Final Well Report

Well 35/11-10

PL 090

HYDRO

STATOIL

Mobil

NORSK HYDRO

FINAL WELL REPORT

WELL 35/11-10

DECEMBER 1997

351110.SAM
J:\WELLSITE\3511-090\351110\FWR

LIST OF CONTENTS, WELL 35/11-10

PREFACE

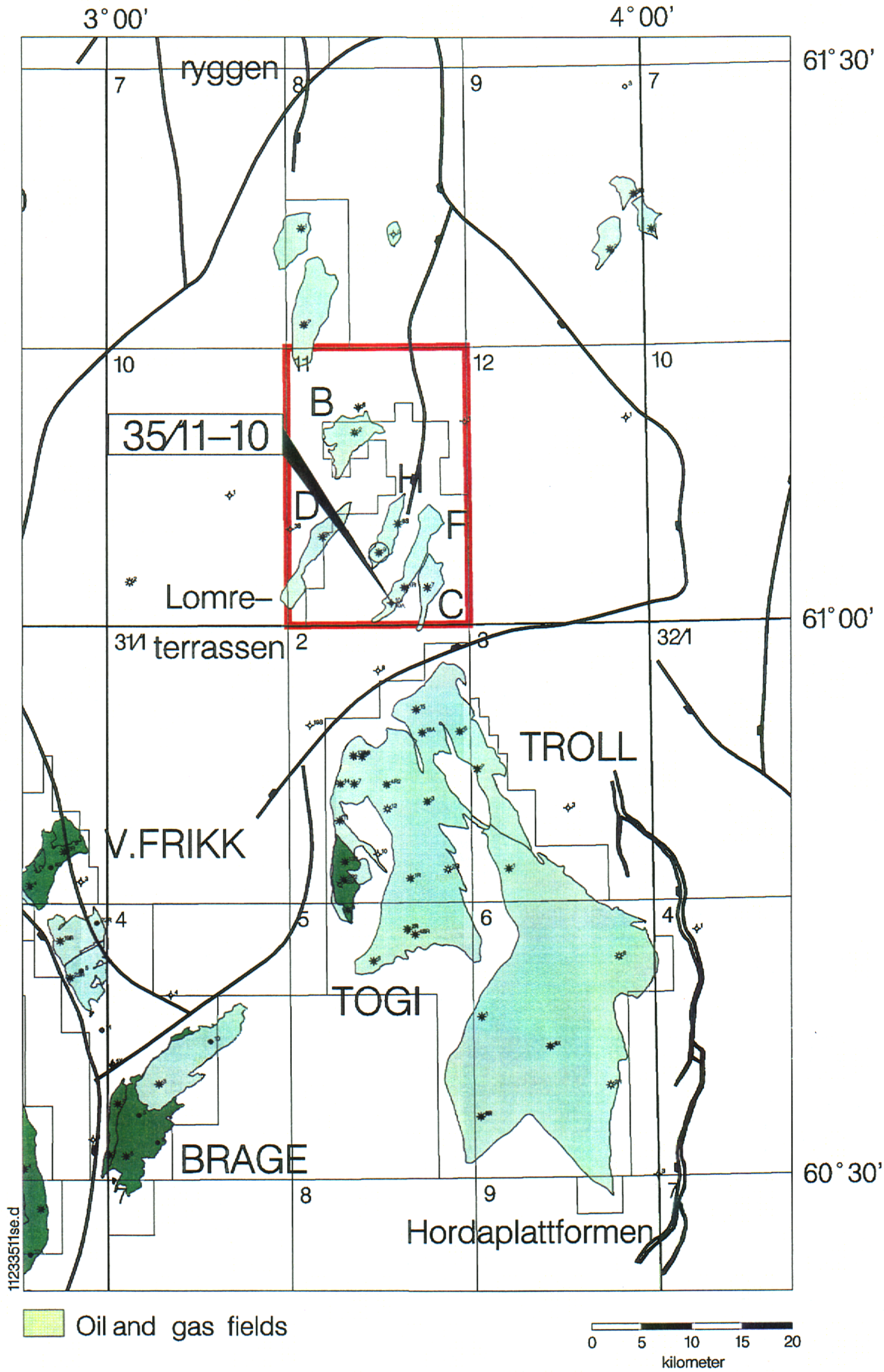
License PL 090 was originally awarded to the Norsk Hydro/Statoil/Mobil-group in 1984 with Mobil as the operator. Norsk Hydro took over operatorship 31.07.95.

The licensees' percentage share of the block is as follows:

Den Norske Stats Oljeselskap a.s. (Statoil):	50%
Norsk Hydro ASA (operator):	25%
Mobil:	25%

The well was drilled by Norsk Hydro ASA, on behalf of the group, during May, June and July 1997 (see location map, page II).

All depths in this report are mMD RKB unless otherwise stated



Location map

SUMMARY OF WELL DATA	
LOCATION:	61° 01' 10.54"N 03° 31' 26.29" E N 6 765 243.5 m E 528 323.1 m ED 50, UTM Zone 31, CM 03°E
OPERATOR: RIG: CONTRACTOR:	Norsk Hydro West Vanguard Smedvig
KB ELEVATION (to MSL): WATER DEPTH (MSL):	22 m 353.5 m
START OF OPERATIONS: WELL SPUDDED: REACHED TD ON: COMPLETED: STATUS: FORMATION AT TD:	15.05.97 19.05.97 12.06.97 15.07.97 Oil and gas discovery. Permanently plugged and abandoned Cook Formation
TD DRILLER (mRKB): TD LOGGER (mRKB):	2950m 2941m
DRILLING DEPTHS:	36" to 438m 8 1/2" pilot hole to 930m 17 1/2" to 1158m 12 1/4" to 1906m 8 1/2" to 2950m
CASING DEPTHS:	30" to 435m 13 3/8" to 1152m

E&P Division

HYDRO

Access	Internal
Downgrading	
Retention	Experience

Title

FINAL WELL REPORT
WELL 35/11-10
LICENCE 090

Keywords

Geology, geophysics, petrophysics, site-survey, drilling.

Document category	Document ID	Amendment no.
Report	R-083608	

Area code	System code	Procurement ref./Package no.

SCM reference	Tag no.
29-00-NH-G15-00028	

Quadrant/Block/Well	Licence no.	Project
35/11-10	PL 090	Fram

Pages/appendices/volume(s)	Replaces
110/2/1	

	Name(s)	Org. unit	Date	Signed
Author(s)	Rune Nyby	Operation Geology	14.1.98	
Controlled	for Viggo Aggerholm	Operation Geology	14.01.98	
Verified	Alfhild Skårnes	Operation Geology	14.1.98	
Approved	Pål Kongsgården	Well Project Manager	14.01.98	

01M	12.12.97	Partner distribution					
Rev./					Disc.	Proj.	Hydro

Norsk Hydro Produksjon a.s F.nr. 930 187 240

Postal address:
P.O. Box 200
N-1321 STABEKK NORWAY

Office address:
Drammensveien 264
Vækerø, Oslo

Phone:
National: 22 73 81 00
Internat.: +47 22 73 81 00

Telefax:
National: 22 43 27 25
Internat.: +47 22 43 27 25

Telex:
72948 hydro n

SECTION A

GEOLOGY

LIST OF CONTENTS SECTION A

SECTION A: LIST OF FIGURES, TABLES AND APPENDICES

1 OBJECTIVES

Well 35/11-10 was drilled with the main objective to delineate the oil and gas discovery made in the exploration well 35/11-4 on the F-East structure. I the discovery well (35/11-4), oil and gas were encountered in the Upper Sognefjord Formation separated from an oil column in the Lower Sognefjord Formation by a sealing shale. The Fensfjord Formation contained oil and in the Brent Group, oil and gas were discovered in the Etive and the Ness Formations. The objectives of the well were to:

- Delineate the F-East oil and gas discovery (Sognefjord-, Fensfjord Formations and the Brent Gp.) made in well 35/11-4 to ensure an economic foundation for a stand-alone development of the Fram area.

- Reduce the uncertainties related to the seismic definition of the F-East structure (seismic picks, depth conversion model, location of the fault) to enable a better estimate of the hydrocarbon volumes present.

- Test the structural influence on reservoir properties in a location close to the fault where the major part of the volumes are located.

- Reduce the uncertainties with respect to hydrocarbon contacts and the presence of possible updip gas-caps in the Lower Sognefjord Formation.

- Test the presence of prospective hydrocarbons in Lower Fensfjord (Fens 1,2 and 3) and clarify if any gas cap is present.

- Test the lateral variation in the sedimentology and parameter distribution for all three reservoirs

- Obtain PVT and SCAL data

- Core the Utsira Formation to obtain information about the productivity for injection water

- Obtain additional information relevant for the selection of design parameters prior to the PDO issue.

2 RESULTS

Oil and gas were discovered in all three reservoirs (Sognefjord, Fensfjord and Brent) and the well was permanently plugged and abandoned as an oil and gas discovery. The main results were:

-The top Sognefjord reservoir was encountered at 1971m RKB. The upper part of the Sognefjord Formation was thicker and had better reservoir properties than prognosed. A gas oil contact is identified at 1987 m RKB and an oil water contact at 2011 m RKB. Within the range of uncertainty this is the same OWC as in the well 35/11-4 and there is pressure communication in both the water and the oil zones. The GOC however, differs between the two wells and two separate gas caps seems to be controlled by a channel feature identified south of well 35/11-4. A total of 14m of gas pay and 22.6 m oil pay with an average porosity of 27% were encountered.

-The Lower Sognefjord contained oil and gas and the gas cap were identified by an MDT sample and confirmed to be at 2037m RKB. The GOC was at 2054 m RKB which is the same depth as in well 35/11-4.

-Top Fensfjord Formation was encountered at 2275 m RKB and the GOC was identified at 2299 m RKB and the OWC at 2312 m RKB. The OWC is at the same depth in the two wells with the same oil gradient, while gas is encountered structurally deeper in well 35/11-10. The Fensfjord fluid system is not fully understood . However, the upside potential in the Fensfjord Formation was not present, and the Fensfjord reservoir has been excluded from the Fram base case target area.

-The Brent Group was encountered at 2647.5 m RKB approximately 30 m deeper than prognosed. The Etive Formation was only 8 m thick and water bearing. Both the GOC (2660 m RKB) and the OWC (2702 m RKB) were identified in the Ness Formation and occurs at different depths compared to well 35/11-4. The Top Etive map which was interpreted after drilling, shows that the well 35/11-10 is drilled outside the structural closure.

- In summary the well has been very successful and the major part of the objectives have been fulfilled, except for the planned core in the Utsira Formation which was not developed as a sand reservoir in the southern part of the F-East structure. The total hydrocarbon volumes for Fram remains approximately the same, but are redistributed in the reservoirs compared to the models prior to drilling. The uncertainty related to the STOOIP is reduced significantly.

3 BIOSTRATIGRAPHY

The biostratigraphical evaluation of well 35/11-10 was carried out by Stratlab. The analysed interval is 1160m - 2950m RKB, see Ffigure 3.1.

Micropaleontological and palynological analyses has formed the basis for the biostratigraphical interpretation of the well. The analyses were carried out on cuttings samples and core samples. No sidewall cores were available.

Figure 3.1 on the next page shows a summarized chronostratigraphic and lithostratigraphic subdivision of the well. The biostratigraphic interpretation of the Jurassic is in accordance with Norsk Hydro's standard interpretation for the area. That is differing slightly from Geostrats. Further details may be found in "Well 35/11-10, Biostratigraphy, interval 1160m - 2950m".

DEPTH m RKB

ELEVATION KB: 22m

WELL: 35/11-10

NB! NOT TO SCALE

ALL DEPTHS IN METERS (mRKB)

CHRONOSTRATIGRAPHY

SYSTEM	STAGE	DEPTH m	THICKNESS m
QUAT.		375,5	160.5
TERTIARY		536	624
	OLIGOCENE	1160	55
	EOCENE	1215	285
	PALEOCENE	1500	362
CRET.	MAASTRICHTIAN	1862	77
	CAMPANIAN	1939	31
	KIMMERIDGIAN	1970	61.9
	OXFORDIAN	2031,9	228.1
	CALLOVIAN	2260	360
	BATHONIAN	2620	40
	BAJOCIAN	2660	54.75
	EARLY BAJOCIAN - AALENIAN	2714,75	25.2
	TOARCIAN	2739,95	125.05
	LATE PLIENSBACHIAN-EARLY TOARCIAN	2865	75
	PLIENSBACHIAN	2940	10
		2950	

LITHOSTRATIGRAPHY

GROUP	FORMATION	
		375.5
NORDLAND		749
	UTSIRA	756
HORDALAND		1414
ROGALAND	BALDER	1462
	SELE	1578
	LISTA	1712,5
	HEIMDAL	1776,5
	LISTA	1790,5
	VÅLE	1857,5
SHETLAND	JORSALFARE	1964,5
VIKING	DRAUPNE	1971
	SOGNEFJORD	2117
	HEATHER B	2275
	FENSFJORD	2385,5
	HEATHER A	2647,5
BRENT	NESS	2718
	ETIVE	2728
	RANNOCH	2746
	OSEBERG	2801
DUNLIN	DRAKE	2818
	COOK	2950

Fig. 3.1: Chronostratigraphy vs. litho stratigraphy

4 LITHOSTRATIGRAPHY

All depths are in mMD RKB (RKB is 22m).

This summary is compiled predominantly from ditch cuttings descriptions.
No sidewall cores were taken in this well. A total of 8 conventional cores were cut in the interval from 871 to 2770m in the well, see Table 6.1.
Wireline and MWD logs were used to aid lithological interpretation and the placement of formation boundaries.

The well was drilled with returns to seabed from the seafloor at 375.5 m to 1158m Lithology interpretation through this interval is based on MWD logs and drilling parameters. The first drill cuttings samples were taken at 1158 m.

4.1 Nordland Group (375.5 - 749 m)

This interval was drilled with returns to seabed. Lithology is interpreted from MWD logs, drilling parameters and the site survey.

375 - 526m

This interval comprises clay with stringers of sand and scattered boulders. A likely layer of gravelly sand occupies the basal three metres.

Age: Undifferentiated Tertiary - Quaternary

526 - 749m

This interval comprises clay.

Age: Undifferentiated Tertiary

Utsira Formation (749 - 756m)

This interval comprises claystone. No sands were encountered.

Age: Undifferentiated Tertiary

4.2 Hordaland Group (756 - 1414m)

756 - 1158m

This interval was drilled with returns to seabed. A claystone lithology was interpreted from MWD logs and drilling parameters.

A core was taken from 871-880m which consisted of claystone, with two pebble sized clasts (which may be cavings).

CLAYSTONE:	olive grey, firm, blocky - platy, moderately calcareous, silty, common micromiceous, occasional microfossils.
IGNEOUS CLAST:	dark grey black, coarse crystalline Quartz, Feldspar, Biotite, fine crystalline matrix, granular texture, very hard.
QUARTZITE CLAST:	medium grey, Quartz, very fine, Quartz overgrowth, very hard.
AGE:	Undifferentiated Tertiary

1158 - 1414m

This interval comprises claystone with minor siltstone, traces of sand and tuff, and rare limestone stringers.

CLAYSTONE:	brown black, firm, subfissile, very micaceous, very silty, trace carbonaceous matter, from 1215m predominately: light blue green - light green, firm, blocky - angular fractured, glauconitic, slightly tuffaceous, trace micromiceous, trace pyrite nodules.
SILTSTONE:	brown/black, firm, flaky - subfissile, very micaceous, very argilliceous, trace carbonaceous matter, trace micropyrite, locally abundant glauconitic pellets.
SANDSTONE:	light brown-grey, very fine, angular - subangular, very hard, well silica cemented, quartzitic, volcanoclastic?.
TUFF:	light blue grey - bright green speckled white, firm, blocky, calcareous, argillaceous, volcanoclastics, devitrified ashy inclusions.

LIMESTONE: dark brown to translucent red brown, very hard, conchoidal fractures, cryptocrystalline, occasional crystalline and nacreous texture.

From 1390 - 1414m also:
CLAYSTONE: red brown, light purple, firm - hard, subblocky, slight carbonaceous, trace micromiceous, waxy texture.

AGE: Early Eocene - Early Oligocene

4.3 Rogaland Group (1414 - 1857.5m)

The Rogaland Group consists of the Balder, Sele, Lista and Våle Formations.

Balder Formation (1414 - 1462m)

This interval comprises claystone with minor tuff.

CLAYSTONE: varicoloured, speckled white Tuff inclusions, firm - hard, subblocky, silty, common Glauconite/Chlorite, trace micaceous, waxy texture.

TUFF: light blue grey - bright green speckled white, firm, calcareous, argillaceous, abundant devitrified ashy inclusions.

AGE: Early Eocene

Sele Formation (1462 - 1578m)

This interval comprises claystones with stringers of limestone and rare sandstone.

CLAYSTONE: light - medium light grey - olive grey, becoming light blue - blue grey below 1540m, trace brown grey at top, firm, subblocky, slight becoming non calcareous below 1540m, trace micromica, trace micropyrite, trace glauconitic, waxy texture.

LIMESTONE: grey white - pale yellow brown, hard, locally argillaceous, trace dolomitic, cryptocrystalline.

SANDSTONE: clear Quartz grains, loose, rounded, fine-medium.

AGE: Late Paleocene - Early Eocene

Lista Formation (1578 - 1712.5m)
This interval comprises claystones with stringers of limestone and rare sandstone.

CLAYSTONE:	olive - dark grey - light blue, becoming predominately olive grey - medium grey below 1620m, firm - locally soft, subblocky, waxy, trace micromiceous, trace glauconitic, locally very fine sandy.
LIMESTONE:	pale - dark yellow brown, hard, cryptocrystalline, locally dolomitic.
SANDSTONE:	clear - milky Quartz grains, rare rose Quartz grains, predominately very fine, locally medium - coarse, well sorted, friable - locally hard, generally loose, argillaceous matrix, silty, abundant glauconitic, no visible porosity .
AGE:	Late Paleocene

Heimdal Formation (1712.5 - 1776.5m)
This interval comprises sandstone with minor claystone and stringers of limestone.

SANDSTONE:	light grey, clear - milky Quartz grains, rare rose Quartz, fine - very coarse, poor sorted, generally loose, locally friable, trace silica cemented, glauconitic, trace micaceous, trace pyrite.
CLAYSTONE:	olive grey - dark grey, trace light green grey, subblocky, firm, non calcareous, trace silty, rare micromicaceous, trace glauconitic, locally very fine sandy.
LIMESTONE:	light grey, soft - firm, subblocky, very argillaceous grading Marl, trace glauconitic, rare Mica.
AGE:	Late Paleocene

Lista Formation (1776.5 - 1790.5m)
This interval comprises claystone.

CLAYSTONE:	olive grey - light grey, soft, subblocky, very calcareous grading Marl, micromiceous, slight carbonaceous, trace silty.
AGE:	Late Paleocene

Våle Formation (1790.5 - 1857.5m)

This interval comprises claystone with stringers of limestone and traces of sandstone.

CLAYSTONE:	olive grey - light grey, soft - firm, subblocky, very calcareous grading Marl, trace pyrite, rare micromiceous, glauconitic.
LIMESTONE:	white, firm, subblocky, chalky, trace Glauconite, locally argillaceous, trace Pyrite, cryptocrystalline.
SANDSTONE	clear Quartz grains, fine - medium, subangular, loose.
AGE:	Early - Late Paleocene

4.4 Shetland Group (1857.5 - 1964.5m)

The Shetland Group consists of the Jorsalfare Formation.

Jorsalfare Formation (1857.5 - 1964.5m)

This interval consists of claystone, limestone and sandstone.

CLAYSTONE:	olive grey - light olive grey, soft - firm, subblocky, very calcareous grading Marl becoming non - slight calcareous downwards, trace pyrite, trace slight silty, rare micromiceous.
LIMESTONE:	white - grey white, firm, subblocky, chalky, trace Glauconite, argillaceous grading Marl, trace Pyrite.
SAND:	clear - milky Quartz grains, very fine - fine, well sorted, loose, no cement, glauconitic.
AGE:	Early Campanian - Late Maastrichtian

4.5 Viking Group (1964.5 - 2647.5m)

The Viking Group consists of the Draupne, Sognefjord, Heather B, Fensfjord and Heather A Formations.

Draupne Formation (1964.5 - 1971m)

The Draupne Formation consists of claystone.

CLAYSTONE:	brown black - dark grey, soft - firm, subblocky, non calcareous, earthy, micromiceous, carbonaceous - very carbonaceous, slight silty.
AGE:	Undifferentiated

Sognefjord Formation (1971 - 2117m)

The Sognefjord Formation consists of sandstones with trace claystone and siltstone with rare limestone stringers.

1970 - 2036m

This Upper Sognefjord Formation consists of sandstones with shaly sandstone beds and trace siltstone.

SANDSTONE:	olive grey - medium grey - light grey, becoming predominately light grey - light brown grey from 1987 to 2011m, becoming light grey - medium dark grey from 2011 to 2030m, fine - very coarse, rounded - subangular, poor sorted, friable, clay matrix, shale clasts, trace calcareous matrix, trace Mica, kaoline/feldspar, trace micropyrite nodules and grain coating, trace carbonaceous matter, generally good visible porosity, locally no - trace visible porosity.
TRACE SHALY SANDSTONE:	light grey - medium grey, fine - very fine, medium - fine, firm - hard, locally friable, flaky - subfissile structure, abundant clay matrix, abundant micaceous, very carbonaceous, intensely bioturbated, no visible porosity.

From 2030 - 2036m:
SILTSTONE: dusky yellow brown - brown grey, very hard, calcareous cemented, very sandy grading very fine Sandstone, locally carbonaceous, rare Mica.

2036 - 2117m

This Lower Sognefjord Formation consists of sandstones with trace claystone.

SANDSTONE: light grey - light brown grey, medium grey - light grey, becoming predominately light grey - medium grey below 2054m, predominately fine - coarse, locally trace pebbly, locally silty, predominately subrounded, common angular - subangular, generally poor sorted, predominately firm - friable, locally firm - hard, common clay matrix, locally clay laminae, locally weak calcareous cemented, trace mica, locally trace Kaolin matrix, trace micropyrite, locally trace carbonaceous matter, locally slight silty, locally bioturbated, generally good visible porosity, locally no - trace visible porosity.

CLAYSTONE: medium grey, firm, crumbly and subfissile, very micaceous, abundant micropyrite, calcareous veins, very silty.

From 2069 - 2077m:
SANDSTONE: dark - medium grey, silt - medium, subangular - angular, firm - hard, locally slight friable, Clay matrix, calcareous cemented, carbonaceous/Coal laminae, very micaceous, silty, poor visible porosity, intercalated with carbonaceous Siltstone: dark grey, hard, subfissile, very micaceous, feldspathic.

AGE: Late Oxfordian - Middle-Late Kimmeridgian

Heather B Formation (2117 - 2275m)

Heather B Formation consists of siltstone with minor claystone and trace sandstone and limestone.

SILTSTONE: medium dark grey - dark grey, minor brown grey, soft - firm, occasionally moderate hard, blocky, slight - moderate calcareous, trace carbonaceous matter, trace micromicaceous/mica, rare Pyrite, occasionally very fine - medium sandy.

CLAYSTONE: medium - dark grey, hard - firm, subblocky - subfissile, calcareous, micropyritic, micromiceous.

SANDSTONE:	light - dark grey, occasionally light brown grey - dark brown grey, predominately medium - fine, occasionally silty - very fine, occasionally trace coarse, subangular - subrounded, occasionally angular, poor sorted, friable - loose, occasionally firm - hard, common calcareous cemented zones, micropyritic, Mica, abundant carbonaceous matrix and laminae, occasionally Siltstone.
LIMESTONE:	white - very light grey, soft - firm, blocky, occasional rare - trace very fine sandy.
AGE:	Late?-Middle Callovian - Middle Oxfordian

Fensfjord Formation (2275 - 2385.5m)

The Fensfjord Formation consists of sandstone with minor siltstone, and trace claystone and limestone.

SANDSTONE:	brown grey - dark grey - olive grey, becoming light grey - medium dark grey - dark grey below 2298m, clear - translucent - trace smoky Quartz grains, predominately medium -coarse, locally very fine - fine, locally trace very coarse, generally subrounded - subangular, moderately sorted, generally friable, locally loose, locally moderate hard, generally non - slight calcite cemented, locally moderate - abundant calcite cemented, generally rare - locally trace Mica, locally abundant Mica, rare Brachiopods, locally trace micropyrite, generally good - excellent visible porosity, locally non - poor visible porosity.
SILTSTONE:	dark grey - olive grey - brown grey, firm - moderate hard, blocky, non -slight calcareous, trace - abundant Mica, locally good trace micropyrite nodules and coating, generally very sandy grading very fine - fine Sandstone, rare Belemnites, locally trace Wood fragments.
CLAYSTONE:	varicoloured, dark green grey, green black, dark grey, minor medium blue grey, firm - occasionally moderate hard, blocky, occasionally platy, non calcareous, trace carbonaceous matter, trace micromica, common waxy texture.
LIMESTONE:	medium grey, speckled very dusky red, very hard, blocky, rare Mica, trace-good trace fine Sand, microcrystalline.
AGE:	Middle Callovian

Heather A Formation (2385.5 - 2647.5m)

The Heather A Formation consists of siltstone with occasional limestone stringers.

SILTSTONE: olive grey - medium dark grey - olive black, becoming predominately brown black between 2400-2515m, firm - friable, subblocky - subplaty, moderate calcareous with very light grey calcite veins, becoming non - slight calcareous below 2560m, common trace carbonaceous laminae, trace - abundant micromiceous, locally very fine sandy grading Sandstone.

LIMESTONE: light olive grey - very light grey, rare very light orange, soft, subblocky, slight silty, occasionally very fine sandy, bounded, trace carbonaceous matter, crypto - microcrystalline.

AGE: Early Bathonian - Middle Callovian

4.6 Brent Group (2647.5 - 2801m)

The Brent Group consists of Ness, Etive, Rannoch and Oseberg Formations.

Ness Formation (2647.5 - 2718m)

This interval comprises sandstone interbedded with siltstones, coals and claystone.

SANDSTONE: light brown - moderate brown becoming predominately pale yellow brown - medium grey below 2690m, clear-translucent Quartz, medium - coarse, locally fine, subangular - subrounded, well sorted, friable, slightly silica cemented, non calcareous, rare - trace mica, generally massive, generally good, locally poor, locally excellent, locally vuggy visible porosity.

CLAYSTONE: medium grey - medium dark grey, locally brown grey, dark grey - brown black, moderately hard, blocky, non calcareous, slightly silty, locally very silty grading Siltstone, trace - good trace micromiceous, trace - good trace wood fragments/roots.

SILTSTONE: olive grey - medium dark grey, medium light grey, firm - friable, subblocky - subplaty, generally non - slight calcareous, common trace carbonaceous laminae, trace - abundant micromica, locally very fine sandy grading Sandstone.

COAL: black, moderate hard, blocky, brittle, vitreous. locally very argillaceous grading Claystone.

Age: Aalenian-Early Bajocian - Early Bathonian

Etive Formation (2718 - 2728m)

This interval comprises sandstone.

SANDSTONE: generally pale yellow brown, locally light grey and trace light brown, clear - milky Quartz, predominately medium - coarse, very fine - coarse, subangular - subrounded, moderately - well sorted, locally poor sorted, friable - slight moderately hard, non calcareous, slight silica cemented, massive, rare - trace Mica, generally poor visible porosity, locally excellent visible porosity, locally vuggy porosity.

Age: Aalenian - Early Bajocian

Rannoch Formation (2728 - 2746m)

This interval comprises alternating sandstone, siltstone, limestone and claystone.

SANDSTONE: light grey - medium grey, locally trace brown grey, clear - translucent and trace smoky Quartz grains, fine - very fine, locally very fine - silty, subangular - subrounded, moderate - well sorted, moderately hard - friable, silica cemented, non calcareous, locally planar laminae, locally massive, trace Mica - locally abundant micromicaceous/Mica, silty - locally very silty grading Siltstone, no - poor visible porosity

SILTSTONE: light brown - dark grey, firm, blocky, non calcareous, trace Clay clasts, very abundant micromiceous, locally trace wood/roots/plant fragments.

LIMESTONE: medium grey and dark yellow brown, very hard, blocky, locally slight argillaceous, locally slight micaceous, cryptocrystalline.

CLAYSTONE: medium dark grey - dark grey hard - moderate hard, blocky, locally platy, non calcareous, abundant - rare micromica, locally trace micopyrite.

Age: Late Toarcian - Aalenian-Early Bajocian

Oseberg Formation (2746 - 2801m)

This interval comprises sandstone, with minor claystone and trace siltstone.

SANDSTONE:	light grey - medium light grey, clear - translucent and trace smoky Quartz grains, predominately medium - coarse, very fine, fine - coarse, locally pebbles (< 3mm), generally subangular, generally well sorted, friable, weak silica cemented, generally non - locally calcareous cemented, generally Kaolin matrix, rare - trace carbonaceous, rare wood fragments, locally planar laminated, locally silty laminae, trace Mica, generally good - excellent, locally no - poor visible porosity
CLAYSTONE:	medium grey - grey black, moderate hard, locally firm, blocky, locally platy, non calcareous, good trace micromica, locally trace medium - coarse sandy.
SILTSTONE:	medium grey, firm - moderate hard, blocky, non calcareous, carbonaceous, micromiceous, locally very fine sandy grading Sandstone.
Age:	Late Toarcian

4.7 Dunlin Group (2801 - 2950m)

The Dunlin Group consists of the Drake and Cook Formations.

Drake Formation (2801 - 2818m)

This interval comprises claystone.

CLAYSTONE:	medium grey - medium dark grey - olive grey, grey black, moderately hard, blocky - subfissile, non calcareous, locally very silty grading Siltstone, carbonaceous, locally micaceous, locally waxy texture.
Age:	Late Toarcian

Cook Formation (2818 - 2950m)

This interval comprises sandstone with minor siltstone, limestone and claystone.

SANDSTONE:	clear - translucent and trace smoky Quartz grains, medium - coarse, common trace very coarse - pebbles (< 3mm), subrounded - rounded, moderately sorted, predominately loose, trace Sandstone aggregates, trace moderate hard - friable, generally moderate - very calcite cemented, locally silty, rare becoming trace Mica below 2925m, locally trace micropyrite nodules and coating, no - poor visible porosity
SILTSTONE:	medium grey - medium dark grey, medium light grey, predominately firm - moderate hard, blocky, slightly calcareous, locally very fine sandy grading Sandstone, locally argillaceous grading Claystone, trace carbonaceous matter, trace micromica, trace micropyrite.
LIMESTONE:	generally white, common light grey, light olive grey, dark yellow brown, firm - soft, blocky, occasionally trace sandy, cryptocrystalline.
CLAYSTONE:	varicoloured, medium blue grey, dark grey, grey black, minor grey green, moderately hard, blocky - subplaty, non calcareous, trace carbonaceous, rare - trace micaceous.
Age:	Pliensbachian - Early Toarcian

5 HYDROCARBON SHOWS

The evaluation of hydrocarbon shows at the wellsite was carried out in a conventional manner. A standard (Baker Hughes Inteq) hydrocarbon total gas detector system together with a gas chromatograph for automatic and continuous gas analysis, recorded as ppm by volume of C1 through nC4, were operational below 1158m down to the TD of the well.

Hydrocarbon shows on ditch cuttings, cores and sidewall cores were evaluated according to procedures described in Norsk Hydro's "Wellsite Geologist's Manual".

5.1 Gas Record

375 - 1158m

This interval was drilled with returns to sea bed.

1158 - 2950m:

The gas summary for the well is presented in the Figure 5.1 on the next page.

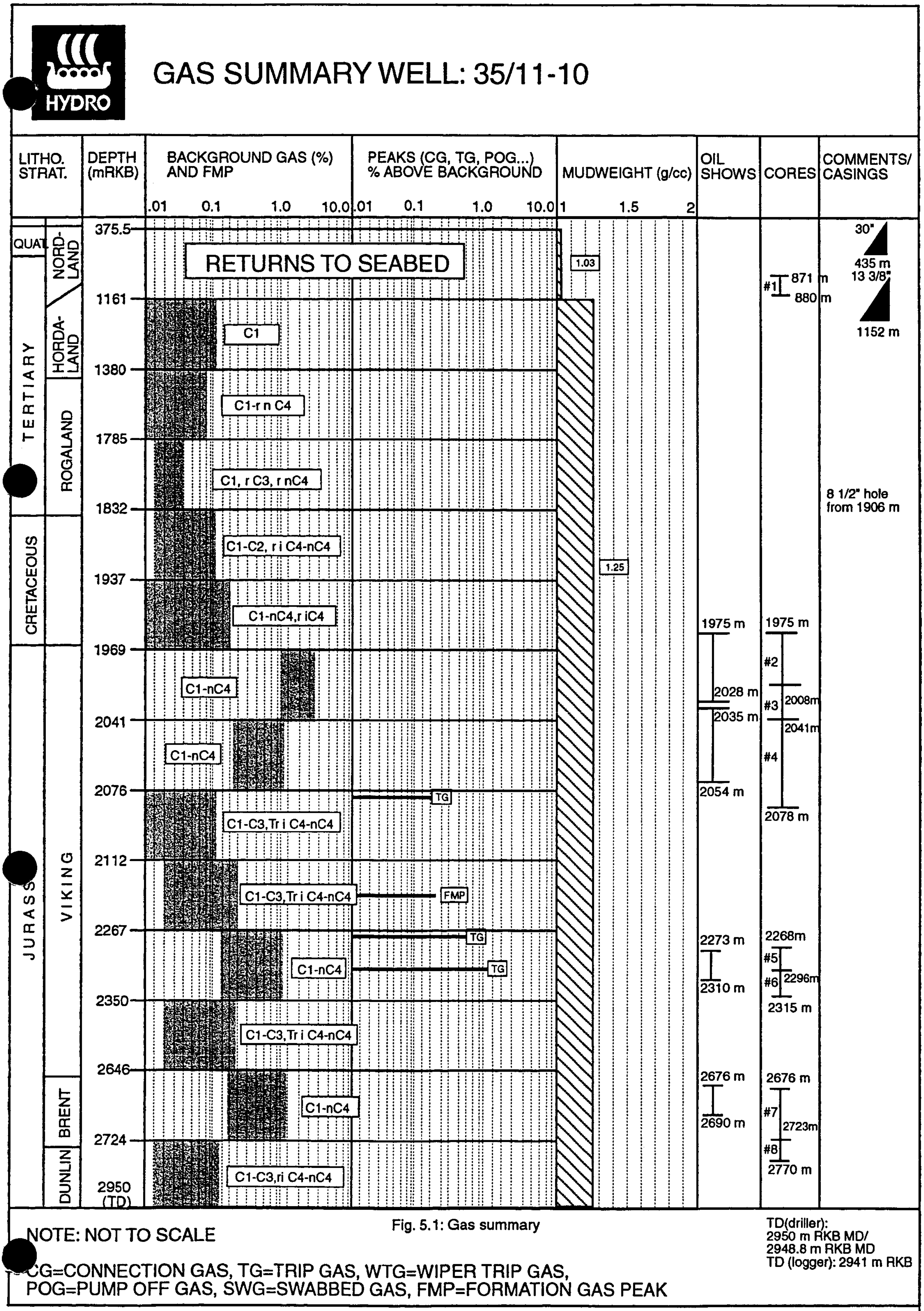


Fig. 5.1: Gas summary

5.2 Oil stain and fluorescence

A summary of the observed shows is given in Table 5.1 below:

INTERVAL (mRKB)	SOURCE	LITHOLOGY	SHOWS DESCRIPTION
1936-1939	Cuttings	Limestone	no direct fluorescence, locally blue white crush fluorescent cut, no visible cut, blue white fluorescent residue, no visible residue.
1970-1975	Cuttings	Sandstone	no direct fluorescence, trace very weak slow streaming blue white fluorescent cut, no visible cut, blue fluorescent residue, no visible residue.
1975-1986	Core	Sandstone	faint - weak Petroliferous odour, no visible oil stain, patchy spotted yellow direct fluorescence, moderate - fast streaming blue white fluorescent cut, no visible cut, blue white fluorescent residue, no visible residue.
1986-2007	Core	Sandstone	generally strong, locally faint Petroliferous odour, medium - light brown visible oil stain, bright yellow white direct fluorescence becoming patchy grey yellow below 1997m , fast streaming/blooming cream - milky white fluorescent cut, no visible cut, gold yellow fluorescent residue, light brown visible residue becoming green yellow below 1997m.
2007-2036	Core	Sandstone	weak Petroliferous odour, no oil stain, patchy - locally laminated dull yellow direct fluorescence, slow streaming blue white fluorescent cut, no visible cut, blue white fluorescent residue, no visible residue.
2036-2055	Core	Sandstone	Moderate - strong Petroliferous odour, light brown oil stain, 100% uniform yellow white direct fluorescence, slow - moderately blooming blue white fluorescent cut, very light brown visible cut, creamy white fluorescent residue. light brown - yellow visible residue.
2055-2078	Core	Sandstone	no - faint Petroliferous odour, no - spotted oil stain, patchy yellow white - grey yellow direct fluorescence, slow blooming blue white fluorescent cut, no visible cut, creamy white fluorescent residue. yellow brown visible residue.
2268-2273	Core	Siltstone	no-very faint Petroliferous odour, no visible oil stain, no direct fluorescence, slow-moderate fast streaming blue white fluorescent cut, no visible cut, weak blue white fluorescent residue, no visible residue.
2273-2275	Core	Sandstone	strong Petroliferous odour, trace light brown visible oil stain, 100% uniform bright white direct fluorescence, instant-very fast streaming blue white fluorescent cut, very light brown streaming visible cut, bright blue white fluorescent residue ring, light brown visible residue.

2275-2296	Core	Sandstone	generally faint Petroliferous odour, no visible oil stain, variable 20-80% patchy white direct fluorescence, slow-fast streaming blue white fluorescent cut, no visible cut, blue white fluorescent residue ring, no visible residue.
2296-2310	Core	Sandstone	moderate - strong Petroliferous odour, light brown visible oil stain, 100% uniform bright white direct fluorescence, instant streaming/blooming blue white fluorescent cut, yellow brown visible cut, bright yellow fluorescent residue, yellow brown visible residue.
2310-2315	Core	Sandstone	no - faint Petroliferous odour, no visible oil stain, variable 40-60% patchy pale - bright, locally dull, locally no, yellow white - white direct fluorescence, fast streaming blue white fluorescent cut, no visible cut, blue white fluorescent residue, no - weak straw visible residue.
2315-2676	Cuttings	Sandstone and Siltstone	no - rare pin point white direct fluorescence, very slow - locally fast streaming blue white fluorescent cut, no visible cut, weak blue white fluorescent residue ring, generally no - occasionally very weak straw visible residue.
2676-2690	Core	Sandstone	strong becoming moderate - faint Petroliferous odour, no visible oil stain, 100% uniform bright white direct fluorescence, fast streaming becoming slow - moderate blooming bright blue white fluorescent cut, no - light brown visible cut, weak - bright blue white fluorescent residue, no - very light brown visible residue.
2707.00	Core	Sandstone	no Petroliferous odour, no visible oil stain, 30% patchy yellow white direct fluorescence, moderate fast streaming blue white fluorescent cut, no visible cut, blue white fluorescent residue, no visible residue.
2709 -2714	Core	Sandstone	faint Petroliferous odour, no visible oil stain, 100% uniform white direct fluorescence, fast streaming blue white fluorescent cut, no visible cut, blue white fluorescent residue, no visible residue.
2715 - 2723	Core	Sandstone	no Petroliferous odour, no visible oil stain, no direct fluorescence, very slow blooming blue white fluorescent cut, no visible cut, weak blue white fluorescent residue, no visible residue.
2723 - 2770	Cuttings	Sandstone	no Petroliferous odour, no visible oil stain, generally no - locally patchy dull yellow - gold direct fluorescence, very slow blooming blue white fluorescent cut, no visible cut, weak blue white fluorescent residue, no visible residue.

Table 5.1. Shows summary

6 CORING

6.1 Conventional cores

A total of 8 cores were at different intervals throughout the well. A summary of the cores is presented in the Table 6.1 below and the core descriptions can be found in Appendix I.

No	C: Cut(m) R: Recovery(m)	Rec. %	Lithology	Formations
1.00	C: 871.0 - 880.0 R: 879.05 - 880.00	10.6	Claystone	Hordaland Gp
2.00	C: 1975 - 2008 R: 1975 - 2007.12	97.3	Sandstone	Sognefjord Fm
3.00	C: 2008 - 2041 R: 2008 - 2040.6	99.0	Sandstone with trace Siltstone	Sognefjord Fm
4.00	C: 2041 - 2078 R: 2041 - 2078.2	100.0	Sandstone with trace Claystone	Sognefjord Fm
5.00	C: 2268 - 2296 R: 2268 - 2295.95	99.8	Sandstone with minor Siltstone and trace Limestone	Heather B Fm and Fensfjord Fm
6.00	C: 2296 - 2315 R: 2296 - 2314.82	99.1	Sandstone	Fensfjord Fm
7.00	C: 2676 - 2723 R: 2676 - 2722.89	99.8	Sandstone, interbedded with Claystone, Coal and Siltstone.	Ness and Etive Fm
8.00	C: 2723 - 2770 R: 2723 - 2769.56	99.1	Sandstone with minor Siltstone and Claystone and trace Limestone	Etive, Rannoch and Oseberg Fm.

Table 6.1: Conventional cores

6.2 Sidewall cores

No sidewall cores were taken in this well.

7 LOGGING

7.1 Wireline logs

The following table is a summary of wireline logs run in the well and shows log type, date run, logged intervals and run number for each log.

Logs	Date	Logged interval (mRKB)	Run
DIL/LDL/CNL/GR	24.05.97	No logging	Misrun
MDT/GR/AMS	04.06.97	1972 - 2026.5	1A
MDT/GR/AMS	05.-07.06.97	2028 - 2113	1B
MDT/GR/AMS	07.06.97	1996.5 - 2036	1C
DLL/MSFL/DSI/LDL/CNL/NGT/SP/AMS	13.06.97	2940 - 2325	2A
DLL/MSFL/LDL/CNL/NGT/SP/AMS	14.06.97	2900 - 1046	2B
MDT/GR/AMS	14.-15.06.97	No logging	Misrun
MDT/GR/AMS	15.-16.06.97	2036 - 2870.5	2D
MDT/GR/AMS	17.-19..06.97	2346 - 2305	2E
FMS/DSI/GR/AMS	20.06.97	2932 - 1139	2A
VSP/GR	20.-21.06.97	2920 - 450	2A

Table 7.1: Wireline logs

7.2 MWD logs

A MWD service (Baker Hughes Inteq) yielding gamma ray, resistivity and survey measurements was run in the following section:

375.5 - 2950m

Detailed MWD results can be found in the report "End of Well Report 35/11-10 & 35/11-10 A"

7.3 Bottom hole temperatures from wireline logs

The table below gives a summary of the bottom hole temperatures measured from wireline logs.

Log suite	Run	Depth (mRKB)	Temp ° C	Time since circ.	Circ. time
MDT/GR/AMS	1A	2051.00	66.00	14hrs 30min	2hrs 04min
MDT/GR/AMS	1B	2113.00	79.00	32hrs 47min	3hrs 13min
MDT/GR/AMS	1C	2036.00	79.00	21hrs 47min	3hrs 13min
DLL/MSFL/DSI/LDL/CNL/NGT/SP/AMS	2A	2941.00	91.00	14hrs 45 min	2hrs 35 min
DLL/MSFL/LDL/CNL/NGT/SP/AMS	2B	2940.00	96.00	33hrs 45 min	2hrs 35 min
MDT/GR/AMS	2D	2870.50	106.00	62hrs 50min	2hrs 35min
MDT/GR/AMS	2E	2346.00	86.40	14hrs 45min	3hrs
FMI/DSI/GR	2A	2932.00	103.00	77hrs 15min	3hrs

Table 7.2: Bottom hole temperatures from logs

8 PETROPHYSICAL RESULTS

The petrophysical evaluation was based on log data and core data.

The log data is considered good over the reservoir section.

Eight cores were cut, covering the Sognefjord Formation, the Fensfjord Formation and the Brent Group. (The first core was planned cut in the Utsira Formation, but the recovery was only 11%, due to no sand.)

The well penetrated four different reservoirs: The Upper and Lower Sognefjord Formation, the Fensfjord Formation and the Brent Group. All the reservoirs proved to have a saturated fluid system.

MDT fluid samples of oil and water were recovered in both the Upper (only oil) and Lower Sognefjord Formation, the Fensfjord Formation and the Brent Group. In the lower Sognefjord Formation also a sample of the 1 metre thin gas cap was taken, which proved the presence of gas.

The Sognefjord Formation is divided into two sections, where the Upper one has a saturated system with a gas gradient of 0.22 g/cc, an oil gradient of 0.71 g/cc and a water gradient of 1.02 g/cc. The Lower Sognefjord Formation also proved to have a gas cap, but well 35/11-10 only penetrated one metre of this gas column. Though, a clear oil gradient of 0.71 g/cc was interpreted and a water gradient of 1.02 g/cc, communicating with the Upper Sognefjord acquifer.

The Fensfjord Formation also proved to have a saturated fluid system, but only two metres of gas filled sand was penetrated. A gas gradient of 0.13 g/cc is calculated, but this has of some uncertainties, due to the fact that only two good MDT points were obtained in the Fensfjord gas zone. However, a clear oil gradient of 0.68 g/cc and a water gradient of 1.01 g/cc has been interpreted.

The Brent Group is interpreted with a gas gradient of 0.21 g/cc in the Ness Formation. An oil gradient of 0.59 g/cc penetrates the Ness Formation, while the Etive Formation is water bearing with a fluid gradient of 1.02 g/cc.

The results are presented in Table 8.1.

The sensitivities of the average petrophysical output parameters were found. (See "Formation Evaluation Report, well 35/11-10")

In the Upper and Lower Sognefjord Formation respectively, 38 and 18 metres of net pay sand has been interpreted, where 22.6 and 17 metres of these are in the oil zone. For the Sognefjord Formation in total, the average porosity is 25 % p.u. and the average water saturation is 0.22. Arithmetic average of the RCAL permeability measurements is approximately 4 Darcy.

In the Fensfjord Formation there is 16 metres of net pay sand, where 14 metres is in the oil zone. Average porosity is 23 %, while the water saturation is 0.31 in average. The arithmetic permeability average is 5600 mDarcy. For the Brent Group 10 out of 15 metres net pay is in the oil zone. There is a porosity average of 20 % p.u. and a water saturation average of 0.30. Average arithmetic permeability is 550 mDarcy.

For more details regarding the petrophysical interpretations, reference is made to "Formation Evaluation Report, well 35/11-10".

ZONE AVERAGES Sognefjord Formation							
Zone	*Interval [m MD RKB]*	*Net res [m]*	*N/G*	*Porosity [%]*	*Net pay [m]*	*Sw [Frac]*	*KHC* [mD]*
Gas_Upper	1971-1987	15.4	0.96	26.9	15.4	0.103	8377.0
Oil_Upper	1987-2011	23.1	0.96	25.4	22.6	0.266	2597.8
Water_Upp	2011-2036	14.8	0.59	21.8	-	-	1351.5
HC_Lower	2036-2054	17.9	0.99	28.3	17.9	0.248	4879.0
Water_Low	2054-2117	46.7	0.74	24.5	-	-	1593.4
Total	1971-2117	117.8	0.81	25.3**	55.9	0.215	4035.7

ZONE AVERAGES Fensfjord Formation							
Zone	*Interval [m MD RKB]*	*Net res [m]*	*N/G*	*Porosity [%]*	*Net pay [m]*	*Sw [Frac]*	*KHC* [mD]*
Oil	2275-2277	1.9	0.93	19.9	1.9	0.413	1117.7***
Gas	2297-2299	2.0	0.99	27.8	2.0	0.151	7422.6***
Oil	2299-2313	13.7	0.98	25.6	13.7	0.328	5393.5
Water	2313-2386	49.5	0.68	22.2	-	-	-
Total (F1-F5)	2297-2386	65.2	0.73	23.1**	15.7	0.305	5627.6

ZONE AVERAGES Brent Group							
Zone	*Interval [m MD RKB]*	*Net res [m]*	*N/G*	*Porosity [%]*	*Net pay [m]*	*Sw [Frac]*	*KHC* [mD]*
Gas	2647.5-2660	5.3	0.42	20.4	5.0	0.267	-
Oil	2660-2702	11.9	0.28	21.3	9.8	0.323	576.3
Water	2702-2801	18.1	0.18	19.5	-	-	533.9
Total	2647.5-2801	34.7	0.23	19.9**	14.6	0.303	546.3

** Horizontal Klinkenberg-corrected permeability, arithmetic average.*
*** Calculated over net reservoir section.*
**** Based on 6 plugs only!*

DISCRIMINATION CRITERIA (INCLUSIVE) FOR NET RES AND NET PAY				
Criteria	*Min*	*Max.*	*Net Res*	*Net Pay*
Shale content	0.00	0.40	Yes	Yes
Log porosity, Phie Sognefjord Fm Fensfjord Fm Brent Group	*(oil,water / gas)* (0.13 / 0.08) (0.14 /0.11) (0.11 / 0.06)	1.00	Yes	Yes
Water saturation, Swe	0.00	0.60	No	Yes

Table 8.1: Petrophysical summary

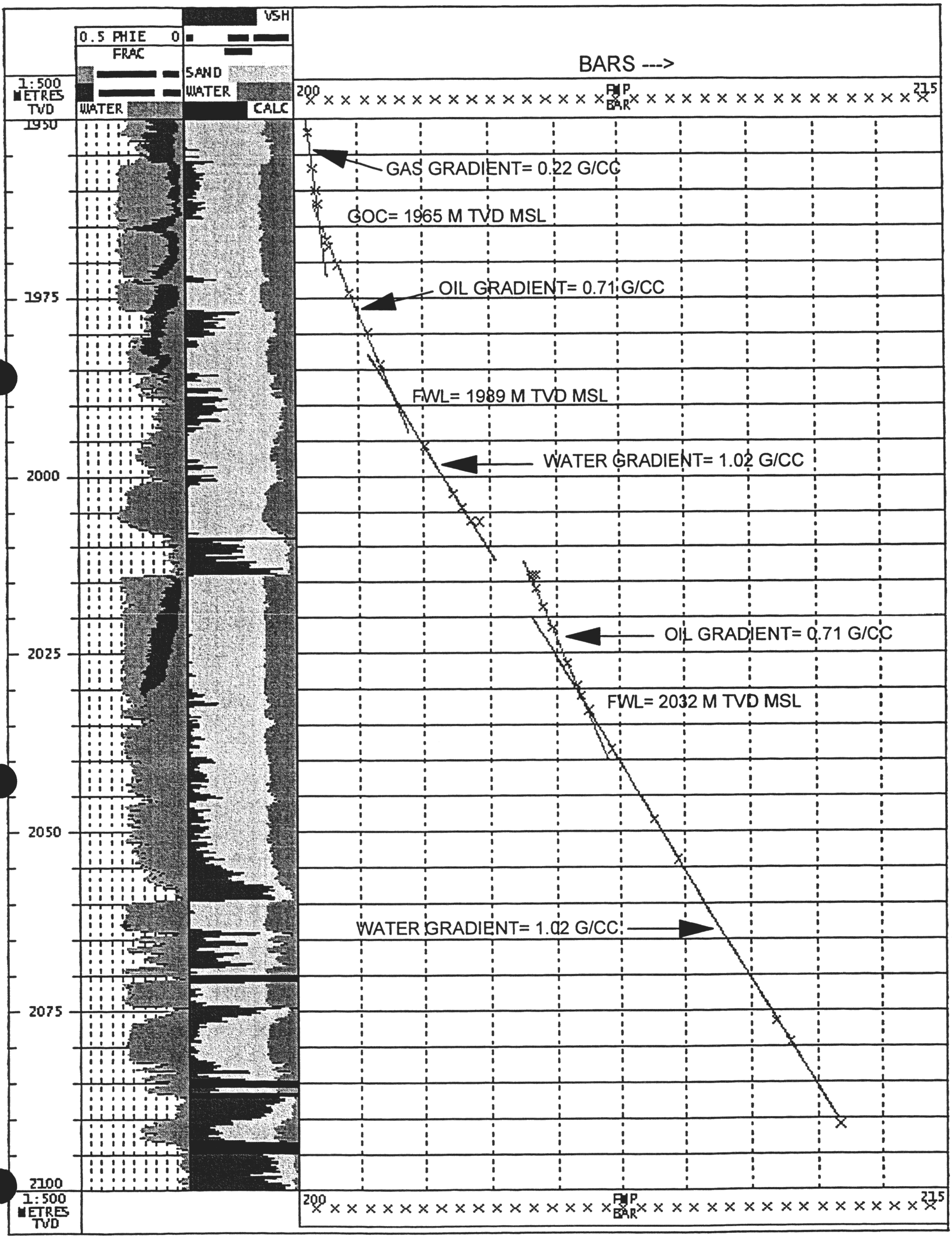


Figure 8.1: Pressure points in the Sognefjord Formation.

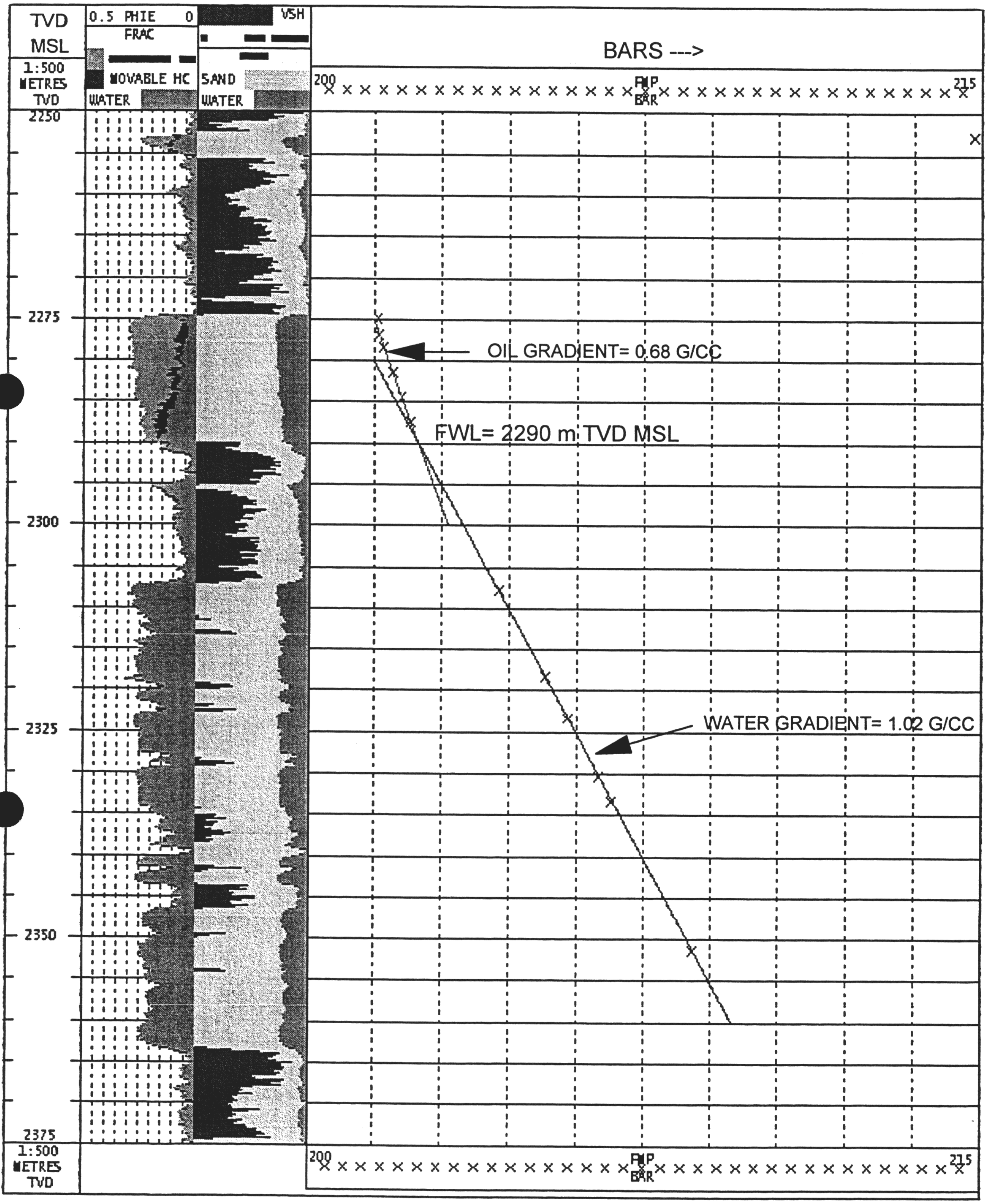


Figure 8.2: Pressure points in the Fensfjord Formation.

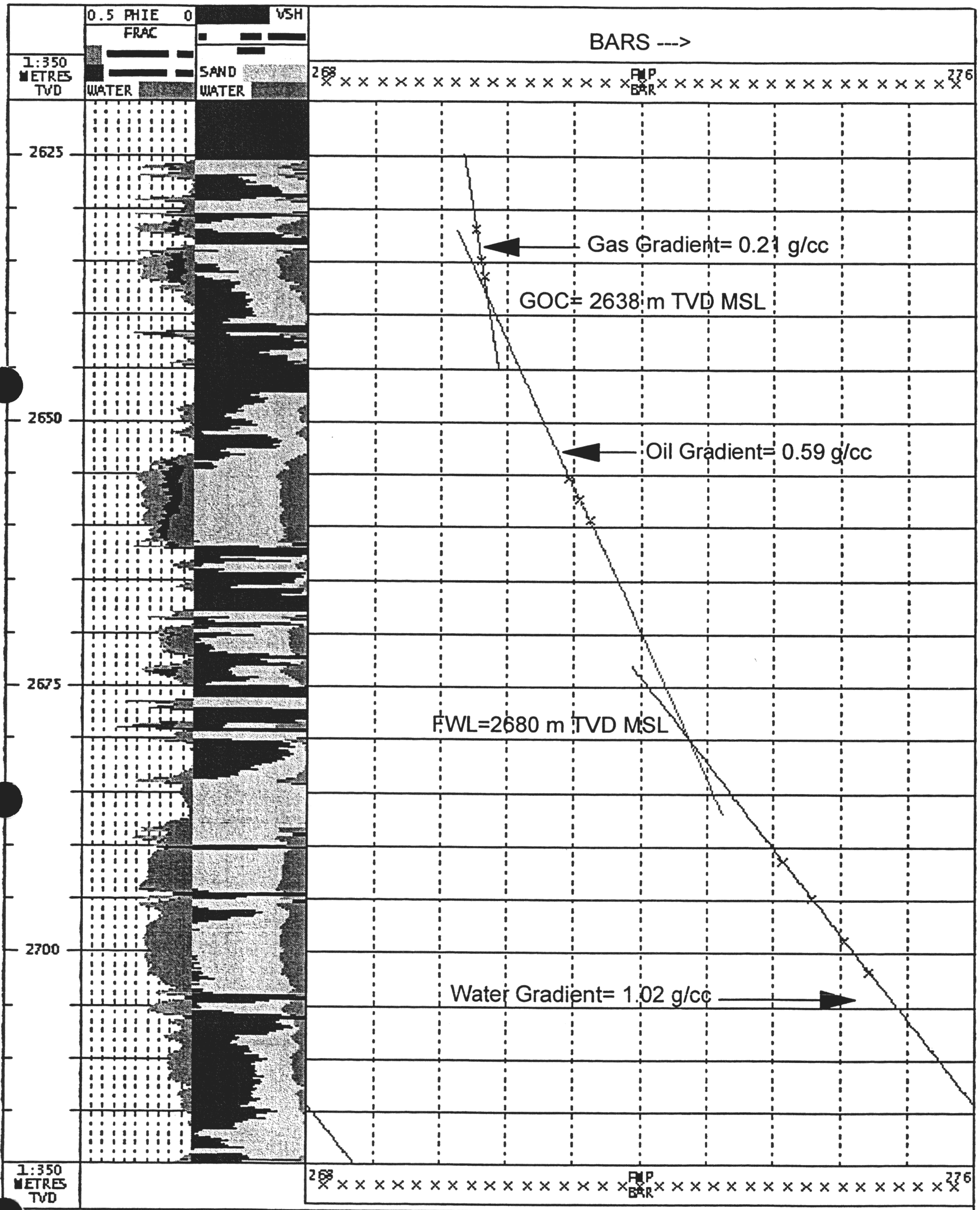


Figure 8.3: Pressure points in the Brent Group.

9 GEOPHYSICAL RESULTS

The prognosed times and depths are shown in Table 9.1 together with the actual times and depths from the well. All reflectors from Top Shetland Group and below have been interpreted on the reprocessed survey MN920196. In addition, Top Balder Formation was verified with minor adjustments from previous work on MN9201 and Top and Base Intra Lista Sandstone (sometimes referred to as Heimdal Formation) were interpreted in a small area south of well 35/11-4. The lack of actual time picks for the seabed and Top Hordaland Formation are due to the fact that no calibrated sonic exists at these levels.

A time shift of 8 -10 ms can be observed when comparing the actual time from the calibrated sonic log with the corrected seismic time. This time shift is clearly seen when comparing the synthetic seismogram with the seismic data.

The prognosed geophysical depths to Top Intra Lista Sandstone and Top Shetland Group are not within the expected uncertainties. These horizons have been depth converted by using linear velocity methods assuming that the velocity increases linearly with depth.

Both Top and Base Intra Lista sandstone have a poor seismic reflectivity and the significant interpretation uncertainty has probably caused the large underestimation in the prognosed depths.

Top Shetland Group represents a strong continues reflector that can be mapped with good confidence, but a fault is cutting through Top Shetland Group in the well position. The interpretation is therefore uncertain in the well area, and the reflector has been moved down to 1888 ms, which will reduce the difference between prognosed and actual depth.

Base Cretaceous was depth converted using corrected stacking velocities from the reprocessed MN920196 survey. All reflectors below Base Cretaceous Unconformity are depth converted using interval velocities from Base Cretaceous and down to the respective horizon.

After well 35/11-10 was drilled, small adjustments have been made on the reflectors below Base Cretaceous in the well area. The greatest change is at Base Sognefjord which has been lifted ten ms. The horizons from Base Cretaceous and down to Top Fensfjord have minor mismatch between prognosed and actual depth, while Top Brent and Top Dunlin have respectively 30 and 28 meters mismatch. The mismatch at Top Brent must be due to the depth conversion because the interpretation has a good confidence in this area. The interval velocity used from Base Cretaceous and down to the Brent Group is a constant velocity based on several wells in the Fram area. This has lead to an underestimation in velocity because the interval velocity in well 35/11-10 is in the same velocity range as wells 31/2-8 and 35/11-4 which is more than 100 m/s higher than other wells in the Fram area. The same applies for the Top Dunlin reflector, while here the interpretation is more uncertain and has been moved six ms down.

Location: Well 35/11-10

Spud location [m] UTM: 528323.08 E 6765243.58 N
TD location [m] UTM: 528271.26 E 6765251.04 N

Formation tops	Time [ms] TWT			Depth [m] TVD MSL			
	Prognosis	Actual	Result	Prognosis	Uncertainty	Actual	Result
Seabed				360	+ -1	353,5	-6,5
Top Hordaland Fm.	850			750	+ -25	734	-16
Top Balder Fm.	1507	1522	15	1377	+ -25	1392	15
Top Intra Lista sst.	1670	1791	121	1553	+ -45	1690,5	137,5
Base Intra Lista sst.	1807	1837	30	1723	+ -45	1754,5	31,5
Top Shetland Gp.	1874	1901	27	1800	+ -25	1835,5	35,5
Top Draupne Fm.	1968	1968	0	1942	+ -30	1942,5	0,5
Top Sognefjord Fm.	1968	1972	4	1942	+ -30	1948,5	6,5
Base Sognefjord Fm.	2067	2065	-2	2098	+ -45	2094,5	-3,5
Top Fensfjord Fm.	2150	2157	7	2247	+ -30	2253	6
Top Brent Gp.	2365	2374	9	2595	+ -45	2625	30
Top Dunlin Gp.	2450	2465	15	2750	+ -45	2778	28

Table 9.1: Geophysical summary

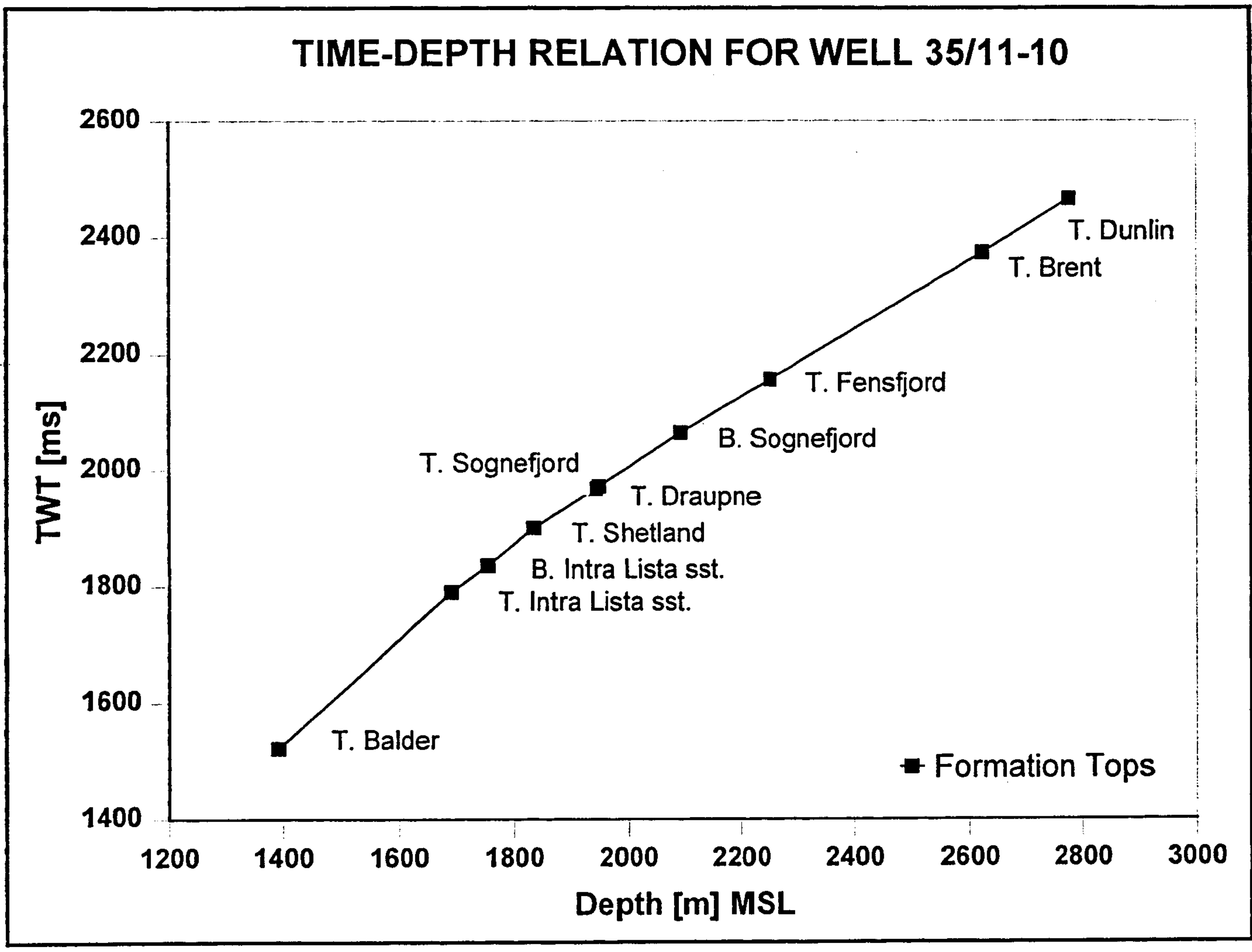


Figure 9.1: Time versus depth plot

10 POST SITE SURVEY REPORT

WELL DATA:

1	**Distance from rig floor to sea level:**	22 m
2	**Water depth (MSL):**	353.5 m
3a	**Setting depth for conductor (m RKB):**	435 m
3b	**Leak Off / Formation Integrity Test (g/cc):**	N/A
4a	**Setting depth for casing on which BOP mounted:**	1152 m
4b	**Leak Off / Formation Integrity Test (g/cc):**	1.69 sg EMW

5 Depth (m RKB & two way time) to formation/section/layer tops:

Base Pleistocene:	536 m/ 658 ms
Top Utsira Fm.:	749 m/ 859 ms (No Utsira Sand)
Base Utsira Fm.:	756 m/ 873 ms

6 Depth interval (m RKB & Two Way Time) and age of sand bodies shallower than 1000 m under the seabed. Note which layers if any contain gas:

Note: the logs in the upper part of the Pleistocene are poor and sand layers are not reliably resolved (36" hole).

Pleistocene intervals/layers:	524-526 m/651- 652 ms,
Pliocene layers:	None
L. Miocene layers:	None
Oligocene layers:	778-779 m/890-891 ms (possible), 784-785 m /898-899 ms (possible)

7 By what means is the presence of gas proven: N/A

8 Composition and origin of gas: N/A

9 Describe all measurements taken in gas bearing layers: N/A

SEISMIC DATA:

10 Given depth (m RKB & ms Two Way Time) of unconformities at the well location:

Base Pleistocene:	536 m/ 658 ms
Top Utsira Fm.:	749 m/ 859 ms
Base Utsira Fm.:	756 m/ 873 ms

11 Given depth and extent of sand layers (communication, continuity, truncation etc.):

524-526 m: Pleistocene sand layer / top erosion surface expected to have high continuity.
778-779 m: Oligocene sand string, expected to have low continuity (possible).
784-785 m: Oligocene sand string, expected to have low continuity (possible).

12 Given depth and extent of any gas blanking ("gass-skygging"), seismic anomalies etc.:

Amplitude anomalies have been mapped at three levels (m RKB and Two Way Time):

399 m (510 ms): More than 500 m from planned spud location
428 m (540 ms): 97 m to NE
447 m (562 ms): More than 70 m to W

13 Note any indication of gas originating from deeper levels. Give description in cases where gas comes from deeper layers: N/A

14 How does the interpretation of the site survey correspond to the well data with respect to:

- **shallow gas:** No shallow gas indications were identified at the planned location and no shallow gas was predicted. No indications of shallow gas were encountered during drilling.

- **sand bodies:** The basal Pleistocene interval predicting sand, possibly gravel, was encountered between 524 m and 536 m, as opposed to 531 to 543 m therefore 7 m shallower; only 2 m of sand was encountered according to the logs. The basal Pliocene sand interval predicted between 736 m and 756 m was not encountered containing sand, although a change in lithology towards clay was indicated by the gamma and resistivity logs at 734 m. The Top Utsira Fm. was encountered at 749 m, 7 m shallower than predicted. The Base Utsira Fm. was encountered at 756 m, 16 m shallower than predicted. No sand was found within the Utsira Formation, or in the overlying Pliocene interval ('Pliocene Fan').

  The depths to the sand layers observed below the Utsira Fm.were not prognosed.

- **unconformities:** Base Pleistocene was observed at 536 m (660 ms) 7 m shallower than predicted. The Top Utsira Fm. was observed at 749 m (859 ms) and predicted at 756 m (861 ms). The Base Utsira Fm. was predicted at 772 m (877 ms) and observed at 756 m (873 ms).

- **correlation to nearby wells:** The seismic correlation to Tie Wells 35/11-4 and 35/11-7 is good for the Base Pleistocene and Base Utsira Formation unconformities, although the interval is shallower than predicted. The seismic correlation to the Top Utsira Formation reflector is variable due to the presence of a very strong reflector at the base of the Pliocene Fan interval which obscures the Top Utsira Formation reflector. In addition, both the fan structure and the Utsira basin are at their most lateral extent therefore there is no sand present in the intervals, merely silts and clays. The correlation between the completed well logs and the seismic data (2D and 3D) within the Base Pliocene Fan to Base Utsira Formation interval is variable for the same reason.

11 STANDARD AND SPECIAL STUDIES

- **Norsk Hydro,1997:** Core description Well 35/11-10.
- **Norsk Hydro, 1997:** Well Programme 35/11-10.
- **Norsk Hydro, 1997:** Well 35/11-10 - MDT Wax Analysis.
- **Norsk Hydro, 1997:** Well 35/11-10 - MDT Formation Pressure and Sampling Report
- **Norsk Hydro,1997:** Reservoir quality well 35/11-10.
- **Norsk Hydro,1997:** Reservoir geochemistry well 35/11-10
- **Norsk Hydro,1997:** Formation Evaluation Report Well 35/11-10.
- **Norsk Hydro,1997:** Final VSP Report, 35/11-10.
- **Norsk Hydro,1997:** Geochemical reservoir correlations of wells 35/4-1 and 35/11-10
- **Britsurvey, 1996:** Site Survey NH9556 NOCS Location 35/11-10.
- **Reslab, 1997:** Well 35/11-10 - Seal Peel Samples Tomograph Pictures
- **Reslab, 1997:** Core Photographs Well 35/11-10 - Scale 1:4 - White Light and UV Light.
- **Reslab ,1997:** Conventional core analysis 35/11-10.
- **Reslab ,1997:** Well 35/11-10 - Special core analysis reservoir.
- **Reslab ,1997:** Well 35/11-10 - Special core analysis Petrophysics.
- **Baker Hughes Inteq, 1997:** End of Well Report, 35/11-10 & 35/11-10 A.
- **Baker Hughes Inteq, 1997:** End of Well Report, mudlogging, 35/11-10 & 35/11-10 A.
- **Petrotech, 1997:** Well 35/11-10 - MDT Water Analysis.
- **Petrotech, 1997:** Well 35/11-10 - Quality Control - MDT Samples.
- **Petrotech, 1997:** Well 35/11-10 - Validity check and analyse of MDT samples, Water
- **Geoquest, 1997**: Well 35/11-10 - PVT analysis - MDT Samples.
- **STRATLAB,1997:** Well 35/11-10, Biostratigraphy, interval 1160m - 2950m.

APPENDIX I

CORE DESCRIPTIONS

CORE REPORT

HYDRO

WELL: **35/11-10** DATE: 23.05.97 GEOL: P. Anderson SCALE: 1:200

CORE NO: 1 FROM: 871 m TO: 880 m CORED: 9 m REC: 0.95 m 11%

Depth m RKB	Rec.	Lith.	Grain Size (cly sl vf f m c vc)	Lithological Description	Flu (tr m g)	Cut (tr m g)	Shows description
871							
875				879.05 - 879.10 m: Two sbrndd pbl sized clsts (prob Cvg) **Clast 1:** **Ig:** dk gry blk, crs xls, Qtz, Fspr, Biot, gran tex, v hd. **Clast 2:** **Qtzt:** m gry, Qtz, vf, abdt Qtz ovgth, v hd **Clst:** olv gry, frm, blky-plty, slty, mod calc, com Micromic, occ Microfos			n/s
880		M					

CORE REPORT

HYDRO

WELL: **35/11-10** DATE: 01 -0 2.06.97 GEOL: Giskeødegaard/Watts SCALE: 1:200

CORE NO: 2 FROM: 1975 m TO: 2008 m CORED: 33 m REC: 32.1 m 97.3%

Depth m RKB	Rec.	Lith.	Grain Size (cly sl vf f m c vc)	Lithological Description	Flu (tr m g)	Cut (tr m g)	Shows description
1975–1983		M, C		**Sst:** olv gry-m gry, clr Qtz, f-vf, frm, mod srt, sil cmt, Tr calc cmt, Tr Mic, Tr carb Mtrx sl slty, Tr micropyr, n.v.p. **Sst:** lt gry, clr-gry Qtz, m-crs, occ v crs w/depth, frm, fri-lse, mod srt, sil cmt, tr Shl frag, Tr carb, Tr pyr codt gr, v gd vis Por.			Fnt-wk pet od, no 0 stn, pch sptd yel dir Fluor, mod-fst strmg bl/wh cut fluor, no vis cut, bl wh Res fluor, no vis Res
							GOC @ 1983 m
1983–1996		M, K		**Sst:** lt gry-lt brn gry, clr-smoky opq Qtz, f-v crs, fri, rnd-sbrndd, cl Mtrx, sh clasts, prly srtd, Tr calc cmt, Tr Mic, kao/fspr, Tr micropyr, Tr carb, gd vis Por			Strng pet od, m-lt brn 0 stn, bri yel wh dir Fluor, fst blmg crm wh cut fluor, no vis cut, gold yel Res fluor, lt brn vis Res
1996–2000		M		**Mic Sh/Sst:** lt gry, frm-hd, flky-plty frac, abd Mic, f-vf sd, Cl Mtrx, v carb, v arg, Mus mic flks, tarry intst res, n.v.p., bioturb			
2000–2005		K		**Sst:** lt olv gry, frm-hd, fri, m-f, prly srtd, sbang-rnd, sh lams, cl Mtrx, rose & smky Qtz, fspr/kao, gd vis Por			Fnt-strng pet od, pch 0 stain, Pch gry yel dir Fluor, fst strmg mky yel cut fluor, no vis cut, crm wh Res fluor, gn/yel vis Res

Depth scale: 1980, 1985, 1990, 1995, 2000, 2005

HYDRO

CORE REPORT

WELL: **35/11-10** DATE: 02 .06.97 GEOL: Giskeødegaard/Watts SCALE: 1:200

CORE NO: 2 FROM: 2008 m TO: 2041 m CORED: 33 m REC: 32.6 m 99%

Depth m RKB	Rec.	Lith.	Grain Size cly sl vf f m c vc	Lithological Description	Flu tr m g	Cut tr m g	Shows description
2005 2008				**Mic Sh/Sst:** lt - m gry, wl cmtd, hd, f-vf, abd Cl Mtrx, abd Mus Mic, v carb			wk pet od, no 0 stn, lam dull gry yel dir Fluor, slo strmg bl wh cut fluor, no vis cut, bl bl wh fluor Res, no vis Res

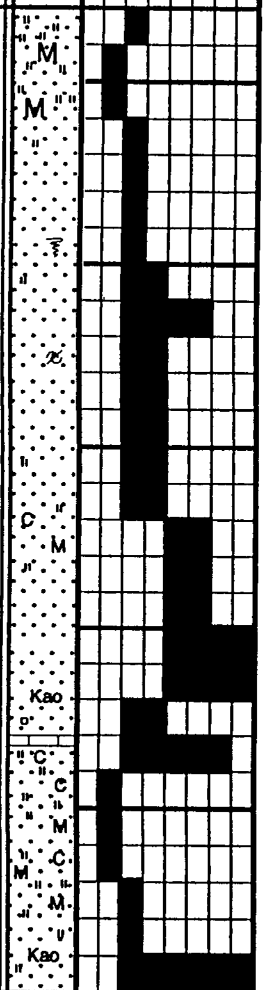
HYDRO

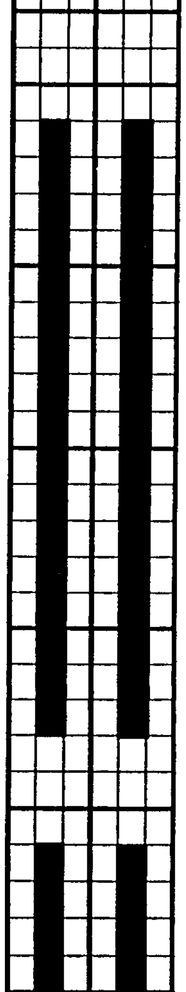
CORE REPORT

WELL: **35/11-10** DATE: 02.06.97 GEOL: Giskeødegaard/Watts SCALE: 1:200

CORE NO: 3 FROM: 2008 m TO: 2041 m CORED: 33 m REC: 32.6 m 99%

Depth m RKB	Rec.	Lith.	Grain Size (cly sl vf f m c vc)	Lithological Description	Flu (tr m g)	Cut (tr m g)	Shows description
2010				**Sst:** lt gry-m dk gry, clr-mky Qtz, vf, loc v slty, mod-pr srtd, frm sbang-sbrndd, cl Mtrx, carb, Pyr, Mic, lam pr-n.v.p. **Sltst:** m dk gry, frm, sbblky, non calc, abd Mic, plt Rem, tr Pyr, carb loc vf sd, bioturb.			wk pet od, no 0 stn, lam dull gry yel dir Fluor, slo strmg bl wh cut fluor, no vis cut, bl wh fluor Res, no vis Res
2015				**Sst:** lt gry-m dk gry, clr-mky Qtz gr, vf-f, frm, v slty grad **Sltst:** mod-pr srt, sbang-sbrndd, cl Mtrx, sil cmt, Mic, carb, Tr Shl frag, n.v.p., loc tr vis Por			
2020							wk pet od, no 0 stn, pch dull yel-bl dir Fluor, slo strmg bl wh fluor cut, no vis cut, bl wh Res fluor, no vis Res fluor, no vis Res
2025							
2030				**Sst:** dusky yel brn-brn gry, clr-mky Qtz, vf-crs, pr srt, v hd calc cmt, v slty, loc carb, r Mic, n.v.p.			
2035							





HYDRO

CORE REPORT

WELL: 35/11-10 DATE: 02.06.97 GEOL: Giskeødegård/Watts SCALE: 1:200

CORE NO: 3 FROM: 2008 m TO: 2041 m CORED: 33 m REC: 32.6 m 99%

Depth m RKB	Rec.	Lith.	Grain Size cly sl vf f m c vc	Lithological Description	Flu tr m g	Cut tr m g	Shows description
2035		M		Sst: lt gry-lt brn gry, clr-gry smoky-rose Qtz, vf-v crs, Tr pbl, sbang-sbrndd, pr srt, frm-fri, r Mic, Tr Kao Mtrx, micropyr, Tr v gd vis Por			Mod pet od, lt brn O stn, 100% yel dir Fluor, blmg mky wh cut fluor, v lt brn vis cut, crmy wh Res fluor, lt brn-yel vis Res
		K					
2040							

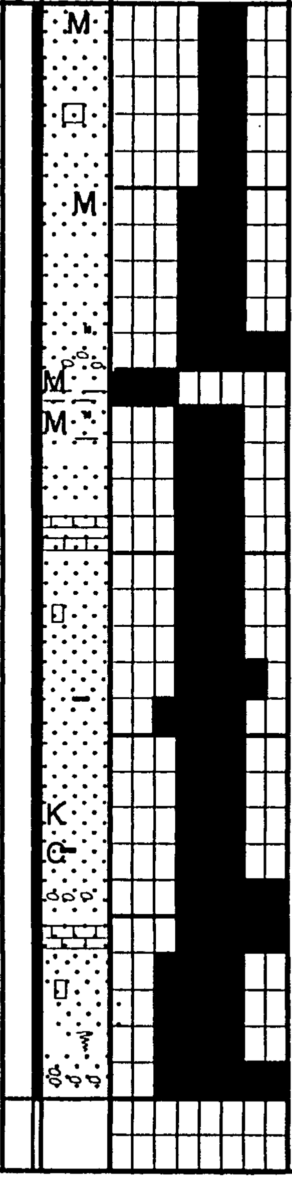
HYDRO

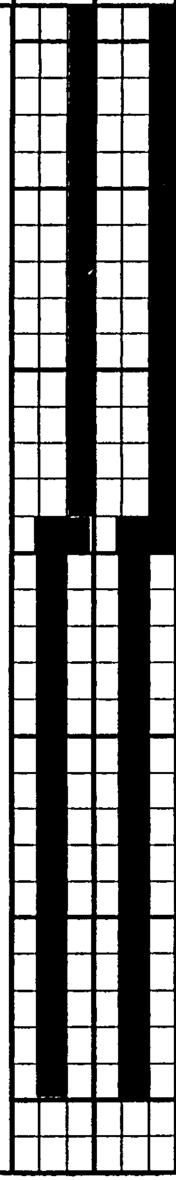
CORE REPORT

WELL: **35/11-10** DATE: 03.06.97 GEOL: Giskeødegård/Watts SCALE: 1:200

CORE NO: 4 FROM: 2041 m TO: 2078 m CORED: 37 m REC: 37.2 m 100%

Depth m RKB	Rec.	Lith.	Grain Size (cly sl vf f m c vc)	Lithological Description	Flu (tr m g)	Cut (tr m g)	Shows description
				Sst: m-lt gry, frm-fri, m-crs, sbrndd, pr-mod srt, cl Mtrx, occ rose Qtz, Mic micropyr, wk calc cmt, gd vis Por			
2045				**Sst:** m-lt gry, frm-hd, f-crs, sbrndd, pr srt, Tr cl Mtrx, kao/fspr, micropyr, Tr Mic, pch calc cmt, gd vis Por			Strng pet od, pch brn 0 stn, bri yel wh dir Fluor, slo-mod blmg bl wh cut fluor, crm wh Res fluor, gn-yel vis Res
2050				**Clst:** m gry, frm, crmbly-sbfis, v Mic, abd micropyr, calc Vn, v slty			
2055				**Sst:** lt gry-off wh, hd-v hd, f-crs, ang-sbang, pervasive calc cmt, n.v.p.			OWC @ 2054 m
				Sst: m gry, frm-hd, f-m, wl-mod srt, ang-sbang, micropyr cmt, gd-mod vis Por			Wk pet od, sptd m brn 0 stn, pch yel wh-gry yel dir Fluor, slo blmg bl wh cut fluor, crmy wh Res fluor, gn-brn vis Res
2060				**Sst:** lt gry-m gry, clr-mky Qrz, vf-crs, sbang-sbrndd, pr srt, frm, Kao/Cl Mtrx lam, Tr Mic, micropyr, sl slty, Tr carb/coaly Mtrx			
				Sst: lt gry, clr-opq Qtz, vf-pbl, mod hd, sbang-rnd, pr srt, calc cmt, loc kao Mtrx, Tr Pyr, Tr Pyr cmt, carb			
2065				**Sst:** lt gry-sptd lt brn, vf-crs, frm-fri, Tr Mic, sl carb, Tr Pyr, cl/kao Mtrx, gd vis Por bioturb			
2070							





CORE REPORT

HYDRO

WELL: 35/11-10 **DATE:** 03.06.97 **GEOL:** Giskeødegård/Watts **SCALE:** 1:200

CORE NO: 4 **FROM:** 2041 m **TO:** 2078 m **CORED:** 37 m **REC:** 37.2 m 100%

Depth m RKB	Rec.	Lith.	Grain Size cly sl vf f m c vc	Lithological Description	Flu tr m g	Cut tr m g	Shows description
2070 2075		M		**Sst:** dk-m gry, frm-hd, loc sl fri, slt-m, sbang-ang, cl Mtrx & calc cmt, carb/C lams, v mic, slty, pr vis Por, intercalated w/carb Sltst: dk gry, hd, sbfis, v Mic, fspr.			Pch - 20% gry yel dir Fluor, blmg bl wh cut fluor, crm wh vis fluor, yel brn vis Res.

CORE REPORT

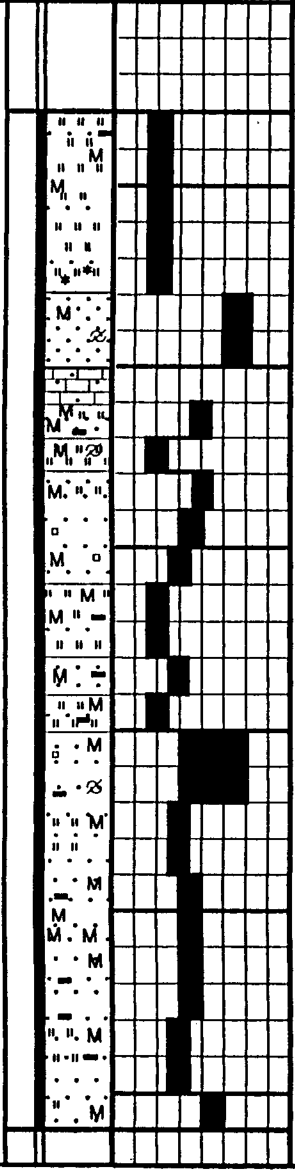
HYDRO

WELL: 35/11-10 | DATE: 05.06.97 | GEOL: Nyby/Knape | SCALE: 1:200

CORE NO: 5 | FROM: 2268 m | TO: 2296 m | CORED: 28 m | REC: 27.95 m 99.8%

Depth m RKB	Lithological Description	Shows description
2268–2270	**Sltst:** brn gry, mod hd, blky, non-sli calc, gen sdy grad vf Sst, Tr Mic, loc Tr Wd Frag, loc gd Tr-abd Glauc.	No-v fnt Pet od, no vis O stn, no dir Fluor, slo-mod fst strmg bl wh fluor cut, no vis cut, wk bl wh fluor Res, no vis Res.
	Sst: brn gry-olv gry, clr-trnsl & smoky Qtz, m-crs, Tr v crs, sbrndd-sbang, fri, mod srt, no-sli calc, r Mic, r Brach?, ex vis por.	Strng Pet od, Tr lt brn vis O stn, 100% uni brt wh dir Fluor, inst-v fst strmg bl wh fluor cut, v lt brn strmg vis cut, brt bl wh fluor Res, lt brn vis Res.
2275	**Ls:** m gry, spk v dusky rd, v hd, blky, r Mic, Tr-gd Tr f Qtz gr, microxln.	
	Sltst: dk gry-brn gry, frm-mod hd, blky, non-sli calc, abd Mic, v sdy grad vf Sst, r Bel.	
	Sst: olv gry-brn gry, f, f-vf, sbrndd-sbang, mod srt, fri-mod hd, non-occ sli calc, Tr-loc abd Mic, loc gd Tr micropyr Nod & Cotg, r pyr Wd Frag, loc Tr Wd Frag, loc slty grad Sltst, no-pr vis por.	fnt Pet od, no vis O stn, 80% pch wh dir Fluor, mod fst strmg bl wh fluor cut, no vis cut, bl wh fluor Res ring, no vis Res.
2280	**Sltst:** Tr Wd Frag, else as 2277m.	
	Sst: olv gry-brn gry, vf, mnr f, sbang-sbrndd, mod srt, mod hd-fri, non-sli calc, Tr Mic, Tr Wd Frag, Tr Micropyr Nod, no-pr vis por.	
2285	**Sltst:** Tr Wd Frag else as 2277m.	90% pch-uni wh dir Fluor, fst strmg bl wh fluor cut, else as ab.
	Sst: olv gry-brn gry, gen vf-f, loc vf, vf-m, f-m, loc Tr crs, sbrndd-sbang, mod srt, fri-mod hd, non-sli calc, loc v slty grad Sltst, abd Mic, loc abd pyr Wd Frag, Tr Micropyr, r Brach, gen no-pr vis por, at bse fr-gd vis por.	Gen fnt Pet od, no vis O stn, var 20-80% pch wh dir Fluor, slo-fst strmg bl wh fluor cut, no vis cut, bl wh fluor Res, no vis Res.
2290		
2295		

Rec. | Lith. | Grain Size: cly sl vf f m c vc



Flu: tr m g | Cut: tr m g

CORE REPORT

HYDRO

WELL: **35/11-10** DATE: 07.-08.06.97 GEOL: Nyby/Knape SCALE: 1:200

CORE NO: 6 FROM: 2296 m TO: 2315 m CORED: 19 m REC: 18.82 m 99.1%

Depth m RKB	Rec.	Lith.	Grain Size (cly sl vf f m c vc)	Lithological Description	Flu (tr m g)	Cut (tr m g)	Shows description
2296				**Sst**: lt gry-m gry, trnsl-smoky Qtz gr, m-crs, sbang-sbrndd, mod-wl srt, fri-frm, loc mod hd, brit, wk cmt, no-sli calc cmt, r Mic, gd-ex vis por.			At 2296m: fnt Pet od, no vis O stn, 10% p.p. wh dir Fluor, mod -fst strmg bl wh fluor cut, no vis cut, bl wh fluor Res, no vis Res.
2300							2297-2310m: Mod-strng Pet od, v lt brn-lt brn vis O stn, 100% uni brt wh dir Fluor, inst strmg/blmg bl wh fluor cut, yel brn vis cut, brt yel fluor Res, yel brn vis Res.
2305				**Sst:** a.a but crs-pbl, mod srt.			
				Sst: m gry-m dk gry, loc lt gry-m gry, trnsl-smoky Qtz gr, f-crs, sbang-sbrndd, pr-mod srt, sli arg Mtrx, fri-mod hd, Tr-abd calc cmt, Tr-abd Mic, r-Tr Pyr, loc Tr dissem Pyr/Micrpyr, pr vis por, loc pr-fr vis por, loc n.v.p.			
2310							2311-2314.82m: No-fnt Pet od, no Oil stn, 40-60% pch pl-brt, loc dull, loc no yel-wh-wh dir Fluor, fst strmg bl wh fluor cut, no vis cut, bl wh fluor Res, no-wk straw vis Res.
				Sst: a.a. but slily slty, loc arg Lam.			
2314.82							
2315							

CORE REPORT

HYDRO

WELL: 35/11-10 | DATE: 10.06.97 | GEOL: Nyby/Knape | SCALE: 1:200

CORE NO: 7 | FROM: 2676 m | TO: 2723 m | CORED: 47 m | REC: 46.89 m 100%

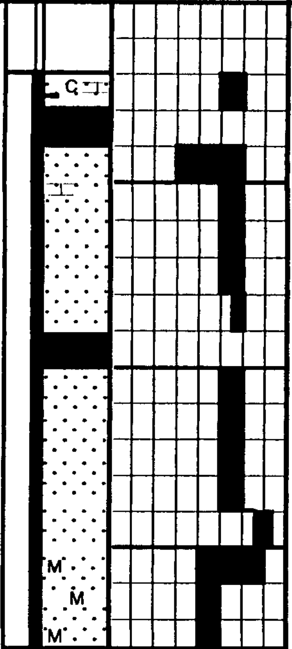
Depth m RKB	Lithological Description	Shows description
2676	**Sst:** lt brn-mod brn, clr-trnsl Qtz gr, f bcm m-crs dwrd, wl srt, fri, sli silic cmt, non calc Tr Mic, mass, gd-ex vis por.	strng bcm mod-fnt Pet od dwrd, Tr lt brn vis O stn, 100% uni brt yel wh dir Fluor, fst strmg bcm slo-mod blmg brt bl wh fluor cut, lt brn bcm no vis cut dwrd, brt bl wh bcm wk bl wh fluor Res dwrd, v lt brn bcm no vis Res dwrd.
2680	**Clst:** m gry-m dk gry, mod hd, blky, non calc, slty, gd Tr Micromic, Tr carb, Tr-gd Tr Wd Frag/Roots.	
	Sst: dk yel brn-dusky yel brn, vf-slt, sbang-sbrndd, mod srt, hd silic cmt, gen slty grad Sltst, micromic, n.v.p.	
	Clst: gry blk, mod hd-frm, non calc, gd Tr-abd micromic, gd Tr Wd Frag, v carb grad C.	
2685	**Sst:** f-vf, pos x-lam, fr-gd vis por, else as 2676m	mod Pet od, pos lt brn vis O stn, 100% uni wh-yel gold Lam dir Fluor, mod fst strmg bl wh fluor cut, no vis cut, bl wh fluor Res, no vis Res.
	Clst: m gry-m dk gry, mod hd, blky, non calc, slty, gd Tr-abd micromic, loc sli wxy.	
	C: blk, mod hd, blky, brit, vit, v arg grad Clst.	
	Sltst: lt brn gry-brn gry, mod hd, blky, sli-mod calc, gd Tr Micromic, Tr Wd Frag, Tr vf sdy.	
2690	**Sst:** pred f, loc vf-m, loc abd C strk, else as 2676m.	Shw as 2676m.
	Clst: pred m gry-m dk gry, loc brn gry, mod hd, blky, Tr-gd Tr Micromic/Mic, Tr carb, sli slty.	
2695	**Clst:** dusky yel brn, frm, fiss-plty, mass.	
	Clst: dk gry-gn blk, mod hd-frm, non calc, gd Tr Wd Frag/Roots, Tr Micromic, sli slty.	
	Sltst: m lt gry, mod hd-frm, blky, non calc, abd Micromic/Mic, sli vf sdy.	
	Clst: as 2697m.	
2700	**Sltst:** Tr Wd Frag, loc Cl clst, else as 2698m.	No Pet od, no vis O stn, no dir Fluor, v slo blmg bl wh fluor cut, no vis cut, v wk bl wh fluor Res, no vis Res.
	C: blk, blky, hd, brit, vit.	
2705		

CORE REPORT

HYDRO

WELL: **35/11-10** DATE: 10.06.97 GEOL: Nyby/Knape SCALE: 1:200

CORE NO: 7 FROM: 2676 m TO: 2723 m CORED: 47 m REC: 46.89 m 100%

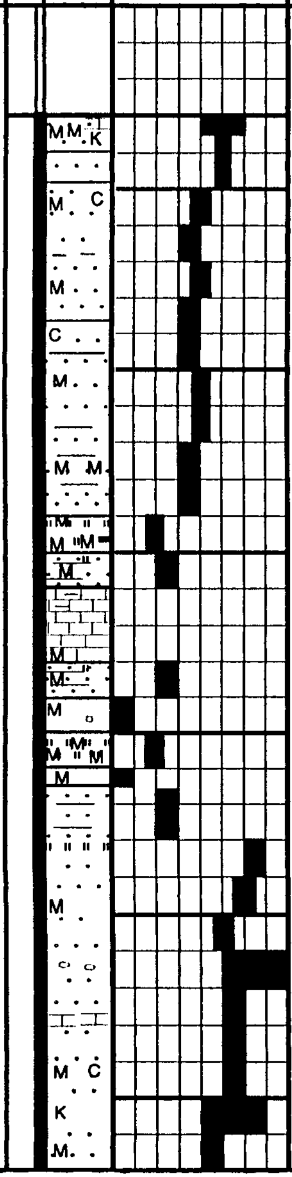
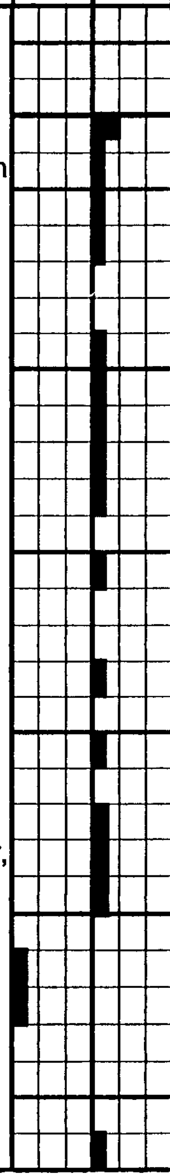
Depth m RKB	Rec. / Lith. / Grain Size (cly sl vf f m c vc)	Lithological Description	Flu (tr m g) / Cut (tr m g)	Shows description
2707		**Sst**: brn gry, m-crs, sbang, mod srt, mod hd, sli calc cmt, C strks, Tr carb, fr-gd vis por **C**: micropyr Lam, else as 2703m.		No Pet od, no vis O stn, 30% pch yel wh dir Fluor, mod fst strmg bl wh fluor cut, no vis cut, bl wh fluor Res, no vis Res.
2710		**Sst**: gen pl yel brn, loc lt gry & Tr lt brn, pred m-crs, loc vf-crs, sbang-sbrndd, mod-wl srt, loc pr srt, fri-sli mod hd, non calc, sli silic cmt, mass, gen pr vis por, loc ex vis por, loc vug por.		fnt Pet od, no vis O stn, 100% uni wh dir Fluor, fst strmg bl wh fluor cut, no vis cut, bl wh fluor Res, no vis Res.
2715		**C**: as 2703m **Sst**: pl yel brn-m gry, pred m-crs, mic at bse, fr-gd vis por, loc ex vis por, else as 2716m.		No Pet od, no vis O stn, no dir Fluor, v slo strmg bl wh fluor cut, no vis cut, wk bl wh fluor Res, no vis Res.
2720				
2722.89				

CORE REPORT

HYDRO

WELL: 35/11-10 | DATE: 11.06.97 | GEOL: Nyby/Knape | SCALE: 1:200

CORE NO: 8 | FROM: 2723 m | TO: 2770 m | CORED: 47 m | REC: 46.56 m 99.1

Depth m RKB	Rec. / Lith. / Grain Size (cly sl vf f m c vc)	Lithological Description	Flu (tr m g) / Cut (tr m g)	Shows description
2723		**Sst**: pred lt gry-m lt gry, loc Tr brn gry, clr-trnsl, Tr smoky Qtz gr, pred f, loc f-vf, f-crs, gen sbang, loc sbang-sbrndd, gen wl loc pr srt, mod hd-fri, silic cmt, loc calc cmt, gen pln Lam, loc Mass, Tr Mic-loc abd Micromic/Mic, r Chlor, loc Tr arg/carb Mtrx, loc Kao Mtrx, no-pr vis por.		No Pet od, no vis O stn, no dir Fluor, v slo-loc slo strmg bl wh fluor cut, no vis cut, wk bl wh fluor Res, no vis Res.
2725				
2730				gen v slo strmg bl wh fluor cut, else a.a.
2735		**Sltst**: lt brn-dk gry, frm, blky, non calc, Tr Cl clst, v abd Mic, Tr Wd/Roots/plt Frag.		
		Sst: vf-slty, slty grad Sltst, else as Sst ab.		
		Ls: m gry & dk yel brn, v hd, blky, loc sli arg, loc sli mic, crpxln.		
		Sst: vf-f, else as Sst at 2724m		
2740		**Clst**: m dk gry-dk gry, mod hd, blky-plty, non calc, abd micromic, Tr Micropyr.		
		Sltst: no Wd Frag, else as Sltst at 2735m.		
		Clst: m dk gry-dk gry, hd, blky, non calc, r micromic.		
2745		**Sst**: lt gry-m lt gry, pred m-crs, loc f-m, vf, f-crs, r pbl, clr-trnsl, loc gd Tr smoky Qtz gr, gen sbang, gen wl srt, gen non-loc v calc cmt, wk silic cmt, gen Kao Mtrx, r-Tr carb, r Wd Frag, gen Mass, loc pln Lam, loc slty Lam, gen gd-ex, loc no-pr vis por.		No Pet od, no vis O stn, 20% pch dull yel-gold dir Fluor, no fluor cut, no vis cut, no fluor Res, no vis Res.
2750				

CORE REPORT

HYDRO

WELL: **35/11-10**	DATE: 11.06.97	GEOL: Nyby/Knape	SCALE: 1:200

CORE NO: 8	FROM: 2723 m	TO: 2770 m	CORED: 47 m	REC: 46.56 m 99.1%

Depth m RKB	Rec.	Lith.	Grain Size cly sl vf f m c vc	Lithological Description	Flu tr m g	Cut tr m g	Shows description
2752		M C K					
2755		M					No Pet od, no vis O stn, 80% uni v dull yel-gold dir Fluor, no fluor cut, no vis cut, no fluor Res, no vis Res.
		M K					v slo strmg bl wh fluor cut, else as top core.
2760		M					
		M M C		**Clst:** m dk gry-gry blk, mod hd, loc frrn, blky, loc plty, non calc, gd Tr Micromic, Tr carb, loc Tr m-crs sdy.			
2765		M M K M K		**Sst:** lt gry-m dk gry, pred m-crs, loc f-crs, clr-trnsl, Tr smoky Qtz gr, sbang, wl srt, fri, non-r calc cmt, v wk silic cmt, loc Tr Micropyr, r-Tr Mic, Tr Kao Mtrx, r Rk Frag, gd-ex vis por.			
2769.56		M					
2770							

APPENDIX II

WELL SUMMARY

GEOLOGICAL WELL SUMMARY

MDT RESULTS

WELL SUMMARY: 35/11-10

Coord: 61° 01' 10.54"N
03° 31' 26.29"E
UTM: 6 765 243.5 mN
528 323.1mE
Zone: ED 50, UTM Zone 31, CM03°E
Line: MN9201, xline 1871, Inline 5385
Rig: West Vanguard
Waterdepth: 353.5 m
Stopped in: Cook Fm.

On location:	17.05.97
Spudded:	19.05.97
At T.D.:	12.06.97
Completed:	15.07.97
T.D. Driller:	2950 m RKB MD/ 2948.8 m RKB TVD
T.D. Logger:	2941 m
Wireline Logging:	Schlumberger, Read
Mudlogging:	Baker Hughes Inteq

WELL:

35/11-10

COUNTRY

Norway

OPERATOR Norsk Hydro **LICENCE** 090

OWNED BY: HYDRO/STATOIL/MOBIL

TARGETS
Primary: Sognefjord, Fensfjord Fm's, and Brent Gp.
Secondary:

RESULTS

Oil and gas discovery

Permanently plugged and abandoned

CASING

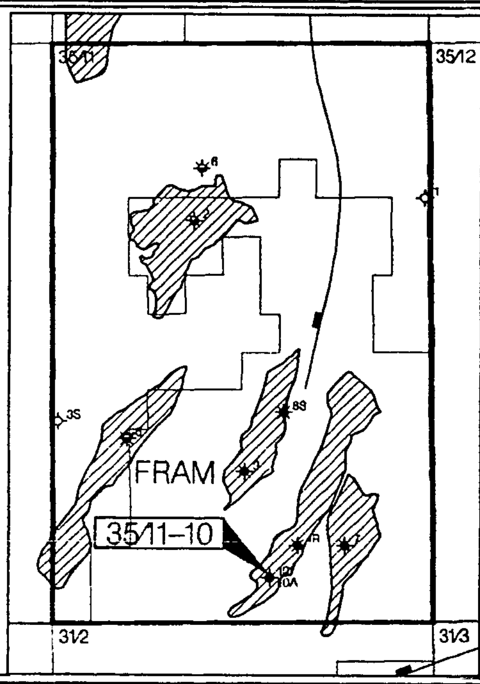
[illegible]0" at 435 m
13 3/8" at 1152 m

CORES

Core	Cored	Recovered	%
CORE #1	C: 871 - 880 m	R: 879.05 - 880 m	11%
CORE #2	C: 1975 - 2008 m	R: 1975 - 2007.12 m	97.3%
CORE #3	C: 2008 - 2041 m	R: 2008 - 2040.6 m	99%
CORE #4	C: 2041 - 2078 m	R: 2041 - 2078.2 m	100%
CORE #5	C: 2268 - 2296 m	R: 2268 - 2295.95 m	99.8%
CORE #6	C: 2296 - 2315 m	C: 2296 - 2314.82 m	99.1%
CORE #7	C: 2676 - 2723 m	R: 2676 - 2722.89 m	99.8%
CORE #8	C: 2723 - 2270 m	R: 2723 - 2269.56 m	99.1%

GAS RECORD

375 - 1161 m: Return to seabed
1161 - 1380 m: 0.0 - 0.11% C1
1380 - 1785 m: 0.0 - 0.08% C1, r n-C4
1785 - 1832 m: 0.02 - 0.05% C1, r C3, r n C4
1832 - 1937 m: 0.02 - 0.12% C1-C2, r i C4-nC4
1937 - 1969 m: 0.01 - 0.30% C1-nC4, r i C4
1969 - 2041 m: 0.96 - 3.55% C1-nC4
2041 - 2076 m: 0.37 - 1.33% C1 - nC4
2076 - 2112 m: 0.01 - 0.17% C1-C3, Tr i C4-nC4
2112 - 2267 m: 0.03 - 0.39% C1-C3, Tr i C4-nC4
[illegible]7 - 2315 m: 0.18 - 1.41% C1-nC4
2315 - 2646 m: 0.03 - 0.37% C1-C3, Tr i C4-nC4
2646 - 2724 m: 0.26 - 1.98% C1-nC4
2724 - 2950 m: 0.02 - 0.18% C1-C3, r i C4-nC4



LOGS

Log	Run	Log	Run
MDT/GR/AMS 1972 - 2026.5 m	1A	VSP/GR 2920 - 450 m	2A
MDT/GR/AMS 2028 - 2113 m	1B	FMI/DSI/GR 2932 - 1139 m	2A
MDT/GR/AMS 1996.5 - 2036 m	1C		
DLL/MSFL/DSI/LDL/CNL/ NGT/SP/AMS 2941 - 2325 m	2A		
DLL/MSFL/LDL/CNL/NGT/ SP/AMS [illegible]40 - 1046 m	2B		
MDT/GR/AMS 2036 - 2870.5 m	2D		
MDT/GR/AMS 2346 - 2305 m	2E		

OIL SHOWS

1857 - 1963 m:	very poor - fair shows on Limestones
1975 - 1983 m:	Good Gas shows
1983 - 2028 m:	Good Oil shows
2028 - 2035 m:	moderate shows
2035 - 2054 m:	Good oil shows
2054 - 2113 m:	Poor - fair shows
2268 - 2273 m:	Poor shows
2273 - 2275 m:	Good oil shows
2275 - 2296 m:	Fair - moderate shows
2296 - 2310 m:	Good oil shows
2310 - 2315 m:	Poor - fair shows
2315 - 2676 m:	No shows
2676 - 2690 m:	Good oil shows
at 2707 m :	Fair shows
2709 - 2714 m:	Moderate shows
2715 - 2723 m:	Poor shows
2723 - 2770 m:	No - very poor shows

GEOLOGICAL WELL SUMMARY

HYDRO

Located on: 61° 01' 10.54"N 03° 31' 26.29"E — UTM 6 765 243.5 mN 526 323.1 mE — MN9201 xline: 1871 Inline: 5385

Water depth: 353.5 m — RKB: 22 m

WELL **35/11-10**

DEPTH m MD RKB | LITHO SECTION | SYSTEM | SERIES/STAGE | GROUP | FORMATION | DESCRIPTION | SHOWS

SEABED 375.5 m RKB

30" 435 m

DRILLED WITH RETURNS TO SEABED

QUATERNARY — PLEISTOCENE

536 m

TERTIARY — PLIOCENE — NORDLAND

749 m
756 m

Clst: olv gry, frm, blky-plty, slty, mod calc, Micromic, occ microfos

UNDIFFERENTIATED — HORDALAND

13 3/8" 1152 m

Oligo.

Sltst: brn blk, firm, blky-sbfis, v Mic, v arg, Tr carb, Tr micropyr, loc abd Glauc pel

Eocene

Clst: lt bl gry-lt gn gry, firm, blky, arg frac, glauc

TERTIARY — EOCENE — HORDALAND

1414 m — BALDER
Tf: lt bl gry, brt wh-lt grn, calc

Clst: varicol, firm-hd, tf, glauc/chlor

1462 m — SELE
Clst: lt olv gry, loc pl yel & lt bl, frm, sli calc, wxy, Tr Glauc

PALEOCENE — ROGALAND

1578 m — LISTA
Clst: olv-dk gry-lt bl, frm, wxy, Tr micromic, Tr Glauc, loc sdy

1712.5 m — Heimdal
Sst: lt gry, f-v crs, gen lse, loc fri, Tr sil cmt, Tr micromic, Tr Pyr

1776.5 m — VALE
Clst: olv gry-lt gry, sft-frm, v calc grad Mrl, Tr Pyr, glauc.

1790.5 m
Ls: wh, frm, chky, Tr Glauc, loc arg

CRETACEOUS — Late Cretaceous

1857.5 m — JORDALFARE
Ls: wh-gry wh, frm, chky, Tr Glauc, arg grad Mrl, Tr Pyr.
Clst: olv gry-lt olv gry, sft-frm, v calc grad Mrl bcm non-sl, calc dwrd, Tr Pyr.
Sst: vf-f, lse, Glauc.

1964.5 m — DR
Clst: brn blk-dk gry, carb-v carb, sli slty, ea.

JURASSIC — LATE JURASSIC — VIKING

1971 m — SOGNEFJORD
Sst: pred lt gry-m gry, f-crs, pr srt, com cl Mtrx, loc wk calc cmt, loc Tr Kao Mtrx, Tr Mic, Tr micropyr Nod & cotg, gen gd vis por.

2117 m — HEATHER B
Sltst: m dk gry-dk gry, sft-frm, sli-mod calc, Tr mic, Tr Pyr, occ vf-m sdy.
Clst: m-dk gry, hd, frm, sbblky-sbfis, calc.

MIDDLE JURASSIC

2275 m — FENSFJORD
Sst: brn gry-dk gry-olv gry, bcm m dk gry-dk gry below 2290 m, m-crs, non-sli calc cmt, r-Tr Mic, gen gd-ex vis por.

2385.5 m — HEATHER A
Sltst: olv gry-m dk gry-olv blk, frm-fri, sbblky-sbplty, mod calc, com Tr carb Lam, Tr-abd micromic, loc vf sdy grad Sst.

GEOLOGICAL WELL SUMMARY

HYDRO

WELL: 35/11-10

Located on:
61° 01' 10.54"N
03° 31' 26.29"E

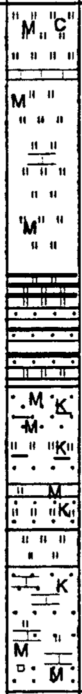
UTM
6 765 243.5 mN
526 323.1 mE

MN9201
xline: 1871
Inline: 5385

Water depth: 353.5 m

RKB: 22 m

DEPTH m MD RKB	LITHO SECTION	SYSTEM	SERIES/STAGE	GROUP	FORMATION	DESCRIPTION	SHOWS	
2500 – 2647.5		JURASSIC	MIDDLE JURASSIC	VIKING	HEATHER A	**Ls:** lt olv gry-v lt gry, r v lt or, sft, sbblky, sli slty, occ vf sdy, crp-microxln		3750–3850
2647.5 – 2801		JURASSIC	MIDDLE JURASSIC / EARLY JURASSIC	BRENT	NESS, E, R, OSEB.	2647.5 m **Sst:** lt brn-mod brn bcm pred pl yel brn below 2690 m, m-crs, non calc, r Mic, Mass, gen gd vis por. 2718 m **Sst:** gen pl yel brn, m-crs, non calc 2728 m mass, gen pr vis por 2746 m **Clst:** m dk gry-dk gry, non calc, abd micromic, Tr micropyr. **Sst:** lt gry-m lt gry, m-crs, loc pbl, gen Kao Mtrx, non-loc calc cmt, loc pln Lam, Tr Mic, gen gd-ex vis por.		3900–4050
2801 – 2818		JURASSIC	EARLY JURASSIC	DUNLIN	Drake	2801 m **Clst:** m gry-m dk gry-olv gry, gry blk, mod hd, loc v slty grad Sltst, loc wxy		4050
2818 – 2950		JURASSIC	EARLY JURASSIC	DUNLIN	COOK	2818m **Sst:** pred lse, m-crs, com v crs-pbl, gen mod-v calc, r bcm Tr Mic below 2925 m, loc Tr micropyr Nod&cotg. **Sltst:** dk gry, frm, blky, sli calc, Tr micromic **Ls:** gen wh, frm-stf, occ Tr sdy, crpxln.		4100–4200



Depth scale (m MD RKB): 2500, 2550, 2600, 2650, 2700, 2750, 2800, 2850, 2900, 2950, 3000, 3050, 3100, 3150, 3200, 3250, 3300, 3350, 3400, 3450, 3500, 3550, 3600, 3650, 3700

Second scale: 3750, 3800, 3850, 3900, 3950, 4000, 4050, 4100, 4150, 4200, 4250, 4300, 4350, 4400, 4450, 4500, 4550, 4600, 4650, 4700, 4750, 4800, 4850, 4900, 4950

TD (Driller): 2950 m RKB MD/
2948.8 m RKB TVD
TD (Logger): 2941 m RKB MD

U : Utsira Fm
L : Lista Fm
Dr.: Draupne Fm
E : Etive Fm
R : Rannoch Fm

HYDRO

FORMATION PRESSURE WORKSHEET

Well Name : 35/11-10 **Rig :** West Vangard **Date :** 1997-06-04

Pressure Units : Bars **RKB-MSL :** 22 m. **MSL-SBed:** 353.5 m. **Witnessed by :** Hinderaker/Nyby/Watts

Run No./ Test No.	Depth	Depth	Initial Hydrostatic Pressure		Formation Pressure		Final Hydrostatic Pressure		Time hh:mm		Formation Pressure	Test Temp	Good Data?	Sample Information			Remarks
														Main	HC Gravity	Sample	
1A	mMD RKB	mTVD RKB	CQG	Strain	CQG	Strain	CQG	Strain	Set	Retract	sg EMD	degC	Y/N	Fluid Type	g/cc	Vol, cc	Mobility (mD/Cp)
1A/1	1972	1971,9	241.34	242.36	200.30	201.33	241.33	242.3	21:07	21:10	1.03	58	Y				309.8
1A/2	1974	1973,9	241.57	242.56	200.33	201.36	241.56	242.5	21:17	21:19	1.03	59	Y				728.2
1A/3	1979	1978,9	242.19	243.17	200.43	200.46	242.17	243.2	21:25	21:27	1.03	59.5	Y				9876.3
1A/4	1982	1981,9	242.55	243.53	200.51	200.50	242,54	243.5	21:33	21:34	1.03	60	Y				8489.2
1A/5	1984	1983,9	242.80	243.77	200.55	200.56	242.78	243.8	21:42	21:43	1.03	60.7	Y				2687.5
1A/6	1989	1988,9	243.40	244.66	200.77	201.79	243.38	244.3	21:47	21:51	1.03	61.2	Y				598.4
1A/7	1992.5	1992.4	243.82	244.79	201.02	202.04	243.80	244.8	21:55	21:57	1.03	61.8	Y				4607.7
1A/8	1996.5	1996.4	244.30	245.30	201.30	202.32	244.28	245.3	22:02	22:04	1.03	62.2	Y				1864.0
1A/9	2002	2001.9	244.97	246.50	201.71	202.73	244.95	245.9	22:08	22:11	1.03	62.7	Y				19.5
1A/10	2006.5	2006,4	245.51	246.50	202.01	203.0	245.49	246.5	22:18	22:20	1.03	63.3	Y				137.8
1A/11	2011	2010.9	246.05	247.0			246.02		22:26				N				Plugged probe
1A/12	2011.5	2011,4	246.08	247.1			246.04		22:40				N				Plugged probe
1A/13	1990	1989.9	243.37	244.4	200.80	201.9	243.43		22:54	22:56			Y				4361.6
1A/14	2018	2017.9	246.92	247.9	203.04	204.1	246.88	247.9	23:04	23:06	1.03	65.2	Y				315.9
1A/15	2024.5	2024.4	247.66	248.7	203.67	204.7	247.63	248.6	23:13	23:15	1.03	65.7	Y				407.2
1A/16	2026.5	2026.4	247.87	248.9	203.87	204.9	247.85	248.9	23:22	23:25	1.03	66	Y				664.9

NB: Fmtn Press sg calculated from RKB

MDT1A.WK4

FORMATION PRESSURE WORKSHEET

HYDRO

Well Name : 35/11-10 **Rig :** West Vangard **Date :** 05-06.06.97

Pressure Units : Bars **RKB-MSL :** 22 m. **MSL-SBed:** 353.5 m. **Witnessed by :** Rokke/Hinderaker/Watts/Knape

Run No./ Test No. 1B	Depth mMD RKB	Depth mTVD RKB	Initial Hydrostatic Pressure CQG	Initial Hydrostatic Pressure Strain	Formation Pressure CQG	Formation Pressure Strain	Final Hydrostatic Pressure CQG	Final Hydrostatic Pressure Strain	Time hh:mm Set	Time hh:mm Retract	Formation Pressure sg EMD	Test Temp degC	Good Data? Y/N	Sample Information Main Fluid Type	Sample Information HC Gravity g/cc	Sample Information Sample Vol, cc	Remarks Mobility [mD/cp]
1B/1	2028,5	2028,4							01:29	01:34			N				Not stabilized the temperature
1B/2	2036	2035,9							01:38	01:47	1,03		N				Not stabilized the temperature
1B/3	2028,5	2028,4	251,12	251,98	204,08	205,11	250,96	251,97	01:58	02:23	1,03	59,9	Y				620
1B/4	2036	2035,9	251,92	252,93	205,46	206,48	251,91	252,9	02:27	02:31	1,03	66,1	Y				7257,5
1B/5	2038	2037,9	252,17	253,16	205,53	206,55	252,16	253,16	02:35	02:39	1,03	66,5	Y				2125,5
1B/6	2040,5	2040,4	252,47	253,46	205,71	206,72	252,46	253,46	02:41	02:48	1,03	66,9	Y				2839,4
1B/7	2043,5	2043,4	252,84	253,81	205,92	206,93	252,82	253,81	02:49	02:52	1,03	67,3	Y				2173,6
1B/8	2048,5	2048,4	253,45	254,44	206,26	207,29	253,43	254,43	02:54	02:57	1,03	67,7	Y				2739,6
1B/9	2051,5	2051,4	253,8	254,8	206,47	207,5	253,78	254,8	03:00	03:05	1,03	68,1	Y				781,6
1B/10	2053	2052,9	253,98	254,96	206,58	207,6	253,96	254,96	03:06	03:11	1,03	68,5	Y				319,6
1B/11	2055	2054,9	254,2	255,22	206,75	207,78	254,2	255,21	03:13	03:19	1,03	68,9	Y				389,5
1B/12	2060,5	2060,4	254,9	255,9	207,3	208,34	254,88	255,89	03:21	03:25	1,03	69,3	Y				1947
1B/13	2067,5	2067,4	255,76	256,76			255,74	2556,76	03:27	03:30	1,03		N				Tight
1B/14	2070,5	2070,4	256,1	257,13	208,3	209,33	256,09	257,11	03:33	03:40	1,03	70,2	Y				1076,3
1B/15	2076	2075,9	256,78	257,8	208,84	209,89	256,76	257,79	03:41	03:46	1,03	70,7	Y				104
1B/16	2098,5	2098,4	259,56	260,58	211,08	212,11	259,54	260,54	03:49	03:56	1,03	71,4	Y				39
1B/17	2101,5	2101,4	259,92	260,92	211,37	212,4	259,91	260,9	03:59	04:04	1,03	72	Y				2047,8
1B/18	2113	2112,9	261,4	262,38	212,51	213,52	261,33	262,33	04:07	04:11	1,03	72,7	Y				346
1B/19	2036,5	2036,4	251,85	252,96	205,44	206,56	251,82	252,88	04:34	04:40	1,03	66,2	Y				10137

NB: Fmtn Press sg calculated from RKB

HYDRO

FORMATION PRESSURE WORKSHEET

Well Name : 35/11-10 **Rig :** West Vanguard **Date :** 05-06.06.97

Pressure Units : Bars **RKB-MSL :** 22 m. **MSL-SBed:** 353.5 m. **Witnessed by :** Rokke/Hinderaker/Watts/Knape

Run No./ Test No.	Depth	Depth	Initial Hydrostatic Pressure		Formation Pressure		Final Hydrostatic Pressure		Time hh:mm		Formation Pressure	Test Temp	Good Data?	Sample Information			Remarks
1B	mMD RKB	mTVD RKB	CQG	Strain	CQG	Strain	CQG	Strain	Set	Retract	sg EMD	degC	Y/N	Main Fluid Type	HC Gravity g/cc	Sample Vol, cc	
1B/20	2068	2067.9											Y/N				Mobility too low for sampling
1B/21	2070.1	2070.0											Y/N				Mobility too low for sampling
1B/22	2070.6	2070.5	255.91	256.61	208.21	208.84			05:30		1.03	79.2	Y	Water	1.01	1 Gal	Chamber GA33. Analysed by
																	Petrotech on rig.
											1.03	79.0	Y	Water	1.01	450cc	Bottle AA644
							255.52	256.29		16:35	1.03	79.0	Y	Water	1.01	450cc	Bottle AA649
1B/23	2036.1	2036.0	251.31	252.12	205.44	206.05	251.31	252.00	16:50	17:10	1.03	75.5	Y/N				Aborted sampling due to
																	possible gas/condensate
1B/24	2048.5	2048.4	252.89	253.68	206.22	206.83			18:00		1.03	76.8	Y	Oil	0.71	2 3/4 G	Chamber DB11
											1.03	77.1	Y	Oil	0.71	2 3/4 G	Chamber DB90026
											1.03	77.1	Y	Oil	0.71	450cc	Bottle AA144. Analysed by
																	Petrotech on rig.
											1.03	77.0	Y	Oil	0.71	450cc	Bottle AA190
											1.03	77.0	Y	Oil	0.71	450cc	Bottle AA609
							252.89	253.59		23:00	1.03	77.1	Y	Oil	0.71	450cc	Bottle AA650

NB: Fmtn Press sg calculated from RKB

MDT1B2.WK4

FORMATION PRESSURE WORKSHEET

Well Name : 35/11-10 **Rig :** West Vanguard **Date :** 1997-06-07

Pressure Units : Bars **RKB-MSL :** 22 m. **MSL-SBed:** 353.5 m. **Witnessed by :** Rokke/Knape/Nyby

Run No./ Test No. 1C	Depth mMD RKB	Depth mTVD RKB	Initial Hydrostatic Pressure CQG	Initial Hydrostatic Pressure Strain	Formation Pressure CQG	Formation Pressure Strain	Final Hydrostatic Pressure CQG	Final Hydrostatic Pressure Strain	Time hh:mm Set	Time hh:mm Retract	Formation Pressure sg EMD	Test Temp degC	Good Data? Y/N	Sample Information Main Fluid Type	Sample Information HC Gravity g/cc	Sample Information Sample Vol, cc	Remarks
1C/1	1996.5	1996.4	248.76	246.85	202.27	201.92			04:40		1.03	72.9	Y	oil	1.71	2 3/4 G	Chamber DB24
											1.03	73.0	Y	oil	1.71	450cc	Bottle AA168
											1.03	72.9	Y	oil	1.71	450cc	Bottle AA173
											1.03	73.2	Y	oil	1.71	1 Gal	Chamber GA132
											1.03	73.3	Y	oil	1.71	450cc	Bottle AA605
							246.43	247.16		08:00	1.03	73.3	Y	oil	1.71	450cc	Bottle AA677. Analysed by
																	Petrotech on rig.
1C/2	2036	2035.9	251.34	252.00	205.48	206.06			09:00		1.03	78.1	Y	oil/condens	?	450cc	Bottle AA608
							251.37	252.04		12:00	1.03	78.7	Y	oil/condens	?	450cc	Bottle AA648

NB: Fmtn Press sg calculated from RKB

MDT1C.WK4

FORMATION PRESSURE WORKSHEET

HYDRO

Well Name : 35/11-10 | Rig : West Vanguard | Date : 14-15.06.97

Pressure Units : Bars | RKB-MSL : 22 m. | MSL-SBed: 353.5 m. | Witnessed by : Hinderaker/Nyby/Knape/Frimann-Dahl

Run No./ Test No. 2D	Depth mMD RKB	Depth mTVD RKB	Initial Hydrostatic Pressure Qtz	Initial Hydrostatic Pressure Strain	Formation Pressure Qtz	Formation Pressure Strain	Final Hydrostatic Pressure Qtz	Final Hydrostatic Pressure Strain	Time hh:mm Set	Time hh:mm Retract	Formation Pressure sg EMD	Test Temp degC	Good Data? Y/N	Sample Information Main Fluid Type	Sample Information HC Gravity g/cc	Sample Information Sample Vol, cc	Mobility, mD/dp
2D/1	2035,8	2035,7	254,27	254	205,44	205,57	254,39	254,51	04:48	04:54	1,03		Y				11308
2D/2	2037,2	2037,1	254,4	254,54	205,46	205,65	253,33	253,49	04:59	05:05	1,03		Y				3109
2D/3	2275,0	2274,8	282,48	282,52	229,85	229,95	282,29	282,36	05:25	05:37	1,03		Y				1213
2D/4	2277,0	2276,8		282,57					05:36	05:40			N				Tight
2D/5	2277,5	2277,3		282,59					05:44	05:50			N				Tight
2D/6	2297,0	2296,8	284,9	285,06	231,55	231,76	284,79	284,99	05:57	06:01	1,03		Y				6915
2D/7	2299,1	2298,8	285,05	285,25	231,57	231,84	285,03	285,27	06:06	06:11	1,03		Y				4659
2D/8	2300,5	2300,3	285,23	285,45	231,69	231,95	285,22	285,46	06:13	06:16	1,03		Y				3228
2D/9	2303,5	2303,3	285,62	285,85	231,88	232,15	285,59	285,82	06:20	06:23	1,03		Y				660
2D/10	2306,5	2306,3	285,99	286,22	232,09	232,36	285,97	286,2	06:26	06:30	1,03		Y				695
2D/11	2309,5	2309,3	286,35	286,57	232,29	232,56	286,34	286,57	06:32	06:38	1,03		Y				711
2D/12	2330,0	2329,8	288,94	289,15	234,26	234,51	288,83	289,04	06:39	06:47	1,03		Y				1790
2D/13	2340,5	2340,3	290,13	290,35	235,30	235,58	290,12	290,36	06:51	07:00	1,03		Y				441
2D/14	2345,5	2345,3	290,76	291	235,79	236,08	290,73	290,99	07:05	07:10	1,03		Y				1470
2D/15	2352,5	2352,3	291,63	291,87	236,48	236,79	291,61	291,86	07:14	07:20	1,03		Y				363
2D/16	2355,5	2355,3	292	292,26	236,77	237,09	291,95	292,22	07:24	07:34	1,03		Y				1511
2D/17	2373,5	2373,8	294,24	294,48	238,58	238,88	254,16	294,43	07:38	07:47	1,03		Y				725

NB: Fmtn Press sg calculated from RKB

HYDRO

FORMATION PRESSURE WORKSHEET

Well Name : 35/11-10 **Rig :** West Vangard **Date :** 14-15.06.97

Pressure Units : Bars **RKB-MSL :** 22 m. **MSL-SBed:** 353.5 m. **Witnessed by :** Hinderaker/Nyby/Knape/Frimann-Dahl

Run No./ Test No.	Depth	Depth	Initial Hydrostatic Pressure		Formation Pressure		Final Hydrostatic Pressure		Time hh:mm		Formation Pressure	Test Temp	Good Data?	Sample Information			Mobility, mD/dp
2D	mMD RKB	mTVD RKB	Qtz	Strain	Qtz	Strain	Qtz	Strain	Set	Retract	sg EMD	degC	Y/N	Main Fluid Type	HC Gravity g/cc	Sample Vol, cc	
2D/18	2648,0	2647,6	327,86						08:18	08:20	1,03		N				Tight
2D/19	2648,3	2647,9	327,57						08:26	08:30	1,03		N				Tight
2D/20	2654,0	2653,6	328,26	328,38	270,02	270,17	328,21	270,17	08:34	08:42	1,03		Y				193
2D/21	2657,0	2656,6	328,62	328,72	270,08	270,23	328,57	270,23	08:48	08:52	1,03		Y				582
2D/22	2658,5	2658,1	328,8	328,9	270,13	270,28	328,78	270,28	08:56	09:06	1,03		Y				45
2D/23	2677,5	2677,1	331,22	331,29	271,15	271,25	331,12	331,19	09:10	09:19	1,03		Y				212
2D/24	2679,5	2679,1	331,39	331,45	271,26	271,37	331,38	331,45	09:23	09:28	1,03		Y				2381
2D/25	2681,5	2681,0	331,63	331,71	271,38	271,51	331,62	331,7	09:31	09:38	1,03		Y				236
2D/26	2693,0	2692,5	333,07						09:42	09:44			N				Tight
2D/27	2693,5	2693,0	333,05						09:48	09:51			N				Tight
2D/28	2713,5	2713,0	335,59	335,68	273,71	273,83	335,45	335,58	09:56	10:05	1,03		Y				52,4
2D/29	2716,0	2715,5	335,81						10:10	10:15			N				Tight
2D/30	2716,5	2716,0	335,84						10:18	10:22			N				Tight
2D/31	2717,0	2716,5	335,9	336,06	274,05	274,23	335,92	336,04	10:24	10:31	1,03		Y				4
2D/32	2721,0	2720,5	336,45	336,58	274,45	274,65	336,43	336,56	10:38	10:43	1,03		Y				51,8
2D/33	2724,0	2723,5	336,8	336,93	274,75	274,95	336,78	336,91	10:50	10:54	1,03		Y				41,5
2D/34	2747,5	2746,9	339,76	339,86	277,11	277,28	339,64	339,74	10:58	11:07	1,03		Y				710

NB: Fmtn Press sg calculated from RKB

FORMATION PRESSURE WORKSHEET

HYDRO

Well Name :	35/11-10			Rig :	West Vangard								Date :	14-15.06.97			
Pressure Units :	Bars			RKB-MSL :	22 m.		MSL-SBed: 353.5	m.					Witnessed by :	Hinderaker/Nyby/Knape/Frimann-Dahl			
Run No./2D	Depth	Depth	Initial Hydrostatic		Formation Pressure		Final Hydrostatic		Time		Formation	Test Temp	Good	Sample Information			
Test No.			Pressure				Pressure		hh:mm		Pressure		Data?	Main	HC Gravity	Sample	Mobility, mD/dp
2D	mMD RKB	mTVD RKB	Qtz	Strain	Qtz	Strain	Qtz	Strain	Set	Retract	sg EMD	degC	Y/N	Fluid Type	g/cc	Vol, cc	
2D/35	2755,5	2754,9	340.64	340,73	277,88	278,06	340,6	340,71	11:11	11:16	1,03		Y				254
2D/36	2763,5	2762,9	341.62	341,73	278,68	278,86	341,58	341,69	11:19	11:25	1,03		Y				370
2D/37	2767,5	2766,9	342.09	342,21	279,07	279,27	342,07	342,19	11:30	11:36	1,03		Y				142
2D/38	2772,5	2771,9	342.7	342,84	279,58	279,79	342,68	342,83	11:40	11:50	1,03		Y				104
2D/39	2798,0	2797,3	345.86	345,98	282,12	282,32	345,78	345,9	11:54	12:02	1,03		Y				181
2D/40	2820,5	2819,8	348.53	348,66	284,37	284,58	348,51	348,64	12:10	12:15	1,03		Y				372
2D/41	2833,5	2832,8	350.12	350,27	285,66	285,9	350,1	350,25	12:22	12:30	1,03		Y				888
2D/42	2870,5	2869,8	354.7	354,84	289,35	289,57	354,61	354,77	12:37	12:42	1,03		Y				510
2D/43	2713.5	2713.0	335.758	335.6	273 625				13:45								Drained 300.7ltr.
	2713.5		335.759	335.6	273 625						1.03	101.1	N	Water		450cc	Failure bottle AA677
	2713.5		335.76	335.6	273 625						1.03	101.1	Y	Water		450cc	Bottle AA694.
	2713.5		335.761	335.6	273 625						1.03	101.1	Y	Water		1 Gallon	Chamber BB48
	2713.5		335.762	335.6	273 625					02:40	1.03	101.1	Y	Water		450cc	Bottle AA695
2D/44	2679.5	2679.1	331.502	331.63	271.234	271.4			04:10			99.0					Drained 120 ltr
	2679.5	2679.1	331.502	331.63	271.234	271.4					1.03	99.0	Y	Water		2 3/4 Gallon	Chamber DB90026
	2679.5	2679.1	331.502	331.63	271.234	271.4					1.03	99.0	N	Water		450cc	Failure bottle AA144
	2679.5	2679.1	331.502	331.63	271.234	271.4					1.03	99.0	Y	Water		2 3/4 Gallon	Chamber DB24
	2679.5	2679.1	331.502	331.63	271.234	271.4					1.03	99.0	Y	Water		450cc	Bottle AA644
	2679.5	2679.1	331.502	331.63	271.234	271.4				11:48	1.03	99.0	Y	Water		450cc	Bottle AA649

NB: Fmtn Press sg calculated from RKB

MDT2D.WK4

FORMATION PRESSURE WORKSHEET

HYDRO

Well Name 35/11-10 | **Rig : West Vanguard** | **Date : 17-19.06.97**

Pressure Units : Bars | **RKB-MSL :** 22 m. | **MSL-SBed: 353.5** m. | **Witnessed by :** Frimann-Dahl/Nyby/Kalgraff/Kjellin

Run No./ Test No.	Depth	Depth	Initial Hydrostatic Pressure		Formation Pressure		Final Hydrostatic Pressure		Time hh:mm		Formation Pressure	Test Temp	Good Data?	Sample Information			Remarks
2E	mMD RKB	mTVD RKB	CQG	Strain	CQG	Strain	CQG	Strain	Set	Retract	sg EMD	degC	Y/N	Main Fluid Type	HC Gravity g/cc	Sample Vol, cc	
2E/1	2346	2345.8			235.03				14:00								Drained 350.5ltrs
	2346	2345.8			235.03						1.03	86.4	Y	Water		450cc	Bottle AA172
	2346	2345.8			235.03						1.03	86.4	Y	Water		450cc	Bottle AA605
	2346	2345.8			235.03					23:55	1.03	86.4	Y	Water		1 Gallon	Chamber GA33
2E/2	2305	2304.8			231.86				02:35								Drained 46ltr
	2305	2304.8			231.86						1.03	86.4	Y	Oil		2 3/4 Gal	Chamber G-DB 11
	2305	2304.8			231.86						1.03	86.4	Y	Oil		1 Gallon	Chamber GA132
	2305	2304.8			231.86						1.03	86.4	Y	Oil		450cc	Bottle AA168
	2305	2304.8			231.86						1.03	86.4	Y	Oil		450cc	Bottle AA608
	2305	2304.8			231.86						1.03	86.4	Y	Oil		450cc	Bottle AA648
	2305	2304.8			231.86					06:25	1.03	86.4	Y	Oil		450cc	Bottle AA650

NB: Fmtn Press sg calculated from RKB

MDT2E.WK4

SECTION B

OPERATIONS

Prepared by: Bente Bjelland. Drilling Engineer

Verified by: Bjørn Smistad Senior Drilling Engineer

Approved by: T. Kvello Drilling Superintendent

Norsk Hydro

GENERAL INFORMATION ON WELL 35/11-10

Field : UNDEFINED   Country: NORWAY
Licence : 90
UTM zone : 31   Central Meredian: 3' E   Horiz. Datum: ED50

LOCATION coordinates:		Surface	Target
UTM	N [m]:	6765243.5	0.0
UTM	E [m]:	528323.1	0.0
Geographical	N :	61 01'10.54"	
Geographical	E :	03 31'26.29"	

Water depth : 353.5 m   Reference point height: 22 m
Formation at TD : Cook Fm.

Operator : NORSK HYDRO PRODUKSJON A/S   Share: 25.00 %

Partners : DEN NORSKE STATS OLJESELSKAP A/S   Share: 50.00 %
MOBIL EXPLORATION NORWAY INC.   Share: 25.00 %

RIG NAME : WEST VANGUARD

Total depth (RKB) : 2950 m MD   2949 m TVD

TIME SUMMARY

Start time : 15-may-1997 20:30
Spudding date : 19-may-1997 06:00
Abandonment date: 15-jul-1997 03:35

Main operation	Hours	Days	%
MOBILIZATION	76.0	3.2	7.3
DRILLING	332.0	13.8	31.9
FORMATION EVALUATION MWD	9.5	0.4	0.9
FORMATION EVALUATION LOGGING	172.5	7.2	16.6
FORMATION EVALUATION CORING	148.0	6.2	14.2
PLUG AND ABANDONMENT	96.0	4.0	9.2
DOWNTIME DRILLING	75.5	3.1	7.3
DOWNTIME FORM. EVAL. MWD	3.0	0.1	0.3
DOWNTIME FORM. EVAL. LOGGING	80.5	3.4	7.7
DOWNTIME FORM. EVAL. CORING	1.5	0.1	0.1
DOWNTIME PLUG AND ABANDONMENT	46.5	1.9	4.5
Sum	1041.0	43.4	

Hole and casing record

Hole	Depth [m MD]	Casing	Depth [m MD]
36"	438	30"	435
17 1/2"	1158	13 3/8"	1152
12 1/4"	1906		
8 1/2"	2950		

Well status : PERMANENTLY ABANDONED

1 POSITIONING AND ANCHORING OF THE RIG

The location of well 35/11-10 was defined as MN 9201. Inline 5385, X-line 1871. The spud in tolerance was 25 m in radius.

Planned position of the well:

	Geographical coord.	UTM coord.
Lat:	N 61°01'10.65"	N 6765247.1 m
Long:	E 03°31'26.45"	E 528325.0 m

The equipment on board the rig for navigation, was the STARFFIX-MN8 DGPS system.

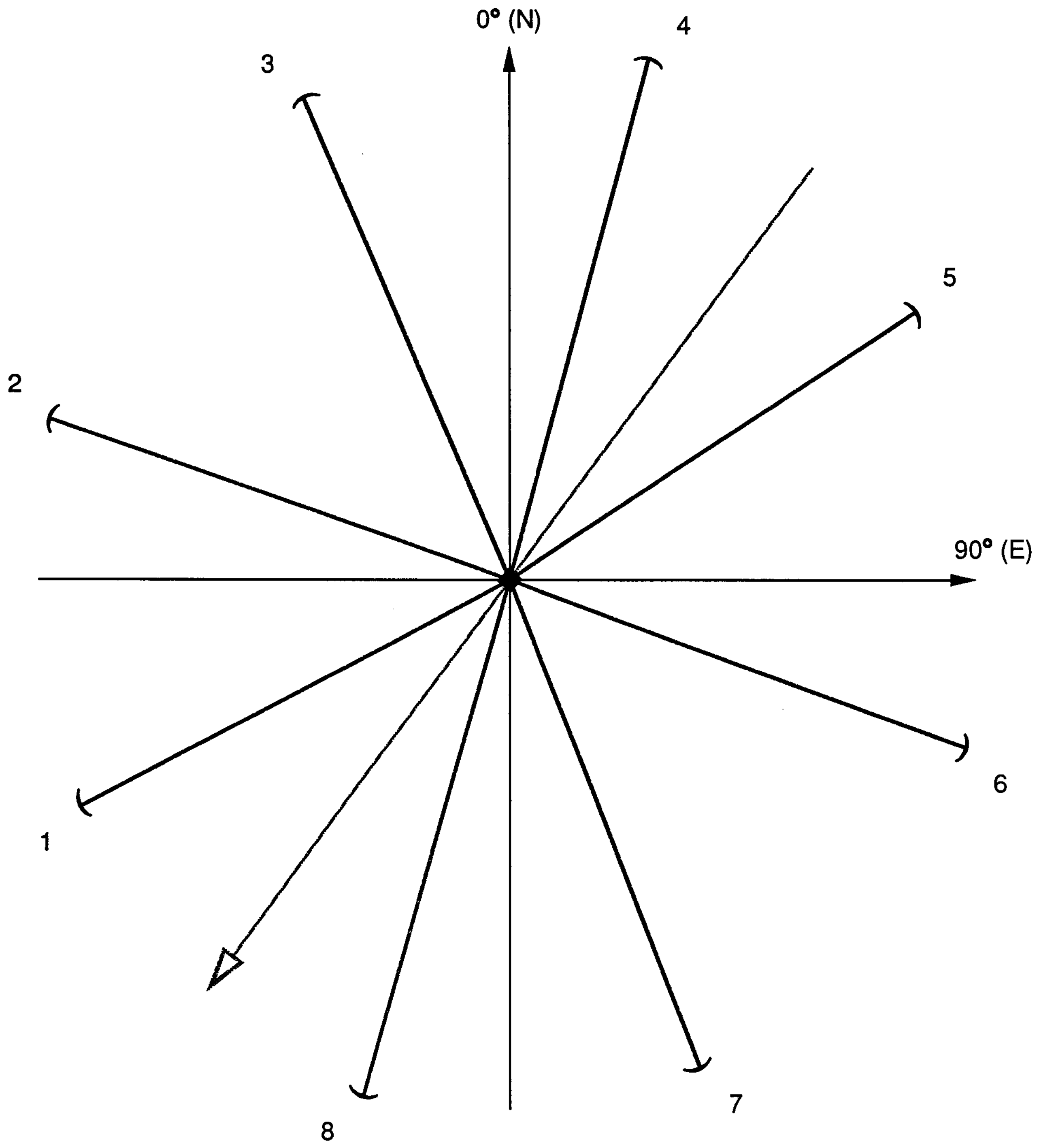
Final location of the well:

	Geographical coord.	UTM coord.
Lat:	N 61°01'10.54"	N 6765243.5 m
Long:	E 03°31'26.29"	E 528323.1 m

Final position was 4.3 m in direction 213.2 deg. (UTM grid) from intended porsition.

The co-ordinates above refer to the European Datum 1950 (ED50), UTM projection, Zone 31 with Central Meridian 03 degrees East.

The moring line pattern is shown in figure B - 1



RIG HEADING 220 DEG.

ANCHOR NO	DIRECTION (DEG.)	LENGTH (m)
1	245	1876
2	287	1907
3	334	1864
4	17	1894
5	60	1859
6	108	1897
7	156	1855
8	198	1884

Figure B-1		Mooring Line Pattern WEST VANGUARD 35/11-10	HYDRO

2 OPERATION RESUME

2.1 SUMMARY OF OPERATIONS

The rig "West Vanguard" left location 6407/7 on the 15 Th. of May 1997 at 08:30 hrs., and arrived on location 35/11-10 on the 17 Th. of May at 07:00 hrs.

2.1.1 36" hole section

Well 35/11-10 was spudded on the 18 Th. of may 1997 at 18:00 hrs. The 36" hole was drilled from 377m to TD at 438m with 17 1/2" bit and a 36" hole opener. The 30" conductor was run and cemented at 431 m.

2.1.2 17 1/2" hole section

The 30" shoe track was drilled out with a 24" clean out assembly from 431m to 436m. A 8 1/2" pilot hole was drilled from 438 to at 871m. The Utsira formation was cored with a 8 1/2" corebarrel from 871m to 880m and obtained 11% recovery. Continued drilling 8 1/2" hole from 880m to 930m. Rigged up and ran wireline but was not able to enter the 8.5" hole at 439m. Made several attempts but was not able to pass the X-over from 24" hole to 8 1/2" hole. Made up 17 1/2" bottom hole assembly and drilled to 1158m. Ran and cemented the 13 3/8" casing at 1151 m.

The following core was cut in the Utsira formation:

core no	Core int..	Length (m)	Bit	Recov %	Comments
1	871-880	9	CD74FDIL	10,56	17 1/2"

2.1.3 12 1/4" hole section

Drilled out of the 13 3/8" casing and drilled tree meter new formation to 1161 m. Displaced the well to Ancho 2000 mud and performed a LOT to 1.68 sg. Continued to drill the 12 1/4" section from 1161 m to 1906 m in one bitrun. Pulled out of the hole to change the BHA.

2.1.4 8 1/2" section

It was planed to drill 8 1/2" hole to TD due to formation evaluation reasons.the 8 1/2" hole was drilled from 1906m to 1975m. After a 3 m drillbreak the bit was pulled and a 150 ft core barrel was run. The following cores were cut in the Sognefjord formation. (See table on next page.)

core no	Core inv..	Length (m)	Bit	Recov %	Comments
2	1975-2008	33	CD93FDIL	97,3	
3	2008-2041	33	CD93FDIL	99	
4	2041-2078	37	CD93FDIL	100	

A 8 1/2 BHA reamed and logged the cored sections and continued to drill from 2078 m down to 2268 m. After a 3 m drillbreak, the bit was pulled and the following cores were cut in the Fensfjord formation:

core no	Core inv..	Length (m)	Bit	Recov %	Comments
5	2268-2296	28	CD93FDIL	99,82	
6	2296-2315	19	CD93FDIL	99,05	

A 8 1/2 BHA reamed and logged the cored sections and continued to drill from 2315 m down to 2268 m. After a 3 m drillbreak the bit was pulled and the following cores were cut in the Brent group:

core no	Core inv..	Length (m)	Bit	Recov %	Comments
7	2676-2723	47	CD93FDIL	99,77	
8	2723-2770	47	CD93FDIL	99,1	

Reamed and logged the cored section from 2670 m to 2730 m were the MWD log response did not correlate with cored lithology. Ran in hole to verify TD of this section. Found 3 stand error in drill pipe tally. Pulled out to 2670m. Relogged the cored section with MWD. Drilled 8 1/2" hole from 2770m to 288m .Due to a drill break there were circulated for formation samples. Drilled 8 1/2" hole from 2855 to TD at 2950.

2.1.5 **Logging**.

Log no.1 MDT/GR/AMS
Intermediate logged from 1972 to 2026.5m. Took 16 pressure points.

Log no. 2 MDT/GR/AMS
Intermediate logged from 2028 to 2113m. Took 21 pressure points.
Sampled 6 bottles and 3 chambers with oil and water.

Log no. 3 MDT/GR/AMS
Intermediate logged from 1996.5 to 2036m.
Sampled 6 bottles and 2 chambers with oil.

Log no.1 DDL/MSFL/DSI/LDL/CNL/NGT/SP/AMS
Log interval (1850m 2941m)
Recorded main log from 2325m to 2941m

Log no.1 (Rerun 1):DLL/MFSL/LDL/CNL/NGT/SP/AMS
Logged from 2900m to 2375m with resisivity log. Continued with log no.1 from 2375m to 1046m.

Log no.2	MDT/GR/AMS Ran in hole to 2036m. Lost the comunication with the logging suite.
Log no.2	(Rerun 1):MDT/GR/AMS Recorded MDT pressure points from 2036m to 2870m. Pulled out of the hole to 2713.5m. Sampled formation water. Retracted the MDT probe and pulled out to 2679.5 and sampled oil. Ran in hole with 8 1/2" bit from 1152m to 2925m. Washed and reamed from 2925 to TD at 2950m.
Log no.3	MDT/GR/AMSRan in hole to 2346m and sampled formation water. Tool stuck at 2335m. Made up overshot assembly from 2318m to top of fish at 2335m.Pulled out to 2331 and got good indication that MDT tool was free. Pulled out with MDT logging suite from 2348m to 2318m. Secured and cut the wire line cable. Built torpedo electrical connection and function tested the MDT logging suite. Positioned the MDT tool at 2305 and sampled oil.
Log no.4	FMI/DSI/GR/AMS Recorded main log from 2932m to 1139m.
Log no.5	VSP/GR Recorded main log 2920m to 450m

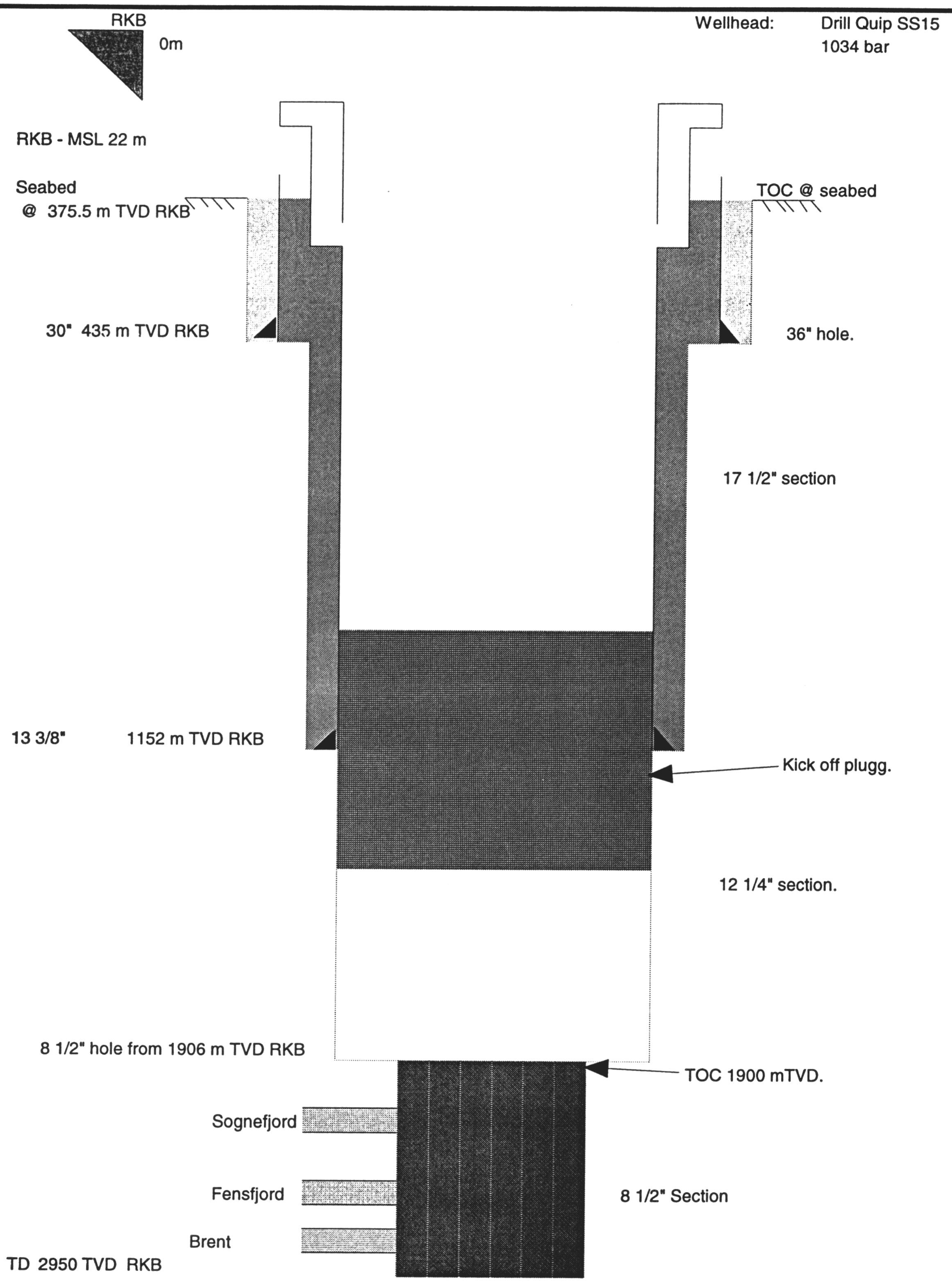
2.1.6 Permanent plug and abandonment.

Plugged back open hole from TD at 2950m to 1888m with 4 cement plugs.Set a high viscosity pill from 1600m to 1350m. Set a kick off plug from 1350m a t 1100m. No activity on this well from 23-jun-1997 to 10-jul-1997

Activity on well 35/11-10 A from 23-jun-1997 to 10-jul-1997

Set a EZ-Drill cement retainer at 1100 m. Set a 150m cement plug up to 950 m. The BOP was pulled and several attempts to cut the 20" /30" casing were made. The problems regarding cutting of the 20" and 20" casing was caused by an defect mud motor. A conventional cutting assembly was made up and the 20" and 30" casing was cut in tension.

13-jul-1997 22:00 hrs:	Pulled and laid down the 18 3/4"
14-jul-1997 06:00 hrs	Retrieved the 30" conductor and guide base. and inspected the seabed with the ROV.
15-jul-1997 03:45 hrs	Retrieved anchors. Rig transit to 25/7-5



Final 'Well Report 35/11-10	Revisioi 1 Date:11.06.97	**WELL SCHEMATIC**

Norsk Hydro 21-nov-1997

OPERATION TIME ON WELL 35/11-10

Report no : 1 Date: 15-may-1997 Section size: 0.0
Midnight depth: m MD Estimated PP: sg Mudweight : sg

Main Oper.	Sub Operation	Description	Oper. Time
MOB	MOVE	Rig in transit from 6407/7 to 35/11-10.	3.50

Report no : 2 Date: 16-may-1997 Section size: 0.0
Midnight depth: m MD Estimated PP: sg Mudweight : sg

Main Oper.	Sub Operation	Description	Oper. Time
MOB	MOVE	Rig in transit to 35/11-10.	24.00

Report no : 3 Date: 17-may-1997 Section size: 0.0
Midnight depth: m MD Estimated PP: sg Mudweight : 1.05 sg

Main Oper.	Sub Operation	Description	Oper. Time
MOB	MOVE	Rig in transit to 35/11-10. Anchor nr.5 was dropped at 07:05 hrs.	7.00
MOB	MOORMOB	Set the anchors, positioned the rig and balasted the rig down to drilling depth.	15.00
DRILL	OTHER	Finished laying out drillpipe on deck.	1.00
DNDRI	EQUIP	Malfunction of the deck crane delayed picking up of drill pipe into the derrick.	1.00

Report no : 4 Date: 18-may-1997 Section size: 0.0
Midnight depth: m MD Estimated PP: sg Mudweight : 1.05 sg

Main Oper.	Sub Operation	Description	Oper. Time
DRILL	OTHER	Picked up drill pipe and racked it in the derrick.	7.00
DRILL	OTHER	Backloaded equipement from the pipe deck.	2.00
DRILL	BHAHAND	Made up the 36" bottom hole assembly and ran the pipe to the seabed.	9.00
DNDRI	EQUIP	Pulled the ROV out of the water for repairs due to a hydraulic oil leak.	1.00
DRILL	OTHER	Placed two markers on the seabed with the ROV. Lowered the bottom hole assembly to just above the seabed to verify spud position.	1.00
DRILL	OTHER	Picked up 5.5" drillpipe .	4.00

Report no : 5 Date: 19-may-1997 Section size: 0.0
Midnight depth: 438 m MD Estimated PP: sg Mudweight : 1.05 sg

Main Oper.	Sub Operation	Description	Oper. Time
DNDRI	WAIT	Picked up 5.5" drillpipe.	3.00
DRILL	DRILL	Positioned the rig and spudded the well.	1.50
DRILL	DRILL	Drilled 36" hole.	3.00

Report no : 5 Date: 19-may-1997 Section size: 0.0
Midnight depth: 438 m MD Estimated PP: sg Mudweight : 1.05 sg

Main Oper.	Sub Operation	Description	Oper. Time
DNDRI	WAIT	Waited for casing to arrive at the rig.	1.50
DRILL	DRILL	Drilled to TD at 438m .	1.00
DRILL	CIRC	Pumped a high viscosity pill , and displaced the well to 1.20 sg mud. Pulled out of the hole to 415m.	0.50
DNDRI	WAIT	Waiting on weather.	13.50

Report no : 6 Date: 20-may-1997 Section size: 0.0
Midnight depth: 438 m MD Estimated PP: sg Mudweight : 1.05 sg

Main Oper.	Sub Operation	Description	Oper. Time
DNDRI	WAIT	Waiting on weather.	9.50
DRILL	DRILL	Ran into the hole to 438m and pumped 45 m3 1.20sg mud.	0.50
DRILL	TRIPOH	Pulled out of the hole . Dumped the MWD data.	3.00
DRILL	CSGRUNOH	Ran 30 " casing.	2.00
DNDRI	WAIT	Waited for new wellhead housing.	8.50
DRILL	OTHER	Picked up the 30" housing.	0.50

Report no : 7 Date: 21-may-1997 Section size: 0.0
Midnight depth: 438 m MD Estimated PP: sg Mudweight : 1.05 sg

Main Oper.	Sub Operation	Description	Oper. Time
DRILL	CSGRUNOH	Ran the 30" casing . Modified and checked the bullseye mount on the casing running tool. Filled the casing with water.	6.00
DRILL	CSGRUNOH	Repositioned the rig. Stabbed the casing into the hole . Ran the casing to TD and orientated the casing.	1.00
DRILL	CIRC	Circulated 100 m3 seawater.	1.00
DRILL	CMT	Cemented the casing.	2.00
DRILL	OTHER	Waited for the cement to set.	7.50
DRILL	CMTTRIP	Released the casing running tool and pulled out of the hole. Laid down the casing running tool and the cement head.	3.00
DRILL	BHAHAND	Made up the 24" clean out assembly.	2.00
DRILL	TRIPCH	Ran the bottom hole assembly to the wellhead. Repositioned the rig and stabbed the assembly into the well. Ran into the well .	1.50

Report no : 8 Date: 22-may-1997 Section size: 0.0
Midnight depth: 636 m MD Estimated PP: 1.03 sg Mudweight : 1.05 sg

Main Oper.	Sub Operation	Description	Oper. Time
DRILL	CLEANOUT	Drilled out the cement in the conductor from 431m to 436m.	3.50
DRILL	TRIPCH	Pumped a high viscosity pill. Pulled out of the hole and laid down the 24" bit .	1.50
DRILL	WHHAND	Prepared to run the guidebase on the guidebase running tool.	3.00
DRILL	WHINST	Ran the guidebase into the sea. Landed the guidebase. Retrieved and laid down the running tool.	4.50
DRILL	BHAHAND	Picked up the 8.5" bottom hole assembly. Function tested the MWD tool.	5.00
DRILL	TRIPCH	Ran the assembly into the well.	1.50
DRILL	DRILL	Drilled from 438m to 636m.	5.00

Report no : 9 Date: 23-may-1997 Section size: 0.0
Midnight depth: 880 m MD Estimated PP: 1.03 sg Mudweight : 1.05 sg

Main Oper.	Sub Operation	Description	Oper. Time
DRILL	DRILL	Drilled 8.5" hole from 636m to 871m .	9.00
DRILL	CIRC	Circulated the well to 1.20 sg mud.	1.00
DRILL	TRIPOH	Pulled out of the hole and laid down the bit. Dumped the MWD data.	2.50
FCOR	CORHAND	Made up the coring assembly.	3.00
FCOR	TRIPOH	Ran into the hole with the coring assembly.	3.00
FCOR	COR	Cored from 871m to 880m.	0.50
FCOR	TRIPOH	Pulled the coring assembly out of the hole.	2.50
FCOR	CORHAND	Laid down the core head. Recovered the core. 11% recovery obtained. Laid down the core barrel.	2.00
DRILL	BHAHAND	Made up an 8.5" bottom hole assembly.	0.50

Report no : 10 Date: 24-may-1997 Section size: 0.0
Midnight depth: 930 m MD Estimated PP: 1.03 sg Mudweight : 1.05 sg

Main Oper.	Sub Operation	Description	Oper. Time
DRILL	TRIPOH	Ran into the hole with the 8.5" drilling assembly.	4.50
DRILL	DRILL	Drilled from 880m to 930m .	1.50
DRILL	CIRC	Pumped a high viscosity pill, and then displaced the well to 1.20sg mud.	0.50
DRILL	TRIPOH	Pulled the bottom hole assembly out of the hole. Dumped the MWD memory.	2.50
FLOG	LOGHAND	Rigged up to run wireline.	0.50
FLOG	OTHER	Tried to get the wireline into the well. Unable to enter the 8.5" hole at 439m. Two attempts were made to get into the well with different hole finders. No success.	6.00
FLOG	LOGHAND	Rigged down the wireline equipement.	0.50
DRILL	BHAHAND	Laid down the 8.5" bottom hole assembly.	2.50

Report no : 10 Date: 24-may-1997 Section size: 0.0
Midnight depth: 930 m MD Estimated PP: 1.03 sg Mudweight : 1.05 sg

Main Oper.	Sub Operation	Description	Oper. Time
DRILL	BHAHAND	Laid down the 36" hole opener.	1.50
DRILL	BHAHAND	Made up the 17.5" bottom hole assembly.	4.00

Report no : 11 Date: 25-may-1997 Section size: 0.0
Midnight depth: 1158 m MD Estimated PP: 1.03 sg Mudweight : 1.05 sg

Main Oper.	Sub Operation	Description	Oper. Time
DRILL	BHAHAND	Made up the 17.5" bottom hole assembly.	1.00
DRILL	OTHER	Ran the assembly to the wellhead. Repositioned the rig to stab into the well. Ran into the well to the 30" casing shoe.	2.50
DRILL	DRILL	Drilled 17.5" hole to 1158m.	12.00
DRILL	CIRC	Circulated the hole clean and displaced to 1.20sg mud.	1.50
DRILL	TRIPOH	Pulled out of the hole to the wellhead.	2.50
DRILL	OTHER	Installed the stabbing guide on the drillstring .Repositioned the rig. Washed the wellhead.	2.50
DRILL	OTHER	Pulled out of the hole and attempted unsuccessfully to dump the MWD data.	2.00

Report no : 12 Date: 26-may-1997 Section size: 0.0
Midnight depth: 1158 m MD Estimated PP: 1.03 sg Mudweight : 1.05 sg

Main Oper.	Sub Operation	Description	Oper. Time
DRILL	BHAHAND	Laid down the 17.5" bit and the drilling motor.	0.50
DRILL	OTHER	Made up the remotely operated cement head and racked it in the derrick	2.50
DRILL	OTHER	Made up the 18 3/4 Wellhead running tool to the 13 3/8 cement plugs Installed the assembly into the 18 3/4 wellhead with crossover to 13 3/8 casing.	3.00
DRILL	CSG	Rigged up to run the casing. Held a prejob safety meeting.	1.50
DRILL	CSGRUNOH	Ran the 13 3/8 casing string.	9.00
DRILL	CMT	Circulated the hole prior to the cement job and pressure tested the surface lines.	1.50
DRILL	CMT	Mixed and pumped cement.	2.50
DRILL	CMT	Displaced the cement. Bumped the plug. Pressure tested the casing to 120 bars for 10 minutes. Checked for backflow.	1.00
DRILL	CMTTRIP	Rigged down the cement lines. Released the running tool and pulled the landing string.	1.50
DRILL	BOPHAND	Rigged up to run the BOP.	1.00

OPERATION TIME ON WELL 35/11-10

Report no : 13 Date: 27-may-1997 Section size: 0.0
Midnight depth: 1158 m MD Estimated PP: 1.03 sg Mudweight : 1.05 sg

Main Oper.	Sub Operation	Description	Oper. Time
DRILL	BOPHAND	Rigged up equipment for running the BOP.	1.50
DRILL	BOPHAND	Skidded the BOP below the rotary table and connected up the to first riser joint to the BOP. Moved the rig off the well centre.	4.00
DRILL	BOP	Ran the BOP. Tested the kill and choke lines to 345 bar. Picked up the slip joint and the landing joint. Connected the support ring and installed the kill and choke lines. Positioned the rig over the well centre.	15.00
DRILL	BOP	Land the BOP and performed pull test OK	0.50
DRILL	BOPHAND	Laid down the landing loint and installed the diverter. Closed the shear ram and pressure tested the wellhead connector and casing to 120 bar. Tested choke line to 345 bar OK. I	2.00
DRILL	BOPHAND	Rigged down the riser handling equipment.	1.00

Report no : 14 Date: 28-may-1997 Section size: 0.0
Midnight depth: 1158 m MD Estimated PP: 1.03 sg Mudweight : 1.25 sg

Main Oper.	Sub Operation	Description	Oper. Time
DRILL	BOPHAND	Cleared the rig floor and changed the elevator bails.	0.50
DRILL	WHHAND	Ran in and set the wear bushing.	1.50
DRILL	BOPTEST	Function tested the BOP.	1.00
DRILL	WHHAND	Pulled out with the running tool.	1.00
DRILL	BHAHAND	Laid down the cement head and the 17 1/2" bottom hole assembly.	3.00
DNDRI	EQUIP	Disconnected the LMRP and pull the riser due to leak on the kill line connection between joint 2 & 3 above the BOP. Changed out the damage riser joint and ran back in.	17.00

Report no : 15 Date: 29-may-1997 Section size: 0.0
Midnight depth: 1237 m MD Estimated PP: 1.03 sg Mudweight : 1.25 sg

Main Oper.	Sub Operation	Description	Oper. Time
DNDRI	EQUIP	Ran the LMRP . Picked up the slip joint and connected support ring. Installed the kill and choke lines. Positioned the rig over the well centre and land the LMRP 05:15 hrs. Pull tested OK.	6.00
DNDRI	EQUIP	Installed the diverter and rigged down the riser handling equipment. Pressure tested kill and choke lines to 345 bar OK.	1.50
DRILL	BHAHAND	Made up 12 1/4" Bottom hole assembly. Load the MWD and set the scribe line on the motor.	3.00
DRILL	TRIPCH	Ran in the hole to 770 m.	1.00

Report no : 15 Date: 29-may-1997 Section size: 0.0
Midnight depth: 1237 m MD Estimated PP: 1.03 sg Mudweight : 1.25 sg

Main Oper.	Sub Operation	Description	Oper. Time
DNDRI	EQUIP	After the repair job of riser, function tested BOP with the yellow pod . Pressure tested the LMRP connector to 120 bar.	0.50
DRILL	TRIPCH	Made up Drill Quip hang off tool and rack it on the setback.	1.00
DRILL	TRIPCH	Picked up 30 singles of 5 1/2" drill pipe and continued running in to top cement plugs at 1114 m.	2.00
DRILL	CIRC	Performed BOP drill and practice use of the choke.	0.50
DRILL	CSGDRIL	Drilled plugs , shoe track and the rat hole to 1158 m.	2.00
DRILL	DRILL	Drilled 12 1/4" hole to 1161 m.	0.50
DRILL	CIRC	Pumped high viscosity pill and circulated the hole clean. Displaced the hole to Anco 2000 mud. 1.25 sg.	2.50
DRILL	FMTEST	Performed leak off test equivalent to 1.68 sg.	0.50
DRILL	CIRC	Continued to mix and circulate Anco 2000 mud. Cleaned out the shaker box.	1.00
DRILL	DRILL	Drilled 12 1/4" hole from 1161 m to 1237 m.	2.00

Report no : 16 Date: 30-may-1997 Section size: 12 1/4"
Midnight depth: 1906 m MD Estimated PP: 1.03 sg Mudweight : 1.25 sg

Main Oper.	Sub Operation	Description	Oper. Time
DRILL	DRILL	Drilled 12 1/4" hole from 1237 m to 1906 m.	15.00
DRILL	CIRC	Circulated the hole clean.	1.00
DRILL	TRIPOH	Pulled out to the 13 3/8" shoe.	2.50
DRILL	OTHER	Changed out the saver sub and serviced the rig.	0.50
DRILL	TRIPCH	Continued pulling out of the hole.	1.50
DRILL	BHAHAND	Pulled out with the bottom hole assembly. Dumped the memory from the MWD and rack it back in the derrick.	2.00
DRILL	BHAHAND	Made up 8 1/2" bottom hole assembly.	1.50

Report no : 17 Date: 31-may-1997 Section size: 8 1/2"
Midnight depth: 1975 m MD Estimated PP: 1.03 sg Mudweight : 1.25 sg

Main Oper.	Sub Operation	Description	Oper. Time
DRILL	BHAHAND	Made up 8 1/2" bottom hole assembly. Load MWD and picked up 6 1/2" drill collars.	3.50
DRILL	TRIPCH	Ran in the hole to the shoe. Function tested the MWD on the way in.	2.00
DRILL	TRIPOH	Continued tripping in the hole to TD.	1.50
DRILL	DRILL	Drilled 8 1/2" hole from 1906 m to 1975 m. Core point.	3.50
DRILL	CIRC	Checked for flow, negative. Circulated the hole clean.	2.00
DRILL	TRIPOH	Tripped out to the 13 3/8" shoe.	1.50

Report no : 17 Date: 31-may-1997 Section size: 8 1/2"
Midnight depth: 1975 m MD Estimated PP: 1.03 sg Mudweight : 1.25 sg

Main Oper.	Sub Operation	Description	Oper. Time
DRILL	TRIPCH	Continued pulling out of the hole.	1.00
DRILL	BHAHAND	Pulled out and dumped the memory from the MWD. Racked the bottom hole assembly in the derrick.	2.50
DRILL	OTHER	Serviced the top drive.	0.50
DRILL	BHAHAND	Laid down the 8" MWD, motor and 8" drill collars from the derrick.	2.00
FCOR	CORHAND	Made up 150 foot of 8 1/2" core assembly.	2.50
FCOR	BHAHAND	Made up the bottom hole assembly.	1.50

Report no : 18 Date: 01-jun-1997 Section size: 8 1/2"
Midnight depth: 2008 m MD Estimated PP: 1.03 sg Mudweight : 1.26 sg

Main Oper.	Sub Operation	Description	Oper. Time
FCOR	BHAHAND	Ran in with the bottom hole assembly.	1.00
FCOR	TRIPCH	Tripped in the hole to the casing shoe.	1.00
FCOR	TRIPOH	Continue running in the hole to 1947 m.	2.00
FCOR	CIRC	Washed and reamed last stand to TD. Dropped the ball and performed slow pump rates.	0.50
FCOR	COR	Cut Core No 2 from 1975 m to 2008 m.	1.50
FCOR	TRIPOH	Flow checked, negative. Pulled out to the shoe.	2.00
FCOR	TRIPCH	Flow checked in the shoe, negative. Continued pulling out of the hole.	2.50
FCOR	BHAHAND	Pulled out with the bottom hole assembly. Redused the tripping speed from 300 m to surface.	1.00
FCOR	CORHAND	Recovered core #2: 32.12 m - 97.3 % recovery.	2.50
FCOR	CORHAND	Laid down one 30 foot section and made up 120 foot core assembly.	2.00
FCOR	BHAHAND	Ran in the hole with the bottom hole assembly and 5" drill pipe to 607 m.	3.00
FCOR	SLIP	Slipped and cutted the drilling line.	1.00
FCOR	TRIPCH	Ran in the hole to the casing shoe.	1.00
FCOR	TRIPOH	Continued running in the hole to 1978 m.	2.00
FCOR	CIRC	Washed and reamed from 1978 m to 2008 m. Circulated bottom up.	1.00

Report no : 19 Date: 02-jun-1997 Section size: 8 1/2"
Midnight depth: 2078 m MD Estimated PP: 1.03 sg Mudweight : 1.26 sg

Main Oper.	Sub Operation	Description	Oper. Time
FCOR	CIRC	Circulated bottom up.	1.00
FCOR	COR	Dropped the ball and cut Core #3 from 2008 m to 2041 m.	1.50
FCOR	TRIPOH	Checked for flow, negative. Pulled out to the casing shoe.	2.00
FCOR	TRIPCH	Checked for flow in the shoe, negative. Continued pulling out.	2.00
FCOR	BHAHAND	Pulled the bottom hole assembly with redused tripping speed.	1.50

Report no : 19 Date: 02-jun-1997 Section size: 8 1/2"
Midnight depth: 2078 m MD Estimated PP: 1.03 sg Mudweight : 1.26 sg

Main Oper.	Sub Operation	Description	Oper. Time
FCOR	CORHAND	Recoverd core # 3: 32.6 m - 98.8% recovery.	1.50
FCOR	CORHAND	Serviced and prepared the 120 foot core assembly.	1.50
FCOR	BHAHAND	Made up the bottom hole assembly.	1.50
FCOR	TRIPCH	Ran in hole to the shoe.	1.50
FCOR	TRIPOH	Continued running in hole to TD.	2.00
FCOR	CIRC	Circulated bottom up.	1.00
FCOR	COR	Cut core # 4 from 2041 m to 2078 m.	1.50
FCOR	TRIPOH	Checked for flow, negative. Pulled out to the shoe.	1.50
FCOR	TRIPCH	Flow checked in the shoe, negative. Continued pulling out of the hole.	1.50
FCOR	BHAHAND	Pulled out with the bottom hole assembly at redused tripping speed from 300 m to surface.	2.50

Report no : 20 Date: 03-jun-1997 Section size: 8 1/2"
Midnight depth: 2078 m MD Estimated PP: 1.03 sg Mudweight : 1.26 sg

Main Oper.	Sub Operation	Description	Oper. Time
FCOR	CORHAND	Recovered core # 4.	2.50
FCOR	OTHER	Serviced the rig.	0.50
FCOR	CORHAND	Racked 90 foot core section in the derrick and laid down the rest on deck.	1.50
DRILL	BHAHAND	Made up 8 1/2" drilling assembly.	3.00
DRILL	TRIPCH	Ran in the hole to the shoe and flow tested the MWD, OK.	1.00
DRILL	TRIPOH	Continued running in the hole to 1970 m.	1.00
DNDRI	EQUIP	Attempted to log the cored hole. No success due to MWD failure. Transmitted data only in the non rotation mode. Trouble shooted with no result.	1.50
DNDRI	EQUIP	Pulled out of hole. Flow checked in the casing shoe.	4.00
DNDRI	EQUIP	Changed out the modular collar in the MWD and tested out the same, OK.	1.00
DNDRI	EQUIP	Ran in the hole to the casing shoe.	2.50
DNDRI	EQUIP	Attempted to function test the MWD in the casing shoe. Received only partial signals from the MWD. Ran the in hole to below the casing shoe and tested the MWD successfully.	1.00
DNDRI	EQUIP	Continued running in the hole to 1964 m.	1.50
FMWD	MWDLOG	Logged the core interval with the MWD from 1964 m to 2078 m.	3.00

Report no : 21 Date: 04-jun-1997 Section size: 8 1/2"
Midnight depth: 2268 m MD Estimated PP: 1.03 sg Mudweight : 1.26 sg

Main Oper.	Sub Operation	Description	Oper. Time
DRILL	DRILL	Drilled 8 1/2" hole from 2078 m to 2268 m. Checked for flow, negative.	7.00
DRILL	CIRC	Circulated bottoms up and the hole clean.	3.00
DRILL	TRIPOH	Checked for flow, negative. Pulled out to the casing shoe.	1.50
DRILL	TRIPCH	Continued pulling out of the hole.	1.50
DRILL	BHAHAND	Pulled out with the bottom hole assembly.	2.50
DRILL	OTHER	Serviced the top drive.	0.50
FLOG	LOGHAND	Rigged up the logging equipment.	1.00
FLOG	LOGHAND	Made up MDT logging tool.	1.00
FLOG	LOGFMT	Ran in with the MDT. Not able to pass 2050 m.	3.00
FLOG	LOGFMT	Took 16 pressure points from 1972 m to 2026 m.	3.00

Report no : 22 Date: 05-jun-1997 Section size: 8 1/2"
Midnight depth: 2296 m MD Estimated PP: 1.03 sg Mudweight : 1.25 sg

Main Oper.	Sub Operation	Description	Oper. Time
DNFLO	OTHER	Pulled out of the hole with the MDT.	1.00
DNFLO	OTHER	Rigged down the MDT logging tools.	2.00
DNFLO	OTHER	Rigged down the logging equipment.	0.50
FCOR	CORHAND	Made up 90 ft core section.	1.50
FCOR	BHAHAND	Made up the bottom hole assembly.	2.00
FCOR	TRIPCH	Ran in hole to the casing shoe.	1.00
FCOR	TRIPOH	Continued running in to 2034 m.	1.50
FCOR	CIRC	Reamed from 2034 m to 2060 m 4 times due to ledges at 2050 m and 2054 m.	0.50
FCOR	TRIPOH	Ran in the hole from 2060 m to 2268 m. Reamed tight spot at 2160 m.	1.00
FCOR	CIRC	circulated the hole clean, tagged bottom at 2268 m.	2.00
FCOR	COR	Dropped the ball and cut core no.5 from 2268 m to 2296 m.	1.50
FCOR	TRIPOH	Checked for flow, negative. Pulled out to the casing shoe.	2.50
FCOR	TRIPCH	Continued pulling out of the hole.	1.00
FCOR	BHAHAND	Pulled out with the bottom hole assembly at reduced tripping speed to surface.	2.00
FCOR	CORHAND	Recovered core no.5, 27.95 m, 99.8% recovery.	2.50
DNFLO	OTHER	Rigged up the logging equipment.	0.50
DNFLO	OTHER	Made up the logging equipment.	1.00

Report no : 23 Date: 06-jun-1997 Section size: 8 1/2"
Midnight depth: 2296 m MD Estimated PP: 1.03 sg Mudweight : 1.25 sg

Main Oper.	Sub Operation	Description	Oper. Time
DNFLO	OTHER	Made up the MDT logging tools.	0.50
DNFLO	OTHER	Ran in with the MDT to 2028 m.	1.00

Report no : 23 Date: 06-jun-1997 Section size: 8 1/2"
Midnight depth: 2296 m MD Estimated PP: 1.03 sg Mudweight : 1.25 sg

Main Oper.	Sub Operation	Description	Oper. Time
FLOG	LOGFMT	Logged with MDT. Took 19 pressure points from 2028 m to 2113 m. Sampling from 2070.6 and 2048,5 m.	21.50
FLOG	LOGFMT	Pulled out with the MDT.	1.00

Report no : 24 Date: 07-jun-1997 Section size: 8 1/2"
Midnight depth: 2296 m MD Estimated PP: 1.03 sg Mudweight : 1.25 sg

Main Oper.	Sub Operation	Description	Oper. Time
FLOG	LOGHAND	Performed pre-job meeting and SJA prior to lay down the MDT assembly.	1.50
FLOG	LOGHAND	Made up MDT assembly for run no 2.	2.00
FLOG	LOGFMT	Ran in with the MDT to 1996.5 m.	1.00
FLOG	LOGFMT	MDT sampling from 1996.5 m and 2036 m.	7.50
FLOG	LOGFMT	Pulled out with the MDT.	2.00
FLOG	LOGHAND	Performed pre-job meeting and SJA prior to lay down the MDT assembly.	1.00
FLOG	LOGHAND	Rigged down the the logging equipment.	0.50
FCOR	OTHER	Lubricated the rig.	0.50
FCOR	CORHAND	Made up 90 foot core section.	1.00
FCOR	BHAHAND	Ran in with the bottom hole assembly.	2.00
FCOR	TRIPCH	Ran in the hole to the casing shoe.	1.50
FCOR	TRIPOH	Continued running in the hole to 2110 m. Reamed tight spot from 2110 m to 2115 m.	1.50
DNFCO	EQUIP	The Top Drive was down due to eletrical controle failure on the hydraulic pumps. Not able to rotate the string.	1.00
FCOR	TRIPOH	Ran in the hole to 2267m.	0.50
FCOR	CIRC	Washed down from 2267 m to 2296 m.	0.50

Report no : 25 Date: 08-jun-1997 Section size: 8 1/2"
Midnight depth: 2420 m MD Estimated PP: 1.03 sg Mudweight : 1.25 sg

Main Oper.	Sub Operation	Description	Oper. Time
FCOR	CIRC	Circulated bottoms up.	1.00
FCOR	COR	Dropped the ball and cut core # 6 from 2296 m to 2315 m.	1.00
FCOR	TRIPOH	Checked for flow, negative. Pulled out to the casing shoe.	3.00
FCOR	TRIPCH	Continued pulling out of the hole.	1.00
FCOR	BHAHAND	Pulled out with the bottom hole assembly at redused tripping speed to surface.	2.00
FCOR	CORHAND	Recoverd the core # 6: 18.82 m - 99 % recovery. Racked the barrel back in the derrick.	1.50
DRILL	BHAHAND	Made up 8 1/2" drilling assembly.	1.50
DRILL	TRIPCH	Ran in the hole. Picked up 15 joints of 5" and 30 joints of 5 1/2" drill pipe. Funtion tested the MWD.	3.50
DRILL	TRIPOH	Continued running in the hole to 1897 m.	1.00

Report no : 25 Date: 08-jun-1997 Section size: 8 1/2"
Midnight depth: 2420 m MD Estimated PP: 1.03 sg Mudweight : 1.25 sg

Main Oper.	Sub Operation	Description	Oper. Time
DNDRI	EQUIP	Repaired broken wire on the drill line guide.	1.00
DRILL	OTHER	Serviced the top drive.	0.50
DRILL	TRIPOH	Ran in the hole to 2246 m.	0.50
FMWD	MWDLOG	Logged the core interval with the MWD from 2246 m to 2315 m.	2.00
DRILL	DRILL	Drilled 8 1/2" hole from 2315 m to 2420 m.	4.50

Report no : 26 Date: 09-jun-1997 Section size: 8 1/2"
Midnight depth: 2675 m MD Estimated PP: 1.03 sg Mudweight : 1.25 sg

Main Oper.	Sub Operation	Description	Oper. Time
DRILL	DRILL	Drilled 8 1/2" hole from 2420 m to 2675 m.	14.00
DRILL	CIRC	Circulated the hole clean.	2.50
DRILL	TRIPOH	Checked for flow, negative. Pulled out of the hole to the shoe.	3.50
DRILL	OTHER	Flow checked in the shoe, negative. Serviced the rig.	0.50
DRILL	TRIPCH	Pulled out of the hole.	1.50
DRILL	BHAHAND	Continued pulling out with the bottom hole assembly.	1.00
FMWD	MWDHAND	Dumped the memory from the MWD.	0.50
DRILL	BHAHAND	Broke off the bit and racked the MWD in the derrick.	0.50

Report no : 27 Date: 10-jun-1997 Section size: 8 1/2"
Midnight depth: 2723 m MD Estimated PP: 1.03 sg Mudweight : 1.25 sg

Main Oper.	Sub Operation	Description	Oper. Time
FCOR	CORHAND	Made up a 150 feet core barrel (no. 7).	2.00
FCOR	TRIPCH	Ran in the hole with core barrel no. 7 to the 13 3/8" casing shoe.	2.50
FCOR	TRIPOH	Ran in the hole with core barrel no. 7 to 2388 m.	3.00
DNFCO	EQUIP	Serviced fingerboard.	0.50
FCOR	TRIPOH	Ran in the hole with core barrel no. 7 from 2388 m to 2676 m.	1.00
FCOR	CIRC	Circulated bottom up and dropped the ball.	2.00
FCOR	COR	Cut core no. 7 from 2676 m to 2723 m.	1.50
FCOR	TRIPOH	Flow checked the well and pulled out to the 13 3/8" casing shoe.	3.50
FCOR	TRIPCH	Pulled out of the hole with core no. 7.	3.00
FCOR	CORHAND	Recovered core no. 7 : 46.89 m - 100% recovery.	3.00
FCOR	CORHAND	Serviced the core barrel.	0.50
FCOR	TRIPCH	Ran in the hole with core barrel no. 8 to 450 m.	1.50

Report no : 28 Date: 11-jun-1997 Section size: 8 1/2"
Midnight depth: 2770 m MD Estimated PP: 1.03 sg Mudweight : 1.25 sg

Main Oper.	Sub Operation	Description	Oper. Time
FCOR	TRIPCH	Ran in the hole with core barrel no. 8 to the 13 3/8" casing shoe.	2.50
FCOR	SLIP	Slipped and cut the drilling line.	1.00
FCOR	TRIPOH	Ran in the hole with core barrel no. 8 to 2723 m.	4.50
FCOR	CIRC	Circulated bottom up and dropped the ball.	1.50
FCOR	COR	Cut core no. 8 from 2723 m to 2770 m.	1.50
FCOR	TRIPOH	Flow checked the well and pulled out to the 13 3/8" casing shoe.	3.50
FCOR	TRIPCH	Pulled out of the hole with core no. 8.	3.00
FCOR	CORHAND	Recovered core no. 8 : 46.56 m - 99% recovery.	1.50
FCOR	BHAHAND	Laid down the coring assembly.	1.50
DRILL	BHAHAND	Made up 8 1/2" rotary assembly.	1.50
DRILL	TRIPCH	Ran in the hole with the 8 1/2" rotary assembly to 1060 m.	2.00

Report no : 29 Date: 12-jun-1997 Section size: 8 1/2"
Midnight depth: 2950 m MD Estimated PP: 1.03 sg Mudweight : 1.25 sg

Main Oper.	Sub Operation	Description	Oper. Time
DRILL	TRIPOH	Ran in the hole with the 8 1/2" rotary assembly from 1060 m to 2670 m.	4.00
FMWD	MWDLOG	Reamed and logged the cored section from 2670 m to 2730 m. MWD log respons did not correlate with cored lithology. Ran in hole to verify TD of the section. Found 3 stand error in the drill pipe tally. Pulled out to 2670 m.	3.00
DNFMW	OTHER	Relogged the cored section with the MWD.	3.00
DRILL	DRILL	Drilled 8 1/2" hole from 2770 m to 2855 m.	3.00
FCOR	CIRCSAMP	Circulated for formation samples.	0.50
DRILL	DRILL	Drilled 8 1/2" hole from 2855 m to 2950 m (TD of the well).	5.00
DRILL	CIRC	Circulated the hole clean.	2.50
DRILL	TRIPOH	Pulled out to the 13 3/8" casing shoe with the 8 1/2" bit.	3.00

Report no : 30 Date: 13-jun-1997 Section size: 8 1/2"
Midnight depth: 2950 m MD Estimated PP: 1.03 sg Mudweight : 1.25 sg

Main Oper.	Sub Operation	Description	Oper. Time
DRILL	TRIPCH	Pulled out of the hole with the 8 1/2" bit.	2.00
FMWD	MWDHAND	Dumped the MWD memory.	0.50
FMWD	MWDHAND	Broke off the bit and laid down the MWD tool.	0.50
FLOG	LOGHAND	Rigged up the wireline sheaves and the logging equipment.	1.00
FLOG	LOGHAND	Made up the logging string - Log no. 1 : DLL/MSFL/DSI/LDL/CNL/NGT/SP/AMS. Loaded the radiactive sources.	1.00

Report no : 30 Date: 13-jun-1997 Section size: 8 1/2"
Midnight depth: 2950 m MD Estimated PP: 1.03 sg Mudweight : 1.25 sg

Main Oper.	Sub Operation	Description	Oper. Time
DNFLO	EQUIP	Function tested the logging suite. CNT sub out of calibration range. Changed the primary CNT sub with back up CNT. Reloaded the radiactive source.	2.00
DNFLO	EQUIP	Attempted to calibrate the DLT sub without success. Performed troubleshooting on the surface equipment. Changed the hardware modules and rebooted the software system.	1.50
FLOG	TRIPOH	Ran in the hole with Log no. 1 : DLL/MSFL/DSI/LDL/CNL/NGT/SP/AMS to 1850 m.	0.50
FLOG	LOG	Recorded downlog from 1850 m to 2250 m.	1.00
DNFLO	EQUIP	Examined erratic readings from the resistivity sub (DLL).	1.50
FLOG	TRIPOH	Continued running in hole with Log no. 1 to 2941 m. Attempted to pass 2941 m without success.	0.50
FLOG	LOG	Recorded main log from 2941 m to 2325 m.	3.00
DNFLO	EQUIP	Lost communication with the density and neutron sub. Restarted the software system and ran in the hole to 2900 m. Attempted to record resistivity (DLL) log without success. Pulled out to 2380 m. Lost communication with the logging suite.	2.00
DNFLO	EQUIP	Pulled out of the hole with Log no. 1 : DLL/MSFL/DSI(LDL/CNL/NGT/SP/AMS.	1.00
DNFLO	EQUIP	Performed troubleshooting on the surface system.	6.00

Report no : 31 Date: 14-jun-1997 Section size: 8 1/2"
Midnight depth: 2950 m MD Estimated PP: 1.03 sg Mudweight : 1.25 sg

Main Oper.	Sub Operation	Description	Oper. Time
DNFLO	EQUIP	Laid down the primary logging tools and made up back up tools.	3.00
DNFLO	EQUIP	Function tested and calibrated the logging suite. Loaded the radioactive sources.	1.50
DNFLO	EQUIP	Ran in the hole with Log no. 1 (rerun no. 1) : DLL/MFSL/LDL/CNL/NGT/SP/AMS to 2900 m.	2.50
DNFLO	EQUIP	Logged from 2900 m to 2375 m with the resistivity log.	1.00
FLOG	LOG	Continued logging with Log no. 1 : DLL/MSFL/LDL/CNL/NGT/SP/AMS from 2375 m to 1046 m.	6.00
FLOG	TRIPCH	Pulled out of the hole with Log no. 1 : DLL/MSFL/LDL/CNL/NGT/SP/AMS. Removed the radioactive sources.	1.00
FLOG	LOGHAND	Laid down the logging string.	1.50
FLOG	LOGHAND	Made up the logging string - Log no. 2 : MDT/GR/AMS.	2.50
FLOG	LOGHAND	Function tested the MDT modules.	1.00

Report no : 31 Date: 14-jun-1997 Section size: 8 1/2"
Midnight depth: 2950 m MD Estimated PP: 1.03 sg Mudweight : 1.25 sg

Main Oper.	Sub Operation	Description	Oper. Time
FLOG	TRIPCH	Ran in the hole with Log no. 2 : MDT/GR/AMS to 2036 m. Lost communication with the logging suite.	2.00
DNFLO	EQUIP	Pulled out of the hole with Log no. 2 : MDT/GR/AMS.	1.00
DNFLO	EQUIP	Disassembled the tool string. Examined the cable head ,AMS and gamma ray sub.	1.00

Report no : 32 Date: 15-jun-1997 Section size: 8 1/2"
Midnight depth: 2950 m MD Estimated PP: 1.03 sg Mudweight : 1.25 sg

Main Oper.	Sub Operation	Description	Oper. Time
DNFLO	EQUIP	Examined and function tested the individual MDT modules. Changed one malfunctioning sample chamber. Assembled and function tested the MDT logging suite.	3.50
DNFLO	EQUIP	Ran in the hole with Log no. 2 (Rerun no. 1) : MDT/GR/AMS to 2036 m.	1.00
FLOG	LOGFMT	Recorded MDT pressure points from 2036 m to 2870 m. Pulled out to 2713.5 m.	9.00
FLOG	LOGFMT	Drained the formation to remove filtrate before water sampling.	9.00
FLOG	LOGFMT	Sampled formation water.	1.50

Report no : 33 Date: 16-jun-1997 Section size: 8 1/2"
Midnight depth: 2950 m MD Estimated PP: 1.03 sg Mudweight : 1.25 sg

Main Oper.	Sub Operation	Description	Oper. Time
FLOG	LOGFMT	Resumed draining the formation to remove filtrate before water sampling.	2.00
FLOG	LOGFMT	Sampled formation water.	1.00
FLOG	TRIPOH	Retracted the MDT probe and pulled out to 2615 m for depth correlation. Ran in hole and positioned the MDT tool at 2679 m.	0.50
FLOG	LOGFMT	Drained the formation and sampled oil at 2679.5 m.	9.00
FLOG	TRIPCH	Retracted the MDT probe and pulled out of the hole with log no. 2 (rerun no.1) : MDT/GR/AMS.	2.00
FLOG	LOGHAND	Laid down the MDT logging suite.	2.00
FLOG	LOGHAND	Rigged down the wireline sheaves and wireline equipment.	0.50
FLOG	WIPER	Made up 8 1/2" bit and ran in the hole to the 13 3/8" casing shoe.	3.00
FLOG	WIPER	Ran in the hole with the 8 1/2" bit from 1152 m to 2925 m.	3.00
FLOG	WIPER	Washed and reamed from 2925 m to TD at 2950 m.	1.00

Report no : 34 Date: 17-jun-1997 Section size: 8 1/2"
Midnight depth: 2950 m MD Estimated PP: 1.03 sg Mudweight : 1.25 sg

Main Oper.	Sub Operation	Description	Oper. Time
FLOG	WIPER	Circulated the hole clean.	2.50
FLOG	WIPER	Flow checked the well and pulled out of the hole with the 8 1/2" bit.	4.00
FLOG	LOGHAND	Rigged up the wireline sheaves and the logging equipment.	0.50
FLOG	LOGHAND	Made up the logging string - Log no. 3 : MDT/GR/AMS.	2.50
DNFLO	EQUIP	Ran in the hole with the MDT logging suite to 150 m. Attempted to calibrate the MDT modules. Problems with quartz gauge on sampling probe. Pulled out of the hole with the MDT logging suite. Changed the quartz gauge.	1.50
DNFLO	EQUIP	Ran in the hole with the MDT logging suite to 150 m. The MDT pumpout module failed to test. Pulled out of the hole and changed the pumpout module.	1.00
FLOG	TRIPOH	Ran in the hole with Log no. 3 : MDT/GR/AMS to 2346 m.	2.00
FLOG	LOGFMT	Drained the formation to remove filtrate before water sampling.	9.50
FLOG	LOGFMT	Sampled formation water.	0.50

Report no : 35 Date: 18-jun-1997 Section size: 8 1/2"
Midnight depth: 2950 m MD Estimated PP: 1.03 sg Mudweight : 1.25 sg

Main Oper.	Sub Operation	Description	Oper. Time
DNFLO	STUCK	Retracted the MDT probe and attempted to pull the MDT logging suite without success. Tool stuck at 2335 m (Top of tool).	5.00
DNFLO	FISH	Rigged up the upper sheave wheel. Secured and cut the wireline cable. Made up spear head overshot and spear point rope socket.	3.50
DNFLO	FISH	Made up the overshot and grapple.	2.00
DNFLO	FISH	Ran in hole with the overshot assembly to 2318 m.	8.00
DNFLO	FISH	Installed a circulation sub and circulated to clean out the grapple.	1.00
DNFLO	FISH	Lowered the overshot assembly from 2318 m to top fish at 2335 m. Continued running in to 2336 m. Got positive indication on engaging the fish. Pulled out to 2331 m and got indication that MDT tool was free.	1.50
DNFLO	FISH	Pulled out to 2230 m with the overshot assembly.	1.00
DNFLO	FISH	Pulled out with the MDT logging suite from 2348 m to 2318 m. Secured and cut the wireline cable.	2.00

Report no : 36 Date: 19-jun-1997 Section size: 8 1/2"
Midnight depth: 2950 m MD Estimated PP: 1.03 sg Mudweight : 1.26 sg

Main Oper.	Sub Operation	Description	Oper. Time
DNFLO	FISH	Built torpedo electrical connection and function tested the MDT logging suite.	2.00
FLOG	LOGFMT	Depth correlated and positioned the MDT tool at 2305 m.	0.50
FLOG	LOGFMT	Drained the formation to remove filtrate before oil sampling.	1.00
FLOG	LOGFMT	Sampled oil at 2305 m.	3.50
DNFLO	FISH	Cut and knotted the wireline cable. Rigged up the upper sheave wheel.	2.50
DNFLO	FISH	Pulled out of the hole with the overshot assembly from 2230 m to 2172 m.	1.00
DNFLO	FISH	Pulled out with the MDT logging suite from 2305 m to 2217 m (Top of tool). Made up spear head overshot and spear point rope socket on the wireline cable.	2.50
DNFLO	FISH	Pulled out of the hole with the overshot assembly.	5.50
FLOG	TRIPOH	Cut and spliced the wireline cable. Rigged up the sheave wheel in the top drive. Pulled out of the hole with Log no. 3 : MDT/GR/AMS.	2.00
FLOG	LOGHAND	Laid down the MDT logging suite.	2.00
DNFLO	FISH	Installed back up wireline drum on the wireline unit.	1.50

Report no : 37 Date: 20-jun-1997 Section size: 8 1/2"
Midnight depth: 2950 m MD Estimated PP: 1.03 sg Mudweight : 1.26 sg

Main Oper.	Sub Operation	Description	Oper. Time
DNFLO	FISH	Terminated the electrical wireline cable and rebuilt the cable head.	0.50
FLOG	LOGHAND	Made up the logging string - Log no. 4 : FMI/DSI/GR/AMS.	2.00
FLOG	TRIPOH	Ran in the hole with Log no. 4 : FMI/DSI/GR/AMS to 2932 m.	1.50
FLOG	LOG	Recorded main log from 2932 m to 1139 m.	4.00
FLOG	TRIPCH	Pulled out of the hole with Log no. 4 - FMI/DSI/GR/AMS.	0.50
FLOG	LOGHAND	Laid down the logging suite.	1.00
FLOG	LOGHAND	Made up the logging string - Log no. 5 : VSP/GR. Function tested the VSP tool.	1.50
FLOG	TRIPOH	Ran in the hole with Log no. 5 : VSP/GR to 1910 m. Made several attempts to pass 1910 m without success.	2.00
DNFLO	OTHER	Pulled out of the hole with the VSP logging suite. Installed sinker bars on the tool string.	1.00
DNFLO	OTHER	Ran in the hole with the VSP logging suite to 1910 m.	1.00
DNFLO	OTHER	Made several attempts to pass restriction at 1910 m. Worked the logging string past restriction.	1.50

Report no : 37 Date: 20-jun-1997 Section size: 8 1/2"
Midnight depth: 2950 m MD Estimated PP: 1.03 sg Mudweight : 1.26 sg

Main Oper.	Sub Operation	Description	Oper. Time
FLOG	TRIPOH	Ran in the hole with Log no. 5 : VSP/GR from 1910 m to 2920 m.	2.00
FLOG	LOGVS	Logged VSP/GR from 2920 m to 1570 m.	5.50

Report no : 38 Date: 21-jun-1997 Section size: 8 1/2"
Midnight depth: 2950 m MD Estimated PP: 1.03 sg Mudweight : 1.26 sg

Main Oper.	Sub Operation	Description	Oper. Time
FLOG	LOGVS	Logged VSP/GR from 1570 m to 450 m.	3.50
FLOG	TRIPCH	Pulled out of the hole with Log no. 5 : VSP/GR.	0.50
FLOG	LOGHAND	Laid down the VSP logging tools. Rigged down the wireline sheaves and the logging equipment.	0.50
PA	BHAHAND	Picked up the mule shoe and made up the cement stinger assembly.	2.00
PA	CMTTRIP	Ran in the hole with the cement stinger to 850 m.	1.50
DNPA	EQUIP	Repaired finger on monkey board.	0.50
PA	CMTTRIP	Ran in the hole with the cement stinger to 1077 m.	0.50
PA	CMTTRIP	Made up the cement head and racked the cement head in the derrick.	1.00
PA	CMTTRIP	Ran in the hole with the cement stinger from 1077 m to 2933 m. Washed down from 2933 m to 2936 m. Not able to pass restriction at 2936 m.	2.50
PA	CIRC	Circulated and conditioned the mud.	1.50
PA	CMTPLUG	Set cement plug no. 1 from 2936 m to 2670 m. Displaced the cement.	1.00
PA	CMTTRIP	Pulled out with the cement stinger to 2680 m.	1.50
PA	CMTPLUG	Reverse circulated out excess cement. Dropped a wiper plug and circulated two string volumes.	1.00
PA	CMTPLUG	Set cement plug no. 2 from 2680 m to 2420 m. Displaced the cement.	1.00
PA	CMTTRIP	Pulled out with the cement stinger to 2410 m.	1.00
PA	CMTPLUG	Reverse circulated out excess cement. Dropped a wiper plug and circulated two string volumes.	2.00
PA	CMTPLUG	Set cement plug no. 3 from 2410 m to 2150 m. Displaced the cement.	1.00
PA	CMTTRIP	Pulled out with the cement stinger to 2140 m.	1.00
PA	CMTPLUG	Reverse circulated out excess cement.	0.50

Report no : 39 Date: 22-jun-1997 Section size: 0.0
Midnight depth: 2950 m MD Estimated PP: 1.03 sg Mudweight : 1.26 sg

Main Oper.	Sub Operation	Description	Oper. Time
PA	CMTPLUG	Dropped a wiper plug and circulated two string volumes.	1.00
PA	CMTPLUG	Set cement plug no. 4 from 2140 m to 1880 m. Displaced the cement.	1.00
PA	CMTTRIP	Pulled out with the cement stinger to 1870 m.	0.50

Report no : 39 Date: 22-jun-1997 Section size: 0.0
Midnight depth: 2950 m MD Estimated PP: 1.03 sg Mudweight : 1.26 sg

Main Oper.	Sub Operation	Description	Oper. Time
PA	CMTPLUG	Reverse circulated out excess cement. Dropped a wiper plug and circulated two string volumes.	1.50
PA	CMTTRIP	Pulled out of the hole with the cement stinger from 1870 m to 1047 m.	1.00
PA	TRIPOH	Ran in the hole with 5 1/2" Drill Pipe to 1542 m.	0.50
PA	TRIPOH	Pulled out and laid down 5 1/2" Drill Pipe.	2.50
PA	CMTTRIP	Pulled out of the hole with the cement stinger.	2.50
PA	BOPTEST	Ran in the hole with the BOP test tool. Pressure and function tested the BOP.	8.00
PA	TRIPOH	Ran in the hole with 8 1/2" bit and tagged cement plug at 1888 m.	3.00
PA	TRIPOH	Pulled out of the hole with the 8 1/2" bit.	2.50

Report no : 40 Date: 23-jun-1997 Section size: 0.0
Midnight depth: 2950 m MD Estimated PP: 1.03 sg Mudweight : 1.26 sg

Main Oper.	Sub Operation	Description	Oper. Time
PA	CMTTRIP	Made up the mule shoe and ran in the hole with the cement stinger assembly to 1600 m.	2.50
PA	CIRC	Set a high viscosity pill from 1600 m to 1350 m.	0.50
PA	CMTTRIP	Pulled out with the cement stinger from 1600 m to 1340 m.	1.00
PA	CMTPLUG	Set a cement plug from 1340 m to 1100 m. Displaced the cement.	1.50
PA	CMTTRIP	Pulled out with the cement stinger to 1090 m.	1.00
PA	CMTPLUG	Reverse circulated out excess cement. Dropped a wiper plug and circulated two string volumes.	1.50
PA	CMTTRIP	Pulled out of the hole with the cement stinger assembly.	2.50
PA	OTHER	Pressure tested the automatic and manual kelly cock.	1.50

Report no : 41 Date: 10-jul-1997 Section size: 0.0
Midnight depth: 950 m MD Estimated PP: sg Mudweight : 1.26 sg

Main Oper.	Sub Operation	Description	Oper. Time
PA	MECHPLUG	Made up 13 3/8" EZ-Drill cement retainer and ran in hole with the cement retainer on drill pipe to 1100 m.	2.00
PA	MECHPLUG	Set the EZ-Drill cement retainer and released the running tool. Pressure tested the cement retainer to 111 bar for 10 minutes.	1.50

Report no : 41 Date: 10-jul-1997 Section size: 0.0
Midnight depth: 950 m MD Estimated PP: sg Mudweight : 1.26 sg

Main Oper.	Sub Operation	Description	Oper. Time
PA	CMTPLUG	With the cement unit, pumped 3,3 m3 fresh water, mixed and pumped 11,7 m3 1,90 s.g. cement slurry followed by 0,5 m3 fresh water. Displaced the cement with the cement unit in order to set a 150 m cement plug on top of the cement reatiner.	0.50
PA	CMTPLUG	Pulled out of hole to 870 m and revers circulated. Pumped twice the drill pipe volume with mud.	1.50
PA	TRIPCH	Laid down drill pipe while pulling out of hole.	5.50
PA	WHHAND	Retrieved the wear bushing.	2.50

Report no : 42 Date: 11-jul-1997 Section size: 0.0
Midnight depth: 950 m MD Estimated PP: sg Mudweight : 1.26 sg

Main Oper.	Sub Operation	Description	Oper. Time
PA	BOPHAND	Made preparations to pull the BOP. Laid down diverter and installed landing joint.	7.50
PA	BOP	Pulled the BOP.	8.50
PA	BOPHAND	Secured the BOP on the BOP carrier and rigged down equipment for BOP handeling.	3.00
PA	CUTCSG	Made up casing cutting assembly and ran in hole to the wellhead.	3.50
PA	CUTCSG	Entered the well head and started to cut the casing.	1.50

Report no : 43 Date: 12-jul-1997 Section size: 0.0
Midnight depth: 950 m MD Estimated PP: sg Mudweight : 1.26 sg

Main Oper.	Sub Operation	Description	Oper. Time
PA	CUTCSG	Continued to cut the 20"/30" casings. Attempted to pull the guide base.	3.50
DNPA	EQUIP	Pulled the cutting assembly.	0.50
DNPA	EQUIP	Broke and checked the internal of the casing cutter. Could not find any reason for the observed high circulating pressure. Checked the motor and function tested the casing cutter.	2.50
DNPA	EQUIP	Ran in with the casing cutting assembly. Drifted the drill collar and drill pipe while running in.	2.00
DNPA	EQUIP	Continued to cut the 20"/30" casings. Made several attempts to pull the guide base.	6.00
DNPA	EQUIP	Pulled the cutting assembly.	0.50
DNPA	EQUIP	Inspected the casing cutter and tested the motor.	1.50
DNPA	EQUIP	Picked up jar and drill collars and ran in with the cutting assembly.	2.00
DNPA	EQUIP	Continued attempting to cut the casings.	2.50

Report no : 43 Date: 12-jul-1997 Section size: 0.0
Midnight depth: 950 m MD Estimated PP: sg Mudweight : 1.26 sg

Main Oper.	Sub Operation	Description	Oper. Time
DNPA	EQUIP	Attempted to jar the guidebase free. Continued attempting to cut and made several attempts to jar the guide base free while waiting for new cutting equipment to arrive.	3.00

Report no : 44 Date: 13-jul-1997 Section size: 0.0
Midnight depth: 950 m MD Estimated PP: sg Mudweight : 1.26 sg

Main Oper.	Sub Operation	Description	Oper. Time
DNPA	EQUIP	Continued attempting to cut the 20"/30" casings. Attempted to jar the guide base free.	1.00
DNPA	EQUIP	Released the grapple from the welhead and pulled it 2 m above the well head. Pumped to verify that the motor was functioning and that the casing cutter was giving reactive torque.	0.50
DNPA	EQUIP	Continued attempting to cut the 20"/30" casings.	2.50
DNPA	EQUIP	Made several attempts to jar the guide base free. Applied 230 ton tension for 20 minutes to the guidebase. Did not see any movement of the guide base.	0.50
DNPA	EQUIP	Pulled the cutting assembly.	1.50
DNPA	EQUIP	Installed new cutters on the casing cutter.	1.50
DNPA	EQUIP	Checked the top drive for loose items after the jaring.	0.50
DNPA	EQUIP	Ran in with the casing cutting assembly.	1.50
DNPA	EQUIP	Attemped to cut the casing. Attempted to jar and pull the guide base free.	4.00
DNPA	EQUIP	Continued attempting to cut the casing.	1.50
DNPA	EQUIP	Attempted to jar and pull the guide base free.	0.50
DNPA	EQUIP	Pulled and laid down the motor casing cutting assembly.	2.00
DNPA	EQUIP	Checked the top drive for loose items after the jaring.	1.00
DNPA	EQUIP	Made up new rotating type cutting assembly.	2.00
DNPA	EQUIP	Ran in with the new cutting assembly. Stabbed into the well head and performed a 20 ton over pull test on the marine swievel. Cut the casing. After 10 minutes cutting, the 18 3/4" well head was pulled out of the 30" housing.	0.50
DNPA	EQUIP	Pulled and laid down the 18 3/4" wellhead.	1.00
DNPA	EQUIP	Laid down the marine swievel and picked up 30" spare type marine swievel.	2.00

Report no : 45 Date: 14-jul-1997 Section size: 0.0
Midnight depth: 0 m MD Estimated PP: sg Mudweight : 1.26 sg

Main Oper.	Sub Operation	Description	Oper. Time
DNPA	EQUIP	Ran in with the cutting assembly and stabbed into the 30" conductor. Performed a 30 ton over pull test on the marine swievel.	0.50
DNPA	EQUIP	Cut the 30" conductor and pulled the conductor/guidebase out of the seabed with 30 ton overpull.	1.00
MOB	MOORDEMOB	Deballasted the rig. Retrieved the 30"conductor and guide base. Secured the guide base in the moon pool. Removed and laid down the 30" conductor housing. Laid down the casing cutting assembly.	4.50
MOB	MOORDEMOB	Retrieved anchor no. 2, 3, 5, 6 and 7.	18.00

Report no : 46 Date: 15-jul-1997 Section size: 0.0
Midnight depth: m MD Estimated PP: sg Mudweight : 1.26 sg

Main Oper.	Sub Operation	Description	Oper. Time
MOB	MOORDEMOB	Retrieved anchor no. 1, 4 and 8. Last anchor on bolster at 03:45 hrs.	4.00

Norsk Hydro

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

Well: 35/11-10
All sections

Rig: WEST VANGUARD

Depth: 2950.0 m MD

Operations	Hours	%	Hours	%	Acc. total
MOBILIZATION					
MOVING	34.5	3.31			
MOORING; RUNNING ANCHORS	15.0	1.44			
MOORING; PULLING ANCHORS	26.5	2.55			
Sum			76.0	7.30	76.0
DRILLING					
BHA HANDLING/TESTING	53.5	5.14			
TRIPPING IN CASED HOLE	24.5	2.35			
TRIPPING IN OPEN HOLE	35.0	3.36			
DRILLING	88.0	8.45			
WELLHEAD EQUIPMENT INSTALLATIO	4.5	0.43			
OTHER	38.0	3.65			
CIRC. AND COND. MUD/HOLE	19.5	1.87			
CASING HANDLING/TESTING	1.5	0.14			
RUNNING CASING IN OPEN HOLE	18.0	1.73			
DRILLING OUT OF CASING	2.0	0.19			
PRIMARY CEMENTING	7.0	0.67			
TRIPPING FOR CEMENT JOB	4.5	0.43			
FORMATION STRENGTH TESTING	0.5	0.05			
BOP HANDLING	10.0	0.96			
BOP RUNNING/RETRIEVING	15.5	1.49			
BOP TESTING	1.0	0.10			
WELLHEAD EQUIPMENT HANDLING	5.5	0.53			
CONDUCTOR CLEAN OUT	3.5	0.34			
Sum			332.0	31.89	408.0
FORMATION EVALUATION MWD					
MWD HANDLING/TESTING/SURVEYING	1.5	0.14			
LOGGING WITH MWD	8.0	0.77			
Sum			9.5	0.91	417.5
FORMATION EVALUATION LOGGING					
LOGGING	14.0	1.34			
LOGGING EQUIPMENT HANDLING/TES	27.5	2.64			
FORMATION TESTER	85.5	8.21			
TRIPPING IN CASED HOLE	6.0	0.58			
VERTICAL SEISMIC	9.0	0.86			
TRIPPING IN OPEN HOLE	11.0	1.06			
OTHER	6.0	0.58			
WIPER TRIP	13.5	1.30			
Sum			172.5	16.57	590.0
FORMATION EVALUATION CORING					
CIRCULATING FOR SAMPLE	0.5	0.05			
BHA HANDLING/TESTING	21.5	2.07			
TRIPPING IN CASED HOLE	26.5	2.55			
CORING EQUIPMENT/CORE HANDLING	32.5	3.12			
TRIPPING IN OPEN HOLE	42.5	4.08			
OTHER	1.0	0.10			
CORING	10.5	1.01			
CIRC. AND COND. MUD/HOLE	11.0	1.06			
SLIP AND CUT DRILLING LINE	2.0	0.19			
Sum			148.0	14.22	738.0

Norsk Hydro

TIME DISTRIBUTION

Well: 35/11-10 | Rig: WEST VANGUARD | Depth: 2950.0 m MD

All sections

Operations	Hours	%	Hours	%	Acc. total
PLUG AND ABANDONMENT					
BHA HANDLING/TESTING	2.0	0.19			
TRIPPING IN CASED HOLE	5.5	0.53			
TRIPPING IN OPEN HOLE	8.5	0.82			
OTHER	1.5	0.14			
CIRC. AND COND. MUD/HOLE	2.0	0.19			
TRIPPING FOR CEMENT JOB	20.0	1.92			
BOP HANDLING	10.5	1.01			
BOP RUNNING/RETRIEVING	8.5	0.82			
BOP TESTING	8.0	0.77			
WELLHEAD EQUIPMENT HANDLING	2.5	0.24			
SET CEMENT PLUG	15.0	1.44			
SET MECHANICAL PLUG	3.5	0.34			
CUT CASING/WELLHEAD	8.5	0.82			
Sum			96.0	9.22	834.0
DOWNTIME DRILLING					
EQUIPMENT FAILURE AND REPAIR	39.5	3.79			
WAITING	36.0	3.46			
Sum			75.5	7.25	909.5
DOWNTIME FORM. EVAL. MWD					
OTHER	3.0	0.29			
Sum			3.0	0.29	912.5
DOWNTIME FORM. EVAL. LOGGING					
EQUIPMENT FAILURE AND REPAIR	31.0	2.98			
STICKING/GOING STUCK WITH EQUI	5.0	0.48			
FISHING	34.5	3.31			
OTHER	10.0	0.96			
Sum			80.5	7.73	993.0
DOWNTIME FORM. EVAL. CORING					
EQUIPMENT FAILURE AND REPAIR	1.5	0.14			
Sum			1.5	0.14	994.5
DOWNTIME PLUG AND ABANDONMENT					
EQUIPMENT FAILURE AND REPAIR	46.5	4.47			
Sum			46.5	4.47	1041.0

Reported time (100.0 % of well total 1041.0 hours) : 1041.0

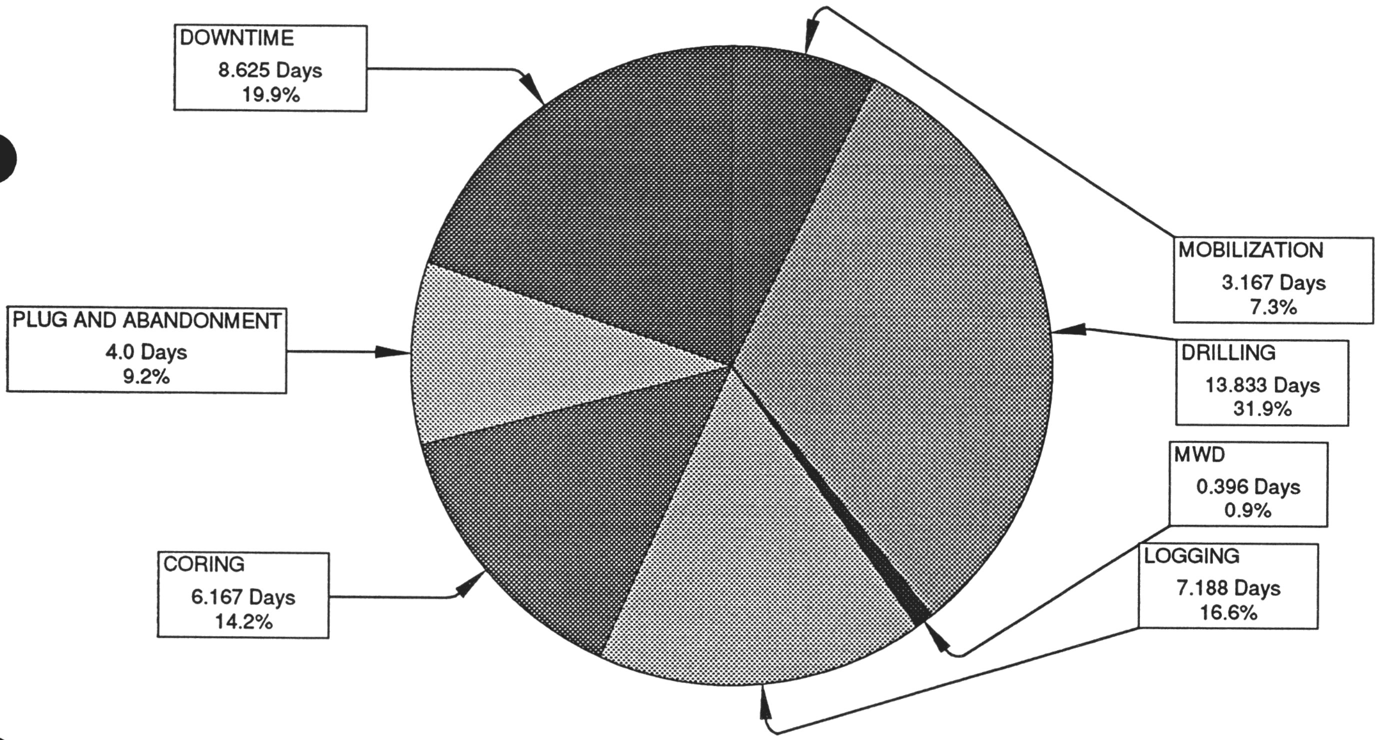


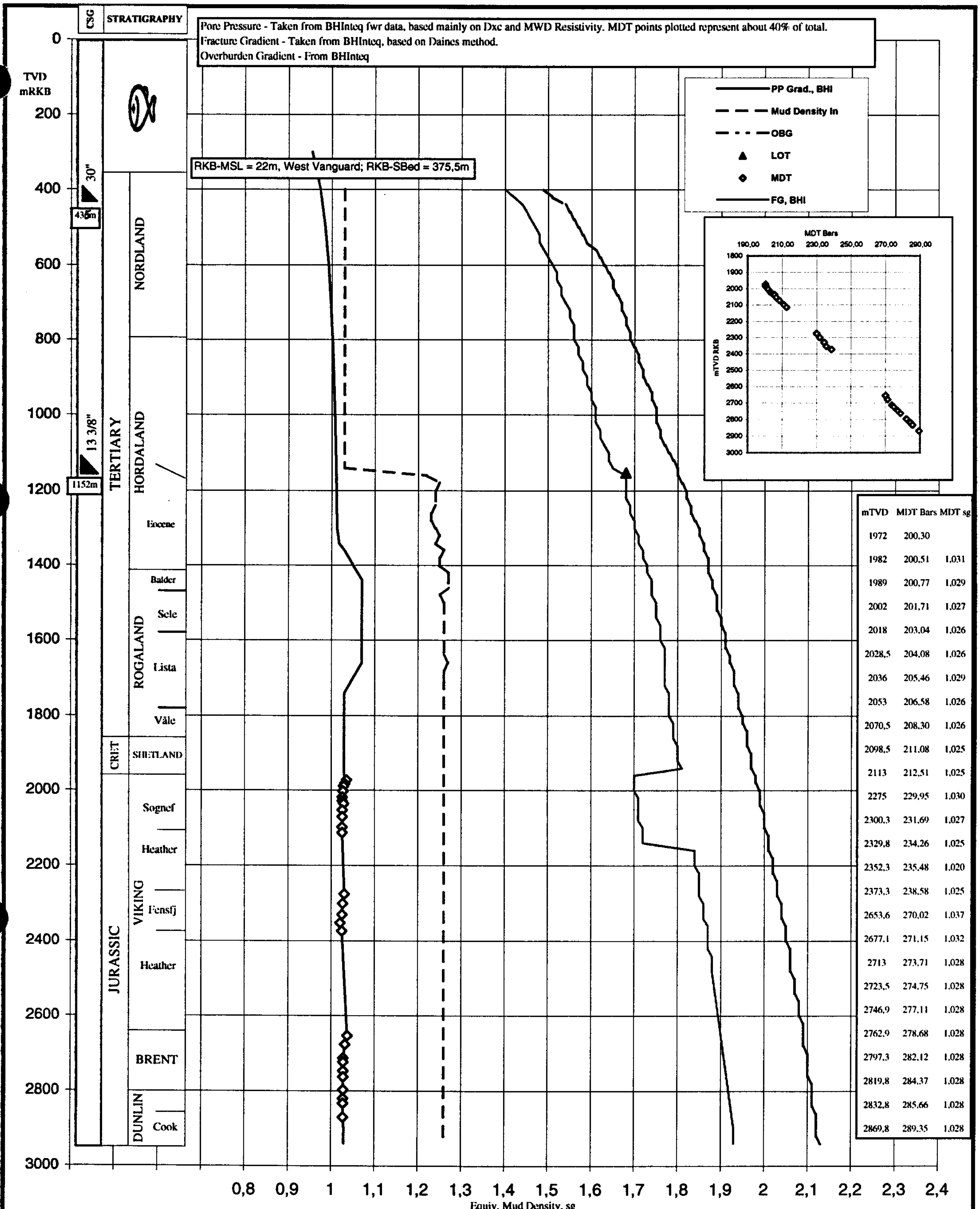
Figure B-2		Time Distribution Well: 35/11-10	HYDRO

Norsk Hydro

H O L E   D E V I A T I O N

Well : 35/11-10 Reference Point : RKB , 22.0 m above MSL
Waterdepth: 353.5 m Vertical to 375.4 m
UTM zone : 31 Central Meredian: 3' E Horizontal Datum: ED50
Template Centre Coordinates, UTM: North: 0.0 m, East: 0.0 m
Wellhead Coordinates, UTM: North: 6765243.5 m, East: 528323.1 m
Official surveys : Y Track :
Coordinates are measured from the wellhead centre.

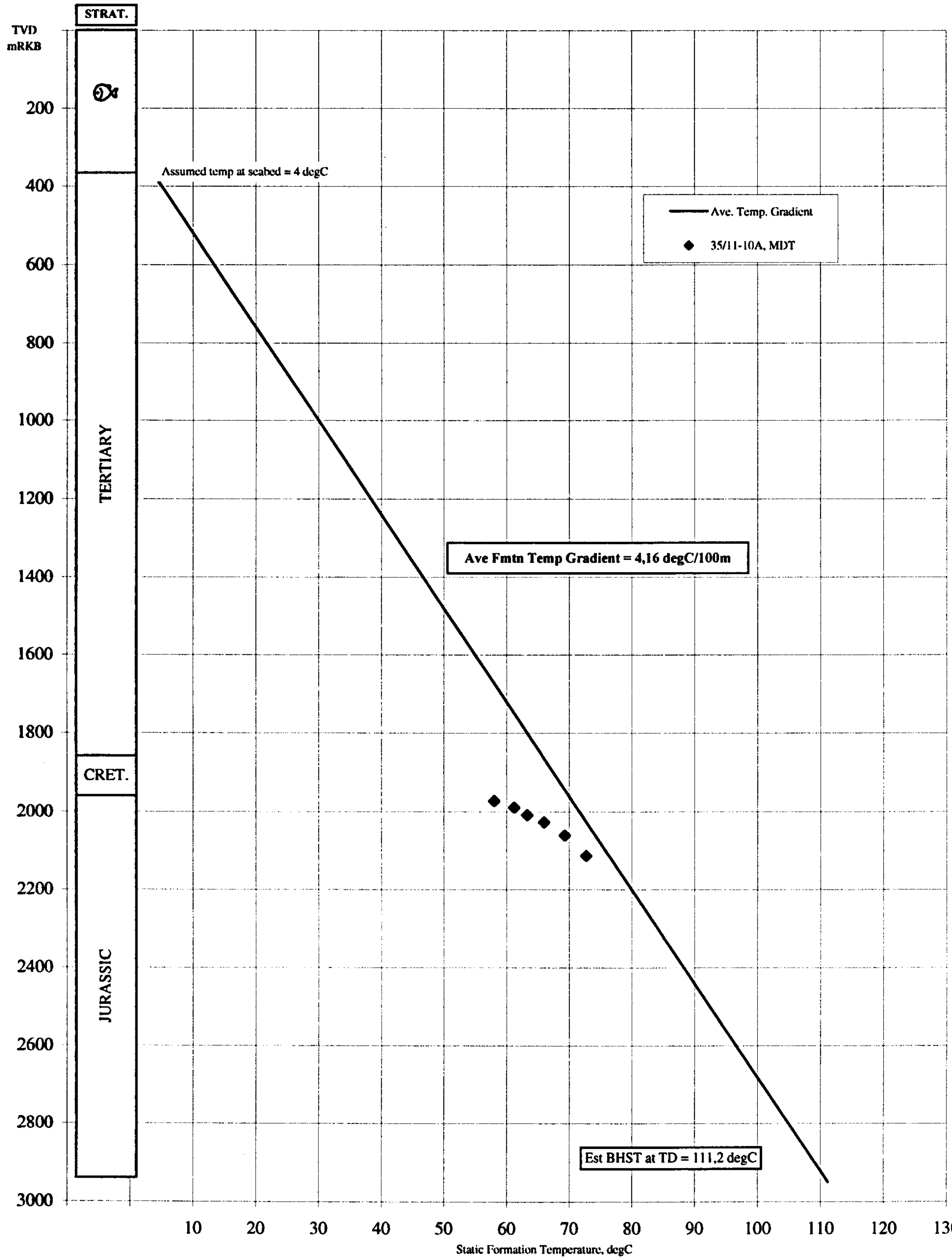
Depth MD [m]	Inclination [Deg]	Direction [Deg]	Tool Type	#	Depth TVD [m]	Coordinates North [m]	Coordinates East [m]	Vert. Sect. [m]	Dogleg D/30m	Build D/30m	Turn D/30m
377.0	0.20	188.20	MWD		377.0	-0.61	-0.09	0.6	0.02	0.02	-14.52
386.0	0.40	266.50	MWD		386.0	-0.63	-0.12	0.6	1.36	0.67	261.00
397.0	0.60	271.50	MWD		397.0	-0.63	-0.22	0.7	0.56	0.55	13.64
406.0	0.90	244.10	MWD		406.0	-0.66	-0.33	0.7	1.53	1.00	-91.33
416.0	0.80	219.40	MWD		416.0	-0.75	-0.44	0.9	1.13	-0.30	-74.10
422.0	0.60	195.70	MWD		422.0	-0.81	-0.48	0.9	1.74	-1.00	-118.5
429.0	0.40	264.30	MWD		429.0	-0.85	-0.51	1.0	2.52	-0.86	294.00
457.0	0.70	262.80	MWD		457.0	-0.88	-0.78	1.2	0.32	0.32	-1.61
486.0	0.50	305.90	MWD		486.0	-0.83	-1.06	1.3	0.49	-0.21	44.59
545.0	0.40	293.70	MWD		545.0	-0.60	-1.46	1.6	0.07	-0.05	-6.20
661.0	0.60	348.10	MWD		661.0	0.16	-1.95	2.0	0.13	0.05	14.07
748.0	1.10	337.60	MWD		748.0	1.38	-2.36	2.7	0.18	0.17	-3.62
835.0	0.30	120.90	MWD		835.0	2.03	-2.49	3.2	0.47	-0.28	49.41
923.0	0.70	291.70	MWD		923.0	2.12	-2.79	3.5	0.34	0.14	58.23
1010.0	0.70	293.00	MWD		1010.0	2.52	-3.77	4.5	0.01	0.00	0.45
1097.0	0.90	281.60	MWD		1097.0	2.86	-4.93	5.7	0.09	0.07	-3.93
1140.0	0.90	281.80	MWD		1140.0	3.00	-5.59	6.3	0.00	0.00	0.14
1162.0	0.60	272.20	MWD		1161.9	3.04	-5.87	6.6	0.44	-0.41	-13.09
1191.0	0.70	275.40	MWD		1190.9	3.06	-6.20	6.9	0.11	0.10	3.31
1279.0	0.70	279.70	MWD		1278.9	3.20	-7.27	7.9	0.02	0.00	1.47
1366.0	0.70	272.90	MWD		1365.9	3.32	-8.32	9.0	0.03	0.00	-2.34
1453.0	0.80	271.60	MWD		1452.9	3.37	-9.46	10.0	0.03	0.03	-0.45
1540.0	0.80	263.20	MWD		1539.9	3.31	-10.67	11.2	0.04	0.00	-2.90
1628.0	0.70	246.60	MWD		1627.9	3.02	-11.77	12.2	0.08	-0.03	-5.66
1715.0	0.80	237.90	MWD		1714.9	2.49	-12.78	13.0	0.05	0.03	-3.00
1801.0	0.50	264.50	MWD		1800.9	2.14	-13.66	13.8	0.15	-0.10	9.28
1887.0	0.70	215.70	MWD		1886.9	1.67	-14.34	14.4	0.18	0.07	-17.02
1965.0	1.20	230.50	MWD		1964.9	0.77	-15.25	15.3	0.21	0.19	5.69
2032.0	1.40	239.60	MWD		2031.9	-0.09	-16.49	16.5	0.13	0.09	4.07
2119.0	1.40	211.30	MWD		2118.8	-1.54	-17.96	18.0	0.24	0.00	-9.76
2207.0	1.10	234.60	MWD		2206.8	-2.95	-19.21	19.4	0.20	-0.10	7.94
2257.0	0.90	264.60	MWD		2256.8	-3.26	-19.99	20.3	0.33	-0.12	18.00
2306.0	1.20	280.70	MWD		2305.8	-3.20	-20.88	21.1	0.26	0.18	9.86
2353.0	1.10	287.40	MWD		2352.8	-2.98	-21.79	22.0	0.11	-0.06	4.28
2439.0	1.00	289.50	MWD		2438.8	-2.48	-23.29	23.4	0.04	-0.03	0.73
2526.0	1.70	279.90	MWD		2525.8	-2.01	-25.28	25.4	0.25	0.24	-3.31
2613.0	3.10	290.00	MWD		2612.7	-0.98	-28.76	28.8	0.50	0.48	3.48
2665.0	3.50	290.10	MWD		2664.6	0.05	-31.57	31.6	0.23	0.23	0.06
2786.0	4.20	291.70	MWD		2785.3	2.96	-39.15	39.3	0.18	0.17	0.40
2874.0	5.10	286.10	MWD		2873.0	5.23	-45.91	46.2	0.34	0.31	-1.91
2942.0	4.40	284.00	MWD		2940.8	6.70	-51.34	51.8	0.32	-0.31	-0.93



mTVD	MDT Bars	MDT sg
1972	200,30	
1982	200,51	1,031
1989	200,77	1,029
2002	201,71	1,027
2018	203,04	1,026
2028,5	204,08	1,026
2036	205,46	1,029
2053	206,58	1,026
2070,5	208,30	1,026
2098,5	211,08	1,025
2113	212,51	1,025
2275	229,95	1,030
2300,3	231,69	1,027
2329,8	234,26	1,025
2352,3	235,48	1,020
2373,3	238,58	1,025
2653,6	270,02	1,037
2677,1	271,15	1,032
2713	273,71	1,028
2723,5	274,75	1,028
2746,9	277,11	1,028
2762,9	278,68	1,028
2797,3	282,12	1,028
2819,8	284,37	1,028
2832,8	285,66	1,028
2869,8	289,35	1,028

Final Well Report 35/11-10	**Figure: 5.10**	**Final pore pressure, mud density, fracture- and overburden gradients**

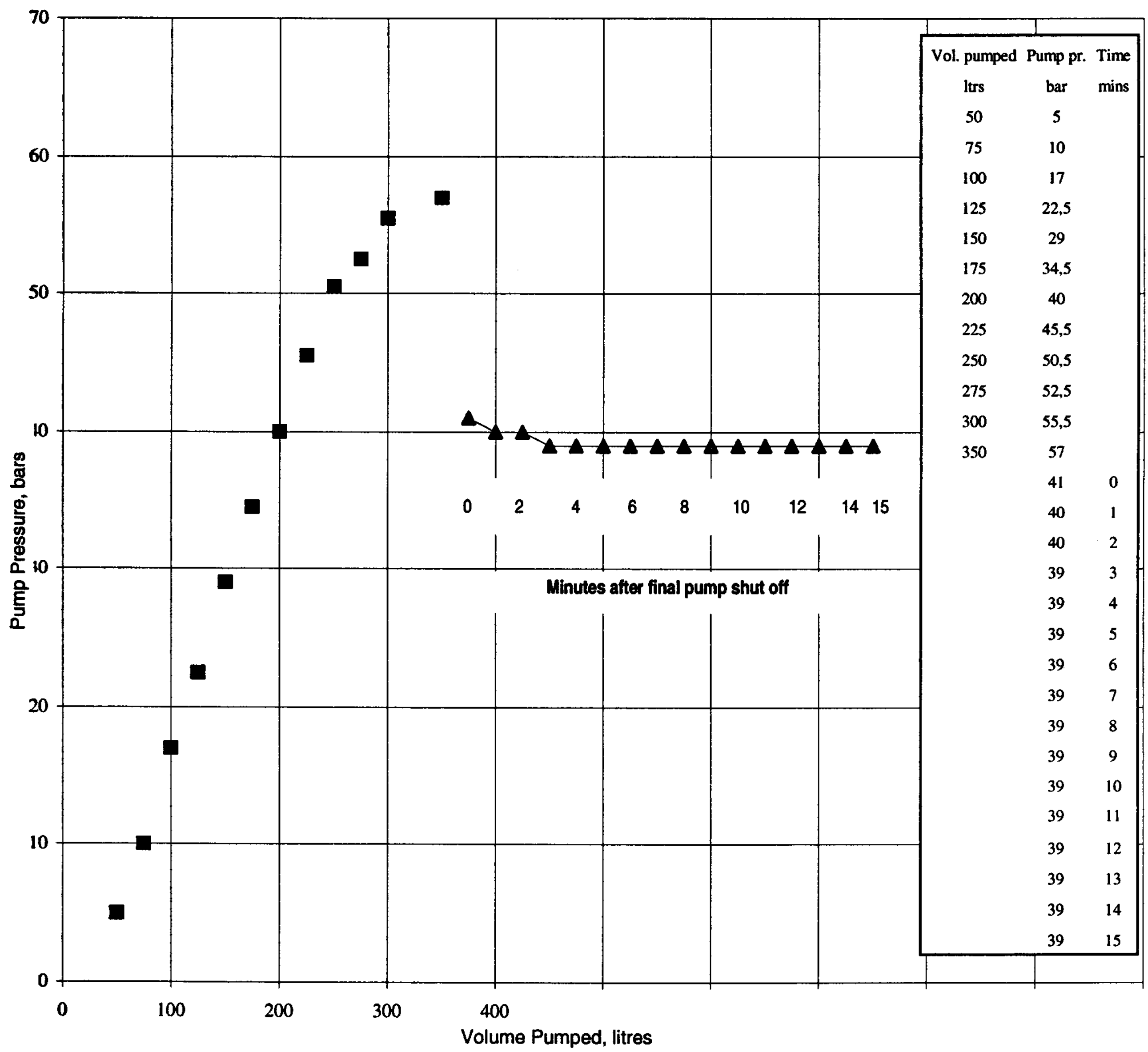
HYDRO



Final Well Report 35/11-10		Final Formation Temperature Gradient

efd/1997-12-16/11:31:...\351110T.xls

Well	35/11-10	Test type - ELOT/LOT/FIT	LOT	Date of test	29.05.97
Rig	West Vanguard	Water depth (m)	Csg OD (in) 13 3/8"	Hole angle (deg)	0,9
Csg Shoe (mMD/mTVD)	1152/1152	OH depth, (mMD/mTVD)	1161/1161	Lithology	Siltstone
Mud Properties	Dens (sg) 1,25	API WL (g/cc) 2,6	PV (cp) 23	YP (Pa) 9	Gels (Pa) 3/6
Pump Rate (l/min)	50	Vol pumped (l.)	350	Vol bled back (l.)	320
Leakoff Pressure (bar)	49	Max pressure (bar)	57	Propagation press. (bar)	39
Test result (sg EMD)	**1,68**	Comments			



Vol. pumped ltrs	Pump pr. bar	Time mins
50	5	
75	10	
100	17	
125	22,5	
150	29	
175	34,5	
200	40	
225	45,5	
250	50,5	
275	52,5	
300	55,5	
350	57	
	41	0
	40	1
	40	2
	39	3
	39	4
	39	5
	39	6
	39	7
	39	8
	39	9
	39	10
	39	11
	39	12
	39	13
	39	14
	39	15

Final Well Report 35/11-10	Fig.: a	Formation Strength Test Report

HYDRO

Norsk Hydro

MAIN CONSUMPTION OF CASING/TUBING ON WELL 35/11-10

Size	Casing string	Grade	Weight [kg/m]	Weight [lb/ft]	Threads type	Length [m]	No. of joints	Cost of str. in hole	Total cost of string
13 3/8"	SURFACE	N-80	101.19	68.00	BUTTRESS	780.0	63		

Norsk Hydro

TOTAL CONSUMPTION OF CEMENT ADDITIVES
ON WELL 35/11-10

Section	Cement/ Additive	Unit	Total Amount Used	Cost [kNOK]
36"	API CLASS G	MT	43.0	
	CaCl2C	l	1510.0	
	ECONO	l	549.0	
	NF-5	l	30.0	
17 1/2"	API CLASS G	MT	124.0	
	A.520	l	3731.0	
	HR-4L	l	2444.0	
	NF-5	l	90.0	
12 1/4"	API CLASS G	MT	45.0	
	CFR-3L	l	370.0	
	HR-4L	l	366.0	
8 1/2"	API CLASS G	MT	50.0	
	CFR-3L	l	1350.0	
	GASCON	l	2800.0	
	HAL600	l	2738.0	
	SCR100	kg	1150.0	

Norsk Hydro

CEMENT/ADDITIVE CONSUMPTION PER JOB ON WELL 35/11-10

Date	CsgSize	Jobtype	Cement/ Additive	Description	Unit	Amount Planned Used	Amount Actual Used	Difference Amount	Difference %	Difference Cost [kNOK]
21-may-1997	30"	CASING CEMENTING	API CLASS G	API CLASS G	MT		43			
			CaCl2C	CaCl2 / ACCELERATOR: CALCIUM C	l		1510			
			ECONO	EXTENDER: ECONOLITE	l		549			
			NF-5	NF-5	l		30			
26-may-1997	13 3/8"	CASING CEMENTING	API CLASS G	API CLASS G	MT		106			
			A.520	EXTENDER: SODIUM SILICATE	l		3731			
			HR-4L	RETARDER: HR-4L, LIQUID	l		2244			
			NF-5	NF-5	l		90			
21-jun-1997	UNDEFIN	PLUG IN OPEN HOL	API CLASS G	API CLASS G	MT		12			
			CFR-3L	DISPERSANT: CFR-3 LIQUID	l		228			
			GASCON	EDP-C469-91	l		513			
			HAL600	FLUID LOSS ADDITIVE: HALAD-600	l		513			
			SCR100	RETARDER: SCR-100	kg		205			
21-jun-1997	UNDEFIN	PLUG IN OPEN HOL	API CLASS G	API CLASS G	MT		13			
			CFR-3L	DISPERSANT: CFR-3 LIQUID	l		267			
			GASCON	EDP-C469-91	l		602			
			HAL600	FLUID LOSS ADDITIVE: HALAD-600	l		602			
			SCR100	RETARDER: SCR-100	kg		241			
21-jun-1997	UNDEFIN	PLUG IN OPEN HOL	API CLASS G	API CLASS G	MT		12			
			CFR-3L	DISPERSANT: CFR-3 LIQUID	l		244			
			GASCON	EDP-C469-91	l		548			
			HAL600	FLUID LOSS ADDITIVE: HALAD-600	l		548			
			SCR100	RETARDER: SCR-100	kg		219			
22-jun-1997	UNDEFIN	PLUG IN OPEN HOL	API CLASS G	API CLASS G	MT		13			
			CFR-3L	DISPERSANT: CFR-3 LIQUID	l		611			
			GASCON	EDP-C469-91	l		1137			
			HAL600	FLUID LOSS ADDITIVE: HALAD-600	l		1075			
			SCR100	RETARDER: SCR-100	kg		485			
23-jun-1997	UNDEFIN	PLUG IN OPEN HOL	API CLASS G	API CLASS G	MT		45			
			CFR-3L	DISPERSANT: CFR-3 LIQUID	l		370			
			HR-4L	RETARDER: HR-4L, LIQUID	l		366			
10-jul-1997	13 3/8"	PLUG IN CASED HO	API CLASS G	API CLASS G	MT		18			
			HR-4L	RETARDER: HR-4L, LIQUID	l		200			

BITRECORD FOR WELL 35/11-10

Bit No	Bit RR	Bit Type	Size (in)	Manufacturer	Tradename	Serial no.	IADC code	Nozzles diameter (../32in)						Flow area (in2)	BHA no.	Depth out (m MD)	Bit meter (m)	Rot. hours (hrs)	ROP (m/hr)	Rotation min/max (rpm)	Total bit revol.	Weight min/max (kN)	Flow min/max (l/min)	Pump min/max (bar)	Bit grading: Cutting structur I	O	DC	L	B	Gauge 1/16 (in)	Remarks oth	pul
1		ISRT	17.500	HTC	MAX-GTPT03	P70CW	415			16	18	20	20	1.058	1	438	62	2.80	22.3	70/136	22000	10/140	3000/4400	85/150	1	1	WT	A	E	I	NO	TD
1		HO	36.000	SMIT		46419		20	20	20	20	20	20	1.841	1	438	62	2.80	22.3	70/136	0	10/140	3000/4400	85/150	3	4	WT	A	E	I	NO	
2		MITO	24.000	SDBS	SS33SG	693813	115M			20	20	20	20	1.227	2	438	5	3.40	1.5	50/50	6630	10/50	2280/4460	40/90	1	1	NO	G	1	1	NO	TD
3		MITO	8.500	SDBS	SS44G	652255	135M				14	18	18	0.647	3	871	433	10.40	41.6	85/121	71700	10/150	2045/2407	105/176	8	8	WT	A	E	3	NO	TD
4		CORE	8.500	SDBS	CD 73 FDIL	7930219	O896								4	880	9	0.10	90.0	108/110	769	60/79	708/858	53/62	1	1	NO	A	0	1	NO	TD
5		MITO	8.500	SDBS	SS44G	648205	135M				14	14	18	0.549	5	930	50	0.80	62.5	110/123	7900	10/90	2500/2600	175/183	1	1	NO	A	0	1	NO	TD
1	1	ISRT	17.500	HTC	MAX-GTPT03	P70CW	415			18	20	20	24	1.304	6	1158	721	7.80	92.4	152/220	61000	0/160	2600/4311	147/192	1	1	NO	A	0	2	NO	TD
6		ISRT	12.250	HTC	G535ZGU	1208505		14	14	14	14	16	16	0.994	7	1906	748	10.80	69.3	200/290	173530	0/110	2700/4066	110/270	1	3	BT	S	X	1	JD	BHA
7		PDC	8.500	HTC	G445XLA3	1209961	M332			13	13	13	13	0.518	8	1975	69	2.90	23.8	95/180	25250	10/90	1800/2500	205/295	1	0	ER	N	X	I	NO	CP
8		CORE	8.500	SDBS	CD 93 FDIL	7970188	O896							0.700	9	2008	33	1.20	27.5	80/125	8535	30/90	857/884	47/57	1	1	NO	A	X	I	NO	CJ
8	1	CORE	8.500	SDBS	CD 93 FDIL	7970188	O896							0.700	10	2041	33	1.10	30.0	110/125	7625	40/90	884/911	50/60	1	1	NO	A	X	I	NO	CJ
8	2	CORE	8.500	SDBS	CD 93 FDIL	7970188	O896							0.700	11	2078	37	0.80	46.2	95/125	5340	40/70	435/911	25/50	1	1	NO	A	X	I	NO	NC
7	1	PDC	8.500	HTC	G445XLA3	1209961	M332								12	2078	0		0.0	/		/	/	/								
7	2	PDC	8.500	HTC	G445XLA3	1209961	M332			13	13	13	13	0.518	13	2267	189	5.60	33.8	125/180	54960	5/80	2420/2543	200/220	1	1	ER	N	X	I	NO	LOG
8	3	CORE	8.500	SDBS	CD 93 FDIL	7970188	O896							0.700	14	2296	29	0.90	32.2	60/125		40/80	965/965	47/52	1	1	NO	A	X	I	NO	LOG
8	4	CORE	8.500	SDBS	CD 93 FDIL	7970188	O896							0.700	15	2315	19	0.60	31.7	60/125	4300	60/120	884/952	42/52	1	1	NO	A	X	I	NO	CJ
7	3	PDC	8.500	HTC	G445XLA3	1209961	M332			13	13	13	13	0.518	16	2675	360	15.50	23.2	100/180	153300	10/90	2176/2584	160/235	6	4	LT	N	X	I	ER	CP
8	5	CORE	8.500	SDBS	CD 93 FDIL	7970188	O896							0.700	17	2723	48	1.30	36.9	85/125	93000	50/90	870/900	55/60	4	2	BT	S	X	1	CT	NC
8		CORE	8.500	SDBS	CD 193RFDIL	7970187								0.700	18	2770	47	1.30	36.2	64/66	9600	30/80	870/900	50/57	1	1	NO	A	X	I	NO	BHA
9		PDC	8.500	HTC	G445XL	1901386	M332			13	13	13	13	0.518	19	2950	180	5.20	34.6	142/181	89500	20/100	2280/2650	203/256	2	1	BT	N	X	I	ER	TD
5	1	MITO	8.500	SDBS	SS44G	648205	135M								20	2950	0		0.0	/		/	/	/								

Norsk Hydro

BOTTOM HOLE ASSEMBLIES USED ON WELL 35/11-10

BHA no. 1: No./Element/OD(in)/Length(m) Depth In: 376 m MD Out: 438 m MD

1	MAX-GTPT03	17.500	0.46	8	DRILL COLLAR STEEL	8.000	46.17
2	HOLE OPENER	36.000	2.80	9	JAR	8.500	9.70
3	BIT SUB	9.500	1.74	10	DRILL COLLAR STEEL	8.000	18.57
4	MWD	9.500	14.31	11	X-OVER	7.875	1.59
5	NON MAG. COLLAR	9.500	8.55	12	HWDP	5.500	137.01
6	DRILL COLLAR STEEL	9.500	27.34	13	X-OVER	5.500	0.81
7	X-OVER	9.500	0.91				

Reason Pulled: TOTAL DEPTH/CASING DEPTH Sum: 269.96

BHA no. 2: No./Element/OD(in)/Length(m) Depth In: 433 m MD Out: 438 m MD

1	SS33SG	24.000	0.58	6	JAR	8.500	9.70
2	BIT SUB	9.375	1.76	7	DRILL COLLAR STEEL	8.000	9.30
3	DRILL COLLAR STEEL	9.500	18.23	8	X-OVER	8.000	0.80
4	X-OVER	9.500	0.91	9	DRILL PIPE	5.500	
5	DRILL COLLAR STEEL	8.000	46.20				

Reason Pulled: TOTAL DEPTH/CASING DEPTH Sum:

BHA no. 3: No./Element/OD(in)/Length(m) Depth In: 438 m MD Out: 871 m MD

1	SS44G	8.500	0.24	9	X-OVER	6.440	1.69
2	BIT SUB	6.500	0.92	10	JAR	6.500	9.93
3	PIN-PIN SUB	6.750	0.50	11	X-OVER	6.500	1.38
4	MWD	6.750	15.92	12	DRILL COLLAR STEEL	6.750	18.61
5	NON MAG. STAB	8.500	2.13	13	X-OVER	6.440	1.70
6	NON MAG. COLLAR	6.500	9.10	14	HWDP	5.000	82.14
7	X-OVER	6.500	0.83	15	DRILL PIPE	5.000	202.81
8	DRILL COLLAR STEEL	6.750	83.31	16	X-OVER	5.500	0.80

Reason Pulled: TOTAL DEPTH/CASING DEPTH Sum: 432.01

BHA no. 4: No./Element/OD(in)/Length(m) Depth In: 871 m MD Out: 880 m MD

1	CD 73 FDIL	8.500	0.36	10	X-OVER	6.500	1.38
2	X-OVER	6.500	0.83	11	DRILL COLLAR STEEL	6.500	18.61
3	DRILL COLLAR STEEL	6.750	18.53	12	X-OVER	6.500	1.70
4	X-OVER	6.440	0.49	13	HWDP	5.000	82.14
5	STEEL STAB	8.500	1.70	14	DRILL PIPE	5.000	260.88
6	X-OVER	6.500	0.56	15	X-OVER	7.250	0.81
7	DRILL COLLAR STEEL	6.750	64.78	16	DRILL COLLAR STEEL	6.750	18.61
8	X-OVER	6.440	1.69	17	X-OVER	5.500	0.80
9	JAR	6.500	9.93	18	X-OVER	6.440	1.70

Reason Pulled: TOTAL DEPTH/CASING DEPTH Sum: 485.50

BHA no. 5: No./Element/OD(in)/Length(m) Depth In: 880 m MD Out: 930 m MD

1	SS44G	8.500	0.24	9	X-OVER	6.440	1.69
2	BIT SUB	6.500	0.92	10	JAR	6.500	9.93
3	PIN-PIN SUB	6.750	0.50	11	X-OVER	6.500	1.38
4	MWD	6.750	15.92	12	DRILL COLLAR STEEL	6.750	18.61
5	NON MAG. STAB	8.500	2.13	13	X-OVER	6.440	1.70
6	NON MAG. COLLAR	6.500	9.10	14	HWDP	5.000	82.14
7	X-OVER	6.500	0.83	15	DRILL PIPE	5.000	291.29
8	DRILL COLLAR STEEL	6.750	83.31	16	X-OVER	7.250	0.81

Reason Pulled: TOTAL DEPTH/CASING DEPTH Sum: 520.50

BOTTOM HOLE ASSEMBLIES USED ON WELL 35/11-10

BHA no. 6: No./Element/OD(in)/Length(m) Depth In: 437 m MD Out: 1158 m MD

1	MAX-GTPT03	17.500	0.46	9	X-OVER	9.500	1.31
2	DOWNHOLE MOTOR	11.250	9.23	10	DRILL COLLAR STEEL	8.000	27.69
3	NON MAG. STAB	17.500	2.45	11	JAR	8.500	9.70
4	PIN-PIN SUB	9.500	0.99	12	DRILL COLLAR STEEL	8.000	18.57
5	MWD	9.500	12.24	13	X-OVER	7.875	1.59
6	SAVER SUB	9.500	1.08	14	HWDP	5.000	137.01
7	STEEL STAB	17.250	2.42	15	X-OVER	7.250	0.81
8	NON MAG. COLLAR	9.500	16.40				

Reason Pulled: TOTAL DEPTH/CASING DEPTH Sum: 241.95

BHA no. 7: No./Element/OD(in)/Length(m) Depth In: 1158 m MD Out: 1906 m MD

1	G535ZGU	12.250	0.40	9	DRILL COLLAR STEEL	8.000	36.95
2	DOWNHOLE MOTOR	9.500	11.02	10	JAR	8.000	9.70
3	STEEL STAB	8.000	1.79	11	DRILL COLLAR STEEL	8.000	18.57
4	PIN-PIN SUB	8.000	0.49	12	X-OVER	7.880	1.59
5	MWD	12.270		13	HWDP	6.630	137.01
6	SAVER SUB	8.250	0.61	14	DRILL PIPE	6.630	521.75
7	NON MAG. STAB	7.810	0.85	15	X-OVER	7.250	0.81
8	NON MAG. COLLAR	7.810	17.66				

Reason Pulled: CHANGE BOTTOMHOLE ASSEMBLY Sum:

BHA no. 8: No./Element/OD(in)/Length(m) Depth In: 1906 m MD Out: 1975 m MD

1	G445XLA3	8.500	0.31	10	X-OVER	6.880	0.49
2	BIT SUB	6.500	0.92	11	JAR	6.500	9.92
3	PIN-PIN SUB	6.750	0.50	12	X-OVER	6.500	0.83
4	MWD	6.630	15.26	13	DRILL COLLAR STEEL	6.500	18.54
5	NON MAG. STAB	8.500	2.13	14	X-OVER	6.750	1.70
6	NON MAG. COLLAR	6.500	9.10	15	HWDP	5.000	137.01
7	STEEL STAB	8.500	1.70	16	DRILL PIPE	5.000	521.75
8	X-OVER	6.500	0.56	17	X-OVER	7.250	0.31
9	DRILL COLLAR STEEL	6.500	101.73				

Reason Pulled: CORE POINT Sum: 822.76

BHA no. 9: No./Element/OD(in)/Length(m) Depth In: 1975 m MD Out: 2008 m MD

1	CD 93 FDIL	8.500	0.36	11	X-OVER	6.500	0.83
2	CORE BARREL	6.750	48.40	12	DRILL COLLAR STEEL	6.500	18.54
3	X-OVER	6.500	0.56	13	X-OVER	6.440	1.70
4	DRILL COLLAR STEEL	6.500	18.47	14	PIN-PIN SUB	7.750	0.48
5	X-OVER	6.380	1.38	15	BIT SUB	8.000	1.17
6	STEEL STAB	8.380	1.87	16	X-OVER	8.000	1.57
7	X-OVER	6.380	1.62	17	HWDP	5.000	137.01
8	DRILL COLLAR STEEL	6.500	83.31	18	DRILL PIPE	5.000	521.75
9	X-OVER	6.380	0.49	19	X-OVER	7.250	0.81
10	JAR	6.500	9.92				

Reason Pulled: CORE JAMMED Sum: 850.24

Norsk Hydro

BOTTOM HOLE ASSEMBLIES USED ON WELL 35/11-10

BHA no. 10: No./Element/OD(in)/Length(m) Depth In: 2008 m MD Out: 2041 m MD

No.	Element	OD(in)	Length(m)	No.	Element	OD(in)	Length(m)
1	CD 93 FDIL	8.500	0.36	11	X-OVER	6.500	0.83
2	CORE BARREL	6.750	39.25	12	DRILL COLLAR STEEL	6.500	18.54
3	X-OVER	6.500	0.56	13	X-OVER	6.440	1.70
4	DRILL COLLAR STEEL	6.500	18.47	14	PIN-PIN SUB	7.750	0.48
5	X-OVER	6.380	1.38	15	BIT SUB	8.000	1.17
6	STEEL STAB	8.380	1.87	16	X-OVER	8.000	1.57
7	X-OVER	6.380	1.62	17	HWDP	5.000	137.01
8	DRILL COLLAR STEEL	6.500	83.31	18	DRILL PIPE	5.000	521.75
9	X-OVER	6.380	0.49	19	X-OVER	7.250	0.81
10	JAR	6.500	9.92				

Reason Pulled: CORE JAMMED Sum: 841.09

BHA no. 11: Depth In: 2041 m MD Out: 2078 m MD; same elements as in BHA no. 10
Except Bit, here SDBS, CD 93 FDIL (Length 0.36 m)
Reason Pulled: NEW CORE/FULL BARREL

BHA no. 12: No./Element/OD(in)/Length(m) Depth In: 2078 m MD Out: 2078 m MD

No.	Element	OD(in)	Length(m)	No.	Element	OD(in)	Length(m)
1	G445XLA3	8.500	0.31	9	X-OVER	6.880	0.49
2	BIT SUB	6.500	0.92	10	JAR	6.500	9.92
3	PIN-PIN SUB	6.750	0.50	11	X-OVER	6.500	0.83
4	MWD	6.630	15.26	12	DRILL COLLAR STEEL	6.500	18.54
5	NON MAG. COLLAR	6.500	9.10	13	X-OVER	6.750	1.70
6	STEEL STAB	8.500	1.70	14	HWDP	5.000	137.01
7	X-OVER	6.500	0.56	15	DRILL PIPE	5.000	521.75
8	DRILL COLLAR STEEL	6.500	101.73	16	X-OVER	7.250	0.81

Reason Pulled: Sum: 821.13

BHA no. 13: No./Element/OD(in)/Length(m) Depth In: 2078 m MD Out: 2267 m MD

No.	Element	OD(in)	Length(m)	No.	Element	OD(in)	Length(m)
1	G445XLA3	8.500	0.31	9	X-OVER	6.880	0.49
2	BIT SUB	6.500	0.92	10	JAR	6.500	9.92
3	PIN-PIN SUB	6.750	0.50	11	X-OVER	6.500	0.83
4	MWD	6.630	15.26	12	DRILL COLLAR STEEL	6.500	18.54
5	NON MAG. COLLAR	6.500	9.10	13	X-OVER	6.750	1.70
6	STEEL STAB	8.500	1.70	14	HWDP	5.000	137.10
7	X-OVER	6.500	0.56	15	DRILL PIPE	5.000	521.75
8	DRILL COLLAR STEEL	6.500	101.73	16	X-OVER	7.250	0.31

Reason Pulled: RUN LOGS Sum: 820.72

BHA no. 14: No./Element/OD(in)/Length(m) Depth In: 2267 m MD Out: 2296 m MD

No.	Element	OD(in)	Length(m)	No.	Element	OD(in)	Length(m)
1	CD 93 FDIL	8.500	0.36	10	X-OVER	6.380	0.49
2	CORE BARREL	6.750	30.10	11	JAR	6.500	9.92
3	FLOAT SUB	6.500	0.75	12	X-OVER	6.500	0.83
4	X-OVER	6.500	0.56	13	DRILL COLLAR STEEL	6.500	18.54
5	DRILL COLLAR STEEL	6.500	18.47	14	X-OVER	6.440	1.70
6	X-OVER	6.380	1.38	15	HWDP	5.000	137.01
7	STEEL STAB	8.380	1.87	16	DRILL PIPE	5.000	521.75
8	X-OVER	6.380	1.62	17	X-OVER	7.250	0.81
9	DRILL COLLAR STEEL	6.500	83.31				

Reason Pulled: RUN LOGS Sum: 829.47

BHA no. 15: Depth In: 2296 m MD Out: 2315 m MD; same elements as in BHA no. 14
Except Bit, here SDBS, CD 93 FDIL (Length 0.36 m)
Reason Pulled: CORE JAMMED

Norsk Hydro

BOTTOM HOLE ASSEMBLIES USED ON WELL 35/11-10

BHA no. 16: No./Element/OD(in)/Length(m) Depth In: 2315 m MD Out: 2675 m MD

1	G445XLA3	8.500	0.31	9	X-OVER	6.880	0.49
2	BIT SUB	6.500	0.92	10	JAR	6.500	9.92
3	PIN-PIN SUB	6.750	0.50	11	X-OVER	6.500	0.83
4	MWD	6.630	15.26	12	DRILL COLLAR STEEL	6.500	18.54
5	NON MAG. COLLAR	6.500	9.10	13	X-OVER	6.750	1.70
6	STEEL STAB	8.500	1.70	14	HWDP	5.000	137.01
7	X-OVER	6.500	0.56	15	DRILL PIPE	5.000	666.74
8	DRILL COLLAR STEEL	6.500	101.73	16	X-OVER	7.250	0.81

Reason Pulled: CORE POINT Sum: 966.12

BHA no. 17: No./Element/OD(in)/Length(m) Depth In: 2675 m MD Out: 2723 m MD

1	CD 93 FDIL	8.500	0.36	10	X-OVER	6.380	0.49
2	CORE BARREL	6.750	48.40	11	JAR	6.500	9.92
3	FLOAT SUB	6.500	0.75	12	X-OVER	6.500	0.83
4	X-OVER	6.500	0.56	13	DRILL COLLAR STEEL	6.500	18.54
5	DRILL COLLAR STEEL	6.500	18.47	14	X-OVER	6.440	1.70
6	X-OVER	6.380	1.62	15	HWDP	5.000	137.01
7	STEEL STAB	8.380	1.87	16	DRILL PIPE	5.000	666.74
8	X-OVER	6.380	1.38	17	X-OVER	7.250	0.81
9	DRILL COLLAR STEEL	6.500	83.31				

Reason Pulled: NEW CORE/FULL BARREL Sum: 992.76

BHA no. 18: Depth In: 2723 m MD Out: 2770 m MD; same elements as in BHA no. 17
Except Bit, here SDBS, CD 193RFDIL (Length 0.36 m)
Reason Pulled: CHANGE BOTTOMHOLE ASSEMBLY

BHA no. 19: No./Element/OD(in)/Length(m) Depth In: 2770 m MD Out: 2950 m MD

1	G445XL	8.500	0.31	9	X-OVER	6.880	0.49
2	BIT SUB	6.500	0.92	10	JAR	6.500	9.92
3	PIN-PIN SUB	6.750	0.50	11	X-OVER	6.500	0.83
4	MWD	6.630	15.26	12	DRILL COLLAR STEEL	6.500	18.54
5	NON MAG. COLLAR	6.500	9.10	13	X-OVER	6.750	1.70
6	STEEL STAB	8.500	1.70	14	HWDP	5.000	137.10
7	X-OVER	6.500	0.56	15	DRILL PIPE	5.000	666.74
8	DRILL COLLAR STEEL	6.500	101.73	16	X-OVER	7.250	0.81

Reason Pulled: TOTAL DEPTH/CASING DEPTH Sum: 966.21

BHA no. 20: No./Element/OD(in)/Length(m) Depth In: 2950 m MD Out: 2950 m MD

1	SS44G	8.500	0.24	10	X-OVER	6.880	0.49
2	BIT SUB	6.500	0.92	11	JAR	6.500	9.92
3	NON MAG. COLLAR	6.500	9.10	12	X-OVER	6.500	0.83
4	X-OVER	6.375	1.37	13	DRILL COLLAR STEEL	6.500	18.54
5	DRILL COLLAR STEEL	6.500	9.15	14	X-OVER	6.750	1.70
6	X-OVER	6.375	1.62	15	HWDP	5.000	137.10
7	STEEL STAB	8.500	1.70	16	DRILL PIPE	5.000	782.71
8	X-OVER	6.500	0.56	17	X-OVER	7.250	0.81
9	DRILL COLLAR STEEL	6.500	92.58				

Reason Pulled: Sum:1069.34

BOTTOM HOLE ASSEMBLIES USED ON WELL 35/11-10

BHA no. 21: No./Element/OD(in)/Length(m) Depth In: 2335 m MD Out: 0 m MD

No.	Element	OD (in)	Length (m)	No.	Element	OD (in)	Length (m)
1	OVER SHOT	6.250	0.93	3	DRILL PIPE	5.000	782.71
2	HWDP	5.000	137.01	4	X-OVER	7.250	0.81

Reason Pulled: Sum: 921.46

TOTAL CONSUMPTION OF MUD ADDITIVES ON WELL 35/11-10

Section Size	Product/Additive	Total Amount Planned	Total Amount Used	Unit	Difference		Difference in cost	
					Amount	%	%	[kNOK]
12 1/4"	ANCO 208		6000.0	l				
	CELPOL ESL		1800.0	kg				
	FLOWZAN 71006		875.0	kg				
	KCL BRINE		112000.0	l				
	SODA ASH		100.0	kg				
8 1/2"	ANCO 208		11800.0	l				
	ANCO SUPERWASH		500.0	l				
	BARITE		72000.0	kg				
	BENTONITE		4000.0	kg				
	CELPOL ESL		4975.0	kg				
	CITRIC ACID		100.0	kg				
	FLOWZAN 71006		2900.0	kg				
	KCL		750.0	kg				
	KCL BRINE		242000.0	l				
	LIME		20.0	kg				
	SODA ASH		325.0	kg				
	SODIUM BICARBONATE		100.0	kg				
0.0	ANCO 208		9000.0	l				
	BARITE		115000.0	kg				
	CELPOL ESL		3450.0	kg				
	CMC EHV		500.0	kg				
	FLOWZAN 71006		1100.0	kg				
	KCL BRINE		148000.0	l				

Norsk Hydro

DAILY MUD PROPERTIES : RHEOLOGY PARAMETERS FOR WELL 35/11-10

Hole section: WATER BASED SYSTEM

Date	Depth [m] MD	TVD	Mud Type	Funnel Visc [sec]	Dens [sg]	Mudtmp Out [DegC]	Fann Readings 600	300	200	100	60	30	6	3	Rheo Test [DegC]	PV [mPas]	YP [Pa]	Gel0 [Pa]	Gel10 [Pa]
17-may-1997 23:00	0	0	SPUD MUD	100.0	1.05	0.0									0.0	0.0	0.0	0.0	0.0

Hole section: 36" WATER BASED SYSTEM

Date	Depth [m] MD	TVD	Mud Type	Funnel Visc [sec]	Dens [sg]	Mudtmp Out [DegC]	Fann Readings 600	300	200	100	60	30	6	3	Rheo Test [DegC]	PV [mPas]	YP [Pa]	Gel0 [Pa]	Gel10 [Pa]
18-may-1997 22:00	0	0	SPUD MUD	100.0	1.05	0.0									0.0	0.0	0.0	0.0	0.0
19-may-1997 22:00	0	0	SPUD MUD	100.0	1.05	0.0									0.0	0.0	0.0	0.0	0.0
20-may-1997 22:00	0	0	SPUD MUD	100.0	1.05	0.0									0.0	0.0	0.0	0.0	0.0
21-may-1997 22:00	0	0	SPUD MUD	100.0	1.05	0.0									0.0	0.0	0.0	0.0	0.0

Hole section: 17 1/2" WATER BASED SYSTEM

Date	Depth [m] MD	TVD	Mud Type	Funnel Visc [sec]	Dens [sg]	Mudtmp Out [DegC]	Fann Readings 600	300	200	100	60	30	6	3	Rheo Test [DegC]	PV [mPas]	YP [Pa]	Gel0 [Pa]	Gel10 [Pa]
22-may-1997 22:00	0	0	SPUD MUD	100.0	1.05	0.0									0.0	0.0	0.0	0.0	0.0
23-may-1997 22:00	0	0	SPUD MUD	100.0	1.05	0.0									0.0	0.0	0.0	0.0	0.0
24-may-1997 22:00	0	0	SPUD MUD	100.0	1.05	0.0									0.0	0.0	0.0	0.0	0.0
25-may-1997 22:00	0	0	SPUD MUD	100.0	1.05	0.0									0.0	0.0	0.0	0.0	0.0
26-may-1997 22:00	0	0	SPUD MUD	100.0	1.05	0.0									0.0	0.0	0.0	0.0	0.0
27-may-1997 22:00	0	0	SPUD MUD	100.0	1.05	0.0									0.0	0.0	0.0	0.0	0.0
28-may-1997 21:30	1152	1152	ANCO 2000	100.0	1.25	0.0	60	37	28	18			7	5	50.0	23.0	7.0	3.0	5.0

See also the report 'DAILY MUD PROPERTIES : OTHER PARAMETERS'

Norsk Hydro

DAILY MUD PROPERTIES : RHEOLOGY PARAMETERS FOR WELL 35/11-10

Hole section: 12 1/4" WATER BASED SYSTEM

Date	Depth [m] MD	Depth [m] TVD	Mud Type	Funnel Visc [sec]	Dens [sg]	Mudtmp Out [DegC]	Fann Readings 600	300	200	100	60	30	6	3	Rheo Test [DegC]	PV [mPas]	YP [Pa]	Gel0 [Pa]	Gel10 [Pa]
29-may-1997 23:00	1191	1191	ANCO 2000	100.0	1.25	0.0	64	41	30	20			8	6	50.0	23.0	9.0	3.0	6.0
30-may-1997 23:00	1906	1906	ANCO 2000	70.0	1.25	0.0	61	43	35	25			9	8	50.0	18.0	12.5	5.0	9.5

Hole section: 8 1/2" WATER BASED SYSTEM

Date	Depth [m] MD	Depth [m] TVD	Mud Type	Funnel Visc [sec]	Dens [sg]	Mudtmp Out [DegC]	Fann Readings 600	300	200	100	60	30	6	3	Rheo Test [DegC]	PV [mPas]	YP [Pa]	Gel0 [Pa]	Gel10 [Pa]
31-may-1997 18:30	1975	1975	ANCO 2000	69.0	1.25	0.0	62	43	35	25			9	8	50.0	19.0	12.0	5.0	9.0
01-jun-1997 23:30	2008	2008	ANCO 2000	68.0	1.26	0.0	63	45	37	27			11	9	50.0	18.0	14.0	5.0	10.0
02-jun-1997 18:15	2078	2078	ANCO 2000	68.0	1.26	0.0	63	45	37	27			11	9	50.0	18.0	14.0	5.0	10.0
03-jun-1997 18:15	2078	2078	ANCO 2000	68.0	1.26	0.0	63	45	37	27			11	9	50.0	18.0	14.0	5.0	10.0
04-jun-1997 20:00	2267	2267	ANCO 2000	68.0	1.26	0.0	60	41	37	27			11	9	50.0	19.0	11.0	5.0	10.0
05-jun-1997 21:00	2268	2268	ANCO 2000	66.0	1.25	0.0	60	41	36	26			11	8	50.0	19.0	11.0	5.0	10.0
06-jun-1997 22:00	2268	2268	ANCO 2000	63.0	1.25	0.0	60	41	35	26			10	7	50.0	19.0	11.0	4.5	10.0
07-jun-1997 19:00	2296	2296	ANCO 2000	63.0	1.25	0.0	60	41	35	26			10	7	50.0	19.0	11.0	4.5	10.0
08-jun-1997 21:15	2362	2362	ANCO 2000	62.0	1.25	0.0	60	41	34	26			10	8	50.0	19.0	11.0	4.5	10.0
09-jun-1997 15:00	2675	2675	ANCO 2000	63.0	1.25	0.0	61	44	36	28			11	9	50.0	17.0	13.5	4.5	10.0
10-jun-1997 15:00	2722	2721	ANCO 2000	64.0	1.25	0.0	61	44	36	28			11	9	50.0	17.0	13.5	5.0	10.0
11-jun-1997 22:00	2770	2769	ANCO 2000	66.0	1.25	0.0	61	44	36	27			11	9	50.0	17.0	14.0	5.0	10.0
12-jun-1997 20:15	2950	2949	ANCO 2000	60.0	1.25	0.0	59	43	37	29			11	9	50.0	16.0	14.0	5.0	10.0
13-jun-1997 20:50	2950	2949	ANCO 2000	63.0	1.25	0.0	60	44	37	29			11	9	50.0	16.0	14.0	5.0	10.0
14-jun-1997 21:00	2950	2949	ANCO 2000	64.0	1.25	0.0	60	44	37	29			11	9	50.0	16.0	14.0	5.0	10.0
15-jun-1997 21:00	2950	2949	ANCO 2000	64.0	1.25	0.0	60	44	37	29			11	9	50.0	16.0	14.0	5.0	10.0
16-jun-1997 21:00	2950	2949	ANCO 2000	64.0	1.25	0.0	60	44	37	29			11	9	50.0	16.0	14.0	5.0	10.0
17-jun-1997 22:00	2950	2949	ANCO 2000	67.0	1.25	0.0	59	44	37	28			10	9	50.0	15.0	15.0	5.0	10.0
18-jun-1997 20:30	2950	2949	ANCO 2000	78.0	1.25	0.0	63	46	38	29			10	9	50.0	17.0	15.0	5.0	10.0
19-jun-1997 21:00	2950	2949	ANCO 2000	81.0	1.26	0.0									50.0	16.0	15.0	5.0	9.0

See also the report 'DAILY MUD PROPERTIES : OTHER PARAMETERS'

Norsk Hydro

DAILY MUD PROPERTIES : RHEOLOGY PARAMETERS FOR WELL 35/11-10

Hole section: 8 1/2" WATER BASED SYSTEM

Date	Depth [m] MD	Depth [m] TVD	Mud Type	Funnel Visc [sec]	Dens [sg]	Mudtmp Out [DegC]	Fann Readings 600	300	200	100	60	30	6	3	Rheo Test [DegC]	PV [mPas]	YP [Pa]	Gel0 [Pa]	Gel10 [Pa]
20-jun-1997 21:30	2950	2949	ANCO 2000	81.0	1.26	0.0	60	45	38	29			11	10	50.0	15.0	15.0	5.0	9.0
21-jun-1997 21:30	2950	2949	ANCO 2000	67.0	1.26	0.0	60	45	38	29			11	10	50.0	15.0	15.0	5.0	9.0
22-jun-1997 21:30	1888	1888	ANCO 2000	70.0	1.26	0.0	63	47	39	30			12	10	50.0	16.0	16.0	5.0	10.0

See also the report 'DAILY MUD PROPERTIES : OTHER PARAMETERS'

DAILY MUD PROPERTIES : OTHER PARAMETERS FOR WELL 35/11-10

Hole section: WATER BASED SYSTEM

Date	Depth [m] MD	Depth [m] TVD	Mud Type	Dens [sg]	Filtrate API [ml]	Filtrate HPHT [ml]	Filt.cake API [mm]	Filt.cake HPHT [mm]	HPHT Press/Temp [psi/DegC]	pH	Alcalinity Pm [ml]	Alcalinity Pf [ml]	Alcalinity Mf [ml]	Inhib Chem [Kg/m3]	K+ [mg/l]	CL- [mg/l]	Ca++ [mg/l]	Mg++ [mg/l]	Tot hard [mg]	Percentage Solid [%]	Percentage Oil [%]	Percentage Sand [%]	CEC [Kg/m3]	ASG [sg]	LGS [Kg/m3]
17-may-1997 23:00	0	0	SPUD MUD	1.05	0.0	0.0	0	0	0/0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0.0	0.0	0.0	0	0.0	0

Hole section: 36" WATER BASED SYSTEM

Date	Depth [m] MD	Depth [m] TVD	Mud Type	Dens [sg]	Filtrate API [ml]	Filtrate HPHT [ml]	Filt.cake API [mm]	Filt.cake HPHT [mm]	HPHT Press/Temp [psi/DegC]	pH	Alcalinity Pm [ml]	Alcalinity Pf [ml]	Alcalinity Mf [ml]	Inhib Chem [Kg/m3]	K+ [mg/l]	CL- [mg/l]	Ca++ [mg/l]	Mg++ [mg/l]	Tot hard [mg]	Percentage Solid [%]	Percentage Oil [%]	Percentage Sand [%]	CEC [Kg/m3]	ASG [sg]	LGS [Kg/m3]
18-may-1997 22:00	0	0	SPUD MUD	1.05	0.0	0.0	0	0	0/0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0.0	0.0	0.0	0	0.0	0
19-may-1997 22:00	0	0	SPUD MUD	1.05	0.0	0.0	0	0	0/0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0.0	0.0	0.0	0	0.0	0
20-may-1997 22:00	0	0	SPUD MUD	1.05	0.0	0.0	0	0	0/0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0.0	0.0	0.0	0	0.0	0
21-may-1997 22:00	0	0	SPUD MUD	1.05	0.0	0.0	0	0	0/0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0.0	0.0	0.0	0	0.0	0

Hole section: 17 1/2" WATER BASED SYSTEM

Date	Depth [m] MD	Depth [m] TVD	Mud Type	Dens [sg]	Filtrate API [ml]	Filtrate HPHT [ml]	Filt.cake API [mm]	Filt.cake HPHT [mm]	HPHT Press/Temp [psi/DegC]	pH	Alcalinity Pm [ml]	Alcalinity Pf [ml]	Alcalinity Mf [ml]	Inhib Chem [Kg/m3]	K+ [mg/l]	CL- [mg/l]	Ca++ [mg/l]	Mg++ [mg/l]	Tot hard [mg]	Percentage Solid [%]	Percentage Oil [%]	Percentage Sand [%]	CEC [Kg/m3]	ASG [sg]	LGS [Kg/m3]
22-may-1997 22:00	0	0	SPUD MUD	1.05	0.0	0.0	0	0	0/0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0.0	0.0	0.0	0	0.0	0
23-may-1997 22:00	0	0	SPUD MUD	1.05	0.0	0.0	0	0	0/0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0.0	0.0	0.0	0	0.0	0
24-may-1997 22:00	0	0	SPUD MUD	1.05	0.0	0.0	0	0	0/0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0.0	0.0	0.0	0	0.0	0
25-may-1997 22:00	0	0	SPUD MUD	1.05	0.0	0.0	0	0	0/0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0.0	0.0	0.0	0	0.0	0
26-may-1997 22:00	0	0	SPUD MUD	1.05	0.0	0.0	0	0	0/0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0.0	0.0	0.0	0	0.0	0
27-may-1997 22:00	0	0	SPUD MUD	1.05	0.0	0.0	0	0	0/0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0.0	0.0	0.0	0	0.0	0
28-may-1997 21:30	1152	1152	ANCO 2000	1.25	3.0	0.0	0	0	0/0	8.0	0.0	0.1	0.7	144	75500	59000	280	0	460	10.5	0.0	0.0	0	0.0	1

Hole section: 12 1/4" WATER BASED SYSTEM

Date	Depth [m] MD	Depth [m] TVD	Mud Type	Dens [sg]	Filtrate API [ml]	Filtrate HPHT [ml]	Filt.cake API [mm]	Filt.cake HPHT [mm]	HPHT Press/Temp [psi/DegC]	pH	Alcalinity Pm [ml]	Alcalinity Pf [ml]	Alcalinity Mf [ml]	Inhib Chem [Kg/m3]	K+ [mg/l]	CL- [mg/l]	Ca++ [mg/l]	Mg++ [mg/l]	Tot hard [mg]	Percentage Solid [%]	Percentage Oil [%]	Percentage Sand [%]	CEC [Kg/m3]	ASG [sg]	LGS [Kg/m3]
29-may-1997 23:00	1191	1191	ANCO 2000	1.25	2.6	0.0	0	0	0/0	9.0	0.0	0.2	0.9	144	75500	66000	480	0	700	10.0	0.0	0.0	0	0.0	11
30-may-1997 23:00	1906	1906	ANCO 2000	1.25	2.5	0.0	0	0	0/0	8.0	0.0	0.1	0.4	144	75500	67000	300	0	400	11.5	0.0	0.2	0	0.0	36

Hole section: 8 1/2" WATER BASED SYSTEM

Date	Depth [m] MD	Depth [m] TVD	Mud Type	Dens [sg]	Filtrate API [ml]	Filtrate HPHT [ml]	Filt.cake API [mm]	Filt.cake HPHT [mm]	HPHT Press/Temp [psi/DegC]	pH	Alcalinity Pm [ml]	Alcalinity Pf [ml]	Alcalinity Mf [ml]	Inhib Chem [Kg/m3]	K+ [mg/l]	CL- [mg/l]	Ca++ [mg/l]	Mg++ [mg/l]	Tot hard [mg]	Percentage Solid [%]	Percentage Oil [%]	Percentage Sand [%]	CEC [Kg/m3]	ASG [sg]	LGS [Kg/m3]
31-may-1997 18:30	1975	1975	ANCO 2000	1.25	2.6	0.0	0	0	0/0	8.0	0.0	0.1	0.4	146	76600	68000	280	0	380	11.5	0.0	0.2	0	0.0	33
01-jun-1997 23:30	2008	2008	ANCO 2000	1.26	2.5	0.0	0	0	0/0	8.0	0.0	0.1	0.5	146	76600	67000	320	0	420	12.0	0.0	0.2	0	0.0	46
02-jun-1997 18:15	2078	2078	ANCO 2000	1.26	2.5	0.0	0	0	0/0	8.0	0.0	0.1	0.4	146	76600	67000	320	0	400	12.0	0.0	0.2	0	0.0	46
03-jun-1997 18:15	2078	2078	ANCO 2000	1.26	2.5	0.0	0	0	0/0	8.0	0.0	0.1	0.4	146	76600	67000	320	0	400	12.0	0.0	0.2	0	0.0	46
04-jun-1997 20:00	2267	2267	ANCO 2000	1.26	2.5	0.0	0	0	0/0	8.0	0.0	0.1	0.4	146	76600	67000	320	0	440	12.1	0.0	0.2	0	0.0	68

See also the report 'DAILY MUD PROPERTIES : RHEOLOGY PARAMETERS'

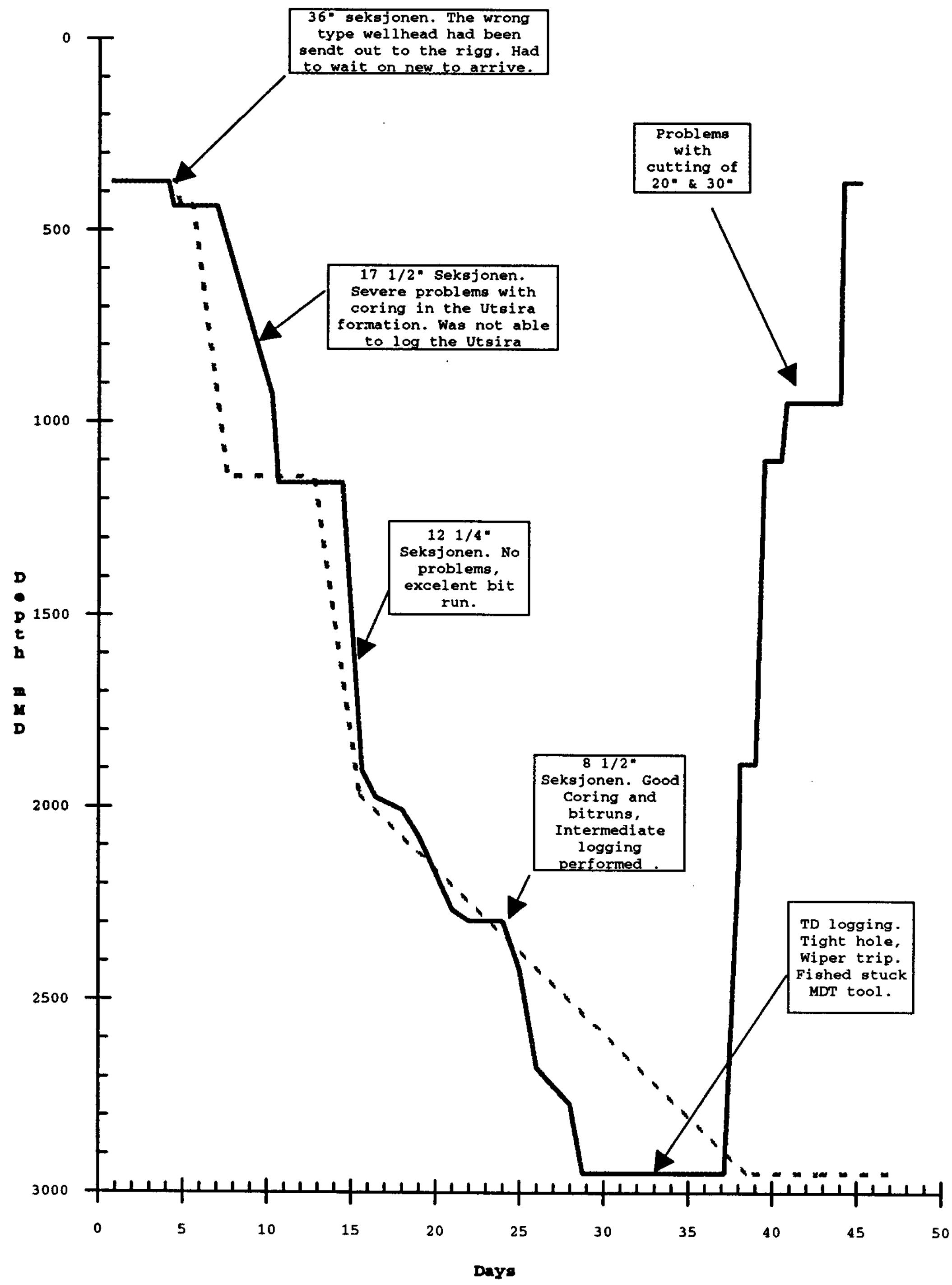
DAILY MUD PROPERTIES : OTHER PARAMETERS FOR WELL 35/11-10

Hole section: 8 1/2"

WATER BASED SYSTEM

Date	Depth [m] MD	Depth [m] TVD	Mud Type	Dens [sg]	Filtrate API [ml]	Filtrate HPHT [ml]	Filt.cake API [mm]	Filt.cake HPHT [mm]	HPHT Press/Temp [psi/DegC]	pH	Alcalinity Pm [ml]	Alcalinity Pf [ml]	Alcalinity Mf [ml]	Inhib Chem [Kg/m3]	K+ [mg/l]	CL- [mg/l]	Ca++ [mg/l]	Mg++ [mg/l]	Tot hard [mg]	Percentage Solid [%]	Percentage Oil [%]	Percentage Sand [%]	CEC [Kg/m3]	ASG [sg]	LGS [Kg/m3]
05-jun-1997 21:00	2268	2268	ANCO 2000	1.25	2.5	0.0	0	0	0/0	8.0	0.0	0.1	0.4	145	76000	68000	320	0	440	12.1	0.0	0.3	0	0.0	65
06-jun-1997 22:00	2268	2268	ANCO 2000	1.25	2.5	0.0	0	0	0/0	8.0	0.0	0.1	0.4	145	76000	67000	340	0	420	12.1	0.0	0.3	0	0.0	68
07-jun-1997 19:00	2296	2296	ANCO 2000	1.25	2.5	0.0	0	0	0/0	8.0	0.0	0.0	0.5	150	78700	68000	380	0	440	12.2	0.0	0.3	12	0.0	71
08-jun-1997 21:15	2362	2362	ANCO 2000	1.25	2.5	0.0	0	0	0/0	8.0	0.0	0.0	0.5	152	79700	69000	380	0	440	12.3	0.0	0.3	14	0.0	74
09-jun-1997 15:00	2675	2675	ANCO 2000	1.25	2.5	0.0	0	0	0/0	8.0	0.0	0.0	0.5	130	68200	70000	380	0	480	12.3	0.0	0.3	12	0.0	71
10-jun-1997 15:00	2722	2721	ANCO 2000	1.25	2.5	0.0	0	0	0/0	8.0	0.0	0.0	0.5	135	70800	70000	380	0	480	12.3	0.0	0.3	13	0.0	71
11-jun-1997 22:00	2770	2769	ANCO 2000	1.25	2.4	0.0	0	0	0/0	8.0	0.0	0.0	0.5	135	70800	70000	360	0	440	12.3	0.0	0.3	13	0.0	71
12-jun-1997 20:15	2950	2949	ANCO 2000	1.25	2.6	0.0	0	0	0/0	8.0	0.0	0.0	0.5	135	68200	70000	380	0	460	12.6	0.0	0.3	14	0.0	87
13-jun-1997 20:50	2950	2949	ANCO 2000	1.25	2.6	0.0	0	0	0/0	8.0	0.0	0.0	0.5	135	68200	70000	380	0	460	12.5	0.0	0.3	14	0.0	82
14-jun-1997 21:00	2950	2949	ANCO 2000	1.25	2.5	0.0	0	0	0/0	8.0	0.0	0.0	0.5	135	70800	70000	380	0	480	12.5	0.0	0.3	14	0.0	82
15-jun-1997 21:00	2950	2949	ANCO 2000	1.25	2.5	0.0	0	0	0/0	8.0	0.0	0.0	0.5	135	70800	70000	380	0	480	12.5	0.0	0.3	14	0.0	82
16-jun-1997 21:00	2950	2949	ANCO 2000	1.25	2.5	0.0	0	0	0/0	8.0	0.0	0.0	0.5	135	70800	70000	380	0	480	12.5	0.0	0.3	14	0.0	82
17-jun-1997 22:00	2950	2949	ANCO 2000	1.25	2.5	0.0	0	0	0/0	8.0	0.0	0.0	0.5	135	70800	70000	380	0	480	12.5	0.0	0.3	15	0.0	82
18-jun-1997 20:30	2950	2949	ANCO 2000	1.25	2.6	0.0	0	0	0/0	8.0	0.0	0.0	0.5	135	70800	71000	380	0	460	13.5	0.0	0.3	14	0.0	137
19-jun-1997 21:00	2950	2949	ANCO 2000	1.26	2.5	0.0	0	0	0/0	8.0	0.0	0.0	0.6	140	70800	71000	380	0	460	13.5	0.0	0.3	14	0.0	117
20-jun-1997 21:30	2950	2949	ANCO 2000	1.26	2.6	0.0	0	0	0/0	8.0	0.0	0.0	0.6	140	73400	71000	380	0	480	13.5	0.0	0.2	14	0.0	117
21-jun-1997 21:30	2950	2949	ANCO 2000	1.26	2.6	0.0	0	0	0/0	8.1	0.0	0.0	0.6	140	73400	70500	420	0	500	13.5	0.0	0.2	14	0.0	119
22-jun-1997 21:30	1888	1888	ANCO 2000	1.26	2.8	0.0	0	0	0/0	8.5	0.0	0.0	0.6	140	73400	70500	640	0	760	13.5	0.0	0.2	14	0.0	119

See also the report 'DAILY MUD PROPERTIES : RHEOLOGY PARAMETERS'



Well 35/11-10	Drilling Curve	

EDOK 35/11-10

Completion log

Scale: 1:500

Well: 35/11-10

HYDRO

Location map

FRAM

35/11-10

Country:	Norway
Licence:	PL090
Owners:	Norsk Hydro, Statoil, Mobil
Field:	Fram
Date Spudded:	19.05.97
Reached Total Depth:	12.06.97
Completed:	15.07.97
Well Status:	Oil and Gas discovery Permanently plugged and abandoned
Rig:	West Vanguard
Contractor:	Smedvig
Mudlogging Company:	Baker Hughes Inteq.
Geologists:	S.Eriksson, B.Kjellin, P.Anderson, A.Knape, R.Nyby, T.Watts
Prepared by:	R.Nyby
Controlled by:	Aggerholm
Date:	December 1997

Coordinates: N 61° 01' 10.54" E 03° 31' 26.29" UTM: 6 765 243.5 mN 528 323.1 mE ED 50, Zone 31, CM 3°E

Elevation K.B: 22 m

Water Depth: 353.5 m MSL

Total Depth (Driller): 2950 m RkB

Total Depth (Logger): 2941m RkB

Formation at Total Depth: Sandstone, Cook Fm

Casing Records:

30" at 436m

13 3/8" at 1152 m

Comments:

8 1/2" hole from 1906 m

Logs Run

2A: DLL/MSFL/DSI/LDL/CNL/NGT/SP/AMS 2941-2325m 2B: DLL/MSFL/LDL/CNL/NGT/SP/AMS 2940-1046m	1A: MDT/GR/AMS 1972-2026.5m 1B: MDT/GR/AMS 2028-2113m 1C: MDT/GR/AMS 1996.5-2036m 2D: MDT/GR/AMS 2036-2870.5m 2E: MDT/GR/AMS 2346-2305m	2A: FMI/DSI/GR/AMS 2932-1139 m	2A: VSP/GR 2920-450 m

Legend

Conglomerate · Shale · Chalk · Anhydrite · Sandy very / Sandy / Sandy slightly · Carbonaceous mat. · Sand / Sandstone · Limestone · Marl / Marlstone · Salt · Silty very / Silty / Silty slightly · Chert · Glauconite · Silt/Siltstone · Dolomite · Coal / Lignite · Gypsum · Argillaceous · Mica · Pyrite · Clay/Claystone · Dolomitic limestone · Glauconite · Tuff · Dolomite stringer · Macrofossils · Macrofossils frag. · Microfossils · Shale · Calcareous dolomite · Igneous extr / intr · Limestone stringer

Hydrocarbon Shows: Oil stain · Fluorescence · Visible cut · Fluorescence cut · Gas shows

Casing Shoe · Deviation · Two way time from velocity survey (depth m K.B.) 1732m 1.740 mSec

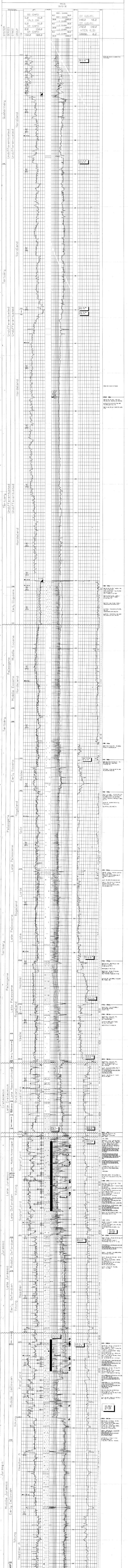
Core Interval · Side Wall Core → (No recovery) →

Perforated Interval · Cement Plug Interval

DST · Trough casing · Open hole · Re-run · RFT / FIT

99135

35/11-10



INTERPRETATION RESULTS

DRILLING RESULTS

35/11-10

LEGEND:

Correlation of seismic event with log event (Seismic pick in site survey report)

Revised seismic pick (Based on log results)

COORDINATES:
Geographic:
61°01' 10.54" N – 3° 31' 26.29" E
UTM:
6765 243.5 mN – 520 323.1 mE
ED50, Zone 31 (CM 3° E).

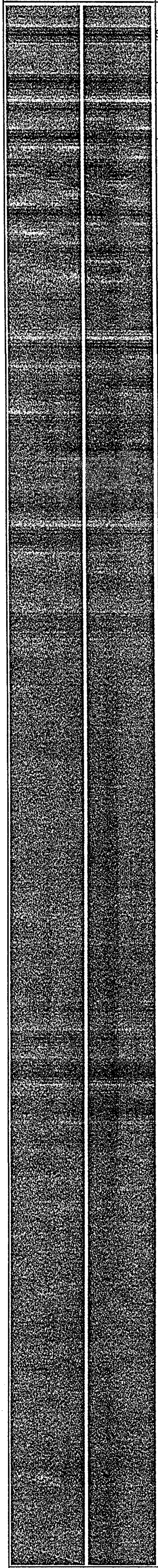
RIG: WEST VANGUARD — RKB: 22 m
SPUD DATE: 19.05.97
COMPLETION DATE: 15.07.97

LEGEND:
- Clay/claystone
- Silt/Siltstone
- Sand/sandstone
- Limestone
- Cement plug

Seismic

Seismic source: 4x40 cu.in sleeve airgun
Sample rate: 1.0 ms
Streamer: 1200 m96 ch6.25m, 6.25m
Line MG90 – 813AD

Well location 35/11-10



Prognosis

Reflectors	TWT (ms)	Int. vel	TVD Depth (m RKB)
Seabed	480		375.5
R1	510	1600	399
R3	551	1854	437
R4	611	1946	495
R4b	648		531
R5	660	2000	543
R6	691	2144	577
R7	840	1905	736
R8	861	2000	756
R9	877		772
R10	1003	1920	893
R11	1144		1028

Anomaly: No Shallow Gas Expected at Location

Correlation

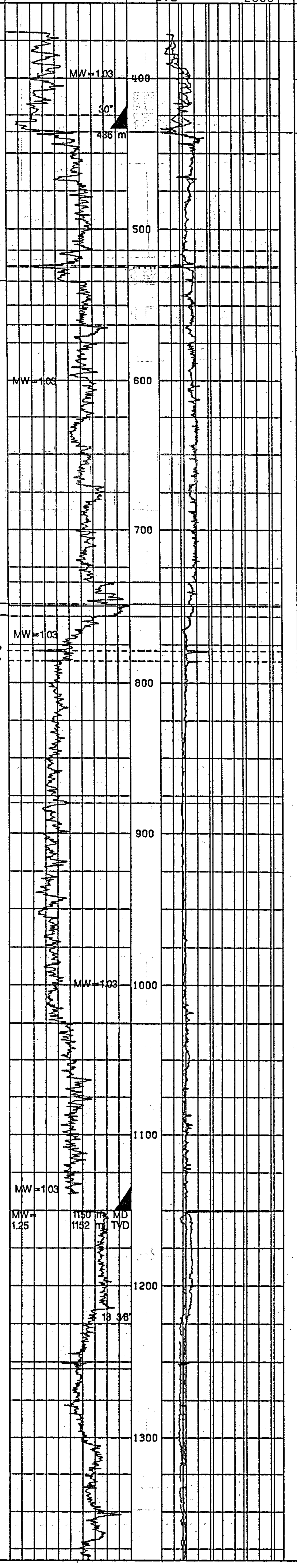
Stratigraphy (System / Series / Group / Formation / Informal Unit)

QUATERNARY – PLEISTOCENE – NORDLAND
TERTIARY – PLIOCENE
TERTIARY – OLIGOCENE – HORDALAND

Gamma — GR 0–150

Sonic Resistivity — RT 0.2–2000

TVD RKB



Shallow Gas

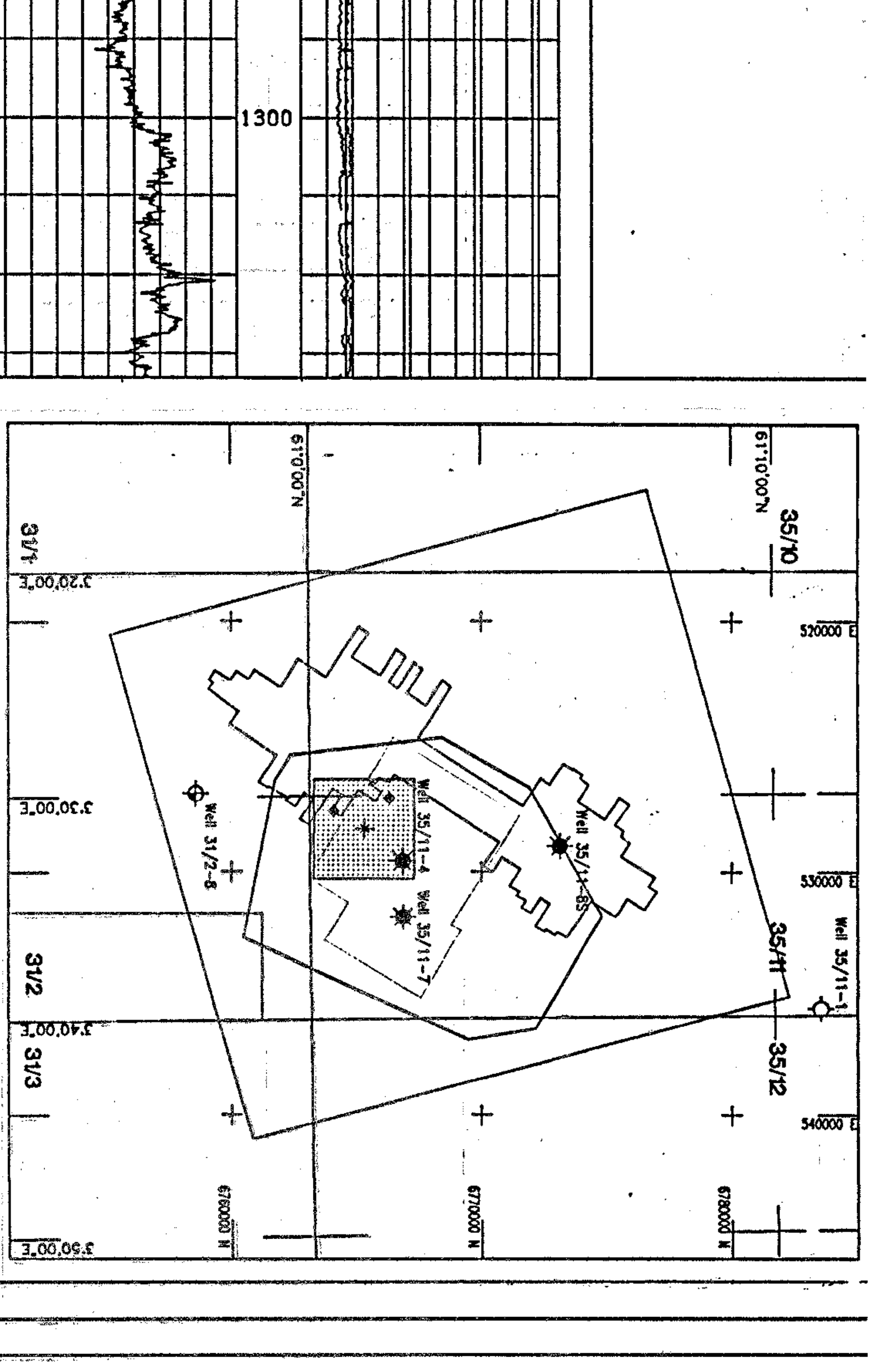
Results

Drilled with returns to seabed to 1151 m RKB.

RKB (TWT)

NB: Logging started above seabed.

375 m (480 ms)
400 m (510 ms)
435 m (553 ms)
515 m (615 ms)
524 m (651 ms)
536 m (658 ms)
564 m (698 ms)
734 m (848 ms)
749 m (859 ms)
756 m (873 ms)
778 m (890 ms)
784 m (896 ms)
880 m (992 ms)
1025 m (1132 ms)



LEGEND
Planned Well 35/11-10
Relief well locations
Existing well location — Well 35/11-4
1986 Survey Area
3D Exploration Coverage
1995 Survey Area
1993 Site Survey Area
Coverage of previous Site Survey data (1990/1992)

NOTES
1. Planned Well: 35/11-10 — 61° 01' 10.65" N, 03° 31' 26.45" E — 6 765 243.1 m N, 520 323.4 m E
2. Relief Well SSW (R1) — 61° 00' 31.30" N, 03° 30' 38.70" E — 6 764 024.1 m N, 527 618.7 m E
3. Relief Well NW (R2) — 61° 01' 43.30" N, 03° 30' 05.60" E — 6 766 247.7 m N, 527 103.2 m E

GEODETIC NOTES
Universal Transverse Mercator Projection
Central Meridian 3° East
International Spheroid, European Datum (ED50)
At 35/11-10: Scale Factor 0.99960
Convergence 00° 27' 30.25"
Magnetic variation 4.7° (Jan 1990) decreasing 0.6° annually

NOTES:
The given stratigraphy is based on seismic correlation to other wells as no datings or cuttings are available from the investigated interval in Well 35/11-10

HYDRO

Marine Surveys Section — Exploration and Production Division

Drawing title:
Post site survey for well 35/11-10
Comparison between predicted lithology, stratigraphy, shallowgas and obtained drilling results

Interpreted by	Drawn by	Checked by	Date	File no.	Scale	Rev.
FSS	FSSKB	ESARN	27.11.1997	351110.etr	1:2000	0

File name: j:\fram\log\351110.etr

j:\fram\log\351110.etr Dec. 02, 1997 08:49:14