STATOIL

FINAL WELL REPORT

PL 128,
EXPLORATION WELL 6608/10-6

UPN
NOM OPR

Harstad, November 2000

HYDRO NorskAgip Enterprise Oil

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PL 128
Well 6608/10-6

00A05*738

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Table of contents

1 General well data

1 .1 Well data record

Well name	:	6608/10-6
Type of well	:	Wildcat
Prospect	:	Svale
Country	:	Norway
Area	:	Nordland II
License	:	PL 128
Licensees	:	Statoil 65%
		Norsk Hydro 13.5%
		Norsk Agip 11.5%
		Enterprise Oil 10%
Drilling unit	:	West Navion
Type	:	Drill ship
Water depth	:	378 m MSL
Air gap	:	36 m
On license	:	26.02.00
Rig release	:	14.05.00
Formation at TD	:	Åre Formation
Geographic co-ordinates:		66° 03' 55.95" N
		08° 15' 26.07" E
Datum/Spheroid	:	ED-1950/Int. 1924
UTM	:	UTM Zone 32, CM 09° E
		7 327 600 N
		466 374 E
Seismic location	:	ST9301, Inline 2448, Crossline 2344

All depths in this report refer to RKB (Rotary Kelly Bushing) unless otherwise stated.

PL128, Well 6608/10-6
INDEX MAP

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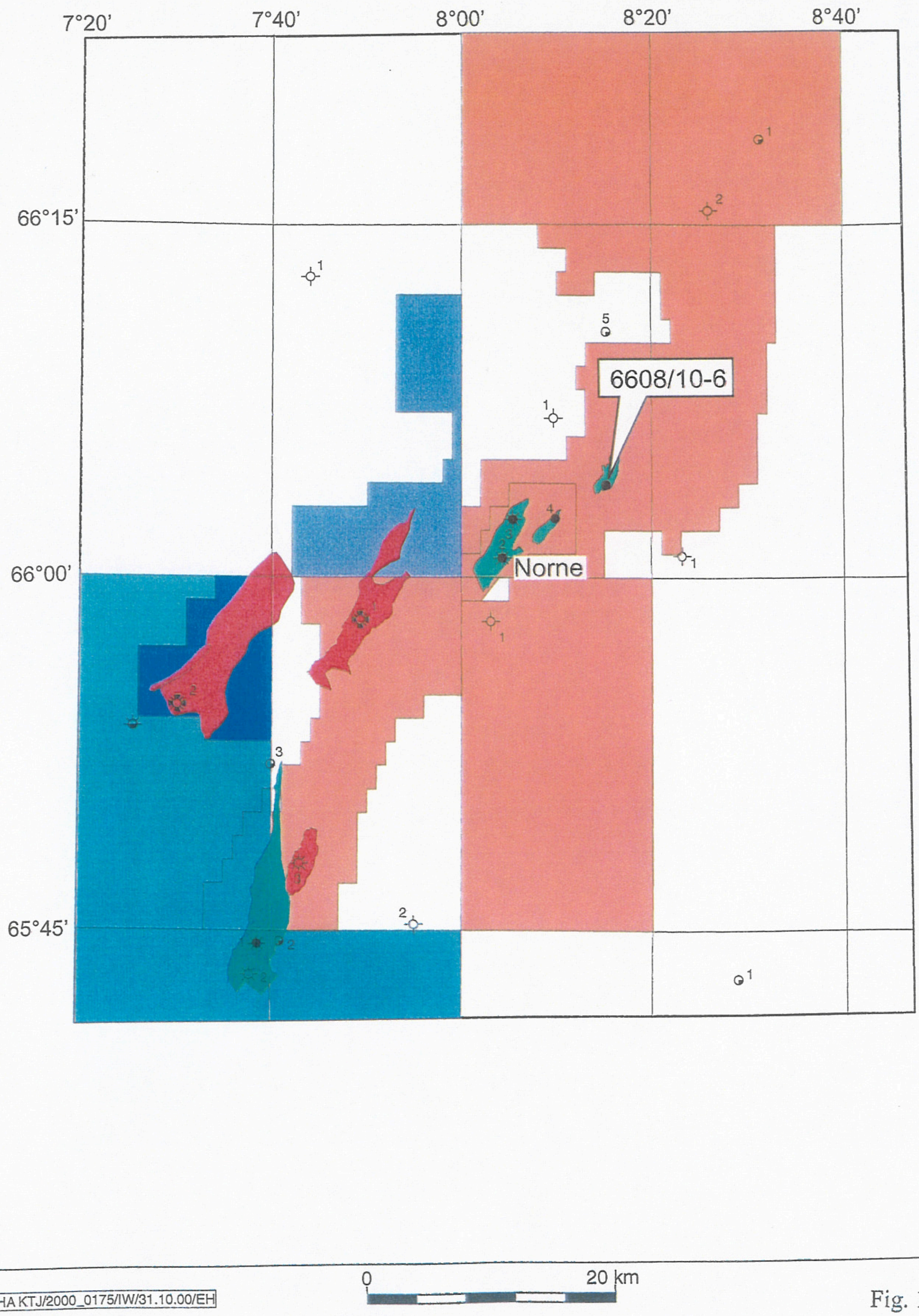


HA KTJ/2000_0175/IW/31.10.00/EH

Fig. 1.1

1 .2 Purpose of the well

The main objective of well 6608/10-6 was to prove hydrocarbons in Middle and Lower Jurassic sandstones.

1 .3 Result of the well

The well was spudded in a water depth of 414 m MD and drilled to a total depth of 2115 m MD. No shallow gas was observed by the ROV at the wellhead.

Two good reservoir zones were penetrated, the Melke Sandstone and the Åre Formation. A sandy Not Formation was also encountered, but did not have the same reservoir quality as the two previously mentioned. The reservoir sequence proved to be oil bearing. This was verified both by shows on cuttings and cores, logs, samples and laboratory studies of the cores. The main part of the oil bearing reservoir zone was cored. The oil-water contact was encountered at 1994 m MD.

The observed formation tops were not in accordance with the prognosis. The difference between the prognosis both for Cretaceous and Jurassic formation tops seem to be consistent, leading to the assumption that the velocity model for the area has to be refined for future wells within the licence area. (see Figure 4.3).

1 .4 Well history

1 .4 .1 Casing

Table 1.1

Casing	Shoe depth	Leak off tests
30"	473.5 m MD	
9 5/8"	1398 m MD	1.76 sg
7" liner	2113 m MD	

1 .4 .2 Sidewall cores

No sidewall cores were taken in this well.

1.4.3 Conventional cores

Table 1.2

Core no.	Cored interval (m)	Recovered interval (m)	m	%	Barrel lenght (m)	Jammed	Comments
1	1827 - 1838	1827 - 1833.96	6,96	63,3	27	Yes	Melke Fm.
2	1838 - 1843	1838 - 1843	1,9	38	27	Yes	Melke Fm.
3	1843 - 1862.3	1843 - 1862.3	19.3	100	27	No	Stopped due to low penetration, Melke/Not Fm.
4	1862.3 - 1878	1862.3 - 1877.05	14.75	93.7	27	Yes	Not/ÅreFm.
5	1878 - 1897	1878 - 18932.8	14.8	77.9	27	Yes	ÅreFm.
6	1897 -1900	1897 - 1898.3	1,3	44	27	Yes	Åre Fm.
7	1900 - 1923	1900 - 1923,3	23,3	101	27	Yes	Åre Fm.
8	1923 - 1936	1923.3-1935.2	12,2	93	27	Yes	Åre Fm.
9	1936 - 1956	1935.2-1954.2	18,2	91	27	Yes	Åre Fm.
10	1956 - 1973	1956 - 1971.15	15,15	89	27	Yes	Åre Fm.

1.4.4 Mud logging

A standard mud logging unit was used for the well (details in End of Well Report, Geoservices). Cuttings were sampled every 5 m from 1410 m MD to 1700 m MD, and every 3 m from 1700 m MD to TD.

1.4.5 Logging

1.4.5.1 Electrical Logging

Table 1.3

Run no.	Tool combination	Interval m MD	Comments
1A	PEX-HALS-CMR	2111.0 - 1380.0	
1A	MDT-GR	2071.0 - 1815.0	Samples at 1910.5 m and 1994.8 m, stuck tool at 1994.8 m
1A	FMI-DSI	2108.0 - 1395.0	
1B	MDT-GR	1967.1 - 1826.7	Samples at 1826.7 m and 1940.5 m.
1A	VSP-GR	2061.0 - 484.0	37 levels with 15 m spacing, 35 levels with 30 m spacing.
1A	CBL-GR	2065.0 - 1520.0	Run in 7 " liner

1.4.5.2 MWD Logging

Table 1.4

Run no.	Depth interval m MD	Collar diam.	Tool type	Comments
1	477 - 570	8 1/4"	MPR	MPR LITE service with directional
2	570 - 1408	8 1/4"	MPR	MPR LITE service with directional
3	1408 - 1827	6 3/4"	MPR	MPR LITE service with directional
4	1973 - 2115	6 3/4"	MPR	MPR LITE service with directional

1.4.6 Velocity Survey

A zero-offset VSP was run. Shot 37 levels with 15 m spacing, and 35 levels with 30 m spacing. The seismic source employed was 3x150 cu.in Airguns, depth 4,5 m, air pressure 2000 PSI. The near field monitor hydrophone was kept at an offset of 4,5 m.

1.4.7 Sampling

Table 1.5

No	Run	Depth m MD	Form.	Pumped volume ltr	Draw Down Bar	Fluid	Sampled	Remarks
1	1A	1910,5	Åre	100	9	Oil	1 Gallon 1 MS - 2 SF 18 Gallon	
2	1A	1994,8	Åre	approx. 70	25	Water	1 Gallon + 2 3/4 Gallon	Problems with pumping module. Tool stuck after sampling
3	1B	1826,7	Melke	252	13	Oil	1 MS + 2 SF 1 Gallon	18 Gallon sample did not open. Not pressuere on SF bottles
4	1B	1940,5	Åre	112	0	Oil	1 MS + 2 SF 1 Gallon	Problems with pumping module. Some contaminated with filtrate Contaminat

MS: Schlumberger multisampler chamber 450 ml
SF: Oilphase single phase sample chamber 250 ml

The quality of the oil samples was good. The contamination of mud filtrate in the water sample reduced the quality of this sample. At the offshore site the content of the MS and SF bottles were transferred to other PVT bottles.
After transferring oil/water to 3*600cc PVT the 1 gallon sample chambers were bleed of and the rest of oil/water sampled on plastic bottles.
The gas in the 18 gallon chamber was bleed off and the dead oil sampled in Jerry cans.

Measured on gas bleed of from oil offshore:
CO_2 1%, H_2S not detectable

2 Exemptions and non-conformances

Table 2.1

Exemption from	Report no.	Title
OD "Forskrift om bore- og brønn aktiviteter"	1-66081006	"Upper choke" ventiler på BOP på West Navion kan ikke åpnes fra gul pod
KP-10 - K110	2-66081006	Ved midlertidig tilbakeplugging av letebrønn 6608/10-6 settes siste barriere på 500 m

3 Health, environment, safety and quality (HES&Q)

3.1 RUH

During the operation a total of 267 RUH (Rapport om Uønsket Hendelse) were obtained.

3.1.1 Comments to RUH

Table 3.1

Kind of incident	No.	Comments
Personal injury	0	LTA
	1	Seriously with possibility of seriously injury
	2	Medical treatment
	6	First aid
Environmental injury	1	Spill to external environment

3.1.2 *Experience listing,* Table 3.2

System / event	D-time hrs	Experience	Immediate solution	Solution recommended	Ref.
Dynamic Positioning performance					
Transponders	-	4 transponders were lost when running on drillpipe through splash zone	Located transponders on seabed with the ROV	Run transponders in a gasket with the guideline winch without occupying any of the rigs	
36" section					
Cement stinger	-	An aluminium core inner barrel was used as cmt stinger for the 30" conductor. The stinger was very time consuming to make up on drill floor, and it broke off when POOH through the table and landed on seabed 30 m off the wellhead	The cmt stinger was retrieved from seabed with the ROV and wire slings prior to leaving the location	Use a standard 5 1/2" drillpipe as cement stinger	3.2.2
12 1/4" section					
MWD	25 hrs	MWD tool stopped pulsing due to cement fragments in the power turbine	Pulled out of hole and changed tool.	Flush pipe with 5000 lpm after cementing with cmt unit. This has been incorporated in later operational procedures.	3.3.2
Wipertrip	extra time : 8 hrs	Performed a wipertrip prior to running 9 5/8" csg; even no drag was observed prior to the wipertrip		The need for a wipertrip must be evaluated if no drag is observed, and might not be necessary in future wells in the area	3.3.2
Wellhead housing	2 hrs	The 18 3/4" wellhead housing did not lock into the 30" housing after the casing was landed	The running tool was not released and weight was set down until the cement was set down	ABB will examine the wellhead when the well is plugged permanent and the wellhead is retrieved. **This has to be taken into consideration when the well shall be permanently plugged.**	
Cementing	extra time : 7 hrs	Malfunction of Halliburton remote operated cmt head resulted in 90 m excess cement inside 9 5/8" csg	Cement head was sent onshore for inspection (ref. Halliburton report). Used extra 7 hrs to drill out excess cmt		3.3.2 Halliburton report on ESOP

System / event	D-time hrs	Experience	Immediate solution	Solution recommended	Ref.
8 1/2" section					
Bits		The section was drilled with two rock bits. Both were severe worn with average ROP of 10 m/hr		Consider using PDC bits in future wells in the area	
Temporary P&A					
7" liner	113 hrs	Leakage in Weatherford liner Running tool	Drilled out cement inside 7" liner, squeeze cemented the 7" liner through an EZCV packer and verified TOC with a USIT cement bond log	Tool has been examinated by Weatherford and report is written (ref. ESOP).	3.5.2 Weatherford report on ESOP
Trawl structure	2 hrs	Shear pins in FMC running tool sheared when running structure through splash zone; structure landed 40 m away from the BOP	The structure was retrieved with the ROV and wire slings and landed on the wellhead without any problems	Do not use FMC Cap Running tool for running trawl structures, as this design is to weak. Consider to run the structure with wire slings.	3.5.2
Formation evaluation					
MDT	47 hrs	The MDT tool got stuck when collection the water sample at 1994.8 m MD.	Reconfigurated the tool, reduced the distance between the packer and the bottom of the tool.		4.6.1

3.1.3 *Time distribution*

Table 3.3

Distribution of down time	Hrs	Cause of waiting time	Hrs
Statoil operations [1]	72.5	WOW	151.5
Smedvig	539.0		
Halliburton cement	1.5		
ABB Vetco Wellhead	2.0		
Weatherford linerhanger	112.0		
TOTAL D-TIME	**727.0**	**TOTAL W-TIME**	**151.5**

Table 3.4

Activity parameters	Days	Hrs	%
Planned time	23.8		
Actual time	77.6		
Days behind of plan [2]	53.8		
Total D+W-time		878.5	47.2
Efficiency = $\frac{TotalTime-DownTime-WOW}{TotalTime-WOW}$			**57.5**

[1] includes MWD failure due to cmt. in drillpipe (25 hrs), stuck with MDT tool (47 hrs)

[2] planned time does not include additional activities due to HC discovery (coring, additional wireline logging)

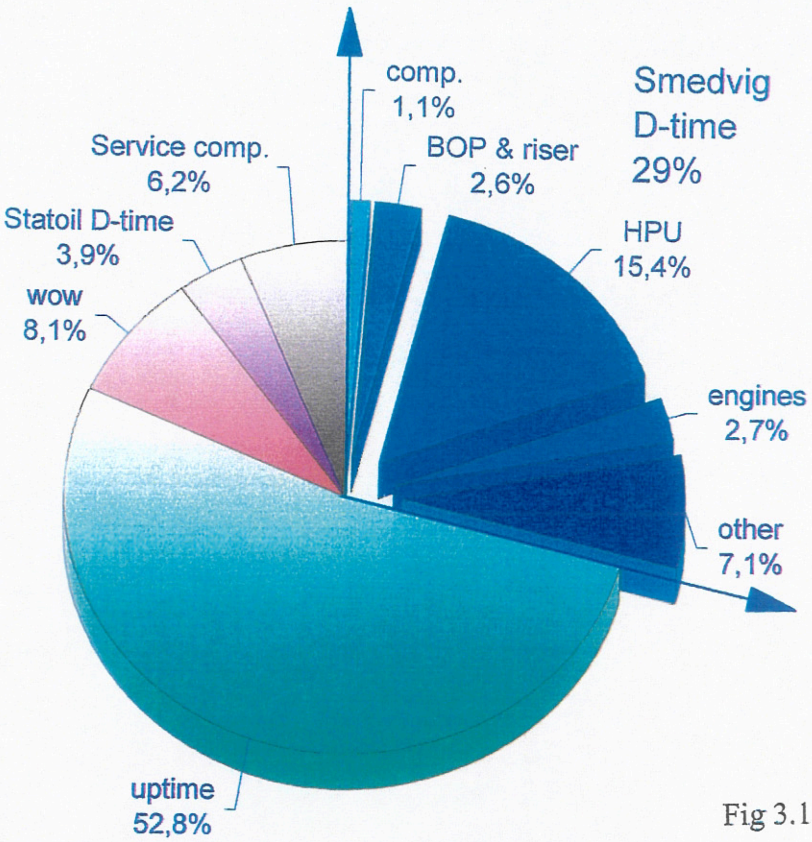


Fig 3.1

4 Geology and formation data report

4 .1 Geological setting

The structural framework on the Dønna Terrace was established during the Upper Jurassic/Lower Cretaceous extensional tectonics in the region. Later structuring is mainly related to the Cretaceous and Tertiary basinal subsidence. The prospect is defined on a gently dipping fault block. The structure has faults on three sides, but is open to the north.

Block 6608/10 is situated in the southern part of the Nordland II area. The NE-SW trending Revfallet Fault Complex separates the block in two structural provinces; the Nordland Ridge and the Dønna Terrace. Well 6608/10-6 is located in the SE part of the block 6608/10.

Well 6608/10-6 penetrates rocks of Quaternary, Tertiary, Cretaceous and Jurassic age. TD is in rocks of Jurassic age (Åre Formation).

4 .2 Stratigraphy

The stratigraphical division is based on the biostratigraphic report and on correlation with nearby wells. The stratigraphy in the entire well and the reservoir section are given in Figures 4.1 and 4.2, respectively.

4.2.1 *Table of chronostratigraphy*

Table 4.1

Stratigraphic succession		m MD From	m MD To
Tertiary	Pliocene - Upper Miocene (top not seen)	1400	1465
	Middle Miocene - Lower Miocene	1465	1520
	Upper Oligocene	1520	1530
	Middle Eocene	1530	1590
	Lower Eocene	1590	1660
	Upper Paleocene	1660	1700
---------- **Stratigraphic break** ---------			
Cretaceous	Campanian	1704	1716
	---------- **Stratigraphic break** ---------		
	Upper Aptian	1722	1726
	Upper Barremian	1728	1794
---------- **Unconformity** ---------			
Jurassic	Lower Bathonian	1806	1824
	Upper Bajocian	1827.3	1855
	Lower Bajocian	1856	1870
	Upper Aalenian	1873.9	1878.4
	---------- **Stratigraphic break** ---------		
	Upper Sinemurian	1878.7	1922.9
	Lower Sinemurian	1923	2115
	TD	2115	

4.2.2 *Table of lithostratigraphy*

Table 4.2

Table of lithostratigraphy					
Period	**Group / Formation**	**Observed m MD**	**m TVD**	**m MSL**	**TWT sec.**
QUATERNARY	NORDLAND GP. (Sea Floor)	414.0	414.0	378.0	
TERTIARY	NORDLAND GP.	696.5	696.5	660.5	0.830
	Naust Fm.	696.5	696.5	660.5	0.830
	Kai Fm.	1382.0	1382.0	1346.0	1.364
	HORDALAND GP.	1527.0	1527.0	1491.0	1.497
	Brygge Fm.	1527.0	1527.0	1491.0	1.497
	ROGALAND GP.	1 585.5	1 585.5	1549.5	1.556
	Tare Fm.	1 585.5	1 585.5	1549.5	1.556
	Tang Fm.	1 678.0	1 678.0	1642.0	1.636
CRETACEOUS	SHETLAND GP.	1700.5	1700.5	1664.5	1.652
	Springer Fm.	1700.5	1700.5	1664.5	1.652
	CR. KNOLL GP.	1717.0	1717.0	1681.0	1.666
	Lyr Fm.	1717.0	1717.0	1681.0	1.666
JURASSIC	VIKING GP.	1794.0	1794.0	1758.0	1.721
	Melke Fm.	1794.0	1794.0	1758.0	1,721
	FANGST GP.	1858.5	1858.5	1822.5	1.771
	Not Fm.	1858.5	1858.5	1822.5	1.771
	BÅT GP.	1873.0	1873.0	1837.0	1.780
	Åre Fm.	1873.0	1873.0	1837.0	1.780
	TD	2 115.0	2115.0	2079.0	

4 .3 Lithological description

4 .3 .1 General information

System, Series and Stage: Partly based biostratigraphy and partly on log interpretation and correlation.

Lithology: The lithological description is based on the cuttings and cores descriptions, see Appendix I - III.

Depositional environment: Based on biostratigraphic and regional reports. The depths are in meters with drill floor as datum unless otherwise stated.

4 .3 .2 Geological Summary

QUATERNARY 414.0 - 696.5 m MD, (378.0 - 660.5 m TVD MSL)

The Quaternary was drilled with all returns to seabed. From below the 30" conductor at 473.5m a MWD log was run, incorporating gamma ray and resistivity. The lithology, interpreted from the MWD logs and using information from the offset wells shows interbedded claystones and sandstones in the upper half of the Quaternary sequence. The lower half of this section is dominated by claystones with two sandstone beds close to the base.

NORDLAND GROUP 696.5 - 1527.0 m MD, (660.5 - 1491.0 m TVD MSL)

The Nordland Group comprises the Naust and the Kai Formations. The boundary to the overlying Quaternary sediments was picked on the MWD logs at the base of a more sand prone section.

The upper part of the Nordland Group, including the Naust Formation and the upper 26 meters of the Kai Formation, was drilled with returns to seabed.

Naust Formation 696.5 - 1382.0 m MD, (660.5 - 1346.0 m TVD MSL)

System: Tertiary

The complete Naust Formation was drilled with returns to the sea floor and is interpreted from the MWD logs and information from the offset wells.

The Naust Formation consists of fairly uniform claystones with minor sandy and/or silty intervals. No distinct sandstone beds were logged.

Kai Formation 1382.0 - 1527.0 m MD, (1346.0 - 1491.0 m TVD MSL)

System: Tertiary
Series: Pliocene - Oligocene
Stage: Pliocene - Upper Oligocene
Depositional environment: Marine, inner, mid to outer shelf

The top of the Kai Formation is defined on the logs where there is a clear shift in the resistivity to lower values compared to the overlying Naust Formation. The gamma ray shows a more subtle increase at the same level. Except for slightly higher gamma ray values in the interval 1410 m MD - 1425 m MD no significant lithological variations are indicated from the logs.

Cuttings returns are recorded in the 8 1/2" hole section, i.e. below 1408 m MD, and contain claystone with traces of sandstone.

The claystone is slightly silty to occasionally very sandy, medium dark grey to greyish black, dark green grey when very glauconitic, and brown black to brown grey, amorphous to blocky, soluble, micromicaceous, and non calcareous.

In cuttings the sandstone is seen as loose grains of clear to translucent, very fine to medium grained quartz, subangular to subrounded.

HORDALAND GROUP 1527.0 - 1585.5 m MD, (1491.0 - 1548.5 m TVD MSL)

Interpretation of the Hordaland Group is based on log signature. The transition between base Kai Formation and top Hordaland Group is picked on the top of a slight downward decreasing trend in gamma ray, resistivity and density values towards the underlying Rogaland Group.

The Hordaland Group comprises the Brygge Formation on the Mid Norwegian shelf.

Brygge Formation 1527.0 - 1585.5 m MD, (1491.0 - 1548.5 m TVD MSL)

System: Tertiary
Series: Oligocene - Eocene
Stage: Upper Oligocene - Middle Eocene
Depositional environment: Marine, mid to outer shelf to upper bathyal

The Brygge Formation consists of silty claystone with minor limestone stringers in the lower part.

The claystone is light green grey to dark green grey, soft to moderate hard, subblocky to blocky, soluble, occasionally silty, glauconitic, micropyritic and non calcareous. In the lower part the claystone becomes occasionally speckled and tuffaceous.

The limestone is very light grey, firm, micritic and slightly argillaceous.

ROGALAND GROUP 1585.5 - 1700.5 m MD, (1548.5 - 1664.5 m TVD MSL)

The top of the Rogaland group is defined by an increase in the resistivity trend and the appearance of tuff towards the upper part. The gamma ray log shows significant fluctuations, possibly because of the tuffaceous sediment in parts of this group. In this well the Rogaland Group comprises both the Tare Formation as well as the Tang Formation.

Tare Formation 1585.5 - 1678.0 m MD, (1548.5 - 1642.0 m TVD MSL)

System: Tertiary
Series: Eocene - Paleocene
Stage: Middle Eocene - Upper Paleocene
Depositional environment: Marine, outer shelf

The Tare Formation consist of interbedded claystone and siltstone with traces of limestone and sand.

The claystone is predominantly green grey, olive grey to medium dark grey, firm to moderately hard and blocky to angular. It is generally silty with traces of micromica and good traces of pyrite and glauconite. It has a slightly waxy texture and is non calcareous.

The siltstone is speckled medium grey to dark grey, in parts light brown grey to brown grey. It is blocky, firm to moderate hard, very fine sandy to argillaceous, pyritic and non calcareous.

The sand consists of clear to translucent, and rose smoke quartz, predominantly fine, occasionally medium to very coarse and loose grains, which are subangular to subrounded.

The limestone is very light grey, blocky, firm to moderate hard and micritic.

Tang Formation 1678.0 - 1700.5 m MD, (1642.0 - 1664.5 m TVD MSL)

System: Tertiary
Series: Paleocene
Stage: Upper Paleocene
Depositional environment: Marine, outer shelf

The top of the Tang Formation is defined by a marked increase in gamma ray readings, a "barrel-shaped" slightly higher level in resistivity values and a more quiet pattern on the sonic log compared to the Tare Formation. The Tang Formation consist of claystone with stringers of sandstone, limestone and dolomite.

The claystone is varicoloured; medium dark grey to light grey, greenish grey, brownish black, firm to moderate hard and blocky to amorphous. The claystone is sandy and silty in parts with traces of micropyrite. It is non to very calcareous occasionally grading to marl.

The sandstone is medium light grey with clear to translucent quartz grains. They are very fine to fine, occasionally medium to coarse, moderate sorted and subangular to subrounded. The sandstone is calcareous cemented, occasionally grading into sandy limestone. The sandstone is friable to moderate hard, argillaceous and with no to poor visible porosity.

The limestone is light grey to medium light grey, firm to hard, occasionally micritic, to microcrystalline, sandy and slightly argillaceous in parts.

The dolomite is dark greyish brown to brownish black, very hard and microcrystalline.

SHETLAND GROUP 1700.5 - 1717.0 m MD, (1664.5 - 1681.0 m TVD MSL)

Top Cretaceous is defined by a fairly uniform gamma ray level apart from the very conspicuous lows stemming from the limestone stringers and a more straight resistivity pattern compared to the Tang Formation above. In this well the Shetland Group only comprises a thin section of the Springar Formation.

Springar Formation 1700.5 - 1717.0 m MD, (1664.5 - 1681.0 m TVD MSL)

System: Cretaceous
Series: Upper Cretaceous
Stage: Campanian
Depositional environment: Marine, outer shelf

The Springar Formation consists of claystone with stringers of sandstone and limestone.

The claystone is medium grey to medium dark grey, brown grey to brownish black, green grey, olive grey to olive black, soft to firm, occasionally moderate hard and amorphous to blocky. The claystone is sandy and silty occasionally very silty.

The sandstone consists of clear to translucent quartz grains. They are very fine to fine, occasionally medium to very coarse, moderately sorted and subangular to subrounded. The sandstone is loose and occasionally calcareous cemented.

The limestone is very light grey to light grey, firm to moderate hard, occasionally micritic to microcrystalline, sandy and slightly argillaceous in parts.

CROMER KNOLL GROUP
1717.0 - 1794.0 m MD, (1681.0 - 1758.0 m TVD MSL)

The top of the Cromer Knoll Group, which comprises the Lyr Formation in this well, is defined by a slight shift to higher resistivity values compared to the Shetland Group.

Lyr Formation **1717.0 - 1794.0 m MD, (1681.0 - 1758.0 m TVD MSL)**

System: Cretaceous
Series: Lower Cretaceous
Stage: Upper Aptian - Upper Barremian
Depositional environment: Marine, outer shelf

The Lyr Formation consist of claystone with frequent stringers of dolomite, especially in the lower part. Minor sandstone and limestone are also present.

The claystone is olive grey to olive black, brownish grey, soft to firm and amorphous to subblocky. It is generally silty and sandy, is non calcareous and has traces of pyrite, mica and glauconite.

The sandstone consists of clear to translucent quartz grains, very fine to fine, subangular to subrounded, predominatly loose but occasionally calcareous cemented with non to poor visible porosity. Traces of pyrite occur.

The dolomite is yellow brown to dark yellow brown, pale yellow brown, greyish brown to medium dark grey and firm to very hard. It is microcrystalline, occasionally micritic, occasionally sucrosic and slightly calcareous.

The limestone is very light grey to white, blocky, generally crystalline and occasionally micritic.

VIKING GROUP **1794.0 - 1858.5 m MD, (1758.0 - 1822.5 m TVD MSL)**

The top of the Viking Group is defined by a drop in the resistivity reading and a slight increase in the gamma ray values. The Melke Formation is the only formation present in the Viking Group in this well.

Melke Formation **1794.0 - 1858.5 m MD, (1758.0 - 1822.5 m TVD MSL)**

System: Jurassic
Series: Middle Jurassic
Stage: Lower Bathonian - Lower Bajocian
Depositional environment: Marine, inner shelf

The upper part of the Melke Formation consist of claystone with stringers of dolomite. In the lower part the formation is dominated by sandstones and thin siltstone layers, organised in three coarsening-upward sequences.

The claystone is olive grey to olive black and brownish grey, soft to firm and amorphous to subblocky. It is silty and sandy, non calcareous, occasionally glauconitic, micromicaceous and occasionally calcareous/dolomitic.

The dolomite is yellowish brown and greyish brown, firm to very hard, blocky and silty to very fine sandy. It has a sucrosic to fine crystalline, in parts microcrystalline texture.

The sandstones are brownish black to dusky yellowish brown and micromicaceous. The grains are very fine to fine, subangular and moderate to well sorted. The sandstones have an argillaceous matrix and are changing from very weak siliceous cemented in the uppermost part to moderate dolomitic cemented in the basal parts. This gives the variations in hardness respectively from loose to friable changing to friable and firm. The visible porosity is mainly poor to fair.

The siltstones are grading to claystones, greyish black to dusky yellow brown, soft to moderate hard, weak to moderate dolomitic cemented, sandy often in laminas and micromicaceous.

FANGST GROUP 1858.5 - 1873.0 m MD, (1822.5 - 1837.0 m TVD MSL)

The Båt Group is underlying the Viking Group discordantly. The top is defined by a decrease in the gamma ray readings and an increase in the resistivity readings (hydrocarbon effect). Only the Not Formation is present in the Fangst Group in this well.

Not Formation 1858.5 - 1873.0 m MD, (1822.5 - 1837.0m TVD MSL)

System: Jurassic
Series: Middle Jurassic
Stage: Lower Bajocian - Upper Aalenian
Depositional environment: Marginal marine

The Not Formation consists of sandstone with interbedded siltstone grading into claystone.

The sandstone is dark yellow brown to dusky yellow brown, very fine to fine grained, moderate to well sorted, subangular to subrounded, friable to firm, silty and often with an argillaceous matrix. The sandstone can be slightly dolomitic cemented, micromicaceous and with a poor to fair visible porosity.

The siltstone is dusky yellow brown to yellow brown, slightly dolomite cemented and micromicaceous. The siltstone is very argillaceous and grades into claystone.

The claystone is greyish black, soft to firm, sticky, micromicaceous, slightly calcareous and very silty grading to siltstone.

BÅT GROUP 1873.0 - 2115.0 m MD, (1837.0 - 2079.0 m TVD MSL)

The Båt Group are directly underlying the Viking Group. The top is defined by a decrease in the gamma ray and density readings, an increase in resistivity readings (hydrocarbon effect) and sonic values. Only the Åre Formation is present in the Båt Group in this well.

Åre Formation 1873.0 - 2115.0 m MD, (1837.0 - 2079.0m TVD MSL)

System: Jurassic
Series: Lower Jurassic
Stage: Upper Sinemurian - Lower Sinemurian
Depositional environment: Marginal marine

The Åre Formation consists of sandstone with interbedded siltstone, claystone, coal, dolomite and limestone.

The sandstone is pale yellowish brown becoming light grey below 2000m MD. In the deepest part the sandstone is dominated of loose, clear to translucent quartz grains. The grains are very fine to fine increasing to occasionally medium to coarse at increasing depth, subrounded to subangular and moderate to poor sorted. The sandstone is predominantly loose and locally moderate calcareous cemented. It has poor to no visible porosity.

The siltstone is grading to sandstone and is argillaceous in the deepest part of the formation. Above 2000m MD the siltstone is dominantly light brownish grey to dark yellowish brown, below this depth the siltstone is medium dark grey to brownish grey. The siltstone is firm to soft, very well sorted and traces of coal and mica occur.

The claystone is occasionally silty, dark yellowish brown becoming brownish black to black with increasing depth. It is firm, subfissile, very carbonaceous and non to slightly calcareous.

The dolomite is very pale orange to moderate yellowish brown, subblocky to blocky, hard to very hard and occasionally slightly argillaceous.

The limestone is light grey to white, firm and blocky with a microcrystalline texture. The limestone is in parts silty and argillaceous.

The coal is brown black to black, firm to hard and blocky to subfissile. Traces of micropyrite are present.

TD 2115.0 m MD, (2079.0 m TVD MSL)

4 .4 Hydrocarbon indications

No shows occur in the sediments above 1820 m MD. Below this depth, which correspond to the sandstone sequences in the Melke Formation, and down to approximately 1950 m MD, good shows are recorded. The cores were partly bleeding oil and the sediments had an good HC odour and a medium brown oil stain. The direct fluorescence is spotty to even bright yellow to orange. There are a slow to fast streaming white cut fluorescence and a pale yellow cut fluorescence visible in the best sandstones. A yellow white residual fluorescence and an occasionally pale yellow residual fluorescence occur in parts of the sandstone. Below 1950 m MD the shows become weaker and no shows are present below 1988 m MD.

The background gas increases from 0.2% to 1.5% when entering the Melke sandstones, with a maximum gas peak at 7.5%. In the Åre Formation the background gas varies according to the variations in lithology. Sandstone layers give higher gas percents than the denser siltstone and claystone layers. Background gas from top of the Åre Formation and down to approx. 1994 m MD is in the area 2.5 - 4%. The maximum gas peak is 7%. Below 1994 m MD the background gas decrease to 0.5%. The chromatography values give a gas composition of C_1 to nC_5. The C_1/C_5 ratio is much lower in the Melke sandstones and the Åre Formation above approx. 1994 m MD than below this depth. Major gas peaks are listed in Table 4.3.
For complete gas peak list and details, see Geoservices Final Well Report.

Table 4.3

Depth m MD	Gas %	BG %	C_1 ppm	C_2 ppm	C_3 ppm	iC_4 ppm	nC_4 ppm	iC_5 ppm	nC_5 ppm	Type
1530	1.4	0.16	13280	0	0	0	0	0	0	FG
1555	1.03	0.17	9265	0	0	0	0	0	0	FG
1665	1.07	0.22	10200	0	0	0	0	0	0	FG
1756	2.73	0.4	18348	389	397	326	430	357	256	FG
1820	3.46	1.5	23951	720	484	280	399	151	120	FG
1827	7.47	1.5	58038	1852	1180	664	917	490	364	FG
1845	3.49	0.7	23316	633	311	169	229	136	102	TG
1905	7.03	4.0	50683	1324	228	248	170	164	81	TG
1923	6.38	4.0	46061	1260	205	215	138	119	57	FG
1952	3.38	2.5	23734	648	188	99	110	71	45	FG
1962	1.36	0.7	9319	257	72	50	52	56	35	FG
1975	3.17	1.0	27202	564	59	83	50	57	27	FG
2068	1.37	0.5	10514	173	27	5	5	4	3	FG
2084	1.93	0.5	14923	469	106	21	14	6	2	FG
2105	2.45	0.5	20445	670	151	33	19	7	2	FG
2108	2.28	0.5	17536	599	128	26	15	7	2	FG

4 .5 Geological result

Refer to Figure 4.3.

There are minor differences in the actual versus the prognosed stratigraphy in the Quaternary and Tertiary sequences. The formation tops in this part of the well are 20 - 35 m shallower than prognosed, except top Kai Formation which is 25 m deeper. Top Tang Formation was not prognosed, but was encountered at depth corresponding to prognosed Cretaceous. The actual Cretaceous is approx. 30 m deeper than prognosed. The uppermost part of the Cretaceous sequence is the Springar Formation, which was not prognosed. The Top Jurassic (Melke Formation) is encountered where sandstones of the Garn Formation were prognosed. The top Åre Formation is in accordance with the uncertainties in the prognosis. Neither the Garn, Ile nor the Tofte Formations were encountered, as expected, in this well. The Melke, Not and Åre Formations constitute the reservoir section in this well, which differ from the prediction.

4 .6 Formation pressure

Figures 4.4a, 4.4b and 4.5 show the pore pressure gradient, leak-off test values, overburden gradient and relevant drilling and log data from well 6608/10-6. The pore pressure evaluation is mainly based on the sonic log using the Skagen method (Eaton equals matrix stress), but drilling parameter also indicate a similar pressure profile. In the reservoir section pressure data from the MDT log is used.

The overpressured formations in this area represent the lower part of Tertiary and Cretaceous sections. Most of these formations poor developed or not present in the well, and therefore just a minor section with low overpressure were present.

A normal pore pressure gradient of 1.03 sg is estimated down to approximately 1480 m MD where an increase starts (Fig. 4.6). At 1620 m MD the pressure gradient is calculated to 1.19 sg which is the maximum pore pressure gradient for the well. From this depth a decline starts and in the shale just above the Melke sandstone a gradient of 1.09 sg is estimated.

4 .6 .1 Reservoir pressure summary

At top of the Melke sandstone, the pore pressure gradient is measured to be 1.09 sg. An oil column with a density of 0.72 sg is present down to 1855 m MD. The shale section from 1850 to 1855 m MD acts as a pressure barrier and a pressure drop of 5 Bar is observed across this shale. At the top of the Åre Fm sandstone at 1855 m MD, a pore pressure gradient of 1.05 sg is measured. In the hydrocarbon section from 1855 down to the first water filled sand at 1994 meter an oil column with a density of approximately 0.79 sg is present. This section consists of several pressure regimes. The main pressure regime is in the interval from 1855 to 1930 m MD. Below the sandstone at 1930 m MD there is an impermeable zone of 8 meter over which a pressure increase of 0.4 Bar is observed.

This pressure regime is maintained down to approximately 1950 m MD were a decline starts. The Åre Fm interval from 1950 m MD down to the first water filled sand at 1994 m MD is very laminated with layers of shale, coal and sandstone. Reliable pressure measurement was obtained in a few of these sand intervals and it , and it seems most likely that this zone contains of several different pressure compartments. The last pressure point in the oil zone at 1982 m MD nearly falls on the prolonged oil gradient from the upper zone (1855 m MD to 1930 m MD). In the water zone a pore pressure representing 1.03 sg equivalent mudweight is measured. This pressure gradient is maintained down to TD. The water gradient (density) in the lower Åre Fm is estimated to be 1.01 sg.

Two MDT runs were performed in connection with the TD logging (Table 4.4 and 4.5). In the first run, formation pressures were measured in Melke, Not and Åre sands zones. One oil and one water sample were collected in the Åre Formation. The tool got stuck when collecting the water sample at 1994.8 m MD and had to be fished. In this run oil sampling in the Melke Formation was also attempted, but the sand was too unconsolidated (tool plugging) to get a sample with the probe module.

After fishing the MDT tool, a second run was performed. In this run the Dual Packer were included to increase the probability of getting an oil sample in the Melke Formation. More formation pressures were also taken and oil samples in the Åre and Melke Formations were collected using the Dual Packer module. To reduce the chance of getting stuck the tool configuration was changed from the first run to the second run (probe positioned at the bottom of the tool string and the 18 gallon chamber configured for sampling using conventional Trottelig technique). This resulted in plugging of the 18 Gallon chamber.

Figure 4.6 shows the measured formation pressure in the Jurassic sandstone. The plot is presented in meter MD

Quality of the oil samples was good, but the water sample some polluted with mud filtrate reducing the quality of the sample. A summary of the sampling is listed in chapter 1.4.7

The following analysis is performed on the samples:

PVT Report - Samples from Svale, Melke fm.	Oilphase
PVT Report - Samples from Svale, Åre fm.	Oilphase
PVT Report - Samples from Svale, Lower Åre fm.	Oilphase
Crude Oil Assay, Svale 6608/10-6	Statoil
Wax and Asphaltene Study, 6608/10-6	CoreLab
Reservoir Fluid Viscosity Analysis, 6608/10-6	CoreLab
TBP-Distillation and Hydrocarbon Analysis, 6608/10-6, Melke Fm.	West Lab
TBP-Distillation and Hydrocarbon Analysis, 6608/10-6, Åre Fm.	West Lab
TBP-Distillation and Hydrocarbon Analysis, 6608/10-6, Lower Åre Fm.	West Lab
Water analysis	Statoil

Table 4.4 MDT run 1A

Test No.	Formation	DEPTH mMD	mTVD RKB	mMSL	Hydrostatic Before BARS	After BARS	Formation BARS	SG EMW RT	SG EMW SS	Mobility MD/CP	Comments
1	Melke Fm.	1815	1814.9	1778.91	237.87	237.85	193.63	1.088	1.110	18.9	Good
2	Melke Fm.	1821.5	1821.4	1785.41	238.68						Probe retracted, pressure decreasing
2	Melke Fm.	1821.5	1821.4	1785.41		238.65	195,48?			26,1?	Pressure decreasing, plugging ?
3	Melke Fm.	1826.5	1826.4	1790.41	238.31	238.33	194.42	1.085	1.107	57.1	Good
4	Melke Fm.	1830.5	1830.4	1794.41	239.83	239.83	194.79	1.085	1.107	3,6?	Limited volume, pressure prob. OK
5	Melke Fm.	1838	1837.9	1801.91	240.8	240.81	195,69?				Pressure not stable
6	Melke Fm.	1838.5	1838.4	1802.41	240.83	240.86	195.25	1.083	1.104	68.8	Good
7	Melke Fm.	1843	1842.9	1806.91	241.44	241.43	195.59	1.082	1.104	4.3	Poor/Moderate
8	Åre Fm	1864	1863.9	1827.91	244.15	244.13	191.6	1.048	1.069	6	Poor/Moderate
9	Åre Fm	1880	1879.9	1843.91	246.2	246.2	192.49	1.044	1.064	313	Good
10	Åre Fm	1884.5	1884.4	1848.41	246.78	246.78	192.89	1.044	1.064	165.3	Good
11	Åre Fm	1892.5	1892.4	1856.41	247.81	247.8	193.42	1.042	1.062	10,6?	Poor
12	Åre Fm	1897	1896.9	1860.9	248.4	248.38	194.02	1.043	1.063	105,1?	Good
13	Åre Fm	1905.4	1905.3	1869.3	249.5	249.47	194.45	1.040	1.061	1062	Excellent
14	Åre Fm	1910.5	1910.4	1874.4	250.14	250.2	194.92	1.040	1.060	9469	Excellent
15	Åre Fm	1920	1919.9	1883.9	251.35	251.33	195.71	1.039	1.059	815	Excellent
16	Åre Fm	1939.5	1939.4	1903.4	253.88	253.87	197.76	1.040	1.059	1315	Excellent
17	Åre Fm	1953.5	1953.4	1917.4	256.68	255.67	199.33	1.040	1.060	3.1	Poor, not stable
18	Åre Fm	1967.3	1967.2	1931.2	257.41	257.42					Tight
19	Åre Fm	1982	1981.9	1945.9	258.32	259.3	200.68	1.032	1.051	36.7	Moderate
20	Åre Fm	1995	1994.9	1958.9	260.92	260.91	201.57	1.030	1.049	78.3	Good, lost seal on first attempt
21	Åre Fm	2003	2002.9	1966.9	261.97	261.96	202.26	1.030	1.048	642	Excellent
22	Åre Fm	2015.6	2015.5	1979.49	263.58	263.56	203.47	1.029	1.048	1723	Excellent
23	Åre Fm	2033	2032.9	1996.89	265.82	265.82	205.2	1.029	1.048	254	Good
24	Åre Fm	2040.5	2040.4	2004.39	266.79	266.8	205.95	1.029	1.048	2130	Excellent
25	Åre Fm	2071	2070.9	2034.89	270.76	270.74	208.98	1.029	1.047	1146	Excellent
26	Åre Fm	1905.4	1905.3	1869.3	249.2	249.2	194.44	1.040	1.060	585,2	Sampling, plugging/seal problem
27	Åre Fm	1920	1919.9	1883.9	251.2	251.2	195.67	1.039	1.059	26	Sampling, aborted
28	Åre Fm	1910.5	1910.4	1874.4	249.92		194.87	1.040	1.060	344	Sampling
29	Melke Fm.	1826.5	1826.4	1790.41	239.1	239.1	194.39	1.085	1.107	120	Sampling, plugging/seal problem
30	Melke Fm.	1838.5	1838.4	1802.41	240.6	240.6	195.3	1.083	1.105	69	Sampling, plugging/seal problem
31	Melke Fm.	1839.5	1839.4	1803.41	240.4	240.4	NA			NA	No seal
32	Melke Fm.	1838.2	1838.1	1802.11	240.2	240.2	NA			NA	No seal
33	Melke Fm	1839	1838.9	1802.91	240.7	240.7	NA			NA	Sampling, poor permeability
34	Melke Fm	1826	1825.9	1789.91	238.89	238.89	NA			NA	Sampling, poor permeability
35	Melke Fm	1827	1826.9	1790.91	239	239.02	194.43	1.085	1.107	NA	Sampling, high drawdown
36	Åre Fm	1994.8	1994.7	1958.7	260.8		201.69	1.031	1.050	NA	Water sample

Table 4.5 MDT run 1B

Test No.	Formation	DEPTH mMD	DEPTH mTVD RKB	DEPTH mMSL	Hydrostatic Before BARS	Hydrostatic After BARS	Formation BARS	Formation SG EMW RT	Formation SG EMW SS	Mobility MD/CP	Comments
1	Melke Fm.	1826.7	1826.6	1790.61	240.74		194.55	1.086	1.108	43.2	Pressure from probe
2	Melke Fm.	1826.7	1826.6	1790.61	240.94		195.90 ?	0.000	0.000		Pressure slightly increasing. Sample.
3	Åre Fm	1859.7	1859.7	1823.7	244.61		191.34 ?	0.000	0.000	1.2	Pressure still increasing
4	Åre Fm	1859.5	1859.4	1823.41	244.6			0.000	0.000		Aborted, press. still incr.
5	Åre Fm	1859.9	1859.8	1823.81	244.65		191.45	1.049	1.070		Supercharge ?
6	Åre Fm	1864	1863.9	1827.91	245.22	245.2	191.51	1.047	1.068	12.1	Good/medium
7	Åre Fm	1868	1867.9	1831.91	245.72	245.73	192.099	1.048	1.069	1	Poor
8	Åre Fm	1875	1874.9	1838.91	246.64	246.22	192.215	1.045	1.066	5	Medium
9	Åre Fm	1859.2	1859.1	1823.11	244.6	244.59	191.03	1.048	1.068	40	Good
9	Åre Fm	1923.7	1923.6	1887.6	252.97	252.96	196.03	1.039	1.059	1118	Excellent
10	Åre Fm	1940.5	1940.4	1904.4	255.16		197.9	1.040	1.059	1232	Excellent
11	Åre Fm	1953.5	1953.4	1917.4	256.86	256.88	199.02	1.039	1.058	121.6	Good
12	Åre Fm	1959.1	1959.0	1923	257.61		199.44	1.038	1.057	56.3	Good
13	Are Fm.	1967.1	1967.0	1931	258.67	258.7	199.72	1.035	1.054	51.5	Good
14	Åre Fm.	1940.5	1940.5	1904.5	255.62			0.000	0.000		Sample with dual packer.

A summary of the collected samples is listed in Table 1.5 in Chapter 1.4.7.

4 .7 Leak off test

The LOT below the 13 3/8" casing at 1398 m MD showed a value of 1.76 sg equivalent mud weight.

When drilling the section 1627 m MD to 1652 m MD, with a mud weight of 1.3 sg (ECD 1.37 sg) mud losses with a rate of approximately 12 m^3/hrs was observed. Both on seismic and wireline data indicate presence of faults in this section. After this zone was penetrated the mud losses disappeared.

4 .8 Formation temperature

Based on extrapolated log temperatures , a average temperature gradient of 4.35 °C/100 meter is calculated from seabed down to top of the Melke sandstone at 1859 m MD. Below this depth a temperature gradient of 3.5 °C/100 meter is assumed. This lower gradient in the reservoir is based on temperature from DST is the area.

Temperature data have been corrected using the Horner plot technique.

The time elapsed from the circulation stopped and until the last temperature measurement was nearly 6 days. This resulted in that the last recorded temperature from downhole thermometers was nearly reading the true formation temperature.

Measured and extrapolated temperatures from wireline logs are listed in Table 4.6

Table 4.6

Log combination	Depth of measurement m MD RT	Recorded max temperature °C	Time since last circulation hrs	Evaluated temperature
HALS/PEX	2077	59,59,60	17.9	72.4°C @ 2030 m MD RT
MDT/GR	2030	63,63,65	39.8	
FMI	2084	68,68,69	107.3	
MDT/GR	1967,1	69	129,7	
VSP	2051	71,71,71	141.9	

6608/10-6
Formation pressures

STATOIL

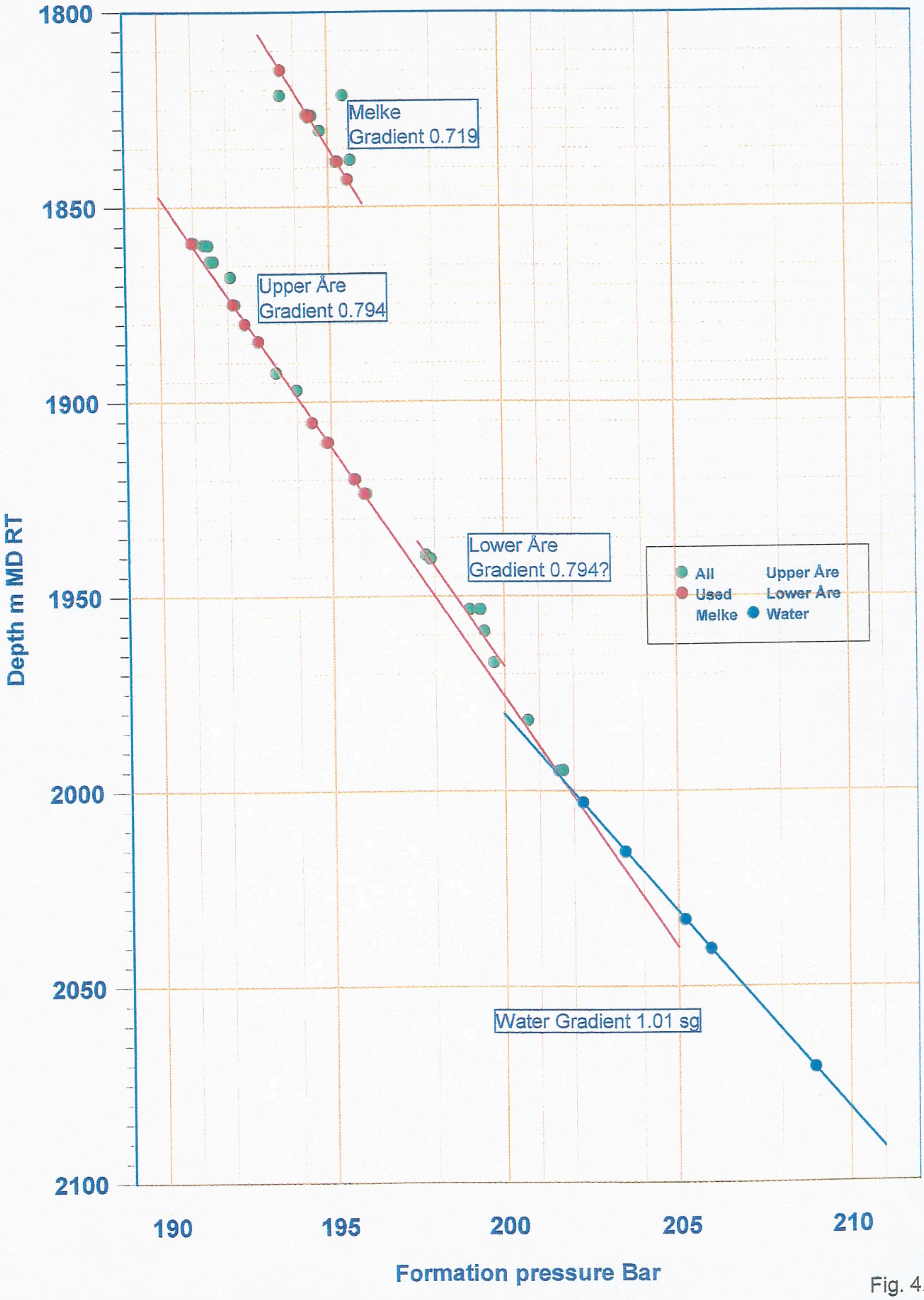
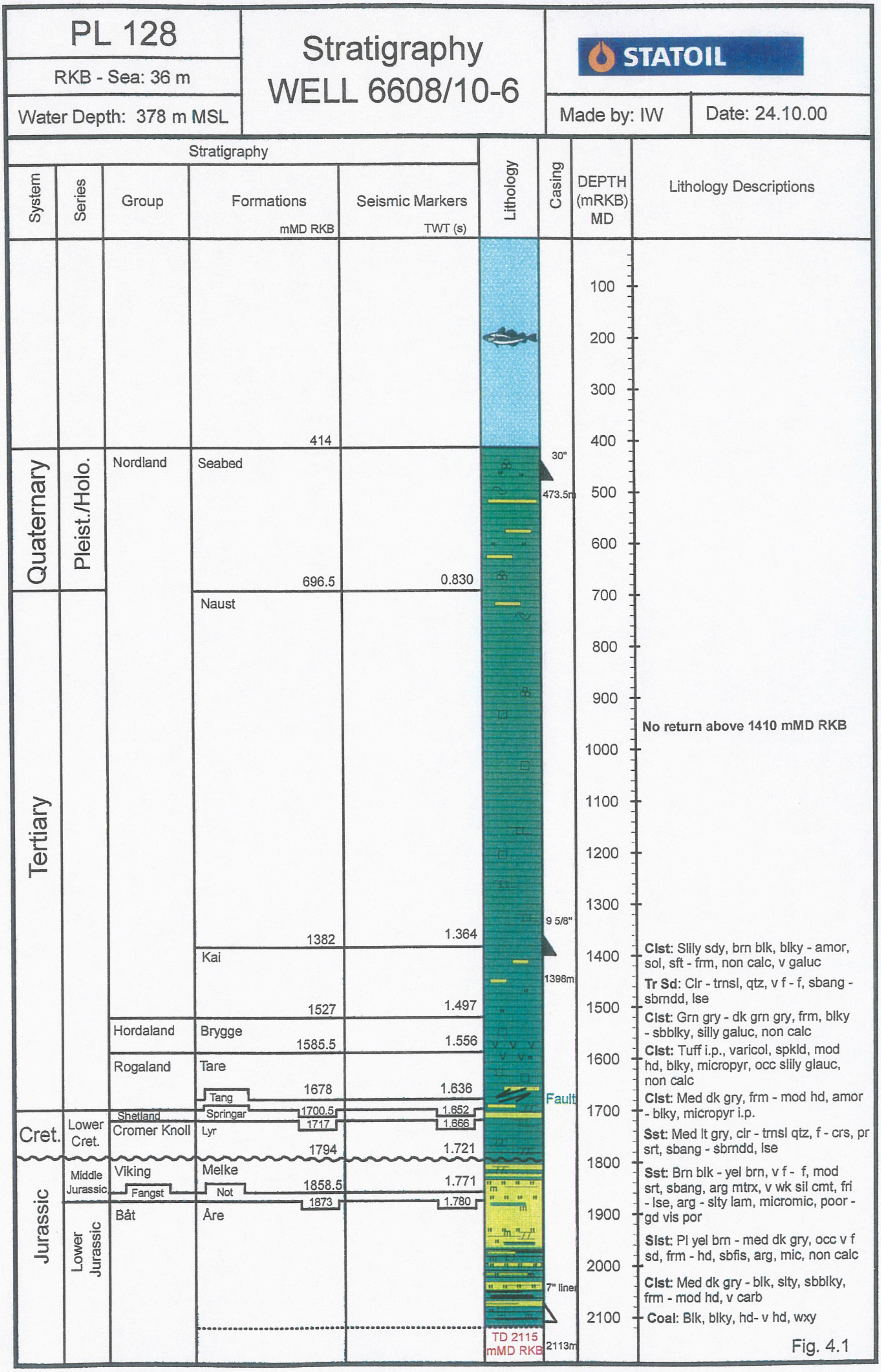


Fig. 4.5



PL 128
RKB - Sea: 36 m
Water Depth: 378 m MSL
Stratigraphy
WELL 6608/10-6
STATOIL
Made by: IW
Date: 24.10.00
Stratigraphy
System
Series
Group
Formations
mMD RKB
Seismic Markers
TWT (s)
Lithology
Casing
DEPTH (mRKB) MD
Lithology Descriptions
Quaternary
Pleist./Holo.
Tertiary
Cret.
Lower Cret.
Jurassic
Middle Jurassic
Lower Jurassic
Nordland
Hordaland
Rogaland
Shetland
Cromer Knoll
Viking
Fangst
Båt
Seabed
Naust
Kai
Brygge
Tare
Tang
Springar
Lyr
Melke
Not
Åre
414
696.5
1382
1527
1585.5
1678
1700.5
1717
1794
1858.5
1873
0.830
1.364
1.497
1.556
1.636
1.652
1.666
1.721
1.771
1.780
30"
473.5m
9 5/8"
1398m
Fault
7" liner
2113m
TD 2115 mMD RKB
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
No return above 1410 mMD RKB
Clst: Slily sdy, brn blk, blky - amor, sol, sft - frm, non calc, v galuc
Tr Sd: Clr - trnsl, qtz, v f - f, sbang - sbrndd, lse
Clst: Grn gry - dk grn gry, frm, blky - sbblky, silly galuc, non calc
Clst: Tuff i.p., varicol, spkld, mod hd, blky, micropyr, occ slily glauc, non calc
Clst: Med dk gry, frm - mod hd, amor - blky, micropyr i.p.
Sst: Med lt gry, clr - trnsl qtz, f - crs, pr srt, sbang - sbrndd, lse
Sst: Brn blk - yel brn, v f - f, mod srt, sbang, arg mtrx, v wk sil cmt, fri - lse, arg - slty lam, micromic, poor - gd vis por
Slst: Pl yel brn - med dk gry, occ v f sd, frm - hd, sbfis, arg, mic, non calc
Clst: Med dk gry - blk, slty, sbblky, frm - mod hd, v carb
Coal: Blk, blky, hd- v hd, wxy

Fig. 4.1

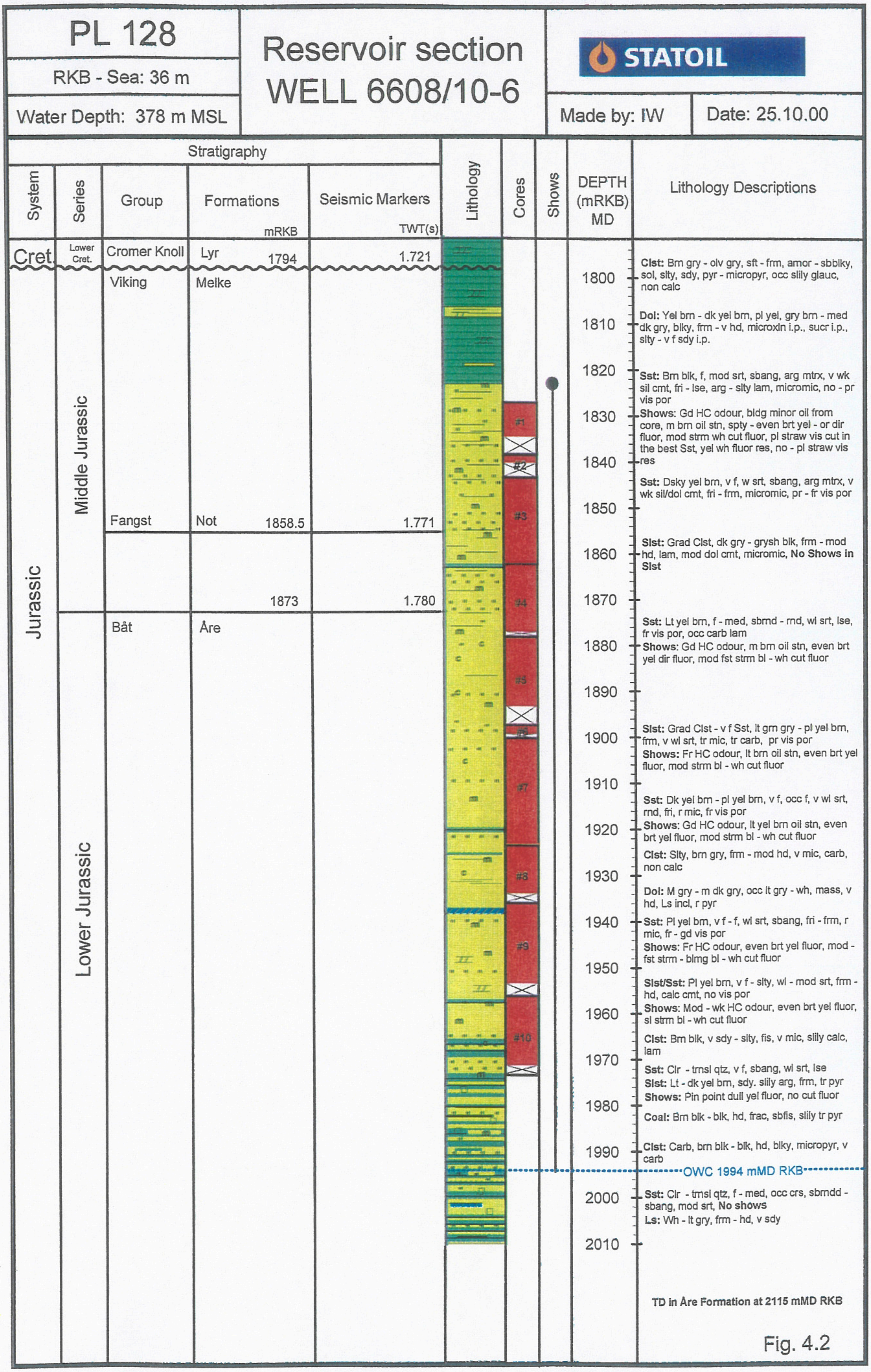

PL 128
RKB - Sea: 36 m
Water Depth: 378 m MSL
Reservoir section
WELL 6608/10-6
STATOIL
Made by: IW
Date: 25.10.00
Stratigraphy
System
Series
Group
Formations
mRKB
Seismic Markers
TWT(s)
Lithology
Cores
Shows
DEPTH (mRKB) MD
Lithology Descriptions
Cret.
Lower Cret.
Cromer Knoll
Lyr
1794
1.721
Jurassic
Middle Jurassic
Viking
Melke
Fangst
Not
1858.5
1.771
1873
1.780
Lower Jurassic
Båt
Åre
#1
#2
#3
#4
#5
#6
#7
#8
#9
#10
1800
1810
1820
1830
1840
1850
1860
1870
1880
1890
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
2010
Clst: Brn gry - olv gry, sft - frm, amor - sbblky, sol, slty, sdy, pyr - micropyr, occ slily glauc, non calc
Dol: Yel brn - dk yel brn, pl yel, gry brn - med dk gry, blky, frm - v hd, microxln i.p., sucr i.p., slty - v f sdy i.p.
Sst: Brn blk, f, mod srt, sbang, arg mtrx, v wk sil cmt, fri - lse, arg - slty lam, micromic, no - pr vis por
Shows: Gd HC odour, bldg minor oil from core, m brn oil stn, spty - even brt yel - or dir fluor, mod strm wh cut fluor, pl straw vis cut in the best Sst, yel wh fluor res, no - pl straw vis res
Sst: Dsky yel brn, v f, w srt, sbang, arg mtrx, v wk sil/dol cmt, fri - frm, micromic, pr - fr vis por
Slst: Grad Clst, dk gry - grysh blk, frm - mod hd, lam, mod dol cmt, micromic, No Shows in Slst
Sst: Lt yel brn, f - med, sbrnd - rnd, wl srt, lse, fr vis por, occ carb lam
Shows: Gd HC odour, m brn oil stn, even brt yel dir fluor, mod fst strm bl - wh cut fluor
Slst: Grad Clst - v f Sst, lt grn gry - pl yel brn, frm, v wl srt, tr mic, tr carb, pr vis por
Shows: Fr HC odour, lt brn oil stn, even brt yel fluor, mod strm bl - wh cut fluor
Sst: Dk yel brn - pl yel brn, v f, occ f, v wl srt, rnd, fri, r mic, fr vis por
Shows: Gd HC odour, lt yel brn oil stn, even brt yel fluor, mod strm bl - wh cut fluor
Clst: Slty, brn gry, frm - mod hd, v mic, carb, non calc
Dol: M gry - m dk gry, occ lt gry - wh, mass, v hd, Ls incl, r pyr
Sst: Pl yel brn, v f - f, wl srt, sbang, fri - frm, r mic, fr - gd vis por
Shows: Fr HC odour, even brt yel fluor, mod - fst strm - blmg bl - wh cut fluor
Slst/Sst: Pl yel brn, v f - slty, wl - mod srt, frm - hd, calc cmt, no vis por
Shows: Mod - wk HC odour, even brt yel fluor, sl strm bl - wh cut fluor
Clst: Brn blk, v sdy - slty, fis, v mic, slily calc, lam
Sst: Clr - trnsl qtz, v f, sbang, wl srt, lse
Slst: Lt - dk yel brn, sdy. slily arg, frm, tr pyr
Shows: Pin point dull yel fluor, no cut fluor
Coal: Brn blk - blk, hd, frac, sbfis, slily tr pyr
Clst: Carb, brn blk - blk, hd, blky, micropyr, v carb
OWC 1994 mMD RKB
Sst: Clr - trnsl qtz, f - med, occ crs, sbrndd - sbang, mod srt, No shows
Ls: Wh - lt gry, frm - hd, v sdy
TD in Åre Formation at 2115 mMD RKB

Fig. 4.2

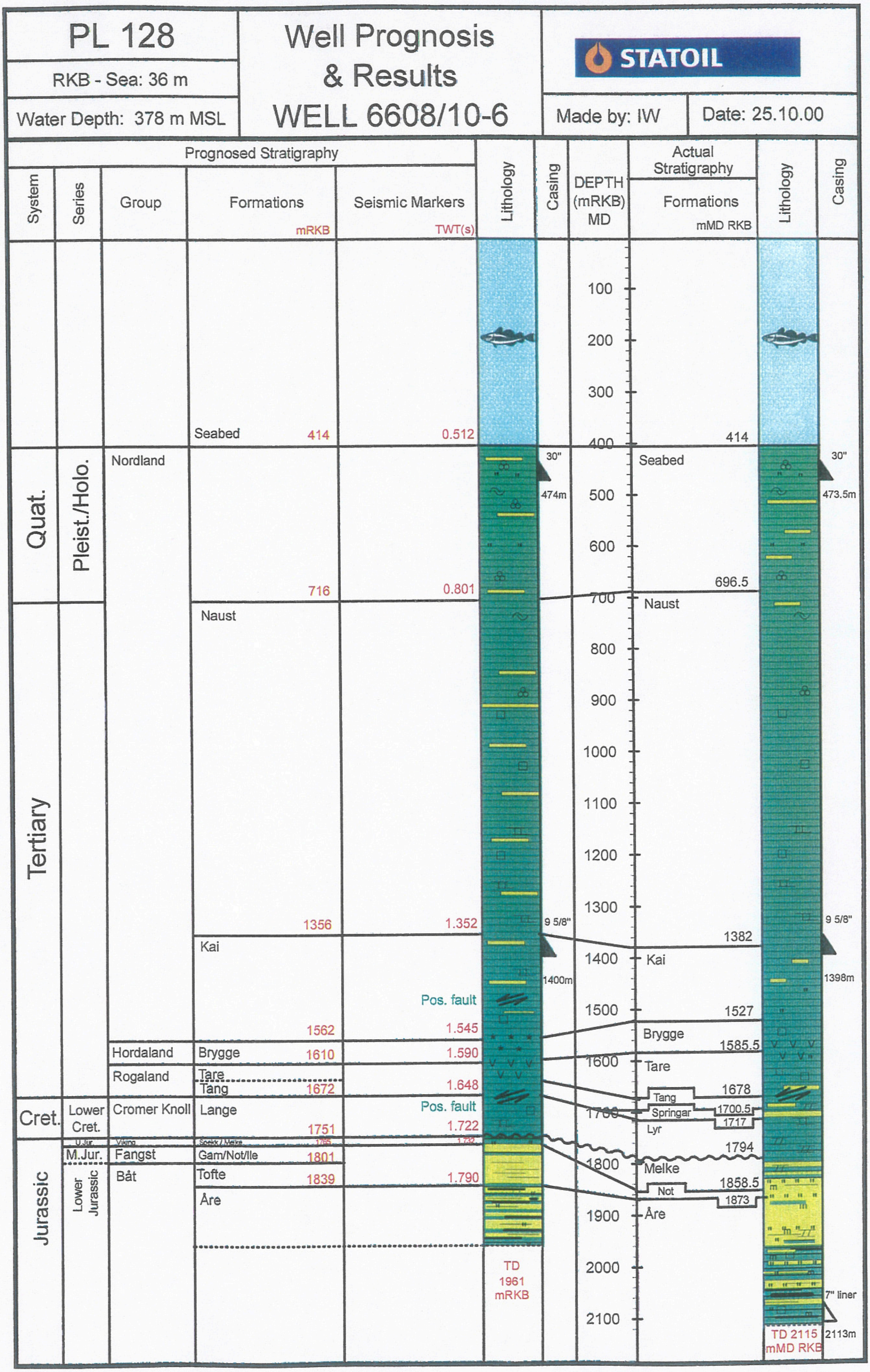

PL 128
RKB - Sea: 36 m
Water Depth: 378 m MSL
Well Prognosis & Results
WELL 6608/10-6
STATOIL
Made by: IW
Date: 25.10.00
Prognosed Stratigraphy
System
Series
Group
Formations mRKB
Seismic Markers TWT(s)
Lithology
Casing
DEPTH (mRKB) MD
Actual Stratigraphy
Formations mMD RKB
Lithology
Casing
Seabed 414 0.512
Quat.
Pleist./Holo.
Nordland
716 0.801
Naust
Tertiary
1356 1.352
Kai
Pos. fault
1562 1.545
Hordaland
Brygge 1610 1.590
Rogaland
Tare
Tang 1672 1.648
Cret.
Lower Cret.
Cromer Knoll
Lange
Pos. fault
1751 1.722
U.Jur.
Viking
M.Jur.
Fangst
Gam/Not/Ile 1801
Jurassic
Lower Jurassic
Båt
Tofte 1839 1.790
Åre
TD 1961 mRKB
30"
474m
9 5/8"
1400m
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
414
Seabed
696.5
Naust
1382
Kai
1527
Brygge
1585.5
Tare
1678
Tang
1700.5
Springar
1717
Lyr
1794
Melke
1858.5
Not
1873
Åre
TD 2115 mMD RKB
30"
473.5m
9 5/8"
1398m
7" liner
2113m

Fig. 4.3

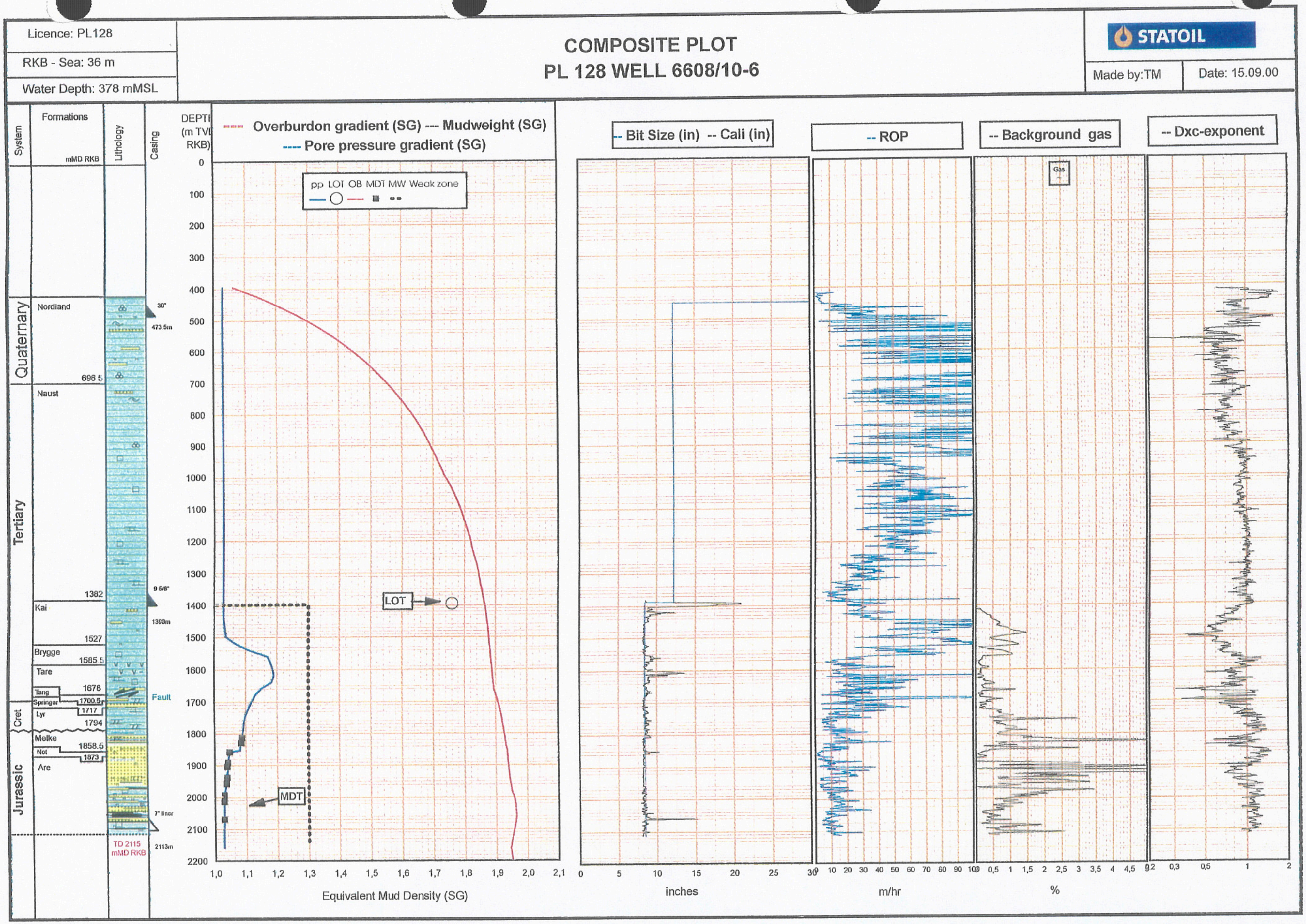
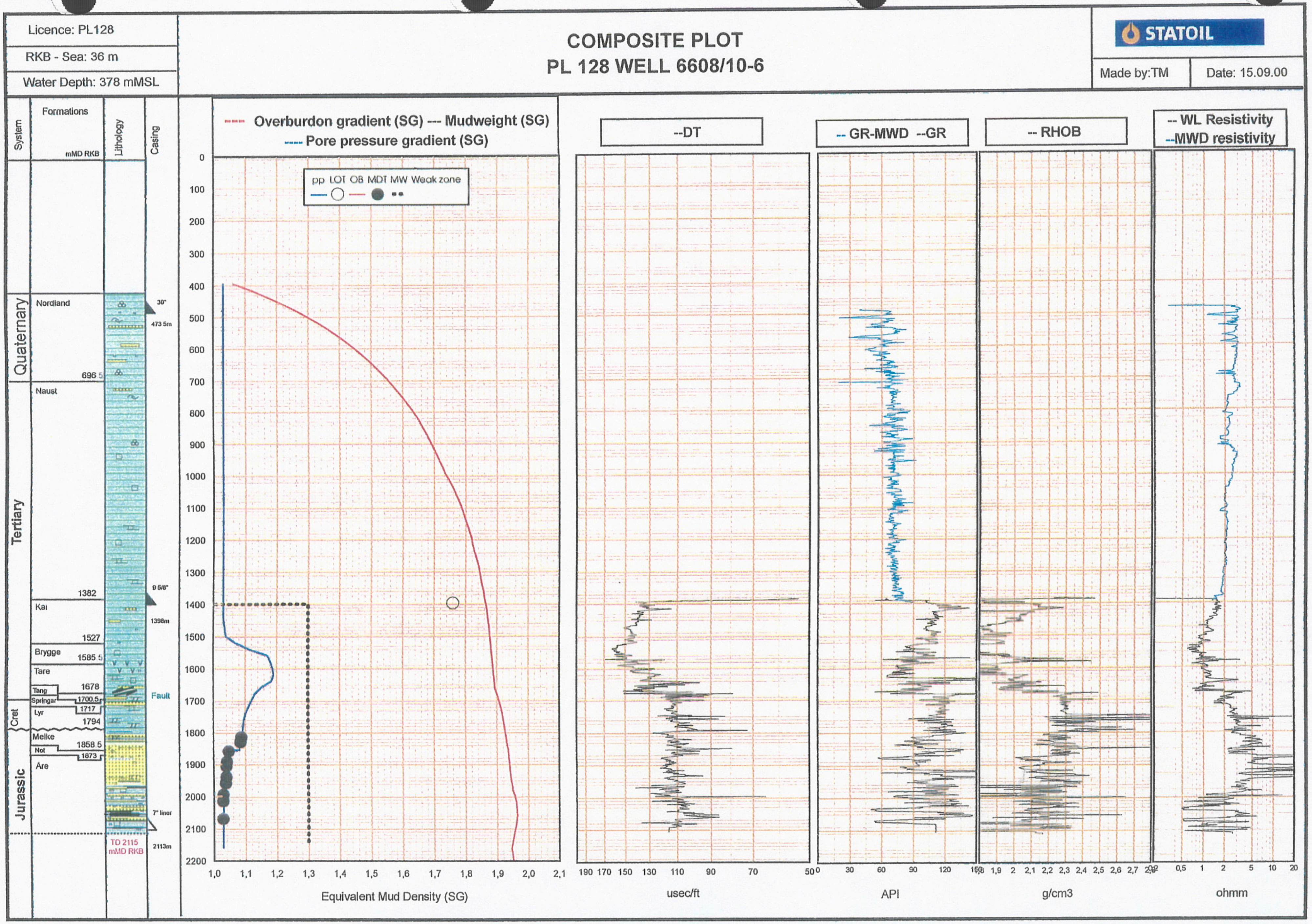

Licence: PL128
RKB - Sea: 36 m
Water Depth: 378 mMSL
COMPOSITE PLOT
PL 128 WELL 6608/10-6
STATOIL
Made by:TM
Date: 15.09.00
System
Formations
mMD RKB
Lithology
Casing
DEPTH (m TVD RKB)
Overburdon gradient (SG) --- Mudweight (SG)
---- Pore pressure gradient (SG)
pp LOT OB MDT MW Weak zone
LOT
MDT
Equivalent Mud Density (SG)
-- Bit Size (in) -- Cali (in)
inches
-- ROP
m/hr
-- Background gas
Gas
%
-- Dxc-exponent
Quaternary
Tertiary
Cret
Jurassic
Nordland
Naust
Kai
Brygge
Tare
Tang
Springar
Lyr
Melke
Not
Are
696.5
1382
1527
1585.5
1678
1700.5
1717
1794
1858.5
1873
30"
473.5m
9 5/8"
1393m
Fault
7" liner
2113m
TD 2115 mMD RKB

Fig. 4.4a



Licence: PL128
RKB - Sea: 36 m
Water Depth: 378 mMSL
COMPOSITE PLOT
PL 128 WELL 6608/10-6
STATOIL
Made by:TM
Date: 15.09.00
System
Formations
mMD RKB
Lithology
Casing
Quaternary
Tertiary
Cret
Jurassic
Nordland
Naust
Kai
Brygge
Tare
Tang
Springar
Lyr
Melke
Not
Are
696.5
1382
1527
1585.5
1678
1700.5
1717
1794
1858.5
1873
30"
473.5m
9 5/8"
1398m
Fault
7" liner
2113m
TD 2115 mMD RKB
Overburdon gradient (SG) --- Mudweight (SG)
---- Pore pressure gradient (SG)
pp LOT OB MDT MW Weak zone
Equivalent Mud Density (SG)
--DT
usec/ft
-- GR-MWD --GR
API
-- RHOB
g/cm3
-- WL Resistivity
--MWD resistivity
ohmm

Fig. 4.4b

PL 128, WELL: 6608/10-6	Pressure Profile WELL 6608/10-6	STATOIL
RKB - Sea: 36 m		Made by: TM/IW
Water Depth: 378 m MSL		Date: 07.09.00

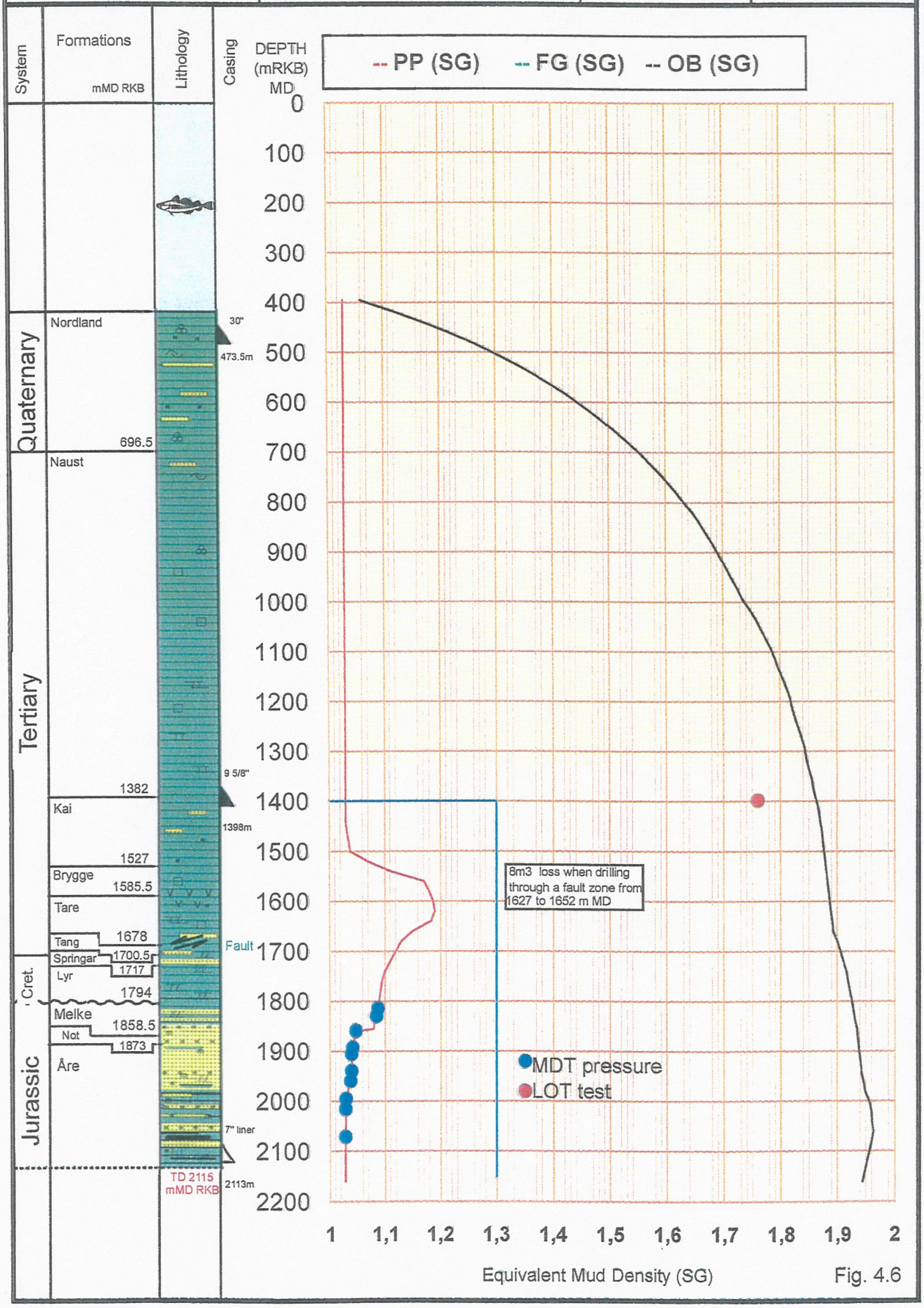


Fig. 4.6

PL 128, WELL: 6608/10-6	Temperature Profile WELL 6608/10-6	STATOIL
RKB - Sea: 36 m		Made by: TM/DA
Water Depth: 378 m MSL		Date: 29.06.00

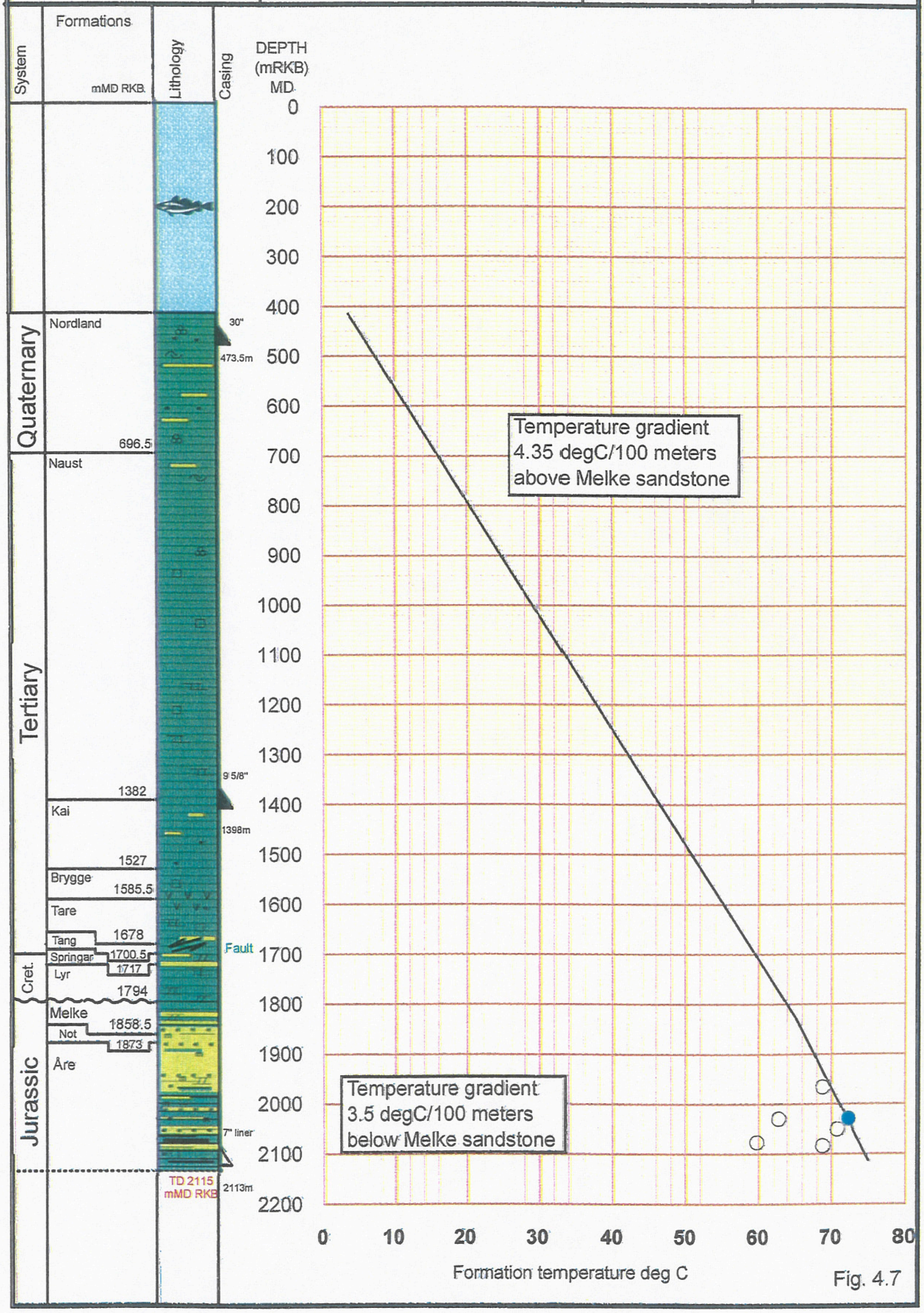


Fig. 4.7

5 Drilling operations report

5.1 Rig move and positioning

5.1.1 Summary

West Navion was on Statoil contract when passing Kvitsøy outside Stavanger after leaving the shipyard in Sandnes. It sailed the 482 nm up to the well location with an average sailing speed of 11.9 nm/hr.

A drive-off test was performed on location to finalise the DP checklists/Well Specific Operating Guidelines.

5 transponders were run on a drill pipe with hooks and placed on the seabed with the ROV.

Prior to spudding, final testing and calibration of the vessel positioning system was completed.

5.1.2 Experiences / recommendations

- The transponders were run on a 5 1/2" drillpipe joint with a triple hook, using rig time in the main rig. When tripping in through the splash zone, 4 of the transponders were lost but were later located on the seabed by the ROV, and placed in position.
  Recommendation: On later operations the transponders should be run using the guideline winch and thereby freeing the rig for spudding operations.

5.2 36" hole section

5.2.1 Summary

The section was drilled from seabed at 414 m MD to 475 m MD with a BHA consisting of a 17 1/2" mill tooth bit, a two-stage 26" x 36" hole opener and an Anderdrift inclination tool to ensure a vertical hole. The hole was drilled with sea water in combination with high viscosity pills.

No indications of boulders were observed while drilling the tophole, and after a wipertrip the hole was displaced to 1.40 sg mud.

No drag was experienced while running in hole with the 30" conductor, and it was cemented with 3.5 m stick-up. Even though the visibility was poor with the ROV on the seabed, it was possible to confirm the returns with the ROV.

5.2.2 *Experiences / recommendations*

- Boulders have been experienced in a major part of the wells on the Norne field.
In this well no boulders were reported, but the average ROP was as low as 5 m/hr. The reason for this might be that the flowrate was as low as 2000-3000 lpm due to technical problems with one of the mud pumps. On the last part of the interval the flow was increased to 5500 lpm and the ROP increased immediately to above 10 m/hr. All nozzles on the 17 1/2" bit and parts of the holeopener were balled up.

  Recommendation: Maximum flowrate in the entire 36" section is essential to get as high ROP as possible and avoid balling up/plugging bit and holeopener. Once the holeopeners are below seabed, the flowrate should be increase to a maximum ("normal" practice has been to drill the first 10-15 m with reduced parameters).

- Accumulation of clay cuttings in combination with poor visibility made it impossible to read the bullseyes after the 30" conductor was landed (2 brackets w/bullseye was mounted 0.8 m below the top of 30" housing). The ROV was not equipped with any devices for cleaning of the bullseye, so the ROV was pulled to surface and a low pressure flush pump was installed. An attempt was also made to drop a brush down the ROV cable without success.

  Recommendation: The ROV should be equipped with a flushing pump prior to jump in sea to avoid any confusion regarding the bullseye readings after the 30" conductor is landed.

- An aluminium core inner barrel was used as cement stinger on the 30" conductor, mainly because this was the first cement job on a new rig. Additional time, compared to a standard 5 1/2" cement stinger, was used to make up the aluminium stinger to the running tool and run in hole. When the 30" running tool was pulled through rotary and the PS-30 slips bushing had to be removed, the cement stinger broke off below the running tool. the aluminium stinger dropped through the moonpool and landed on the seabed 30 m off the 30" housing.

  Recommendation: By using an aluminum/glassfibre cement stinger the risk for cementing the stinger is eliminated, but this operation has proven that using an "odd" cement stinger is much more time consuming on the rigfloor. For future wells it is still recommended to use standard 5 1/2" drill pipe as cement stinger, with a 3 1/2" joint at bottom to have the ability to perform a grouting job.

5.3 12 1/4" hole section

5.3.1 *Summary*

The drill string was guided into the 30" conductor housing using the dynamic positioning system on the rig.

A 12 1/4" pendulum assembly was used to drill directly out of the 30" conductor and 100 m of formation, when a round trip was necessary to change the MWD. After waiting on weather for 42 hours the drilling continued with the same BHA down to 9 5/8" casing depth at 1408 m MD. The section was drilled with seawater and hi-vis pills every 15 m. The hole was displaced to 1.30 sg KCl prior to running the 9 5/8" casing. A wipertrip was performed, and a maximum of 5-10 ton drag was experienced in the interval from 900 m MD to 1400 m MD.

The 18 3/4" wellhead housing was crossed over to 9 5/8" casing 11 m below top of housing (ref. 5.6.7). The 9 5/8" casing was run and cemented with the shoe at 1400 m MD, 18 m into the Kai Formation.

A total of 110 effective (uptime) hours was used to run the riser and BOP. A test of the "emergency-disconnect" sequence was performed prior the 8 1/2" section.

5.3.2 *Experiences / recommendations*

Drilling

- No problems were experienced when drilling directly out of the 30" conductor shoe with the 12 1/4" pendulum assembly, nor when running through the shoe with 9 5/8" casing. Normal practice has been to make an extra roundtrip with a 26" x 17 1/2" holeopener to drill out the 30" conductor shoe.

  Recommendation : Based on the experience from this well, this practice can be recommended in wells with similar casing design to save an extra bit trip. To get a "smooth" transition zone, the shoe and the rathole was drilled with a controlled rate in minor intervals, reaming often and circulating clean prior to drilling ahead.

- The MWD stopped pulsing when drilling out of the conductor because of cement fragments were circulated through the power turbine in the tool. No cement was observed when inspecting the connections visually when pulling out of hole, but the filter above the MWD tool was filled with cement fragments. The dedicated landing string for casing string had to be used for drilling, as technical problems made it impossible to build new stands of drillpipe. The cement job on the 30" conductor was done with the cement unit at low rate, and the landing string was not flushed through or drifted afterwards

  Recommendation : A flow of 1000-1200 lpm is insufficient to clean a 5 1/2" drillpipe for cement after a cement job. The pipe should have been flushed with maximum flowrate (+ 5000 lpm) prior to pulling out of hole, after the running tool was released.

- The section was drilled with an aggressive mill-tooth bit (1-3-5), GTXCG3 from Hughes Christensen. The bit was graded 7-7-BT, probably caused by the wash out of the centre nozzle at approx. 900 m MD and a malfunction of the rig's compensator system. A significant reduction of the penetration rate was observed towards the end of the section, giving a total average ROP of 40 m/hr.

  Recommendation : The excess wear is probably caused by the reasons mentioned above, and a mill-tooth bit is still recommended for high ROP in these formations in future wells.

- The pendulum BHA worked well in these soft formations, the hole was drilled vertically through the section and no indications of stick-slip/vibrations were observed on the MWD tool.

- A wipertrip was performed prior to running the 9 5/8" casing, using 8 hours. No drag was observed when pulling out prior to the wipertrip. Only peaks of 5-10 tons drag were observed while doing the wipertrip.

  Recommendation : In future wells in the area, if no drag is observed when pulling out of hole, a wipertrip might not be necessary.

Casing and cementing

- It was not possible to make up the 9 5/8" casing in doubles in the Auxiliary rig prior to running the string in the Main rig because the lower lifting arm (LLA) was out of function.

- The 18 3/4" housing did not lock in the 30" housing when the casing string was landed. The running tool was not released before the cement had set up to avoid the string floating up after cementing. **This must be taken into consideration when plugging the well permanently.**

  Recommendation: The wellhead should be examined onshore by ABB Vetco when the well is permanently plugged and the wellhead is cut and retrieved.

- The excess cement was increased from 50 % of open hole (as pr. Best Practices) to 150 % to ensure a proper cement job up to surface.

- The top plug did not dump because of a malfunction of the Halliburton remote operated cement head. The dart was locked in the cement head and the plug was not released. The displacement was stopped based and the stroke counters, due to uncertainty regarding number of mixing tanks used.
  As a result of this, the cement was found 90 m higher then expected inside the 9 5/8" casing causing 7 hours rig time to drill through the cement.

5.4 8 1/2" hole section

5.4.1 Summary

The hole was displaced to 1.30 sg KCl mud while drilling the rathole, and a LOT equal to 1.76 sg was performed.
The section was drilled down to coring point at 1827 m MD with an average ROP of 18 m/hr.

A total of 10 cores were cut in the reservoir.

After the coring was completed, the section was drilled to final TD at 2115 m MD with an average ROP of 9.9 m/hr.

5.4.2 *Experiences / recommendations*

Drilling

- The section was drilled with two mill-tooth bits; Reed HP21 (2-1-7) down to the reservoir and Smith MFDGHOD (1-3-7) after the coring. Both the bits were severely worn after drilling relatively short intervals (ref. Bit Record, Table 5.6.3).

  Recommendation: The clay formations below the reservoir are interbedded with hard sand- and limestone stringers, which probably are better drilled with PDC bits. A drillability study should be executed prior to drilling future wells in the area, as the ROP obtained in this well was lower than anticipated.

- While drilling at approx. 1620 m MD, a sudden loss of mud (8 m^3) to the formation was recorded.

  Recommendation: The flowrate was reduced from 2500 lpm to 2000 lpm, and the losses stopped. No further losses were experienced while drilling the rest of the section. The losses were probably a result of a prognosed fault at this depth.

- No wipertrip was performed prior to running in hole with the core BHA, and no problems were experienced when running in hole with the core BHA. A wipertrip was performed below the cored reservoir prior to wireline logging, only overpull peaks up to 10 tons were observed.

  Recommendation: In short, vertical sections the need for additional wipertrips should be evaluated, if no resistance are met when pulling out of hole.

5.5 Temporary plug and abandonment

5.5.1 *Summary*

Reference is made to *section 5.5.3- "P&A wellbore schematic"* and *section 5.6.6 - "P&A cementing program"*.

The well was temporary plugged and abandoned with a 7" liner installed for a possible DST at a later stage.

A Baker Oil Tools GT-2 packer was set at 653 m MD and pressure tested to 200 Bar from below/above.
The well above the packer was then displaced to treated brine, and a pill of corrosion inhibitor was left in the wellhead.

The well was left with a FMC trawl structure placed on the wellhead.

5.5.2 *Experiences / recommendations*

7" Liner

- 24 joints of 7" liner was made up in doubles in the Auxillary rig and racked back while wireline logging in the Main rig.

- Due to a leakage in the liner running tool, no cement was displaced through the shoe leaving all cement inside the liner and in the annulus above the liner hanger. The cement above the liner hanger was circulated out prior to pulling out of hole with the running tool. The cement inside the liner (180 m) was drilled with two 6" bits; the first insert bit (5-1-7) was not able to drill through the loose wiper plugs. The second bit (2-1-6) drilled through the plug and 180 meters of cement with an ROP of 11 m/hr.
  The packer was set during the initial cement job, and the liner was then cemented with a squeeze job through an EZSV set above the shoe at 2085 m MD. An USIT cement bond log was run after the squeeze, and TOC was found at 1640 m MD. This was as expected due to the mudlosses at this depth while drilling the section. The 7" liner and EZSV was pressure tested to 200 Bar. The leakage in the running tool caused a total of 4.7 days of D-time.

  Recommendation: Aggressive milled tooth should be preferred for drilling cement and plugs.

Baker Oil Tools GT-2 Bridge plug

- The packer was set on drillpipe with LT-CT retrieving head running tool from Baker Oil Tools. The same tool has to be mobilised to retrieve the plug.

FMC trawl structure

- The trawl structure was modified by ABB Vetco to fit the MS-700 wellhead system. Based on FMC's own recommendations, a temporary Abandon Cap Running tool was used to run the structure on drillpipe. When running the structure through the splash zone, all four shear pins in the running tool was incidentally sheared and the structure was lost and landed on bottom 40 m away from the BOP. The structure was lifted with four wire slings on drillpipe and landed on wellhead.

  Recommendation: The running tool is probably designed for running and retrieving TA caps, and the design is too weak to run a trawl structure. The trawl structure was easily lifted and placed on the wellhead with four wire slings.

  The same tool should be used for retrieving the trawl structure. The tool must then be fitted with retrieval pins to withstand the weight of the structure.

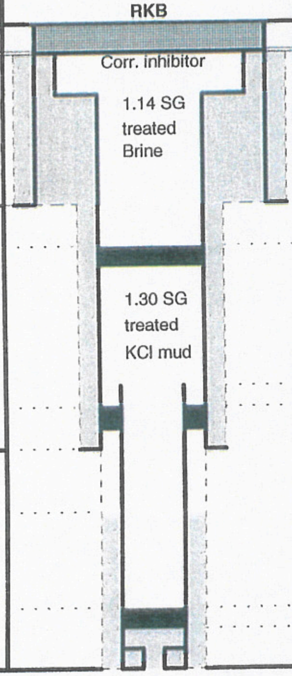
5.5.3 Temporary P&A well schematic

TEMPORARY P&A WELL SCHEMATIC

Well: 6608/10-6
Field: Exploration
Rig: West Navion

HOLE SIZE	HOLE TVD / MD	CASING SIZE	TYPE / RAD. MARKERS	CENTRALIZERS	TEST PRESS [BAR]	LOT FIT	TOC TVD	TOC MD	CSG. SHOE TVD	CSG. SHOE MD	P&A MD	P&A ITEMS
SB	414						surface	surface				FMC trawl deflector structure on WH (S/N 117617/0/0)
36"	475 475	**30"**	309.7 lb/ft, X-52, ST2 1 x 1.5" WT 4 x 1" WT		-	-			473,5	473,5		
12 1/4"	1410 1410	**20" x 9 5/8"**	53.5 lb/ft, P-110, AMS *20" WH is crossed over to 9 5/8" casing at 10.99 m below top 18 3/4" housing*	1 centr/jnt on 5 last jnts	200 (above/below) 200 200	LOT 1.76 SG			1398	1398	653 1353 1347	BOT GT-2 Retr. packer (S/N SRGT-46) Top PBR Top Liner packer
8 1/2"	2114 2114	**7"**	32 lb/ft, P-110, BDS	1970 - 2010 m (ref. Liner tally)	200	LOT 1.48 SG	1640 (from USIT)	1640	2113	2113	2085 2090	EZSV Landing collar

RKB



Comments :

5 .6 Figures and tables

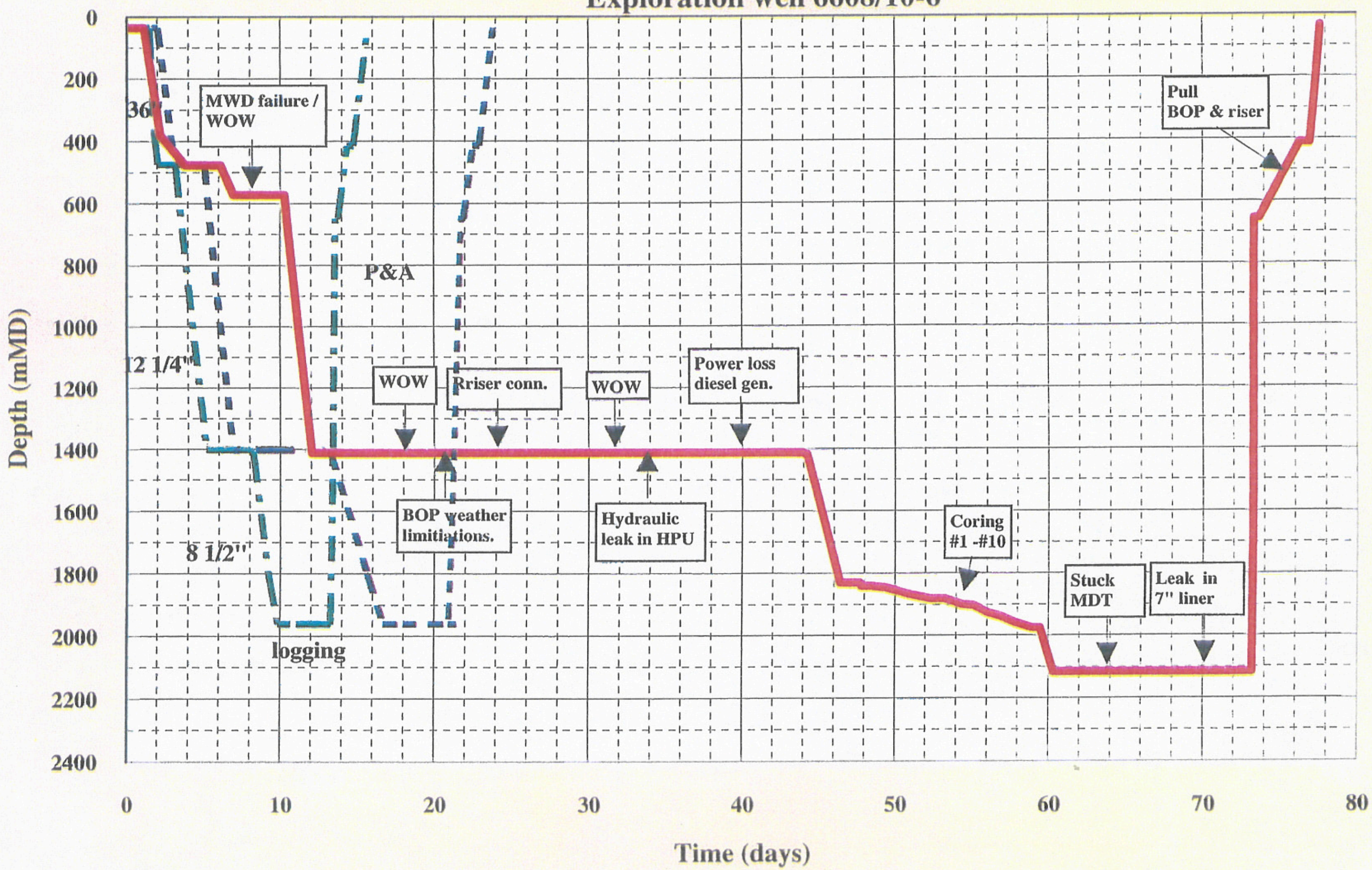
5 .6 .1 Time/depth curve

STATOIL

Time - Depth Plot

West Navion

Exploration well 6608/10-6



Budget time (days)
Optimum time (days)
Actual time (days)

Updated date/time:
Date: 28.06.00
Time: 11:01

Start date/time:
Date: 26.02.00
Time: 21:30

Finish date/time:
Date: 14.05.00
Time: 13:00

Total budget time:
23,8 days

Time used:
77,6 days

Time behind budget:
53,8 days

Comments:
Activities due to discovery (19.1 days) incl. :

coring (12.5 days)
WL logging 0.5 days
)
7" liner (5.5
days)
TD
drilling (0.5 days)

5.6.2 Timeplanner

Wed	28.06.00	11:01	Updated	
Sat	26.02.00	21:30	Start date	
Sun	14.05.00	13:00	Finish date	

TIMEPLANNER

STATOIL

West Navion

Exploration well 6608/10-6

Time behind budget:

53,8 days

DAY	START DATE	START TIME	Budg. time (hrs)	Acc. budg. time (days)	Budg. depth (mMD)	Plan time (hrs)	Actual time (hrs)	Acc. actual time (days)	Actual Depth (mMD)	S t a t	Rig (M/A)	Activity description	Company
												36" hole section (414 - 474 m)	
Sat	26.02.00	21:30	0,0	0,0	36	0,0	0,0	0,0	36	F		Start of 36" section	
Sat	26.02.00	21:30	48,0	2,0	36	40,5	26,5	1,1	36	F		Transit from Stavanger	
Mon	28.02.00	00:00	20,0	2,8	378	20,0	25,0	2,1	378	F	m	Positioning / DP test	Oceaneering
Tue	29.02.00	01:00	7,0	3,1	474	24,0	38,5	3,8	475	F	m	Drill 36" hole to 474 m	Anderdrift
Wed	01.03.00	15:30	2,0	3,2	474	2,0	2,5	3,9	475	F	m	Wipertrip	
Wed	01.03.00	18:00	1,0	3,3	474	1,0	0,5	3,9	475	F	m	Circulate hole clean and displace to 1.40 SG mud	
Wed	01.03.00	18:30	3,0	3,4	474	6,0	3,5	4,0	475	F	m	POOH	
Wed	01.03.00	22:00	20,0	4,2	474	12,0	19,0	4,8	475	F	a	RIH w/cmt. stinger / 30" WH and 30" conductor	ABB
Thu	02.03.00	17:00	9,0	4,6	474	9,0	11,5	5,3	475	F	a	Pump and displace cement. WOC / keep in tension	Halliburton
Fri	03.03.00	04:30	3,0	4,7	474	6,0	2,5	5,4	475	F	a	Release RT and landing string, POOH	ABB
Fri	03.03.00	07:00	8,0	5,0	478	12,0	15,5	6,0	475	F	m	RIH with 12 1/4" BHA and Drill out/clean up 30" shoe.	
Section time (days)			5,0			5,5	6,0					Section time ahead of/behind (-) budg:-1,0 days. Tot. time ahead of/behind (-) budg:-1,0 days	
												12 1/4" hole section (474 - 1400 m)	
Fri	03.03.00	22:30	0,0	5,0	478	20,5	20,5	6,9	570	F	m	Drilled to 570 m. MWD failure.	BHI
Sat	04.03.00	19:00	0,0	5,0	478	19,0	21,0	7,8	570	F	m	POOH to change MWD tool. MU new MWD. Start RIH.	
Sun	05.03.00	16:00	0,0	5,0	478	34,0	42,0	9,5	570	F	m	WOW.	
Tue	07.03.00	10:00	0,0	5,0	478	8,0	16,0	10,2	570	F	m	Cont. RIH with 12 1/4" BHA	
Wed	08.03.00	02:00	45,0	6,9	1400	34,0	42,5	12,0	1408	F	m	Drill to TD (40 m into Kai Fm.) ; meanwhile MU and run 9 5/8" casing to seabed in Aux.	Weatherford
Thu	09.03.00	20:30	4,0	7,1	1400	4,0	3,5	12,1	1408	F	m	Circulate hole clean and displace to 1.30 SG mud	
Fri	10.03.00	00:00	6,0	7,3	1400	15,0	15,0	12,7	1408	F	m	Wipertrip to 30" shoe	
Fri	10.03.00	15:00	6,0	7,6	1400	12,0	9,5	13,1	1408	F	m	Displace to 1.30 SG mud. POOH	
Sat	11.03.00	00:30	36,0	9,1	1400	18,0	33,0	14,5	1408	F	a	Run 18 3/4" x 9 5/8" casing from seabed to 1400 m	ABB / Weatherford
Sun	12.03.00	09:30	7,0	9,4	1400	7,0	4,0	14,7	1408	F	a	Pump and displace cement	Halliburton
Sun	12.03.00	13:30	6,0	9,6	1400	6,0	10,5	15,1	1408	F	a	Release RT and wash WH area. POOH; meanwhile prep. for running BOP in Main..	ABB
Mon	13.03.00	00:00	0,0	9,6	1400	0,0	34,0	16,5	1408	F	m	Start run BOP and riser. WOW.	
Tue	14.03.00	10:00	48,0	11,6	1400	47,0	69,0	19,4	1408	F	m	Cont. run BOP and riser (riser conn. on jnt. 5 cracked, pull out BOP for insp. of riser conn).	
Fri	17.03.00	07:00	0,0	11,6	1400	145,0	171,5	26,5	1408	F	m	Rerun BOP and riser, WOW. Observed leak in hydraulic system when landing BOP.	
Fri	24.03.00	10:30	0,0	11,6	1400	290,0	286,5	38,5	1408	F	m	Leakage in hydraulic system, troubleshooting/cleaning of entire system.	
Wed	05.04.00	09:00	0,0	11,6	1400	5,0	14,0	39,1	1408	F	m	Cont. land BOP and pressure test same.	
Wed	05.04.00	23:00	10,0	12,0	1400	65,0	68,5	41,9	1408	F	m	Performed 1. disconnect test, power loss - investigate power supply system. Re-latch LMRP.	ABB
Sat	08.04.00	19:30	0,0	12,0	1400	3,5	3,5	42,1	1408	F	m	Performed 2. disconnect test - negative. Performed 3. disc. test - OK. Land LMRP.	
Sat	08.04.00	23:00	0,0	12,0	1400	11,5	11,5	42,5	1408	F	m	Rig dow BOP handling equip. , prepared for running 8 1/2" BHA	
Sun	09.04.00	10:30	16,0	12,7	1400	25,0	32,5	43,9	1408	F	m	RIH w/ 8 1/2" BHA - function tested BOP and performed kick exercise	BHI
Mon	10.04.00	19:00	6,0	13,0	1405	3,0	6,0	44,1	1414	F	m	Drill shoetrack and 3 m of new formation while displacing to new 1.30 SG KCl mud	Anchor MI
Tue	11.04.00	01:00	6,0	13,2	1405	3,0	1,0	44,2	1414	F	m	Perform LOT	Halliburton
Section time (days)			8,2			32,3	38,1					Section time ahead of/behind (-) budg:-30,0 days, Tot. time ahead of/behind (-) budg:-31,0 days	
												8 1/2" hole section (1400 - 1960 m)	
Tue	11.04.00	02:00	58,0	15,6	1800	40,0	52,0	46,4	1827	F	m	Drill to 1800 m (top reservoar). Evaluate MWD / cuttings (=positive...)	
Thu	13.04.00	06:00	0,0	15,6	1800	10,0	10,5	46,8	1827	F	m	POOH for coring (discovery case, coring activities are not incl. in budget)	
Thu	13.04.00	16:30	0,0	15,6	1800	14,0	20,0	47,6	1827	F	m	MU and RIH w/ 90 ft core BHA	BHI
Fri	14.04.00	12:30	0,0	15,6	1800	6,0	2,5	47,7	1838	F	m	Cut core #1	BHI
Fri	14.04.00	15:00	0,0	15,6	1800	12,0	14,0	48,3	1838	F	m	POOH w/ core BHA and LD core barrel	BHI
Sat	15.04.00	05:00	0,0	15,6	1800	26,0	24,0	49,3	1843	F	m	Core run #2	
Sun	16.04.00	05:00	0,0	15,6	1800	28,0	33,5	50,7	1862	F	m	Core run #3	
Mon	17.04.00	14:30	0,0	15,6	1800	24,0	35,0	52,2	1878	F	m	Core run #4	
Wed	19.04.00	01:30	0,0	15,6	1800	8,0	16,0	52,8	1878	F	m	Test BOP	
Wed	19.04.00	17:30	0,0	15,6	1800	0,0	7,0	53,1	1878	F	m	Repair work in HPU and Drillers Cabin	
Thu	20.04.00	00:30	0,0	15,6	1800	30,0	27,0	54,3	1897	F	m	Core run #5	
Fri	21.04.00	03:30	0,0	15,6	1800	30,0	19,0	55,0	1900	F	m	Core run #6	
Fri	21.04.00	22:30	0,0	15,6	1800	28,0	20,5	55,9	1923	F	m	Core run #7	
Sat	22.04.00	19:00	0,0	15,6	1800	28,0	21,0	56,8	1936	F	m	Core run #8	
Sun	23.04.00	16:00	0,0	15,6	1800	22,0	23,5	57,8	1956	F	m	Core run #9	
Mon	24.04.00	15:30	0,0	15,6	1800	22,0	26,0	58,8	1973	F	m	Core run #10	
Tue	25.04.00	17:30	0,0	15,6	1800	10,0	13,0	59,4	1973	F	m	RIH w/ 8 1/2" BHA, log cored intervall w/ MWD	
Wed	26.04.00	06:30	25,0	16,7	1960	14,0	21,0	60,3	2115	F	m	Drill to approx 2100 m	
Thu	27.04.00	03:30	12,0	17,2	1960	12,0	17,5	61,0	2115	F	m	Circulate hole clean. Wipertrip. POOH	
Thu	27.04.00	21:00	60,0	19,7	1960	3,0	3,0	61,1	2115	F	m	Prep. for WL logging, rig up equipment (additional discovery logging not incl. in budget)	
Fri	28.04.00	00:00	0,0	19,7	1960	10,0	15,5	61,8	2115	F	m	WL log #1 - PEX/HALS/CMR	
Fri	28.04.00	15:30	0,0	19,7	1960	12,0	30,5	63,0	2115	F	m	WL log #2 - MDT; tool stuck after completed sampling in water zone	

Down time/Waiting time

West Navion

Exploration well 6608/10-6

Down time (hrs)	Accum. down time (hrs)	Waiting time (hrs)	Accum. waiting time (hrs)	Comments (reason for down/waiting time)
				36" hole section (414 - 474 m)
0,0	0,0	0,0	0,0	
0,0	0,0		0,0	
3,5	3,5		0,0	VPH and iron roughneck (1.5 t), leak in wash pipe (2.5 t)
3,5	7,0		0,0	black-out (1 t), anti-friction band on yoke (0.5 t), comp. system (1 t), roughneck (1 t), pump pump (0.5 t)
	7,0		0,0	
	7,0		0,0	
1,0	8,0		0,0	IBOP actuator broken on DDM (1.0 t)
5,0	13,0		0,0	prob. PU stand from setback (4.5 t), prox. failure on upper guiding arm (0.5 t)
1,0	14,0		0,0	VPH trouble running cmt. stand
6,0	20,0		0,0	changed IBOP cam sleeve (2 t), torque wrench on DDM (2 t), VPH (0.5 t), PLS com. (0.5 t), mousehole (1 t
	20,0		0,0	
20,0	hours	0,0	hours	Down time: 13,8% , Total Down time: 13,8% , Waiting time: 0,0% , Total Waiting time: 0,0%
				12 1/4" hole section (474 - 1400 m)
11,5	31,5		0,0	Hoisting/compensator (11 t), Rep. IBOP actuator (0.5 t)
28,5	60,0		0,0	MWD failure (roundtrip. 25 t). VPH (3.5 t)
	60,0	42,0	42,0	WOW
16,0	76,0		42,0	MWD failure (5.5t), HPU failure (1.5 t), compensator system (8.5 t), not able to stab into 30" housing (0.5t)
1,5	77,5		42,0	Pumps/HPU (0.5 t), power failure (0.5 t), pressure drop/checked surface system (0.5 t)
	77,5		42,0	
1,5	79,0		42,0	Leakage on the PS-30 slips (1.0 t), Reset PLS for drillview system (0.5 t)
	79,0		42,0	
8,0	87,0		42,0	PS-30 slips (0.5 t), IBOP actuator (1 t), VPH (3 t), refill oil on ROV (1.5 t), 20" x30" locking (2 t)
	87,0		42,0	
	87,0		42,0	
	87,0	27,5	69,5	
49,5	136,5		69,5	BOP handling equip weather limit (27t), Multi Manipulator arm (0.5t), cracked riser connection (22t)
18,0	154,5	82,0	151,5	Rerun BOP&riser (16.5 t), MU riser jnt wrong (1.5 t).
286,5	441,0		151,5	Hydraulic leak in system. Observed damaged filters in pumps, clean up monoblock and go through system
0,5	441,5		151,5	Power loss on diesel generators #1 & #2 (0.5 t)
59,0	500,5		151,5	1 disc. test (4.5 t), partly power loss - invest. same (51 t), prox. on accumulator (3.5 t)
1,0	501,5		151,5	Not accepted 2 test (1.0 t)
4,5	506,0		151,5	Bolts DDM (1.5 t), VPH (0.5 t), air in hoisting system (2t), leak on upper guiding arm (0.5 t)
3,0	509,0		151,5	VPH (0.5 t), air in hoisting sys (2 t), leak UGA (0.5 t).
	509,0		151,5	
	509,0		151,5	
489,0	hours	151,5	hours	Down time: 53,4% , Total Down time: 48,0% , Waiting time: 16,5% , Total Waiting time: 14,3%
				8 1/2" hole section (1400 - 1960 m)
6,0	515,0		151,5	Mud pumps (2 t), losses (1 t), BOP leak (2 t),MWD surveys (1 t)
2,0	517,0		151,5	Triptank (0.5 t), chute pusher - PLS error (1.5 t)
3,0	520,0		151,5	Gripper head - init. prob. (1.5 t), leak on elevator (0.5 t), setback prob (0.5 t), VPH (0.5 t)
	520,0		151,5	
2,0	522,0		151,5	VPH (0.5 t), Triplex crane (1.5 t)
0,5	522,5		151,5	VPH/setback (0.5 t)
1,0	523,5		151,5	Damaged pup jnt (0.5 t), VPH (0.5 t)
3,5	527,0		151,5	Changed saver sub (2.5 t), VPH (1 t)
0,5	527,5		151,5	Torque wrench (0.5 t)
7,0	534,5		151,5	Changed feeder pump#2 in HPU/back press. valve & filters/broken windows in drillers cabin
2,5	537,0		151,5	Leak in feeder pump #1 in HPU (2.5 t)
0,5	537,5		151,5	Hoses on topdrive (0.5 t)
	537,5		151,5	
0,5	538,0		151,5	Damaged chute shock absorber (0.5 t)
2,5	540,5		151,5	Changed clamps on topdrive thread comp. (1.5 t), VPH (1 t)
3,5	544,0		151,5	Adj. thread compensator/lubricate topdrive (1 t), VPH (0.5 t), Triplex crane (0.5 t), service loop on topdrive
0,5	544,5		151,5	Modified thread compensator on topdrive (0.5 t)
	544,5		151,5	
1,5	546,0		151,5	Pipehandler on topdrive (0.5 t), VPH (1.0 t)
	546,0		151,5	
1,0	547,0		151,5	Stuck in wire (0.5 t), tool stood up in slip joint (0.5 t)
2,0	549,0		151,5	Stuck with MDT tool

TIMEPLANNER

West Navion

Exploration well 6608/10-6

STATOIL

Wed	28.06.00	11:01	Updated
Sat	26.02.00	21:30	Start date
Sun	14.05.00	13:00	Finish date

Time behind budget: 53,8 days

Down time/Waiting time

West Navion

Exploration well 6608/10-6

DAY	START DATE	START TIME	Budg. time (hrs)	Acc. budg. time (days)	Budg. depth (mMD)	Plan time (hrs)	Actual time (hrs)	Acc. actual time (days)	Actual Depth (mMD)	Stat	Rig (M/A)	Activity description	Company	Down time (hrs)	Accum. down time (hrs)	Waiting time (hrs)	Accum. waiting time (hrs)	Comments (reason for down/waiting time)
Sat	29.04.00	22:00	0,0	19,7	1960	40,0	43,5	64,8	2115	F	m	RIH with DP to fish stuck MDT tool		43,5	592,5		151,5	Fish MDT (41,5 t), iron roughneck (0,5 t), dies on roughneck/built new rope socket for cable conn. (1,5t)
Mon	01.05.00	17:30	0,0	19,7	1960	10,0	12,0	65,3	2115	F	m	WL log #3 - FMI/BSI/GR		1,0	593,5		151,5	Troubleshoot FMI/DSI tool (0,5 t), Yellow status - network alarm (0,5 t)
Tue	02.05.00	05:30	0,0	19,7	1960	12,0	22,5	66,3	2115	F	m	WL log #4 - MDT		1,0	594,5		151,5	Stuck w/ MDT - pulled 90 % of weak point
Wed	03.05.00	04:00	0,0	19,7	1960	18,0	10,0	66,7	2115	F	m	WL log #5 - VSP	Schlumberger		594,5		151,5	
Section time (days)			6,5			19,5	22,5					Section time ahead of/behind (-) budg:-16,0 days, Tot. time ahead of/behind (-) budg:-47,0 days		85,5	hours	0,0	hours	Down time: 15,8% , Total Down time: 37,1% , Waiting time: 0,0% , Total Waiting time: 9,5%
												Temporary P&A						**Temporary P&A**
Wed	03.05.00	14:00	12,0	20,2	1960	0,0	0,0	66,7	2115	F	m	Wipertrip			594,5		151,5	
Wed	03.05.00	14:00	18,0	20,9	1960	15,0	24,5	67,7	2115	F	m	RIH w/ 7" liner and linerhanger on 5 1/2" DP	Weatherford		594,5		151,5	
Thu	04.05.00	14:30	6,0	21,2	1960	4,0	3,0	67,8	2115	F	m	Circ.clean and pump cmt. (plug did not bump). Set TSP.	Halliburton		594,5		151,5	
Thu	04.05.00	17:30	6,0	21,4	1960	2,0	13,5	68,4	2115	F	m	Pressure test TSP. Leak in running tool. POOH w/ same.	Halliburton	2,0	596,5		151,5	VPH (0,5 t), neg test of packer against annular (0,5 t), circ mud for cmt contamination (1,5 t)
Fri	05.05.00	07:00	0,0	21,4	1960	25,0	28,5	69,6	2115	F	m	MU and RIH w/ 6" clean-up run. Drill cmt from 1395 - 1399 m. POOH to change bit.		27,5	624,0		151,5	Clean-up run due to leak in 7" liner running tool; all cement left in 7" liner (27,5 t), HPU (1 t)
Sat	06.05.00	11:30	0,0	21,4	1960	45,0	46,0	71,5	2115	F	m	RIH w/ new bit. Drill from 1399-1576 m, wash down to shoe. Perf. LOT/inj. test. POOH.		46,0	670,0		151,5	Clean-up run due to leak in 7" liner running tool, all cement left in 7" liner (45,5 t), LLA (0,5 t)
Mon	08.05.00	09:30	0,0	21,4	1960	28,0	27,0	72,6	2115	F	m	RIH and set EZSV at 2085 m. Squeeze 15 m3 cmt. POOH		27,0	697,0		151,5	Cmt squeeze due to leak in running tool (25,5 t),cmt debris in lines (1,5 t)
Tue	09.05.00	12:30	0,0	21,4	1960	24,0	13,5	73,2	2115	F	m	RIH w/ CBL/USIT to verify cmt. job. WOC. POOH AND LD WL equip.			697,0		151,5	
Wed	10.05.00	02:00	6,0	21,7	650	5,0	3,5	73,3	653	F	m	RIH w/ GT-2 packer on 5 1/2" DP	BOT	0,5	697,5		151,5	LLA (0,5 t)
Wed	10.05.00	05:30	6,0	21,9	650	5,0	8,5	73,7	653	F	m	Set same at 650 +/- m. Press. test to 200 bar. Displ to brine /riser to SW. POOH	BOT		697,5		151,5	
Wed	10.05.00	14:00	14,0	22,5	414	65,0	63,0	76,3	410	F	m	Start pull BOP and riser, meanwhile ran trawl structure in Aux. rig, lost in splash zone		11,0	708,5		151,5	manipulator arm (3,5 t), hoses on DDM (3,5 t), slip jnt (0,5t), lateral supp. (2t), torque tool (1,5t)
Sat	13.05.00	05:00	4,0	22,7	414	9,0	10,0	76,7	410	F	a	Start fish trawl frame with slings on DP. Set same on WH		2,0	710,5		151,5	Waited in X-tree skid for funnel (2t)
Sat	13.05.00	15:00	6,0	22,9	414	4,0	5,5	77,0	410	F	a	Retrive transponders with ROV on 5 1/2" DP			710,5		151,5	
Sat	13.05.00	20:30	22,0	23,8	36	4,0	16,5	77,6	36	f	m	Complete pull BOP and riser	Oceaneering		710,5		151,5	
Sun	14.05.00	13:00	4,2			9,8	11,0					Section time ahead of/behind (-) budg:-6,8 days, Tot. time ahead of/behind (-) budg:-53,8 days		116,0	hours	0,0	hours	Down time: 44,1% , Total Down time: 38,1% , Waiting time: 0,0% , Total Waiting time: 8,1%
End of operation																		

5.6.3 Bit record

DBR

Print date: 00/10/25

B I T   R E C O R D

Well: 6608/10-006

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	26"/36"	HO	1	HEAVYDUTY	XXX	RED BARON	13462	6 x 10	6 x 10	x	x	,920
	17 1/2"	1	1	GTXCG3	135	HUGHES CHRISTEN	X14CH	3 x 22	1 x 18	x	x	1,362
2	12 1/4"	2	2	MXC1	117	HUGHES	H49DV	3 x 16	1 x 14	x	x	,739
3	12 1/4"	2RR	3	MXC1	117	HUGHES	H49DV	1 x 14	3 x 16	x	x	,739
4	8 1/2"	3	4	HP21G	217	REED	9485	3 x 16	x	x	x	,589
5	8 1/2"	4	5	ARC427C3	517	EASTMAN CHRIST	1209662	x	x	x	x	1,100
6	8 1/2"	4RR	6	ARC427C3	517	EASTMAN CHRIST	1209662	x	x	x	x	1,100
7	8 1/2"	4RR2	7	ARC427C3	517	EASTMAN CHRIST	1209662	x	x	x	x	1,100
8	8 1/2"	4RR3	8	ARC427C3	517	EASTMAN CHRIST	1209662	x	x	x	x	1,100
9	8 1/2"	4RR4	9	ARC427C3	517	EASTMAN CHRIST	1209662	x	x	x	x	1,100
10	8 1/2"	4RR5	10	ARC427C3	517	EASTMAN CHRIST	1209662	x	x	x	x	1,100
11	8 1/2"	5	11	ARC425C3	517	EASTMAN CHRIST	1901098	x	x	x	x	1,000
12	8 1/2"	5RR	12	ARC425C3	517	EASTMAN CHRIST	1901098	x	x	x	x	1,000
13	8 1/2"	5RR2	13	ARC425C3	517	EASTMAN CHRIST	1901098	x	x	x	x	1,000
14	8 1/2"	5RR3	14	ARC425C3	517	EASTMAN CHRIST	1901098	x	x	x	x	1,000
15	8 1/2"	6	15	MFDGHOD	137	SMITH	LT1739	1 x	2 x	3 x 14	x	,451
16	6"	7R	16	XR20HTDGPD	517X	SMITH	SRLT8882	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
1	5500	108	414,0	475,0	61,0	12,1	5,0	1	30	80	125	2	2	WT	2	E	I	NO	TD	
	5500	108	414,0	477,0	63,0	12,1	5,2	1	30	80	125	2	2	WT	A	E	I	BU	TD	RAN ON HOLEOPENER ASSY. ALL NOZZLES PLUGGED.
2	4300	230	477,0	570,0	93,0	3,7	25,1	5	10	60	160	1	1	WT	A	E	I	NO	DTF	
3			570,0	1408,0	838,0	21,0	39,9					7	7	BT	A	E	I	LN	TD	
4	1950	140	1408,0	1827,0	419,0	23,0	18,2	5	12	60	160	4	5	BT	A	E	1/16	WT	CP	211 KREVS ON BOTTOM. DRILLED CMT/SHOETRACK 10 HRS.
5	1000	65	1827,0	1838,0	11,0	1,7	6,5	4	8	90	110	0	1	CT	S	X	I	PN	PR	CORE RUN #1 5 OF 10 "NOZZLES" PLUGGED
6	1000	55	1838,0	1843,0	5,0	1,0	5,0	2	12	75	90	0	1	CT	S	X	I	PN	PR	CORE RUN #2 5 OF 10 "NOZZLES" PLUGGED
7	1000	55	1843,0	1862,0	19,0	6,9	2,8	2	10	70	110	1	1	CT	S	X	I	NO	PR	CORE RUN #3
8	1000	55	1862,0	1878,0	16,0	6,3	2,5	4	8	70	110	1	1	CT	S	X	I	PN	PR	CORE RUN #4 8 OF 10 "NOZZLES" PLUGGED
9	1000	55	1878,0	1897,0	19,0	2,4	7,9	6	10	60	150	1	1	CT	S	X	I	PN	PR	CORE RUN #5 6 OF 10 "NOZZLES" PLUGGED
10	1000	55	1897,0	1900,0	3,0	,7	4,3	4	7	60	110	1	1	CT	S	X	I	PN	PR	CORE RUN #6 5 OF 10 "NOZZLES" PLUGGED
11	1000	50	1900,0	1923,0	23,0	1,8	12,8	4	7	70	120	1	1	WT	A	X	I	PN	PR	CORE RUN #7
12	1000	50	1923,0	1936,0	13,0	1,1	11,8	4	6	70	100	1	1	WT	A	X	I	PN	PR	CORE RUN #8
13	1000	50	1936,0	1954,0	18,0	2,8	6,4	4	6	70	110	1	1	WT	A	X	I	PN	PR	CORE RUN #9
14	1000	50	1956,0	1973,0	17,0	4,2	4,0	4	8	70	90									CORE RUN #10
15	2000	165	1973,0	2115,0	142,0	14,3	9,9	6	12	100	164	6	4	BT	M	E	I		TD	
16	2300	180	1395,0	1399,5	4,5	7,0	,6	2	10	50	100	2	2	ER	A	E	0	NO	PR	DRILLED CEMENT IN 7" LINER

DBR

Print date: 00/10/25

B I T   R E C O R D

Well: 6608/10-006

Run no.	Bit Size	Bit no.	BHA no.	Bit type	IADC code	Manufacturer	Serial no.	Nozzles (n/32") no x n	no x n	no x n	no x n	Flow area in2
17	6"	8	17	ATJ4	216X	HUGHES	V80YLA60	3 x 20	x	x	x	,920

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
17	2200	188	1399,5	1576,0	176,5	16,2	10,9	2	8	70	100	1	1	WT	A	E	0	NO	TD	DRILLED CEMENT IN 7" LINER

5.6.4 Bottom hole assemblies (BHA)

Well: 6608/10-006

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
00/02/29	1	BIT, TRI CONE	17,500		,43	,43
		HOLE OPENER	36,000		4,05	4,48
		BIT SUB	9,500		,84	5,32
		ANDERDRIFT	9,500		2,72	8,04
		DRILL COLLAR	9,500	3,000	18,87	26,91
		X-OVER	8,000		,91	27,82
		DRILL COLLAR	8,000	2,800	56,16	83,98
		X-OVER	8,000		,92	84,90
		HW DRILL PIPE	5,500		56,69	141,59
00/03/03	2	BIT, TRI CONE	12,250		,33	,33
		BIT SUB	8,000	2,750	,90	1,23
		XO SUB	6,750	2,750	1,00	2,23
		MWD TOOL	8,250		15,92	18,15
		SAVER SUB	8,250	2,750	,90	19,05
		STAB STRING	12,250	2,750	2,23	21,28
		DRILL COLLAR	8,000	2,754	28,07	49,35
		JAR	7,563	2,754	9,43	58,78
		DRILL COLLAR	8,000	2,754	28,09	86,87
		XO SUB	8,000		,92	87,79
		HW DRILL PIPE	5,500		56,69	144,48
00/03/05	3	BIT, TRI CONE	12,250		,33	,33
		BIT SUB	8,000	2,750	,90	1,23
		XO SUB	6,750	2,750	1,00	2,23
		MWD TOOL	8,250		15,92	18,15
		SAVER SUB	8,250	2,750	,90	19,05
		STAB STRING	12,250	2,750	2,23	21,28
		DRILL COLLAR	8,000	2,754	28,07	49,35
		JAR	7,563	2,754	9,43	58,78
		DRILL COLLAR	8,000	2,754	28,09	86,87
		XO SUB	8,000		,92	87,79
		HW DRILL PIPE	5,500		56,69	144,48
00/04/10	4	BIT, TRI CONE	8,500		,25	,25
		BIT SUB	6,500	2,750	,46	,71
		MWD TOOL	6,750		16,13	16,84
		STAB STRING	8,500		1,79	18,63
		DRILL COLLAR	6,500	2,875	28,32	46,95
		JAR	6,500	2,750	9,28	56,23
		DRILL COLLAR	6,500	2,875	28,32	84,55
		XO SUB	7,250	2,750	,95	85,50
		HW DRILL PIPE	5,500		56,69	142,19
00/04/14	5	BIT, CORE	8,500	7,250	,43	,43
		STAB STRING	8,375	6,750	,79	1,22
		CORE BARREL	8,375	6,750	8,35	9,57
		STAB STRING	8,375	6,750	,79	10,36
		CORE BARREL	8,375	6,750	8,35	18,71
		STAB STRING	8,375	6,750	,79	19,50
		CORE BARREL	8,375	6,750	8,35	27,85
		STAB STRING	8,375	6,750	,79	28,64
		CORE BARREL	8,375	6,750	1,15	29,79
		TOP SUB	6,750	3,156	,69	30,48
		FLOAT SUB	7,188	2,875	1,07	31,55
		DRILL COLLAR	6,500	2,813	18,85	50,40
		STAB STRING	8,250	2,750	1,91	52,31
		DRILL COLLAR	6,500	2,813	9,39	61,70
		JAR	6,500	2,750	9,28	70,98
		DRILL COLLAR	6,500	2,813	9,47	80,45
		XO SUB	7,250	2,750	,95	81,40

Remarks: CORE RUN #1

Well: 6608/10-006

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
00/04/16	6	BIT, CORE	8,500	7,250	,43	,43
		STAB STRING	8,375	6,750	,79	1,22
		CORE BARREL	8,375	6,750	8,35	9,57
		STAB STRING	8,375	6,750	,79	10,36
		CORE BARREL	8,375	6,750	8,35	18,71
		STAB STRING	8,375	6,750	,79	19,50
		CORE BARREL	8,375	6,750	8,35	27,85
		STAB STRING	8,375	6,750	,79	28,64
		CORE BARREL	8,375	6,750	1,15	29,79
		TOP SUB	6,750	3,156	,69	30,48
		FLOAT SUB	7,188	2,875	1,07	31,55
		DRILL COLLAR	6,500	2,813	28,24	59,79
		STAB STRING	8,250	2,750	1,91	61,70
		DRILL COLLAR	6,500	2,813	9,39	71,09
		JAR	6,500	2,750	9,28	80,37
		DRILL COLLAR	6,500	2,813	9,47	89,84
		XO SUB	7,250	2,750	,95	90,79

Remarks: CORE RUN #2

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
00/04/17	7	BIT, CORE	8,500	7,250	,43	,43
		STAB STRING	8,375	6,750	,79	1,22
		CORE BARREL	8,375	6,750	8,35	9,57
		STAB STRING	8,375	6,750	,79	10,36
		CORE BARREL	8,375	6,750	8,35	18,71
		STAB STRING	8,375	6,750	,79	19,50
		CORE BARREL	8,375	6,750	8,35	27,85
		STAB STRING	8,375	6,750	,79	28,64
		CORE BARREL	8,375	6,750	1,15	29,79
		TOP SUB	6,750	3,156	,69	30,48
		FLOAT SUB	7,188	2,875	1,07	31,55
		DRILL COLLAR	6,500	2,813	28,24	59,79
		STAB STRING	8,250	2,750	1,91	61,70
		DRILL COLLAR	6,500	2,813	9,39	71,09
		JAR	6,500	2,750	9,28	80,37
		DRILL COLLAR	6,500	2,813	9,47	89,84
		XO SUB	7,250	2,750	,95	90,79

Remarks: CORE RUN #3

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
00/04/18	8	BIT, CORE	8,500	7,250	,43	,43
		STAB STRING	8,375	6,750	,79	1,22
		CORE BARREL	8,375	6,750	8,35	9,57
		STAB STRING	8,375	6,750	,79	10,36
		CORE BARREL	8,375	6,750	8,35	18,71
		STAB STRING	8,375	6,750	,79	19,50
		CORE BARREL	8,375	6,750	8,35	27,85
		STAB STRING	8,375	6,750	,79	28,64
		CORE BARREL	8,375	6,750	1,15	29,79
		TOP SUB	6,750	3,156	,69	30,48
		FLOAT SUB	7,188	2,875	1,07	31,55
		DRILL COLLAR	6,500	2,813	28,24	59,79
		STAB STRING	8,250	2,750	1,91	61,70
		DRILL COLLAR	6,500	2,813	9,39	71,09
		JAR	6,500	2,750	9,28	80,37
		DRILL COLLAR	6,500	2,813	9,47	89,84
		XO SUB	7,250	2,750	,95	90,79

Remarks: CORE RUN #4

OTTOM HOLE ASSEMBLIES

Well: 6608/10-006

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
00/04/20	9	BIT, CORE	8,500	7,250	,43	,43
		STAB STRING	8,375	6,750	,79	1,22
		CORE BARREL	8,375	6,750	8,35	9,57
		STAB STRING	8,375	6,750	,79	10,36
		CORE BARREL	8,375	6,750	8,35	18,71
		STAB STRING	8,375	6,750	,79	19,50
		CORE BARREL	8,375	6,750	8,35	27,85
		STAB STRING	8,375	6,750	,79	28,64
		CORE BARREL	8,375	6,750	1,15	29,79
		TOP SUB	6,750	3,156	,69	30,48
		FLOAT SUB	7,188	2,875	1,07	31,55
		DRILL COLLAR	6,500	2,813	28,24	59,79
		STAB STRING	8,250	2,750	1,91	61,70
		DRILL COLLAR	6,500	2,813	9,39	71,09
		JAR	6,500	2,750	9,28	80,37
		DRILL COLLAR	6,500	2,813	9,47	89,84
		XO SUB	7,250	2,750	,95	90,79

Remarks: CORE RUN #5

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
00/04/21	10	BIT, CORE	8,500	7,250	,43	,43
		STAB STRING	8,375	6,750	,79	1,22
		CORE BARREL	8,375	6,750	8,35	9,57
		STAB STRING	8,375	6,750	,79	10,36
		CORE BARREL	8,375	6,750	8,35	18,71
		STAB STRING	8,375	6,750	,79	19,50
		CORE BARREL	8,375	6,750	8,35	27,85
		STAB STRING	8,375	6,750	,79	28,64
		CORE BARREL	8,375	6,750	1,15	29,79
		TOP SUB	6,750	3,156	,69	30,48
		FLOAT SUB	7,188	2,875	1,07	31,55
		DRILL COLLAR	6,500	2,813	28,24	59,79
		STAB STRING	8,250	2,750	1,91	61,70
		DRILL COLLAR	6,500	2,813	9,39	71,09
		JAR	6,500	2,750	9,28	80,37
		DRILL COLLAR	6,500	2,813	9,47	89,84
		XO SUB	7,250	2,750	,95	90,79

Remarks: CORE RUN #6

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
00/04/22	11	BIT, CORE	8,500	7,250	,43	,43
		STAB STRING	8,375	6,750	,79	1,22
		CORE BARREL	8,375	6,750	8,35	9,57
		STAB STRING	8,375	6,750	,79	10,36
		CORE BARREL	8,375	6,750	8,35	18,71
		STAB STRING	8,375	6,750	,79	19,50
		CORE BARREL	8,375	6,750	8,35	27,85
		STAB STRING	8,375	6,750	,79	28,64
		CORE BARREL	8,375	6,750	1,15	29,79
		TOP SUB	6,750	3,156	,69	30,48
		FLOAT SUB	7,188	2,875	1,07	31,55
		DRILL COLLAR	6,500	2,813	28,24	59,79
		STAB STRING	8,250	2,750	1,91	61,70
		DRILL COLLAR	6,500	2,813	9,39	71,09
		JAR	6,500	2,750	9,28	80,37
		DRILL COLLAR	6,500	2,813	9,47	89,84
		XO SUB	7,250	2,750	,95	90,79

Remarks: CORE RUN #7

Well: 6608/10-006

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
00/04/23	12	BIT, CORE	8,500	7,250	,43	,43
		STAB STRING	8,375	6,750	,79	1,22
		CORE BARREL	8,375	6,750	8,35	9,57
		STAB STRING	8,375	6,750	,79	10,36
		CORE BARREL	8,375	6,750	8,35	18,71
		STAB STRING	8,375	6,750	,79	19,50
		CORE BARREL	8,375	6,750	8,35	27,85
		STAB STRING	8,375	6,750	,79	28,64
		CORE BARREL	8,375	6,750	1,15	29,79
		TOP SUB	6,750	3,156	,69	30,48
		FLOAT SUB	7,188	2,875	1,07	31,55
		DRILL COLLAR	6,500	2,813	28,24	59,79
		STAB STRING	8,250	2,750	1,91	61,70
		DRILL COLLAR	6,500	2,813	9,39	71,09
		JAR	6,500	2,750	9,28	80,37
		DRILL COLLAR	6,500	2,813	9,47	89,84
		XO SUB	7,250	2,750	,95	90,79

Remarks: CORE RUN #8

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
00/04/24	13	BIT, CORE	8,500	7,250	,43	,43
		STAB STRING	8,375	6,750	,79	1,22
		CORE BARREL	8,375	6,750	8,35	9,57
		STAB STRING	8,375	6,750	,79	10,36
		CORE BARREL	8,375	6,750	8,35	18,71
		STAB STRING	8,375	6,750	,79	19,50
		CORE BARREL	8,375	6,750	8,35	27,85
		STAB STRING	8,375	6,750	,79	28,64
		CORE BARREL	8,375	6,750	1,15	29,79
		TOP SUB	6,750	3,156	,69	30,48
		FLOAT SUB	7,188	2,875	1,07	31,55
		DRILL COLLAR	6,500	2,813	28,24	59,79
		STAB STRING	8,250	2,750	1,91	61,70
		DRILL COLLAR	6,500	2,813	9,39	71,09
		JAR	6,500	2,750	9,28	80,37
		DRILL COLLAR	6,500	2,813	9,47	89,84
		XO SUB	7,250	2,750	,95	90,79

Remarks: CORE RUN #9

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
00/04/25	14	BIT, CORE	8,500	7,250	,43	,43
		STAB STRING	8,375	6,750	,79	1,22
		CORE BARREL	8,375	6,750	8,35	9,57
		STAB STRING	8,375	6,750	,79	10,36
		CORE BARREL	8,375	6,750	8,35	18,71
		STAB STRING	8,375	6,750	,79	19,50
		CORE BARREL	8,375	6,750	8,35	27,85
		STAB STRING	8,375	6,750	,79	28,64
		CORE BARREL	8,375	6,750	1,15	29,79
		TOP SUB	6,750	3,156	,69	30,48
		FLOAT SUB	7,188	2,875	1,07	31,55
		DRILL COLLAR	6,500	2,813	28,24	59,79
		STAB STRING	8,250	2,750	1,91	61,70
		DRILL COLLAR	6,500	2,813	9,39	71,09
		JAR	6,500	2,750	9,28	80,37
		DRILL COLLAR	6,500	2,813	9,47	89,84
		XO SUB	7,250	2,750	,95	90,79

Remarks: CORE RUN #10

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
00/04/26	15	BIT, TRI CONE	8,500		,25	,25
		BIT SUB	6,500	2,750	,46	,71
		MWD TOOL	6,750		16,13	16,84
		STAB STRING	8,500		1,79	18,63
		DRILL COLLAR	6,500	2,875	47,26	65,89
		JAR	6,500	2,750	9,28	75,17
		DRILL COLLAR	6,500	2,875	9,38	84,55
		XO SUB	7,250	2,750	,61	85,16
		HW DRILL PIPE	5,500		56,69	141,85

Well: 6608/10-006

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
00/05/06	16	BIT, TRI CONE	6,000		,19	,19
		SCRAPER	7,000	1,375	,79	,98
		BIT SUB W/FLOAT	5,000	2,250	,93	1,91
		DRILL COLLAR	4,750	2,250	56,88	58,79
		DRILL PIPE	3,500		718,19	776,98
		X-OVER	7,250	2,000	,91	777,89
		X-OVER	6,500	2,750	,91	778,80
		X-OVER	6,500	2,750	,91	779,71
		SCRAPER	9,625	2,000	,70	780,41
		BIT SUB	6,500	2,750	,93	781,34
		DRILL COLLAR	6,500	2,875	9,47	790,81
		JAR	6,250	2,750	9,28	800,09
		DRILL COLLAR	6,500	2,875	37,71	837,80
		X-OVER	7,250	2,750	,93	838,73
		DRILL PIPE	5,500		,00	838,73

Remarks: CLEAN OUT 7" LINER

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
00/05/07	17	BIT, TRI CONE	6,000		,19	,19
		SCRAPER	7,000	1,375	,79	,98
		BIT SUB W/FLOAT	5,000	2,250	,93	1,91
		DRILL COLLAR	4,750	2,250	113,76	115,67
		DRILL PIPE	3,500		659,88	775,55
		X-OVER	7,250	2,000	,91	776,46
		X-OVER	6,500	2,750	,91	777,37
		X-OVER	6,500	2,750	,91	778,28
		SCRAPER	9,625	2,000	,70	778,98
		BIT SUB	6,500	2,750	,93	779,91
		DRILL COLLAR	6,500	2,875	9,47	789,38
		JAR	6,250	2,750	9,28	798,66
		DRILL COLLAR	6,500	2,875	37,71	836,37
		X-OVER	7,250	2,750	,93	837,30
		DRILL PIPE	5,500		,00	837,30

Remarks: CLEAN OUT 7" LINER

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
00/05/09	18	PACKER	5,500		1,90	1,90
		DRILL COLLAR	4,750	2,250	28,44	30,34
		DRILL PIPE	3,500		727,90	758,24
		X-OVER	7,250	7,250	,91	759,15
		DRILL PIPE	5,500		,00	759,15

Remarks: RUN EZSV PACKER IN 7" LINER

5.6.5 Drilling fluids program

DRILLING FLUIDS PROGRAM

Well: 6608/10-6
Field: Exploration
Rig: West Navion

HOLE SIZE	HOLE TVD / MD	CASING SIZE	CASING TVD / MD	MUD TYPE	MW [SG]	LGS [KG/m³]	10 sec. [Pa]	10 min. [Pa]	Fann 100 rpm	Fann 3 rpm	O / W ratio	PV [mPa]	API FL [ml]	HTHP FL [ml]	MBT [KG/m³]	pH	Kcl [KG/m³]	Glyc. [%]	ES	DFE [%]	Total Volume / Old Volume / New Volume / Usage [m³]
36"	475 / 475	30"	473,5 / 473,5	seawater w/ bentonite	1.03 -1.05											9 - 10					237 / 0 / 237 / 237
Comments: This section was drilled using Seawater with Bentonite high viscosity sweeps as required to clean the hole. At TD the hole was circuleted clean and displaced to 1.30 sg bentonite fluid with 3-4 kg CMC added for extra fluid loss control.																					
12 1/4"	1410 / 1410	9 5/8"	1398 / 1398	seawater w/ bentonite	1.03 -1.05								> 10 in displ. volume			9 - 10					1494 / 0 / 1494 / 1494
Comments: This section was drilled using Seawater/Bentonite hig hviscosity sweeps as required to clean the hole mixed as in the 36" hole. At TD the hole was circulated clean and displace to 1.20 sg fluid with 3-4 kg/m3 CMC LV for fluid loss control.																					
8 1/2"	2114 / 2114	7" liner	2113 / 2113	Glydril WBM	01.03		3-4	3,5-5		4 - 7	na	18	3-4		14	8 - 9	76 - 150	5			612 / 0 / 612 / 612
Comments: The section was drilled with the glydril system, maintaining 5 vol % Glydril MC at all times. KCl level was initially too low due to wrong mud spec used but was brought up towards the end of the section. No problems attributed to hole instability was recorded. Hole cleaning stayed good throughout the section. Due to leakage during cementing the 7" liner the mud suffered badly from cement contamination and had to be dumped in the end. The excellent solids control equipment (six VSM 300 shakers) and a controlled dilution provided a flat rheology curve and very low solids content while drilling the section.																					

5.6.6 Cement program

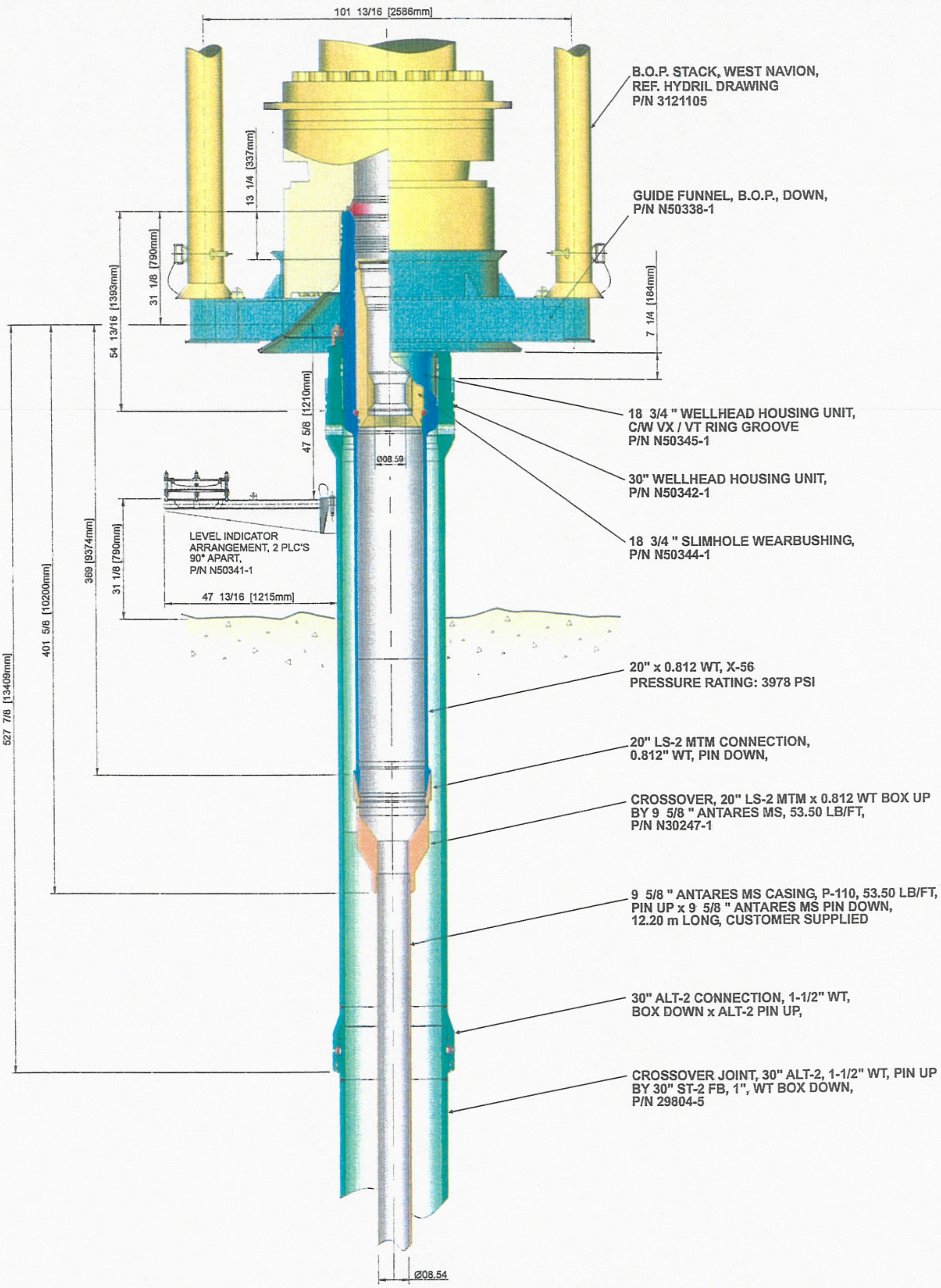
Well: **6608/10-6**
Field: **Exploration**
Rig: **West Navion**

CEMENT PROGRAM

HOLE		CASING SHOE		TOC	VOLUME/ EXCESS	CEMENT SLURRY DESIGN										SPACER	DISPLACEMENT
SIZE	TVD MD	SIZE	TVD MD	TVD MD		Components	Lead [ltr/100kg]	Tail [ltr/100kg]	Density [SG]	Yield [ltr/100kg]	Stat. / Circ. Temp [°C]	Thickening time [hrs to 30 Bc]	API Free Water [%]	API Fluid loss [cc/30min]	24 hrs C. S. [psi]		Fluids and Rates
36"	475 475	30"	473,5 473,5	Surface	Lead: 33.5 m3 Tail: 15.0 m3 150% excess	Econolite Liquid CaCl2 NF-6 Seawater	3.20 - 0.10 94.95	- 4.35 0.10 39.56	Lead: 1.56 Tail: 1.95	Lead: 129.41 Tail: 75.06	6 - 8 6 - 8	Lead: +/- 8 Tail: 3 - 4	Lead: 1 - 2 Tail: 1 - 2	N/A	Lead: +/- 250 Tail: +/- 600	Seawater	Seawater 1050 lpm
12 1/4"	1410 1410	9 5/8"	1398 1398	Surface	Lead: 74.5 m3 Tail: 15 m3 150% excess	Econolite HR-4L NF-6 Seawater Drill water	3.20 2.00 0.10 93.64 -	- 0.40 0.10 - 45.12	Lead: 1.56 Tail: 1.90	Lead: 129.99 Tail: 76.68	45 35 (API)	Lead: 04:20 Tail: 03:35	Lead: 0.90 Tail: 1.45	N/A	Lead: 300 Tail: 1800	Seawater	1.30 SG WBM 1500 lpm
8 1/2"	2114 2114	7" liner	2113 2113	1640 1640	7.5 m3 0.6 m3	Gascon CFR-3L SCR-100L Halad-600LE+ NF-6 Drill water	N/A	3.50 0.75 02.10 3.00 0.10 37.13	1.90	77.63	70 50 (API)	05:11	0	30	1700	Fresh water	1.30 SG WBM 1300 lpm

5.6.7 Wellhead system

Smedvig Well 6608/10-6, Norne Field STATOIL



Stackup, MS-700 Wellhead System

10.000 PSI

Concept AS

ABB Offshore Systems AS

Division Subsea

ABB

Drawing Number: N600876-2

Back to Norne

APPENDIX 1

Operational experience, operational listing

Well: 6608/10-006

Report date	
00/02/27	SHIP ON TRANSIT TO NORNE LOCATION. DISTANCE GONE 279, DISTANCE TO GO 204. ETA NORNE LOCATION 27.02.00 2300 HRS.
00/02/28	SHIP ON LOCATION 6608/10-6 AT 24:00 HRS. PERFORMED DRIVE OFF TEST AND COMPLETED DP CHECK LISTS. PREPARED AND RAN IN WITH TRANSPONDERS ON 5 1/2" DRILL PIPE TO 106M.
00/02/29	RAN AND PLACED TRANSPONDERS ON SEABED. COMPLETED TESTING AND CALIBRATION OF VESSEL POSITIONING SYSTEM. M/U AND RAN IN WITH 36" BHA TO 170M IN MAIN RIG. PREPARED FOR RUNNING 30" CONDUCTOR IN AUX RIG.
00/03/01	RAN IN WITH 36" BHA AND DRILLED 36" HOLE FROM 414M TO 440M IN MAIN RIG. COMPENSATING SYSTEM NOT FUNCTIONING PROPERLY. RAN 30 CONDUCTOR AND HOUSING IN AUX RIG.
00/03/02	DRILLED 36" HOLE FROM 440M TO 475M IN MAIN RIG. PERFORMED WIPERTRIP AND DISPLACED HOLE TO 1,40 SG MUD, POOH. RAN 30" CONDUCTOR TO 149M IN AUX RIG.
00/03/03	RAN CONDUCTOR ON DRILL PIPE FROM 149 M TO 473,5 M. CIRC SW. MIXED AND PUMPED LEAD AND TAIL SLURRY AND DISPLACED SAME WITH SW. WOC. RELEASED RUNNING TOOL. MEANWHILE MU 12 1/4" BHA.
00/03/04	POOH WITH CEMENT STINGER. RIH WITH 12 1/4" BHA AND DRILLED SHOETRACK AND RATHOLE. DRILLED 12 1/4" HOLE TO 482 M. TROUBLESHOT HYDRAULIC SYSTEM FOR HOISTING.
00/03/05	DRILLED 12 1/4" HOLE FROM 482 M TO 570 M. POOH DUE TO MWD FAILURE. TROUBLESHOT ON PIPEHANDLING SYSTEM.
00/03/06	MU NEW MWD TOOL AND RIH TO 228 M. WAITED ON WEATHER. PU DRILL PIPE FROM DECK WHILE WOW.
00/03/07	WAITED ON WEATHER. MEANWHILE PU DP FROM DECK. MU AND RACKED CEMENT HEAD AND 18 3/4" CART.
00/03/08	WOW. TROUBLESHOT FAILURE ON COMPENSATOR SYSTEM. RIH TO 570 M. DRILLED 12 1/4" HOLE FROM 570 M TO 636 M.
00/03/09	DRILLED 12 1/4" HOLE FROM 636 M TO 1220 M. RAN 9 5/8" CSG IN AUX RIG.
00/03/11	FINISHED THE WIPER TRIP AND RAN 9 5/8" CASING TO 521 M.
00/03/12	RAN IN THE HOLE WITH THE LANDING STRING AND PREPARED TO LAND THE 9 5/8" CASING.
00/03/13	CEMENTED 9 5/8" CASING IN AUX RIG AND PREPARED TO RUN BOP AND RISER IN MAIN RIG. PULLED OUT WITH THE RUNNING TOOL AND STARTED TO RUN BOP AND RISER.
00/03/14	WOW TO RUN BOP AND RISER. MADE UP PIPE AND HANG-OFF TOOL IN THE AUX. RIG.
00/03/15	WOW. ATTEMPTED TO RUN BOP AND RISER. WAITING TO RUN BOP AND RISER DUE TO THE GUIDING SYSTEM, PICKED UP AND RACKED 8 1/2" BOTTOM HOLE ASSEMBLY AND 5 1/2" DRILL PIPE.
00/03/16	WAITED TO RUN RISER AND BOP. STARTED TO RUN BOP AND RISER TO 128 M.
00/03/17	PRESSURE TESTED THE RISER. CONNECTOR ON RISER JOINT NO.5 CRACKED DURING MAKE-UP. PULLED THE BOP INTO THE OVER HULL GUIDE AND LAID DOWN RISER JOINTS FOR INSPECTION.
00/03/18	RUN BOP AND RISER TO 206 M.
00/03/19	RUN BOP AND RISER FROM 206 M TO 355 M. HANG OFF BOP AND RISER TO WAIT ON WEATHER.

Report date	
00/03/20	WOW TO LAND BOP.
00/03/21	WAITED ON WEATHER TO LAND BOP.
00/03/22	WAITED ON WEATHER. INSTALLED SLIP JOINT AND PREPARED TO CONNECT HOSE TERMINATION RING.
00/03/23	INSTALLED HOSE TERMINATION RING AND CONTINUED TO WAIT ON WEATHER TO INSTALL SUPPORTRING AND LAND BOP.
00/03/24	P/U AND INSTALLED EXTENTION JOINT AND LANDING JOINT. INSTALLED RISER TENSION RING AND ADJUSTED RISER TENSIONERS. TURNED SHIP TO 240 DEG HEADING AND MOVED INTO WELL CENTRE.
00/03/25	POSITIONED SHIP OVER WELL CENTRE. PREPARED FOR LANDING BOP. ABORTED BOP LANDING OPERATION DUE TO LEAK IN HYDRAULIC SUPPLY FOR RAM RIG HOISTING. LEAK IDENTIFIED IN LOCOMECK BLOCK (HPU). TROUBLE SHOOTED SAME.
00/03/26	ASSEMBELED AND REINSTALLED SOLENOID VALVES ON LOCOMECK BLOCK. FLUSHED HYDRAULIC SYSTEM IN HPU. BLED OFF RISER TENSIONERS AND ACTIVATED PASSIVE HEAVE COMPENSATOR. SAME LEAK AS EARLIER OBSERVED. CONDUCTED FOULT SEEKING ON HYDRAULIC SUPPLY SYSTEM.
00/03/27	COMPLETED FOULT SEEKING AND TESTING ON HYDRAULIC SUPPLY SYSTEM (HPU). COMMENCED OPENING VALVE SEGMENTS ON LOKOMEC BLOCK IN ORDER TO UNDERTAKE FURTHER CLEANING OF HPU SYSTEM.
00/03/28	CLEANED AND FLUSHED HYDRAULIC SUPPLY SUSTEM (LOKOMEC BLOCK HPU). 60 % OF CLEANING AND FLUSHING JOB ON HPU COMPLETED.
00/03/29	COMPLETED CLEANING AND FLUSHING OF LOKOMEC BLOCK IN HPU. BLED DOWN RAM CYLINDERS ON AUX RIG. DRAINED AUX RIG HOIST SYSTEM.
00/03/30	COMPLETED INSPECTION OF PILOT VALVES ON LOKOMEC BLOCK FOR AUX HOISTING. CHANGED EXPANSION FLANGES ON FEEDER PUMPS IN HPU. INSPECTED CHECK VALVES ON MAIN PUMPS IN HPU AND PRESSURE TESTED HPU FEEDER SIDE.
00/03/31	COMPLETED INTERNAL TESTING AND FLUSHING OF HPU. PREPARED, R/U AND STARTED FLUSHING OF LOKOMEC BLOCK ON AUX RIG HOISTING.
00/04/01	COMPLETED FLUSHING OF LOKOMEC BLOCK ON AUX RIG HOISTING AND PREPARED SAME FOR NORMAL OPERATION MODE. HUNG OFF RISER IN TENSIONERS AND PARKED DDM IN TOP POSITION. DRAINED MAIN RIG HOISTING SYSTEM AND INSPECTED PILOT VALVES ON MAIN HOISTING LOKOMEC BLOCK.
00/04/02	COMPLETED INSPECTION AND FLUSHING OF LOKOMEC BLOCK FOR MAIN HOISTING. INSTALLED BY-PASS KIT ON FILTER UNITS FOR FEEDER PUMPS IN HPU. ATTEMPTED TO START FUNCTION TESTS IN AUX RIG, NEG. CHECKED VALVE SETTINGS IN HPU.
00/04/03	FUNCTION TESTED HOIST AND DDM SYSTEMS IN AUX RIG. STARTED FUNCTION TESTS ON MAIN RIG HOISTING.
00/04/04	COMPLETED FUNCTION TESTS ON MAIN RIG HOISTING. INSTALLED FLOW DIVERTERS AND NEW FILTERS IN HPU. STARTED LOAD TESTING OF MAIN HOISTING IN PASSIVE COMPENSATOR MODE.
00/04/05	COMPLETED VERIFICATION TESTS ON HYDRAULIC SYSTEM. PREPARED FOR LANDING BOP.
00/04/06	LANDED BOP. STROKED OUT SLIP JOINT AND INSTALLED DIVERTER. PERFORMED EMERGENCY DISCONNECT TEST. PREPARED FOR RE-CONNECTING LMRP. PARTLY POWER LOSS ON VESSEL. SHIP DRIFTED 150M OFF LOCATION.
00/04/07	MOVED SHIP TOWARDS LOCATION. INVESTIGATED FAILURE ON SHIP POWER SUPPLY.

Report date	
00/04/08	INVESTIGATED FAILURE IN SHIP POWER SUPPLY SYSTEM.
00/04/09	COMPLETED INVESTIGATION OF FAILURE ON SHIP POWER SUPPLY SYSTEM. LANDED LMRP. REMOVED RISER SPIDER/GIMBLE. PREPARED TO RIH WITH 8 1/2" DRILLING BHA.
00/04/10	RIH WITH 8 1/2" BHA TO 600 M. TESTED LMRP CONNECTOR AND FUNCTION TESTED BOP. CONT RIH AND TAGGED CEMENT AT 1277 M. MU DRILLING PUP.
00/04/11	PERFORMED KICK DRILL. WASHED/REAMED CEMENT FROM 1277 M TO 1295 M. DRILLED FIRM CEMENT AND SHOETRACK FROM 1295 M TO 1398 M. DRILLED 6 M NEW FORM AND PERFORMED LOT TO 1,76 SG. DRILLED 8 1/2" HOLE TO 1500 M.
00/04/12	DRILLED 8 1/2" HOLE FROM 1500 M TO 1652 M. CHECKED SYSTEM DUE TO MUD LOSSES. DRILLED TO 1669 M. LEAK ON REGULATOR ON BLUE POD, SWITCHED TO YELLOW POD. CONT DRILLING TO 1695 M.
00/04/13	DRILLED 8 1/2" HOLE 1695-1827 M. CIRC TO CLEAN WELL AND EVALUATE SAMPLES. POOH FROM 1827 M TO 1580 M FOR CORING.
00/04/14	POOH WITH 8 1/2" BHA FROM 1580 M. RACKED BHA. MU CORE ASSEMBLY AND RIH WITH SAME TO 1500 M.
00/04/15	RIH WITH CORE BHA FROM 1500 M TO 1827 M. REAMED TIGHT INTERVALS. CUT CORE FROM 1827 M TO 1838 M. POOH AND LD INNER BARREL. INSTALLED NEW INNER BARRELS AND PREPARE TO RIH.
00/04/16	RIH TO 1838 M AND CUT CORE #2 FROM 1838 M TO 1843 M. POOH AND LD ONE INNER BARREL. MU AND PREPARED TO RIH WITH CORE BHA #3.
00/04/17	RIH TO 1843 M AND CUT CORE # 3 FROM 1843 M TO 1862 M. POOH TO 1223 M.
00/04/18	POOH FROM 1223 M AND LD CORE #3. MU NEW INNER BARREL AND RIH WITH CORE BHA #4 TO 1232 M. CHANGED SAVER SUB ON TDS. CONT RIH TO 1735 M.
00/04/19	RIH FROM 1735 M AND CUT CORE #4 FROM 1862 M TO 1878 M. POOH AND LD INNER BARREL. RACKED BHA. MU BOP TEST TOOL AND RIH WITH SAME.
00/04/20	PRESS TESTED BOP AND SURFACE EQUIPMENT. CHANGED FEEDER PUMP IN HPU, CHANGED WINDOW IN DRILLERS CABIN. MU CORE BHA #5 AND RIH TO 90 M. REPAIRED LEAK IN HPU.
00/04/21	RIH AND CUT CORE #5 FROM 1878 M TO 1897 M. POOH AND LD INNER BARRELS. RECOVERED 14,8 M CORE. MU CORE BHA #6 AND RIH TO 90 M.
00/04/22	RIH TO 1897 M AND CUT CORE #6 FROM 1897 M TO 1900 M. POOH. RECOVERED 1,3 M CORE. MU AND RIH WITH CORE BHA #7 TO 1840 M.
00/04/23	RIH FROM 1840 M AND CUT CORE #7 FROM 1900 M TO 1923 M. POOH. RECOVERED 23,3 M CORE. MU NEW INNER BARREL AND RIH. CUT CORE #8 FROM 1923 M TO 1936 M.
00/04/24	POOH FROM 1936 M AND LD CORE #8. RECOVERED 12,2 M CORE. MU AND RIH WITH CORE BHA #9 TO 1936 M. CUT CORE #9 FROM 1936 M TO 1954 M.
00/04/25	CONT CUT CORE FROM 1954 M TO 1956 M. POOH AND RECOVERED 18,2 M CORE. MU CORE BHA #10 AND RIH. CUT CORE FROM 1956 M TO 1973 M. PREPARED TO POOH.
00/04/26	RACKED THE CORE ASSEMBLY. PICKED UP DRILLING ASSEMBLY AND REAMED AND LOGGED CORED INTERVAL FROM, 1817 M TO 1935 M.
00/04/27	COMPLETED REAMING AND LOGGING THE CORED INTERVAL WITH MWD. DRILLED FROM 1973 M TO 2115 M - TD OF THE WELL. STARTED WIPER TRIP.
00/04/28	COMPLETED THE WIPER TRIP. POOH AND STARTED THE LOGGING JOB. RIH WITH LOG #1.

Report date	
00/04/29	COMPLETED LOG RUN #1 - PEX/HALS/CMR. RIH WITH LOG RUN #2 - MDT. FINISHED PRESSURE POINTS AND STARTED SAMPELING.
00/04/30	COMPLETED THE SAMPLING FOR LOG RUN #2. PREPARED TO RIH WITH DP TO FISH STUCK MDT TOOL. MADE UP 7" LINER IN DOUBLES IN THE AUX. RIG.
00/05/01	RIH WITH DP AND FISHED STUCK MDT TOOL. POOH TO 1801 M.
00/05/02	RETRIEVED THE STUCK MDT TOOL AND COMPLETED LOG RUN #3 - FMI/DSI. RIGGED UP FOR LOG RUN #4 - MDT.
00/05/03	COMPLETED LOG RUN #4 - MDT. RIGGED UP FOR LOG RUN #5 - VSP.
00/05/04	COMPLETED LOG RUN #5 - VSP/GR - AND RIGGED DOWN THE LOGGING EQUIPMENT. RAN 7" LINER TO 880 M.
00/05/05	RAN 7" LINER TO TD AT 2113 M. SAT HANGER AND CIRCULATED BU. PUMPED SPACER AND MIXED AND PUMPED 7,5 M3 CEMENT SLURRY. DISPLACED SAME WITHOUT BUMPING PLUG. SAT TSP PACKER AND ATTEMPTED TO TEST SAME, NEG. PULLED OUT OF PBR AND CIRCULATED BU. GOT CEMENT IN RETURN. DUMPED 60 M3 CEMENT CONTAMINATED MUD. POOH WITH LINER RUNNING TOOL.
00/05/06	POOH WITH LINER RUNNING TOOL AND LD SAME. MU AND RIH WITH 6" CLEAN OUT BHA. TAGGED WIPER PLUG AT 1395M. DRILLED WIPERPLUG AND CEMENT FROM 1395M TO 1399,5M. POOH WITH 6" CLEAN OUT BHA TO 814M TO CHANGE BIT.
00/05/07	POOH WITH 6" CLEAN OUT BHA. CHANGED BIT AND RIH. DRILLED THROUGH REMAINS OF WIPERPLUG AT 1399.5M AND DRILLED CEMENT FROM 1400M TO 1482M.
00/05/08	DRILLED CEMENT FROM 1482M TO 1576M. BROKE THROUGH CEMENT AT 1576M. CONTINUED TO RIH AND TAGGED LANDING COLLAR AT 2090M. CIRCULATED HOLE CLEAN AND CONDITIONED MUD. PERFORMED LOT EQUAL TO 1,48 SG AT 2114M OR 1,53 SG AT 1620M. PERFORMED INJECTION TEST. INJECTED 9M3 1,3 SG MUD WITH 1100 LPM. PRESSURE DROPPED FROM 135 BAR TO 125 BAR DURING INJECTION. POOH WITH 6" CLEAN OUT BHA TO 791M.
00/05/09	POOH WITH 6" CLEAN OUT BHA. RAN AND SAT EZSV AT 2085M. PERFORMED CEMENT SQUEEZE. SPOTTED 40 M3 OF MUD TO BE LEFT IN HOLE. PREPARED FOR POOH WITH EZSV RUNNING TOOL.
00/05/10	POOH WITH EZSV RUNNING TOOL. RU AND RIH WITH SCHLUMBERGER LOGGING TOOLS ON WIRE LINE. LOGGED CEMENT IN 7" LINER FROM 2065M TO 1520M. POOH AND RD WIRELINE EQUIPMENT. MU AND RIH WITH BAKER GT-2 PACKER. SAT SAME AT 653M. PRESSURE TESTED PACKER FROM BELOW, 200 BAR/15 MIN.
00/05/11	PRESSURE TESTED GT-2 PACKER TO 200 BAR/15 MIN FROM ABOVE. SPOTTED 15 M3 TREATED BRINE FROM PACKER TO WELL HEAD. DISPLACED RISER TO SW AND POOH WITH PACKER RUNNING TOOL. RIGGED UP FOR PULLING RISER AND BOP. PULLED DIVERTER. GUIDE CLAW ON MANIPULATOR ARM BROKE OFF WHEN ATTEMPTING TO GUIDE DIVERTER INTO PARKING BUCKET. LD AND SECURED GUIDE CLAW. CONTINUED TO PREPARE FOR PULLING RISER AND BOP.
00/05/12	REPAIRED GUIDE CLAW ON MANIPULATOR ARM. PREPARED FOR PULLING BOP. DISCONNECTED BOP (11:45 HRS) AND MOVED SHIP 25 M OFF LOCATION. DISCONNECTED TENSION RING. PULLED AND LD SPACER JOINT AND UPPER FLEX JOINT. DISCONNECTED TERMINATION RING FROM SPOOL AND PULLED AND LD SLIP JOINT.
00/05/13	PULLED OUT RISER AND BOP AND SECURED BOP IN GUIDING SYSTEM. RAN IN WITH TRAWL FRAME RUNNING TOOL AND WIRE SLINGS ON DP TO SEA BED IN AUX RIG. HOOKED WIRE SLINGS ONTO TRAWL FRAME AND PULLED FRAME OVER TO HORIZONTAL POSITION.

Well: 6608/10-006

Report date	
00/05/14	INSTALLED TRAWL FRAME OVER WELL HEAD. PULLED BOP OUT AND SKIDDED SAME INTO PARKING POSITION. RAN IN 5 1/2" DP AND WIRE SLINGS. RECOVERED TRANSPONDERS AND PREVIOUS LOST CEMENT STINGER. RD RISER HANDLING EQUIPMENT. COMMENCED SECURING KILL AND CHOKE LINES IN MOON POOL.
00/05/15	COMMENCED SECURING KILL AND CHOKE LINES IN MOON POOL. LD ALUMINIUM CMT STINGER.

APPENDIX 2

Directional data, survey listing

BAKER HUGHES
INTEQ

FINAL SURVEY LISTING

Date:	Wed, May 03 2000	JOB No:	NOR1034
Time:	12:54:46		
Client:	STATOIL	North Reference:	Grid
Well:	6608/10-6	Grid Convergence:	0.67 deg (West)
Location:	West Navion	Magnetic Declination:	1.32 deg (West)
Latitude:	66 deg 3' 55.950" N	Total Correction:	-0.65 deg
Longitude:	8 deg 15' 26.070" E		
Drill Depth Zero (DDZ):	Rotary Table	Tie On Data From:	(Tie On source unknown)
Vertical Datum is:	Mean Sea Level		
Vertical Datum to DDZ:	36.00 m	MagCorr Applied	
TVD Calculation Method:	Minimum Curvature	over the range(s):	
VS Calculation Method:	Incremental		
Vertical Section North:	0.00 m		
Vertical Section East:	0.00 m	SAG Corr. Applied	
Vertical Section Azimuth:	0.00 deg	over the range(s):	

D-Raw calculation:	MAGCORR1	Local Magnetic Field:	0.518 Gauss
Local Magnetic Dip Angle:	76.05 deg	Local Gravity Field:	1.0017 gravity

Notes:

Correc	M.Depth m	Incl deg	Azim deg	North m	East m	TVD m	VS m	CRS LEN m	DOGL dg/30	WALK dg/30m	BUILD dg/30m
	414.00	0.0	0.0	0.00	0.00	414.00	0.00	414.00	TIE-IN	0.00	0.00
	559.00	0.7	344.6	0.85	-0.24	559.00	0.85	145.00	0.14	-3.19	0.14
	597.00	0.6	10.4	1.27	-0.26	596.99	1.27	38.00	0.24	20.37	-0.08
	625.00	0.6	14.2	1.56	-0.20	624.99	1.56	28.00	0.04	4.07	0.00
	655.00	0.5	9.7	1.84	-0.14	654.99	1.84	30.00	0.11	-4.50	-0.10
	685.00	0.6	5.3	2.13	-0.10	684.99	2.13	30.00	0.11	-4.40	0.10
	711.00	0.6	92.5	2.26	0.05	710.99	2.26	26.00	0.95	100.62	0.00
	740.00	0.5	40.8	2.35	0.28	739.99	2.35	29.00	0.50	-53.48	-0.10
	769.00	0.4	43.6	2.51	0.43	768.99	2.51	29.00	0.11	2.90	-0.10
	796.00	0.4	26.9	2.67	0.54	795.99	2.67	27.00	0.13	-18.56	0.00
	827.00	0.5	38.5	2.87	0.67	826.99	2.87	31.00	0.13	11.23	0.10
	856.00	0.5	45.3	3.06	0.84	855.98	3.06	29.00	0.06	7.03	0.00
	885.00	0.7	35.9	3.29	1.04	884.98	3.29	29.00	0.23	-9.72	0.21
	914.00	0.6	43.3	3.54	1.25	913.98	3.54	29.00	0.13	7.66	-0.10
	941.00	0.6	16.6	3.78	1.38	940.98	3.78	27.00	0.31	-29.67	0.00
	972.00	0.7	17.9	4.12	1.49	971.98	4.12	31.00	0.10	1.26	0.10
	1001.00	0.9	340.3	4.50	1.47	1000.97	4.50	29.00	0.57	-38.90	0.21
	1029.00	0.9	2.7	4.93	1.40	1028.97	4.93	28.00	0.37	24.00	0.00
	1057.00	1.1	6.1	5.41	1.44	1056.97	5.41	28.00	0.22	3.64	0.21
	1083.00	1.0	350.2	5.89	1.43	1082.96	5.89	26.00	0.35	-18.35	-0.12
	1116.00	0.9	337.1	6.41	1.28	1115.96	6.41	33.00	0.22	-11.91	-0.09
	1145.00	0.7	346.8	6.79	1.15	1144.96	6.79	29.00	0.25	10.03	-0.21
	1174.00	0.6	347.5	7.11	1.08	1173.95	7.11	29.00	0.10	0.72	-0.10
	1203.00	0.6	349.8	7.41	1.02	1202.95	7.41	29.00	0.02	2.38	0.00
	1231.00	0.7	2.6	7.72	1.00	1230.95	7.72	28.00	0.19	13.71	0.11
	1260.00	0.6	1.5	8.05	1.01	1259.95	8.05	29.00	0.10	-1.14	-0.10
	1287.00	0.6	356.7	8.34	1.01	1286.95	8.34	27.00	0.06	-5.33	0.00
	1315.00	0.5	329.2	8.59	0.93	1314.95	8.59	28.00	0.30	-29.46	-0.11
	1347.00	0.5	340.9	8.84	0.82	1346.94	8.84	32.00	0.10	10.97	0.00
	1375.00	0.5	314.9	9.04	0.69	1374.94	9.04	28.00	0.24	-27.86	0.00
	1395.00	0.4	347.8	9.17	0.61	1394.94	9.17	20.00	0.41	49.35	-0.15
	1432.00	0.3	339.8	9.39	0.55	1431.94	9.39	37.00	0.09	-6.49	-0.08
	1461.00	0.2	348.0	9.51	0.52	1460.94	9.51	29.00	0.11	8.48	-0.10
	1490.00	0.1	356.1	9.58	0.50	1489.94	9.58	29.00	0.11	8.38	-0.10
	1517.00	0.2	44.8	9.64	0.54	1516.94	9.64	27.00	0.17	54.11	0.11
	1548.00	0.2	96.5	9.67	0.63	1547.94	9.67	31.00	0.17	50.03	0.00
	1576.00	0.1	50.2	9.68	0.70	1575.94	9.68	28.00	0.16	-49.61	-0.11
	1605.00	0.2	64.8	9.72	0.76	1604.94	9.72	29.00	0.11	15.10	0.10
	1635.00	0.3	56.5	9.79	0.87	1634.94	9.79	30.00	0.11	-8.30	0.10

Correc	M.Depth m	Incl deg	Azim deg	North m	East m	TVD m	VS m	CRS LEN m	DOGL dg/30m	WALK dg/30m	BUILD dg/30m
	1664.00	0.9	73.9	9.89	1.16	1663.94	9.89	29.00	0.64	18.00	0.62
	1721.00	1.2	63.7	10.28	2.12	1720.93	10.28	57.00	0.19	-5.37	0.16
	1750.00	1.1	48.7	10.60	2.60	1749.92	10.60	29.00	0.33	-15.52	-0.10
	1778.00	1.0	54.6	10.92	3.00	1777.92	10.92	28.00	0.16	6.33	-0.11
	1808.00	1.1	43.6	11.28	3.42	1807.91	11.28	30.00	0.22	-11.00	0.10
	1836.00	0.9	51.8	11.61	3.77	1835.91	11.61	28.00	0.26	8.79	-0.21
	1864.00	0.8	46.5	11.88	4.09	1863.91	11.88	28.00	0.14	-5.68	-0.11
	1893.00	0.7	55.4	12.12	4.38	1892.90	12.12	29.00	0.16	9.21	-0.10
	1922.00	0.8	54.4	12.34	4.69	1921.90	12.34	29.00	0.10	-1.03	0.10
	1952.00	0.7	53.6	12.57	5.01	1951.90	12.57	30.00	0.10	-0.80	-0.10
	2009.00	0.9	53.0	13.04	5.65	2008.89	13.04	57.00	0.11	-0.32	0.11
	2039.00	0.8	46.8	13.33	5.99	2038.89	13.33	30.00	0.14	-6.20	-0.10
	2067.00	0.6	60.2	13.54	6.26	2066.89	13.54	28.00	0.28	14.36	-0.21
	2096.00	0.8	80.4	13.65	6.59	2095.89	13.65	29.00	0.33	20.90	0.21
	2105.00	0.9	85.2	13.66	6.72	2104.88	13.66	9.00	0.42	15.99	0.35

APPENDIX 3

Contractors list

Contractors list

Service	Company
Casing	Weatherford
Cementing	Halliburton
Coring	Baker Hughes INTEQ
Directional drilling	Baker Hughes INTEQ
Diving	Oceaneering
Drilling contractor	Smedvig Offshore
Electric logging	Schlumberger Offshore Services NV
Helicopter	Helikopter Service A/S
Mud	Anchor/M-I Drilling Fluids
Mud logging	Geoservices
MWD	Baker Hughes INTEQ
Rig positioning	Racal Norge A/S
Site survey	Fugro-Geoteam AS
Wellhead system	ABB Vetco Gray

APPENDIX 4

Wellsite sample description

STATOIL

WELLSITE SAMPLE DESCRIPTION

Country: Norway	Area: Nordland II	Field: J-D Structure
Well no: 6608/10-6		
R.T.: 36 meters	Company: Statoil, Norsk Hydro, Norsk Agip, Enterprise Oil	
Hole size: 8 1/2 "	Geologist: T.F. Kristensen / T.A. Svånå	Date: 11.04.2000

Depth (m RT)	Lithology (%)	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.
1398		9 5/8" casing shoe.		
1408		TD 12 1/4" hole.		
1410	100	Clst:	slily slty, pred med dk gry occ gry blk, blky - amor, sol, sft - frm, non calc	No shows
	Tr	Sd:	lse Qtz, v f - med	50% cmt cont
1415	100	Clst:	a.a.	50% cmt cont
	Tr	Sd:	a.a.	
1420	100	Clst:	a.a.	30% cmt cont
	Tr	Sd:	a.a.	
1425	100	Clst:	a.a., glauc	
	Tr	Sd:	a.a.	
1430	100	Clst:	a.a., also minor dk gn gry, v glauc, else a.a.	
	Tr	Sd:	a.a.	
1435	100	Clst:	a.a., v glauc	
	Tr	Sd:	a.a.	
1440			Lost due to fast drilling	
1445	100	Clst:	a.a., v glauc	
	Tr	Sd:	a.a.	
1450	100	Clst:	a.a., v glauc	
	Tr	Sd:	a.a.	
1455	100	Clst:	a.a., v glauc	
	Tr	Sd:	a.a.	
1460	100	Clst:	a.a., v glauc	
	Tr	Sd:	a.a.	
1465	100	Clst:	a.a., v glauc	
	Tr	Sd:	a.a.	
1470	100	Clst:	a.a., v glauc	
	Tr	Sd:	a.a.	
1475	100	Clst:	a.a., v glauc	
	Tr	Sd:	a.a.	
1480	100	Clst:	a.a.	
	Tr	Sd:	a.a.	

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 02 of 15
Country: Norway	Area: Nordland II		Field: J-D Structure
Well no: 6608/10-6			
R.T.: 36 meters	Company: Statoil, Norsk Hydro, Norsk Agip, Enterprise Oil		
Hole size: 8 1/2 "	Geologist: T.F. Kristensen / T.A. Svånå		Date: 11.04.2000

Depth (m RT)	Lithology (%)		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.
1485	100	Clst:	brn blk, sft - frm, amor - sbblky, sol, slty, sdy - occ v sdy, micromic - mic, glauc - v glauc, non calc	No shows
	Tr	Sd:	clr - trnsl qtz, v f - f, sbang - sbrndd, lse	
	Gd Tr		Glauc	
1490	100	Clst:	a.a.	a.a.
	Tr	Sd	a.a.	
	Gd Tr		Glauc	
1495	100	Clst:	a.a.	a.a.
	Tr	Sd:	a.a.	
	Gd Tr		Glauc	
1500	100	Clst:	brn blk, sft - frm, amor - blky, sol i.p., slty, sdy - v sdy i.p., micromic - mic, glauc - v glauc, non calc	a.a.
	Tr	Sd:	a.a.	
	Gd Tr		Glauc	
1505	100	Clst:	occ med dk gry - dk gn gry, else a.a.	a.a.
	Tr	Sd:	a.a.	
	Gd Tr		Glauc	
1510			Lost due to fast drilling	
1515	100	Clst:	brn blk, olv gry - brn gry, sft - frm, amor - blky, sol, slty, sdy, v glauc, micromic - mic, non calc	a.a.
	Tr	Sd:	a.a.	
	Gd Tr		Glauc	
1520	100	Clst:	occ gn gry - dk gn gry, else a.a.	a.a.
	Tr	Sd:	a.a.	
	Gd Tr		Glauc	
1525			Lost due to fast drilling	
1530	100	Clst:	pred olv gry - brn gry, gn gry - dk gn gry, v glauc, else a.a.	a.a.
	Tr	Sd:	a.a.	
	Gd Tr		Glauc	
1535	100	Clst:	gn gry - dk gn gry, dsky gn, frm, blky - sbblky, slily slty i.p., slily glauc - occ glauc, non calc	a.a.
	Tr		Glauc	
1540	100	Clst:	gn gry - dk gn gry, dsky gn i.p., occ med lt gry, frm - occ mod hd, blky, slily glauc - occ glauc, non calc	a.a.
	Tr		Glauc	
1545	100	Clst:	a.a.	a.a.
	Tr		Glauc	

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 03 of 15
Country: Norway	Area: Nordland II		Field: J-D Structure
Well no: 6608/10-6			
R.T.: 36 meters	Company: Statoil, Norsk Hydro, Norsk Agip, Enterprise Oil		
Hole size: 8 1/2 "	Geologist: T.F. Kristensen / T.A. Svånå		Date: 11.04.2000

Depth (m RT)	Lithology (%)		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.
1550	100	Clst:	gn gry - dk gn gry, dsky gn i.p., occ med lt gry, frm - occ mod hd, blky, slily glauc - occ glauc, non calc	a.a.
	Tr		Glauc	
1555	100	Clst:	a.a.	a.a.
	Tr	Clst:	a.a.	
1560	100	Clst:	gn gry, lt gn gry, occ dk gn gry, frm - occ mod hd, blky, slily glauc - occ glauc, non calc	a.a.
	Tr		Glauc	
1565	100	Clst:	gn gry - lt gn gry, med bl gry, dk gn gry - dsky gn, occ purp gry, frm - occ mod hd, blky, slily glauc - occ glauc, micropyr i.p., non calc	a.a.
	Tr		Glauc	
	R Tr		Pyr	
1570	100	Clst:	com micropyr, occ spkld, tuff, else a.a.	a.a.
	R Tr		Glauc, Pyr	
1575	95	Clst:	gn gry, lt gn gry, med dk gry, occ dk gn gry - dsky gn, tr purp gry, frm - occ mod hd, blky, micropyr, occ slily glauc, spkld and tuff i.p., non calc	a.a.
	5	Ls:	v lt gry - lt gry, frm, micr, slily arg	
	R Tr		Pyr, Glauc	
1580	90	Clst:	varic a.a.	a.a.
	10	Ls:	a.a.	
	R Tr		Pyr, Glauc	
1585	90	Clst:	varic a.a.	a.a.
	10	Ls:	a.a.	
	R Tr		Pyr, Glauc	
1590	100	Clst:	i.p. brn gry - brn blk, sft - frm, sbblky, v glauc, slty, micromic, non calc, else varic a.a.	a.a.
	Tr	Ls:	a.a.	
	R Tr		Pyr, Glauc	
1595	100	Clst:	pred olv gry - med dk gry, frm - mod hd, blky, slty, micropyr, micromic, slily glauc i.p., non calc	a.a.
	Tr	Ls:	lt gry, frm, micr, slily arg - arg	
	Tr		Pyr	
	R Tr		Glauc	
1600	100	Clst:	olv gry - med dk gry, frm - mod hd, blky, slty, v micropyr, micromic, occ slily glauc, non calc	a.a.
	Tr	Clst:	varic a.a.	
	Tr	Ls:	a.a.	

STATOIL

WELLSITE SAMPLE DESCRIPTION				Page 04 of 15
Country: Norway		Area: Nordland II		Field: J-D Structure
Well no: 6608/10-6				
R.T.: 36 meters		Company: Statoil, Norsk Hydro, Norsk Agip, Enterprise Oil		
Hole size: 8 1/2 "		Geologist: T.F. Kristensen / T.A. Svånå		Date: 11.-12.04.2000

Depth (m RT)	Lithology (%)		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.
1605	100	Clst:	olv gry - med dk gry, frm - mod hd, blky, slty, pyr - v micropyr, micromic, occ slily glauc, non calc	No shows
	Tr	Clst:	varic a.a.	
	Tr	Ls:	a.a.	
	Tr		Pyr	
1610	100	Clst:	a.a.	a.a.
	Tr	Ls:	a.a.	
1615	100	Clst:	a.a., also com gry gn, ang, mod hd, wxy, non calc	a.a.
	Tr	Ls:	a.a.	
	Gd tr	Sd:	pred f, sbang - sbrndd	
1620	80	Clst:	a.a., abd gry gn a.a.	a.a.
	20	Sd:	clr - rose - smoke Qtz, pred f, occ med - v crs	
	Tr	Ls:	a.a.	
1625	90	Clst:	a.a., abd gry gn a.a.	a.a.
	10	Sd:	a.a.	
	Tr	Ls:	a.a.	
1630	80	Clst:	a.a., abd gry gn a.a.	a.a.
	10	Sd:	lse Qtz, pred f, occ m-v crs	
	10	Slst:	spkld med - dk gry, i.p. lt brn gry - brn gry, blky, mod hd - occ hd, v f sdy - arg, pyr, non calc	
1635	50	Slst:	a.a.	a.a.
	40	Clst:	a..a., abd gry gn a.a.	
	10	Sd:	a.a.	
1640	70	Slst:	a.a.	a.a.
	20	Clst:	a.a., abd gry gn a.a.	
	10	Sd:	a.a.	
1645	50	Slst:	a.a.	a.a.
	40	Clst:	a.a., abd gry gn a.a.	
	10	Sd:	a.a.	
1650	80	Clst:	gry blk - brn blk, blky - ang, mod hd - hd, slily wxy, non calc, also gd tr gry gn	a.a.
	20	Slst:	a.a.	
	Tr	Sd:	a.a.	
	R tr	Ls:	wh, mod hd, crs xln	
1655	100	Clst:	a.a., i.p. med gry and gry gn	a.a.
	Tr	Slst:	a.a.	
	Tr	Sd:	a.a.	
1660	100	Clst:	a.a.	a.a.
	Gd tr	Sd:	a.a.	
	Tr	Slst:	a.a.	

WELLSITE SAMPLE DESCRIPTION			Page 05 of 15
Country: Norway	Area: Nordland II		Field: J-D Structure
Well no: 6608/10-6			
R.T.: 36 meters	Company: Statoil, Norsk Hydro, Norsk Agip, Enterprise Oil		
Hole size: 8 1/2 "	Geologist: T.F. Kristensen / T.A. Svånå		Date: 12.04.2000

Depth (m RT)	Lithology (%)		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.
1665	100	Clst:	pred dk gn gry - med dk gry, blky, frm, slily slty, non calc, also gry blk - brn blk, blky - ng, mod hd - hd, non calc, minor gry gn, ang, mod hd, slily wxy, non calc	No shows Gry gn Clst is poss caving from around 1615m.
	Tr	Slst:	spkld med - dk gry, i.p. lt brn gry - brn gry, blky, frm - mod hd, v f sdy - arg, pyr, non calc	
	Tr	Sd:	lse Qtz, pred v f - f	
	R tr	Ls:	lt gry, i.p. spkld, blky frm, micr	
1670	100	Clst:	a.a.	a.a.
	Tr	Sd:	a.a.	
	Tr	Ls:	a.a.	
1675	100	Clst:	varic, dk gn gry, med dk gry, med gry - med lt gry, brn blk, frm - mod hd, sbblky - blky, micropyr, slty i.p., non calc	a.a.
	Tr	Ls:	a.a.	
	Tr	Sd:	a.a.	
1680	100	Clst:	lt gry - med gry, med dk gry, frm - mod hd, amor - blky, micropyr i.p., slily calc - mod calc, occ v calc grdg Mrl	a.a.
	Tr	Sd:	a.a.	
	Tr	Ls:	a.a.	
1685	80	Clst:	varic, med dk gry - lt gry, gn gry, brn blk, frm - mod hd, amor - blky, micropyr i.p., non - mod calc, occ v calc grdg Mrl	Min fluor only
	20	Sst:	med lt gry, clr - trnsl qtz, v f - f, sbang - sbrndd, app fri - mod hd, calc cmt, i.p. grdg sdy Ls, arg i.p., pyr i.p., non - pr vis por	
	Tr	Ls:	lt gry, frm - mod hd, micr, sdy i.p.	
1690	100	Clst:	med gry - lt gry, med dk gry, gn gry, frm, amor - sbblky, micropyr i.p., sdy and slty i.p., non calc - mod calc	a.a.
	Tr	Sst:	a.a.	
	Tr	Ls:	lt gry, hd, xln - microxln	
	Tr	Dol:	dk gry brn - brn blk, v hd, microxln	
	Tr		Pyr	
1695	95	Clst:	a.a.	a.a.
	5	Sst:	med lt gry, clr - trnsl qtz, f - crs, pr srt, sbang - sbrndd, app lse, tr calc cmt	
	Tr	Ls:	a.a.	
	Tr	Dol:	a.a.	
	Tr		Pyr	
1700	50	Clst:	a.a.	a.a.
	50	Sst:	v f - f, occ med and crs grns, else a.a.	
	Tr	Ls:	a.a.	

STATOIL

WELLSITE SAMPLE DESCRIPTION				Page 06 of 15
Country: Norway		Area: Nordland II		Field: J-D Structure
Well no: 6608/10-6				
R.T.: 36 meters		Company: Statoil, Norsk Hydro, Norsk Agip, Enterprise Oil		
Hole size: 8 1/2 "		Geologist: T.F. Kristensen / T.A. Svånå		Date: 12.04.2000

Depth (m RT)	Lithology (%)		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.
1704	50	Clst:	med gry - med lt gry, med dk gry, occ gn gry, frm, amor - sbblky, micropyr i.p., sdy and slty i.p., non calc - mod calc	Min fluor only
	50	Sst:	med gry, clr - trnsl qtz, v f - f, occ med - crs, mod srt, sbang - sbrndd, app lse - mod hd, calc cmt, pyr i.p., arg i p., app none - gd vis por	
	Tr	Ls:	med lt gry, mod hd, micr - microxln, slily arg, sdy i.p.	
	Tr		Pyr	
1707	50	Clst:	a.a.	a.a.
	50	Sst:	a.a.	
	Tr	Ls:	a.a.	
	Tr		Pyr	
1710	50	Clst:	varic, med dk gry - med gry, brn gry, gn gry, brn blk - olv blk, frm - mod hd, amor - blky, slty/sdy i.p., i.p. v slty grdg Sltst, micropyr - pyr i.p., occ v pyr, non - mod calc	a.a.
	50	Sst:	a.a.	
	Gd Tr	Ls:	v lt gry - lt gry, frm, micr, occ xln	
	Tr	Pyr		
1713	100	Clst:	a.a.	a.a.
	Gd Tr	Sst:	a.a.	
	Tr	Ls:	a.a.	
	Tr		Pyr	
1716	100	Clst:	olv gry - olv blk, brn gry, sft - frm, amor - sbblky, sol, slty - v slty, sdy, micropyr - pyr, micromic - occ mic, occ carb, non - slily calc	Min fluor only Pr samples, Clst dissolves in mud
	Tr	Sst:	clr - trnsl qtz, v f - f, sbang - sbrndd, lse	
	Tr	Ls:	a.a.	
	Gd Tr		Pyr, abd, washed out from dissolving Clst	
1719	100	Clst:	a.a.	a.a.
	Tr	Sst:	med gry, clr - trnsl qtz, v f - f, sbang - sbrndd, pred lse, occ mod hd, calc cmtd	
	Tr	Ls:	a.a.	
	Gd Tr		Pyr	
1722	100	Clst:	a.a.	a.a.
	Gd Tr	Sst:	clr - trnsl qtz, v f - f, occ med, mod srt, sbang - sbrndd, app lse	
	Tr	Ls:	a.a.	
	Gd TR		Pyr, abd, washed out from dissolving Clst	
1725	100	Clst:	a.a.	a.a.
	Tr	Sst:	a.a.	
	Gd Tr		Pyr	
1728	100	Clst:	micropyr, else a.a.	a.a.
	Tr	Sst:	a.a.	
	Tr		Pyr	

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 07 of 15
Country: Norway	Area: Nordland II		Field: J-D Structure
Well no: 6608/10-6			
R.T.: 36 meters	Company: Statoil, Norsk Hydro, Norsk Agip, Enterprise Oil		
Hole size: 8 1/2 "	Geologist: T.F. Kristensen / T.A. Svånå		Date: 12.04.2000

Depth (m RT)	Lithology (%)		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.
1731	100	Clst:	olv gry - olv blk, brn gry, sft - frm, amor - sbblky, sol, slty, sdy, micropyr, micromic - occ mic, occ carb, non calc, occ slily calc	Clst diss in mud No shows
	Tr		Pyr	
1734			Sample lost	
1737	100	Clst:	a.a.	a.a.
1740	100	Clst:	a.a.	a.a.
	Tr	Sst:	clr - trnsl qtz, v f - f, sbang - sbrndd, lse (washed out of Clst)	
	Tr		Pyr	
1743	100	Clst:	brn gry - olv gry - olv blk, sft - frm, amor - sbblky, sol, slty, sdy, micropyr - pyr, micromic - occ mic, occ slily glauc, occ carb, non calc	a.a.
	Tr	Sst:	lse qtz a.a.	
	Tr	Dol:	dk yel brn, v hd, microxln	
	Tr		Pyr	
1746	100	Clst:	a.a.	a.a.
	Tr		Sst, Dol, Pyr	
1749	100	Clst:	a.a.	a.a.
	Tr		Sst, Dol, Pyr	
1752	100	Clst:	a.a.	a.a.
	Tr		Sst, Dol, Pyr	
1755	90	Clst:	a.a.	Pr sample, Clst dissolves in mud No shows
	10	Dol:	yel brn - dk yel brn, pa yel brn, gry brn - med dk gry, frm - v hd, microxln i.p., micr i.p., sucr i.p., slily calc i.p., slily arg - occ arg	
	Tr		Pyr	
1758	95	Clst:	olv gry - brn gry, sft, amor, sol, slty/sdy, micromic, micropyr - pyr, non calc	a.a.
	5	Dol:	a.a.	
	Tr		Pyr	
1761	90	Clst:	a.a.	Abundant gry gn Clst - poss cavings from around 1615m?
	10	Dol:	a.a., i.p. slty - v f sdy	
	Gd tr	Sd:	a.a.	
	R tr	Ls:	wh, xln (vn infill?)	
1764	90	Clst:	a.a.	a..a.
	10	Dol:	a.a.	
	Gd tr	Sd:	a.a.	
1767	90	Clst:	a.a.	a..a.
	10	Dol:	a.a.	
	Gd tr	Sd:	a.a.	

STATOIL

WELLSITE SAMPLE DESCRIPTION

Country: Norway	Area: Nordland II		Field: J-D Structure
Well no: 6608/10-6			
R.T.: 36 meters	Company: Statoil, Norsk Hydro, Norsk Agip, Enterprise Oil		
Hole size: 8 1/2 "	Geologist: T.F. Kristensen / T.A. Svånå		Date: 12.04.2000

Depth (m RT)	Lithology (%)		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.
1770	90	Clst:	brn gry - olv gry - olv blk, sft - frm, amor - sbblky, sol, slty, sdy, pyr - micropyr, slily micromic, occ slily glauc, non calc	Abundant gry gn Clst - prob cavings from around 1615m? Pr sample, Clst dissolves in mud. No shows.
	10	Dol:	yel brn - dk yel brn, pa yel brn, gry brn - med dk gry, blky, frm - v hd, microxln i.p., micr i.p., sucr i.p., i.p. slty - v f sdy	
	Gd tr	Sd:	lse Qtz, pred v f - f	
	R tr	Ls:	lt gry - wh, blky, crs xln, occ micr	
1773			Sample lost	
1776	90	Clst:	a.a.	a..a.
	10	Dol:	a.a.	
	Gd tr	Sd:	a.a.	
1779	90	Clst:	a.a.	a..a.
	10	Dol:	a.a.	
	Gd tr	Sd:	a.a.	
1782	100	Clst:	a.a.	a..a.
	Gd tr	Dol:	a.a.	
	Tr	Sd:	a.a.	
1785	100	Clst:	a.a.	a..a.
	Gd tr	Dol:	a.a.	
	Tr	Sd:	a.a.	
1788	100	Clst:	a.a.	a..a.
	Gd tr	Dol:	a.a.	
	Tr	Sd:	a.a.	
1791	90	Clst:	a.a.	a..a.
	10	Dol:	a.a.	
	Gd tr	Sd:	a.a.	
1794	90	Clst:	a.a.	a..a.
	10	Dol:	a.a.	
	Gd tr	Sd:	a.a.	
1797	100	Clst:	a.a.	a..a.
	Gd tr	Dol:	a.a.	
	Tr	Sd:	a.a.	
	Tr	Ls:	lt gry, blky, mod hd	
1800	80	Clst:	a.a.	a..a.
	10	Ls:	a.a.	
	10	Sd:	a.a.	
	Gd tr	Dol:	a.a.	

WELLSITE SAMPLE DESCRIPTION

Country: Norway	Area: Nordland II		Field: J-D Structure
Well no: 6608/10-6			
R.T.: 36 meters	Company: Statoil, Norsk Hydro, Norsk Agip, Enterprise Oil		
Hole size: 8 1/2 "	Geologist: T.F. Kristensen / T.A. Svånå		Date: 13.04.2000

Depth (m RT)	Lithology (%)		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.
1803	90	Clst:	brn gry - olv gry - olv blk, sft - frm, amor - sbblky, sol, slty, sdy, pyr - micropyr, slily micromic, occ slily glauc, non calc	Com gry gn Clst - prob cavings from around 1615m? Pr sample, Clst dissolves in mud.
	10	Dol:	yel brn - dk yel brn, pl yel brn, gry brn - med dk gry, blky, frm - v hd, microxln i.p., f xln - sucr, slty - v f sdy	
	Tr	Ls:	lt gry, blky, mod hd	
	Gd tr	Sd:	lse wh - clr Qtz, pred v f - f, sbrndd, glauc (pred cavings?), pyr	
1806	90	Clst:	a.a.	a..a.
	10	Dol:	a.a.	
	Tr	Ls:	a.a.	
	Gd tr	Sd:	a.a.	
1809	90	Clst:	a.a.	a..a.
	10	Dol:	a.a.	
	Tr	Ls:	a.a.	
	Gd tr	Sd:	a.a.	
1812	90	Clst:	a.a.	a..a.
	10	Dol:	a.a.	
	Tr	Ls:	a.a.	
	Gd tr	Sd:	a.a.	
1815	90	Clst:	pred olv blk, bcm slily less sol, else a.a.	a..a.
	10	Dol:	a.a.	
	Gd tr	Sd:	a.a.	
	Tr	Ls:	a.a.	
1818	90	Clst:	a.a.	a..a.
	10	Sd:	a.a.	
	Gd tr	Dol:	i.p. v sdy, else a.a.	
	Tr	Ls:	a.a.	
1821	70	Clst:	a.a.	a..a.
	20	Sst:	v Dol grad Dol sst, yel brn - dk yel brn, f - med, sbrndd, i.p. arg mtx, dol cmt, mod hd - fri, slily pyr, no vis por	
	10	Sd:	a.a.	
	Tr	Dol:	a.a.	
1824	60	Clst:	a.a.	Tr shows in Dol sst & Dol: spty wh - yel dir fluor, slow strmg bl - wh cut fluor, no - occ weak wh - yel res fluor
	20	Sst:	a.a.	
	20	Sd:	a.a.	
	Tr	Dol:	a.a.	
1827	50	Clst:	a.a.	Tr shows a.a.
	30	Sd:	a.a.	
	20	Sst:	a.a.	
	Tr	Dol:	a.a.	

POOH TO CUT CORE # 1 AT 1827M. CUT CORE # 1-10 DOWN TO 1973 M.

STATOIL

WELLSITE SAMPLE DESCRIPTION

Country: Norway	Area: Nordland II		Field: J-D Structure
Well no: 6608/10-6			
R.T.: 36 meters	Company: Statoil, Norsk Hydro, Norsk Agip, Enterprise Oil		
Hole size: 8 1/2 "	Geologist: O.Hunnes/ S.Solymar		Date: 26.04.2000

Depth (m RT)	Lithology (%)	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.
1976	60	Sst: clr - tansl, qtz, occ lt gry, v f, sbrndd, wl srt, all lse	Pin point dull yel fluor, no cut fluor
	40	Carb clst: brn blk - blk, hd, blky, micropyr, v carb, i.p. grdng to C	
	Tr	Pyr, Mic	
1980	70	Carb Clst: a.a.	No shows
	30	Sltst: lt - dk yel brn, sdy, slily arg, frm, tr Pyr & C frags, non calc	
1983	70	Sst: qtz, clr - transl, v f, sbang, wl srt, all lse	Also bl gn clst (cvgs)
	30	Carb clst: a.a.	No shows
	Tr	C frags, Pyr (as burrows)	
1986	100	Sst: qtz, clr - trnsl, v f, sbang, wl srt, all lse	Gas. 1.86 %
	Tr	Mic, Pyr, C frags, Sltst	Pin point dull yel fluor. No cut fluor
1989	60	Sst: a.a.	No shows
	30	Carb Clst: a.a.	
	10	Coal: brn blk - blk, hd, frac, sbfis, slily tr pyr	
1992	100	Sst: a.a.	
	Tr	Pyr, Mic, carb Clst, C frags	
1995	80	Sst: a.a., also lt yel brn, v f - f, sbrndd, wll srt, fri - lse, fr vis por	No HC odour, pin point brt yel fluor, slow strmg dull bl wh cut
	20	Carb Clst: a.a.	
1998	80	Sst: clr - trnsl, lt gry, v f - f, occ med, sbrndd, mod srt, pred lse, also tr calc cmt aggr, no vis por	No shows
	20	Clst: pred dsky yel brn - brn blk, frm, occ v slty, slily tr mic & pyr	
	Tr	Pyr, Mic, C frags	
2001	80	Sst: qtz, clr - trnsl, f-med, occ crs, sbrndd - sbang, mod srt, also calc cmt aggr, slily tr dk brn oil stn	a.a.
	15	Carb Clst: a.a.	
	5	C: a.a.	
	Tr	Pyr, Mic	
2004	80	Sst: a.a.	a.a.
	15	Ls: wh - lt gry, frm - hd, v sdy grad to sdy Ls	
	5	Carb Clst: a.a.	
2007		a.a.	a.a.
2010	100	Sst: qtz, clr - lt gry, v f - f, occ med, sbang, mod srt, all lse	a.a.
	Tr	C frags, Pyr, Mic	
2013	80	Sst: a.a., also calc cmt aggr, no vis por	a.a.
	20	Carb Clst: a.a.	
	Tr	Pyr, Mic	

STATOIL

WELLSITE SAMPLE DESCRIPTION

Country: Norway		Area: Nordland II		Field: J-D Structure
Well no: 6608/10-6				
R.T.: 36 meters		Company: Statoil, Norsk Hydro, Norsk Agip, Enterprise Oil		
Hole size: 8 1/2 "		Geologist: O.Hunnes/ S.Solymar		Date: 26.04.2000

Depth (m RT)	Lithology (%)	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.
2016	70	Sst:	clr - trnsl, lt gry, v f - f, occ med, sbrndd, mod srt, pred lse, also tr calc cmt aggr, no vis por	No shows
	20	C:	blk, frm - hd, blky, tr micropyr,	
	10	Clst:	pred dsky yel brn, frm, occ v slty, slily tr mic & pyr, v carb grad to carb Clst	
	Tr	Pyr, Mic, C frags		
2019	90	Sst:	pred f - v f, else a.a.	a.a.
	10	Clst:	a.a.	
	Tr	Pyr		
2022		a.a.		a.a.
2025	70	Sst:	clr - trnsl, lt gry, v f - f, also med crs, pr srt, sbrndd, pred lse, also mod calc cmt, pr - non vis por	a.a.
	20	Ls:	lt gry - wh, frm, blky, microxln - xln, sdy i.p.	
	10	Clst:	dk yel brn, frm, slty - sdy i.p., slily calc	
	Tr	Dol:	yel brn, hd, mass, blky	
	Tr	Pyr, Mic, C frags		
2028	a.a.			a.a.
2031	lost			
2034	90	Sst:	a.a.	a.a.
	10	Ls:	a.a.	
	Tr	Pyr, Mic, Dol, C frags		
2037	100	Sst:	clr - trnsl, v f - f, sbrndd - rndd, wl srt, all lse	
	Tr	Pyr, Ls, Dol		
2040	80	Sst:	a.a.	a.a.
	20	Ls:	lt gry - wh, frm - hd, gen mass, sdy i.p.	
	Tr	Dol, Pyr, Clst		
2043	lost			
2046	90	Sst:	clr - trnsl, occ lt gry, v f - f, also med, sbang, mod srt, pred lse, occ mod calc cmt no vis por	a.a.
	10	Ls:	lt gry - wh, frm - hd, v sdy grad calc sst	
	Tr	Dol, Pyr, Mic, Clst		
2049	70	Sst:	a.a.	a.a.
	20	Coal:	brn blk - blk, frm - hd, blky - sbfis, fr tr pyr	
	10	Ls:	a.a.	
	Tr	Clst:	pred a.a., gd tr of C frags	
	Tr	Pyr, Mic		

WELLSITE SAMPLE DESCRIPTION			Page 12 of 15
Country: Norway	Area: Nordland II		Field: J-D Structure
Well no: 6608/10-6			
R.T.: 36 meters	Company: Statoil, Norsk Hydro, Norsk Agip, Enterprise Oil		
Hole size: 8 1/2 "	Geologist: O.Hunnes/ S.Solymar		Date: 26.04.2000

Depth (m RT)	Lithology (%)	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.
2052	70	Sst:	clr - trnsl Qtz Gr, v f - f, occ med - crs, sbang - sbrndd, mod - wl srt	bl gn Sh/Clst cavings
	20	Clst:	med dk gry - blk, slty, sft - frm, v carb	
	Tr	Ls:	lt gry - wh, frm, slty, slily arg,	
	Tr	c, Mic		
2055	50	Sst:	a.a	a.a
	40	Clst:	a.a	
	Tr	Sltst:	med dk gry - brnsh gry, sft, arg, tr c	
	Tr	c:	blk, wxy, hd - v hd, blky	
	Tr	Ls:	a.a	
	Tr	Mi c, Pyr		
2058	60	Clst:	brnsh blk - blk, slty, sbblky, frm - mod hd, v carb	a.a
	30	Sst:	a.a	
	Tr	Sltst:	med dk gry - brnsh gry, sft, arg, tr c	
	Tr	c:	a.a	
	Tr	Pyr, Mic		
2061	60	Clst:	brnsh blk - blk, slty, sbblky, frm - mod hd, v carb	a.a
	30	Sst:	a.a	
	Tr	Sltst:	med dk gry - brnsh gry, sft, arg, tr c	
	Tr	c:	a.a	
	Tr	Pyr, Mic		
2064	60	Clst:	a.a	a.a
	40	Sst:	a.a	
	Tr	Sltst:	med dk gry - brnsh gry, sft, arg, tr c	
	Tr	c:	a.a	
	Tr	Mic, Pyr		
2067	60	Clst:	a.a	a.a
	30	Sst:	a.a	
	10	c:	a.a	
	Tr	Sltst:	a.a	
	Tr	Mic, Pyr		
2070	50	Clst:	a.a	a.a
	30	Dol:	v pl or - pl yelsh brn - mod yelsh brn. sblky - blky, hd - v hd, slily arg	
	20	Sst:	a.a	
	Tr	Sltst:	a.a	
	Tr	c:	a.a	
	Tr	Mic		
2073	60	Clst:	a.a	a.a
	30	Dol:	v pl or - pl yelsh brn - mod yelsh brn., sbblky - blky, hd - v hd, occ slily arg	
	10	Sst:	a.a	
	Tr	Sltst:	a.a	
	Tr	c:	a.a	
	Tr	Mic		

WELLSITE SAMPLE DESCRIPTION			Page 13 of 15
Country: Norway	Area: Nordland II		Field: J-D Structure
Well no: 6608/10-6			
R.T.: 36 meters	Company: Statoil, Norsk Hydro, Norsk Agip, Enterprise Oil		
Hole size: 8 1/2 "	Geologist: O.Hunnes/ S.Solymar		Date: 26.04.2000

Depth (m RT)	Lithology (%)		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.
2076	70	Sst:	clr - trnsl, lse Qtz Gr, v f - f, occ med - crs, mod - wl srt, sbang - sbrndd	bl gn Sh/Clst cavings
	20	Clst:	brnsh blk - blk, slty, sbblky, frm - mod hd, v carb	
	10	Dol:	v pl or - pl yelsh brn - mod yelsh brn, sblky - blky, hd - v hd, occ slily arg	
	Tr	Sltst:	med dk gry - brnsh gry, sft, arg, tr c	
	Tr	c:	blk, wxy, hd - v hd, blky	
	Tr	Mic		
2079	80	Sst:	a.a	a.a
	10	Clst:	a.a	
	10	Dol:	a.a	
	Tr	Sltst:	a.a	
	Tr	c:	a.a	
	Tr	Mic		
2082	60	Sst:	clr - trnsl, lse Qtz Gr, v f - v crs, prly srt, ang - rndd	a.a
	30	Dol:	a.a	
	10	Clst:	a.a	
	Tr	Sltst:	a.a	
	Tr	c:	a.a	
	Tr	Mic		
2085	80	Clst:	a.a	a.a
	10	Sst:	clr - trnsl, lse Qtz Gr, v f - f, occ med - crs, mod - prly srt, sbang - sbrndd	
	10	c:	occ Splin, else a.a	
	Tr	Sltst:	a.a	
	Tr	Dol:	a.a	
	r	Mic, Pyr		
2088	50	Sst:	a.a	a.a
	40	Clst:	a.a	
	10	Dol:	a.a	
	Tr	Sltst:	a.a	
	Tr	c:	a.a	
	r	Mic, Pyr		
2091	70	Sst:	a.a	a.a
	20	Clst:	a.a	
	10	Dol:	a.a	
	Tr	Sltst:	a.a	
	Tr	c:	a.a	
	r	Mic, Pyr		

STATOIL

WELLSITE SAMPLE DESCRIPTION				Page 14 of 15
Country: Norway		Area: Nordland II		Field: J-D Structure
Well no: 6608/10-6				
R.T.: 36 meters		Company: Statoil, Norsk Hydro, Norsk Agip, Enterprise Oil		
Hole size: 8 1/2 "		Geologist: O.Hunnes/ S.Solymar		Date: 26.04.2000

Depth (m RT)	Lithology (%)		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	80	Sst:	clr - trnsl, lse Qtz Gr, v f - f, occ med - crs, mod - prly srt, sbang - sbrndd	bl grn Sh/Clst cavings
	20	Clst:	brnsh blk - blk, slty, sbblky, frm - mod hd, v carb	
	Tr	Dol:	v pl or - pl yelsh brn - mod yelsh brn, sblky - blky, hd - v hd, occ slily arg	
	Tr	Sltst:	med dk gry - brnsh gry, sft, arg, tr c	
	Tr	c:	blk, wxy, hd - v hd, blky	
	r	Mic, Pyr		
2097	80	Sst:	a.a	a.a
	20	Clst:	a.a	
	Tr	Dol:	a.a	
	Tr	Sltst:	a.a	
	Tr	c:	a.a	
	r	Mic, Pyr		
2100	100	Sst:	a.a	a.a
	Tr	Clst:	a.a	
	Tr	Dol:	a.a	
	Tr	Sltst:	a.a	
	Tr	c:	a.a	
	r	Mic, Pyr		
2103	70	Clst:	a.a	a.a
	30	Sst:	a.a	
	Tr	Dol:	a.a	
	Tr	Sltst:	a.a	
	Tr	c:	a.a	
	r	Mic, Pyr		
2106	90	Clst:	a.a	a.a
	10	c:	a.a	
	Tr	Sst:	a.a	
	Tr	Dol:	a.a	
	Tr	Sltst:	a.a	
	r	Mic, Pyr		
2109	50	Sst:	a.a	a.a
	50	Clst:	a.a	
	Tr	Sltst:	a.a	
	Tr	c:	a.a	
	r	Mic, Pyr		
2112	60	Sst:	a.a	a.a
	20	Clst:	a.a	
	20	Sltst:	occ pl yelsh brn - dk yelsh brn, else a.a	
	Tr	c:	a.a	
	r	Mic, Pyr		

STATOIL

WELLSITE SAMPLE DESCRIPTION			
Country: Norway	Area: Nordland II		Field: J-D Structure
Well no: 6608/10-6			
R.T.: 36 meters	Company: Statoil, Norsk Hydro, Norsk Agip, Enterprise Oil		
Hole size: 8 1/2 "	Geologist: O.Hunnes/ S.Solymar		Date: 26.04.2000

Depth (m RT)	Lithology (%)		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.
2115	60	Sst:	clr - trnsl, lse Qtz Gr, v f - f, occ med - crs, mod - prly srt, sbang - sbrndd	bl grn Sh/Clst cavings
	20	Clst:	brnsh blk - blk, slty, sbblky, frm - mod hd, v carb	
	20	Sltst:	med dk gry - brnsh gry, occ pl yelsh brn - dk yelsh brn sft, arg, tr c	
	Tr	c:	blk, wxy, hd - v hd, blky	
	r	Mic, Pyr		

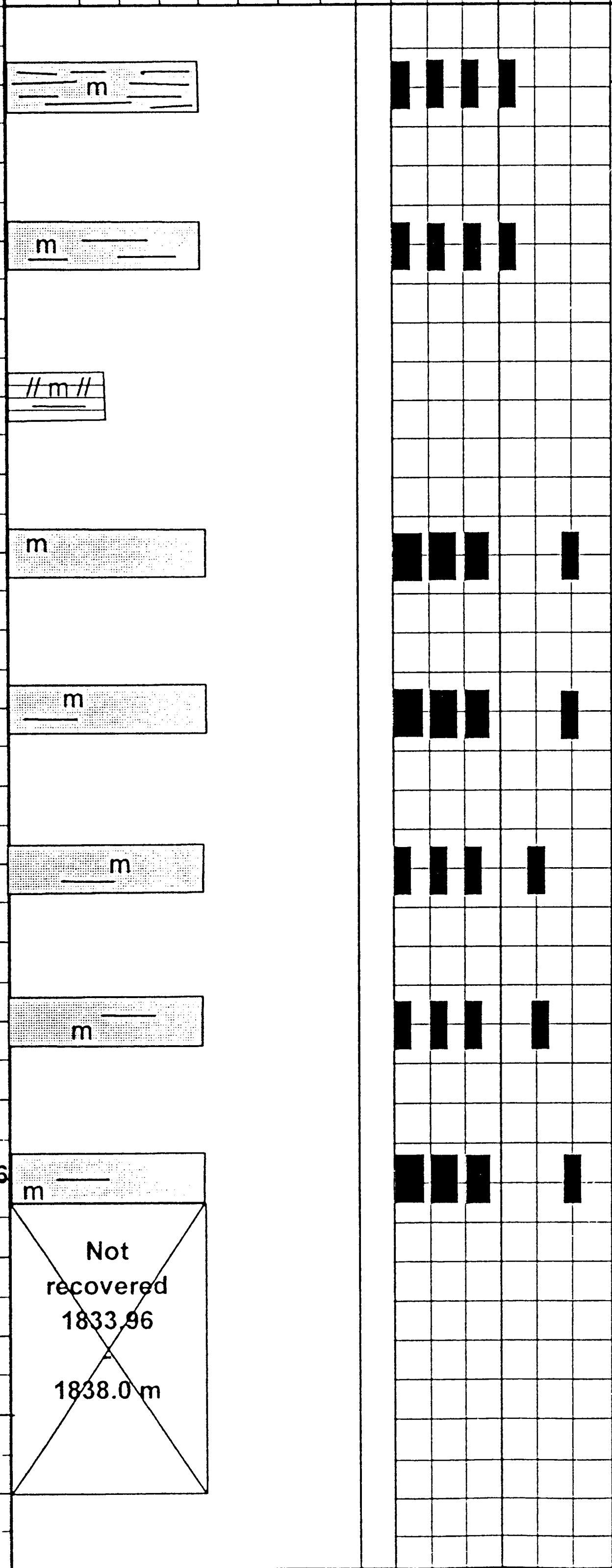
APPENDIX 5

Core descriptions

CORE DESCRIPTION

Country: Norway	**Area:** Nordland II	**Field:** J-D Prospect
Well no: 6608/10-6	**Formation:** Melke Formation	
Core no: 1	**Interval:** 1827 - 1838 m	**Cored:** 11 m **Rec:** 6.96 m (63%)
Core size: 4"	**Geologists:** T.A. Svånå / T. Klungsøyr	**Date:** 15.04.00

Depth (mRT) | Lithology/Grain size: cly slt vf f m c vc | APPARENT DIP | Shows: STAIN FLUOR CUT | Φ: POOR FAIR GOOD



Depth (mRT)	Lithological Description (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc)
1827	**SST:** arg, brn blk, f, mod srt, sbang, arg mtx, v wk sil cmt, fri - lse, arg - slty lam, micromic, no - pr vis por.	Gen description in Sst: Gd HC odour, bldg minor oil from core, med brn oil stn, spty - even brt yel - or dir fluor, mod stream wh cut fluor, pl straw vis cut in the best Sst, yel wh fluor res, no - pl straw vis res.
1828	**SST:** a.a.	
1829	**Sltst:** grad Clst, gry blk, wk cmt, frm, lam, micromic, non calc.	No shows in Sltst.
1830	**SST:** brn blk, f, wl srt, sbang, v wk sil cmt, fri - lse, hom, sl micromic, fr - gd vis por.	
1831	**SST:** a.a.	
1832	**SST:** slily arg lam, else a.a.	
1833	**SST:** slily better cmtd, else a.a.	
1833.96	**SST:** brn blk, f, wl srt, sbang, v wk sil cmt, fri - lse, hom, slily micromic, fr - gd vis por.	
1838		

cly slt vf f m c vc

STATOIL

CORE DESCRIPTION

Country: Norway	Area: Nordland II	Field: J-D Prospect
Well no: 6608/10-6	Formation: Melke Formation	
Core no: 2	Interval: 1838 - 1843 m	Cored: 5 m Rec: 1.90 m (38%)
Core size: 4"	Geologists: T.A. Svånå / T. Klungsøyr	Date: 16.04.00

Depth (mRT)	Lithology/Grain size (cly slt vf f m c vc)	APPARENT DIP	Shows: STAIN	FLUOR	CUT	Φ: POOR	FAIR	GOOD	Lithological Description (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc)
									Rubble of Clst and Dol on top of core, prob cavings.	
1838	m		■	■	■	■			SST: dsky yel brn, f, wl srt, sbang, slily arg mtx, wl dol cmt, mod hd - hd, slily micromic, pr vis por.	Gen description in Sst: Gd HC odour, bldg minor oil from core, med brn oil stn, spty - even brt yel - or dir fluor, slow - mod stream wh cut fluor, tr pl straw vis cut in the best Sst, yel wh fluor res, no - tr pl straw vis res
1839	m		■	■	■		■		SST: brn blk, f, wl srt, sbang, slily arg mtx, v wk sil cmt, fri - lse, slily slty lam, micromic, pr vis por.	
	m		■	■	■				Sltst: grad Clst, gry blk, wk cmt, frm, lam, micromic, non calc.	
1840–1843	Not rec. 1839.9 - 1843.0 m									

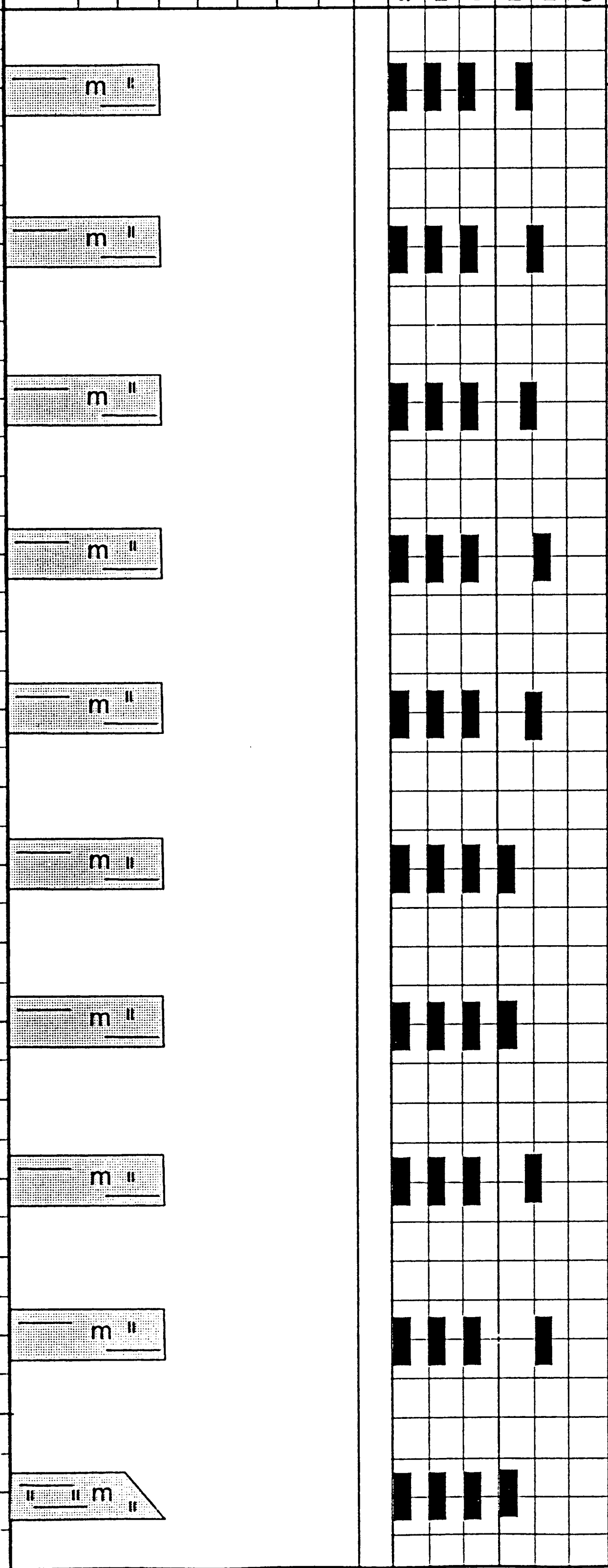
cly slt vf f m c vc

STATOIL

CONVENTIONAL CORE DESCRIPTION

Country: Norway	Area: Nordland II	Field: J-D Prospect
Well no: 6608/10-6	Formation: Melke / Not Formation	
Core no: 3	Interval: 1843 - 1862 m	Cored: 19 m Rec: 19.3 m (100%)
Core size: 4"	Geologists: T.A.Svånå/T.Klungsøyr	Date: 18.04.00

Lithology/Grain size: cly slt vf f m c vc — APPARENT DIP — Shows: STAIN FLUOR CUT — Φ: POOR FAIR GOOD



Depth (mRT)	Lithological Description (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. struct., accessories, fossils, porosity, contamination)
1843	SST: arg, mod yel brn, vf, w srt, sbang, arg mtx, slty, mod - w dol cmt, fri - frm, micromic, pr - occ fr vis por
1844	SST: dsky yel brn, v wk dol cmt, fr vis por, else a.a.
1845	SST: non dol cmt, occ slily sil cmt, fri - frm, pr - fr vis por, else a.a.
1846	SST: slily - mod sil cmt, lse - frm, fr vis por, else a.a.
1847	SST: fri - frm, occ slily dol cmt, slilt - mod sil cmt, pr - fr vis por, else a.a.
1848	SST: fri - mod hd, mod - w dol cmt, slty/sltst interlams, pr vis por, else a.a.
1849	SST: dk yel brn - dsky yel brn, pr vis por, else a.a.
1850	SST: fri - frm, pr - fr vis por, else a.a.
1851	SST: dsky yel brn, non dol cmt, slily - mod sil cmt, fr vis por, else a.a.
1852	SST: grad Sltst, v arg mtx, lse, slily dol cmt, pr vis por, else a.a.

Remarks (Shows, etc)

Gen. description in Sst:
Gd HC odour, bldg minor oil from core, med brn oil stn, even - occ spty bri yel dir fluor, mod - st strm wh cut fluor, pl straw vis cut in best Sst

cly slt vf f m c vc

STATOIL

CONVENTIONAL CORE DESCRIPTION

Country: Norway	**Area:** Nordland II	**Field:** J-D Prospect
Well no: 6608/10-6	**Formation:** Melke / Not Formation	
Core no: 3	**Interval:** 1843 - 1862.3 m	**Cored:** 19.3 m **Rec:** 19.3 m (100%)
Core size: 4"	**Geologists:** T.A.Svånå/T.Klungsøyr	**Date:** 18.04.00

Depth (mRT)	Lithology/Grain size (cly slt vf f m c vc)	Apparent dip	Shows (Stain, Fluor, Cut)	Φ (Poor, Fair, Good)	Lithological Description (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc)
1853					**SST:** dsky yel brn, vf, w srt, sbang, arg mtx, slty, mod dol cmt, fri - frm, micromic, pr - fr vis por	Gd HC odour, bldg minor oil from core, med brn oil stn, even - spty bri yel dir fluor, mod - fst strm wh cut fluor, pl straw vis cut in best Sst
1854					**SST:** grad Sltst, v arg mtx, lse - frm, occ micropyr, pr vis por, else a.a..	
1855					**SLTST** grad Clst, dk gry, frm - mod hd, lam, mod dol cmt, micromic	HC odour, no dir fluor, no cut fluor
1856					**SLTST** frm, else a.a.	a.a.
1857					**SLTST** grad vf Sst, mod hd - hd, w dol cmt, else a.a.	HC odour, spty yel dir fluor, slow - mod strm wh cut fluor
1858					**SLTST** grad Clst, dk gry, frm - mod hd, lam, mod dol cmt, micromic	Weak HC odour, no dir fluor, no cut fluor
1859					**SLTST** dk gry - grsh blk, else a.a.	a.a.
1860					**SLTST** a.a.	a.a.
1861					**SLTST** grsh blk, frm, sdy, v arg mtx, lam, mod dol cmt, micromic	a.a.
1862					**SLTST** grad Clst, sft - frm, else a.a.	a.a.

Base core # 3: 1862.3mRT

cly slt vf f m c vc

STATOIL

CONVENTIONAL CORE DESCRIPTION

Country: Norway	**Area:** Nordland II	**Field:** J-D Prospect
Well no: 6608/10-6	**Formation:** Not / Åre Formation	
Core no: 4	**Interval:** 1862.3 - 1878 m	**Cored:** 15.7 m **Rec:** 14.75 m (94%)
Core size: 4"	**Geologists:** T.A.Svånå/T.Klungsøyr	**Date:** 19.04.00

Depth (mRT)	Lithology/Grain size (cly slt vf f m c vc)	APPARENT DIP	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. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc)
1862	Top of core: 1862.3 m								**CLST:** grsh blk, sft - frm, stky, v slty, micromic, slily calc/dol.	**In Clst / Sltst:** Weak HC odour, no dir fluor/cut fluor
1863									**CLST:** grad Slst a.a.	
1864						■			**SLTST:** grsh blk - dsky yel brn, v arg grad Clst, mod dol cmt, frm - mod hd, lam, non calc.	
1865			■	■	■	■			**SST:** mod yel brn, v f grad Sltst, mod srt, sbang, arg, wl calc cmt, hd - v hd, slily micromic, no vis por.	**Gen. description in Sst:** Gd HC odour, m brn oil stn, even - occ spty bri yel dir fluor, slow - mod strm wh cut fluor, pl straw vis cut in best Sst
1866			■	■	■		■		**SST:** dk yel brn - dsky yel brn, v f - f, mod srt, sbang - sbrndd, arg mtx, fri - frm, v slty, mod dol cmt, micromic, pr - occ fr vis por	
1867			■	■	■		■		**SST:** v f - occ f, fr vis por, else a.a.	
1868			■	■	■		■		**SST:** pr - fr vis por, else a.a.	
1869			■	■	■	■			**SLTST:** v arg grad Clst, dsky yel brn, wk dol cmt, sft, sdy, slily micromic, non calc.	**SLTST at 1869m:** Shows as described in Sst
1870			■	■	■		■		**SST:** dk yel brn - dsky yel brn, v f, mod - w srt, sbang - sbrndd, arg mtx, fri - frm, slty, wk dol cmt, micromic, pr - fr vis por	
1871			■	■	■		■		**SST:** a.a.	

cly slt vf f m c vc

STATOIL

CONVENTIONAL CORE DESCRIPTION

Country: Norway	**Area:** Nordland II	**Field:** J-D Prospect
Well no: 6608/10-6	**Formation:** Not / Åre Formation	
Core no: 4	**Interval:** 1862.3 - 1878 m	**Cored:** 15.7 m **Rec:** 14.75 m (94%)
Core size: 4"	**Geologists:** T.A.Svånå/T.Klungsøyr	**Date:** 19.04.00

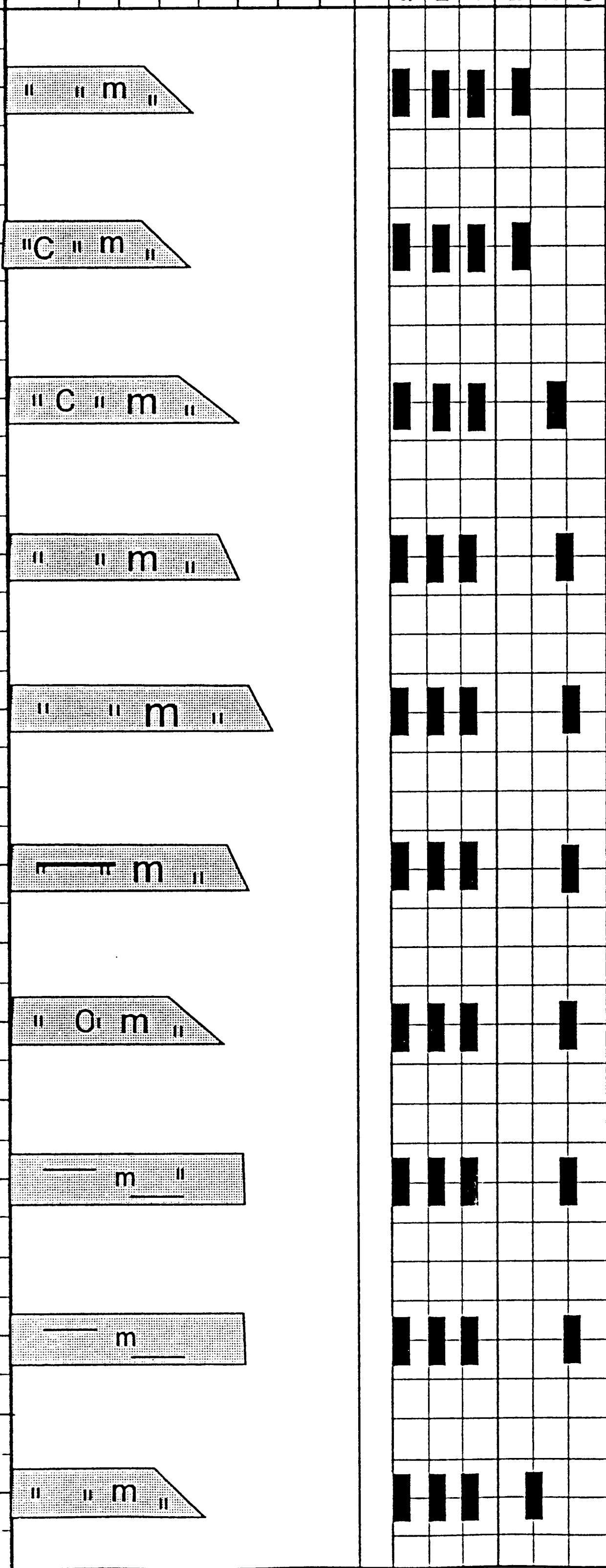
Depth (mRT)	Lithology/Grain size (cly slt vf f m c vc)	APPARENT DIP	Shows: STAIN	Shows: FLUOR	Shows: CUT	Φ: POOR	Φ: FAIR	Φ: GOOD	Lithological Description (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc)
1872	m		■	■	■		■		**SST:** dk yel brn - dsky yel brn, v f, mod - w srt, sbang - sbrndd, arg mtx, fri - frm, slty, wk dol cmt, micromic, pr - fr vis por	**Gen. description in Sst:** Gd HC odour, bldg oil from core at 1874 and 1875m, med brn oil stn, even - occ spty bri yel dir fluor, slow - mod strm wh cut fluor, pl straw vis cut in best Sst
1873	m		■	■	■		■		**SST:** a.a.	
1874	m		■	■	■		■		**SST:** a.a.	
1875	m		■	■	■		■		**SST:** a.a.	
1876	m		■	■	■		■		**SST:** a.a.	
1877	m; Base core # 4: 1877.05mMD RKB		■	■	■	■			**SLTST/SST:** v arg mtx grad slty/sdy Clst, dsky yel brn, slt - vf, pr - mod srt, wk dol cmt, sft - frm, micromic, no v pr vis por	Shows as above, less distinct HC odour
1878										

cly slt vf f m c vc

CONVENTIONAL CORE DESCRIPTION

Country: Norway	**Area:** Nordland II	**Field:** J-D Prospect
Well no: 6608/10-6	**Formation:** Åre Formation	
Core no: 5	**Interval:** 1878 - 1897 m	**Cored:** 19 m **Rec:** 14.8 m (77.9%)
Core size: 5"	**Geologists:** 0.Hunnes/S.Solymar	**Date:** 21.04.00

Lithology/Grain size: cly slt vf f m c vc — APPARENT DIP — Shows: STAIN FLUOR CUT — Φ: POOR FAIR GOOD



Depth (mRT)	Lithological Description (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc)
1878	SST: dk yel brn, pred vf - f, v arg i.p. grad arg Sst, fri, frm, non calc cmt, mic, pr vis por	**Gen. description in Sst:** Gd HC odour, med brn oil stn, even bri yel dir fluor, mod fst strm bl - wh cut fluor, wk shows at 1879 m and 1878 m
1879	SST: dk yel brn, pred vf - f, mod srt, v arg i.p. grad arg Sst, fri, frm, non calc cmt, mic, pr vis por, also 1 - 2 mm thick lam of carb clst	
1880	SST: lt yel brn, pred f - med, sbang, wl srt, arg i.p. occ as carb lam, frm - lse, fr vis por	
1881	SST: lt yel brn, pred med, occ f, sbrndd, else a.a.	
1882	SST: lt yel brn, med - crs, rndd - sbrndd, v lse, fr vis por	
1883	SST: lt yel brn, pred med, sbrndd, wl srt, else a.a., also incl of carb Clst	
1884	SST: a.a., with incl of C frags; blk, hd, shny frac	
1885	SST: pred med, else a.a.	
1886	SST: pred a.a., also v crs, wl rndd, all lse, fr - gd vis por	
1887	SST: lt yel brn, vf - f, sbrndd, wl srt, frm, slily arg, pr vis por	Wk HC odour, lt even yel fluor, slow blooming bl wh cut fluor

cly slt vf f m c vc

CONVENTIONAL CORE DESCRIPTION

Country: Norway	**Area:** Nordland II	**Field:** J-D Prospect
Well no: 6608/10-6	**Formation:** Åre Formation	
Core no: 5	**Interval:** 1878 - 1897 m	**Cored:** 19 m **Rec:** 14.8 m (77.9%)
Core size: 4"	**Geologists:** O. Hunnes/ S. Solymar	**Date:** 21.04.00

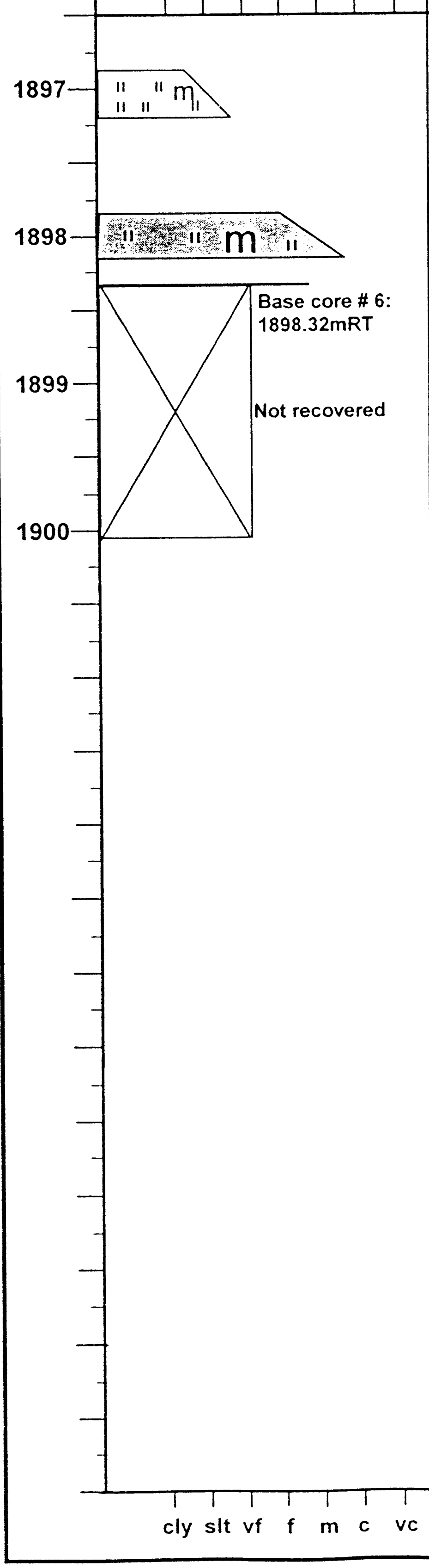
Depth (mRT)	Lithology/Grain size (cly slt vf f m c vc)	Apparent dip	Shows: Stain	Shows: Fluor	Shows: Cut	Φ: Poor	Φ: Fair	Φ: Good	Lithological Description (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc)
1888	m		■	■	■	■			**SST:** lt yel brn, v f - f, sbrndd, wl srt, sl arg, mic, frm, pr vis por	Wk HC odour, lt yel even fluor, slow blooming bl wh cut fluor
1889	C m								**CLST:** slty, brn gry, frm - mod hd, v mic, carb, non calc.	No shows
1890	m		■	■	■	■			**SST:** lt yel brn, v f - f, sbrnd, wl srt, slily arg, mic, frm, pr vis por	Wk HC odour, lt yel even fluor, slow blooming bl wh cut fluor
1891	m		■	■	■	■			**SST/SLTST:** v f sd - slty, pl yel brn, frm, arg i.p., calc cmt, pr vis por	Shows a.a.
1892	m		■	■	■			■		Good HC odour, brn oil stn, even bri yel dir fluor, mod fst strmg bl wh cut fluor
	m		■	■	■	■			**SST:** pl yelsh brn - lt brn, f - med, sbang - rndd, wl srt, fri, sft, gd vis por	Shows as above but less distinct
1893	Base core # 5: 1892.8 mRKB									
1894–1897	Not recovered									

cly slt vf f m c vc

CONVENTIONAL CORE DESCRIPTION

Country: Norway	**Area:** Nordland II	**Field:** J-D Prospect
Well no: 6608/10-6	**Formation:** Åre Formation	
Core no: 6	**Interval:** 1897 - 1900 m	**Cored:** 3 m **Rec:** 1.32 m (44%)
Core size: 4"	**Geologists:** O. Hunnes / S. Solymar	**Date:** 21.04.00

Depth (mRT) | Lithology/Grain size: cly slt vf f m c vc | APPARENT DIP | Shows: STAIN, FLUOR, CUT | Φ: POOR, FAIR, GOOD | Lithological Description (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. struct., accessories, fossils, porosity, contamination) | Remarks (Shows, etc)



Depth	Shows	Φ	Lithological Description	Remarks
~1897	FLUOR, CUT		**SLTST:** pl yelsh brn - dk yelsh brn, occ v Sd gr, frm, mic, frm, tr c	Wk HC odour, none - dull yel flour, v slow bl wh - vi strmg cut flour
~1898	STAIN, FLUOR, CUT	FAIR	**SST:** pl yelsh brn - dk yelsh brn, f - med, occ crs, sbang-sbrnd, wl srt, fri, tr mic, gd vis por	Fair HC odour, lt brn oil stn, sptd - even mod bri yel fluor, mod strmg bl wh cut fluor
~1898.3	FLUOR, CUT		**SLTST:** pl yelsh brn - dk yelsh brn, occ v f Sd gr, frm, mic, frm, tr c, occ calc	Fair HC odour, sptd mod yel fluor, mod strmg bl wh - vi cut fluor

STATOIL

CONVENTIONAL CORE DESCRIPTION

Country: Norway	**Area:** Nordland II	**Field:** J-D Prospect
Well no: 6608/10-6	**Formation:** Åre Formation	
Core no: 7	**Interval:** 1900 - 1923 m	**Cored:** 23 m **Rec:** 23,3 m (101%)
Core size: 5"	**Geologists:** 0.Hunnes/S.Solymar	**Date:** 22.04.00

Depth (mRT)	Lithology/Grain size (cly slt vf f m c vc)	Apparent dip	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. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc)
1900			■	■	■	■			**SLTST:** lt brnsh gry - pl yelsh brn - dk yelsh brn, occ v f Sd gr, v wl srt, frm, tr Mic, tr c, pr vis por	fair HC odour, lt brn oil stn, even bri yel fluor, mod strm bl wh cut fluor
1901						■			**SLTST:** lt brnsh gry, mod hd, tr Mic, tr c, grad Clst, pr - no vis por	weak HC odour, no shows
1902			■	■	■	■			**SLTST:** lt brnsh gry - pl yelsh brn, occ v f Sd gr, v wl srt, frm, tr Mic, tr c, poor vis por	fair HC odour, lt brn oil stn, even bri yel fluor, mod strm bl wh cut fluor
1903			■	■	■	■			**SLTST:** lt brnsh gry - pl yelsh brn - dk yelsh brn, grad v f Sst, v wl srt, frm, tr Mic, tr c, pr vis por	fair HC odour, lt brn oil stn, even bri yel fluor, fast strm bl wh cut fluor
1904	m		■	■	■		■		**SST:** dk yelsh brn - pl yelsh brn, v f, v wl srt, fri, tr Mic, r c, fr vis por	gd HC odour, lt brn oil stn, even bri yel fluor, inst strm bl wh cut fluor
1905									**CLST:** blk, ea, blky, mic, v carb	
1906	m c		■	■	■		■		**SST:** dk yelsh brn - pl yelsh brn, v f , grad Slst, v wl srt, tr Mic, tr c, fr vis por	fair HC odour, mott mod yel fluor, mod strm bl wh cut fluor
1907			■	■	■		■		**SST:** dk yelsh brn, v f, v wl srt, rndd, fri - sft, fr vis por	gd HC odour, mod brn oil stn, even bri yel fluor, inst strm bl wh cut fluor
1908	m		■	■	■		■		**SST:** brnsh gry - dk yelsh brn, v f, grad Sltst, wl srt, tr Mic, tr c, slily arg, fr vis por	fair HC odour, even mod yel fluor, sl strm bl wh cut fluor
1909	m		■	■	■		■		**SST:** pl yelsh brn - dk yelsh brn, v f, v wl srt, rndd, sft, r Mic, fr vis por	gd HC odour, lt brn oil stain, even brt yel fluor, mod strm bl wh cut fluor

cly slt vf f m c vc

STATOIL

CONVENTIONAL CORE DESCRIPTION

Country: Norway	**Area:** Nordland II	**Field:** J-D Prospect
Well no: 6608/10-6	**Formation:** Åre Formation	
Core no: 7	**Interval:** 1900 - 1923 m	**Cored:** 23 m **Rec:** 23.3 m (101%)
Core size: 5"	**Geologists:** 0.Hunnes/S.Solymar	**Date:** 22.04.00

Depth (mRT)	Lithology/Grain size (cly slt vf f m c vc)	APPARENT DIP	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. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc)
1910			■	■	■		■		SST: pl yelsh brn - dk yelsh brn, v f, v wl srt, rndd, sft, fr vis por	gd HC odour, mod yelsh brn oil stain, even mod yel fluor, mod strm bl wh cut fluor
1911	m		■	■	■		■		SST: dk yelsh brn, pl yelsh brn, v f, occ f, v wl srt, rndd, fri, r Mic, fr vis por	gd HC odour, lt brn oil stain, even mod yel fluor, mod strm bl wh cut fluor
1912	m		■	■	■		■		SST: dk yelsh brn, pl yelsh brn, v f, occ f, v wl srt, rndd, fri, r Mic, fr vis por	gd HC odour, lt brn oil stain, even brt yel fluor, mod strm bl wh cut fluor
1913	m		■	■	■		■		SST: dk yelsh brn, pl yelsh brn, v f - f, v wl srt, rndd, fri, r Mic, fr vis por	
1914	m		■	■	■		■		SST: dk yelsh brn, pl yelsh brn, v f - f, v wl srt, rndd, fri, r Mic, fr vis por	
1915	m		■	■	■		■		SST: dk yelsh brn, pl yelsh brn, v f - f, v wl srt, rndd, fri, r Mic, fr vis por	
1916	m		■	■	■		■		SST: dk yelsh brn, pl yelsh brn, v f - f, v wl srt, rndd, fri, r Mic, fr vis por	
1917	m		■	■	■		■		SST: dk yelsh brn, pl yelsh brn, v f - f, v wl srt, rndd, fri, r Mic, fr vis por	
1918	m		■	■	■		■		SST: dk yelsh brn, pl yelsh brn, v f - f, v wl srt, rndd, fri, r Mic, fr vis por	
1919	m		■	■	■		■		SST: dk yelsh brn, pl yelsh brn, v f - f, v wl srt, rndd, fri, r Mic, fr vis por	

cly slt vf f m c vc

STATOIL

CONVENTIONAL CORE DESCRIPTION

Country: Norway	Area: Nordland II	Field: J-D Prospect
Well no: 6608/10-6	Formation: Åre Formation	
Core no: 7	Interval: 1900 - 1923 m	Cored: 23 m Rec: 23,3 m (101%)
Core size: 5"	Geologists: 0.Hunnes/S.Solymar	Date: 22.04.00

Depth (mRT)	Lithology/Grain size (cly slt vf f m c vc)	Apparent dip	Shows: Stain	Fluor	Cut	Φ: Poor	Fair	Good	Lithological Description (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc)
1920	m		■	■	■		■		SST: dk yelsh brn, pl yelsh brn, v f - f, v wl srt, rndd, fri, r Mic, fr vis por	gd HC odour, lt brn oil stain, even brt yel fluor, mod strm bl wh cut fluor
1921	m		■	■	■		■		SST: dk yelsh brn, pl yelsh brn, v f - f, v wl srt, rndd, fri, r Mic, fr vis por	
1922	m		■	■	■		■		SST: pl yelsh brn - mod yelsh brn, v f, occ f, v wl srt, rndd, fri, rc, r Mic, fr vis por	fair HC odour, lt brn oil stain, even mod yel fluor, mod strm bl wh cut fluor
1923	II m II c II		■	■	■	■			SST: pl yelsh brn - dk yelsh brn, v f, v wl srtd, fri - sft, r Mic, r c, w/ Slst lam. SLTST: lt med gry - med gry, frm - mod hd, slily arg, slily calc, gen pr - no vis por	fair HC odour, lt brn oil stain, mott - even mod yel fluor, slow - mod strm bl wh cut fluor
	Base core 1923,3m, but TD at 1923									
1924										

Note! Difficulty to estimate visible porosity due to very fine grained sandstone

cly slt vf f m c vc

STATOIL

CONVENTIONAL CORE DESCRIPTION

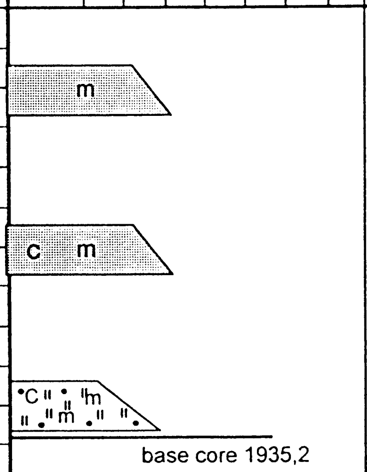
Country: Norway	**Area:** Nordland II	**Field:** J-D Prospect
Well no: 6608/10-6	**Formation:** Åre Formation	
Core no: 8	**Interval:** 1923 - 1936m	**Cored:** 13 m **Rec:** 12.1 m 93 %
Core size: 4"	**Geologists:** 0.Hunnes/S.Solymar	**Date:** 23.04.00

Depth (mRT)	Lithology/Grain size (cly slt vf f m c vc)	APPARENT DIP	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. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc)
1923,3	m		■	■	■	■			**SST:** lt olv gry, v f - f, slty i.p., fri, lse, wl srt, tr Mic, pr vis por	wk HC odour, lt brn oil stain, pch - sptd, brt yel fluor, wh cut fluor
1924	C m								**SLTST:** lt olv gry, sdy, fn sbrndd, Sd gr, frm, v arg, v mic, r c, non calc, no vis por	no shows
1925	m c		■	■	■			■	**SST:** pl yelsh brn, f, sbrnds, wl srt, lse - fri, tr c, r Mic, gd vis por	gd HC odour, brn oil stn, even brt yel fluor, inst bl wh cut fluor
1926	m c		■	■	■			■	**SST:** pl yelsh brn, f, sbrndd, wl srt, lse - fri, tr c, r Mic, gd vis por	gd HC odour, brn oil stn, even brt yel fluor, inst bl wh cut fluor
1927	m c		■	■	■			■	**SST:** pl yelsh brn, v f - f, sbrndd, wl srt, lse - fri, tr c, r Mic, gd vis por	gd HC odour, brn oil stn, even brt yel fluor, inst bl wh cut fluor
1928	m c		■	■	■	■			**SST:** pl yelsh brn, v f - slt, sbrndd, wl srt, lse - fri, tr c, tr Mic, pr vis por	wk HC odour, brn oil stn, even brt yel fluor, bl wh cut fluor
1929			■	■	■			■	**SST:** lt brn, med - crs, sbrndd - rndd, wl srt, fri - lse, gd - ex vis por	gd HC odour, lt brn oil stn, even brt yel fluor, inst bl wh cut fluor
1930	m		■	■	■		■		**SST:** lt brn, v f - f, sbrndd - rndd, wl srt, lse - fri, tr Mic, fr vis por	mod HC odour, lt brn oil stn, even brt yel fluor, mod - fst blooming bl wh cut fluor
1931	m		■	■	■		■		**SST:** lt brn, vf, occ f, sbrnd-rnd, wl srt, lse-fri, tr Mic, gd - fr vis por	mod HC odour, lt brn oil stn, even brt yel fluor, fst blooming bl wh cut fluor
1932	m		■	■	■		■		**SST:** lt brn, vf-f, sbrndd - rndd, occ crs rndd gr, wl srt, lse - fri, tr Mic, gd - fr vis por	wk HC odour, lt brn oil stain, even brt yel fluor, slow bl wh cut fluor

cly slt vf f m c vc

CONVENTIONAL CORE DESCRIPTION

Country: Norway	**Area:** Nordland II	**Field:** J-D Prospect
Well no: 6608/10-6	**Formation:** Åre Formation	
Core no: 8	**Interval:** 1923 -1936 m	**Cored:** 13 m **Rec:** 12.1 m (93%)
Core size: 4"	**Geologists:** 0.Hunnes/S.Solymar	**Date:** 23.04.00



Depth (mRT)	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. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc)
1933	■	■	■			■	**SST:** lt brn, v f, occ f, sbrndd - rndd, wl srt, lse - fri, tr Mic, gd - fr vis por	wk HC odour, lt brn oil stain, even brt yel fluor, slow bl wh cut fluor
1934	■	■	■			■	**SST:** lt brn, vf, occ f, sbrndd - rndd, wl srt, lse - fri, r Mic, r c, gd - fr vis por	wk HC odour, lt brn oil stain, even brt yel fluor, slow bl wh cut fluor
1935		■					**SLTST:** dk gry - olv gry, sdy, frm - mod hd, v arg, v mic, tr c, non calc, lam	no HC odour, no oil stain, sptd yel fluor, no cut fluor
1936								
1937								

cly slt vf f m c vc

CONVENTIONAL CORE DESCRIPTION

Country: Norway	**Area:** Nordland II	**Field:** J-D Prospect
Well no: 6608/10-6	**Formation:** Åre Formation	
Core no: 9	**Interval:** 1936 - 1956	**Cored:** 20 m **Rec:** 18.2 m 91 %
Core size: 4"	**Geologists:** O.Hunnes/S.Solymar	**Date:** 24.04.00

Depth (mRT)	Lithology/Grain size (cly slt vf f m c vc)	Apparent dip	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. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc)
1936									DOL: med gry - med dk gry, occ lt gry - wh, mass, v hd, Ls Incl, r Pyr	
1937	m c		■	■	■		■		SST: pl yelsh brn, v f - f, slty i.p., mod srt, sbrndd, frm, tr Mic, r c, pr - fr vis por, Lam of Clst CLST: brn blk, v slty, frm - mod hd, sbfis, v mic, tr Pyr, non calc	fr HC odour, pch lt brn oil stn, even - pch brt yel fluor, slow blooming - strm bl wh cut fluor
1938	m m m			■	■	■			SST: pl yelsh brn, v f, frm, sbfis, v slty, arg, v mic, pr vis por	spty yel fluor, slow blooming - strm bl wh cut fluor
1939	m m			■	■				SLTST: pl yelsh brn, vf Sd Incl, v mic	in Sd Incl, spty yel fluor, slow blooming - strm bl wh cut fluor
1940	m c m								CLST: brn blk, sdy - slty i.p., frm, sbfis, v mic, r c, non calc	
1941	m c m								CLST: dk yel brn, sdy - slty i.p., frm, sbfis, v mic, r c, non calc	
1942				■	■	■			SST: mod yel brn, v f - slty, also crs, mod srt, sbrndd - rndd, r Mic, arg Lam, pr vis por	wk HC odour, even dull yel fluor, slow strm bl wh cut
1943			■	■	■			■	SST: mod -dk yel brn, med -crs, wl srt, sbang-sbrnd, lse, fr - gd vis por	strong HC odour, lt brn oil stn, even brt yel fluor, inst bl wh cut fluor
1944	m c			■	■		■		SST: lt brn, vf-f, wl srt, sbang, fri - frm, r Mic, r c, fr vis por	fr - wk HC odour, even brt yel fluor, inst bl wh cut fluor
1945				■	■			■	SST: pl yelsh brn, m, wl srt, sbrndd - rndd, fri - lse, fr - gd vis por	fr - wk HC odour, even brt yel fluor, inst wh - bl wh cut fluor

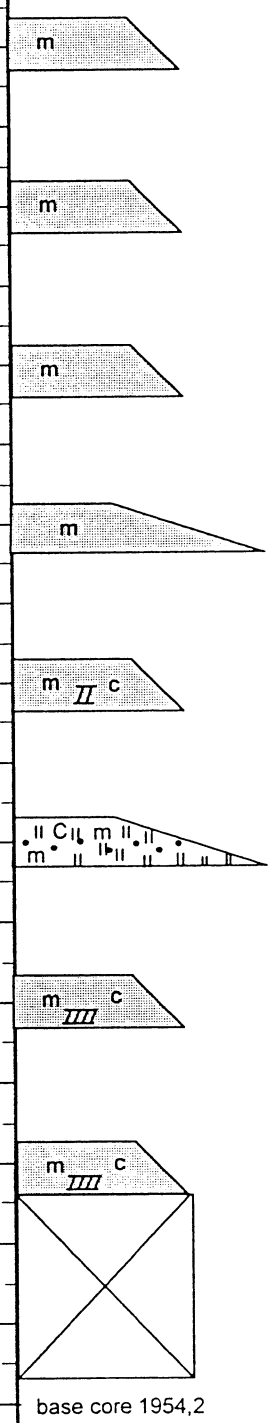
cly slt vf f m c vc

STATOIL

CONVENTIONAL CORE DESCRIPTION

Country: Norway	**Area:** Nordland II	**Field:** J-D Prospect
Well no: 6608/10-6	**Formation:** Åre Formation	
Core no: 9	**Interval:** 1936 - 1956	**Cored:** 20 m **Rec:** 18.2 m 91%
Core size: 4"	**Geologists:** O.Hunnes/S.Solymar	**Date:** 24.04.00

Lithology/Grain size: cly slt vf f m c vc



Depth (mRT)	Apparent dip	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. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc)
1946			■	■			■	SST: pl yelsh brn, v f - f, wl srt, sbang, fri - frm, r Mic, fr - gd vis por	fr HC odour, even brt yel flour, slow strm wh - bl wh cut fluor
1947			■	■			■	SST: pl yelsh brn, v f - f, wl srt, sbang, fri - frm, r Mic, fr - gd vis por	fr HC odour, even brt yel flour, slow strm wh - bl wh cut fluor
1948			■	■			■	SST: pl yelsh brn, v f - f, wl srt, sbang, frm, r Mic, fr - gd vis por	fr HC odour, even brt yel fluor, slow blooming wh - bl wh cut fluor
1949			■	■			■	SST: pl yelsh brn, v f - f, occ crs, wl srt, sbang - sbrndd, frm, r Mic, fr - gd vis por	fr HC odour, even brt yel fluor, med - fst strm - blooming bl wh cut fluor
1950		■	■	■			■	SST: pl yelsh brn, v f - f, wl srt, sbrnd, fri - frm, slily dol, r c, r Mic, fr - gd vis por	fr HC odour, occ lt brn oil stn, even brt yel fluor, mod blooming bl wh cut fluor
1951			■	■				SLTST: med gry - dk gry, frm, v mic, tr c, non calc, lam of Sst SST: pl yelsh brn, v f - f, occ med - crs, wl srt, sbrndd, fri	pch dull yel fluor, slow strm bl wh cut fluor
1952		■	■	■		■		SST: pl yelsh brn, v f - f, wl srt, sbrndd, sft, dol, r c, r Mic, fr vis por	fr HC odour, occ lt brn oil stn, even brt yel fluor, mod strm bl wh cut fluor
1953		■	■	■		■		SST: pl yelsh brn, v f - f, wl srt, sbrndd, sft, dol, tr Mic, tr c, fr vis por	fr HC odour, occ lt brn oil stn, pchy mod - brt yel fluor, mod blooming bl wh cut fluor
1954			■					SST: most likely a.a., bad sample	wk HC odour, pchy dull - mod yel flour
1955									

cly slt vf f m c vc

CONVENTIONAL CORE DESCRIPTION

Country: Norway	**Area:** Nordland II	**Field:** J-D Prospect
Well no: 6608/10-6	**Formation:** Åre Formation	
Core no: 10	**Interval:** 1956 - 1973	**Cored:** 17 m **Rec:** 15.2 m 89.4 %
Core size: 4"	**Geologists:** O.Hunnes/S.Solymar	**Date:** 25.04.00

Depth (mRT)	Lithology/Grain size (cly slt vf f m c vc)	APPARENT DIP	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. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc)
1956				■	■	■			SST: lt olv gry - pl yelsh brn, v f - f, v arg i.p., v mic (as lam), frm, calc cmt, pr - no vis por	wk HC odour, pch dull yel fluor, wk blooming bl wh cut fluor
1957									SLTST/SST: pl yelsh brn, f - sft, frm, calc cmt, slily arg, v mic, tr c, no vis por	
1958				■	■				SLTST/SST: pl yelsh brn, f - sft, frm, calc cmt, slily arg, v mic, tr c, no vis por	wk HC odour, spty dull yel fluor, wk blooming bl wh cut fluor
1959				■	■				SLTST/SST: pl yelsh brn, f - sft, frm, calc cmt, v arg, v mic, tr c, no vis por	wk HC odour, spty dull yel fluor, wk blooming bl wh cut fluor
1960				■	■				SST: pl yelsh brn, v f, wl srt, frm - hd, calc cmt, no vis por	mod HC odour, even brt yel fluor, slow strm bl wh cut
1961				■	■				SST: pl yelsh brn, v f, wl srt, frm - hd, calc cmt, no vis por	mod HC odour, even brt yel fluor, slow strm bl wh cut
1962				■	■				SLTST/SST: pl yelsh brn, v f - slty, mod srt, calc cmt, frm - hd, slily fis, tr Mic, tr c, no vis por	even brt yel fluor, slow strm bl wh cut
1963				■	■				SLTST/SST: pl yelsh brn, v f - slty, mod srt, calc cmt, frm - hd, slily fis, tr Mic, tr c, no vis por	even brt yel fluor, slow strm bl wh cut
1964				■	■				SLTST: pl yelsh brn, occ v f Sd, wl - mod srt, calc cmt, frm - hd, fis, tr Mic, no vis por	even brt yel fluor, slow strm bl wh cut
1965				■	■	■			SST: pl yelsh brn - dk yelsh brn, v f - f, wl srt, sbrndd, fri - frm, tr Mic, arg lam, non calc, pr vis por	mod HC odour, even brt yel fluor, mod - fst strm bl wh cut fluor

cly slt vf f m c vc

CONVENTIONAL CORE DESCRIPTION

Country: Norway	**Area:** Nordland II	**Field:** J-D Prospect
Well no: 6608/10-6	**Formation:** Åre Formation	
Core no: 10	**Interval:** 1956 - 1973	**Cored:** 17 m **Rec:** 15.2 m 89,4%
Core size: 4"	**Geologists:** O.Hunnes/S.Solymar	**Date:** 24.04.00

Depth (mRT)	Lithology/Grain size (cly slt vf f m c vc)	Apparent dip	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. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc)
1966									**CLST:** brnsh blk, v sdy - slty, frm - hd, fis, v mic (pt as lam), tr c, slily calc	
1967									**CLST:** brnsh blk, v sdy - slty, frm - hd, fis, v mic (pt as lam), tr c, slily calc	
1968									**SLTST:** dk yelsh brn, occ vf Sd, frm - hd, sbfis, mic, tr c, non calc	
1969									**SST:** pl yelsh brn, v f - f, mod srt, sbang, v mic, tr c, non calc, no vis por	pch dull yel fluor, slow strm - blooming bl wh cut fluor
1970									**CLST:** brnsh blk, tr Sd, hd, fis, non calc, blk c Incl	
1971	base core 1971.15								**SST:** pl yelsh brn, v f - slty, occ f, mod - prly srt, sbang, frm, calc cmt, slily mic, arg i.p., no vis por	mod - wk HC odour, even brt yel fluor, fst strm bl wh cut fluor
1972										
1973										

cly slt vf f m c vc

APPENDIX 6

List of additional available reports

List of additional available reports

Corepro Lab AS	- Grain Size Distribution (Sieve analysis, Sonic dry) - Core Photogaphs, core: 1-10, White Light & UV Light
CoreLab	- Wax and Asphaltene Study, 6608/10-6 - Reservoir Fluid Viscosity Analysis, 6608/10-6
Baker Hughes	- End of Well Report, MWD - End of Well Report, Coring - Definitive Survey Report
BioStrat Ltd.	- Palynology og Well N6608/10-6 (1704m-2115m) Mid Norway
Gardline	- Site Survey NOCS 6608/10-F (Norne) Pre-drilling Hazard Survey, June 1997. Survey Report and Charts
Geoservices	- Final Well Report, Mudlogging
GeoStrat	- Statoil 6608/10-6, Biostratigraphy of the interval 1,470m - 1,827m
Oilphase	- PVT Report - Samples from Svale, Melke Fm. - PVT Report - Samples from Svale, Åre Fm. - PVT Report - Samples from Svale, Lower Åre Fm.
PGS Reservoir	- Sedimentological core Descriptions and Interpretation of Well 6608/10-6
Read Well Services	- Zero Offset VSP
Schlumberger	- Digital Well Data Reporting to NPD
Statoil	- Miljørisikoanlayse for boring av letebrønn 6608/10-6 og sidesteg -6S - Beredskapsanalyse Oljevern Letebrønn 6608/10-6 - Geological Prognosis / Pressure Prognosis / Drilling Programme, PL 128 - Crude Oil Assay, Svale 6608/10-6 - Water analysis
West Lab	- TBP-Distillation and Hydrocarbon Analysis, 6608/10-6, Melke Fm. - TBP-Distillation and Hydrocarbon Analysis, 6608/10-6, Åre Fm. - TBP-Distillation and Hydrocarbon Analysis, 6608/10-6, Lower Åre Fm.

ENCLOSURES

Composite log
Formation evaluation log (Geoservices)
Pressure evaluation log (Geoservices)

Norsk Hydro
Norsk Agip A/S
Enterprise Oil
PARTNERS

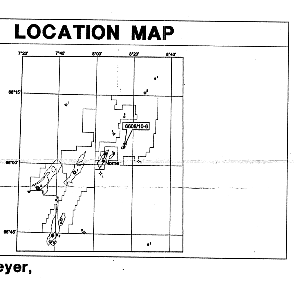
6608/10-6
WELL

STATOIL
Svale
PROSPECT STRUCTURE

COMPOSITE LOG
1 : 500

AREA:	Nordland II
LICENCE:	PL128
COORDINATES:	66° 03' 55.95"N 08° 15' 26.07"E
KB:	36m
WATER DEPTH:	378m
TOTAL DEPTH:	2115 mMD RKB
FM. AT T.D.:	Åre Formation
SPUD DATE:	29.02.2000
RIG RELEASE:	14.05.2000
WELL STATUS:	Temporary plugged
RIG:	West Navion
CONTRACTOR:	Smedvig
GEOLOGIST :	T. Klungsøyr, T.F. Kristensen, T. Svånå, O. Beyer, O. Hunnes, T-A. W. Johnsen, S. Solymar
PREPARED BY:	I. Winsvold

LOCATION MAP



CASING DATA	LEAK OFF TESTS	VELOCITY SURVEY
30" 473.5 mMD 9 5/8" 1398 mMD 7" liner 2113 mMD	1,76 g/cc	Zero Offset VSP 2061 - 1519 m: 15 m spacing, 37 levels 1504 - 484 m: 30 m spacing, 35 levels

LOGS RUN — CONTRACTOR: Schlumberger / BHI (MWD)

PEX - HALS - CMR	MDT - GR	FMI - DSI - GR	VSP - GR	CBL - GR		MWD LOGGING
1A: 2111.0 - 1380.0 m	1A: 2071.0 - 1815.0 m 1B: 1826.7 - 1967.1 m	1A: 2108.0 - 1395.0 m	1A: 2061.0 - 484.0 m	1A 2065.0 - 1520.0 m		Run1: 477 - 570 m Run2: 570 - 1408 m Run3: 1408 - 1827 m Run4: 1827 - 2115 m

COMMENTS:

The well was drilled with all returns to seafloor down to 1408 mMD.
MWD memory data from 474 mMD to 1390 mMD. Wireline logs from 1390 mMD to TD.
Drillers depth is 4-6 m deeper than loggers depth.

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/FLUORESCENCE, OIL SHOW, OIL/GAS SHOW, GAS SHOW

AZIMUTH & INCLINATION; 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

Chron Strat | Litho Strat | Well Log | Lithological Descriptions

Chron Strat | Litho Strat | Well Log | Lithological Descriptions

MDT run 1A

Test No.	Formation	DEPTH mMD	mTVD RKB	mMSL	Hydrostatic Before BARS	Hydrostatic After BARS	Formation BARS	SG EMW RT	SG EMW SS	Mobility MD/CP	Comments
1	Melke Fm.	1815	1814.9	1778.91	237.87	237.85	193.63	1.088	1.110	18.9	Good
2	Melke Fm.	1821.5	1821.4	1785.41	238.68						Probe retracted, pressure decreasing
2	Melke Fm.	1821.5	1821.4	1785.41		238.65	195,48?			26,1?	Pressure decreasing, plugging ?
3	Melke Fm.	1826.5	1826.4	1790.41	238.31	238.33	194.42	1.085	1.107	57.1	Good
4	Melke Fm.	1830.5	1830.4	1794.41	239.83	239.83	194.79	1.085	1.107	3,6?	Limited volume, pressure prob. OK
5	Melke Fm.	1838	1837.9	1801.91	240.8	240.81	195,69?				Pressure not stable
6	Melke Fm.	1838.5	1838.4	1802.41	240.83	240.86	195.25	1.083	1.104	68.8	Good
7	Melke Fm.	1843	1842.9	1806.91	241.44	241.43	195.59	1.082	1.104	4.3	Poor/Moderate
8	Åre Fm	1864	1863.9	1827.91	244.15	244.13	191.6	1.048	1.069	6	Poor/Moderate
9	Åre Fm	1880	1879.9	1843.91	246.2	246.2	192.49	1.044	1.064	313	Good
10	Åre Fm	1884.5	1884.4	1848.41	246.78	246.78	192.89	1.044	1.064	165.3	Good
11	Åre Fm	1892.5	1892.4	1856.41	247.81	247.8	193.42	1.042	1.062	10,6?	Poor
12	Åre Fm	1897	1896.9	1860.9	248.4	248.38	194.02	1.043	1.063	105,1?	Good
13	Åre Fm	1905.4	1905.3	1869.3	249.5	249.47	194.45	1.040	1.061	1062	Excellent
14	Åre Fm	1910.5	1910.4	1874.4	250.14	250.2	194.92	1.040	1.060	9469	Excellent
15	Åre Fm	1920	1919.9	1883.9	251.35	251.33	195.71	1.039	1.059	815	Excellent
16	Åre Fm	1939.5	1939.4	1903.4	253.88	253.87	197.76	1.040	1.059	1315	Excellent
17	Åre Fm	1953.5	1953.4	1917.4	256.68	255.67	199.33	1.040	1.060	3.1	Poor, not stable
18	Åre Fm	1967.3	1967.2	1931.2	257.41	257.42					Tight
19	Åre Fm	1982	1981.9	1945.9	258.32	259.3	200.68	1.032	1.051	36.7	Moderate
20	Åre Fm	1995	1994.9	1958.9	260.92	260.91	201.57	1.030	1.049	76.3	Good, lost seal on first attempt
21	Åre Fm	2003	2002.9	1966.9	261.97	261.96	202.26	1.030	1.048	642	Excellent
22	Åre Fm	2015.6	2015.5	1979.49	263.58	263.56	203.47	1.029	1.048	1723	Excellent
23	Åre Fm	2033	2032.9	1996.89	265.82	265.82	205.2	1.029	1.048	254	Good
24	Åre Fm	2040.5	2040.4	2004.39	266.79	266.8	205.95	1.029	1.048	2130	Excellent
25	Åre Fm	2071	2070.9	2034.89	270.76	270.74	208.98	1.029	1.047	1146	Excellent
26	Åre Fm	1905.4	1905.3	1869.3	249.2	249.2	194.44	1.040	1.060	585,2	Sampling, plugging/seal problem
27	Åre Fm	1920	1919.9	1883.9	251.2	251.2	195.67	1.039	1.059	26	Sampling, aborted
28	Åre Fm	1910.5	1910.4	1874.4	249.92		194.87	1.040	1.060	344	Sampling
29	Melke Fm.	1826.5	1826.4	1790.41	239.1	239.1	194.39	1.085	1.107	120	Sampling, plugging/seal problem
30	Melke Fm.	1838.5	1838.4	1802.41	240.6	240.6	195.3	1.083	1.105	69	Sampling, plugging/seal problem
31	Melke Fm.	1839.5	1839.4	1803.41	240.4	240.4	NA			NA	No seal
32	Melke Fm.	1838.2	1838.1	1802.11	240.2	240.2	NA			NA	No seal
33	Melke Fm	1839	1838.9	1802.91	240.7	240.7	NA			NA	Sampling, poor permeability
34	Melke Fm	1826	1825.9	1789.91	238.89	238.89	NA			NA	Sampling, poor permeability
35	Melke Fm	1827	1826.9	1790.91	239	239.02	194.43	1.085	1.107	NA	Sampling, high drawdown
36	Åre Fm	1994.8	1994.7	1958.7	260.8		201.69	1.031	1.050	NA	Water sample

MDT run 1B

Test No.	Formation	DEPTH mMD	mTVD RKB	mMSL	Hydrostatic Before BARS	Hydrostatic After BARS	Formation BARS	SG EMW RT	SG EMW SS	Mobility MD/CP	Comments
1	Melke Fm.	1826.7	1826.6	1790.61	240.74		194.55	1.086	1.108	43.2	Pressure from probe
2	Melke Fm.	1826.7	1826.6	1790.61	240.94		195.90 ?	0.000	0.000		Pressure slightly increasing. Sample.
3	Åre Fm	1859.7	1859.7	1823.7	244.61		191.34 ?	0.000	0.000	1.2	Pressure still increasing
4	Åre Fm	1859.5	1859.4	1823.41	244.6			0.000	0.000		Aborted, press. still incr.
5	Åre Fm	1859.9	1859.8	1823.81	244.65		191.45	1.049	1.070		Supercharge ?
6	Åre Fm	1864	1863.9	1827.91	245.22	245.2	191.51	1.047	1.068	12.1	Good/medium
7	Åre Fm	1868	1867.9	1831.91	245.72	245.73	192.099	1.048	1.069	1	Poor
8	Åre Fm	1875	1874.9	1838.91	246.64	246.22	192.215	1.045	1.066	5	Medium
9	Åre Fm	1859.2	1859.1	1823.11	244.6	244.59	191.03	1.048	1.068	40	Good
9	Åre Fm	1923.7	1923.6	1887.6	252.97	252.96	196.03	1.039	1.059	1118	Excellent
10	Åre Fm	1940.5	1940.4	1904.4	255.16		197.9	1.040	1.059	1232	Excellent
11	Åre Fm	1953.5	1953.4	1917.4	256.86	256.88	199.02	1.039	1.058	121.6	Good
12	Åre Fm	1959.1	1959.0	1923	257.61		199.44	1.038	1.057	56.3	Good
13	Åre Fm.	1967.1	1967.0	1931	258.67	258.7	199.72	1.035	1.054	51.5	Good
14	Åre Fm.	1940.5	1940.5	1904.5	255.62			0.000	0.000		Sample with dual packer.

Conventional cores

Core no.	Cored interval (m)	Recovered interval (m)	m	%	Barrel lenght (m)	Jammed	Comments
1	1827 - 1838	1827 - 1833.96	6,96	63,3	27	Yes	Melke Fm.
2	1838 - 1843	1838 - 1843	1,9	38	27	Yes	Melke Fm.
3	1843 - 1862.3	1843 - 1862.3	19.3	100	27	No	Stopped due to low penetration, Melke/Not Fm.
4	1862.3 - 1878	1862.3 - 1877.05	14.75	93.7	27	Yes	Not/ÅreFm.
5	1878 - 1897	1878 - 18932.8	14.8	77.9	27	Yes	ÅreFm.
6	1897 -1900	1897 - 1898.3	1,3	44	27	Yes	Åre Fm.
7	1900 - 1923	1900 - 1923,3	23,3	101	27	Yes	Åre Fm.
8	1923 - 1936	1923.3-1935.2	12,2	93	27	Yes	Åre Fm.
9	1936 - 1956	1935.2-1954.2	18,2	91	27	Yes	Åre Fm.
10	1956 - 1973	1956 - 1971.15	15,15	89	27	Yes	Åre Fm.

Temperatures

Log combination	Depth of measurement m MD RT	Recorded max temperature °C	Time since last circulation hrs	Evaluated temperature
HALS/PEX	2077	59,59,60	17.9	72.4°C @ 2030 m MD RT
MDT/GR	2030	63,63,65	39.8	
FMI	2084	68,68,69	107.3	
MDT/GR	1967,1	69	129,7	
VSP	2051	71,71,71	141.9	

Samples collected

No	Run	Depth m MD	Form.	Pumped volume ltr	Draw Down Bar	Fluid	Sampled	Remarks
1	1A	1910,5	Åre	100	9	Oil	1 Gallon 1 MS - 2 SF 18 Gallon	
2	1A	1994,8	Åre	approx. 70	25	Water	1 Gallon + 2 3/4 Gallon	Problems with pumping module. Tool stuck after sampling
3	1B	1826,7	Melke	252	13	Oil	1 MS ÷ 2 SF 1 Gallon	18 Gallon sample did not open. Not pressuere on SF bottles
4	1B	1940,5	Åre	112	0	Oil	1 MS ÷ 2 SF 1 Gallon	Problems with pumping module. Some contaminated with filtrate Contaminat

FORMATION EVALUATION LOG

A/S | Geoservices logging

MA32_N1Q.PR1

Well name : 6608/10-6
Client name : Statoil

Rig Name	: West Navion	Field	: J-D	Spud Date	: 02-29-2000
Rig Type	: Drill-Ship	Country	: Norway	TD Reached	: 04-27-2000
		Area	: Nordland II	Total Drill Days	: 59
		Permit	: PL 128		
				Total Depth (m)	: 2115
				TVD (m)	: 2114.9
Location long	: 08ø15 25.8	UTM loc [E] (m)	: 466 374	RT - MSL (m)	: 36
Location lat	: 66ø03 56.0	UTM loc [N] (m)	: 7 327 600	MSL - Seabed (m)	: 414
				Depth Reference	: Rotary Table
		Plot Scale	: 1/ 500		

Generated by ALX Package

Claystone, Shale, Shale sndy, Claystone sil, Siltstone, Sand, Sandstone f, Sandstone m, Quartzite, Limestone, Limestone dol, Dolomite, Dolomite calc, Chalk, Marl, Limestone arg, Sandstone calc, Sandstone anhy, Evaporite, Halite, Anhydrite, Gypsum, Conglomerate, Breccia, Bitumen, Coal, Basalt, Calcite, Dolomite, Fossils, Algae, Forams, Corals, Sponges, Wood silicified, Plant fragments, unbroken Shell, broken Shells, Fissures, Karst, normal microfault, reverse microfault, disturbed fmt, serial hd grnd, sub hard grnd, X bedding: planar, Deviation survey, Mud loss, Mud gain, Shoe, Core, Sidewall Core

PRESSURE EVALUATION LOG

Geoservices logging

FROM :(mt) 0 | TO :(mt) 2150 | SCALE : 1/ 5000

PEL1_N1Q.PR1

Well Name	: 6608/10-6	Location	: 08ø15 25.8 66ø03 56.0	Rig Name	: West Navion
Company Name	: Statoil	Country	: Norway	Rig Type	: Drill-Ship
Depth Reference	: Rotary Table	Final TD (m)	: 2115	UTM coordinate N (m)	: 7 327 600
Permit	: PL 128	Final TVD (m)	: 2114.9	UTM coordinate E (m)	: 466 374
RT - MSL (m)	: 36	Spud Date	: 02-29-2000	Field	: J-D
MSL - Seabed (m)	: 414	TD Reached	: 04-27-2000	Area	: Nordland II

Generated by ALX Package

Claystone, Shale, Shale sndy, Claystone sil, Siltstone, Sand, Sandstone f, Sandstone m, Quartzite, Limestone, Limestone dol, Dolomite, Dolomite sale, Chalk, Marl, Limestone arg, Chalk, Sandstone anhy, Evaporite, Halite, Anhydrite, Gypsum, Conglomerate, Breccia, Bitumen, Coal, Basalt, Calcite, Dolomite, Fossils, Algae, Forams, Corals, Sponges, Wood silicified, Plant fragments, unbroken Shell, broken Shells, Fissures, Karst, normal microfau, reverse microfa, disturbed fmt, aerial hd gmd, sub hard gmd, X bedding: plan, Deviation surve, Mud loss, Mud gain, Shoe, Core, Sidewall Core