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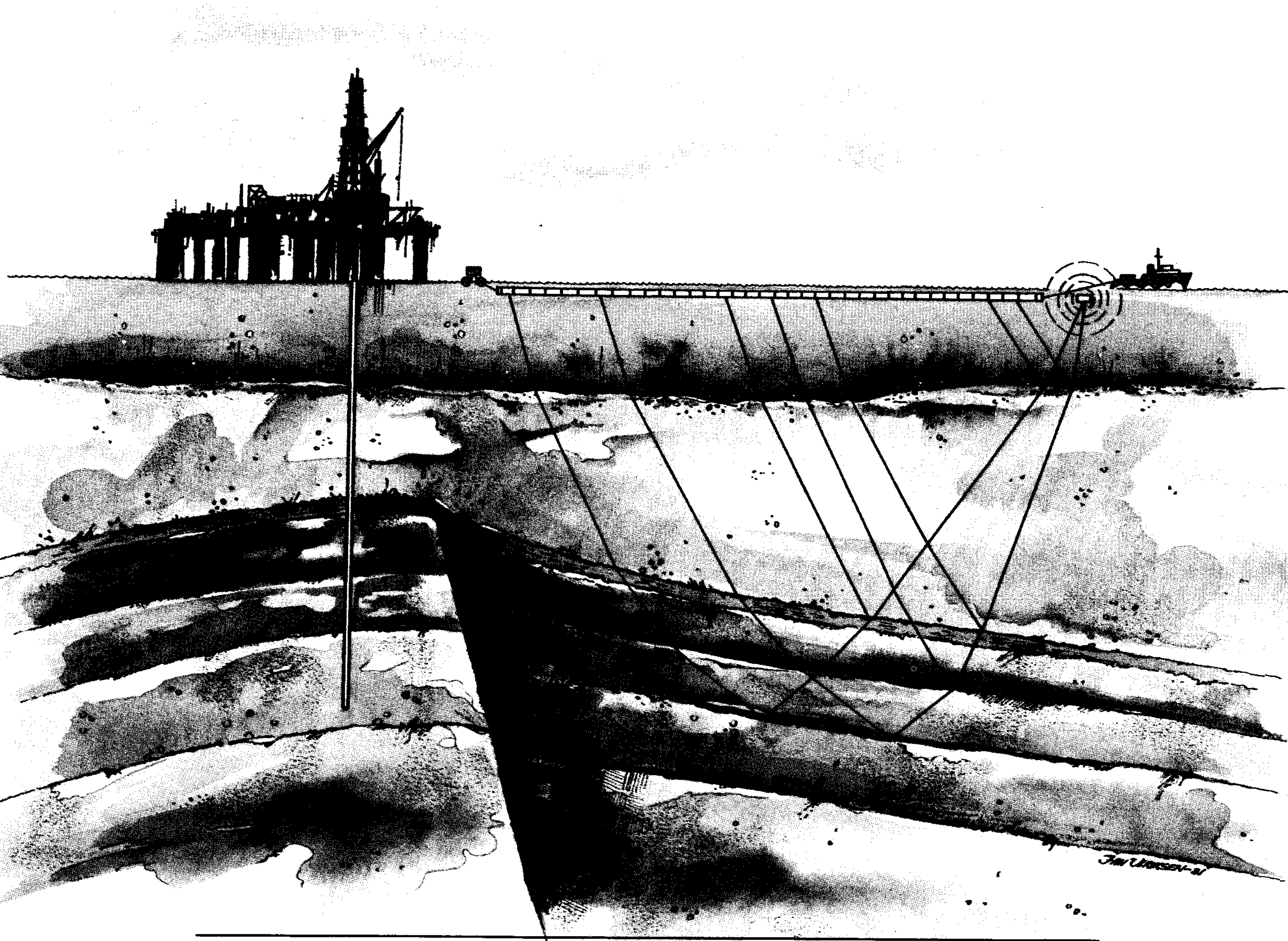

EXPLORATION & PRODUCTION DIVISION

Completion Report

Well 34/10-15

PL 050 Statoil/Norsk Hydro/Saga Petroleum

LET/BER

PL 050

STATOIL - NORSK HYDRO - SAGA PETROLEUM

COMPLETION REPORT

WELL 34/10-15

9.00.03

OHTER REPORTS

- Site Survey	8/82
- Position of Neptuno Nordraug	10/82
- Test Program - Shallow Gas	12/82
- Final Well Report (NPS)	12/82
- RFT Report	1/83
- Paleo Report	2/83
- Petrophysical Report	6/83

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I GENERAL INFORMATION

I GENERAL INFORMATION

1. Well Data Record

a) Well designation : 34/10-15
b) Well classification : Appraisal

c) Well location :
   i) Country : Norway, North Sea
   ii) Licence : PL 050
   iii) Latitude : 61°10'30 06" N
        Longtitude : 02°14'44.57" E
   iv) Seismic location : Shotpoint no. 265
        Line no. 3D-223
   v) Water depth : 163.5 m

d) Rig Data
   i) Rig name : Neptuno Nordraug
   ii) Drilling draft : 21.3 m
   iii) RKB-MSL :25 m

2. Purpose of the well

Well 34/10-15 was drilled on a horst block in the south-eastern part of the Gullfaks field. The primary purpose of the well was to test hydrocarbon accumulations in the Jurassic Brent and Cook sands.
Two secondary objectives were defined:
1. Ascertaining potential reservoir properties of the Lower Jurassic Statfjord sands in that section of the Gullfaks field
2. Testing shallow gas accumulations in the Pliocene sands.

3. Results of the well

Neither the Brent nor the upper Statfjord sands were encountered in this well, due to erosion and faulting respectively. The

Cook sands contained some residual oil but only water was recovered from RFT samples.
10 cores were taken on this well; 5 between 1870 and 1945 m, 3 between 2170 and 2213 m and 2 between 2301 and 2323 m.
The final TD was 2400 m, in the Triassic Cormorant formation.
As the 13 3/8" casing could not be freed, the shallow gas test had to be aborted.

4. Well History

a) General :

i)	Spud date :	October 16, 1982
ii)	Rig released :	December 13, 1982
iii)	Status :	Plugged and abandoned

b) Contractors :

i)	Drilling platform :	Neptuno Nordraug
ii)	Drilling contractor :	Ross Drilling Co. A/S
iii)	Cementing :	B.J. Services
iv)	Casing :	Stavanger Casing Crew
v)	Well testing :	Flopetrol
vi)	Electric logging :	Schlumberger
vii)	Mud logging :	NPS
viii)	Mud Contractor :	Anchor Drilling Fluid
ix)	Supplyboats :	Supply boat-pool
x)	Conventional coring :	Christensen
xi)	Diving :	Scan dive
xii)	Helicopters :	Helikopter Service
xiii)	Core analysis :	GECO
xiv)	Paleo analysis :	Paleoservices

c) Casing

i) 30" at 249 m
ii) 20" at 940 m
iii) 13 3/8" at 1564 m
iv) 9 5/8" at 1736 m

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d) Coring

1. Coventional Coring (description attached)

Core No.	Interval (mKB)	Tot (m)	Rec. (m)	Rec. (%)	Glassfib. liner
1	1870.0-1888.0	18.0	9.0	50.0	+
2	1888.0-1900.0	12.0	9.0	75.0	+
3	1900.0-1917.0	17.0	5.7	34.0	+
4	1917.0-1935.0	18.0	11.3	63.0	+
5	1935.0-1945.0	10.0	5.7	57.0	+
6	2170.0-2187.5	17.5	17.1	97.7	+
7	2187.5-2201.0	13.5	12.5	92.6	+
8	2201.0-2213.0	12.0	10.4	87.0	+
9	2301.0-2316.5	15.5	13.9	90.0	
10	2316.5-2323.0	6.5	5.5	85.0	

2. Sidewall Coring (description attatched).
   30 samples were recovered out of 30 shot.

e) Logging

1. NPS, the ADT unit including the following data:

   i) Drilling rate (ROP)
   ii) Lithology
   iii) Cutting gas
   iv) Mud gas
   v) Chromatograph
   vi) H_2S detector
   vii) Shale density and 20 other parameters

2. Schlumberger

Type of Log	Run No.	Interval (m KB)
ISF/SONIC-GR-MSFL	*1	249.0- 950.0
	*2	950.0-1581.0
	*3	1581 0-1752.0
	*4	1752.0-1991.0
	5	1991.0-2302.0
	6	2302.0-2400.0
LDL/CNL-GR	2	950.0-1580.0
	3	1580.0-1752.0
	4	1752.0-1991.0
	5	1940.0-2406.0
DLL/MSFL-NGS	1	1752.0-1988.0
NGS	1	1752.0-1988.0
	2	1991.0-2301 0
	3	2302.0-2400.0
HDT	1	1737.0-2405.0
GEODIP	1	1865.0-2404.0
CBL/VDL-BI	1	644.0-1564.0
	3	1430.0-1737.0

*Using long-spaced sonic

f) Velocity Survey (VSP)

The velocity survey was conducted by Schlumberger. 64 checkshots were taken, with levels between 253-2400 m KB

II GEOLOGICAL REPORT

1. Stratigraphy

a) Table of Chronostratigraphy (all depths in meters)

Chronostratigraphic Tops	Depth (KB)	Thickness
Section above 1450 m not studied.		
Early Eocene		>60
Basal Eocene - Late Paleocene	1510	54
Late Paleocene	1564	135
-------------------------UNCONFORMITY-------------------------		
Late Maastrichtian	1681	24
Maastrichtian - Campanian	1705	120
-------------------------UNCONFORMITY-------------------------		
Toarcian	1825	27
Early Toarcian	1852	9
Early Toarcian - Late Pliensbachian	1861	84
Late Pliensbachian	1945	180
Early Pliensbachian	2125	84.9
-----------------------------FAULT-----------------------------		
?Rhaetian	2209.9	190.1
TD	2400	

b) Tabel of lithostratigraphy (all depths in meters)

Lithostratigraphic Tops	Depth (KB)	Depth (MSL)	Thickness
Nordland Group	188.5	- 163.5	709.5
Hordaland Group	898	- 873	617
Rogaland Group	1515	- 1490	172
Balder Formation	1515	- 1490	53
Lista Formation	1568	- 1543	119
Shetland Group	1687	- 1662	140
Dunlin Group	1827	- 1802	386
Drake Formation	1827	- 1802	43
Cook Formation	1870	- 1845	164
Burton Formation	2034	- 2009	15
Amundsen Formation	2049	- 2024	164
Statfjord/Cormorant Formation	2213	- 2188	>187
TD	2400	- 2375	

2. Lithological Description

a) Summary

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

NORDLAND GROUP (188.5 - 898 M KB)

This group consists of clays with some interbedded sands in places, and a 50 m thick sand unit toward the base. The clay is light to medium grey, soft, sticky, slightly to very silty and non to very calcareous. The sand is generally clear to translucent quartz, very fine to coarse, subangular to subrounded and occasionally well rounded, poorly to well sorted and loose. There are some minor limestone stringers as well as traces of lignite, mica and pyrite. Shell fragments are found throughout this group and are very abundant in places.

HORDALAND GROUP (898 - 1515 M KB)

This group consists of an upper brownish grey to olive grey claystone interbedded with sands, and a lower light grey to green-grey claystone interbedded with sand, sandstone and limestone stringers. The brown-grey claystone is generally soft, soluble to sticky in places, silty, micromicaceous and non-calcareous. The green-grey claystones start around 1270 m KB. The are soft to firm, soluble to sticky, slightly silty, non-calcareous and occasionally pyritic. The sands are of clear to translucent to milky-white quartz. They are very fine to coarse grained, angular to rounded and occasionally well rounded, poorly to well sorted and loose. The sandstone is clear to grey to light brown, fine grained, subrounded, moderately sorted, friable to loose though hard in places, silty and slightly argillaceous in places, generally non-calcareous and occasionally glauconitic. The limestones are generally buff, light grey to grey, moderately hard to hard,

microcrystalline to crystalline though occasionally sucrosic or micritic and slightly dolomitic. They are slightly argillaceous and pyritic in places. There are traces of a brown, friable siltstone as well as traces of lignite, glauconite, mica, pyrite and fossil fragments.
Environment; Marine, outer sublittoral to bathyal, with rather restricted circulation.

ROGALAND GROUP (1515 - 1687 M KB)

Balder Formation (1515 - 1568 m KB)

The Balder formation is composed of claystones and tuffs with minor interbedded limestones and sandstones. The claystones are light grey to grey and green-grey, becoming light to dark grey and blue, green and brown-grey lower down. They are soft to firm and occasionally sticky, pyritic and non to slightly calcareous. The tuffs are grey to blue-grey, occasionally brown to grey-brown, soft to firm and mottled with white and and dark specks. They are generally non-calcareous, becoming slightly calcareous in places. The limestones are grey to light brown or off-white to buff, crystalline or micritic, soft to hand and occasionally slightly argillaceous and pyritic. The sandstones are of clear to light grey fine grained quartz, subangular to subrounded, moderately sorted, friable to moderately hard and with a calcareous cement. There are some shows, mainly in the limestones and minor traces of pyrite and microfossils.
Environment; The "Ash Series" was deposited in a marine, sublittoral or bathyal environment of uncertain depth, with tuffaceous debris derived from contemporaneous volcanism.

Lista Formation (1568 - 1687 m KB)

The Lista formation consists mainly of claystones with some interbedded limestone and siltstone stringers. The claystones are all light grey to grey or green-grey, and soft to firm, becoming firm to moderately hard and blocky in places. They

are silty in places, micromicaceous, non to slightly calcareous and occasionally slightly pyritic. The limestones are either off-white to cream, soft to firm, micritic and slightly argillaceous, or buff to brown, crystalline or microcrystalline, occasionally slightly sucrosic and hard to very hard. The siltstones are light brown to brown, firm to moderately hard, argillaceous, micaceous and slightly calcareous to calcareous, grading to very fine to fine grained, silty, argillaceous sandstones. There are some sand stringers, very fine to fine grained quartz, subrounded and loose, as well as traces of pyrite, calcite and microfossils. There are some shows, mostly in the limestones.
Environment; The Late Paleocene sequence was deposited in an outer sublittoral, bathyal environment similar to the Early Eocene. The sand interbeds below 1639 m were probably deposited by mass-gravity mechanisms.

SHETLAND GROUP (1687 - 1827 M KB)

The Shetland group consists entirely of claystones with some interbedded limestones and minor traces of sandstone toward the base. The claystones are generally light grey to grey, soft and sticky or soluble, becoming firmer in places. They are very calcareous but become slightly silty and less calcareous lower down and are occasionally micromicaceous and pyritic. The limestones are generally white to tan or light grey to grey, crystalline and moderately to very hard, or occasionally micritic, firm and slightly argillaceous. The sandstone are light grey to grey, very fine to fine grained, moderately sorted, subangular to subrounded, friable to loose and slightly calcareous. There are traces of pyrite and microfossils throughout the section.
Environment; The upper part was deposited in a well oxygenated, outer sublittoral to bathyal environment, with open oceanic circulation. Below 1723 m the sediments were deposited in an environment with more restricted circulation.

DUNLIN GROUP (1827 - 2213 M KB)

Drake Formation (1827 - 1870 m KB)

This formation consists of claystones with interbedded limestones and some thin sandstones. The claystones are light grey to grey, soft to firm, silty, micromicaceous and calcareous, or occasionally non-calcareous, with some traces of pyrite. The limestones are white to light grey or cream to tan, firm to moderately hard, micritic or occasionally crystalline and slightly argillaceous in parts. The sandstones are light grey in colour and friable to hard with very fine to fine quartz grains. These are subangular to subrounded and moderately sorted with some pyrite cementing towards the base. There are also traces of mica and microfossils throughout this section, as well as glauconite in places. There is some yellow fluorescence and a fast milky white cut fluorescence in the sandstones. Environment; Marine, sublittoral.

Cook Formation (1870 -2034 m KB)

The Cook Formation can be divided into two sections: as upper sand section (Cook units II and III) and a lower siltstone section (Cook unit I). The upper section is composed of sand-stones with some thin shale bands. The sandstones are light grey to grey with clear quartz grains, and fine to medium becoming very fine to fine deeper down. They are sub-angular to sub-rounded, well sorted and are generally loose or friable and argillaceous. In places there are some extremely calcareously cemented bands which are very hard. The shales are grey to dark grey, soft to firm and slightly micaceous and carbonaceous. The lower section is composed of siltstones which grade from silty shale to sandy silt, and which are generally medium to light grey, soft and non to slightly calcareous. There are traces of mica and pyrite and some thin, slightly dolomitic, limestones. Environment; See below.

Burton Formation (2034 - 2049 m KB)

This formation consists of a medium grey claystone which is soft, soluble, slightly to very fissile and shaly, and slightly calcareous. There is also some sand, fine to medium quartz, sub-angular to sub-rounded and moderately well sorted. Lithologically it is difficult to differentiate this formation from the Amundsen formation.
Environment; See below.

Amundsen Formation (2049 - 2213 m KB)

The Amundsen formation is composed of claystones occasionally interbedded with limestones and some small sands. Towards the base it becomes silty and grades from a silty shale up to a very fine sandstone in some sections. The claystones are medium grey to brown grey, soft to firm, silty and non to slightly calcareous. The limestones are buff to tan, hard, brittle and cryptocrystalline, whilst the sands are fine to medium, sub-angular to sub-rounded, with fair sorting. The siltstone is grey, firm to moderately hard, sandy, argillaceous and non to slightly calcareous with some extremely calcareous bands in places.
Environment; Marine, mainly inner sublittoral, possibly littoral within the Cook Formation. These sediments were deposited in a shallow marine environment. The Cook "Sand" Member (units II and III) is interpreted as a regressive episode, while the fine sands at the base of the Amundsen Formation represent a transgressive phase.

STATFJORD/CORMORANT FORMATION (2213 - 2400 M KM TD)

The top of this formation is believed to be fault bounded, with the well entering the Raude Member of the Statfjord or top of the Cormorant formation across the fault. It consists of interbedded sands and shales, with red-brown shales, soft to firm and non to slightly calcareous, with some occasional bands of green-grey micromicaceous claystones lower down. The sands are of clear to translucent quartz with occasional red-brown staining, fine to medium grained, or coarse in places, loose or friable, angular to subrounded and poorly sorted. They are non-calcareous to calcareous and slightly to very micaceous. Environment; Continental, alluvial-fluvial.

b) Wellsite sample descriptions

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WELLSITE SAMPLE DESCRIPTION

Country:	NORWAY	Area:	NORTH SEA	Field:	GULLFAKS
Well no.:	34/10-15				
K. B. E.	25 meters	Company:	STATOIL/NORSK HYDRO/SAGA		
Hole size:	12 1/4 PILOT	Geologist:	M.GRACE	Date:	20.10.82

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks GAS READINGS
260	100	SD: trnsl-clr qtz, med-crs, subang-subrnd, well srtd, lse	0.30%
	TR	SST: gry, vf-f qtz, fri, sl calc cmt, slty	
	TR	SHELL FRAGS	
270	100	CLY: med gry, v sft, v stky, v slty, v calc	0.73%
	TR	SD, SHELL FRAGS a/a	
280	100	CLY: a/a	1.2%
	TR	SD, SLT, SHELL FRAGS a/a	MAX 1.83% 283m
290	100	CLY: a/a	1.17%
	TR	LST: mod hd, microxln, yel gry, suc, blok	
	TR	SHELL FRAGS, SLT, SD, vf-v crs	
300	100	CLY: a/a w/ abun microfoss, forams	0.7%
	TR	SD, SLT, LST a/a	
310		a/a	0.7%
320		a/a	1.0%
330	90	CLY: a/a	0.86%
	10	SD: clr-trnsl qtz, vf-crs, prly srtd, subrnd-subelg when crs, subang-ang when f.	
	GD TR	LST: crm wh, crmbly, arg, microxln, suc, sft-frm	
333-334	80	CLY: a/a	SPOT SAMPLE
	20	SD: a/a	4.3% PEAK

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-15		
K.B.E. 25 meters	Company: STATOIL/NORSK HYDRO/SAGA	
Hole size: 12 1/4 PILOT	Geologist: M.GRACE	Date: 20.10.82

Depth (m/KBE)	Lith. (%)	Lithologic description: Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks: GAS READINS
340	100	CLY: med-dk gry, sl-mod slty, v sft, stky, calc	1.13%
	TR	SD: med-crs or vf	
		LST: wh, arg, suc	
		SHELL FRAGS: microfoss	
350		a/a	0.87%
360		a/a	0.40%
370		a/a	0.53%
380		a/a	0.26%
390		a/a	0.73%
400		a/a	0.33%
410	100	CLY: a/a	PEAK 4.17% 403m
	GD TR	SD: a/a	NO SD IN SPOT SAMPLE
420	90	CLY: a/a	
	10	SD: qtz, clr, f-med, pred subrnd, occ subang, lse	
	TR	SHELL FRAGS: microfoss	
430	80	CLY: a/a	
	20	SD: a/a	
440	80	CLY: a/a	
	20	SD: pred vf-f, occ med, a/a	

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K. B. E. 25 meters | Company: STATOIL/NORSK HYDRO/SAGA

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Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks GAS READINGS
442	100	CLY: a/a	MAX GAS 17.2%
	TR	SD: a/a	
450	30	CLY: a/a	
	30	SD: vf-med, well srt, pred well rnd	
	40	SHELL FRAGS: pred pelecypod shells, also spicules or echinoid spines, gastropod frags, bryozoa, sponges, scaphopod worm tubes, crustaceans, abundant microfoss-ostracods, forams	POSS SHELL BANK
	GD TR	MICA, PYR, ROCK FRAGS, HEAVY MINERALS	
460	50	CLY: med-dk gry, v slty, sft, stky, calc	
	50	SD: qtz, clr-trnsl, occ mlky, f-med, rnd-subrnd, occ subang, well srtd, heavy minerals-lt grn, trnsl-poss apatite, lt rd-rd-poss garnet, mica	
	TR	SHELL FRAGS	
470	60	CLY: a/a	
	40	SD: vf-f, a/a	
	TR	SHELL FRAGS: many worm tubes	
480		a/a	
490	50	CLY: a/a	
	50	SD: a/a pred vf-f, occ med, tr v crs	
	TR	SHELL FRAGS	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-15		
K. B. E. 25 meters	Company: STATOIL/NORSK HYDRO/SAGA	
Hole size: 12 1/4 PILOT	Geologist: M.GRACE	Date: 21.10.82

Depth (m/KBE)	Lith. (%)	Lithologic description — Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
500	80	CLY: a/a	
	20	SD: a/a vf-crs slt	
	TR	SHELL FRAGS: oyster shells	
510	60	CLY: a/a	
	40	SD: clr qtz, vf-crs, pr-mod srt, subang-subrnd, lse	
520	70	CLY: a/a	
	30	SD: a/a	
530	60	CLY: a/a	
	40	SD: qtz, trnsl-mlky bl, pred v crs, mod srt, subang	
540	90	CLY: a/a	
	10	SD: vf-crs a/a	
550	100	CLY: a/a	
	TR	SD: a/a	
560	90	CLY: a/a	
	10	SD: a/a	
570		a/a	
580	95	CLY: a/a	
	5	SD: a/a	
590	100	CLY: a/a	
	TR	SD: a/a	

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K. B. E. 25 meters	Company: STATOIL/NORSK HYDRO/SAGA		
Hole size: 12 1/4 PILOT	Geologist: M.GRACE	Date: 21.10.82	

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
600	100	CLY: med-dk gry, v-sft, slty, stky, non-sl calc	
610		a/a	
620		a/a	
630		a/a	
640		a/a	
650		a/a	
660		a/a	
670		a/a	
680	100	CLY: a/a	
	TR	SD: qtz, clr, vf, well srt, subang-subrnd	
690	100	CLY: a/a	685m GAS
GD	TR	SD: vf a/a	PEAK 4.03%
700		a/a	
710		a/a sl tr sd only	
720		a/a	
730		a/a	
740		a/a	

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Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-15		
K. B. E. 25 meters	Company: STATOIL/NORSK HYDRO/SAGA	
Hole size: 12 1/4 PILOT	Geologist: M.GRACE	Date: 21.10.82

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
750		a/a	
760		a/a	
770		a/a	
780		a/a	
789		SPOT SAMPLE, NO ADDITIONAL INCREASE IN SAND CONTENT	789 GAS PEAK 4.90%
790		a/a	
800	100 TR	CLY: a/a inc. forams SD: a/a	
810	100 TR	CLY: med gry, slty, sft, stky, non calc SD: clr qtz, vf-f, well srt., rnd-subrnd, lse	
820	100 TR	CLY: gry brn-med gry, else a/a SD: a/a	
830	95 5	CLY: a/a w/abun forams SD: a/a	
840		a/a	
850	90 10	CLY: a/a w/abun forams SD: pred vf-f a/a, occ med-v crs + granules	

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statoil
Den norske stats oljeselskap a.s

WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS	
Well no.: 34/10-15			
K. B. E. 25 meters	Company: STATOIL/NORSK HYDRO/SAGA		
Hole size: 12 1/4 PILOT	Geologist: M.GRACE	Date: 21/22.10.82	

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
860	70	SD: qtz, clr-trnsl, crs-v crs, occ vf-crs, mod srtd, well rnd-subrnd, lse	
	30	CLY: a/a	
	TR	LIGNITE: blk, amorph-vit i/p, as detrital grns of sd size and texture	
870	60	SD: a/a also some med grns	
	30	CLY: a/a	
	10	LIGNITE: a/a	
	TR	MICA, SHELL FRAGS, FORAMS	
880	60	SD: a/a w/more vf-f, mod-prly srtd	
	20	CLY a/a	
	20	LIGNITE	
	TR	MICA, SHELL FRAGS, FORAMS	
890	85	SD: a/a	
	10	CLY: a/a	
	5	LIGNITE: a/a	
	TR	a/a	
900	75	SD: a/a w/f, prly srt grns	
	20	CLY: a/a	
	5	LIGNITE: a/a	
	TR	a/a	
910	75	SD: a/a	
	20	CLY: a/a	
	5	LIGNITE: a/a	

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Well no.: 34/10-15		
K. B. E. 25 meters	Company: STATOIL/NORSK HYDRO/SAGA	
Hole size: 12 1/4 PILOT	Geologist: M.GRACE	Date: 22.10.82

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
920	50	SD: qtz, clr-trnsl, vf-crs, pred f, subang-subrnd and well rnd, lse	
	40	CLY: med gry, occ sl brn gry and gn where glau, slty, sft, stky	
	5	LIGNITE: detrital w/sd, blk, amorph-vit, crmbly	
	5	GLAU: dk emerald gn, hd, vit, sdy	
	TR	SHELL FRAGS (pelecypod valves), FORAMS, MICA	
930	80	CLY: a/a	
	5	SD: a/a inc crs too	
	5	LIGNITE: a/a	
	5	GLAU: a/a	
	5	SHELL FRAGS	
	TR	a/a	
940	70	CLY: a/a	
	15	SD: a/a	
	10	LIGNITE: a/a	
	5	GLAU: a/a incorp. in sd	
	TR	SHELL FRAGS, MICA, MICROFOSS	
950	50	CLY: a/a	
	30	SD: a/a	
	15	LIGNITE: a/a	
	5	GLAU	
	TR	a/a	

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WELLSITE SAMPLE DESCRIPTION

Country:	NORWAY	Area:	NORTH SEA	Field:	GULLFAKS
Well no.:	34/10-15				
K.B.E.	25 meters	Company:	STATOIL/NORSK HYDRO/SAGA		
Hole size:	17½"	Geologist:	T.KRISTENSEN/P.TAJET	Date:	02.11.82

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	70	SD: clr-transl qtz, mlky wh, smokey, vf-crs, ang-rnd, prly srtd, lse	NO SHOWS SAMPLES CONTAMINATED WITH CEMENT
	20	SST: clr-gry-lt brn, f, subrnd, fair srtng, fri-lse, v glau i/p, occ sl arg, hd, occ pyr cmt	
	10	CLYST: lt-med gry, sft-frm, stky i/p, slty i/p, occ sl mic, non calc	
	TR	MICA, PYR, ABUN GLAU	
970	80	SD: a/a	
	10	SST: a/a	
	10	CLYST: a/a	
	TR	a/a	
980	70	CLYST: lt brn gry-brn gry, sft-frm, stky i/p, slty, non calc, micromic, occ micropyr	NO SHOWS
	30	SD: a/a	
	TR	SST: a/a	
	TR	GLAU, PYR, minor tr mica	
990	95	CLYST: lt brn gry, sft-frm, stky i/p, slty, non calc, micromic, micropyr i/p	MAX GAS 2.27%
	5	SD: a/a	
	TR	GLAU, PYR	
1000	100	CLYST: brn gry, sft, stky i/p, slty-v slty, non calc, micromic	MAX GAS 2.23%
	TR	SD, SST a/a	
	TR	GLAU, MICROFOSS	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA		Field: GULLFAKS
Well no.: 34/10-15			
K. B. E. 25 meters	Company: STATOIL/NORSK HYDRO/SAGA		
Hole size: $17\frac{1}{2}$"	Geologist: T.KRISTENSEN/P.TAJET		Date: 02.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1010		a/a	
1020		a/a	
1030	100	CLYST: brn gry-olv gry, sft, stky, slty, non calc, micromic	NO SHOWS
	TR	SD: clr qtz, med, well rnd, lse	
	SL TR	MICA, PYR, MICROFOSS	
1040	100	CLYST: brn gry-gry, sft, stky, slty, non calc, micromic	
	TR	SD: a/a	
	TR	GLAU, MICROFOSS	
1050	100	CLYST: a/a	
	TR	SD: a/a	
	TR	GLAU, MICA	
1060	90	CLYST: a/a	
	10	SD: clr qtz, med, rnd-well rnd, lse	
	TR	MICA, GLAU, SST	
1070	100	CLYST: brn gry-olv gry, sft, stky, non calc	
	TR	SD: clr qtz, med, rnd-well rnd, occ brn-rd	
	TR	PYR, GLAU, MICA, LIGNITE	
1080	70	CLYST: a/a	
	30	SD: clr-transl, f-med, rnd-well rnd, lse	
	TR	PYR, GLAU, MICA	SLIGHT MIN.FLUOR, PROB FROM GLAU
1090		a/a	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY		Area: NORTH SEA		Field: GULLFAKS	
Well no.: 34/10-15					
K. B. E. 25 meters		Company: STATOIL/NORSK HYDRO/SAGA			
Hole size: $17\frac{1}{2}$"		Geologist: T.KRISTENSEN/P.TAJET		Date: 02.11.82	

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1100	90	CLYST: brn gry-olv gry, v sft, stky, non calc	NO SHOWS
	10	SD: a/a	
	TR	PYR, GLAU, MICA	
1110	70	SD: clr qtz, f-med, rnd-well rnd, well srtd, lse	
	30	CLYST a/a	
	TR	PYR, GLAU, MICA	
1120	100	SD: clr-transl qtz, mlky wh, f-med, rnd-well rnd, well srtd, lse	NO SHOWS
	TR	PYR, GLAU, MICA	
1130	100	SD: f-crs, else a/a	
	TR	a/a	
1140		a/a	
1150	100	SD: med-crs, a/a	
	TR	PYR, GLAU, MICA	
1160	90	SD: a/a	
	10	CLYST: brn gry, sft, stky, non calc	
	TR	a/a	
1170	50	SD: clr qtz, med-crs, fair srtng, rnd-well rnd, lse	
	50	CLYST: a/a	
	TR	PYR, GLAU, MICA	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS	
Well no.: 34/10-15			
K.B.E. 25 meters	Company: STATOIL/NORSK HYDRO/SAGA		
Hole size: 17½"	Geologist: T.KRISTENSEN/P.TAJET	Date: 02.11.82	

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	60	SD: clr-transl qtz, f-crs, well srtd, rnd, lse	
	40	CLYST: brn gry, sft, stky, sol, slty, non calc	
	TR	PYR, GLAU, MICA	
1190	90	SD: clr-transl-mlky qtz, f-crs, mod srtd, rnd-well rnd, lse	
	10	CLYST: brn gry, sft, stky, sol, slty, non calc	
	TR	a/a	
1200	70	CLYST: brn gry-olv gry, sft, stky, slty, sol, non calc	
	30	SD: a/a	
	TR	GLAU, PYR	
1210	90	CLYST: a/a	
	10	SD: a/a	
	TR	a/a	
1220	70	CLYST: med gry-brn gry, sft, stky, sol, slty, non calc	TR YEL FLUOR IN SST, CLOUDY MLKY WH CRUSH CUT
	30	SD: clr-transl-mlky qtz, f-crs, mod srtd, rnd-well rnd, lse	
	TR	SST: lt gry-brn, vf-f, mod srtd, subrnd, fri, slty and arg i/p, non calc	
	TR	GLAU, PYR	

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WELLSITE SAMPLE DESCRIPTION

Country:	NORWAY	Area:	NORTH SEA	Field:	GULLFAKS
Well no.:	34/10-15				
K.B.E.	25 meters	Company:	STATOIL/NORSK HYDRO/SAGA		
Hole size:	17½"	Geologist:	T.KRISTENSEN/P.TAJET	Date:	02.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1230	60	SD: a/a occ sl pk	
	40	CLYST: lt brn gry-olv gry, sft, stky, sol, slty, micromic, non calc	
	TR	SST: a/a	
	TR	GLAU, PYR	
1240	50	CLYST: a/a	LST MIN FLUOR
	45	SD: a/a	SST: YEL FLUOR,
	5	LST: lt brn-lt gry, hd, microxln, sl arg i/p, occ pyr, sl dol	CLOUDY, MLKY WH CUT FLUOR
	TR	SST: lt brn-lt gry, vf-f, mod srtd, subrnd, fri, glau i/p, non-sl calc	
	TR	GLAU, PYR, MICA	
1250	70	CLYST: a/a	
	20	SD: a/a	
	10	LST: buff, hd, microxln, occ sucrosic, sl arg i/p, occ sl pyr, sl dol	
	TR	SST: a/a	
	TR	PYR, GLAU	
1260	50	SD: a/a	
	40	CLYST: sft-frm, blok i/p else a/a	
	10	LST: a/a	
	TR	SST: a/a	
	TR	PYR, GLAU	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-15		
K. B. E. 25 meters	Company: STATOIL/NORSK HYDRO/SAGA	
Hole size: 17½"	Geologist: T.KRISTENSEN/P.TAJET	Date: 03.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1270	70	SD: clr-transl-mlky qtz, occ rd-brn, f-crs, mod srtd, rnd-well rnd, lse	LST MIN. FLUOR TR YEL FLUOR IN PART OF SST
	30	CLYST: brn gry-gn gry, sft-frm, blok i/p stky, slty, sol, non calc	
	TR	LST: buff, hd, microxln	
	TR	SST: clr-mlky qtz, vf-f, mod srtd, subrnd-rnd, fri, non calc	
	TR	PYR, GLAU, MICA	
1280	60	SD: a/a	
	40	CLYST: a/a	
	TR	SST: a/a	
	TR	PYR, GLAU, LST	
1290	50	SD: a/a	
	50	CLYST: a/a	
	TR	SST, PYR, GLAU, LST	
1300	60	SD: a/a	
	40	CLYST: a/a	
	TR	SST, PYR, GLAU, MICA, LST	
1310	70	CLYST: a/a	
	30	SD: a/a	
	TR	SST: lt brn-lt gry qtz, else a/a	
	TR	a/a	
1320	70	CLYST: non-sl calc, else a/a	
	30	SD: a/a	
	TR	PYR, GLAU, MICA, LST	

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WELLSITE SAMPLE DESCRIPTION

Country:	NORWAY	Area:	NORTH SEA	Field:	GULLFAKS
Well no.:	34/10-15				
K. B. E.	25 meters	Company:	STATOIL/NORSK HYDRO/SAGA		
Hole size:	17½"	Geologist:	T.KRISTENSEN/P.TAJET	Date:	03.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1330	60	CLYST: a/a	TR YEL FLUOR
	20	SD: subrnd-rnd, else a/a	IN SST
	20	LST: buff, hd, microxln, occ sucrosic, sl arg i/p, sl dol	
	TR	PYR, GLAU, FOSS	LARGE AMOUNT OF
	TR	SST: lt brn-lt gry, vf-f, med srtd, rnd, fri-med hd, calc cmt	PYRITE
1340	70	CLYST: a/a	
	20	SD: frosty, else a/a	
	10	LST: a/a	DULL YEL LST FLUOR
	TR	PYR, MICA, GLAU	
1350	70	CLYST: lt gn, gn-gry, bl gry, sft-frm, bloki/p, stky, sol, non calc	
	20	SD: clr-transl qtz, frosty, occ rd-brn, f-crs, prly srtd, subrnd-rnd, lse	
	5	LST: lt gry-off wh, sft, sl arg	CALCITE: BRN STAIN,
	5	LST: gry-lt gry, hd, microxln, sl dol	YEL FLUOR
	TR	PYR, GLAU, CALCITE	
1360	70	CLYST: lt gn gry, lt gry-gry, non-sl calc	, a/a
	30	LST: transl, lt gry-gry, brn (stain), hd, xln, sucrosic i/p, arg i/p	BRN STAIN, YEL FLUOR, NON-V SLOW
	TR	PYR	MLKY WH CUT FLUOR
	TR	SD: a/a	
1370	80	CLYST: a/a	
	20	LST: a/a	
	TR	PYR	
	TR	SD: a/a	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS	
Well no.: 34/10-15			
K. B. E. 25 meters	Company: STATOIL/NORSK HYDRO/SAGA		
Hole size: $17\frac{1}{2}$"	Geologist: T.KRISTENSEN/P.TAJET	Date: 03.11.82	

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1380	80	CLYST: lt gn gry, lt gry-gry, sft, stky, sol, sl slty, pyr, non-sl calc	
	20	LST: lt gry-gry, off wh, brn, hd-mod hd, xln, sucrosic i/p, occ micritic, sl arg, sl pyr, dol i/p	BRN STAIN, YEL FLUOR, CLOUDY V SLOW STRMING MLKY WH CUT FLUOR
	TR	SD: a/a	
	TR	PYR, abun	
1390	90	CLYST: a/a	
	10	LST: a/a	
	TR	a/a	
1400	80	CLYST: a/a	
	20	SLT: a/a	
	TR	PYR	
1410	80	CLYST: lt gn gry, lt gry-gry, gn gry, sft, stky, sol i/p, pyr, sl slty, non-sl calc	
	20	LST: lt gry-gry, transl, brn-buff-wh, mod hd-hd, xln, micritic i/p, occ sucrosic, sl arg, occ dol	
	TR	PYR, SD	
1420	90	CLYST: lt gn gry, lt gry-gry, brn gry, sft-frm, stky i/p, pyr, sl slty, non calc	
	10	LST: a/a	LST CUT AND SHOWS A/A
	TR	SLTST: brn (stain), fri sl arg, sl calc	
	TR	PYR	
1430	95	CLYST: a/a	
	5	LST: a/a	
	TR	PYR, abun	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-15		
K. B. E. 25 meters	Company: STATOIL/NORSK HYDRO/SAGA	
Hole size: 17½"	Geologist: T.KRISTENSEN/P.TAJET	Date: 04.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1440	95	CLYST: lt gn gry, lt gn-med gry, gn, sft-frm, stky i/p, sl slty, non calc	
	5	LST: lt gry-gry, transl, off wh, brn-buff, mod hd-hd, xln, micritic i/p, occ suc, occ assoc w/pyr, sl arg, occ dol	BRN STAIN, YEL FLUOR, SLOW STRMING MLKY WH CUT FLUOR- NO RESIDUE
	TR	PYR, abun	
1450	100	CLYST: a/a	
	TR	LST: a/a	
	TR	PYR	
1453	100	CLYST: lt gn gry, med gry, occ bl gry, occ grn, sft-frm, stky i/p, pyr i/p, non calc	
	TR	PYR, LST a/a	
1456	100	CLYST: sl pyr-v pyr, else a/a	
	TR	a/a	
1459		a/a	
1462		a/a	
1465		a/a	
1468		a/a	

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WELLSITE SAMPLE DESCRIPTION

Country:	NORWAY	Area:	NORTH SEA	Field:	GULLFAKS
Well no.:	34/10-15				
K. B. E.	25 meters	Company:	STATOIL/NORSK HYDRO/SAGA		
Hole size:	17½"	Geologist:	T.KRISTENSEN/P.TAJET	Date:	04.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1471	100	CLYST: lt gn gry, lt gry-med gry, bl gry, occ grn, occ lt brn, sft-frm, stky, sol, pyr-v pyr, non calc	LST: BRN STAIN YEL FLUOR, CLOUDY MLKY WH CUT - NO RESIDUE
	TR	LST, PYR, GLAU	
1474		a/a	
1477		a/a	
1480		a/a	
1483	100	CLYST: lt gn gry, lt gry-med gry, bl gry, wh-gry, occ gn, occ lt brn, sft-frm, stky, sol, sl slty, pyr-v pyr, non calc	YEL FLUOR IN LST, CLOUDY, MLKY WH CUT, NO RESIDUE SOME MIN FLUOR
	TR	LST, PYR, GLAU	
1486		a/a	
1489		a/a	
1492	100	CLYST: a/a, occ tuff	
	TR	a/a	
1495		a/a	
1498		a/a	

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WELLSITE SAMPLE DESCRIPTION

Country:	NORWAY	Area:	NORTH SEA	Field:	GULLFAKS
Well no.:	34/10-15				
K. B. E.	25 meters	Company:	STATOIL/NORSK HYDRO/SAGA		
Hole size:	17½"	Geologist:	T.KRISTENSEN/P.TAJET	Date:	04.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description: Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1501	95	CLYST: lt gn gry, lt gry-med gry, bl gry, occ grn, occ brn, sft-frm, stky i/p, pyr, occ tuffuceous, non-sl calc	
	5	LST: gry, lt brn-buff, off wh, xln, i/p, micritic i/p, sft-hd, occ pyr, sl arg i/p	
	TR	TUFF: lt bl gry, lt brn gry, sft-frm, mottled, wh and dk specks, non calc	
	TR	PYR, GLAU	
1504		a/a	
1507		a/a	
1510		a/a	
1513	100	CLYST: slty i/p else a/a	LST, SLTY: YEL FLUOR, CLOUDY MLKY WH CUT MIN FLUOR
	TR	LST: a/a	
	TR	TUFF: lt bl gry, lt brn gry, wh-gry, sft-frm, mottled, wh and dk specks, non calc	
	TR	PYR, GLAU	
1516		a/a	
1519	95	CLYST: a/a	TUFF AND LST: BRI YEL FLUOR MOD STRMING MLKY WH CUT FLUOR
	5	TUFF: a/a	
	TR	LST, PYR, GLAU	
1522	90	CLYST: a/a	
	10	TUFF: a/a	
	TR	a/a	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-15		
K. B. E. 25 meters	Company: STATOIL/NORSK HYDRO/SAGA	
Hole size: 17½"	Geologist: T.KRISTENSEN/P.TALJET	Date: 05.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1528	80	CLYST: lt gry-med gry, gn gry, occ brn, sft-frm, stky i/p, pyr, tuff i/p, non-sl calc	
	15	TUFF: med gry-bl gry, sft-frm, mottled, wh and dk speck, grny tex, occ sl sdy, non-sl calc	
	5	LST: off wh, lt brn, buff, med gry, pred micritic, occ xln, sft-frm, sl arg i/p, poss tuff i/p, sl dol i/p	
	TR	PYR, abun	
1531	85	CLYST: a/a	
	10	TUFF: a/a	
	5	LST: a/a	
	TR	SST: clr-lt gry, f, subang-subrnd, mod srtd, fri-mod hd, calc cmt	SST: NO SHOWS, NO VIS POR
	TR	PYR	
1534		a/a	
1537		a/a	
1540	80	CLYST: a/a	
	10	TUFF: a/a	
	5	LST: a/a	
	5	SST: a/a	
	TR	PYR	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS	
Well no.: 34/10-15			
K. B. E. 25 meters	Company: STATOIL/NORSK HYDRO/SAGA		
Hole size: 17½"	Geologist: T.KRISTENSEN/P.TAJET	Date: 05.11.82	

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1543	80	CLYST: a/a	SOME SHOWS IN PARTS OF TUFF AND LST
	15	TUFF: med gry-bl gry, brn, else a/a	
	5	SST: a/a	
	TR	LST, PYR	
1546		a/a	
1549		a/a	
1552	90	CLYST: brn i/p, else a/a	SHOWS MAINLY IN LST
	10	TUFF: a/a	
	TR	LST, PYR, CALCITE: clr-transl, xln, hd	
1555		a/a	
1558	85	CLYST: med gry-dk gry, lt gry-lt bl gry, brn, a/a	
	15	TUFF: brn, med gry, sft-frm, mcttled, wh and dk specks, grny texture, non-sl calc	
	TR	a/a	
1561	90	CLYST: med gry-dk gry, lt gry-lt gn gry, brn-brn gry, sft-frm, stky i/p, occ pyr, non-sl calc	
	10	TUFF: a/a	
	TR	LST: off wh, lt brn-buff, sft-frm, micritic, occ xln, sl arg	YEL FLUOR, MOD STRMING MLKY WH CUT FLUOR, PA BRN RESIDUE
	TR	PYR, CALCITE ; clr-transl, xln, hd	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA		Field: GULLFAKS
Well no.: 34/10-15			
K. B. E. 25 meters	Company: STATOIL/NORSK HYDRO/SAGA		
Hole size: 17½"	Geologist: T.KRISTENSEN/P.TAJET		Date: 05.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description — Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1564	90	CLYST: a/a	
	10	TUFF: a/a	
	TR	PYE, LST, CALCITE a/a	
	TR	SST: lt gry-med gry w/dk specks, f, fair srtng, subang-subrnd, fri-mod hd, calc cmt	POOR - NO VIS POR IN SST
1567	90	CLYST: a/a	LST: YEL FLUOR,
	10	TUFF: a/a	MOD STRMING
	TR	SST: a/a	MLKY WH CUT FLUOR
	TR	PYR, LST, CALCITE a/a	PA BRN RESIDUE
1570	95	CLYST: pred med gry-brn gry, else a/a	
	5	TUFF: a/a	
	TR	a/a	
1573		a/a	
1576	95	CLYST: a/a	
	5	TUFF: a/a	
	TR	a/a	
1579		a/a	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-15		
K. B. E. 25 meters	Company: STATOIL/HYDRO/SAGA	
Hole size: 12 1/4"	Geologist: KRISTENSEN/AAKVIK	Date: 12.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description: Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1582	95	CLYST: m gry, sft-firm, sl stky, non-sl calc	
	5	LST: off wh, firm, micritic, sl arg	
1585	100	CLYST: m gry, brn gry, lt gn gry, firm, blocky in part, occ slty, micromic in part, occ sl pyr, non-sl calc	SLTST: YEL FLUOR MOD STREAM MLKY WH CUT FLUOR
	TR	SLTST: lt brn-brn, mod hd, arg, mic, calc	
	TR	LST: a/a	
	TR	PYR AND MICROFOSS	
1588	100	CLYST: lt gn gry, m gry, occ brn gry, firm, occ slty, micromic in part, occ sl pyr, non-sl calc	SLTST/SST AND LST: SHOWS A/A
	TR	SLTST: a/a, in part grading to sst	
	TR	LST: tan, mod hd, xln, sucrosic in part	
	TR	PYR	
1591	90	CLYST: a/a	
	5	SLTST/SST: brn, firm-mod hd, arg in part, sl calc	
	TR	PYR	
1594	100	CLYST: lt gry-lt gn gy, m gry, brn, firm, slty in part, micromic, pyr in part, non-sl calc	
	TR	SLTST/SST: a/a	
	TR	LST: lt tan-brn, firm-hd, xln, occ micritic, sl arg, occ pyr	
	TR	PYR, MICROFOSS	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY | Area: NORTH SEA | Field: GULLFAKS
Well no.: 34/10-15
K.B.E. 25 meters | Company: STATOIL/HYDRO/SAGA
Hole size: 12 1/4" | Geologist: KRISTENSEN/AAKVIK | Date: 12.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1597	100	CLYST: predom lt gry-lt gn gry, a/a	LST: MINERAL FLUOR
	TR	SLTST/SST: a/a	SLTST/SST: YEL
	TR	LST: a/a	FLUOR, MOD STREAM
	TR	PYR	MLKY WH CUT FLUOR
1600	100	CLYST: lt gry-lt gn gry, m gry, a/a	
	TR	a/a	
1603	100	CLYST: lt gry-m gry, occ lt grn gy, sft-firm, slty in part, micromic, occ pyr, non-sl calc	
	TR	SLTST/SST: lt brn-brn, fri-mod hd, arg in part, sl calc	
	TR	LST: lt tan-brn, lt gry-gry, hd, xln	
	TR	CALCITE: clear, xln, hd	
	TR	PYR	
1606		a/a	
1609	100	CLYST: lt gry-m gry, occ lt gn gry, firm, slty in part, micromic, occ pyr-v pyr, non-sl calc	
	TR	SLTST/SST: a/a	
	TR	LST: brn-buff, xln, v hd	
	TR	PYR	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-15		
K. B. E. 25 meters	Company: STATOIL/HYDRO/SAGA	
Hole size: 12 1/4"	Geologist: KRISTENSEN/AAKVIK	Date: 13.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description: Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1612	100	CLYST: lt gry-m gry, gn gry, firm, slty in part, micromic, occ pyr-v pyr, non sl calc	LST: MINERAL FLUOR
	TR	SLTST/SST: lt brn-brn, fri-mod hd, arg in part, sl calc	SLTST/SST: YEL FLUOR IN PART, MOD STREAMING MLKY WH CUT FLUOR
	TR	LST: brn-buff, xln, v hd	
	TR	PYR	
1615	95	CLYST: a/a	
	5	LST: m gry, brn-buff, microxln, v hd	
	TR	SLTST/SST: a/a	
	TR	PYR	
1618	95	CLYST: lt gry-m gry, gn gry, firm, slty in part, micromic, occ pyr, non-sl calc	
	5	LST: a/a	
	TR	LST: off wh, firm, micritic, sl arg	
	TR	PYR	
1621		a/a	
1624		a/a	
1627	100	CLYST: lt gry, lt gn gry, m gry, firm,blocky in part, occ sl pyr, occ sl slty, non-sl calc	
	TR	LST: gry, brn-buff, microxln, hd-v hd	
	TR	PYR	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA		Field: GULLFAKS
Well no.: 34/10-15			
K. B. E. 25 meters	Company: STATOIL/HYDRO/SAGA		
Hole size: 12 1/4"	Geologist: KRISTENSEN/AAKVIK		Date: 13.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1630	95-100	CLYST: sl pyr-pyr, else a/a	SST: YEL FLUOR
	TR-5%	LST: a/a	MOD STREAMING
	TR	PYR	MLKY WH CUT
	TR	SST: lt brn, vf-f, slty, sl arg, fri, sl calc	FLUOR
1633	95-100	CLYST: occ gn, else A/A	LST GIVES MINERAL FLUOR
	TR-5	LST: a/a	
	TR	LST: off wh, sft-firm, arg	
	TR	SD: clr qtz, vf-f, subrnd, lse	
	TR	PYR	
1636		a/a	
1639		a/a	
1642		a/a	
1645		a/a	
1648		a/a	
1651	95-100	CLYST: lt gry-lt gn gry, m gry, occ gn, firm, blocky in part, slty, micromic, occ pyr, non-sl calc	
	TR-5	LST: m gry, brn-buff, mixroxln, v hd,in part off wh, firm, micritic, arg	
	TR	SD: clr qtz, vf-m, subrnd, lse	
	TR	PYR	
1654		a/a	
1657		a/a	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-15		
K. B. E. 25 meters	Company: STATOIL/HYDRO/SAGA	
Hole size: 12 1/4"	Geologist: KRISTENSEN/AAKVIK	Date: 13.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description: Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1660		a/a	SOME MINERAL FLUOR FROM LST
1663		a/a	
1666		a/a	
1669	100	CLYST: a/a	
	TR	LST: a/a	
	TR	SD: a/a	
	TR	CALCITE: clr-transluc, xln, hd	
	TR	PYR	
1672	100	CLYST: a/a	
	TR	a/a	
1675	95	CLYST: lt gry-m gry, occ lt gn gry, occ gn, firm-mod hd, blocky in part, slty, micromic, tuffeceous? in part, occ pyr, non-sl calc	
	5	LST: brn-buff, gy, microxln, v hd	
	TR	SD: a/a	
	TR	PYR	
1678	95	CLYST: a/a, in part lt brn gry, sft, stky, v calc	
	5	LST: brn-buff, gry, microxln, v hd, in part off wh, sft-firm, arg	
	TR	SD: a/a	
	TR	PYR	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-5		
K. B. E. 25 meters	Company: STATOIL/HYDRO/SAGA	
Hole size: 12 1/4"	Geologist: KRISTENSEN/AAKVIK	Date: 13.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1681	100	CLYST: lt-m gry, gn gry, firm-mod hd, blocky in part, slty, micromic, occ pyr, non-sl calc, in part lt gry-gry, sft, stky, v calc	NO SHOWS
	TR	LST, SD and PYR, a/a	
1684		a/a	
1687	95	CLYST: lt gry-m gry, gn gry, firm-mod hd, occ blocky, slty, micromic, non-sl calc, in part lt gry-gry, sft, soluble, stky, v calc	
	5	LST: off wh, sft, sl arg, micritic, in part brn-buff, gry, microxln, v hd	
	TR	SD: clr qtz, vf-f, subrnd, lse	
	TR	CALCITE: clear-transluc, xln, hd	
	TR	PYR	
1690		a/a	
1693	95	CLYST: a/a, increasing calc clyst	
	5	LST: a/a	
	TR	a/a	
1696		a/a	
1699	90	CLYST: a/a	CALC CLYST V SOLUBLE HENCE EASILY WASHED AWAY
	10	LST: wh-off wh, mod hd, micritic, occ xln	
	TR	a/a	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS	
Well no.: 34/10-15			
K. B. E. 25 meters	Company: STATOIL/HYDRO/SAGA		
Hole size: 12 1/4"	Geologist: KRISTENSEN/AAKVIK	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
1702	95	CLYST: lt gry, sft, soluble, stky, v calc	NON-CALC CLYST IN
	5	LST: a/a	SAMPLE PROBABLY
	TR	a/a	CAVING
	TR	GLAU AND MICROFOSS	NO SHOWS
1705		a/a	
1708		a/a	
1711	95	CLYST: a/a	
	5	LST: a/a	
	TR	a/a	
1714	95	CLYST: a/a	LST GIVES MINERAL
	5	LST: a/a	FLUOR
	TR	a/a	
1717	100	CLYST: lt gry, sft, soluble, stky, v calc	
	TR	LST: tan-yel brn, clr-transluc, xln, hd	
	TR	PYR, abund	
	TR	GLAU AND MICROFOSS	
1720		a/a	
1723	95-100	CLYST: lt gry, cream, sft, soluble, stky, v calc	NO SHOWS
	TR-5	LST: wh-off wh, cream-tan, clr-transluc, xln, hd	
	TR	PYR, abund	
	TR	MICROFOSS	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS	
Well no.: 34/10.15			
K. B. E. 25 meters	Company: STATOIL/HYDRO/SAGA		
Hole size: 12 1/4"	Geologist: KRISTENSEN/AAKVIK	Date: 13.11.82	

Depth (m/KBE)	Lith. (%)	Lithologic description — Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1726	95-100	CLYST: a/a	NO SHOWS
	TR-5	LST: a/a	
	TR	MICROFOSS, GLAU	
1729	95	CLYST: a/a	
	5	LST: sucrosic in part, else as above	
	TR	PYR, abun	
	TR	MICROFOSS, GLAU	
1732	100	CLYST: a/a	
	TR	LST: a/a	
	TR	PYR, MICROFOSS, GLAU	
1735		a/a	
1738		a/a	
1741	95	CLYST: lt gry, sft, soluble, calc	
	5	LST: sucrosic, wh, gry	
	TR	PYR, MICROFOSS, GLAU	
1744	100	CLYST: a/a	
	TR	LST: a/a brownish-grey	
	TR	PYR, MICROFOSS	
1747	100	CLYST: a/a	
	TR	a/a	

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WELLSITE SAMPLE DESCRIPTION

Country:	NORWAY	Area:	NORTH SEA	Field:	GULLFAKS
Well no.:	34/10-15				
K. B. E.	25 meters	Company:	STATOIL/HYDRO/SAGA		
Hole size:	8½"	Geologist:	KRISTENSEN/AAKVIK	Date:	17.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1753	100	CLYST: lt gry, sft, occ firm, sl slty, pyr, calc	MINERAL FLUOR IN LST
	TR	LST: lt gry-gry, hd, xln	SAMPLES CONTAM. WITH CEMENT
	TR	PYR, MICROFOSS	
1756		a/a	
1759		a/a	
1762	100	CLYST: lt gry-med gry, sft-firm, slty in part, pyr, occ micromic, calc	
	TR	LST: lt gry-gry, cream-tan, occ clr, xln, mod hd-hd	
	TR	PYR AND MICROFOSS	
1765		a/a	
1768	100	CLYST: a/a	
	TR	LST: a/a	
	TR	SD: clr-transluc, vf-f, subang-subrnd, lse	
	TR	PYR, MICROFOSS AND GLAU	
1771		a/a	
1774		a/a	
1777	100	CLYST: sl slty-slty, else a/a	
	TR	LST: a/a	
	TR	SST: lt gry, vf-f, subang-subrnd, lse-fri, sl calc	
	TR	PYR, GLAU AND MICROFOSS	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-15		
K. B. E. 25 meters	Company: STATOIL/HYDRO/SAGA	
Hole size: 8½"	Geologist: KRISTENSEN/AAKVIK	Date: 17.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1780		a/a	MINEAL FLUOR IN LST
1783	100	CLYST: a/a	
	TR	LST: a/a in part cream-tan, micritic, mod hd, arg	
	TR	SST: a/a	
	TR	PYR	
1786		a/a	
1789		a/a	
1792	100	CLYST: lt-med gry, sft, stky, slty in part, occ micromic, pyr, sl calc-calc	
	TR	LST: a/a	
	TR	SST: a/a	
	TR	PYR	
1795	100	CLYST: lt gry-med gry, sft, stky, slty in part, occ micromic, pyr, sl calc-calc	
	TR	LST: lt gry, off wh, cream-tan, xln, mod hd-hd, occ micritic, firm, sl arg	
	TR	SST: lt gry-med gry, vf-f, srtd, subang-subrnd, fri-lse, occ sl arg, sl calc	
	TR	SD: clr qtz, vf-f, occ med, subang-subrnd	
	TR	PYR	
1798		a/a	
1801		a/a	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS	
Well no.: 34/10-15			
K. B. E. 25 meters	Company: STATOIL/HYDRO/SAGA		
Hole size: 8½"	Geologist: KRISTENSEN/AAKVIK	Date: 17.11.82	

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1804		a/a	SOME MINERAL FLUOR IN LST
1807	100	CLYST: a/a	
	TR	LST: a/a	
	TR	SST: a/a	
	TR	SD: a/a	
	TR	MICROFOSS	
1810		a/a	
1813	100	CLYST: lt gry-med gry, sft, calc, stky	
	TR	LST: a/a	
	TR	SST: a/a	
	TR	SD: a/a	
	TR	PYR	
1816		a/a	
1819	100	CLYST: lt gry-med gry, sft, stky, sl calc-calc	
	TR	PYR	
	TR	SD: clr qtz, vf-f, subang-ang	
1822		a/a	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY		Area: NORTH SEA		Field: GULLFAKS	
Well no.: 34/10-15					
K. B. E. 25 meters		Company: STATOIL/HYDRO/SAGA			
Hole size: $8\frac{1}{2}$"		Geologist: KRISTENSEN/AAKVIK		Date: 17.11.82	

Depth (m/KBE)	Lith. (%)	Lithologic description — Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1825	100	CLYST: lt gry-med gry, sft-firm, occ stky, slty, micromic, sl calc-calc	NO SHOWS
	TR	LST: a/a	
	TR	SST: lt gry, clear qtz, vf-f, mod srtd, subang, fri-mod hd, calc cmtd in part	
	TR	SD: clr-transluc qtz, occ pink, vf-f, subang, mod srtd, else	
	TR	PYR, abundant	
1828	100	CLYST: a/a	
	TR	SST: lst gry, clear qtz, vf-f, rarely med subang, fri-mod hd	
	TR	SD: a/a	
	TR	PYR: a/a	
	TR	LST: a/a	
1831	100	CLYST: a/a	
	TR	SST: lt gry, clear qtz, f-med, subang, hd	
	TR	PYR	
	TR	LST: a/a	
1834	100	CLYST: lt gry-gry-gn, sft, firm, occ stky, calc	
	TR	SST: lt gry, clear sft, f-med, subang, hd	
	TR	PYR	
	TR	LSE: lt gry-off wh, mod hd-hd, firm	
1837	100	CLYST: a/a	
	TR	SST: a/a	
	TR	LST: a/a	
	TR:	PYR	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA		Field: GULLFAKS
Well no.: 34/10-15			
K. B. E. 25 meters	Company: STATOIL/HYDRO/SAGA		
Hole size: 8½"	Geologist: KRISTENSEN/AAKVIK		Date: 17.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1840	100	CLYST: lt gry-gry-gn, sft-firm, stky,calc	NO SHOWS
	TR	SST: lt gry-clear qtz,vf-f, subang, hd	
	TR	PYR	
	TR	LST: white, off wh, firm	
	TR	GLAU	
1843	100	CLYST: lt gry-gry, soft-firm, calc, silty	
	TR	a/a	
1846	?	CLYST: lt gry-gry, soft-firm,calc,silty	
	?	SAND: lt brown-gn, v.f-fine, soft, firm	
	TR	SST : lt gry, clear qtz,vf-f,subang	
	TR	PYR	
1849		CLYST: lt gry-gry, soft,stky,calc,silty	
	TR	a/a	
1852		a/a	
1855		a/a	
1858	95	CLYST: med gry, sft-firm, slty, micromic, non calc-calc	MINERAL FLUOR IN LST
	5	LST: cream-tan, predom, micritic, occ xln, firm-mod hd, sl arg	TR SHOWS IN SST: YEL FLUOR,
	TR	SST: clr-transluc qtz, f-med, subrnd, lse	MLKY WH CUT FLUOR
	TR	PYR, MICA AND MICROFOSS	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-15		
K. B. E. 25 meters	Company: STATOIL/HYDRO/SAGA	
Hole size: 8½"	Geologist: KRISTENSEN/AAKVIK	Date: 18.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1861	85	CLYST: med gry, sft-firm, slty, micromic, sl pyr, non calc-calc	MIN.FLUOR IN LST
	10	SST: clr-transluc qtz, f-med, occ crs, subang-subrnd, mod srtd, lse	SST: YEL FLUOR, FLASH MLKY WH CUT FLUOR
	5	LST: cream-tan, micritic, mod hd, sl arg	
	TR	PYR, MICA, MICROFOSS	
1864	85	CLYST: a/a	
	10	SST: clr-transluc qtz, occ mlky, med, occ crs, occ f, mod srtd, subang-subrnd, lse, trace pyr cmt, good vis por	
	5	LST: a/a	
	TR	PYR, MICA, MICROFOSS	
1867	100	SST: clr-transluc qtz, med, occ crs, occ f, mod srtd, subang-subrnd, lse, trace pyr cmtd, hd, good vis pos	
	TR	PYR, MICA, CLYST AND LST	

(see core descriptions, cores 1-5: 1870-1945m)

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-15		
K. B. E. 25 meters	Company: STATOIL/HYDRO/SAGA	
Hole size: 8 ½"	Geologist: GRACE/BJERKENES	Date: 20.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1945	60	SLTST/CLYST: med-lt med gry, sft, non-sl calc, sol	NO SHOWS
	40	SLTST/CLYST: dk yel brn, sft, non-sl calc, sol	
	TR	MICA	
1948	100	SLTST/CLYST: med-lt med gry a/a	
	TR	SLTST/CLYST: dk yel brn a/a	
	TR	MICA	
	TR	SD: v fn-med, clr qtz, subang-subrnd	
1951	100	SLTST/SST: med-lt med gry, sft, sol, non-sl calc, slty-vf sd	
1954		a/a	
1957	100	SLTST/SST: a/a, but prtly clayey	
	TR	SD: a/a	
	GD TR	PYR	
1960	100	SLT/SST: a/a, prtly clayey	
	TR	PYR	
	TR	SLT/CLYST: dk yel brn a/a	
1963	100	SLT/SST: a/a w/tr pyr	
1966		a/a	
1969		a/a	
1972		a/a	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-15		
K.B.E. 25 meters	Company: STATOIL/HYDRO/SAGA	
Hole size: 8½"	Geologist: GRACE/BJERKENES	Date: 20.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1975		a/a	NO SHOWS
1978		a/a	
1981		a/a	
1984		a/a , w/gd tr pyr	
1987		a/a	
1989		a/a	
1990	75	SLTST: lt-med gry, sft-frm, non-sl calc occ sdy w/calc cmt, prtly clayey micropyr	
	25	SLTST: lt gryish brn, sft-frm, v calc-lst	
	TR	PYR	
1993		a/a, w/tr of pyritised microfoss	
1996	80	SLTST: lt-med gry, clayey a/a	
	20	LST: partly dol, mod hd, earthy, yel gry	
	TR	PYR AND MICROFOSS	
1990	90	CLYST: lt-med gry, slty, sft, stky, sol	
	10	LST: partly arg, prtly dol, a/a	
	TR	PYR	
	TR	SD: clr qtz, f-med, subang-subrnd	
2002	100	CLYST: a/a	
	TR	LST: a/a	
	TR	PYR	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-15		
K. B. E. 25 meters	Company: STATOIL/HYDRO/SAGA	
Hole size: 8½"	Geologist: GRACE/BJERKENES	Date: 21-22.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
2005		a/a	NO SHOWS
2008		a/a	
2011		a/a	
2014		a/a	
2017		a/a	
2020		a/a	
2023		a/a	
2026		a/a, but lst is more dol	
2029		a/a, but more slty	
2032		a/a, not so slty	
2035		a/a	
2038		a/a, but more fis and shly, no lst	
2041	100	CLYST: med gry, occ lt brn gry, sft, sol sl-v fiss and shly, sl calc	
	TR	PYR	
2044		a/a	
2047	95	CLYST: a/a	
	5	SD: clr qtz, f-med, subng-subrnd, fair srt	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA		Field: GULLFAKS
Well no.: 34/10-15			
K. B. E. 25 meters	Company: STATOIL/HYDRO/SAGA		
Hole size: 8 1/2"	Geologist: GRACE/BJERKENES		Date: 22.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
2050	80	CLYST: a/a	NO SHOWS
	15	SD: a/a	
	5	LST: partly dol, cream-brnish gry, mod hd-frm, earthy-xln	
2053		a/a, w/gd tr pyr	
2056		a/a, but clyst more slty	
2059	70	CLYST: a/a	
	20	SD: a/a	
	10	LST: a/a	
2062	60	CLYST: a/a	
	30	SD: a/a	
	10	LST: a/a	
2065	60	CLYST: a/a	
	20	SD: a/a but more ang	
	20	LST: a/a	
	GD TR	PYR	
	TR	FORAM	
2068		a/a	
2071	90	CLYST: a/a	
	10	LST: a/a	
	TR	PYR, FORAM	
2074	100	CLYST: a/a	
	TR	LST, SD, PYR, FORAMS, MICROFOSS	
2077		a/a	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-15		
K. B. E. 25 meters	Company: STATOIL/HYDRO/SAGA	
Hole size: 8½"	Geologist: GRACE/BJERKENES	Date: 23.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
2080	100	CLYST: med brn gry, slty, soft, stcky predom but frm i/p, sl-non calc	NO SHOWS HEAVY LIGNOSULPHONATE CONTAMINATION
	TR	sd, sltst, lst, pyr	
2083	30	CLYST: a/a	
	70	LST: lt brn-tan, hd, brittle, slty, sft where arg, cryptoxln, dull brn min fluor	
	TR	SD, pyr	
2086	80	CLYST: a/a	
	20	LST: a/a	
	TR	SD, pyr	
2089	75	CLYST: a/a	
	20	LST: a/a	
	5	PYR: nods	
	TR	sd	
2092	80	CLYST: a/a	
	20	LST	
	TR	sd, some granules pyr	
2095	95	CLYST: a/a	
	5	LST: a/a	
	TR	sd, pyr	
2098	100	CLYST: a/a	
	TR	lst, pyr, sd	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-15		
K. B. E. 25 meters	Company: STATOIL/HYDRO/SAGA	
Hole size: 8½"	Geologist: GRACE/BJERKENES	Date: 23.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description: Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
2101	60	CLYST: a/a	NO SHOWS
	35	LST: a/a	HEAVY LIGNOSULPHONATE
	5	PYR: nods	CONTAMINATION
	TR	SD	
2104	60	CLYST: a/a	
	40	LST: a/a	
	TR	pyr, sd	
2107	80	CLYST: a/a	
	20	LST: a/a	
	TR	sd	
2110	90	CLYST: a/a	
	10	LST: a/a	
2113	80	CLYST: a/a	
	20	LST: a/a	
2116	90	CLYST: med gy-sl grnsh brn, sft, stcky, silty, occ frm, non-sl calc v sol	
	10	LST: buff-tan, hd, brittle, cryptoxln	
	TR	microfoss, crinoidal remains	
2119	100	CLYST: a/a	
	TR	LST: a/a	
2122	50	CLYST: a/a	
	50	LST: a/a	
2125	90	CLYST: a/a	
	10	LST: a/a	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-15		
K. B. E. 25 meters	Company: STATOIL/HYDRO/SAGA	
Hole size: $8\frac{1}{2}$"	Geologist: GRACE/BJERKENES	Date: 23.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
2128		a/a	NO SHOWS
2131		a/a	
2134		a/a	
2137		a/a	
2140		a/a	
2143		a/a	
2146		a/a, w/tr sd	
2149		a/a	
2152	100	CLYST	
	TR	lst, sd	
2155	100	CLYST	
	TR	lst, sd, pyr	
2158		a/a	
2161		a/a	
2164	95	CLYST: a/a	
	5	SD: vf-f, sub rnd, w srtd, clr, qtz, lse	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-15		
K. B. E. 25 meters	Company: STATOIL/HYDRO/SAGA	
Hole size: 8½"	Geologist: GRACE/BJERKENES	Date: 23.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description — Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
2167	90	CLYST: a/a	NO SHOWS
	10	SD: a/a predom vf-f, occ med-crs, w/occ granules	
	TR	LST	
2170	85	CLYST: a/a	
	15	SD	
	TR	LST	
		(see core discription, cores 6,7,8: 2170-2213m)	
2215	50	SH/CLYST: org/reg-brn, sft-frm, subfiss-fiss, stcky i/p, sl calc	
	50	SD: clr-tansl, red brn stain, qtz, lse, vf-med, occ crs, prly srtd, ang, sub ang-sub rnd, occ rnd	
	TR	mica, pyr	
2218	80	SD: predom f-med, mod srtd, else a/a	
	20	SH/CLYST: a/a	
2221	90	SD: loss of red brn col, predom clr-transl, wh, qtz, vf-med, occ crs-v crs, else a/a	
	10	SH/CLYST: a/a	
2224	100	SD: a/a	
2227	100	SD: a/a	
2230	100	SD: now predom frosted wh colour, else a/a	
2233	100	SD: now predom med-crs else a/a	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-15		
K. B. E. 25 meters	Company: STATOIL/HYDRO/SAGA	
Hole size: $8\frac{1}{2}$"	Geologist: GRACE/BJERKENES	Date: 25.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
2236	70	SD: also w/red brn cly stain	NO SHOWS
	30	SH/CLYST: red brn a/a	
2239	100	SD: predom clr-transl else a/a	
2242	90	SD: a/a	
	10	SH/CLYST: a/a	
2245	50	SD: a/a	
	50	SH/CLYST: a/a	
2248	95	SD: a/a	
	5	SH/CLYST: a/a	
	TR	LST: wh-bl wh, cryptoxln, sl arg, brittle	
2251	90	SD: a/a	
	10	SH/CLYST: a/a	
	TR	LST	
2254		a/a	
2257	90	SD: predom vf-f, occ med else a/a	
	10	SH/CLYST: a/a	
2260	90	SD: a/a	
	10	SH/CLYST: a/a	
	TR	mica, pyr, lst	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-15		
K. B. E. 25 meters	Company: STATOIL/HYDRO/SAGA	
Hole size: 8½"	Geologist: GRACE/BJERKENES	Date: 25.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description — Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
2263	100	SD: clr-transl, occ wh frosted, lse, qtz, ang-subrnd, occ sl red staining, f and well srtd in this sample	NO SHOWS
	TR	mica, pyr	
2266	100	SD: f-med, mod srtd, else a/a, mica, pyr	
2269	100	SD: predom med and wh frosted else a/a	
2272	100	SD: vf-crs, predom med-sl crs, occ v crs, frosted else a/a	
2275	100	SD: v prly srtd w/occ crs granule else a/a	
2278		a/a	
2281	90	SD: a/a but with red sh/clyst stain	
	10	SH/CLYST: bright red brn, sft-frm, sub-non fiss, non-sl calc	
2284	95	SD: a/a predom crs, prly srtd	
	5	SH/CLYST: a/a	
	TR	LST: bright wh, xln, indiv. calcite xls, faint yellow min. fluor	
2287	100	SD: predom med, else a/a	
2290	100	SD: a/a	
2293	100	SD: a/a	
	TR	LST: a/a	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-15		
K. B. E. 25 meters	Company: STATOIL/HYDRO/SAGA	
Hole size: 8½"	Geologist: GRACE/BJERKENES	Date: 25.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
2296	100	SD: predom med-crs, wh frosted, else a/a	NO SHOWS
2299		a/a	
2300		a/a	
		(see core descriptions, cores 9,10: 2301-2323m)	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY		Area: NORTH SEA		Field: GULLFAKS	
Well no.: 34/10-15					
K. B. E. 25 meters		Company: STATOIL/HYDRO/SAGA			
Hole size: 8 ½"		Geologist: GRACE/BJERKENES/LIND-HANSEN		Date: 29.11.82	

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
2324		Very contaminated from cavings after coring operations.	NO SHOWS
2327	100	CLYST: rd brn, mic, prtly sdy, sft-frm, calc (very contaminated)	
2330	80	CLYST: a/a	
	10	SD: clr qtz, med-f, ang-subang	
	10	SH: med-dk gry, occ lt, gn/gry, frm-mod hd, non calc	
	TR	PYR	
2333	100	CLYST: a/a	
	TR	sd, sh, pyr a/a	
2336	90	CLYST: a/a	
	10	SD: a/a, but more f-grains, better rnd	
	GD TR	LST: wh, frm-mod hd	
2339	70	CLYST: a/a	
	20	SD: a/a but more med	
	10	LST: a/a	
2342	100	SD: a/a, but occ v crs grains, subrnd	
	TR	mica	
2345	100	SD: a/a, but mostly med, subrnd-subang	
	TR	PYR, LST	
2348	100	SD: a/a, put more ang	
	TR	PYR, LST	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS
Well no.: 34/10-15		
K. B. E. 25 meters	Company: STATOIL/HYDRO/SAGA	
Hole size: 8½"	Geologist: GRACE/BJERKENES/LIND-HANSEN	Date: 29.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description — Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
2351	100	SD: a/a, but better rnd	NO SHOWS
GD	TR	LST	
	TR	PYR	
2354		a/a	
2357	80	CLYST: rd brn a/a	
	20	SD: a/a	
	TR	PYR, LST	
2360	80	CLYST: rd brn a/a	
	20	SD: clr qtz, med-f, ang-subrnd, prly srtd	
	TR	PYR. LST	
2366	80	CLYST: rd brn, a/a	
	20	SD: a/a	
	TR	PYR, LST	
2369	80	CLYST: rd brn, a/a	
	20	SD: a/a	
	TR	PYR, LST	
2372	80	CLYST: rd brn, a/a	
	20	SD: a/a	
	TR	PYR, LST, MICA	
2375	80	CLYST: rn brn, a/a	
	20	SD: a/a	
	TR	PYR, LST	
2378	100	SD: clr-lt yel qtz, med, mod srtd, subrnd-ang	
	TR	PYR	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS	
Well no.: 34/10-15			
K. B. E. 25 meters	Company: STATOIL/HYDRO/SAGA		
Hole size: 8½"	Geologist: GRACE/BJERKENES/LIND-HANSEN	Date: 29.11.82	

Depth (m/KBE)	Lith. (%)	Lithologic description: Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
2381	90	SD: a/a	NO SHOWS
	10	Lst. wh-yel wh, sft-frm	
	TR	PYR	
2384	90	SD: clr-lt yel qtz, vf-med, occ crs, prly srtd, subrnd-ang	
	10	CLSYT: rd brh, mic, prtly sdy, sft. v calc-non calc	
	GD TR	LST: wh-lt yel wh, sft	
2387	80	SD: a/a	
	20	CLYST: a/a	
	GD TR	LST	
	TR	PYR	
2390	100	SD: a/a, but subrnd and not so ang	
	GD TR	LST: a/a	
	TR	PYR, MICA	
2393	80	SD: a/a	
	10	LST: a/a	
	10	CLYST: a/a	
	TR	PYR	
2396	70	CLYST: a/a	
	20	SD: a/a	
	10	LST: a/a	
	TR	PYR	

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WELLSITE SAMPLE DESCRIPTION

Country: NORWAY | Area: NORTH SEA | Field: GULLFAKS

Well no.: 34/10-15

K. B. E. 25 meters | Company: STATOIL/HYDRO/SAGA

Hole size: 8½" | Geologist: GRACE/BJERKENES/LIND-HANSEN | Date: 30.11.82

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
2399	70	CLYST: a/a	NO SHOWS
	20	LTS: a/a	
	10	SD: a/a, calc cmt	
	TR	PYR	
2400	50	CLYST: a/a	TD 2400m
	40	SD: a/a	
	10	LST: a/a	
	TR	PYR	

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c) Conventional Core Description - I
Wellsite Description

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CORE DESCRIPTION - GLASSFIBRE INNER BARREL

WELL NO. 34/10-15		AREA NORTH SEA		FIELD GULLFAKS	
CORE NO. 1	INTERVAL FROM 1870m TO 1888m		CORED 18m	REC. 9m	50 %
FORM.		COMPANY STATOIL/HYDRO/SAGA			
HOLE SIZE 8½"		GEOLOGIST GRACE/BJERKENES/AAKVIK		DATE 18/19.11.82	

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1879.0	50	SST: clr-lt gryish transluc qtz, f-med, subang-ang, calc, sl carb, highly mic, well cmtd, poor-no vis por, modhd-hd, w/thin lam of sh, mod srt	BRIGHT YEL WH FLUOR SLOW STREAMING YEL WH CUT
	50	SH: dk gry, mod hd, fiss-subfiss, highly mic, sl carb	
1879.9	50	SST: clr-lt gryish transluc qtz, f-med subang-subrnd, highly calc, highly mic, loose, mod srtd	YEL WH FLUOR FAST FLASH-STREAMING YEL WH CUT
	50	CLYST: dk gry, sft, sticky, calc	
1880.8	100	SST: a/a	
1881.7	100	SST: a/a, but more fine grns, less calc	A/A BUT STRONGER FLUOR
1884.4	100	SST: clr-lt gryish transluc qtz, f, ang-subang, highly calc, highly mic, wood frags, loose (the mica and the wood frags make up 25% of the rock) mod srtd	
1885.3	100	SST: a/a, but more cmt, mod hd, mod-good vis-good vis por, no wood frags	BRIGHT YEL WH [illegible] FLUOR FAST-SLOW YEL WH CUT INSTANT CRUSH CUT
1886.2	100	SST: a/a, but poor-mod vis por	
1887.1	100	SST: clayey and loose, prtly sticky, qtz grns, a/a, calc and mica a/a	SLIGHTLY WEAKER FLUOR THAN ABOVE
1888.0	100	SST: prtly clayey, but not as much a/a. else a/a	

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CORE DESCRIPTION - GLASSFIBRE INNER BARREL

WELL NO. 34/10-15	AREA NORTH SEA		FIELD GULLFAKS		
CORE NO. 2	INTERVAL FROM 1888m TO 1900m	CORED 12m	REC. 9m	75 %	
FORM.	COMPANY STATOIL/HYDRO/SAGA				
HOLE SIZE 8½"	GEOLOGIST GRACE/BJERKENES		DATE 19.11.82		

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1888.9	100	CLYST: dk-med gry, sl gn-gry, sft, crmbly, sub fiss, lam, micromic, slty, sl calc, occ sdy	GOOD BRIGHT WHITE YEL FLUOR MOD FAST STRMG BRI YEL CUT
1889.8	100	SST: m gry-sl brn, f-med qtz, well srtd, sub ang-sub rnd, lse-weak calc cmt, mod sft, fri, mic good h/c odour, good vis por	
1890.7	70	SST: a/a w/darker gry carb, strks and clyst lam	
	30	CLYST: a/a increasing mica	
1891.6	100	SST: a/a increasing mica	
1892.5	90	SST: a/a also inc wood frags and sl carb plant remains, mod calc	
	10	CLYST: lam a/a, mod calc	
1893.4	100	SST: a/a w/more med grns, mod calc, more carb	
1894.3	100	SST: yel brn predom, also med gry a/a, predom med, also f, fri oil staining (yel brn), strong h/c odour, v good vis por	OIL SATURATED FLUOR A/A INSTANT BRIGHT YELLOW CUT FLUOR A/A
1895.2	100	SST: predom gry brn, mod hd, v calc cmtd, otherwise a/a	
1896.1	100	SST: a/a, but sfter, less cmtd, memerous cly partings (micromic), v mic sand, sub lam, good lam por (sd)	
1897.0	100	SST: a/a, but inc cly, sl carb, abund mica	

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CORE DESCRIPTION - GLASSFIBRE INNER BARREL

WELL NO. 34/10-15	AREA NORTH SEA	FIELD GULLFAKS	
CORE NO. 3	INTERVAL FROM 1900m TO 1917m	CORED 17m	REC. 5.7m 34 %
FORM.	COMPANY STATOIL/HYDRO/SAGA		
HOLE SIZE 8½"	GEOLOGIST GRACE/BJERKENES	DATE 19.11.82	

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1900	100	SST: med gry, clr qtz, occ sl lt gry, f-med, well srtd, ang-subrnd, frm-lse, good por, mic, some h/c odour, non calc	YEL WH FLUOR FAST STREAMING YEL WH CUT
1901.8	100	SH: olv gry, mod hd, sl calc, micromic, subfiss	NO SHOWS
1902.7	100	SST: med gry, clt-sl st gry qtz, f-med, well srtd, ang-subrnd, lse, exellant por, mic, non-sl calc, some h/c odour	YEL WH FLUOR FAST STREAMING YEL WH CUT
1903.6	90	SH: olv gry, slty, mod hd-frm, micromic non calc, fiss w/thin lam of vf sst	NO SHOWS
	10	SST: v lt brnish gry-yel gry, vf-slty, thin laminae, frm	BRIGHT YEL WH FLUOR INSTANT YEL WH CUT
1904.5	100	SST: lt gry, clr-transl qtz, v hd, gd silica cmt, mic, calc and pyr, no vis por	SPOTTED W/FLUOR A/A
1905.4	100	SST: med gry, clr-sl lt gry qtz, f, well srtd ang-subrnd, lse, exellant por, non calc, some h/c odoud	YEL WH FLUOR FAST STREAMING YEL WH CUT
1905.7		a/a	

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CORE DESCRIPTION - GLASSFIBRE INNER BARREL

WELL NO. 34/10-15		AREA NORTH SEA		FIELD GULLFAKS	
CORE NO. 4	INTERVAL FROM 1917m TO 1935m		CORED 18m	REC. 11.3m	63 %
FORM.		COMPANY STATOIL/HYDRO/SAGA			
HOLE SIZE 8½"		GEOLOGIST GRACE/BJERKENES		DATE 20.11.82	

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1917	100	PYR NOD: vf ang qtz cmtd w/pyr Extremely hard, no vis por	PATCHY MOD YEL FLUOR NO CUT
1917.9	100	SST: lt-med gry, brn/yel i/p w/fresh oil stain, f-med, good srt, predom sub ang, frm, wk calc cmt, fri, sli calc, pyr, mic, good vis por, carb frags, good h/s odour	V BRIGHT WH-YEL FLUOR INSTANT - RAPID STREAMING BRIGHT YEL CUT
1918.8	100	SST: a/a but v mic and occ shly lam i/p	
1919.9	100	SLTST: med gry, hd, brittle, sub, lam, shly i/p, v mic, micromic, v pyr, micromic, v pyr, micropyr, v calc no vis por	PATCHY DULL YEL FLUOR - NO CUT
1920.8	100	SST: med-dk gry, vf-f, sub ang, v slty, v micromic, pyr, sft, fri, non-v sl calc, mod-good vis por	PATCHY BRIGHT WH-YEL FLUOR, FAST STREAMING YEL CUT
1921.7	100	SST: dk gry, vf-slty, occ v slty, pred sub ang, mic, v micromic, micropyr, shly i/p, sli calc, gen sft, crmbly but hd i/p, sli fri	V OCC DULL YEL FLUOR - NO VIS CUT
1922.6	100	vf slty SST a/a and occ dead oil stain	
1923.5	100	SST: increasing vf-f, grns. bec more shly otherwise a/a	
1924.4	100	SST: a/a, but frm i/p, non-v sl calc	V DULL YEL BRN FLUOR - NO CUT

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CORE DESCRIPTION - GLASSFIBRE INNER BARREL

WELL NO.	34/10-15	AREA	NORTH SEA	FIELD	GULLFAKS		
CORE NO.	4	INTERVAL FROM	1917m TO 1935m	CORED	18m	REC.	11.3m 63 %
FORM.		COMPANY	STATOIL/HYDRO/SAGA				
HOLE SIZE	8½"	GEOLOGIST	GRACE/BJERKENES	DATE	20.11.82		

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1925.3	100	SST: a/a but less shly to mod clean sft-frm	OR CRUSH CUT OCC NO FLUOR
1926.2	100	SST: a/a	NONE - V DULL FLUOR A/A
1927.1	100	SST: a/a	OCC MOD BR YEL PATCHY FLUOR
1928.05	100	SST: a/a but bec more shly, sl lam	NO CUT OR CRUSH CUT OTHERWISE A/A

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CORE DESCRIPTION - GLASSFIBRE INNER BARREL

WELL NO. 34/10-15		AREA NORTH SEA			FIELD GULLFAKS		
CORE NO. 5	INTERVAL FROM 1935m	TO 1945m	CORED 10m		REC. 5.7m		57 %
FORM.		COMPANY STATOIL/HYDRO/SAGA					
HOLE SIZE 8½"		GEOLOGIST GRACE/BJERKENES			DATE 20.11.82		

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
1935	100	SST: med gry-brn, vf, subang, well srtd, v slty, mod hd, v micromic mod vis por, calc cmt, shly, tr mic, pyr	DULL BRN FLUOR NO CUT
1935.9	100	SLTST: dk gry, micromic, micropyr well cmtd, v hd, v calc, poor vis por	NO SHOWS
1936.8	100	SST: med gry-br, vf, sub ang-sub rnd, well srtd, slty, frm, fri, mod-good vis por, micromic, micropyr, shly, mod calc, tr dead oil stain	DULL BROWN FLUOR NO CUT
1937.7	100	SH: med-dk gry, occ sl brn, sft, subfiss v slty, micromic, tr f sd a/a sl-mod calc	NO SHOWS
1938.6	100	SH: brn gry, sft, poor fiss due to high slt content plus some f sd a/a	NO SHOWS
1939.5	½00	SLST: brn gry, shly i/p - shly and slty lam	NO SHOWS
1940.5	100	SH: med-dk gry, v slty, micromic, pyr, poor fiss, nodular i/p, v hd i/p, calc cmtd, carb frags, woody frags	NO SHOWS

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CORE DESCRIPTION - GLASSFIBRE INNER BARREL

WELL NO. 34/10-15		AREA NORTH SEA		FIELD GULLFAKS	
CORE NO. 6	INTERVAL FROM 2170m TO 2187.5m		CORED 17.5m	REC. 17.1m	97 %
FORM.		COMPANY STATOIL/HYDRO/SAGA			
HOLE SIZE 8½"		GEOLOGIST GRACE/BJERKENES		DATE 24.11.82	

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
2170.9	100	SH: dk gry, occ sl gn-brn, frm, v slty, v sdy (vf-f), v micromic, non-sl calc, subfiss	NO SHOWS
2171.8		A/A	
2172.7		A/A	
2173.6		A/A	
2174.5		A/A	
2175.4		A/A	
2176.3		A/A	
2177.2		A/A	
2178.9		A/A	
2179.8		A/A	
2180.1	100	SH: v hd, gd calc cmt, else a/a	
2181.6	100	SH: sl more dk gn-brn, sfter, fri, mod-sl calc, else a/a	
2182.5			
2183.4			
2184.3			

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CORE DESCRIPTION - GLASSFIBRE INNER BARREL

WELL NO. 34/10-15		AREA NORTH SEA		FIELD GULLFAKS	
CORE NO. 6	INTERVAL FROM 2170m	TO 2187.5m	CORED 17.5m	REC. 17.1m	97 %
FORM.		COMPANY STATOIL/HYDRO/SAGA			
HOLE SIZE 8½"		GEOLOGIST GRACE/BJERKENES		DATE 24.11.82	

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
2185.2			
2186.1	100	SH: mostly dk gry, more shly, non calc else a/a	
2187.1	100	SH: more sdy, frm, calc cmt, else a/a	

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CORE DESCRIPTION - GLASSFIBRE INNER BARREL

WELL NO. 34/10-15		AREA NORTH SEA		FIELD GULLFAKS	
CORE NO. 7	INTERVAL FROM 21.87.5m TO 2201m		CORED 13.5m	REC. 12.5m	92.6 %
FORM.		COMPANY ~~STATOIL/HYDRO/SAGA~~			
HOLE SIZE 8½"		GEOLOGIST GRACE/BJERKENES		DATE	

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
2187.5	100	SST: vf-slty, med gry, mod hd, micromic-mic, v calc	NO SHOWS
2188.4	100	SLTST: shly, med gry, mod hd, v mic, sl calc, subfiss	
2189.3	100	a/a, but even more mic	
2190.2	100	SH: sl slty, med gry-sl gn-gry, mod hd-hd, sl calc,v mic-micromic, subfiss	
2191.7	100	SH: a/a, but less mic, non calc	
2192.6		a/a	
2193.5		a/a, but more mic	
2194.4		a/a, w/thin stringers of vf sst	
2195.3		a/a, but without sst	
2196.2		a/a, w/sst	
2197.1	100	SLTST: prtly vf sst, med gry, mod hd-frm, mic, non-sl calc, prtly sh, subfiss	
2198		a/a	
2198.9		a/a, but v calc, mod hd	
2200		a/a, but sl calc, frm-mod hd, v mic	

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CORE DESCRIPTION - GLASSFIBRE INNER BARREL

WELL NO. 34/10-15	AREA NORTH SEA		FIELD GULLFAKS		
CORE NO. 8	INTERVAL FROM 2201m	TO 2213m	CORED 12m	REC. 10.4m	87 %
FORM.	COMPANY STATOIL/HYDRO/SAGA				
HOLE SIZE 8½"	GEOLOGIST GRACE/BJEREKENES		DATE 25.11.82		

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
2201	100	CLYST: gry-gn to gry-brn, med dk, sft, v slty, v micromic, mic, vf sd, non fiss, non calc, shows signs of infiltration from mud	
2202.4	100	SH: med gn-gry, frm-mod hd, sub fiss, v mic v sdy and slty, non-sl calc cmtd i/p	NO SHOWS IKU SAMPLE 2203.25-2203.45m
2203.3	100	SH: a/a incl blk carb frags	
2204.2	100	SH: v hd, v calc cmtd, else a/a	
2205.1	100	SH: sft, crumbly, non-slt calc, else a/a	
2206	100	SH: slt more gn, else a/a	
2206.9	100	SH: w/occ small pieces of CLY: red brn, sft, non calc	
2207.8	100	SH: v dk brnsh gry, frm, brittle, fiss-sub fiss, stressed cleavage surfaces, polished, striated (parallel), non calc	UPPER LIMIT OF STRESS ZONE FAULT ZONE
2208.7	100	FAULT BRECCIA consisting of SH/CLYST: lt grn-gy, v slty, sdy, micromic, v hd, v calc, from UPPER FORMATION CLYST/SH: lt-med red brn, sft-frm, calc, no slt of sd content, from LOWER FORMATION	

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CORE DESCRIPTION - GLASSFIBRE INNER BARREL

WELL NO. 34/10-15		AREA NORTH SEA		FIELD GULLFAKS	
CORE NO. 8	INTERVAL FROM 2201m	TO 2213m	CORED 12m	REC. 10.4	87 %
FORM.		COMPANY STATOIL/HYDRO/SAGA			
HOLE SIZE 8½"		GEOLOGIST GRACE/BJERKENES		DATE 25.11.82	

Depth (m/KBE)	Lith. (%)	Lithologic description Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, accessories, fossils, porosity, contamination	Shows & Remarks
2209.6	100	SH: med red brn, sub fiss, frm-hd, sft i/p w/brn-gn, slty, v mic, frags	LOWER LIMIT OF FAULT BRECCIA
2210.5	100	SH: red brn, sub fiss, striated and stress cleavage, micromic, calc, slt gn i/p	LOWER LIMIT OF STRESS ZONE
2211.4	100	SH: a/a, more red colour, sfter, non calc, no indication of stress	

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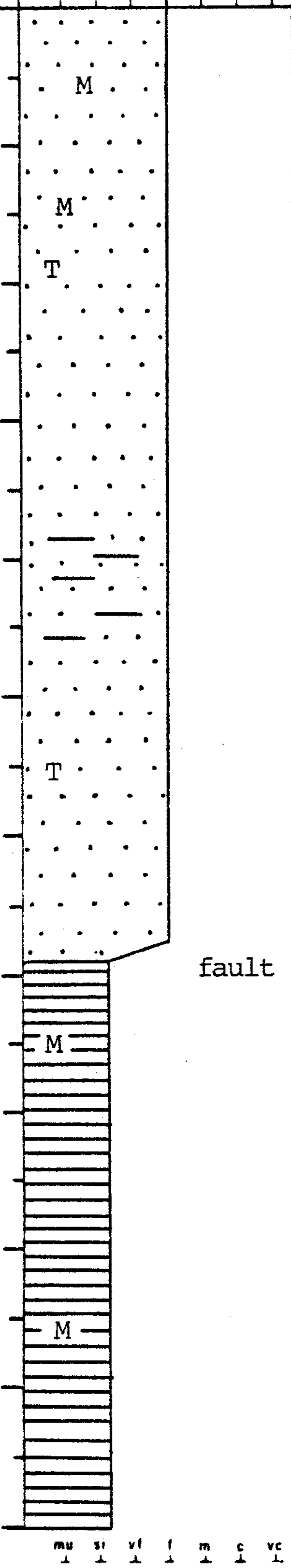
CONVENTIONAL CORE DESCRIPTION

FIELD GULLFAKS | WELL NO. 34/10-15 | AREA NORTH SEA

CORE NO. 9 | INTERVAL from 2301 to 2316.5 | CORED 15.5 | REC 13.9 | 89.7 %

FORM. | GEOLOGIST GRACE/BJERKENES/LIND-HANSEN | DATE 29.11.82



DEPTH	DIP (apparent)	LITHOLOGIC DESCRIPTION	MISC.
2301		SST: LT GRY, F, LAM W/ MIC, FRM-LSE, V SL CALC, V MIC, SUB ANG-SUB RND	NO SHOWS
	10° 15°	LESS CRS MICA	BEDDING PLANES 10° 15° APP DIP
2302		SST: WH-LT GRY, HD V CALC CMT, SL MIC ELSE A/A	
		GEN, LESS MICA	
2303		SST: A/A WITH SOME CLYST: LT GN-GRY MICROMIC, SL CALC, SFT	
		SST: WH, TIGHT, HD V CALC, ELSE A/A	
2304		SL INC IN GN COL.	
		CLYST: GN GRY, MOD HD, V SL MIC, STRESSED W/SLICKENSIDES BELOW FAULT: CLYST: DK RED BRN, MOD HD, V MIC, SLTY-SDY, SL CALC	SMALL FAULT 2304,5m
2305			
2306		CLYST: A/A	

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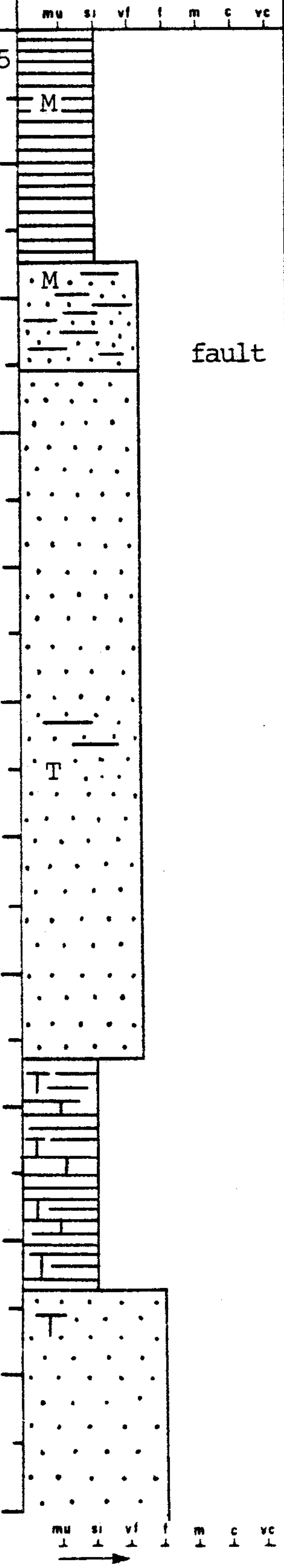
Den norske stats oljeselskap a.s

CONVENTIONAL CORE DESCRIPTION

FIELD GULLFAKS | WELL NO. 34/10-15 | AREA NORTH SEA
CORE NO. 9 | INTERVAL from 2301 to 2316,5 | CORED 15,5 | REC 13,9 | 89,7 %
FORM. | GEOLOGIST GRACE/BJERKENES/LIND-HANSEN | DATE 29.11.82

DEPTH	LITHOLOGY/ GRAIN SIZE	DIP (apparent)	SHOWS: STAIN S F G	CUT P F G	FLUOR P F G	Φ P F G	LITHOLOGIC DESCRIPTION	MISC.
2306,5								
2307								
							SST: LT GRY-LT GN GRY VF-F, FRM, MIC, NON CALC, RD BRN SLTY CLYST A/A, I/P W/ SLICKENSIDES AT 2307,75m	NO SHOWS SMALL FAULT 2307,5m
2308							SST: A/A	
							SST: V LT GRY, F, OCC MED (YEL-WH GRNS), SUB ANG-SUB RD, HD, V CALC, SL MIC, W/OCC THIN PRTGS OF GN-GRY CLYST	
2309							SL DARKER GRY COLOUR	
2310							LESS MIC	
							CLYST: GN-GRY W/LST WH-YEL WH, PRTLY GRY-GN, HD	
2311							SST: V LT GRY-WH, F, MOD HD, SL CALC, MOD MIC	
2312								



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Den norske stats oljeselskap a.s

CONVENTIONAL CORE DESCRIPTION

FIELD GULLFAKS | WELL NO. 34/10-15 | AREA NORTH SEA

CORE NO. 9 | INTERVAL from 2301 to 2316.5 | CORED 15.5 | REC 13.9 | 89.7 %

FORM. | GEOLOGIST GRACE/BJERKENES/LIND-HANSEN | DATE 29.11.82

DEPTH	LITHOLOGY/ GRAIN SIZE (mu si vf f m c vc)	DIP (apparent)	SHOWS: STAIN S F G	SHOWS: CUT P F G	SHOWS: FLUOR P F G	Φ P F G	LITHOLOGIC DESCRIPTION	MISC.
2312							MORE LSE GRNS	
2313	T						SST: A/A V CALC, HD, MIC	
2314							SST: V LT GN-WH, OCC YEL-WH, FRM, SL CALC, GOOD POR, SLI MIC	
							SST: A/A SLI MORE CALC, MOD HD, BUT POOR POR	
2315	2314,9m							
2316								

mu si vf f m c vc

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CONVENTIONAL CORE DESCRIPTION

FIELD GULLFAKS | WELL NO. 34/10-15 | AREA NORTH SEA

CORE NO. 10 | INTERVAL from 2316.5 to 2323 | CORED 6.5 | REC 5.5 | 85 %

FORM. TRIASSIC | GEOLOGIST GRACE/BJERKENES/LIND-HANSEN | DATE 29.11.82

DEPTH	LITHOLOGY/ GRAIN SIZE (mu si vf f m c vc)	DIP (apparent)	SHOWS: STAIN S F G	CUT P F G	FLUOR P F G	Φ P F G	LITHOLOGIC DESCRIPTION	MISC.
2316.5							DOL: GRY BRN/YEL, V HD CALCITE STRKS, TR PYR	
2317							SST: LT GRY-WH, F, MOD HD-FRM, MOD POR, MIC, NON-SL CALC, SOME YEL GRNS	IKU SAMPLE 2317,10-2317,30m
	M							
2318							SST: A/A	
	M							
2319							SST: A/A BEC. MORE CALC	IKU SAMPLE 2319,25-2319,37m
2320	M						BEC. MORE MIC	
	T							
2321	T						SST: A/A V CALC CMT, V HD	
							SH/CLYST: RED BRN/GN W/SLICKENSIDES SL MIC, V CALC IN GREEN PTS, SL CALC IN RED	
2322								

mu si vf f m c vc

statoil
Den norske stats oljeselskap a.s

CONVENTIONAL CORE DESCRIPTION

FIELD GULLFAKS | WELL NO. 34/10-15 | AREA NORTH SEA
CORE NO. 10 | INTERVAL from 2316.5 to 2323 | CORED 6.5 | REC 5.5 | 85 %
FORM. TRIASSIC | GEOLOGIST ~~GRACE/BJERKENES/LIND-HANSEN~~ | DATE 29.11.82

DEPTH	LITHOLOGY/ GRAIN SIZE (mu si vf f m c vc)	DIP (apparent)	SHOWS: STAIN S	STAIN F	STAIN G	CUT P	CUT F	CUT G	FLUOR P	FLUOR F	FLUOR G	P	F	G	LITHOLOGIC DESCRIPTION	MISC.
2322																
2323																

mu si vf f m c vc

d) Conventional Core Description - II
Slabbed Section

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Den norske stats oljeselskap a.s

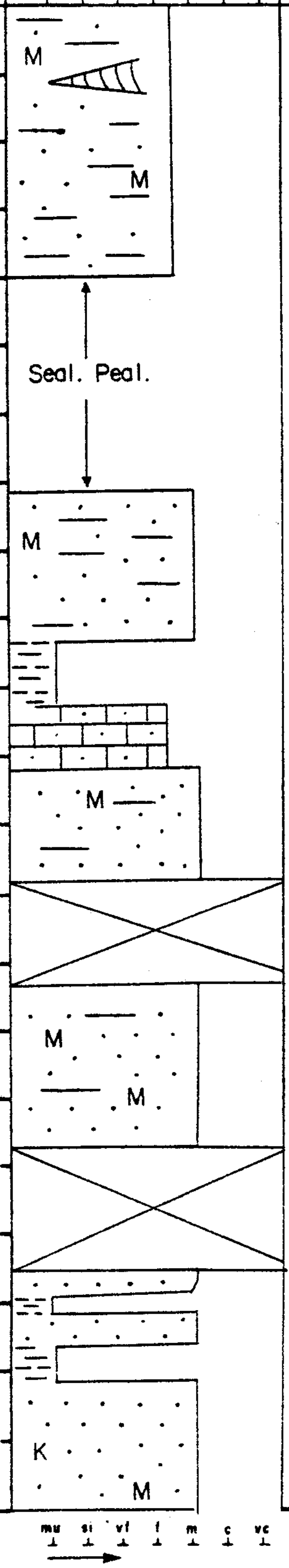
CONVENTIONAL CORE DESCRIPTION

FIELD 34/10 | WELL NO. 15 | AREA North Sea

CORE NO. 1 | INTERVAL from 1870 m to 1888 m | CORED 18 m | REC 9 m | 50 %

FORM. Cook | GEOLOGIST A. Storli/M. Prudden | DATE 9/3-83

DEPTH	LITHOLOGY/GRAIN SIZE (mu si vf f m c vc)	DIP (apparent)	SHOWS: STAIN (S F G)	CUT (P F G)	FLUOR (P F G)	Φ (P F G)	LITHOLOGIC DESCRIPTION	MISC.
1870							Sst: lt gry-gry, clr qtz grns, f-med, subang-rnd, well srtd, loose-fri, v.arg, mic, sl carb, w/shale lamination	Small scale cross bedding; lt brn stain
1871	Seal. Peal.							
1872							Sh: lt-drk gry, sft, firm, laminated w/ qtz grns, carb	
							Sst: lt gry-gry, f-med, occ crs, v.hd, calc cmt, sl mic, sl carb	mud clasts
1873							Sst: lt gry-brn, med, well srt, subang-subrnd, v.mic, loose-fri, arg	
1874							Sst: a/a, carb, interbedded with sh a/a	Mud clasts
1875							Sst: lt gry, a/a, kaolinite cmt	
1875.5								



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Den norske stats oljeselskap a.s

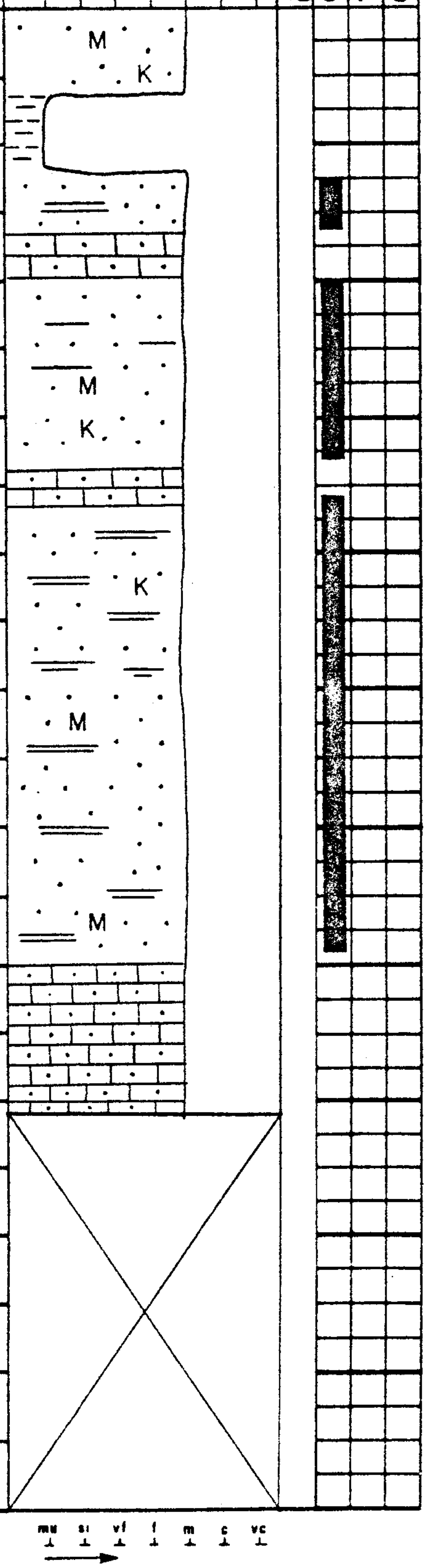
CONVENTIONAL CORE DESCRIPTION

FIELD 34/10 | WELL NO. 15 | AREA ~~North Sea~~

CORE NO. 1 | INTERVAL from 1870m to 1888 m | CORED 18 m | REC 9 m | 50 %

FORM. Cook | GEOLOGIST A. Storli/M. Prudden | DATE 9/3-83

DEPTH	LITHOLOGY/ GRAIN SIZE	DIP (apparent)	SHOWS: STAIN (S F G)	CUT (P F G)	FLUOR (P F G)	Φ (P F G)	LITHOLOGIC DESCRIPTION	MISC.
1875.5								
1876							Sh: lt gry-dk gry, firm, carb lamina, mic, tr qtz	f-med sd laminations
							Sst: lt gry-brn, med, subang-subrnd, well srt, fri, with dk gry shale lamina, kaolinite matrix	
1877								
1878								
1879							Sst: lt gry, f-med, subang, v.hd calc cmt, sl carb, well srtd, w/shale clasts	
1880								
1881								



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Den norske stats oljeselskap a.s

CONVENTIONAL CORE DESCRIPTION

FIELD 34/10	WELL NO. 15	AREA North Sea		
CORE NO. 1	INTERVAL from 1870m to 1888m	CORED 18m	REC 9m	50 %
FORM. Cook	GEOLOGIST A. Storli/M. Prudden	DATE 9/3-83		

DEPTH	LITHOLOGY/ GRAIN SIZE (mu si vf f m c vc)	DIP (apparent)	SHOWS: STAIN S F G	SHOWS: CUT P F G	SHOWS: FLUOR P F G	Φ P F G	LITHOLOGIC DESCRIPTION	MISC.
1881								
1882								
1883								
1884								
1885								
1886								
1886.5								

mu si vf f m c vc

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Den norske stats oljeselskap a.s

CONVENTIONAL CORE DESCRIPTION

FIELD 34/10	WELL NO. 15	AREA North Sea		
CORE NO. 1	INTERVAL from 1870 m to 1888 m	CORED 18 m	REC 9 m	50 %
FORM. Cook	GEOLOGIST A. Storli/M. Prudden	DATE 9/3-83		

DEPTH	LITHOLOGY/ GRAIN SIZE (mu si vf f m c vc)	DIP (apparent)	SHOWS: STAIN (S F G)	CUT (P F G)	FLUOR (P F G)	Φ (P F G)	LITHOLOGIC DESCRIPTION	MISC.
1886.5								
1887								
1888								

mu si vf f m c vc

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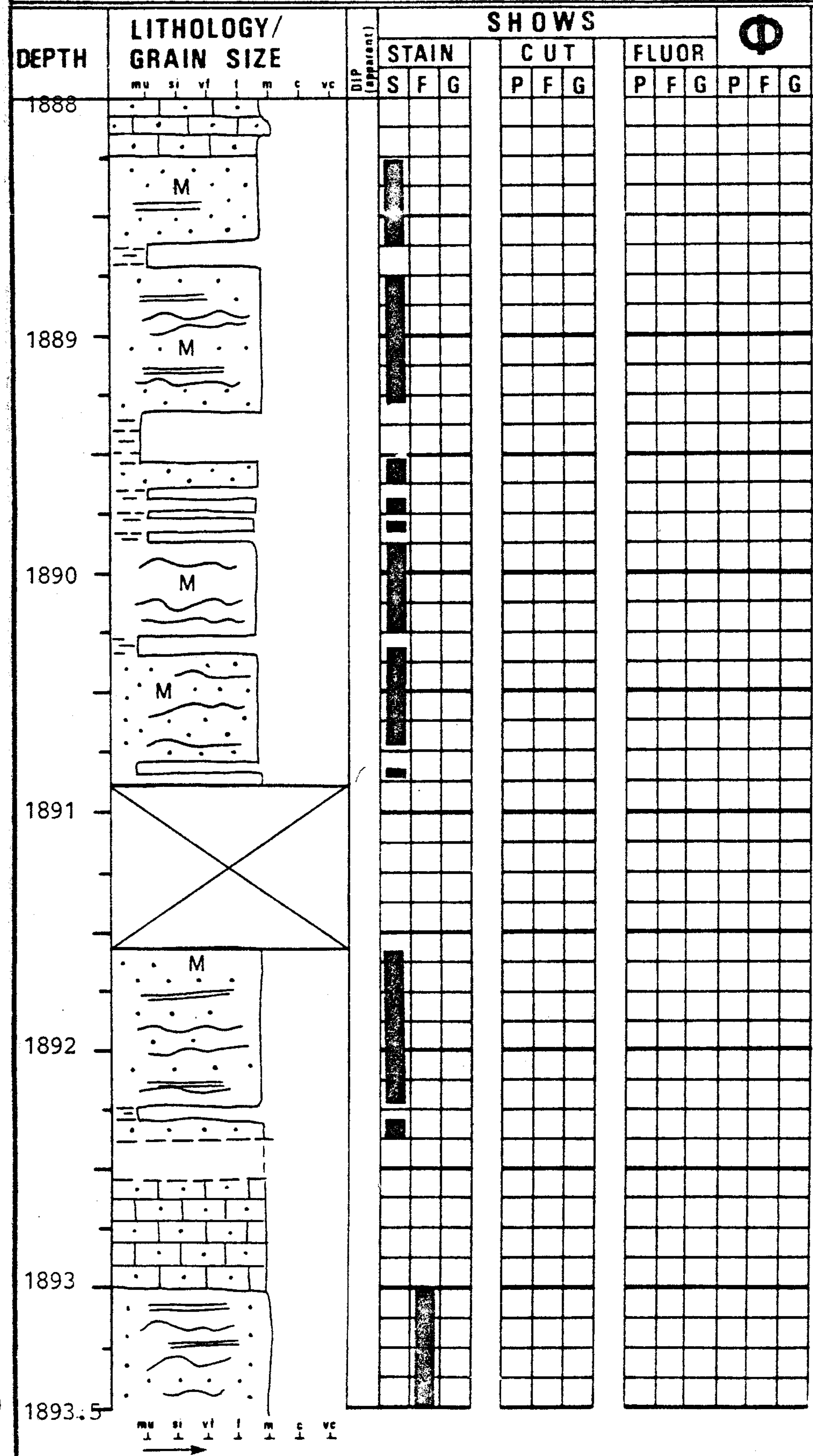
Den norske stats oljeselskap a.s

CONVENTIONAL CORE DESCRIPTION

FIELD 34/10	WELL NO. 15	AREA North Sea
CORE NO. 2	INTERVAL from 1888 m to 1900m	CORED 12 m / REC 9m / 75 %
FORM. Cook	GEOLOGIST A. Storli/M. Prudden	DATE 9/3-83



LITHOLOGIC DESCRIPTION	MISC.
Sst: lt gry, f-med subang, well srtd, v. hd, calc cmt, shale lamina	lt brn stain
Sst: gy-lt brn, clr qtz, f-med, subang-subrnd, mod well srtd, fri-firm, mic, v.arg with shale laminations, sl. carb in places	
	ripples
Sst: a/a, hd	
Sst: a/a, but v.hd, calc cmt	Sample for IKU
Sst: lt gry-lt brn, transl. qtz, med, firm-sl fri, subang-subrnd, well srtd, mic, arg. w/shale laminations, occ kaolinite	

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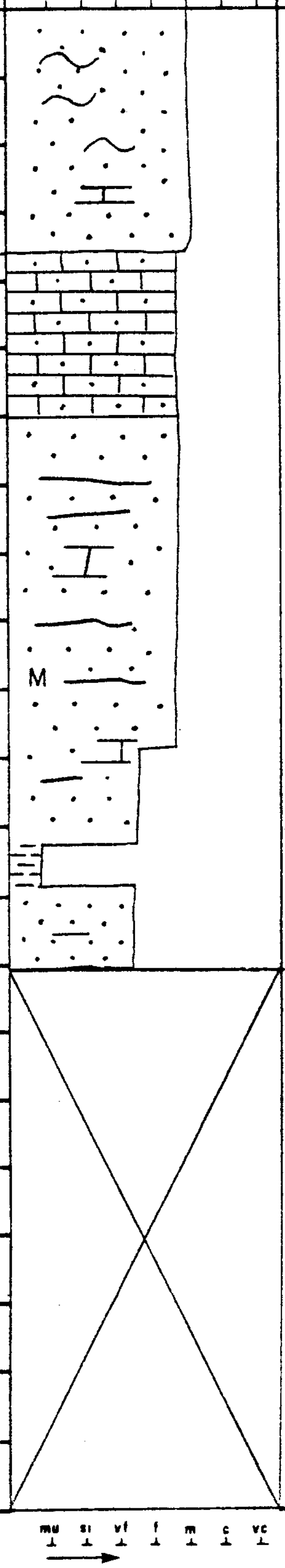
CONVENTIONAL CORE DESCRIPTION

FIELD 34/10	WELL NO. 15	AREA North Sea
CORE NO. 2	INTERVAL from 1888m to 1900 m	CORED 12 m / REC 9m / 75 %
FORM. Cook	GEOLOGIST A. Storli/M. Prudden	DATE 9/3-83

LITHOLOGY/ GRAIN SIZE (mu si vf f m c vc)



DEPTH	LITHOLOGIC DESCRIPTION	MISC.
1893.5	Sst: a/a	
1894	Sst: a/a with small calc nodules	
	Sst: f-med, v.hd, calc cmt, mic, w/shale laminations a/a	small scale cross bedding
1895	Sst: f-med, firm, sl fri, v.mic, sl carb, non-sl calc	
1896	Sst: vf-f, mic, arg, sh laminations	
	Sh: dk gry, firm-mod hd, v.mic, sl calc, carb	
1897	Sst: vf-f w/shale laminations	
1898		
1899		

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CONVENTIONAL CORE DESCRIPTION

FIELD 34/10 | WELL NO. 15 | AREA ~~North Sea~~

CORE NO. 2 | INTERVAL from 1888 m to 1900 m | CORED 12 m | REC 9 m | 75 %

FORM. Cook | GEOLOGIST A. Storli/M. Prudden | DATE 9/3-83

DEPTH	LITHOLOGY/ GRAIN SIZE (mu si vf f m c vc)	DIP (apparent)	SHOWS: STAIN S	F	G	CUT P	F	G	FLUOR P	F	G	Φ P	F	G	LITHOLOGIC DESCRIPTION	MISC.
1899																
1900																

mu si vf f m c vc

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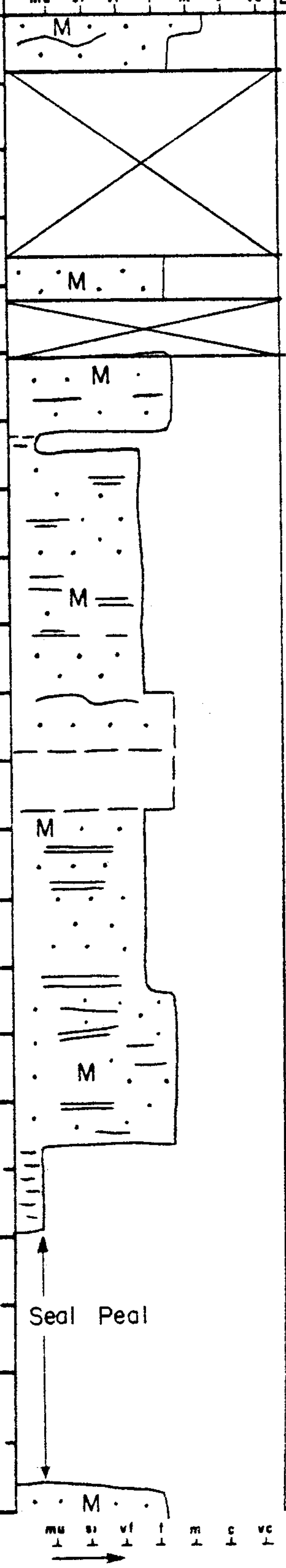
CONVENTIONAL CORE DESCRIPTION

FIELD 34/10 | WELL NO. 15 | AREA North Sea

CORE NO. 3 | INTERVAL from 1900 m to 1917 m | CORED 17 m | REC 5.7 m | 34 %

FORM. Cook | GEOLOGIST A. Storli/M. Prudden | DATE 9/3-83

DEPTH	LITHOLOGY/ GRAIN SIZE (mu si vf f m c vc)	DIP (apparent)	SHOWS: STAIN (S F G)	CUT (P F G)	FLUOR (P F G)	Φ (P F G)	LITHOLOGIC DESCRIPTION	MISC.
1900							Sst: drk gry, med, v.mic, firm	
1901							Sst: lt gry, f-med, subang-subrnd, mod-well srtd, mic, arg, w/shale laminations	
1902							Sst: med, subang-sub-rnd, mod-well srt, arg, mic, carb	Sample for IKU
1903								
1904							Sh: gry-drk gry, micro-mic, non calc	
1905								
1905.5							Sst: f-med, fri sl mic, arg	

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CONVENTIONAL CORE DESCRIPTION

FIELD 34/10 | WELL NO. 15 | AREA North Sea
CORE NO. 3 | INTERVAL from 1900 m to 1917 m | CORED 17 m | REC 5.7 m | 34 %
FORM. Cook | GEOLOGIST A. Storli/M. Prudden | DATE 9/3-83

DEPTH	LITHOLOGY/ GRAIN SIZE (mu si vf f m c vc)	DIP (apparent)	SHOWS: STAIN S F G	CUT P F G	FLUOR P F G	Φ P F G	LITHOLOGIC DESCRIPTION	MISC.
1905.5	M						Sst: a/a	
1906								
1907								
1908								
1909								
1910								
1911								

mu si vf f m c vc

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Den norske stats oljeselskap a.s

CONVENTIONAL CORE DESCRIPTION

FIELD 34/10 | WELL NO. 15 | AREA North Sea
CORE NO. 3 | INTERVAL from 1900m to 1917m | CORED 17m | REC 5.7 m | 34 %
FORM. Cook | GEOLOGIST A. Storli/M. Prudden | DATE 9/3-83

DEPTH	LITHOLOGY/ GRAIN SIZE (mu si vf f m c vc)	DIP (apparent)	SHOWS: STAIN S F G	CUT P F G	FLUOR P F G	Φ P F G	LITHOLOGIC DESCRIPTION	MISC.
1912								
1913								
1914								
1915								
1916								
1917								

mu si vf f m c vc

statoil

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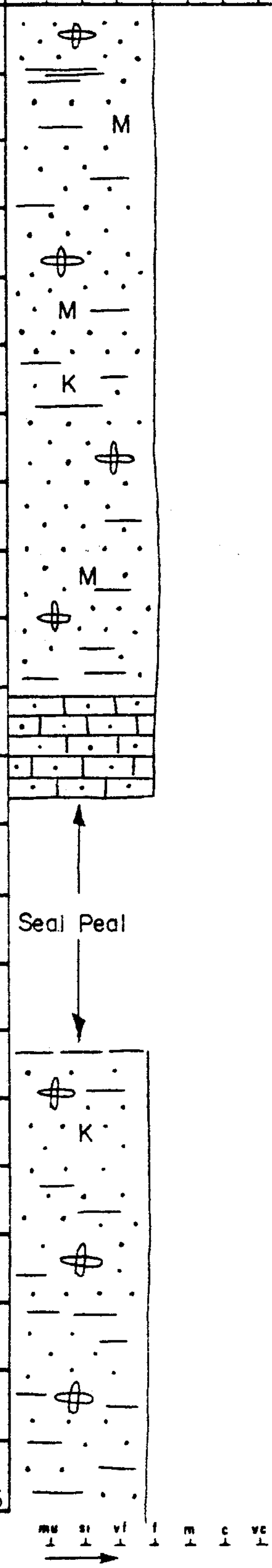
CONVENTIONAL CORE DESCRIPTION

FIELD 34/10	WELL NO. 15	AREA North Sea		
CORE NO. 4	INTERVAL from 1917 m to 1935 m	CORED 18 m	REC 11.3 m	63 %
FORM. Cook	GEOLOGIST A. Storli/M. Prudden		DATE 9/3-83	

DEPTH	LITHOLOGY/ GRAIN SIZE (mu si vf f m c vc)	DIP (apparent)	SHOWS: STAIN (S F G)	SHOWS: CUT (P F G)	SHOWS: FLUOR (P F G)	Φ (P F G)	LITHOLOGIC DESCRIPTION	MISC.
1917			S				Sst: lt gry-lt brn, f, subang-subrnd, sl mic, v.arg, bioturbated	lt brn stain
1918			S				Occ kaolinite cement	
1919			S				Sst: wh-lt gry, f, v.hd, calc cmt	
1920	Seal Peal							
1921							Sst: lt gry, v.f-f, well srt, mic, v.arg, occ kaolinitic, bioturbated	
1922								
1922.5								



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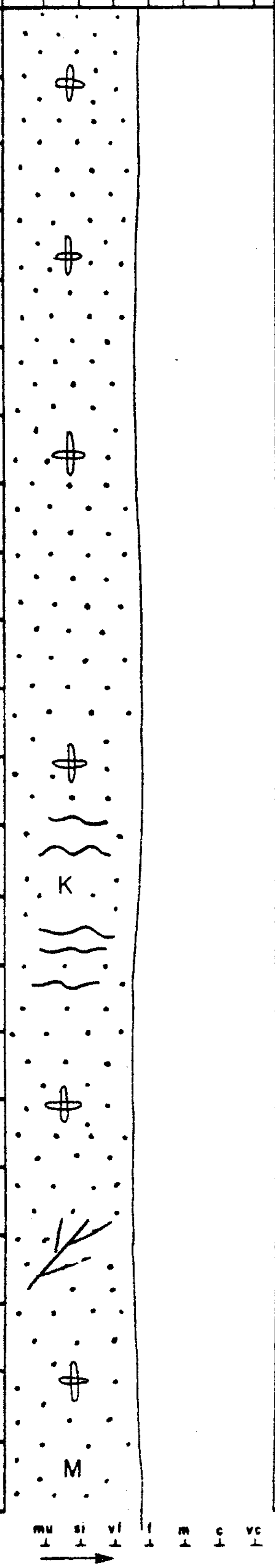
CONVENTIONAL CORE DESCRIPTION

FIELD 34/10 | WELL NO. 15 | AREA North Sea

CORE NO. 4 | INTERVAL from 1917 m to 1935 m | CORED 18 m | REC 11.3 m | 63 %

FORM. Cook | GEOLOGIST A. Storli/M. Prudden | DATE 9/3-83

DEPTH	LITHOLOGY/ GRAIN SIZE	DIP (apparent)	SHOWS: STAIN (S F G)	SHOWS: CUT (P F G)	SHOWS: FLUOR (P F G)	Φ (P F G)	LITHOLOGIC DESCRIPTION	MISC.
1922.5							Sst: a/a gry-drk gry, very bioturbated	
1923								
1924								
1925								
1926								
1927								Fracture
1928								



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Den norske stats oljeselskap a.s

CONVENTIONAL CORE DESCRIPTION

FIELD 34/10	WELL NO. 15	AREA ~~North Sea~~
CORE NO. 4	INTERVAL from 1917 m to 1935 m	CORED 18 m
REC 11.3 m	63 %	
FORM. Cook	GEOLOGIST A. Storli/M. Prudden	DATE 9/3-83

DEPTH	LITHOLOGY/ GRAIN SIZE (mu si vf f m c vc)	DIP (apparent)	SHOWS: STAIN S F G	CUT P F G	FLUOR P F G	Φ P F G	LITHOLOGIC DESCRIPTION	MISC.
1928	Φ							Sample for IKU
1929								
1930								
1931								
1932								
1933								
1933.5								

mu si vf f m c vc

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CONVENTIONAL CORE DESCRIPTION

FIELD 34/10	WELL NO. 15	AREA ~~North Sea~~		
CORE NO. 4	INTERVAL from 1917 m to 1935 m	CORED 18 m	REC 11.3 m	63 %
FORM. Cook	GEOLOGIST A. Storli/M. Prudden	DATE 9/3-83		

DEPTH	LITHOLOGY/ GRAIN SIZE (mu si vf f m c vc)	DIP (apparent)	SHOWS: STAIN S F G	SHOWS: CUT P F G	SHOWS: FLUOR P F G	Φ P F G	LITHOLOGIC DESCRIPTION	MISC.
1933.5								
1934								
1935								

mu si vf f m c vc

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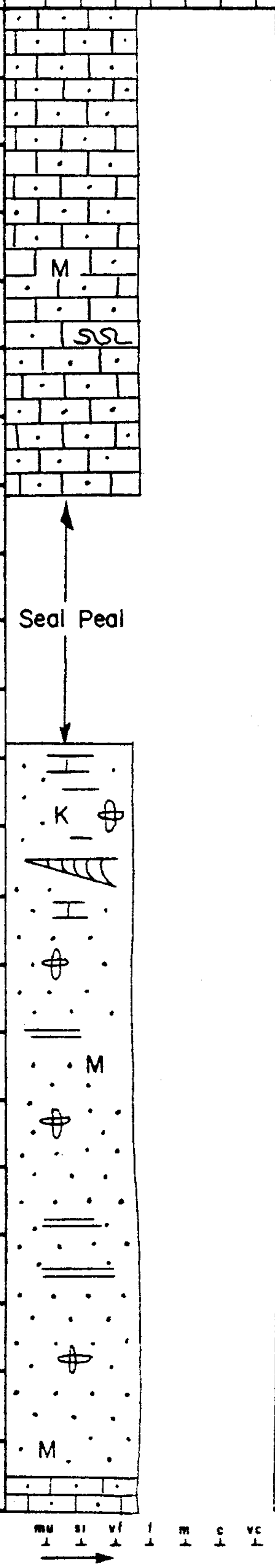
CONVENTIONAL CORE DESCRIPTION

FIELD 34/10	WELL NO. 15	AREA North Sea
CORE NO. 5	INTERVAL from 1935 m to 1945 m	CORED 10 m · REC 5.7 m · 57 %
FORM. Cook	GEOLOGIST A. Storli/M. Prudden	DATE 9/3-83

DEPTH	LITHOLOGY/ GRAIN SIZE	DIP (apparent)	SHOWS: STAIN S F G	CUT P F G	FLUOR P F G	Φ P F G	LITHOLOGIC DESCRIPTION	MISC.
1935							Sst: lt gry, vf-f, v.hd, calc cmt, micromic, arg, bioturbated, in places preserved lamination	
1936								Convolut bedding
1937	Seal Peal							
1938							Sst: vf-f, firm, v.arg silty, occ calc cmt, mic, kaolinitic, bioturbated, occ preserved lamination and small scale cross bedding	
1939								
1940								
1940.5							Sst: v.f-f, hd, calc cmt	



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Den norske stats oljeselskap a.s

CONVENTIONAL CORE DESCRIPTION

FIELD 34/10 | WELL NO. 15 | AREA North Sea

CORE NO. 5 | INTERVAL from 1935 m to 1945 m | CORED 10 m | REC 5.7 m | 57 %

FORM. Cook | GEOLOGIST A. Storli/M. Prudden | DATE 9/3-83

DEPTH	LITHOLOGY/ GRAIN SIZE (mu si vf f m c vc)	DIP (apparent)	SHOWS: STAIN (S F G)	CUT (P F G)	FLUOR (P F G)	Φ (P F G)	LITHOLOGIC DESCRIPTION	MISC.
1940.5							Sst: a/a w/small scale cross bedding and bioturbation	
1941								
1942								
1943								
1944								
1945								

mu si vf f m c vc

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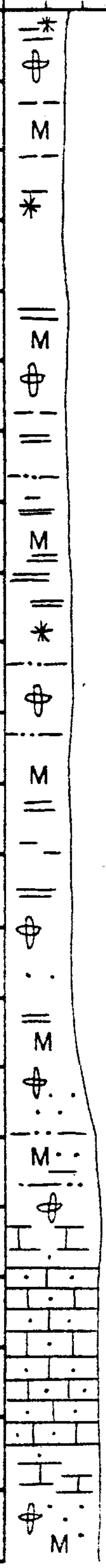
Den norske stats oljeselskap a.s

CONVENTIONAL CORE DESCRIPTION

FIELD 34/10 | WELL NO. 15 | AREA North Sea
CORE NO. 6 | INTERVAL from 2170 m to 2187.5 m | CORED 17.5 m | REC 17.1 m | 98 %
FORM. Amundsen | GEOLOGIST A. Storli/M. Prudden | DATE 10/3-83

DEPTH	LITHOLOGY/ GRAIN SIZE (mu si vf f m c vc)	DIP (apparent)	SHOWS: STAIN (S F G)	CUT (P F G)	FLUOR (P F G)	Φ (P F G)	LITHOLOGIC DESCRIPTION	MISC.
2170							Sh: gry-dk gry, frm, v.slty, sdy (v.f), mic, glau, laminations, sl bioturbated	Laminations are the most dominating structure, slightly bioturbated
2171								
2172								
2173								
2174							Sltst: gry, frm, v.sandy (v.f), v.arg, mic, non-sl calc	Very bioturbated
							Sltst: gry, frm-mod hd, calc cmt, v.sandy micromic	
2175								
2175.5								



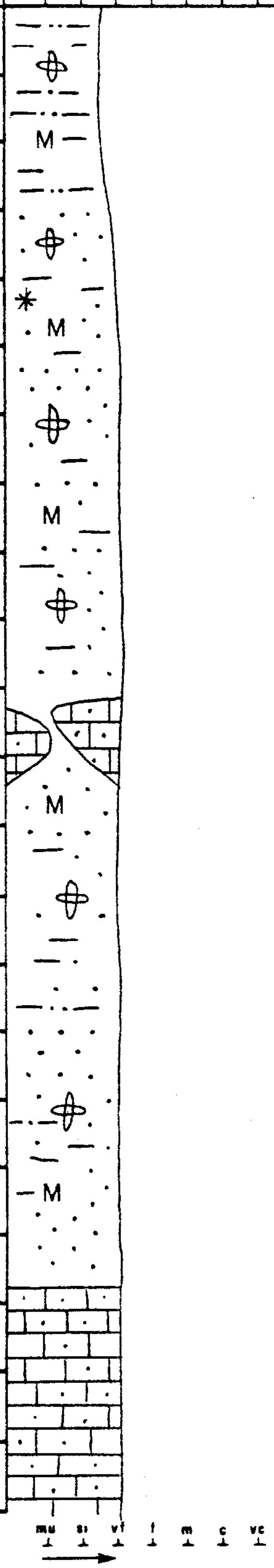
mu si vf f m c vc

statoil
Den norske stats oljeselskap a.s

CONVENTIONAL CORE DESCRIPTION

FIELD 34/10 | WELL NO. 15 | AREA North Sea
CORE NO. 6 | INTERVAL from 2170 m to 2187.5 m | CORED 17.5 m | REC 17.1 m | 98 %
FORM. Amundsen | GEOLOGIST A. Storli/M. Prudden | DATE 10/3-83

DEPTH	LITHOLOGY/ GRAIN SIZE	DIP (apparent)	SHOWS: STAIN S F G	CUT P F G	FLUOR P F G	Φ P F G	LITHOLOGIC DESCRIPTION	MISC.
2175.5							Sltst: gry-dk gry mod hd, sandy, arg, non-sl calc	
2176							Sst: gry, v.f, mod hd, well srt, silty, v.arg, non-sl calc, micromic, bioturbated	
2177								
2178							Nodules	Very bioturbated
2179								
2180							Sst: lt gry, v.f, v.hd, calc cmt, micromic, carb, v.bioturbated	
2181								

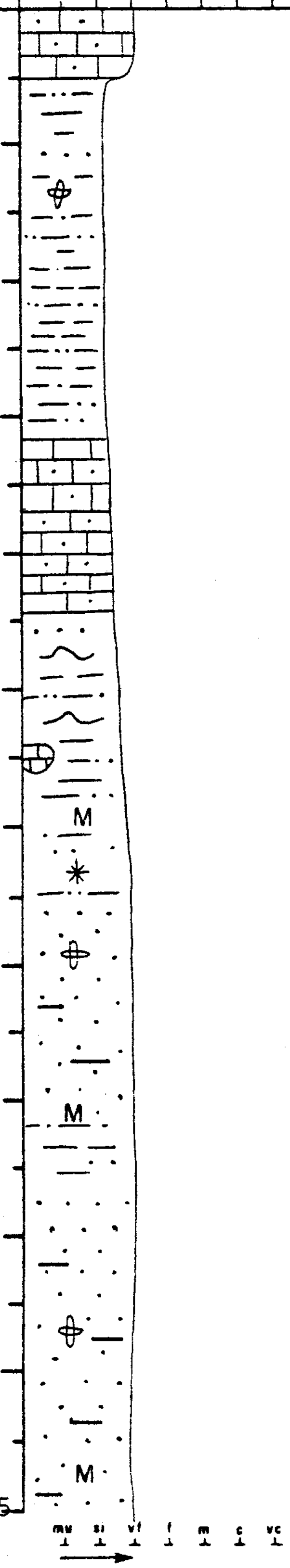


statoil
Den norske stats oljeselskap a.s

CONVENTIONAL CORE DESCRIPTION

FIELD 34/10	WELL NO. 15	AREA North Sea
CORE NO. 6	INTERVAL from 2170 m to 2187.5 m	CORED 17.5 m · REC 17.1 m · 98 %
FORM. Amundsen	GEOLOGIST A. Storli/M. Prudden	DATE 10/3.83

DEPTH	LITHOLOGY/ GRAIN SIZE	DIP (apparent)	SHOWS: STAIN (S F G)	SHOWS: CUT (P F G)	SHOWS: FLUOR (P F G)	Φ (P F G)	LITHOLOGIC DESCRIPTION	MISC.
2181							Sst: a/a	
							Sltst: gry-dk gry, lt brn gry, v.arg, and sandy	
2182								
							Calc cemented sltst/ sst	
2183								
							Nodule	
2184							Sst: gry, vf, mod hd, mic, glau, bioturbated	
2185								
2186								
2186.5								



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Den norske stats oljeselskap a.s

CONVENTIONAL CORE DESCRIPTION

FIELD 34/10	WELL NO. 15	AREA ~~North Sea~~		
CORE NO. 6	INTERVAL from 2170 m to 2187.5 m	CORED 17.5 m	REC 17.1 m	98 %
FORM. Amundsen	GEOLOGIST A. Storli/M. Prudden	DATE 10/3-83		

DEPTH	LITHOLOGY/ GRAIN SIZE (mu si vf f m c vc)	DIP (apparent)	SHOWS: STAIN S F G	CUT P F G	FLUOR P F G	Φ P F G	LITHOLOGIC DESCRIPTION	MISC.
2186.5	M							
2187								
2188								

mu si vf f m c vc

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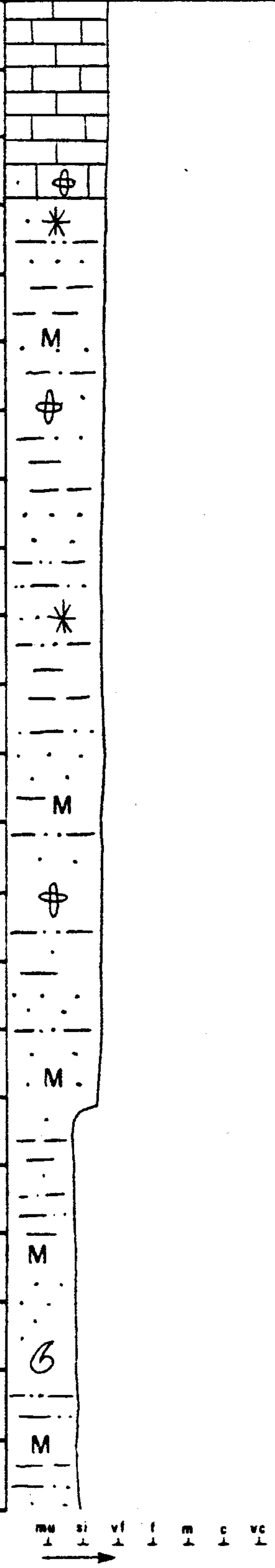
CONVENTIONAL CORE DESCRIPTION

FIELD 34/10 | WELL NO. 15 | AREA North Sea

CORE NO. 7 | INTERVAL from 2187.5 to 2201 m | CORED 13.5 m | REC 12.5 m | 93 %

FORM. Amundsen | GEOLOGIST A. Storli/M. Prudden | DATE 10/3-83

DEPTH	LITHOLOGY/ GRAIN SIZE	DIP (apparent)	SHOWS: STAIN S F G	CUT P F G	FLUOR P F G	Φ P F G	LITHOLOGIC DESCRIPTION	MISC.
2187.5							Sltst: gry, v.hd, calc cmt, v.sandy, arg, glau, fossils, very bioturbated, micromic	
2188								
2189								
2190								
2191							Sltst/Sh: gry-dk gry, firm-mod hd	
2192							Fossils	
2193								



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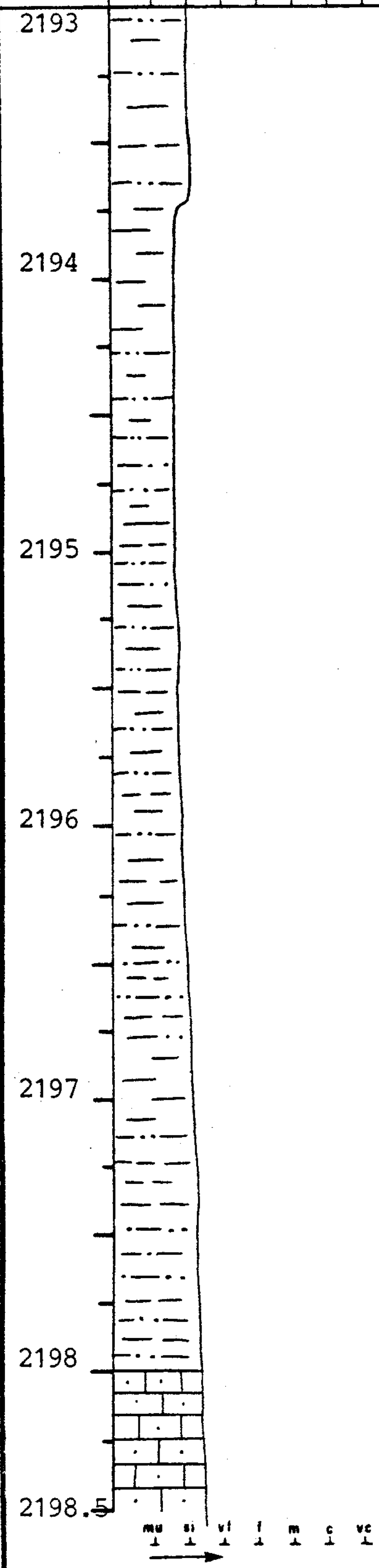
Den norske stats oljeselskap a.s

CONVENTIONAL CORE DESCRIPTION

FIELD 34/10 | WELL NO. 15 | AREA North Sea
CORE NO. 7 | INTERVAL from 2187.5 m to 2201 m | CORED 13.5 m | REC 12.5 m | 93 %
FORM. Amundsen | GEOLOGIST A. Storli/M. Prudden | DATE 10/3-83

DEPTH	LITHOLOGY/ GRAIN SIZE	DIP (apparent)	SHOWS: STAIN S F G	CUT P F G	FLUOR P F G	Φ P F G	LITHOLOGIC DESCRIPTION	MISC.
2193–2198							Sh: dk gry, mod hd, v.slty and v.sandy, micromic	
2198–2198.5							Sltst: gry, hd, calc cmt, v.sandy	



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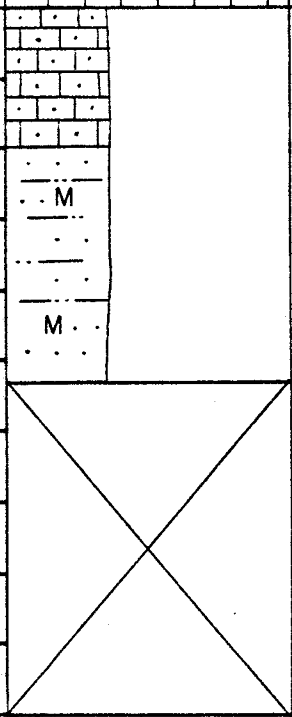
Den norske stats oljeselskap a.s

CONVENTIONAL CORE DESCRIPTION

FIELD 34/10	WELL NO. 15	AREA North Sea
CORE NO. 7	INTERVAL from 2187.5 m to 2201 m	CORED 13.5 m · REC 12.5 m · 93 %
FORM. Amundsen	GEOLOGIST A. Storli/M. Prudden	DATE 10/3-83

DEPTH	LITHOLOGY/ GRAIN SIZE	DIP (apparent)	SHOWS: STAIN S F G	CUT P F G	FLUOR P F G	Φ P F G	LITHOLOGIC DESCRIPTION	MISC.
2198.5							Sltst: a/a	
2199								
2200								
2201								



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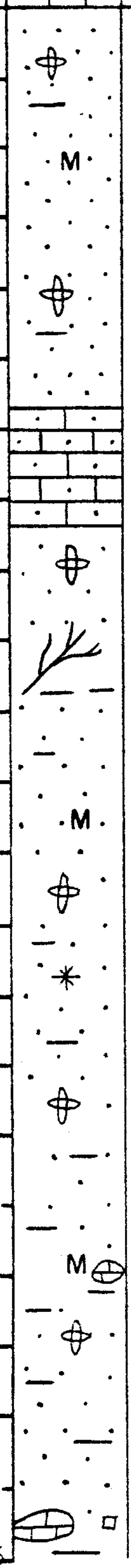
CONVENTIONAL CORE DESCRIPTION

FIELD 34/10 | WELL NO. 15 | AREA North Sea

CORE NO. 8 | INTERVAL from 2201 m to 2213 m | CORED 12 m | REC 10.5 m | 88 %

FORM. Amundsen | GEOLOGIST A. Storli/M. Prudden | DATE 10/3-83

DEPTH	LITHOLOGY/ GRAIN SIZE (mu si vf f m c vc)	DIP (apparent)	SHOWS: STAIN S F G	CUT P F G	FLUOR P F G	Φ P F G	LITHOLOGIC DESCRIPTION	MISC.
2201							Sst: lt gry-dk gry, v.f, hd, slty and v.arg, micromic-v.mic, sl carb, very bioturbated	
2202								
2203							Fracture w/calcite cmt	
2204								
2205								
2206								
2206.5								

mu si vf f m c vc

statoil
Den norske stats oljeselskap a.s

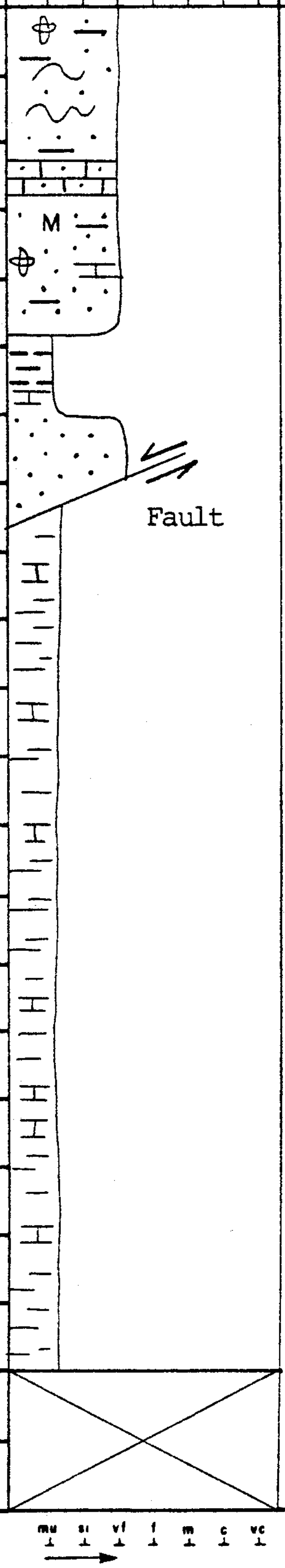
CONVENTIONAL CORE DESCRIPTION

FIELD 34/10 | WELL NO. 15 | AREA North Sea

CORE NO. 8 | INTERVAL from 2201 m to 2213 m | CORED 12 m | REC 10.5 m | 88 %

FORM. Amundsen/Cormorant | GEOLOGIST A. Storli/M. Prudden | DATE 10/3-83

DEPTH	LITHOLOGY/ GRAIN SIZE	DIP (apparent)	SHOWS: STAIN (S F G)	CUT (P F G)	FLUOR (P F G)	Φ (P F G)	LITHOLOGIC DESCRIPTION	MISC.
2206.5							Sst: vf a/a	
2207								
							Mylonite(?): w/chlorite	slicken-sides
							Sh: lt gn and gry, mottled	
2208							Sst: lt gn gry, hd, micromic, redstained	
							Sh: red brn, with inclusions of lt gn gry sh a/a occ v.calc	
2209								
2210								
2211							Sh: becomming more dk red	
2212								



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Den norske stats oljeselskap a.s

CONVENTIONAL CORE DESCRIPTION

FIELD 34/10	WELL NO. 15	AREA North Sea	
CORE NO. 8	INTERVAL from 2201 m to 2213 m	CORED 12 m	REC - 10.5 m 88 %
FORM. Cormorant	GEOLOGIST A. Storli/M. Prudden	DATE 10/3-83	

DEPTH	LITHOLOGY/ GRAIN SIZE (mu si vf f m c vc)	DIP (apparent)	SHOWS: STAIN S F G	CUT P F G	FLUOR P F G	Φ P F G	LITHOLOGIC DESCRIPTION	MISC.
2212								
2213								

mu si vf f m c vc

e) Sidewall Core Description

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Den norske stats oljeselskap a.s

SIDEWALL CORE DESCRIPTION

Country: NORWAY	Area: NORTH SEA	Field: 34/10 DELTA
Well no.: 34/10-15	Run no.:	Interval:
Co ordinates: ° ' "N ° ' "		
K. B. E. 25 meters	Company: STATOIL/NORSK HYDRO/SAGA PET.	
Hole size: 8½	Geologist: M. HELLE	Date: 04.12.82

Depth	Rec.	Lithologic description	Porosity	Shows
1757	5cm	CLYST: med gry, frm, sl calc, micromic slty in parts		
1772	5cm	CLYST: a/a		
1788	5cm	CLYST: lt med bluish gry, frm, non-sl calc, micromic, slty in parts		
1802	5cm	CLYST: a/a		
1814	5cm	CLYST: a/a		
1823	4.5cm	CLYST: med gry, else a/a		
1825.5	5cm	CLYST: a/a		
1829	5cm	CLYST: calc, else a/a		
1830	5cm	CLYST: med-dk gry, frm, subfiss, sl carb micromic, non sl calc		
1838	5cm	CLYST: a/a		
1847	5cm	CLYST: a/a		
1860	5cm	CLYST: a/a		
1865	4cm	CLYST: carb, else a/a		
1952	4cm	SST: clr qtz, vf, occ f and slty, fri, sl mic, non calc, subrnd	fair-good	none
1970	4cm	SLTST: lt gry-wh, clr qtz, fri, non-sl calc, micromic, grding to vf SST: a/a	poor-fair	none
1983	4cm	CLYST: med-dk gry, frm-mod hd, mic, carb, sl calc, occ slty, subfiss		
2002	4.5cm	CLYST: v slty, grding to sltst, else a/a		
2035	5cm	SH: med-dk gry, mod hd, calc, sl micromic, carb		
2043	5cm	SH: a/a		

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SIDEWALL CORE DESCRIPTION

Country: NORWAY		Area: NORTH SEA		Field: 34/10 DELTA	
Well no.: 34/10-15	Run no.:	Interval:			
Co ordinates: ° ' "N ° ' "					
K. B. E. 25 meters	Company: STATOIL/NORSK HYDRO/SAGA PET.				
Hole size: 8½	Geologist: M. HELLE		Date: 04.12.82		

Depth	Rec.	Lithologic description	Porosity	Shows
2064	4.5cm	SH: med gry, brnish gry, frm, v calc, slty in parts, mic, sl carb		
2085	4cm	SH: dk gry, mod hd, non calc, v carb, sl mic		
2100	5cm	SH: med-lt gry, frm, non calc, sl non carb, grding to clyst		
2128	4.5cm	SH: a/a		
2154	5cm	SLTST: lt gry, fri, mic, non calc		
2227	4cm	SST: clr qtz, med, fri, subang-subrnd calc cmt in parts, sl mic	good	none
2248	4.5cm	SH/CLYST: brick red, frm, mic, non calc, slty and sndy in parts		
2258	5cm	SH: brnish gry, brick red, frm-mod hd, non calc, occ slty, micromic		
2284	4.5cm	SH: a/a		
2337	3cm	SST: red brn, vf, subang-subrnd, fri, mic, non calc, slty, partly w/clay matrix	fair	none
2387	4cm	SH: brn red - brick red, frm-mod hd, sl mic, non-sl calc, occ slty		

4.00.15 A

III DRILLING REPORT

III 1. SUMMARY

"Neptuno Nordraug" was transferred to the well 34/10-15 on October 14, 1982 at 0700 hours (Passed 62'nd parallell), from the well 7120/7-1.

The well was a wildcat well, drilled to test possible hydrocarbons in the Jurassic sandstones on a fault block in the south-eastern part of the Gullfaks field. The well was planned and drilled into the Triassic formation, to a total depth of 2400 m below KB. Planned T.D. was 2300 m. The hole was extended 100 m due to uncertainties if the well had reached minimum 50 m into the Triassic when logging at 2300 m, and also to check possible sandstones below 2300 m, since the well did not penetrate the Statfjord prospect as prognosed.
The well was situated approx 90 m south of the location for the well 34/10-10, which was abandoned due to gas flow from a gas filled sand at 428 m KB. The same sandlense was penetrated in the well 34/10-15 from 444-447 m.
The prognosis for the well indicated possible penetration of Brent, Dunlin and Statfjord sandstones. The only sands penetrated were Dunlin and possibly Statfjord sandstones. All showed to be waterwet.
A shallow gas test was planned from the interval 444-447 m. The purpose of this test was to gather information about whether the gas would flow to surface and if the sandlense could be drained. The test was cancelled due to problems in cutting the 13 3/8" casing deep enough to allow for perforations in the 20" casing in the test interval.

The anchors were run and tested to 159 metric tons. All anchors held, except no.8. The anchors no.6, no.7 and no.8 were reset and piggy backed due to slipping. The anchor no.3 was reset due to a partly submerged bouy. The same anchor was also piggy backed. All the anchors were finally pulltested to 159 m. tons, and found to be holding. The rig was positioned and the anchor

tension adjusted prior to spudding the well in 163.5 m of water. The anchor handling consumed a total of 40.5 hours, including 6 hours waiting on weather and 16.5 hours resetting, piggy backing anchors and positioning of the rig.
The rig was positioned blind when the 30" casing did not stab, and the weather was to rough to lower the Mantis in helping to position the rig over the 36" hole. The 30" casing was cemented with top of the housing 2 meters above the seafloor.
The pin connector was run and a 12 1/4" pilot hole drilled and logged to 950 m. The logs identified two possible gas containing sandlenses, which also were confirmed when penetrated with the bit. The pilot hole was opened up to 26" using 12 1/4" bit, 17½" hole opener and 26" underreamer in two runs. The hole was displaced to 1.35 S.G. mud, containing LCM material, prior to running 26" bit and checking gauge of the hole. The LCM was put in due to some losses when making wipertrip to 30" shoe with 26" underreamer assembly.
The riser and pin connector was pulled and the well observed with TV-camera to check stability of the hole. No drop of mud was observed. 2 trips were made with the 26" bit due to a total of 38 hours waiting on the weather to improve, for running the 20" casing. LCM pills were spotted from bottom on each trip.
The 20" casing was run and pulltested with 14 metric tons overpull. Had indication of full returns while cementing. Failure in the cement bulk system was observed after having mixed 3.2 m^3 cement slurry. The mixed cement was circulated out w/1.35 S.G. mud. The failure was located to be plugged cement air filters on the bulk tanks. All filters were cleaned and the cement job performed. Partial returns was reported throughout cementing and displacing. The plug was not bumped. The wellhead area was washed and cleaned using jet tool, after cement/barite was found to be settled out on top of same. The Mantis was not able to inspect nor clean the wellhead due to strong currents.
The 18 3/4" x 10 M psi BOP stack was run, pulltested and pressure tested.
The 17½" hole section was drilled without any special drilling problems, except for some drag when pulling out on trips. One logging run was made with Schlumberger prior to hanging off for 34 hours due to bad weather. Disconnecting was not neccessary.

The mud weight was increased in steps from 1.08 S.G. to a final of 1.50 S.G. at 13 3/8" casing depth.
Two bit trips were made prior to logging run no. 2, and one after the run. Respectively 39.3%, 18.5% and 15.3% gas was recorded on bottoms up from these bit trips. Only 6.2% gas was reported on bottoms up prior to the first logging run. The mudweight was kept unchanged.
The string was hung off once more for 19 hours. 27% gas was recorded on bottoms up from bit trip prior to running the 13 3/8" casing.

26.2 m^3 of mud was lost to the formations while circulating prior to cementing. 6% gas was recorded on bottoms up. A 8 m3 LCM pill was pumped ahead of the cement. Had partial returns. Lost returns while displacing the last 9 m^3 of cement.
Several attempts had to be made to get the 18 3/4" x 13 3/8" seal assembly to set properly and test. The same was finally set properly using 8" drillcollars.
18 hours was lost due to waiting on weather prior to testing the BOP'S and drilling the 12 1/4" section. 41 metric tons overpull was used to get the test tool loose after having tested the BOP. All 4 pins were sheared on the tool, and the 2 cup screws were found to be mashed.
The 13 3/8" casing was cleaned out, leak-off test performed and the 12 1/4" section drilled. The mud weight was increased in steps to a final weight of 1.68 S.G. at 9 5/8" casing point.
19.3% gas was recorded when circulating. The mud weight was raised to 1.72 S.G. and 1.1% gas recorded on bottoms up. 3 Schlumberger runs were made and a wiper trip made prior to the fourth Schlumberger run. 1.6% gas was recorded on the last bit trip prior to running the 9 5/8" casing.
The 9 5/8" casing was cemented in place and the plug bumped. The 18 3/4" x 9 5/8" seal assembly was finally tested after several attempts. The same was finally run on 8" drill collars.
The 9 5/8" casing was cleaned out after the mud weight had been raised to 1.78 S.G. The 8½" hole was drilled to 1870 m, 134 m below the 9 5/8" shoe, having several drilling breaks and flow checks. Samples were circulated up and the bit pulled to enable 5 cores were made with varying recovery. The mud weight was

raised further to 1.81 S.G. and the 8½" hole section logged. 3 logging runs were made. The 8½" hole was then drilled to 2170 m, only interrupted by waiting on weather for 14 hours. 3 more cores were taken and the 8½" hole drilled to 2300 m (planned T.D.).

Schlumberger logs were run. RFT tool was pulled due to cable failure on first attempt. Same tool became stuck at 2226.5 m, when taking the last pressure point on the second run.

The Schlumberger line was cut and 5" stripped over the cable. The fish was latched onto and the tool pulled up into the overshot. The cable was sheared in the weakpoint with 6 tons and retrieved. No fish was retrieved with overshot for the tool-neck. The RFT tool was retrieved using 5 3/4" overshot w/3½" grapple after circulating and washing down to top of the fish from 2265 to 2283 m. Had a pressure increase when engaging the RFT-tool.

A bit run with junk basket was run to recover 3 temperature recorders, left in hole after the RFT-run, and to clean out the hole prior to further coring. 2 more cores were taken and the 8½" hole drilled to a final depth of 2400 m.

9 Schlumberger logging runs were made, including SHDT-misruns. An HDT log was run due to the failure of the SHDT. Some problems were experienced to get the WSS-VSP log to T.D. This was solved using more weight on the tool.

The 8½" hole was plugged back with cement from 2400 m to 1630 m, setting 150 m balanced cement plugs, pulling out of each and circulating long way prior to setting the next plug.

The top of the last cement plug was tagged at 1640 m and dressed off to 1646 m. The 9 5/8" casing and cement plug was attempted to be tested by closing the shear ram. No test. The same was tested by running drillpipe and closing MPR. (Middle pipe ram).

A 9 5/8" cement retainer was set at 1635 m. The BOP stack was pulled to check shear rams after waiting on weather for 9 hours under which riser tensioner wire no 5 broke.

The BOP stack was pulled and shear rams repaired. The same was pressure tested and run back onto wellhead after 7.5 hours waiting on weather.

The 9 5/8" casing was cut and pulled at 545 m, after a misrun at 550 m.

The 13 3/8" casing was finally retrieved at 300 m, after having misruns at 495 m and 476 m. The same was attempted to be cut and retrieved at 454 m. This was made for shallow gas test purposes. After this unsuccessfull attempt, the well was plugged back with cement from 600 m - 400 m. The cement was pressure tested with 41 bar. A final cement plug was set from 415 m - 230 m.
The 20", 30" and guidebase was retrieved after the second cut.
The total well cost per 31/1-1983 is 60 MM kr, which is approximately 10 MM kr less than the initial budget. The total depth of the well was extended an additional 100 m to a final TD 2400 m. The well was completed in 60 days which include time for the attempt to test the shallow gas. The prognosed time was 65 days plus time for testing.
The rig "Neptuno Nordraug" left the location 13.12.82 at 0845 hours, heading for the well 34/10-16.

III 2. DRILLING OPERATIONS IN INTERVAL

"Neptuno Nordraug" was transferred from the well 7120/7-1 on the 14th October, 1982 at 0700 hrs. (Passed 62 deg North)
The well was spudded in 163,5 m of water on the 16th October, 1982 at 1130 hrs.

The final position was: 61° 10' 30.06"N
02° 14' 44.57"E

This was 31,4 m - 081° off intended position. Rig heading 310°.

36" hole, 188,5-249 m

The hole was spudded without using a temporary guidebase. A 26" bit and 36" hole opener was used to drill the section in one run. Slugged hole on every connection with high viscosity gel mud. The 60,5 m was drilled in 4,8 hours effective drilling time, with an average ROP of 12,6 m/hr. The hole was displaced with high vis. mud prior to making wiper trip to 190 m. The survey showed 1° at 247 m. The hole was displaced with high vis. mud and the string pulled out to run 30" casing.
Unable to stab 30" casing at first attempt. Positioned the rig blind and ran 30" casing to T.D. Top of 30" housing was found 2 m above seafloor. Level indicator read 3/4°. The 30" casing was cemented in place and returns were reported to be full throughout the job.

26" hole, 249-950 m

The 30" casing was cleaned out to 249 m and new formation drilled to 251 m, using 26" bit. The pin connector and riser were run and pulltested to 18 metric tons. The diverter element was installed and the system was function and flowtested with the

12 1/4" bit at 249 m. The hole was displaced with 1.04 S.G. mud and the 12 1/4" pilot hole drilled to 950 m. The drill gas varied between 0.27-1.5% with peaks of 4.33% at 335 m, 4.17% at 404 m, 17.23% at 444 m, 4.9% at 789 m and 3.7% at 804 m. Max. bottoms up gas was recorded to 17.23%. Schlumberger logs were run. Run no 1: ISF-DDBHC-GR-MSFL and run no 2: LDT-CNL-GR. LDT-tool failed. Run no 3: RFT. (No points)

The formation penetrated consisted of clay interbedded with sandstringers of varying thickness. The drilling rate was controlled to about 25 m/hr.
Gas charged sand stringers were found at 335 m and 445 m. The gas sand at 445 m correlated to the sand lense which caused the gas flow in the well 34/10-10.
The hole was underreamed to 950 m using 12 1/4" bit, 17½" holeopener and 26" underreamer. The section was underreamed in two runs. Some losses were reported prior to pulling out with the underreamer. LCM pills were spotted and wiper trip made to the 30" shoe.
The hole was displaced fully with 1.35 S.G. mud and 1.4 m^3 mud was reported lost in hole in 45 min.
The well was static when observed after having displaced the riser to seawater.
The hole was rechecked with a 26" bit and the hole displaced to wellhead with 1.35 S.G. mud. A second 26" bit run was made after having waiting on weather for 20 hours. The bit was sitting at 235 m (14 m up inside 30" casing), while waiting additional 13 hours on weather, to enable circulating 1.35 S.G. mud at this depth. The section from 940 m to 950 m was washed and reamed when running in. Displaced once more the hole to 1.35 S.G., up to wellhead.
The 20" casing was run and cemented in place at 940 m. Apparently full returns while circulating prior to the cementjob. Failure occured on the cement bulk system after having pumped 3.2 m^3 cement slurry. The failure was located to be plugged cement/air filters. 75% of the perforated area was plugged. 39 hours were lost to locate and repair the cement bulk system. Finally the 20" casing was cemented in place using lead and tail slurries. Partial returns were reported throughout cementing and

displacing. Occasionally indication of full returns. Had to reduce mixing rate during the cement job due to bulk cement delivery. Did not bump the plug. No back flow.
Found cement/barite settled out on top of wellhead. Used jet tool to flush wellhead clean. The BOP was tested and function tested with both pods on surface. The diverter system was installed and the BOP tested to 345 bar/241 bar on the wellhead.

17½" hole, 950-1579 m

The 20" casing was tested to 125 bar below the shear ram. The 17½" bit was run to 911 m. The rubber plug was pushed down to float collar and the plug, float collar and soft cement drilled to 935 m. At this point mud losses were detected and found to be leak in the port side diverter line. The same was checked. The rest of cement, shoe and 2 meter of new formation was then drilled.
A formation integrity test equivalent to 1.57 S.G. was performed. The 17½" hole section was drilled with one bit. Tight hole was encountered on every wiper trip. For this reason reaming was necessary to clean the hole properly. Maximum overpull was recorded to 45 metric tons.
The hole section down to 1247 m was drilled using 1.09 S.G. mudweight. Below this depth the mudweight was raised in steps to balance the estimated porepressure with depth. The ROP was kept high throughout the total hole section. The final mudweight was 1.50 S.G. at 1579 m (85 meters into the Paleocene formation).
The porepressures increased rapidly from a normal gradient above 1300 m to approx. 1.45 S.G. at 13 3/8" setting depth. The porepressure prediction was done using the "d"-exp. data on a 1 meter basis, supported by the sonic plot after logging.
High trip gas readings were recorded on trips below 1465 m. Gas readings as high as 39.3% was reported after waiting on weather and being hung off for 34 hours. 27% gas was reported after second hang-off prior to running the 13 3/8" casing.
The 17½" hole was logged and a bit run made prior to running the 13 3/8" casing. The 13 3/8" casing was run and landed on HWDP at

1564 m. 26.2 m^3 of mud was lost to the formations while circulating and conditioning the mud. Had 6% gas while circulating. A 8 m^3 LCM-pill was pumped ahead of the cement. The 13 3/8" casing was finally cemented in place. The plug was bumped and float held back-pressure.
The seal assembly was run and tested to 250 bar, after having been rerun, replaced and attempted set and tested several times. The seal assembly was run and set successfully using 8" drillcollars above the seal assembly running and testing tool. 10 hours was lost due to seal assembly failing to test.
The BOP's were tested to 250 bar/241 bar. The test tool was retrieved using 41 metric tons. All 4 pins were sheared and the 2 cap screws mashed. The 13 3/8" casing was tested to 224 bar below the shear ram.

12 1/4" hole, 1579-1750 m

The 13 3/8" casing was cleaned out and new formation penetrated to 1582 m. An equivalent formation integrity test equiv. to 1.80 S.G. was performed. The mudweight was raised to 1.55 S.G. and the 12 1/4" hole drilled to 1639 m. During this interval the mudweight was further raised to 1.62 S.G. while drilling. This to maintain risermargin while penetrating new formation. The 12 1/4" hole was drilled to 1750 m, where 3.3% gas was recorded when circulating bottoms up. 19.3% gas was recorded, after a wipertrip to 13 3/8" casing shoe. The mudweight was raised further in steps to 1.72 S.G. prior to making wipertrip and logging.
Schlumberger ran logs at 1750 m. Ran 3 logs including CBL. The CBL stopped at 1496 m. The same was rerun after a roundtrip with the bit to 1750 m. A new roundtrip was made prior to running the 9 5/8" casing. 1.6% gas was recorded from bottoms up. The 9 5/8" casing was run and cemented in place, with the shoe at 1736 m. The plug was bumped and casing pressured up to 69 bar. No backflow.
The seal assembly was successfully set and tested after being reset and replaced several times. First run, no indication of

seal being energized and found lead indicator not mashed. The final run was made with 8" drillcollars above running/testing tool. The seal assembly was tested using test cup below the running/testing tool.
These problems caused 9 hours downtime. Tested seal assembly to 345 bar against MPR. Tested BOP's to 300 bar/241 bar. Tested the 9 5/8" casing to 262 bar against shear ram.

<u>8½" hole, 1750-2400 m</u>

The 9 5/8" casing was cleaned out and 3 meter of new formation penetrated to 1753 m. The mudweight was raised to 1.78 S.G., prior to drilling out of the 9 5/8" shoe. A formation leak-off equiv. to 2.07 S.G. was performed. The 8½" hole was drilled to 1870 m, maintaining the mudweight at 1.78 S.G. Several drilling breaks were encountered and bottoms up circulated for samples. Cored a total of 5 cores, total 75 m from 1870 m - 1945 m. The cutting of full cores and recovery was poor. The formation cored was Cook. 8½" hole was drilled to 1989 m. The mudweight was raised to 1.81 S.G. while drilling. 3 intermediate log runs were made with Schlumberger and the 8½" hole drilled further to 2170 m. Some drag was noticed on trips. Had drilling break from 2167 - 2170 m. 3 cores, total 43 meters, were cut from 2170 m - 2213 m. The corelength and recovery improved some. Mostly shale w/some silt and sand.
The 8½" hole was then drilled to planned total depth of 2300 m. A wipertrip was made to the 9 5/8" casing shoe and 2 logging runs were made. The RFT got stuck at 2226,5 m, taking the last pressure point.
The RFT tool became free when drillpipe was stripped to 2140 m, indicating cable stuck (worked into holewall) and not the RFT tool being stuck in the filter cake. The tool was fished out using 5 3/4" overshot dressed w/3½" grapple.
The RFT-data verified a maximum porepressure of 1.71 S.G. in the top of Cook formation. The decission was made to continue coring and drill to 2400 m.

After a clean-up trip with junk basket to 2300 m, the corebarrel was run in and coring continued. 2 more cores were taken, total of 22 meters, from 2301 m - 2323 m. Mostly sand with shale, claystone and occasional limestone/dolomite. The cores jammed, but recovery was fair. The last meters of the 8½" hole to 2400 m was drilled with one bit.
A wipertrip was made and the bit pulled to run Schlumberger logs. 7 log runs were made. Had 3 misruns with SDT tool (only counted as one). 2 more logs were run after a roundtrip with 8½" bit was made. Had several problems to get WSS-VSP tool below 2038 m. Installed rubber flex hole-finder and reran same to T.D.
Balanced cement plugs were set from 2400 m to 1630 m, each of approximately 150 m length. The plugs were set, pipe pulled out of the cement, bottoms up circulated and a new plug set.
The last cement plug was tagged and dressed to 1646 m. A bit and scraper run was made and Schlumberger ran gaugering and junk basket.
The test of the cement and 9 5/8" casing failed when being tested against shear ram. The cement and 9 5/8" was tested successfully against MPR. A cement retainer was set on Schlumberger line at 1635 m. 9.5 hours were lost when waiting on weather to pull the BOP stack. The rubber elements between cutting blades were missing and both blades found washed.
The blades were changed out and new seal elements installed. Broken hoses to wedge lock on shear ram and to inside choke valve were replaced. The BOP was tested to 690 Bar/241 Bar. 7.5 hours were lost while waiting on weather to rerun BOP.
The BOP was run and tested to 138 Bar on the wellhead. The 9 5/8" casing and retainer was tested against shear ram to 69 Bar.
The 9 5/8" casing was perforated under pressure control at 235 m, and the same finally cut at 545 m. 1'st attempt at 550 m. Not able to pull 9 5/8" casing. One cutter knife was found missing on the cutter after cutting at 550 m. The mudweight was cut back from 1.74 S.G. to 1.50 S.G. and the 13 3/8" casing attempted cut at 495 m.
The plans were to cut 13 3/8" casing and perform a DST at 444-447 m, to test shallow gas.

Was not able to retrieve the 13 3/8" casing at 495 m or 475 m. The same was retrieved from 300 m. 32.9% gas was circulated up from 300 m, between 20" and 13 3/8" casing. Cement was reamed and washed from 272 m to 300 m. Large pieces of cement were circulated over the shakers. The 13 3/8" casing was attempted to be cut and retrieved from 454 m, without success.
The well was further plugged back as per Well Schematic, section III 4. The upper cement plug was set to 230 m and the wellhead cut and retrieved at 194.5 m on second attempt. A video survey was taken of the seabed and found free from obstructions.
"Neptuno Nordraug" left the location on the 13th December at 08:45 hours, heading for the new location 34/10-16.

III 3. EXTRACT OF DAILY ACTIVITIES

14.10	Rig under tow. "Stad Sky" on tow bridle. Rig passed 62 deg. North and was transferred to 34/10-15 at 07:00 hrs. Started to seek location at 1410 hours. Anchor handling.
15.10	Anchor handling. Tensioned anchors to 159 m. tons. All OK, except no.8 which slipped. WOW. Repositioned anchor no. 4 and no. 8. Piggy backed anchor no. 8. Repos. no. 1.
16.10	Repos. no. 7 and piggy backed no. 6 and no. 7 due to slipping. Attempted to repos. no. 3. No success due to bouy partly submerged. Pos. rig. Reset and piggy backed no. 3. Pulltested all anchors to 159 m.t. OK. Adjusted anchor tensions. Ran in with 36" assy. to 147 m. Inspected seabed w/mantis. RKB-seabed 188,5 m. Drilled 36" hole to 249 m. Pumped hi-vis mud on every conn. Pumped 4,7 m^3 hi-vis and circ. out w/seawater. Displaced hole w/hi-vis mud. Dropped survey and P.o. to 190 m. Ran into 211 m. Retrieved survey. Ran back to bottom. No fill. Pumped hi-vis mud. Pooh. Ran 30" casing to seabed. Used 54 m stinger. Unable to stab.
17.10	Not able to lower mantis. Pos. rig blind. Rih w/casing to t.d. Rigged surf. lines. Ran T.V. Checked base. Found top 30"-2 m above seabed. Level ind. $3/4^{o}$. Circ 30" volume. Tested lines. Cemented 30" casing. Returns throughout cement job. Backed out R.T. Washed wellhead. Pooh. Rih w/jet tool and washed 30" housing. Pooh. Rih w/26" bit on guide. Tagged cmt at 244 m. Drilled cmt. from 244 to 249 m, shoe and formation to 251 m. Displaced hole w/1.04 S.G. mud, 60 vis. Pooh. Washed 30" housing w/jet tool. WOW.

18.10	WOW.
19.10	WOW. Ran pin connector. Latched and overpulled w/18 m.t. Nippled up diverter.
20.10	Rih w/12 1/4" assy. Displ. w/1.04 S.G. mud. Checked diverter system. OK. Drilled 12 1/4" pilot hole from 251 m to 397 m. Circ. and cond. mud. Drilled 12 1/4" hole to 450 m. Flow checked. Circ. bttms up due to 17.2% gas. Drilled 12 1/4" hole to 591 m.
21.10	Drilled 12 1/4" hole to 950 m. Circ. bttms up. Dropped survey. Po to 30" shoe. No drag. Retrieved survey.
22.10	Rih. Circ. and cond. mud. Po to 230 m. SLM. No corr. Circ. at 230 m. Flushed 30" csg and riser. Pooh. Ran E-logs. Run no. 1: ISF-DDBHC-GR-MSFL. Run no. 2: LDT-CNL-GR. LDT tool failed. Laid down some 5" DP. Ran RFT. M/u 12 1/4" bit, 17½" h.o. and 26" u.r. Function tested u.r. Rih. Opened 12 1/4" hole to 26".
23.10	Opened 12 1/4" hole to 26" to 605 m.
24.10	Circ. bttms up. Pooh. Made up new h.o. and u.r. Function tested u.r. Rih to 30" shoe. Cut and slipped 105 m drill line. Rih to 605 m. Opened 12 1/4" hole to 950 m. Bit at 953 m.
25.10	Circ. hole clean. Wipertrip to 30" shoe. Circ. bttms up. Pumped 9.5 m^3 1.35 S.G. followed by 1.35 S.G. mud mixed w/LCM. Observed well for 45 min. Lost 0.7 m^3 mud. Cont. circ. When 1.35 S.G. mud in returns, observed well for 45 min. Lost 1.4 m^3 mud. Po to 180 m. Displaced riser w/seawater. Observed well - static. Pooh. Pulled riser and pinconn. Obs. well w/TV camera. OK.
26.10	Rih w/26" bit and guide frame. Rih to 950 m. 1 m fill. Pumped 1.35 S.G. mud and followed by 44 m^3 - 1.35 S.G.

mica pill. Po. Displaced steel volume at 310 m and 200 m. Pooh. Prep to run 20" csg. WOW. Obs. well on TV camera. Rih to 30" shoe. Circ. 1.35 S.G. mud.

27.10 WOW. Obs. well. Circ. 1.35 S.G. mud at 30" shoe. Pooh w/jet tool. Rih w/26" bit to 235 m. Used guide to stab. into 30" housing. WOW. Circ. some 1.35 S.G. mud.

28.10 Rih to 940 m w/26" bit. Washed and reamed to 950 m. Pumped 128 m^3 - 1.35 S.G. mud. Pooh. No drag. Displaced steel volume at 310 m and 200 m. Pos. rig over w.h. Pooh. Ran 14 jnts of 20" csg. WOW. Cont. run 20" csg. Filled every 2nd joint w/1.35 S.G. mud.

29.10 Landed 20" in 30" housing. Pulltested w/14 m.t. overpull. 20" shoe at 940 m. Circ. w/indicated full returns. Tested cmt. lines. Mixed and pumped 3.2 m^3 - 1.56 S.G. cmt. slurry. Got failure on cmt. bulk system. Circ. out cmt. w/1.35 S.G. mud. Worked on cmt bulk system.

30.10 Worked on cmt. bulk system. Pumped 3.2 m^3 - 1.35 S.G. mud 3 times. No returns. Pumped 8 m^3 - 1.35 S.G. mud prior to cmt. No return. Tested surf. lines. Mixed and pumped 15 ton cmt. overboard to check cmt. bulk delivery. Cmt. 20" csg.

31.10 Displaced cmt. w/1.35 S.G. mud. Did not bump plug. No backflow. Backed out R.T. Flushed w.h. w/seawater. Pooh. Inspected w.h. w/mantis. Found cmt/barite settled out on top of same. Rih w/jet tool. Flushed w.h. Pooh. Ran mantis. Unable to inspect w.h. due to strong current. Flushed w.h. w/jet tool. Ran mantis. Still unable to inspect w.h. Washed and cleaned w.h. w/jet tool. Moved BOP-stack. Changed AX-ring. Ran BOP. Loc. leak on riser joint no. 4. Laid out same.

01.11 Ran BOP and riser. Tested every 3rd joint to 345 bar. N/u K/C-line hoses on slip joint. Inspected w.h.

w/mantis. Wellhead found OK. Centered rig/BOP over w.h. Landed stack. Pulltested w/22 m. tons overpull. Installed diverter. Tested BOP on "Y"-pod. Function tested on "B"-pod. Ran and set wearbushing. Tested 20" csg. against shear ram to 125 bar. OK. Rih w/new 17½" bit. Tagged wiper plug at 911 m. Displ. hole w/1.08 S.G. mud. Pushed plug to float collar. Drilled plug, float and soft cmt. to 935 m. Had mud losses. Leak in port side diverter line. Checked diverter system. Rec. SPR's at 935 m. Drilled cmt., shoe and cleaned rathole to 953 m. Drilled 17½" hole to 955 m.

02.11 Circ. and cond. mud. Po into 20" csg. Perf. L.O. test equiv. to 1.57 S.G. at 940 m. Drilled 17½" hole to 1047 m. Circ. bttms up. Dropped survey. Pooh to 20" shoe. Tight spots 1012-954m. Max. overpull 32 m. tons. Retrieved survey. Missrun. Rih to T.D. Dropped survey. P.o. to shoe. No drag. Retrieved survey. Rih. Drilled ahead to 1152 m. Flowchecked at 1120 m. Well static. Circ. Dropped survey. P.o. to 20" shoe. Tight hole from 1070-973 m. Max. overpull 32 m. tons. Retrieved survey. Rih. Tight spots at 1011 m and 1064 m. Drilled 17½" hole to 1247 m. Circ. and inc. mud wt to 1.16 S.G. Dropped survey. P.o. to 20" shoe.

03.11 Tight hole at 1174 m and 1117-1107 m. Max. overpull 22 m. tons. Retrieved survey. Rih. Drilled 17½" hole to 1352 m. Circ and dropped survey. P.o. to 20" shoe. Tight hole 1307-1136 m. Max. overpull 45 m. tons. Retrieved survey. Rih. Tight hole 1180-1320 m. Max. 22 m. tons overpull. Drilled 17½" hole to 1416 m.

04.11 Circ. and incr. mudwt. to 1.26 S.G. Drilled 17½" hole to 1465 m. Rec. SPR's at 1428 m. Circ. and incr. mudwt. to 1.32 S.G. Dropped survey and P.o. to 20" shoe. Tight hole from 1430-1250 m. Max. overpull 40 m.t. Retrieved survey. Rih. Worked pipe 1300-1465 m. Drilled 17½" hole to 1508 m. Raised mudwt. to 1.42 S.G. Drilled 17½" hole to 1540 m. Rec. SPR's at 1513 m.

05.11	Raised mudwt. to 1.50 S.G. Drilled 17½" hole to 1579 m. Rec. SPR's at 1541 m. Circ. bttms up. Max. gas 2%. Dropped survey. Made wiper trip to 20" shoe. Tight hole from 1550 m to 1420 m. Max. overpull 45 m.t. Retrieved survey. Rih. Tight from 1460 m to T.D. Circ. bttms up. Pooh. Max. overpull 18 m.t. from 1590 m to 1420 m. M/u comb. tool for hang off and stood back in derrick. Ran Schl. E-logs. Run no.1: LLS-MSFL-GR. Ran hang-off string. WOW.
06.11	WOW.
07.11	WOW. Retrieved string. Pooh. Rih w/17½" bit. Washed from 1555 m to 1579 m. Circ. hole clean. Max. gas 39.3%. Wipertrip to 1278 m. Circ. hole clean. Max. gas 18,5%. Pooh. Ran Schl. E-logs. Run no. 2: LDT-CNL-GR.
08.11	Rih w/17½" bit. 1 m fill on bottom. Circ. at 1579 m. Max. gas 15,3%. Gas down to 1%. Circ. and cond. mud. Pooh to 709 m. Rih w/landing string. WOW. Changed out defective motor on drawworks.
09.11	Retrieved string. Rih w/17½" bit to 1579 m. Circ. and cond. mud. Max. gas 27%. Pooh. Washed and retrieved wearbushing. Washed wellhead. Pooh. Ran 13 3/8" csg. on HWDP. Circ. and cond. mud. Lost 26.2 m^3 mud to form. Max. gas 6%.
10.11	Pumped 50 BBL LCM-PILL ahead of cmt. Cemented 13 3/8" csg. Backed out R.T. and Pooh. Rih w/jet tool. Washed wellhead area + BOP's. Flushed kill and choke lines. Pumped hi-vis mud into w.h. area. Pooh w/jet tool. Ran seal assy. Did not test. Pooh w/R.T. Rih w/bowl weevil test tool w/jet tool 1 m below. Washed wellhead area. Seal assy. did not test. Pooh. Rih w/seal assy. R.T. Pooh w/seal assy. Rih w/jet tool and washed wellhead area. Spotted hi-vis mud. Pooh. Rih w/R.T. and new seal assy. Set same. Pooh w/R.T.

11.11 WOW. Rih w/test tool. Tested seal assy. and BOP using "Y"-pod. Function tested on "B"-pod. Had leak on opening function on UPR and LPR. Retrieved "B"-pod and worked on leaks while cont. rig work. Worked string w/progressivly higher overpull to free test tool. Came loose w/41 m.t. All 4 pins on test tool were sheared. The 2 cap screws were washed. Laid out test tool.

12.11 Tested 13 3/8" csg. to 224 bar against shear ram. OK. Broke and laid down BHA. M/u hang-off tool and set back in derrick. Rih w/12 1/4" BHA to 1536 m. Tested surf. equip. to 345 bar. OK. Tagged float at 1539 m. Drilled float and firm cmt. to 1543 m. Rec. SPR's. Drilled firm cmt. to 1561 m. Circ. and cond. mud. Cont'd drilling firm cmt. and shoe. Cleaned rat hole. Drilled 12 1/4" hole to 1582 m. Circ. hole clean. Max. gas 6%. Performed L.O. test w/bit at 13 3/8" shoe. Equiv. to 1.80 S.G. Circ. and incr. mud wt. to 1.55 S.G.

13.11 Drilled 12 1/4" hole to 1667 m. Raised mudwt. to 1.62 S.G. while drilling. Circ. and cond. mud. Max. gas 1.6%. Dropped survey and made wiper trip to 1564 m. Retrieved survey. Misrun. Rih. Drilled 12 1/4" hole to 1750 m. Flowchecked at 1714 m, 1734 m and 1742 m. Neg. Circ. bttms up. Max. gas 3.3%. Wipertrip to 13 3/8" shoe. Tight spot at 1695 m. Max. o.p. 22 m.t. Circ. bttms up. Max. gas 19.3%.

14.11 Raised mudwt. to 1.72 S.G. Dropped survey. Wipertrip to 13 3/8" shoe. No drag. Retrieved survey. Rih. Circ. bttms up. Max. gas 1.1%. Pooh. SLM. No corr. Ran Schl. E-logs. Run no 1: ISF-Sonic-LSS-GR-MSFL. Run no 2: LDT-CNL-GR. Run no 3: CBL. Not able to pass 1496 m. Rih. Filled pipe at 770 m due to plugged nozzles. Rih. Circ. bttms up. 2.6% gas bttms up. Pooh. Ran Schl. E-logs. Run no 4: CBL.

15.11 M/u 9 5/8" hanger jt. w/s.s plugs. Stood back in derrick. Rih to 1560 m. Filled DP. Slipped and cut 35 m drill line. Cont'd rih. Circ. and cond. mud. Max. gas 1.6%. Pooh. Washed w.h. and retrieved wearbushing. Ran 9 5/8" casing. Circ. 1.72 S.G. mud. Cemented 9 5/8" csg. Bumped plug. No back flow.

16.11 P.o. w/R.T. Flushed K & C lines. No cmt. in returns. Washed w.h. area. Spotted hi-vis mud. Pooh. Rih and set seal assy. Neg. test. Pooh. Found lead indicator not mashed. Reset seal assy. Neg. test. Pooh w/seal assy. Found same balled out. Main seal missing. Washed w.h. area. Spotted hi-vis mud. Rih and set seal assy. M/u test cup on seal assy. R.T. Rih and reset seal assy. Tested seal assy. to 69 bar. OK. Tested seal assy. to 345 bar. OK. Tested BOP on "B"-pod. Function on "Y"-pod. Tested 9 5/8" csg. to 262 bar. OK. Set wearbushing. L/D 12 1/4" BHA. Rih w/8½" BHA.

17.11 Tagged cmt. plugs at 1710 m. Drilled plugs, F.C. and hard cmt. to 1732 m. Ceased operation due to excessive heave. Circ. and increased mudwt. to 1.78 S.G. Drilled cmt. and shoe. Cleaned rathole to 1750 m. Drilled 8½" hole to 1753 m. Circ. bttms up and cond. mud. Perf. L.O. test equiv. to 2.07 S.G. at 1736 m. Drilled 8½" hole to 1777 m. Drill. break. Circ. for samples. Drilled ahead to 1855 m.

18.11 Circ. bttms up. Dropped survey. Wiper trip to 9 5/8" shoe. Retrieved survey. Rih. Drilled 8½" hole to 1870 m. Drill break 1867-70 m. Flow checked. Neg. Circ. for samples. Dropped survey. Pooh for coring. Rih w/core barrel. Circ. bttms up. Max. gas 0.53%. Dropped ball. Cut core 1 from 1870 m to 1888 m. Pooh. Rec. 9 m (50%). Serv. corebbl. Rih w/corebbl.

19.11 Circ. bttms up. Dropped ball. Cut core 2, 1888 m-1900 m. Pooh. Rec. 9 m (75%). Serv. corebbl. Rih. Circ. and dropped ball. Cut core 3, 1900 m-1917 m. Pooh. Rec. 5,7 m (33,5%). Serv. corebbl. Rih. Tested surf. equip. to 345 bar. OK.

20.11 Rih. Circ. and dropped ball. Cut core 4, 1917 m-1935 m. Pumped slug. Pooh. Rec. 11,3 m (63%). Serv. corebbl. Rih to 9 5/8" shoe. Slipped and cut drill line. Rih. Circ. and dropped ball. Cut core 5, 1935 m-1945 m. Pooh. Rec. 5.7 m (57%). Serv. corebbl. Stood back in derrick. Rih w/bit. Reamed from 1870 m to 1945 m. Drilled 8½" hole from 1945 m to 1956 m. Drill break. Circ. bttms up.

21.11 Drilled 8½" hole to 1989 m. Raised mudwt. to 1.81 while drilling. Circ. bttms up. Dropped survey. Wipertrip to shoe. Two misruns to retrieve survey. Rih. Circ. Pooh. No drag. Ran Schl. E-logs. Run no 1: ISF-Sonic-GR, Run no 2: LDT-CNL-GR, Run no 3: DLL-NGT-MSFL. Rih w/8½" bit. No fill. Circ. Dropped survey. Wipertrip to 9 5/8" shoe. No drag. Retrieved survey. Rih.

22.11 Drilled 8½" hole from 1989 m to 2068 m. Circ. P.o. to 1518 m. Tight spots from 2060-1920 m. Max. 27.2 m. tons o.p. Rih w/hang-off tool. WOW. Retr. hang-off string. Rih. No fill.

23.11 Circ. and dropped survey. Wipertrip to 9 5/8" shoe. Retr. survey. Drilled 8½" hole to 2170 m. Drlg. break from 2167 m to 2170 m. Circ. for samples. Dropped survey. P.o. to 2012 m. Hole not taking enough mud. Rih. Circ. bttms up. OK. Pooh. Retr. survey. Retr. wear bushing and washed wellhead. Tested BOP.

24.11 Set wear bushing. Rih w/corebbl. Circ. and dropped ball. Cut core 6, 2170 m - 2187,5 m. Pooh. Rec. 17,1 m (98%). Serviced corebbl. M/u new corehead and rih. Circ. and dropped ball. Cut core 7, 2187,5 m - 2201 m. Pooh. Rec. 12,5 m (92,6%). Serv. corebbl.

25.11 Rih to 9 5/8" shoe. Slipped and cut drill line. Rih. Circ. and dropped ball. Rec. SPR's. Cut core 8, 2201 m - 2213 m. Pooh. Rec. 87%. Stood corebbl back in derrick. Rih w/bit to 2160 m. Reamed to 2213 m. Drilled 8½" hole to 2300 m. Circ. hole clean. Dropped survey. Wiper trip to 9 5/8" shoe.

26.11 Retr. survey. Circ. hole clean. Pooh. No drag. SLM pipe. Ran Schl. E-logs. Run no 1: ISF-DDBHC-MSFL-NGT, Run no 2: RFT. Cable failure. Rep. Schl. cable. Ran RFT. Stuck at 2226,5 m w/RFT-tool, last pressure point. Att. to free tool. No success. Prep. to strip over line.

27.11 M/u overshot and grapple. Stripped over line to 2130 m. Failure on Schl. air operated clutch. Circ. while rep. RFT-tool came free when stripped to 2140 m. Rih to 2215 m. Circ. through overshot. Latched on to RFT-tool. Worked pipe and Schl. line to verify fish in overshot. Installed t-bar on Schl. line. Sheared weak point w/6 m. tons. Pooh w/Schl. line. Pooh. No fish. Wait on fishing equipment.

28.11 Rih to 2265 m w/5 3/4" overshot and 3½" grapple. Circ. and washed down to fish at 2283 m. Press. indication when overshot engaged fish. Pooh w/fish. Recovered fish. Left 3 (three) temp. rec. in hole. Rih w/bit and junk basket to 2300 m. Worked junk basket. Drilled to 2301 m. Pooh. No drag. Rec. 1 (one) temp recorder. Rih w/corebbl. Circ. and dropped ball. Rec. SPR's. Cut core 9, 2301 m - 2317 m. Corebbl. jammed.

29.11 Pooh. Rec. 100%. Serv. corebbl. Rih. Circ. and dropped ball. Cut core 10, 2317 m - 2323 m. Corebbl. jammed. Pooh. Rec. 85%. Serv. corebbl. Stood back. Rih w/bit to 9 5/8" shoe. Cut and slipped 35 m drill line. Rih to 2301 m. Reamed/washed to 2323 m. Drilled 8½" hole to 2400 m.

30.11 Circ. hole clean. Max. gas 0.1%. Dropped survey. Wiper trip to 9 5/8" shoe. Drag from 2360 m - 2270 m. Max. o.p. 22 m.t. Retrieved survey. Circ. bttms up. Flushed riser. Pooh. Ran Schl. E-logs. Run no 1: RFT-GR, Run no 2: ISF-DDBHC-MSFL-NGT, Run no 3: LDT-CNL-GR, Run no 4: SHDT-misrun.

01.12 Run no 5: HDT, Run no 6: SDT-3(three) misruns, Run no 7: CBL/VDL. Rih w/8½" bit to 2400 m. No fill. Circ. hole clean. Pooh. No drag.

02.12 Ran Schl. E-logs. Run no 8: WSS-VSP. Unable to get below 2038 m. Logged up from 2038 m. Installed rubber flex. holefinder. Reran WSS-VSP to TD. Run no 9: CST. Rec. 30 out of 30 shots.

03.12 Rih open ended to 2400 m. Circ. bttms up. Set balanced cmt. plugs from 2400-2250 m, 2250-2100 m, 2100-1950 m, 1950-1800 m, 1800-1630 m. Circ. long way inbetween plugs. Flushed K/C-lines. Pooh to 1600 m. Circ. long way. Flushed K/C-lines. Pooh. L/D excess DP. Retr. wearbushing, flushed w.h. and Pooh. Tested BOP on "B"-pod. Functioned on "Y"-pod.

04.12 Rih w/bit and scraper. Tagged cmt. at 1640 m. Dressed off to 1646 m. Circ. hole clean. Pooh. Ran gauge ring/junk basket on Schl. line. Attempted to test cmt. plug/9 5/8" csg against shear ram. Neg. Rih w/jet tool to 200 m. Press. tested cmt plug/9 5/8" csg to 69 bar against MPR. OK. Washed BOP area. Att. press test against shear ram. No success. Shear ram leaked. Set 9 5/8" cmt. retainer at 1635 m. Set 9 5/8" csg cutter back in derrick. P/u 5" test tubing and stood back in derrick. WOW to pull BOP stack.

05.12 WOW. Pulled wearbushing, rih w/4 stds HWDP, installed inside BOP, made up bowl weevil test tool and landed same in w.h., while WOW. Displaced riser w/seawater. Riser tensioner no 5 broke. Restrung same. L/d diverter. Pulled BOP. Worked on BOP.

06.12 Found rubber elements between cutting blades on shear ram missing and both blades washed. Changed out blades and installed new seal elements. Changed broken hoses to wedge lock on shear ram and inside choke valve. Press. tested BOP on "Y"-pod. Functioned on "B"-pod. WOW to run BOP. Changed AX-ring. Ran BOP. Inspected w.h. w/Mantis. Pull tested to 22 m.t. o.p. Installed diverter.

07.12 Retr. string in w.h. Displ. riser to 1.76 S.G. mud. Tested BOP. Tested 9 5/8" csg/retainer against shear ram to 69 bar. Rih w/open ended DP to BOP. Perf. 9 5/8" csg under press. control, using casing punch at 235 m. Press. dropped fm 24-14 bar. Rih to 235 m. Circ. bttms up. Pooh. Cut 9 5/8" csg at 550 m. Circ. bttms up. Pooh. Found one cutterknife broken. Rih w/9 5/8" csg. spear w/pack off. Engaged spear and attempted to retrieve csg. No success. Max. o.p. 68 m.t. Pooh. Rih w/csg. cutter and made new cut at 545 m. Circ. bttms up. Pooh. Rih w/spear. Pulled csg. free w/27 m.t. o.p. Circ. bttms up w/seal assy. 5 m above w.h. No gas.

08.12 Cut mudwt. fm 1.74-1.50 S.G. Pooh. L/d 9 5/8" csg. P/u 13 3/8" csg. cutter. Func. tested same in rotary. Rih w/cutter. Cut 13 3/8" csg. at 495 m. Circ. bttms up. 7.1% gas. Pooh. Adapter ring on marine swivel was left in hole (7 bolts sheared). Modified 13 3/8" stopring on spear grapple. Dressed off OD from 14 3/4" to 13 1/4". WOW.

09.12 Rih w/spear. Worked csg. up to 100 metric ton o.p. Press. up string to 41 bar. Unable to pull csg. Spear came loose. Pooh w/spear. Rec. seal assy. and swivel adapter ring. Circ. bttms up. 6.6% gas. Rih w/13 3/8" csg. cutter and new arms. Cut 13 3/8" csg. at 476 m. Pooh. Rih w/spear. Engaged spear and worked csg. Press. up 41 bar. Got slightly circ. Circ. bttms up while working casing. Max. gas 35.9%. Unable to pull csg. free. Max. o.p. 250 m.t. Circ. riser volume through kill line. 3.4% gas. Pooh w/spear. Rih w/csg. cutter. Cut csg. at 300 m. Circ. bttms up. No gas. Pooh. Rih w/spear. Pulled casing free. Max. o.p. 122 m.t. Circ. bttms up. Max. gas 32.9%. Pooh w/13 3/8" csg. Rih w/17½" bit. Tagged cmt. at 272 m.

10.12 Reamed/washed from 272-300 m. Max. gas 4.8%. Circ. hole clean. Max. gas 0.3%. Pooh. Rih w/13 3/8" casing cutter. Cut at 454 m. Circ. bttms up. Pooh w/casing cutter. Rih w/new 13 3/8" spear with stop ring lugs. Attempted to pull 13 3/8" csg. Max. o.p. 180 m.t. Released spear. Pooh. Rih open ended to 600 m. Circ. bttms up. Set bal. cmt. plug 600-400 m. Po to 372 m. Rev. out. Pooh. L/d 5" tbg, excess 5" DP, 6½" DC's. Test cmt. against shear ram to 41 bar. Lost 6 bar in 15 min.

11.12 Rih open ended and tagged cmt. at 415 m. Circ. bttms up. No gas. Tested cmt. plug 41 bar against MPR OK. Displaced to seawater. Set bal. cmt. plug 415-230 m. Pulled out to 230 m. Rev. out cmt. Got back 0.3 m^3 cmt. Circ. long way. Flushed kill/choke lines. Pooh. Pulled BOP stack. Rih w/11 3/4" csg. cutter dressed w/17" cutterarms. Cut 20" x 30" csg. at 194,5 m. Pooh. Arms indicated 20" x 30" csg. being cut. Ran Mantis and set pinger. Rih w/18 3/4" Housing R.T. Screwed into housing.

12.12 Attempted to pull 20" x 30" csg. Max. 135 m.t. o.p. Max. circ. rate 4300 lpm. Returns to seabed between 20" and 30" csg. Backed out R.T. Pooh. Rih w/11 3/4" csg. cutter dressed w/21" cutter arms. Removed 5" spacer ring. Recut 20" x 30" csg. at 194,5 m. Pooh. Rih w/18 3/4" R.T. Screwed into w.h. Circ. and worked csg. free. Max. 135 m.t. o.p. Pulled 20" x 30" csg. Ran Mantis and video surveyed sea bed. Found to be free for obstructions. Pulled anchors. Inspected chains. Deballasted rig to 24' draft.

13.12 Pulled anchors. Inspected chains. Last anchor on bolster at 0845 hrs. Rig transferred to well 34/10-16.

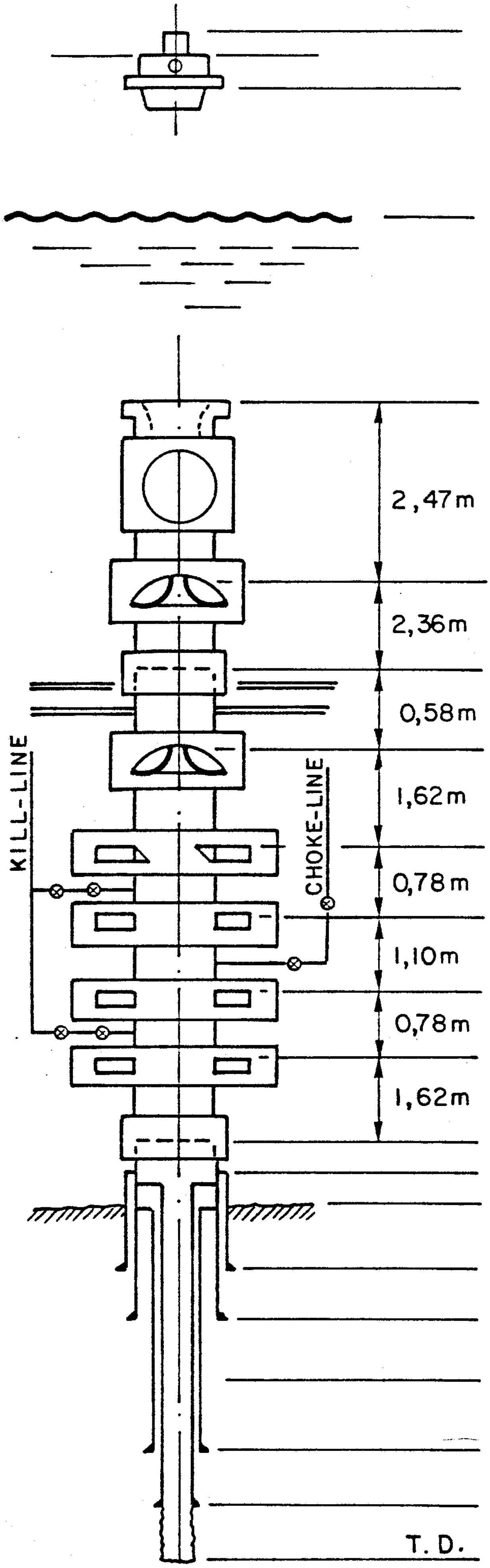
III 4. WELL AND SUBSEA SCHEMATIC

"NEPTUNO NORDRAUG" SUBSEA ASSEMBLY WELL 34/10-15

(NOT TO SCALE)

statoil
Den norske stats oljeselskap a.s

Original av: T Ju
Tegnet av: AM, 12-4-83



M.	
0	RKB
3,81	DIVERTER RISER CONNECTOR FLANGE
25	MEAN SEALEVEL
174,82	BALL JOINT RISER CONNECTOR FLANGE
177,29	UPPER ANNULAR RUBBER TOP (CLOSED)
179,65	LOWER STACK ASSEMBLY TOP
180,23	LOWER ANNULAR RUBBER TOP (CLOSED)
181,85	SHEAR RAMS TOP
182,63	U.P. RAMS TOP
183,73	M.P. RAMS TOP
184,51	L.P. RAMS TOP
186,13	18 3/4" WELLHEAD TOP
186,5	30" HOUSING TOP
188,5	MUD LINE
249	30" SHOE HELD 1,35 S.G. MUD IN HOLE
940	20" SHOE P.I.T. 1,58 S.G.
—	16" LINE SHOE L.O. — S.G.
1564	13 3/8" SHOE L.O. 1,80 S.G.
1736	9 5/8" SHOE L.O. 2,07 S.G.
2400	

III 4 WELLBORE SCHEMATIC 34/10-15

(NOT TO SCALE)

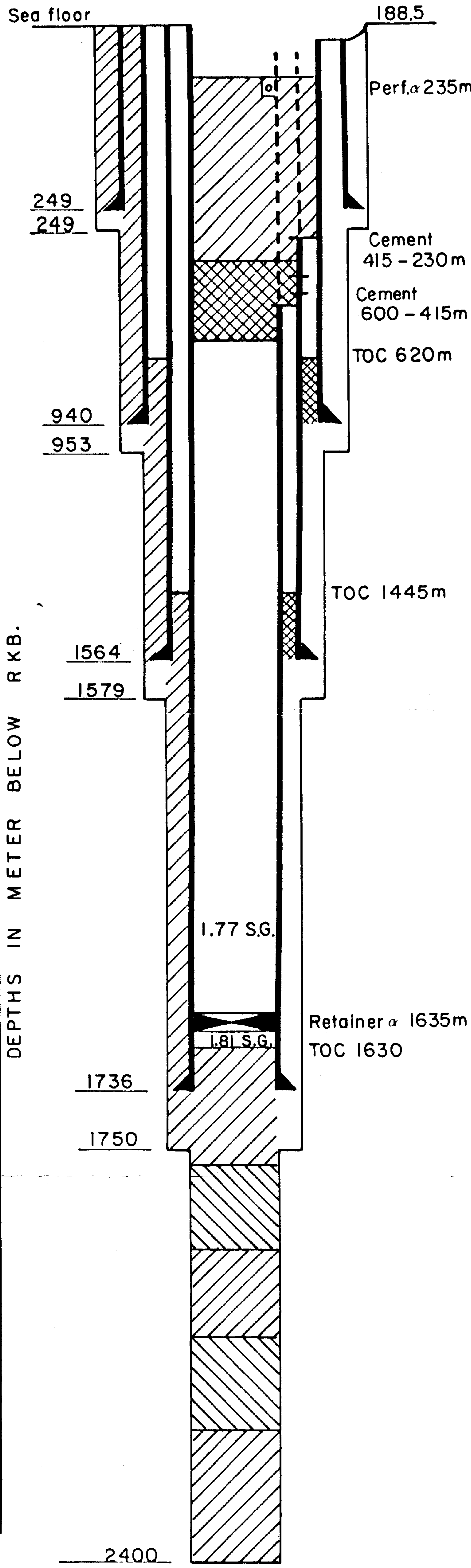
statoil den norske stats oljeselskap a.s

ORIGINAL AV: T Ju
TEGNET AV: AM
DATO: 13-4-83

RKB - MSL: 25 m.

WATER DEPTH: 163.5m.

Hole	Casing
36"	30" GRADE B
26"	20" HOUSING LX CONN. + 133 lbs/ft BUTT. K 55
17 1/2"	13 3/8" 68 lbs/ft BUTT. N 80
12 1/4"	9 5/8" 43.5 lbs/ft BUTT. + 47 lbs/ft BUTT. N 80 X/O AT 1323m
8 1/2"	NOT RUN



Casing cement
LEAD: 17.4 m. tons class "G" cement + 3.2 l/100kg A-3L. Mixed w/seawater to 1.56 S.G. TAIL: 13m. tons class "G" cement + 1.33 l/100kg A-7L. Mixed w/seawater to 1.9 S.G. Returns throughout job
LEAD: 121.2 m. tons class "G" cement + 3.55 l/100kg A-3L + 0.22 l/100kg R-15L. Mixed w/seawater to 1.56S.G TAIL: 13 m. tons class "G" cement Mixed w/seawater to 1.9 S.G 55% excess in open hole. Cut short due to limited thickening time. Partly returns during job
LEAD: 21 m. tons class "G" cement + 3.55 l/100kg A-3L + 0.7 l/100kg R-15L. Mixed w/seawater to 1.56 S.G. TAIL: 73.6 m. tons class "G" cement + 0.44 l/100kg R-12L Mixed w/freshwater to 1.90 S.G. Indications of contaminated mud in wellhead area when washing same. Possible cement channeling.
240 LTR mixwater ahead Dropped ball 950 LTR mixwater TAIL: 21.4 m. tons class "G" cement + 1.78 l/100kg D19LN + 0.89 l/100kg D31LN + 0.27 l/100kg R12L Mixed to 1.90 S.G

Plugs/Squeeze
Cut 20" x 30" at 194.5 m
Cement plug 415-230 m 28.2m. tons class "G" cement w/1.33 L A-7L/100kg. Mixed to 1.92 S.G.
Cement plug 600-415 m 17.6 m tons class "G" cement w/ 0.89 L A-7L/100kg. Mixed to 1.92 S.G.
Cut and retrieved 13 3/8" at 300 m Cut 13 3/8" at 454 m Cut 13 3/8" at 476 m Recut 9 5/8" at 545 m Tested plug to 69 bar
PLUG NO. 5 (1800-1630m) 9.7 m. tons cement Same composition as PLUG NO 1. Tagged top at 1640 m. Dressed to 1646 m
PLUG NO. 4 (1950-1800m) 7.5 m. tons class "G" cement Same composition as PLUG NO. 1
PLUG NO. 3 (2100-1950m) 9.7 m. tons class "G" cement Same composition as PLUG NO.1
PLUG NO.2 (2250-2100m) 7.9 m. tons class "G" cement. Same composition as PLUG NO.1
PLUG NO. 1 (2400-2250m) 7.2 m. tons class "G" cement w/1.78L D-19LN/100kg + 0.89L D31LN/100kg + 0.27L R-12L/100kg. Mixed to 1.90 S.G.

III 5. FORMATION INTEGRITY TESTS

PERFORMING FORMATION INTEGRITY TESTS

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

The formation integrity below the 20" and 13 3/8" casing shoes were as experienced earlier in this area.
The formation integrity below the 9 5/8" casing shoe was tested to equivalent 2,07 g/cc.
This in somewhat higher than earlier experienced in the Cretaceous at similar depth in the surrounding wells in the 34/10 area. Normal integrity has been between 1.90 - 1.96 g/cc.

statoil

FORMASJONSSTYRKETEST

Dato: 2/11-82

Brønn nr.: 34/10-15 **Dybde:** Brønn: 956 M Foring: 940 M Test: 940 M

Fartøy: NEP.NORDRAUG **Høyde R.K.B.:** Over vannfl.: 25 M Over sjøb.: 188,5 M

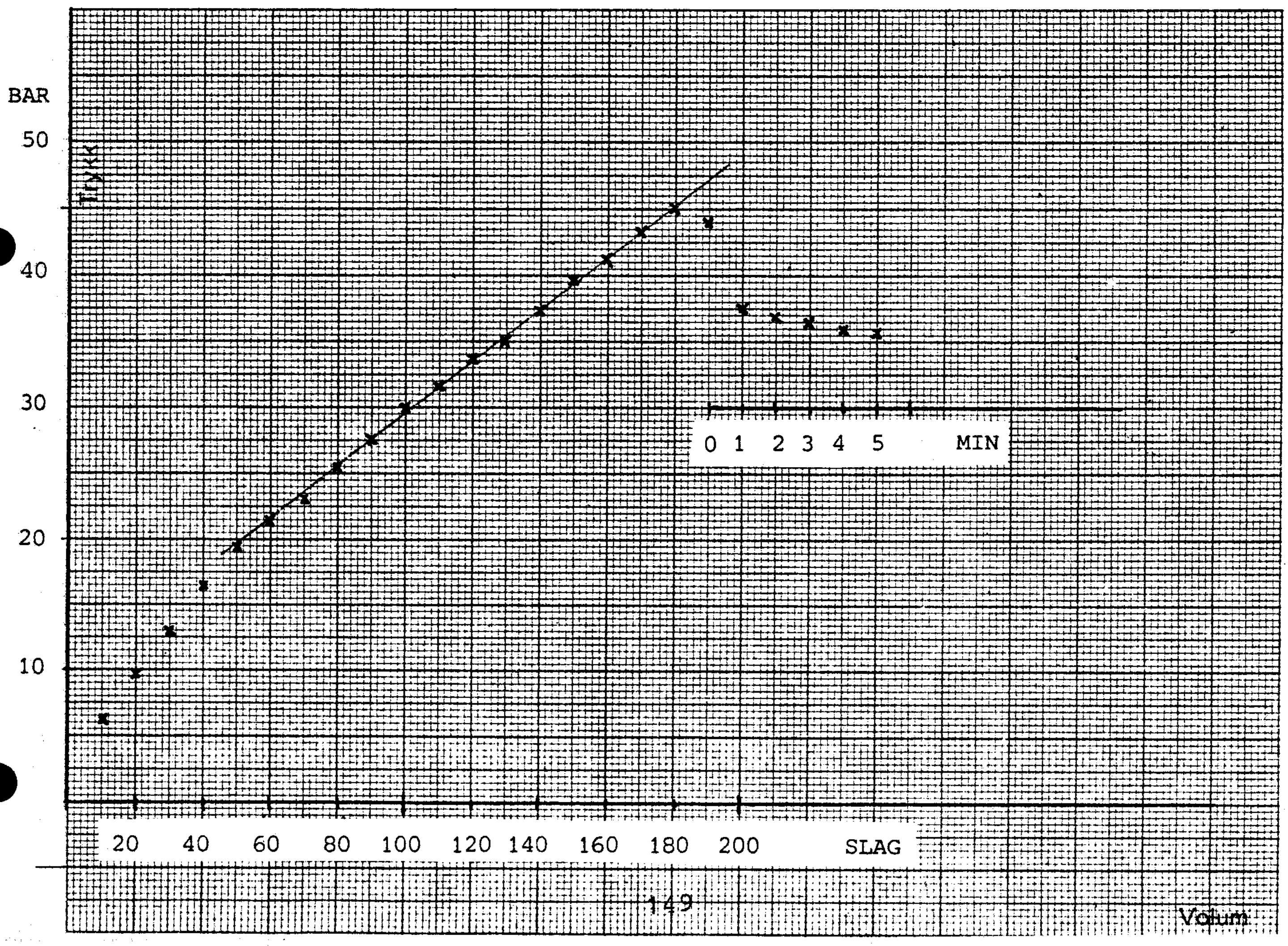
Foring: Diam.: 20" Tyngde: 133 lbs/ft Grad: K-55 Maks. trykk: 177 bar

Boreslam: Tetthet: 1.08 S.G. Vis: 40 sec P.V.: 7 cp. Y.P.: 28 lbs/100 ft^2 Filt: - Gel.: -

Pumpe: Type: BJ-CEM Kapasitet: 3,0 L/SL Vol./tidsenh.: 40 L/min Tilb.str.: 440 L

Antatt styrke: 1,58 S.G. Obs. spr. trykk: 45,2 bar Ekv. formasj. styrke: 1,57 S.G.

SLAG	BAR	SLAG	BAR	SLAG/MIN	BAR	Anmerkninger
10	6,2	90	27.6	170	43.5	Pumped 600 L
20	9.7	100	30,0	180	45,2	
30	13,1	110	31,7	190	44,1	
40	16.6	120	33.8	1	37.6	
50	19.3	130	35,2	2	36,9	
60	21,4	140	37,6	3	36,4	
70	23,1	150	39,7	4	36,0	Sign.:
80	25,5	160	41,4	5	35,7	Tore G. Teige



statoil

FORMASJONSSTYRKETEST

Dato: 12/11-82

Brønn nr.: 34/10-15 **Dybde:** Brønn: 1582 M Foring: 1564 M Test: 1564 M

Fartøy: N.NORDRAUG **Høyde R.K.B.:** Over vannfl.: 25 M Over sjøb.: 188,5 M

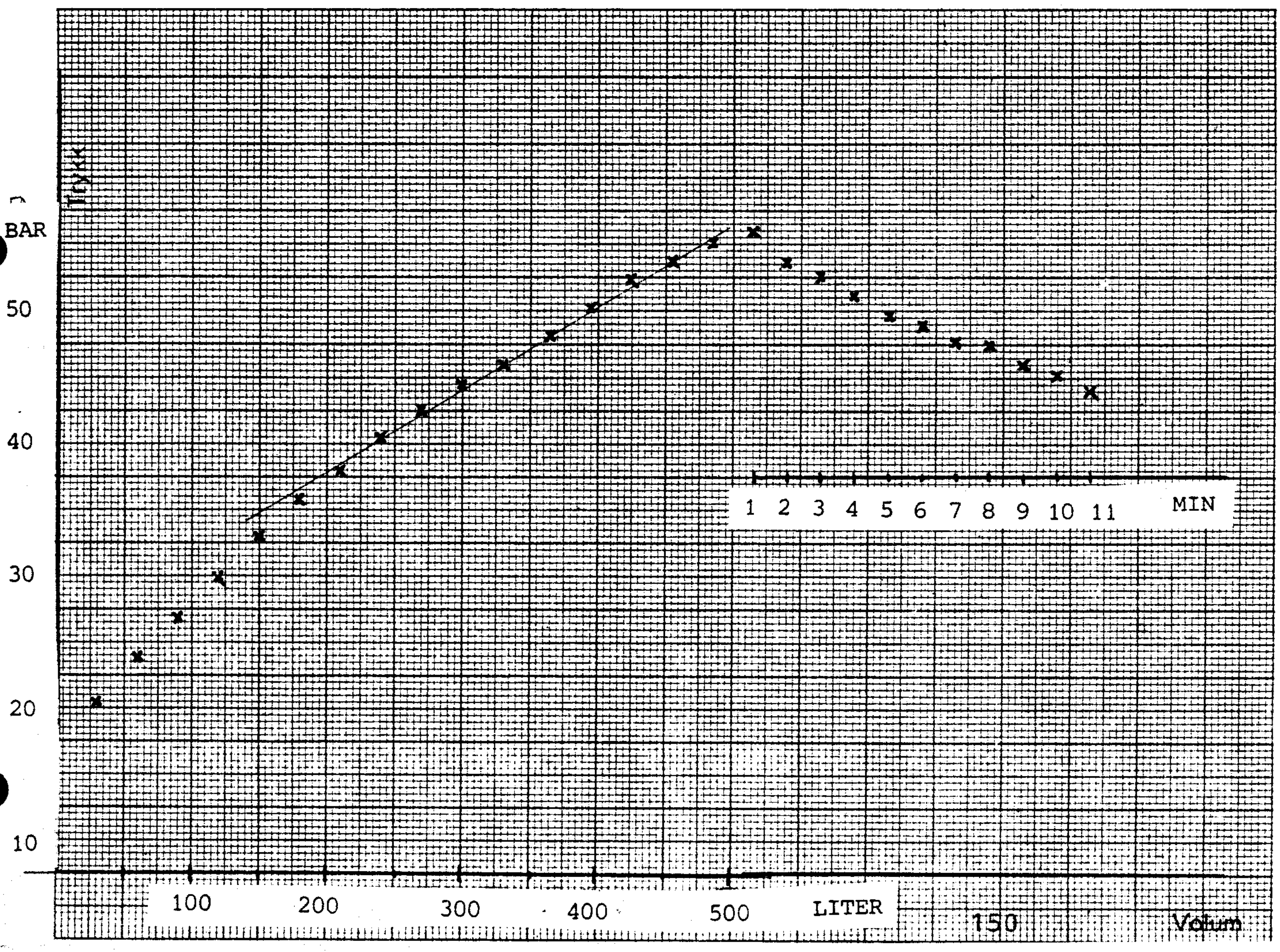
Foring: Diam.: 13 3/8" Tyngde: 68 lbs/ft Grad: N-80 Maks. trykk: 294 Bar

Boreslam: Tetthet: 1,5 s.g. Vis: 41 sec P.V.: 16 cp Y.P.: 13 lbs/ 100ft2 Filt: 10.1 ml Gel.: -

Pumpe: Type: B.J. Kapasitet: 3.00 l/slag Vol./tidsenh.: 40 L/Min Tilb.str.: 280 L

Antatt styrke: 1.84 s.g Obs. spr. trykk: 46.6 bar Ekv. formasj. styrke: 1,80 s.g.

LITER	BAR	LITER	BAR	LITER/MIN	BAR	Anmerkninger
30	13.1	270	35.2	515	48.6	Antar at høy gelestyrke
60	16.5	300	36.9	1 min	46,2	har forårsaket kurvens form
90	19,3	330	38.6	2 min	45,2	
120	22.4	365	40.7	3 min	43.8	
150	25.5	395	42,8	4 min	42,1	
180	28.3	425	44.8	5 " 6min	41.4 40.3	
210	30.4	455	46.2	7 " 8 min	40.0 38.6	Sign.:
240	33.1	485	47.6	9 " 10 min	37.6 36.4	E.Rostad



statoil

FORMASJONSSTYRKETEST

Dato: 17/11-82

Brønn nr.: 34/10-15 **Dybde:** Brønn: 1752 M Foring: 1736 M Test: 1736 M

Fartøy: N.NORDRAUG **Høyde R.K.B.:** Over vannfl.: 25 M Over sjøb.: 188,5 M

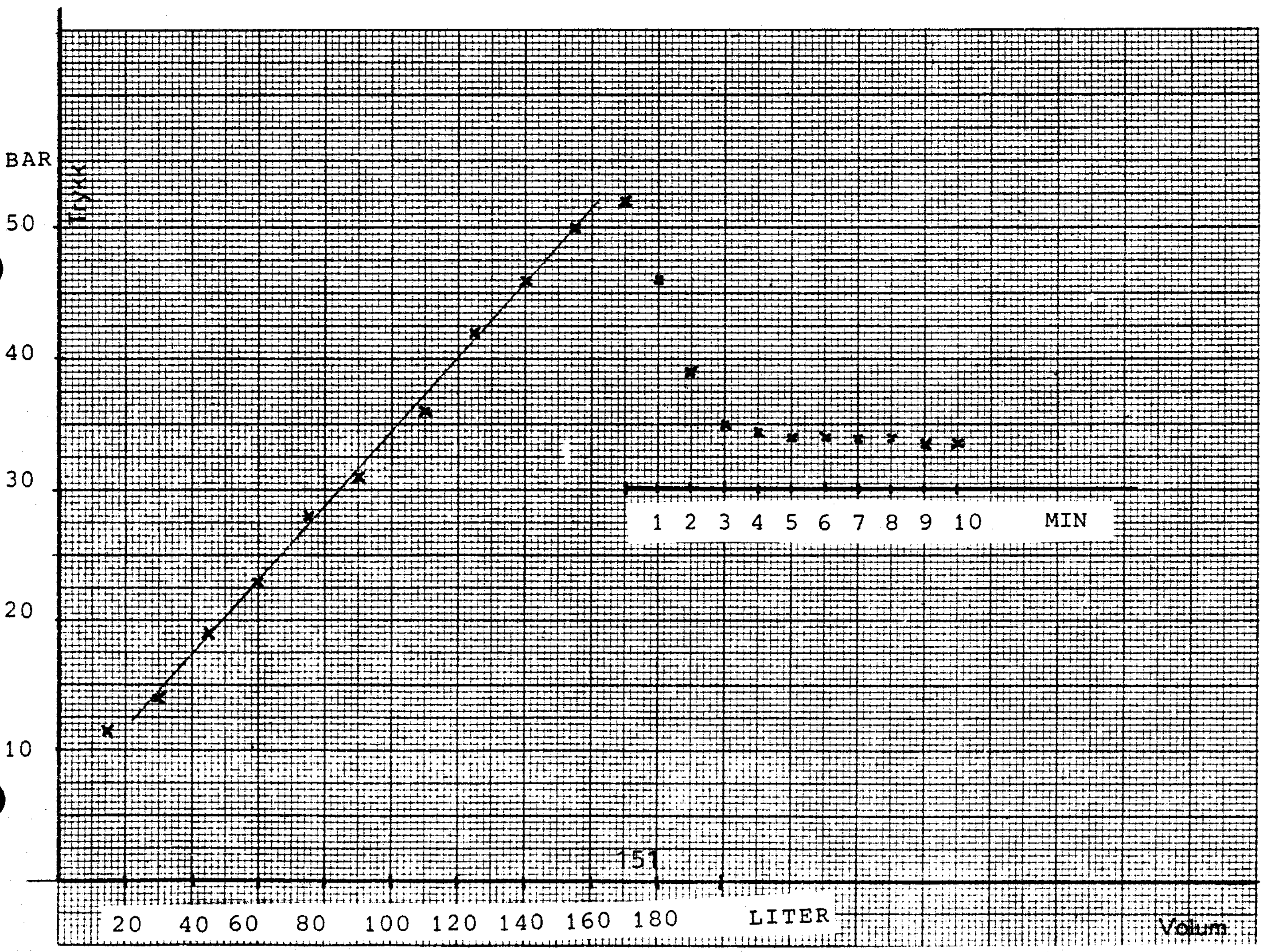
Foring: Diam.: 9 5/8" Tyngde: 47 lbs/ft 435 lbs/ft Grad: N-80 Maks. trykk: 370 bar

Boreslam: Tetthet: 1.78 s.g Vis: 50 sec P.V.: 20 cp Y.P.: 12 lbs/100ft² Filt: 8.0 ml Gel.: 4/34 lbs/100ft²

Pumpe: Type: BJ Kapasitet: 3.00L/slag Vol./tidsenh.: 60 L/min Tilb.str.: -

Antatt styrke: 1.93 s.g Obs. spr. trykk: 50 bar Ekv. formasj. styrke: 2.07 s.g

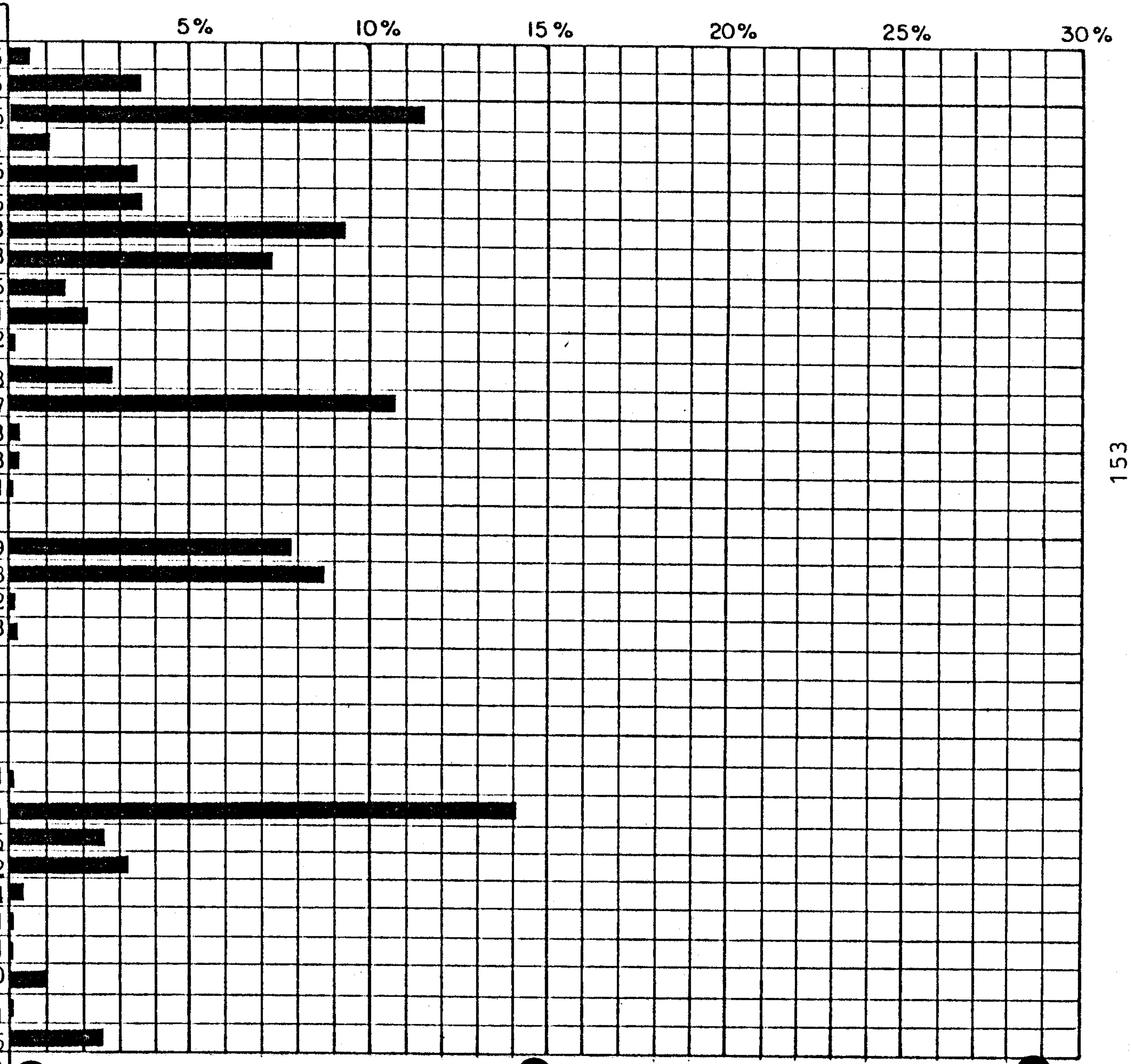
LITER	BAR	LITER/MIN	BAR	MIN	BAR	Anmerkninger
15	11.4	140	46	6 min	34.0	
30	14	155	50	7 "	33.8	
45	19	170	52	8 "	33.8	
60	23	1 min	46	9 "	33.5	
75	28	2 "	39	10 "	33.5	
90	31	3 "	35			
110	36	4 "	34.5			Sign.: J.Heldenius
125	42	5 "	34.0			

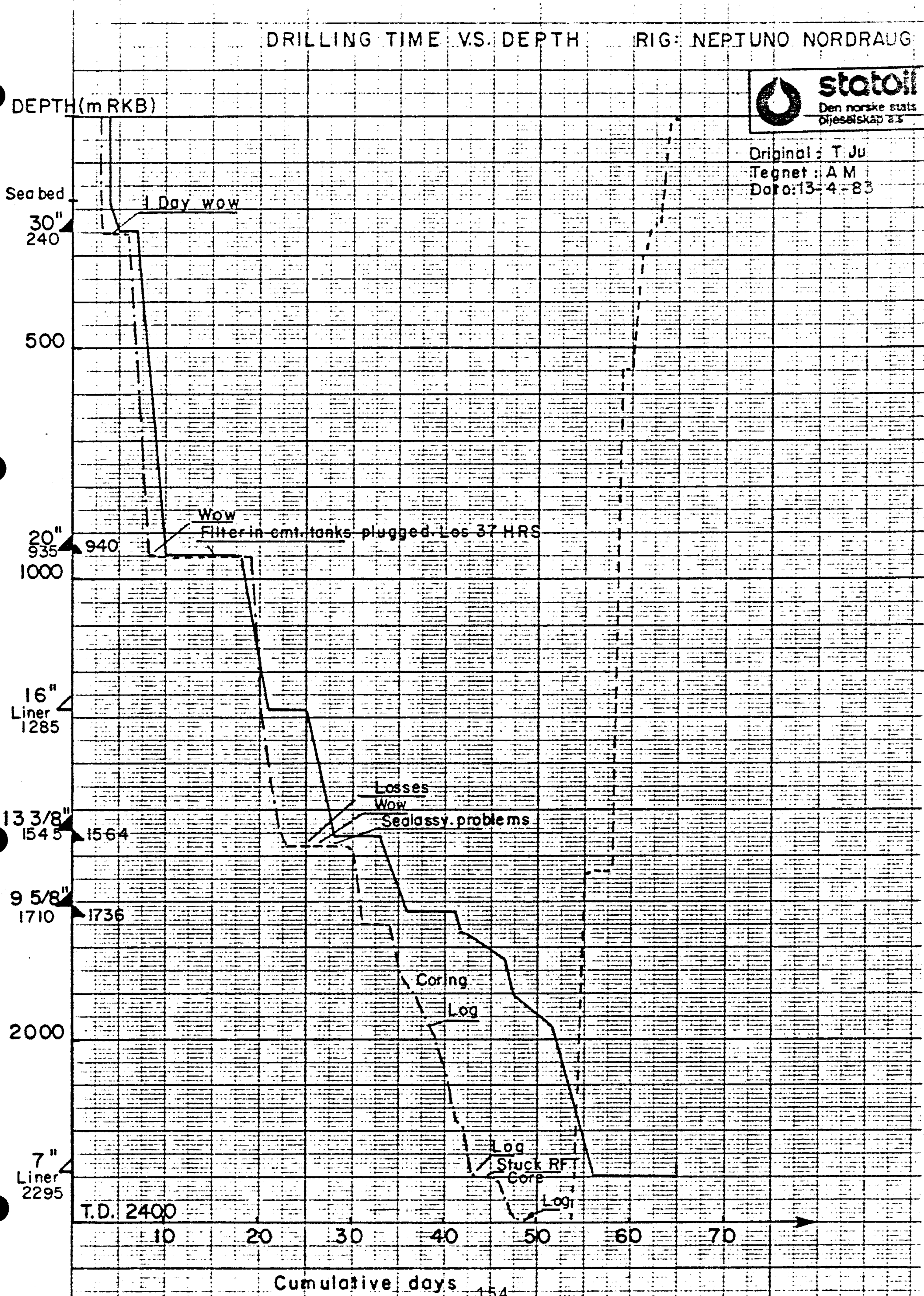


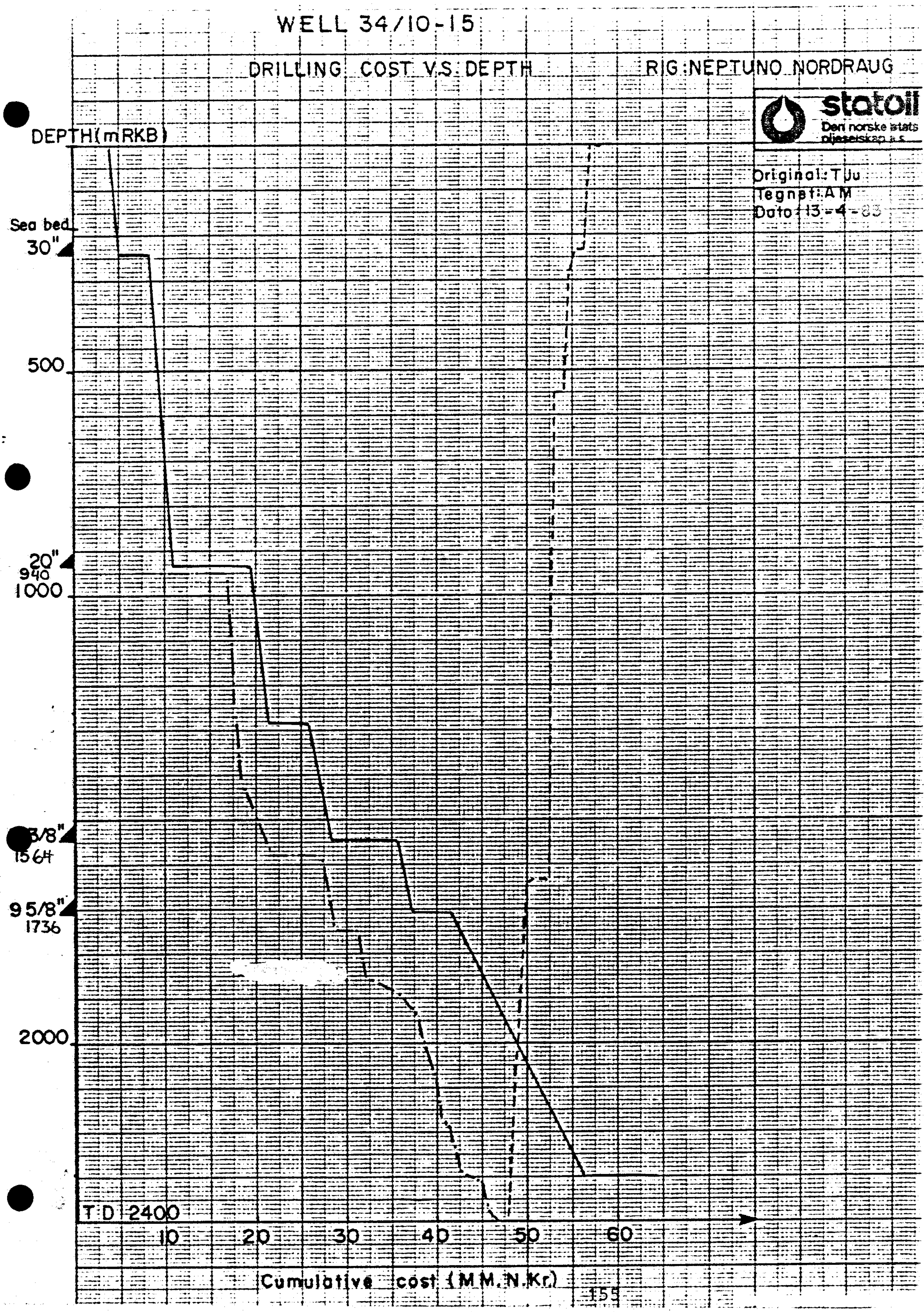
III 6. RIG TIME DISTRIBUTION
DRILLING TIME VS. DEPTH
DRILLING COST VS. DEPTH

RIG TIME DISTRIBUTION FOR WELL 34/10-15

		HRS	%
	Moving	9.0	0.6
	Mooring	51.5	3.6
Drilling operation	Efficient drilling	166	11.5
	Other drilling	16.5	1.1
	Hole opening	50.5	3.5
	Regular tripping	52.5	3.6
	Casing and cementing	133.0	9.3
	Sub sea eq. and BOP	105.5	7.3
	Abnormal press. detection	21	1.5
	Cond. and circ.	30.5	2.1
	Reaming	3	0.2
	Directional survey	40.5	2.8
	Plugging	153.5	10.7
	Formation leak-off test	4.5	0.3
	Maintenance	4.5	0.3
	Other	0.5	0.1
Formation Evaluation	Coring	113.5	7.9
	El. logging	126.5	8.8
	Circ. for samples	3.5	0.2
	RFT	5.0	0.3
	Production testing	–	–
	Other	–	–
Downtime	Rig repairs	–	–
	Rig moving	2.0	0.1
	Waiting on weather	203	14.1
	Sub sea eq. and BOP	37	2.6
	Fishing	46.5	3.2
	Lost circulation	5.5	0.4
	Well control	2.0	0.1
	Hole problems	1.0	0.1
	Formation evaluation	14.5	1.0
	Diving	2.0	0.1
	Other	36.5	2.6
	TOTAL	1442	100%




DRILLING TIME V.S. DEPTH
RIG: NEPTUNO NORDRAUG
statoil
Den norske stats oljeselskap a.s
Original : T Ju
Tegnet : A M
Dato:13-4-83
DEPTH(m RKB)
Sea bed
1 Day wow
30"
240
500
Wow
Filter in cmt. tanks plugged. Los 37 HRS
20"
935
940
1000
16"
Liner
1285
Losses
Wow
Sealassy. problems
13 3/8"
1545
1564
9 5/8"
1710
1736
Coring
Log
2000
Log
Stuck RFT
Core
Log
7"
Liner
2295
T.D. 2400
10
20
30
40
50
60
70
Cumulative days



WELL 34/10-15
DRILLING COST V.S. DEPTH
RIG:NEPTUNO NORDRAUG
statoil
Den norske stats oljeselskap a.s
Original: TJu
Tegnet: AM
Dato: 13-4-83
DEPTH (mRKB)
Sea bed
30"
500
20"
940
1000
13 3/8"
1564
9 5/8"
1736
2000
TD 2400
10
20
30
40
50
60
Cumulative cost (MM.N.Kr)

III 7. BIT RECORD AND LITHOLOGY COLUMN

statoil

BORKRONEDATA

Neptuno Nordraug

Brønn nr.: 34/10-15

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	HTC	OSC-3A	1-1-1	3x22	249	60.5	4.8	4.8	12.6	1.1-3.4	60	93	0.97	4160	2	2	I	26"BIT AND 36"H.O.
2	RR1	26	"	"		3x22	251	2	DRILLED CEMENT FROM 244 M AND NEW FORMATIN TO 251M								2	2	I	
3	2	12 1/4"	HTC	X3A	1-1-4	3x18	950	699	28.9	34.2	24.2	0-4	120-124	126-152	0.97	2900 3350	3	3	I	DRILLING PILOT HOLE
4	RR2	12 1/4" 17½"H.O. +26"U.R.	"	"	"	BIT:3x18 H.O.3x16	605	354	17.5	-	20.2	1-4	120	138	-	3700	3 3 3	3 3 5	I I I	CHANGED H.O AND UNDERRAMER
5	"	"	"	"	"	BIT.3x18 H.O.3x18	953	348 / 3	17.1 / 0.3	34.5	20	1-4	120	145	-	3700	4 2 4	4 4 5	I I I	BIT H.O. U.R.
6	RR1	26	HTC	1-1-1	3x22	CHECK HOLE CIRC./COND MUD. WIPER TRIP TO 950m														
7	"	"	"	"	"	RERUN; AFTER WAITING ON WEATHER TO CHECK HOLE CONDITION.														
8	3	17½"	"	OSC-3	1-1-1	3x18	1579	626	35.4	69.9	17.7	8-13.5	120	195-207	0.97	2900 3400	4	5	I	DRILL 20"FLOAT +SHOE+HOLE
9	RR3	"	"	"	"	"	THREE WIPER TRIPS, INBETWEEN LOG RUNS,AFTER W.O.W. and PRIOR TO RUNNING CSG.													
10	4	12 1/4"	HTC	XIG	1-3-4	3x14	1750	171	12.2	82.1	14	5-8	106	207	"	2070 2215	2	3	I	DRILLED CMT + FLOATS
11	RR4	"	"	"	"	CLEANUP TRIP FOR SCHLUMBERGER LOGGING 207									"	2070	2	3	I	
12	5	8 ½"	SEC	S33SF	1-1-6	3x12	1870	120	7.7	89.8	15.5	8	124	194	"	1375	2	2	I	
13	6	"	CHRIST.	C18FD	P-6837G		1888	18	5.5	95.3	3.3	6/11	115	83	"	1000	5	%	w	CORE NO.1
14	7	"	"	RC-1	P-6942G		1900	12	4.7	100	2.6	3	112	83	"	1200	5	%	w	CORE NO.2
15	RR6	"	"	C18FD	P-6837G		1917	17	4.6	104.6	3.7	4-9	115	114	"	1070	10	%	w	CORE NO.3
16	"	"	"	"	"		1935	18	3.6	108.2	5.0	7-11	105-130	103	"	1034	12	%	w	CORE NO.4
17	"	"	"	"	"		1945	10	3.7	111.9	2.7	7	120	90	"	"	15	%	w	CORE NO.5
18	8	"	STC	FDT	1-2-6		1989	44	2.3	114.2	19.1	12	100	193	"	1386	1	1	I	
19	9	"	HTC	J2	1-2-6		2170	181	14.9	129.1	12.2	13.6	106	205	"	1365	5	4	I	
20	RR6	"	CHRIST.	C18FD	P-6837G		2187,5	17.5	3.6	132.7	4.8	8-10	110	80	"	848	30	%	w	CORE NO. 6
21	10	"	"	C18FD	P-7045G		2201	13	3.1	135.8	3.2	8	116	95	"	931	5	%	w	CORE NO.7

4.01.08

statoil

Neptuno Nordraug

BORKRONEDATA

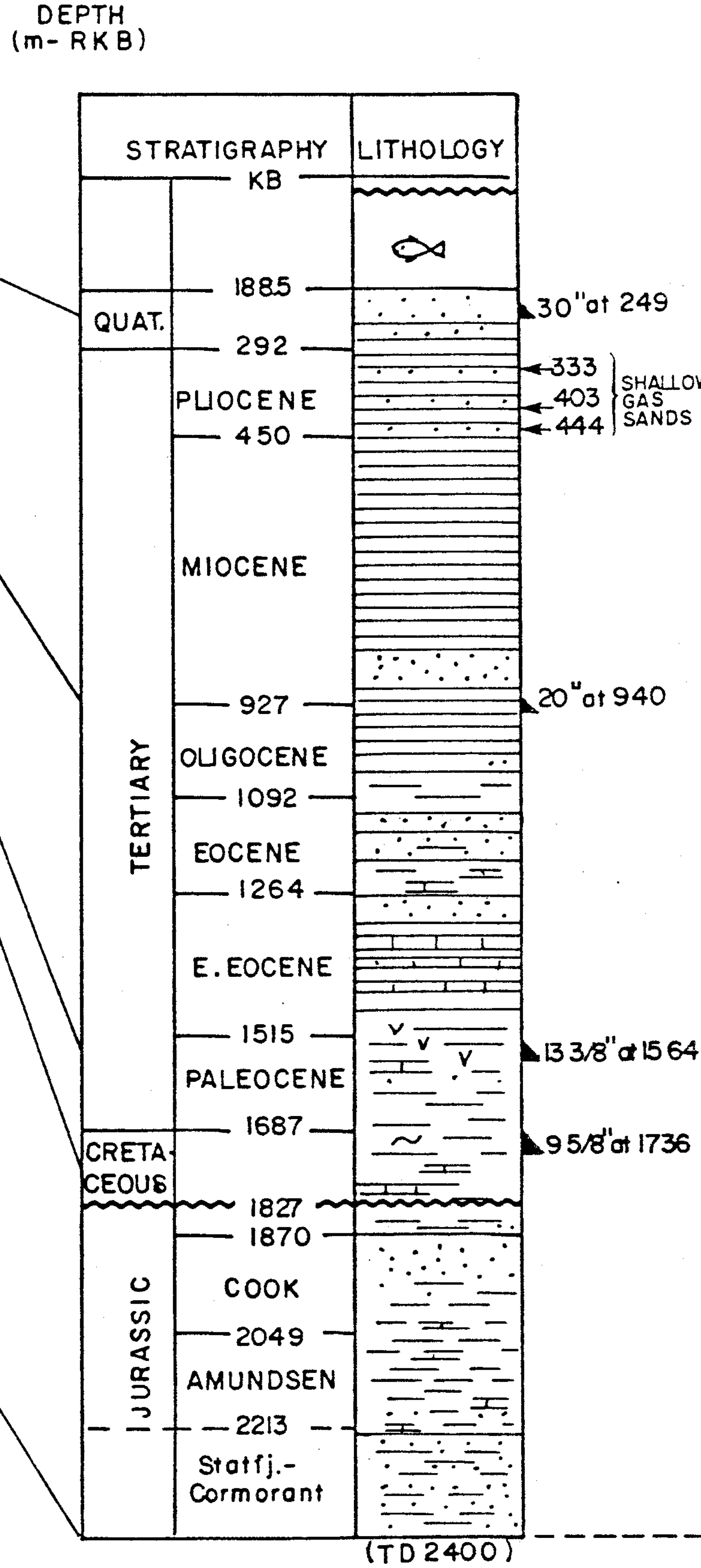
Brønn nr.: 34/10-15

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
22	RR10	8½"	CHRIST	C18FD	P-7045G		2213	12	3.8	139.6	3.2	9.5	105	90	0.97	931	10	%	w	CORE NO.8
23	11	"	"	SDGH	1-3-5	3x12	2300	87	5.1	144.7	17.2	11.7	103	203	"	1390	3	3	I	
24	RR11	"	STC	"	"	OPEN	2301	1	JUNK	BASKET	TRIP						3	3	I	
25	RR10	"	CHRIST	C18FD	P-7045G		2317	16	7.2	151.9	2.2	9	110	97	"	1000	15	%	w	CORE NO.9
26	RR10	"	"	"	"		2323	6	3.6	155.5	1.7	8	95	97	"	"	15	%	w	CORE NO.10
27	12	"	HTC	J2	1-2-6	12/12/11	2400	77	7.9	163.4	9.7	12	100	207	"	1350	2	2	I	
28	RR12	"	"	"	"	OPEN		CLEAN	UP TRIP	TO	2400 m									
29	RR12	"	"	"	"	"		USED	TO DRESS	OFF	CEMENT	PLUG	FROM 1640-1646 m							
30	RR3	"	"	OSC-3	1-2-1	"		CLEAN	UP TRIP	INSIDE	20"	CASING	TO	300m						

4.01.08

LITH COLUM VS. BIT RECORD WELL 34/10-15

NO.	Type	Depth out (m)	ROP (m/HR)	Time (HRS)	Hole size
1	OSC-3A	251	12.4	5	26x36
2	X3A	950	24.2	28.9	12 1/4" pilo
RR2	X3A + 17 1/2" HO + 26" UR.	953	20	34.9	26
3	OSC-3	1579	17.7	35.4	17 1/2"
4	XIG	1750	14	12.2	12 1/4"
5	S33SF	1870	15.5	7.7	
[illegible]	C18 FD	1888	3.3	5.5	
7	RC-1	1900	2.6	4.7	
RR6	C18FD	1945	3.8	11.9	3 cores
8	FDT	1989	19.1	2.3	
9	J2	2170	12.2	14.9	8 1/2"
RR6	C18 FD	2187,5	4.8	3.6	
10	C18 FD	2213	3.7	6.9	2 cores
11	SDGH	2301	17.2	5.1	
RR10	C18 FD	2323	2.0	10.8	2 cores
2	J 2	2400	9.7	7.9	



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Den norske stats oljeselskap a.s

Original: T Ju
Tegnet: AM
Dato: 13-4-83

III 8. PRESSURE PROFILES

FIG. I

34/10 - GULLFAKS
PREDICTED PRESSURE GRADIENTS

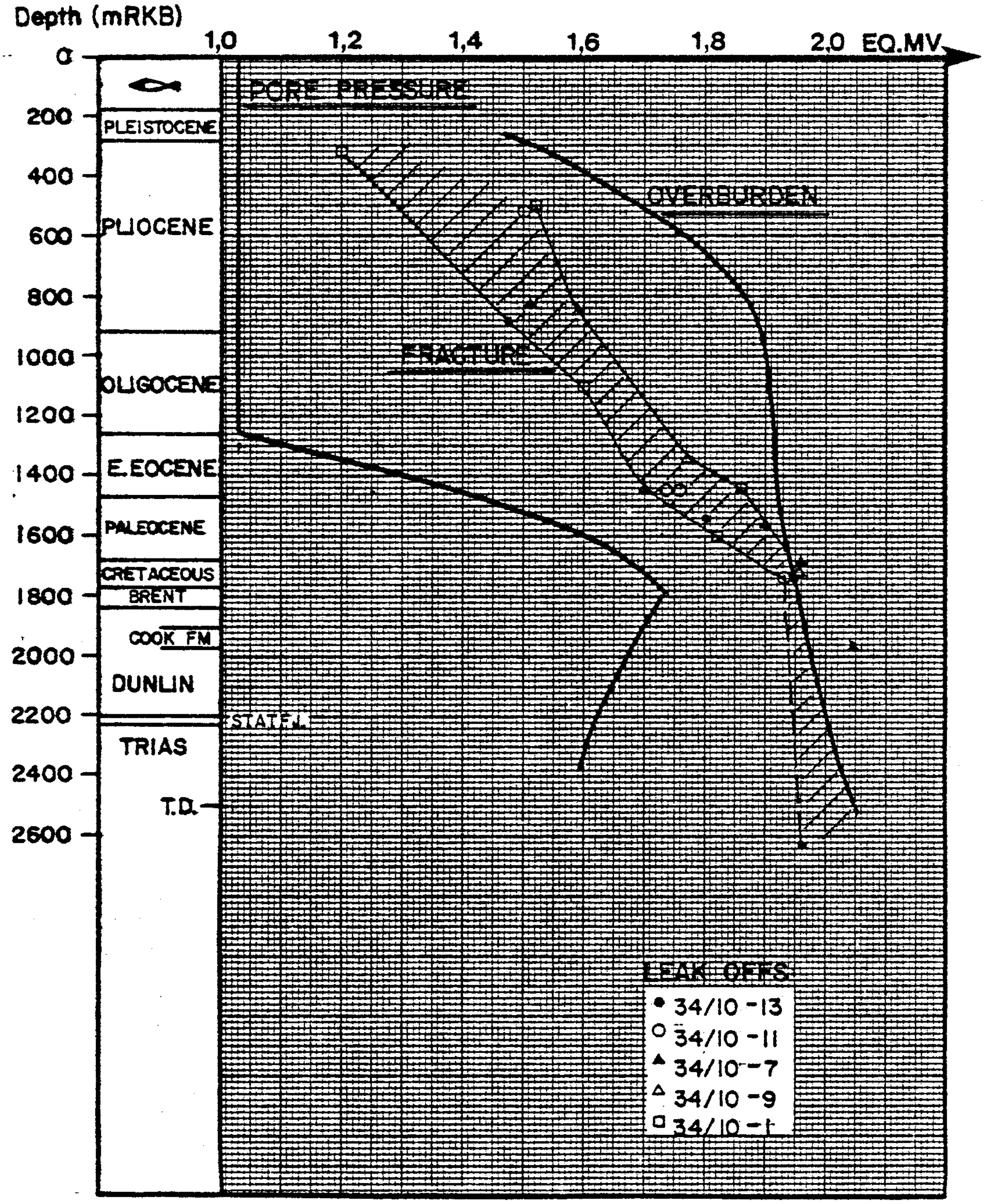
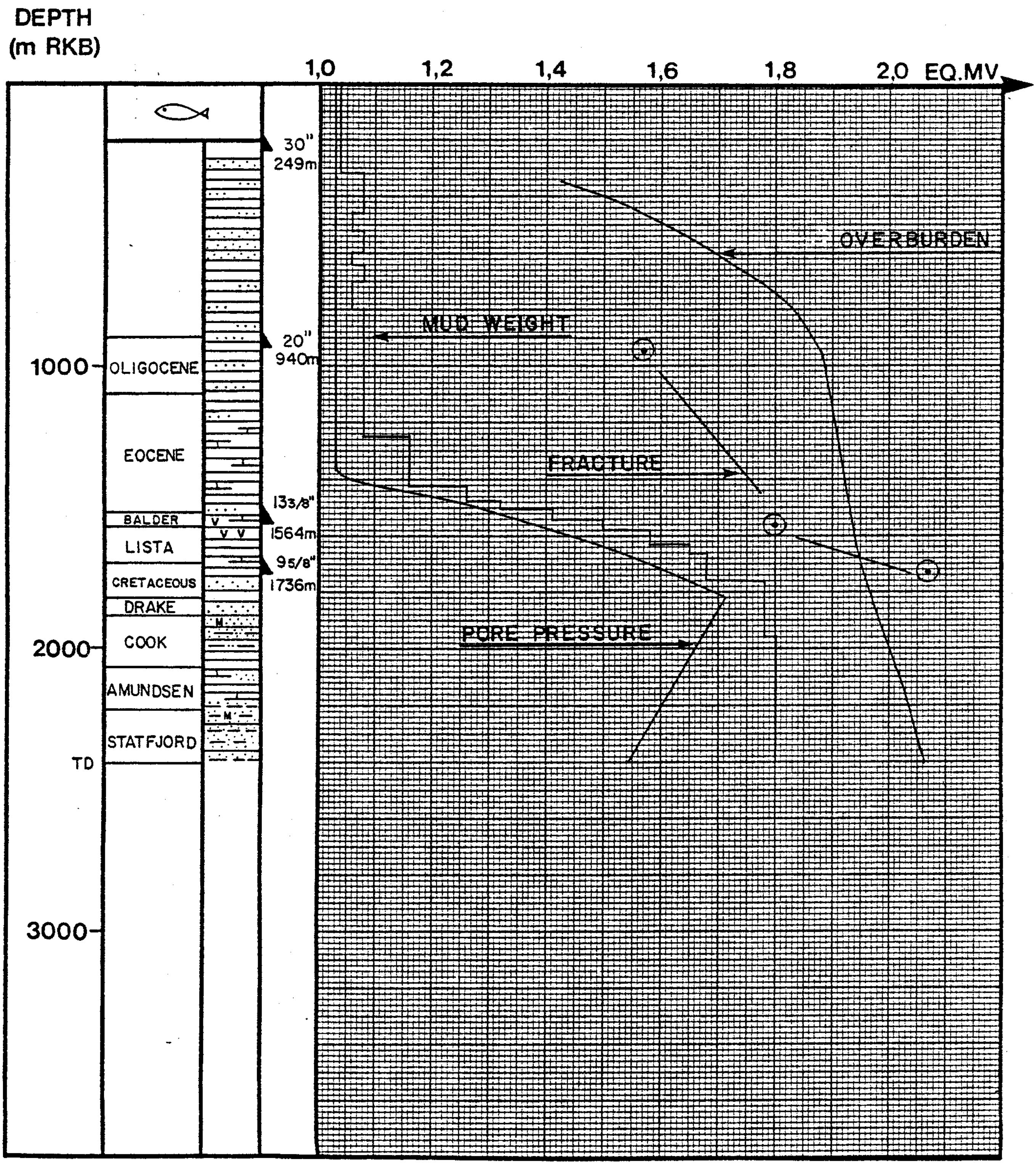


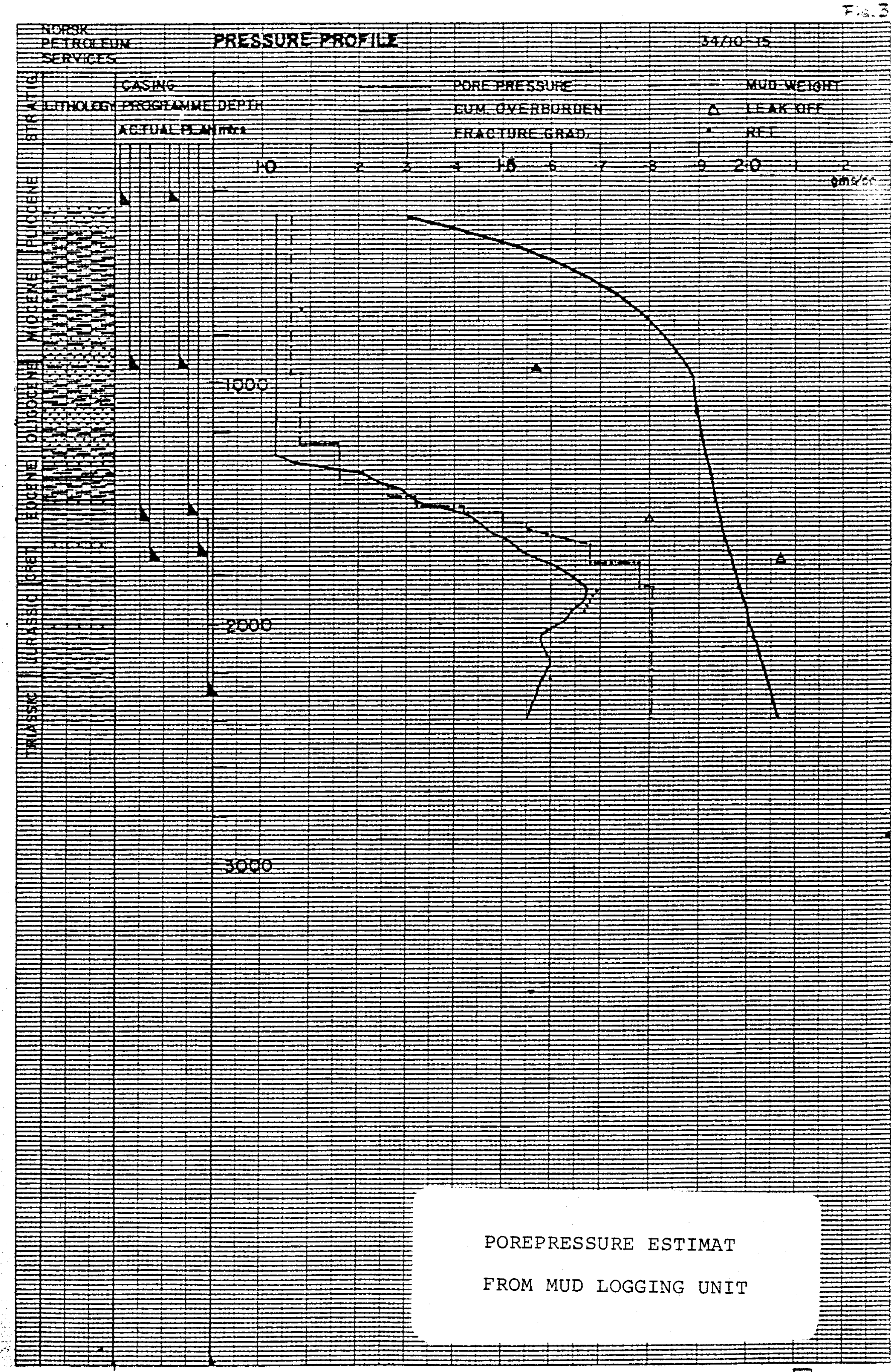
Fig. 2

PRESSURE COMPOSITE PLOT
34/10-15



LET-BERGEN, KG
07.06.83

Fig. 3


NORSK PETROLEUM SERVICES
PRESSURE PROFILE
34/10-15
STRATIG.
LITHOLOGY
CASING
PROGRAMME
DEPTH
ACTUAL
PORE PRESSURE
CUM. OVERBURDEN
FRACTURE GRAD.
MUD WEIGHT
LEAK OFF
RFT
1·0
1·5
2·0
gms/cc
1000
2000
3000
PLIOCENE
MIOCENE
OLIGOCENE
EOCENE
CRET
JURASSIC
TRIASSIC
POREPRESSURE ESTIMAT
FROM MUD LOGGING UNIT

III 9. SURVEY

SCIENTIFIC DRILLING CONTROLS
TASTA, 4000 STAVANGER, NORWAY

DIRECTIONAL SURVEY
FOR

STATOIL

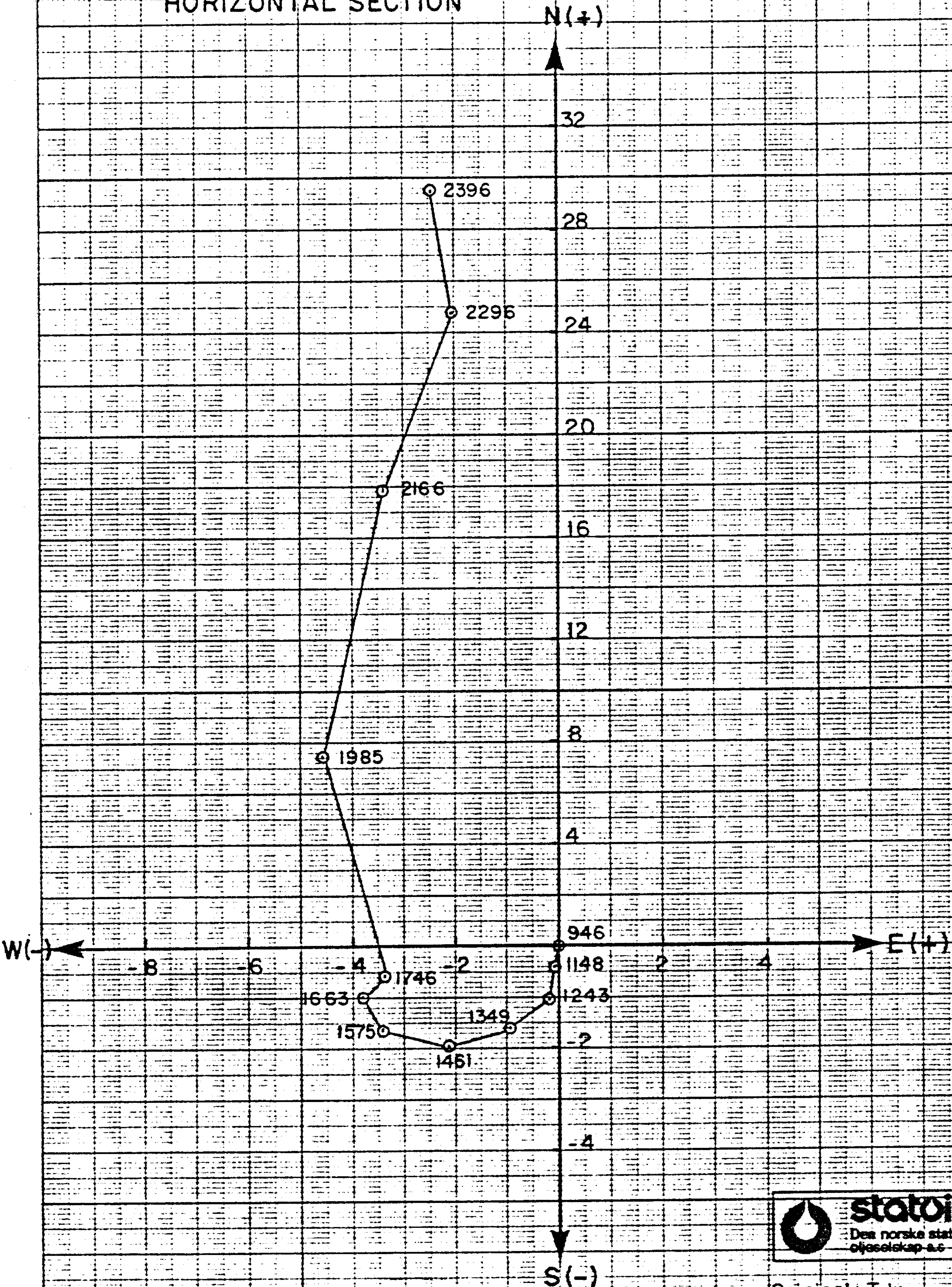
JOB NO: RIG SINGLE SHOTS
WELL: 34/10-15
LOCATION: NORDRAUG
SURVEY DATE: 12/28/82
SURVEY ENGINEER: SELDAL

Meas. Depth	Vert. Depth	Inc. DEG.	Direction DEG.	Coordinates Latitude	Coordinates Departure	D.Leg /30
946.00	946.00	.00	.00	.00 N	.00 E	.00
1148.00	1148.00	.25	188.00	.44 S	.06 W	.04
1243.00	1243.00	.50	191.00	1.05 S	.17 W	.08
1349.00	1348.99	.75	258.00	1.65 S	.94 W	.20
1461.00	1460.99	.50	248.00	1.98 S	2.11 W	.07
1575.00	1574.98	1.00	303.00	1.63 S	3.40 W	.22
1663.00	1662.97	.42	53.00	1.02 S	3.79 W	.41
1746.00	1745.97	.47	40.00	.58 S	3.33 W	.04
1985.00	1984.79	3.72	346.00	7.69 N	4.58 W	.43
2166.00	2165.48	3.28	30.00	17.87 N	3.41 W	.44
2296.00	2295.28	3.25	353.00	24.75 N	2.00 W	.48
2396.00	2395.16	2.33	358.00	29.60 N	2.41 W	.28

Closure 29.70 AT N 4 40 W
Correction included : 7.00 W
ASSUMED VERTICAL TO 946 MTS.
SURVEY REFERENCED TO TRUE NORTH
As at THU, DEC 30, 1982, 7:35 AM

34/10-15

HORIZONTAL SECTION



statoil
Den norske stats oljeselskap a.s

Original: TJu
Tegnet: AM
Dato: 13-4-83

III 10. DRILLING FLUID SUMMARY

GENERAL SUMMARY

OPERATOR STATOIL

WELL NO. 34/10-15

OPERATOR'S REPRESENTATIVES

ERLING ROSTAD, GEORGE MOSTYN, OLUF TVEIT, HELGE ØDEGÅRD, SEVERIN LONGVA, GUNNAR HILMARSEN, BILL STOVER, JOHNNY HELDENIUS.

CONTRACTOR ROSS DRILLING COMPANY

RIG NEPTUNO NORDRAUG

CONTRACTOR'S REPRESENTATIVES

EDVIN AAKRE, PER LERPOLD, MARTON SELDAL

ANCHOR ENGINEERS

ANSGAR AASE, EGIL SUNDE, MARK CHAVEZ, INGBERT TORGERSEN, HELGE WIIK

WATER DEPTH	163.5	m
SEABED to RKB	188.5	m
36" HOLE DRILLED TO	250	m
30" CASING SET AT	249	m
26" HOLE DRILLED TO	953	m
20" CASING SET AT	940	m
17½" HOLE DRILLED TO	1,578	m
13⅜" CASING SET AT	1,564	m
12¼" HOLE DRILLED TO	1,750	m
9⅝" CASING SET AT	1,736	m
8½" HOLE DRILLED TO	2,400	m
7" LINER SET AT		
6" HOLE DRILLED TO		

SUMMARY OF EVENTS

OPERATOR: STATOIL

WELL NO. 34/10-15

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

The 36" conductor hole was drilled to 250 m RKB. It was drilled with sea water with returns going to seabed. On each connection a viscous slug, approx. 40 bbls, of pre-hydrated Bentonite was circulated to ensure clean hole. Prior to running casing the hole was displaced twice with viscous mud - 100 sec./qt.

The casing was run without any problems.

RECOMMENDATIONS

36" HOLE

This section was drilled according to program with no major problems.

SUMMARY OF EVENTS

OPERATOR: STATOIL

WELL NO. 34/10-15

26" **HOLE/** 20" **CASING INTERVAL**

The hole was opened with a 12 1/4" bit and drilled to 950 m with 20 - 25 ppb gel mud and sea water. The hole was drilled without any major problems. Due to swelling clay in the 300 m - 400 m area lot of sea water was added to keep weight and viscosity as low as possible. Besides, Caustic Soda had to be added to control ph. In the sand formation from about 440 m - 500 m, about 500 bbls were lost to formation. So while drilling some fresh gel was added to the system to seal off this area. Having drilled this section to TD, 950 m RKB,- with the hole opener, conditioned mud was circulated for one hour, the trip was made without any drag at all. But the fill was about 15 ft. During Schlumberger loggings the hole was taking about 4 bbls per hour of mud.

Due to some losses to formation, LCM was added to the mud, approx. 10 pppb. This helped to drill through the section with minimum mud losses to formation.

RECOMMENDATIONS

26" SECTION

The mud bill for the 26" section turned out to be far higher than the prognosis. Estimated mud consumption for this section was 3,500 bbls which includes one hole displacement while reaming with 26" bit with no riser and returns going to seabed. Open hole was estimated t0 1,530 bbls plus 10 % overguaged hole, approx. 1,700 bbls. Besides the hole was taking approx. 50 bbls the first 24 hours.

Ran in hole with 26" bit, before running 20" casing, and pumped 1,150 bbls mud with returns going to sea bed.

After having run 20" casing and filled up the casing, 1.35 SG mud was circulated and cement was pumped. But due to failure in the cement bulk system cement was circulated out and hole was displaced with 1.35 SG mud. Thus another 2,000 bbls 1.35 SG mud was lost to seabed. While repairing the bulk system, 25 bbls of 1.35 SG mud was pumped at regular periods altogether 230 bbls.

The prognosed total cost did not include Barite consumption.

SUMMARY OF EVENTS

OPERATOR: STATOIL

WELL NO. 34/10-15

17½" **HOLE/** 13 3/8" **CASING INTERVAL**

20" casing shoe was drilled out with a mud weight of 1.08 SG. Leak off test was equivalent to 1.57 SG mud weight. The mud weight was kept at 1.08 SG druing the first 200 m, which required use of all solids removal equipment and dilution with sea water. Because of several sections of rather loose sand formations, approx. 600 bbls were lost to formation. The lower part of the section was mainly reactive clay formations which caused the MBT to raise to 30 at the end of the section, but running the centrifuge and moderate dilution seemed to control it at this level, and there were never any problems controlling the rheology of the mud.

Towards the end of the section the pore pressure built up rapidly and the mud weight was consequently raised in stages until it reached 1.50 SG at casing point.

While circulating prior to cement casing slight losses to formation occured and while conditioning and cleaning the hole before cementing ½ ppb of LCM was added. Ahead of the cement was pumped one LCM pill.

During displacement of the cement circulation was lost. (Total losses to formation on cement job was ± 580 bbls).

The shaker screens used on this section were B 40's over B 60's. Mud cleaner screens were 200 mesh. The hole was tihgt on some trips but after wiper trip and cleaning up it was usually O.K. Logging and casing went withut any problems.

RECOMMENDATIONS

17½" SECTION

Even if the section was drilled without any major problems it may be helpful to keep a small concentration of LCM (½ ppb of fine Mica or Walnut) to assist in sealing off the sand formations. With this type mud it would probably be a benefit to keep a concentration of $\pm$ 2 ppb of CMC in the mud for the purpose of coating the clays and prevent swelling as much as possible.

The cost prognosis for the 17½" section is not relevant as it is based on a much smaller section (the optional 22" section was taken in account). The cost per meter is slightly less then prognosed.

SUMMARY OF EVENTS

OPERATOR: STATOIL

WELL NO. 34/10-15

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

This section was drilled with a gel/ligno/sea water system to 1,750 m.

The mud weight was gradually increased from 1.50 SG to 1.68 SG at 1,750 m.

Mud weight was then increased to 1.72 SG before running casing.

High cement contaminations caused problems with high gels - up to 12/70.

Mud cleaners were run with 200 mesh screens. Shakers had 1 x B 40, B 60 + 2 x B 80, B 100 screens. 9 5/8" casing was run and cemented without any problems.

As mentioned above maximum mud weight in this section was 1.72 SG compared with 1.79 SG anticipated in mud program. This accounted for approximately $10,000 reduction in mud cost for this section.

RECOMMENDATIONS

12 1/4" SECTION

Except for the high gel strengths due to cement contamination, this section was drilled with no major problems.

SUMMARY OF EVENTS

OPERATOR: STATOIL

WELL NO. 34/10-15

8½" **HOLE/** - **CASING INTERVAL**

After drilling cement and 9 5/8" casing shoe, mud weight was raised to 1.78 SG. Leak-off was equivalent to 2.07 SG. Drilled to 1,870 m, then cut 5 cores to 1,944 m. Drilled to 1,968 m when mud weight was raised to 1.81 SG which was kept to TD.

Drilled to 2,170 m. Cut 3 cores and then drilled to TD at 2,300 m. After logging a new TD was set at 2,400 m. Two more cores were cut, then the hole was drilled to TD and logged. No casing or liner was set.

Mudwise this section was virtually trouble-free and drilling and coring was done without any problems. The yield point was maintained between 13 - 15 to ensure good hole cleaning. Fluid loss was kept at 4 - 5 cc's.

Shaker screens were B 40/B 60 - B 80/B 100 - B 80/B 100 when the section started but were soon changed to B 80 and 2 x B 100/B 120 which was kept to TD. Mud cleaner screens were 200 mesh.

RECOMMENDATIONS

8½" SECTION

This section was drilled according to program with no major problems.

OPERATOR STATOIL

WELL NO. 34/10-15

MATERIAL CONSUMPTION & COST ANALYSIS

36"	HOLE DRILLED TO	250	Meters ~~XXX~~	30"	CASING SET AT	249	Meters ~~XX~~

ACTUAL AMOUNT OF HOLE DRILLED 61.5 Meters ~~XXX~~ DAYS ON INTERVAL 3

DRILLING FLUID SYSTEM SPUD MUD (BENTONITE)

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	US$ COST
BENTONITE	50 KG	0	436	+436	7,848.00
BENTONITE	M/T	22	1.5	- 20.5	570.00
SODA ASH	50 KG	3	8	- 5	160.00
CAUSTIC SODA	25 KG	22	31	+ 9	620.00
DEFOAMER	200 L	0	1	+ 1	700.00

COST/DAY	US$3,299.33	TOTAL COST FOR INTERVAL	US$ 9,898.00
COST/M~~XXXXX~~	US$ 160.94	PROG. COST FOR INTERVAL	US$ 8,860.00
ENGR. COST	US$1,575.00	COST VARIANCE FOR INTERVAL	US$ 1,038.00

OPERATOR STATOIL

WELL NO. 34/10-15

MATERIAL CONSUMPTION & COST ANALYSIS

26"	HOLE DRILLED TO	953	Meters ~~XXX~~	20"	CASING SET AT	940	Meters ~~XXX~~

ACTUAL AMOUNT OF HOLE DRILLED 703 Meters ~~XXX~~ DAYS ON INTERVAL 14

DRILLING FLUID SYSTEM GEL/SEAWATER

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	US$ COST
BENTONITE SX	50 KG	0	660	+660	11,880.00
BENTONITE BULK	M/T	92	64	+ 24	24,320.00
CAUSTIC SODA	25 KG	92	364	+272	7,280.00
SODA ASH	50 KG	10	46	+ 36	920.00
LIGNOSULPHONATE	25 KG	0	18	+ 18	324.00
CMC HIVIS	25 KG	0	43	+ 43	2,881.00
NUTPLUG FINE	25 KG	0	150	+150	2,895.00
MICA FINE	25 KG	0	120	+120	2,316.00
MICA COARSE	25 KG	0	140	+140	2,702.00
LIME	25 KG	0	14	+ 14	84.00
$CaCl_2$	50 KG	0	1	+ 1	23.00
BARITE BULK	M/T	0	510	+510	69,870.00
BARITE SX	50 KG	0	120	+120	774.00

COST/DAY	US$ 9,019.21	TOTAL COST FOR INTERVAL	US$ 126,269.00
COST/Mt. ~~XXXX~~	US$ 179.61	PROG. COST FOR INTERVAL	US$ 17,240.00
ENGR. COST	US$11,025.00	COST VARIANCE FOR INTERVAL	US$ 109,029.00

OPERATOR STATOIL

WELL NO. 34/10-15

MATERIAL CONSUMPTION & COST ANALYSIS

17½"	HOLE DRILLED TO	1,578	Meters ~~Feet~~	13 3/8"	CASING SET AT	1,564	Meters ~~Feet~~

ACTUAL AMOUNT OF HOLE DRILLED 625 Meters ~~Feet~~ DAYS ON INTERVAL 11

DRILLING FLUID SYSTEM GEL/ LIGNO/SULPHONATE

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	COST
BENTONITE BULK	M/T	16	33	+ 17	12,540.00
BENTONITE SXS	50 KG	0	45	+ 45	810.00
CAUSTIC SODA	25 KG	48	107	+ 59	2,140.00
LIGNOSULPHONATE	25 KG	170	110	- 60	1,980.00
BARITE BULK	M/T	220	383	+ 16	52,471.00
BICARBONATE	50 KG	5	5	0	105.00
SODA ASH	50 KG	5	3	- 2	60.00
CMC LOVIS	25 KG	50	40	- 10	2,600.00
CMC HIVIS	25 KG	0	29	+ 29	1,943.00
NUTPLUG FINE	25 KG	0	20	+ 20	386.00
MICA FINE	25 KG	0	30	+ 30	579.00
DRILLING DETERGENT	200 L	0	2	+ 2	700.00

COST/DAY	US$ 6,937.64	TOTAL COST FOR INTERVAL	US$ 76,314.00
COST/Mt. ~~or Ft.~~	US$ 122.10	PROG. COST FOR INTERVAL	US$ 43,695.00
ENGR. COST	US$ 8,662.50	COST VARIANCE FOR INTERVAL	US$ 32,619.00

OPERATOR STATOIL

WELL NO. 34/10-15

MATERIAL CONSUMPTION & COST ANALYSIS

12 1/4" HOLE DRILLED TO 1,750 Meters ~~Feet~~ 9 5/8" CASING SET AT 1,736 Meters ~~Feet~~

ACTUAL AMOUNT OF HOLE DRILLED 172 Meters ~~Feet~~ DAYS ON INTERVAL 5

DRILLING FLUID SYSTEM GEL/LIGNO/SEAWATER

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	US$ COST
BENTONITE	50 KG	210	3	-207	54.00
BARITE	M/T	310	232	- 78	31,784.00
LIGNOSULPHONATE	25 KG	145	132	- 13	2,376.00
CMC LOVIS	25 KG	60	19	- 41	1,235.00
CMC HIVIS	25 KG	0	1	+ 1	67.00
DRISPAC REGULAR	25 KG	0	1	+ 1	181.00
SODA ASH	50 KG	4	23	+ 19	460.00
BICARBONATE	50 KG	4	25	+ 21	525.00
CAUSTIC SODA	25 KG	54	16	- 38	320.00

COST/DAY	US$ 7,400.40	TOTAL COST FOR INTERVAL	US$37,002.00
COST/Mt. ~~Ft~~	US$ 215.13	PROG. COST FOR INTERVAL	US$54,004.00
ENGR. COST	US$ 3,937.50	COST VARIANCE FOR INTERVAL	US$-17,002.00

OPERATOR STATOIL

WELL NO. 34/10-15

MATERIAL CONSUMPTION & COST ANALYSIS

8½" HOLE DRILLED TO 2,400 Meters ~~Feet~~ | - | CASING SET AT - Meters ~~Feet~~

ACTUAL AMOUNT OF HOLE DRILLED 650 Meters ~~Feet~~ | DAYS ON INTERVAL 17

DRILLING FLUID SYSTEM GEL/LIGNO/SEAWATER

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	US$ COST
BARITE	M/T	330	259	- 71	35,483.00
BENTONITE	M/T	0	3	+ 3	1,140.00
BENTONITE	50 KG	120	10	-110	180.00
CAUSTIC SODA	25 KG	40	64	+ 24	1,280.00
LIGNOSULPHONATE C	25 KG	84	221	+137	3,978.00
CHR. LIGNITE	25 KG	84	35	- 49	1,120.00
CMC LOVIS	25 KG	50	114	+ 64	7,410.00
SOD. BICARBONATE	50 KG	8	18	+ 10	378.00
SODA ASH	50 KG	4	6	+ 2	120.00
CMC HIVIS	25 KG	25	0	- 25	0

COST/DAY US$ 3,005.24

TOTAL COST FOR INTERVAL US$ 51,089.00

COST/Mt. ~~or Ft.~~ US$ 78.60

PROG. COST FOR INTERVAL US$ 57,543.00

ENGR. COST US$11,550.00

COST VARIANCE FOR INTERVAL US$- 6,454.00

OPERATOR STATOIL

WELL NO. 34/10-15

MATERIAL CONSUMPTION & COST ANALYSIS

PLUG AND ABANDONE

HOLE DRILLED TO Meters Feet CASING SET AT Meters Feet

ACTUAL AMOUNT OF HOLE DRILLED Meters Feet DAYS ON INTERVAL 8

DRILLING FLUID SYSTEM GEL/LIGNO/SEAWATER

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	US$ COST
BARITE	M/T	-	26	+ 26	3,562.00
BENTONITE	M/T	-	3	+ 3	1,140.00
LIGNOSULPHONATE	25 KG/SXS	-	37	+ 37	666.00
CMC LOVIS	25 KG/SXS	-	17	+ 17	1,105.00
CMC HIVIS	25 KG/SXS	-	15	+ 15	1,005.00

COST/DAY US$ 934.08

TOTAL COST FOR INTERVAL US$ 7,478.00

COST/Mt. or Ft. -

PROG. COST FOR INTERVAL -

ENGR. COST US$4,200.00

COST VARIANCE FOR INTERVAL US$ 7,478.00

OPERATOR STATOIL

WELL NO. 34/10-15

TOTAL CONSUMPTION & COST ANALYSIS

TOTAL DEPTH 2,400 Meters ~~Feet~~

TOTAL HOLE DRILLED 2,400 Meters ~~Feet~~

TOTAL DAYS 59

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	US$ COST
BARITE	M/T	970	1,410	+440	193,170.00
BARITE	100 LBS/ SXS	120	120	-	-
BENTONITE	M/T	97	104.5	+ 45	39,710.00
BENTONITE	50 KG/SXS	330	1,154	+824	20,772.00
LIGNOSULPHONATE	25 KG/SXS	629	518	-111	9,324.00
LIGNITE	50 LBS/SXS	-	35	+ 35	1,120.00
CMC LOVIS	25 KG/SXS	220	190	- 30	12 350.00
CMC HIVIS	25 KG/SXS	25	88	+ 63	5 896.00
DRISPAC REGULAR	50 LBS/SXS	-	1	+ 1	181.00
SODA ASH	50 KG/SXS	32	86	+ 54	1,720.00
SODA BICARBONATE	50 KG/SXS	21	63	+ 42	1,323.00
CAUSTIC SODA	25 KG/SXS	316	585	+269	11,700.00
$CaCl_2$	50 KG/SXS	-	1	+ 1	23.00
LIME	25 KG/SXS	-	14	+ 14	84.00
NUTPLUG F/C	25 KG/SXS	-	170/-	+170	3,281.00
MICA F/C	25 KG/SXS	-	170/120	+290	5,597.00
DRLG. DETERGENT	200 L/DR.		2	+ 2	700.00
ANCCNOL DEFOAMER	200 L/DR.	-	1	+ 1	700.00

COST/DAY US$ 5,221.18

TOTAL COST FOR INTERVAL US$ 308,050.00

COST/Mt. ~~or Ft.~~ US$ 128.35

PROG. COST FOR INTERVAL US$ 210,388.00

ENGR. COST US$41,812.50

COST VARIANCE FOR INTERVAL US$ 97,662.00

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

Drilling Fluid & Material Consumption Report

WELL NAME 34/10-15 AREA NORTH SEA
OPERATOR STATOIL RIG. NORDRAUG
MUD SYSTEM
ENGINEERS

Day No.	DATE 1982	ESTIMATED DAILY MUD VOLUMES: LOSSES SUB SURFACE	LOSSES SURFACE	VOLUME MUD BUILT	BULK MATERIALS: BARITE M/T	BENTONITE M/T	SACK MATERIALS: BARITE	BENTONITE	THINNERS: FCL	LIGNITE	DESCO		POLYMERS: STARCH	CMC LV	CMC HV	DRISPAC		OTHERS: SODA ASH	BICARBONATE	CAUSTIC	$CaCl_2$	LIME	NUTPLUG FINE	MICA FINE	MICA COARSE	DRLG. DET.	DEFOAMER
1	14.10																										
2	15.10			1200		1.5		306										4		21							1
3	16.10	1020		550				130										4		10							
4	17.10	190		855				120										3		8							
5	18.10			46	30			12	2																		
6	19.10			261				25										1		4							
7	20.10			270		3			3									3		36							
8	21.10	50	890		5				3											50							
9	22.10	50																4		7							
10	23.10	50		800		11		44							14			6		90							
11	24.10	50	1000	600	11	7		3										5		65							
12	25.10	50		400	111	10														33			124	140	120		
13	26.10	1650		1780	106	16		169										14		4		14	26				
14	27.10				48			10																			
FORWARD																											
ESTIMATED TOTALS		3110	1890	6762	311	48.5		816	11						14			44		328		14	150	140	120		

REMARKS

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

WELL NAME 34/10-15 AREA NORTH SEA
OPERATOR STATOIL RIG. NORDRAUG
ENGINEERS I. TORGERSEN/ M. CHAVEZ

Drilling Fluid & Material Consumption Report

MUD SYSTEM GEL/LIGNO/SEAWATER

Day No.	DATE 1982	ESTIMATED DAILY MUD VOLUMES: LOSSES SUB SURFACE	LOSSES SURFACE	VOLUME MUD BUILT	BULK MATERIALS: BARITE M/T	BENTONITE M/T	SACK MATERIALS: BARITE	BENTONITE	MATERIALS ADDED TO CONTROL PROPERTIES: FCL	THINNERS: LIGNITE	DESCO		POLYMERS: STARCH	CMC LV	CMC HV	DRISPAC		SODA ASH	BICARBONATE	CAUSTIC	OTHERS: $CaCl_2$	LIME	NUTPLUG FINE	MICA FINE	MICA COARSE	DRLG. DET.	DEFOAMER
15	28.10	1150		1150	58	11		7	2									5		24							
16	29.10	2000		1850	85	6	120	194										5		40							
17	30.11	230		56				79	5						29					3	1						
18	31.10	86		16	13			4												8							
19	01.11		640	1500	1.5														1	4							
20	02.11	600	750	1721	15	16.5			12					30	20					22							
21	03.11		703	900	29	2		40	26					7						22							
22	04.11		269	450	147															22							
23	05.11		320	250	75				14											13							
24	06.11					NO CHEMICALS OR BULK MAT.'S USED																					
25	07.11		110	121	26				20											16						2	
26	08.11		105	80	6				12																		
27	09.11	224	335						4																		
28	10.11	355	406	350	69			5	18					3	9			3	4				20	30			
FORWARD		3110	1890	6762	311	48.5		816	11						14			44		328		14	150	140	120		1
ESTIMATED TOTALS		7755	5528	15134	893	98.5	120	1141	128					40	72			57	5	502	1	14	170	170	120	2	1

REMARKS

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

Drilling Fluid & Material Consumption Report

MUD SYSTEM GEL/LIGNO/SEA WATER

WELL NAME 34/10-15 AREA NORTH SEA
OPERATOR STATOIL RIG. NORDRAUG
ENGINEERS A. AASE/ E.SUNDE

Day No	DATE 1982	ESTIMATED DAILY MUD VOLUMES: LOSSES SUB SURFACE	LOSSES SURFACE	VOLUME MUD BUILT	BULK MATERIALS: BARITE M/T	BENTONITE M/T	SACK MATERIALS: BARITE	BENTONITE	THINNERS: FCL	LIGNITE	DESCO		POLYMERS: STARCH	CMC LV	CMC HV	DRISPAC		SODA ASH	BICARBONATE	CAUSTIC	OTHERS: CaCl 2	LIME	NUTPLUG FINE	MICA FINE	MICA COARSE	DRLG. DET.	DEFOAMER
29	11.11			223																							
30	12.11		80	52	50				30					8	1				14								
31	13.11		198	455	90				76					11		1		16	11	11							
32	14.11		16		79				17											4							
33	15.11	260	10		13			3	9									7		1							
34	16.11			2	11	3																					
35	17.11		335	360	66			10	49	5				20				3	18	8							
36	18.11		367	174	51				17					13						4							
37	19.11		50	56	23				13					11						5							
38	20.11		28	20	13				9	4				12				3		2							
39	21.11		41	10					5	9				2						1							
40	22.11		10	57	11				20	5				6						6							
41	23.11		69	80	27				30	9				12						11							
42	24.11		23	41	14				15	3				4						3							
FORWARD		7755	5528	15134	983	98.5	120	1141	128					40	72			57	5	502	1	4	170	170	120	2	1
ESTIMATED TOTALS		8010	6755	16664	1341	101.5	120	1154	418	35				139	73			86	48	558	1	14	170	170	120	2	1

REMARKS.

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

Drilling Fluid & Material Consumption Report

MUD SYSTEM: GEL/ LIGNO/ SEA WATER

WELL NAME: 34/10-15 AREA: NORTH SEA
OPERATOR: STATOIL RIG: NORDRAUG
ENGINEERS: I. TORGERSEN/ E. SUNDE

Day No	DATE 1982	Estimated Daily Mud Volumes: Losses Sub Surface	Losses Surface	Volume Mud Built	Bulk Materials: Barite M/T	Bentonite M/T	Sack Materials: Barite	Bentonite	Materials Added to Control Properties: FCL	Thinners: Lignite	Desco		Polymers: Starch	CMC LV	CMC HV	Drispac		Soda Ash	Bicarbonate	Caustic	Others: CaCl2	Lime	Nutplug Fine	Mica Fine	Mica Coarse	Drlg. Det.	Defoamer
43	25.11		51	68	12				10					13						7							
44	26.11		11		3																						
45	27.11		10		5				5					1													
46	28.11		74	20	10				14					5						6							
47	29.11		51	50	13				17					11						6							
48	30.11		30	65					14					2						2							
49	01.12		13	5					3					2						3							
50	02.12				NO MATERIALS USED																						
51	03.12		78		20				24										7								
52	04.12		63						5			CUT CASING's							3								
53	05.12				NO MATERIALS USED																						
54	06.12				NO MATERIALS USED																						
55	07.12	265	255	350		3									6	1			1	3							
56	08.12		3						3					3	5												
FORWARD		8010	6755	16664	1341	101.5	120	1154	418	35				139	73			86	48	558	1	14	170	170	120	2	1
ESTIMATED TOTALS		8275	7394	17222	1404	104.5	120	1154	513	35				176	84	1		86	59	585	1	14	170	170	120	2	1

REMARKS

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

Drilling Fluid & Material Consumption Report

MUD SYSTEM GEL/ LIGNO/SEA WATER

WELL NAME 34/10-15 AREA NORTH SEA
OPERATOR STATOIL RIG. NORDRAUG
ENGINEERS H. WIIK

Day No	DATE 1982	ESTIMATED DAILY MUD VOLUMES: LOSSES SUB SURFACE	LOSSES SURFACE	VOLUME MUD BUILT	BULK MATERIALS: BARITE M/T	BENTONITE M/T	SACK MATERIALS: BARITE	BENTONITE	MATERIALS ADDED TO CONTROL PROPERTIES: FCL	THINNERS: LIGNITE	DESCO		POLYMERS: STARCH	CMC LV	CMC HV	DRISPAC		SODA ASH	OTHERS: BICARBONATE	CAUSTIC	$CaCl_2$	LIME	NUTPLUG FINE	MICA FINE	MICA COARSE	DRLG. DET.	DEFOAMER
57	09.12		61	10	6				1					7	1												
58	10.12		13	10					4					7	3				4								
FORWARD		8275	7394	17222	1404	104.2	120	1154	513	35				178	84	1		86	59	585	1	14	170	170	120	2	1
ESTIMATED TOTALS		8275	7468	17242	1410	104.5	120	1154	518	35				190	88	1		86	63	585	1	14	170	170	120	2	1

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REMARKS

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

WELL NAME 34/10-15 AREA NORTH SEA

OPERATOR STATOIL RIG. NORDRAUG

ENGINEERS A. AASE/ E. SUNDE

Drilling Mud Properties Record

MUD SYSTEM BENTONITE/ SEAWATER

Day No.	DATE 1982	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
1	14/10	0																						
2	15/10	0	1.06	100																				
3	16/10	249	1.05	80															25.00					
4	17/10	250	1.04	60															25.00					
5	18/10	251	1.04	60	24.0	7.0	34.0	24/24														.23	11.21	
6	19/10	251	1.04	60	24.0	7.0	34.0	24/24											25.00			.23	11.21	
7	20/10	595	1.07	50	22.0	7.0	30.0	17/19				10.4	0	0								.25	8.90	
8	21/10	950	1.07	46	24.0	4.0	40.0					10.5										.13	21.51	
9	22/10	950	1.07	48								10.5												
10	23/10	950	1.08	48	24.0	4.0	40.0					10.6										.13	21.51	
11	24/10	950	1.08	45	26.0	4.0	44.0					10.4										.12	24.85	
12	25/10	953	1.35	42	24.0	14.0	20.0	4/19				10.5	17.5	160	.30		12.00		22.00			.50	1.99	
13	26/10	953	1.35	52	27.0	14.0	26.0	6/20				10.6	1.9	200	.30		12.00		22.00			.43	3.39	
14	27/10	953	1.35	51	27.0	14.0	26.0	6/20				10.6	1.9	200	.30		12.00		22.00			.43	3.39	

REMARKS

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

Drilling Mud Properties Record

MUD SYSTEM: BENTONITE/ CLS/ SEAWATER

WELL NAME: 34/10-15 AREA: NORTH SEA
OPERATOR: STATOIL RIG: NORDRAUG
ENGINEERS: I. TORGERSEN/ M. CHAVEZ

Day No.	DATE 1982	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
15	28/10	953	1.35	57	27.0	14.0	26.0	6/20				10.5	2	140	.30		11.00		22.00			.43	3.39	
16	29/10		1.07	58				/																
17	30/10	953	1.35	49	24.0	12.0	24.0	16/27				10.9							20.00			.41	3.38	
18	31/10	940	1.11	48	21.0	7.0	28.0	2/30	17.0	2		11.0										.26	7.81	
19	1/11	940	1.08	40	21.0	7.0	28.0	2/35	16.0	2		10.8	4	240	.40		7.00	0.00	22.50			.26	7.81	
20	2/11	1230	1.08	50	19.5	9.0	21.0	18/50	8.8	2		10.3	2	200	.20	0.0	7.00	.25	23.00			.38	3.47	
21	3/11	1415	1.16	52	21.0	11.0	20.0	17/56	8.6	2		10.2	11	200	.15	0.0	8.00	0.00	27.00			.44	2.55	
22	4/11	1531	1.42	48	24.0	15.0	18.0	14/58	8.8	2		10.4	14	180	.25	0.0	16.00	.25	30.00			.54	1.51	
23	5/11	1578	1.50	46	24.5	16.0	17.0	13/56	9.7	2		10.4	14	180	.20	0.0	18.00	.25	30.00			.57	1.28	
24	6/11	1578	1.50	50	22.0	14.0	16.0	10/38	9.7	2		10.5	14	160	.20	0.0	18.00	.25	30.00			.55	1.29	
25	7/11	1578	1.50	48	22.0	15.0	14.0	7/48	10.0	2		10.3	14	180	.20	0.0	19.00	.50	30.00			.60	.94	
26	8/11	1578	1.50	55	21.5	15.0	13.0	6/37	10.0	2		10.2	14	180	.15	0.0	19.00	.50	30.00			.62	.82	
27	9/11	1578	1.50	55	22.0	15.0	14.0	7/48	10.0	2		10.0	14	200	.15	0.0	19.00	.50	32.00			.60	.94	
28	10/11	1578	1.50	52	24.5	15.0	19.0	14/62	10.0	2		11.4	13	120	.90	0.0	19.00	0.00	30.00			.53	1.68	

REMARKS

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

Drilling Mud Properties Record

MUD SYSTEM: BENTONITE/ CLS/ SEAWATER

WELL NAME: 34/10-15 AREA: NORTH SEA
OPERATOR: STATOIL RIG: NORDRAUG
ENGINEERS: A. AASE/ E. SUNDE

Day No.	DATE 1982	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
29	11/11	1564	1.50	53	24.0	13.0	22.0	19/35	9.7	1		11.0	13	120	.50	0.0	19.00	.25	30.00			.46	2.61	
30	12/11	1582	1.55	41	22.5	16.0	13.0	9/35	10.1	1		10.7	15	140	.30	0.0	20.00	.10	25.00			.63	.78	
31	13/11	1750	1.72	45	29.5	13.0	12.0	6/32	8.2	1		1.0	17	20	.50	0.0	25.00	.10	25.00			.60	.80	
32	14/11	1750	1.72	45	22.0	17.0	10.0	4/26	8.5	1		10.3	17	80	.40	0.0	27.00	.10	20.00			.70	.49	
33	15/11	1750	1.72	49	23.0	18.0	10.0	3/23	8.2	1		10.4	17	60	.40	0.0	26.00	.10	20.00			.72	.47	
34	16/11	1750	1.72	49	23.0	18.0	10.0	3/22	8.6	1		10.5	17	50	.40	0.0	26.00	.10	20.00			.72	.47	
35	17/11	1848	1.78	68	31.5	23.0	17.0	8/41	6.3	1		10.7	17	40	1.40	0.0	30.00	.50	22.50			.65	.95	
36	18/11	1887	1.78	54	27.5	21.0	13.0	4/29	5.2	1		10.4	17	20	.85	0.0	28.00	.50	20.50			.69	.65	
37	19/11	1917	1.78	55	27.5	21.0	13.0	4/23	5.3	1	13.9	10.5	18	60	.50	0.0	28.00	.10	20.00			.69	.65	
38	20/11	1958	1.80	63	40.5	25.0	15.0	5/25	4.2	1	16.0	10.4	19	20	.85	0.0	29.00	.10	21.00			.70	.74	
39	21/11	1989	1.81	58	31.5	24.0	14.0	4/20	4.6	1	16.0	10.2	19	40	.60	0.0	29.00	.10	21.00			.71	.68	
40	22/11	2068	1.81	59	31.5	25.0	13.0	4/28	4.6	1	16.0	10.5	19	40	.70	0.0	29.00	.10	21.00			.73	.59	
41	23/11	2157	1.81	61	33.5	26.0	15.0	5/29	4.4	1	12.0	10.9	19	20	.90	0.0	30.00	.10	21.00			.71	.72	
42	24/11	2201	1.81	67	31.5	25.0	13.0	4/20	4.1	1	12.2	10.2	19	40	.50	0.0	30.00	.10	21.00			.73	.59	

REMARKS

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

Drilling Mud Properties Record

MUD SYSTEM BENTONITE/ CLS/ SEAWATER

WELL NAME 34/10-15 AREA NORTH SEA
OPERATOR STATOIL RIG. NORDRAUG
ENGINEERS I. TORGERSEN/ E. SUNDE

Day No.	DATE 1982	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 CORR.	% SOLIDS	% SAND	BENTONITE #/BBL	POTASH #/BBL	POLYMER #/BBL	"N"	"K"	OPERATION REMARKS
43	25/11	2290	1.81	59	31.5	24.0	14.0	5/23	4.4	1	12.0	10.3	20	100	.50	0.0	27.00	.50	21.00			.71	.68	
44	26/11	2300	1.81	59	31.0	24.0	14.0	4/19	4.2	1	12.2	10.5	20	80	.65	0.0	27.00	.50	21.00			.71	.68	
45	27/11	2300	1.81	60	31.0	24.0	14.0	4/18	4.4	1	12.2	10.1	20	100	.45	0.0	27.00	.50	20.00			.71	.68	
46	28/11	2315	1.81	57	30.5	24.0	13.0	4/19	4.3	1	12.0	10.3	20	120	.60	0.0	28.00	.50	20.00			.72	.61	
47	29/11	2377	1.18	58	31.0	24.0	14.0	4/21	4.3	1	12.0	10.4	20	120	.75		28.00	.50	20.00			.71	.68	
48	30/11	2400	1.81	57	29.5	23.0	13.0	/	4.2	1	11.8	10.0	20	140	.40		28.00	.25	20.00			.71	.62	
49	1/12	2400	1.18	60	31.5	25.0	13.0	4/2	4.2	1		10.0	20	140	.45		28.00	.50	20.00			.73	.59	
50	2/12	2400	1.81	59	30.5	24.0	13.0	4/16	4.1	1	11.8	10.0	20	120	.45		28.00	.50	20.00			.72	.61	
51	3/12	1630	1.78	61	32.0	25.0	14.0	4/22	5.5	1		11.9	20	240	1.70		28.00	.25	20.00			.71	.66	
52	4/12	PB	1.77	61	31.0	24.0	14.0	4/19	5.5	1	13.4	11.9	20	240	1.70		28.00	.50	20.00			.71	.68	
53	5/12	PB	1.76	63	30.5	24.0	13.0	4/20	5.4	1	13.4	11.9	20	260	1.75		28.00	.25	19.00			.72	.61	
54	6/12	PB	1.76	66	31.0	24.0	14.0	4/22	5.3	1	13.4	11.9	20	260	1.75		28.00	.25	19.00			.71	.68	
55	7/12	PB	1.74	59	28.5	22.0	13.0	4/22	5.8	1		11.9	20	260	1.80	0.0	27.00	.25	18.00			.70	.63	
56	8/12	PB	1.50	55	23.0	16.0	14.0	5/24	6.5	1		11.5	18	260	1.00	0.0	17.00		18.50			.62	.89	

REMARKS

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

Drilling Mud Properties Record

MUD SYSTEM BENTONITE/ CLS/ SEAWATER

WELL NAME 34/10-15 AREA NORTH SEA
OPERATOR STATOIL RIG. NORDRAUG
ENGINEERS H. I. WIIK

Day No.	DATE 1982	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	9/12	PB	1.51	53	28.5	19.0	19.0	5/30	7.0	1		11.6	18	200	1.20		17.00	0.00	18.50			.58	1.35	
58	10/12	PB	1.47	50	22.0	15.0	14.0	3/21	7.5	1		11.6	17	320	1.10		17.00		18.50			.60	.94	

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REMARKS

IV MARINE REPORT

1. WEATHER AND ANCHOR TENSION 34/10-15

The weather condition when drilling the well was exceeding upper limits for continuing the operation several times, and a total of 203 hours were lost due to bad weather.
This is 14.1 % of the total time spent on the well.

The main wind direction was from S and SW. Windspeeds above 30 m/s was reported only at one occation, max 35 m/s.

The main wave direction was from S and SW. Wave heights above 10 m was reported 6 times, max. 16 m.

Max. reported anchor tension was 136 m. tons on anchors no. 8 and 145 m. tons on anchor no. 7.

LOCATION WEATHER DATA SUMMARY

statoil
Den norske stats oljeselskap a.s

2.

WELL: 34/10-15 RIG: NEPTUNO NORDRAUG

TIME PERIOD: FROM 14.10. TO 13.12 –19 82

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	4	1				6
NNE			1					1
NE								–
ENE								–
E				1				1
ESE				1				1
SE		1			2			3
SSE				1	1	1		3
S			5	3	3	4		15
SSW			2					2
SW		4	4	2	2	2		14
WSW				1			1	2
W		2	3	1		1		7
WNW			1	1	1			3
NW			1					1
NNW				1				1
total	–	8	21	13	9	8	1	60 / 60

WAVE

dir. \ height (m)	0 – 1	1 – 2	2 – 3	3 – 5	5 – 7	7 – 10	> 10	total
N		1		3				4
NNE				1	1			2
NE								–
ENE								–
E				1				1
ESE					2			2
SE					1	2		3
SSE					2	1		3
S			1	4	4	2	4	15
SSW			1	1				2
SW			2	4	3	5	1	15
WSW					1	1	1	3
W				3	3	1		7
WNW				1	1			2
NW					1			1
NNW								–
total	–	1	4	18	19	12	6	60 / 60

4.00.23

3. NAVIGATION REPORT

RIG MOVE OF "NEPTUNO NORDRAUG" TO WELL 34/10-15

3. Final position (ED 1950)

61° 10' 30,06"N, 02° 14' 44,57"E

Accuracy : 17,3 meters
Rig heading: 310°
Deviation from intended position: 31,4 m - 081°

2. Navigation/positioning method

a) The requirements were as stated in Standard Rig Navigation and Positioning Agreement of Jan. 1982 between Statoil A/S and Racal-Decca Survey Norge A/S.

b) Navigate the rig d/b "Neptuno Nordraug" to well location 34/10-15 utilizing Pulse/8 as the navigation aid.

The intended location was: Lat. : 61° 10' 29.9"N
Long.: 02° 14' 42.5"E

c) The final positioning of the rig on location was to be carried out by Geoteam A/S, using Magnavox Satelite Positioning System MX1502.

3. Duration of the rig move

Mobilisation of equipment	0800 hours 14 October 1982
Navigation system operative	1200 hours 14 October 1982
Start of rig move	
First anchor dropped	1610 hours 14 October 1982
On location	1645 hours 14 October 1982
Last piggy-back anchor dropped	0900 hours 16 October 1982
All anchors holding for tension test	0940 hours 16 October 1982
Position approved for drilling	1015 hours 16 October 1982
Start of Pulse/8 monitoring	1045 hours 16 October 1982
Start of 3-D computation	1045 hours 16 October 1982
Completion of Pulse/8 monitoring	1600 hours 17 October 1982
Completion of 3-D computation	1350 hours 18 October 1982

4. RIG MOVE

The navigation system was operative from 1200 hours 14 October 1982.

The approach to the new location was planed in co-operation with the rig's captain and the clients representative, Mr. Solvang.

The decision was to drop anchor No 5 when the rig was approximately 3600 feet on a bearing of 165° from location, and then move towards location whilst anchor No 1 was being prepared.

The Racal-Decca Survey personnel arrived at the D/B "NEPTUNO NORDRAUG" at 0915 hours 14 October whilst the rig was under tow to the new location 34/10-15.

First anchor was dropped 1610 hours 14 October and last anchor dropped at 0900 hours 16 October 1982.

The position was approved for drilling 1045 hours 16 October 1982.

V ENCLOSURES

statoil / NORSK HYDRO / SAGA PETROLEUM

34/10-15

COMPLETION LOG

Scale 1:500

WELL STATUS: PLUGGED AND ABANDONED

LOCATION MAP

DATE: JUNE 1983

(VSP) VELOCITY SURVEY WAS CONDUCTED BY SCHLUMBERGER. 64 CHECK SHOTS WERE TAKEN WITH LEVELS BETWEEN 233-2400 m.

Well 34/10-15	RFT DATA	Run no. 2,3
Formation		

Test no	Depth m	Cor.hydr.pr. before test bar	Cor.hydr.pr. before test (g/cc)	Cor.formation pres. bar	Cor.formation pres. (g/cc)	Cor.hydr.pr. after test bar	Cor.hydr.pr. after test (g/cc)	Remarks
1	1871	333.89	1.816	311.55	1.695	333.96	1.817	Medium permeability
2	1875	334.65	1.817	311.97	1.693	334.65	1.817	Very good perm.
3	1880.5	335.75	1.817	312.73	1.692	335.89	1.818	Very good perm.
4	1886	336.75	1.817	313.28	1.690	336.86	1.818	Very good perm.
5	1892	337.96	1.818					Seal failure
6	1892	337.96	1.818					Seal failure
7	1898.5	338.93	1.817	314.45	1.686	338.93	1.817	Good perm.
8	1904	340.10	1.818	314.93	1.683	340.17	1.819	Poor perm.
9	1907	340.44	1.817	315.28	1.682	340.44	1.817	Good perm.
10	1916.5	342.03	1.817	316.24	1.679	342.03	1.817	Med. perm.
11	1924	343.48	1.817	317.07	1.677	343.48	1.817	Med. perm.
12	1933	345.20	1.818	318.59	1.677	345.13	1.818	Poor perm. (super charged?)
13	1956	348.99	1.816	320.72	1.669	349.06	1.817	Med perm.
14	2226.5	396.29	1.812	350.09	1.601	396.19	1.812	Very good perm.
15	1875	334.79	1.817	312.17	1.694			Tried to sample, plugged.
16	1875.5	334.72	1.817	312.24	1.694			Sampling, part. plugged 2 3/4-gall 1 -gall - failed

STATOIL DATA PROCESSING CENTER

PLOT MADE BY: 34-10-15 **DATE:** 13.21.47 7 JUNI 1983

DEPARTMENT : LET/BER

ADDRESS/BOX : HER

OTHER INFO : -

GRAPHICAL LOG-PRESENTATION

WELL : 34-10-15 DEPTH INTERVALL :1825.00-1975.00 (METER)

ENGINEER :PS SCALE 1:500

DATE: 13.22.00 7 JUNI 1983

STATOIL

STRATIGRAPHY (REF. RKB=25 M)

TOP DRAKE	1827 M
TOP COOK III	1870 M
TOP COOK II	1901 M
TOP COOK I	1968 M
TOP BURTON	2034 M

P E T R O P H Y S I C A L E V A L U A T I O N

INPUT PARAMETERS

RW=0.075	RMF=0.085	RSH=1.0	PHINSH=0.45	RHOHC=0.79 G/CM**3
M=2.15	N=2	A=.62	RHOBSH=2.30	TEMP=.60 (DEG C)

STATISTICS

INTERVAL (COOK) .... 1870.0 M-2034.0 M (RKB)

GROSS THICKNESS	164.00 M			
NET SAND (VSH<0.40 PHIF>0.10)	52.50 M			
NET PAY (VSH<0.40 PHIF>0.10 SW<0.60)	0.00 M			

INTERVAL (COOK III) .... 1870.0 - 1901.0 M (RKB)

		AVG VSH	AVG PHIF	AVG SW
GROSS THICKNESS	31.00 M	0.139	0.273	0.879
NET SAND (VSH<0.40 PHIF>0.12)	30.00 M	0.139	0.279	0.874
NET PAY (VSH<0.40 PHIF>0.12 SW<0.65)	0.00 M	-	-	-

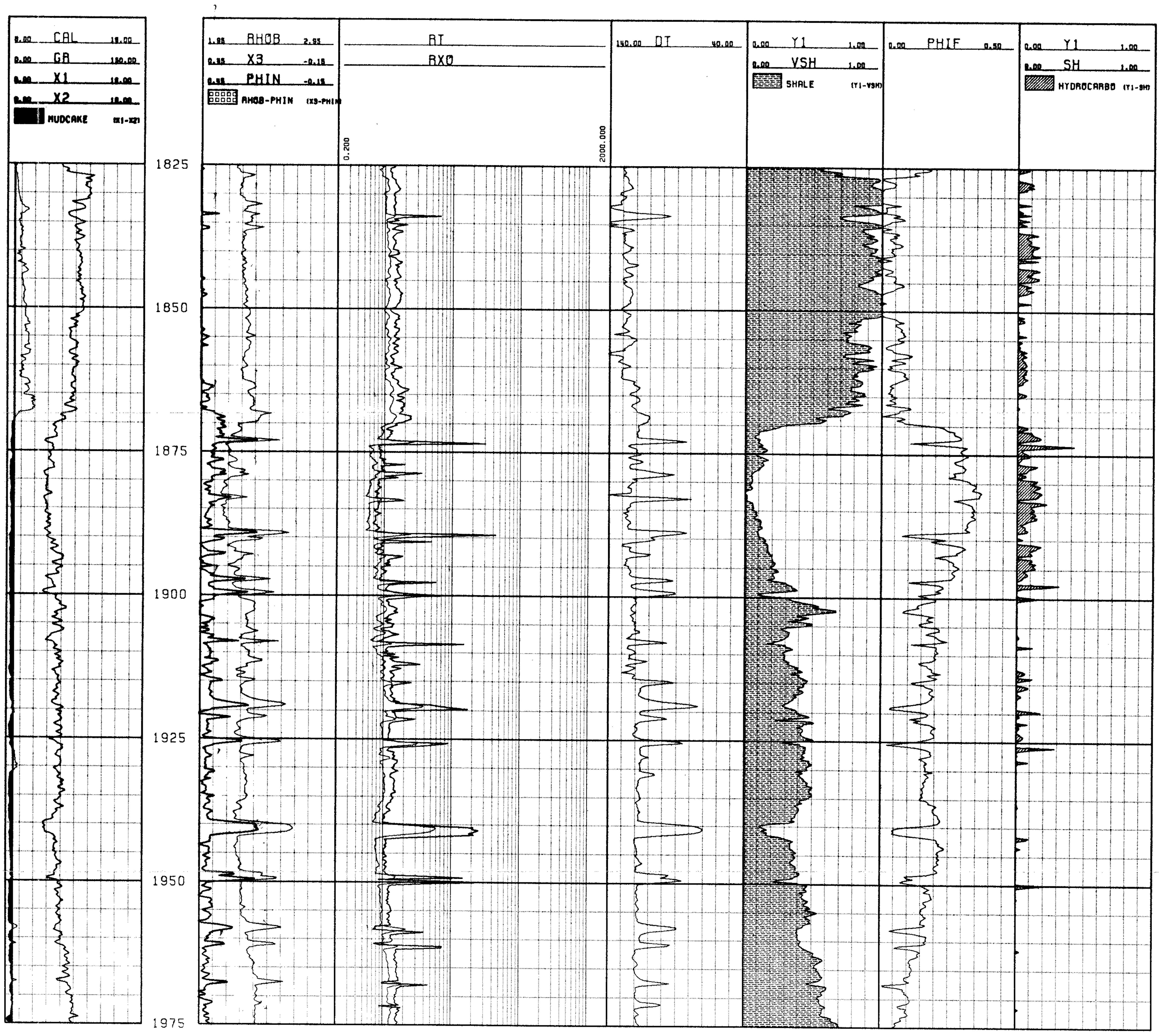
INTERVAL (COOK II) .... 1901.0 - 1968.0 M (RKB)

		AVG VSH	AVG PHIF	AVG SW
GROSS THICKNESS	67.00 M	0.410	0.160	0.974
NET SAND (VSH<0.40 PHIF>0.12)	22.50 M	0.342	0.197	0.971
NET PAY (VSH<0.40 PHIF>0.12 SW<0.65)	0.00 M	-	-	-

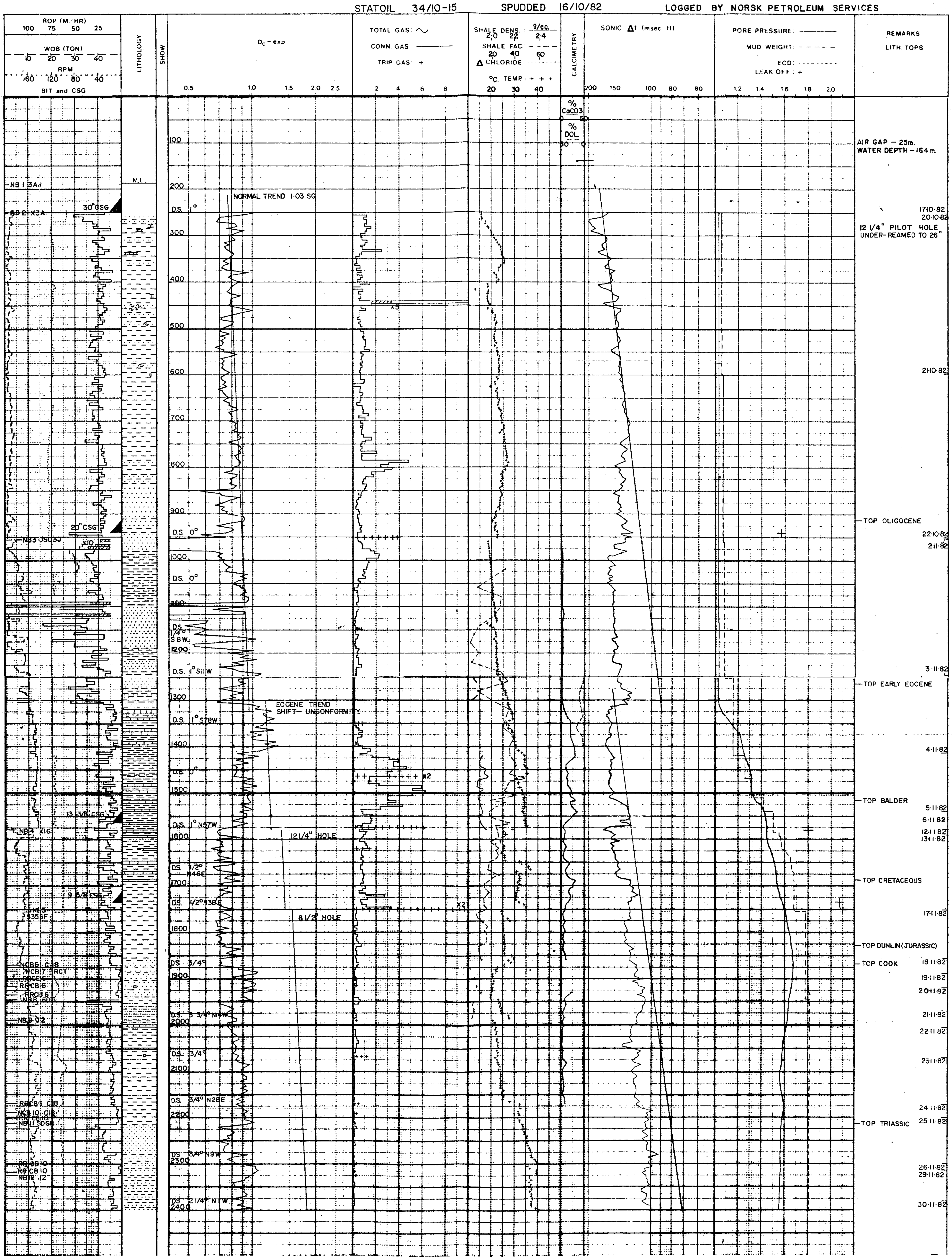
INTERVAL (COOK I) .... 1968.0 - 2034.0 M (RKB)

GROSS THICKNESS	66.00 M
NET SAND (VSH<0.40 PHIF>0.12)	0.00 M
NET PAY (VSH<0.40 PHIF>0.12 SW<0.65)	0.00 M

PREPARED BY PS



STATOIL 34/10-15 SPUDDED 16/10/82 LOGGED BY NORSK PETROLEUM SERVICES




ROP(m/HR)
WOB(TON)
RPM
BIT & CSG
LITHOLOGY
%
Depth from RKB
SHOW
TRACE
FAIR
GOOD
GAS %
Total Gas
C1
C2
C3
C4
LITH. INTER.
LITH. DESCRIP.
MUD PROP.
REMARKS
DATES
OPERATOR : STATOIL
COUNTRY : NORWAY
FIELD : GULLFAKS
WELL NO : 34/10-15
DRILLING PLATFORM : NEPTUNO NORDRAUG
DRILLING CONTRACTOR : ROSS DRILLING
WELL SPUDDED : 16-10-82
MUD LOGGING COMMENCED : 20-10-82
MEAN SEA LEVEL
ROP SCALE
WOB SCALE
RPM SCALE