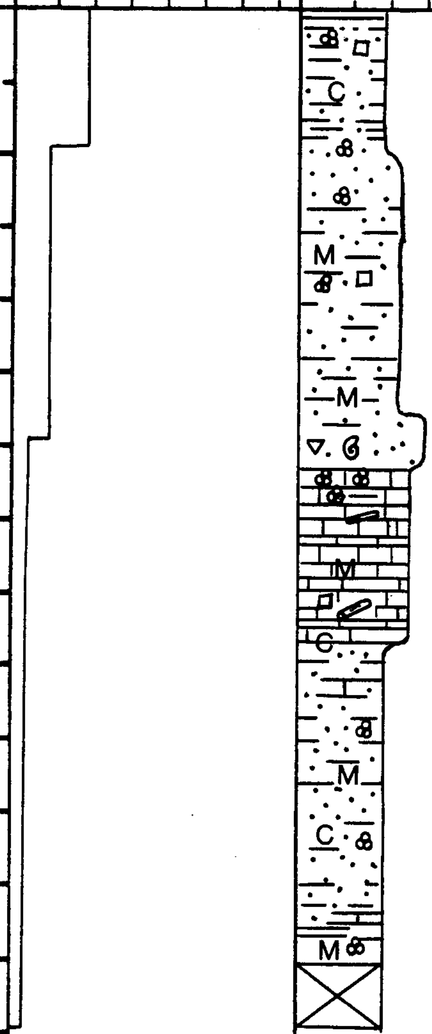


DEPTH	LITHOLOGIC DESCRIPTION	MISC.
1847	Sst, med gry, f-vf, occ med, ang-subrnd, sl mic-mic, fri-mod hd, non-calc, arg, partly tight, poor-fair srtd, bioturb	Forams Shell frags. Yel wh-patchy fluor, mlky wh fast-mod strm cut
1848	Sst, w/kaolin matrix, else A/A	
1849	Sst, vf, mic, v arg, grd to sltst, else A/A	patchy shows
	Sst, med-dk gry, occ brn gry, mic, frm-mod hd, v arg, occ grd to sltst, non-sl calc, w/lam of med-dk gry sh, mod hd, non calc mic	
1850	Sst, f-med, mic, w/ kaolin and clay matrix, else A/A	Yel wh-patchy fluor, mod-fast strm mlky wh cut
1851	Sltst, med-dk gry, fossils, hd, v arg, non-sl calc, v bioturb	patchy shows A/A
1852	Sst, vf-f, else A/A	Pyr, mica shell frags forams
	Sltst, A/A	Patchy shows A/A

statoil
Den norske stats oljeselskap a.s

CONVENTIONAL CORE DESCRIPTION

FIELD GULLFAKS	WELL NO. 34/10-19	AREA NORTH SEA
CORE NO. 2	INTERVAL from 1847.0 to 1856.0 m	CORED 9.0 m · REC 8.7 m · 97 %
FORM. AMUNDSEN	GEOLOGIST A. STORLI/O. PETTERSON/M. HELLE	DATE 23.11.83



DEPTH	CORING RATE (m/hr)	LITHOLOGY/ GRAIN SIZE	DIP (apparent)	SHOWS Stain	SHOWS Fluor	SHOWS Cut	POROS Poor	POROS Fair	POROS Good	LITHOLOGIC DESCRIPTION	MISC.
										Sltst, med-dk gry, occ brn gry, frm-mod hd, non calc, mic, occ pyr sl carb, grd to vf-f sst, bioturb	Patchy wh yel fluor mlky wh slow strm cut
1853											Forams
											Amonites
1854										Sst, med gry, vf-f, mic, subang, fri-mod hd, non calc, occ calc, w/ kaolin and clay matrix bioturb, hor. lam	
										Lst, med gry-dk gry, v hd, mic, pyritic, stylolites	
											Calc nod
1855										Sltst, A/A	
											Non-patchy fluor, no cut
1856											

Coring rate scale: 10 20 30

Grain size: mu si vf f m c vc

statoil
Den norske stats oljeselskap a s

CONVENTIONAL CORE DESCRIPTION

FIELD GULLFAKS | WELL NO. 34/10-19 | AREA NORTH SEA

CORE NO. 3 | INTERVAL from 1856.5 to 1874.8 | CORED 18.3 m | REC 17.9 m | 98 %

FORM. AMUNDSEN | GEOLOGIST A. STORLI/O. PETTERSON | DATE 24.11.83

DEPTH	CORING RATE r/1 1 2 3 4 5 6 7	LITHOLOGY/ GRAIN SIZE mu si vf f m c vc	DIP (apparent)	SHOWS Stain	Fluor	Cut	POROS Poor	Fair	Good	LITHOLOGIC DESCRIPTION	MISC.
		M C								Sh, med-dk gry, firm-mod hd, sli calc, mic, occ pyritic, occ w/ shell frags, occ w/ fine lam of sltst, bioturb	No shows in shale. Patchy yel fluor, mlky wh, mod str cut in sltst lam
1857											
1858										Sh, A/A, but occ v mic	A/A
1859										Sh, A/A, but w/abund sltst lam	A/A
1860											
1861											
1862											

mu si vf f m c vc

statoil
Den norske stats oljeselskap a.s

CONVENTIONAL CORE DESCRIPTION

FIELD GULLFAKS | WELL NO. 34/10-19 | AREA NORTH SEA

CORE NO. 3 | INTERVAL from 1856.5 to 1874.8 | CORED 18.3 | REC 17.9 | 98 %

FORM. AMUNDSEN | GEOLOGIST A. STORLI/O. PETTERSON | DATE 23.11.83

DEPTH	CORING RATE m/hr (10 20 30)	LITHOLOGY/ GRAIN SIZE (mu si vf f m c vc)	DIP (apparent)	SHOWS: Stain	Fluor	Cut	POROS: Poor	Fair	Good	LITHOLOGIC DESCRIPTION	MISC.
		C, M								Sh, med-dk gry, firm-mod hd, sli calc, mic, occ pyritic, w/ fine lam of sltst, occ w/ shell and wood frags, bioturb	No shows in shale. Patchy yel fluor mlky wh, mod str cut from lam of sltst
1863		M, M									
1864		M									
1865		M								A/A	A/A
1866		M, M									
1867		M								A/A	A/A

mu si vf f m c vc

statoil
Den norske stats oljeselskap a s

CONVENTIONAL CORE DESCRIPTION

FIELD GULLFAKS | WELL NO. 34/10-19 | AREA NORTH SEA
CORE NO. 3 | INTERVAL from 1856.5 to 1874.8 | CORED 18.3 m | REC 17.9 m | 98 %
FORM. AMUNDSEN | GEOLOGIST A. STORLI/O. PETTERSON | DATE 23.11.83

DEPTH	CORING RATE m/hr (10 20 30)	LITHOLOGY/ GRAIN SIZE (mu si vf f m c vc)	DIP (apparent)	SHOWS: Stain	Fluor	Cut	POROS: Poor	Fair	Good	LITHOLOGIC DESCRIPTION	MISC.
										Sh, med-dk gry, firm-mod hd, sli calc, mic, occ v mic, occ pyritic occ w/Shell and wood frags, fine lam of sltst	No shows in shale. Patchy yel fluor mlky wh, mod str cut from lam of sltst
1868											
1869										Sltst, med-dk gry, occ brn gry, fri-firm, sli-mod calc, occ pyritic, mic, occ grd to vf sst	Patchy yel fluor milky wh slow-mod str wh cut
1870										Sh, A/A	No shows in shale
1871										Dolomite	Patchy yel fluor milky wh slow str wh cut
										Sh, A/A	
										Sltst-lam decreasing downwards	No shows
1872											
1873											

mu si vf f m c vc

statoil
Den norske stats oljeselskap a.s

CONVENTIONAL CORE DESCRIPTION

FIELD GULLFAKS | WELL NO. 34/10-19 | AREA NORTH SEA
CORE NO. 3 | INTERVAL from 1856.5 to 1874.8 | CORED 18.3 m | REC 17.9 m | 98 %
FORM. AMUNDSEN | GEOLOGIST A. STORLI/O. PETTERSON | DATE 23.11.83

DEPTH	CORING RATE m/hr (10 20 30)	LITHOLOGY/ GRAIN SIZE (mu si vf f m c vc)	DIP (apparent)	SHOWS: Stain	Fluor	Cut	POROS: Poor	Fair	Good	LITHOLOGIC DESCRIPTION	MISC.
		M M								Sh, med-dk gry, firm-mod hd, sli calc, mic, occ v mic, occ pyritic occ w/conc of shell frags	No shows
1874											
1875											

mu si vf f m c vc

III DRILLING REPORT

BOR/CCB
TJU

III 1. SUMMARY

"Ross Isle" was transferred to the well 34/10-19 on the 3rd October 1983 at 1850 hours.
The well was designed to appraise the southern section of the Gullfaks Phase II area, and located in a separate faultblock to penetrate the Cook sandstone above the oil-water contact seen in the well 34/10-9. The well was drilled to possible improve the understanding of the reserve distribution in this part of the Gullfaks field.
The objectives were the Cook and Statfjord sandstones and the planned total depth was 2400 meter RKB, 50 meter into the Triassic formation.
The well penetrated the objectives but without verifying any hydrocarbon accumulation. The well was drilled to 2218 meter, 30 meter into the Triassic formation, logged and plugged in 64 days. The prognosis was 56 days, and total depth 2400 meter. Rig time were lost mainly due to waiting on weather, shallow gas problems, requiring a 16" liner, sealassembly problems and lost circulation. The 16" liner was run after the squeezes through the 20" casing, to stop the shallow gasflow between the 20" and 30" casings. The integrity obtained after these squeezes verified the need of running an extra casing string to reach the required 13 3/8" casing depth.
The neccessary underreaming for the 13 3/8" casing consummed a total of 16 days from cleaning out the 16" liner and until the 13 3/8" casing was ready to be run.
The 17½" holesection was attempted drilled and underreamed in one pass using a 14 3/4" bit and a 17½" underreamer. This resulted in several bit trips to change underreamers. The 12 1/4" bit was run for the last part of the section with and without a following underreamer. Excessive wear was noticed on the underreamers, resulting in a lost cone and several broken arms. The arms were recovered with the underreamer body.
The 18 3/4" x 9 5/8" sealassembly was finally pressuretested after several misruns, consumming 80 hours downtime.

The total cost of the well, approximately 83MM NKR, as per 31.12.83, was 6MM NKR above the prognosed cost.
The rig "Ross Isle" left for CCB on 6th December 1983 at 2300 hours to install a new BOP stack.

III 2. DRILLING OPERATIONS IN INTERVAL

"ROSS ISLE" was transferred from CCB, Ågotnes to the well 34/10-19, with Stad Senior on the towline, on the 3rd October 1983 at 1850 hours. The well was spudded in 192,5 meter of water on the 5th October 1983 at 0350 hours. Anchor no 5 was reset twice to obtain the full tension test. All anchors were tensioned to 185 metric tons prior to spud in. The final position was 61° 11' 10.86"N
02° 15' 30.55"E
This was 16 m - 105° off intended position. Rih heading 322°.

36" hole, 214.5-289.5 m

A 26" bit and a 36" holeopener drilled the section in one run. The hole was slugged with 4 m^3 high viscosity pill on every connection. The 75 meters was drilled in 4.8 hours effective drilling time, with an average ROP of 15.6 m/hr. A survey was taken and a wipertrip made to 225 meter. The survey was retrieved and the drillstring run back to bottom without recording any drag or fill. Survey result, 3/4° N75W at 284 m. The hole was circulated with 72 m^3 high viscosity mud and the drillstring pulled to run the 30" casing. The 30" casing was found full of water above the sealevel while being hung off at the cellardeck. The 30" casing was circulated and a stinger run to tag the 30" shoe. No obstruction was found. The 30" casing was run and stabbed into the hole using the Mantis to verify positive stab in. The 30" casing was landed at 288.5 m with a 2 meter stick-up above the seabed. The 30" casing was cemented in place. The pinconnector was run on the marine riser and overpulled with 30 metric tons.

26" hole, 289.5-978 m

The 30" casing was cleaned out to 290.5 meter, using 17½" bit and 26" underreamer. The top of cement was tagged at 285 meter. The

diverter was functioned and the overboard lines flushed prior to drilling out. The starboard valve was serviced after being found unable to operate.
A 12 1/4" pilot hole was drilled to 934 meter. The bit was found to be 3/16" undergauge. The next bit finished the 12 1/4" pilothole at 978 meter. Several drilling breaks were recorded throughout the section with following flowchecks. Recorded 2.5% gas after the trip at 934 meter. The 12 1/4" pilothole was drilled with controlled drilling rates.
The drillgas varied between 0.1-0.8% with maximum gas peaks of 1.8% (335 m) and 1.3% (412 m). The survey was dropped and the drillstring pulled to run Schlumberger logs. The survey read 0.5 degree N69W at 973 meter.
Electric logs were run in the 12 1/4" pilot hole. Run no 1; ISF-MSFL-LSS-GR and run no 2; LDT-CNL-GR. The logs indicated possible shallow gas at 332 meter and 408 meter RKB.
The 12 1/4" hole was opened to 26" using 12 1/4" pilot bit, 17½" holeopener (H.O.) and 26" underreamer (U.R.). The pilot hole was opened to 26" from 289 m to 718 meter where the string was pulled and the drilling assembly changed out. Changed out 17½" H.O. and 26" U.R. Recorded 0.3% trip gas from 289 meter. The 12 1/4" pilot hole was opened to 26" to 978 meter. The mudweight was raised to 1.25 S.G., recording maximum 0.1% gas.
The drillstring was pulled to 218 meter where the riser and the well was displaced to seawater. The operating pressure on the slipjoint packing was released and the well observed prior to unlatching the pinconnector. The pinconnector and riser was pulled and the hole gaugechecked using a 26" bit. The hole was reamed from 911 m to 951 meter. The hole was circulated with 1.25 S.G. mud and the string pulled to 300 meter where the hole was filled with 1.25 S.G. mud.
The 20" casing (BIG OMEGA AND VETCO LS) was run. Top of wellhead at 212.10 meter. The shoe at 969 meter. Overpulled casing with 20 metric tons. The 20" casing was cemented using prehydrated bentonite mixwater for the leadslurry. Good returns were reported throughout the cementing and displacing. Displaced cement with 1.25 S.G. mud. Bumped the plug with 35 bar.

68 hours were lost while waiting on weather to run the BOP stack. A gas flow between the 30" x 20" casings was observed shortly after finishing the cement job. The flow increased for some hours for thereafter to level out in a continuous stream.
Several video surveys were run the next days.
Electrical logs were run to possibly verify which of the shallow gascontaining sandlenses was flowing, but no positive conclusion could be drawn. Ran CBL-GR and HTT logs, 64 hours and 68 hours respectively after the cement was in place. Estimated gasflow to cover 30% of the wellhead area from the video survey.
The BOP stack was run with the shear ram closed. Same was landed and overpulled with 20 metric tons. The diverter housing and the master bushing were installed. Checked for pressure below the shear rams, and same was found to be zero. Pressuretested the BOP stack to 275/241 bar using the yellow pod, and the 20" casing to 125 bar below the shear ram. Functioned the BOP using the blue pod.

19 3/4" hole, 978-1073 m

The diverter system was functioned and flowtested. The drill crew was trained to operate the choke and to record slow pumprates with the bit at 954 meter, top of the cement. The 20" casing was cleaned out with a 17½" bit, and 4 meter of new formation penetrated to 982 meter.
Two formation integrity tests were performed, but were not found to be conclusive. Three more meters of formation were penetrated and a new formation integrity test performed equivalent to 1.56 S.G. mudweight.
The 17½" hole was drilled to 1073 meter when the decission was made to plug off the gasflow, due to observed gasbubbles at the surface below the rig. A balanced cement plug was set from 960 m to 880 meter, and later tagged at 886 m and dressed off to 910 meter. The hole was circulated clean prior to pulling out to perforate and squeeze. The 20" casing was perforated at 442 m, 408 m and 332 meter. Balanced cement plugs were set across each perforated interval and squeezed through same prior to the next

perforating run. 1.25 S.G. mud was displaced from 330 meter, after the last perforating run at 332 meter. This mudweight stopped the gasflow in the 20" x 30" annulus. The perforations were squeezed off and three hours were spent waiting on the cement to set up.
The cement inside the 20" casing was cleaned out using 17½" bit. The hole was washed from 1060 m to 1073 m. Schlumberger logs were run. Run no. 1, ISF-LSS-MSFL-GR. A 17½" bit and 19 3/4" underreamer was used to open the 17½" hole to 19 3/4" from 978 m to 1073 meter. The hole was circulated clean and the 20" casing reamed from 285 m to 448 meter, and from 875 m to 972 meter.
The 16" liner was run and set at 1073 meter, on the bottom. The running tool had to be serviced due to poor service from the rental company. The 16" liner was cemented in place without observing any indications of shearing the wiper plug. The cement was displaced using the rig pumps. Did not bump the plug.
The BOP was pressuretested to 172 bar. The pod selective valve was replaced on the Payne unit and the 20" casing cleaned out for cement and stringers with 17½" bit to 226 meter. The 20" x 16" lap was pressuretested to 125 bar using 1.10 S.G. mud.

17½" hole, 1073-1494 m

The cleaning out of the 16" liner for pack-off and flapper valve assembly required several runs with 14 3/4" and 12 1/4" bits to make progress at 272 meters. Cement was cleaned out from 1048 m to 1073 meter, and new formation drilled to 1076 meter.
The mud was conditioned and a formation integrity test performed equivalent to 1.59 S.G.
Several runs with 14 3/4" bit and 17½" underreamer were made to drill and underream the hole directly to 17½". Junk runs were necessary in between runs to recover junk and a lost cone.
Excessive amounts of junk were recovered from the 16" pack-off and flapper assembly. High gas readings were experienced from 16" liner depth after trips. These gas readings were reduced with the increased mudweight with depth.
The 14 3/4" bit was used as pilot bit for the 17½" underreamer to 1290 meter. 12 1/4" bits were used either as pilot bit or alone from 1290 m to 1494 meter.
The mudweight was increased in steps from 1.10 S.G. to 1.54 S.G. at total depth of the 17½" section. A gel/lignosulphonate system was used. Several trips were necessary for re-reaming and conditioning of the hole. Well control was necessary after being hung off due to severe weather for 40 hours. The well was controlled with 1.51 S.G. mud. The high gas readings are suspected to come from drilled dolomite stringers at 1474 meters, where the mudweight was increased to reduce the background gas.
The drillstring was for a second time hung off, while circulating to check out the gas at this depth.
Several wipertrips were made to check out the hole and the gas after the well had been stabilized. The gas leveled out at 10% with 1.51 S.G. in the hole and the mudweight was further increased to 1.54 S.G. A wipertrip was made to 1260 meter with no overpull. The following bottoms up gave 1.5% gas. The survey at 1490 meter read 2.5 degree.
Electrical logs were run. Run no 1; ISF-LSS-MSFL-GR, run no 2; LDT-CNL and run no 3; CBL-VDL-GR. The remaining section from 1323 m to 1474 meter was opened from 12 1/4" to 17½", using three underreamers.

BGT-GR logs were run and showed undergauge hole from 1370-1373 m and at 1376 meter. These spots were re-reamed several times. The hole was circulated clean with maximum 0.5% gas. The 13 3/8" casing was run and cemented in place with full returns throughout the job. The 13 3/8" casing shoe was set at 1483 meter. The plug was sheared and bumped. Lost 6 m^3 mud during the last part of the displacement. The casing was run without balls in the shoe and the floatcollar.
The wellhead was washed using a jet tool and the 18 3/4" x 13 3/8" sealassembly run and pressuretested to 225 bar. The BOP was pressuretested to 225 bar, and the 13 3/8" casing to 230 bar below the shear ram.

12 1/4" hole, 1494-1700 m

The cement was tagged with a 12 1/4" bit at 1456 meter and the mud conditioned to 1.60 S.G. The blue pod was pulled due to failure when attempting to function the BOP on same prior to drilling out of the 13 3/8" casing shoe. Lost 7,5 hours to repair the blue pod. Cleaned out the rest of the cement and drilled 3 meter new formation to 1497 meter. The mud was conditioned and a formation integrity test performed to 1.86 S.G. equivalent mudweight.
The 12 1/4" hole was drilled to 1579 meter with several drilling breaks. Recorded maximum 12,8% gas from 1563 meter. The mudweight was increased to 1.68 S.G. due to recorded connection gas at this depth. Gas readings decreased to 0.4%. New slow pumprates were recorded, the survey instrument dropped and a wipertrip made to the 13 3/8" casing shoe with maximum 25 metric tons overpull. The survey read 1,75 degree at 1573 meter. The 12 1/4" hole was further drilled to 1619 meter. Recorded 16.5% trip gas and 0.4-5.5% formation gas while drilling. Had 17.7% gas from 1610 meter (lagdepth) and flowchecked due to slight flow when thegas reached the surface. The gas and flow was checked out and the mudweight further increased to 1.71 S.G., while circulating up through the choke line. Recorded 4% gas. The riser was displaced to 1.71 S.G. with maximum 56.5% gas. The mudweight was further increased to 1.75 S.G. with open BOP. Recorded 3 m^3 gain and maximum 61.8% gas.
The well was closed in and circulated through choke line with partly lost returns after having pumped 48 m^3 mud. Added LCM to the mud and reduced the losses. Regained circulation and recorded maximum 36.6% gas. Made wipertrip to the 13 3/8" casing shoe with tight spot from 1535 m to 1525 meter. Maximum 35 metric tons overpull. Had 11,2% gas from bottoms up after the trip. Made new wipertrip to the shoe with no recorded overpull. Recorded 5.5% tripgas.
The 12 1/4" hole was further drilled to 1646 meter and a new wipertrip made to the shoe after having 5% background gas from 1627 meter. No recorded drag. Recorded 20.3% tripgas. The mudweight was further increased to 1.77S.G. and the 12 1/4" hole

drilled to 1675 meter. Had drilling breaks at 1657 m and 1668 meter with maximum formation gas of 4.4%. Flowcheck negative. Circulated bottoms up and made a wipertrip to the shoe. Had tight spots from 1658 m to 1610 meter with maximum 20 metric tons overpull. Recorded 2% tripgas.
The 12 1/4" hole was drilled to 1700 meter with maximum 1.8% gas. Circulated bottoms up with maximum 3.5% gas and made a wipertrip to the 13 3/8" casing shoe. Recorded tight spot from 1658 m to 1630 meter with maximum 15 metric tons overpull. Recorded 0.8% tripgas. The survey was dropped and the drillstring pulled out with no recorded drag. The survey read 1 degree.
Electrical logs were run. Run no 1; ISF-BHC-MSFL-GR, run no 2; LDT-CNL-GR, run no 3; HDT (re-run due to malfunction in electrical cable), run no 4; CBL.
A wipertrip was made and the mud conditioned with maximum 4.1% gas. Pulled out with no drag. The wellhead was washed, the wearbushing retrieved and the 9 5/8" casing run. The casing was landed with the shoe at 1689 meter.
The returns were lost after having pumped 8.6 m^3 mud. The 9 5/8" casing was cemented in place with no returns. The plug was bumped and the floats held backpressure.
Several misruns were made to run, set and pressure test the 18 3/4" x 9 5/8" sealassembly. A Vetco mill and flush tool was run to clean out any possible junk in the sealassembly area, with no success in the following setting attempts. The 9 5/8" casing hanger running tool was modified by cutting off the guides to 13 1/2" O.D., with no success. An impression block was run, indicating possible dipping of the 9 5/8" casing hanger. A new modified sealassembly was finally run with bumpersubs. The sealassembly was hit several times and torqued up. A cuptester was run on the sealassembly running tool and engaged into the sealassembly. The sealassembly was pressuretested to 265 bar, and the BOP to 265/241 bar. The operation consummed a total of 63 hours.
The 9 5/8" casing was pressuretested below the shear ram to 268 bar. The wearbushing was run and set on the second attempt with extra weight picked up to pass the Upper Annular Preventer after the first attempt.

8½" hole, 1700-2218 m

The 9 5/8" casing was cleaned out and 3 meter new formation penetrated to 1703 meter. The mud was conditioned to 1.77 S.G. and a formation integrity test performed equivalent to 2.06 S.G. The formation broke down during the pumping with a following rapid decrease in the pressure. Most likely due to fractured limestone.

The 8½" hole was drilled to 1763 meter with necessary stops for the increase of the mudweight due to recorded connection gas and flow checks. Drilled with 1.83 S.G. mud from 1738 meter.

Bottoms up was circulated at 1763 meter for geological samples. The survey was dropped and a wipertrip made to the 9 5/8" casing shoe. No recorded drag. The survey read 0.5 degree. Recorded 0.3% tripgas and pulled out to core.

A core was taken from 1763 m to 1781.3 meter. The mudweight was increased to 1.86 S.G. while coring. Recorded maximum 1.0%. Had slow ROP while coring, due to drilling mostly shale and limestone.

A formation integrity test equivalent to 1.96 S.G. was made prior to further drilling. This was done to verify an acceptable integrity to continue the drilling operation safely, after noticing the total breakdown of the formation test no 1. (See section III 5.)

The 8½" hole was drilled to 1844 meter and the mudweight increased further to 1.89 S.G with maximum 0.9% gas. The survey was dropped, the string pulled and the corebarrel run back into the well. The string was hung off and 16 hours were lost due to severe weather.

The returns were lost when circulating at 1844 meter, when running in. Several LCM pills were pumped and let soaking. The corebarrel was pulled and openended drillpipe run back into the hole. LCM pills were set to gain full circulation without any success. Finally cement was set from 1700 m to 1640 meter. The well was cleaned out, the mudweight reduced to 1.85 S.G. and the hole drilled to 1847 meter. Electrical logs were run. Run no 1; ISF-Sonic-GR and run no 2; RFT-GR. No positive indications of where the losses occurred.

Two cores were taken from 1847 m to 1875 meter with varying ROP. Recorded 10.3% tripgas prior to the first core and 2.8% gas after the first core. New electrical logs were run. Run no 1; MSFL-CNL-GR-CAL, and run no 2; RFT-GR.
The 8½" hole was drilled further to 1945 meter with no mudlosses. Recorded 6% tripgas. A survey was attempted taken, but the landing shock assembly on the survey barrel was left inside the drill string.
The 8½" hole was drilled further to 2069 meter with maximum 3.7% gas. The bit was pulled and a new bit run back in. Recorded tight spots from 2060-2030 meter with maximum 25 metric tons overpull. No recorded drag when running back to bottom.
The 8½" hole was drilled to the total depth of 2218 meter with a flow check at 2076 meter. The mudweight was at this point increased to 1.87 S.G. while circulating bottoms up. The survey was dropped and a wipertrip made to the 9 5/8" casing shoe. The survey read 1.25 degree. Bottoms up after the trip gave maximum 0.6% gas.
Electrical logs were run. Run no 1; ISF-LSS-NGT-MSFL-GR. The NGT tool failed to operate and was left out. Lost 2 hours. Run no 2; LDT-CNL-GR, run no 3; SHDT-GR and run no 4; CBL-VDL. The hole was wiped and conditioned with a 8½" bit, and the RFT-GR logs run.
The 8½" hole section was plugged with cement using openended drillpipe. Set cement plugs from 2218-2058 m, 2058-1898 m, 1898-1738 m and 1738-1589 meter. The top plug was tagged with a 8½" bit and scraper at 1630 meter, and dressed down to 1635 meter. The 9 5/8" casing and cement plug were pressuretested to 100 bar, and a 9 5/8" EZSV retainer set at 1622 meter. The 9 5/8" casing was perforated at 1381 meter, using a casing puncher, and an injection test performed. A 9 5/8" EZSV retainer was run and set at 1374 meter. 9 metric tons of cement was squeezed below the retainer into the 9 5/8" x 13 3/8" annulus, and 1 metric tons of cement was dumped on top of same. The mudweight was decreased to 1.77 S.G. at 1000 meters when pulling out with the stinger. The 9 5/8" casing was punched at 240 meter under pressure control. No recorded pressure build up from the 9 5/8" x 13 3/8" annulus.

The 9 5/8" casing was cut and retrieved from 1004 meter, closing the Upper Annular Preventer while pulling the casing loose with 10 metric tons overpull. Recorded 10% gas while circulating bottoms up from the cutting depth. The 13 3/8" x 9 5/8" annulus was pressuretested to 138 bar. The gaugering and junk basket was attempted run on wireline, but stopped at 585 meter. The junk basket was found full of cement and the gaugering found to be cracked.

A 12 1/4" bit cleaned out the 13 3/8" casing down to 1004 meter. Recorded 38.4% gas from 914 meter, where an obstruction was hit. Circulated and rotated past same point. Recorded 4.1% gas from 1004 meter. A 13 3/8" EZSV bridge plug was set at 990 meter and the 13 3/8" casing perforated at 973 meter, using casing puncher. Performed an injection test and set a 13 3/8" EZSV retainer at 965 meter. Managed to squeeze through the retainer by applying 103 bar on the annulus. Retainer seemed to be leaking past the rubber. Squeezed 7 metric tons into the 13 3/8" x 20" annulus and dumped 3 metric tons on top of the retainer. The mudweight was reduced to 1.54 S.G. at 350 meter. Perforated the 13 3/8" casing at 240 meter under pressure control. No recorded pressure build up. Cut and retrieved the 13 3/8" casing at 349 meter with closed Upper Annular Preventer when pulling same loose with 10 metric tons overpull. Recorded 8.4% gas from the cutting depth. Cleaned out the 16" liner with 14 3/4" bit to 349 meter. Recorded 2.2% gas. Pressuretested the 20" x 16" lap to 69 bar using 1.54 S.G. mud. Set a balanced cement plug with openended drillpipe from 400 m to 250 meter. Cleaned out the 20" casing with 17½" bit and tagged top of the cement at 250 meter. Dressed off same to 260 meter. Run and set a 15 3/4" Lynes Permanent Bridge Plug at 255 meter. Applied 70 bar to set same. Displaced the hole to seawater and pulled the BOP and riser.

The 20" and 30" casings were cut and retrieved from 220 meter in first attempt with 20 metric tons overpull. Used 20" running tool when retrieving same. Found 20" housing to be almost washed through by the gas flow experienced when cementing the 20" casing. The crater and the 20" casing above the Lynes packer were dumped full of cement to the seabed level.

38 hours were lost due to severe weather while pulling the anchors. A video survey was taken of the seabed while anchor handling. The anchors were pulled, and the rig "Ross Isle" was transferred from the well 34/10-19 at 2300 hours, 6th December 1983, heading for CCB to change out the 690 bar BOP stack for a 1035 bar BOP stack.

III 3. EXTRACT OF DAILY ACTIVITIES 34/10-19

03.10.83 Rig in transit from CCB to the well 34/10-19. Stad Senior on towline. Performed acceptence test. Anchorhandling.

04.10 Anchorhandling. Reset anchor no. 5 twice to obtain full tension test. Tensioned all anchors to 185 metric tons, and slacked off to 110-120 metric tons. Made up and hung off 30" casing in moonpool.

05.10 Rih with 26" x 36" bottomhole assembly. Lowered Mantis and verified spud-in. Positioned transponder. Drilled 26" x 36" hole from 214.5 m to 289.5 meter. Pumped 4 m^3 high viscosity pill on every connection. Swept hole with 8 m^3 high viscosity mud using seawater behind, and displaced hole with 72 m^3 high viscosity mud. Retrieved singleshot, 0.75 degree on wipertrip to 225 m. No drag. Rih to bottom. No fill. Displaced hole with 72 m^3 high viscosity mud. Pooh. Rigged up to run 30" casing. Found casing full of water above sealevel. Broke circulation with 14 bars. Circulated casing. Backed out 30" R.T. and tagged shoe inside with stinger. No obstruction. Ran 30" casing. Mantis verified stab in. Mantis checked level indicator, 0.75 degree. Cemented 30" casing with shoe at 288.5 m.

06.10 Ran pinconnector and riser. Latched up and overpulled with 30 metric tons. Nippled up diverter. Rih with 17½" bit and 26" underreamer. Tagged cement at 285 meter. Tested diverter and function-tested both overboard lines. Serviced and functioned starboard overboard valve. Displaced hole and riser to 1.06 s.g mud. Cleaned out 30" casing and drilled new formation to 290.5 meter. Circulated bottoms up. Pooh. Rih with 12 1/4" drilling assembly. Drilled 12 1/4" pilot hole from 290.5 m to 350 meter.

07.10 Drilled 12 1/4" pilothole from 350 m to 800 meter. Drilling break at 410 m. Maximum gas readings of 1.8% and 1.3% from 335 m and 412 meter respectively. Flowchecked at 617 m and 800 meter.

08.10 Drilled 12 1/4" pilothole from 800 m to 934 meter. Flowchecked at 850 meter. Pooh. No tight spots. Rih with new 12 1/4" bit. 3 meter fill. Drilled 12 1/4" hole to 950 meter. Drilling breaks at 940 m and 948 meter. Trip gas 2.5% at 934 meter. Circulated bottoms up. Drilled 12 1/4" pilothole to 978 meter. Circulated hole clean. Dropped and retrieved survey. 0.5 degree. Ran Schlumberger electric logs.

09.10 Ran ISF-MSFL-LSS-GR and LDT-CNL-GR. Rih with 12 1/4" bit + 17½" H.O. + 26" underreamer assembly. Functioned in rotary. OK. Opened up 12 1/4" pilothole to 26" from 289 meter.

10.10 Opened 12 1/4" pilothole to 26" to 718 meter. Circulated bottoms up. Maximum gas 0.3%. Pooh. Rih with new 17½" H.O. and 26" U.R. Reran 12 1/4" bit. Opened 12 1/4" pilothole to 26" from 718 meter.

11.10 Opened to 26" to 978 meter. Circulated and cleaned hole. Raised mudweight to 1.25 s.g. Pulled out to 218 m and displaced with seawater. Observed well for 15 min. Well static. Pooh. Lowered riser mudlevel. Observed well. Pulled pinconnector and riser. Observed well.

12.10 Pulled pinconnector and riser. Rih with 26" bit using stabbing guide and SSTV. Stabbed into wellhead and Rih to 911 meter. Reamed from 911 m to 951 meter. Rih to 978 meter. Circulated. Pooh to 300 m. Filled hole with 1.25 S.G. mud. Ran 20" casing. Ran 38 joints "BIG OMEGA" + X-O joint + 25 joints "Vetco LS", all 133 lbs/ft. Shoe at 969.4 meter and top of 18 3/4" housing 212.10 meter. Overpulled with 20 metric tons. Circulated casing capacity.

13.10 Cemented 20" casing using prehydrated bentonite lead slurry followed by tail-in slurry. Sheared cement plug at 125 bar using Dowell cement pump. Displaced cement using mud pumps. Displaced with 1.25 S.G. mud. Good returns throughout the job. Bumped plug with 35 bar. Floats held. Backed out 20" R.T. and flushed seal area with seawater. Pooh with landing string. WOW to run BOP stack. Changed out kelly while waiting, due to old being bent.

14.10 WOW to run BOP. Observed gas leak between 20" x 30" casings.

15.10 WOW to run BOP. Observed gas. Ran CBL-GR and HTT-log.

16.10 WOW to run BOP. Mantis inspected wellhead. Ran BOP and riser. Shear ram in closed position, due to gasflow from 20" x 30" annulus. Pulltested connector with 20 metric tons overpull. Installed diverter.

17.10 Opened Upper failsafe valves on kill line. Checked for pressure below shear ram. Negative. Circulated down chokeline, up kill line. Maximum gas 1.3%. Opened shear ram and circulated riser volume. Maximum gas 0.7%. Rih with BOP test plug. Pressure tested BOP to 275/241 bar. Pressure tested 20" casing to 125 bar. OK. Set wearbushing. Rih with 17½" bit and tagged cement at 954 meter. Functiontested diverter system. Displaced hole with 1.10 S.G. mud. Recorded slow pump rates, drill crew operating choke. Cleaned rathole and drilled to 982 meter. Circulated hole clean. Performed two leak off tests, not conclusive. Drilled 17½" hole to 985 meter and circulated hole clean. Performed leak off test equivalent to 1.56 S.G.

18.10 Drilled 17½" hole from 985 m to 1073 meter. Stopped drilling due to gas bubbles observed under the rig. Decission made to squeeze off gas sands. Circulated bottoms up. Dropped survey. Pooh. Rih with open ended drill pipe to 967 meter. Set balanced cement plug from 960 m to 880 meter. Pulled out to 800 meter. Reverse circulated. Pooh. Rih to 795 meter with 17½" bit. WOC. Tagged top of cement at 886 meter and washed to 895 meter. WOC. Drilled firm cement to 910 meter. Circulated hole clean.

19.10 Pooh. Pressure tested 20" casing below shear ram to 125 bar. Perforated 20" casing, using 4" perforating gun, 442-442,6 meter. Rih with open ended drillpipe to 440 meter. Lost 700 liter mud to perforations. Performed injection test. Formation broke down with 10 bar at 120 liter/min. Set balanced cement from 440 m to 390 meter. Pooh to 350 meter. Reversed out. Squeezed top of the cement to 425 meter. Pooh. Rih with 17½" bit to 350 meter. WOC. Rih and circulated bottoms up from 420 meter. No cement in returns. Pooh. Perforated from 408 m to 408,6 meter. Lost 500 liter mud, 1.10 S.G. mud. Rih with open ended drillpipe to 406 meter. Broke down formation with 14,5 bar at 250 liter/min. Set balanced cement from 406 m to 356 meter. Pulled to 300 meter and reversed out. Squeezed top of the cement to 391 meter. Pooh. WOC. Perforated from 333,2 m to 332 meter. Lost 800 liter 1.10 S.G. mud to the perforations while pooh with gun. Rih open ended to 330 meter. No mud losses. Displaced hole to 1.25 S.G. mud. Lost approximately 5 m^3 mud. Closed MPR and pumped 1.25 S.G. mud through perforations. Gas migration stopped after having pumped 9.5 m^3 1.25 S.G. mud. Pumped a total of 20 m^3 1.25 S.G. mud through the perforations. Observed the well for 45 minutes. Well dead. Mixed and pumped 20 metric tons class "G" cement with seawater followed by 20 metric tons class "G" cement with seawater + D-77 of 1.91 S.G. weight.

Displaced cement with 6.2 m^3 1.25 S.G. mud. Overdisplaced perforations with 1500 liter mud. Pooh to 306 meter.

20.10 WOC. Observed wellhead for gas migration. Negative. Set balanced cement from 330 m to 290 meter. Pulled out to 257 meter and reversed out. Squeezed top of the cement to 315 meter. Broke down the formation with 117 bar, and squeezed cement at 10 bar with 200 liter/min. Final pressure 19 bar. WOC. Pooh. Rih with 17½" bit. Reduced mudweight to 1.10 S.G. Drilled firm cement 317 m to 336 meter and soft cement 336 m to 359 meter. Washed to 398 meter. Drilled cement to 446 meter. Rih to 910 meter. Drilled firm cement to 965 meter. Flowchecked at 970 meter. OK. Rih to 1060 meter. Washed to 1073 meter. Circulated the hole clean. Maximum gas 1.3%. Pooh. No drag.

21.10 Ran ISF-LSS-MSFL-GR. Rih with 17½" bit + 19 3/4" U.R. to 969 meter. Function tested in the rotary. Opened the 17½" hole to 19 3/4" from 969 m to 1073 meter. Circulated hole clean and pooh to 285 meter. Reamed inside 20" casing from 285 m to 448 meter, and from 875 m to 972 meter. Reamed tight spots from 1030 m to 1073 meter. Circulated hole clean. Pooh with 19 3/4" U.R. assembly. No drag.

22.10 Ran 16" liner. Running tool found unsatisfactorly maintained (Brown). Modified and serviced same. Ran landing string and landed same with shoe at 1073 meter. Liner top at 266 meter. Backed out R.T. and circulated liner volume. Cemented 16" liner.

23.10 No indication of wiperplug being sheared. Displaced cement using mud pumps. Did not bump plug. No back flow. Pulled to 245 meter and circulated hole volume twice. Circulated and flushed wellhead area. Flushed kill and choke lines. Slipped and cut drill line.

Retrieved wear bushing. Pressure tested BOP to 172 bar. Replaced pod selective valve in Payne unit. Ran wearbushing. Rih with 17½" bit to 260 meter. Washed and reamed from 260 m to 266 meter, top of the 16" liner. Pooh. Closed shear ram and pressure tested liner lap to 125 bars with 1.12 S.G. mud. Attempted to make up 14 3/4" bit. Failed due to wrong size on the bit breaker. Modified bit breaker. Rih with 14 3/4" drilling assembly to top of 16" liner. Drilled on pack-off and flapper valve assembly. No progress at 272 meter. High torque. Observed aluminium fragments over shakers.

24.10 Pooh. Rih with new 14 3/4" bit. Drilled ahead to 272,5 m. No progress. Pooh. Rih with 12 1/4" bit. Worked through obstruction. Pooh. Rih with 14 3/4" bit. Worked pipe at 272,5 meter with no restriction. Reamed from 297 m to 315 meter. Rih slowly to 1048 meter, top of float collar. Cleaned out 16" liner. Drilled ahead to 1076 meter. Circulated and conditioned mud. Maximum gas 0.5%. Performed formation integrity test equivalent to 1.59 S.G. mud. Pooh.

25.10 Rih with 14 3/4" x 17½" U.R. assembly. Had to change underreamer only covering 16 3/4" diameter. Circulated at 1073 meter. 38% gas after 2000 strokes (top liner lap). Circulated bottoms up. Drilled and underreamed 17½" hole from 1073 m to 1080 meter. No progress. Pooh. Rih with 14 3/4" bit and junk basket. Drilled 14 3/4" hole to 1102 meter. Slow progress in intervals.

26.10 Circulated bottoms up. Pooh. Recovered 15 kg junk. Rih with 14 3/4" x 17½" assembly. Circulated at 16" shoe and recorded maximum 32% gas after 1600 strokes. Underreamed to 17½" from 1080 m to 1102 meter. Drilled 14 3/4" x 17½" hole from 1102 m to 1108 meter. Pooh. Rih with 14 3/4" bit and junk basket. Circulated at top of 16" liner. Maximum 6.7% gas. Rih and worked junk basket at 1108 meter. Drilled 14 3/4" hole to 1140 meter. Maximum gas 0.6%. Dropped survey and pooh. Unable to pull past 16" liner shoe. Pumped and worked past liner shoe. 1 degree survey. Rih with 14 3/4" x 17½" assembly to 279 meter. Circulated up chokeline while repairing transmission clutch on drawworks. 23% gas after 500 strokes.

27.10 Rih to 16" shoe. Reamed from 1073 m to 1108 meter. Underreamed 14 3/4" hole to 17½" from 1108m to 1140 meter. Drilled ahead to 1180 meter. Circulated and dropped survey. Retrieved same. 1,5 degree. Drilled 14 3/4" x 17½" hole to 1289 meter. Circulated with maximum gas 0.6%. Dropped survey and pooh. Maximum 15 metric tons overpull at 1259 meter. 2,75 degree. 2 arms broken on 17½" underreamer and drilling cone parted from third arm. No parts missing, but left in their respective cavities. Picked up spare underreamer and made up 14 3/4" x 17½" assembly. Rih.

28.10 Rih to 1068 meter. Rereamed 1068 m to 1289 meter. Occasionally tight spots between 1259-1289 meter. Mostly no weight or torque. Maximum 5,7% gas after 1500 strokes. Drilled to 1290 meter. High torque. Pooh. Recorded 35 metric ton overpull when pulling off bottom. Found one cone lost and one cone loose inside the underreamer cavity. Rih with reverse basket. Cut approximately 30 centimeter core from 1290 meter. Maximum gas 10,0% after 1550 strokes. Pooh. Recovered underreamer cone from reverse basket. Rih with 12 1/4" x 17½" assembly. Drilled 12 1/4" x 17½" hole from 1290,3 m to 1292 meter.

29.10 Drilled 12 1/4" x 17½" hole from 1292 m to 1323 meter. Maximum 12.2% gas after 2200 strokes. Circulated and dropped survey. 3.5 degree. Pooh. Rih with 12 1/4" bit and junk basket. Drilled 12 1/4" hole from 1323 m to 1370 meter. Increased mud weight from 1.10 S.G. to

1.30 S.G. when drilling from 1361 meter. Maximum 8,5% gas after 2000 strokes. Circulated and conditioned mud to 1.30 S.G. Drilled ahead to 1427 meter. Circulated and dropped survey.

30.10 Wipertrip to 1290 meter. Tight spots at 1376 m and from 1393 m to 1336 meter. Maximum overpull 35 metric tons. 2 degree survey. Rih. Drilled 12 1/4" hole from 1427 m to 1475 meter. Increased mudweight in steps while drilling to final 1.45 S.G. Experienced sudden increase in gas readings while increasing mud weight from 1.40 to 1.45 S.G. at 1475 meter. Maximum 15-26% gas. Increased mudweight further to 1.48 S.G. Had continuous gas peaks between 3-12%. Pooh to 1260 meter. Tight spots from 1450 m to 1346 meter. Maximum 25 metric tons overpull. Made several circulations at 1260 m and 1475 meter with varying gas readings. Hung off due to weather. WOW.

31.10 WOW. Unlatched riser. Pulled same and replaced "AX"-ring. Reran riser.

01.11 Latched up. Checked for pressure below rams. 5 bar below shear ram and 20 bar below middle pipe ram. Displaced riser to 1.48 S.G. Tested diverter and flushed through lines. Plugged kill-line while pumping down same. Displaced riser to 1.51 S.G. WOW to screw into hang-off assembly.

02.11 WOW. Bled off pressure below shear rams from 12 to 0 bar. Rih with 5" drillpipe and opened shear ram. Observed pressure. Closed annular and circulated through kill-line. Engaged hang-off assembly. Stripped through middle pipe ram. Opened MPR. Pumped 1.51 S.G. mud down chokeline with return up kill line. Checked for flow when circulating pressure down to 8 bar. Well static. Opened BOP. Pooh. Removed inside BOP. Unable to circulate string. Worked pipe and unplugged same with 200 bars. Circulated 1.51 S.G. around from 860 meter. Got high gas readings. Rih to 1475 meter. 3 meter fill.

03.11 Washed down to total depth. Circulated 1.51 S.G. around. Maximum gas peak of 57% after 7000 strokes. Conditioned hole. Occasionally drag when moving pipe close to bottom. Maximum drag 40 metric tons. Wipertrip to 1200 meter. 10 metric tons overpull at 1255 m - 1260 meter. Rih. 4 meter fill. Conditioned hole. Maximum gas 18.2% after 6860 strokes. Made several wipertrips to check out gas. Weighted up mud to 1.54 S.G. Wipertrip to 1260 meter. No overpull. Circulated bottoms up. Maximum gas 1.5% after 7350 strokes. Pooh. Schlumberger ran ISF-LSS-MSFL-GR and LDT-CNL-GR logs from 1474 m to 1050 meter.

04.11 Ran CBL-VDL-GR logs from 1075 m to 260 meter. Rih with 12 1/4" drilling assembly. Circulated bottoms up. Maximum gas 10.7% after 7200 strokes. Pooh. No drag. Tested BOP to 241 bar. Rih with 12 1/4" x 17½" assembly to 16" shoe. Cut drilling line. Rereamed hole from 1200 m to 1323 meter. Recorded slow circulation rates. Maximum gas 4% from bottoms up at 1200 meter.

05.11 Underreamed 12 1/4" hole to 17½" from 1323 meter. Drill gas 0.2-0.6%. Pooh at 1336 meter. Rih with new 12 1/4" x 17½" underreamer assembly. Underreamed to 17½" from 1336 m to 1438 meter.

06.11 Pooh. Rih with new 12 1/4" x 17½" underreamer assembly. Rereamed hole from 1364 m to 1438 meter. Had torque from 1380 meter. Maximum gas 2.9%. Underreamed 12 1/4" hole to 17½" from 1438 m to 1474 meter. Maximum gas 1.2%. Continued drilling to 1482.5 meter. Circulated bottoms up. Wipertrip to 16" shoe. Some drag. Rih. Reamed and washed 1393 m to 1438 meter. Circulated bottoms up. Pooh. Strapped pipe. No drag.

07.11 Found drill string to be one single short. Retrieved survey, 2.5 degree. Rih with 12 1/4" x 17½" assembly. Drilled 12 1/4" x 17½" hole to 1482.5 meter. Maximum gas 0.8% on bottoms up. Drilled ahead to 1494 meter. Drilling break 1491-1491.5 meter. Flowchecked. Circulated bottoms up. Pooh. 15 metric tons overpull at 1371 m and 1376 meter. Ran Schlumberger logs, BGT-GR. Found hole being 13" at 1370-73 meter and 1376 meter. Rih with 14 3/4" x 17½" assembly. Found damaged threads on three drill collar connections.

08.11 Reamed and washed 1275-1383 m and rereamed section 1370-1376 m several times. Maximum gas 0.5% from bottoms up. Rereamed and washed from 1383-1404 meter. 2 meter fill on bottom. Circulated bottoms up. Ran 13 3/8" casing. Shoe at 1483 meter. Circulated 30 m^3 at 30 SPM with full returns.

09.11 Cemented 13 3/8" casing with full returns, lost 6 m^3 mud during last part of displacement. Bumped plug with 90 bar. Held 50 bar on casing, no balls in either float or shoe. Jetted wellhead area. Spotted high viscosity pill. Run, set and pressuretested 13 3/8" sealassembly to 225 bar. Pressuretested BOP stack to 225 bar. Pressuretested 13 3/8" casing below shear ram to 230 bar. Rih with 12 1/4" assembly to 1456 meter.

10.11 Drilled soft cement to 1457 meter. Circulated mud to 1.60 S.G. Cleaned out 13 3/8" casing to 1480 meter. Circulated while repaired blue pod. Cleaned hole and drilled new formation from 1494 m to 1497 meter. Maximum gas 0.5%. Circulated bottoms up 1.1% gas. Recorded leak off to 1.86 S.G. Drilled 12 1/4" hole to 1579 meter. Several drilling breaks. Maximum 12.8% gas from 1563 meter. Reported some connection gas from 1560 meter. Increased mudweight in two circulations from 1.60 to 1.68 S.G. Maximum gas 2.5%. Decreased to 0.4% with 1.68 S.G. around. Dropped survey.

11.11 Wipertrip to 13 3/8" casing shoe. 1.75 degree survey. Rih to 1579 meter. Drilled 12 1/4" hole to 1619 meter. TG 16.5%. FG 0.4-5.5%. Maximum gas 17.7% at 1610 meter. Circulated out high gas peaks. Well control.

12.11 Wellcontrol. Circulated 1.75 S.G. mud. Pooh to 13 3/8" shoe. Tight spot 1535 m to 1525 meter. Maximum 35 metric tons overpull. Rih to 1619 meter. Circulated bottoms up. Maximum 11.2% gas. Wipertrip to 13 3/8" shoe. No tight spots. Circulated bottoms up. Maximum gas 5.5%. Drilled 12 1/4" hole to 1646 meter. Wipertrip. Circulated bottoms up. Maximum gas 20.3%. Increased mudweight to 1.77 S.G. Drilled 12 1/4" hole to 1675 meter. Drilling breaks at 1657 m and 1668 meter. Circulated bottoms up. Wipertrip. Tight spots from 1658 m to 1610 m. Maximum overpull 20 metric tons. Circulated bottoms up. 2% gas. Drilled 12 1/4" hole to 1700 meter, maximum gas 1.8%. Circulated bottoms up. Maximum gas 3.5%.

13.11 Wipertrip to 13 3/8" shoe. 15 metric tons overpull at 1658 m to 1630 meter. Circulated bottoms up. Maximum gas 0.8%. Dropped survey. Pooh. No drag. SLM 1 degree survey. Schlumberger ran logs, ISF-BHC-MSFL-GR, LDT-CNL-GR and HDT. Malfunction on electrical cable with HDT at 1400 meter. Changed cablehead. Rerun with HDT. Ran CBL-GR log. Clean up trip with 12 1/4" bit to 1700 meter. No drag or fill. Circulated and conditioned mud. Maximum TG 4.1%. Pooh. No drag.

14.11 Washed wellhead. Ran 9 5/8" casing. Shoe at 1689 meter. Circulated. Lost returns. Cemented 9 5/8" casing with only tail-in cement. Bumped plug with 34 bar above circulating pressure. No returns. Floats held. Pulled out with landing string. Jetted and washed wellhead area. Placed 5 m^3 gel mud. Attempted to set sealassembly. No success.

15.11	Several runs made to set and test sealassembly. Ran Vetco mill and flush tool. Worked same down to 9 5/8" casing hanger. No indication of any obstruction.
16.11	Attempted to set and test sealassembly. Modified 9 5/8" casing hanger running tool. Attempted to set and test sealassembly. No success. Waited on impression block. Ran modified sealassembly with bumpersub. Hit sealassembly in place.
17.11	Ran cuptester on sealassembly R.T. Pressuretested sealassembly to 265 bar. OK. Pressure tested BOP to 265/241 bar. Pressure tested 9 5/8" casing to 268 bar below shear ram. Set wearbushing on 2'nd attempt. Problems to pass Upper Annular Preventer. Rih with 8½" assembly to 1624 meter. Slipped and cut drill line. Cleaned out 9 5/8" casing and drilled new formation to 1703 meter. Performed leak off test equivalent to 2.06 S.G.
18.11	Drilled 8½" hole to 1727 meter. Increased mudweight to 1.80 S.G., due to connection gas, 0.6% at 1703 m and 1.6% at 1715 meter. Drilled ahead to 1738 meter. Closed in well and checked pressures. No pressure. Opened well and circulated bottoms up. Increased mudweight to 1.83 S.G. Drilled 8½" hole to 1759 meter. Circulated bottoms up for samples. Drilled ahead to 1763 meter. Circulated bottoms up for samples. Maximum gas 0.9%. Dropped survey and made wipertrip to 9 5/8" shoe. No tight spots. 0.5 degree survey. Circulated bottoms up. Maximum gas 0.3%. Pooh. Rih with corebarrel to 1763 meter, no drag or fill. Circulated, dropped ball and cut core no. 1 from 1763m to 1781.3 meter. Increased mudweight to 1.86 S.G. while coring.

19.11 Circulated bottoms up. Maximum gas 1.0% from 1778 meter and 0.2% bottoms up. Pooh. No drag. Recovered 17.5 meter core, 96%. Serviced corebarrel and set same back in derrick. Rih with 8½" bit to 9 5/8" shoe. Circulated. Performed integrity test equivalent to 1.95 S.G. Reamed from 1763 m to 1781 meter. Drilled 8½" hole to 1844 meter. Checked for flow at 1830 m and 1844 meter. TG 2.3% at 1781 meter. Circulated bottoms up. Increased mudweight to 1.89 S.G. Maximum gas 0.9% at 1843 meter. Dropped survey and pooh. Tight spots from 1807 m to 1788 meter. Maximum overpull 15 metric tons. 0.5 degree survey. Rih with corebarrel and hung off at 1410 meter.

20.11 WOW. Retrieved string. Rih to 1844 meter. No drag or fill. Circulated. No returns. Pumped 6 m^3 LCM pill. Pooh to 9 5/8" shoe. Observed mud level which stabilized 29 meter below RKB. Rih to 1844 meter.

21.11 Pumped 28 m^3 LCM pill. No returns. Repaired field rectifier on drawworks. Pumped 1 m^3 LCM mud every 45 minute. Pulled out to 9 5/8" shoe and displaced LCM pill, still inside drillpipe (14 m^3) with 1.89 S.G. mud. Partly returns. Lost approximately 8 m^3 mud. Observed mud level. Hole stable. Circulated with 20 SPM, partly returns. Lost returns after 1640 strokes. Pulled slowly to 800 meter. Broke circulation with 10 SPM and increased gradually to 60 SPM. Started loosing. Decreased to 40 SPM. Still loosing. Stopped circulating and observed well. Well stable. Pooh slowly to 514 meter, hole not taking right amount mud. Observed well. Well stable. Pooh. Rih with openended drillpipe to 1000 meter. Full returns with 70 SPM. Rih in stages and circulated. Full to partly returns.

22.11 Displaced LCM pill at 1842 meter. Partly returns. Pooh to 1700 meter. Set balanced cement plug from 1700 m to 1640 meter. Displaced with 1.89 S.G. mud. Full returns while cementing and displacing. Pooh to 1430 meter. Squeezed. Pooh. Rih with 8½" bit to 1568 meter. Decreased mudweight to 1.85 S.G. No mudloss. Maximum gas 0.7%. Reamed and washed from 1625 m to 1717 meter. Some cement contaminated mud. No loss. Maximum gas 0.9%. Rih to 1844 meter. No drag or fill. Circulated and conditioned mud. Drilled 8½" hole to 1847 meter. Circulated and conditioned mud. No mud loss. TG 3.3%.

23.11 Pooh. No tight spots. Ran Schlumberger logs, ISF-Sonic-GR and RFT-GR. Rih with corebarrel. No drag or fill. Circulated and dropped ball. Cut core no 2 from 1847 m to 1856.5 meter. Jammed. TG 10.3%. Circulated 15 minutes. Pooh. No tight spots. Recovered 8.7 meter core, 92% recovery. Serviced corebarrel, changed ballbearing and corecatcher. Rih. No drag or fill. Circulated. Dropped ball and recorded SCR's.

24.11 Cut core no. 3 from 1856.5 m to 1874.8 meter. TG 2.8%. Circulated 15 minutes. Pooh. No tight spots. Recovered 17.9 meter core, 98% recovery. Serviced corebarrel and set back. Pressuretested BOP's to 265/241 bar. Ran Schlumberger logs, MSFL-CNL-CAL-GR and RFT-GR. Rih with 8½" bit. No drag or fill.

25.11 Circulated and conditioned mud. TG 6%. Increased to 80 SPM. No mudlosses. Drilled 8½" hole from 1875 m to 1945 meter. Circulated and dropped survey. Retrieved same. Found landing shock assembly on survey barrel left inside drillstring. 1 degree survey. Drilled ahead to 1983 meter. Circulated bottoms up for samples. Maximum gas 3.7%. 16 stands wipertrip. Tight spot 1870 m to 1866 meter. Maximum 25 metric tons overpull. Serviced upper racking arm. Rih to 1983 meter. Drilled 8½" hole to 2055 meter.

26.11	Drilled 8½" hole to 2069 meter. Pooh. Tight spots 2060 m to 2030 meter. Maximum 25 metric tons overpull. Rih with new 8½" bit. Drilled 8½" hole from 2069 m to 2076 meter. Pit gain. Well control. Drilled ahead from 2076 m to 2168 meter.
27.11	Drilled 8½" hole from 2168 m to 2218 meter. Circulated and conditioned mud to 1.87 S.G. Dropped survey and made wipertrip to 9 5/8" shoe. Retrieved survey. 1.25 degree. Rih to 2218 meter. Circulated bottoms up. Maximum 0.6% gas. Pooh. Ran Schlumberger logs. ISF-LSS-NGT-MSFL-GR. NGT did not operate. Pulled out and laid out NGT. Ran ISF-LSS-MSFL-GR, LDT-CNL-GR.
28.11	Ran Schlumberger logs, SHDT-GR, CBL-VDL-GR. Rih with 8½" bit. Circulated and conditioned hole. Maximum gas 3.7%. Pooh. Ran Schlumberger logs, RFT-GR and VSP.
29.11	Rih openended to 1680 meter. Cut drillline. Continued. Rih to 2218 meter. Circulated bottoms up, maximum gas 2.2%. Set balanced cement plugs from 2218 m to 2058 meter, 2058 m to 1898 meter, 1898 m to 1738 meter and from 1738 m to 1589 meter. Circulated bottoms up between each cement plug being set. Pooh to 1570 meter. Circulated bottoms up and flushed choke and kill lines. Rih with 8½" bit and 9 5/8" casing scraper. Tagged top of cement at 1630 meter and set down 10 tons. Dressed off cement to 1635 meter. Circulated bottoms up. Closed MPR and pressuretested casing and cement plug to 100 bar.
30.11	Pooh. Ran gauge ring and junk basket to 1632 meter. Run and set 9 5/8" EZSV cement retainer at 1622 meter. Ran casing punch and perforated 9 5/8" casing at 1381 meter. Injected. Ran 9 5/8" EZSV retainer and set same at 1374 meter. Squeezed cement through same and dumped one metric ton cement on top. Pulled out to 1000 meter. Reduced mudweight from 1.87 S.G. to

1.77 S.G. Pulled out to 218 meter. Rih with casing punch and closed MPR. Perforated 9 5/8" casing at 240 meter with 35 bar on annulus. Retrieved wearbushing. Cut 9 5/8" casing at 1004 meter.

01.12 Rih with 9 5/8" casing spear and pulled 9 5/8" casing loose with UAP closed and 10 metric ton overpull. Circulated bottoms up. Maximum gas 10%. Pulled out and laid down 9 5/8" casing. Pressuretested 13 3/8" x 9 5/8" annulus to 138 bar. Ran gaugering and junkbasket. Found basket full of cement and cracks in gaugering. Did not succeed in repairing same. Rih with 12 1/4" bit and 13 3/8" scraper. Hit obstruction at 914 meter. Circulated and rotated past 914 meter. Circulated bottoms up with maximum 38.4% gas. Rih to 1004 meter. Circulated bottoms up. Maximum 4.1% gas. Run and set 13 3/8" EZSV at 990 meter.

02.12 Punched holes in 13 3/8" casing at 973 meter. Injected into perforations. Run and set 13 3/8" EZSV at 965 meter. Stung into retainer. Obtained squeeze after several attempts with 103 bar on the annulus. Squeezed 7 metric tons below retainer and dumped 3 metric tons on top of same. Pulled out 2 stands and reversed out. Pulled to 350 meter. Reduced mudweight to 1.54 S.G. Pooh. Rih open ended to 218 meter. Closed MPR and punched 13 3/8" casing at 240 meter with 35 bar on the annulus. Pressure dropped. Rih with 13 3/8" casing cutter and cut 13 3/8" casing at 349 meter. Observed well. Rih with spear and pulled 13 3/8" casing loose with 10 metric tons overpull and with UAP closed. Circulated bottoms up with 8.4% gas. Pooh. Circulated riser with 25% maximum gas.

03.12 Rih with 14 3/4" bit to 349 meter. Circulated bottoms up with maximum 2.2% gas. Pooh. Pressure tested 16" x 13 3/8" lap to 69 bar. Rih with open ended drillpipe to 400 meter. Set balanced cement plug from

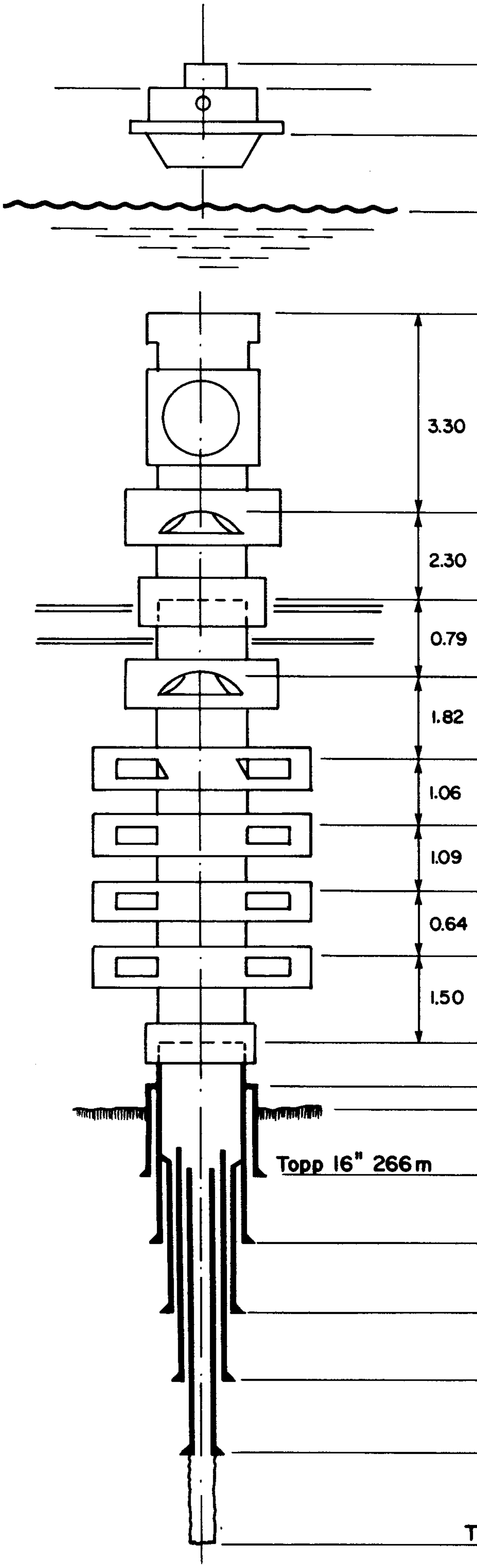
400 m to 250 meter, 2.0 S.G. slurry weight. Pooh to 240 meter. Reversed out. Flushed kill and choke lines. Pooh. Rih with 17½" bit and tagged top of cement at 250 meter. Drilled firm cement from 250 m to 260 meter. Circulated bottoms up. Pooh. Run and set Lynes 15 3/4" permanent bridge plug at 255 meter. Applied 70 bar to set same. Displaced hole and riser to seawater. Pulled BOP and riser.

04.12	Pulled BOP. Rih with 20" x 30" cutterassembly. Cut 20" x 30" casings at 220 meter. Rih with 20" R.T. Pulled 20" x 30" casings loose with 20 metric tons overpull. Retrieved casings and permanent guide frame. Found 20" housing almost washed through by gas flow. Stabbed into crater and set cement plug from 255 m to 214.5 meter. WOW to pull anchors. Performed video inspection of seabed by Mantis.
05.12	WOW. Anchor handling. WOW. Anchor handling.
06.12	WOW. Anchor handling. WOW. Pulled anchor no. 8. Sira Giant on towline. Rig released at 2300 hours. Transferring rig to CCB for change of BOP, to a 1035 bar stack.

III 4. WELLHEAD AND SUBSEA SCHEMATIC

ROSS ISLE 18 3/4" SUBSEA ASSEMBLY WELL 34/10-19

(NOT TO SCALE)



	M	
	0	RKB
		DIVERTER RISER CONN. FLANGE
	22	MEAN SEA LEVEL
	199.60	JOINT RISER CONNECTOR FLANGE
	202.90	UPPER ANNULAR RUBBER TOP (CLOSED)
	205.20	LOWER STACK ASSEMBLY TOP
	205.99	LOWER ANNULAR RUBBER TOP (CLOSED)
	207.81	SHEAR RAMS TOP
	208.87	U.P. RAMS TOP
	209.96	M.P. RAMS TOP
	210.60	L.P. RAMS TOP
	212.10	18 3/4" WELLHEAD TOP
	212.50	30" HOUSING TOP
	214.50	MUD LINE
	288.50	30" SHOE
	969.50	20" SHOE
	1073.00	16" SHOE
	1483.00	13 3/8" SHOE
	1689.00	9 5/8" SHOE
T.D.	2218.00	

statoil
Den norske stats oljeselskap a.s

Original: TJu
Tegnet: AM
Dato: 24-1-84

III 4 WELLBORE SCHEMATIC, 34/10-19, RIG: ROSS ISLE

statoil
Den norske stats oljeselskap a.s

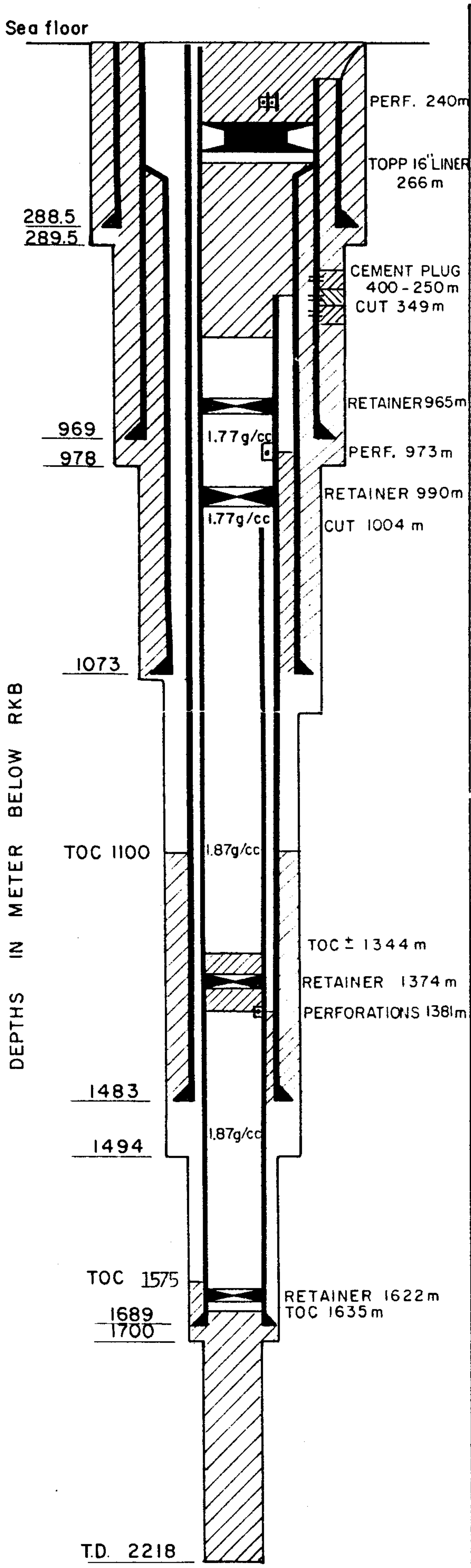
ORIGINAL AV: TJu
TEGNET AV: AM
DATO: 24-1-84

(NOT TO SCALE)

RKB-MSL : 22 m.

WATER DEPTH : 192.5 m.

HOLE	CASING
36"	30" GRADE B
26"	20" X-56 133 lbs/ft VETCO LS & BIG OMEGA 133 lbs/ft
19 3/4"	16" 68 JOINTS K-55 84 lbs/ft BUTTRESS
12 1/4" and 14 3/4" to 17 1/2"	13 3/8" N-80 72 lbs/ft BUTTRESS
12 1/4"	9 5/8" N-80 47 lbs/ft BUTTRESS
8 1/2"	NOT RUN ANY LINER OR CASING



CASING CEMENT

LEAD: 22.7 m. tons class "G" cement mixed w/sea-water + 3.2L D-75/100kg + 0.81L D-81/100kg to 1.56 g/cc.
TAIL: 13 m. tons class "G" cement mixed w/seawater + 1.8L D-77/100kg to 1.91 g/cc
Displaced cement w/sea-water.

LEAD: 158.4 m. tons class "G" cement mixed w/pre-hydrated bentonite mixing water to 1.56 g/cc.
TAIL: 13.1 m. tons class "G" cement mixed w/sea-water to 1.91 g/cc.
Displaced cement w/1.25 g/cc mud. Good returns

Flush: 3.1 m^3 seawater + 3.1 m. tons class "G" cement mixed w/seawater to 1.90 g/cc.
LEAD: 24.4 m. tons class "G" cement mixed w/sea-water + 3.2L D-75/100kg + 1.24L D-81/100kg to 1.56 g/cc.
TAIL: 14.4 m. tons class "G" cement mixed w/Seawater to 1.90 g/cc. Wiper plug did not shear nor bump.

TAIL: 27.7 m. tons class "G" cement + 0.62L D-81/100kg w/freshwater to 1.90 g/cc.

Lost 6 m^3 mud while displacing last part of displacement.
Bumped plug.
Did not run balls in float or shoe.

TAIL: 15.1 m. tons class "G" cement + 0.62L D-81/100kg w/freshwater to 1.90 g/cc
Bumped plug. Same held press. No returns while cementing.

PLUGS/SQUEEZE

Filled up w/cement from 255m to seafloor.

Cut 20"x30" casings at 220m. Retrieved in first attempt.

Set 15 3/4" Permanent Bridge Plug (Lynes) at 255 m.

Punched hole in 9 5/8" and later 13 3/8" casings at 240m, prior to cutting same.

Cement plug; 400-250m: 23.3 m. tons class "G" cement w/36.2 ltr s.w/100kg + 1.78 ltr D-80/100kg. Mixed to 2.0 g/cc Tagged plug at 250m, and dressed same to 260 m using 17½" bit.

Shallow gas problem:
Squeeze 332m (4 SPF)
Squeeze 408m (4 SPF)
Squeeze 442m (4 SPF)

Cut 13 3/8" casing at 349 m. Retrieved same in first attempt.

Mixed 10 m. tons class "G" cement w/45.6 ltr seawater/100kg. 1.90 g/cc. Squeezed 7 m. tons cement below retainer (perforations) and left 3 m. tons cement on top of same.

Cut 9 5/8" casing at 1004 m. Retrieved in first attempt.

Circ and cond mud to 1.77 g/cc at 1000 m.

Mixed 10 m. tons class "G" cement w/44 ltr. f.w/100kg + 0.36 ltr D-81/100kg. Mixed to 1.90 g/cc. Squeezed 9 m. tons into perfs. Dropped 1 m. tons on top.

Top plug tagged at 1630m. Set down 10 m.t. Dressed top to 1635m. Tested plugs to 100 bar.

Plug no 4; 1738-1589m: 9 m. tons class "G" cement w/43.8 ltr f.w/100kg + 0.62 ltr D-81/100kg, mixed to 1.90 g/cc. 1.6 m^3 f.w. ahead and 0.6 m^3 f.w. behind.

Plug no 3; 1898-1738m: Same as for plug no 2.

Plug no 2; 2058-1898m: 7.7 m. tons class "G" cement. Same composition as for plug no 1.

Plug no 1; 2218-2058m: 7.8 m. tons class "G" cement + 2.22 ltr D-73/100kg + 1.78 ltr D-80/100kg + 0.24 ltr D-81/100 + 40.53 ltr freshwater/100kg mixed to 1.90 g/cc. 1.6 m^3 freshwater ahead and 0.6 m^3 behind

III 5. FORMATION INTEGRITY TESTS

PERFORMING FORMATION INTEGRITY TESTS

Formation integrity tests were performed below 20", 16", 13 3/8" and 9 5/8" casing shoes. All tests were taken to leak-off, using standard procedures.

The formation integrity below the 20" casing shoe appeared to give doubtfull data on the two first attempts. 3 meters new formation was penetrated and a conclusive integrity was obtained.

The formation integrity below the 16" liner shoe, 100 meter deeper than previous set casing, was finally obtained after retesting due to a leaking kelly cock.

The formation integrity below the 13 3/8" and 9 5/8" casing shoes were in the range of earlier experienced values from the 34/10 area. The integrity test on the 9 5/8" casing was pumped to break-down of the formation, most likely broken down a limestone bed. Of this reason was a later integrity taken only to 1.95 g/cc, which was considered to be sufficient for having control when drilling the 8½" hole.

statoil

FORMASJONSSTYRKETEST No. 3

Dato: 17.10.83

Brønn nr.: 34/10-19 **Dybde:** Brønn: 985 m Foring: 969 m Test: 969 m

Fartøy: Ross Isle **Høyde R.K.B.:** Over vannfl.: 22 m Over sjøb.: 214.5 m

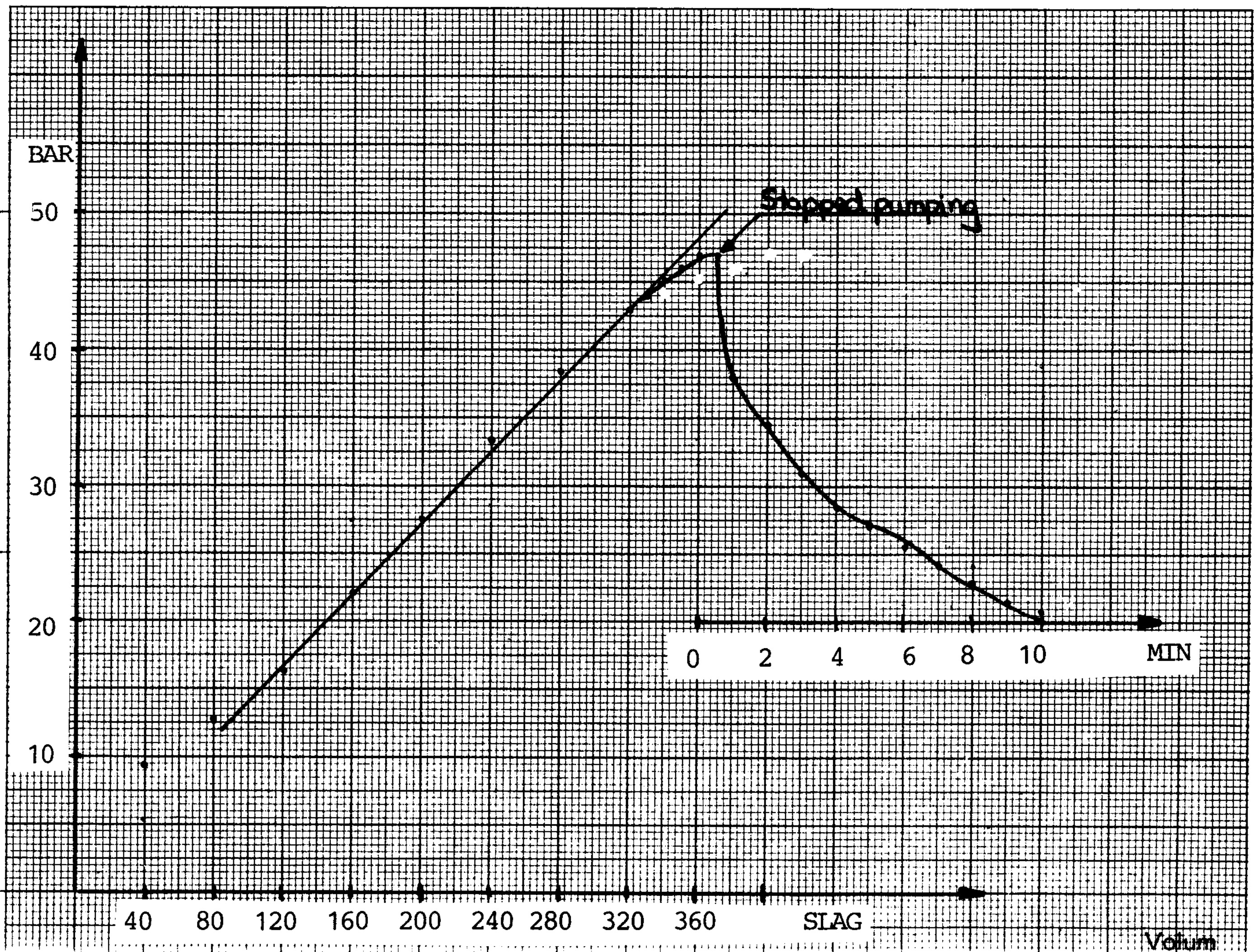
Foring: Diam.: 20" Tyngde: 133 lbs/ft Grad: K55 Maks. trykk: 211 bar

Boreslam: Tetthet: 1.10 g/cc Vis: 48 sec P.V.: 8 cp Y.P.: 14 lbs/100ft2 Filt: 17 ml Gel.: 5/12 lbs/100 ft2

Pumpe: Type: DOWELL SEMENT Kapasitet: 2.08 l/slag Vol./tidsenh.: 100 l/min Tilb.str.: 250 l

Antatt styrke: 1.60 g/cc Obs. spr. trykk: 43.7 bar Ekv. formasj. styrke: 1.56 g/cc

SLAG	BAR	SLAG	BAR	MIN	BAR	Anmerkninger
40	9.3	330	44.1	1	38	Pumped 750 liter
80	12.8	340	45.2	3	31	
120	16.6	350	46.2	5	27.2	
160	22	360	47.2	7	24.1	
200	27.6	370	47.2	8	22.8	
240	33.4			9	21.4	
280	38.6			10	20.7	Sign.:
320	43.1					



statoil

FORMASJONSSTYRKETEST No. 1

Dato: 24.10.83

Brønn nr.: 34/10-19 **Dybde:** Brønn: 1076 m Foring: 1073 m Test: 1073 m

Fartøy: Ross Isle **Høyde R.K.B.:** Over vannfl.: 22 m Over sjøb.: 214.5 m

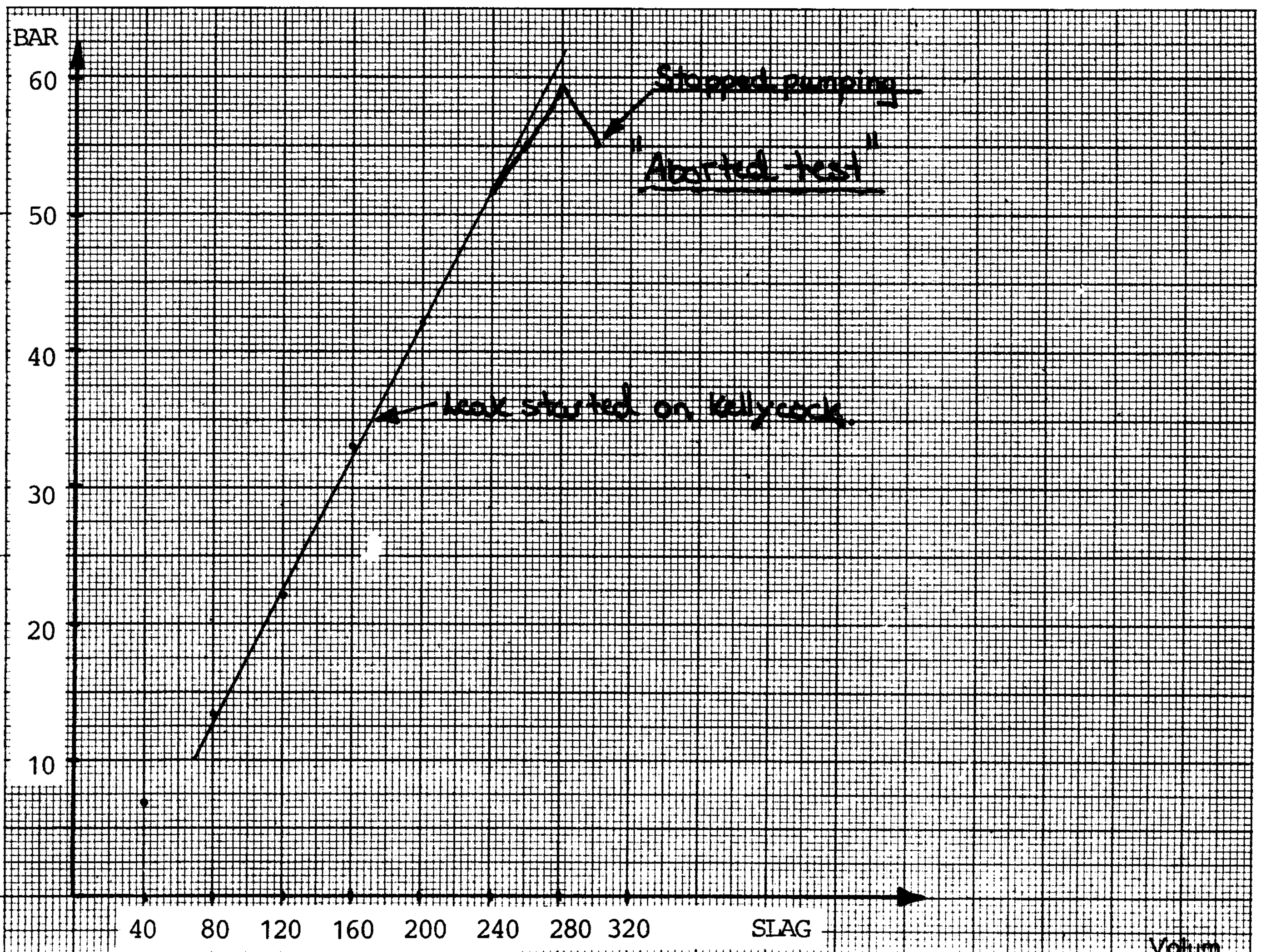
Foring: Diam.: 16" Tyngde: 80 lbs/ft Grad: K55 Maks. trykk:

Boreslam: Tetthet: 1.10 g/cc Vis: 44 sec P.V.: 7 cp Y.P.: 16 lbs/100ft^2 Filt: 20 ml Gel.: 13/7 lbs/100ft^2

Pumpe: Type: DOWELL TRIPLEX Kapasitet: 2.08 l/slag Vol./tidsenh.: 80 l/min Tilb.str.:

Antatt styrke: 1.60 g/cc Obs. spr. trykk: 51.70 bar Ekv. formasj. styrke: 1.59 g/cc

SLAG	BAR	SLAG	BAR	Volum/tid	Trykk	Anmerkninger
20	0	180	37.93			Pumped 620 l
40	6.9	200	42.07			Bled back 270 l
60	9.65	220	48.27			
80	13.45	240	51.72			Kelly cock started to leak
100	19.31	260	55.2			at 35 bar. Took therefore
120	22.1	280	59.3			new leak off.
140	27.6	300	55.2			Sign.: Stover/Eide/Telle
160	33.1					



statoil

FORMASJONSSTYRKETEST No. 2

Dato: 24.10.83

Brønn nr.: 34/10-19 **Dybde:** Brønn: 1076 m Foring: 1073 m Test: 1073 m

Fartøy: Ross Isle **Høyde R.K.B.:** Over vannfl.: 22 m Over sjøb.: 214.5 m

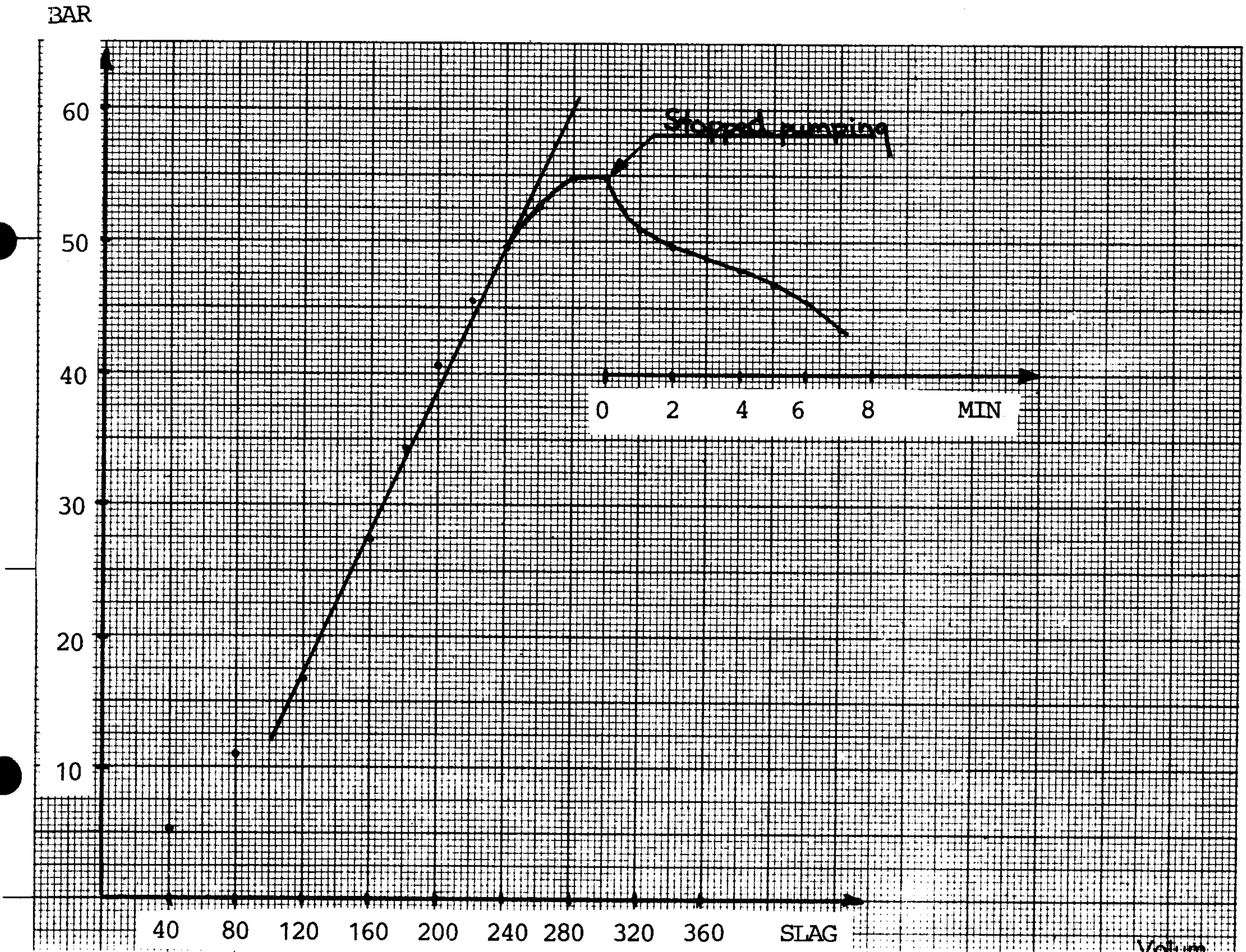
Foring: Diam.: 16" Tyngde: 84 lbs/ft Grad: K55 Maks. trykk: 205 bar

Boreslam: Tetthet: 1.10 g/cc Vis: 44 sec P.V.: 7 cp Y.P.: 16 lbs/100 ft^2 Filt: 20 ml Gel.: 13/7 lbs/100ft^2

Pumpe: Type: DOWELL TRIPLEX Kapasitet: 2.08 l/slag Vol./tidsenh.: 80 l/min Tilb.str.: 270 liter

Antatt styrke: 1.60 g/cc Obs. spr. trykk: 51.7 bar Ekv. formasj. styrke: 1.59 g/cc

SLAG	BAR	SLAG	BAR	MIN	BAR	Anmerkninger
0	0	160	27.58	1 min	51.03	Pumped 600 l
20	0	180	34.48	2 "	49.66	Bled back 270 l
40	5.17	200	40.70	3 "	48.97	
60	8.27	220	45.52	4 "	47.93	
80	11.03	240	49.65	5 "	46.90	
100	14.48	260	52.76	6 "	45.52	
120	16.90	280	54.83	7 "	43.45	Sign.: Stover/Eide/Telle
140	21.38	300	54.83			



statoil

FORMASJONSSTYRKETEST

Dato: 10.11.83

Brønn nr.: 34/10-19 **Dybde:** Brønn: 1497 m Foring: 1483 m Test: 1483 m

Fartøy: Ross Isle **Høyde R.K.B.:** Over vannfl.: 22 m Over sjøb.: 214.5 m

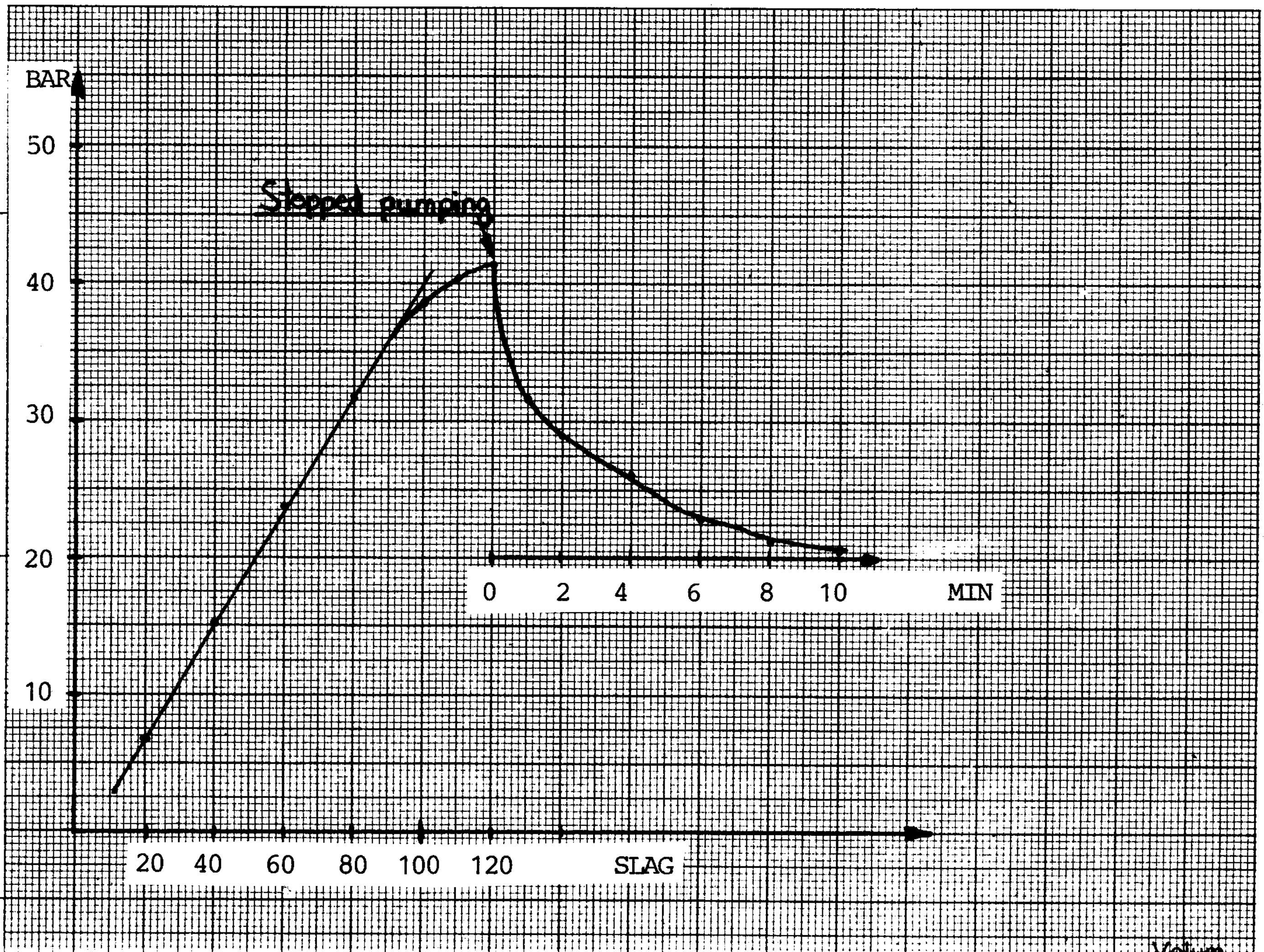
Foring: Diam.: 13 3/8" Tyngde: 72 lbs/ft Grad: N-80 Maks. trykk:

Boreslam: Tetthet: 1.60 g/cc Vis: 49 sec P.V.: 18 cp Y.P.: 12 lbs/100ft² Filt: 10.0 ml Gel.: 11/47 lbs/100ft²

Pumpe: Type: DOWELL Kapasitet: 2.08 l/slag Vol./tidsenh.: 40 l/min Tilb.str.:

Antatt styrke: 1.80 g/cc Obs. spr. trykk: 37.9 bar Ekv. formasj. styrke: 1.86 g/cc

SLAG	BAR	SLAG	BAR	MIN	BAR	Anmerkninger
0	0	80	31.7	1 min	31.7	Tot. vol pumped = 230 l
10	2.8	90	35.9	2 "	29.0	
20	6.9	100	38.6	3 "	27.6	
30	11.0	110	40.4	4 "	26.2	
40	15.2	120	41.4	5 "	24.8	
50	19.3			6 "	22.8	
60	23.8			7 "	22.0	Sign.: Jan O. Strand
70	27.9			8 "	21.4	
				9 "	21.4	
				10 "	20.7	



statoil

FORMASJONSSTYRKETEST

Dato: 17.11.83

Brønn nr.: 34/10-19 **Dybde:** Brønn: 1703m Foring: 1689m Test: no. 1

Fartøy: Ross Isle **Høyde R.K.B.:** Over vannfl.: 22m Over sjøb.: 214,5m

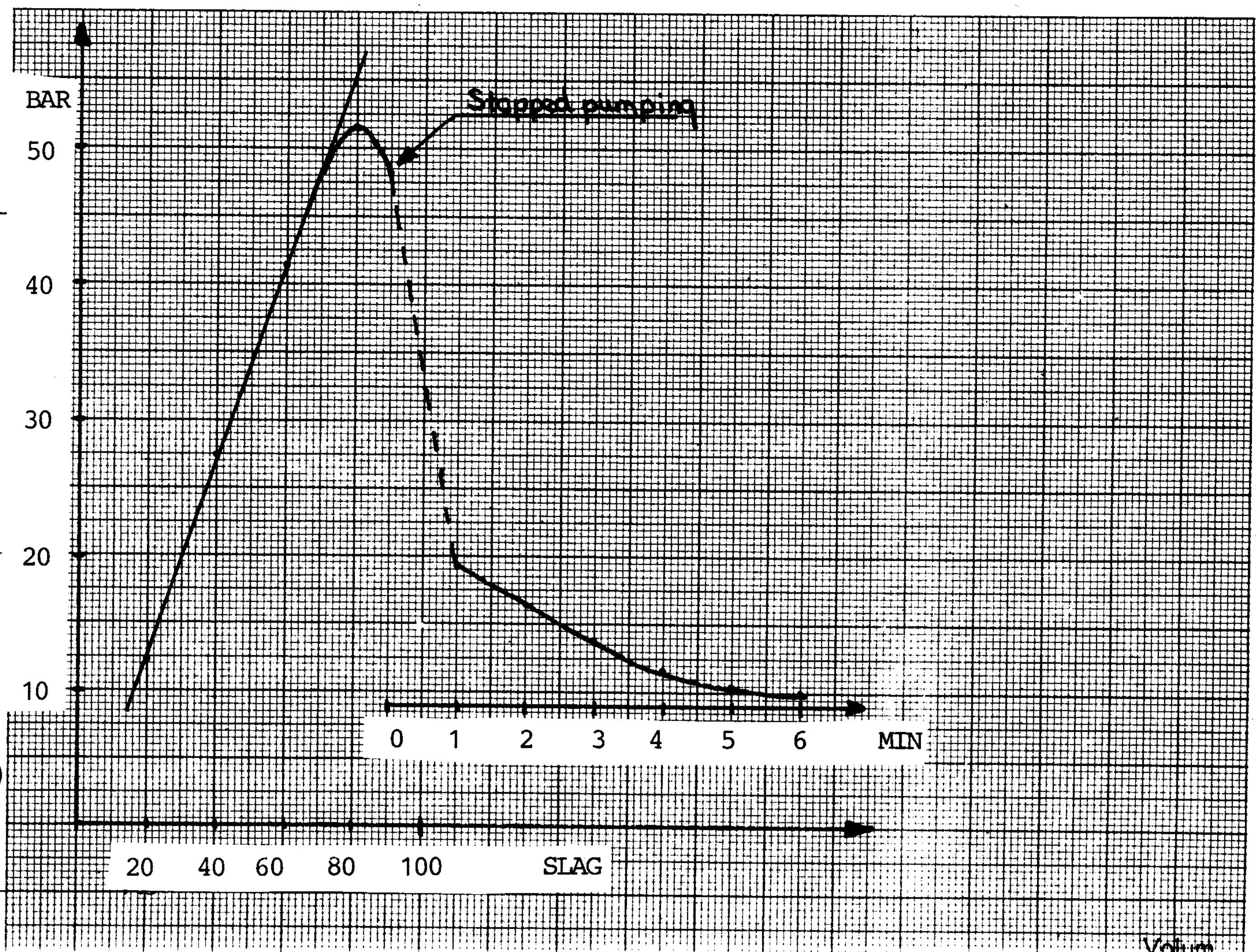
Foring: Diam.: 9 5/8" Tyngde: 47 lbs/ft Grad: N-80 Maks. trykk: 474 bar

Boreslam: Tetthet: 1.77 g/cc Vis: 48 sec P.V.: 23 cp Y.P.: 9 lbs/100 ft^2 Filt: 8.0 ml Gel.: 4/35 lbs/100ft^2

Pumpe: Type: DOWELL TRIPLEX Kapasitet: 2.08 l/slag Vol./tidsenh.: 80 l/min Tilb.str.: 40 liter

Antatt styrke: 1.90 g/cc Obs. spr. trykk: 48.3 bar Ekv. formasj. styrke: 2.06 g/cc

SLAG	BAR	SLAG	BAR	MIN	BAR	Anmerkninger
10	0	90	48.3	1 min	19.3	Pumped a total of 187 liters
20	12.4			2 "	16.5	Bled back 40 liters
30	20.7			3 "	13.8	
40	27.6			4 "	11.7	
50	34.5			5 "	10.3	
60	41.4			6 "	10.0	
70	48.3					Sign.: S.Å. Sætervik
80	51.7					



statoil

FORMASJONSSTYRKETEST

Dato: 19.11.83

Brønn nr.: 34/10-19 **Dybde:** Brønn: 1781,3m Foring: 1689m Test: 1689m

Fartøy: Ross Isle **Høyde R.K.B.:** Over vannfl.: 22m Over sjøb.: 214,5m

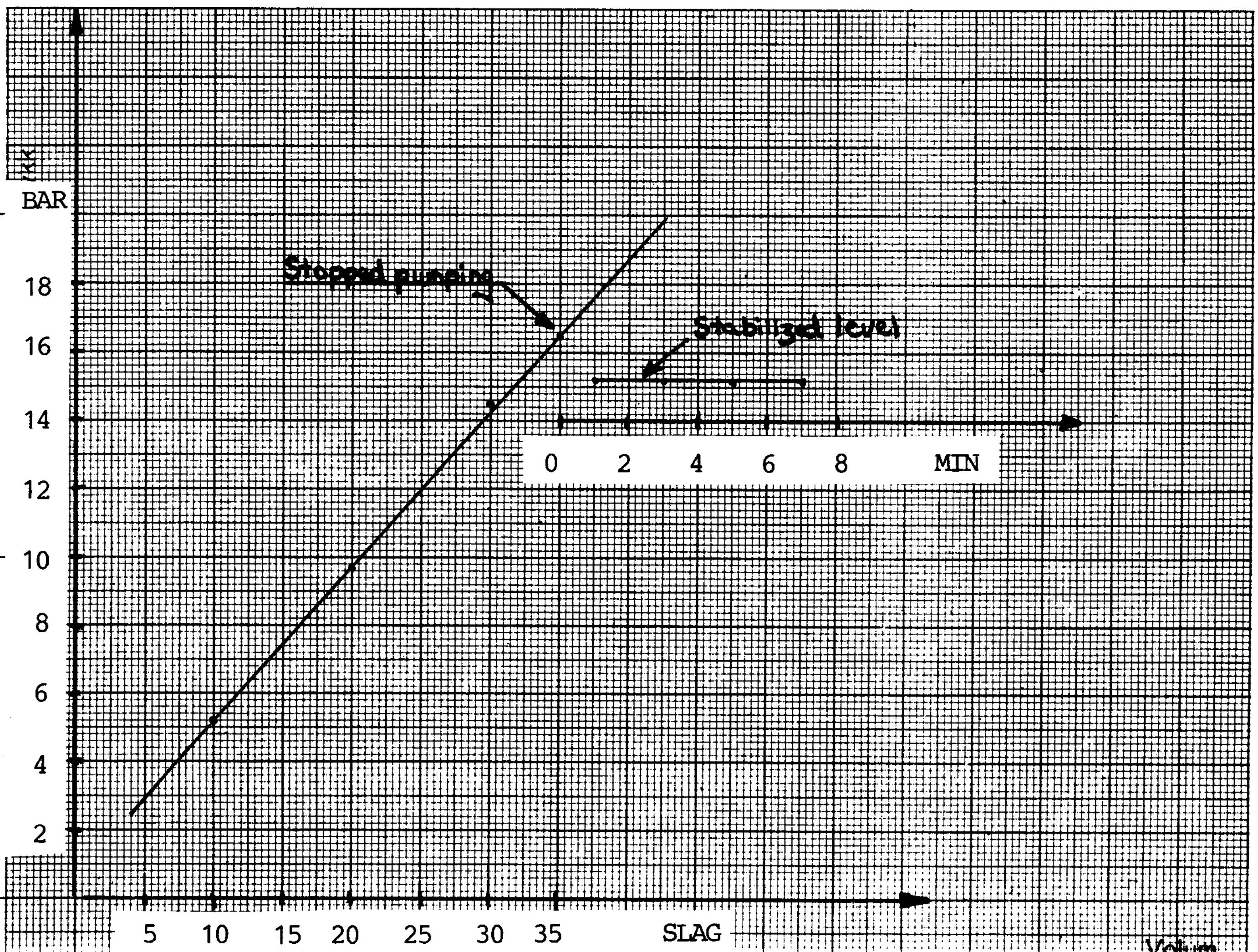
Foring: Diam.: 9 5/8" Tyngde: 47 lbs/ft Grad: N-80 Maks. trykk:

Boreslam: Tetthet: 1.86 g/cc Vis: 57 sec P.V.: 26 cp Y.P.: 10 lbs/100ft^2 Filt: 6,2ml Gel.: 4/35 lbs/100 ft^2

Pumpe: Type: DOWELL TRIPLEX Kapasitet: 2.08 l/slag Vol./tidsenh.: 25 l/min Tilb.str.:

Antatt styrke: 1.96 g/cc Obs. spr. trykk: 16.5 bar Ekv. formasj. styrke: 1.96 g/cc

SLAG	BAR	Volum/tid	Trykk	MIN	BAR	Anmerkninger
5	3.4			1 min	15.2	Pumped through both choke
10	5.2			2 "	15.2	and DP. Pumped a total
15	6.9			3 "	15.2	of 73 l and bled back 60 l.
20	9.7			4 "	15.2	Went only to predetermined
25	11.7			5 "	15.2	value = 1.96 g/cc
30	14.5			6 "	15.2	
35	16.5			7 "	15.0	Sign.: P. Sandbu



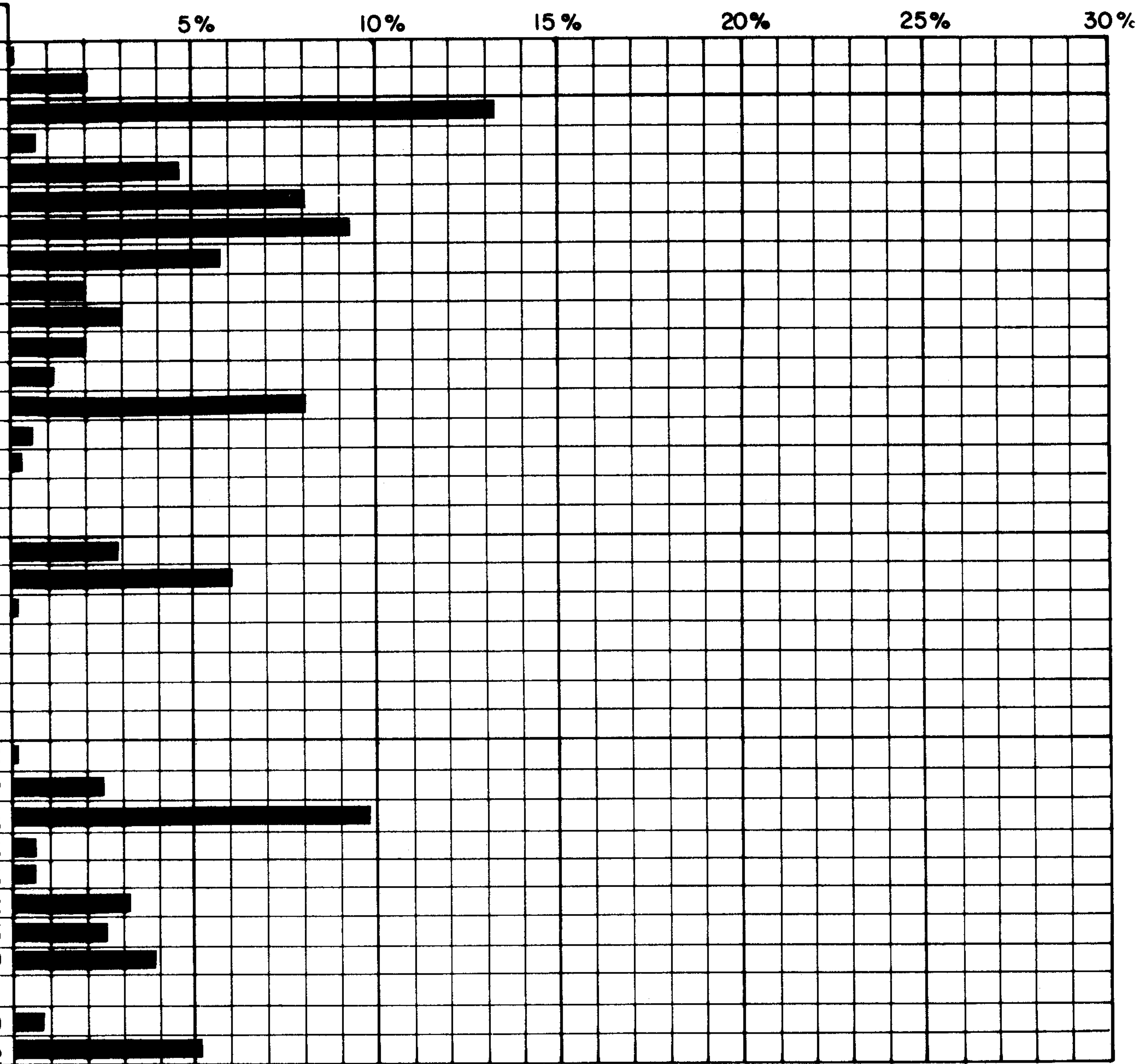
III 6. RIG TIME DISTRIBUTION

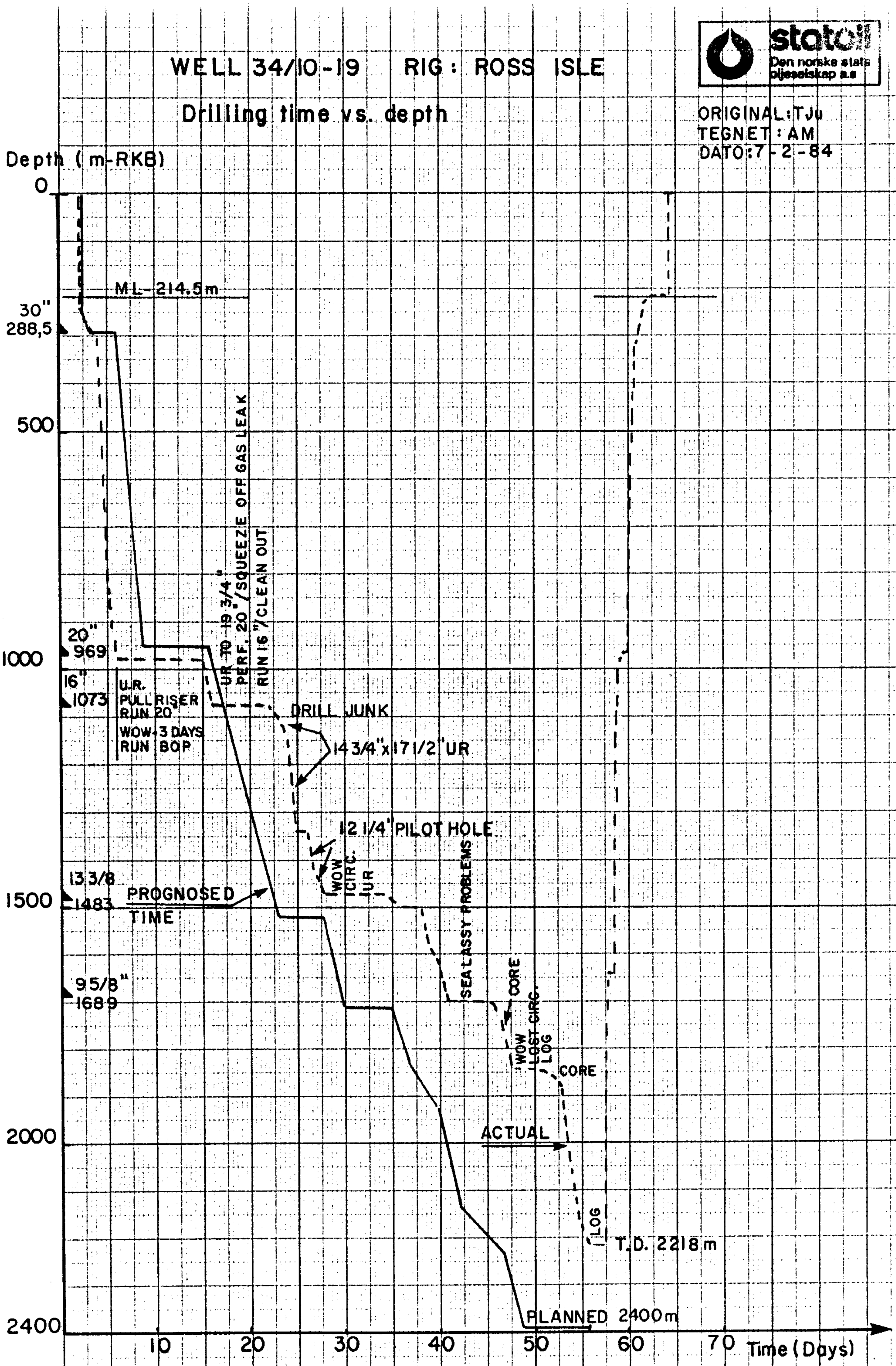
DRILLING TIME VS. DEPTH

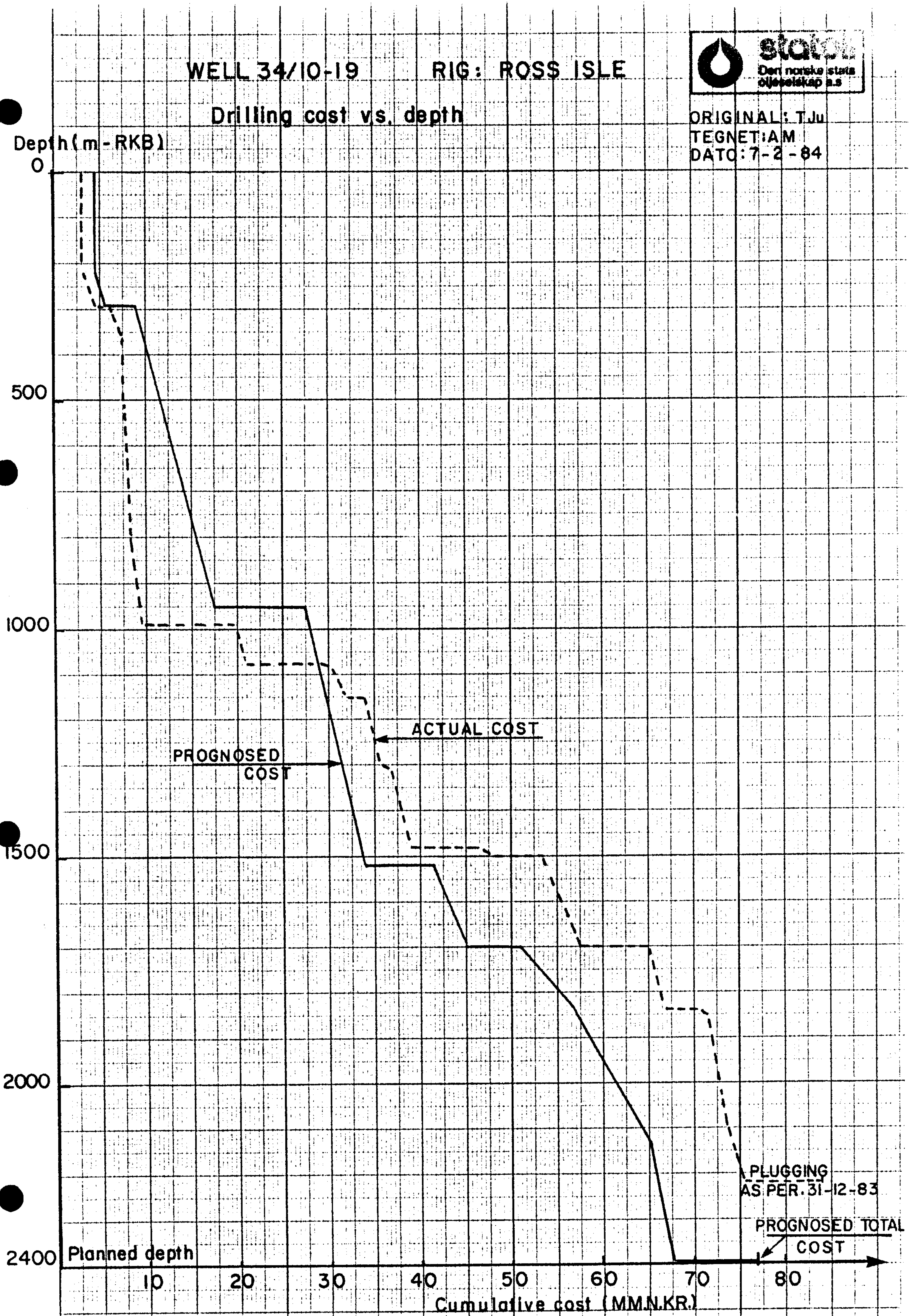
DRILLING COST VS. DEPTH

TOTAL RIG TIME DISTRIBUTION FOR WELL 34/10-19

		HRS	%
	Moving	3	0.2
	Mooring	33	2.1
Drilling operation	Efficient drilling	205	13.3
	Other drilling	11	0.7
	Hole opening	72	4.7
	Regular tripping	124	8.1
	Casing and cementing	141	9.3
	Sub sea eq. and BOP	88.5	5.8
	Abnormal press. detection	31.5	2.0
	Cond. and circ.	46	3.0
	Reaming	32	2.0
	Directional survey	19.5	1.2
	Plugging	125	8.1
	Formation leak-off test	10	0.6
	Maintenance	4.5	0.3
	Other	–	
Formation Evaluation	Coring	45	2.9
	El. logging	93	6.1
	Circ. for samples	2.5	0.2
	RFT	–	
	Production testing	–	
	Other	–	
Downtime	Rig repairs	4	0.2
	Rig moving	38	2.5
	Waiting on weather	151.5	9.8
	Sub sea eq. and BOP	8.5	0.6
	Fishing	8	0.6
	Lost circulation	49.5	3.2
	Well control	40.5	2.6
	Hole problems	60.5	3.9
	Formation evaluation	–	–
	Diving	11.5	8.0
	Other 9 5/8" seal assembly	80.5	5.2
TOTAL		1539	100




WELL 34/10-19 RIG: ROSS ISLE
Drilling time vs. depth
statoil
Den norske stats oljeselskap a.s
ORIGINAL: TJu
TEGNET: AM
DATO: 7-2-84
Depth (m-RKB)
0
500
1000
1500
2000
2400
ML- 214.5m
30"
288,5
20"
969
16"
1073
13 3/8
1483
9 5/8"
1689
U.R.
PULL RISER
RUN 20"
WOW-3 DAYS
RUN BOP
UR TO 19 3/4"
PERF. 20"/SQUEEZE OFF GAS LEAK
RUN 16"/CLEAN OUT
DRILL JUNK
14 3/4" x 17 1/2" UR
12 1/4" PILOT HOLE
WOW
CIRC.
UR
PROGNOSED
TIME
SEAL ASSY PROBLEMS
CORE
WOW
LOST CIRC.
LOG
CORE
ACTUAL
LOG
T.D. 2218 m
PLANNED 2400 m
10
20
30
40
50
60
70
Time (Days)



WELL 34/10-19 RIG: ROSS ISLE
Drilling cost vs. depth
statoil
Den norske stats oljeselskap a.s
ORIGINAL: TJu
TEGNET: AM
DATO: 7-2-84
Depth (m-RKB)
0
500
1000
1500
2000
2400
ACTUAL COST
PROGNOSED COST
PLUGGING AS PER. 31-12-83
PROGNOSED TOTAL COST
Planned depth
10
20
30
40
50
60
70
80
Cumulative cost (MM.N.KR.)

III 7. BIT RECORD AND LITHOLOGY COLUMN

statoil

BORKRONEDATA

ROSS ISLE
Brønn nr.: 34/10-19

Nr.	B. k. Nr.	Diam.	Fabr.	Type	Serie no.	Dyser 1/32"	Dybde ut	Fremdrift	Rot. tid	Total rot.tid	Bore-hast.	V.p.b.	O.p.m.	Pumpe Trykk	Pumpe V.grad	Pumpe v/t	Tilstand T	Tilstand B	Tilstand G	Anmerkninger
1	1	26" x 36"H.O	HTC AZ	OSC-3A	1-1-1	3x20	289.5	75	4.8	4.8	15.6	0-5	75	85	0.97	3780	1	1	I	
2	2	17½" x 26"U.R	STC SERVCO	DSJ-C	XB2338 1-1-1	1x14 3x20	290.5	1	2.2 *	4.8	-	5	60	103	"	3500				*Clean out 30" +1m new hole
3	3	12 1/4"	HTC	J1	408GS 1-1-6	3x18	934	643.5	33.6	38.4	19.1	0-5	90-120	145-165	"	3230-3620	6	3	3/16	Pilot hole
4	4	"	"	"	468GS 1-1-6	3x18	978	44	4	42.4	11	5	120	145	"	3230	2	2	I	
5	RR4	12 1/4"x 17½"H.O 26" U.R	HTC NORSEA SERVCO	"	"	3x14 H.O3x14	718	428	20.1	-	21.3	0-4	110-130	-		3400	2 2	2 4	I I	BIT 26" {7-7-1 H.O U.R {7-7-1 5-6-1
6	RR4	"	"	"	"	"	978	260	11.9	-	21.8	2-5	110-130	-		3400	3 2 4	3 5 7	1/16 I I	BIT H.O U.R
7	RR1	26"	HTC	OSC3A	1-1-1	3x20	Check run to check hole sizeand stability prior to run 20" casing.													
8	5	17½"	STC	DSJC	1-1-1	3x16 1x14	1073	95	6	48.4	15.8	2-10	60-145	186	"	3648	1	2	I	Drilled shoe, cmt + new form
9	RR5	"	"	"	"	"	Dressed 10 m cement prior to squeezing off gas-sands										1	5	I	
10	6	"	"	"	1-1-1	3x20 1x14	Drilled cement plugs after squeeze										1	2	I	
11	RR6	"	"	"	"	3x20 1x16	Underreaming w/ 19 3/4" U.R. from 969-1073m													
12	7	14 3/4"	"	"	1-1-1	4x18	Drill on 16" pack-off assembly and flappervalve										2	2	I	Hi-torque Low ROP
13	8	"	"	"	1-1-1	4x18	Drilled on wiperplug, no progress at 272m										1	1	I	
14	9	12 1/4"		"	1-2-6	3x20						0-20	60-90	60	"	2280	1	1	I	Drilled out wiperplug.1 BT
15	RR8	14 3/4"	"	DSJC	1-1-1	4x18	1076	3	0.75	49.2	4.0	5-12	40/110	147	"	3420	4	2	1/8	10 BT
16	10	"	"	"	1-1-1	3x22 1x18	1080	4	2.3	51.5	1.7	8-14	120	120	"	"	2	1	I	Drilled w/17½" U.R 6 BT
17	RR8	"	"	"		4x18	1102	22	8	59.5	2.75	7-14	110-45	142	"	3458	4	3	1/8	Junk basket run after previous low ROP. 15kg Junk
18	11	14 3/4"	"	"	1-1-1	3x22 1x18	1108	6	2.8	62.3	2.14	5-14	120	125	"	3420	1	1	I	Drilled w/17½" U.R.
19	RR7	"	"	"		4x18	1140	32	2	64.3	16	10	80-120	144	"	3458	2	3	I	Junkbasket run 12 BT
20	RR11	"	"	"	1-1-1	3x22 1x18	1289	149	8.8	73.1	16.9	1-6	120	125	"	3420	2	3	1/8	Drilled w/17½" U.R.

ROSS ISLE

statoil

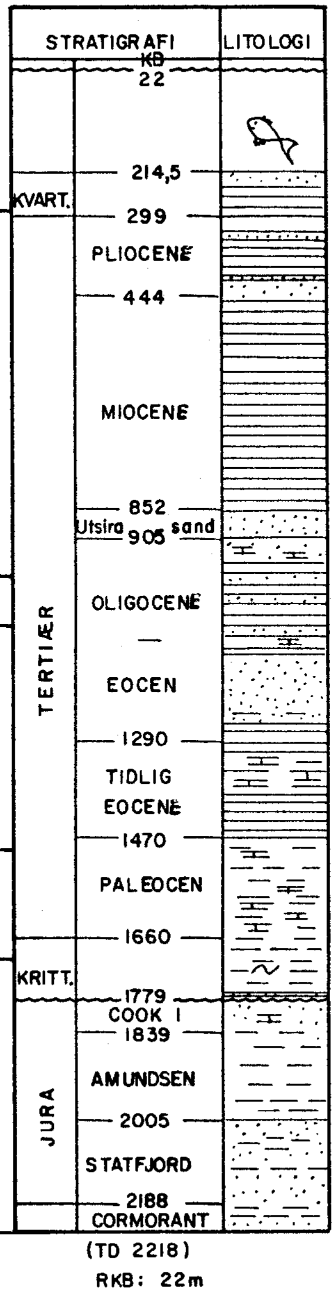
BORKRONEDATA

Brønn nr.: 34/10-19

Nr.	B. k. Nr.	Diam.	Fabr.	Type	Serie no.	Dyser 1/32"	Dybde ut	Fremdrift	Rot. tid	Total rot.tid	Bore-hast.	V.p.b.	O.p.m.	Pumpe Trykk	Pumpe V.grad	Pumpe v/t	Tilstand T	Tilstand B	Tilstand G	Anmerkninger
21	12	14 3/4"	STC	MSDTC	1-1-1	3x22 1x16	1290	1	1	74.1	1	0-8	120	127	0.97	3420	2	2	I	Dr. w/17½" U.R Lost 1 U.R con
22	RR9	12 1/4"	HTC	J2	1-1-6	Open	1323	33	8.9	83.0	3.7	5-12	90-120	120	"	"	2	2	I	Drilled w/17½" U.R.
23	13	"	SEC	S33SF	1-1-6	3x18	1474	152	10.9	93.9	13.9	5-15	115	202	"	3113	4	2	I	Pilot hole. BT
24	14	"	REED	FP12	NEM878 1-2-6		Underreamed from 1323-1336m (Rereamed 1200-1323 m)													Drilled w/17½" U.R.
25	RR14	"	"	"	"		Underreamed from 1336-1438 m 8 hours on U.R.													" Loose cones
26	"	"	"	"	"		Rereamed 1364-1438 m. Underreamed 1438-1474 m.													Drilled w/17½" U.R.
27	"	"	"	"	"	Open	1494	20	7.4	101.1	2.7	2-8	120	190	"	3100	2	2	I	Drilled w/17½" U.R.
28	RR12	14 3/4"	STC	MSDTC	1-1-1	"	Rereamed 1275-1383 m													
29	15	12 1/4"	HTC	XIG	024WL 1-3-4	3x15	1700	206	23.3	124.4	8.8	6-10	110	200	"	2110	4	5	I	Dr. float,cmt. shoe and new formation BT
30	RR14	"	REED	FP12	1-2-6	Circ and cond mud/hole prior to run 9 5/8" casing														
31	16	8½"	HTC	XDG	876FK 1-3-5	3x12	1763	63	3.5	127.9	18	7-10	100-110	207	"	1964	3	2	I	Drill cmt + ne formation
32	17	"	ACC	WEASEL SRTPAX	SN22907	4"core	1781.3	18.3	7.4	135.3	2.5	5-10	150	54	"	893	5%			Core no.1,96% recovery.Shale LST
33	18	"	HTC	XDG	1-3-5	3x12	1844	62.7	4.3	139.6	14.6	7-10	100	195	"	1406	2	2	I	
34	RR18	"	"	"	"	"	1847	3	0.2	139.8	15	10	100	100	"	950	2	2	I	Run to check lost circ. problem
35	RR17	"	ACC	WEASEL STRPAX	SN22907	4"core	1856.5	9.5	2.3	142.1	4.13	10	150	70	"	950	5%			Core no.2, 92% rec. SST
36	"	"	"	"	"	"	1874.8	18.3	7	149.1	2.6	10	150	70	"	950	10%			Core no.3, 98% Mostly shale
37	19	"	STC	SDGH	1-3-5	3x12	2069	194.2	18	167.1	10.8	15	120	168	"	1292	6	7	I	
38	20	"	REED	FP12	1-2-6	2x11 1x12	2218	149	21.2	188.3	7.03	12-15	120	190	"	1292	6	3	I	
39	21	"	STC	DSJ	1-1-1	Open	Tag and dress cement from 250m to 260m										1	1	I	P & A

LITH. COLUMN VS. BIT RECORD, WELL 34/10-19

NO	TYPE	DEPTH OUT(M)	TIME (HOURS)	ROP (M/HR)	HOLE SIZE
1	26"x36" H.O.	289.5	48	15,6	36"
2	171/2"DSJ + 26"UR.	290.5	2.2*	4.8	Clean out 30"*
3	J1	934	33.6	19.1	121/4" Pilot hole
4	J1	978	4	11	
RR4	J1+171/2" H.O.+26"UR	718	20.1	21.3	26"
RR4	—"—	978	11.9	21.8	
RR1	OSC-3A	CHECKRUN			
5	DSJ	1073	6	15.8	17 1/2" Pilot
6	DSJ	Drilled cement after squeezes			19 3/4"
RR6	DSJ x 19 3/4"UR	1073	Underreamed 969-1073m		
7	DSJ	Drilled on 16" pack-off/flapper assy			14 3/4"
8	DSJ	Drilled on wiper plug at 272 m			
9	J2	Drilled wiperplug			12 1/4"
RR8	DSJ	1076	0.75	4	17 1/2"
10	DSJ+171/2"UR.	1080	2.3	1.7	
RR8	DSJ	1102	8	2.8	
11	DSJ+171/2"U.R.	1108	2.8	2.1	
RR7	DSJ	1140	2	16	
RR11	DSJ+171/2"U.R.	1289	8.8	16.9	
12	MSDTC+171/2"U.R.	1290	1	1	
RR9	J2+171/2"U.R.	1323	8.9	3.7	121/4"
13	S33SF	1474	10.9	13.9	
14	FP 12+171/2"U.R.	Underreamed 1323-1494 1494	7.4	2.7	
RR12	MSDTC+171/2"U.R.	Rereamed 1275-1383m			
15	XIG	1700	23.3	8.8	121/4"
16	XDG	1763	3.5	18	8 1/2"
17	Weasel III ACC	1781.3	7.4	2.5	4" Core
18	XDG	1847	4.5	14.6	8 1/2"
RR17	Weasel III ACC	1856.5	2.3	4.13	4" Core
RR17	—"—	1874.8	7	2.6	
19	SDGH	2069	18	10.8	
20	FP12	2218	21.2	7.03	



(TD 2218)

RKB: 22m

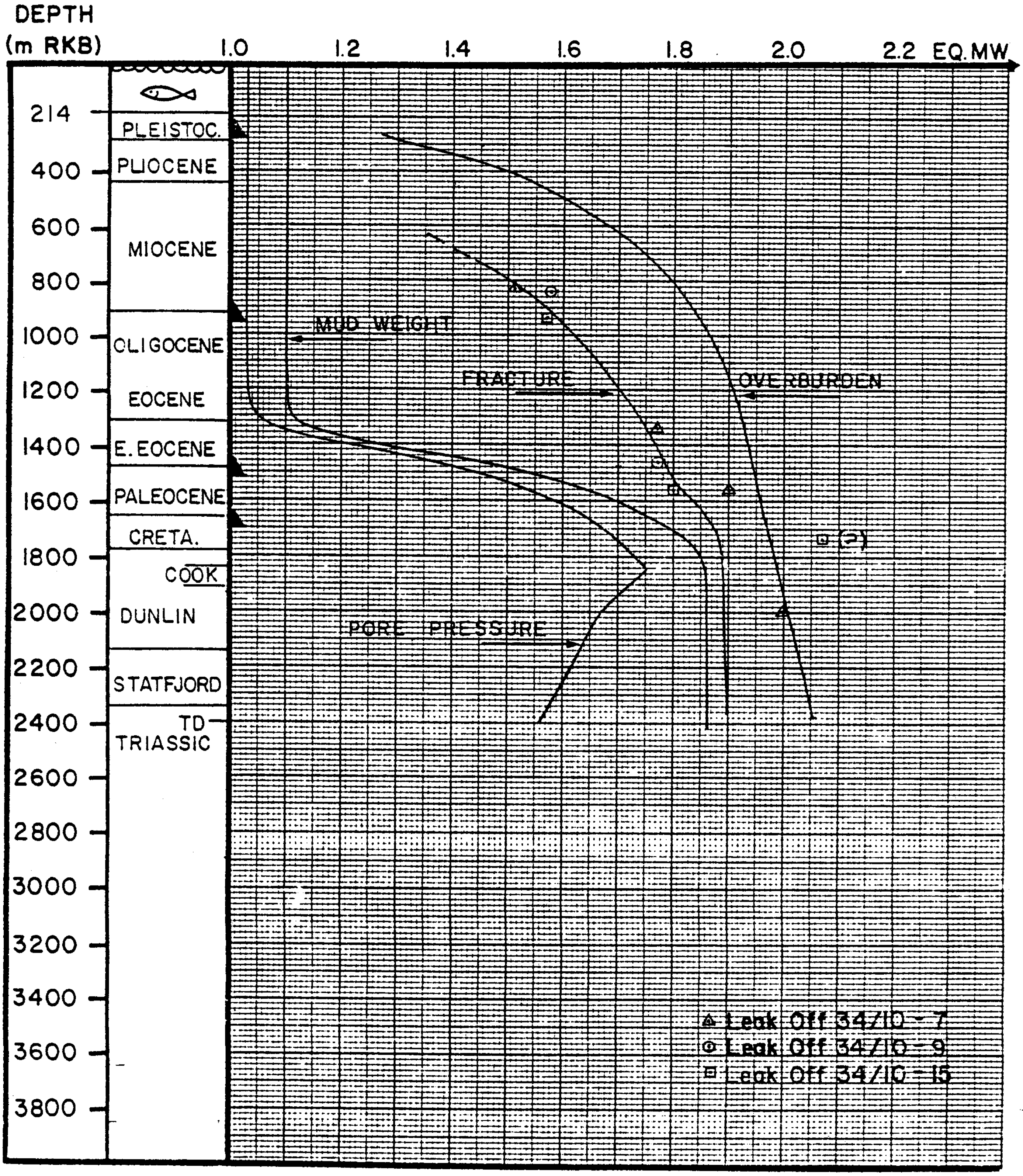
statoil Den norske stats oljeselskap a.s

ORIGINAL: TJu
TEGNET: AM
DATO: 8-2-84

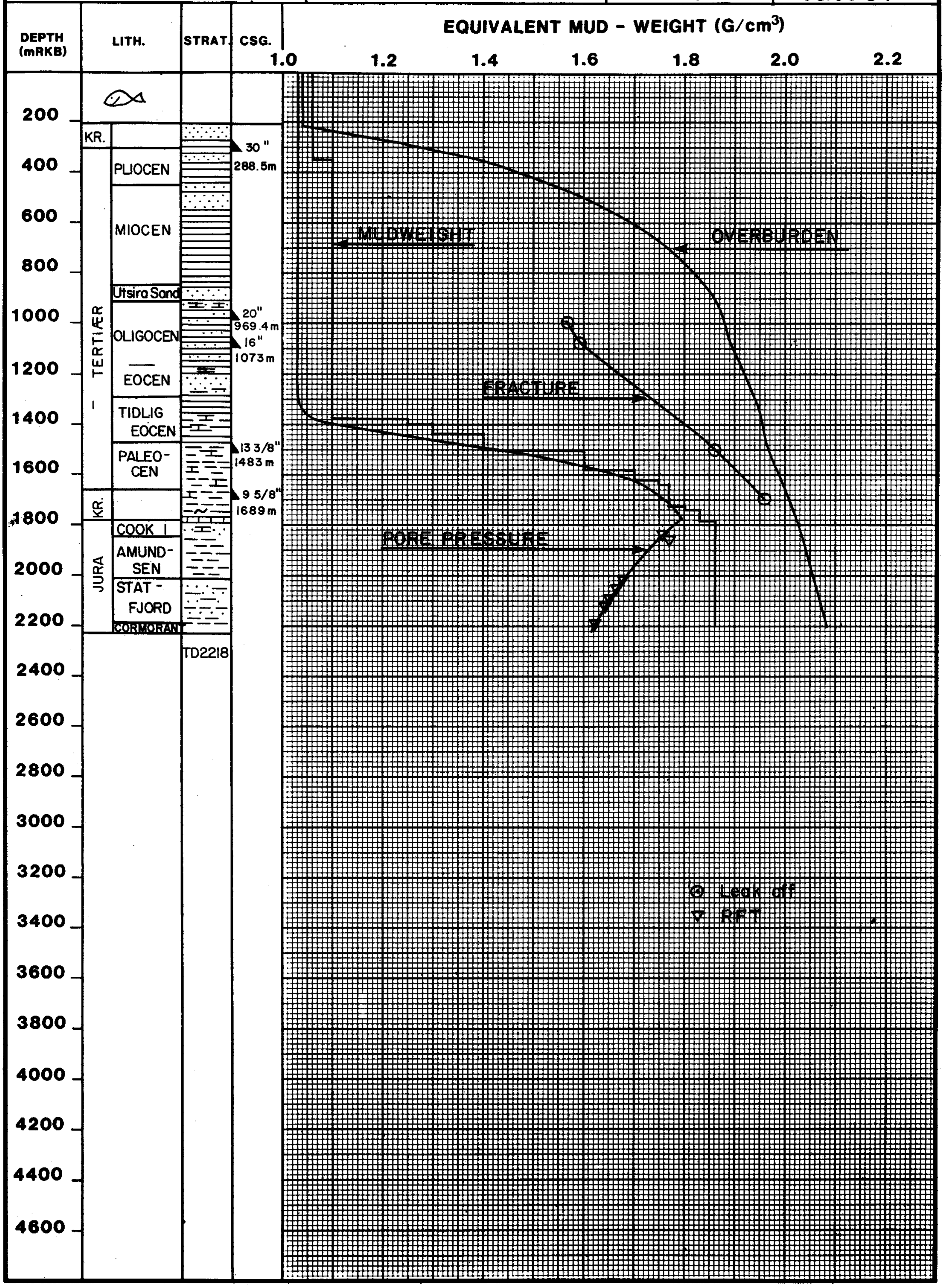
III 8. PRESSURE PROFILES

34/10-19

PREDICTED PRESSURE GRADIENTS



WELL: 34/10 - 19	**PRESSURE COMPOSITE PLOT**	statoil Den norske stats oljeselskap a.s
RIG NAME: ROSS ISLE		**MADE BY/DRAWN BY:** BH / TV
DEPTH mRKB: 22m		**DATE:** 08.05.84



STATOIL
34/10-19
NORTH SEA, NORWEGIAN SECTOR

Slot :
Well : 34/10-19
PBHL : N 0 0 E

Our ref : S04813.OST
Date printed : 23-JAN-84

Measured Depth	Drift Angle D	M	Drift Direction	D	M		Course Length	Vertical Depth	Vertical Section	RECTANGULAR COORDINATES		Dogleg Severity
212.50	0	0	N	0	0	E	0.00	212.50	0.00	0.00 N	0.00 E	0.00
284.00	0	45	N	57	0	W	71.50	284.00	0.25	0.25 N	0.39 W	0.31
973.00	0	30	N	69	0	W	689.00	972.96	3.79	3.79 N	6.98 W	0.01
1069.00	0	0	N	0	0	E	96.00	1068.96	3.94	3.94 N	7.37 W	0.16
1136.00	1	0	S	88	0	W	67.00	1135.95	3.92	3.92 N	7.96 W	0.45
1172.00	1	30	S	88	0	W	36.00	1171.94	3.89	3.89 N	8.74 W	0.42
1281.00	2	45	N	75	0	W	109.00	1280.87	4.52	4.52 N	12.69 W	0.38
1316.00	3	30	N	64	0	W	35.00	1315.82	5.20	5.20 N	14.46 W	0.82
1423.00	2	0	S	78	0	W	107.00	1422.70	6.25	6.25 N	19.23 W	0.64
1466.00	2	30	N	81	0	W	43.00	1465.66	6.24	6.24 N	20.89 W	0.67
1573.00	1	45	S	53	0	W	107.00	1572.60	5.62	5.62 N	24.50 W	0.50
1694.00	1	0	N	90	0	W	121.00	1693.56	4.51	4.51 N	27.03 W	0.28
1757.00	0	30	N	62	0	W	63.00	1756.56	4.64	4.64 N	27.82 W	0.29
1838.00	0	30	N	55	0	E	81.00	1837.56	5.01	5.01 N	27.84 W	0.32
1939.00	1	0	N	48	0	E	101.00	1938.55	5.85	5.85 N	26.83 W	0.15
2212.00	1	15	N	46	0	W	273.00	2211.51	9.51	9.51 N	27.20 W	0.18

Calculation Method : Minimum curvature
Slot Coordinates : 0.00 N 0.00 E
Bottom hole Location : Referenced to Centre
Distance : 28.81
Direction : N 70 44 W

Report Units : Metres

SURVEY RUN INFORMATION
======================

MAGNETIC SINGLE SHOTS 212.50-2212 MT.MD.
DEPTH 1136 MT.MD. IS AN INTERPOLATED STATION.

STATOIL

34/10-19
NORTH SEA. NORWEGIAN SECTOR

RIG: ROSS ISLE

Submitted by: EASTMAN WHIPSTOCK UK.LTD.NORWAY BRANCH
TANANGER

Plot type: SURFACE PLAN VIEW

Date: 23-JAN-84 Requested by: T.BRINCH.

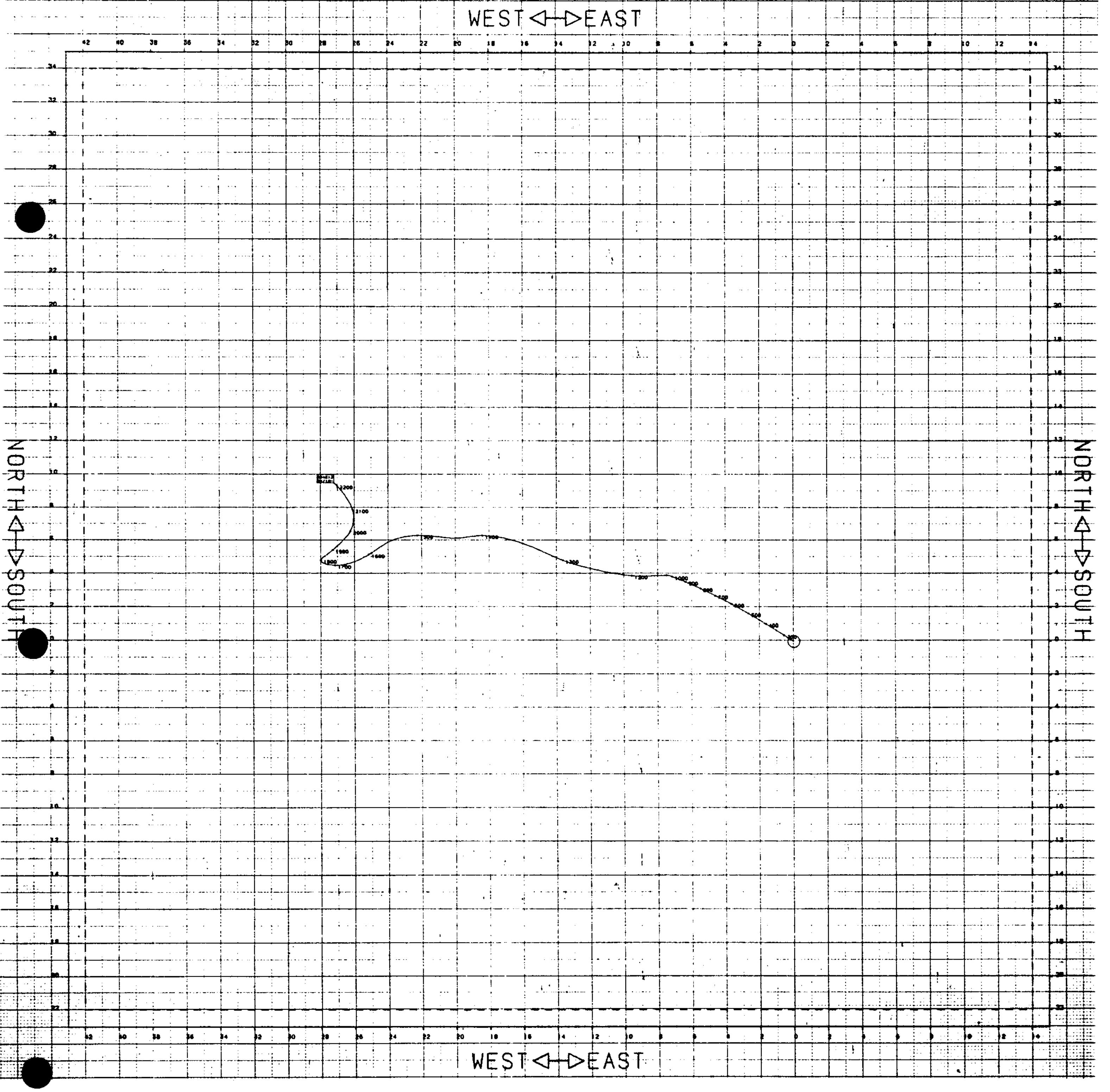
Revision no.: 1 Prepared by: [illegible]

Checked by:

Program version: 1.01 Approved by:

SCALE: 1 INCH = 2M

N.B. All depths are TVD unless otherwise stated.



III 10. DRILLING FLUID SUMMARY

GENERAL SUMMARY

OPERATOR STATOIL

WELL NO. 34/10-19

OPERATOR'S REPRESENTATIVES

STOVER, EIDE, TELLE, BOGRE, SÆTERVIK, MOSTYN, STRAND, SANDBU

CONTRACTOR ROSS DRILLING

RIG ROSS ISLE

CONTRACTOR'S REPRESENTATIVES

JONASSEN, MÆLAND, MELING, PEDERSEN, SÆTHRE, TIME

ANCHOR ENGINEERS

H. WIIK, M. CHAVEZ, I. TORGERSEN, E. KORSVOLD, C. BLANCHARD

WATER DEPTH	192.5	m
SEABED to RKB	214.5	m
36" HOLE DRILLED TO	289.5	m
30" CASING SET AT	288.5	m
26" HOLE DRILLED TO	978	m
20" CASING SET AT	969	m
19 3/4" **HOLE DRILLED TO**	1073	m
16" LINER **SET AT**	1073	m
17 1/2" **HOLE DRILLED TO**	1494	m
13 3/8" **CASING SET AT**	1483	m
12 1/4" **HOLE DRILLED TO**	1700	m
9 5/8" CASING **SET AT**	1689	m
8 1/2" **HOLE DRILLED TO**	2218	m

SUMMARY OF EVENTS

OPERATOR: STATOIL

WELL NO. 34/10-19

36" **HOLE/** 30" **CASING INTERVAL**

This section was drilled to casing depth with no major problems. High viscous pills of gel were pumped on connections and the hole was filled with viscous gel mud prior to run and cement casing.

While waiting on cement mixed 80 m^3 of kill mud, weighted 1.20 SG and stored in reserve pits. Dressed shaker with 30/60 mesh screens and mud cleaner with 200 mesh screens to be used as a desilter.

RECOMMENDATIONS

36" HOLE/30" CASING INTERVAL

This section was drilled according to program with no problems, other than encountering a few boulders. Mud volume mixed was slightly higher than programmed but cost in line, no changes foreseen for future.

SUMMARY OF EVENTS

OPERATOR: STATOIL

WELL NO. 34/10-19

26" HOLE/ 20" CASING INTERVAL

The 30" casing shoe was drilled out with a 12 1/4" bit and the program called for a pilot hole to casing depth and then opened up the hole to 26". The formation encountered initially was very mud-making so only small amounts of pre-hydrated gel were necessary to maintain a good yield point. Large amounts of seawater were added to keep the weight below 1.10 SG, and this also allowed the shakerbox and sandtraps to be dumped frequently.

As drilling progressed some sand-zones occurred and at about 750 m a significant amount of mud was lost to formation. Additions of pre-hydrated gel sealed of the formation and the 12 1/4" pilot hole was drilled to casing depth. The hole was then logged and a 12 1/4" bit, 17 1/2" hole opener and a 26" under-reamer were run in hole to open up to 26". A lot of seawater and pre-hydrated gel was added to maintain flow-properties and to keep the mud weight down. Casing depth was reached and the active system was weighted up to 1.25 SG. Mud was then lost to the formation, so lost circulation material was circulated around and halted further losses. The riser was then displaced and pulled.

Ran in hole with 26" bit and circulated hole clean with returns going to seabed. The 20" casing was then run and cemented without any major problems. Due to all the mud mixed for this section, the rig was very low on drill water and bulk bentonite when this section was finished.

The desander ran constantly in this interval and the mud cleaners were used as desilters. The shakers were dressed with 30/60 mesh screens as 80 mesh screens were blinded immediately.

RECOMMENDATIONS

26" HOLE/20" CASING INTERVAL

As lost circulation occured at about 750 m this section "used" more mud than planned.

Pre-hydrated gel and lost circulation materials sealed off the formation, but this used most of the bulk bentonite and the drill water on the rig. It is recommended to keep as much as possible onboard, of both Bentonite and drill water, to avoid similar situations in future wells on this block.

SUMMARY OF EVENTS

OPERATOR: STATOIL

WELL NO. 34/10-19

19 3/4" **HOLE/** 16" LINER ~~**CASING**~~ **INTERVAL**

Drilled 20" casing shoe and 3 m of new formation with a mud weight of 1.10 SG. Performed leak-off test equivalent to 1.56 SG. Due to an increasing leak between the 30" and 20" casing, it was decided to T.D. the 17 1/2" hole at 1073 m, and set a cement plug in the 20" casing. The casing was perforated at 3 different depths and cement was squeezed into perforations. Before the last perforation the mudweight was increased to 1.25 SG and cut back to 1.10 SG after the squeeze job. Some mud was lost over the shaker due to cement contamination and the worst contaminated mud was dumped. After waiting on cement the cement plugs were drilled out and the hole was opened up to 19 3/4" before the 16" liner was run and cemented.

RECOMMENDATIONS

19 3/4" HOLE, 16" LINER INTERVAL

This section was not programmed and all the squeeze jobs and circulations resulted in an extra chemical usage for about US$ 18,000.00.

SUMMARY OF EVENTS

OPERATOR: STATOIL

WELL NO. 34/10-19

17 1/2" HOLE/ 13 3/8" CASING INTERVAL

Ran in hole to drill 17 1/2" hole with 14 3/4" bit and 17 1/2" under-reamer. Formation was mostly sand, but from ±1300 m some dolomite stringers occurred. This slowed down penetration rate and also damaged the cones on the under-reamer, which resulted in junk in the hole. A mill and junk basket was run, but still some junk was left in hole. Due to slow penetration rate with the 17 1/2" under-reamer a 12 1/4" pilot hole was drilled from about 1400 m to casing depth.

The 1.10 SG mud in the hole was displaced with 1.30 SG mud from reserve pits and then the mud weight was increased gradually from 1.30 SG to 1.50 SG. The hole was then opened to 17 1/2" and the 13 3/8" casing was run and cemented.

The mud in this section was very stable with a max mud weight of 1.54 SG.

RECOMMENDATIONS

17 1/2" HOLE/13 3/8" CASING INTERVAL

Degasser was not working properly as some gas cut mud got into active mud without being degassed. This was mainly due to the steel wall between suction pit and discharge pit was cut to low so mud could flow over, without going through the degasser.

The mud cleaners were not operating very well as the heave in the rig resulted in mud easily flowing over the circular screens.

Had some mud losses due to poor flowline design, a modification along the lines suggested in daily summary (4/11/83/) would be useful.

SUMMARY OF EVENTS

OPERATOR: STATOIL

WELL NO. 34/10-19

12 1/4" **HOLE/** 9 5/8" **CASING INTERVAL**

While waiting on cement the mud in active pits was pre-treated with Bicarbonate and Ligno, and the mud weight was increased from 1.54 SG to 1.60 SG. Drilled casing shoe and 3 m of new formation and performed a leak off test.

Drilled ahead and at about 1619 m the gas concentration started to increase - the mud was then weighted up to 1.71 SG. Due to increased drilling gas the mudweight was further increased to 1.75 SG.

A 3 m^3 pit gain was taken and the well was closed in. When circulating out the gain through kill and choke line returns were partly lost. Lost circulation materials were added to the mud system.

When circulating the pump rate was increased gradually from 10 - 100 SPM. A total of 28 m^3 mud was lost to formation before full returns were regained.

Drilled ahead to 1646 m and after a wiper trip the mud was circulated and the mud weight increased to 1.77 SG. Drilled to casing depth, 1700 m, with no further problems.

Lost circulation materials were added to the mud when drilling.

After running in with the 9 5/8" casing, circulation was broken, but after 440 strokes returns were lost. Continued circulating with 10 SPM - no returns. Lost total 155 m^3 mud

when cementing and displacing cement for 9 5/8" casing.

RECOMMENDATIONS

12 1/4" HOLE, 9 5/8" CASING INTERVAL

This section "used" some extra mud volume due to lost circulation. This resulted in higher section cost then programmed, but otherwise no major mud problems.

SUMMARY OF EVENTS

OPERATOR: STATOIL

WELL NO. 34/10-19

8 1/2" **HOLE/** ____________ **CASING INTERVAL**

Ran in hole with 8 1/2" bit and drilled casing shoe and new formation to perform leak off test, equivalent to 2.06 SG. Drilled/cored to about 1845 m. On breaking circulation after a period with waiting on weather, mud was lost to formation. A LCM pill was pumped and displaced but still the mud level was dropping in the riser. After a second LCM pill and slow circulation rate, partial returns were regained and then full returns.

The section was then drilled/cored to TD with no further problems.

RECOMMENDATIONS

8 1/2" HOLE SECTION

The costs for this section turned out to be. US$ 62,000.00 more than programmed. This is mainly due to the extra volume that was mixed when lost circulation occurred. Approx. 150 m^3 of mud was lost downhole, and to compensate for this loss it takes about 240 M/T of Barite to get the mudweight up to 1.89 SG. The costs for the extra barite usage and for the lost circulation materials adds up to US$ 43,000.00, in addition to which are the remaining materials required to condition the mud.

OPERATOR STATOIL

WELL NO. 34/10-19

MATERIAL CONSUMPTION & COST ANALYSIS

36" HOLE DRILLED TO 289.5 Meters ~~Feet~~ 30" CASING SET AT 288.5 Meters ~~Feet~~

ACTUAL AMOUNT OF HOLE DRILLED 75 Meters ~~Feet~~ DAYS ON INTERVAL 1

DRILLING FLUID SYSTEM SPUD MUD

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	US$ COST
WYOMING BENTONITE	M/T	25	24	-1	9,120.00
CAUSTIC SODA	25 KG	25	13	-12	260.00
SODA ASH	50 KG	4	0	-4	0

COST/DAY US$9,380.00

TOTAL COST FOR INTERVAL US$ 9,380.00

COST/Mt. ~~Ft~~ US$ 125.00

PROG. COST FOR INTERVAL US$ 10,084.00

ENGR. COST US$ 550.00

COST VARIANCE FOR INTERVAL US$ -704.00

OPERATOR STATOIL

WELL NO. 34/10-19

MATERIAL CONSUMPTION & COST ANALYSIS

26" HOLE DRILLED TO 978 Meters ~~Feet~~ 20 CASING SET AT 969 Meters ~~Feet~~

ACTUAL AMOUNT OF HOLE DRILLED 688 Meters ~~Feet~~ DAYS ON INTERVAL 7

DRILLING FLUID SYSTEM SPUD MUD

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	US$ COST
BARITE	M/T	385	308	-77	45,584.00
WYOMING BENTONITE	M/T	80	81	+ 1	30,780.00
CAUSTIC SODA	25 KG	55	141	+86	2,820.00
SODA ASH	50 kg	8	7	-1	147.00
DRILLING DETERGENT	200 L/DR	3	1	-2	495.00
SPERCELL C	25 KG	20	11	-9	214.50
DRISPAC REGULAR	25 KG	0	39	+39	6,006.00
NUT PLUG F	25 KG	0	20	+20	440.00
MICA F	25 KG	0	20	+20	440.00

COST/DAY US$12,418.07

TOTAL COST FOR INTERVAL US$ 86,926.50

COST/Mt. ~~Ft.~~ US$ 126.35

PROG. COST FOR INTERVAL US$ 90,523.00

ENGR. COST US$ 5,775.00

COST VARIANCE FOR INTERVAL US$ 3,596.50

OPERATOR STATOIL

WELL NO. 34/10-19

MATERIAL CONSUMPTION & COST ANALYSIS

19 3/4" HOLE DRILLED TO 1073 Meters ~~Feet~~ 16 LINER ~~CASING~~ SET AT 1073 Meters ~~Feet~~

ACTUAL AMOUNT OF HOLE DRILLED 95 Meters ~~Feet~~ DAYS ON INTERVAL 6

DRILLING FLUID SYSTEM GEL/SPERCELL C

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	US$ COST
BARITE	M/T	0	37	+ 37	5,476.00
BENTONITE M/T	M/T	0	21	+ 21	7,980.00
SPERCELL C	25 KG	0	12	+ 12	234.00
CAUSTIC	25 KG	0	26	+ 26	520.00
SODA ASH	50 KG	0	7	+ 7	147.00
DRISPAC REGULAR	25 KG	0	1	+ 1	154.00
CMC HIVIS	25 KG	0	28	+ 28	1,876.00
BICARBONATE	50 KG	0	18	+ 18	432.00
NUT PLUG F	25 KG	0	35	+ 35	770.00
MICA F	25 KG	0	35	+ 35	770.00

COST/DAY US$ 3,059.83

TOTAL COST FOR INTERVAL US$ 18,359.00

COST/Mt. ~~Ft~~ US$ 193.25

PROG. COST FOR INTERVAL 0

ENGR. COST US$ 4,950.00

COST VARIANCE FOR INTERVAL US$±18,359.00

OPERATOR STATOIL

WELL NO. 34/10-19

MATERIAL CONSUMPTION & COST ANALYSIS

17 1/2" HOLE DRILLED TO 1494 Meters ~~Feet~~ 13 3/8" CASING SET AT 1483 Meters ~~Feet~~

ACTUAL AMOUNT OF HOLE DRILLED 421 Meters ~~Feet~~ DAYS ON INTERVAL

DRILLING FLUID SYSTEM GEL/SPERCELL C

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	US$ COST
BARITE	M/T	375	450	+ 71	66,600.00
BENTONITE	M/T	40	59	+ 19	22,420.00
SPERCELL C	25 KG	140	120	- 20	2,340.00
CAUSTIC SODA	25 KG	90	139	+ 45	2,780.00
SODA ASH	50 KG	10	15	+ 5	315.00
CMC LOVIS	25 KG	60	45	- 21	2,925.00
DRILLING DETERGENT	200 L	10	0	- 10	0
CMC HIVIS	25 KG	0	38	+ 38	2,546.00
DRISPAC REG	50 LBS	0	27	+ 27	4,158.00
BICARBONATE	50 KG	0	88	+ 88	2,112.00
DESCO	25 LBS	0	28	+ 28	1,064.00
BENTONITE SXS	50 KG	0	39	+ 39	702.00

COST/DAY US$ 5,398.10

TOTAL COST FOR INTERVAL US$ 107,962.00

COST/Mt. ~~or Ft~~ US$ 256.44

PROG. COST FOR INTERVAL US$ 84,290.00

ENGR. COST US$ 16,500.00

COST VARIANCE FOR INTERVAL US$ +23,672.00

OPERATOR STATOIL

WELL NO. 34/10-19

MATERIAL CONSUMPTION & COST ANALYSIS

12 1/4" HOLE DRILLED TO 1700 Meters 9 5/8" CASING SET AT 1689 Meters

ACTUAL AMOUNT OF HOLE DRILLED 206 Meters DAYS ON INTERVAL 7

DRILLING FLUID SYSTEM GEL/SPERCELL C

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	US$ COST
BARITE	M/T	270	297	+ 27	43,956.00
BENTONITE	50 KG/SXS	0	12	+ 12	216.00
BENTONITE	M/T	5	0	- 5	0
BICARBONATE	50 KG/SXS	20	20	-	480.00
CAUSTIC	25 KG/SXS	30	36	+ 6	720.00
CMC LOVIS	25 KG/SXS	50	32	- 18	2,080.00
SPERCELL C	25 KG/SXS	145	139	- 6	2,710.50
DESCO	25 LBS/SXS	0	21	+ 21	798.00
NUT PLUG FINE	25 KG/SXS	0	109	+ 109	2,398.00
MICA FINE	25 KG/SXS	0	105	+ 105	2,310.00
DRISPAC REGULAR	50 LBS/SXS	0	3	+ 3	462.00
SODA ASH	50 KG/SXS	20	3	- 17	63.00

COST/DAY US$ 8,027.06

TOTAL COST FOR INTERVAL US$ 56,193.50

COST/Mt. US$ 272,08

PROG. COST FOR INTERVAL US$ 49,437.50

ENGR. COST US$ 5,775.00

COST VARIANCE FOR INTERVAL US$ + 6,756.00

OPERATOR STATOIL

WELL NO. 34/10-19

MATERIAL CONSUMPTION & COST ANALYSIS

8 1/2"	HOLE DRILLED TO	2218	Meters		CASING SET AT		Meters Feet

ACTUAL AMOUNT OF HOLE DRILLED 518 Meters

DAYS ON INTERVAL 19

DRILLING FLUID SYSTEM GEL/SPERCELL C

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	US$ COST
BARITE	M/T	280	568	+ 288	84,064.00
BENTONITE	M/T	10	20	+ 10	7,600.00
CAUSTIC SODA	25 KG	60	76	+ 16	1,520.00
SPERCELL C	25 KG	200	377	+ 177	7,351.50
SODA ASH	50 KG	25	15	- 10	315.00
SODIUM BICARBONATE	50 KG	25	39	+ 14	936.00
CMC LV	25 KG	100	76	- 24	4,940.00
DRISPAC REGULAR	50 LBS	0	5	+ 5	770.00
DESCO	25 LBS	0	60	+ 60	2,280.00
LIGNITE	25 KG	40	188	+ 148	6,016.00
NUT PLUG FINE	25 KG	0	50	+ 50	1,100.00
NUT PLUG COARSE	25 KG	0	123	+ 123	2,706.00
MICA FINE	25 KG	0	75	+ 75	1,650.00
MICA COARSE	25 KG	0	75	+ 75	1,650.00

COST/DAY	US$ 6,468.34	TOTAL COST FOR INTERVAL	US$ 122,898.50
COST/Mt.	US$ 237.25	PROG. COST FOR INTERVAL	US$ 60,585.00
ENGR. COST	US$ 14,025.00	COST VARIANCE FOR INTERVAL	US$ 62,313.50

OPERATOR STATOIL

WELL NO. 34/10-19

TOTAL CONSUMPTION & COST ANALYSIS

TOTAL DEPTH 2218 Meters ~~Feet~~ TOTAL HOLE DRILLED 2003.5 Meters ~~Feet~~

TOTAL DAYS 60

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	US$ COST
BARITE	M/T	1310	1660	+ 350	245,680.00
BENTONITE	M/T	160	205	+ 45	77,900.00
BENTONITE	50 KG	0	51	+ 51	918.00
CAUSTIC SODA	25 KG	260	431	+ 171	8,620.00
SODA ASH	50 KG	67	47	- 20	987.00
SODIUM BICARBONATE	50 KG	45	165	+ 120	3,960.00
SPERCELL C	25 KG	505	659	+ 154	12,850.50
DESCO	25 LBS	0	109	+ 109	4,142.00
CMC LOVIS	25 KG	210	153	- 57	9,945.00
CMC HIVIS	25 KG	20	66	+ 46	4,422.00
DRISPAC REGULAR	50 LBS	0	75	+ 75	11,550.00
ANCO DETERGENT	200 L	13	1	- 12	495.00
LIGNITE	25 KG	40	188	+ 148	6,016.00
NUT PLUG, FINE	25 KG	0	214	+ 214	4,708.00
NUT PLUG, COARSE	25 KG	0	123	+ 123	2,706.00
MICA, FINE	25 KG	0	235	+ 235	5,170.00
MICA, COARSE	25 KG	0	75	+ 75	1,650.00

COST/DAY US$ 200.51

TOTAL COST FOR INTERVAL US$ 401,719.50

COST/Mt ~~or Ft~~ US$ 6,695.33

PROG. COST FOR INTERVAL US$ 294,919.50

ENGR. COST US$ 47,575.00

COST VARIANCE FOR INTERVAL US$ 106,800.00

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

Drilling Mud Properties Record

MUD SYSTEM SPUD/LIGNO/GEL

WELL NAME 34/10-19 AREA NORTH SEA
OPERATOR STATOIL RIG ROSS ISLE
ENGINEERS CHAVEZ/TORGERSEN/KORSVOLD

Day No	DATE 1983	DEPTH FEET [] METERS [] Meter	DENSITY PPG [] SG [] SG	VISCOSITY sec/qt	A.V. cps	P.V. cps	Y.P. #/100 sq.ft.	GELS 0 / 10	FLUID LOSS 30 Min cc's	CAKE 32 nds	H.T.H.P. cc's	pH	Filtrate Analysis Cl^- ppm X 1000	Ca ++ ppm T.H.	Pf	RETORT % OIL	% SOLIDS CORR.	% SAND	BENTONITE #/BBL	POTASH #/BBL	POLYMER #/BBL	"N"	"K"	OPERATION REMARKS
1	5/10		1.06	62																				
2	6/10	405	1.08	44	20.5	6	29	23/31				10.2										.23	8.44	
3	7/10	864	1.08	41	23.5	6	35	17/22				10.2										.20	12.01	
4	8/10	950	1.09	43	23.0	6	35	19/25				10.2										.20	12.01	
5	9/10	542	1.10	39	19.5	4	31	15/20				10.0										.16	13.23	
6	10/10	868	1.11	39	19.5	4	31	15/21				10.0										.16	13.23	
7	11/10	978	1.25	42	20.0	6	28	16/21				9.8										.23	7.89	
8	12/10		1.25	40	20.0	6	28	16/20				10.0										.23	7.89	
9	13/10		1.25	60	29.5	20	19	0/5				10.0										.60	.94	
10	14/10		1.25	61	27.0	18	18	2/5				10.0										.58	.94	
11	15/10		1.10	40	15.5	6	19	4/5				10.5										.31	3.61	
12	16/10		1.10	40	13.5	5	17	7/12				10.5										.30	3.49	
13	17/10	985	1.10	42	20.5	12	17	7/34	14.0	2		11.0	9	120	.10		4.00		19.00			.50	1.29	
14	18/10	1073	1.10	41	10.0	5	10	5/29	16.0	2		11.6	11	380	.35		3.00		18.00			.41	1.13	

REMARKS

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

WELL NAME 34/10-19 AREA NORTH SEA
OPERATOR STATOIL RIG ROSS ISLE
ENGINEERS WIIK/TORGERSEN

Drilling Mud Properties Record

MUD SYSTEM GEL/LIGNO

Day No	DATE 1983	DEPTH FEET ☐ METERS ☐ Meter	DENSITY PPG ☐ SG ☐ SG	VISCOSITY sec/qt	A.V. cps	P.V. cps	Y.P. #/100 sq.ft.	GELS 0 / 10	FLUID LOSS 30 Min cc's	CAKE 32 nds	H.T.H.P. cc's	pH	Cl⁻ ppm X 1000	Ca++ ppm T.H.	Pf	% OIL	% SOLIDS CORR.	% SAND	BENTONITE #/BBL	POTASH #/BBL	POLYMER #/BBL	"N"	"K"	OPERATION REMARKS
15	19/10		1.25	42	12.5	7	11	9/25	18.0	3		11.6	11	280	.30		8.00		18.00			.47	.94	
16	20/10	1073	1.10	44	10.5	5	11	4/15				12.0	14	420	2.00		5.00		17.50			.39	1.39	
17	21/10	1073	1.10	45	14.0	9	10	3/19	12.0	2		12.0	11	100	1.10		5.00	.25	20.00			.56	.58	
18	22/10	1048	1.12	50	21.5	15	13	5/14	13.5	2		11.5	13	180	.60		6.00	.50	17.50			.62	.59	
19	23/10	270	1.11	44	19.5	10	19	15/25	14.0	2		11.8	12	50	1.40		5.00		20.00			.43	2.02	
20	24/10	1076	1.10	44	15.0	7	16	13/17	20.0	2		12.0	11	120	1.00		4.00		18.00			.38	2.11	
21	25/10	1102	1.10	45	18.5	8	21	20/35	17.5	2		11.2	12	100	.30		4.00		21.00			.35	3.24	
22	26/10	1140	1.11	44	16.5	7	19	15/28	12.0	1		10.9	12	220	.15		4.00		21.00			.34	3.05	
23	27/10	1289	1.10	40	13.0	6	14	13/25	17.0	2		9.9	12	400	.10		4.00		21.00			.38	1.89	
24	28/10	1299	1.10	45	19.5	11	17	18/37	15.0	2		9.5	13	400	.10		5.00		25.00			.48	1.42	
25	29/10	1440	1.35	46	21.0	12	18	8/37	14.0	2		10.0	13	360	.10		10.00	.25	12.50			.49	1.46	
26	30/10	1474	1.48	50	20.5	14	13	19/45	11.0	2		10.9	13	200	.20		15.00		23.00			.60	.63	
27	31/10	1474	1.48	44	21.5	16	11	5/15	9.5	1		10.5	14	160	.22		15.00		22.50			.67	.41	
28	1/11	1474	1.51	49	23.5	16	15	20/60	10.0	2		10.0	15	320	.12		16.00		25.00			.60	.73	

REMARKS

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

WELL NAME 34/10-19 AREA NORTH SEA

OPERATOR STATOIL RIG. ROSS ISLE

Drilling Mud Properties Record

MUD SYSTEM LIGNO/GEL/SEAWATER

ENGINEERS CHAVEZ/KORSVOLD/VASTVEIT

Day No	DATE 1983	DEPTH FEET ☐ METERS ☐ Meter	DENSITY PPG ☐ SG ☐ SG	VISCOSITY sec/qt	A.V. cps	P.V. cps	Y.P. #/100 sq.ft.	GELS 0/10	FLUID LOSS 30 Min cc's	CAKE 32 nds	H.T.H.P. cc's	pH	Cl⁻ ppm X 1000	Ca⁺⁺ ppm T.H.	Pf	RETORT % OIL	% SOLIDS CORR.	% SAND	BENTONITE #/BBL	POTASH #/BBL	POLYMER #/BBL	"N"	"K"	OPERATION REMARKS
29	2/11	1474	1.51	49	30.0	20	20	19/55	10.0	2		10.0	14	320	.12		16.00		25.00			.58	1.04	
30	3/11		1.54	46	24.5	17	15	15/60	10.0	2		11.2	12	120	.45		17.00		25.00			.61	.69	
31	4/11		1.54	45	25.5	18	15	13/60	11.0	2		10.8	14	180	.30		17.00		25.00			.63	.66	
32	5/11	1474	1.54	47	25.5	17	17	18/65	11.5	2		10.6	15	220	.20		17.00		25.00			.58	.89	
33	6/11		1.54	46	25.5	17	17	13/55	11.0	2		10.2	16	160	.20		17.00		22.50			.58	.89	
34	7/11		1.54	46	25.0	17	16	18/41	11.0	2		10.4	17	260	.15	0.0	17.00		25.00			.60	.79	
35	8/11	1494	1.54	49	24.5	17	15	14/39	10.5	2		10.6	17	200	.20	0.0	17.00		22.50			.61	.69	
36	9/11	1455	1.60	49	24.0	18	12	11/47	10.5	2		10.2	17	24	.30		19.00	.25	25.00			.68	.44	
37	10/11	1595	1.68	48	26.5	20	13	5/41	9.0	2		10.8	17	360	.25	0.0	23.00	.25	25.00			.68	.47	
38	11/11	1619	1.75	47	26.0	21	10	3/40	8.2	2		10.3	16	300	.25		26.00		23.00			.75	.30	
39	12/11	1700	1.77	48	32.5	25	15	4/47	7.5	2		10.4	17	120	.45		27.00		25.00			.70	.51	
40	13/11	1700	1.77	52	27.0	21	12	3/33	7.5	2		10.3	18	160	.40	0.0	26.00	.25	23.00			.71	.39	
41	14/11		1.77	54	27.0	21	12	3/33	7.6	2		10.4	18	120	.40	0.0	26.00	.25	22.50			.71	.39	
42	15/11		1.77	60	29.5	23	13	9/49	8.0	2		10.0	18	300	.20	0.0	27.00	.25	25.00			.71	.42	

REMARKS

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

Drilling Mud Properties Record

MUD SYSTEM GEL/LIGNO

WELL NAME 34/10-19 AREA NORTH SEA
OPERATOR STATOIL RIG ROSS ISLE
ENGINEERS CHAVEZ/VASTVEIT/WIIK/KORSVOLD

Day No	DATE 1983	DEPTH Meter	DENSITY SG	VISCOSITY sec/qt	A.V. cps	P.V. cps	Y.P. #/100 sq.ft.	GELS 0/10	FLUID LOSS 30 Min cc's	CAKE 32 nds	H.T.H.P. cc's	pH	Cl⁻ ppm X 1000	Ca ++ ppm T.H.	Pf	% OIL	% SOLIDS CORR.	% SAND	BENTONITE #/BBL	POTASH #/BBL	POLYMER #/BBL	"N"	"K"	OPERATION REMARKS
43	16/11		1.77	53	25.0	20	10	6/40	2.0			7.8	17	100	.35	0.0	27.00	.25	23.00			.74	.30	
44	17/11	1750	1.77	48	27.5	23	9	4/35	8.0	2		10.8	15	160	.55	0.0	27.00	.25	22.50			.78	.25	
45	18/11	1775	1.86	53	31.0	26	10	3/35	6.5	2	18.5	10.8	16	160	.55		30.00	.50	21.50			.78	.27	
46	19/11	1845	1.89	58	36.0	30	12	3/35	6.1	2		11.0	16	100	.75		32.00	.25	23.00			.78	.33	
47	20/11		1.89	65	34.0	29	10	5/	7.0	2		10.0	17	200	.25		32.00	.25	23.00			.80	.26	
48	21/11		1.89	56	34.0	31	6	2/24	6.4	2		10.5	13	280			31.00	.50	22.00			.88	.16	
49	22/11	1847	1.85	57	32.5	29	7	2/25	7.4	2	25.0	11.0	12	180	1.45		29.00	.75	19.00			.85	.18	
50	23/11	1869	1.85	60	36.5	33	7	2/35	6.0	2	20.0	10.9	13	200	1.20	0.0	28.00	.50	19.00			.87	.18	
51	24/11	1880	1.85	60	31.5	28	7	2/19	6.6	2	21.5	11.2	12	220	.90	0.0	28.00	.50	20.00			.85	.18	
52	25/11	2026	1.85	60	36.0	31	10	3/35	5.3	1	19.5	10.4	13	200	.30		27.00		19.00			.81	.26	
53	26/11	2168	1.85	64	35.0	30	10	3/	4.6	2	22.0	11.5	14	200	.80		28.00		19.00			.81	.26	
54	27/11	2218	1.87	63	36.0	31	10	3/26	4.3	1	22.0	10.6	14	200	.50	29.0	20.00	.25	18.00			.81	.26	
55	28/11																							
56	29/11	1635	1.87	68	40.5	33	15	5/35	7.0	1		12.0	14	400	1.50		29.00		18.00			.75	.43	

REMARKS

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

Drilling Mud Properties Record

MUD SYSTEM GEL/LIGNO

WELL NAME 34/10-19 AREA NORTH SEA
OPERATOR STATOIL RIG ROSS ISLE
ENGINEERS BLANCHARD/KORSVOLD

Day No.	DATE 1983	DEPTH FEET [ ] METERS [ ] Meter	DENSITY PPG ☐ SG ☐ SG	VISCOSITY sec/qt	VISCOSITY A.V. cps	VISCOSITY P.V. cps	VISCOSITY Y.P. #/100 sq.ft.	GELS 0 / 10	FLUID LOSS 30 Min cc's	CAKE 32 nds	H.T.H.P. cc's	pH	Filtrate Analysis Cl⁻ppm X 1000	Filtrate Analysis Ca⁺⁺ ppm T.H.	Filtrate Analysis Pf	RETORT % OIL	RETORT % SOLIDS CORR.	% SAND	BENTONITE #/BBL	POTASH #/BBL	POLYMER #/BBL	"N"	"K"	OPERATION REMARKS
57	30/11		1.77	48																				
58	1/12		1.77	58	29.5	25	9												15.00			.79	.24	
59	2/12		1.54	55	34.0	30	8															.84	.20	
60	3/12		1.54	45																				

REMARKS

III 11 EQUIPMENT FAILURES

III II. DRILLING EQUIPMENT FAILURES

Date of failure	Equipment involved	Kind of failure
11.10.83	Sub Sea Cement Launching Mandrel	Mandrel parted above swivel when being pulled out of mouse-hole, hit a shoulder in same
22.10.83	16" BOT liner Running Tool	Gauled area found below O-ring on running tool. Required 4200 kg-m torque to break out for inspection
23.10.83	Pod Selective Valve in Payne Unit	Failed. Replaced same
24.10.83	14 3/4" bit breaker	To big for the bit breaker base
25.10.83	Servco 17½" under-reamer	Gauged to open to 16 3/4"
26.10.83	Drawwork Transmission Clutch	Unable to switch from low to high
27.10.83	Servco 17½" under-reamer	2 arms broken and third cone parted from its arm. All parts found in their respective cavities

28.10.83	Servco 17½" under-reamer	One cone lost in the hole, and one cone loose inside cavity
07.11.83	8" Drill collars	Damaged threads on 3 DC connections
10.11.83	Blue pod	Leak in junction box, between hose and pod
10.11.83	Blue pod	Not able to sting in with stingers into receptacle
14.11-17.11.83	18 3/4" x 9 5/8" 690 bar sealassy.	Not able to set and test
17.11.83	Upper Annular Preventer	Modified new seal-assembly. Same set and pressuretested. Could not pass U.A.P w/wearbushing. Increased weight of landing string. OK.
21.11.83	Drawwork	Failure on field rectifier.
25.11.83	Survey tool	Found landing shock assembly on survey barrel left inside drill string
25.11.83	Upper racking arm	Serviced same
01.12.83	Schlumberger gauge ring	Cracks in same

IV MARINE REPORT

1. WEATHER AND ANCHOR TENSION 34/10-19

The weather condition when drilling the well exceeded the operation limits several times. 151,5 hours were lost waiting on weather.

The main wind directions were from SW and NW.
Windspeeds above 30 m/sec were recorded several times, maximum recorded value of 42 m/sec.

The main wave directions were from SW and NW.
Maximum waveheights exceeded 10 meters, maximum recorded value of 14 meter.

The maximum reported anchor tension was 170 m. tons on anchor no. 7 and no. 8.

2. **LOCATION WEATHER DATA SUMMARY**

statoil
Den norske stats oljeselskap a.s

WELL: 34/10-19 RIG: ROSS ISLE

TIME PERIOD: FROM 03.10.83 TO 06.12.83 -1983

READINGS PR. MONTH: 30/31

WIND

dir. \ m/sec.	0 – 5	5 – 10	10 – 15	15 – 20	20 – 25	25 – 30	> 30	total
N				1	1	1		3
NNE								–
NE			1	1	1			3
ENE	1							1
E								–
ESE								–
SE								–
SSE					2		1	3
S				1	1	1		3
SSW				1	3		2	6
SW			1	3	4	4	2	14
WSW	1		1		3	2		7
W					1	2	1	4
WNW				1			1	2
NW		1	1	1	1	3	3	10
NNW				2	2	1	2	7
total	2	1	4	11	19	14	12	63 / 63

WAVE

dir. \ height (m)	0 – 1	1 – 2	2 – 3	3 – 5	5 – 7	7 – 10	> 10	total
N				1	1	1		3
NNE				1				1
NE				2				2
ENE		1						1
E								–
ESE								–
SE					1	1		2
SSE				1				1
S				3				3
SSW			1	3	1	2		7
SW		1		3	7	4		15
WSW		1		2	2			5
W					3	2		5
WNW					1	1		2
NW	1			1	1	3	4	10
NNW				1	3	2		6
total	1	3	1	18	20	16	4	63 / 63

3. NAVIGATION REPORT

RIG MOVE OF ""ROSS ISLE" TO WELL 34/10-19

1. Final position (ED 1950)

   61° 11' 10.86"N   02° 15' 30.55"E

   Accuracy : 5 meters (Tranlocation)

   Rig heading : 322°

   Deviation from intended position: 16 m - 105°

2. Observed Decca Main Chain readings

Chain	:	Vestlandet OE
Red	:	I 13.85
Green	:	D 42.10
Purple	:	B 64.93

3. Navigation/positioning method

   a) Navigation

   Pulse/8 navigation system with HP computer and plotter. (Q-6 package).

   Contractor: Racal-Decca Survey Norway A/S, Bergen

   Personnel : Peter Ebsworth

   b) Positioning

   MK-1502 satellite positioning system.

   Contractor: A/S Geoteam, Oslo

   Personnel : Erling Johannesen

V PETROPHYSICAL SUMMARY

RES/FORUS
EÅ

PETROPHYSICAL REPORT

POROSITY	:	PHID = (RHOMA-RHOB)/(RHOMA-RHOFL)
		RHOMA = 2.66, RHOFL = 1.03
FORMATION FACTOR	:	$F = 1.00\ \phi^{-1.81}$
FORMATION TEMPERATURE	:	T = 0.044 D (mRKB) - 9°C
SALINITY	:	Rw = 6.825/(T + 21.5)
WATER SATURATION Waxman-Smits	:	$S_w = \left[\frac{1}{F^*}\ \frac{R_t}{R_w}\ (1 + R_w \times B \times Q_v/S_w)\right]^{-\frac{1}{n^*}}$
$Q_v = 0$	:	$S_w = \left[\frac{1}{F^*}\ \frac{R_t}{R_w}\right]^{-\frac{1}{n^*}}$
$n^* = 2.06$		
CUTOFF	:	RHOB > 2.45, RHOB < 1.95
		PHIN - PHID > 0.10

PETROPHYSICAL PARAMETERS

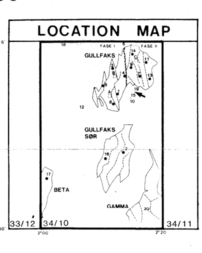
Zone	Top mRKB	Thickness		Net/gross		Net porosity		Net Sw		Net KLH aritm.		Net KLV aritm.	
S-3	2005		41		.927		27.3		100		491		190
S-2	2046	183	84	.603	.521	25.3	24.9	100	100	267	162	106	69
S-1	2130		58		.491		23.2		100		132		52

VI ENCLOSURES

statoil /NORSK HYDRO / SAGA PETROLEUM

34/10-19
COMPLETION LOG
Scale 1:500

COORDINATES: 61° 11' 10, 86" N
02° 15' 30,55" E
K.B.: 22.0 m ABOVE M.S.L.
WATER DEPTH: 192.5 m
TOTAL DEPTH: 2218 m RKB
DEEPEST FORM. PEN.: HEGRE GROUP
SPUD DATE: 05 OCT 1983
RIG RELEASE DATE: 12 DEC 1983
WELL STATUS: P&A-DRY WELL
RIG: ROSS ISLE
CONTRACTOR: ROSS DRILLING CO A/S
GEOLOGISTS: S. SVINDDAL, K. RUUD, M. PRUDDEN, L. ANDERSSON, M. HELLE, M. GRACE
PREPARED BY: O. PETTERSON / A. STORLI
APPROVED BY: E. UNDERSRUD



DATE: APRIL 1984

CASING DATA:

Casing	Depth	LOT (SG)
30"	at 288m (RKB)	
20"	at 969m (RKB)	1.56
16" LINER	at 1073m (RKB)	1.59
13 3/8"	at 1483m (RKB)	1.86
9 5/8"	at 1689m (RKB)	2.06

VELOCITY SURVEY: 30 CHECKSHOTS WERE CONDUCTED BY SSL AT LEVELS FROM 905 TO 2214 m (RKB)

LOGS RUN

ISF/LSS-MSFL-GR	LDL-CNL-GR	CBL-VDL-GR-CCL	HDT	RFT	TEMPERATURE LOG	CALIPER LOG
RUN 1:214.5-977.5 RUN 2:968-1070 RUN 3:1073-1473 RUN 6:1688-2216 ISF-BHC-MSFL-GR RUN 4:1481-1700 ISF-BHC-GR RUN 5:1688-1846	RUN 1:288.5-977.5 RUN 2:1073-1473 RUN 3:1480-1700 RUN 4:1688-2217 MSFL-CNL-GR RUN 6:1687-1874	RUN 1:215-950 RUN 2:260-1075 RUN 3:1050-1480 RUN 4:1430-1690	RUN 1:1481-1700 SHDT RUN 1:1680-2216	RUN 2:1846.4-1863.2 RUN 3:1777.5-2185	RUN 1:225-953	RUN 1: 1073-1493

LITHOLOGIC SYMBOLS

SAND SANDSTONE, LIMESTONE, ANHYDRITE, FORAMS, PYRITE, MICA
SILT SILTSTONE, CHALK, COAL LIGNITE, WOOD FRAGS, GLAUCONITE, STYLOLITES
CLAY CLAYSTONE, DOLOMITE, TUFF, FOSSILS, GEN'L, CHERT, BURROWS
SHALE, MARL, SALT, SHELL FRAGS, SIDERITE, FRACTURES

SHOW OR STAIN, HYDROCARBON CUT, FLUORESCENCE, GAS SHOW

CORES, CORE NO

CASING SHOE, LINER

REMARKS
LOGS CORRECTED FOR HOLE SIZE, MUDWEIGHT, AND TEMPERATURE USING "PRESS" PROGRAM.
GR FROM 1482.0 m. TO 1468.6 m., FROM 1073.0 m. TO 1064.5 AND FROM 289.0 m. TO 211.0 m. WERE RUN THROUGH CASING.

EXLOG

COMPANY	STATOIL DEN NORSKE STATS OLJESELSKAP A.S.
WELL	34/10-19
FIELD	GULLFAKS
REGION	NORWEGIAN NORTH SEA
COORDINATES	61° 11' 11·0" N 02° 15' 29·5"E
API WELL INDEX NO.	
SPUD DATE	05 OCT 1983
ELEVATION	RKB 22M ABOVE MSL WATER DEPTH 192·5M
TOTAL DEPTH	2218 M
CONTRACTOR	ROSS DRILLING
RIG / TYPE	ROSS ISLE / SEMI SUB

LOG INTERVAL

DEPTH FROM 289 M TO 2218 M

DATE FROM 06 OCT TO 27 NOV 1983

SCALE 1:500 UNIT 256

LOG PREPARED BY D. KANE, P. CROOK, J. FLETCHER, P. THICTHENER

HOLE SIZE

36" TO 289 m	12·25" TO 1700 m		
26" TO 978 m	8·5" TO 2218 m		
14·75" TO 1290 m	TO		

CASING RECORD

30" AT 288 m	13·375" AT 1483 m
20" AT 969 m	9·625" AT 1689 m
16" AT 1073 m	AT

MUD TYPES

GEL / SEAWATER TO 978 m

GEL / SEAWATER / HIGH VISCOSITY TO 1494 m

GEL / LIGNOSULFONATE / LIGNITE TO T.D.

LITHOLOGY SYMBOLS

LIMESTONE, DOLOMITE, ANHYDRITE AND GYPSUM, HALITE, COAL AND LIGNITE, CLAY, SHALE, SILT AND SILTSTONE, SILTY SANDSTONE, SAND AND SANDSTONE, CONGLOMERATE, CHERT, IGNEOUS UNDIFFERENTIATED

EXLOG SUITE

- [x] FORMATION EVALUATION LOG
- [x] PRESSURE EVALUATION LOG
- [x] DRILLING DATA PRESSURE LOG
- [ ]
- [x] WIRELINE DATA PRESSURE LOG
- [x] TEMPERATURE DATA LOG
- [ ] GEMDAS COMPUTER LOGS
- [ ]

ABBREVIATIONS

NB	NEW BIT	SVG	SURVEY GAS
RRB	RERUN BIT	C	CARBIDE TEST
CB	CORE BIT	W	MUD DENSITY SG
WOB	WEIGHT ON BIT	V	FUNNEL VISCOSITY
RPM	REVS PER MINUTE	F	FILTRATE – API
FLC	FLOW CHECK	FC	FILTER CAKE
CR	CIRCULATE RETURNS	PV	PLASTIC VISCOSITY
PR	POOR RETURNS	YP	YIELD POINT
NR	NO RETURNS	SOL	SOLIDS – %
LAT	LOGGED AFTER TRIP	SD	SAND – %
BG	BACKGROUND GAS	S	SALINITY – PPM Cl
TG	TRIP GAS	RM	MUD RESISTIVITY
STG	SHORT TRIP GAS	RMF	FILTRATE RESISTIVITY
CG	CONNECTION GAS		
SWG	SWAB GAS		

CASING SEAT, WIRELINE LOG RUN, CORED INTERVAL, TEST INTERVAL, NO RECOVERY, WIRELINE TEST, SIDEWALL CORE

GAS – 100 Total gas units is equivalent to 2% methane-in-air.

OIL – Based on live oil in unwashed cuttings and percentage staining of washed cuttings.

FORMATION EVALUATION LOG

STATOIL DATA PROCESSING CENTER

PLOT MADE BY: ERIK AABOE **DATE:** 13.28.26 9 DESEMBER 1983

DEPARTMENT : RES

ADDRESS/BOX : 30

OTHER INFO : HENTES

GRAPHICAL LØG-PRESENTATIØN

WELL : 34-10-19 DEPTH INTERVALL :1990.00-2200.00 (METER)

ENGINEER :AF SCALE 1:500

DATE: 13.28.37 9 DESEMBER 1983

STATØIL