STATOIL

PL 050
WELL 34/10-36
COMPLETION REPORT

STATOIL/NORSK HYDRO/SAGA

FEBRUAR 1993

PL 050

WELL 34/10-36

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SAGA

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1. GENERAL INFORMATION

1 GENERAL INFORMATION

1.1 Well Data Record

1.1.1	**Well Designation**	34/10-36	
1.1.2	**Well Classification**	Exploration well	
1.1.3	**Field**	Gullfaks Sør	
1.1.4	**Well Location**	see Fig 1.1.4	
	Country	Norway	
	Area	Northern North Sea	
	Licence	PL 050	
		Statoil (Operator)	85 %
		Norsk Hydro	9 %
		Saga Petroleum	6 %
	Geographic coordinates	Latitude	N 61° 06' 48.49"
		Longitude	E 02° 10' 35.15"
	UTM coordinates	UTM zone 31, CM 3°E, Ref ED-50	
		X = 455 614 mE Y = 6 775 866 mN	
	Seismic location	Line no.	ST 8720-695
		SP no.	555
	Water Depth	136 m MSL	
	Total Depth	3640 m MD RKB Driller	
		3639.9 m MD RKB Logger	
	Formation at TD	Cook Formation	

1.2 Rig Data

Rig name	Deepsea Bergen
Rig contractor	Odfjell Drilling
KB elevation	23 m

1.3 Purpose of the Well

Well 34/10-36 was the 36th well within the licence and the 6th on the Gullfaks Sør structure and was designed to test both the structural/stratigraphic potential of the Draupne sandstone, interpretated as an Upper Jurassic "turbidite sandstone", and confirm the GOC, OWC and pressure regime in the Brent Group.

The main objectives of the well can be summarised as:

- Test the hydrocarbon potential within the prognosed Upper Jurassic Draupne sandstone reservoir.
- Verify the hydrocarbon type present in the Gullfaks Sør structure.
- Verify the potential resources for the Gullfaks Sør structure.
- Verify the seismic interpretation and geological model for the Gullfaks Sør structure.
- Finished the well as a future producer/pressure monitor well.

1.4 Results of the Well

1. No part of the primary prospect, the Upper Jurassic sandstone was encountered. An attempt to core a possible Draupne sandstone was carried out in connection with a drilling break at top Draupne Formation; The core consisted entirely of claystone.

2. The Brent Group was encountered at 3361mMD RKB/3355.3mTVD RKB, 55 metres deeper than prognosed.

3. A segregated FMT sample was taken at 3368.8mMD RKB/3362.2mTVD RKB, with 3.5 l of oil, 0.2 m³ gas and 3.2 l of mudfiltrate. No CO_2 or H_2S was detected from the 2 ¾ gallon sample chamber.

4. From FMT pressure points an oil gradient of 0.741 kPa/m was plotted over the reservoir section, corresponding to an interpreted pore pressure of 1.39 SG at the top of the reservoir (Tarbert Formation).

5. The well proved oil in the Tarbert Formation down to 3377.5mMD/3371.9mTVD RKB

(OWC). The GOC was not penetrated at well location, but is estimated to be further up, than the 19 metres of expected oil zone due to FMT measurements.

6. Subsequent testing of the oil zone, from 3371.2 - 3376.2mMD RKB, yielded an oil production rate of Q_o-836 Sm^3/d with a gas-oil ratio of 193 Sm^3/Sm^3.

7. The well was drilled to a total depth of 3640mMD RKB/3634mTVD RKB alike the prognosed TD, corresponding to 86 metres into the Dunlin Group sediments and 76 metres into the Cook Formation sand.

See separate Analysis Reports for further details, and fig 1.4 for Geological Well Summary.

1.5 Well History

1.5.1 General

On license	26 April	1992	10:30 hrs
On location	28 April	1992	06:00 hrs
Spud date	28 April	1992	22:00 hrs
Finished drilling	11 June	1992	19:30 hrs
Rig release	13 July	1992	21:30 hrs
Status	Permanently plugged and abandoned as an oil discovery		

1.5.2 Contractors

Drilling contractor	Odfjell Drilling
Cementing	Halliburton
Casing	Weatherford
Coring	Eastman Christensen Ltd.
Diving	Subsea Dolphin
Electric logging	Atlas Wireline Services
VSP	Seismograph Services Limited
Helicopters	Helikopter Service A/S
MWD	Anadrill
Mud logging	Exlog Norge A/S
Mud	Anchor Drilling Fluids
Rig positioning	Geoteam/Decca
Supply boats	Gullfaks Boat Pool
Stand-by boats	"Strillos"/Møkster Rederi
Paleodating	Geostrat
Site Survey	Geoteam
Core analysis	Geco
Testing	Schlumberger

1.5.3 Casing

Table 1.5.3 refers to casing sizes and their respective depths.

CASING SIZE	DRILLERS DEPTH mMD	DRILLERS DEPTH mTVD	LEAK OFF TESTS (Eqv. Mud Weight)
30 "	220	220	
20 "	1056	1056	1.60 g/cc
13 - 3 / 8 "	2100	2099	1.76 g/cc
9 - 5 / 8 "	2994	2988.6	1.97 g/cc
7 " liner top	2838	2833	
7 " liner	3625	3619	
Total Depth	3640	3634	

Table 1.5.3: Casing Summary

1.5.4 Conventional Cores

Table 1.5.4 refers to the core intervals, recovery and applied depth shifts.

CORE No	DRILLERS Core Depth Interval	DEPTH SHIFT	CORRECTED Core Depth Interval	CORE Recovery m	CORE Recovery %
1	3029.0 - 3054.0	3.0	3032.00 - 3053.40	24.40	98
2	3363.0 - 3390.0	2.3	3365.30 - 3392.48	27.18	100
3	3390.0 - 3417.0	2.3	3392.48 - 3418.99	26.51	98.2

Table 1.5.4: Coring Summary

Core depths are corrected from Driller's depths to Electric log depth by using "Core Gamma Surface Log" from the corehandling laboratory.

1.5.5 Sidewall Cores

Table 1.5.5 refers to the sidewall core runs and their respective recoveries.

Run no	Interval (mRKB)	Shot	Lost	Misf	Empty	Recov	Recov %
3A (*1)	3634.0 - 3055.0	50	9	4	0	37	74

Table 1.5.5: Sidewall Coring Summary

(*1) Reference log DIFL-ACL-GR Run no. 3C.

see Appendix II for SWC descriptions.

1.5.6 Mud Logging

For details see separate report, Exlog's End of Well Report - Statoil Well 34/10-36.

1.5.7 Logging

1.5.7.1 Electric Logging

Table 1.5.7.1 lists the individual electric log runs for well 34/10-36.

Wireline logging was performed by Atlas Wireline Services (AWS) and Seismograph Services Limited (SSL) performed the VSP (section 1.5.8). Please refer to Section 3 - Engineering Report for a full explanation of Pressures and Temperatures.

1.5.7.1 Electric Logging (cont.)

HOLE SIZE (IN)	LOG TYPE	RUN NO	LOGGED INTERVAL (mRKB)
36" (9-7/8")	MWD	1	159.0 - 859.0
26"	MWD	2	226.0 - 1071.0
17-1/2"	MWD	3 - 5	1071.0 - 2115.0
	DIFL - ACL - GR	1 A	1056.0 - 2088.0
12-1/4"	MWD	6 - 10	2115.0 - 3010.0
	DIFL - ACL - GR - CAL	2 B	2097.5 - 3011.7
	CBL - VDL - GR	2 A	825.0 - 2097.5
8-1/2"	MWD	11 - 13	3010.0 - 3640.0
	DIFL - ACL - GR - CAL	3 C	2993.0 - 3637.0
	CBL - VDL - GR	3 B	1900.0 - 2994.0
	CBL - VDL - GR	4 C	2775.0 - 3574.0
	ZDL - CNL - GR	3 A	2993.0 - 3636.5
	DLL - MLL - GR	3 A	2993.0 - 3637.0
	FMT - GR	3 A	3131.5 - 3533.0
	DIPLOG - GR	3 A	3215.8 - 3637.0
	CORGUN - GR	3 A	3055.0 - 3634.0
	VSP	4 A	139.0 - 2760.0
	(Run in 7" Liner)		(20 m Intervals)
			2760.0 - 3570.0
			(10 m Intervals)

Table 1.5.7.1: Wireline Logging Summary

1.5.7.2 MWD Logging

Table 1.5.7.2 lists the MWD runs in well 34/10-36. The MWD was run in all hole sections over the interval 159 - 3640mMD RKB. The service included gamma - ray, resistivity and directional data. See separate report from Anadrill for further details.

RUN NO	HOLE SIZE (in)	INTERVAL (mRKB)	COMMENTS
1	9-7/8"	159.0 - 859.0	Pilot Hole - ok
2	26"	226.0 - 1071.0	Open up pilothole down to 859.0m, drill 26" hole to 1071.0m - ok
3	17-1/2"	1071.0 - 1171.0	Drill out 20" shoe - failed
4	17-1/2"	1171.0 - 1918.0	POOH bit run - ok
5	17-1/2"	1918.0 - 2115.0	TD 17 1/2" hole - ok
6	12-1/4"	2115.0 - 2350.0	POOH bit run - ok
7	12-1/4"	2350.0 - 2426.0	POOH bit run - ok
8	12-1/4"	2426.0 - 2661.0	POOH bit run - ok
9	12-1/4"	2661.0 - 2825.0	POOH bit run - ok
10	12-1/4"	2825.0 - 3010.0	TD 12 1/4" hole - ok
11	8-1/2"	3010.0 - 3029.0	Drilled out 9 5/8" shoe - failed.
12	8 1/2"	3054.0 - 3363.0	POOH coring point - ok
13	8 1/2"	3417.0 - 3640.0	TD - ok

Table 1.5.7.2: MWD Summary

(Note: ok in Comments indicates that an acceptable log has been acquired)

1.5.8 **Velocity Survey** (depth in loggers mRKB)

The VSP was conducted by Seismograph Services Limited (SSL). A 128 levels from 139.0 to 3570.0 mRKB were completed, with 20 m intervals recorded from 139.0 to 2760.0 m and 10 m intervals recorded from 2760.0 to 3570.0 m, including check shots. See separate Well Velocity Report for further details.

1.6 List of additional available Reports from the Well

Anadrill	: End of Well Report
Anchor	: Drilling Fluids Summary
Atlas	: Diplog results listing
Eastman Teleco	: Coring Report
Exlog	: Final Well Report
Geco	: Conventional core analysis : Core photos
Geoteam/Decca	: Navigation and Positioning report
Geostrat	: Biostratigraphy report.
Geoteam	: Site Survey
Halliburton Services	: Operational report Manual
SSL	: Well velocity report
Schlumberger	: Well Testing Report, DST 1
Statoil	: Well programme 34/10-36, PL 050 : Well Test Programme : Geochemical evaluation Report

2. GEOLOGICAL REPORT

2 GEOLOGICAL REPORT

2.1 Stratigraphy

2.1.1 Table of Chronostratigraphy:

Table 2.1.1 are based on the biostratigraphic report from Geostrat and revised according to Statoil's own internal biozonation. No samples were collected above 1070 mRKB, and tops down to this level are based on MWD-log interpreta-tions and information from adjacent wells.

Note that the cause for any given missing section in the biostratigraphic sequence is not entered into in this report. Generally however, the cause maybe a function of either i) a poor sampling rate and or ii) geological conditions, resulting in flooding surfaces, condensed sequences, unconformities or sequence boundaries.

Please refer to Geostrat's report "Statoil well 34/10-36 Biostratigraphic analysis of the interval 1070 - 3640m, for more detailed information.

Chronostratigraphic succession for well 34/10-36 is:

2.1.1 Chronostratigraphy cont...

PERIOD / EPOCH	SERIES / STAGE	DEPTH in mRKB
QUATERNARY	Holocene to Pleistocene -Interpreted from MWD and nearby wells	136 (Seafloor)
------------------------	--	--
	Upper Oligocene (top not seen)	1080 - 1180
	Lower Oligocene	1190 - 1480
	Upper - Middle Eocene	1490 - 1610
TERTIARY	Middle - Eocene	1630 - 1750
	Lower Eocene	1760 - 1839
	Lowermost Eocene	1854 - 1899
	Upper Paleocene	1914 - 2019
	Lower Palaeocene	2034 - 2049
------------------------	Upper Maastrichtian	2064 - 2130
	Lower Maastrichtian	2160 - 2220
	Upper Campanian	2250 - 2340
	Lower Campanian	2370 - 2580
UPPER	Upper Santonian	2610 - 2670
	Lower Santonian	2700 - 2850
	Coniacian	2880
	----------------? Hiatus --------------	--
	Middle - Lower Turonian	2909 - 2969
CRET -----------	----------------- Hiatus ---------------	--
	Upper Albian	2999
	----------------- Hiatus ---------------	--
	Lower Albian	3005 - 3011
LOWER	----------------- Hiatus ---------------	--
	Lower Barremian	3017
	----------------- Hiatus ---------------	--
	Upr Ryazanian - ? Upr Volgian	3026
	Upper Volgian	3029
------------------------	Lower Volgian - ? Kimmeridgian	3033 - 3049.95
	Kimmeridgian	3053.3 - 3120
	----------------- Hiatus ---------------	--
UPPER	Upper Oxfordian	3125
	----------------? Hiatus --------------	--
	Middle Oxfordian	3130 - 3150
	Lower Oxfordian	3160
JURA -------------	Callovian	3164 - 3194
	Lwr Callovian - Upr Bathonian	3203 - 3236
	Middle Bathonian	3245 - 3269
MIDDLE	Lower Bathonian	3281 - 3408.7
	Upper Bajocian	3410.5 - 3449
	Lower Bajocian	3458 - 3545
	Aalenian	3555
JURA -------------	Upper Toarcian	3557 - 3573
	Lower Toarcian	3584 - 3596
LOWER	Upr Pliensbachian (base not seen)	3610 - 3640

Table 2.1.1 Chronostratigraphic Summary

2.1.2 Table of lithostratigraphy:

The lithostratigraphic tops intersected in well 34/10-36 are interpretated from a combination of log response, cuttings description and biostratigraphy.

LITHOSTRATIGRAPY TOPS	DEPTH mRKB	DEPTH mMSL	TWT sec	THICKNESS meters
NORDLAND GROUP	159.0	136.0	0.184	794.0
Utsira Formation	853.0	830.0	-	100.0
HORDALAND GROUP	953.0	930.0	-	888.0
ROGALAND GROUP	1842.0	1818.0	1.833	219.0
Balder Formation	1842.0	1818.0	1.833	79.0
Sele Formation	1921.0	1897.0	1.890	30.5
Lista Formation	1951.5	1927.5	1.916	97.5
Våle Formation	2049.0	2025.0	2.002	12.0
SHETLAND GROUP	2061.0	2037.0	2.011	934.0
Jorsalfare Formation	2061.0	2037.0	2.011	288.0
Kyrre Formation	2349.0	2325.0	2.224	528.5
Blodøks Formation	2881.5	2853.5	2.601	117.5
CROMER KNOLL GP	2999.0	2971.0	2.679	27.0
VIKING GROUP	3026.0	2998.0	2.697	334.0
Draupne Formation	3026.0	2998.0	2.697	98.5
Heather Formation	3125.0	3096.5	2.772	235.5
BRENT GROUP	3361.0	3332.0	2.925	194.5
Tarbert Formation	3361.0	3332.0	2.925	87.0
Ness Formation	3448.0	3419.0	2.973	63.0
Etive Formation	3511.0	3482.0	3.008	12.5
Rannoch Formation	3523.5	3494.5	3.015	31.5
DUNLIN GROUP	3555.0	3526.0	3.030	base not seen
Drake Formation	3555.0	3526.0	3.030	10.5
Cook Formation	3565.5	3536.5	3.036	base not seen
TD	3640.0	3634.0		

Table 2.1.2: Lithostratigraphic Summary

2.2 Lithological Description

2.2.1 General Information

System, Series, Stage:
Estimations are partly based on log interpretations/correlations and partly on the biostratigraphic report.

Lithology:
Interpretation's are based on wellsite samples, sidewall core samples and conventional core descriptions, shown in appendix's I, II & III.

Depositional environment:
Based on earlier regional interpretations, biostratigraphic report and core analysis.

All depths in this summary refer to Rotary Kelly Bushing; RKB to Sea level 23m

2.2.2 Geological Summary

QUATERNARY

NORDLAND GROUP 159 - 301 mRKB (136 - 278 mMSL TVD)
Stage: Holocene - Pleistocene
Depositional environment: Glacial - Glaciomarine

This section was drilled with MWD and returns to seabed. The Quaternary sediments are interpreted from the MWD log to consist of interbedded clay and sand. The sand layers are from 1 to 10 meter thick, and clearly visible on the MWD log. They are all water wet. No shallow gas was observed. The base of the Quaternary is picked at a resistivity break and a slight increase in the general gamma-ray level at 301 mRKB.

TERTIARY

NORDLAND GROUP 301 - 953 mRKB (278 - 930 mMSL TVD)
Stage: Pliocene - Miocene (assumption)
Depositional environment: Marine - Inner Shelf (assumption)

UTSIRA FORMATION 853 - 953 mRKB (830 - 930 mMSL TVD)
Stage: Miocene (assumption)
Depositional environment: Marine - Inner Shelf (assumption)

All of the Nordland Group including the Utsira Formation down to 953 mRKB was drilled without returns. The main part of these Tertiary sediments are interpreted from MWD to consist of mainly clay/claystones with minor sand and silt stringers. The Utsira sand consist of two sands separated by a 24 m thich claystone section. The boundary at the top of the Utsira Formation is marked by a clear decrease in both gamma-ray and resistivity.
The lower boundary at 953 mRKB is marked by an increase in gamma ray and resistivity representing the transition to the underlying Hordaland group.

HORDALAND GROUP 953 - 1842 mRKB (930 - 1818 mMSL TVD)
Stage: Oligocene - Lower Eocene
Depositional environment: Marine, Outer Shelf to Upper Bathyal, shallowing to Marine, Outer to Mid Shelf

The Hordaland Group consists of interbedded silty claystone and sandstone down to 1592 m, and claystone with limestone stringers from 1592 m and down to the top of the Rogaland Group.
The claystone is olive grey to dark green grey, becoming in parts grey green to dusky green to medium dark grey in the middle to lower part of the group. From 1775 m and down it is interbedded with a grey red to red brown claystone. It is silty and in

parts slight to very sandy, firm to moderately hard, blocky, micromicaceous, occasionally micropyritic, and non calcareous. Below 1775 m it is slightly tuffaceous with white and black specks.
The sandstone occurs predominantly as loose sand and occasionaly as slightly cemented sandstone. The sand consists of clear quartz and in the upper part partly of rock fragments, it is medium to coarse, occasionally very coarse to peebly, the grains are round to subangular, poor to moderately sorted and loose.
The cemented sandstone is greenish white and consists of clear quartz partly with abundant glauconite, the sandstone is fine to medium, moderately sorted and has an argillaceous matrix, it is slight silica cemented and very friable. Visual porosity is poor.
The limestone is medium grey to light brown grey to white, with a variable argillaceous content, soft to hard, amorphous to blocky and micritic to crystalline. Traces of dolomite is also seen in the lower part of the group.
The lower boundary at 1842 mRKB is defined by a gradual increase in sonic velocity, as well as in resistivity and a more irregular gamma ray response ending in an overall decrease, representing the transition to the underlying tuffaceous Balder Formation.

ROGALAND GROUP 1842 - 2061 mRKB (1818 - 2037 mMSL TVD)

BALDER FORMATION 1842 - 1921 mRKB (1818 - 1897 mMSL TVD)
Stage: Lowermost Eocene - Upper Palaeocene
Depositional environment: Marine, Outer Shelf, shallowing to Marine Inner Shelf

The Balder formation consists of tuffaceous claystones and tuffs with limestone stringers. The claystones are varicoloured, but dark green grey to blue grey to medium grey types prevail, they are soft to firm, blocky, micromicaceous in parts and slight to moderately calcareous. White and black specks are common, and the claystones grade in parts to harder tuffs with glassy inclusions.
The limestone is medium grey to light brown grey to white, with a variable

argillaceous content, soft to hard, amorphous to blocky and micritic to crystalline. The lower boundary is defined by a gradual increase in gamma ray, decreasing sonic velocity and a more monotonous and decreasing resistivity, representing the underlying Sele formation.

SELE FORMATION 1921 - 1951.5 mRKB (1897 - 1927.5 mMSL TVD)
Stage: Upper Palaeocene
Depositional environment: Marine, Outer Shelf, shallowing to Marine Inner Shelf

The Sele Formation consists of claystone. The claystone is partly green grey to olive grey, and partly medium grey to medium light grey, it is soft to moderately hard, amorphous to blocky, silty to sandy in parts, micromicaceous in parts, occasionally micropyritic and non to slight calcareous. It also seems to be slightly tuffaceous in parts.
The lower boundary is defined by a slight decrease in gamma-ray and with a small break in the resistivity representing the transition to the underlying Lista Formation.

LISTA FORMATION 1951.5 - 2049 mRKB (1927.5 - 2025 mMSL TVD)
Stage: Upper Palaeocene - Lower Palaeocene
Depositional environment: Marine, Outer Shelf, shallowing to Marine Inner Shelf

The Lista Formation consists of claystone with limestone stringers.
The claystone is the same as described under the Sele Formation.
The limestone is medium grey to light brown grey to white, with a variable argillaceous content, soft to hard, amorphous to blocky and micritic to crystalline.
The lower boundary is defined by an increase in gamma ray and resistivity as well as an increased sonic velocity representing the transition to the underlying Våle Formation.

VÅLE FORMATION 2049 - 2061 mRKB (2025 - 2037 mMSL TVD)
Stage: Lower Palaeocene (?)
Depositional environment: Marine, Outer Shelf, shallowing to Marine Inner Shelf

The Våle Formation consists of claystones with thin stringers of limestone.
The claystones are medium dark grey to dark green grey, slight to partly very silty and sandy. It is blocky, occasionally subfissile, micromicaceous, occasionally slightly micropyritic, as well as tuffaceous with black to translucent glassy specks, and non to slightly calcareous.
The limestone is described as off-white to medium brown, slightly to very argillaceous, microcrystalline to micritic and blocky.
The lower boundary is defined by a slight decrease in gamma ray, which becomes more monotonous. Both resistivity as well as sonic velocities increase gradually to slightly higher values, representing the transition to the underlying Shetland Group.

CRETACEOUS

SHETLAND GROUP 2061 - 2999 mRKB (2037 - 2971 mMSL TVD)

JORSALFARE FORMATION 2061 - 2349 mRKB (2037 - 2325 mMSL TVD)
Stage: Upper Maastrichtian - Upper Campanian
Depositional Environment: Marine, Outer Shelf to Upper Bathyal

The Jorsalfare Formation consists of claystone, occasionally turning into marl, with beds/stringers of limestone and minor dolomite.
The claystone is dark green grey to green grey, olive grey and medium dark grey to medium light grey.
The claystone is predominantly soft to firm, blocky to amorphous, but occasionally subfissile. It is generally silty to very silty grading into siltstone, slightly micromicaceous and occasionally micropyritic and slightly glauconitic. Furthermore it is

generally somewhat calcareous and occasionally very calcareous grading to marl.
The limestone is off white to light grey, occasionally brownish grey, soft to hard, crystalline, non to very argillaceous, and occasionally amorphous.
The dolomite is moderately brown, moderate hard to hard, crystalline to microcrystalline and blocky.
The siltstone is green grey, firm, calcareous and microglauconitic.
The marl is medium light grey, silty and amorphous.
Traces of pyrite, glauconite and microfossils are seen throughout.
The lower boundary is picked coinciding with a decrease in gamma ray and an increase in sonic velocity and resistivity as a response to the sandy top section of the Kyrre Formation.

KYRRE FORMATION 2349 - 2881.5 mRKB (2325 - 2853.5 mMSL TVD)
Stage: Lower Campanian to Coniacian
Depositional Environment: Marine, Outer Shelf to Upper Bathyal

The Kyrre Formation consists of claystones and occasional thin stringers of limestone and a sandy section in the top part of the formation.
The claystones are medium grey to dark grey and green grey to dark green grey and in the lower parts olive grey is also present. In the upper part, marly greyish red to moderate brown claystone is reported.
The claystones are predominantly soft, blocky to amorphous, and occasionally firm. They are also slightly sticky to sticky, slightly silty to sandy and slightly calcareous to calcareous.
The limestone is off-white to light grey and olive grey. In the upper parts it is soft becoming firm to moderate hard with depth. It is everything from microcrystalline to crystalline, argillaceous to occasionally very argillaceous, occasionally light brown and brownish grey and slightly dolomitic.
The sand is very fine to coarse and loose.
The boundary to the underlying Blodøks Formation is defined by a subtle increase in in resistivity and sonic velocity and very difficult to pick.

BLODØKS FORMATION 2881.5 - 2999 mRKB (2853.5 - 2971 mMSL TVD)

Stage: Middle - Lower Turonian

Depositional Environment: Marine, Outer Shelf to Upper Bathyal

The Blodøks Formation consists of claystone with thin stringers of limestone, dolomite and siltstone.

The claystone is dark grey to medium dark grey, firm, blocky to subfissile, calcareous to very calcareous, occasionally marly: Slightly micromicaceous and rarely greyish red to moderate brown and greenish grey.

The limestone is white to very light grey, firm and argillaceous.

The dolomite is greyish orange to moderate brown, moderate hard, angular and cryptocrystalline.

The siltstone is greenish grey, firm, calcareous and microglauconitic.

Pyrite and sand is seen as trace throughout the formation.

The boundary to the underlying Cromer Knoll Group is defined by a clear decrease in gamma-ray response.

CROMER KNOLL GROUP 2999 - 3026 mRKB (2971 - 2998 mMSL TVD)

Stage: Upper Albian - Upper Ryazanian - ?Upper Volgian

Depositional Environment: Marine, Inner to Outer Shelf

The Cromer Knoll Group, comprises claystone, limestone beds and minor sandstone.

The claystone is grey red to dark red brown, soft to firm, slightly sticky, blocky to amorphous and slightly calcareous to calcareous, occasionally pale red brown and very calcareous to marly. Some medium grey to medium dark grey, soft to firm, calcareous to marly claystone is also present.

The limestone is white to very light grey, soft to firm and blocky to amorphous and also light grey to olive grey, firm to moderately hard and cryptocrystalline.

The sandstone consists of very light grey and clear quartz, very fine to fine grained, well sorted, subangular, moderate hard, calcite cemented, glauconitic, slightly

argillaceous and with poor visible porosity.
The lower boundary of the Cromer Knoll Group is defined by a sharp increase in gamma ray and a decrease in both resistivity and sonic velocity corresponding to the transition to the underlying Draupne Formation.

JURASSIC

VIKING GROUP 3026 - 3361 mRKB (2998 - 3332 mMSL TVD)

DRAUPNE FORMATION 3026 - 3125 mRKB (2998 - 3096.5 mMSL TVD)
Stage: Upper Volgian - Upper Oxfordian
Depositional Environment: Marine, Mid to Outer Shelf

The Draupne Formation consists of "hotshales", with a few sandstone stringers towards the base.
The claystones varies from olive black and greyish black to dusky yellow brown types. They are blocky to subfissile, moderately hard, and carbonaceous to very carbonaceous with plant fossils in parts.
Both micromica and micropyrite are common, and they are mostly non calcareous, occasionally more silty laminaes are seen.
In the lower part traces of sandstone occur. They are light grey with clear to translucent quartz, which are very fine to fine, well sorted and subrounded. The sandstones are friable to moderately hard, calcareous cemented, and with poor visible porosity.
Dull yellow direct fluorescence are seen in the sandstones, and with slow streaming yellow white cut fluorescence.
The base of the Draupne Formation coincides with a significant decrease in gamma ray, a temporary decrease in resistivity and an increase in sonic velocity.

HEATHER FORMATION 3125 - 3361 mRKB (3096.5 - 3332 mMSL TVD)

Stage: Upper Oxfordian - Lower Bathonian

Depositional Environment: Marine, Inner Shelf

The Heather Formation consists of claystones with stringers of limestones and occasionally a few sand stringers.

The claystones are described as olive grey, brownish grey to dusky yellow brown, and medium dark grey, sometimes brownish black.

They are soft to moderately hard, soluble in part, and amorphous, blocky, or subfissile. Sometimes they are very silty or sandy, almost grading to siltstones. Micromica and micropyrite are described, and generally the claystones are non to slightly calcareous, but occasionally moderately calcareous. Carbonaceous material is frequently seen.

The limestone stringers varies from light olive grey through yellow brown to greyish brown, and off white to light grey. They are firm to moderately hard, with micritic to microcrystalline texture. Some are pyritic, occasionally dolomitic, and often argillaceous.

The few sandstone stringers seen were mostly in the uppermost part. They consists of clear to smoky quartz which are medium grained and well sorted, subangular to subrounded. Only loose grains were seen, and sometimes these grains had a brownish black coating.

No shows were experienced in the sands.

Base of the Heather Formation is marked by a decreasing gamma-ray and an increase in sonic velocity corresponding with entering the Brent Group.

BRENT GROUP 3361 - 3555 mRKB (3332 - 3526 mMSL TVD)

TARBERT FORMATION 3361 - 3448 mRKB (3332 - 3419 mMSL TVD)

Stage: Lower Bathonian - Upper Bajocian

Depositional Environment: Fluvial - Deltaic

The Tarbert Formation of the Brent Group consists of sandstones, which below 3396m becomes interbedded with claystones, coal and occasional limestone stringers. The sandstones are dark yellow brown to medium grey, becoming light olive grey to light brown grey, clear to translucent quartz. The sandstone are very fine to very coarse grained, poorly to well sorted, angular to rounded, moderately hard, predominately silica cemented, occasionally with very hard zones of calcareous cement. They are in part slightly to very argillaceous, micaceous, carbonaceous to very carbonaeous, kaolonitic in parts and pyritic to very pyritic below 3396m. The visable porosity is poor to exellent.

The claystones are olive grey to dark yellow brown to dark brown grey to brown black to grey black in color. They are firm to moderately hard and blocky to subfissile. They are in part slightly silty to very silty, occasionally sandy, micromicaceous, carbonaceous to very carbonaceous grading to coal, and non calcareous.

The limestones are light grey to white and brown grey to olive grey in color. They are firm to hard, blocky and microcrystalline. They are in part argillaceous, sandy and dolomitic.

The coals are brown black to black, hard to moderately hard, brittle and shiny.

The base of the formation is defined by a more fluctuating gamma-ray pattern, slightly lower resistivities and slight shift towards lower sonic velocities when entering the Ness Formation.

NESS FORMATION 3448 - 3511 mRKB (3419 - 3482 mMSL TVD)

Stage: Upper -Lower Bajocian

Depositional environment: Fluvial - Deltaic

The Ness Formation of the Brent Group consists of interbedded sandstones, claystones and siltstones with coal/carbonaceous horizons and limestone stringers. The sandstones are light olive grey to light brown to light grey in color, with light yellowish to clear, translucent quartz grains. They are very fine to fine grained, medium grained in part, fair to well sorted, subangular to subrounded, friable to moderately hard, predominately silica cemented, with calcareous and kaolinitic cement. They are slightly micaceous to micaceous, slightly carbonaceous in parts, pyritic, kaolinitic to very kaolinitic. The visable porosities are fair to poor.
The claystones are olive grey to dark yellow brown to dark brown grey to brown black to grey black in color. They are firm to moderately hard and blocky to subfissile. They are in part slightly silty to very silty, occasionally sandy, micromicaceous, carbonaceous to very carbonaceous grading to coal, and non calcareous.
The siltstones are light grey to light olive grey to brown grey in color. They are friable to firm, blocky to amorphous, argillaceous to very argillaceous and micromicaceous. In part they are slightly carbonaceous and exhibit slight traces of pyrite. They are non calcareous.
The coals are brown black to black, hard to moderately hard, brittle and shiny. They are in part argillaceous to very argillaceous, grading to carbonaceous claystones.
The base of the formation is defined by a clear decrease in gamma-ray and resistivity and a more monotonous pattern in sonic velocity when entering the Etive Formation.

ETIVE FORMATION 3511 - 3523.5 mRKB (3482 - 3494.5 mMSL TVD)
Stage: Lower Bajocian
Depositional environment: Fluvial - Deltaic

The Etive Formation in the Brent Group consists of sandstone.
The sandstone is yellow brown to light grey in color with clear and yellow brown translucent quartz grains. It is medium to very coarse grained, moderately sorted, subangular to subrounded, friable to moderately hard, silica cemented, micaceous and slightly argillaceous. It is in part kaolinitic. The visable porosity is fair to good.
The base of the formation is defined by a clear increase in gamma-ray and resistivity and a slight decrease in sonic velocities when entering the Rannoch Formation.

RANNOCH FORMATION 3523.5 - 3555 mRKB (3494.5 - 3526 mMSL TVD)
Stage: Lower Bajocian - Aalenian
Depositional environment: Fluvial - Deltaic

The Rannoch Formation consists of sandstones with interbedded claystones and traces of coal.
The sandstones are light grey to pale yellow brown in color with clear and pale yellow translucent quartz grains. They are very fine to medium grained, occasionally coarse grained, moderately sorted, subangular to subrounded, friable to moderately hard, silica cemented, micaceous to very micaceous and kaolinitic to occasionally very kaolinitic. They are in part slightly calcareous to calcareous and slightly pyritic to pyritic. The visable porosities are fair to poor.
The claystones are dark yellow brown to brown black to grey black in color. They are moderately hard, blocky to subfissile, micromicaeous and carbonaceous to very carbonaceous. They are in part slightly silty to silty. They are non calcareous.
The coal is brown black to black, hard, brittle and shiny. It is in part argillaceous.
The base of the formation is defined by an increase in gamma-ray and a subtle decrease in sonic velocities, when entering the Drake Formation.

DUNLIN GROUP 3555 - 3640 mRKB (TD) (3526 - 3634 mMSL TVD)

DRAKE FORMATION 3555 - 3565.5 mRKB (3526 - 3536.5 mMSL TVD)
Stage: Aalenian - Upper Toarcian
Depositional environment: Marine, Inner Shelf

The Drake Formation consists of silty claystone.
The claystone is dusky yellow brown to brown black in color. It is firm to moderately hard, blocky to subfissile, silty to occasionally very silty, grading to siltstone, micaceous and have traces of pyrite. It is sandy in part and non calcareous.
The base of the formation is defined by a decrease in gamma-ray and an increase in both resistivity and sonic velocity, when entering the Cook Formation.

COOK FORMATION 3565.5 - 3640 mRKB (TD) (3536.5 - 3634 mMSL TVD)
Stage: Upper Toarcian - Upper Pliensbachian
Depositional environment: Marine, Inner Shelf

The Cook Formation of the Dunlin Group consists of sandstones near the top and claystones and siltstone/claystone towards TD with minor limestone stringers.
The sandstones are light to medium grey in color with clear to translucent quartz grains. They are very fine to fine grained, moderately sorted, subangular to subrounded, moderately hard to hard, calcareous cemented, micaceous, slightly to very pyritic and slightly argillaceous to argillaceous. There are no to poor visable porosity.
The claystones are dusky yellow brown to brown black in color. They are firm to moderately hard, blocky to subfissile, silty to occasionally very silty grading to siltstone, micaceous and pyritic. they are in part sandy, carbonaceous and exhibit waxy texture. They are non calcareous.
The siltstones/claystones are light olive grey to dark olive grey in color. They are firm, blocky to amorphous, micaceous and with traces of pyrite. They are in part

sandy to very sandy grading to argillaceous sandstone. They are occasionally noncalcareous to slightly calcareous, but are predominately moderately to very calcareous grading to marl and argillaceous limestone.

The limestones are light grey to dark grey brown to olive grey in color. They are firm to moderately hard, cryptocrystalline, blocky, silty, sandy and very argillaceous, grading to marl.

3. ENGINEERING REPORT

3 ENGINEERING REPORT

3.1 Pressure Plot

The pressure plot for well 34/10-36 is shown in figure 3.1. A normal pore pressure gradient of 1.03 g/cc is estimated down to approximately 1600 m RKB. From this depth the pressure is estimated to increase to 1.27 g/cc at 2000 m RKB. Pressure drops again to 1.24 g/cc at about 2160 m followed bye an increase to 1.30 g/cc at about 2325 m RKB. Then the pressure is estimated to be constant down to lower part of Shetland Group, but between 2800 m and into upper part of Viking Group the pressure increases to 1.40 g/cc. The pressure remains at this level through the Viking Group, and into the top of the Tarbert Formation.
The FMT results gives a pressure of 1.39 g/cc in the Tarbert Formation. By using oil and water gradients the pressure at TD is calculated to 1.36 g/cc.
The overburden gradient in the pressure plot in Fig. 3.1 is from the pressure prognosis. No density log was run until the 8 1/2" hole section, so this gradient has not been updated.

3.2 Temperature Data

The temperature plot for the well is shown in figure 3.2. Table 3.2.1 shows the observed temperatures from electric logs and the Drill Stem Test.

LOG / TEST	RUN no.	LOG depth m MDRKB	Rec. temp. C	Time since end of circ. (hrs)	Circ. time (hrs)
DIFL-ACL	1A	2069	55.0	12 h	3 h
DIFL-ACL	2B	2983	90.5	27 h	1 h 30 min
DIFL-ACL	3C	3620	100.0	5 h 25 min	2 h 25 min
ZDL-CN	3A	3627	104.5	9 h 10 min	2 h 25 min
DLL-MLL	3A	3625	108.5	13 h 35 min	2 h 25 min
DIPLOG	3A	3627	118.0	31 h 50 min	2 h 25 min
DST-1		3373	126.1		

Table 3.2.1

3.3 FMT Pressures

One FMT-run (Run 3B) was performed in the well, in 8 1/2" hole. It confirmed the presence of hydrocarbons, as seen on the electrical logs. Pressure measurements at thirty different depths were performed. 16 of the measurements were good to very good, while 10 were tight, supercharged or 'no seal'-points.
Calculation of pressure gradients in the oil and water zone was performed using only the good pressure point. This gave an oil gradient of 7.41 kPa/m (0.755 g/cc) and a water gradient of 10.49 kPa/m (1.069 g/cc).
All pressure measurements are summarized on the next page and a graphical presentation with the gradient interpretation is presented in Figure 3.3.

One segregated sample was taken at 3363.8 m MDRKB. The 2 3/4 gallon chamber contained 3.5 litres of oil, 3.5 l of mud filtrate and 0.22 m^3 gas. No CO_2 or H_2S was detected from this sample chamber. The 1 gallon chamber was sent ashore for PVT analysis.

STATOIL

FMT PRESSURE DATA WELL 34/10-36

Crystal (HP) Gauge

Run no.	Depth MDRKB m	Depth TVDRKB m	Hydr. pres. kPa	Form. pres. kPa	Comments
1	3362.7	3357.7	51530.0	45398.0	Good
2	3364.0	3358.4	51536.0	45401.0	Very good
3	3365.5	3359.9	51540.0	45412.0	Good
4	3367.5	3361.9	51561.0	0.0	Tight
5	3372.0	3366.4	51655.0	45465.0	Good
6	3374.9	3369.3	51685.0	45526.0	Supercharge
7	3374.5	3368.9	51644.0	45479.0	Good
8	3363.2	3357.7	51453.0	45401.0	Good
9	3368.0	3362.4	51560.0	45437.0	Good
10	3385.0	3379.4	51917.0	46020.0	Supercharge
11	3385.5	3379.9	51840.0	45554.0	Good
12	3389.0	3383.4	51880.0	45596.0	Moderate
13	3390.7	3385.1	51908.0	45688.0	Supercharge
14	3395.0	3389.4	51980.0	45665.0	Moderate
15	3409.5	3403.9	52280.0	45857.0	Poor/superch
16	3415.0	3409.3	52325.0	45865.0	Moderate
17	3417.0	3411.4	52348.0	45880.0	Good
18	3418.0	3412.3	52310.0	45890.0	Good
19	3451.0	3445.2	52995.0	0.0	Tight
20	3457.8	3452.0	53085.0	46326.0	Moderate
21	3464.5	3458.7	53145.0	46522.0	Moderate?
22	3474.0	3468.2	53286.0	46480.0	Moderate
23	3478.0	3472.2	53315.0	46480.0	Poor/mod
24	3511.5	3505.7	53945.0	47000.0	Poor
25	3516.5	3510.7	53977.0	47222.0	Poor
26	3518.5	3512.7	53960.0	0.0	Tight

27	3533.0	3527.2	54230.0	48380.0	Supercharge
28	3363.6	3358.0	0.0	No seal	
29	3363.8	3358.2	51584.0	45396.0	Segr.sample v.good
30	3131.5	3120.9	0.0	No seal	

3.4 Well testing

One drill stem test was performed in the Tarbert Formation. The well was perforated in the interval 3371.2 - 3376.2 m MDRKB, and after a 10 hours clean-up flow the well was shut in at the PCT-valve for a 12 hours pressure build-up. After the first build-up period, the well was opened again for a 24 hours main flow period through a 36/64" (14.3 mm) choke , and finally shut in for a main build-up period of 36 hours.

After the main build-up several attemts of opening the PCT-valve failed, so the well was killed by shearing SHORT and circulating out, before unsetting packer and bullheading.

The main test results were:

Oil rate:	836 Sm^3 /d
Gas rate:	161490 Sm^3 /d
Gas-oil-ratio:	193 Sm^3 /Sm^3
Water rate:	7 Sm^3 /d
Choke size:	36/64 " (14.3 mm)
Well Head Pressure:	16500 kPa
Density oil:	0.869 g/cm^3
Density gas:	0.695 relative air
CO_2:	2 %
H_2S:	3.5 ppm
Cl^- in water:	19500 ppm
Reservoir. temp:	126.1 °C

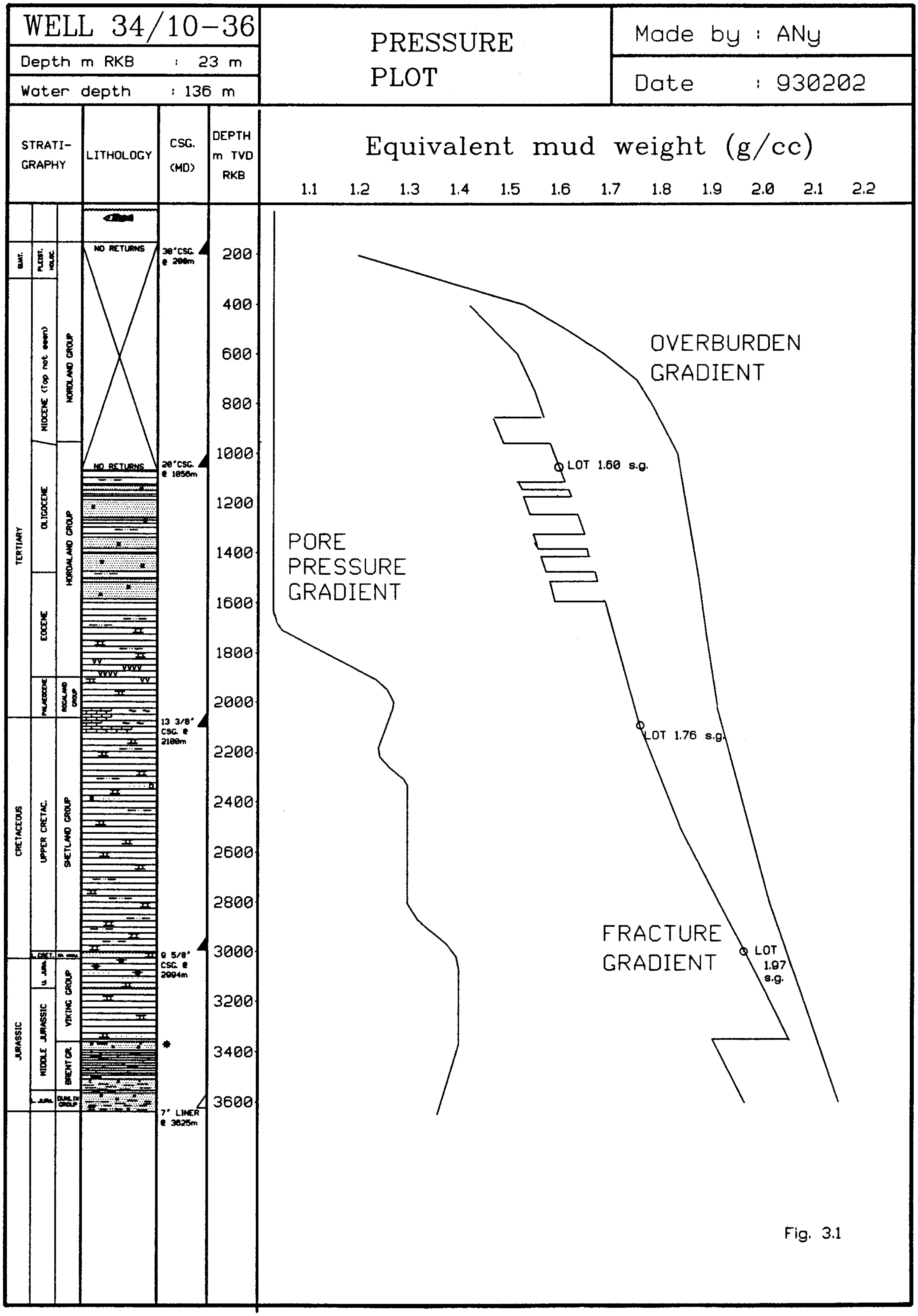
WELL 34/10-36
Depth m RKB : 23 m
Water depth : 136 m
PRESSURE
PLOT
Made by : ANy
Date : 930202
STRATI-
GRAPHY
LITHOLOGY
CSG.
(MD)
DEPTH
m TVD
RKB
Equivalent mud weight (g/cc)
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
2.1
2.2
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
TERTIARY
CRETACEOUS
JURASSIC
MIOCENE (Top not seen)
OLIGOCENE
EOCENE
UPPER CRETAC.
MIDDLE JURASSIC
NORDLAND GROUP
HORDALAND GROUP
SHETLAND GROUP
VIKING GROUP
BRENT GR.
DUNLIN GROUP
NO RETURNS
NO RETURNS
30"CSG. @ 200m
20"CSG. @ 1056m
13 3/8" CSG. @ 2100m
9 5/8" CSG. @ 2994m
7" LINER @ 3625m
OVERBURDEN
GRADIENT
PORE
PRESSURE
GRADIENT
FRACTURE
GRADIENT
LOT 1.60 s.g.
LOT 1.76 s.g.
LOT
1.97
s.g.

Fig. 3.1

WELL 34/10-36	TEMPERATURE PLOT	Made by : ANy
Depth m RKB : 23 m		Date : 930203
Water depth : 136 m		

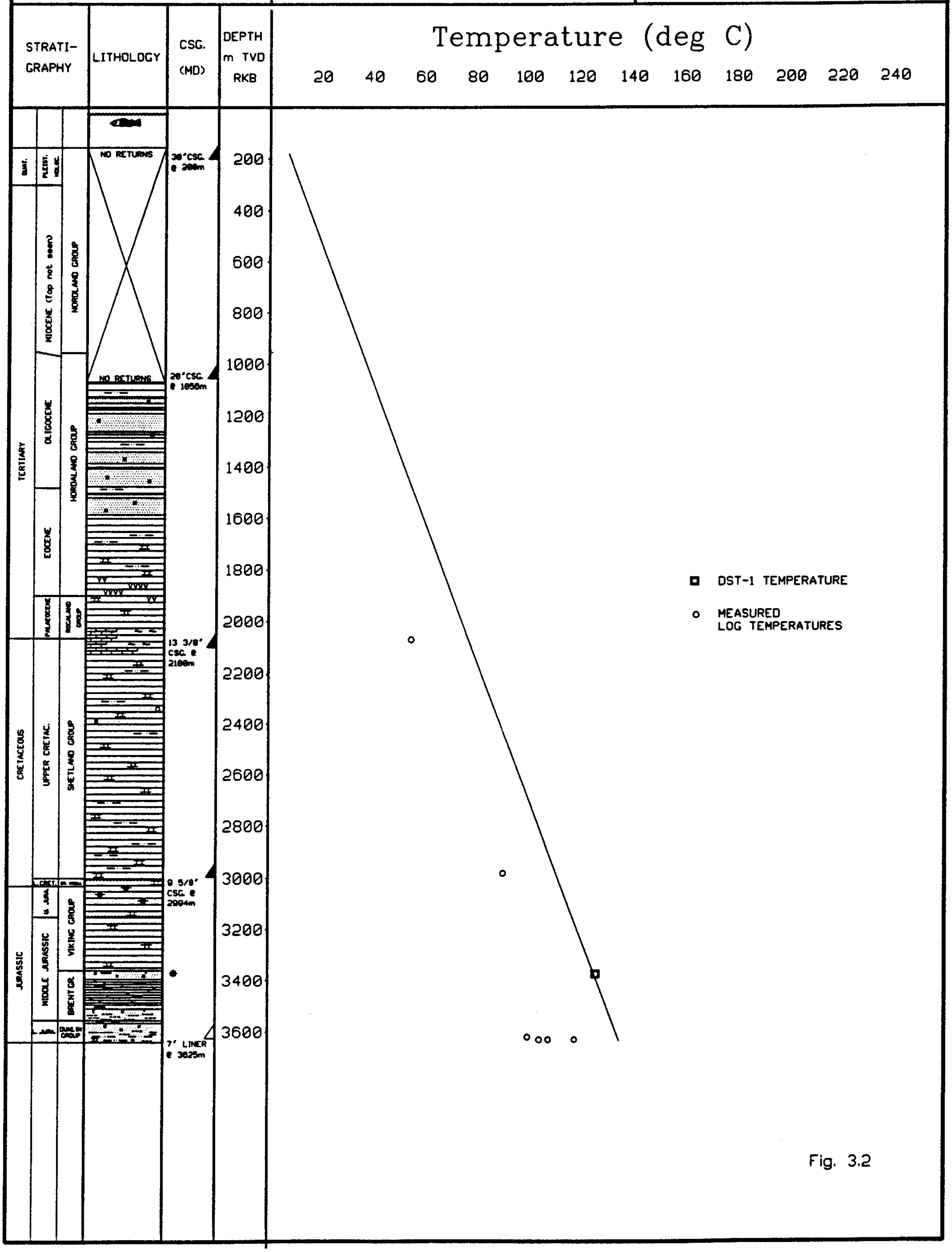

Fig. 3.2

BRØNN 34/10-36
FMT - TRYKK

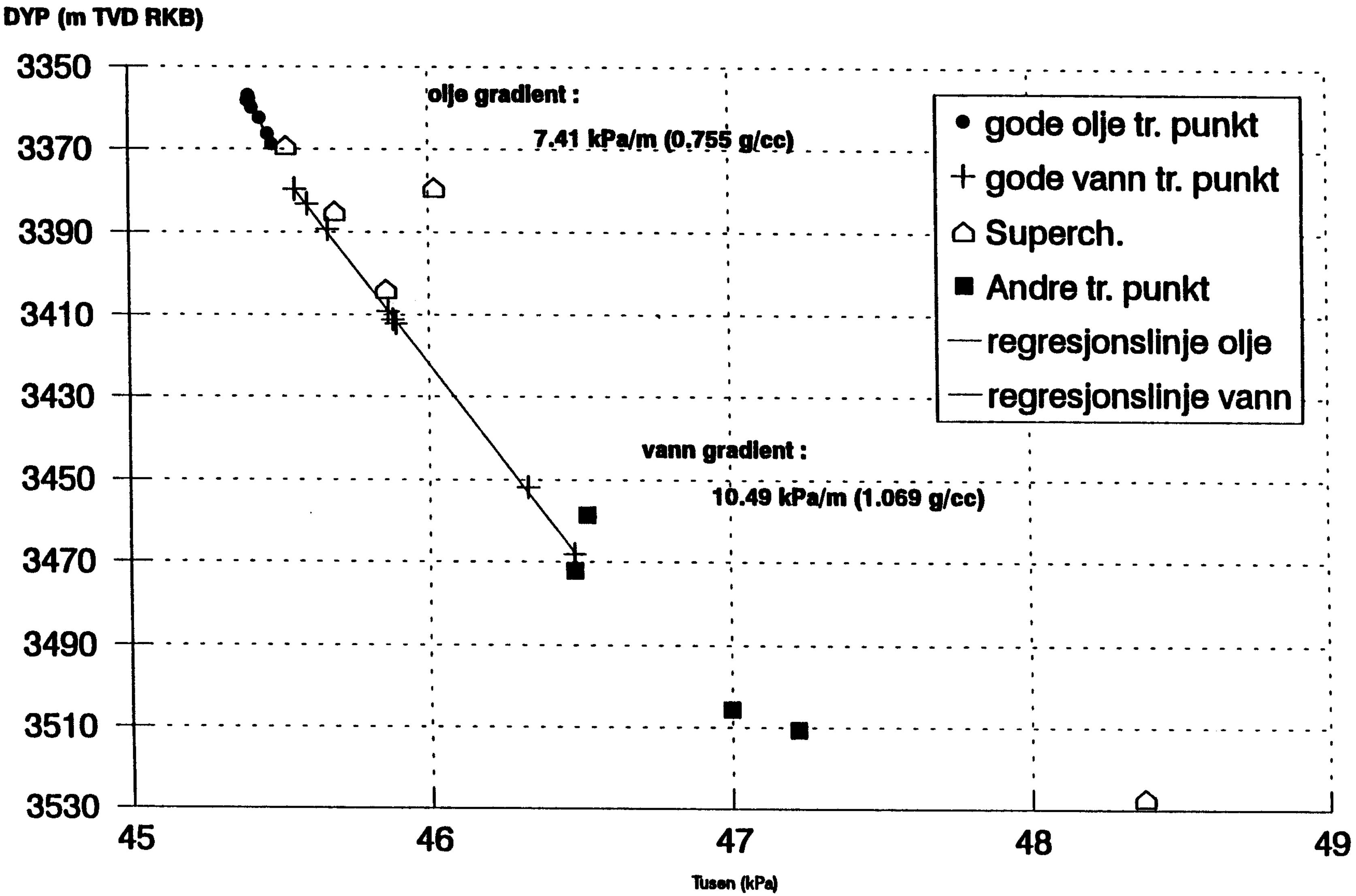

Fig. 3.3

JULI 1992 / RD

4. DRILLING REPORT

4.1 Summary

4.1 Summary

Well location	:	34/10-36
Well type	:	Wildcat
Licence	:	PL 050
Latitude	:	61° 06′ 48.49" N
Longitude	:	02° 10′ 35.15" E
Water depth	:	136 m (159 mRKB)
Drilling contractor	:	Odfjell Drilling
Drilling Rig	:	Deepsea Bergen
Start date	:	10:30 hrs 26.04.92
Spud date	:	22:30 hrs 28.04.92
Finish date	:	21:30 hrs 13.07.92
Total days	:	78 days 12 hours incl. DST
Main objectives	:	Draupne/Brent formation of Upper Jurassic age
Coring	:	Draupne Shale: 1 core, 25 m Brent Sandstone: 2 cores, 54 m
Plugging	:	Permanent abandonement
Total depth	:	3640.0 mMD/3634.1 mVD

4.2 Drilling Operations in Intervals

General

Well 34/10-36 was classified as a Wildcat, designed to test the sandstones of the Upper Jurassic age.

The well was drilled to total depth of 3640 m, which was 50 m into the Dunlin formation.

Hydrocarbons were identified in the Brent formation and 2 DSTs were performed.

The rig "Deepsea Bergen" left location the (7/7-2) the 26th April 1992 at 10.30 hours. Anchor handling was startet the 28th at 06:00.

9 7/8" Pilot Hole / 36" Section : 159 m - 859 m - 225 m

(28.04 at 22:30 - 02.05.92 at 09:30)

Drilled 9 7/8" pilot hole to 315 m using seawater and hi-viscous pills every 15 m. From 315 - 350 m, 1.18 SG mud was used. MWD indicated shallow gas at 342 m - well static. Continued drilling with seawater to 425 m. Displaced with 1.18 SG mud from 425 - 465 m - well static. Drilled with seawater to 859 m.

Opened 9 7/8" pilot hole to 36" from 159 - 225 m using 1.18 SG mud.

Ran 30" casing, but unable to pass 185 m. Pulled 30" casing and reamed/washed tight hole.

Ran and cemented 30" casing at 220 m while holding casing in tension while waiting on cement.

26" Section : 225 m - 1070 m
(02.05 at 09:30 - 10.05.92 at 01:30)

Drilled shoe track and opened 9 7/8" pilot hole from 225 - 859 m. Drilled 26" hole from 859 - 947 m.

Repaired mud pump no. 1, cylinder 3. Broken bolt in lockring on suction module.

Drilled 26" hole to 1070 m. Ran and cemented 20" casing at 1056 m. Ran riser and BOP.

Pulled BOP due to leak in connection between 50 feet riser joints. Installed new seals twice, and after second pressure test the rest of the riser was run. Choke- and kill lines were installed, but was not able to test kill line. Pulled riser/BOP and cleaned lip seal grooves. Pressure tested kill- and choke lines, OK.

17 1/2" Section : 1070 m - 2115 m
(10.05 at 01:30 - 18.05.92 at 23:30)

Drilled shoe track, 3 m new formation and performed LOT to 1.60 SG.

Drilled to 1171 m, MWD stopped working. Increased mud weight from 1.25 SG to 1.30 SG due to tight hole from 1155 - 1171 m. Changed MWD and bit, and continued drilling. Flow checked several drilling breaks - negative. Drilled to 1538 m.

Had to change suction module on cylinder no. 3, pump no. 1, due to a crack.

Continued drilling to 1918 m. MWD failed at 1896 m and bit stopped drilling after a flow check. Made up new bit and MWD and continued drilling to 2115 m.

Ran logs: DIFL/ACL/PCM/GR
Unable to pass 2090 m.

Washed and reamed from 1986 - 2115 m. Hole in good condition.

Ran 13 3/8" casing in 1059 m of open hole using TAM packer for casing fill-up and back-up for circulating purposes. After displacing cement plug did not bump - over-displaced one joint. Floats were holding.

<u>12 1/4" Section : 2115 m - ~~2~~3010 m</u>
(18.05 at 23:30 - 03.06.92 at 08:30)

Drilled out shoe track, 3 m of new formation, increased mud weight from 1.32 SG to 1.35 SG and performed FIT equivalent to 2.10 SG.

Drilled 3 m of new formation and performed LOT to 1.76 SG.

Drilled 12 1/2" hole from 2121 m to 2350 m. Had several flow checks due to pulling of dry pipe during reaming. Well static.

Ran in hole with steerable BHA and increased mud weight from 1.35 Sg to 1.40 SG. Drilled 12 1/4" hole from 2350 - 2363 m in steering mode, but was not able to hold toolface due to hard formation. Continued drilling in rotating mode to 2388 m. Changed to steering mode again, but again was not able to hold toolface. Continued drilling in alternate steering and rotating mode to 2426 m.

Kick-off point at 2398 m.

Changed part of BHA due to low ROP and continued drilling in steering mode to 2473 m.

Worked on mud pump no. 1 due to pressure drop. Found a rubber piece in one cylinder.

Continued drilling to 2650,5 m, and decided to POOH due to high torque readings.

Ran in hole with new MWD and PDM with 1 deg. bent housing. The 12 1/4" hole was then drilled to 2822 m in alternate rotating and steering mode, and the mud weight was then increased from 1.40 SG to 1.45 SG.

The mud motor was laid out and the hole drilled in conventional mode to 3010 m, when circulating bottoms up.

Drillstring started to pack off and the pressure increased from 280 - 310 bar. The signal from MWD was lost. During reaming tight spots, 120 bar circulating pressure and 29 meter-tonn of string weight was lost.

Pulled out to check BHA and found that pin had sheared off bottom of jars just below last thread. RIH with fishing assembly and pulled out fish.

Ran wireline logs:

No. 2B	:	DIFL-ACL-GR-CAL
No. 2A	:	CBL (tool got stuck twice)
No. 2B/2A.		

Made wiper trip and reamed tight spots and increased mud weight prior to running casing.

Ran 9 5/8" casing down to 2995 m using TAM packer and changing over to 150 ton elevator at 13 3/8" casing shoe.

8 1/2" Section : 3010 m - 3640 m
(03.06 at 08:30 - 25.06.92 at 20:00)

Drilled out shoe track with 1.54 SG mud. Changed to 1.47 SG Ancotemp/Bentonite system and drilled 8 1/2" hole to 3013 m.

Performed leak off test equivalent to 1.97 SG, and continued drilling to 3029 m.

Cut core no. 1 from 3029 - 3054 m, recovered 24.4 m, 98% recovery and drilled 8 1/2" hole to 3363 m.

Cut core no. 2 from 3363 - 3390 m, recovered 27 m, 100% recovery.

Cut core no. 3 from 3390 - 3417 m, recovered 26.5 m, 98% recovery.

Continued drilling to 3640 m, and started to back-ream. Drillpipe got stuck at 3185 m, the drillstring stalled out and the pressure increased. Worked string and managed to free pipe after a few minutes.

Circulated and increased mud weight to 1.52 SG.

Ran wireline logs:

No. 3C	:	DIFL-ACL-CBL-VDL-GR
No. 3C	:	DIFL-ACL-CBL-VDL-GR; not able to pass 3270 m.

Reamed/drilled tight parts of hole (max. gas 6,45%). A low-visc pill and later a hi-visc pill were pumped due to increase of cavings on shakers.

Ran wireline logs:

No. 3D	:	DIFL-ACL-GR
No. 3A	:	ZDL-CN-GR
No. 3A	:	DLL-MLL-GR
No. 3A	:	FMT-HP-GR.

Wireline cable unspooled on drum due to throttle not in mid position. Cut off approximately 900 m of cable and re-terminated cable head.

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Re-ran wireline logs:

No. 3A	:	FMT-HP-GR
No. 3A	:	FMT-HP-GR
No. 3A	:	DIPLOG-GR; pulled out due to hole conditions and bad log quality. One pad with arms was lost in the hole.

Made up new bit, RIH to 3590 m and circulated and conditioned mud.

Ran wireline logs:

No. 3A	:	Coregun-GR (took 50 sidewall cores - 4 misfired, 9 lost in hole).

Circulated while reducing mud weight to 1.45 SG.

Ran 7" liner to 3625 m and cemented same. Worked 7" casing scraper and mill at PBR.

Ran logs on wireline:

CBL/VDL-CCL-Gr (tool did not repeat).

Re-ran logs:

CBL/VDL-GR-CCL (not able to calibrate CBL).

Ran VSP (SSL).

DST : 3376 m - 3371 m
(25.06 at 20:00 - 04.07.92 at 13:30)

RIH with test string on 3 1/2" PH-6 tubing, and pressure tested entire string to 475 bar. Ran GR/CCL with wireline for depth correlation. Set packer and pressured up tubing to 400 bar to fire guns. Perforated well against open choke manifold and performed clean-up flow.

Shut in well at PCT and choke manifold for pressure build up. Flowed well - main flow.

Shut in well at PCT and choke manifold for build up.

Attempted to open PCT several times with max. 180 bar annulus pressure. Had to fill EZ-tree with methanol and TBG with diesel and glycol to be able to release pressure. POOH with test string.

RIH with 6" bit and 7" scraper before setting a cement retainer at 3360 m. Tagged firm cement at 2787 m, and ran 9 5/8" bridge plug to 2758 m.

P&A
(04.07 at 13:30 - 13.07.92 at 21:30)

Moved rig off location (10 m to starboard), pulled riser and waited on end of strike to resume operations. Re-ran LMPR and riser.

Cut 9 5/8" casing at 1000 m, and retrieved casing. Set cement plug from 1050 - 894 m. Set bridge plug on wireline at 885 m.

Cut 13 3/8" casing at 417 m and laid down same.
Set cement plug from 470 - 200 m.
Squeezed 10,4 m^3 into 13 3/8" x 20" annulus.
Set cement plug from 258 - 190 m.

Retrieved BOP and laid down riser.

Cut and retrieved 20" x 30" casing.

Pulled anchors.

4.3 Extract of Daily Activities

Well: 0034/10-036

Report date	
92/04/27	- IN TRANSIT TO 34/10-36.
92/04/28	- IN TRANSIT TO 34/10-36.
92/04/29	- ANCHOR HANDLING. - PULLTESTED ALL ANCHORS TO 130 TON. - M/U 9 7/8" BIT AND MWD. RIH TAGGED SEABED AT 159 M. - DRILLED 9 7/8" PILOT HOLE FROM 159 M TO 315 M
92/04/30	- DRILLED 9 7/8" PILOT HOLE W/1.18 SG MUD FROM 315 M TO 350 M. - FLOWCHECKED SHALLOW GAS AT 342 M. - DISPLACED HOLE IN STEPS TO SEAWATER, WELL STATIC. - DRILLED 9 7/8" PILOT HOLE FROM 350 M TO 425 M W/SW. - DRILLED 9 7/8" PILOT HOLE FROM 425 M TO 465 M W/1.18 SG MUD. - DISPLACED HOLE TO SEAWATER, WELL STATIC. - DRILLED 9 7/8" PILOT HOLE FROM 465 M TO 826 M.
92/05/01	- DRILLED 9 7/8" HOLE FROM 826 M TO 859 M. - OBSERVED WELL. WELL STATIC. - DISPLACED HOLE TO 1.18 SG MUD. - POOH. - M/U 26" BIT AND 36" HO. - OPENED 9 7/8" PILOT HOLE TO 36" FROM 159 M TO 225 M. - DISPLACED HOLE WITH HI VIS MUD. - DROPPED SURVEY, POOH TO 170 M, RETRIEVED SURVEY. 0,6 DEG. - RIH TO 225 M, DISPLACED HOLE TO 1.18 SG MUD. - POOH. - RAN 30" CASING.
92/05/02	- RAN 30" CASING TO 185 M, NOT ABLE TO PASS 185 M. - POOH W/30" CASING, SECURED 30" CASING AND RGB IN MOONPOOL. - RIH W/26" BIT AND 36" HOLE OPENERS IN TANDEM. - REAMED/WASHED FROM SEABED TO 225 M. HARD REAMING FROM 190-192 M. - WIPER TRIPPED TO 170 M, NO DRAG. - DISPLACED HOLE TO 1.18 SG MUD. - POOH. - RAN 30" CASING. TIGHT HOLE FROM 200-220 M. - CEMENTED 30" CASING. - WOC, WHILE HOLDING 30" CASING IN TENSION.
92/05/03	- WOC. - BACKED OUT CART, POOH. - M/U 26" BHA, RIH, TAGGED CEMENT AT 215 M. - DRILLED CEMENT FROM 215 M TO 226 M. - OPENED 9 7/8" PILOT HOLE TO 26" FROM 226 M TO 490 M.
92/05/04	- OPENED 9 7/8" PILOT HOLE TO 26" FROM 490 M TO 859 M. - DRILLED 26" HOLE FROM 859 M TO 947 M. - REPAIRED MUDPUMP NO. 1.
92/05/05	- REPAIRED MUD PUMP NO. 1. - DRILLED 26" HOLE FROM 947M TO 1070M. - PUMPED 20 M3 HI-VIS, PUMPED OUT W/SW. DISPLACED HOLE W/1,18 SG MUD. - POOH. - M/U CEMENT STAND AND 18-3/4" HOUSING. RACKED SAME IN DERRICK. - P/U LANDING STRING W/WASH TOOL ON BOTTOM. - WASHED RGB. - POOH. - M/U 26" BHA.

Report date	
92/05/06	- RIH W/26" BIT AND 26" HO. - REAMED TIGHT SPOTS, HAD MAX 15 TON. - TAGGED BOTTOM, PUMPED 25 M3 HI-VIS PILL, 150 M3 SW, AND DISPLACED HOLE W/1,18 SG MUD. - POOH TO 30" SHOE, WORKED TIGHT SPOT AT 725M. - RIH FROM 220M TO 653M. - WASHED/REAMED FROM 653M TO 1071M, WORKED TIGHT SPOT AT 906M. - PUMPED 20 M3 HI-VIS PILL, FOLLOWED BY 100 M3 SW. DISPLACED HOLE W/1,18 SG MUD. - POOH.
92/05/07	- POOH W/26" BIT AND 26" HO. - RAN 20" CASING SHOE AT 1056M. - CEMENTED 20" CASING. - DISPLACED CMT, BUMPED PLUG. - BACKED OUT R-TOOL, POOH W/LANDING STRING.
92/05/08	- RAN BOP AND RISER, 2 PUPS AND 2 X 50 FT. - PRESSURE TESTED K & C LINES. FOUND LEAK IN CHOKE LINE. - PULLED BOP, FOUND LEAK IN CONN. BETWEEN 50 FT'S RISER JNTS. - INSPECTED PIN AND SEALS, OK. REMOVED PARTICLES FROM SEAL GROOVES. INSTALLED NEW SEALS. - PRESS.TESTED CHOKE LINE TO 575 BAR/10 MIN - OK. - ATTEMPTED TO PRESS.TEST KILL LINE - NO SUCCESS. CLEANED GROOVES. INSTALLED NEW SEALS PRESS.TESTED TO 535 BAR/ 10 MIN - OK. 1 X 10 FT AND 2 X 50 FT RISER. - RAN 1 X 20 FT AND 2 X 50 FT RISER. PRESS.TESTED TO 525 BAR/10 MIN-OK - CONT. RUN RISER/BOP.
92/05/09	- P/U SLIP JNT AND DIVERTER. INSTALLED KILL AND CHOKE HOSES. - CHOKELINE PRESS TESTED, OK. ATTEMPTED TO PRESS TEST KILL LINE, NO SUCCESS. - L/D THREE RISER JNTS AFTER NEG PRESS ON KILL LINE. - CONT PULLING RISER/BOP. LANDED BOP ON CARRIER. - CLEANED LIP SEAL GROOVES. INSPECTED PIN ENDS. - PRESS TESTED SURFACE LINES. - M/U THREE RISER JNTS. CONNECTED SAME TO BOP. - PRESS TESTED KILL AND CHOKE LINES TO 525 BAR/10 MIN - OK. - PREPARED TO AND RAN BOP/RISER.
92/05/10	- RAN BOP/RISER. - PRESS TESTED. - LANDED BOP. - TESTED BOP TO 380/241 BAR. FUNCTION TESTED FROM DRILLERS PANEL. FUNCTION TESTED ACOUSTIC SYSTEM. - RE-TESTED 20" CSG TO 150 BAR/15 MIN - OK. - SET NOM SEAT PROTECTOR. - PRESS TESTED KELLY COCKS ON TOP DRIVE AND FIRST VALVE ON STANDPIPE TO 345 BAR - OK. - M/U HANG-OFF TOOL. - M/U 17-1/2" BHA AND RIH.
92/05/11	- RIH FROM 700M TO 965M. - WASHED DOWN, TAGGED CMT PLUGS AT 1029M. - BOP CHOKE/DRILL. - DRILLED SHOETRACK AND 3M NEW FORMATION. - PUMPED HI-VIS PILL. - DISPLACED HOLE TO 1,25 SG MUD. - PERFORMED LOT, 1,60 SG EQUIVALENT MUDWEIGHT. - DRILLED 17-1/2" HOLE FROM 1074M TO 1171M. MWD NOT WORKING. FLOW-CHECKED AT 1164M. TIGHT HOLE FROM 1155M TO 1164M. STARTED TO INCR. MUDWEIGHT TO 1,30 SG. - CIRC. BTM'S UP. 1,30 SG MUD AROUND. TOOK SCR. - DROPPED 3. SHOT - POOH TO CHANGE MWD. TIGHT HOLE FROM 1171M TO 1155M. - CHANGED BIT AND MWD, RIH.

Report date

92/05/12 - RIH TO 1125M AND REAMED TO 1171M.
- DRILLED 17-1/2" HOLE FROM 1171M - 1445M. FLOWCHECKED DRLG BREAKS- NEGATIVE.

92/05/13 - DRILLED 17 1/2" HOLE FROM 1445M TO 1538M
- CHANGED SUCTION MODULE ON MUD PUMP NO.1
- DRILLED 17 1/2" HOLE FROM 1538M TO 1737M. FLOWCHECKED DRILLING BREAKS.

92/05/14 - DRILLED 17 1/2" HOLE FROM 1737M TO 1918M.
- POOH TO CHANGE BIT.BACKREAMED FROM 1854M TO 1735M. CONT PULLING OUT TO 20" CSG WHILE PUMPING.
- CIRC BTMS UP.
- HUNG OF BLOCK AND ADJUSTED FASTLINE ANCHOR.
- CONT. PULLING OUT OF HOLE.

92/05/15 - CHANGED BIT AND MWD TOOL. RIH TO 20" CSG. SHOE.
- WASHED AND REAMED TO 1918M.
- DRILLED 17-1/2" HOLE FROM 1918M TO 2097M.

92/05/16 - DRILLED 17 1/2" HOLE FROM 2097M TO 2115M.
- CIRC. BTTMS UP.
- MADE CHECK TRIP TO 20" SHOE,WIPED AND BACKREAMED TIGHT HOLE/SPOTS FROM 2065M TO 1380M WITH MAX OVERPULL 15 TON.
RIH, WASHED AND REAMED FROM 1640M TO 2115M.
- DROPPED ELECTRONIC MAGNETIC MULTISHOT. POOH. REAMED AND WASHED FROM 2050M TO 1949M.
- M/U CMT. HEAD. RACKED SAME BACK IN DERRICK
- M/U 13 3/8" HGR. JNT. WITH PACK-OFF AND S.S PLUGS RACKED SAME BACK IN DERRICK.

92/05/17 - RUN ATLAS DIFL/ACL/PCM/GR WIRELINE LOG TO 2090M
- CHANGED OUT 13-3/8" CSG HANGER RUNNING TOOL
- RIH W/17-1/2" BIT, WASHED DOWN TO TD FROM 1986M.
- CIRC BTMS UP AND HOLE CLEAN.
- POOH. HOLE IN GOOD CONDITION.
- RETR. NOM SEATPROTECTOR.
- WASHED WELLHEAD
- R/U TO RUN 13-3/8" CSG.
- RAN 13-3/8" CSG.

92/05/18 - RIH WITH 13 3/8" CASING TO 20" CASING SHOE. FILLED CSG W/TAM PACKER.
- INSTALLED SPIDER ELEVATOR
- CONTINUED RIH WITH 13 3/8" CASING, AND LANDED SAME AT 2100M WITH U-170 PIPES.
- CIRCULATED 155 M3 MUD TREATED WITH 5 KG/M3 IRONITE SPONGE.
- CEMENTED 13 3/8" CASING WITH 54.6 M3 1.56 S.G LEAD FOLLOWED BY 15 M3 1.92 S.G TAIL SLURRY.
PLUG DID NOT BUMP.
- ATTEMPTED TO SET PACK-OFF, PROBLEMS TO ACHIEVE RIGHT AMOUNT OF TURNS.
- RE-ATTACHED R/T, ACHIEVED TOTAL 7 1/2 TURN. ATTEMPTED TO PRESSURE TEST.

92/05/19 - REPAIRED LEAK ON CEMENT UNIT.
- PRESSURE TESTED BOP TO 320/241 BAR.
- PRESSURE TESTED 13-3/8" CASING TO 326 BAR.
- M/U 12-1/4" BHA, RIH, WASHED DOWN FROM 1900M TO 2047M.

92/05/20 - WASHED FROM 2047 TO 2056 M.
- PERFORMED KICK/CHOKE DRILL.
- DRILLED SHOETRACK TO 2100 M. CLEANED RATHOLE.
- DRILLED 3 M MEW FORMATION. INCR MUDW FROM 1,32 SG TO 1,35 SG.
CIRC AND COND
- PERFORMED FIT = 2,10 SG MUDW.
- DRILLED 3 M NEW FORMATION.
- PERFORMED LOT = 1,76 SG MUDW.
- DRILLED 12-1/4" HOLE FROM 2121 M TO 2241 M.

Report date	
92/05/21	- DRILLED 12-1/4" HOLE FROM 2241 M TO 2350 M. - CIRC BTM'S UP AND HOLE CLEAN. FLOWCHECKED - WELL STATIC. - PULLED INTO CSG WHILE PUMPING FLOWCHECKED, WELL STATIC. - CONT POOH. - M/U PDM MOTOR AND RIH W/STEERABLE BHA.
92/05/22	- RIH TO 2350 M W/STEERABLE BHA. HAD 5 M FILL. - INCREASED MW FROM 1.35 S.G TO 1.40 S.G. - DRILLED 12-1/4" HOLE FROM 2350 M TO 2363 M IN STEERING MODE. NOT ABLE TO HOLD TOOLFACE DUE TO HARD FORMATIONS. - DRILLED 12-1/4" HOLE FROM 2363 M TO 2388 M IN ROTATING MODE. - DRILLED 12-1/4" HOLE FROM 2388 M TO 2389 M IN STEERING MODE. NOT ABLE TO HOLD TOOLFACE DUE TO HARD FORMATIONS. - DRILLED 12-1/4" HOLE FROM 2389 M TO 2396 M IN ROTATING MODE.
92/05/23	- DRILLED 12-1/4" HOLE FROM 2396 M TO 2426 M. ORIENTED FROM 2398M TO 2418 M. - POOH. - CHANGED BIT AND RIH W/STEERABLE BHA TO CSG SHOE. - SLIPPED AND CUT DRLG LINE. - RIH TO 2426 M. - DRILLED 12-1/4" HOLE FROM 2426 M TO 2451 M. ORIENTED FROM 2426M TO 2441M.
92/05/24	- DRILLED 12-1/4" HOLE FROM 2451 M TO 2612 M.
92/05/25	- REP. LEAK IN FITTINGS FOR DEADLINE ANCHOR. - DRILLED 12-1/4" HOLE FROM 2612 M TO 2661 M. ORIENTED FROM 2644 M TO 2650,5 M - CIRC. BU. - POOH FOR BIT CHANGE. - RIH.
92/05/26	- RIH - DRILLED 12 1/4" HOLE FROM 2661M TO 2748M. ORIENTED FROM 2664M - 2674M, 2711M - 2727M AND FROM 2741M TO 2751M. TOOK 25 MT OVERPULL WHEN P/U DRILLSTRING PRIOR TO DRILL IN ROTARY MODE. - REAMED FROM 2751M TO 2712M. - DRILLED 12 1/4" HOLE FROM 2751M TO 2753M. HAD 20 BAR PRESSURE DROP. - CHANGED VALVE AND SEAT IN MP NO 2 CYL NO 1. - DRILLED 12 1/4" HOLE FROM 2753M TO 2774M.
92/05/27	- DRILLED 12 1/4" HOLE FROM 2774M TO 2825M. ORIENTED FROM 2774M TO 2781M, 2800M TO 2801M AND FROM 2807M TO 2822M - INCR MW FROM 1,40 SG TO 1,45 SG. - POOH. CHANGED WASH PIPE AT SHOE. - M/U CMT STAND. - M/U 12 1/4" DRILLING BHA.
92/05/28	- RIH. - DRILLED 12 1/4" HOLE FROM 2825M TO 2835M. - INCR MW FROM 1,45 SG TO 1,50 SG. - DRILLED 12 1/4" HOLE FROM 2835M TO 2880M.
92/05/29	- DRILLED 12 1/4" HOLE FROM 2880M - 2977M.
92/05/30	- DRILLED 12 1/4" HOLE FROM 2977 - 3010M. - CIRCULATED BOTTOMS UP. - MADE WIPER TRIP TO CASING SHOE. RIH. - STRING PARTED WHILST CIRCULATING ON BOTTOM. - PULLED OUT OF HOLE STRING + REMAINDER OF BHA. - MADE UP AND RAN IN HOLE FISHING ASSEMBLY.

Report date	
92/05/31	- RIH FISHING ASSEMBLY. - LATCHED FISH AND POOH. - RIGGED UP ATLAS WIRELINE. - RAN LOG DIFL-ACL-GR-CAL AND CBL. - RIGGED DOWN ATLAS WIRELINE. - MADE UP 9 5/8" HANGER + RUNNING TOOL. - MADE UP BAKERLOCK JT OF CASING. - MADE UP BHA FOR WIPER TRIP. - RIH.
92/06/01	- RIH FOR WIPER TRIP. REAMED TIGHT HOLE FROM 2529 - 2593M AND 2793 - 3010M. - CIRCULATED AND CLEANED UP HOLE. - POOH TO CASING SHOE - BACKREAMED TIGHT HOLE FROM 2962 - 2824M. - SLIPPED AND CUT DRILLING LINE. - RIH. - CIRCULATED AND INCR MUD WT TO 1,54 SG. - POOH. - JET WELLHEAD, FLUSHED RISER. - RETRIEVED WEAR BUSHING.
92/06/02	- RIGGED UP TO RUN 9 5/8" CASING. - RAN 9 5/8" CASING.
92/06/03	- RAN 9 5/8" CASING AND LANDED IN WELLHEAD. - CIRCULATED CASING. - MIXED AND PUMPED CEMENT SLURRY. - DISPLACED CEMENT WITH MUD AND BUMPED PLUG. - TORQUED UP AND TESTED SEAL ASSEMBLY. - POOH RUNNING STRING. - RAN TEST PLUG AND TESTED BOP TO 380 BAR. (ANNULARS TO 241 BAR). - PRESSURE TESTED TOP DRIVE AND FIRST ST.PIPE VALVE TO 345 BAR. - RAN WEAR BUSHING. - LAID DOWN 8" DC AND 12 1/4" BHA.
92/06/04	- LAID OUT 8" DC AND 12 1/4" BHA. - MADE UP 8 1/2" BIT AND BHA AND RIH. - HELD KICK DRILL - TOOK SCR'S, RIH, TAGGED CEMENT PLUGS AT 2964. - DRILLED OUT SHOETRACK. - DRILLED CEMENT IN RAT HOLE. - DISPLACED TO ANCOTEMP BENTONITE MUD. - DRILLED 8 1/2" HOLE FROM 3010 - 3013M. - PERFORMED LOT - 1,97 SG MWE.
92/06/05	- DRILLED 8 1/2" HOLE FROM 3013M TO 3029M. - CIRCULATED FOR SAMPLE. - POOH. - M/U COREHEAD ON 27 M X 6 3/4" CORE BBL. - RIH. - CUT CORE NO. 1 FROM 3029M - 3050M.
92/06/06	- CUT CORE £ 1 FROM 3050M TO 3054M. - POOH AND LAID DOWN CORE £ 1, RECOVERED 24,4 M, 98 % REC. - M/U 8 1/2" BIT ON ROTARY ASSEMBLY AND RIH TO 3008M. - REAMED/LOGGED W/MWD TO 3054M. - DRILLED 8 1/2" HOLE FROM 3054M TO 3117M.
92/06/07	- DRILLED 8 1/2" HOLE FROM 3117M - 3259M.
92/06/08	- DRILLED 8 1/2" HOLE FROM 3259M TO 3363M. - CIRCULATED BOTTOMS UP. - POOH TO RUN CORE BARREL.

Report date	
92/06/09	- RIH WITH CORE BARREL TO CUT CORE NO. 2 - CIRCULATED OUT TRIP GAS. - CUT CORE NO. 2 FROM 3363 - 3390M. - POOH. - RECOVERED CORE - DRESSED CORE BARREL. - RIH WITH CORE BARREL TO CUT CORE NO. 3. - WASHED TO BOTTOM, CIRCULATED OUT GAS. - PREPARED TO CUT CORE NO. 3.
92/06/10	- CUT CORE NO. 3 FROM 3390M TO 3417M. - POOH. - RECOVERED CORE, 98% RECOVERY. - RIH WITH DRILLING ASSEMBLY. - REAMED CORED HOLE AND LOGGED WITH MWD TOOL. - DRILLED 8 1/2" HOLE FROM 3417 - 3426M.
92/06/11	- DRILLED 8 1/2" HOLE FROM 3426M TO 3586M
92/06/12	- DRILLED 8 1/2" HOLE FROM 3586M TO 3640M, TD. - CIRCULATED BTM'S UP AND HOLE CLEAN. - POOH TO 3490M, 20 TON O/P. - BACKREAMED FROM 3500M TO 3185M. HIGH TORQUE SPOTS AT 3305M AND 3228M. STRING STUCK AT 3185M. WORKED SAME FREE AFTER FEW MINUTES. - CONT BACKREAMING FROM 3185M AND INTO 9 5/8" CSG. HEAVY AMOUNT OF CAVINGS ON SHAKERS. HAD HIGH TORQUE AND PUMPPRESS AT 3133M. - CIRC AND INCR MW TO 1,52 SG AT 2990M. - REAMED BACK TO 3275M. CAVINGS ON SHAKERS. TIGHT HOLE AT 3243M AND FROM 3252M TO 3260M.
92/06/13	- REAMED FROM 3275M TO 3620M. 20M FILL ON BTM. CAVINGS ON SHAKERS WHILE REAMING TIGHT HOLE AT 3346M, 3377M AND 3565M. DRILLED TIGHT HOLE FROM 3450M TO 3459M W/5 TON WOB. DRILLED 20M FILL, 13 TON WOB. - CIRCULATED HOLE CLEAN. - POOH TO 3350M. WORKED TIGHT SPOTS. SWABBED AT 3350M. - BACKREAMED FROM 3350M TO CSG SHOE. - CIRC BTM'S UP. - POOH. - M/U NEW BHA AND RIH TO 3035M. - TOOK WEIGHT. WASHED AND REAMED FROM 3035M TO 3150M. - LEAK BETWEEN PIPE - SAVER SUB AND ON MUD PUMP NO. 2 OBSERVED. - PULLED INTO CSG. INSTALLED KELLY COCK AND CIRC HEAD. - CIRC WHILE CHANGING SAVER SUB AND SUCTION MODULE, CYL NO. 3 ON PUMP.
92/06/14	- CHANGED SUCTION MODULE ON MUDPUMP AND SAVER SUB ON TOP DRIVE. - REAMED DOWN FROM CSG SHOE TO TD. TOOK WEIGHT AT 3145M, 3217M, 3480M AND 3508M. DRILLED FROM 3515M TO 3520M WITH 10 TON WOB. DRILLED 6M FILL ON BTM. - PUMPED HI-VIS PILLS AND CIRCULATED HOLE CLEAN. - PULLED OUT OF OPEN HOLE, HOLE OK. - PULLED TO 2420M. TOOK TORQUE AND DRAG READINGS. - PULLED FEW METERS WITHOUT EXTRA DRAG, GAINED 600 LTR. FLOWCHEDKED, WELL STATIC. - PULLED TO 2396M, 25 TON OVERPULL. RAN BACK 5 STD. - CIRC BTM'S UP AND HOLE CLEAN. SMALL AMOUNT OF CUTTINGS. - POOH. HAD 20 TON O/P AT 2253M. WORKED THROUGH SAME. - RAN LOG NO 3C.

Report
date

92/06/15 - RAN LOG NO. 3C. NOT ABLE TO PASS 3270M. RECORDED CBL IN 9 5/8" CSG.
- RIH W/8 1/2" BIT. REAMED TIGHT HOLE AT 3153M. REAMED/DRILLED FROM 3280M-3287M, 3299M-3301M AND FROM 3362M-3382M. REAMED FROM 3382M-3417M. 4M FILL.
- CIRC HOLE CLEAN.
- PUMPED LO-VIS AND HI-VIS PILLS. SMALL INCR. OF CAVINGS AT SHAKERS. STARTED TO INCR MUDWEIGHT TO 1,56 SG.
- REPAIRED MUDPUMP NO. 1.
- CIRC BTM'S UP. PUMPED 25 M3 HI-VIS PILL. MINOR INCR OF CAVINGS AT SHAKERS.
- PULLED INTO CSG. TIGHT HOLE AT 3600M, 3509M, 3452M AND FROM 3304M-3294M.
- RIH. TOOK WEIGHT AT 3460M AND 3575M. NO FILL AT BTM.
- BROKE CIRC, PUMPED HI-VIS PILL AROUND. MINOR INCR OF CAVINGS AT SHAKERS. FLUSHED RISER.

92/06/16 - POOH, NO OVEPULL.
- RAN LOG NO 3C: DIFL-ACL-GR
  3A: ZDL-CN-GR
  3A: DLL-MLL-GR
  3A: FMT-HP-GR, MISRUN.
- ATLAS CABLE UN-SPOOLED ON DRUM, CUT OFF APPROX 900M. RE-TERMINATED CABLE HEAD.
- RE-RAN LOG NO. 3A: FMT-HP-GR

92/06/17 - RE-RAN LOG 3A,RUN NO.5 : FMT-HP-GR.
- RAN LOG 3A,RUN NO 6: DIPLOG/GR. POOH DUE TO HOLECONDITION AND BAD LOG QUALITY. LOST ONE PAD W/ARMS.
- M/U BIT AND RIH.
- SLIPPED DRILL LINE AT SHOE.
- CONT RIH.
  REAMED FROM 3268M TO 3455M.
- CONT RIH TO TD, NO FILL AT BTM
- CIRC AND COND MUD.
  PUMPED 25 M3 HI-VIS PILL. DISPLACED SAME OUT OF HOLE.
  SMALL AMOUNT OF CAVINGS WITH PILL.
- POOH TO 3255M. O/P AT 3590M, 3578M, 3560M, 3516M, FROM 3375M TO 3367M, 3382M AND 3308M.

92/06/18 - MADE CHECK TRIP TO 9-5/8" SHOE.
- RIH TO BOTTOM CIRCULATED HIVIS PILLS ROUND
- POOH MAX O/P 15T.
- RAN LOG NO.3A : SWC-GR
- M/U CMT HEAD AND KELLY.
- RIH W/8-1/2" BIT TO 2700M.

92/06/19 - RIH W/8-1/2" BIT FROM 2700M TO 3636M.TOOK 10 TON AT 3445M.
- CIRC AND COND MUD. PUMPED HI-VIS PILL.
- POOH TO CSG. SHOE. O/P AT 3626M,3488M,3484M,3471M AND 3422M. MAKS O/P AT 3375M. WASHED AND REAMED FROM 3390-3372M.
- RIH TO 3636M. WASHED FROM 3631.
  HAD ERRATIC TORQ AT 3636M.
- CIRC AND COND MUD. PUMPED HI-VIS PILL.
- POOH. HAD O/P AT 3589M,3557M,3506 AND 20 TON O/P FROM 3375M TO 3364.
- RAN 7" LINER

92/06/20 - RAN 7" LINER
- CIRC BTMS UP
- SAT LINER W/SHOE AT 3625M AND TOP OF LINER AT 2838M.
  CHECKED ROTATION AND CIRCULATION - OK.
- PRESS TESTED CMT LINE. PUMPED 10 M3 DUAL E SPACER. MIXED AND PUMPED 34 M3 1.90 S.G SLURRY. DISPLACED SAME. BUMPED PLUG 97% PUMP EFF. NOT ABLE TO ROTATE LINER DUE TO HIGH TORQE.
- CHECKED BACKFLOW, WELL STATIC
- PULLED 10 STD
- CIRC AND COND MUD
- POOH. L/D EXCESS PIPE.

Report
date

92/06/21 - L/D FROM DERRICK.
- TESTED BOP AND CHOKE MANIFOLD.
- CHANGED LOWER KELLY COCK ON TOP DRIVE.
- M/U 8-1/2" BIT AND RIH.
- TAGGED SOFT CMT AT 2680M.
- CIRC.
- POOH W/10 STD.

92/06/22 - P/U 3 1/2" DP AND RAN IN HOLE W/SAME.
- CIRC.
- CHECKED PRESSURE DROP.
- POOH W/3 1/2" DP,RACKED SAME IN DERRICK.
- CIRC.
- CONT P/U 3 1/2" AND RACKED SAME IN DERRICK.
- P/U 4 3/4" DC AND RACKED SAME IN DERRICK.
- RIH FROM 1790M TO 2670M
- WASHED TO 2688M. TAGGED CMT.
- DRILLED/WASHED AND REAMED FIRM CMT.
- TAGGED TOP OF LINER
- CIRC AND COND MUD.
- POOH.

92/06/23 - POOH
- ATTEMPTED TO PRESS TEST LINER LAP - NEGATIV.
- RIH W/O.E 3-1/2" / 5" DP
- CIRC.
- MIXED AND PUMPED 9 M3 CMT SLURRY, SQUEEZED 6 M3.
- WOC
- BLED OFF PRESS IN STEPS, OBSERVED FOR PRESS BUILD UP ON EACH STEP. WELL STATIC.
- FLOWCHECKED TO TRIP TANK. WELL STATIC.
- POOH.

92/06/24 - M/U NEW 8-1/2" BIT AND RIH. TAGGED TOC AT 2745 M.
- DRILLED CMT FROM 2745 M TO TOP OF LINER.
- CIRC. BTM'S UP.
- POOH. STRAPPED PIPE.
- TESTED LINER LAP TO 380 BAR - OK.
- M/U TAPERED STRING, SPACED OUT AND RIH. DRILLED 3 M CMT IN TOP OF LINER. CONT RIH. WORKED 7" SCRAPER FROM 3345 M TO 3365 M. CONT RIH TO 3574 M WORKED MILLS AT PBR.
- CIRC AND REDUCED MW FROM 1,56 SG TO 1,50 SG.

92/06/25 - CIRC AND REDUCED MW FROM 1,50 SG TO 1,45 SG.
- PUMPED TEST MUD, 1,45 SG AND DISPLACED SAME.
- POOH 5 STD W/DRY PIPE. RIH W/5 STD. FILLED 3 STD W/1,30 SG MUD.
- CLOSED UPPER BAG. PUMPED DOPWN CHOKE LINE, STRIPPED OOH FROM 3567 M TO 2255 M W/WET PIPE.
- PUMPED SLUG AND POOH.
- RAN 7" CSG W/DONUT TO BOP. INSTALLED PACKOFF. CHANGED TO 45 FT BAILS
- R/U ATLAS WIRELINE. RIH W/CBL/VDL-CCL-GR. TOOL DID NOT REPEAT. POOH
- RIH W/BACK-UP CBL TOOL. NOT ABLE TO CALIBRATE CBL. VDL WORKING OK.
- RAN VDL FROM 3410 M TO 3550 M W/PRESS.
- POOH

92/06/26 - POOH W/CBL/VDL-GR-CCL
- RAN VSP (SSL)
- PRESSURE TESTED 9-5/8" CSG, 7" LINER AND LINERLAP TO 380 BAR AGAINST SHEARRAM.
- PULLED AND L/D 7" CASING PACK OFF HEAD.
- M/U FLOWHEAD AND L/D SAME.
- RIH W/TESTSTRING BHA AS PER PROGRAMME.

92/06/27 - RIH W/TEST STRING AS PER PROGRAMME.

Report date	
92/06/28	- RIH WITH TEST STRING AS PER PROGRAMME. - RAN DEPTH CORR, RUN W/W.A. CORR 1.86 M HIGH. - SPACED OUT. RAN LANDING STRING, P/U FLOWHEAD AND PRESSURE TESTED AS PER PROGRAMME. - HAD LEAK IN FLANGE ON CHOKEMANIFOLD. - SET PACKER. - RAN DEPTH CORR. RUN W/A.W. PKR 1.2 M DEEP. - OPENED PCT AND FIRED GUNS.
92/06/29	- CLEAN UP FLOW. - BUILD UP. - MAIN FLOW.
92/06/30	- MAIN FLOW - BUILD UP
92/07/01	- BUILD UP
92/07/02	- BUILD UP. - ATTEMPTED TO OPEN PCT. NEG. - FILLED TUBING W/DIESEL AND GLYCOL/WATER. - ATTEMPTED TO OPEN PCT. NEG. - SHEARED SHORT. - REVERSED OUT. - UNSEATED PKR. - BULLHEADED 1,1 M3 INTO FORMATION.
92/07/03	- CIRCULATED MUD AFTER KILLING TEST STRING. - REDUCED GAS READINGS AND CONDITIONED MUD. - LAID OUT FLOWHEAD, LANDING STRING AND EZ-TREE. - POOH. LAID DOWN TUBING. - BROKE AND LAID DOWN TEST TOOLS.
92/07/04	- POOH AND LAY DOWN TEST STRING. - RAN 6" BIT AND SCRAPER TO 3365M. - REPLACED HOSE ON BLOCK RETRACT SYSTEM. - SCRAPED CASING. CIRCULATED OUT GAS AND CONDITIONED MUD. - POOH. - RAN CEMENT RETAINER ON WIRELINE AND SET AT 3360M. - RIH CEMENT STINGER AND DRILL PIPE. -
92/07/05	- RAN CEMENT STINGER TO 3360 M. - SQUEEZED 3,3 M3 CEMENT BELOW RETAINER. - POOH REV CIRC. - SET BALANCED PLUG FROM 2900 - 2750 M. - POH. REV. CIRC. POH - RIH WITH 8-1/2" BIT AND 9-5/8" CASING SCRAPER. - SCRAPED CASING CIRC. BOTTOMS UP. - TAGGED CEMENT PLUG AT 2787 M. - WEIGHT TESTED WITH 6 TON. - POH.
92/07/06	- POOH WITH 8 1/2" BIT AND 9 5/8" CASING SCRAPER. - RAN 9 5/8" BRIDGE PLUG ON WIRELINE AND SET AT 2758M. - RAN DC AND DP IN WELL. HUNG OFF. - DISCONNECTED LMRP AND RETRIEVED SAME WITH RISER. - SHUT DOWN DUE TO STRIKE.
92/07/07	SHUT DOWN DUE TO STRIKE
92/07/08	SHUT DOWN DUE TO STRIKE
92/07/09	- STRIKE ENDED - RERAN LMRP + RISER - TESTED C + K LINES TO 245 BAR - RETRIEVED HANG OFF TOOL AND TESTD LMRP TO 245 BAR - POOH LAYING DOWN DP

Report date	
92/07/10	- LAID OUT EXCESS DP + DC - RETRIEVED WEAR BUSHING - MADE UP AND RAN 9-5/8" CASING CUTTER - CUT 9-5/8" CASING AT 1000M - POOH CASING CUTTING ASSY. - MADE UP AND RIH SEAL ASSY R/R TOOL - RECOVERED SEAL ASSY. LAID OUT WITH R/R TOOL - MADE UP 9-5/8" SPEAR ASSY.
92/07/11	- RAN 9 5/8" CASING SPEAR. RETRIEVED AND LAID DOWN 9 5/8" CASING. - RAN CEMENT STINGER ON DRILL PIPE TO 1100M. - SET VISCOUS PLUG FROM 1100 - 1050M. - PULLED TO 1050M AND SET CEMENT PLUG, FROM 1050 - 870M. - PULLED TO 800M AND SQUEEZED 3,2 M3 CEMENT (100M) INTO 13 3/8" X 9 5/8" ANNULUS. - CIRCULATED BOTTOMS UP AND PULLED OUT OF HOLE. - LAID DOWN EXCESS DP AND DC. - MADE UP 12 1/4" BIT AND 13 3/8" CASING SCRAPER. RIH. TAGGED CEMENT PLUG AT 894M. WEIGHT TESTED WITH 10 T.
92/07/12	- CIRCULATED AND SCRAPED CASING WITH 13 3/8" SCRAPER. POOH. - TESTED CEMENT PLUG £ 3 TO 125 BAR. - SET MECHANICAL BRIDGE PLUG ON WIRE LINE AT 885M. - MADE UP/RAN 13 3/8" CASING CUTTER. - CUT 13 3/8" CASING AT 417M. POOH. - RAN 13 3/8" CASING SPEAR RETRIEVED AND LAID DOWN 13 3/8" CASING. - PRESSURE TESTED 13 3/8" X 20" ANN. FAILED. - RIH AND SET CEMENT PLUG FROM 470-200M. - SQUEEZED 10,4 M3 (EQUIVALENT TO 120M) INTO 13 3/8" X 20" ANN. - WOC, CIRCULATED AND CLEANED PIPE + BOP.
92/07/13	- L/D EXCESS DP. WHILST ATTEMPTING TO PRESSURE TEST CMT PLUG AGAINST SHEAR RAM, NEG. - RIH WITH CMT DIVERTING TOOL, AND ATTEMPTED TO PRESSURE TEST CMT PLUG AGAINST PIPE RAMS, NEG. - TAGGED TOP OF CMT PLUG AT 258M AND SET CMT PLUG FROM 258M TO 190M. - L/D EXCESS DP, WHILST MANTAINING 95 BAR PRESSURE ON CMT PLUG FOR 2 HOURS AND SQUEEZING 70 L CEMENT. TESTED CEMENT PLUG TO 95 BAR. - PICKED UP 20" + 30" CUTTER AND SCOR TOOL - STOOD IN DERRICK. - DISCONNECTED AND RETRIEVED BOP.
92/07/14	- L/D RISER - CUT AND RETRIEVED 20" AND 30" CASING + PGB - PULLED ANCHORS, INSPECTED SEABED WITH ROV

4.4 Well and Subsea Schematic

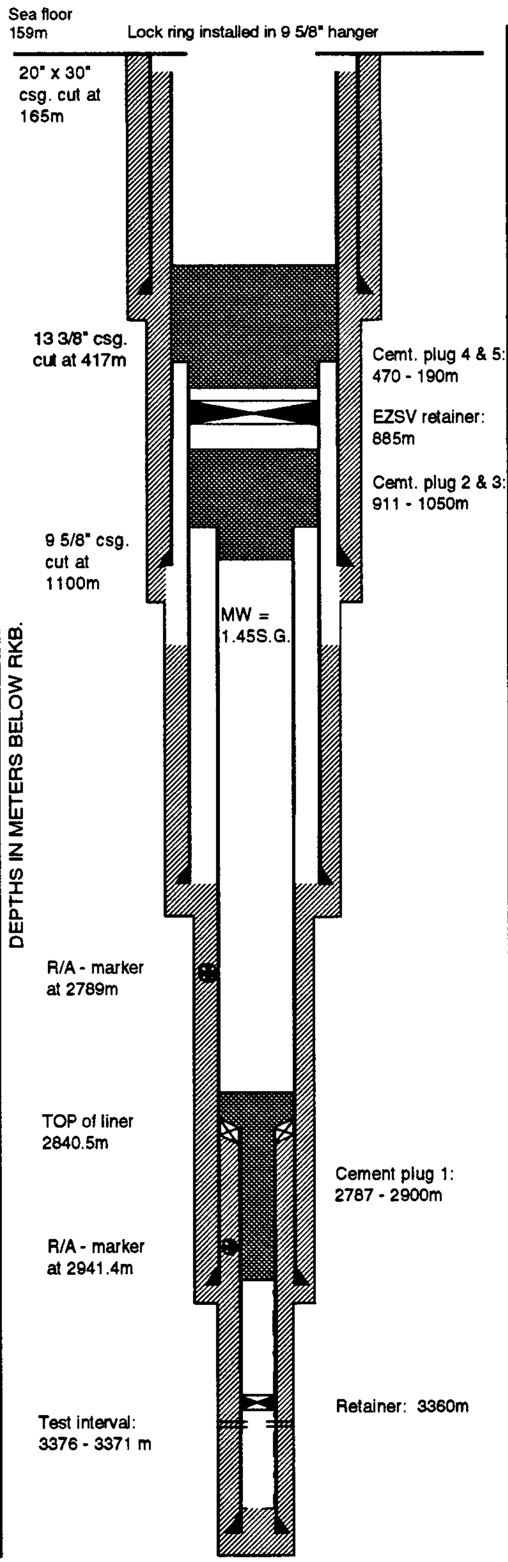
III 4 WELLBORE SCHEMATIC: 34/10-36, DEEPSEA BERGEN
(NOT TO SCALE)

RKB - MSL: 23m
WATER DEPTH: 136m

ALL ADDITIVES ARE PER 100KG USED CEMENT.
NORCEM CLASS G CEMENT THROUGHOUT.

All depth in MD from RKB

HOLE	CASING
9 7/8" Pilothole to 859m - - - - 36" to 225m	30" Grade B 310.0kg/m Vetco ST-2 RB 220m
26" 1071m	20" 133 lbs/ft X-56 Vetco RL-4S (SG-6 Wellhead) (75 joints) 156 - 1056m
17 1/2" 2115m	13 3/8" 72 lbs/ft P - 110 Buttress (166 joints) 2100m
12 1/4" 3010m	9 5/8" 53.5 lbs/ft L - 80 BDS (217 joints) - - - - - - CR - 13 (20 joints) 156.8 - 2728m 2728 - 2994m
8 1/2" 3640m	7" Liner 29 lbs/ft CR - 13 (64 joints) 2840.5 - 3625m



CASING CEMENT	PLUGS/SQUEEZE
LEAD: 19.6m3, 1.56 S.G. Slurry w/ 3.55 l Liqu. Econolite + 93.04 l Seawater - - - - - - - - - - TAIL: 15m3, 1.92 S.G. Slurry w/ 4.50 l Liqu. CaCl2 + 40.60 l Seawater	
LEAD: 223m3, 1.50 S.G. Slurry w/ 3.50 l Econolite + 2.60 l HR-4L + 107.53 l Drillwater - - - - - - - - - - TAIL: 15.0m3, 1.92 S.G. Slurry w/ 41.72 l Seawater - - - - - - - - - - SPACER: Ahead: 15m3 Drillwater	CEMENT PLUG 4 & 5: 12 + 43m3, 1.90 S.G. Slurry w/ 2.0 l CaCl2 + 45.52 l Seawater CEMENT PLUG 2 & 3: 3.2 + 12.0m3, 1.90 S.G. Slurry w/ 45.55 l Seawater
LEAD: 54.6m3, 1.56 S.G. Slurry w/ 3.20 l Econolite + 2.80 l HR-4L + 93.20 l Seawater - - - - - - - - - - TAIL: 15m3, 1.92 S.G. Slurry w/ 1.30 l HR-4L + 42.84 l Drillwater - - - - - - - - - - SPACER: Ahead: 15.0m3 Seawater	
TAIL: 29.0m3, 1.90 S.G. Slurry w/ 10.0kg Microblock + 0.75% CFR-3L + 0.3% HR-5 + 5.0 l Halad-361A + 35% SSA-1 + 45.97 l Drillwater - - - - - - - - - - SPACER: Ahead: 1.60m3 Drillwater	CEMENT PLUG 1 4.6m3, 1.92 S.G. Slurry w/ 35% SSA-1 + 0.6% HR-5 + 0.1% BWOC CFR-3 + 54.0 l Drillwater - - - - - - - - - - SPACER: Ahead: 1m3 Drillwater
LEAD: 34.0m3, 1.90 S.G. Slurry w/ 10.0 l Microblock + 5.0 l Halad-361A + 0.6% BWOC CFR-3 + 0.55% BWOC HR-5 + 35% BWOC SSA-1 + 45.94 l Drillwater - - - - - - - - - - SPACER: Ahead: 10m3, 1.73 S.G. DUAL-E	SQUEEZE TEST PERF: 3.7m3, 1.90 S.G. Slurry

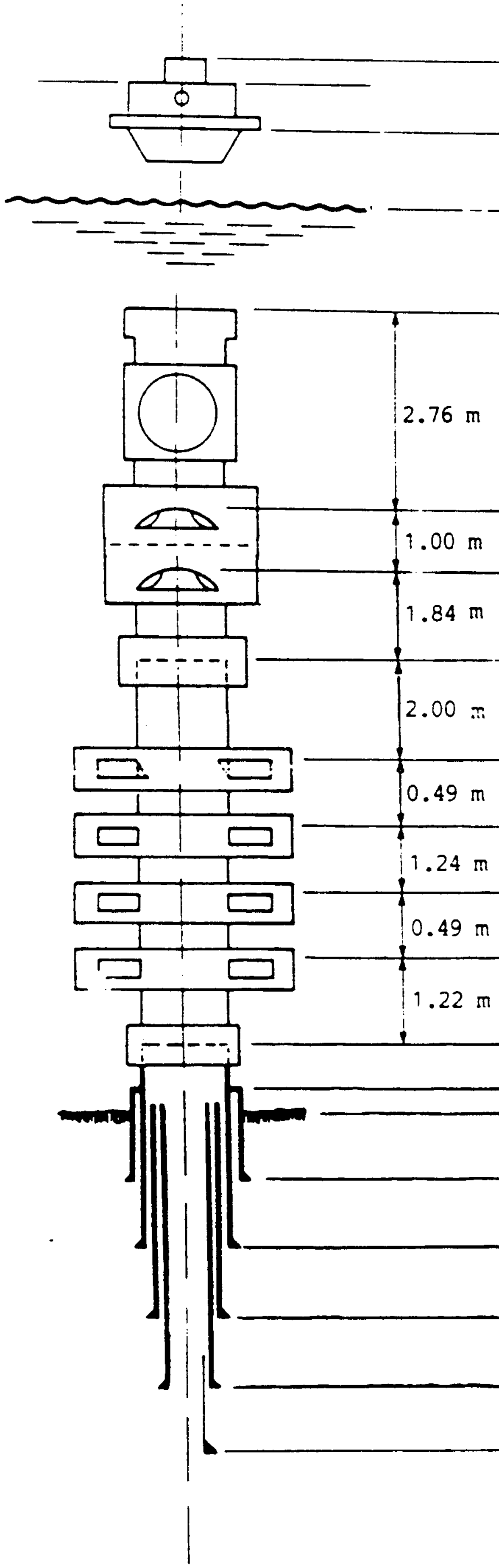
PROSJEKTER/DEEP1.DRW

DEEPSEA BERGEN

SUBSEA ASSEMBLY

WELL 34/10-36

(NOT TO SCALE)



M	
0	RKB
	DIVERTER RISER CONN. FLANGE
23.00	MEAN SEA LEVEL
144.96	JOINT RISER CONNECTOR FLANGE
147.72	UPPER ANNULAR RUBBER TOP (CLOSED)
148.72	LOWER ANNULAR RUBBER TOP (CLOSED)
150.56	LOWER STACK ASSEMBLY TOP
152.56	SHEAR RAMS TOP
153.05	U.P. RAMS TOP
154.29	M.P. RAMS TOP
154,78	L.P. RAMS TOP
156.00	18 3/4" WELLHEAD TOP
157,50	30" HOUSING TOP
159.00	MUD LINE
220.0	30" SHOE
1056.0	20" SHOE
2100.0	13 3/8" SHOE
2994.0	9 5/8" SHOE
3625.0	7" Liner shoe (liner top: 2840.5 m)

STATOIL

4.5 Formation Integrity Test

STATOIL

FORMASJONSSTYRKETEST

Dato: 10.05.92

Brønn nr.: 34/10-36 **Dybde:** Brønn: 1074.0 Foring: 1056.0 Test: LOT 20"

Fartøy: Deepsea Bergen **Høyde R.K.B.:** Over vannfl.: 23.0 m Over sjøb.:

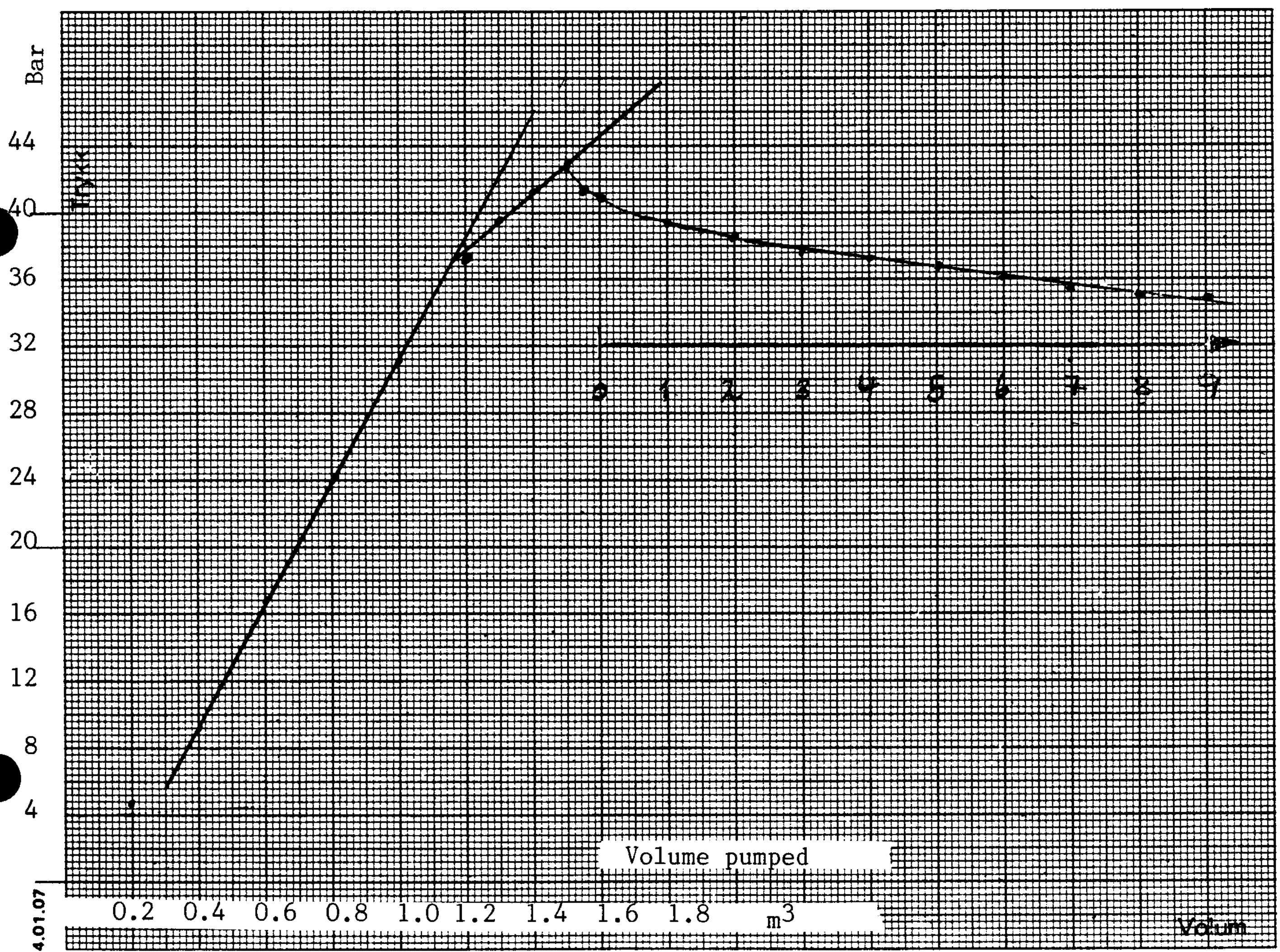
Foring: Diam.: 20.0 Tyngde: 133.0 Grad: X56 Maks. trykk: 150 bar

Boreslam: Tetthet: 1.25 Vis: 60 P.V.: 24 Y.P.: 5 Pa Filt: 4.0 Gel.: 1/1

Pumpe: Type: HT 400 Kapasitet: 6.25 l/stk Vol./tidsenh.: 50 l/min Tilb.str.:

Antatt styrke: 1.40 Obs. spr. trykk: 37 Bar Ekv. formasj. styrke: 1.60 SG

Volum/tid	Trykk	Volum/tid	Trykk	Volum/tid	Trykk	Anmerkninger
0.2	4.65	1.0	31.0	0 1	41.4 39.4	Pumped 1.55 m^3
0.3	5.95	1.1	34.1	2 3	38.4 37.8	Bled back 0.95 m^3
0.4	9.20	1.2	37.1	4 5	37.2 36.6	
0.5	13.1	1.3	39.6	6 7	36.0 35.5	
0.6	16.9	1.4	41.5	8 9	35.1 34.6	
0.7	20.6	1.5	43.3	10	34.1	
0.8	24.1	1.55	43.0			Sign.:
0.9	27.9					P. Christiansen



4.01.07

STATOIL

FORMASJONSSTYRKETEST

Dato: 19.05.92

Brønn nr.: 34/10-36 **Dybde:** Brønn: 2118 Foring: 2100 Test: LOT 13 3/8"

Fartøy: Deepsea Bergen **Høyde R.K.B.:** Over vannfl.: 23.0 m Over sjøb.:

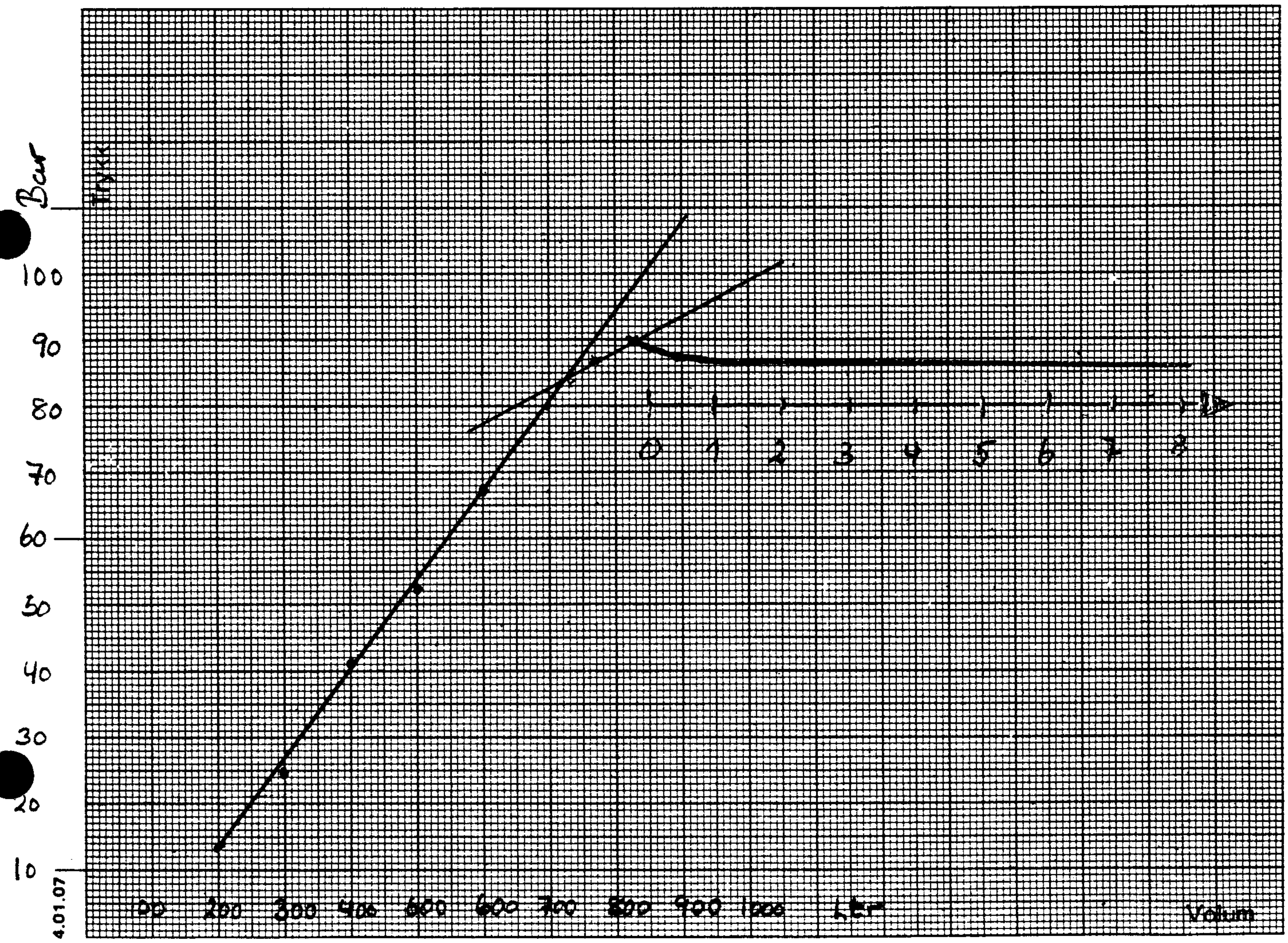
Foring: Diam.: 13 3/8" Tyngde: 72 Grad: P-110 Maks. trykk:

Boreslam: Tetthet: 1.35 Vis: P.V.: Y.P.: Filt: Gel.:

Pumpe: Type: Kapasitet: Vol./tidsenh.: 50 Tilb.str.:

Antatt styrke: 1.70 Obs. spr. trykk: 84 bar Ekv. formasj. styrke: 1.76

Volum	Trykk	Tid	Trykk	Volum/tid	Trykk	Anmerkninger
0	3	1	88			
160	9	3	86			Pumped: 835 litres
320	29	6	86			Bled back: 720 litres
480	52	9	86			
560	63	10	86			
720	84					
835	90					Sign.: R. Vik



4.01.07

STATOIL

FORMASJONSSTYRKETEST

Dato: 04.06.92

Brønn nr.: 34/10-36 **Dybde:** Brønn: 3013 m Foring: 2994 m Test: LOT 9 5/8"

Fartøy: Deepsea Bergen **Høyde R.K.B.:** Over vannfl.: 23 Over sjøb.: 156

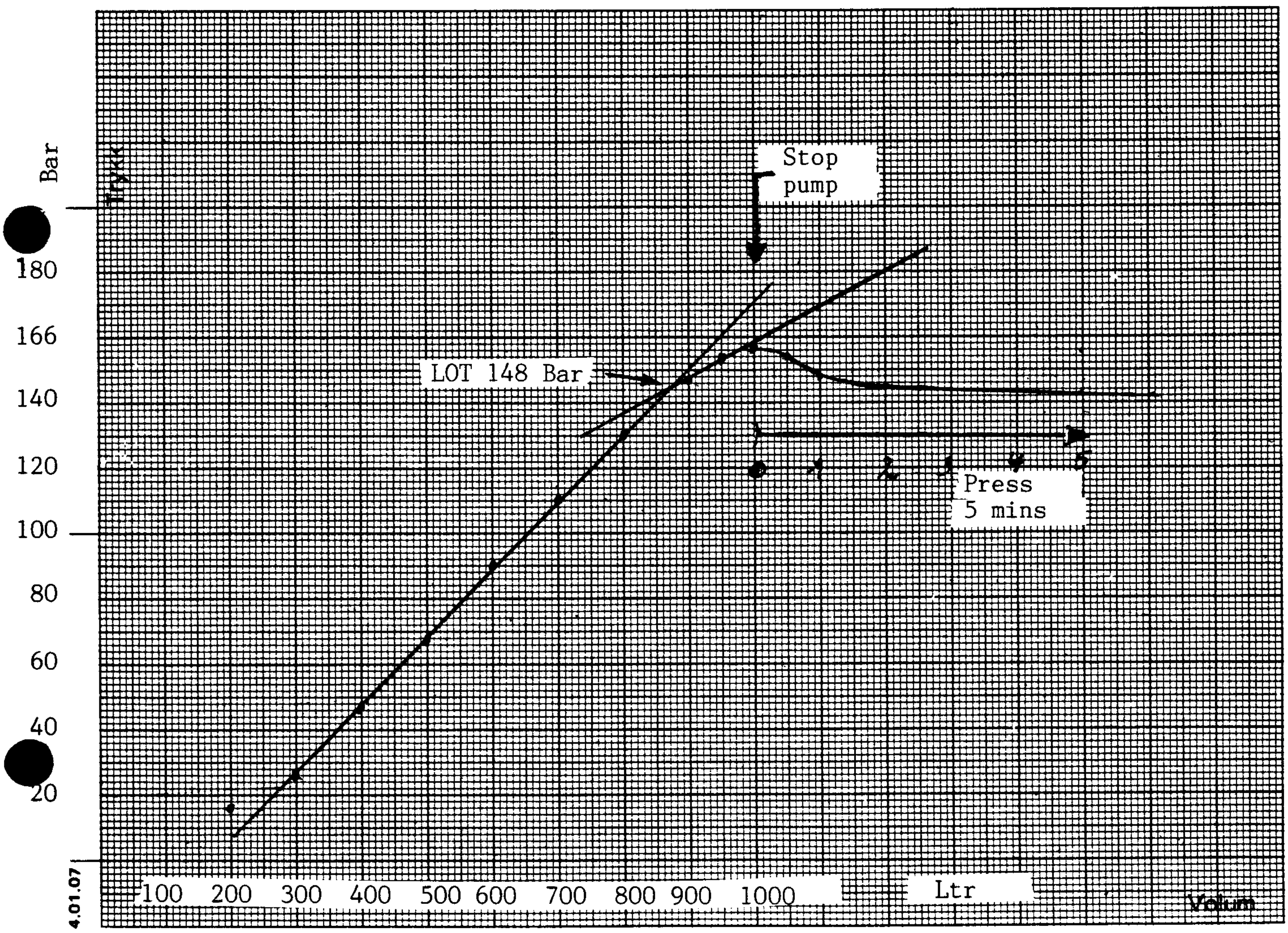
Foring: Diam.: 9 5/8" Tyngde: 53.5 Grad: L80/L80+13%CR Maks. trykk: 547

Boreslam: Tetthet: 1.47 Vis: 52 P.V.: 27 Y.P.: 4,5 Filt: 3.8 Gel.: 1/6.5

Pumpe: Type: CMT pump Kapasitet: Vol./tidsenh.: Tilb.str.:

Antatt styrke: 1.9 Obs. spr. trykk: 148 Bar Ekv. formasj. styrke: 1.97

~~XXXX~~m/tid ltr	Trykk Bar	Volum/~~XX~~ ltr	Trykk Bar	Volum/~~XXX~~ ltr	Trykk Bar	Anmerkninger
50	4.2	450	57.5	850	140.1	Pumped 1.0 m^3
100	5.1	500	68.1	900	148.4	Bled back 905 l
150	6.2	550	79.5	950	155	Lost 95 l
200	9.1	600	90.3	1000	157	Stop
250	17	650	101	1 min	154	pump
300	26.1	700	110	2 min	148.5	
350	36.5	750	121	3 min	147	Sign.:
400	47	800	131.1	4 min	145.4	P. Rogerson
				5 min	145	



4.01.07

STATOIL

4.6 Rig Time Distribution

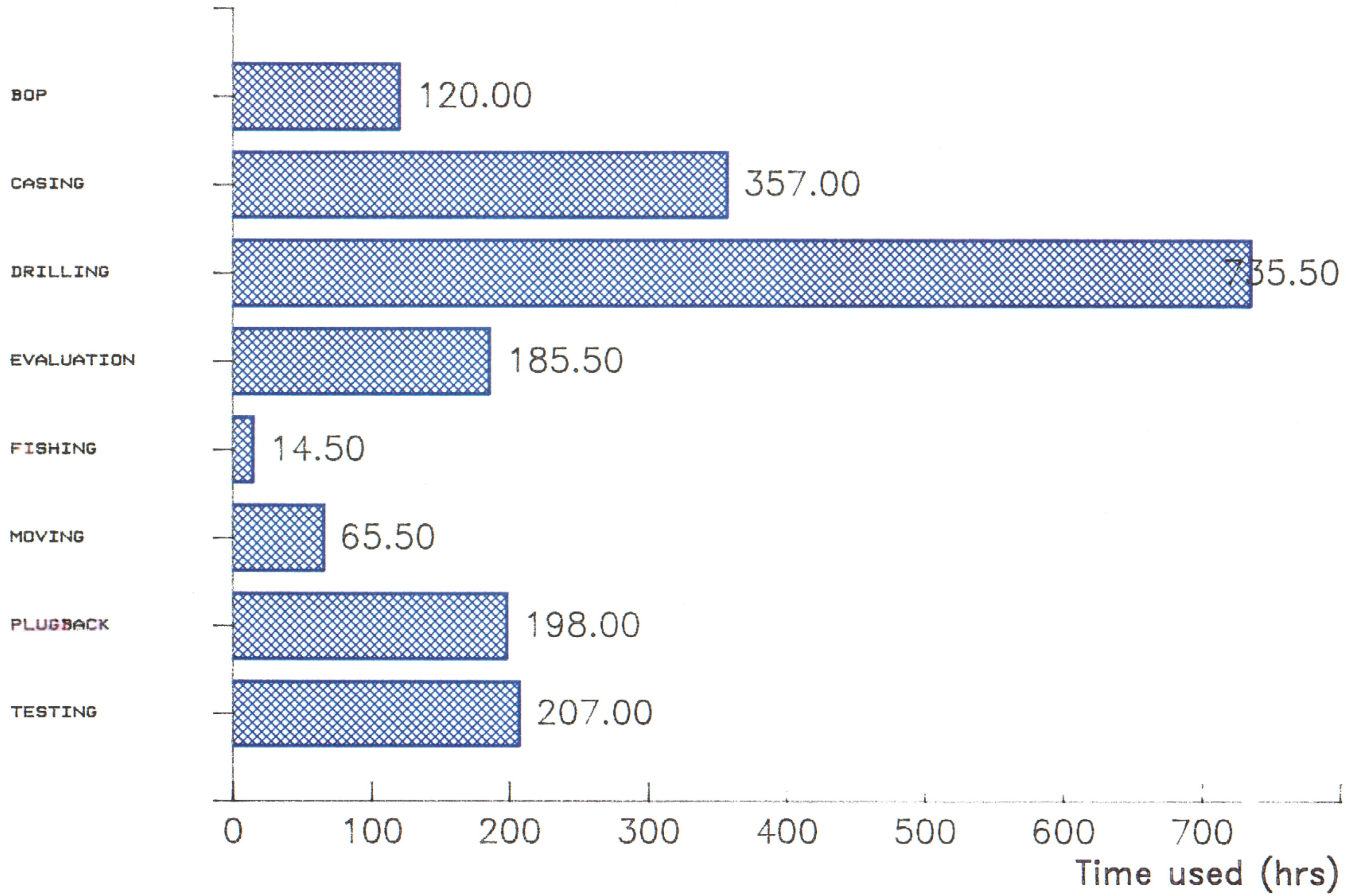
R I G   T I M E   D I S T R I B U T I O N

Well: 0034/10-036

Main Operation	Sub operation	Time used	Prosent
BOP	BOP	104,00	5,52
	WELLHEAD	16,00	,85
		120,00	6,37
CASING	CSG/LINER	114,00	6,05
	CIRC/COND	97,00	5,15
	CEMENT	61,00	3,24
	TRIP	41,50	2,20
	DRILLING	21,00	1,12
	LOG	11,50	,61
	EQUIPMENT	11,00	,58
		357,00	18,96
DRILLING	DRILLING	427,50	22,70
	TRIP	170,00	9,03
	CIRC/COND	93,50	4,97
	EQUIPMENT	42,50	2,26
	SURVEY	2,00	,11
		735,50	39,06
EVALUATION	LOGGING	97,50	5,18
	TRIP	28,00	1,49
	CORING	26,00	1,38
	CIRC/COND	25,50	1,35
	TEST	6,00	,32
	EQUIPMENT	2,50	,13
		185,50	9,85
FISHING	TRIP	14,50	,77
		14,50	,77
MOVING	TRANSIT	43,50	2,31
	ANCHOR	22,00	1,17
		65,50	3,48
PLUGBACK	CASING	118,50	6,29
	TRIP	46,00	2,44
	CEM	15,50	,82
	CIRC/COND	8,50	,45
	WIRE	6,00	,32
	CEMENT	3,50	,19
		198,00	10,52
TESTING	FLOW	88,00	4,67
	EQUIPMENT	82,00	4,35
	CIRC/COND	27,00	1,43
	TEST	4,50	,24
	LOGGING	3,50	,19
	WIRELINE	2,00	,11
		207,00	10,99
TOTAL		1883,00	100,00

RIG TIME DISTRIBUTION: MAIN OPERATIONS

Well: 0034/10-036



DBR

STATOIL

RIG TIME DISTRIBUTION: MAIN OPERATIONS

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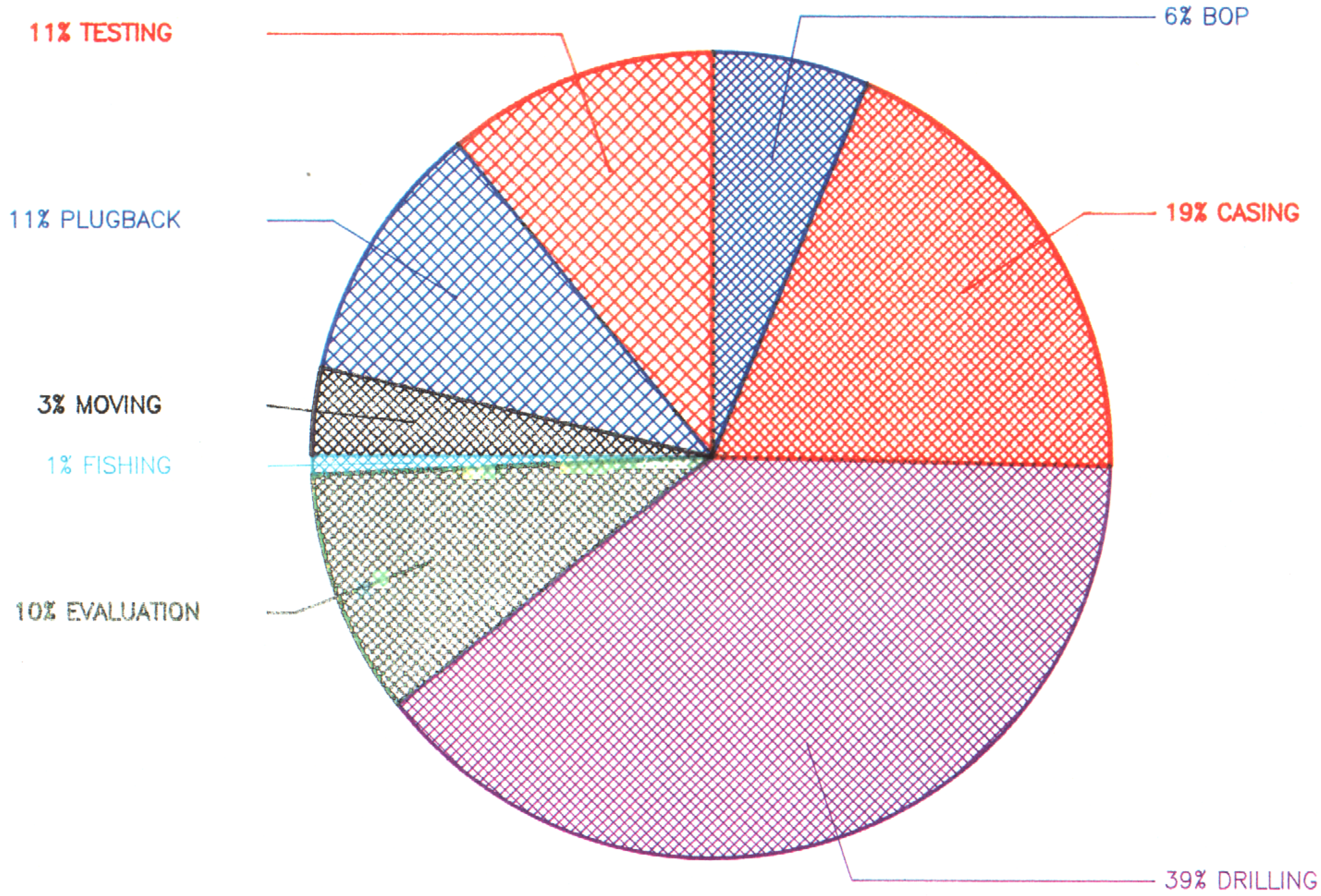

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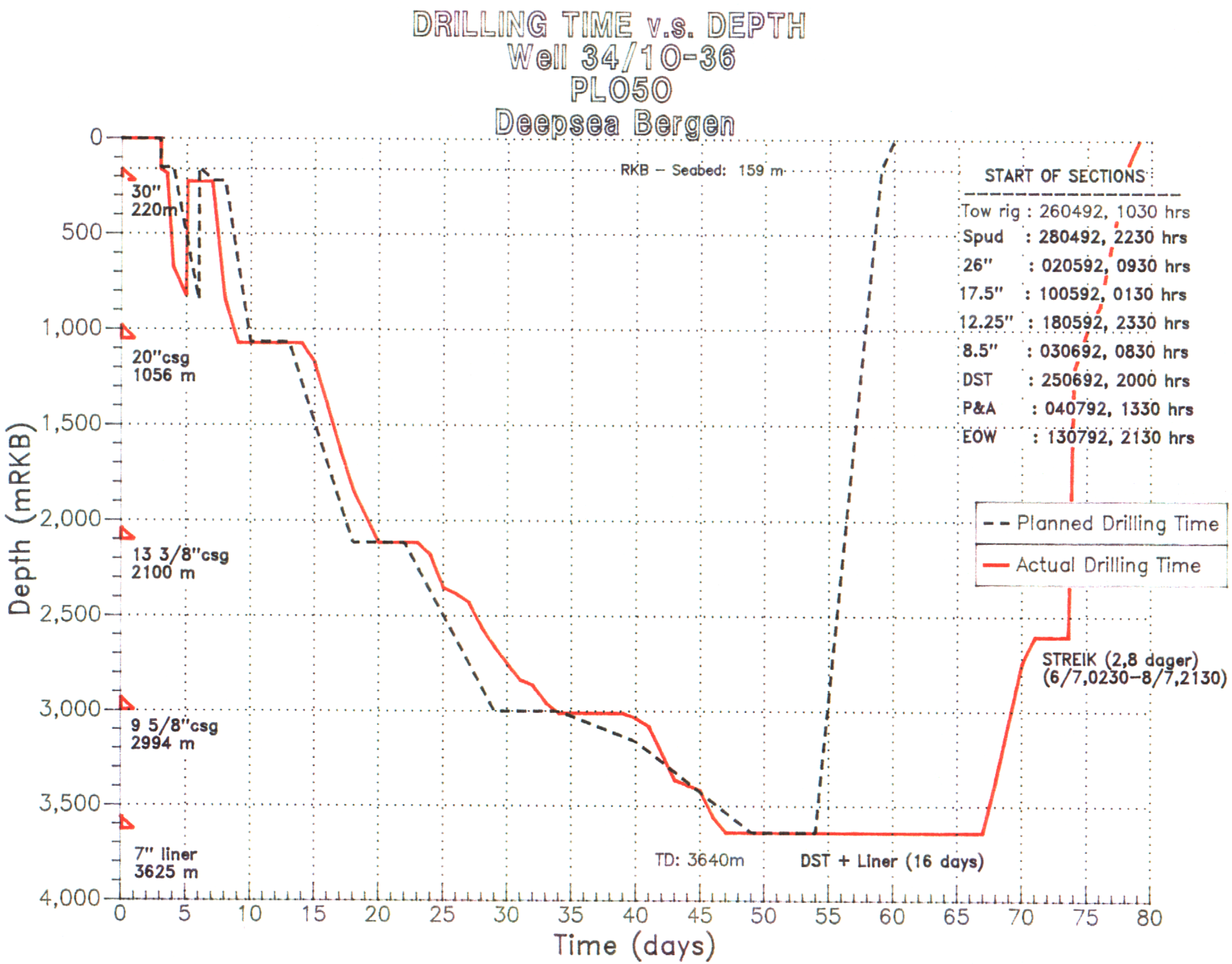


DRILLING TIME v.s. DEPTH
Well 34/10-36
PL050
Deepsea Bergen
RKB – Seabed: 159 m
START OF SECTIONS
Tow rig : 260492, 1030 hrs
Spud : 280492, 2230 hrs
26" : 020592, 0930 hrs
17.5" : 100592, 0130 hrs
12.25" : 180592, 2330 hrs
8.5" : 030692, 0830 hrs
DST : 250692, 2000 hrs
P&A : 040792, 1330 hrs
EOW : 130792, 2130 hrs
Planned Drilling Time
Actual Drilling Time
30" 220m
20"csg 1056 m
13 3/8"csg 2100 m
9 5/8"csg 2994 m
7" liner 3625 m
STREIK (2,8 dager)
(6/7,0230–8/7,2130)
TD: 3640m
DST + Liner (16 days)
Depth (mRKB)
Time (days)

STATOIL

4.7 Bit Record

DBR

Print date: 92/06/17

Page: 1

BIT RECORD

Well: 0034/10-036

Run no.	Bit Size	Bit no.	BHA no.	Bit type	IADC code	Manufacturer	Serial no.	Nozzles no x n	(n/32") no x n	no x n	no x n	Flow area in2
1	9 7/8"	1	1	ATJ1S	116	HUGHES	L08PF	3 x 20	x	x	x	,920
2	26"	2	2	Y11	111	REED	JD3322	3 x 16	1 x 15	x	x	,762
	36"	HO	2			SMITH	S/N8052	3 x 15	x	x	x	,518
3	26"	2RR	3	Y11	111	REED	JD3322	3 x 16	1 x 15	x	x	,762
	36"	HO	3			SMITH	S/N8052	3 x 15	x	x	x	,518
4	17 1/2"	3	4	SDSC	114	SMITH	NB9300	2 x 18	1 x 13	x	x	,627
	26"	HO	4			SMITH	S/N 8040	3 x 15	x	x	x	,518
5	26"	2RR2	5	Y11	111	REED	JD3322	3 x 16	1 x 15	x	x	,762
6	17 1/2"	4	6	MAX05	415	HUGHES	K84BJ	1 x 20	1 x 22	1 x 24	1 x 16	1,316
7	17 1/2"	5	7	MAXT05	415	HUGHES	K65BC	1 x 20	1 x 22	1 x 24	1 x 16	1,316
8	17 1/2"	6	8	SS44GJ4	135	SECURITY	499495	3 x 24	1 x 16	x	x	1,522
9	17 1/2"	6RR	9	SS44GJ4	135	SECURITY	499495	x	x	x	x	
10	12 1/4"	7	10	MHP13GJ	139	REED	BC3890	3 x 18	x	x	x	,746
11	12 1/4"	8	11	MHP13GJ	139	REED	BC3892	3 x 20	x	x	x	,920
12	12 1/4"	9	12	ATM11H	447B	HUGHES	K 62 BX	1 x 20	2 x 18	x	x	,804
13	12 1/4"	10	13	MSDGHC	135	SMITH	NB 9741	1 x 14	1 x 15	2 x 18	x	,820
14	12 1/4"	11	14	ATM11H	447B	HUGHES	K 63 BX	3 x 18	x	x	x	,746

Run no.	Flow-rate l/min	Pump pres bar	----Depth---- In mMD	Out mMD	Made m.	HR. Drlg.	ROP m/hr	--WOB-- Min ton	Max ton	--RPM-- Min	Max	---- IADC Dull Grading --- I	O	DC	L	B	G	OC	RP	Remarks
1	2000	70	159,0	859,0	700,0	22,4	31,3		15	100	150	1	1	NO	A	E	I	NO	TD	
2	4040	110	159,0	226,0	67,0	6,2	10,8		5	100	130	1	1	NO	A	E	I	NO	TD	OPENED 9 7/8" PILOT HOLE TO 36"
					,0		,0													
3					,0		,0													CLEAN OUT TRIP TO 225 M.
					,0		,0													TWO HOLE OPENERS IN TANDEM
4	4030	199	226,0	1071,0	845,0	33,8	25,0	3	12	120	150	1	3	NO	A	E	1/4	NO	TD	+ DRILLED OUT 30" SHOE IN 2,3 HRS. HO 1-1/4 OFF GAUGE
					,0		,0													
5	4040	115			,0		,0													WIPERTRIPPED PRIOR TO RUN 20" CSG. USED 26" HO IN ADDITION.
6	3770	180	1071,0	1171,0	100,0	4,3	23,3	3	10		150	1	1	NO	A	F	I	NO	DTF	BEARING CONE NO. 3 FAILED.
7	3600	240	1171,0	1918,0	747,0	42,4	17,6	5	30	100	180	8	8	BT	A	F	2/16	LT	PR	TOT. BIT REVS:375330 65% INSERTS LOST
8	3570	250	1918,0	2115,0	197,0	14,0	14,1	10	20	100	120	1	2	WT	H	F	I	NO	TD	
9			2115,0	2115,0	,0		,0													BIT NO.6RR FOR WIPERTRIP
10	2670	230	2115,0	2350,0	235,0	22,5	10,4	15	20	100	156	1	2	WT	A	E	I	BT	BHA	DRILLED CMT/PLUGS. 2 BT
11	2160	185	2350,0	2426,0	76,0	29,3	2,6		20		217	2	2	CD	A	E	I	BU	PR	REF: OTHER CHAR: BU,BT
12	2240	225	2426,0	2661,0	235,0	29,8	7,9		24	60	230	1	1	NO	A	F	I	BU	TQ	
13	2240	230	2661,0	2825,0	164,0	24,5	6,7		24		240	2	2	NO	A	F	I	SD	TQ	
14	2700	280	2825,0	3010,0	185,0	39,5	4,7		24	60	185	1	1	NO	A		I	NO	TD	BEARINGS DAMAGED DUE TO BHA DROPPED 12 M.

B I T R E C O R D

Well: 0034/10-036

Run no.	Bit Size	Bit no.	BHA no.	Bit type	IADC code	Manufacturer	Serial no.	Nozzles no x n	(n/32") no x n	no x n	no x n	Flow area in2
15	12 1/4"	7RR	16	MHP13GJ	139	REED	BC 3890	3 x 10	x	x	x	,230
16	8 1/2"	12	17	MSDGHC	135	SMITH	NB9038	3 x 14	x	x	x	,451
17	8 1/2"	13	18	SC226	T6X8	EASTMAN CHRIST	1801319	x	x	x	x	
18	8 1/2"	14	19	ATM11H	447B	HUGHES	K03BC	3 x 14	x	x	x	,451
19	8 1/2"	15	20	RC476	M595	EASTMAN CHRIST	1800690	x	x	x	x	
20	8 1/2"	16	21	SC225	T6X5	EASTMAN CHRIST	1800568	x	x	x	x	,700
21	8 1/2"	17	22	ATM11H	447B	HUGHES	J92BV	3 x 14	x	x	x	,451
22	8 1/2"	12RR	23	MSDGH	135	SMITH	NB9038	x	x	x	x	
23	8 1/2"	12RR2	24	MSDGH	135	SMITH	NB9038	x	x	x	x	
24	8 1/2"	18	25	SS44G	135	SECURITY	570126	x	x	x	x	

Run no.	Flow-rate l/min	Pump pres bar	Depth In mMD	Depth Out mMD	Made m.	HR. Drlg.	ROP m/hr	WOB Min ton	WOB Max ton	RPM Min	RPM Max	I	O	DC	L	B	G		OC	RP	Remarks
15					,0		,0														WIPER TRIP
16	1800	280	3010,0	3029,0	19,0	3,3	5,8	9	19	70	120	1	1	WT	A	E	I		BT	CP	DRILLED CEMENT
17	730	110	3026,0	3054,0	28,0	11,5	2,4	5	10	80	108	3	4	SS	N	X	I		PN	CP	CORED DRAUPNE SHALE (CORE JAMMED OFF)
18	1845	275	3054,0	3363,0	309,0	45,7	6,8	15	20	130	150	4	8	BT	H	F	2			CP	TOT. REV.= 417.780
19	950	80	3363,0	3390,0	27,0	1,4	19,3	5	15	90	150	1	2	BT	N	X	I		JD	CP	15 % WEAR. RERUN FROM 30/3-A12
20	950	75	3390,0	3417,0	27,0	7,4	3,6	5	10	90	110	2	2	BT	N	X	I		JD	CP	RERUN FROM 7/7-2
21	1900	285	3417,0	3640,0	223,0	35,5	6,3	5	20	100	130	2	4	BT	H	F	I		NO	TD	TOT. BIT REVS: 269010
22	2500	275			,0		,0		10		150										WIPERTRIP PRIOR LOGGING.
23	2450	290			,0		,0														WIPERTRIP
24	2450	280			,0		,0														WIPERTRIP BETWEEN LOGS.

4.8 Pressure and Temperature Profiles

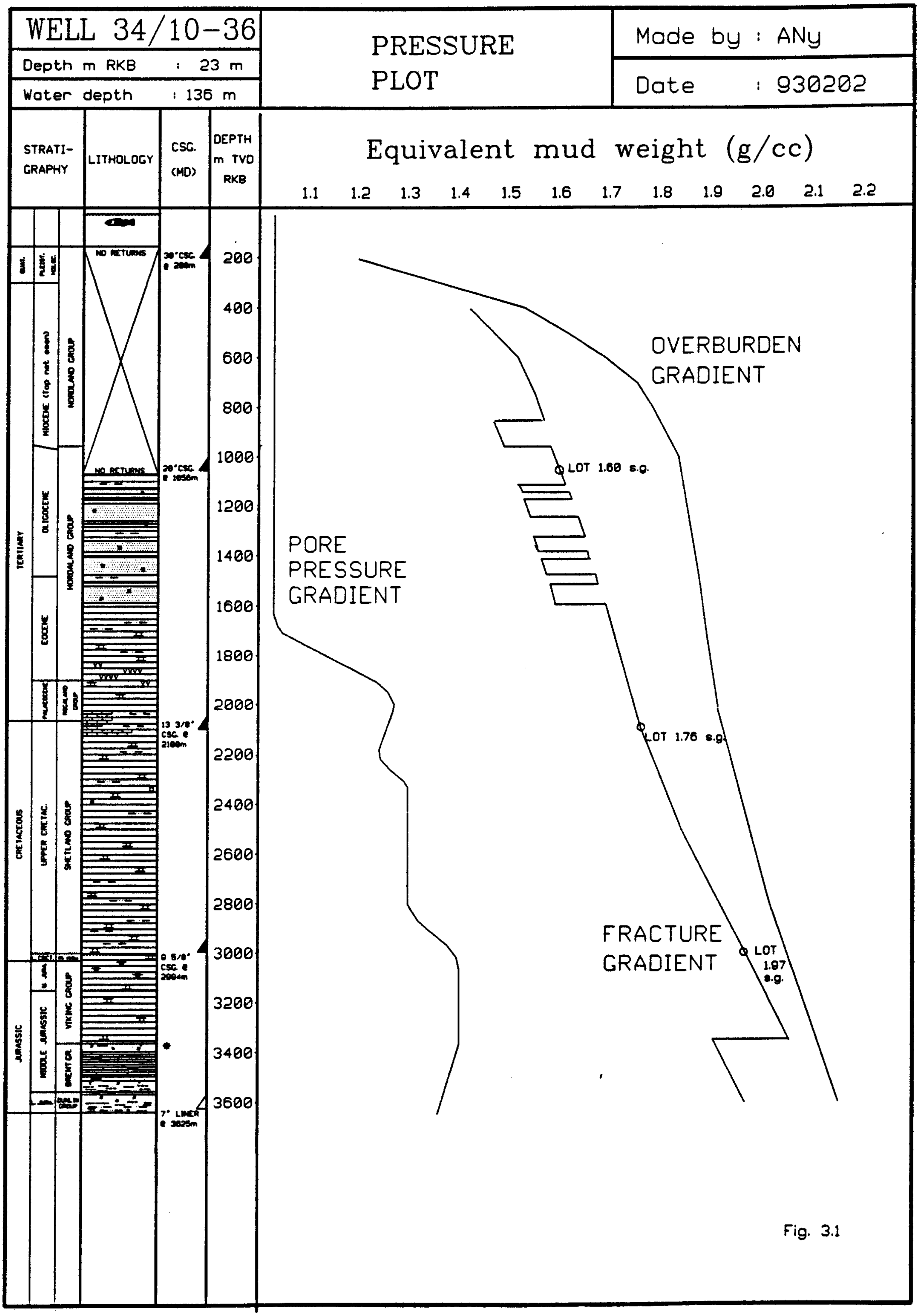

WELL 34/10-36
Depth m RKB : 23 m
Water depth : 136 m
PRESSURE PLOT
Made by : ANy
Date : 930202
STRATI-GRAPHY
LITHOLOGY
CSG. (MD)
DEPTH m TVD RKB
Equivalent mud weight (g/cc)
1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2
200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400 3600
TERTIARY
CRETACEOUS
JURASSIC
MIOCENE (Top not seen)
OLIGOCENE
EOCENE
UPPER CRETAC.
MIDDLE JURASSIC
NORDLAND GROUP
HORDALAND GROUP
SHETLAND GROUP
VIKING GROUP
BRENT GR.
NO RETURNS
NO RETURNS
7" LINER @ 3625m
OVERBURDEN GRADIENT
PORE PRESSURE GRADIENT
FRACTURE GRADIENT
LOT 1.60 s.g.
LOT 1.76 s.g.
LOT 1.97 s.g.

Fig. 3.1

WELL 34/10-36	TEMPERATURE PLOT	Made by : ANy
Depth m RKB : 23 m		Date : 930203
Water depth : 136 m		

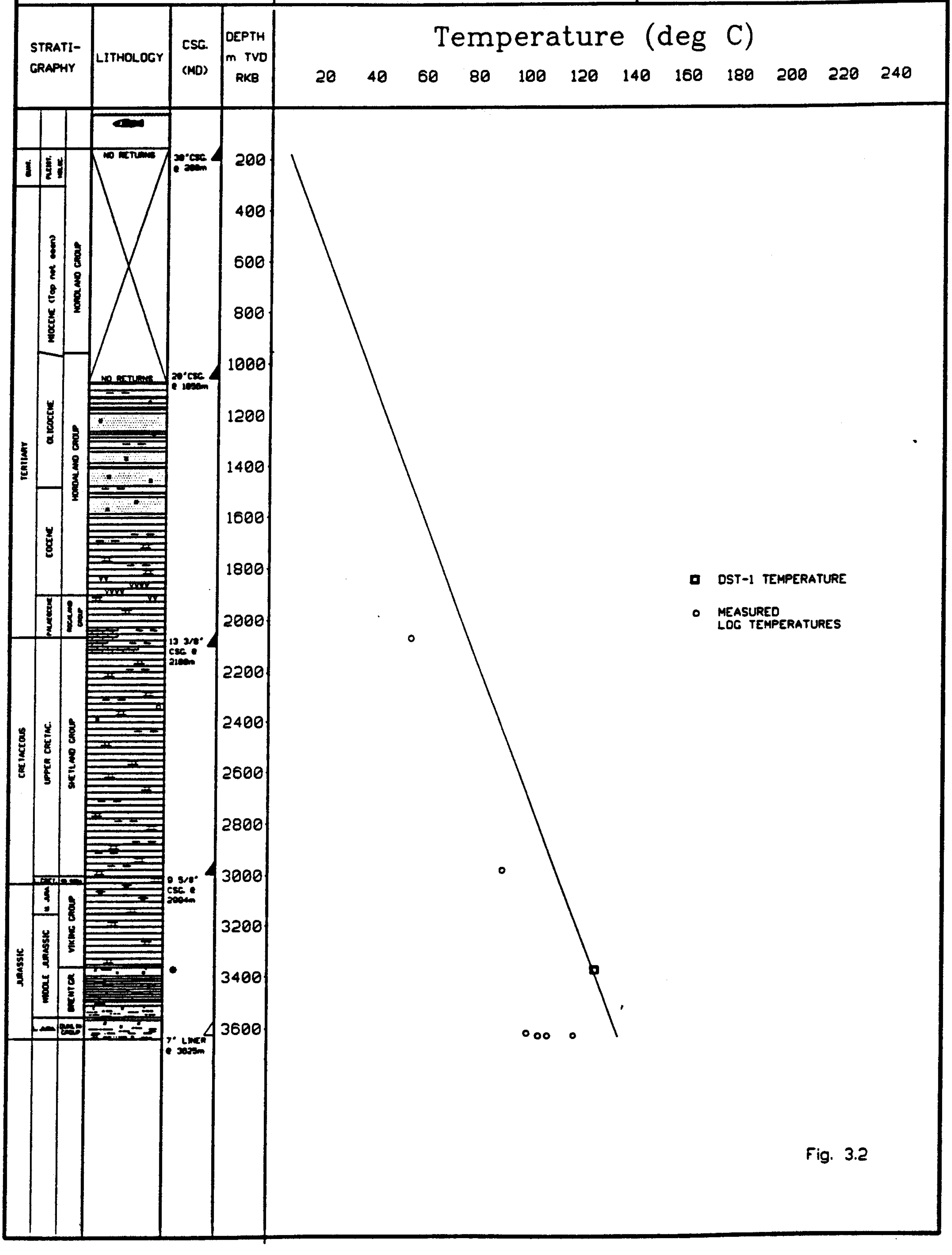


Fig. 3.2

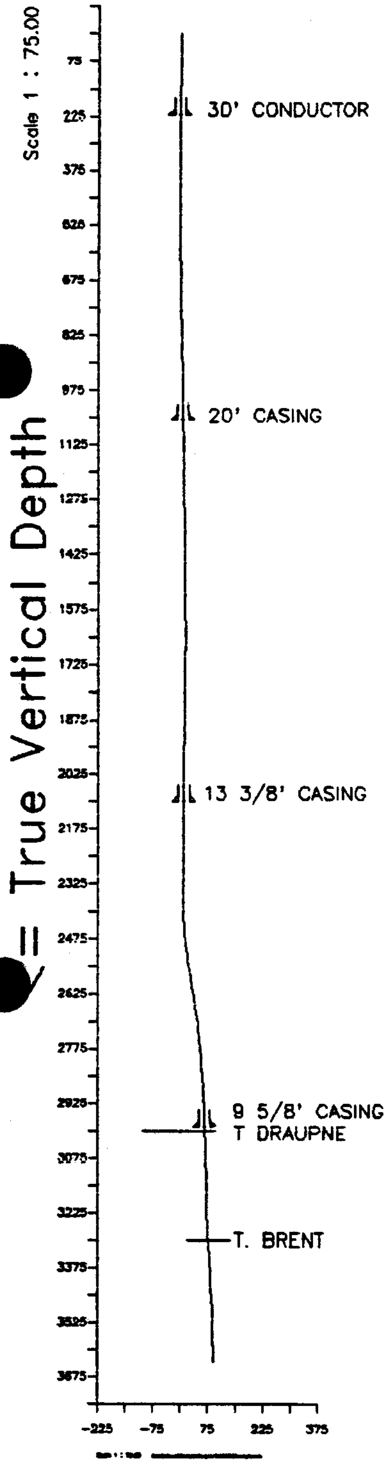
STATOIL

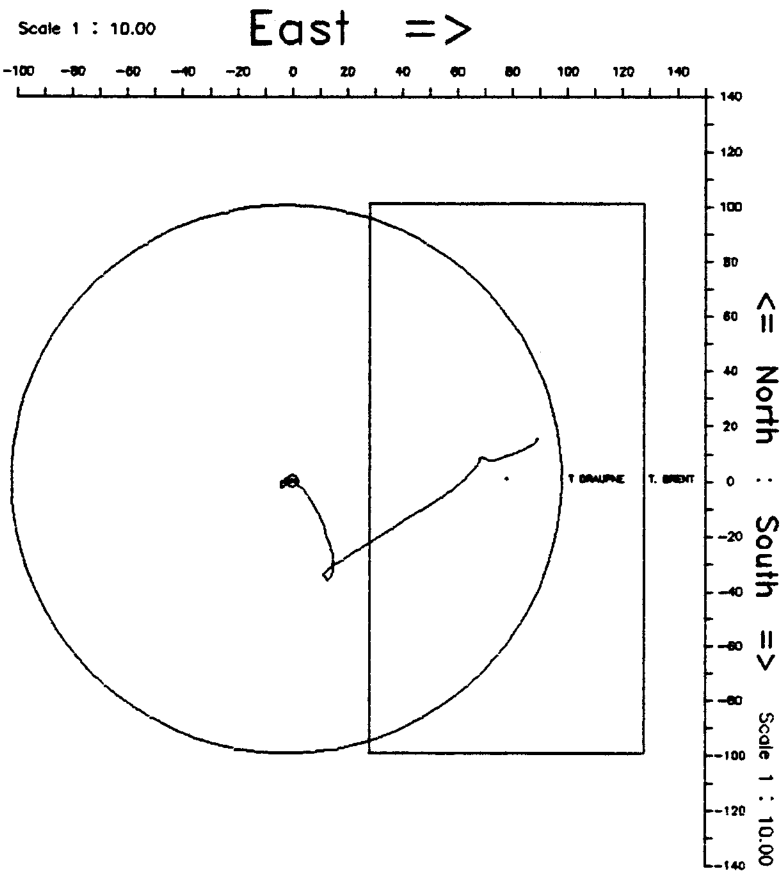
4.9 Directional Survey

STATOIL

Structure : DEEPSEA BERGEN 34/10-36

Field : 34/10-36 Location : Norsk Sektor





Created by : steinar

Date plotted : 16-Jun-92

Plot Reference is 8 1/2 MWD.

Coordinates are in metres reference structure centre.

True Vertical Depths are reference rkb.

--- Statoil B&B BOT ---

STATOIL
DEEPSEA BERGEN 34/10-36
slot #1
34/10-36
Norsk Sektor

S U R V E Y L I S T I N G

Your ref : 8 1/2" MWD
Our ref : svy443
Other ref :

Date printed : 16-Jun-92
Date created : 8-Jun-92
Last revised : 16-Jun-92

Field is centred on n61 6 48.500,e2 10 35.000,3
Structure is centred on 455614.000,6775866.000,3.00000,N

STATOIL
DEEPSEA BERGEN 34/10-36,slot #1
34/10-36,Norsk Sektor

SURVEY LISTING Page 1
Your ref : 8 1/2" MWD
Last revised : 16-Jun-92

Measured Depth	Inclin. Degrees	Azimuth Degrees	True Vert. Depth	R E C T A N G U L A R	C O O R D I N A T E S	Dogleg Deg/30m	Vert Sect
0.00	0.00	0.00	0.00	0.00 N	0.00 E	0.00	0.00
169.28	2.33	238.24	169.23	1.81 S	2.93 W	0.41	-3.10
196.60	2.07	234.03	196.53	2.39 S	3.80 W	0.34	-4.02
226.31	1.11	6.24	226.24	2.42 S	4.20 W	2.96	-4.43
253.11	0.21	11.78	253.04	2.12 S	4.16 W	1.01	-4.36
280.20	0.35	353.95	280.12	1.99 S	4.16 W	0.18	-4.34
307.63	0.54	8.83	307.55	1.77 S	4.15 W	0.24	-4.31
363.99	1.15	1.28	363.91	0.95 S	4.10 W	0.33	-4.17
392.67	0.93	355.47	392.58	0.43 S	4.11 W	0.25	-4.13
421.29	0.23	121.87	421.20	0.23 S	4.08 W	1.13	-4.08
478.36	0.45	80.78	478.27	0.25 S	3.76 W	0.17	-3.77
536.02	0.42	122.12	535.93	0.33 S	3.36 W	0.16	-3.37
593.75	0.47	73.59	593.66	0.37 S	2.95 W	0.19	-2.97
650.14	1.02	75.43	650.04	0.18 S	2.24 W	0.29	-2.25
708.42	1.23	94.88	708.31	0.10 S	1.12 W	0.22	-1.12
764.20	1.19	104.00	764.08	0.29 S	0.04 E	0.11	0.01
821.53	2.51	128.69	821.38	1.22 S	1.60 E	0.79	1.46
850.18	1.70	118.98	850.01	1.82 S	2.46 E	0.92	2.26
878.99	0.84	133.51	878.81	2.17 S	2.99 E	0.95	2.75
907.27	1.98	122.68	907.08	2.58 S	3.55 E	1.24	3.26
964.89	1.89	150.81	964.67	3.95 S	4.85 E	0.49	4.42
1022.71	1.50	149.88	1022.47	5.43 S	5.69 E	0.20	5.10
1060.60	1.63	154.79	1060.34	6.35 S	6.17 E	0.15	5.49
1072.00	1.93	141.71	1071.74	6.65 S	6.36 E	1.32	5.64
1101.00	1.90	146.33	1100.72	7.43 S	6.93 E	0.16	6.13
1129.00	2.11	149.49	1128.70	8.26 S	7.45 E	0.25	6.56
1158.00	2.35	148.20	1157.68	9.23 S	8.03 E	0.25	7.04
1187.00	2.22	152.02	1186.66	10.23 S	8.61 E	0.21	7.51
1216.00	2.27	152.39	1215.64	11.23 S	9.14 E	0.05	7.93
1244.00	2.19	151.50	1243.61	12.19 S	9.65 E	0.09	8.34
1273.00	2.22	155.30	1272.59	13.19 S	10.15 E	0.15	8.74
1319.00	1.80	153.15	1318.56	14.65 S	10.85 E	0.28	9.28
1330.00	1.25	154.37	1329.56	14.91 S	10.98 E	1.50	9.39
1358.00	1.35	158.88	1357.55	15.49 S	11.23 E	0.15	9.58
1387.00	1.48	158.11	1386.54	16.16 S	11.49 E	0.14	9.77
1415.00	1.92	168.86	1414.53	16.95 S	11.72 E	0.58	9.91
1444.00	2.22	172.08	1443.51	17.99 S	11.89 E	0.33	9.97
1473.00	2.13	166.69	1472.49	19.07 S	12.09 E	0.23	10.06
1501.00	2.16	156.41	1500.47	20.06 S	12.42 E	0.41	10.29
1530.00	2.52	154.79	1529.45	21.13 S	12.91 E	0.38	10.67
1559.00	3.13	158.22	1558.41	22.45 S	13.48 E	0.65	11.09
1587.00	3.44	161.74	1586.37	23.95 S	14.02 E	0.40	11.48
1616.00	3.29	167.47	1615.32	25.59 S	14.48 E	0.38	11.76
1644.00	3.12	174.32	1643.27	27.14 S	14.73 E	0.45	11.85
1672.00	2.95	176.99	1671.23	28.61 S	14.84 E	0.24	11.81
1701.00	2.74	183.53	1700.20	30.05 S	14.84 E	0.40	11.66
1730.00	2.62	184.84	1729.17	31.40 S	14.74 E	0.14	11.43
1759.00	2.20	186.45	1758.14	32.62 S	14.62 E	0.44	11.18
1787.00	2.10	194.24	1786.12	33.65 S	14.43 E	0.33	10.89
1816.00	2.04	205.35	1815.10	34.63 S	14.08 E	0.42	10.44
1845.00	1.74	219.70	1844.09	35.43 S	13.58 E	0.58	9.86
1873.00	1.08	229.69	1872.08	35.93 S	13.11 E	0.75	9.34
1902.00	0.35	230.53	1901.08	36.16 S	12.83 E	0.76	9.04
1931.00	0.22	310.32	1930.08	36.19 S	12.72 E	0.39	8.92
1959.00	0.38	318.42	1958.08	36.08 S	12.62 E	0.18	8.83
1988.00	0.51	332.09	1987.07	35.90 S	12.49 E	0.17	8.73
2016.00	0.49	333.71	2015.07	35.68 S	12.38 E	0.03	8.64

All data is in metres unless otherwise stated
Coordinates are from structure centre and TVDs are from rkb.
Vertical section is from wellhead on azimuth 84.09 degrees.
Calculation uses the minimum curvature method.

STATOIL
DEEPSEA BERGEN 34/10-36,slot #1
34/10-36,Norsk Sektor

SURVEY LISTING Page 2
Your ref : 8 1/2" MWD
Last revised : 16-Jun-92

Measured Depth	Inclin. Degrees	Azimuth Degrees	True Vert. Depth	R E C T A N G U L A R	C O O R D I N A T E S	Dogleg Deg/30m	Vert Sect	
2045.00	0.66	337.61	2044.07	35.41 S	12.26 E	0.18	8.55	
2074.00	0.46	345.23	2073.07	35.14 S	12.17 E	0.22	8.48	
2086.00	0.41	345.53	2085.07	35.06 S	12.15 E	0.13	8.47	
2124.50	0.26	343.41	2123.57	34.84 S	12.09 E	0.12	8.43	
2151.70	0.26	256.12	2150.77	34.80 S	12.01 E	0.40	8.36	
2180.20	0.28	332.13	2179.27	34.75 S	11.91 E	0.35	8.27	
2208.00	0.23	337.74	2207.07	34.64 S	11.86 E	0.06	8.23	
2236.70	0.22	268.70	2235.77	34.59 S	11.78 E	0.27	8.16	
2339.60	0.34	301.70	2338.67	34.43 S	11.33 E	0.06	7.72	
2350.68	0.50	320.34	2349.75	34.38 S	11.27 E	0.56	7.67	
2370.76	0.87	356.21	2369.83	34.16 S	11.20 E	0.82	7.62	
2379.84	0.70	4.63	2378.91	34.03 S	11.20 E	0.68	7.64	
2407.35	1.65	44.72	2406.41	33.58 S	11.49 E	1.31	7.97	
2434.06	3.94	44.06	2433.09	32.65 S	12.40 E	2.57	8.97	
2463.17	5.84	57.12	2462.09	31.13 S	14.34 E	2.26	11.06	
2491.01	8.34	55.89	2489.71	29.23 S	17.20 E	2.70	14.10	
2519.82	8.79	58.17	2518.20	26.89 S	20.80 E	0.59	17.92	
2549.12	10.47	57.01	2547.09	24.26 S	24.94 E	1.73	22.31	
2576.98	10.08	57.39	2574.50	21.57 S	29.12 E	0.43	26.74	
2605.99	10.14	57.32	2603.06	18.82 S	33.40 E	0.06	31.29	
2634.13	10.49	56.84	2630.75	16.08 S	37.63 E	0.38	35.78	
2664.20	9.52	59.24	2660.36	13.32 S	42.06 E	1.05	40.47	
2692.86	8.74	60.16	2688.66	11.02 S	45.99 E	0.83	44.61	
2722.27	7.13	58.14	2717.78	8.94 S	49.48 E	1.67	48.29	
2750.74	6.19	59.27	2746.06	7.23 S	52.30 E	1.00	51.27	
2778.92	5.28	53.07	2774.10	5.67 S	54.64 E	1.17	53.76	
2807.53	4.78	53.66	2802.60	4.17 S	56.65 E	0.53	55.92	
2826.44	4.54	52.62	2821.45	3.25 S	57.88 E	0.40	57.24	
2856.08	4.18	48.21	2851.00	1.82 S	59.62 E	0.50	59.11	
2884.20	4.10	49.40	2879.05	0.48 S	61.15 E	0.13	60.77	
2911.90	3.70	47.70	2906.68	0.76 N	62.56 E	0.45	62.30	
2941.30	3.70	42.00	2936.02	2.11 N	63.90 E	0.38	63.77	
2969.50	3.20	44.20	2964.17	3.35 N	65.05 E	0.55	65.05	
2997.10	3.50	33.60	2991.73	4.60 N	66.06 E	0.75	66.18	
3045.00	3.13	39.61	3039.55	6.83 N	67.70 E	0.32	68.04	
3064.00	2.42	4.88	3058.52	7.62 N	68.06 E	2.82	68.49	
3092.00	1.43	61.60	3086.51	8.38 N	68.42 E	2.17	68.92	
3121.00	1.31	100.62	3115.50	8.49 N	69.07 E	0.95	69.57	
3149.00	1.35	100.10	3143.49	8.37 N	69.71 E	0.04	70.20	
3177.00	1.33	123.62	3171.49	8.14 N	70.30 E	0.59	70.76	
3206.00	1.42	115.51	3200.48	7.79 N	70.91 E	0.22	71.33	
3235.00	1.74	99.48	3229.47	7.57 N	71.66 E	0.56	72.06	
3263.00	2.39	82.29	3257.45	7.58 N	72.66 E	0.95	73.06	
3292.00	3.29	72.45	3286.41	7.91 N	74.05 E	1.06	74.47	
3321.00	3.62	71.03	3315.36	8.46 N	75.71 E	0.35	76.18	
3350.00	3.79	70.53	3344.30	9.07 N	77.48 E	0.18	78.01	
3408.00	3.80	69.90	3402.17	10.37 N	81.10 E	0.02	81.73	
3437.00	3.64	65.01	3431.11	11.09 N	82.83 E	0.37	83.53	
3465.00	3.59	65.95	3459.06	11.83 N	84.44 E	0.08	85.21	
3493.00	2.65	65.51	3487.02	12.45 N	85.83 E	1.01	86.65	
3523.00	2.10	67.07	3516.99	12.95 N	86.97 E	0.55	87.84	
3551.00	1.84	46.30	3544.97	13.46 N	87.76 E	0.81	88.68	
3580.00	1.44	45.49	3573.96	14.04 N	88.36 E	0.41	89.34	
3609.00	1.72	24.14	3602.95	14.69 N	88.80 E	0.67	89.84	
3630.00	2.27	22.02	3623.94	15.37 N	89.08 E	0.79	90.19	
3640.00	2.27	22.02	3633.93	15.73 N	89.23 E	0.00	90.38	Ekstrapolert til TD

All data is in metres unless otherwise stated
Coordinates are from structure centre and TVDs are from rkb.
Vertical section is from wellhead on azimuth 84.09 degrees.
Calculation uses the minimum curvature method.

4.10 Drilling Fluid Summary

Comments: The following is an extract from the mud reports.

Total amounts of bulk and chemicals and subsequent cost are subject to revision at a later date.

SUMMARY OF EVENTS

SUMMARY OF EVENTS
WELL NO: 34/10-36
36" HOLE SECTION

Details

30" casing set at:	220,0 m
36" hole drilled from:	159,0 m
36" hole drilled to:	226,5 m
Total section cost:	246 476,90 NOK
Cost pr meter:	3 651,51 NOK

Comments:

Spud mud and 1,18 SG Bentonite/seawater mud were made before drilling commenced. 65 cubic meters of 1,70 SG Bentonite/seawater kill mud were also mixed.

A 9 7/8" bit and BHA was made up and seabottom tagged at 159 meters RKB. 9 7/8" pilot hole was drilled from 159 to 315 meters utilizing seawater and hivis Bentonite pills. The hole was then drilled from 315 to 350 meters with 1,18 SG Bentonite/seawater mud and CMC/seawater mud to check out possible anomalies. Indications of shallow gas was recorded, but the well was static when checked first with 1,10 SG mud, and again with seawater.

The drilling continued from 350 to 425 meters using seawater and hivis pills. Another possible shallow gas zone from 425 to 465 meters was drilled with 1,18 SG mud, and finally the 9 7/8" pilot hole was drilled from 465 to 859 meters using seawater and hivis pills. The hole was displaced to 1,18 SG Bentonite/seawater mud before pulling out.

A 26" bit and 36" hole opener assembly was then run in hole. The pilot hole was opened to 36" from 159 to 226,5 meters utilizing seawater and hivis pills. At TD, 15 cubic meters of hivis mud was pumped and chased out with seawater prior to displacing the hole to hivis mud.

A wipertrip was made. When back on bottom, the hivis mud was displaced out with seawater. Then the hole was displaced to 1,18 SG mud prior to pulling out.

When running the 30" casing, it was not possible to pass 185 meters, possibly due to boulders. The casing was retrieved, and a 26" bit and tandem 36" hole opener was made up and run in hole. The hole was reamed, tight spots at 183 and 191 meters were worked. At TD, 15 cubic meters hivis pill was pumped and chased out with seawater.

Another wipertrip was made. Again, another 15 cubic meters hivis pill was pumped and chased around with seawater prior to displacing the hole to 1,18 SG mud and pulling out.

The 30" casing was then run, set and cemented at 220 meters.

VOLUME DISTRIBUTION.

Volume built:	1039 m^3
Dumped (returns to seabed):	756 m^3
Transferred to next section:	283 m^3

SUMMARY OF EVENTS
WELL NO: 34/10-36
26" HOLE SECTION

Details

20" casing set at:	1056,0 m
26" hole drilled from:	226,5 m
26" hole drilled to:	1070,0 m
Total section cost:	353 290,50 NOK
Cost pr meter:	418,84 NOK

Comments:

Spud mud and 1,18 SG Bentonite/seawater mud were prepared before drilling started. Kill mud from the previous section was used to weight up to 1,18 SG.

A 17 1/2" bit and 26" hole opener was made up and run in hole. Cement was tagged at 215 meters. The hole was opened to 26" to 1071 meters using seawater and hivis pills every 15 meters drilled. At TD, a 20 m^3 hivis pill was pumped and chased out with seawater prior to displacing to 1,18 SG Bentonite/seawater mud and pulling out.

A running tool was then made up to wash the wellhead area.

When returning in the hole with 26" bit and 26" hole opener, tight spots were reamed. At bottom the hole was displaced to 1,18 SG CMC EHV/seawater mud. When pulling out of the hole, there were tight spots, the hole was reamed and the bit was unable to pass 725 meters. When going back in, the hole was again reamed from 600 meters. At bottom, the hole was displaced to 1,18 SG CMC EHV/seawater mud. There were again some tight spots when pulling out of the hole.

The 20" casing was run and cemented in place without problems.

VOLUME DISRIBUTION.

Transferred from previous section:	283 m^3
Volume built:	1245 m^3
Dumped (returns to seabed):	1445 m^3
Transferred to next section:	83 m^3

Recommendations:

Since the hole had regions with swelling clays it might be that the Bentonite mud left in the hole before the wiper trip could enhance swelling. The second time the hole was filled, CMC EHV/seawater mud was used. It could possibly have been better to use CMC EHV/seawater mud for all hole fillings. This mud type will give less swelling of clays.

SUMMARY OF EVENTS
WELL NO: 34/10-36
17 1/2" HOLE SECTION

Details

13 3/8" casing set at:	2100,0 m
17 1/2" hole drilled from:	1070,0 m
17 1/2" hole drilled to:	2115,0 m
Total section cost:	780 278,30 NOK
Cost pr meter:	746,68 NOK

Comments:

1. GENERAL.

The cement, shoe, rathole and 3m new formation were drilled with seawater, and then sweeped with a 20 m^3 hivis pill followed by seawater, before displacement to the 1,25 SG GYP/PAC mud. A leak off test gave EQMW=1,60 SG.

The hole was drilled to 1171m while increasing the mud weight to 1,30 SG. A trip was then made to change the MWD. The hole was tight when pulling out and was reamed down from 1125m when going back in.

The hole was then drilled to 1918m with penetration rate varying between 5 and 30 meters per hour. When pulling out to change bit, the hole was tight and the string was pumped out from 1800m. After washing and reaming with the new bit from the shoe to 1919m, the drilling continued to the interval TD at 2115m. The hole was circulated clean and a wiper trip to the shoe indicated many tight spots, the hole had to be backreamed from 1653m. The hole was washed and reamed from 1640m to TD on tripping back in, and once again circulated clean prior to pulling out of the hole. A tight spot with 25 tons overpull was experienced between 2050m and 2006m, the rest of the hole was in good shape.

One log was run, the tool stopped 25m from bottom. A conditioning trip was made and the hole washed and reamed from 1987m to TD. The hole was again circulated clean, and the pipe tripped out, the hole was in good condition. The 13 3/8" casing was run and cemented without any problems.

2. MUD HISTORY.

Before starting drilling, 300 m^3 of GYP/PAC mud were mixed. The mud was sheared for about 2 hours, giving an 80 BAR pressure drop, and weighted up to 1,25 SG. Initial concentrations of chemicals were:

Ancocide	1,0 liter/m^3.
Lime	0,1 kg/m^3
Celpol SL	11,0 kg/m^3
Celpol REG	1,5 kg/m^3
Gypsum	12,0 kg/m^3

The mud properties were adjusted and maintained by continuous dumping of old mud and additions of premixes. Typical concentrations in the premixes were:

Ancocide	1,0liter/m^3
Celpol SL	15,0 kg/m^3
Gypsum	15,0 kg/m^3

The rheology was run on the low side with typical YP values around 4,5 Pa in the active pit and 5-5,5 Pa out of the hole. The 10 minute gels were between 1 and 1,5 Pa during the entire section. However, the low gels caused no problems. No fill was found after trips. The choke and kill lines was flushed on each shift to minimize chances for barite settling.

3. SOLIDS CONTROL.

The shakers were run with the finest possible screens. The screens had very short lifetime. A total of 25 screens, size 60 and 80 mesh, were used on the first 400m drilled.

The first 300m of formation contained a large fraction of sand. The sand content in the mud was up to 4 % at maximum. The mud cleaner was run with 200 mesh screens and the centrifuge was also run for about 30 hours to reduce the content of fine sand and silt. The cuttings was good most of the section, but in the last part they became more soft and sticky.

4. VOLUME DISTRIBUTION.

Volume built:	1032 m^3
Transferred from previous section:	83 m^3
Dumped:	312 m^3
Lost on surface:	257 m^3
Left behind casing:	70 m^3
Transferred to next section:	476 m^3

Recommendations:

In order to reduce the screen consumption the following is recommended:

-Shaker screens must be changed according to instructions with the mud pumps off. Care must be taken to get the underscreens on top of the inner support and that there are no wrinkles. To ensure this, the upper screen must be withdrawn halfway when mounting the underscreen.

-The 60 and 80 mesh screens should be produced to tolerate more wear. As of now they last only a small fraction of time compared to the 40 mesh screens.

SUMMARY OF EVENTS
WELL NO: 34/10-36
12 1/4" HOLE SECTION

Details

9 5/8" casing set at:	2994,0 m
12 1/4" hole drilled from:	2115,0 m
12 1/4" hole drilled to:	3010,0 m
Total section cost:	650 996,60 NOK
Cost pr meter:	727,37 NOK

Comments:

1. GENERAL.

The cement, casing shoe, rathole and 3m new formation was drilled and the mud weight increased to 1,35 SG, before a LOT was performed giving 2,10 SG EMW. Another 3m was drilled and a second LOT was performed to 1,76 SG EMW.

The hole was then drilled to 2350m, where the string was pumped out of the hole to pick up a mud motor. The mud weight was increased to 1,40 SG before the drilling/steering continued due to indications of increasing pore pressure and 5m fill. At 2426m, a bit change became necessary, the trip out of and into the hole was good.

The drilling continued to 2661m, but the inability of the BHA to drop angle when required necessitated a further trip out of the hole to change BHA.

A few tight spots were reamed and the hole washed down from 2626m to 2661m, no fill was found on bottom. The drilling continued to 2825m when a bit change became necessary. Some indications of increasing pore pressure were noticed, so the mud weight was increased to 1,45 SG before pulling out of the hole.

When running back in, the hole was washed down from 2627m to 2087m, then reamed and logged to 2825m, no fill was seen on bottom. At 2841m, the mud weight was increased to 1,50 SG while circulating the hole. The hole was drilled to the TD of this section at 3010m without problems.

When pulling out for a wiper trip to the casing shoe, the BHA was lost. After fishing the BHA, and logging was completed, a wiper trip was made to TD. Reaming/backreaming was needed at the lower part of the hole, and the mudweight was increased to 1,54 SG before the casing job. The casing was set and cemented without any problems, and with full mud returns.

2. MUD HISTORY.

Prior to and when drilling the cement, the mud was treated with Sodium Bicarbonate to control the pH. When drilling continued, the mud properties were maintained with additions of premix as in the previous section. The premix contained approximately 15 kg Celpol, 15 kg Gypsym and 1 liter Ancocide per cubic meter. The dilution rates varied between about 5 cubic meters per hour at the start of the section to about 3 cubic meters per hour in the lower part of the section, when penetration rates were about 10 meters per hour.

This gave a very stable mud with very little changes in the day to day mud properties. Close attention was paid to any evidence of bacterial growth by using Panatest dipslides on a daily basis. Initially very little growth was seen, but after a few days a low to moderate (10^3-10^5 organisms per ml) infection was observed. The active mud system was immediately treated with Ancocide, and daily additions of +/-150 liters kept the bacteria concentration within acceptable limits so that the mud properties were not affected.

The mud rheology remained stable with the yield point around +/- 5 Pa until higher mud weights became necessary. The increased solids content led to increasing the yield point to +/- 7 Pa. However, the mud properties were kept within the programmed specifications.

3. SOLIDS CONTROL.

The GM 2000 H shakers were, in general, functioning very good, although the consumption of screens at the beginning of this well were high. This is probably due to the fact that the screens were put on as mud were run through the shakers. The tension on the screens were also initially set to high. It is also noticed that screens above 60 mesh tended to brake more frequently, which could mean that they have a too weak construction.

At the beginning of the section, the shakers were set with 40 mesh top screens and 60 mesh bottom screens. The bottom screens were soon changed to 80 mesh and later to 100 mesh, while the top screens were changed to 60 mesh at the bottom of the section.

The sentrifuge was run periodically for barite recovery as the dilution rate was increased.

4. VOLUME DISTRIBUTION.

Volume built:	789 m^3
Transferred from previous section:	476 m^3
Lost on surface:	346 m^3
Dumped:	627 m^3
Left behind 9 5/8" csg:	60 m^3
Transferred to next section:	232 m^3

Recommendations:

It is recommended to:

- change the screens on the GANN shakers during connections only.
- use the right tension on the shaker screens when put on.

There were no major problem with the mud system used on this section, and thus the same system is to recommended used in future similar sections.

SUMMARY OF EVENTS
WELL NO: 34/10-36
8 1/2" HOLE SECTION

Details

7" liner set at:	2838,0 - 3625,0 m
8 1/2" hole drilled from:	3010,0 m
8 1/2" hole drilled to:	3640,0 m
Total section cost:	995 221,93 NOK
Cost pr meter:	1 579,72 NOK

Comments:

1. GENERAL.

The cement and 3m of new formation was drilled, using GYP/PAC mud left from the 12 1/4" section. The old mud was then displaced with new 1,47 SG Ancotemp/Bentonite mud. A leak off test giving 1,97 SG EMW was taken before drilling of new formation commenced.

A drilling break occured at 3029m. A core was then cut to 3054m, with an average ROP of 2-3 m/hr. The drilling continued to 3363m, a new drilling break occured at 3359m. Two cores were taken from 3363m to 3417m. When pulling/pumping out with the last core, the hole was found to be a little tight. When tripping back in, the hole was reamed the last stand.

The drilling continued to interval TD of 3640m where the hole was circulated clean. On tripping out of the hole it was necessary to backream from 3490m, and at 3185m the pipe became stuck. The pipe was worked free and pulled to the shoe where the mud weight was increased to 1,52 SG while circulating. The string was reamed back to bottom from 2994m and 20m of fill was found. A 20 m^3 hivis pill was circulated around the hole and large quantities of cuttings (sloughing shales) were seen at the shakers.

Another attempt was made at pulling out of the hole, but it was again necessary to backream, this time from 3350m. At the shoe the hole was circulated clean and the string pulled to surface.

A new BHA was run back in the hole which was reamed from 3025m to TD. Two 20 m^3 hivis pills were circulated around the hole and the string tripped out to run wireline logs; the logging tool could not pass 3270m. The same BHA was run back in the hole and tight spots reamed out; 3,5m of fill were found on bottom. A lovis pill followed by a hivis pill were circulated around the hole and the mud weight increased to 1,56 SG in an attempt to stabilize the shales. But a wiper trip to the shoe and two more hivis pills were required before hole stability was achieved and a trouble free trip out of the hole became possible.

The logging programme resumed, but a wiper trip was needed prior to the last logging run. Another wiper trip which included pumping two more hivis pills was made before running and cementing the 7" liner.

2. MUD HISTORY.

The cement, shoe and rathole was drilled out using the GYP/PAC mud left from the 12 1/4" section. This mud was treated with approximately 1,2 kg/m^3 Sodium Bicarbonate before the cement was drilled. The hole was then displaced to new mud prior to the leak off test.

The new Ancotemp/Bentonite mud consisted of 60 kg/m^3 Bentonite, 9 kg/m^3 Anco Resin and 2 kg/m^3 Ancotemp. After one circulation, the mud was treated with 2 kg/m^3 Celpol LV to improve the API filter loss, and 2 kg/m^3 Ancotemp for thinning purposes. The API and HTHP fluid loss were kept very stable at 3,0-3,6 ml, respectilvely 11-13 ml, with dilution of premixes consisting of Ancotemp, Ancoresin and Celpol LV.

The rheology soon stabilized with an YP around 4,5 Pascals, by dilution rates of 2-3 m^3/hr at the start, decreasing to 1-2 m^3/hr after the first core. The dilution rate was again slightly increased when drilling to TD.

To avoid excessive dilution rates in order to keep the viscosity down, the concentrations of Celpol LV in the premixes were reduced. At the beginning of the section, when the concentrations of Celpol LV was highest, tests showed reduced viscosity and gels after aging the mud for 24 hours at 140 Celsius. In the last part of the section, the aging tests showed higher viscosity and gels, but still well within acceptable limits (YP 6-11 Pa, 10 sec gels 2-4 Pa, 10 min gels 7-12 Pa) . The logging went on without any problems related to mud viscosity and gels.

The continuous use of hivis Bentonite pills to keep the hole clean, did increase the MBT from +/-60 to +/-70 kg/m^3. However, this had little effect on the mud properties. Even the high temperature aging tests showed little changes.

3. SOLIDS CONTROL.

Most of the time the shakers were set with 60 mesh top screens and 100-150 bottom screens. The mudcleaners were run with 150 mesh screens to control low gravity solids.

4. VOLUME DISTRIBUTION.

Volume built:	679 m^3
Transferred from previous section:	232 m^3
Lost on surface:	144 m^3
Dumped:	418 m^3
Transferred to next section:	349 m^3

Recommendations:

No major mud problems were experienced in this section. The same mud system is recommended to be used in future similar sections.

SUMMARY OF EVENTS
WELL NO: 34/10-36
TEST, P & A

Details	Total section cost:	370 379,20 NOK

Comments:

1. GENERAL

The cement to the top of the liner was drilled with the Ancotemp/Bentonite mud left from the 8 1/2" section. A pressure test of the liner lap showed leakage. The following cement squeeze was successful, and the liner lap was cleaned out before the mud weight was reduced to 1,45 SG.

31 m^3 of new test fluid was displaced from the bottom of the hole to approximately 2410m.

Wireline logs were run before the test string was run in.

The test was carried out without major problems. After the main build up, the well was reverse circulated with returns over the burner booms, before it was bullheaded and killed.

A retainer was set at 3360m, before injection test/squeezing off perforations. A cement plug was set from 2900m to 2787m, and a bridge plug at 2758m.

2. MUD HISTORY

The mud was treated with 1,8 kg/m^3 Sodium Bicarbonate before the cement to the top of the liner was drilled. During squeezing and the following cement drilling, another 7,6 kg/m^3 of Sodium Bicarbonate was added to lower pH and reduce Calcium content. Increased Calcium content tended to increase the rheology. Premixes of drill water and Ancotemp was added at a rate of 2 - 3 m^3/hr. Ligthin was also added to the active to a consentration of 1,7 kg/m^3. As a result, the YP was soon reduced from 7 Pa to approximate 5 Pa, and gels kept steady at 2/7 Pa (10 sec./10min).

Before the test string was run in, 31 m^3 1,45 SG test fluid was mixed, consisting of: 45 kg/m^3 Bentonite, 9 kg/m^3 Ancotemp and 6 kg/m^3 Thermopol. The fluid had the following properties:

PV = 27 cps
YP = 7 Pa
Gels = 3,5/7 Pa
pH = 9,7

Samples of the test fluid returning from the hole was taken when circulating after the test was completed. Generally, the fluid was in very good condition. The following properties were recorded:

PV = 39 cps
YP = 12 Pa
Gels = 4/12 Pa
pH = 10,5

A standard P & A procedure was carried out. In spite of several cement jobs, the mud showed to be well controlable by addition of premixed thinning chemicals (Ligthin and Ancotemp) and Sodium Bicarbonate.

3. SOLIDS CONTROL

The shakers were run with 60 mesh top screens and 120 mesh bottom screens.

4. VOLUME DISTRIBUTION

Volume built:	194 m^3
Transferred from 8 1/2" section:	349 m^3
Gained from behind 13 3/8" csg:	26 m^3
Lost on surface:	57 m^3
Dumped:	426 m^3
Left in hole:	86 m^3
Final volume:	0 m^3

Recommendations:

No major mud problems were experienced in this section. The same system is recommended for future similar conditions.

MUD VOLUME DISTRIBUTION

Anchor Drilling Fluids | Anchor Drilling Fluids

Mud volume distribution summary

WELL: 34/10-36 | **AREA: GULLFAKS SØR** | **RIG: DEEPSEA BERGEN**

Hole size	Hole From-to	Hole Length	Mud/brine Built	Volume gained	Dumped	Lost to Formation	Lost on surface equipment	Mud left between csg/csg plus left in hole	cuttings volume drilled	Mud transf. to next section	Mud type used for interval
inch	*m*	*m*	*m3*		*m3*	*m3*	*m3*	*m3*	*m3*	*m3*	
36	159-226,5	67,5	1039		756				44,33	283	BENTONITE/CMC EHV/SEAWATER
26	226,5-1070	843,5	1245		1445				288,90	83	BENTONITE/CMC EHV/SEAWATER
17 1/2	1070-2115	1045	1032		312		257	70	162,18	476	GYPSUM/PAC
12 1/4	2115-3010	895	789		627		346	60	68,02	232	GYPSUM/PAC
8 1/2	3010-3640	630	679		418		144		23,06	349	BENTONITE/ANCOTEMP
TEST, P & A	-	-	194	26	426		57	86		0	BENTONITE/ANCOTEMP

TOTALS

Start volume:	0	m3
Mud/Brine built:	4978	m3
Mud/Brine dumped:	3984	m3
Mud/Brine lost to formation:	0	m3
Mud/Brine lost over solids control equipment:	804	m3
Mud/Brine left between csg/csg plus left in hole:	216	m3
Gained:	26	m3
Final volume:	0	m3

Total mud/Brine left/lost downhole	216	m3
Total mud/Brine to sea:	4788	m3
Total cuttings volume drilled:	586,49	m3

COMMENTS:
36" SECTION: Returns to seabed.
26" SECTION: Returns to seabed.
17 1/2" SECTION: 70 m3 left behind casing.
12 1/4" SECTION: 60 m3 left behind casing.
TEST; P & A: 26 m3 gained from behind 13 3/8" casing.

MUD PROPERTIES SUMMARY

Anchor Drilling Fluids | Anchor Drilling Fluids

DRILLING MUDPROPERTIES RECORD

WELL NO: 34/10-36 | **AREA: GULLFAKS SØR**

DAY	DATE	DEPTH	HOLE	MW	F.VIS	VG-METER READINGS								AV	PV	YP	GEL	GEL	pH	API	HTHP	Cl-	Pf	Mf	TOT.	Ca++	SOLIDS	OIL	SAND	MBT	EX GYP	HGS	LGS	Bacteria
no.	1992		SIZE			600	300	200	100	60	30	6	3				10sec	10min							H									Test
		mtre	inch	S.G.	s/qt.	rpm	rpm	rpm	rpm	rpm	rpm	rpm	rpm	cps	cps	Pa	Pa	Pa		ml	ml	mg/l	ml	ml	mg/l	mg/l	vol%	vol%	vol%	kg/m3	kg/m3	kg/m3	kg/m3	org./ml
1	26-apr	RIG IN TRANSIT																																
2	27-apr	RIG IN TRANSIT																																
3	28-apr	184	9 7/8	1,04	100+																													
4	29-apr	673	9 7/8	1,18	72	34	24	15	9	6	5	3	2	17	10	7	2	2																
5	30-apr	226	36	1,18	50	30	21	18	13	11	9	8	7	15	9	6	7,5	10																
6	1-mai	226,5	36	1,18	80	49	33	28	22	19	16	11	10	24,5	16	8,5	6	8	9,4															
7	2-mai	348	26	1,18	80	49	33	28	22	19	16	11	10	24,5	16	8,5	6	8	9,4															
8	3-mai	843	26	1,18	80	49	33	28	22	19	16	11	10	24,5	16	8,5	6	8	9,4															
9	4-mai	1070	26	1,18	72	47	28	19	10	7	4	2	1	23,5	19	4,5	0,5	1	8,7															
10	5-mai	1070	26	1,18	74	52	33	22	13	9	5	2	1	26	19	7	1	1	8,1															
11	6-mai	1070	26	1,18	74	52	33	22	13	9	5	2	1	26	19	7	1	1	8,1															
12	7-mai	1070	17 1/2	MIXING GYP/PAC MUD																														
13	8-mai	1070	17 1/2	1,25	62	58	34	24	15	9	6	2	2	29	24	5	1	1	8,7	4,2		21000	0	0,6	4600	2600	8	0	0	0	6	265	42	
14	9-mai	1070	17 1/2	1,25	62	58	34	24	15	9	6	2	2	29	24	5	1	1	8,7	4,2		21000	0	0,6	4600	2600	8	0	0	0	6	265	42	
15	10-mai	1171	17 1/2	1,25	60	50	30	23	13	9	6	2	2	25	20	5	1	1,5	8,6	3,7		21000	0	0,5	4500	2700	8	0	0,25	0	6,5	265	42	
16	11-mai	1392	17 1/2	1,30	58	56	33	24	14	9	6	2	2	28	23	5	1	1	8,3	3,7		21000	0	0,4	4400	2560	11,5	0	2,5	20	6,5	250	143	
17	12-mai	1624	17 1/2	1,30	59	60	35	25	14	9	6	2	2	30	25	5	1	1,5	8,2	3,4		21000	0	0,4	4500	2640	11	0	3	30	5,7	271	117	
18	13-mai	1918	17 1/2	1,30	58	65	38	27	16	11	7	3	2	32,5	27	5,5	1	1,5	8,2	3,3		21000	0	0,4	4640	2680	11	0	1,75	60	6	271	117	<1000
19	14-mai	2050	17 1/2	1,30	58	62	35	24	14	10	6	2	1	31	27	4	1	1,5	8,3	3,1		21000	0	0,4	4640	2800	11,5	0	2,5	60	5,6	271	117	<1000
20	15-mai	2115	17 1/2	1,30	58	63	37	27	15	10	6	2	1	31,5	26	5,5	1	1,5	8,4	2,8		21000	0	0,4	4800	2800	11	0	1,5	62	5,5	271	117	<1000
21	16-mai	2115	17 1/2	1,30	63	63	36	25	14	9	5	2	1	31,5	27	4,5	1	1,5	8,4	2,5		21000	0	0,4	4700	2800	11	0	1,5	60	5,5	271	117	<1000
22	17-mai	2115	17 1/2	1,31	72	66	39	28	16	11	6	2	1	33	27	6	1	1,5	8,2	2,6		21000	0	0,4	4800	2800	11	0	1,25	62	5,8	271	117	<1000
23	18-mai	2115	17 1/2	1,33	75	62	35	25	14	9	5	2	1	31	27	4	1	1,5	8	2,7		21000	0	0,4	4800	2800	12	0	1,5	62	5,8	308	121	<1000
24	19-mai	2180	12 1/4	1,35	62	64	37	27	16	11	6	2	1	32	27	5	1	3,5	8,6	3,1	19,6	21000	0	0,4	4000	3000	13	0	1	62	5,8	318	140	100000
25	20-mai	2350	12 1/4	1,35	62	62	37	27	16	11	7	2	1	31	25	6	1	3,5	8,1	3,4	17,6	21000	0	0,4	3800	2800	13	0	1	65	5,8	318	140	100000
26	21-mai	2381	12 1/4	1,40	61	65	38	28	16	11	7	2	2	32,5	27	5,5	1	3	7,9	3,1	18	21000	0	0,5	4300	2900	14	0	0,75	60	6	408	111	<1000
27	22-mai	2426	12 1/4	1,40	66	63	36	26	15	11	7	2	1	31,5	27	4,5	1	2,5	7,7	2,9	17	20500	0	0,4	4280	3160	14	0	1	57	6	408	111	10000
28	23-mai	2574	12 1/4	1,40	63	66	38	29	17	12	7	2	1	33	28	5	1	2,5	7,7	3	17	21000	0	0,5	4120	3040	14,5	0	0,5	57	6	408	111	10000
29	24-mai	2661	12 1/4	1,40	62	66	38	28	16	11	7	2	1	33	28	5	1	2,5	7,9	3	18	21000	0	0,4	4340	3200	14	0	0,5	57	6	408	111	10000
30	25-mai	2746	12 1/4	1,40	62	70	41	30	18	13	8	3	2	35	29	6	1,5	3	7,8	3	17	21000	0	0,4	4400	3100	14	0	0,5	60	6	408	111	10000
31	26-mai	2825	12 1/4	1,45	61	74	43	32	19	14	8	3	2	37	31	6	1	4	7,8	3	15	21000	0	0,4	4580	3040	14,5	0	0,5	56	6	408	111	10000
32	27-mai	2863	12 1/4	1,50	59	76	44	32	19	14	8	3	2	38	32	6	1	6	7,7	3,2	17	21000	0	0,4	4280	2800	19	0	0,5	56	6	461	210	10000
33	28-mai	2952	12 1/4	1,50	56	77	46	32	19	14	8	3	2	38,5	31	7,5	1,5	10	7,6	3,4	18	21000	0	0,5	4240	2720	18	0	0,5	53	6	503	157	10000
34	29-mai	3010	12 1/4	1,50	50	73	43	34	22	16	12	4	3	36,5	30	6,5	1,5	17	7,6	4		21000	0	0,5	4300	2700	19	0	0,5	48	6	461	210	10000
35	30-mai	3010	12 1/4	1,50	52	73	43	34	22	16	12	4	3	36,5	30	6,5	2	14	7,6	3,7		21000	0	0,5	4000	2960	19	0	0,5	47	6	461	210	10000
36	31-mai	3010	12 1/4	1,54	51	62	36	27	16	11	7	2	1	31	26	5	1	6,5	7,6	3,8		21000	0	0,5	4280	2600	19	0	0,5	46	6	461	210	10000
37	1-jun	3010	12 1/4	1,54	51	63	36	27	15	11	7	2	1	31,5	27	4,5	1	6,5	7,6	3,8		21000	0	0,5	4360	2720	19	0	0,5	46	6	461	210	10000
38	2-jun	3010	12 1/4	1,54	52	58	34	25	16	12	8	3	2	29	24	5	1	8,5	7,8	3,9		21000	0	0,5	4360	2720	19	0	0,5	47	6	461	210	10000
39	3-jun	3010	8 1/2	1,54	52	58	34	25	16	12	8	3	2	29	24	5	1	6,5	7,6	3,8		21000	0	0,5	4360	2720	19	0	0,5	46	6	461	210	10000
40	4-jun	3036	8 1/2	1,47	61	64	38	30	20	15	10	4	3	32	26	6	2,5	11	8,7	3,7	14	1400	0	0,6	160	120	16	0	0,75	55		557	72	
41	5-jun	3080	8 1/2	1,47	48	51	30	23	14	10	7	3	2	25,5	21	4,5	2	5,5	8,9	3,6	13	1500	0,1	0,8	160	120	16	0	0,5	57		557	72	
42	6-jun	3329	8 1/2	1,47	54	66	39	30	19	14	9	4	3	33	27	6	2	6,5	8,7	3,5	13	1600	0,1	0,8	120	80	17	0	0,5	60		515	124	
43	7-jun	3363	8 1/2	1,47	45	54	32	25	16	12	8	4	3	27	22	5	2	4,5	8,7	3,5	13	1500	0,1	0,9	160	80	17	0	0,25	57		515	124	

Anchor Drilling Fluids

DRILLING MUDPROPERTIES RECORD

Anchor Drilling Fluids

WELL NO: 34/10-36

AREA: GULLFAKS SØR

DAY	DATE	DEPTH	HOLE	MW	F.VIS	VG-METER READINGS								AV	PV	YP	GEL	GEL	pH	API	HTHP	Cl-	Pf	Mf	TOT.	Ca++	SOLIDS	OIL	SAND	MBT	EX GYP	HGS	LGS	Bacteria
no.	1992		SIZE			600	300	200	100	60	30	6	3				10sec	10min							H									Test
		mtrs	inch	S.G.	s/qt.	rpm	rpm	rpm	rpm	rpm	rpm	rpm	rpm	cps	cps	Pa	Pa	Pa		ml	ml	mg/l	ml	ml	mg/l	mg/l	vol%	vol%	vol%	kg/m3	kg/m3	kg/m3	kg/m3	org./ml
44	8-jun	3390	8 1/2	1,47	48	56	33	25	16	12	8	3	2	28	23	5	2	4,5	8,5	3,6	13	1800	0,1	0,9	200	140	17	0	0,5	57		515	124	
45	9-jun	3417	8 1/2	1,47	46	51	30	23	14	10	7	3	2	25,5	21	4,5	1,5	4,5	8,6	3,7	13	1800	0,1	0,9	240	120	17	0	0,5	57		515	124	
46	10-jun	3556	8 1/2	1,47	45	51	30	22	14	10	7	4	3	25,5	21	4,5	1,5	4	8,6	3,6	12	1800	0,1	1	240	120	17,5	0	0,5	59		500	145	
47	11-jun	3640	8 1/2	1,47	47	54	32	24	15	11	7	3	2	27	22	5	2	4	8,6	3,2	12	1800	0	1	200	120	17,5	0	0,5	57		500	145	
48	12-jun	3640	8 1/2	1,52	52	63	37	28	18	15	9	4	3	31,5	26	5,5	2	4	8,6	3,1	12	1900	0	1	240	180	20	0	0,5	60		524	194	
49	13-jun	3640	8 1/2	1,52	52	68	40	31	20	15	10	5	4	34	28	6	2,5	4,5	8,8	3,2	12	1900	0,1	1,1	240	160	19,5	0	0,5	68		545	168	
50	14-jun	3640	8 1/2	1,56	50	68	40	31	19	14	9	4	3	34	28	6	2,5	4,5	8,5	3	11	1900	0,1	1	240	160	20,5	0	0,5	69		612	150	
51	15-jun	3640	8 1/2	1,56	64	76	45	35	22	16	11	5	4	38	31	7	2,5	4,5	8,4	3	11	1900	0	1,4	280	180	20,5	0	0,5	66		612	150	
52	16-jun	3640	8 1/2	1,56	58	56	33	24	15	11	8	4	3	28	23	5	2	4	8,8	3,1	12	1900	0,1	1,5	240	160	20,5	0	0,5	65		612	150	
53	17-jun	3640	8 1/2	1,56	59	71	41	30	19	15	10	5	4	35,5	30	5,5	2	4	8,5	3	11	1900	0,1	1,4	240	160	20,5	0	0,5	66		612	150	
54	18-jun	3640	8 1/2	1,56	51	75	44	33	21	16	11	5	4	37,5	31	6,5	2,5	5	8,8	2,9	11	1900	0,1	1,4	240	160	20,5	0	0,5	68		612	150	
55	19-jun	3640	8 1/2	1,56	60	60	34	27	16	11	8	4	3	30	26	4	2	4	8,6	3	11	1900	0,1	1,4	240	160	20,5	0	0,5	67		612	153	
56	20-jun	3640	TEST	1,56	61	68	39	27	18	13	9	4	3	34	29	5	3	4,5	8,9	3	11	1800	0,1	1,6	260	180	20,5	0	0,5	68		612	150	
57	21-jun	3640	TEST	1,56	55	59	34	26	17	13	9	5	4	29,5	25	4,5	2,5	7	10,6	3	11	1900	0,4	2	220	160	20,5	0	0,5	66		618	150	
58	22-jun	3640	TEST	1,56	52	65	38	28	17	13	9	4	3	32,5	27	5,5	2,5	4	11,9	3,9	15	1900	1,2	3	140	120	20,5	0	0,5	63		612	150	
59	23-jun	3640	TEST	1,56	50	60	35	27	17	13	9	4	3	30	25	5	2,5	9	12,3	4,6	15	1900	2,1	4,6	140	120	20,5	0	0,5	63		612	150	
60	24-jun	3460	TEST	1,45	57	57	35	26	16	12	9	4	3	28,5	22	6,5	2	10	12,3	4,6	15	1700	2	4,2	180	160	18	0	0,4	56		424	203	
61	25-jun	3460	TEST	1,45	65	70	42	32	20	15	10	5	4	35	28	7	2	9	12,2	4,7	16	1700	1,5	2,7	120	120	17	0	0,25	58		466	151	
62	26-jun	3460	TEST	1,45	64	67	40	29	18	14	9	3	2	33,5	27	6,5	2	8	12,2	4,7	16	1700	1	2	120	120	17	0	0,25	58		466	151	
63	27-jun	3460	TEST	1,45	64	64	38	28	17	13	9	4	3	32	26	6	2	7,5	12,2	4,7	16	1800	1	2	110	110	17	0		58		466	151	
64	28-jun	3640	TEST	1,45	64	63	37	27	17	13	9	4	3	31,5	26	5,5	2	7,5	12,2	4,7	16	1800	0,9	1,9	100	100	17	0		58		466	151	
65	29-jun	3640	TEST	1,45	70	63	37	27	17	13	9	4	3	31,5	26	5,5	2	7	12,2	4,6	16	1800	0,9	1,9	100	100	17	0		58		466	151	
66	30-jun	3640	TEST	1,45	73	60	35	26	16	12	8	3	2	30	25	5	2	7	12,2	4,7	16	1800	0,9	1,9	100	100	17	0		58		466	151	
67	1-jul	3640	TEST	1,45	76	60	35	26	16	12	8	3	2	30	25	5	2	7	12,2	4,8	16	1800	0,9	1,9	100	100	17	0		58		466	151	
68	2-jul	3640	TEST	1,45	57	61	36	26	17	13	8	3	2	30,5	25	5,5	2	7	11,7	4,9	16	1900	0,5	1,6	100	100	17	0	0,5	57		466	151	
69	3-jul		P & A	1,45	56	60	35	26	16	12	8	3	2	30	25	5	2	7	11,7	4,9	16	1900	0,5	1,6	100	100	17	0	0,5	57		466	151	
70	4-jul		P & A	1,45	54	64	38	28	17	13	8	3	2	32	26	6	2	8	12,1	5	16	1900	0,8	1,8	150	150	17	0	0,5	57		466	151	
71	5-jul		P & A	1,45	58	66	39	30	19	15	10	4	3	33	27	6	2	8	12,5			1900	0,8	1,7	160	160	17			57		466	151	
72	8-jul		P & A	1,45	57	74	44	35	22	17	12	6	5	37	30	7	2,5	15	12,6	5,4		1900	1,7	3,3	240	240	17			57		466	151	
73	9-jul		P & A	1,45	51	48	28	20	12	9	6	3	2	24	20	4	2	4	12	5,3		2100	0,7	1,6	200	200	17			57		466	151	
74	10-jul		P & A	1,45	62	61	37	29	19	15	10	5	4	30,5	24	6,5	2	16	12	4,7		4800	0,7	1,5	400	400	17			55		466	151	
75	11-jul		P & A	1,45	63	73	45	36	24	19	13	7	6	36,5	28	8,5	4	18	12,2	5,6		4900	0,8	1,8	400	400	17			55		466	151	
76	12-jul		P & A	1,45	62	56	34	28	19	16	12	7	6	28	22	6	5	22	12,1	5,3		4800	0,5	1,5	400	400	17			55		466	151	
77	13-jul		P & A	END WELL																														

STATOIL

4.11 Casing and Cement Summary

STATOIL

4.11 Casing summary, well 34/10-36

CASING CONSUMPTION

Size	Grade	Weight lbs/ft	Threads	Length m	Test press.	Number in joints
30	X-52	1.5" WT 1.0" WT	ST-2,RB ST-2,RB	Total 60		1 4
20	X-56	133	Vetco RL-4S	900	150 bar w/S.W.	75
13 3/8	P-110	72	Buttress	1944m	326 bar w/1.30 S.G. mud	166
9 5/8	L-80	53.5	BDS	2571m	380 bar w/1.47 S.G. mud	217
	CR13	53.5	BDS	266m		20
7	CR13	29	BDS	784m	380 bar w/1.56 S.G. mud	64

CEMENT REPORT

Well no.: 34/10-36
Cement Contractor: Halliburton

Cementing of Casing Strings

Casing size (in)	Slurry volum (m^3)	Slurry dens. (SG)	Thick time 100 BC (hrs)	BHST (^oC)	Additive name	Comp. (1/100kg)	Total used (kg-1)	Displace-ment rate (1/min)	Remarks
30" Lead Slurry	17.6	1.56	7:00	10	Econolite Seawater	3.55 92.49	487	800	
Tail Slurry	15.0	1.92	5:00	10	$CaCl_2$ Seawater	4.50 40.53	879		
20" Lead Slurry	233.4	1.50	9:20	38	Econolite HR-4L Seawater	3.50 2.60 107.53	5600 4160	1900	Return to seabed
Tail Slurry	15.0	1.92	4:04	38	Freshwater HR-4L	41.72 0.90	181		
13 3/8" Lead Slurry	54.6	1.56	5:28	68	Econolite HR-4L Seawater	3.20 2.80 93.20	1339 1171	2500	Spacer: 15 m^3 S.W.
Tail Slurry	15.0	1.92	4:42	68	HR-4L Freshwater	1.30 42.84	259		

341036.slu

CEMENT REPORT

Well no.: 34/10-36
Cement Contractor: Halliburton

Cementing of Casing Strings Cont'd

Casing size (in)	Slurry volum (m^3)	Slurry dens. (SG)	Thick time 100BC (hrs)	BHST (^oC)	Additive name	Comp. (1/100kg)	Total used (kg-1)	Pump rate (1/min)	Remarks
9 5/8" Slurry	29.0	1.90	4:35	115	HR-5 Microblock Halad-361A CFR-3 Freshwater SSA-1	0.30% 10.0 5.0 0.75% 45.97 35%	82 2729 1365 205 9560	2000	Spacer: $1.6m^3$ F.W.
7" Slurry	34.0	1.90	6:15	115	SSA-1 Microblock Halad-361A CFR-3 HR5 Freshwater	35% 10.0 5.0 0.6% 0.55% 45.94	11230 3209 1604 192 176	1400	$10.0m^3$ Dual-E Spacer ahead

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CEMENT REPORT
Well no.: 34/10-36
Cement Contractor: Halliburton

Cement plugs

Plug	Slurry volum (m^3)	Slurry dens. (SG)	Thick time (hrs) (100 BC)	BHST (^oC)	Additive name	Comp. (1/100kg)	Total used (kg-ltr)	Remarks
No. 1 2900 - 2787 m	4.6	1.92	4:13	115	SSA-2 CFR-3 Freshwater HR5	35% 0.1% 54.0 0.6%	1635 6 2524 40	Spacer: 1.6m^3 Freshwater ahead
No. 2 & 3 1050 - 911 m	3.2 & 12.0	1.90	3:58	38	Freshwater	45.55		Spacer: 3.2m^3 Freshwater 0.16m^3 Freshwater after
No. 4 & 5 470 - 190 m	12.9 & 43.0	1.90	4:00	15	$CaCl_2$ Saltwater	2.0 45.5	1389 31.600	4.8m^3 Saltwater ahead 0.08m^3 Saltwater after

341036.slu

4.12 Bottom Hole Assemblies

DBR

Print date: 92/06/16

B O T T O M   H O L E   A S S E M B L I E S

Well: 0034/10-036

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
920429	1	BIT, TRI CONE	9,875		,27	,27
		BIT SUB	7,875	2,625	,84	1,11
		MWD TOOL	7,875	5,000	11,36	12,47
		PR. SUB	7,875	3,250	,65	13,12
		DRILL COLLAR, NM	8,000	2,750	8,95	22,07
		DRILL COLLAR	8,000	2,813	100,91	122,98
		JAR	7,875	3,000	9,78	132,76
		DRILL COLLAR	8,000	2,813	17,94	150,70
		XO SUB	7,750	2,750	1,08	151,78
		HW DRILL PIPE	5,000	3,000	137,00	288,78
		DART SUB	6,250	3,313	,31	289,09
920501	2	BIT, TRI CONE	26,000		,61	,61
		HOLE OPENER	36,000	3,000	2,74	3,35
		BIT SUB	9,500	3,000	1,22	4,57
		DRILL COLLAR, NM	9,500	3,063	8,55	13,12
		DRILL COLLAR	9,500	3,000	46,56	59,68
		XO SUB	9,500	3,000	,93	60,61
		DRILL COLLAR	8,000	2,813	82,30	142,91
		XO SUB	7,750	2,750	1,08	143,99
920502	3	BIT, TRI CONE	26,000		,61	,61
		HOLE OPENER	36,000	3,000	2,74	3,35
		HOLE OPENER	36,000	3,000	2,42	5,77
		BIT SUB	9,500	3,000	1,22	6,99
		DRILL COLLAR, NM	9,500	3,063	8,55	15,54
		DRILL COLLAR	9,500	3,000	46,56	62,10
		XO SUB	9,500	3,000	,93	63,03
		DRILL COLLAR	8,000	2,813	82,30	145,33
		XO SUB	7,750	2,750	1,08	146,41
920503	4	BIT, TRI CONE	17,500		,44	,44
		HOLE OPENER	25,875	3,500	2,19	2,63
		BIT SUB	9,500	3,000	1,22	3,85
		MWD TOOL	9,000	5,600	11,31	15,16
		PR. SUB	8,938	3,750	,79	15,95
		DRILL COLLAR, NM	9,438	3,063	8,55	24,50
		DRILL COLLAR	9,500	3,000	46,56	71,06
		XO SUB	9,500	3,000	,93	71,99
		DRILL COLLAR	8,000	2,813	82,30	154,29
		JAR	7,875	3,000	9,78	164,07
		DRILL COLLAR	8,000	2,813	17,94	182,01
		XO SUB	7,750	2,750	1,08	183,09
		HW DRILL PIPE	5,000	3,000	137,00	320,09
		DART SUB	6,250	3,000	,31	320,40
920506	5	BIT, TRI CONE	26,000		,61	,61
		BIT SUB	9,500	3,250	1,21	1,82
		XO SUB	9,500	2,875	,31	2,13
		XO SUB	9,500	3,125	1,09	3,22
		HOLE OPENER	26,000	3,000	1,53	4,75
		BIT SUB	9,500	3,000	1,20	5,95
		DRILL COLLAR	9,500	3,000	37,25	43,20
		XO SUB	9,500	3,000	,93	44,13
		DRILL COLLAR	8,000	2,813	82,30	126,43
		JAR	7,875	3,000	9,78	136,21
		DRILL COLLAR	8,000	2,813	17,94	154,15
		XO SUB	7,750	3,000	1,08	155,23
		HW DRILL PIPE	5,000	3,000	137,00	292,23
		DART SUB	6,250	3,000	,31	292,54

Remarks: WIPERTRIP PRIOR TO RUN 20" CASING.

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
920510	6	BIT, TRI CONE	17,500		,41	,41
		BIT SUB	9,500	3,250	1,21	1,62
		MWD TOOL	9,000		11,31	12,93
		PR. SUB	8,938	3,000	,79	13,72
		STABILIZER	17,500	3,000	1,75	15,47
		MONEL	9,438	3,063	8,55	24,02
		DRILL COLLAR	9,500	3,000	64,91	88,93
		XO SUB	9,500	2,813	,93	89,86
		DRILL COLLAR	8,000	2,813	82,30	172,16
		JAR	7,875	3,000	9,78	181,94
		DRILL COLLAR	8,000	2,813	17,94	199,88
		XO SUB	7,750	3,000	1,08	200,96
		HW DRILL PIPE	5,000	3,000	109,32	310,28
		DART SUB	6,250	3,000	,31	310,59
920511	7	BIT, TRI CONE	17,500		,41	,41
		BIT SUB	9,500	3,250	1,21	1,62
		MWD TOOL	9,000		11,69	13,31
		PR. SUB	8,938	3,000	,79	14,10
		STABILIZER	17,500	3,000	1,75	15,85
		MONEL	9,438	3,063	8,55	24,40
		DRILL COLLAR	9,500	3,000	64,91	89,31
		XO SUB	9,500	2,813	,93	90,24
		DRILL COLLAR	8,000	2,813	82,30	172,54
		JAR	7,875	3,000	9,78	182,32
		DRILL COLLAR	8,000	2,813	17,94	200,26
		XO SUB	7,750	3,000	1,08	201,34
		HW DRILL PIPE	5,000	3,000	109,32	310,66
		DART SUB	6,250	3,000	,31	310,97
920515	8	BIT, TRI CONE	17,500		,49	,49
		BIT SUB	9,500	3,250	1,21	1,70
		MWD TOOL	9,000		11,31	13,01
		PR. SUB	8,938	3,000	,79	13,80
		STABILIZER	17,469	3,000	1,88	15,68
		MONEL	9,438	3,063	8,55	24,23
		DRILL COLLAR	9,500	3,000	64,91	89,14
		XO SUB	9,500	2,813	,93	90,07
		DRILL COLLAR	8,000	2,813	82,30	172,37
		JAR	7,875	3,000	9,78	182,15
		DRILL COLLAR	8,000	2,813	17,94	200,09
		XO SUB	7,750	3,000	1,08	201,17
		HW DRILL PIPE	5,000	3,000	109,32	310,49
		DART SUB	6,250	3,000	,31	310,80
920517	9	BIT, TRI CONE	17,500		,49	,49
		BIT SUB	9,500	3,250	1,21	1,70
		MONEL	9,438	3,063	8,55	10,25
		DRILL COLLAR	9,500	3,000	64,91	75,16
		XO SUB	9,500	2,813	,93	76,09
		DRILL COLLAR	8,000	2,813	82,30	158,39
		JAR	7,875	3,000	9,78	168,17
		DRILL COLLAR	8,000	2,813	17,94	186,11
		XO SUB	8,000	3,000	1,08	187,19
		HW DRILL PIPE	5,000	3,000	109,32	296,51
		DART SUB	6,250	3,000	,31	296,82
920519	10	BIT, TRI CONE	12,250		,34	,34
		BIT SUB	8,000	3,000	,84	1,18
		MWD TOOL	8,000	5,000	11,43	12,61
		PR. SUB	8,000	3,000	,71	13,32
		STABILIZER	12,125	2,750	2,18	15,50
		DRILL COLLAR, NM	8,000	2,750	8,95	24,45
		STABILIZER	12,125	2,750	2,17	26,62
		DRILL COLLAR	8,000	2,813	109,55	136,17
		JAR	7,750	3,000	9,78	145,95
		DRILL COLLAR	8,000	2,813	17,94	163,89
		XO SUB	5,000	3,000	1,08	164,97
		HW DRILL PIPE	5,000	3,000	109,38	274,35
		DART SUB	6,250	3,000	,38	274,73

Well: 0034/10-036

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
920521	11	BIT, TRI CONE	12,250		,34	,34
		DYNADR. 1.00/LOWRPM	8,000		7,74	8,08
		XO SUB	8,000	2,813	,31	8,39
		BIT SUB	8,000	3,000	,84	9,23
		STABILIZER	12,125	2,750	2,17	11,40
		MWD TOOL	8,000	5,000	11,43	22,83
		PR. SUB	8,000	3,000	,71	23,54
		STABILIZER	12,000	2,750	2,18	25,72
		DRILL COLLAR, NM	8,000	2,750	17,86	43,58
		STABILIZER	12,125	2,750	2,17	45,75
		DRILL COLLAR	8,000	2,813	100,42	146,17
		JAR	7,750	3,000	9,67	155,84
		DRILL COLLAR	8,000	2,813	17,94	173,78
		XO SUB	5,000	3,000	1,08	174,86
		HW DRILL PIPE	5,000	3,000	109,32	284,18
		DART SUB	6,250	3,000	,31	284,49
920523	12	BIT, TRI CONE	12,250		,31	,31
		DYNADR. 1.00/LOWRPM	9,625		7,74	8,05
		XO SUB	8,000	2,813	,31	8,36
		BIT SUB	8,000	3,000	,84	9,20
		STABILIZER	12,125	2,750	2,17	11,37
		MWD TOOL	8,000	5,000	11,43	22,80
		PR. SUB	8,000	3,250	,70	23,50
		STABILIZER	12,000	2,750	2,18	25,68
		MONEL	8,000	2,750	8,95	34,63
		MONEL	8,000	2,750	8,91	43,54
		STABILIZER	11,750	2,750	2,17	45,71
		DRILL COLLAR	8,000	2,813	155,13	200,84
		JAR	7,875	3,000	9,67	210,51
		DRILL COLLAR	8,000	2,813	17,94	228,45
		XO SUB	5,000	3,000	1,08	229,53
		HW DRILL PIPE	5,000	3,000	109,32	338,85
		DART SUB	6,250	3,000	,31	339,16
920525	13	BIT, TRI CONE	12,250		,32	,32
		DYNADR. 1.00/LOWRPM	9,625		7,76	8,08
		STABILIZER	12,125	2,750	2,17	10,25
		XO SUB	8,000	2,813	,31	10,56
		BIT SUB	8,000	3,000	,84	11,40
		MWD TOOL	8,000	5,000	11,43	22,83
		PR. SUB	8,000	3,250	,71	23,54
		STABILIZER	11,750	2,750	2,17	25,71
		MONEL	8,000	2,750	8,95	34,66
		MONEL	8,000	2,750	8,91	43,57
		STABILIZER	12,000	2,750	2,18	45,75
		DRILL COLLAR	8,000	2,813	155,13	200,88
		JAR	7,875	3,000	9,67	210,55
		DRILL COLLAR	8,000	2,813	17,94	228,49
		XO SUB	8,000	3,000	1,08	229,57
		HW DRILL PIPE	5,000	3,000	109,32	338,89
		DART SUB	6,250	3,000	,31	339,20
920528	14	BIT, TRI CONE	12,250		,32	,32
		BIT SUB	8,000	3,000	,84	1,16
		MWD TOOL	8,000	5,000	11,43	12,59
		PR. SUB	8,000	3,000	,71	13,30
		STABILIZER	12,000	2,750	2,18	15,48
		MONEL	8,000	2,750	8,91	24,39
		STABILIZER	12,125	2,750	2,17	26,56
		DRILL COLLAR	8,000	2,813	155,13	181,69
		JAR	7,750	3,000	9,67	191,36
		DRILL COLLAR	8,000	2,813	17,94	209,30
		XO SUB	5,000	3,000	1,08	210,38
		HW DRILL PIPE	5,000	3,000	109,32	319,70
		DART SUB	6,250	3,000	,31	320,01

Well: 0034/10-036

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
920530	15	OVERSHOT	11,250	9,750	,30	,30
		DIV. FISHING EQUIP.		7,875	,00	,30
		DIV. FISHING EQUIP.	11,250	9,750	,53	,83
		DIV. FISHING EQUIP.	11,250	3,500	,42	1,25
		DRILL COLLAR	8,000	2,813	28,70	29,95
		JAR	7,875	3,000	9,75	39,70
		DRILL COLLAR	8,000	2,813	35,93	75,63
		XO SUB	8,000	3,000	1,08	76,71
		HW DRILL PIPE	5,000	3,000	109,32	186,03
		DART SUB	6,250	3,000	,31	186,34

Remarks: FISHING BHA

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
920601	16	BIT, TRI CONE	12,250		,00	,00
		BIT SUB	8,000	3,000	1,18	1,18
		MONEL	8,000	2,750	10,09	11,27
		STABILIZER	12,000	2,750	12,27	23,54
		DRILL COLLAR	8,000	2,813	9,21	32,75
		STABILIZER	12,125	2,750	2,17	34,92
		DRILL COLLAR	8,000	2,813	154,57	189,49
		JAR	7,875	3,000	9,57	199,06
		DRILL COLLAR	8,000	2,813	17,99	217,05
		HW DRILL PIPE	5,000	3,000	109,32	326,37
		DART SUB	6,250	3,000	,31	326,68

Remarks: WIPER TRIP

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
920604	17	BIT, TRI CONE	8,500		,26	,26
		BIT SUB	6,500	3,500	,88	1,14
		MWD TOOL	7,000	5,000	12,94	14,08
		PR. SUB	7,000	3,500	,82	14,90
		SAVER SUB	7,000	3,500	,33	15,23
		STABILIZER	8,440	2,750	1,67	16,90
		DRILL COLLAR, NM	6,560	2,750	8,90	25,80
		DRILL COLLAR	6,500	2,250	219,85	245,65
		JAR	6,500	2,750	9,44	255,09
		DRILL COLLAR	6,500	2,250	18,43	273,52
		HW DRILL PIPE	5,000	8,000	137,00	410,52
		DART SUB	6,250	3,000	,31	410,83

Remarks: DRILLED CEMENT AND RATHOLE

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
920605	18	BIT, CORE	8,500		,28	,28
		CORE BARREL	8,469	3,156	29,91	30,19
		DRILL COLLAR	6,500	2,250	9,20	39,39
		STABILIZER	8,438	2,750	1,67	41,06
		DRILL COLLAR	6,500	2,250	109,59	150,65
		JAR	6,500	2,750	9,44	160,09
		DRILL COLLAR	6,500	2,250	18,43	178,52
		HW DRILL PIPE	5,000	3,000	137,00	315,52
		DART SUB	6,250	3,000	,31	315,83
920606	19	BIT, TRI CONE	8,500		,24	,24
		BIT SUB	6,500	3,500	,88	1,12
		MWD TOOL	7,000	5,000	12,99	14,11
		PR. SUB	7,000	3,500	,82	14,93
		SAVER SUB	7,000	3,500	,34	15,27
		STABILIZER	8,500	2,875	1,73	17,00
		SHOCK SUB	6,625	2,063	2,98	19,98
		STABILIZER	8,500	2,750	1,57	21,55
		DRILL COLLAR, NM	6,563	2,750	8,90	30,45
		DRILL COLLAR	6,500	2,250	219,85	250,30
		JAR	6,500	2,750	9,44	259,74
		DRILL COLLAR	6,500	2,250	18,43	278,17
		HW DRILL PIPE	5,000	3,000	137,00	415,17
		DART SUB	6,250	3,000	,31	415,48

Well: 0034/10-036

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
920609	20	CORE HEAD	8,500		,28	,28
		CORE BARREL	8,469		29,91	30,19
		DRILL COLLAR	6,500	2,250	9,21	39,40
		STABILIZER	8,438	2,750	1,67	41,07
		DRILL COLLAR	6,500	2,250	100,59	141,66
		JAR	6,188	2,250	10,10	151,76
		DRILL COLLAR	6,500	2,250	18,43	170,19
		HW DRILL PIPE	5,000	3,000	137,00	307,19
		DART SUB	6,250	3,000	,31	307,50
	21	CORE HEAD	8,500		,28	,28
		CORE BARREL	8,469		29,91	30,19
		DRILL COLLAR	6,500	2,250	9,21	39,40
		STABILIZER	8,438	2,750	1,67	41,07
		DRILL COLLAR	6,500	2,250	100,59	141,66
		JAR	6,188	2,250	10,10	151,76
		DRILL COLLAR	6,500	2,250	18,43	170,19
		HW DRILL PIPE	5,000	3,000	137,00	307,19
		DART SUB	6,250	3,000	,31	307,50
920610	22	BIT, TRI CONE	8,500		,24	,24
		BIT SUB	6,500	3,500	,88	1,12
		MWD TOOL	7,000	5,000	12,88	14,00
		PR. SUB	7,000	3,500	,82	14,82
		SAVER SUB	7,000	3,500	,38	15,20
		STABILIZER	8,500	2,875	1,73	16,93
		SHOCK SUB	6,625	2,063	2,98	19,91
		STABILIZER	8,500	2,750	1,57	21,48
		DRILL COLLAR, NM	6,563	2,750	8,90	30,38
		DRILL COLLAR	6,500	2,250	192,37	222,75
		JAR	6,500	2,750	10,10	232,85
		DRILL COLLAR	6,500	2,250	18,43	251,28
		HW DRILL PIPE	5,000	3,000	137,00	388,28
		DART SUB	6,250	3,000	,31	388,59
920613	23	BIT, TRI CONE	8,500		,23	,23
		BIT SUB	6,500	3,500	,88	1,11
		DRILL COLLAR	6,500	2,250	9,33	10,44
		STABILIZER	8,500	2,750	1,57	12,01
		DRILL COLLAR	6,500	2,250	128,48	140,49
		JAR	6,188	2,250	10,10	150,59
		DRILL COLLAR	6,500	2,250	18,43	169,02
		HW DRILL PIPE	5,000	3,000	54,80	223,82
		DART SUB	6,250	3,000	,31	224,13

STATOIL

4.13 Equipment Failure

4.13 **Equipment failure**

04.05.92 :	Repaired mud pump no. 1, cylinder no. 3. Broken bolt in lock ring on suction module. Torqued up lock ring.
07.05.92 :	Attempted to pressure test kill- and choke lines - leaked. Laid down riser and BOP. Found leak in connetion between 50 feat riser joints. Disconnected riser joints and inspected seals. Found particles in grooves on choke- and kill line. Installed new lip seals. Pressure tested kill line - leaked at test plug. Removed lip seals and cleaned grooves. Installed new lip seals. Pressure tested, OK.
08.05.92 :	Pressure tested kill- and choke lines on rig floor. Leak at test plug. Removed lip seals and cleaned grooves. Installed new seals. Pressure test OK.
08.05.92 :	Ran riser/BOP and attempted to pressure test kill line - leaked. Disconnected kill- and choke hoses. Pressure tested on riser joints. Pulled riser and BOP. Cleaned lip grooves and inspected pin ends on kill- and choke lines. Pressure tested surface line and hose, kill- and choke lines - OK. Ran BOP/riser. Cleaned lip seal grooves on kill- and choke lines. Installed new seals. Found squeezed groove on one 50 feet joint. Pressure tested - OK.
12.05.92 :	Changed suction module on cylinder no. 3, pump no. 1 due to crack.

23.05.92 :	Rubber piece found in one cylinder in mud pump no. 1.
24.05.92 :	Repaired leak in fittings on load cell for dead line anchor.
26.05.92 :	Seat and valve in mud pump no. 2, cylinder no. 1 washed out. Changed valve and seat.
27.05.92:	Changed valve and seat in discharge pump no. 2.
27.05.92 :	Changed valve and seat in discharge pump no. 1.
28.05.92 :	Changed valve and seat in discharge pump no. 1, cylinder no. 1.
28.05.92 :	Changed suction and discharged valves and seats in mud pump no. 2, cylinder no. 3
12.06.92 :	Repaired broken hose on iron roughneck.
13.06.92 :	Found crack on suction module, cylinder no. 3, on mud pump no. 2. Installed new suction module.
13.06.92 :	Changed saver sub and dies on pipe handler on top drive.
14.06.92 :	Checked mud pump no. 1 for erratic pressure. Found piece of coal on seat, discharge valve no. 3.
16.06.92 :	During running in with tool, Atlas cable unspooled on drum due to throttle not in mid position. Cut off approximately 900 m of cable. Re-terminated cable head.

29.06.92: During main flow (DST 1) one of four pilot fires on burner boom was lost. Attempted to re-fire pilo, negative. Switched to opposite burner boom. Lost minor amount of oil into the sea.

APPENDIX I

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 1 of 28
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 17 1/2"
Geologist: D. ALM / S. BJERKENES		Date: 10.05.92	

Depth (mKB)	Lith (%)	Lithological Description: Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks: Shows,cavings, mud additives, etc
1080	100	CLST: BRN GRY-DK GRY, SLTY, FRM, MICROMIC, OCC MICROPYR, NON-OCC V SL CALC	NO SHOWS
	GD TR	SD: CLR-MKY-SMKY QTZ, RK FRAGS, FN-V CRS, SUBANG-ANG, OCC SUBRND, PR SRT, LSE	
	TR	PYR	
	TR	SHL FRAGS	
1090	100	CLST: OLV GRY-DK GN GRY, SLTY, FRM-MOD HD, MICROMIC, SLILY SDY I/P, OCC SL MICROPYR, NON CALC	
	SL TR	SD: A/A	
1100	A/A		
1110	A/A		
1120	A/A		
1130	100	CLST: V SDY I/P, OCC TR GLAUC, ELSE A/A	
	SL TR	SD: A/A	
	SL TR	SHL FRAGS	
1140	100	CLST: A/A	
	TR	SD: A/A	
	SL TR	SHL FRAGS	
1150	90	CLST: A/A	
	10	SD: PRED QTZ, ELSE A/A	
	GD TR	SST: GN WH, CLR QTZ, F, OCC MED, MOD SRT, WH ARG MTRX, SLILY SIL CMT, V FRI, V GLAUC, NO VIS POR	
	GD TR	GLAUC: GN-GN BLK, NOD	
	SL TR	SHL FRAGS	
1160	100	CLST: A/A	
	TR	SD: A/A	
1170	90	CLST: A/A	
	10	SD: A/A	
	TR	SST: A/A	
	SL TR	GLAUC	
1180	30	CLST: A/A	
	70	SD: CLR QTZ, MED, RND-SUBANG, OCC AS LIT FRAGS, V CRS, ANG, FAIR SRT, LSE.	
	TR	GLAUC	
1190	40	CLST: A/A	
	50	SD: A/A	
	10	SST: A/A	
	SL TR	GLAUC	
1200	40	CLST: A/A	
	40	SD: A/A	
	20	SST: A/A	
	TR	GLAUC	
1210	20	CLST: A/A	
	50	SD: A/A	
	30	SST: A/A	
	TR	GLAUC	
1220	30	CLST: A/A	
	20	SD: A/A	
	50	SST: A/A	
	TR	GLAUC	

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 2 of 28
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 17 1/2"
Geologist: D. ALM / S. BJERKENES		Date: 11.05.92	

Depth (mKB)	Lith (%)		Lithological Description: Rock name, mod.lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Remarks: Shows, cavings, mud additives, etc
1230	50	SD:	CLR QTZ, MED-CRS, PT CRS-V CRS, MOD SRT, SUBRND-RND, LSE.	NO SHOWS
	30	SST:	GN WH, CLR QTZ, F, OCC MED, MOD SRT, WH ARG MTX, SLILY SIL CMT, V FRI, V GLAUC I/P, NO VIS POR.	
	20	CLST:	OLV GRY-DK GN GRY, SLTY, FRM-MOD HD, MICROMIC, SLILY SDY I/P, OCC SLILY MICROPYR, NON CALC	
	TR	GLAUC		
1240	30	SD:	A/A	
	40	SST:	A/A	
	30	CLST:	A/A	
	TR	GLAUC		
1250	80	SD:	A/A, BUT MOSTLY MED-CRS	
	20	SST:	A/A	
	TR	CLST:	A/A	
	TR	GLAUC & CRS MICA		
1260	100	SD:	MED-CRS A/A	
	TR	SST:	A/A	
	TR	MICA		
1270	90	SD:	A/A	
	10	SST:	A/A	
	TR	GLAUC		
1280	40	SD:	A/A	
	30	SST:	A/A	
	30	CLST:	A/A, PT GRYSH GN.	
	TR	GLAUC		
1290	70	CLST:	A/A	
	30	SD:	A/A	
	GD TR	SST:	A/A	
	TR	GLAUC		
1300	A/A			
1310	60	SD:	A/A	
	40	CLST:	A/A	
	GD TR	SST:	A/A	
1320	100	CLST:	A/A	
	GD TR	SD:	A/A	
1330	100	CLST:	A/A	
	GD TR	SD:	A/A	
	TR	SHL FRAGS		
1340	90	CLST:	A/A	
	10	SD:	A/A	
	TR	SHL FRAGS		
1350	60	CLST:	A/A	
	40	SD:	A/A	
	GD TR	SST:	A/A	
1360	90	SD:	A/A	
	10	CLST:	A/A	
	GD TR	SST:	A/A	
1370	90	CLST:	A/A	
	10	SD:	A/A	

WELLSITE SAMPLE DESCRIPTION			Page 3 of 28
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 17 1/2"
Geologist: D. ALM / S. BJERKENES		Date: 12.05.92	

Depth (mKB)	Lith (%)		Lithological Description: Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks: Shows,cavings, mud additives, etc
1380	100	CLST:	OLV GRY-DK GN GRY, I/P GRY GN, SLTY, FRM-MOD HD, MICROMIC, SLILY SDY I/P, OCC SLILY MICROPYR, NON CALC	NO SHOWS
	GD TR	SD:	CLR QTZ, MED-CRS, MOD SRT, SUBRND-RND, LSE.	
	SL TR	SST:	GRY WH, CLR QTZ, FN, OCC MED, MOD SRT, WH ARG MTX, SLILY SIL CMT, V FRI, GLAUC I/P, NO VIS POR.	
1390	100	CLST:	A/A	
	GD TR	SD:	A/A	
1400	A/A			
1410	80	CLST:	A/A	
	20	SD:	A/A	
	GD TR	SST:	A/A	
1420	65	CLST:	A/A	
	30	SD:	A/A	
	5	SST:	A/A	
1430	50	SD:	A/A	
	45	CLST:	A/A	
	5	SST:	A/A	
1440	80	SD:	A/A	
	10	CLST:	A/A	
	10	SST:	A/A	
1450	60	SST:	A/A	
	20	SD:	A/A	
	20	CLST:	A/A	
	TR	PYR		
1460	30	SST:	A/A	
	30	CLST:	A/A	
	40	SD:	A/A	
1470	80	SD:	A/A	
	20	SST:	A/A	
	TR	CLST:	A/A	
1480	30	SD:	A/A	
	30	SST:	A/A	
	40	CLST:	A/A	
1490	90	CLST:	A/A	
	10	SD:	A/A	
	GD TR	SST:	A/A	
1500	100	CLST:	A/A	
	GD TR	SD & SST:	A/A	
1510	A/A			
1520/	A/A	PT DSKY GN CLST		
1530	100	CLST:	A/A	
	SL TR	SD & SST	A/A	
1540	90	CLST:	A/A	
	10	SD:	A/A	
	TR	SST:	A/A	
1550	60	SD:	A/A	
	40	CLST:	A/A	
	GD TR	SST:	A/A	

WELLSITE SAMPLE DESCRIPTION			Page 4 of 28
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 17 1/2"
Geologist: D. ALM / S. BJERKENES		Date: 13.05.92	

Depth (mKB)	Lith (%)	Lithological Description: Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.		Remarks: Shows,cavings, mud additives, etc
1560	30	CLST:	OLV GRY-DK GN GRY, I/P GRY GN, SLTY, FRM-MOD HD, MICROMIC, SLILY SDY I/P, OCC SL MICROPYR, NON CALC	NO SHOWS
	70	SD:	CLR QTZ, MED-CRS, MOD SRT, SUBRND-RND, LSE.	
	SL TR	SST:	GRY WH, CLR QTZ, FN, OCC MED, MOD SRT, WH ARG MTX, SLILY SIL CMT, V FRI, GLAUC I/P, NO VIS POR.	
1570	80	SD:	A/A	
	20	CLYST:	A/A	
	TR	SST:	A/A	
1580	A/A			
1590	70	SD:	A/A	
	20	CLST:	A/A	
	TR	SST:	A/A	
1600	90	CLST:	DK GN GRY-MED DK GRY, SLILY SLTY, FRM-MOD HD, BLKY, MICROMIC, SLILY MICROCARB, OCC MICROPYR, NON CALC	
	10	SD:	A/A	
1610	100	CLST:	A/A	
	GD TR	SD:	A/A	
1620	100	CLST:	A/A	
	TR	SD:	A/A	
1630	A/A			
1640	90	CLST:	A/A	
	10	SD:	A/A	
1650	100	CLYST:	A/A	
	TR	SD:	A/A	
1660	A/A			
1670	A/A			
1680	100	CLST:	A/A	
	GD TR	SD:	A/A	
1690	100	CLST:	A/A	
	TR	SD:	A/A	
	SL TR	PYR		
1700	A/A			
1710	A/A			
1720	A/A			
1730	100	CLST:	A/A	
	TR	SD:	A/A	
	TR	DOL:	GRY BRN-MED BRN, MOD HD-HD, BLKY, MICROXLN-MICR.	
	TR	PYR		
1740	100	CLST:	A/A	
	TR	DOL:	A/A	
1750	A/A			
1760	A/A			
1770	A/A			

WELLSITE SAMPLE DESCRIPTION			Page 5 of 28
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 17 1/2"
Geologist: D. ALM / S. BJERKENES		Date: 13.05.92	

Depth (mKB)	Lith (%)	Lithological Description: Rock name, mod.lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed.structures, accessories, fossils, porosity, contamination.	Remarks: Shows, cavings, mud additives, etc
1780	60	CLST: OLV GRY-DK GN GRY-GRY GN, SLTY I/P, FRM-MOD HD, MICROMIC, SLILY SDY I/P, OCC SLILY MICROPYR, NON CALC, OCC W/ BLK SPKS, TF ?	NO SHOWS
	40	CLST: GRY RD-RD BRN, MOD HD, BLKY, NON CALC.	
	TR	LST: V ARG, MED GRY-LT BRN GRY, MOD HD, BLKY, MICR I/P.	
	TR	PYR	
1790	50	CLST: OLV GRY-DK GN GRY-GRY GN, A/A	
	50	CLST: GRY RD-RD BRN, A/A	
	TR	LST: A/A, PT OFF WH, MICR, SFT.	
	TR	SD: CLR QTZ, MED-F, CRS I/P, MOD SRT, SUBRND, LSE.	
1800	A/A		
1803	LOST		
1806	70	CLST: RD BRN, A/A	
	30	CLST: GN GRY, A/A	
	TR	LST & SD: A/A	
1809	80	CLST: RD BRN, A/A	
	20	CLST: GN GRY, A/A, BUT OCC W/ WH SPKS, TF.	
	TR	SD: A/A	
1812	LOST		
1815	A/A		
1818	LOST		
1821	A/A		
1824	LOST		
1827	80	CLST: RD BRN, A/A, BUT PT MOD CALC	
	20	CLST: GN GRY, A/A	
	TR	LST: PT A/A, ALSO LT GRY-OFF WH, XLN, HD.	
	TR	SD: A/A	
1830	LOST		
1833	60	CLST: RD BRN, A/A	
	40	CLST: GN GRY, A/A	
	TR	LST & SD: A/A	
1836	LOST		
1839	40	CLST: RD BRN, A/A	
	60	CLST: TF, LT-MED GN GRY-LT OLV GRY, SFT-FRM, BLKY, SL-NON CALC, MOD CALC I/P, SDY I/P, MICROPYR I/P, BLK TF SPKS I/P.	
	TR	LST: MOSTLY V ARG, MED GRY-LT BRN GRY, ALSO OFF WH, FRM-HD, BLKY, XLN-MICR, MICROPYR I/P	
	TR	SD: A/A	
	TR	PYR	
1842	LOST		
1845	50	CLST: RD BRN, A/A	
	50	CLYST: GN GRY TYPES, A/A	
	TR	LST: A/A	
	TR	PYR	
1848	60	CLST: GN GRY TYPES, A/A, PT MED GRY, MORE TF, MOD CALC, SFT-FRM.	
	30	CLST: RD BRN, A/A	
	10	LST: A/A	
	TR	PYR & SD: A/A	

WELLSITE SAMPLE DESCRIPTION			Page 6 of 28
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 17 1/2"
Geologist: D. ALM / S. BJERKENES		Date: 13.05.92	

Depth (mKB)	Lith (%)	Lithological Description: Rock name, mod.lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed.structures, accessories, fossils, porosity, contamination.	Remarks: Shows, cavings, mud additives, etc
1851	50	CLST: TF, LT-MED GN GRY-LT OLV GRY, PT MED GRY IN TF, SFT-FRM, BLKY, SL-NON CALC, MOD CALC IN TF, SDY I/P, MICROPYR I/P, BLK SPKS.	NO SHOWS
	40	CLST: RD BRN, MED BRN I/P, SFT-FRM-MOD HD, BLKY, SL-NON CALC.	
	10	LST: ARG, MED GRY-LT BRN GRY, OCC OFF WH, FRM-HD, BLKY, XLN-MICR.	
	TR	SD: CLR QTZ, FN-MED, CRS I/P, MOD SRT, SUBRND, LSE.	
	TR	PYR	
1854	A/A		
1857	A/A	BUT MORE MED GRY CLST, MOD CALC.	
1860	30	CLST/TF: MED GRY, SFT-FRM-MOD HD, BLKY, OCC BLK TF SPKS, MOD CALC.	
	30	CLST: LT-MED GN GRY-LT OLV GRY, A/A	
	30	CLST: RD BRN, A/A	
	10	LST: A/A	
	TR	PYR & SD A/A	
1863	50	CLST/TF: MED GRY, A/A	
	20	CLST: LT-MED GN GRY-LT OLV GRY, A/A	
	20	CLYST: RD BRN, A/A	
	10	LST: A/A	
	TR	SD & PYR	
1866	30	CLST/TF: MED GRY, A/A	
	40	CLST: LT-MED GN GRY-LT OLV GRY, A/A	
	30	CLST: RD BRN A/A	
	TR	LST, PYR & SD	
1869	A/A		
1872	A/A		
1875	A/A		
1878	A/A		
1881	70	CLST/TF: MULTICOL, LT-MED GN GRY-OLV GRY-MED GRY, OCC DK GRY, SFT-MOD HD, BLKY, NON-MOD CALC, SDY-SLTY I/P, MICROPYR I/P, BLK SPKS IN TF.	
	20	CLST: RD BRN A/A	
	10	LST: A/A	
	SL TR	PYR	
1884	A/A		
1887	A/A		
1890	A/A		
1893	80	CLST/TF CLST: A/A	
	10	CLYST: RD BRN, A/A	
	10	LST: A/A	
1896	70	CLST/TF CLST: A/A	
	10	CLST: RD BRN, A/A	
	20	LST: A/A	
1899	A/A		
1902	A/A		
1905	A/A		
1908	A/A		
1911	A/A		

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 7 of 28
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 17 1/2"
Geologist: D. ALM / S. BJERKENES / E. LANGSETH		Date: 13.05.92	

Depth (mKB)	Lith (%)	Lithological Description: Rock name, mod.lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed.structures, accessories, fossils, porosity, contamination.	Remarks: Shows, cavings, mud additives, etc
1914	80	CLST/TF: MULTICOL, LT-MED GN GRY-OLV GRY-MED GRY, OCC DK GRY, SFT-MOD HD, BLKY, NON-MOD CALC, SDY-SLTY I/P, MICROPYR I/P, BLK SPKS IN TF.	NO SHOWS
	10	CLST: RD BRN, MED BRN I/P, SFT-FRM-MOD HD, BLKY, SL-NON CALC.	
	10	LST: ARG, MED GRY-LT BRN GRY, OCC OFF WH, FRM-HD, BLKY, XLN-MICR.	
1917	A/A		
1920	A/A		
1923	90	CLST: PRED DK GN GRY-OLV GRY, TR TF CLST, ELSE A/A	
	10	CLST: RD BRN, A/A	
	GD TR	LST: PRED A/A	
1926	A/A		
1929	LOST		
1932	90	CLST: A/A	
	10	CLST: RD BRN, A/A	
	GD TR	LST: A/A	
	TR	DOL: MOD BRN, HD, XLN, BLKY	
	TR	PYR	
1935	100	CLST: DK GN GRY-OLV GRY, MED-MED LT GRY, SFT-MOD HD, AMOR-BLKY, SLTY-SDY I/P, MICROMIC, OCC MICROPYR, NON CALC	
	GD TR	CLST: RD BRN, A/A	
	GD TR	LST: A/A	
	TR	PYR	
	TR	TF: VARICOL, HD, ANG, W/ GLASSY INCL	
1938	A/A		
1941	A/A		
1944	A/A		
1947	A/A		
1950	A/A		
1953	A/A		
1959	A/A		
1965	100	CLST: A/A, W/ GD TR TF, I/P CALC.	
1971	A/A		
1974	A/A		
1977	A/A		
1980	100	CLST: A/A BUT MORE SLTY I/P, NO TF, NO PYR	
1986	A/A		
1992	A/A		
1995	A/A		
2001	A/A		
2006	A/A		

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 8 of 28
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 17 1/2"
Geologist: D. ALM / E. LANGSETH		Date: 15.05.92	

Depth (mKB)	Lith (%)	Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
2013	100	CLST: DK GN GRY - MED - MED LT GRY, SFT - MOD HD, AMOR - BLKY, SLTY I/P, NON - SL CALC.	NO SHOWS
	GD TR	CLST: RD BRN - MED BRN, SFT - MOD HD, BLKY, OCC SL CALC.	
	TR	PYR, TF.	
2019	A/A		
2025	A/A,	W/ TR CRS SD.	
2031	A/A,	W/ NO TR PYR OR SD.	
2034	A/A		
2040	A/A		
2046	100	CLST: A/A I/P SILTIER, W/ GLAUC, MORE CALC.	
2049	100	CLST: PRED MED DK GRY-DK GN GRY, SLILY-I/P V SLTY/SDY, BLKY, OCC SUBFISS, MICROMIC, OCC SLILY MICROPYR, OCC TF W/ BLK-TRNSL GLASSY SPKS, NON-SLILY CALC.	
	TR	LST: OFF WH-MED BRN, SL-I/P V ARG, MICROXLN-MICR, BLKY.	
2052	A/A		
2055	A/A		
2058	100	CLST: A/A	
	TR	LST: A/A	
	SL TR	PYR.	
2061	100	CLST: PRED MED DK GRY-OLV GRY, NON-SLILY SLTY, OCC V SLTY/SL SDY, BLKY-OCC SUBFISS, MICROMICA, MICROCARB, INCR CALC	
	GD TR	LST: I/P MED GRY, ELSE A/A	
	TR	CALCITE: CLR-TRNSL YEL, NEEDLE XLS	
2064	75	CLST: A/A	
	20	MRL: SFT-FRI, ELSE A/A	
2070	LOST		
2073	100	CLST: A/A	
	GD TR	LST: A/A	
2076	50	CLST: A/A	
	50	MRL: MED LT GRY, SLTY, SFT, AMOR	
	TR	LST: A/A	
2079	70	MRL: A/A	
	30	CLST: A/A	
	TR	LST: A/A	
2082	70	CLST: BEC I/P BRN GRY, ELSE A/A	
	30	MRL: A/A	
	TR	LST, PYR A/A	
2085	80	CLST: A/A	
	10	MRL: A/A	
	10	LST: OFF WH-BRN-MED GRY, NON-V ARG, XLN-MICR, FRI-HD, BLKY	
	TR	CALCITE: A/A	
2088	90	CLST: A/A	
	5	LST: A/A	
	GD TR	MRL: A/A	
	5	CALCITE: CLR-TRNSL YEL, XLN	
	TR	PYR	
2091	95	CLST: A/A	
	5	LST: I/P SUCR, ELSE A/A	
	GD TR	LST, MRL, PYR A/A	

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 9 of 28
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 17 1/2"
Geologist: D. ALM / E. LANGSETH		Date: 15.05.92	

Depth (mKB)	Lith (%)	Lithological Description: Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Remarks: Shows, cavings, mud additives, etc
2094	75	CLST: PRED MED DK GRY-OLV GRY, NON-SLILY SLTY, OCC V SLTY/SLILY SDY, BLKY-OCC SUBFISS, MICROMICA, MICROCARB, NON-SLILY CALC, OCC MOD CALC	NO SHOWS
	20	MRL: MED LT GRY, SLTY, SFT-FRI, AMOR-BLKY	
	5	LST: OFF WH-BRN-MED GRY, NON-V ARG, XLN-MICR, FRI-HD, BLKY	
	TR	CALCITE: CLR-TRNSL YEL, NEEDLE XLS	
	TR	PYR	
2097	85	CLST: A/A	
	10	MRL: A/A	
	5	LST: A/A	
	TR	CALCITE, PYR A/A	
2100	65	CLST: A/A	
	30	MRL: PRED SFT, ELSE A/A	
	5	LST: A/A	
	TR	CALCITE, PYR A/A	
2110	65	CLST: A/A	
	30	MRL: PRED SFT, ELSE A/A	
	5	LST: A/A	
	TR	DOL: MOD BRN, XLN, MOD HD, BLKY	
	TR	CALCITE, PYR A/A	
2115	70	CLST: A/A	B/U SAMPLE
	10	MRL: A/A	
	20	LST: PRED V ARG, ELSE A/A	
	TR	PYR	
	TR	SD, TF: PROBABLY CAVINGS	

END OF 17 1/2" SECTION

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 10 of 28
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 12 1/4"
Geologist: D. ALM / E. LANGSETH		Date: 20.05.92	

Depth (mKB)	Lith (%)	Lithological Description: Rock name, mod.lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed.structures, accessories, fossils, porosity, contamination.	Remarks: Shows, cavings, mud additives, etc
2120	90	CLST: DK GN GRY - MED DK GRY, I/P LT OLV GRY, FRM, SLTY, I/P GRD TO SLTST, BLKY, I/P GLAUC, MICROPYR, AND MICROMIC, SLILY - MOD CALC.	NO SHOWS
	10	LST: OFF WH, SFT, AMOR, SLTY I/P, ALSO LT BRN - GRY ORNG, HD.	
	GD TR	PYR, GLAUC, FOSS.	
2130	100	CLST: MED GRY, SFT, AMOR, SLTY, MRLY.	
	TR	PYR, LST, GLAUC.	
2140	95	CLYST: A/A BUT MORE SLTY.	
	5	LST: A/A	
	TR	A/A	
2150	A/A		
2160	A/A		
2170	A/A		
2180	90	CLST: GN GRY - MED LT GRY, SFT, AMOR, SLTY - SDY, CALC - MRLY, AMOR.	
	10	LST: OFF WH - LT GRY, SFT, LSE, I/P LT BRN, HD, XLN.	
	TR	FOSS, SD, PYR.	
2190	A/A		
2200	A/A		
2210	A/A		
2220	A/A	STKY	
2230	A/A		
2240	A/A	BUT SLILY LESS CALC	
2250	A/A		
2260	100	CLST: A/A	
	TR	LST, SD, PYR, A/A	
2270	A/A		
2280	A/A		
2290	A/A		
2300	A/A		
2310	90	CLST: V SL-OCC MOD CALC, ELSE A/A.	
	10	DOL: MOD BRN, MOD HD-HD, XLN-MICROXLN, BLKY.	
	GD TR	LST: A/A	
	TR	SD, PYR, A/A	
2320	100	CLST: A/A	
	GD TR	DOL, LST: A/A	
	TR	SD, PYR	
2330	A/A		

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 11 of 28
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 12 1/4"
Geologist: E. LANGSETH / P. FURMYR		Date: 21.05.92	

Depth (mKB)	Lith (%)	Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
2340	70	CLST: LT GRY - MED DK GRY, SLTY, BLKY - SUBFISS, NON - MOD CALC, MICROPYR	NO SHOWS
	20	LST: OFF WH - LT GRY, SFT, OCC LT BRN, HD, XLN	
	10	SD: F - CRS, LSE	
	TR	PYR	
	TR	GLAUC	
2350	A/A		
2360	90	CLST: MED GRY - GNSH GRY, OCC MOD BRN, SFT, AMOR, CALC	
	10	LST: A/A	
	TR	A/A	
2370	A/A		
2380	80	CLST: MRL, GRYSH RD, MOD BRN, SFT - FRM, BLKY - AMOR, SLILY STKY, V CALC	
	20	CLST: GNSH GRY A/A	
	TR	LST: A/A	
	TR	SD: A/A	
	TR	GLAUC, PYR	
2390	80	CLST: MRLY, GNSH GRY, SFT - FRM, BLKY - AMOR, STKY, V CALC	
	20	CLST: GRYSH RD, MOD BRN A/A	
	TR	LST, SD	
2400	90	CLST: GNSH GRY, MOD CALC, ELSE A/A	
	10	CLST: GRYSH RD, MOD BRN A/A	
	TR	LST, SD, GLAUC, PYR	
2410	100	CLST: GNSH GRY A/A	
	GD TR	CLST: GRYSH RD, MOD BRN A/A	
	TR	A/A	
2420	A/A BUT CLST ONLY SLILY - MOD CALC		
2430	100	CLST: DK GNSH GRY, FRM, BLKY, OCC SUBFISS, SLILY SLTY, SL MICROMIC, SLILY MICROCARB, SLILY CALC - CALC	
	TR	CLST: GRYSH RD A/A	
	TR	LST	
2440	A/A BUT CLST ONLY SLILY CALC		
2450	A/A		
2460	100	CLST: DK GNSH GRY - GNSH GRY, SFT, AMOR, STKY, NON CALC, SLTY I/P	
	TR	LST, SD, PYR	
2470	95	CLST: A/A	
	5	LST: GRYSH WH, SFT - FRM, OCC LT BRN, HD, XLN	
	TR	SD, PYR	
2480	A/A		
2490	A/A		
2500	95	CLST: DK GNSH GRY - OLV GRY, SFT, AMOR - BLKY, SLILY CALC, SLILY MICROMIC, SLILY MICROCARB, SLILY SLTY - SDY	
	5	LST: LT GRY, OLV GY, BRNSH GRY, FRM - MOD HD, CRYPTOXLN	
2510	A/A		
2520	A/A		

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 12 of 28
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 12 1/4"
Geologist: E. LANGSETH / P. FURMYR		Date: 23.05.92	

Depth (mKB)	Lith (%)	Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
2530	95	CLST: DK GNSH GRY - OLV GRY, SFT - FRM, AMOR - BLKY, SLILY CALC, SLILY MICROMIC, SLILY MICROCARB, I/P SLILY MICROPYR, SLTY - SDY	NO SHOWS
	5	LST: LT GRY, OLV GY, BRNSH GRY, FRM - MOD HD, CRYPTOXLN, OCC MICROXLN - SUC	
2540	100	CLST: A/A	
	TR	LST: A/A	
2550	100	CLST: ONLY SLILY SLTY - SDY, ELSE A/A	
	TR	LST: A/A	
2560	100	CLST: A/A	
	TR	LST: A/A	
	TR	PYR	
2570	90	CLST: OCC CALC, ELSE A/A	
	10	LST: WH, V LT GRY, LT OLV GRY, SFT - FRM, CRYPTOXLN, ARG - V ARG, OCC BRNSH GRY, MOD HD, OCC MICROXLN - SUC.	
	TR	SD, PYR	
2580	90	CLST: DK GRY - DK GNSH GRY, OLV GRY, FRM, BLKY - AMOR, OCC SUBFISS, SL CALC - CALC, SL MICROMIC, SL SLTY - SDY	
	10	LST: A.A.	
	TR	PYR	
2590	80	CLST: DK GRY - DK GNSH GRY, OLV GRY, SFT - FRM, AMOR - BLKY, SL CALC, ALSO LT OLV GRY AND CALC - V CALC, V SLTY - SDY, SL MICROMIC	
	20	LST: ARG - V ARG, WH, V LT GRY, SFT - FRM, OCC BRNSH GRY, MOD HD, CRYPTOXLN,OCC GNSH GRY, SDY, MICROGLAUC.	
	TR	PYR	
2600	A/A		
2610	90	CLST: A/A	
	10	LST: A/A	
	TR	PYR	
2620	A/A		
2630	A/A		
2630	A/A		
2640	95	CLST: NON CALC, ELSE A/A	
	5	LST: A/A	
	TR	A/A	
2650	A/A		
2660	100	CLST: V CALC - MRLY, ELSE A.A.	
	TR	PYR	
2670	95	CLST: SLILY CALC, ELSE A.A.	
	5	LST: A/A	
	TR	PYR, SD, GRYSH RD CLYST.	
2680	A/A		
2690	A/A		
2700	A/A		

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 13 of 28
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 12 1/4"
Geologist: E. LANGSETH / P. FURMYR		Date: 25.05.92	

Depth (mKB)	Lith (%)	Lithological Description: Rock name, mod.lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed.structures, accessories, fossils, porosity, contamination.	Remarks: Shows, cavings, mud additives, etc
2710	90	CLST: MED DK GRY - DK GRY, SFT - FRM, STKY, BLKY - AMOR, SLILY SLTY - SDY, SLILY CALC - CALC	NO SHOWS
	10	LST: WH, V LT GRY, FRM, MICROXLN, ARG, OCC V ARG, OCC AREN - SUCROSIC, OCC BRNSH GRY, MOD HD, CRYPTOXLN	
2720	95	CLST: A/A	
	5	LST: A/A	
2730	90	CLST: A/A	
	5	LST: A/A	
	5	SLTST: V LT GRY, WH, FRM - MOD HD, OCC SL CALC - CALC, I/P MICROGLAUC	
2740	95	CLST: A/A	
	5	LST: A/A	
	TR	SLTST: A/A	
2750	A/A		
2760	A/A		
2770	A/A		
2780	A/A		
2790	100	CLST: MED DK GRY - DK GRY, FRM, BLKY, OCC SUBFISS, SLTY - SDY, CALC, I/P MRLY	
	TR	LST: A/A	
	TR	SLTST: A/A	
2800	A/A		
2810	A/A		
2820	A/A		
2830	90	CLST: MED DK GRY - DK GRY, FRM, BLKY, OCC SUBFISS, SLTY - SDY, SL CALC	
	5	LST: A/A	
	5	DOL: MOD BRN, MOD HD, ANG, CRYPTOXLN	
	TR	SLTST: A/A	
2840	100	CLST: MED DK GRY - DK GRY, FRM, BLKY - SUBFISS, SL CALC - CALC, I/P SLTY - V SLTY	
	TR	LST: A/A	
	TR	DOL: A/A	
	TR	SLTST: A/A	
	TR	GLAUC	
2850	A/A		
2860	95	CLST: OCC GNSH GRY, CALC, OCC MRLY, ELSE A/A	CONTAM BY NUTPLUG NO SHOWS
	5	LST: A/A	
	TR	DOL: A/A	
	TR	SLTST: A/A	
2870	100	CLST: A/A	A/A
	TR	LST, DOL, SLTST	
2880	100	CLST: A/A	
	TR	LST: A/A	
	TR	SLTST: A/A	
	TR	PYR	

WELLSITE SAMPLE DESCRIPTION			Page 14 of 28
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 12 1/4"
Geologist: T.F. KRISTENSEN / P. FURMYR		Date: 28.05.92	

Depth (mKB)	Lith (%)	Lithological Description — Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks — Shows,cavings, mud additives, etc
2890	95	CLST: MED DK GRY - DK GRY, OCC GNSH GRY, FRM, BLKY - SUBFISS, SLILY CALC - CALC, I/P SLTY	NO SHOWS
	5	SLTST: V LT GRY, WH, FRM - MOD HD, OCC SLILY CALC - CALC, I/P MICROGLAUC	
	TR	LST: WH, V LT GRY, FRM, MICROXLN, ARG, OCC V ARG	
	TR	DOL: GRYSH ORNG - MOD BRN, MOD HD, ANG,	
	TR	PYR	
2900	95	CLST: A/A	
	5	LST: A/A	
	TR	SLTST, DOL, PYR	
2903	100	CLST: A/A	
	TR	LST, SLTST, DOL, PYR	
2906	100	CLST: DK GRY - MED DK GRY, FRM, BLKY - SUBFISS, CALC - V CALC, SLILY MICROMIC, R GRYSH RD - MOD BRN, FRM, CALC	
	TR	DOL: GRYSH ORNG - MOD BRN, MOD HD, ANG, CRYPTOXLN	
	TR	SLTST: GNSH GRY, FRM, MICROGLAU, CALC	
	TR	LST: A/A	
	TR	SD, PYR	
2909	95	CLST: V CALC - GRDG MRL, OLV GRY - MED GRY, SFT - FRM, BLKY, SL STKY, I/P SLTY, R GRYSH RD - MOD BRN	
	5	LST: A/A	
	TR	DOL: A/A	
	TR	SLTST: A/A	
	TR	PYR	
2912	100	CLST: OLV GRY - MED GRY, SFT - FRM, BLKY, SLILY STKY, SLTY I/P, MOD CALC - V CALC	
	TR	DOL: A/A	
	TR	LST: GRY WH, FRM - MOD HD, MICR, ARG	
2915	100	CLST: A/A	
	TR	LST: A/A	
2918	100	CLST: A/A	
	TR	LST: GRY WH - LT GRY, FRM - MOD HD, MICR, ARG, OCC TRNSL BRN, MOD HD, XLN, FRAC FILL	
2921	100	CLST: MED GRY, SFT - FRM, BLKY, SLILY STKY, SLTY I/P, MICROPYR, MOD CALC - V CALC	
	TR	LST: A/A	
2924	100	CLST: A/A	
	TR	LST: A/A	
2927	100	CLST: MED GRY - OLV GRY, SFT - FRM, BLKY, SLILY STKY, SLTY I/P, OCC SLILY SDY, MICROMIC, MICROPYR I/P, MOD CALC - V CALC	
	TR	LST: A/A	
	TR	DOL: GRY BRN, V HD, MICROXLN	
2930	100	CLST: MED GRY - OLV GRY, SFT - FRM, BLKY, SLILY STKY, SLTY I/P, SLILY CALC - MOD CALC	
	TR	LST: A/A	
2933	100	CLST: MED GRY - MED DK GRY, ELSE A/A	
	TR	LST: A/A	
2936	100	CLST: MED DK GRY - DK GRY, ELSE A/A	
	TR	LST: A/A	

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 15 of 28
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 12 1/4"
Geologist: T.F. KRISTENSEN / P. FURMYR		Date: 28 - 29.05.92	

Depth (mKB)	Lith (%)	Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
2939	100	CLST: MED GRY - MED DK GRY, SFT - FRM, BLKY, SL STKY, SL SLTY - SLTY, OCC SDY, MICROMIC, MICROPYR, SL CALC - MOD CALC	NO SHOWS
	TR	DOL: GRY BRN, V HD, MICROXLN	
	TR	LST: GRY WH - LT GRY, FRM - MOD HD, MICR, ARG	
	TR	PYR	
2942	100	CLST: A.A.	
	TR	LST: A.A.	
2945	100	CLST: MED GRY - OLV GRY, SFT - FRM, BLKY, SL STKY, SLTY I/P, MICROPYR I/P, MICROMIC I/P, MOD CALC - V CALC	
	TR	LST: GRY WH - LT GRY, FRM - MOD HD, MICR, ARG, OCC BRN GRY, MOD HD, MICR, DOL, ARG	
	TR	DOL: GRY BRN, V HD, MICROXLN	
	TR	PYR	
2948	100	CLST: MOD CALC, ELSE A.A.	
	TR	LST: A.A.	
	TR	DOL: A.A.	
	TR	PYR	
2951	100	CLST: MED GRY - OLV GRY, OCC MED LT GRY - GN GRY, ELSE A.A.	
	TR	LST: A.A.	
	TR	DOL: A.A.	
2954	100	CLST: PRED MED DK GRY, OCC SDY, ELSE A.A.	
	TR	LST: A.A.	
	TR	PYR	
2957	100	CLST: A.A.	
	TR	LST: A.A.	
2960	100	CLST: A.A.	
	TR	LST: A.A.	
2963	100	CLST: MED DK GRY - MED GRY, ELSE A.A.	
	TR	LST: A.A.	
	TR	DOL: GRY BRN, V HD, MICROXLN	
2966	A.A.		
2969	A.A.		
2972	100	CLST: A.A.	
	TR	LST: A.A.	
	TR	DOL: A.A.	
	TR	SD, PYR	
2975	100	CLST: MED GRY - MED LT GRY, SFT - FRM, SL STKY, BLKY, CALC - V CALC, I/P MRLY, OCC SL SLTY	
	TR	LST: A.A.	
	TR	DOL: A.A.	
	TR	PYR	
2978	95	CLST: MED LT GRY, SFT - FRM, BLKY, OCC SUBFISS, CALC, OCC V CALC - MRLY, SLTY	
	5	LST: LT GRY - LT OLV GRY, SFT - FRM, ARG, MRLY	
	TR	SLTST, PYR	

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 16 of 28
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 12 1/4"
Geologist: T.F. KRISTENSEN / P. FURMYR		Date: 28 - 29.05.92	

Depth (mKB)	Lith (%)		Lithological Description Rock name, mod.lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed.structures, accessories, fossils, porosity, contamination.	Remarks Shows, cavings, mud additives, etc
2981	95	CLST:	MED LT GRY, SFT - FRM, BLKY, OCC SUBFISS, CALC, OCC V CALC - MRLY, SLTY	NO SHOWS
	5	LST:	LT GRY - LT OLV GRY, SFT - FRM, ARG, MRLY	
	TR	SLTST,	PYR	
2984	95	CLST:	MED LT GRY - LT GRY, LT OLV GRY, SFT - FRM, BLKY - AMOR, OCC SUBFISS, GEN CALC - V CALC, OCC GRDG TO MRL, OCC SLTY	
	5	LST:	A.A.	
	TR	SLTST,	PYR	
2987	A.A.			
2990	100	CLST:	MORE SLTY, ELSE A.A.	
	TR	LST:	A.A.	
	TR	SLTST		
2993	95	CLST:	A.A.	
	5	LST:	A.A.	
	TR	SLTST		
2996	100	CLST:	ALSO MED DK GRY - DK GRY, OCC MICROGLAU, ELSE A.A.	
	TR	LST:	A.A.	
	TR	DOL:	GRY BRN, V HD, MICROXLN	
	TR	SLTST		
2999	95	CLST:	A.A.	
	5	LST:	A.A.	
	TR	DOL:	A.A.	
	TR	SLTST,	PYR	
3002	100	CLST:	A.A.	HEAVY CONTAM OF BARITE
	TR	LST:	A.A.	
	TR	DOL:	A.A.	
	TR	SLTST,	PYR	
3003	70	CLST:	GRYSH RD, DK RDSH BRN, SFT - FRM, BLKY, SL STKY, SL CALC - CALC, OCC PA RDSH BRN, V CALC - MRLY	CONTAM A.A. SPOT SAMPLE
	30	CLST:	MED GRY - MED DK GRY, FRM, BLKY, CALC, OCC SH: DK GRY, FRM, SUBFISS, SL MICROMIC, NON CALC	
	TR	LST:	WH - V LT GRY, FRM - SFT, AMOR - BLKY	
3005	50	CLST:	GRYSH RD, DK RDSH BRN A.A.	
	30	SH:	GRY BLK, DK GRY, FRM, SUBFISS, SL MICROMIC, GEN NON CALC, OCC CALC	
	20	CLST:	MED GRY - MED DK GRY, SFT - FRM, BLKY - AMOR, SL STKY, CALC, OCC V V CALC - MRLY, OCC GNSH GRY, MICROGLAUC	
	TR	LST:	A.A.	
3008	50	CLST:	MED GRY - MED DK GRY A.A.	
	30	SH:	A.A.	
	20	CLST:	GRYSH RD, DK RDSH BRN A.A.	
	TR	LST:	LT GRY, OLV GRY, FRM - MOD HD, CRYPTOXLN	
3010	70	CLST:	MED GRY - MED LT GRY, SFT - FRM, BLKY - AMOR, V CALC - MRLY	B.U. SAMPLE
	20	SH:	A.A.	
	10	CLST:	GRYSH RD, DK RDSH BRN A.A.	
	TR	LST:	A.A.	

END OF 12 1/4" SECTION

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 17 of 28
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: T.F. KRISTENSEN / P. FURMYR / S. BJERKENES		Date: 04 - 05.06.92	

Depth (mKB)	Lith (%)		Lithological Description: Rock name, mod.lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed.structures, accessories, fossils, porosity, contamination.	Remarks: Shows, cavings, mud additives, etc
3011	70	CLST:	DK GRY - MED DK GRY, FRM, BLKY - SUBFISS, MICROMIC, CALC	NO SHOWS
	25	CLST:	GRYSH RD - MOD RD BRN, FRM, BLKY, GEN NON CALC	CONTAM BY CMT
	5	LST:	OFF WH - V LT GRY, FRM, MICROXLN, I/P ARG	AND MUD ADDITIVES
3014	60	CLST:	DK GRY - MED DK GRY, A.A.	SAND PROBABLY DUE TO
	30	CLST:	GRYSH RD - MOD RD BRN A.A.	HEAVY CONTAM BY
	10	LST:	A.A.	MUD ADDITIVES INCLUDING
	ABD TR	SD:	CLR, FN - CRS, PR SRT, ANG - RND, LSE, PROBABLY FROM MUD ADDITIVES AND/OR WASHED OUT FROM CLST	BARITE, ALSO CONTAM BY CMT NO VIS SHOWS
3017	A.A.			A.A.
3020	70	LST:	OFF WH - V LT GRY, OCC LT GRY, FRM, CRYPTOXLN, OCC MICROXLN I/P ARG, I/P SPKL W/ MICROPYR, OCC V LT GRY TRNSL, XLN, OCC OLV GRY, MOD HD - HD	A.A.
	20	CLST:	DK GRY - MED DK GRY A.A.	
	10	CLST:	GRYSH RD - MOD RD BRN A.A.	
	ABD TR	PYR		
	ABD TR	SD:	A.A.	
3023	A.A.			A.A.
3026	70	LST:	OLV GRY - LT OLV GRY, BRNSH GRY, ALSO MED LT GRY - LT GRY, AND WH, FRM - MOD HD, OCC ARG - V ARG, CRYPTOXLN, ALSO MICROXLN AND SDY, I/P MICROPYR	SOME CONTAM BY MUD ADDITIVES NO VIS SHOWS
	10	CLST:	DK GRY - MED DK GRY A.A.	
	10	CLST:	GRYSH RD - MOD RD BRN A.A.	
	10	CLST:	DSKY YEL BRN, FRM, BLKY, SHNY, MICROPYR, CARB, NON - SLILY CALC	
	GD TR	SST:	CLR - TRNSL QTZ, VF - F, WL SRT, SUBANG, MOD - SLILY CALC CMT, MOD HD, GLAU, PR VIS POR	
	ABD TR	SD:	A.A.	
	ABD TR	PYR		
	ABD TR	COAL:	BLKY, SHNY	
3029	75	CLST:	DSKY YEL BRN A.A.	NO VIS SHOWS
	20	LST:	A.A.	
	15	SST:	ALSO V LT GRY, SLILY ARG, ELSE A.A.	
	ABD TR	SD:	A.A.	
	ABD TR	COAL:	A.A.	
	TR	PYR		
	TR	CLST:	GRYSH RD A.A.	
			CUT CORE # 1 3029M - 3054M	
3056	100	CLST:	GRY BLK - DK GRY, OLV BLK, MOD HD, BLKY - SUBFISS, CARB, MICROPYR, NON CALC	NO FLUOR, BLMG - SL STRM YEL WH CUT FLUOR
3059	100	CLST:	OLV BLK - DSKY YEL BRN, MOD HD, BLKY - SUBFISS, CARB, MICROMIC, MICROPYR, NON CALC	A.A.
3062	100	CLST:	A.A.	A.A.
3065	100	CLST:	PRED DSKY YEL BRN, SLTY I/P, ELSE A.A.	A.A
3068	100	CLST:	A.A.	A.A.
3071	100	CLST:	A.A.	A.A.
3074	100	CLST:	A.A.	A.A.
	TR	COAL:	BLK, HD, BRIT, SHNY	

WELLSITE SAMPLE DESCRIPTION			Page 18 of 28
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: T.F. KRISTENSEN / S. BJERKENES		Date: 06.06.92	

Depth (mKB)	Lith (%)	Lithological Description: Rock name, mod.lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed.structures, accessories, fossils, porosity, contamination.	Remarks: Shows, cavings, mud additives, etc
3077	100	CLST: DSKY YEL BRN, MOD HD, BLKY - SUBFISS, CARB - V CARB, MICROPYR - PYR, I/P V MICROPYR, MICROMIC, SLTY I/P, NON CALC	NO FLUOR, BLMG - SL STRMG YEL WH CUT FLUOR
	TR	COAL: BLK, HD, BRIT, SHNY	
	TR	PYR	
3080	100	CLST: A.A.	A.A.
	TR	COAL: A.A.	
	TR	PYR	
3083	100	CLST: A.A.	A.A.
	TR	PYR	
3086	100	CLST: A.A.	SHOWS A.A., SAMPLE CONTAM W/ LIGN FROM MUD
3089	100	CLST: A.A.	A.A.
3092	100	CLST: A.A.	A.A.
3095	100	CLST: A.A.	SST: DULL YEL FLUOR, SL STRM YEL WH CUT FLUOR, ELSE A.A.
	SL TR	SST: LT GRY, CLR - TRNSL QTZ, V F - F, WL SRT, SUBRND, FRI - MOD HD, CALC CMT, PR VIS POR	
3098	100	CLST: A.A.	A.A.
	SL TR	SST: A.A.	
3101	100	CLST: A.A.	SHOWS A.A. IN CLST
	TR	PYR	
3104	100	CLST: A.A.	SHOWS A.A. IN CLST AND SST, SAMPLE CONTAM W/ LIGN FROM MUD
	SL TR	SST: OCC ARG, ELSE A.A.	
	TR	PYR	
3107	100	CLST: A.A.	A.A.
	SL TR	SST: A.A.	
	TR	PYR	
3110	100	CLST: A.A.	SHOWS A.A. IN CLST, LIGN FROM MUD.
	SL TR	PYR	
3113	A.A.		A.A.
3116	A.A.		A.A.
3119	A.A.		A.A.
3122	A.A.		A.A.
3125	90	CLST: A.A.	A.A.
	10	SD/SST: CLR - SMKY QTZ, MED, WL SRT, SUANG - SUDRND, OCC W/ BLK COT, LSE.	
	TR	PYR	
3128	80	CLST: A.A.	A.A.
	10	SD/SST: A.A.	
	10	PYR	
3131	80	CLST: GRY BLK, FRM-MOD HD, BLKY-SUBFISS, CARB, MICROPYR, MICROMIC, NONCALC.	NO SHOWS
	20	LST: LT OLV GRY, HD-V HD, BLKY, MICROXLN, SLILY ARG I/P	
	GD TR	PYR	
3134	90	CLST: A.A.	A.A.
	10	LST: A.A.	
	TR	PYR	

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 19 of 28
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: T.F. KRISTENSEN / S. BJERKENES		Date: 06.06.92	

(mKB)	(%)		Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
3137	80	CLST:	GRY BLK, FRM - MOD HD, BLKY - SUBFISS, CARB, MICROPYR, MICROMIC, NON CALC	NO SHOWS
	20	LST:	LT OLV GRY, HD - V HD, BLKY, MICROXLN, SLILY ARG I/P	
	GD TR	SD:	CLR - SMKY QTZ, MED, WL SRTD, SUBANG, OCC W/ BLK COT	
	TR		PYR	
3140	70	CLST:	A.A.	A.A
	30	LST:	A.A.	
	SL TR	SD:	A.A.	
	TR		PYR	
3143	70	CLST:	A.A.	A.A.
	20	LST:	A.A.	
	TR		PYR	
3146	A.A.			A.A.
3149	80	CLST:	A.A.	A.A.
	20	LST:	A.A.	
	TR		PYR	
3152	A.A.			A.A.
3155	70	CLST:	DK GRY, PT BRN BLK, SUBFISS - FISS, SPLIN I/P, MOD HD, MICROMIC, CARB I/P, NON - SL CALC	A.A.
	30	LST:	A.A., PRTLY V ARG, SFT - FRM, OCC WH, XLN, BLKY, HD	
	TR		PYR	
3158	90	CLST:	A.A.	A.A.
	10	LST:	A.A., PT LT BRN - OLV GRY	
	TR		PYR	
3161	80	CLST:	A.A.	A.A.
	20	LST:	A.A.	
	TR		PYR	
3164	80	CLST:	A.A.	A.A.
	20	LST:	A.A.	
	GD TR		PYR	
3167	A.A.			A.A.
3170	70	CLST:	A.A.	A.A.
	30	LST:	A.A.	
	GD TR		PYR	
3173	80	CLST:	A.A.	A.A.
	20	LST:	OCC DOL, OLV GRY - BRN GRY, HD, BLKY, ELSE A.A.	
	GD TR		PYR	
3176	A.A.			A.A.
3179	A.A.			A.A.
3182	90	CLST:	OLV GRY, MED DK GRY, BRN GRY, SFT - MOD HD, STKY AND SOL I/P, AMOR - BLKY, SLTY, MICROMIC, PYR, NON - SL CALC	NO SHOWS, CLST DISSOLVES IN MUD, PR SAMPLES
	10	LST:	LT OLV GRY, BRN GRY - GRY BRN, MOD HD - HD, MICR - MICROXLN, PYR I/P, SLILY ARG - ARG, DOL I/P	SAMPLES CONTAM W/ LIGN FROM MUD
	TR		PYR	
3185	90	CLST:	OLV GRY, BRN GRY - MED DK GRY, SFT - MOD HD, STKY AND SOL I/P, AMOR - BLKY, SLTY, OCC V SLTY GRDG TO SLTST, MICROMIC, PYR I/P, NON - SL CALC	A.A.
	10	LST:	A.A.	
	TR		PYR	

WELLSITE SAMPLE DESCRIPTION			Page 20 of 28
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: T.F. KRISTENSEN / S. BJERKENES		Date: 06 - 07.06.92	

(mKB)	(%)		Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
3188	100	CLST:	OLV GRY, BRN GRY - MED DK GRY, SFT - MOD HD, STKY AND SOL I/P, AMOR - BLKY, SLTY, OCC V SLTY GRDG TO SLTST, MICROMIC, PYR I/P, NON - SL CALC	NO SHOWS, CLST DISSOLVE IN MUD, PR SAMPLES SAMPLES CONTAM W/ LIGN FROM MUD
	TR	LST:	A.A.	
	TR		PYR	
3191	90	CLST:	A.A.	A.A.
	10	LST:	A.A.	
	GD TR		PYR	
3194	90	CLST:	OLV GRY - BRN GRY, MED DK GRY, OCC MOD CALC, ELSE A.A.	A.A.
	10	LST:	LT OLV GRY, YEL BRN - BRN GRY, MOD HD - HD, MICR - MICROXLN, OCC PYR, SL ARG - ARG, DOL I/P	
	TR		PYR	
3197	100	CLST:	OLV GRY - BRN GRY, GRY BRN - DSKY BRN, NON - SLILY CALC, ELSE A.A.	A.A.
	TR	LST:	A.A.	
	TR		PYR	
3200	100	CLST:	BRN GRY - DSKY YEL BRN, OLV GRY, SFT - MOD HD, SOL I/P, AMOR - BLKY, SLTY, I/P V SLTY GRDG TO SLTST, OCC SDY, MICROMIC, MICROPYR - PYR I/P, NON - SL CALC	A.A.
	GD TR	LST:	LT OLV GRY - YEL BRN - GRY BRN, MOD HD - HD, MICR - MICROXLN, OCC PYR, SLILY ARG, DOL I/P	
	TR		PYR	
3203	100	CLST:	A.A.	A.A.
	GD TR	LST:	FRM - HD, OCC V PYR, ELSE A.A.	
	TR		PYR	
3206	100	CLST:	A.A.	A.A.
	GD TR	LST:	A.A.	
	TR		PYR	
3209	100	CLST:	A.A.	A.A.
	GD TR	LST:	A.A.	
	TR		PYR	
3212	80	CLST:	A.A.	A.A.
	20	LST:	LT OLV GRY - YEL BRN - GRY BRN, OFF WH - LT GRY, FRM - MOD HD, MICR - MICROXLN, OCC PYR, ARG I/P, DOL I/P,	
	TR		PYR	
3215	80	CLST:	A.A.	A.A.
	20	LST:	ARG - V ARG I/P, ELSE A.A.	
	TR		PYR	
3218	90	CLST:	A.A.	A.A.
	10	LST:	A.A.	
	TR		PYR	
3221	90	CLST:	A.A.	A.A.
	10	LST:	A.A.	
	TR		PYR	
3224	100	CLST:	A.A.	A.A.
	GD TR	LST:	MICR I/P, MICROXLN I/P, A.A.	
	TR	PYR		
3227	100	CLST:	DK GRY I/P, ELSE A.A.	A.A. ABD LIGN FROM MUD
	GD TR	LST:	A.A.	
	TR		PYR	

WELLSITE SAMPLE DESCRIPTION			Page 21 of 28
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: T.F. KRISTENSEN / S. BJERKENES		Date: 07.06.92	

(mKB)	(%)		Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
3230	70	CLST:	BRN GRY - DSKY YEL BRN, DK GRY - GRY BLK, SFT - MOD HD, SOL I/P, AMOR - BLKY, SLTY I/P, OCC V SLTY, MICROMIC, MICROPYR - PYR, NON - SLILY CALC	NO SHOWS, CLST DISSOLVES IN MUD, PR SAMPLES. SAMPLES CONTAM W/ LIGN FROM MUD
	30	LST:	LT GRY - LT OLV GRY, OCC YEL BRN - GRY BRN, FRM - MOD HD, MICR, OCC MICROXLN, SL ARG - V ARG, PYR I/P, DOL I/P	
	TR		PYR	
3233	60	CLST:	A.A.	A.A.
	40	LST:	LT GRY - OLV GRY, YEL BRN - GRY BRN, FRM - HD, MICR I/P, MICROXLN I/P, SL ARG - V ARG, PYR I/P, DOL I/P	
	TR		PYR	
3236	100	CLST:	DK GRY - GRY BLK, BRN GRY - DSKY YEL BRN, A.A.	A.A.
	GD TR	LST:	A.A.	
	TR		PYR	
3239	100	CLST:	A.A.	A.A.
	GD TR	LST:	A.A.	
	TR		PYR	
3242	100	CLST:	A.A.	A.A.
	GD TR	LST:	A.A.	
	TR		PYR	
3245	100	CLST:	A.A.	A.A.
	GD TR	LST:	A.A.	
	TR		PYR	
3248	100	CLST:	SLTY - V SLTY, GRDG TO SLTST I/P, OCC SDY, ELSE A.A.	A.A.
	GD TR	LST:	A.A.	
	TR		PYR	
3251	90	CLST:	SLTY - OCC V SLTY, ELSE A.A.	A.A.
	10	LST:	A.A.	
	TR		PYR	
3254	100	CLST:	A.A.	A.A.
	TR	LST:	A.A.	
	TR	PYR		
3257	A.A.			A.A.
3260	90	CLST:	A.A.	A.A.
	10	LST:	A.A.	
	TR	PYR		
3263	100	CLST:	A.A.	A.A.
	TR	LST:	A.A.	
	TR	PYR		
3266	A.A.			A.A.
3269	A.A.			A.A.
3272	A.A.			A.A.
3275	100	CLST:	A.A.	A.A.
	SL TR	LST:	A.A.	
3278	A.A.			A.A.
3281	A.A.			A.A.
3284	A.A.			A.A.
3287	A.A.			A.A.

STATOIL

WELLSITE SAMPLE DESCRIPTION			
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: T.F. KRISTENSEN / S. BJERKENES		Date: 07.06.92	

(mKB)	(%)		Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
3290	100	CLST:	DK GRY-GRY BLK, BRN GRY-DSKY YEL BRN, SFT-MOD HD, SOL I/P, SLTY I/P, AMOR-BLKY, SUBFISS I/P, MICROMICA, MICROPYR, NON-SL CALC.	NO SHOWS CLST DISOLVES IN MUD, PR SAMPLES.
	SL TR	LST:	LT GRY-OLV GRY, YEL BRN-GRY BRN, FRM-HD, MICR-MICROXLN, ARG I/P, PYR I/P, PT DOL	
	SL TR	PYR		
3293	A.A.			A.A.
3296	A.A.			A.A.
3299	A.A.			A.A.
3302	A.A.			A.A.
3305	A.A.			A.A.
3308	A.A.			A.A.
3311	A.A.			A.A.
3314	A.A.			A.A.
3317	A.A.			A.A.
3320	A.A.			A.A.
3323	A.A.			A.A.
3326	100	CLST:	SLTY - OCC V SLTY, ELSE A.A.	A.A.
	TR	LST:	A.A.	
	TR		PYR	
3329	100	CLST:	A.A.	A.A.
	TR	LST:	LT GRY - LT OLV GRY - YEL BRN, MOD HD - HD, MICROXLN, PYR I/P, ARG I/P, OCC DOL	
	SL TR	SST:	LT GRY, CLR - TRNSL QTZ, V F - F, WL SRT, SUBANG - SUBRND, MOD HD, CALC CMT, PYR, GLAUC, ARG I/P, PR VIS POR	A.A.
	TR		PYR	
3332	A.A.			A.A.
3335	A.A.			A.A.
3338	100	CLST:	A.A.	A.A.
	GD TR	LST:	A.A.	
	TR		PYR	
3341	A.A.			A.A.
3344	100	CLST:	I/P V SLTY GRDG TO SLTST, OCC SDY, ELSE A.A.	A.A.
	GD TR	LST:	OFF WH - LT GRY - LT OLV GRY - YEL BRN, ELSE A.A.	
	TR		PYR	
3347	A.A.			A.A.
3350	A.A.			A.A.
3353	A.A.			A.A.
3356	100	CLST:	A.A.	NO SHOWS
	TR	LST:	A.A.	
	SL TR	SST:	LT GRY, CLR - TRNSL QTZ, V F - F, WL SRT, SUBANG - SUBRND, MOD HD, CALC CMTD, PYR, GLAUC, ARG I/P, PR VIS POR	
	TR		PYR	

STATOIL

WELLSITE SAMPLE DESCRIPTION				Page 23 of 28
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR		Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA			K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: T.F. KRISTENSEN / S. BJERKENES			Date: 07 - 10.06.92	

(mKB)	(%)		Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
3359	80	CLST:	DK GRY-GRY BLK, BRN GRY-DSKY YEL BRN, SFT-MOD HD, SOL I/P, SLTY I/P, AMOR-BLKY, SUBFISS I/P, MICROMIC, MICROPYR, NON-SL CALC.	SST: NO STAIN, GN WH - GN YEL PA EVEN FLUOR, SL BLMG DULL BL WH CUT FLUOR, DULL GN WH RES FLUOR
	20	SST:	LT GRY, CLR - TRNSL QTZ, V F - CRS, PR SRT, SUBANG - SUBRND, PRED LSE, OCC MOD HD, CALC CMT, OCC PYR, GD VIS POR	
	TR	KAOL:	LT GRY, BLK STRKS, FRM, CHKY TEXT, NON CALC	
	SL TR	LST:	LT GRY-OLV GRY, YEL BRN-GRY BRN, FRM-HD, MICR-MICROXLN, ARG I/P, PYR I/P, PT DOL	
	TR		PYR	
3362	100	SST:	CLR - TRNSL QTZ, PRED MED, OCC FN, OCC CRS, WL SRTD, SUBRND, LSE, TR CALC CMT, EXTR VIS POR	SHOWS A.A.
	SL TR	KAOL:	A.A.	
	SL TR		PYR	
			CUT CORE # 2 , 3363m - 3390M **CUT CORE # 3 , 3390M - 3417M**	
3419	90	CLST:	BRN BLK - GRY BLK, MOD HD, BLKY - OCC SUBFISS, SL SLTY - SLTY, OCC SDY, MICROMIC, CARB I/P, NON CALC	NO SHOWS. FIRST SAMPLE AFTER TRIP, CAVINGS?
	10	SST:	LT OLV GRY, CLR - TRNSL QTZ, V F - F, MOD SRT, SUBANG - SUBRND, MOD HD, SIL CMT, MIC, ARG I/P, FAIR VIS POR	
	TR		PYR, MICA	
3422	80	SST:	LT OLV GRY - LT BRN GRY, CLR - TRNSL QTZ, F - MED, PR SRT, SUBANG - SUBRND, MOD HD, SIL CMT, ARG I/P, MIC, CARB I/P, KAOL I/P, PYR - V PYR I/P, NONE - PR VIS POR	A.A.
	20	CLST:	A.A.	
	TR	KAOL:	OFF WH, FRM, CHKY TEXT, OCC SDY, NON CALC	
	TR		ABD PYR, MICA	
3425	40	SST:	LT OLV GRY-MED GRY, CLR-LT BRN TRNSL QTZ, V F-F, MOD SRT, SUBANG, MOD HD, SIL & CALC CMT, V ARG I/P, CARB I/P, NON-PR VIS POR, GRD TO SDY LST I/P.	NO SHOWS
	60	CLST:	A.A.	
	GD TR	LST:	LT GRY-WH, FRM-HD, BLKY, MICR, ARG I/P, SDY I/P.	
3428	100	CLST:	A.A.	A.A.
	GD TR	SST:	A.A.	
	TR	LST:	A.A.	
3431	80	CLST:	V SLTY I/P, ELSE A.A.	A.A.
	20	SST:	A.A., BUT LESS CALC CMT	
	TR	LST:	A.A.	
3434	80	SST:	LT BRN GRY, CLR-LT BRN TRNSL QTZ, F, WL SRT, ANG-SUBANG, FRI, CALC CMT, MICA, FAIR VIS POR	A.A.
	20	CLST:	A.A.	
	TR	LST:	A.A.	
3437	70	COAL:	BLK, HD, BRIT, BLKY	A.A.
	20	LST:	A.A.	
	10	SST:	A.A.	
3440	50	LST:	A.A.	A.A.
	40	SST:	A.A.	
	10	LST:	A.A.	
	TR	COAL:	A.A.	
3443	80	SST:	A.A.	A.A.
	20	CLST:	A.A.	
	GD TR	LST:	A.A.	
	TR	MICA		

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 24 of 28
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: T.F. KRISTENSEN / S. BJERKENES		Date: 10.06.92	

(mKB)	(%)	Lithological Description Rock name, mod.lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed.structures, accessories, fossils, porosity, contamination.	Remarks Shows, cavings, mud additives, etc
3446	40	SST: LT BRN GRY, CLR-LT BRN TRNSL QTZ, F, WL SRT, ANG-SUBANG, FRI, CALC CMT, MICA, FAIR-PR VIS POR.	NO SHOWS
	30	CLST: BRN BLK-GRY BLK, MOD HD, BLKY-OCC SUBFISS, V SLTY I/P, OCC SDY, MICROMIC, CARB I/P, NON CALC	
	30	SLTST: BRN GRY, FRI, BLKY, ARG, CARB, MIC.	
	SL TR	PYR	
3449	A.A.		A.A.
3452	100	SST: LT GRY, CLR QTZ, V F-F, WL SRT, SUBANG, FRI-MOD HD, PRED SIL CMT, PT CALC & KAOL CMT, SL MICA, FAIR VIS POR	A.A.
	TR	SLTST: A.A.	
	TR	CLST: A.A.	
	TR	KAOL: WH W/ BLK STRKS, FRM, MICRITIC, SDY I/P, NON CALC	
3455	A.A.		A.A.
3458	100	SST: A.A., BUT MED-F.	A.A.
	TR	KAOL: A.A.	
3461	60	SST: A.A.	A.A.
	20	COAL: BRN BLK-BLK, HD-MOD HD, BRIT, ARG I/P, GRD TO CARB CLST.	
	10	CLST: A.A., BUT V CARB I/P, GRD TO COAL	
3464	70	SST: A.A., MAINLY SIL CMT	A.A.
	20	CLST: A.A.	
	10	COAL: A.A.	
	SL TR	KAOL	
3467	70	COAL: A.A.	A.A.
	30	CLST: A.A.	
	GD TR	SST: A.A.	
3470	40	COAL: A.A.	A.A.
	30	CLST: A.A.	
	30	SLTST: V ARG, LT GRY-LT OLV GRY-LT BRN GRY, FRM, BLKY-AMOR, MICROMIC, SL CARB I/P, NON CALC.	
	TR	SST: A.A.	
3473	40	SST: CLR QTZ, F, FAIR SRT, SUBANG, FRI-MOD HD, MAINLY SIL CMT, PT SL CALC CMT, FAIR-PR VIS POR.	A.A.
	40	CLST: BRN BLK-DK BRN GRY, OCC MED OLV GRY, FRM-MOD HD, BLKY-SUBFISS, NON CALC	
	20	COAL: A.A.	
	TR	KAOL: A.A.	
3476	60	SST: CLR QTZ, MED, FAIR SRT, FRI-MOD HD, SIL CMT, FAIR-PR VIS POR.	A.A.
	20	CLST: A.A.	
	20	COAL: A.A.	
	TR	KAOL	
3479	50	SST: F, ELSE A.A.	A.A.
	30	CLST: A.A.	
	20	COAL: A.A.	
	TR	KAOL	
3482	20	SST: A.A.	A.A.
	30	CLST: A.A.	
	30	SLTST: A.A.	
	20	COAL: A.A.	
	TR	LST: BRN GRY-OLV GRY, HD, BLKY, MICROXLN, DOLOMITIC I/P	
3485	A.A.		A.A.
3488	20	SST: A.A.	A.A.
	50	CLST: A.A.	
	30	SLTST: A.A.	
	TR	COAL: A.A.	

WELLSITE SAMPLE DESCRIPTION			Page 25 of 28
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: T.F. KRISTENSEN / S. BJERKENES		Date: 10.06.92	

(mKB)	(%)		Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
3491	40	SST:	LT GRY-LT YEL GRY, CLR QTZ, V FN-FN, WL SRT, SUBANG, FRI-MOD HD, MAINLY SIL CMT, OCC KAOL CMT, FAIR-PR VIS POR, SL CARB I/P.	NO SHOWS
	40	COAL:	BRN BLK-BLK, HD, BRIT, SHINY, ARG I/P, GRD TO CARB CLST.	
	20	CLST:	BRN BLK- DK BRN GRY-OLV GRY, FRM-HD, BLKY-SUBFISS, NON CALC, SLTY-V SLTY I/P, V CARB I/P.	
	TR	LST:	BRN GRY-OLV GRY, HD, BLKY, MICROXLN, DOLOMITIC I/P	
	TR	KAOL:	WH, PRTLY W/ GRY AND BLK STRKS, FRM, MICRITIC, NON CALC	
3494	50	COAL:	A.A.	A.A.
	30	CLST:	A.A.	
	20	SST:	A.A.	
	TR	LST:	A.A.	
	TR	KAOL:	A.A.	
3497	A.A.			A.A.
3500	40	SST:	A.A., BUT V KAOL	A.A.
	30	CLST:	A.A.	
	20	KAOL:	A.A.	
	10	COAL:	A.A.	
	TR	PYR		
3503	40	CLST:	A.A.	A.A.
	40	COAL:	A.A.	
	20	SST:	LT GRY, CLR - TRNSL QTZ, F, WL SRT, SUBANG - SUBRND, FRI - MOD HD, SIL CMT, KAOL I/P, MIC, FAIR VIS POR	
	TR	KAOL:	OFF WH, FRM, CHKY TEXT, SDY I/P, NON CALC	
3506	70	CLST:	PRED OLV GRY - DK YEL BRN, MOD HD, BLKY - SUBFISS, SLTY I/P, OCC V SLTY GRDG TO SLTST, CARB I/P, MICROMIC I/P, NON CALC	A.A.
	20	SST:	V F - F, ELSE A.A.	
	10	COAL:	BRN BLK - BLK, HD, BRIT I/P, ARG I/P, OCC GRDG TO CARB CLST, SHNY	
	TR	KAOL:	A.A.	
3509	70	SST:	V F - F, KAOL, PR VIS POR, ELSE A.A.	A.A.
	20	CLST:	DK YEL BRN - BRN BLK, MOD HD, BLKY - SUBFISS, SLTY I/P, OCC CARB, MICROMIC I/P, NON CALC	
	10	COAL	A.A.	
	TR	KAOL:	A.A.	
3512	100	SST:	YEL BRN, CLR - YEL BRN TRNSL QTZ (STAIN), MED - V CRS, MOD SRT, SUBANG - SUBRND, FRI - MOD HD, SIL CMT, KAOL I/P, SL ARG, FAIR - GD VIS POR	TR DULL ORNG FLUOR, NO CUT FLUOR
	GD TR	COAL:	A.A.	
	TR	KAOL:	A.A.	
3515	100	SST:	A.A.	A.A.
	TR	COAL:	A.A.	
	TR	KAOL:	A.A.	
3518	100	SST:	PRED LT GRY, CLR - TRNSL QTZ, OCC YEL BRN QTZ (STAIN), MED - CRS, MOD SRT, SUBANG - SUBRND, FRI - MOD HD, SIL CMT, MIC, GD VIS POR	NO SHOWS
	TR	KAOL:	A.A.	
	TR		MIC	
	SL TR		PYR	
3521	100	SST:	A.A.	A.A.
	TR	KAOL:	A.A.	
	TR		MIC	
3524	100	SST:	LT GRY, CLR - TRNSL QTZ, F - MED, OCC CRS, MOD SRT, SUBANG - SUBRND, FRI - MOD HD, SIL CMTD, V MIC, KAOL, FAIR VIS POR	TR DULL ORNG FLUOR
	GD TR	KAOL:	A.A.	
	GD TR		MIC	

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 26 of 28
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: T.F. KRISTENSEN / S. BJERKENES		Date: 10 - 11.06.92	

(mKB)	(%)		Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
3527	90	SST:	PA YEL BRN, CLR - TRNSL QTZ, V F - F, MOD SRT, SUBANG - SUBRND, MOD HD, MIC, KAOL - OCC V KAOL, OCC SL PYR, PR VIS POR	NO SHOWS
	10	CLST:	DK YEL BRN - BRN BLK, MOD HD, BLKY - SUBFISS, SLTY I/P, OCC CARB - V CARB, MICROMIC I/P, NON CALC	
	GD TR	KAOL:	OFF WH, FRM, CHKY TEXT, SDY I/P, NON CALC	
	GD TR		MIC	
3530	80	SST:	A.A.	A.A.
	10	CLST:	A.A.	
	10	COAL:	BRN BLK - BLK, HD, BRIT, ARG I/P, SHNY	
	GD TR	KAOL:	A.A.	
	TR		MIC	
3533	60	SST:	LT GRY, CLR - TRNSL QTZ, V F - F, MOD SRT, SUBANG - SUBRND, MOD HD, SIL CMT, KAOL, MIC, PYR I/P, PR VIS POR	A.A.
	30	CLST:	GRY BLK - BRN BLK, MOD HD, BLKY - SUBFISS, MICROMIC, CARB, SL SLTY, NONE CALC	
	10	COAL:	BLK, HD BRIT, SHNY	
	TR	KAOL:	A.A.	
	TR		PYR, MIC	
3536	100	SST:	SL CALC, ELSE A.A.	A.A.
	TR		CLST, COAL, KAOL, PYR, MIC	
3539	100	SST:	A.A.	A.A.
	TR		CLST, COAL, KAOL, PYR, MIC	
3542	90	SST:	PA YEL BRN, CLR - PA YEL TRNSL QTZ (STAIN), V F - F, MOD SRT, SUBANG - SUBRND, MOD HD, SIL CMT, CALC I/P, KAOL, MIC, PYR I/P, PR VIS POR	DULL ORNG FLUOR
	10	CLST:	A.A.	
	TR		KAOL, MIC, PYR	
3545	90	SST:	NONE CALC, ELSE A.A.	SHOWS A.A.
	10	CLST:	A.A.	
	TR		KAOL, MIC, PYR	
3548	80	SST:	ARG, NO PYR, ELSE A.A.	A.A.
	20	CLST:	DK YEL BRN, BRN BLK - GRY BLK, MOD HD, BLKY - SUBFISS, MICROMIC, CARB, SLTY I/P, NONE CALC	
	TR	COAL:	BLK, HD, BRIT, SHNY	
	TR	KAOL:	A.A.	
	TR		MIC	
3551	70	SST:	OCC PYR, ELSE A.A.	A.A.
	20	CLST:	A.A.	
	10	COAL:	BRN BLK - BLK, HD, BRIT I/P, ARG I/P, SHNY	
	SL TR		KAOL, PYR, MIC	
3554	60	SST:	A.A.	A.A.
	40	CLST:	A.A.	
	GD TR	COAL:	BLK, HD BRIT, SHNY	
	TR		KAOL, PYR	
3557	70	CLST:	DSKY YEL BRN - BRN BLK, FRM - MOD HD, BLKY - SUBFISS, SLTY - OCC V SLTY, I/P GRDG TO SLTST, SDY I/P, MIC, PYR, NON CALC	NO SHOWS
	30	SST:	LT GRY - MED GRY, V ARG, PR VIS POR, A.A.	
	TR		COAL, PYR	
3560	100	CLST:	A.A.	A.A.
	TR	SST:	A.A.	
	GD TR		PYR	
	TR		MIC, COAL	

WELLSITE SAMPLE DESCRIPTION			Page 27 of 28
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: T.F. KRISTENSEN / S. BJERKENES		Date: 11.06.92	

(mKB)	(%)		Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
3563	100	CLST:	DSKY YEL BRN - BRN BLK, FRM - MOD HD, BLKY - SUBFISS, SLTY - OCC V SLTY, I/P GRDG TO SLTST, SDY I/P, MIC, PYR, NON CALC	NO SHOWS. SOME OF THE DSKY YEL BRN AND SUBFISS CLST PROBABLY STRESS RELIEF CVG FROM VIKING GROUP
	TR		COAL, PYR, SST	
3566	60	SST:	LT - MED GRY, CLR - TRNSL QTZ, V FN - FN, MOD SRTD, SUBANG - SUBRND, MOD HD - HD, CALC CMTD, V PYR, MIC, NO VIS POR	A.A.
	40	CLST:	A.A.	
	GD TR		PYR	
3569	60	CLST:	CARB I/P, ELSE A.A.	A.A.
	40	SST:	ARG, SLILY PYR, ELSE A.A.	
	TR		MIC, PYR	
3572	60	CLST:	A.A.	A.A.
	40	SST:	A.A.	
	TR		PYR, MIC	
3575	80	SST:	LT GRY, CLR - TRNSL QTZ, V F - F, MOD SRT, SUBANG - SUBRND, MOD HD - HD, CALC CMT, SLILY ARG, MIC, OCC SLILY PYR, PR VIS POR	A.A.
	10	LST:	OFF WH - LT GRY, FRM - MOD HD, MICR, SDY	
	10	CLST:	A.A.	
	TR		MIC	
3578	90	SST:	A.A.	A.A.
	10	LST:	A.A.	
	TR		MIC, PYR	
3581	40	CLST:	A.A., WXY TXT I/P	A.A.
	50	SST:	A.A.	
	10	LST:	A.A.	
3584	A.A.			A.A.
3587	A.A.			A.A.
3590	100	CLST:	A.A.	A.A.
	TR	SST:	A.A.	
3593	40	CLST:	A.A.	A.A.
	60	SLTST/CLST:	LT-MED OLV GRY-DK OLV GRY, FRM, BLKY-AMOR, SL CALC, MIC	
	TR	LST:	A.A.	
	TR	SST:	A.A.	
3596	30	CLST:	A.A.	A.A.
	70	SLTST/CLST:	A.A., MOD CALC	
	TR	SST:	A.A.	
3599	A.A.			A.A.
3602	80	SLTST/CLST:	A.A., V CALC I/P, GRD TO MRL AND ARG LST	A.A.
	10	CLST:	A.A.	
	10	LST:	V ARG, DK BRN GRY-OLV RGY, FRM-HD, SLTY-SDY	
3605	A.A.			A.A.
3608	A.A.			A.A.
3611	A.A.			A.A.
3614	A.A.		BUT NON - SL CALC I/P IN SLTST/CLST	A.A.
3617	A.A.			A.A.
3620	A.A.			A.A.
3623	A.A.			A.A.

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 28 of 28
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: S. BJERKENES / T.STUMP		Date: 11.06.92	

(mKB)	(%)	Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
3626	80	SLTST/CLST: LT-MED OLV GRY-DK OLV GRY, FRM, BLKY-AMOR, SL-V CALC I/P, GRD TO MRL AND ARG LST, MIC.	NO SHOWS BLKY-SUBFISS CLST, PROBABLY STRESS RELIEF CAVINGS FROM VIKING GP
	10	CLST: DSKY YEL BRN-BRN BLK, FRM-MOD HD, BLKY-SUBFISS, SLTY I/P, SDY I/P, MICA, PYR, NON CALC, WXY TEX I/P.	
	10	LST: V ARG, DK BRN GRY-OLV GRY, FRM-HD, BLKY, SLTY-SDY, GRD TO MRL.	
3629	A.A.		A.A.
3632	A.A.	BUT SLTST/CLST MORE SDY	A.A.
3635	A.A.	BUT SLTST GRD I/P TO ARG SST, V F, PR SRT	A.A
3638	70	SLST/CLST: OCC V F SDY, ELSE A.A.	A.A.
	10	CLST: A.A	
	20	LST: ARG, DK BRN-LT GY BRN, CRPTOXLN, FRM-HD, I/P GRD MRL, NO VIS POR	
	TR	PYR	
3640	90	SLST/CLST: DK OLV GY, FRM-MOD HD, AMOR-BLKY, SL-V CALC, I/P GRD MRL/ARG LST, MIC, TR PYR	A.A.
	10	LST: V ARG, DK BRN GY-LT OLV GY, FRM-HD, LOC SLTY, GRD MRL, TR PYR	

TD 3640 mMD 3634mTVD 11.06.92 1930 Hrs

APPENDIX II

STATOIL

SIDEWALL CORE DESCRIPTION			Page 1 OF 3
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: T. Stump		Date: 18.06.1992	Run no. 3A
Ref. Log for shot levels: DIFL-ACL-GR, Run no. 3C			

Shot no.	Depth (mKB)	Rec. mm	Lithological Description Rock name, mod. lith., col., grain size, sort., roundn., matr., cemen., Hardness, sed.structures, accessories, fossils, porosity, contamination.	Remarks Shows, factors affect. recovery, etc.
50	3055	20	CLST: OLV BLK - DK GRY, FRM, BLKY - SUBFISS, NON - V SL CALC	NO FLUOR, V WK CLDY YEL WH CRSH CUT FLUOR, YEL WH RES FLUOR
49	3060	25	CLST: NON - SL CAL, ELSE A.A.	A.A.
48	3070	20	CLST: TR PYR, ELSE A.A.	SLOW STRMG, ELSE A.A.
47	3075	0	**LOST**	
46	3090	0	**LOST**	
45	3100	0	**LOST**	
44	3110	25	CLST: BRN BLK, FRM, BLKY - SUBFISS, MICROMIC, R TR MICROPYR, NON CALC	NO FLUOR, V WK V SLOW STRMG BL WH - YEL WH CRSH CUT FLUOR, YEL WH RES FLUOR
43	3115	25	CLST: NON - V SL CALC, ELSE A.A.	A.A.
42	3117	5	CLST: BRN BLK - OLV BLK, SFT - FRM, BLKY, TR MICROMIC, SL CALC	NO FLUOR, V WK YEL WH CRSH CUT FLUOR, YEL WH RES FLUOR
41	3120	15	CLST: MOD HD, NON CALC, ELSE A.A.	A.A.
40	3122	0	**LOST**	
39	3125	25	CLST: MOD HD, NON CALC, ELSE A.A.	A.A.
38	3127	25	CLST: BRN BLK - GRY BLK, SFT - FRM, BLKY - SUBFISS, TR MICROMIC, TR MICROPYR, V SL SLTY, R TR V F SD, MOD CAL	NO FLUOR, WK FAST CLDY BL WH CUT FLUOR, WK YEL WH RES
37	3130	30	CLST: GD TR MICROPYR, ELSE A.A.	V WK BL WH CRSH CUT FLUOR, ELSE A.A.
36	3132	30	CLST: BRN BLK - GRY BLK, SFT - FRM, BLKY, CALC	NO SHOWS
35	3135	30	CLST: MICROMIC, MICROPYR, SL SLTY, TR SD, ELSE A.A.	NO FLUOR, WK BL WH CLDY CUT FLUOR
34	3140	15	CLST: SL CALC, ELSE A.A.	A.A.
33	3143	25	CLST: BRN BLK - GRY BLK, FRM - MOD HD, TR MICROMIC, TR MICROPYR, SL SLTY, TR V F SD, CALC CONC, CALC	NO SHOWS
32	3145	30	CLST: NO CONC, ELSE A.A.	A.A.
31	3150	10	CLST: MICROMIC, NON - V SL CALC, ELSE A.A.	A.A. FRACTURED SAMPLE
30	3155	20	LST: ARG, BRN GRY - OLV GRY, MICROXLN, MOD HD, BRIT, HKL, SL DOL	NO SHOWS
29	3160	25	CLST: BRN BLK - GRY BLK, FRM, BLKY, GD TR MICROPYR, TR MICROMIC, MOD CALC	A.A.
28	3171	15	CLST: FRM - MOD HD, NON - SL CALC, ELSE A.A.	A.A.

STATOIL

SIDEWALL CORE DESCRIPTION			Page 2 OF 3
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: T. Stump		Date: 18.06.1992	Run no. 3A
Ref. Log for shot levels: DIFL-ACL-GR, Run no. 3C			

Shot no.	Depth (mKB)	Rec. mm	Lithological Description: Rock name, mod. lith., col., grain size, sort., roundn., matr., cemen., Hardness, sed.structures, accessories, fossils, porosity, contamination.	Remarks: Shows, factors affect. recovery, etc.
27	3185	10	CLST: DK GRY, MOD HD - HD, SUBFISS, TR MICROMIC, TR MICROPYR, SL SLTY, SL CALC/DOL	NO SHOWS FRACTURED SAMPLE
26	3212,5	20	CLST: SL SLTY, ELSE A.A.	NO SHOWS
25	3236	25	CLST: MICROMIC, ELSE A.A.	A.A.
24	3269	0	**LOST**	
23	3303	0	**LOST**	
22	3331	25	CLST: BRN BLK, FRM, SUBFISS, ELSE A.A.	NO FLUOR, V WK V SLOW STRMG YEL WH - BL WH CUT FLUOR
21	3355	25	CLST: BRN GRY, FRM - MOD HD, HKL - SUBFISS, SLTY - V SLTY, ABD, MICROPYR, MICROMIC, CARB, COAL FRAG, CALC - V CALC	NO FLUOR, WK V SLOW STRMG YEL WH - BL WH CUT FLUOR
20	3496	25	COAL: BLK, SHNY, BRIT, CONCH FRAC, HKL	
19	3502	0	**MISFIRE**	
18	3507	25	CLST/SLTST: DUSKY YEL BRN, MOD HD - HD, BLKY, V SLTY, MICROMIC, TR CARB, NON CALC	NO SHOWS
17	3524	10	SST: OLV GRY - LT OLV GRY, CLR - TRNSL QTZ, VF - F, OCC MED, MOD - W SRT, SUBANG, FRI, SIL AND KAOL? CMT, EXTR MIC, WH CLY MTX-KAOL?, TR MICROPYR, TR CARB, NO VIS POR	A.A.
16	3527,5	10	SST: V F - F, SUBANG - SUBRND, LESS MICAC, ELSE A.A.	A.A.
15	3535	0	**MISFIRE**	
14	3538	0	**MISFIRE**	
13	3545	15	SST: LT GRY, CLR - TRNSL QTZ, VF - F, W SRT, SUBANG - RND, FRI, MNR SILIC CMT, MICA, WH CLY MTX-KAOL? PR - MOD VIS POR	WK PA YEL FLUOR, WK CLDY YEL WH - BL WH CUT FLUOR
12	3550	10	SST: TR CARB, ELSE A.A.	A.A.
11	3553	15	INTERLAM SST/SLTST: SST: A.A. SLTST: OLV GRY - OLV BLK, FRM, ARG, V MIC, V F SD GRDG SLTY SST	A.A.
10	3555	10	CLST: OLV GRY - OLV BLK, FRM - MOD HD, BLKY, V SLTY, V SDY GRDG ARG SLTST/SST, MICA, CARB	NO FLUOR, WK CLDY/MOD STRMG BL WH - YEL WH CUT FLUOR
9	3557	20	CLST/SLTST: BRN BLK - OLV BLK, FRM - MOD HD, BLKY, V SLTY, V MIC, SL SDY, TR CARB	NO SHOWS
8	3563	30?	CLST: DUSKY YEL BRN - BRN BLK, MOD HD, BLKY, SLTY - V SLTY, R TR V F SD, MICROMIC, NON CALC	NO SHOWS FRACTURED SAMPLE MAINLY MUD?
7	3568	10	SLTST: OLV GRY - DUSKY YEL BRN, FRM, BLKY, V ARG, MIC, I/P V F SDY GRDG SLTY/ARG SST, SL - MOD CALC	NO FLUOR, V WK CLDY/SLOW STRMG YEL WH CUT FLUOR, WK YEL WH RES FLUOR

SIDEWALL CORE DESCRIPTION			Page 3 OF 3
Country: NORWAY	Area: NORTH SEA	Field: GULLFAKS SØR	Well no.: 34/10-36
Company: STATOIL / NORSK HYDRO / SAGA		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: T. Stump		Date: 18.06.1992	Run no. 3A
Ref. Log for shot levels: DIFL-ACL-GR, Run no. 3C			

Shot no.	Depth (mKB)	Rec. mm	Lithological Description Rock name, mod. lith., col., grain size, sort., roundn., matr., cemen., Hardness, sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows, factors affect. recovery, etc.
6	3573	15	INTERLAM SST/CLST: SST: WH CLR QTZ, V F W SRT, SUBANG, WH CLY MTX, CLY CMT?, SL - MOD CALC CMT, FRI, ABD MICA CLST: OLV GRY, SLTY, SDY, MICA, TR CARB, SL - MOD CALC	NO FLUOR, V WK CLDY/SLOW STRMG YEL WH CUT FLUOR, WK YEL WH RES FLUOR FLUOR
5	3592	0	**LOST**	
4	3610	20	CLST: DK OLV GRY - DUSKY YEL BRN, MOD HD - HD, BLKY - SUBFISS, SL SLTY, SL MICROMIC, R TR CARB, NONCALC	NO SHOWS
3	3615,5	0	**MISFIRE**	
2	3627	0	**LOST**	
1	3634	0	**LOST**	

APPENDIX III

CONVENTIONAL CORE DESCRIPTION

Country: Norway	Area: Northern North Sea	Field: Gullfaks Sør
Well no.: 34/10-36	Formation: Draupne Fm.	
Core no.: 1	Interval: 3029-3054m	Cored: 25 m / Rec: 24,4m 98 %
Core size.: 4"	Geologist: Bjerkenes / Kristensen	Date: 5/6-92

DEPTH (mKB)	LITHOLOGY/ GRAIN SIZE (cly slt vf f m c vc)	DIP (apparent)	SHOWS: STAIN	FLUOR	CUT	Φ: POOR	FAIR	GOOD	LITHOLOGICAL DESCRIPTION (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination)	REMARKS (Shows, etc.)
3029	—M—C				■				CLYST: OLV BLK, SUBFISS, MOD HD, SL CALC, MICROMICA	NO SHOWS
3030	M—C—				■				A/A	A/A
3031	M—□—C				■				CLYST: A/A, BUT LESS PYR AND CARB MAT, NON CALC	NO FLUOR, SL BLM YEL WH CUT
3032	M—C—□				■				A/A	A/A
3033	—C—				■				CLYST: A/A BUT LESS PYR AND CARB MAT, NON CALC	A/A
3034	M—□—C				■				A/A	A/A
3035	C—□—M				■				A/A	A/A
	C——M				■				A/A	
3036										
	M—C—				■				A/A	A/A
3037										
	C—M—				■				A/A	A/A
3038										
	—M—C				■				A/A	A/A
3039										

STATOIL

CONVENTIONAL CORE DESCRIPTION

Country: Norway	Area: Northern North Sea	Field: Gullfaks Sør
Well no.: 34/10-36	Formation: Draupne Fm.	
Core no.: 1	Interval: 3029-3054m	Cored: 25 m / Rec: 24,4m 98 %
Core size.: 4"	Geologist: Bjerkenes / Kristensen	Date: 5/6-92

DEPTH (mKB)	LITHOLOGY/ GRAIN SIZE (cly slt vf f m c vc)	DIP (apparent)	SHOWS: STAIN	FLUOR	CUT	Φ: POOR	FAIR	GOOD	LITHOLOGICAL DESCRIPTION (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cemer ation, hardness, sed. structures. accessories, fossils, porosity, contamination)	REMARKS (Shows, etc.)
3039										
	C——M				■				CLYST: OLV BLK, MOD HD, SUBFISS, MICROMICA, CARB, NON CALC, PLANT FOSSIL	NO FLUOR, SLOW BLM YEL WH CUT FLUOR
3040										
	C—M—C				■				CLYST: GRY BLK, MOD HD, FISS, MICROMICA, V CARB, NON-SL CALC	NO FLUOR, SLOW STRM YEL WH CUT FLUOR
3041										
	—M—C				■				A/A, BUT OLV BLK	A/A
3042										
	C——M				■				A/A	A/A
3043										
	C——M				■				A/A	A/A
3044	C——M				■				A/A	A/A
3045	M——C				■				A/A	A/A
3046	M——--C				■				A/A, SL SLTY IN STRINGERS	A/A
3047	M——--C				■				A/A	A/A
3048	M— —C				■				A/A, NO SILT	A/A
3049	C——M				■				A/A	A/A

cly slt vf f m c vc

CONVENTIONAL CORE DESCRIPTION

Country: Norway	Area: Northern North Sea	Field: Gullfaks Sør
Well no.: 34/10-36	Formation: Draupne Fm.	
Core no.: 1	Interval: 3029-3054m	Cored: 25 m / Rec: 24,4m 98 %
Core size.: 4"	Geologist: Bjerkenes / Kristensen	Date: 5/6-92

DEPTH (mKB)	LITHOLOGY/ GRAIN SIZE (cly slt vf f m c vc)	DIP (apparent)	SHOWS: STAIN	FLUOR	CUT	Φ: POOR	FAIR	GOOD	LITHOLOGICAL DESCRIPTION (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cemer ation, hardness, sed. structures. accessories, fossils, porosity, contamination)	REMARKS (Shows, etc.)
3049	M — C				■				CLYST: OLV BLK, MOD HD, FISS-SUBFISS, MICROMICA, CARB, PLANT FOSS, SL - NON CALC	NO FLUOR, SLOW STRM YEL WH CUT FLUOR
3050	M — C				■				A/A	A/A
3051	C — M				■				A/A	A/A
3052	C — M				■				A/A	A/A
3053	M — C				■				A/A	A/A, BUT BLM CUT FLUOR
					■				A/A, BUT PYR I/P	A/A
3054	TD									

cly slt vf f m c vc

CONVENTIONAL CORE DESCRIPTION

Country:	Norway	Area:	Northern North Sea	Field:	Gullfaks Sør
Well no.:	34/10-36	Formation:	Tarbert Fm.		
Core no.:	2	Interval: 3363-3390m	Cored: 27 m	Rec: 27,18m 100 %	
Core size.:	4"	Geologist:	Bjerkenes / Kristensen	Date:	8/6-92

DEPTH (mKB)	LITHOLOGY/ GRAIN SIZE (cly slt vf f m c vc)	DIP (apparent)	SHOWS: STAIN	SHOWS: FLUOR	SHOWS: CUT	Φ: POOR	Φ: FAIR	Φ: GOOD	LITHOLOGICAL DESCRIPTION (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination)	REMARKS (Shows, etc.)
3363				■	■		■		SST: DK YEL BRN, CLR-TRNSL QTZ, F-MED, MOD SRTD, SUBANG-SUBRND, MOD HD, SL ARG	YEL WH BRT EVEN FLUOR, FLASH-FAST STRMG WH CUT FLUOR, BRT YEL WH RES FLUOR
3364									INTERLAM CLST/COAL CLST: GRY BLK, MOD HD, SUBFISS, V CARB, MICROPYR, NON CALC COAL: BLK, HD, BRT, SHINY	NO SHOWS
3365				■	■		■		SST: OCC SMKY QTZ, PRED F -MED, OCC V CRS-CRS GRNS, MOD SRT, SL MIC, OCC CARB, ELSE A/A	SHOWS AS IN SST ABOVE
3366				■	■		■		SST: F-CRS, PR SRT, ARG, MIC, PYR l/p, ELSE A/A	FLUOR A/A, SLOW STRMG WH CUT FLUOR, BRT YEL WH RES FLUOR
3367				■	■		■		SST: MED, WL SRT, OCC MIC/ARG INCL, ELSE A/A.	FLUOR A/A, MOD STRMG WH CUT FLUOR, RES FLUOR A/A
3368				■	■		■		SST: F-CRS, MOD SRTD, GRAD BDG, ARG/PYR LAM, ELSE A/A	SL-MOD FAST STRMG WH CUT FLUOR, ELSE A/A

![STATOIL]

CONVENTIONAL CORE DESCRIPTION

Country: Norway	Area: Northern North Sea	Field: Gullfaks Sør
Well no.: 34/10-36	Formation: Tarbert Fm.	
Core no.: 2	Interval: 3363-3390m	Cored: 27 m / Rec: 27,18m 100 %
Core size.: 4"	Geologist: Bjerkenes / Kristensen	Date: 8/6-92

DEPTH (mKB)	LITHOLOGY/ GRAIN SIZE (cly slt vf f m c vc)	DIP (apparent)	SHOWS: STAIN	SHOWS: FLUOR	SHOWS: CUT	Φ: POOR	Φ: FAIR	Φ: GOOD	LITHOLOGICAL DESCRIPTION (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination)	REMARKS (Shows, etc.)
3368				■	■		■		SST: DK YEL BRN, CLR-TRNSL QTZ, F-CRS, WL SRTD, SUBRND-SUBANG, MOD HD OCC ARG/ PYR STREAK.	YEL WH BRT EVEN FLUOR, SL-MOD FST STRMG WH CUT FLUORESCENCE
3369				■	■			■	SST: V CRS, SUBRND, ELSR A/A	FLUOR A/A FLASH-FAST STRMG WH CUT FLUOR, BRT YEL WH RES FLUOR
3370				■	■			■	SST: F-MED, OCC CRS, SUBANG-SUBRND, ELSE A/A	A/A
3371				■	■		■		SST: MED, MOD SRT, ARG, MIC, PYR, ELSE A/A	SL-MOD FAST STRMG WH CUT FLUOR, ELSE A/A
3372				■	■			■	SST: MED-CRS, WL SRTD, ELSE A/A	SHOWS AS @ 3369m
3373				■	■			■	SST: F-MED, MOD SRTD, ARG PCHS, ELSE A/A	SL-MOD FAST STRMG WH CUT FLUOR, ELSE A/A

cly slt vf f m c vc

CONVENTIONAL CORE DESCRIPTION

Country: Norway	Area: Northern North Sea	Field: Gullfaks Sør
Well no.: 34/10-36	Formation: Tarbert Fm.	
Core no.: 2	Interval: 3363-3390m	Cored: 27 m / Rec: 27,18m 100 %
Core size.: 4"	Geologist: Bjerkenes / Kristensen	Date: 8/6-92

DEPTH (mKB)	SHOWS: STAIN	SHOWS: FLUOR	SHOWS: CUT	Φ: POOR	Φ: FAIR	Φ: GOOD	LITHOLOGICAL DESCRIPTION (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination)	REMARKS (Shows, etc.)
3373		■	■			■	SST: DK YEL BRN, CLR-TRNSL QTZ, F-MED, MOD SRTD, SUBRND-SUBANG, MOD HD, ARG PATCHES	YEL WH BRT EVEN FLUOR FLASH-FST STRMG WH CUT FLUOR BRT YEL WH RES FLUOR
3374							SST: LT GRY CLR-TRNSL QTZ, V HD, CALC CMT, MIC, ARG, MICROPYR, ELSE A/A	NO SHOWS
3375		■	■			■	SST: DK YEL BRN, CLR TRNSL QTZ, MED, WL SRT, SUBANG-SURND, MOD HD, ARG PATCHES	YEL WH BRT EVEN FLUOR, FLASH-FAST STRMG WH CUT FLUOR, BRT YEL WH RES FLUOR
3376		■	■	■			SST: V F-F, MOD SRT, ARG, MIC, KAOL?, ELSE A/A	SHOWS A/A
3377		■	■	■			SST: DK YEL BRN-MED GRY, CLR-TRNSL QTZ, VF -F, MOD SRT, SUBANG-SUBRND, MOD HD, ARG, MIC	YEL DULL PCH FLUOR, SL STRMG PA WH CUT FLUOR, PA YEL WH RES FLUOR
3378		■	■	■			SST W/LAM AND PATCHES OF ARG/CARB. SST: DK YEL BRN-MED GRY, CLR-TRNSL QTZ, VF-F, MOD SRTD, SUBANG-SUBRND, MOD HD, ARG, MIC	SHOWS A/A

LITHOLOGY/ GRAIN SIZE: cly slt vf f m c vc

DIP (apparent)

CONVENTIONAL CORE DESCRIPTION

Country: Norway	Area: Northern North Sea	Field: Gullfaks Sør
Well no.: 34/10-36	Formation: Tarbert Fm.	

Core no.: 2	Interval: 3363-3390m	Cored: 27 m	Rec: 27,18m 100 %
Core size.: 4"	Geologist: Bjerkenes / Kristensen	Date: 8/6-92	

DEPTH (mKB)	SHOWS: STAIN	SHOWS: FLUOR	SHOWS: CUT	Φ: POOR	Φ: FAIR	Φ: GOOD	LITHOLOGICAL DESCRIPTION (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination)	REMARKS (Shows, etc.)
3378		■	■	■			SST: W/LAM AND PATCHES OF ARG/CARB SST: DK YEL BRN-MED GRY, CLR-TRN SL QTZ, VF-F, MOD SRTD, SUBANG-SUBRND, MOD HD, ARG,MIC, NO-V PR VIS POR,	YEL DULL PATCHY FLUOR, SL STRMG PA WH CUT FLUOR, PA YEL WH RES FLUOR
3379		■	■		■		SST: V F-F, WL SRT, ARG,SL MIC	A/A
3380		■	■		■		SST: A/A	A/A
		■	■	■			SST: W/ABUN MICA LAM SST: A/A	A/A
3381		■	■	■			SH: F, WL SRT, ARG, SL MIC, ELSE A/A	A/A
3382		■	■		■		SST: F-MED, SL ARG, ELSE A/A	YEL DULL-BRT PCHY FLUOR, SL STRM PA WH CUT FLUOR, PA YEL WH RES FLUOR
3383								

LITHOLOGY/ GRAIN SIZE: cly slt vf f m c vc

DIP (apparent)

CONVENTIONAL CORE DESCRIPTION

Country: Norway		Area: Northern North Sea		Field: Gullfaks Sør	
Well no.: 34/10-36		Formation: Tarbert Fm.			
Core no.: 2	Interval: 3363-3390m		Cored: 27 m	Rec: 27,18m 100 %	
Core size.: 4"	Geologist: Bjerkenes / Kristensen			Date: 8/6-92	

DEPTH (mKB)	LITHOLOGY/ GRAIN SIZE (cly slt vf f m c vc)	DIP (apparent)	SHOWS: STAIN	SHOWS: FLUOR	SHOWS: CUT	Φ: POOR	Φ: FAIR	Φ: GOOD	LITHOLOGICAL DESCRIPTION (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination)	REMARKS (Shows, etc.)
3383										
				X	X	X			SST: DK YEL BRN-MED,GRY, CLR-TRNSL QTZ, F-MED, MOD SRTD, SUBANG-SUBRND, MOD HD, ARG, MIC, SL PYR	YEL DULL PATCHY FLUOR, SL STRMG PA WH CUT FLUOR, PA YEL WH RES FLUOR
3384										
				X	X	X			SST: A/A	A/A
3385										
				X	X		X		SST: SL CALC, SL ARG, SL MIC, ELSE A/A	YEL-YEL WH DULL-BRT PATCHY FLUOR MOD STRMG PA WH CUT FLUOR, PA YEL WH RES FLUOR
3386										
				X	X	X	X		SST: F, NON CALC, ARG, MIC, ELSE A/A	SL STRMG WH CUT FLUOR, ELSE A/A
3387										
				X	X	X			SST: W/LAM MICA/CARB MAT SST: A/A	A/A
3388										

STATOIL

CONVENTIONAL CORE DESCRIPTION

Country: Norway	Area: Northern North Sea	Field: Gullfaks Sør
Well no.: 34/10-36	Formation: Tarbert Fm.	
Core no.: 2	Interval: 3390-3417m	Cored: 27 m — Rec: 27,18m 100 %
Core size.: 4"	Geologist: Bjerkenes / Kristensen	Date: 8/6-92

DEPTH (mKB)	LITHOLOGY/ GRAIN SIZE (cly slt vf f m c vc)	DIP (apparent)	SHOWS: STAIN	FLUOR	CUT	Φ: POOR	FAIR	GOOD	LITHOLOGICAL DESCRIPTION (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures. accessories, fossils, porosity, contamination)	REMARKS (Shows, etc.)
3388										
				■	■		■		SST: MED GRY-DK YEL BRN, CLR-TRNSL QTZ, F, MOD SRTD, SUBANG-SUBRND, MOD HD, ARG, MIC	YEL-YEL WH DULL-BRT PCHY FLUOR, MOD STRMG PA WH CUT FLUOR, PA YEL WH RES FLUOR
3389										
									SST: MED GRY, CLR-TMSL QTZ, VF., V HD, CALC CMTD, MIC, COAL FRAGS,	NO SHOWS
3390									SST W/ABD MICA/CARB LAM WOOD FRAGES SST: A/A	NO SHOWS
3390.18										

STATOIL

CONVENTIONAL CORE DESCRIPTION

Country: Norway	Area: Northern North Sea	Field: Gullfaks Sør
Well no.: 34/10-36	Formation: Tarbert Fm.	
Core no.: 3	Interval: 3390-3417m	Cored: 27 m — Rec: 26,51 m 98,2%
Core size.: 4"	Geologist: Bjerkenes / Kristensen	Date: 9/6-92

DEPTH (mKB)	LITHOLOGY/ GRAIN SIZE (cly slt vf f m c vc)	DIP (apparent)	SHOWS: STAIN	FLUOR	CUT	Φ: POOR	FAIR	GOOD	LITHOLOGICAL DESCRIPTION (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination)	REMARKS (Shows, etc.)
3390						■			SST: W/SH LAM, MED-DK GRY, CLR-SMKY QTZ, VF-F, FAIR SRT, RND, SIL CMT, MICA, BIOTURB. NO-V PR VIS POR, SL CARB.	NO SHOWS
3391						■			SST: LT OLV GRY-LT BRN GRY, CLR QTZ, MED-F, FAIR SRT, SUBANG-SUBRND, MOD HD, MOSTLY SIL CMT, SL CALC CMT, SL MICA, PR VIS POR, TR CARB MAT.	A/A
3392						■			SST: OLV GRY, ELSE A/A	A/A
3393						■			SST: A/A	A/A
3394									SH: BRN BLK, MOD HD, FISS, V MICA-MICROMICA, NON CALC, CARB.	A/A
3395				■	■	■			SST: W/SH LAM, LT OLV GRY SST, CLR QTZ, V F, WL SRT, SUBANG, HD, SIL CMT, PRTLY KAOL CMT, PR VIS POR, SH: BRN BLK A/A	YEL WH DIR FLUOR, SLOW STRM BRT YEL WH CUT FLUOR BRT WH RES FLUOR

CONVENTIONAL CORE DESCRIPTION

Country:	Norway	Area:	Northern North Sea	Field:	Gullfaks Sør
Well no.:	34/10-36	Formation:	Tarbert / Ness Fm.		
Core no.:	3	Interval:	3390-3417m	Cored: 27 m	Rec: 26,51m 98,2%
Core size.:	4"	Geologist:	Bjerkenes / Kristensen	Date:	9/6-92

DEPTH (mKB)	LITHOLOGY/ GRAIN SIZE (cly slt vf f m c vc)	DIP (apparent)	SHOWS: STAIN	SHOWS: FLUOR	SHOWS: CUT	Φ: POOR	Φ: FAIR	Φ: GOOD	LITHOLOGICAL DESCRIPTION (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cemer ation, hardness, sed. structures. accessories, fossils, porosity, contamination)	REMARKS (Shows, etc.)
3395										NO SHOWS
3396				■	■	■			SST: W/THIN SH LAM, BIOTURB, LT OLV GRY-LT BRN GRY CLR QTZ, VF -F, WL SRT, SUBANG, HD, SIL CMT, NO-V PR VIS POR, MICA, SL CARB.	DULL YEL WH EVEN AND BRT YEL WH PTCHY DIR FLUOR, BR YEL WH CUT FLUOR BR WH RESID
3397				■	■	■			SST: LT OLV GRY-LT BRN GRY, CLR QTZ, VF-F, WL SRT, SUBANG, MOD HD, SIL CMT, PR VIS POR. SL MICA	A/A
3398				■	■	■			SST/SH LAM: SST A/A, SH AS @ 3395m	BRT PTCHY DIR FLUOR ALONG SH/SST BORDERS SLOW STRM BRT YEL WH CUT, BR WH RESIDUE
3399						■			SST: A/A W/ SH LAM A/A	NO SHOWS
3400									CLST/SH: SLTY, BRN BLK, MOD HD, BLKY SUBFISS, MICA-MICROMICA, NON CALC, CARB.	A/A

STATOIL

CONVENTIONAL CORE DESCRIPTION

Country: Norway	Area: Northern North Sea	Field: Gullfaks Sør
Well no.: 34/10-36	Formation: Ness Fm.	
Core no.: 3	Interval: 3390-3417m	Cored: 27 m — Rec: 26,51 m 98,2%
Core size.: 4"	Geologist: Bjerkenes / Kristensen	Date: 9/6-92

DEPTH (mKB)	LITHOLOGY/ GRAIN SIZE (cly slt vf f m c vc)	DIP (apparent)	SHOWS: STAIN	FLUOR	CUT	Φ: POOR	FAIR	GOOD	LITHOLOGICAL DESCRIPTION (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination)	REMARKS (Shows, etc.)
3400									CLST: BRN BLK, MOD HD, SUBFISS SLTY, SDY LAM, V MIC, NON CALC, CARB.	NO SHOWS
3401									CLST: A/A	A/A
3402									SST: DKGRY-GRY BLK, VF-F, SUBANG-SUBMOD, MOD HD, SIL CMTD, V MIC, V CARB.	A/A
3403									CLST: BM BLK, MOD HD, BLKY-SUBFISS, V SLTY, SDY, V CARB, V MIC, NON CALC.	A/A
3404									CLST: A/A	A/A
3405									CLST: DSKY YEL BRN, MOD HD, BLKY-SUBFISS, NON CALC.	A/A

CONVENTIONAL CORE DESCRIPTION

Country: Norway		Area: Northern North Sea		Field: Gullfaks Sør	
Well no.: 34/10-36		Formation: Ness Fm.			
Core no.: 3	Interval: 3390-3417m		Cored: 27 m		Rec: 26,51m 98,2%
Core size.: 4"	Geologist: Bjerkenes / Kristensen			Date: 9/6-92	

DEPTH (mKB)	LITHOLOGY/ GRAIN SIZE (cly slt vf f m c vc)	DIP (apparent)	SHOWS: STAIN	FLUOR	CUT	Φ: POOR	FAIR	GOOD	LITHOLOGICAL DESCRIPTION (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination)	REMARKS (Shows, etc.)
3405									CLST: DSKY YEL BRN, MOD HD, BLKY-SUBFISS, NON CALC.	NO SHOWS
3406							■		SST: LT OLV GRY-LT BRN GRY, CLR -TRNSL QTZ, V F, WL SRT, SUBANG-SUBRND, MOD HD, SIL CMT, MIC	A/A
3407							■		SST: A/A	A/A
3408						■			INTERLAM SST/CLST: SST: A/A CLST: BRN BLK, MOD HD, SUBFISS, SLTY, SDY, V CARB, V MIC, PYR, NON CALC.	A/A
3409						■			CLST: W/SDY LAM AND PATCHES CLST: A/A SST: V FN A/A	A/A
3410									CLST: BRN BLK, MOD HD, SUBFISS, SLTY SL SDY, V CARB, MIC, SL PYR, NON CALC.	A/A

CONVENTIONAL CORE DESCRIPTION

Country: Norway		Area: Northern North Sea		Field: Gullfaks Sør	
Well no.: 34/10-36		Formation: Ness Fm.			
Core no.: 3	Interval: 3390-3417m		Cored: 27 m	Rec: 26,51m 98,2%	
Core size.: 4"	Geologist: Bjerkenes / Kristensen			Date: 9/6-92	

DEPTH (mKB)	LITHOLOGY/ GRAIN SIZE (cly slt vf f m c vc)	DIP (apparent)	SHOWS: STAIN	FLUOR	CUT	Φ: POOR	FAIR	GOOD	LITHOLOGICAL DESCRIPTION (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination)	REMARKS (Shows, etc.)
3410									CLST: BRN BLK, MOD HD, SUBFISS SLTY, SL SDY, V CARB, MIC, SL PYR, NON CALC.	NO SHOWS
3411									SST: DK YEL BRN CLR-YEL BRN TRNSL QTZ, F, MOD SRTD, SUBANG, SUBRND, MOD HD, CALC CMT, MIC, ARG	A/A
3412									SST: LT OLV GRY-LT BRN GRY, CLR-TRNSL QTZ, F, OCC MED, MOD SRT, SUBANG-SUBRND, MOD HD, CALC CMT, MIC ARG	A/A
3413									SST W/ARG/MIC LAM SST: F, SIL CMT, ELSE A/A	A/A
3414									SST: DK YEL BRN, CLR-YEL BRN TRNSL QTZ (STAIN?), F, MOD SRTD, SUBANG-SUBRND, MOD HD, SIL CMT, MIC, ARG	A/A
3415									SST: DK YEL BRN, YEL BRN TRNSL QTZ (STAIN?), MED-CRS, WL SRT, SUBRND, MOD HD, SL ARG	A/A

STATOIL

CONVENTIONAL CORE DESCRIPTION

Country: Norway	Area: Northern North Sea	Field: Gullfaks Sør
Well no.: 34/10-36	Formation: Ness Fm.	
Core no.: 3	Interval: 3390-3417m	Cored: 27 m / Rec: 26,51m 98,2%
Core size.: 4"	Geologist: Bjerkenes / Kristensen	Date: 9/6-92

DEPTH (mKB)	LITHOLOGY/ GRAIN SIZE (cly slt vf f m c vc)	DIP (apparent)	SHOWS: STAIN	FLUOR	CUT	Φ: POOR	FAIR	GOOD	LITHOLOGICAL DESCRIPTION (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination)	REMARKS (Shows, etc.)
3415								■	SST: DK YEL BRN, YEL BRN TRNSL QTZ (STRAIN?), MED-CRS, WL SRT, SUBRND, MOD HD, SL ARG	NO SHOWS
3416							■		SST: F-CRS, PR SRT, SUBANG-SUBRND, SIL CMT, ARG, ELSE, A/A	A/A
3416.51							■		SST W/ABUN MIC/CARB LAM SST: LT OLV GRY-LT BRN GRY, CLR-PA YEL BRN TRNSL QTZ, F, FAIR SRT, SUBANG-SUBRND, MOD HD, SIL CMT, MIC, ARG	A/A
3417										

cly slt vf f m c vc

APPENDIX IV

BOREHULL: 34/10-36 PL: 050 OPERATØR: STATOIL AVSLUTNINGSDATO: 13.07.92

BOREHULLSDATA:

1. Avstand fra boredekk til havnivå..23m.

2. Vanndyp..136m.

3a. Settedyp for lederør (mRKB)..220m.

3b. Evt. formasjonsstyrketest (g/cc):.---..

4a. Settedyp for foringsrør hvorpå BOP monteres (mRKB).1056m

4b. Formasjonsstyrketest (g/cc):.1.60.

5. Dyp (m RKB og toveis gangtid) til formasjons-/ledd-/lag-topper:..Topp Kvartær.(Topp Nordland.. Gruppe).på.159m RKB/0.184s..;..Topp Tertiær.på.301m RKB/--s.;..Topp Utsira Formasjon.på.853m RKB/--s; Topp Hordaland Gruppe.på.953m RKB/--s...

6. Dybdeintervall (m RKB og TVG) og alder for sandlag grunnere enn 1000 m under havbunnen. Oppgi hvilke lag som evt. inneholder gass. .Kvartær.175-177mRKB.;.Kvartær.199-204mRKB.;.Pliocen.341-343mRKB .Pliocen.352-356mRKB.;.Miocen.663-665mRKB.;.Miocene.669,5-671mRKB.;.Miocen.729-730mRKB.;...... .Miocen.735-741mRKB.;.Miocen.795-853mRKB.(vekslende sand og leire).;.Miocen.853-953mRKB.;.....

7. På hvilken måte er gassen påvist? ..Ingen Grunn gass ble påvist.............................

8. Sammensetning av og opprinnelse til gassen. ..----.......................................

9. Beskriv alle målinger foretatt i gassførende lag. ..----...................................

SEISMISKE DATA:

10. Angi dyp (m RKB og TVG) til inkonformiteter i borehullsposisjonen. ..Grensen Kvartær / Tertiær .er påtruffet på 301m RKB/278m MSL (ingen TVG pga første sonic log begynder på 1056m RKB). ... .Dette er den eneste sikre inkonformiteten som er påtruffet i topphullet.....................

11. Angi utbredelse av sandlagene (kommunikasjon, kontinuitet, trunkering etc.). ..----............
....
....

12. Angi utbredelse av evt. gass-skygging ("gas blanking"). ..------..........................
....
....

13. Angi evt. seismiske indikasjoner på at gassen stammer fra dypere nivå. Beskrivelse dersom gassen stammer fra dypere nivå. ..-------..
....
....

14. Hvordan samsvarer tolkningen av borestedsundersøkelsen med borehullsdata m.h.t. :

- grunn gass ..To mulige grunn gass nivåer var prognosert på 330 mRKB og på 445 mRKB. Det ble ..ikke påvist grunn gass i pilothullet......................................

- sandlag ..Første sandlag på 330 mRKB kom inn på 341 mRKB og det andre sandlag viste seg å. ..være en siltig leire/leirstein...

- inkonformiteter ..Dårlig samsvar mellom tolkning og observasjoner.....................
....

- korrelasjon til nærliggende borehull ..God korrelasjon til øverste sandlag. Dårlig korrela- ..sjon for det nederste sandlag...

NORSK HYDRO/SAGA PETROLEUM
PARTNERS

STATOIL

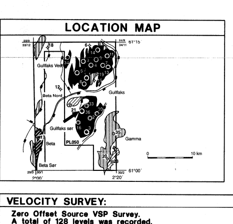
34/10-36
WELL

COMPLETION LOG
Scale 1:500

GULLFAKS SØR
PROSPECT STRUCTURE

AREA :	NORTHERN NORTH SEA
LICENCE :	PL 050
COORDINATES:	61 DEG 06' 48.49" N 02 DEG 10' 35.15" E
K.B.:	23 M
WATER DEPTH:	136 M
TOTAL DEPTH:	3640 M RKB
DEEPEST FORM. PEN.:	COOK FORMATION
SPUD DATE:	28.04.92
RIG RELEASE DATE:	13.07.92
WELL STATUS:	P&A, OIL DISCOVERY
RIG:	DEEPSEA BERGEN
CONTRACTOR:	ODDFJELL DRILLING
GEOLOGIST:	S. BJERKNES/A.G. HAGBY/T. STUMP/ E. LANGSETH/T.F. KRISTENSEN/D. ALM
PREPARED BY:	L. RASMUSSEN DATE: 09.02.93

LOCATION MAP



CASING DATA:		LEAK OFF TESTS:
30" at	220 M MD	
20" at	1056 M MD	1.60 S.G.
13 3/8" at	2100 M MD	1.76 S.G.
9 5/8" at	2994 M MD	1.97 S.G.
7" Liner top at	2838 M MD	
7" Liner at	3625 M MD	

VELOCITY SURVEY:
Zero Offset Source VSP Survey. A total of 128 levels was recorded, at 10m intervals from 3570-2760 and 20m intervals from 2760-139m.

LOGS RUN — **CONTRACTOR:** Atlas Wireline Services

DIFL-ACL-GR:	CBL-VDL-GR:	DLL-MLL-GR:	CORGUN:	MWD: (by ANADRILL)	(CONT.)	(CONT.)
1A: 1056.0-2087.0 M	2A: 825.0-2097.5 M	3A: 2993.0-3637.0 M	3A: 3055.0-3634.0 M	RUN 1: 159-859 M	RUN 6: 2115-2350 M	RUN 11: 3010-3020 M
DIFL-ACL-GR-CAL:	3B: 1900.0-2994.0 M	FMT-GR:	VSP:	RUN 2: 226-1071 M	RUN 7: 2350-2426 M	RUN 12: 3054-3360 M
2B: 2097.5-3011.7 M	4C: 2775.0-3574.0 M	3A: 3131.5-3553.0 M	(Run in 7" Liner)	RUN 3: 1071-1171 M	RUN 8: 2426-2661 M	RUN 13: 3417-3640 M
3C: 2993.0-3637.0 M	ZDL-CNL-GR:	DIPLOG:	139.0-3570 M RKB	RUN 4: 1171-1918 M	RUN 9: 2661-2825 M	
	3A: 2993.0-3636.5 M	3A: 3215.8-3637.0 M		RUN 5: 1918-2115 M	RUN 10: 2825-3010 M	

COMMENTS:

DLL/MLL/GR RUN 3A: High and low resistivities after logging calibration exceeded tolerances.

FMT/GR RUN 3A: Segregated sample taken at 3363.8 M RKB.

DIPLOG/GR RUN 3A: POOH due to sticking problems, not rerun.

VSP: Run in 7" liner.

LITHOLOGICAL SYMBOLS

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

CUTTINGS/FLOURESCENCE — OIL SHOW — OIL/GAS SHOW — GAS SHOW

STRUCTURAL DIP & DIRECTION — SIDEWALL CORES: 1.5 SIDEWALL CORE; 2.8 NO RECOVERY; R 1.2 ROTARY SIDEWALL CORE — CORES: CORE NO — DST — RFT/FMT: SAMPLE — CASING SHOE / LINER — CHRONO STRAT UNCERTAINTY

0JDP118 FDOB 34/10-36 888-00-02

EXLOG

COMPANY:	STATOIL
WELL:	34/10-36
FIELD:	Wildcat
REGION:	OFFSHORE NORWAY
COORDINATES:	61 deg 06 min 48.48 sec N
	02 deg 10 min 35.15 sec E
SPUD DATE:	28th April 1992
ELEVATION:	RKB - MSL 23m RKB - SEABED 159m
TOTAL DEPTH:	3640m
CONTRACTOR:	Odfjell Drilling and Consulting Company Ltd. (O D C C)
RIG:	DEEPSEA BERGEN
TYPE:	Semi-submersible

LOG INTERVAL

DEPTH:	159m to 3640m
DATE:	28th April 1992 to 11th June 1992
SCALE:	1 : 1000 UNIT: - 272 -
CREW:	FITZPATRICK LEWIS ZAJACZKOWSKI PATTERSON DONE

HOLE SIZES

36"	to	225.0m
26"	to	1071.0m
17.5"	to	2115.0m
12.25"	to	3010.0m
8.5"	to	3640.0m

CASING RECORD

30"	at	220m
20"	at	1056m
13.38"	at	2100m
9.625"	at	2994m
7"		2838m-3625m

MUD TYPES

Seawater / CMC	to	1071m
Gypsum - Polymer	to	3010m
Ancotemp/Bentonite	to	3640m

LITHOLOGY SYMBOLS

LIMESTONE, DOLOMITE, ANHYDRITE, GLAUCONITE, HALITE, CLAYSTONE, NO RETURNS, SILTSTONE, SANDSTONE, COAL, PYRITE, VOLCANICS

EXLOG SUITE

Formation Evaluation Log
Pressure Evaluation Plot
Bit Performance Plot

ABBREVIATIONS

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

CASING SEAT, CORED INTERVAL, UNRECOVERED, SIDEWALL CORE, WIRELINE LOG RUN, TEST INTERVAL, WIRELINE TEST

CORE REPORTS DETAILS OF CORES #1 - #3 STATOIL: WELL 34/10-36

CORE # 1 3030.0m-3054.0m CUT 24.0m RECOVERY 98.2%

3030.0m-3040.5m: CLAYSTONE. Greyish black to black, occasionally olive black, firm, slightly calcareous in places, rarely fissile, micromicaceous, disseminated and patchy pyrite, fossiliferous.

3040.5m-3041.5m: CLAYSTONE. Greyish black to black, firm, occasionally brittle, non calcareous, sub-fissile, occasionally micromicaceous. No fluorescence, slow dull green cut fluorescence, poor streaming cut.

3041.5m-3050.0m: CLAYSTONE. Greyish black to black, rarely olive black, firm, occasionally brittle, non calcareous, micromicaceous, silty stringers, disseminated pyrite, fossiliferous. No shows.

3050.0m-3054.0m: CLAYSTONE. Olive black, moderately hard, slightly calcareous, fissile to subfissile, micromicaceous, pyrite in places, carbonaceous plant remains, fossiliferous. No fluorescence, slow streaming yellow cut fluorescence.

CORE # 2 3363.0m-3389.5m CUT 26.5m RECOVERY 100%

3363.0m-3364.0m: SANDSTONE. Pale yellowish grey, clear, transluscent, transparent quartz grains, fine to medium grained, moderately well sorted, subrounded to subangular, traces of carbonaceous material, moderate visible porosity. Hydrocarbon odour, bright yellow white fluorescence, instant streaming yellow white to blue white cut fluorescence.

3364.0m-3365.0m: COAL. Black, hard, brittle, vitreous lustre, occasionally dull in parts.

3365.0m-3374.0m: SANDSTONE. Pale yellowish grey, dark yellowish brown, fine to medium grained, hard, moderately well sorted, subangular to subrounded, traces of carbonaceous material, traces of pyrite in places, poor to moderate visible porosity. Hydrocarbon odour, dull yellow fluorescence, slow to moderate yellow white streaming cut fluorescence.

3374.0m-3375.0m: SANDSTONE. Olive grey, fine to medium grained, hard to firm, moderatly well sorted, subangular to subrounded, traces of carbonaceous material, good calcareous cement. Occasional dull brown fluorescence.No cut.

3375.0m-3382.5m: SANDSTONE. Pale yellowish brown to dark yellowish brown, fine to medium grained, hard to firm, moderately well sorted, subrounded to subangular, traces of carbonaceous material, micaceous, non calcareous cement. Dull yellow white fluorescence, slow dull yellow streaming cut fluorescence.

3382.5m-3387.5m: SANDSTONE. Olive grey, occasionally dark yellowish brown, fine to medium grained, hard to firm, moderately well sorted, subrounded to subangular, traces of carbonaceous material, micaceous, calcareous to non calcareous cement. Yellow to bright yellow fluorescence, slow to very slow streaming yellow cut fluorescence.

3387.5m-3389.5m: SANDSTONE. Dark yellowish brown, fine to medium grained, hard to firm, moderately well sorted, subrounded to subangular traces of carbonaceous material, micaceous, calcareous cement. Dull yellow fluorescence, occasional slow streaming dull yellow cut fluorescence.

CORE # 3 3390.0m-3416.51m CUT 26.51m RECOVERY 98%

3390.0m-3394.0m: SANDSTONE. Olive grey with grey black patches, fine to medium grained, moderate to well sorted, subangular to subrounded, occasionally rounded, micaceous, traces of carbonaceous plant fragments, calcareous and dolomitic cement, good to moderate visible porosity. Slight dull green white fluorescence. No cut.

3394.0m-3395.0m: SILTSTONE. Olive black to black, firm, occasionally brittle, silky to waxy lustre, very micaceous, fissile.

3395.0m-3399.0m: SANDSTONE. Olive grey with grey black patches, fine grained, well sorted, subangular to subrounded, very micaceous in parts, carbonaceous plant fragments, bioturbated. Hydrocarbon odour, dull gold fluorescence, slow streaming green white cut fluorescence.

3399.0m-3403.0m: SILTSTONE. Olive black to brown black, hard, vitreous lustre, very micaceous, fissile, sandy in places.

3403.0m-3405.0m: CLAYSTONE. Olive black to brown black, hard, occasional vitreous lustre, micaceous, fissile, occasionally silty.

3405.0m-3406.0m: CLAYSTONE. Brown black, hard to brittle, waxy lustre, non micaceous, non calcareous.

3406.0m-3410.0m: SANDSTONE. Pale to moderately dark yellow brown, light olive grey, very fine to fine grained, hard but occasionally friable, subangular, moderately well sorted, traces of mica and pyrite, non calcareous cement, bioturbated, moderate to poor visible porosity. Rare trace dull yellow orange fluorescence, no cut.

3410.0m-3411.0m: CLAYSTONE. Grey black, soft to firm, micromicaceous, traces of plant fragments, fossiliferous, trace pyrite, slightly bioturbated.

3411.0m-3416.51m: SANDSTONE. Dusky yellowish brown, dark yellowish brown, fine to medium grained, well sorted, subangular to subrounded, micaceous, carbonaceous streaks, bioturbated, calcareous cement, poor visible porosity. No fluorescence, no cut.

EXLOG

COMPANY:	STATOIL
WELL:	34/10-36
FIELD:	Wildcat
REGION:	OFFSHORE NORWAY
COORDINATES:	61 deg 06 min 48.48 sec N 02 deg 10 min 35.15 sec E
SPUD DATE:	28th April 1992
ELEVATION:	RKB - MSL 23m RKB - SEABED 159m
TOTAL DEPTH:	3640m
CONTRACTOR:	Odfjell Drilling and Consulting Company Ltd (O D C C)
RIG:	DEEPSEA BERGEN
TYPE:	Semi-submersible

LOG INTERVAL

DEPTH:	159m to 3640m
DATE:	28th April 1992 to 11th June 1992
SCALE:	1 : 1000
UNIT:	- 272 -
CREW:	FITZPATRICK LEWIS ZAJACZKOWSKI PATTERSON BOME

HOLE SIZES

36"	to	225.0m
26"	to	1071.0m
17.5"	to	2115.0m
12.25"	to	3010.0m
8.5"	to	3640.0m

CASING RECORD

30"	at	220m
20"	at	1056m
13.38"	at	2100m
9.625"	at	2994m
7"		2838m-3625m

MUD TYPES

Seawater / CMC	to	1071m
Gypsum - Polymer	to	3010m
Ancotemp/Bentonite	to	3640m

LITHOLOGY SYMBOLS

LIMESTONE, DOLOMITE, ANHYDRITE, GLAUCONITE, HALITE, CLAYSTONE, NO RETURNS, SILTSTONE, SANDSTONE, COAL, PYRITE, VOLCANICS

EXLOG SUITE

Formation Evaluation Log
Pressure Evaluation Plot
Bit Performance Plot

ABBREVIATIONS

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

CASING SEAT — WIRELINE LOG RUN
CORED INTERVAL — TEST INTERVAL
UNRECOVERED — WIRELINE TEST
SIDEWALL CORE

EXLOG BIT PERFORMANCE PLOT

STATOIL 34/10-36

SCALE: 1 to 1000

34/10-36

EXLOG

COMPANY:	STATOIL
WELL:	34/10-36
FIELD:	Wildcat
REGION:	OFFSHORE NORWAY
COORDINATES:	61 deg 06 min 48.48 sec N 02 deg 10 min 35.15 sec E
SPUD DATE:	28th April 1992
ELEVATION:	RKB - MSL 23m RKB - SEABED 159m
TOTAL DEPTH:	3640m
CONTRACTOR:	Odfjell Drilling and Consulting Company Ltd. (O D C C)
RIG:	DEEPSEA BERGEN
TYPE:	Semi-submersible

LOG INTERVAL

DEPTH: 1071m to 3640m
DATE: 11th May 1992 to 11th June 1992
SCALE: 1 : 500 UNIT: - 272 -
CREW: RYAN HJELLUM VESTAD MIDDLETON

HOLE SIZES

36"	to	225.0m
26"	to	1071.0m
17.5"	to	2115.0m
12.25"	to	3010.0m
8.5"	to	3640.0m

CASING RECORD

30"	at	220m
20"	at	1056m
13.38"	at	2100m
9.625"	at	2994m
7"		2838m-3625m

MUD TYPES

Seawater / CMC	to	1071m
Gypsum - Polymer	to	3010m
Ancotemp/Bentonite	to	3640m

LITHOLOGY SYMBOLS

LIMESTONE, DOLOMITE, ANHYDRITE, GLAUCONITE, HALITE, CLAYSTONE, NO RETURNS, SILTSTONE, SAND, COAL, PYRITE, VOLCANICS

EXLOG SUITE

Formation Evaluation Log
Pressure Evaluation Plot
Bit Performance Plot

ABBREVIATIONS

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BG	BACKGROUND GAS	S	SALINITY - PPM
TG	TRIP GAS	RM	MUD RESISTIVITY
STG	SHORT TRIP GAS	RMF	MUD FILTRATE
CG	CONNECTION GAS		
SG	SWAB GAS		

CASING SEAT — WIRELINE LOG RUN
CORED INTERVAL — TEST INTERVAL
UNRECOVERED — WIRELINE TEST
SIDEWALL CORE

PRESSURE EVALUATION PLOT

STATOIL 34/10-36

SCALE: 1 to 1000